Typhoid Fever

A Medical Dictionary, Bibliography,
and Annotated Research Guide to
Internet References

James N. Parker, M.D.
and Philip M. Parker, Ph.D., Editors

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FORWARD

In March 2001, the National Institutes of Health issued the following warning: "The number of Web sites offering health-related resources grows every day. Many sites provide valuable information, while others may have information that is unreliable or misleading."[1] Furthermore, because of the rapid increase in Internet-based information, many hours can be wasted searching, selecting, and printing. Since only the smallest fraction of information dealing with typhoid fever is indexed in search engines, such as **www.google.com** or others, a non-systematic approach to Internet research can be not only time consuming, but also incomplete. This book was created for medical professionals, students, and members of the general public who want to know as much as possible about typhoid fever, using the most advanced research tools available and spending the least amount of time doing so.

In addition to offering a structured and comprehensive bibliography, the pages that follow will tell you where and how to find reliable information covering virtually all topics related to typhoid fever, from the essentials to the most advanced areas of research. Public, academic, government, and peer-reviewed research studies are emphasized. Various abstracts are reproduced to give you some of the latest official information available to date on typhoid fever. Abundant guidance is given on how to obtain free-of-charge primary research results via the Internet. **While this book focuses on the field of medicine, when some sources provide access to non-medical information relating to typhoid fever, these are noted in the text.**

E-book and electronic versions of this book are fully interactive with each of the Internet sites mentioned (clicking on a hyperlink automatically opens your browser to the site indicated). If you are using the hard copy version of this book, you can access a cited Web site by typing the provided Web address directly into your Internet browser. You may find it useful to refer to synonyms or related terms when accessing these Internet databases. **NOTE:** At the time of publication, the Web addresses were functional. However, some links may fail due to URL address changes, which is a common occurrence on the Internet.

For readers unfamiliar with the Internet, detailed instructions are offered on how to access electronic resources. For readers unfamiliar with medical terminology, a comprehensive glossary is provided. For readers without access to Internet resources, a directory of medical libraries, that have or can locate references cited here, is given. We hope these resources will prove useful to the widest possible audience seeking information on typhoid fever.

The Editors

[1] From the NIH, National Cancer Institute (NCI): **http://www.cancer.gov/cancerinfo/ten-things-to-know**.

CHAPTER 1. STUDIES ON TYPHOID FEVER

Overview

In this chapter, we will show you how to locate peer-reviewed references and studies on typhoid fever.

The Combined Health Information Database

The Combined Health Information Database summarizes studies across numerous federal agencies. To limit your investigation to research studies and typhoid fever, you will need to use the advanced search options. First, go to **http://chid.nih.gov/index.html**. From there, select the "Detailed Search" option (or go directly to that page with the following hyperlink: **http://chid.nih.gov/detail/detail.html**). The trick in extracting studies is found in the drop boxes at the bottom of the search page where "You may refine your search by." Select the dates and language you prefer, and the format option "Journal Article." At the top of the search form, select the number of records you would like to see (we recommend 100) and check the box to display "whole records." We recommend that you type "typhoid fever" (or synonyms) into the "For these words:" box. Consider using the option "anywhere in record" to make your search as broad as possible. If you want to limit the search to only a particular field, such as the title of the journal, then select this option in the "Search in these fields" drop box. The following is what you can expect from this type of search:

- **Treatment of Gastrointestinal Infections**

  Source: Current Opinion in Gastroenterology. 15(1): 90-94. January 1999.

  Contact: Available from Lippincott Williams and Wilkins Publishers. 12107 Insurance Way, Hagerstown, MD 21740. (800) 637-3030. Fax (301) 824-7390.

  Summary: This article reviews recent advances in the treatment of gastrointestinal infections. The authors note that the past year has seen the continuing spread of antimicrobial drug resistance in important gastrointestinal pathogens. **Typhoid fever** seen in the U.S. was multidrug resistant, but still susceptible to quinolones. The mechanism of quinolone resistant typhoid in Vietnam was better elucidated. Treatment failures in enterocateriaceae treated with quinolones suggest that the minimum inhibitory concentration breakpoint for resistance should be lowered. Evidence is

mounting that ciprofloxacin and ofloxacin may be safely used to treat serious infections in children. Cefixime showed some promise in treating shigellosis in an open label trial. Decreased gastric acid secretion was associated with cholera but not dysentery. Phase 1 trials of vaccines for cholera and enterotoxigenic Escherichia coli showed promise. The antifungal drug, clotrimazole, demonstrated the ability to inhibit secretory diarrhea in laboratory studies, while nitazoxanide demonstrated efficacy in both protozoan and helminthic infections in humans, including fascioliasis. 17 references (6 annotated).

Federally Funded Research on Typhoid Fever

The U.S. Government supports a variety of research studies relating to typhoid fever. These studies are tracked by the Office of Extramural Research at the National Institutes of Health.[2] CRISP (Computerized Retrieval of Information on Scientific Projects) is a searchable database of federally funded biomedical research projects conducted at universities, hospitals, and other institutions.

Search the CRISP Web site at **http://crisp.cit.nih.gov/crisp/crisp_query.generate_screen**. You will have the option to perform targeted searches by various criteria, including geography, date, and topics related to typhoid fever.

For most of the studies, the agencies reporting into CRISP provide summaries or abstracts. As opposed to clinical trial research using patients, many federally funded studies use animals or simulated models to explore typhoid fever. The following is typical of the type of information found when searching the CRISP database for typhoid fever:

- **Project Title: ANALYSIS OF SALMONELLA TYPHIMURIUM FIMBRIAL ANTIGENS**

  Principal Investigator & Institution: Baumler, Andreas J.; Associate Professor; Medical Microbiol & Immunology; Texas A&M University Health Science Ctr College Station, Tx 778433578

  Timing: Fiscal Year 2002; Project Start 01-MAY-1997; Project End 30-APR-2007

  Summary: (Adapted from the Applicant's Abstract): Salmonella serotypes are the leading cause of food-borne infections with lethal outcome in the United States. The role of fimbrial adhesins in colonizing intestinal surfaces has not been intensively studied in Salmonella, but likely represents an important first step during infection. Our long-range goal is to understand the role of fimbrial adhesins in Salmonella pathogenesis. The objectives of this application are to determine the effect of fimbrial phase variation on bacterial populations (in vitro and in vivo) and to define the contribution of these phase variable antigens to virulence using the mouse typhoid and bovine enterocolitis models. Our central hypothesis is that phase variation is an immune evasion mechanism of a group of functionally related fimbrial antigens that act in concert during intestinal colonization by S. typhimurium. This hypothesis has been formulated based on strong preliminary data, which suggest that (i) fimbriae elicit an adaptive immune response that can be evaded by phase variation, (ii) the S. typhimurium genome contains a large number of fimbrial operons that are regulated by phase variation, and (iii) simultaneous

[2] Healthcare projects are funded by the National Institutes of Health (NIH), Substance Abuse and Mental Health Services (SAMHSA), Health Resources and Services Administration (HRSA), Food and Drug Administration (FDA), Centers for Disease Control and Prevention (CDCP), Agency for Healthcare Research and Quality (AHRQ), and Office of Assistant Secretary of Health (OASH).

inactivation of multiple fimbrial operons has a synergistic effect on virulence. The rationale for the proposed research is that a better understanding of factors involved in intestinal adherence will likely provide new insights into mechanisms of tissue tropism, host range and disease caused by S. typhimurium that are required for new and innovative approaches to prevention and treatment. We plan to test different aspects of our hypothesis by pursuing the following four specific aims: (1) Determine the consequences of fimbrial phase variation on the heterogeneity of a S. typhimurium culture; (2) Determine the serological response to fimbrial subunits; (3) Determine the effect of an immune response elicited by vaccination with fimbrial subunits on S. typhimurium virulence; (4) Determine the role of fimbrial operons during intestinal colonization. It is our expectation that our approach will establish that fimbrial adhesins are components of a complex virulence factor required for intestinal colonization. This outcome will be significant since it will establish a new paradigm in Salmonella pathogenesis. The research will be of additional significance since it will shed light on the role of adherence in the pathogenesis of enterocolitis, a disease syndrome that is common in the US but only poorly understood because most investigators rely on a **typhoid fever** model to study virulence mechanisms.

Website: http://crisp.cit.nih.gov/crisp/Crisp_Query.Generate_Screen

- **Project Title: BACTERIAL PATHOGEN AMPLIFICATION & REAL-TIME DETECTION**

  Principal Investigator & Institution: U'ren, Jack R.; Director of Research; Saigene Corporation 7126 180Th Ave Ne, Ste C-104 Redmond, Wa 98052

  Timing: Fiscal Year 2003; Project Start 01-MAY-2003; Project End 30-NOV-2003

  Summary: (provided by applicant): As we all know, bio-terrorism in America is a reality. However in addition to the Category A agents like anthrax, Yersinia pestis and smallpox, which are difficult to safely grow and disseminate, exist the Category B agents that could be used to infect our food or water supply. These organisms include bacterial pathogens, protozoa, and viruses. In addition to these natural pathogenic organisms they could also be genetically engineered to increase their virulence or to resist standard antibiotic treatments. Therefore new methods for rapid sensitive food and waterborne pathogen detection are greatly needed, especially if they can also be used to identify drug sensitivity within these organisms. Bio-terrorism using a food pathogen is not just a hypothetical threat to America. A religious cult in Dalles Oregon sickened at least 751 people by contaminating food in grocery stores and restaurants in the fall of 1984. The group simply grew cultures of the food pathogen Salmonella typhimurium that they obtained from their local scientific supply house and sprinkled the cultures on produce in the grocery stores and the restaurant salad bars. If the group had used a more deadly pathogen like Salmonella typhi that causes **typhoid fever** many people would certainly have died. The overall goal of this program is to develop an integrated isothermal DNA amplification and a probe array detection slide capable of rapidly identifying a variety of food and waterborne pathogens. All of the NIAID Biodefense Category B food and waterborne bacterial pathogens E. coli, Vibrio cholera, Shigella dysentery, Salmonella species, Listeria monocytogenes, Camphylobacter jejuni, and Yersinia enterocolitica will be detected in this program. A single integrated slide capable of isothermal amplifying and detecting all of these organisms in real-time in a closed sealed device is proposed. The program can also distinguish live organisms from dead organisms killed by the food or water sanitation process. Also, the test can be used to identify the antibiotic sensitivity of the pathogen to identify genetically altered organisms.

  Website: http://crisp.cit.nih.gov/crisp/Crisp_Query.Generate_Screen

- **Project Title: COUPLING GENE EXPRESSION TO FLAGELLAR MORPHOGENESIS**

  Principal Investigator & Institution: Hughes, Kelly T.; Professor; Microbiology; University of Washington Grant & Contract Services Seattle, Wa 98105

  Timing: Fiscal Year 2002; Project Start 01-AUG-1998; Project End 31-AUG-2006

  Summary: (provided by applicant): Salmonella pathogens infect over a billion people each year worldwide resulting in 3 million deaths annually from septicemia, mostly in HIV-infected patients and 700,000 from **typhoid fever** (W.H.O. estimates). It is one of many gram-negative plant and animal pathogens that have evolved specialized secretion systems, termed Type III Secretion System (TTSS), to facilitate the ordered delivery of virulence effector proteins. The pathogenic TTSSs evolved from the flagellar TTSS, which ensures the efficient and ordered assembly of the bacterial flagellum. The virulence systems have maintained the ordered delivery mechanism of the TTSS to ensure that individual virulence determinants are secreted at the appropriate stage of the infection process. The flagellum has served as a well-characterized model system, to understand how regulatory mechanisms can control the assembly of large structures, and to understand how the TTSS can differentially select substrates for secretion at the appropriate stage of the infection process. We will continue a detailed investigation of the regulation of gene expression in response to assembly of the flagellum. We have previously shown that one critical regulatory mechanism involves a regulatory protein FlgM, which is held inside the cell prior to completion of the intermediate hook-basal body structure. Upon hook-basal body completion, FlgM escapes from the cell and thus can no longer act. We will determine the signals that provide the temporal order and specificity for the secretion process. Specific mechanisms to be investigated are the dual roles for Type III Secretion Chaperones (TTSC) in assembly and gene regulation, the process of localized translation of secretion substrates at the cytoplasmic base of the flagellum and the role of the membrane-anchored translation initiation factor, Flk, in this process. This includes the roles of the FlgN and FliT chaperones in coupling transcription and translation to assembly. FlgN, a TTSC for hook-filament junction proteins, serves as a translational regulator of specific transcripts in response to assembly, while FliT, a TTSC for the filament cap, inhibits transcription of HBB genes in response to assembly. Finally, we will develop the flagellar regulatory and assembly system as a model bioinformatic system complete with feedback loops for modulating gene expression in response to clues from intermediate assembly stages. This includes a characterization of the roles of the flagellar specific alternative sigma factor, sigma-28, and its antagonist (FIgM) in this process. Because the TTSS is a target for vaccine development against gram-negative pathogens, understanding the process of assembly, secretion and regulation will aid in the development of such vaccines.

  Website: http://crisp.cit.nih.gov/crisp/Crisp_Query.Generate_Screen

- **Project Title: DISCOVERY OF SALMONELLA SIGNATURE SNPS BY MICROARRAYS.**

  Principal Investigator & Institution: Sparks, Andrew B.; Perlegen Sciences, Inc. 2021 Stierlin Ct Mountain View, Ca 94043

  Timing: Fiscal Year 2003; Project Start 04-AUG-2003; Project End 31-JUL-2004

  Summary: (provided by applicant): To meet the challenge of bio-terrorism, pathogen genome sequencing with a view to the development of new reagents and applications is a high priority of NIAID. Salmonella is a NIAID Category B pathogen. Worldwide, Salmonella typhi is responsible for 16 million cases of **typhoid fever** and 600,000 deaths

annually. Previous Samonella outbreaks in the United States have resulted from the deliberate anthropogenic introduction of Salmonella typhi to cause **typhoid fever** and Salmonella typhimurium to cause gastroenteritis. The goal of this research is to identify polymorphic loci in Salmonella to enable rapid and accurate identification of Salmonella subspecies and strains. To this end, we will use high-density oligonucleotide microarray (HDOMA) technology to re-sequence the genomes (and associated plasmids) of 44 representative strains of Salmonella, including 15 strains of S. typhi, 15 strains of S. typhimurium, two strains each of S. enterica subspecies II, IIIa, IIIb, IV, VI, and VII, and two strains of S. bongori. We will then develop and employ a Salmonella genotyping HDOMA to characterize 8000 polymorphic loci we discover in the resequencing phase in a total of 130 strains of Salmonella, including the strains discussed above plus 30 additional strains of S. enterica subspecies I; 8 additional strains each of S. enterica subspecies II, IIIa, IIIb, IV, VI, and VII; and 8 additional strains of S. bongori. These data will be used to establish a Salmonella comparative genome sequence resource containing the strain resequencing data and a Salmonella genotype database containing the strain genotype data. These resources should prove useful in characterizing the epidemiology of Salmonella outbreaks. Successful application of HDOMA-based polymorphism discovery in this study could be extended to characterizing variation in other sequenced microbial pathogens.

Website: http://crisp.cit.nih.gov/crisp/Crisp_Query.Generate_Screen

- **Project Title: EPITHELIAL RESPONSES TO ENTERIC ORGANISMS**

  Principal Investigator & Institution: Neish, Andrew S.; Associate Professor; Pathology; Emory University 1784 North Decatur Road Atlanta, Ga 30322

  Timing: Fiscal Year 2002; Project Start 15-MAY-2002; Project End 30-APR-2006

  Summary: (provided by applicant): Bacteria are capable of establishing a wide variety of interactive relationships with eukaryotic hosts that may be symbiotic, commensal or parasitic. In humans, such parasitic relationships result in both overt and covert disease. One site where prokaryotic- eukaryotic interactions are particularly diverse and clinically relevant is in the mammalian intestinal tract, where a vastly complex ecosystem of bacteria interfaces with an immense epithelial surface. It has become apparent that both host and microbe influence each other's physiological function to arrange a generally, though not absolutely, mutually beneficial coexistence. Clinical syndromes such as idiopathic inflammatory bowel disease may result when this mutual tolerance breaks down. Furthermore, some bacteria have evolved lifestyles that directly or indirectly elicit host responses characteristic of tissue injury, thus these organisms are generally considered pathogens. A classic example is the common Gram negative enteropathogen Salmonella. These organisms are causal of a variety of clinical syndromes, including inflammatory diarrhea, systemic **typhoid fever,** reactive (non-infectious) arthritis and potentially, other previously unrecognized, medically important manifestations. Recent technical developments have permitted large-scale, parallel analysis of gene expression, or "expression profiling". These methods allow genome-wide analysis of regulatory programs elicited by given stimuli. In this proposal we will employ the approach of infection/colonization with bacteria. For most of our proposed studies, we will utilize Salmonella typhimurium, for which we have characterized a spectrum of genetic and environmental variables that affect virulence. We will analyze other strains of Salmonella, both pathogenic and non-pathogenic, with the overall goal of defining a host "expression profile" of bacterial pathogenesis that will be of great utility in the study of host interactions with other pathogens. More significantly, these

data will be invaluable in the recognition of these signatures in human diseases potentially associated with infection by known and unknown organisms.

Website: http://crisp.cit.nih.gov/crisp/Crisp_Query.Generate_Screen

- **Project Title: FEASIBILITY EVALUATION OF AN ORAL TYPHOID FEVER VACCINE**

  Principal Investigator & Institution: Thomas, Lawrence J.; Avant Immunotherapeutics, Inc. 119 4Th Ave Needham, Ma 02494

  Timing: Fiscal Year 2003; Project Start 01-JAN-2003; Project End 31-MAR-2004

  Summary: (provided by applicant): Ty800 is a live attenuated Salmonella typhi organism intended to be used as a prophylactic single dose oral vaccine for **Typhoid fever.** Ty800 may have advantages in several respects to current **Typhoid fever** vaccines, and consequently could be a significant advance when it reaches the market. Ty800 has been given to a limited number of human subjects and immunogenicity has been demonstrated. The goal of this Phase I SBIR grant is to conduct an initial series of experiments to, in part, demonstrate that Ty800 has the necessary basic elements to be a viable marketed human vaccine. Consequently, the specific aims of this proposal during the requested funding period are to 1) determine a protocol for the in vivo Ty800 General Safety Test, suitable to meet the regulations for product release, and to perform an initial GLP General Safety Test using this protocol; 2) perform preliminary evaluations of a Ty800 immunogenicity animal model, with the goal of helping define an animal model for future toxicology studies; 3) develop immunochemistry assays to evaluate the immunogenicity of Ty800 in preclinical animal models and to help define the assays to be used in future clinical trials; 4) evaluate the environmental release survivability of Ty2 and Ty800; 5) determine the antibiotic sensitivity profile of Ty800 using the Kirby-Bauer Method; 6) demonstrate the precise genetic deletion at the phoP/phoQ regulon by sequencing the Ty800 chromosomal DNA.

  Website: http://crisp.cit.nih.gov/crisp/Crisp_Query.Generate_Screen

- **Project Title: INDUCTION OF MACROPHAGE INOS BY SALMONELLA**

  Principal Investigator & Institution: Cherayil, Bobby J.; Massachusetts General Hospital 55 Fruit St Boston, Ma 02114

  Timing: Fiscal Year 2002; Project Start 01-DEC-2001; Project End 30-NOV-2006

  Summary: (provided by applicant): Various serotypes of the enteric Gram-negative bacterial pathogen Salmonella are responsible for a number of diseases of public health significance, including acute gastroenteritis, as well as **typhoid fever.** During the course of infection, these organisms invade intestinal epithelial cells, dendritic cells and macrophages of the host. In doing so, the bacteria introduce specific effector proteins into the host cells through a specialized secretory apparatus. The cytoskeletal changes and activation of cellular signaling pathways induced by these proteins facilitate bacterial invasion and also elicit the production of host pro-inflammatory molecules. Elucidating exactly how the effector proteins carry out these functions would help to clarify the pathogenesis of, and might suggest new approaches to treating, Salmonella -associated disease. In preliminary experiments, I have found that the effector SopE2, a guanine nucleotide exchange factor for mammalian Rho GTPases, is necessary for the Salmonella -dependent upregulation of inducible nitric oxide synthase (iNOS), the enzyme that is responsible for controlling the production of nitric oxide (NO) in macrophages. The pro-inflammatory and immunomodulatory effects of NO contribute to anti-microbial defense, as well as to the tissue damage that is associated with

infection. In further studies, I have found that SopE2 activates the transcription factor NF-kappa-B, both on its own, and in a synergistic interaction with TRAF6, an adaptor molecule involved in signaling via members of the Toll-like receptor, and TNF receptor families. The experiments proposed in this application will extend these preliminary observations to elucidate the function of SopE2, and its homolog SopE, by (a) examining the mechanism by which SopE2 and SopE initiate signals leading to iNOS induction, particularly the role of the Rho GTPases in this process (b) elucidating how SopE2 and SopE activate NF-kappa-B, and characterizing their influence on TRAF-dependent signals, (c) identifying cis-acting transcriptional regulatory elements in the iNOS promoter that respond to Salmonella infection, and to Sop-induced signals, and (d) examining the role of SopE2 and SopE in iNOS induction by Salmonella in primary macrophages and dendritic cells. The results of these studies will shed light on a novel function of SopE and SopE2 and will also improve understanding of the mechanisms that regulate iNOS expression.

Website: http://crisp.cit.nih.gov/crisp/Crisp_Query.Generate_Screen

- **Project Title: MOLECULAR GENETIC ANALYSIS OF SALMONELLA PATHOGENICITY**

  Principal Investigator & Institution: Curtiss, Roy Iii.; Professor; Biology; Washington University Lindell and Skinker Blvd St. Louis, Mo 63130

  Timing: Fiscal Year 2002; Project Start 01-APR-1987; Project End 31-MAY-2007

  Summary: Our long-term objective has been, and will continue to be, to better understand the mechanisms governing infection and disease by Salmonella when administered by the normal oral route of entry. We will study S. typhimurium infection of chicks to evaluate persistent intestinal colonization and mice as a model of **typhoid fever** in humans and will make extensive use of murine and human cells in culture. We will continue, in all our endeavors, to develop methods to identify and analyze mechanisms for regulated expression of genes that might contribute to pathogenicity. Specifically, we will: (1) evaluate expression of S. typhimurium genes at ambient temperatures in a simulated polluted water environment with the objective to identify genes enhancing survival and potentiating successful colonization of the warm-blooded animal host and, subsequently, to characterize their functions and means of regulation, (2) define roles of adhesins in targeting Salmonella to specific cell types and tissues in the murine host, in enabling long-term colonization of the intestine and cecum in chicks, and in contributing to surface colonization (biofilm formation) in the simulated polluted water medium at ambient temperatures, and (3) continue to define mechanisms for colonization of the GALT (Peyer's patches) by identification of expressed genes with subsequent generation of mutants for characterization and complementation and to establish the means of their regulation. In these studies, we will extensively employ newly developed molecular genetic tools, such as selective capture of transcribed sequences (SCOTS), an easy and efficient method to generate mutant strains with defined deletion mutations, and selective regimens to generate operon fusions in addition to more standard means of genetic and molecular genetic manipulation. Our studies will use a broad range of methods of microbial genetics, molecular biology, biochemistry, immunology, cell biology, microscopy and animal science. All experiments will be conducted under conditions that preclude infections of workers and inadvertent release of infectious microorganisms.

  Website: http://crisp.cit.nih.gov/crisp/Crisp_Query.Generate_Screen

- **Project Title: PHOP REGULON AND SALMONELLA VIRULENCE**

  Principal Investigator & Institution: Miller, Samuel I.; Professor; Medicine; University of Washington Grant & Contract Services Seattle, Wa 98105

  Timing: Fiscal Year 2002; Project Start 01-FEB-1991; Project End 31-MAY-2006

  Summary: (provided by the applicant): Salmonella are facultative intracellular pathogens which cause significant diseases in humans and animals. These organisms are responsible for several disease syndromes, including enteric (typhoid) fever, gastroenteritis, bacteremias and focal infections. **Typhoid fever** is a severe systemic illness which is mostly a problem in the developing world and in travelers. Non-typhoidal salmonella infections are increasing in the USA and are largely associated with contaminated food. Salmonellae infections are most severe in infants, the elderly, and in immunosuppressed individuals. This grant proposes to study the mechanism by which Salmonellae survive host innate immune killing. Innate immune killing involves the non-antigen specific mechanisms by which animals eliminate invading bacteria. Included in innate immune mechanisms are antimicrobial peptides produced at mucosal surfaces and within phagocytic cell granules and cytokines produced in response to recognition of bacterial lipid A. Pathogens such as Salmonellae have mechanisms to resist these killing mechanisms that are environmentally regulated. The genes encoding these mechanisms are the subject of this grant. They include the virulence regulators PhoP/PhoQ that respond to signals within host tissues and induce genes necessary for resistance to innate immune killing. These regulators are essential for human and animal virulence. PhoP/PhoQ regulate genes involved in surface remodeling of bacteria. These genes include those responsible for modification of the lipid and protein components of the outer membrane. This grant proposes to define the mechanism by which these modifications are generated and the role of surface remodeling in bacterial virulence. The specific aims of this proposal are to define the genes involved in lipid A modification and the effects of these modifications on bacterial virulence and host cell recognition of lipid A. In addition a variety of genomic and proteomic techniques will be used to fully define the genes regulated by PhoP/PhoQ to better understand the coordinately regulated response of bacteria to host colonization.

  Website: http://crisp.cit.nih.gov/crisp/Crisp_Query.Generate_Screen

- **Project Title: TYPHOID MARY DOCUMENTARY FILM ONE-HOUR**

  Principal Investigator & Institution: Porter, Nancy; Nancy Porter Productions, Inc. 26 Dudley St Arlington, Ma 02476

  Timing: Fiscal Year 2002; Project Start 30-SEP-2001; Project End 29-MAR-2003

  Summary: (provided by applicant): TYPHOID MARY, a one-hour documentary film will use the unparalleled story of Mary Mallon -- the first person in North America to be identified ala healthy carrier of typhoid fever-- as a framework for investigating the social, cultural, ethical, legal, and philosophical implications of public health policy toward communicable disease during the early twentieth century. The narrative framework of TYPHOID MARY is Mary Mallon's story. Its intellectual armature is a set of powerful conflicts: the clash between civil liberties and the Public good; and the divergence between ethics and science. Combining biographical drama and provocative social history the film will invite viewers to reflect on live inter-related themes: the emerging fields of bacteriology and epidemiology- the public control of private behavior; the interaction between public policy and such factors as ethnicity, and class; the impact of developments in science on societal values and customs; and the influence of popular media on society's responses to medical and social problems. Goods of the

Project; To examine the scientific, social, cultural, and political forces that shaped public health care policy in the late nineteenth and early twentieth centuries. To provide audiences with an understanding of the human side of disease by means of a thorough examination of the era in which Mary Mallon lived, with particular emphasis on the social dynamics of class ethnicity, and gender. To offer a historical illustration of a key debate about the ethics of protecting the public health. To stimulate discussion about parallel contemporary efforts to protect the public health. To provide an overview of the developing history of bacteriology, and the way it was understood (and misunderstood) in America as it matured. To challenge the enduring cultural image of Typhoid Mary as a metaphor for a prototypical disease carrier, thereby contributing to the ongoing, sometimes-heated debate among historians about the factors that influenced Mary Mallon's treatment. NOVA has pledged toward the production of this film. Funds will be sought from government. foundations, and corporate sources. TYPHOID MARY will be broadcast nationwide on the NOVA series and distributed nationally by means of educational, theatrical, home video venues and foreign broadcast.

Website: http://crisp.cit.nih.gov/crisp/Crisp_Query.Generate_Screen

E-Journals: PubMed Central[3]

PubMed Central (PMC) is a digital archive of life sciences journal literature developed and managed by the National Center for Biotechnology Information (NCBI) at the U.S. National Library of Medicine (NLM).[4] Access to this growing archive of e-journals is free and unrestricted.[5] To search, go to **http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?db=Pmc**, and type "typhoid fever" (or synonyms) into the search box. This search gives you access to full-text articles. The following is a sample of items found for typhoid fever in the PubMed Central database:

- **A Randomized Controlled Comparison of Azithromycin and Ofloxacin for Treatment of Multidrug-Resistant or Nalidixic Acid-Resistant Enteric Fever.** by Chinh NT, Parry CM, Ly NT, Ha HD, Thong MX, Diep TS, Wain J, White NJ, Farrar JJ.; 2000 Jul; http://www.pubmedcentral.gov/articlerender.fcgi?tool=pmcentrez&artid=89974
- **Absence of All Components of the Flagellar Export and Synthesis Machinery Differentially Alters Virulence of Salmonella enterica Serovar Typhimurium in Models of Typhoid Fever, Survival in Macrophages, Tissue Culture Invasiveness, and Calf Enterocolitis.** by Schmitt CK, Ikeda JS, Darnell SC, Watson PR, Bispham J, Wallis TS, Weinstein DL, Metcalf ES, O'Brien AD.; 2001 Sep; http://www.pubmedcentral.gov/articlerender.fcgi?tool=pmcentrez&artid=98677
- **Application of optical properties of the Vi capsular polysaccharide for quantitation of the Vi antigen in vaccines for typhoid fever.** by Stone AL, Szu SC.; 1988 Apr; http://www.pubmedcentral.gov/picrender.fcgi?tool=pmcentrez&action=stream&blobtype=pdf&artid=266426

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[3] Adapted from the National Library of Medicine: **http://www.pubmedcentral.nih.gov/about/intro.html**.

[4] With PubMed Central, NCBI is taking the lead in preservation and maintenance of open access to electronic literature, just as NLM has done for decades with printed biomedical literature. PubMed Central aims to become a world-class library of the digital age.

[5] The value of PubMed Central, in addition to its role as an archive, lies in the availability of data from diverse sources stored in a common format in a single repository. Many journals already have online publishing operations, and there is a growing tendency to publish material online only, to the exclusion of print.

- **Association between specific plasmids and relapse in typhoid fever.** by Gotuzzo E, Morris JG Jr, Benavente L, Wood PK, Levine O, Black RE, Levine MM.; 1987 Sep; http://www.pubmedcentral.gov/picrender.fcgi?tool=pmcentrez&action=stream&blobtype=pdf&artid=269329
- **Azithromycin versus Ciprofloxacin for Treatment of Uncomplicated Typhoid Fever in a Randomized Trial in Egypt That Included Patients with Multidrug Resistance.** by Girgis NI, Butler T, Frenck RW, Sultan Y, Brown, Tribble D, Khakhria R.; 1999 Jun; http://www.pubmedcentral.gov/articlerender.fcgi?tool=pmcentrez&artid=89293
- **Bacteremia caused by a lactose-fermenting, multiply resistant Salmonella typhi strain in a patient recovering from typhoid fever.** by Cohen SL, Wylie BA, Sooka A, Koornhof HJ.; 1987 Aug; http://www.pubmedcentral.gov/picrender.fcgi?tool=pmcentrez&action=stream&blobtype=pdf&artid=269260
- **Ceftriaxone therapy in bacteremic typhoid fever.** by Ti TY, Monteiro EH, Lam S, Lee HS.; 1985 Oct; http://www.pubmedcentral.gov/picrender.fcgi?tool=pmcentrez&action=stream&blobtype=pdf&artid=180301
- **Chloramphenicol concentrations in sera of patients with typhoid fever being treated with oral or intravenous preparation.** by Ti TI, Monteiro EH, Lam S, Lee HS.; 1990 Sep; http://www.pubmedcentral.gov/picrender.fcgi?tool=pmcentrez&action=stream&blobtype=pdf&artid=171933
- **Ciprofloxacin for treatment of severe typhoid fever in children.** by Dutta P, Rasaily R, Saha MR, Mitra U, Bhattacharya SK, Bhattacharya MK, Lahiri M.; 1993 May; http://www.pubmedcentral.gov/picrender.fcgi?tool=pmcentrez&action=stream&blobtype=pdf&artid=187933
- **Clinical Application of a Dot Blot Test for Diagnosis of Enteric Fever Due to Salmonella enterica Serovar Typhi in Patients with Typhoid Fever from Colombia and Peru.** by Cardona-Castro N, Gotuzzo E, Rodriguez M, Guerra H.; 2000 Mar; http://www.pubmedcentral.gov/articlerender.fcgi?tool=pmcentrez&artid=95868
- **Comparison of ofloxacin and ceftriaxone for short-course treatment of enteric fever.** by Smith MD, Duong NM, Hoa NT, Wain J, Ha HD, Diep TS, Day NP, Hien TT, White NJ.; 1994 Aug; http://www.pubmedcentral.gov/picrender.fcgi?tool=pmcentrez&action=stream&blobtype=pdf&artid=284627
- **Construction of a potential live oral bivalent vaccine for typhoid fever and cholera-Escherichia coli-related diarrheas.** by Clements JD, El-Morshidy S.; 1984 Nov; http://www.pubmedcentral.gov/picrender.fcgi?tool=pmcentrez&action=stream&blobtype=pdf&artid=261572
- **Detection of Salmonella typhi D, Vi, and d antigens, by slide coagglutination, in urine from patients with typhoid fever.** by Rockhill RC, Rumans LW, Lesmana M, Dennis DT.; 1980 Mar; http://www.pubmedcentral.gov/picrender.fcgi?tool=pmcentrez&action=stream&blobtype=pdf&artid=273365

- **Detection of Salmonella typhi in the blood of patients with typhoid fever by polymerase chain reaction.** by Song JH, Cho H, Park MY, Na DS, Moon HB, Pai CH.; 1993 Jun;
  http://www.pubmedcentral.gov/picrender.fcgi?tool=pmcentrez&action=stream&blobtype=pdf&artid=265558
- **Detection of urinary Vi antigen as a diagnostic test for typhoid fever.** by Taylor DN, Harris JR, Barrett TJ, Hargrett NT, Prentzel I, Valdivieso C, Palomino C, Levine MM, Blake PA.; 1983 Oct;
  http://www.pubmedcentral.gov/picrender.fcgi?tool=pmcentrez&action=stream&blobtype=pdf&artid=270921
- **Diagnosis of typhoid fever by detection of Salmonella typhi antigen in urine.** by Chaicumpa W, Ruangkunaporn Y, Burr D, Chongsa-Nguan M, Echeverria P.; 1992 Sep;
  http://www.pubmedcentral.gov/picrender.fcgi?tool=pmcentrez&action=stream&blobtype=pdf&artid=265540
- **Duodenal isolation of Salmonella typhi by string capsule in acute typhoid fever.** by Gilman RH, Hornick RB.; 1976 Apr;
  http://www.pubmedcentral.gov/picrender.fcgi?tool=pmcentrez&action=stream&blobtype=pdf&artid=274324
- **Evaluation of Dipstick Serologic Tests for Diagnosis of Brucellosis and Typhoid Fever in Egypt.** by Ismail TF, Smits H, Wasfy MO, Malone JL, Fadeel MA, Mahoney F.; 2002 Sep;
  http://www.pubmedcentral.gov/articlerender.fcgi?tool=pmcentrez&artid=130816
- **Evaluation of passive bacterial agglutination for the diagnosis of typhoid fever.** by John TJ, Sivadasan K, Kurien B.; 1984 Oct;
  http://www.pubmedcentral.gov/picrender.fcgi?tool=pmcentrez&action=stream&blobtype=pdf&artid=271424
- **Evolutionary genetic relationships of clones of Salmonella serovars that cause human typhoid and other enteric fevers.** by Selander RK, Beltran P, Smith NH, Helmuth R, Rubin FA, Kopecko DJ, Ferris K, Tall BD, Cravioto A, Musser JM.; 1990 Jul;
  http://www.pubmedcentral.gov/picrender.fcgi?tool=pmcentrez&action=stream&blobtype=pdf&artid=258807
- **Failure of Short-Course Ceftriaxone Chemotherapy for Multidrug-Resistant Typhoid Fever in Children: a Randomized Controlled Trial in Pakistan.** by Bhutta ZA, Khan IA, Shadmani M.; 2000 Feb;
  http://www.pubmedcentral.gov/articlerender.fcgi?tool=pmcentrez&artid=89704
- **Identification of a carrier by using Vi enzyme-linked immunosorbent assay serology in an outbreak of typhoid fever on an Indian reservation.** by Engleberg NC, Barrett TJ, Fisher H, Porter B, Hurtado E, Hughes JM.; 1983 Dec;
  http://www.pubmedcentral.gov/picrender.fcgi?tool=pmcentrez&action=stream&blobtype=pdf&artid=272900
- **Immune response to the iron-deprivation-induced proteins of Salmonella typhi in typhoid fever.** by Fernandez-Beros ME, Gonzalez C, McIntosh MA, Cabello FC.; 1989 Apr;
  http://www.pubmedcentral.gov/picrender.fcgi?tool=pmcentrez&action=stream&blobtype=pdf&artid=313260

- **Immunoblot detection of class-specific humoral immune response to outer membrane proteins isolated from Salmonella typhi in humans with typhoid fever.** by Ortiz V, Isibasi A, Garcia-Ortigoza E, Kumate J.; 1989 Jul; http://www.pubmedcentral.gov/picrender.fcgi?tool=pmcentrez&action=stream&blobtype=pdf&artid=267630
- **Improved Serodiagnosis of Salmonella Enteric Fevers by an Enzyme-Linked Immunosorbent Assay.** by Beasley WJ, Joseph SW, Weiss E.; 1981 Jan; http://www.pubmedcentral.gov/picrender.fcgi?tool=pmcentrez&action=stream&blobtype=pdf&artid=273732
- **Indirect immunoglobulin G (IgG) and IgM enzyme-linked immunosorbent assays (ELISAs) and IgM capture ELISA for detection of antibodies to lipopolysaccharide in adult typhoid fever patients in Pakistan.** by Sippel J, Bukhtiari N, Awan MB, Krieg R, Duncan JF, Karamat KA, Malik IA, Igbal LM, Legters L.; 1989 Jun; http://www.pubmedcentral.gov/picrender.fcgi?tool=pmcentrez&action=stream&blobtype=pdf&artid=267545
- **Induction and characterization of heat shock proteins of Salmonella typhi and their reactivity with sera from patients with typhoid fever.** by Tang SW, Abubakar S, Devi S, Puthucheary S, Pang T.; 1997 Jul; http://www.pubmedcentral.gov/articlerender.fcgi?tool=pmcentrez&rendertype=abstract&artid=175419
- **Innate resistance of mice to Salmonella typhi infection.** by O'Brien AD.; 1982 Dec; http://www.pubmedcentral.gov/picrender.fcgi?tool=pmcentrez&action=stream&blobtype=pdf&artid=347841
- **Interleukin-6, gamma interferon, and tumor necrosis factor receptors in typhoid fever related to outcome of antimicrobial therapy.** by Butler T, Ho M, Acharya G, Tiwari M, Gallati H.; 1993 Nov; http://www.pubmedcentral.gov/picrender.fcgi?tool=pmcentrez&action=stream&blobtype=pdf&artid=192401
- **Lactose-fermenting, multiple drug-resistant Salmonella typhi strains isolated from a patient with postoperative typhoid fever.** by Kohbata S, Takahashi M, Yabuuchi E.; 1983 Oct; http://www.pubmedcentral.gov/picrender.fcgi?tool=pmcentrez&action=stream&blobtype=pdf&artid=270931
- **Mechanism of Therapeutic Effectiveness of Cefixime against Typhoid Fever.** by Matsumoto Y, Ikemoto A, Wakai Y, Ikeda F, Tawara S, Matsumoto K.; 2001 Sep; http://www.pubmedcentral.gov/articlerender.fcgi?tool=pmcentrez&artid=90676
- **mig-14 Is a Horizontally Acquired, Host-Induced Gene Required for Salmonella enterica Lethal Infection in the Murine Model of Typhoid Fever.** by Valdivia RH, Cirillo DM, Lee AK, Bouley DM, Falkow S.; 2000 Dec; http://www.pubmedcentral.gov/articlerender.fcgi?tool=pmcentrez&artid=97824
- **Molecular Analysis of incHI1 Antimicrobial Resistance Plasmids from Salmonella Serovar Typhi Strains Associated with Typhoid Fever.** by Wain J, Diem Nga LT, Kidgell C, James K, Fortune S, Song Diep T, Ali T, O Gaora P, Parry C, Parkhill J, Farrar J, White NJ, Dougan G.; 2003 Sep; http://www.pubmedcentral.gov/articlerender.fcgi?tool=pmcentrez&artid=182646

- **Molecular analysis of isolates of Salmonella typhi from patients with fatal or nonfatal typhoid fever or aberrant clinical presentations.** by Arya SC.; 1996 Sep; http://www.pubmedcentral.gov/picrender.fcgi?tool=pmcentrez&action=stream&blobtype=pdf&artid=229251
- **Molecular analysis of isolates of Salmonella typhi obtained from patients with fatal and nonfatal typhoid fever.** by Thong KL, Passey M, Clegg A, Combs BG, Yassin RM, Pang T.; 1996 Apr; http://www.pubmedcentral.gov/articlerender.fcgi?tool=pmcentrez&rendertype=abstract&artid=228948
- **Molecular Typing of Multiple-Antibiotic-Resistant Salmonella enterica Serovar Typhi from Vietnam: Application to Acute and Relapse Cases of Typhoid Fever.** by Wain J, Hien TT, Connerton P, Ali T, M. Parry C, Chinh NT, Vinh H, Phuong CX, Ho VA, Diep TS, Farrar JJ, White NJ, Dougan G.; 1999 Aug; http://www.pubmedcentral.gov/articlerender.fcgi?tool=pmcentrez&artid=85257
- **Moxalactam in the treatment of typhoid fever.** by Uwaydah M, Vartivarian S, Shatila S, Raad I, Harakeh H, Nassar NT.; 1986 Aug; http://www.pubmedcentral.gov/picrender.fcgi?tool=pmcentrez&action=stream&blobtype=pdf&artid=180549
- **Outer membrane protein antigens in an enzyme-linked immunosorbent assay for Salmonella enteric fever and meningococcal meningitis.** by Sippel JE, Mamay HK, Weiss E, Joseph SW, Beasley WJ.; 1978 Apr; http://www.pubmedcentral.gov/picrender.fcgi?tool=pmcentrez&action=stream&blobtype=pdf&artid=274970
- **Passive hemagglutination test for enteric fever.** by Petchclai B, Ausavarungnirun R, Manatsathit S.; 1987 Jan; http://www.pubmedcentral.gov/picrender.fcgi?tool=pmcentrez&action=stream&blobtype=pdf&artid=265841
- **PCR diagnosis of typhoid fever.** by Song JH.; 1994 Aug; http://www.pubmedcentral.gov/picrender.fcgi?tool=pmcentrez&action=stream&blobtype=pdf&artid=263930
- **Persistence of Salmonellae in Blood and Bone Marrow: Randomized Controlled Trial Comparing Ciprofloxacin and Chloramphenicol Treatments against Enteric Fever.** by Gasem MH, Keuter M, Dolmans WM, van der Ven-Jongekrijg J, Djokomoeljanto R, van der Meer JW.; 2003 May; http://www.pubmedcentral.gov/articlerender.fcgi?tool=pmcentrez&artid=153327
- **Pharmacokinetics of ceftriaxone in patients with typhoid fever.** by Acharya G, Crevoisier C, Butler T, Ho M, Tiwari M, Stoeckel K, Bradley CA.; 1994 Oct; http://www.pubmedcentral.gov/picrender.fcgi?tool=pmcentrez&action=stream&blobtype=pdf&artid=284754
- **Pharmacokinetics of oral and intravenous ofloxacin in children with multidrug-resistant typhoid fever.** by Bethell DB, Day NP, Dung NM, McMullin C, Loan HT, Tam DT, Minh LT, Linh NT, Dung NQ, Vinh H, MacGowan AP, White LO, White NJ.; 1996 Sep; http://www.pubmedcentral.gov/articlerender.fcgi?tool=pmcentrez&rendertype=abstract&artid=163492

- **Plasma Kallikrein Activation and Inhibition during Typhoid Fever.** by Colman RW, Edelman R, Scott CF, Gilman RH.; 1978 Feb; http://www.pubmedcentral.gov/picrender.fcgi?tool=pmcentrez&action=stream&blobtype=pdf&artid=372538
- **Protection against Salmonella typhi infection in mice after immunization with outer membrane proteins isolated from Salmonella typhi 9,12,d, Vi.** by Isibasi A, Ortiz V, Vargas M, Paniagua J, Gonzalez C, Moreno J, Kumate J.; 1988 Nov; http://www.pubmedcentral.gov/picrender.fcgi?tool=pmcentrez&action=stream&blobtype=pdf&artid=259676
- **Quantitation of Bacteria in Blood of Typhoid Fever Patients and Relationship between Counts and Clinical Features, Transmissibility, and Antibiotic Resistance.** by Wain J, Diep TS, Ho VA, Walsh AM, Hoa NT, Parry CM, White NJ.; 1998 Jun; http://www.pubmedcentral.gov/articlerender.fcgi?tool=pmcentrez&artid=104900
- **Quantitation of Bacteria in Bone Marrow from Patients with Typhoid Fever: Relationship between Counts and Clinical Features.** by Wain J, Bay PV, Vinh H, Duong NM, Diep TS, Walsh AL, Parry CM, Hasserjian RP, Ho VA, Hien TT, Farrar J, White NJ, Day NP.; 2001 Apr; http://www.pubmedcentral.gov/articlerender.fcgi?tool=pmcentrez&artid=87972
- **Randomized comparison of aztreonam and chloramphenicol in treatment of typhoid fever.** by Gotuzzo E, Echevarria J, Carrillo C, Sanchez J, Grados P, Maguina C, DuPont HL.; 1994 Mar; http://www.pubmedcentral.gov/picrender.fcgi?tool=pmcentrez&action=stream&blobtype=pdf&artid=284497
- **Rapid diagnosis of typhoid fever through identification of Salmonella typhi within 18 hours of specimen acquisition by culture of the mononuclear cell-platelet fraction of blood.** by Rubin FA, McWhirter PD, Burr D, Punjabi NH, Lane E, Kumala S, Sudarmono P, Pulungsih SP, Lesmana M, Tjaniadi P, et al.; 1990 Apr; http://www.pubmedcentral.gov/picrender.fcgi?tool=pmcentrez&action=stream&blobtype=pdf&artid=267809
- **Rapid, economical diagnosis of enteric fever by a blood clot culture coagglutination procedure.** by Mikhail IA, Sanborn WR, Sippel JE.; 1983 Mar; http://www.pubmedcentral.gov/picrender.fcgi?tool=pmcentrez&action=stream&blobtype=pdf&artid=272688
- **Restaurant-associated outbreak of typhoid fever in Maryland: identification of carrier facilitated by measurement of serum Vi antibodies.** by Lin FY, Becke JM, Groves C, Lim BP, Israel E, Becker EF, Helfrich RM, Swetter DS, Cramton T, Robbins JB.; 1988 Jun; http://www.pubmedcentral.gov/picrender.fcgi?tool=pmcentrez&action=stream&blobtype=pdf&artid=266560
- **Safety and immunogenicity of a live oral bivalent typhoid fever (Salmonella typhi Ty21a)-cholera (Vibrio cholerae CVD 103-HgR) vaccine in healthy adults.** by Cryz SJ Jr, Que JU, Levine MM, Wiedermann G, Kollaritsch H.; 1995 Apr; http://www.pubmedcentral.gov/articlerender.fcgi?tool=pmcentrez&rendertype=abstract&artid=173155
- **Safety and Immunogenicity of Vi Conjugate Vaccines for Typhoid Fever in Adults, Teenagers, and 2- to 4-Year-Old Children in Vietnam.** by Kossaczka Z, Lin FY, Ho VA, Thuy NT, Bay PV, Thanh TC, Khiem HB, Trach DD, Karpas A, Hunt S, Bryla DA, Schneerson R, Robbins JB, Szu SC.; 1999 Nov; http://www.pubmedcentral.gov/articlerender.fcgi?tool=pmcentrez&artid=96958

- **Salmonella typhi O:9,12 polysaccharide-protein conjugates: characterization and immunoreactivity with pooled and individual normal human sera, sera from patients with paratyphoid A and B and typhoid fever, and animal sera.** by Aron L, Di Fabio J, Cabello FC.; 1993 Apr;
  http://www.pubmedcentral.gov/picrender.fcgi?tool=pmcentrez&action=stream&blobtype=pdf&artid=263597
- **Secreted Effector Proteins of Salmonella enterica Serotype Typhimurium Elicit Host-Specific Chemokine Profiles in Animal Models of Typhoid Fever and Enterocolitis.** by Zhang S, Adams LG, Nunes J, Khare S, Tsolis RM, Baumler AJ.; 2003 Aug;
  http://www.pubmedcentral.gov/articlerender.fcgi?tool=pmcentrez&artid=166006
- **Serodiagnosis of typhoid fever by enzyme-linked immunosorbent assay determination of anti-Salmonella typhi lipopolysaccharide antibodies.** by Nardiello S, Pizzella T, Russo M, Galanti B.; 1984 Oct;
  http://www.pubmedcentral.gov/picrender.fcgi?tool=pmcentrez&action=stream&blobtype=pdf&artid=271418
- **Serology of Typhoid Fever in an Area of Endemicity and Its Relevance to Diagnosis.** by House D, Wain J, Ho VA, Diep TS, Chinh NT, Bay PV, Vinh H, Duc M, Parry CM, Dougan G, White NJ, Hien TT, Farrar JJ.; 2001 Mar;
  http://www.pubmedcentral.gov/articlerender.fcgi?tool=pmcentrez&artid=87864
- **Synthesis and some immunologic properties of an O-acetyl pectin [poly(1-->4)-alpha-D-GalpA]-protein conjugate as a vaccine for typhoid fever.** by Szu SC, Bystricky S, Hinojosa-Ahumada M, Egan W, Robbins JB.; 1994 Dec;
  http://www.pubmedcentral.gov/picrender.fcgi?tool=pmcentrez&action=stream&blobtype=pdf&artid=303300
- **THE ROLE OF ENDOTOXIN DURING TYPHOID FEVER AND TULAREMIA IN MAN. I. ACQUISITION OF TOLERANCE TO ENDOTOXIN.** by Greisman SE, Hornick RB, Carozza FA Jr, Woodward TE.; 1963 Jul;
  http://www.pubmedcentral.gov/picrender.fcgi?tool=pmcentrez&action=stream&blobtype=pdf&artid=289375
- **The Role of Endotoxin during Typhoid Fever and Tularemia in Man. II. Altered Cardiovascular Responses to Catecholamines.** by Greisman SE, Hornick RB, Carozza FA Jr, Woodward TE.; 1964 May;
  http://www.pubmedcentral.gov/picrender.fcgi?tool=pmcentrez&action=stream&blobtype=pdf&artid=289577
- **The Role of Endotoxin during Typhoid Fever and Tularemia in Man. IV. THE INTEGRITY OF THE ENDOTOXIN TOLERANCE MECHANISMS DURING INFECTION.** by Greisman SE, Hornick RB, Wagner HN Jr, Woodward WE, Woodward TE.; 1969 Apr;
  http://www.pubmedcentral.gov/picrender.fcgi?tool=pmcentrez&action=stream&blobtype=pdf&artid=322267
- **Treatment of enteric fever with pefloxacin for 7 days versus 5 days: a randomized clinical trial.** by Unal S, Hayran M, Tuncer S, Gur D, Uzun O, Akova M, Akalin HE.; 1996 Dec;
  http://www.pubmedcentral.gov/articlerender.fcgi?tool=pmcentrez&rendertype=abstract&artid=163645

- **Treatment of typhoid fever with cefamandole.** by Uwaydah M, Nassar NT, Harakeh H, Vartivarian S, Talhouk A, Kantarjian H.; 1984 Sep; http://www.pubmedcentral.gov/picrender.fcgi?tool=pmcentrez&action=stream&blobtype=pdf&artid=176187
- **Treatment of typhoid fever with ceftriaxone for 5 days or chloramphenicol for 14 days: a randomized clinical trial.** by Islam A, Butler T, Kabir I, Alam NH.; 1993 Aug; http://www.pubmedcentral.gov/picrender.fcgi?tool=pmcentrez&action=stream&blobtype=pdf&artid=188021
- **Two or three days of ofloxacin treatment for uncomplicated multidrug-resistant typhoid fever in children.** by Vinh H, Wain J, Vo TN, Cao NN, Mai TC, Bethell D, Nguyen TT, Tu SD, Nguyen MD, White NJ.; 1996 Apr; http://www.pubmedcentral.gov/articlerender.fcgi?tool=pmcentrez&rendertype=abstract&artid=163238
- **Typhoid Fever Due to Salmonella Kapemba Infection in an Otherwise Healthy Middle-Aged Man.** by Sarnighausen HE, Benz C, Eickenberg M, Bockemuhl J, Tschape H, Riemann JF.; 1999 Jul; http://www.pubmedcentral.gov/articlerender.fcgi?tool=pmcentrez&artid=85176
- **Typhoid fever.** by Maskalyk J.; 2003 Jul 22; http://www.pubmedcentral.gov/articlerender.fcgi?tool=pmcentrez&artid=164981
- **Use of a DNA probe to detect Salmonella typhi in the blood of patients with typhoid fever.** by Rubin FA, McWhirter PD, Punjabi NH, Lane E, Sudarmono P, Pulungsih SP, Lesmana M, Kumala S, Kopecko DJ, Hoffman SL.; 1989 May; http://www.pubmedcentral.gov/picrender.fcgi?tool=pmcentrez&action=stream&blobtype=pdf&artid=267496
- **Value of a Single-Tube Widal Test in Diagnosis of Typhoid Fever in Vietnam.** by Parry CM, Hoa NT, Diep TS, Wain J, Chinh NT, Vinh H, Hien TT, White NJ, Farrar JJ.; 1999 Sep; http://www.pubmedcentral.gov/articlerender.fcgi?tool=pmcentrez&artid=85403
- **Virulence of non-type 1-fimbriated and nonfimbriated nonflagellated Salmonella typhimurium mutants in murine typhoid fever.** by Lockman HA, Curtiss R 3rd.; 1992 Feb; http://www.pubmedcentral.gov/picrender.fcgi?tool=pmcentrez&action=stream&blobtype=pdf&artid=257654
- **Widal Test in Diagnosis of Typhoid Fever in Turkey.** by Willke A, Ergonul O, Bayar B.; 2002 Jul; http://www.pubmedcentral.gov/articlerender.fcgi?tool=pmcentrez&artid=120044

The National Library of Medicine: PubMed

One of the quickest and most comprehensive ways to find academic studies in both English and other languages is to use PubMed, maintained by the National Library of Medicine.[6] The advantage of PubMed over previously mentioned sources is that it covers a greater

[6] PubMed was developed by the National Center for Biotechnology Information (NCBI) at the National Library of Medicine (NLM) at the National Institutes of Health (NIH). The PubMed database was developed in conjunction with publishers of biomedical literature as a search tool for accessing literature citations and linking to full-text journal articles at Web sites of participating publishers. Publishers that participate in PubMed supply NLM with their citations electronically prior to or at the time of publication.

number of domestic and foreign references. It is also free to use. If the publisher has a Web site that offers full text of its journals, PubMed will provide links to that site, as well as to sites offering other related data. User registration, a subscription fee, or some other type of fee may be required to access the full text of articles in some journals.

To generate your own bibliography of studies dealing with typhoid fever, simply go to the PubMed Web site at **http://www.ncbi.nlm.nih.gov/pubmed**. Type "typhoid fever" (or synonyms) into the search box, and click "Go." The following is the type of output you can expect from PubMed for typhoid fever (hyperlinks lead to article summaries):

- **A common-source water-borne outbreak of multidrug-resistant typhoid fever in a rural Thai community.**
  Author(s): Swaddiwudhipong W, Kanlayanaphotporn J.
  Source: J Med Assoc Thai. 2001 November; 84(11): 1513-7.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=11853291

- **A note on incidence of typhoid fever in diverse age groups in Kolkata, India.**
  Author(s): Saha MR, Dutta P, Palit A, Dutta D, Bhattacharya MK, Mitra U, Bhattacharya SK.
  Source: Japanese Journal of Infectious Diseases. 2003 June; 56(3): 121-2.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=12944681

- **A single dose, combined vaccine against typhoid fever and hepatitis A: consistency, immunogenicity and reactogenicity.**
  Author(s): Beran J, Beutels M, Levie K, Van Damme P, Dieussaert I, Gillet M, Van Hoecke C, Tornieporth N.
  Source: Journal of Travel Medicine : Official Publication of the International Society of Travel Medicine and the Asia Pacific Travel Health Association. 2000 September-October; 7(5): 246-52.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=11231208

- **ABO, Rh, MNSs, sex and typhoid fever.**
  Author(s): Valenzuela CY, Herrera P.
  Source: Human Heredity. 1993 September-October; 43(5): 301-10.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=8406519

- **Absence of all components of the flagellar export and synthesis machinery differentially alters virulence of Salmonella enterica serovar Typhimurium in models of typhoid fever, survival in macrophages, tissue culture invasiveness, and calf enterocolitis.**
  Author(s): Schmitt CK, Ikeda JS, Darnell SC, Watson PR, Bispham J, Wallis TS, Weinstein DL, Metcalf ES, O'Brien AD.
  Source: Infection and Immunity. 2001 September; 69(9): 5619-25.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=11500437

- **Acute disseminated encehalomyelitis with typhoid fever.**
  Author(s): Krishna KK, Mitra DK, Diwan AG, Bamnikar AA.
  Source: J Assoc Physicians India. 1999 October; 47(10): 1017-9.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=10778699

- **Acute respiratory distress syndrome complicating typhoid fever.**
  Author(s): Agrawal PN, Ramanathan RM, Gupta D, Behera D, Jindal SK.
  Source: Indian J Chest Dis Allied Sci. 1999 October-December; 41(4): 225-9.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=10661011

- **Advances in vaccines for typhoid fever.**
  Author(s): Gupta A, Jalla S, Sazawal S, Bhan MK.
  Source: Indian J Pediatr. 1994 July-August; 61(4): 321-39. Review. No Abstract Available.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=8002060

- **An open randomized study of inactivated hepatitis A vaccine administered concomitantly with typhoid fever and yellow fever vaccines.**
  Author(s): Jong EC, Kaplan KM, Eves KA, Taddeo CA, Lakkis HD, Kuter BJ.
  Source: Journal of Travel Medicine : Official Publication of the International Society of Travel Medicine and the Asia Pacific Travel Health Association. 2002 March-April; 9(2): 66-70.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=12044272

- **An outbreak of domestically acquired typhoid fever in Queens, NY.**
  Author(s): Yoon J, Segal-Maurer S, Rahal JJ.
  Source: Archives of Internal Medicine. 2004 March 8; 164(5): 565-7.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=15006835

- **An outbreak of multidrug resistant typhoid fever in Bangalore.**
  Author(s): Rathish KC, Chandrashekar MR, Nagesha CN.
  Source: Indian J Pediatr. 1995 July-August; 62(4): 445-8.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=10829903

- **An outbreak of typhoid Fever in Florida associated with an imported frozen fruit.**
  Author(s): Katz DJ, Cruz MA, Trepka MJ, Suarez JA, Fiorella PD, Hammond RM.
  Source: The Journal of Infectious Diseases. 2002 July 15; 186(2): 234-9. Epub 2002 June 25.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=12134260

- **An outbreak of typhoid fever, Xing-An County, People's Republic of China, 1999: estimation of the field effectiveness of Vi polysaccharide typhoid vaccine.**
  Author(s): Yang HH, Kilgore PE, Yang LH, Park JK, Pan YF, Kim Y, Lee YJ, Xu ZY, Clemens JD.
  Source: The Journal of Infectious Diseases. 2001 June 15; 183(12): 1775-80. Epub 2001 May 17.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=11372030

- **Animal models of Salmonella infections: enteritis versus typhoid fever.**
  Author(s): Santos RL, Zhang S, Tsolis RM, Kingsley RA, Adams LG, Baumler AJ.
  Source: Microbes and Infection / Institut Pasteur. 2001 November-December; 3(14-15): 1335-44. Review.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=11755423

- **Antibiotic therapy for typhoid fever.**
  Author(s): Ruanguan W, Kunming Y, Qiong S.
  Source: Chemotherapy. 1994 January-February; 40(1): 61-4.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=8306817

- **Antibody response after vaccination against typhoid fever in Kurdish refugee camp.**
  Author(s): Reisinger EC, Grasmug E, Krejs GJ.
  Source: Lancet. 1994 April 9; 343(8902): 918-9.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=7908379

- **Antibody response in typhoid fever in endemic Indonesia and the relevance of serology and culture to diagnosis.**
  Author(s): Hatta M, Mubin H, Abdoel T, Smits HL.
  Source: Southeast Asian J Trop Med Public Health. 2002 December; 33(4): 742-51.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=12757221

- **Association between Helicobacter pylori infection and increased risk of typhoid fever.**
  Author(s): Bhan MK, Bahl R, Sazawal S, Sinha A, Kumar R, Mahalanabis D, Clemens JD.
  Source: The Journal of Infectious Diseases. 2002 December 15; 186(12): 1857-60. Epub 2002 November 14.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=12447776

- **Atypical manifestations of typhoid fever.**
  Author(s): Dutta TK, Beeresha, Ghotekar LH.
  Source: Journal of Postgraduate Medicine. 2001 October-December; 47(4): 248-51.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=11832640

- **Azithromycin versus ceftriaxone for the treatment of uncomplicated typhoid fever in children.**
  Author(s): Frenck RW Jr, Nakhla I, Sultan Y, Bassily SB, Girgis YF, David J, Butler TC, Girgis NI, Morsy M.
  Source: Clinical Infectious Diseases : an Official Publication of the Infectious Diseases Society of America. 2000 November; 31(5): 1134-8. Epub 2000 November 06.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=11073741

- **Bacteremia caused by a lactose-fermenting, multiply resistant Salmonella typhi strain in a patient recovering from typhoid fever.**
  Author(s): Cohen SL, Wylie BA, Sooka A, Koornhof HJ.
  Source: Journal of Clinical Microbiology. 1987 August; 25(8): 1516-8.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=3650270

- **Bactrim in the treatment of typhoid fever in children.**
  Author(s): Suparno, Hernawan, Sumarmo.
  Source: Mod Med Asia. 1978 July; 14(7): 31-2. No Abstract Available.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=98699

- **Benign intracranial hypertension in typhoid fever. A case report.**
  Author(s): Moodley M, Coovadia HM.
  Source: South African Medical Journal. Suid-Afrikaanse Tydskrif Vir Geneeskunde. 1990 November 17; 78(10): 608-9.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=2247798

- **Bickerstaff's brainstem encephalitis associated with typhoid fever.**
  Author(s): Wali GM.
  Source: Postgraduate Medical Journal. 1991 November; 67(793): 1011-2.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=1775407

- **Blood culture confirmed typhoid fever in a provincial hospital in the Philippines.**
  Author(s): Abucejo PE, Capeding MR, Lupisan SP, Arcay J, Sombrero LT, Ruutu P, Herva E.
  Source: Southeast Asian J Trop Med Public Health. 2001 September; 32(3): 531-6.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=11944712

- **Bone marrow aspirate culture superior to streptokinase clot culture and 8 ml 1:10 blood-to-broth ratio blood culture for diagnosis of typhoid fever.**
  Author(s): Hoffman SL, Edman DC, Punjabi NH, Lesmana M, Cholid A, Sundah S, Harahap J.
  Source: The American Journal of Tropical Medicine and Hygiene. 1986 July; 35(4): 836-9.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=3089041

- **Bone marrow histiocytic hyperplasia and hemophagocytosis with pancytopenia in typhoid fever.**
  Author(s): Udden MM, Banez E, Sears DA.
  Source: The American Journal of the Medical Sciences. 1986 June; 291(6): 396-400.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=3717197

- **Bone marrow pathology of culture proven typhoid fever.**
  Author(s): Shin BM, Paik IK, Cho HI.
  Source: Journal of Korean Medical Science. 1994 February; 9(1): 57-63.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=8068220

- **Bone-marrow studies in two cases of typhoid fever.**
  Author(s): Kim BS, Sanders DY.
  Source: N C Med J. 1971 August; 32(8): 339-43. No Abstract Available.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=5285574

- **Bottled beverages and typhoid fever: the Mexican epidemic of 1972-73.**
  Author(s): Gonzalez-Cortes A, Gangarosa EJ, Parrilla C, Martin WT, Espinosa-Ayala AM, Ruiz L, Bessudo D, Hernandez-Arreortua H.
  Source: American Journal of Public Health. 1982 August; 72(8): 844-5.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=7091481

- **Breast abscess: a rare complication of multiresistant typhoid fever.**
  Author(s): Kumar PD.
  Source: Trop Doct. 1998 October; 28(4): 238-9. No Abstract Available.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=9803852

- **Catastrophic antiphospholipid syndrome associated with typhoid fever: comment on the article by Hayem et al.**
  Author(s): Uthman I, Taher A, Khalil I, Bizri AR, Gharavi AE.
  Source: Arthritis and Rheumatism. 2002 March; 46(3): 850.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=11920434

- **Cefotaxime in multi drug resistant typhoid fever.**
  Author(s): Harish R, Sharma DB.
  Source: Indian Pediatrics. 1994 February; 31(2): 193-6.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=7875844

- **Ceftriaxone therapy in ciprofloxacin treatment failure typhoid fever in children.**
  Author(s): Dutta P, Mitra U, Dutta S, De A, Chatterjee MK, Bhattacharya SK.
  Source: The Indian Journal of Medical Research. 2001 June; 113: 210-3.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=11816954

- **CF gene may protect against typhoid fever.**
  Author(s): Josefson D.
  Source: Bmj (Clinical Research Ed.). 1998 May 16; 316(7143): 1481.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=9616022

- **Ciprofloxacin treatment failure in typhoid fever case, Pakistan.**
  Author(s): Butt T, Ahmad RN, Mahmood A, Zaidi S.
  Source: Emerging Infectious Diseases. 2003 December; 9(12): 1621-2.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=14720407

- **Ciprofloxacin versus ceftriaxone in the treatment of multiresistant typhoid fever.**
  Author(s): Wallace MR, Yousif AA, Mahroos GA, Mapes T, Threlfall EJ, Rowe B, Hyams KC.
  Source: European Journal of Clinical Microbiology & Infectious Diseases : Official Publication of the European Society of Clinical Microbiology. 1993 December; 12(12): 907-10.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=8187784

- **Clinical and bacteriological profiles of patients with typhoid fever treated during 1975-1998 in the Tokyo Metropolitan Komagome Hospital.**
  Author(s): Hoshino Y, Masuda G, Negishi M, Ajisawa A, Imamura A, Hachimori K, Takayama N, Yamaguchi T, Kimura M.
  Source: Microbiology and Immunology. 2000; 44(7): 577-83.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=10981830

- **Clinical application of a dot blot test for diagnosis of enteric fever due to Salmonella enterica serovar typhi in patients with typhoid fever from Colombia and Peru.**
  Author(s): Cardona-Castro N, Gotuzzo E, Rodriguez M, Guerra H.
  Source: Clinical and Diagnostic Laboratory Immunology. 2000 March; 7(2): 312-3.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=10702512

- **Clinical profile of multi drug resistant typhoid fever in Jaipur City.**
  Author(s): Garg K, Mangal N, Mathur HC.
  Source: Indian Pediatrics. 1994 February; 31(2): 191-3.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=7875843

- **Combined vaccination against hepatitis A, hepatitis B, and typhoid fever: safety, reactogenicity, and immunogenicity.**
  Author(s): Proell S, Maiwald H, Nothdurft HD, Saenger R, Vollmar J, De Clercq N, von Sonnenburg F.
  Source: Journal of Travel Medicine : Official Publication of the International Society of Travel Medicine and the Asia Pacific Travel Health Association. 2002 May-June; 9(3): 122-6.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=12088576

- **Combined vaccination against yellow fever and typhoid fever: a comparative trial.**
  Author(s): Ambrosch F, Fritzell B, Gregor J, Jonas S, Kollaritsch H, Teulieres L, Wiedermann G.
  Source: Vaccine. 1994 May; 12(7): 625-8.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=8085380

- **Comparison of ciprofloxacin versus cephelexin and gentamicin in the treatment of multi-drug resistant typhoid fever.**
  Author(s): Takkar VP, Kumar R, Khurana S, Takkar R.
  Source: Indian Pediatrics. 1994 February; 31(2): 200-1.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=7875846

- **Complications of bacteriologically confirmed typhoid fever in children.**
  Author(s): Malik AS.
  Source: Journal of Tropical Pediatrics. 2002 April; 48(2): 102-8.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=12022423

- **Complications of typhoid fever requiring laparotomy during childhood.**
  Author(s): Kizilcan F, Tanyel FC, Buyukpamukcu N, Hicsonmez A.
  Source: Journal of Pediatric Surgery. 1993 November; 28(11): 1490-3.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=8301466

- **Concomitant vaccination against hepatitis A and typhoid fever.**
  Author(s): Van Hoecke C, Lebacq E, Beran J, Prymula R, Collard F.
  Source: Journal of Travel Medicine : Official Publication of the International Society of Travel Medicine and the Asia Pacific Travel Health Association. 1998 September; 5(3): 116-20.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=9772328

- **Considerations regarding mass vaccination against typhoid fever as an adjunct to sanitation and public health measures: potential use in an epidemic in Tajikistan.**
  Author(s): Tarr PE, Kuppens L, Jones TC, Ivanoff B, Aparin PG, Heymann DL.
  Source: The American Journal of Tropical Medicine and Hygiene. 1999 July; 61(1): 163-70.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=10432074

- **Correlates of psychiatric morbidity in typhoid fever in a Nigerian general hospital setting.**
  Author(s): Aghanwa HS, Morakinyo O.
  Source: General Hospital Psychiatry. 2001 May-June; 23(3): 158-62.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=11427249

- **Correlation of clinical and hematologic profiles with bone marrow responses in typhoid fever.**
  Author(s): James J, Dutta TK, Jayanthi S.
  Source: The American Journal of Tropical Medicine and Hygiene. 1997 September; 57(3): 313-6.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=9311642

- **Current trends in typhoid Fever.**
  Author(s): Crum NF.
  Source: Current Gastroenterology Reports. 2003 August; 5(4): 279-86. Review.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=12864957

- **Cytokine release by lipopolysaccharide-stimulated whole blood from patients with typhoid fever.**
  Author(s): House D, Chinh NT, Hien TT, Parry CP, Ly NT, Diep TS, Wain J, Dunstan S, White NJ, Dougan G, Farrar JJ.
  Source: The Journal of Infectious Diseases. 2002 July 15; 186(2): 240-5. Epub 2002 Jul 03.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=12134261

- **Detection of antibodies against Salmonella typhi outer membrane protein (OMP) preparation in typhoid fever patients.**
  Author(s): Verdugo-Rodriguez A, Gam LH, Devi S, Koh CL, Puthucheary SD, Calva E, Pang T.
  Source: Asian Pac J Allergy Immunol. 1993 June; 11(1): 45-52.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=8216558

- **Detection of Salmonella typhi by polymerase chain reaction: implications in diagnosis of typhoid fever.**
  Author(s): Kumar A, Arora V, Bashamboo A, Ali S.
  Source: Infection, Genetics and Evolution : Journal of Molecular Epidemiology and Evolutionary Genetics in Infectious Diseases. 2002 December; 2(2): 107-10.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=12797986

- **Detection of Salmonella typhi in the blood of patients with typhoid fever by polymerase chain reaction.**
  Author(s): Song JH, Cho H, Park MY, Na DS, Moon HB, Pai CH.
  Source: Journal of Clinical Microbiology. 1993 June; 31(6): 1439-43.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=8314983

- **Detection of urinary Vi antigen as a diagnostic test for typhoid fever.**
  Author(s): Taylor DN, Harris JR, Barrett TJ, Hargrett NT, Prentzel I, Valdivieso C, Palomino C, Levine MM, Blake PA.
  Source: Journal of Clinical Microbiology. 1983 October; 18(4): 872-6.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=6630465

- **Diagnosis and over diagnosis of typhoid fever.**
  Author(s): Mirza NB.
  Source: East Afr Med J. 1995 December; 72(12): 753-4. No Abstract Available.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=8689969

- **Diagnosis of typhoid fever by detection of Salmonella typhi antigen in urine.**
  Author(s): Chaicumpa W, Ruangkunaporn Y, Burr D, Chongsa-Nguan M, Echeverria P.
  Source: Journal of Clinical Microbiology. 1992 September; 30(9): 2513-5.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=1401030

- **Diagnosis of typhoid fever by Dot enzyme immunoassay in an endemic region.**
  Author(s): Khan E, Azam I, Ahmed S, Hassan R.
  Source: J Pak Med Assoc. 2002 September; 52(9): 415-7.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=12532577

- **Diagnosis of typhoid fever by haemagglutination.**
  Author(s): el-Falaky IH, Hassan A, Abdel Wahab MF, el-Kholy S.
  Source: J Egypt Public Health Assoc. 1970; 45(1): 109-18. No Abstract Available.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=4991890

- **Diagnosis of typhoid fever by the detection of anti-LPS & anti-flagellin antibodies by ELISA.**
  Author(s): Jesudason MV, Sridharan G, Arulselvan R, Babu PG, John TJ.
  Source: The Indian Journal of Medical Research. 1998 May; 107: 204-7.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=9670617

- **Diagnosis of typhoid fever by two serologic methods. Enzyme-linked immunosorbent assay of antilipopolysaccharide of Salmonella typhi antibodies and Widal test.**
  Author(s): Quiroga T, Goycoolea M, Tagle R, Gonzalez F, Rodriguez L, Villarroel L.
  Source: Diagnostic Microbiology and Infectious Disease. 1992 November-December; 15(8): 651-6.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=1478046

- **Diagnosis of typhoid fever: detection of Salmonella typhi porins-specific antibodies by inhibition ELISA.**
  Author(s): Nandakumar KS, Palanivel V, Muthukkaruppan V.
  Source: Clinical and Experimental Immunology. 1993 November; 94(2): 317-21.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=8222322

- **Diagnostic specificity of Widal's reaction for typhoid fever.**
  Author(s): Reynolds DW, Carpenter RL, Simon WH.
  Source: Jama : the Journal of the American Medical Association. 1970 December 21; 214(12): 2192-3.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=4921576

- **Diagnostic value of dot-enzyme-immunoassay test to detect outer membrane protein antigen in sera of patients with typhoid fever.**
  Author(s): Purwaningsih S, Handojo I, Prihatini, Probohoesodo Y.
  Source: Southeast Asian J Trop Med Public Health. 2001 September; 32(3): 507-12.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=11944708

- **Diarrhea associated with typhoid fever.**
  Author(s): Roy SK, Speelman P, Butler T, Nath S, Rahman H, Stoll BJ.
  Source: The Journal of Infectious Diseases. 1985 June; 151(6): 1138-43.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=3998508

- **Diazo test in typhoid fever.**
  Author(s): Raman TS, Swami A, Priya S, Krishnamurthy L, Singh D, Jayaprakash DG.
  Source: Indian Pediatrics. 1994 February; 31(2): 201-4.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=7875847

- **Diazo test in typhoid fever.**
  Author(s): Shivpuri D, Dayal HS, Jain D.
  Source: Indian Pediatrics. 2003 March; 40(3): 270-1.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=12657769

- **Differentiation of typhoid fever from fulminant hepatic failure in patients presenting with jaundice and encephalopathy.**
  Author(s): Kamath PS, Jalihal A, Chakraborty A.
  Source: Mayo Clinic Proceedings. 2000 May; 75(5): 462-6.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=10807074

- **Drug resistant typhoid fever.**
  Author(s): Khosla SN, Saman A, Khosla P, Sabharwal U, Khosla A.
  Source: Trop Doct. 1998 October; 28(4): 235-7. No Abstract Available.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=9803851

- **Drugs for typhoid fever.**
  Author(s): Masood A.
  Source: Lancet. 1969 December 20; 2(7634): 1365.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=4188126

- **Duodenal string test in typhoid fever.**
  Author(s): Antony TJ, Patwari AK, Anand VK, Pillai PK, Aneja S, Sharma D.
  Source: Indian Pediatrics. 1993 May; 30(5): 643-7.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=8282391

- **Early diagnosis of typhoid fever by the detection of salivary IgA.**
  Author(s): Herath HM.
  Source: Journal of Clinical Pathology. 2003 September; 56(9): 694-8.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=12944555

- **Efficacy of azithromycin for typhoid fever.**
  Author(s): Tribble D, Girgis N, Habib N, Butler T.
  Source: Clinical Infectious Diseases : an Official Publication of the Infectious Diseases Society of America. 1995 October; 21(4): 1045-6.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=8645805

- **Efficacy of bone marrow, blood, stool and duodenal contents cultures for bacteriologic confirmation of typhoid fever in children.**
  Author(s): Vallenas C, Hernandez H, Kay B, Black R, Gotuzzo E.
  Source: Pediatr Infect Dis. 1985 September-October; 4(5): 496-8.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=3900945

- **Efficacy of cefixime in the therapy of typhoid fever.**
  Author(s): Medina Santillan R, Reyes Garcia G, Herrera Benavente I, Mateos Garcia E.
  Source: Proc West Pharmacol Soc. 2000; 43: 65-6. No Abstract Available.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=11056958

- **Efficacy trial of Vi polysaccharide vaccine against typhoid fever in south-western China.**
  Author(s): Yang HH, Wu CG, Xie GZ, Gu QW, Wang BR, Wang LY, Wang HF, Ding ZS, Yang Y, Tan WS, Wang WY, Wang XC, Qin M, Wang JH, Tang HA, Jiang XM, Li YH, Wang ML, Zhang SL, Li GL.
  Source: Bulletin of the World Health Organization. 2001; 79(7): 625-31.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=11477965

- **Efficient vaccination strategy against typhoid fever.**
  Author(s): Arya SC.
  Source: Vaccine. 2000 May 8; 18(22): 2321-2.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=10905949

- **Electrocardiographic pattern in children suffering from typhoid fever.**
  Author(s): Salaki A, Samik Wahab MP, Damanik, Sugeng B.
  Source: Paediatr Indones. 1985 July-August; 25(7-8): 131-5. No Abstract Available.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=4080402

- **Emergence of Salmonella typhi Vi antigen-negative strains in an epidemic of multidrug-resistant typhoid fever cases in Calcutta, India.**
  Author(s): Saha MR, Ramamurthy T, Dutta P, Mitra U.
  Source: Natl Med J India. 2000 May-June; 13(3): 164. No Abstract Available.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=11558122

- **Emergency department presentations of typhoid fever.**
  Author(s): Hoffner RJ, Slaven E, Perez J, Magana RN, Henderson SO.
  Source: The Journal of Emergency Medicine. 2000 November; 19(4): 317-21.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=11074322

- **Emerging drug resistance and vaccination for typhoid fever.**
  Author(s): Gleckman R.
  Source: Jama : the Journal of the American Medical Association. 1998 February 25; 279(8): 580.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=9486745

- **Emerging drug resistance and vaccination for typhoid fever.**
  Author(s): Licciardone J.
  Source: Jama : the Journal of the American Medical Association. 1998 February 25; 279(8): 579-80; Author Reply 580.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=9486744

- **Emerging drug resistance and vaccination for typhoid fever.**
  Author(s): Atkins BL, Gottlieb T.
  Source: Jama : the Journal of the American Medical Association. 1998 February 25; 279(8): 579; Author Reply 580.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=9486743

- **Endemic typhoid fever. A diagnostic pitfall.**
  Author(s): Wicks AC, Holmes GS, Davidson L.
  Source: The Quarterly Journal of Medicine. 1971 July; 40(159): 341-54.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=5564533

- **Endoscopic diagnosis in typhoid fever.**
  Author(s): Kume K, Kubo K, Murata I, Yoshikawa I, Nakamura H, Hata H, Otsuki M.
  Source: Endoscopy. 2000 May; 32(5): S31.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=10817198

- **Epidemiological model of typhoid fever and its use in the planning and evaluation of antityphoid immunization and sanitation programmes.**
  Author(s): Cvjetanovic B, Grab B, Uemura K.
  Source: Bulletin of the World Health Organization. 1971; 45(1): 53-75.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=5316853

- **Epidemiology of an unusually prolonged outbreak of typhoid fever in Terrassa, Spain.**
  Author(s): Xercavins M, Llovet T, Navarro F, Morera MA, More J, Bella F, Freixas N, Simo M, Echeita A, Coll P, Garau J, Prats G.
  Source: Clinical Infectious Diseases : an Official Publication of the Infectious Diseases Society of America. 1997 March; 24(3): 506-10.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=9114207

- **Estimating the incidence of typhoid fever and other febrile illnesses in developing countries.**
  Author(s): Crump JA, Youssef FG, Luby SP, Wasfy MO, Rangel JM, Taalat M, Oun SA, Mahoney FJ.
  Source: Emerging Infectious Diseases. 2003 May; 9(5): 539-44.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=12737736

- **Evaluation of a simple and rapid dipstick assay for the diagnosis of typhoid fever in Indonesia.**
  Author(s): Gasem MH, Smits HL, Goris MG, Dolmans WM.
  Source: Journal of Medical Microbiology. 2002 February; 51(2): 173-7.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=11865843

- **Evaluation of dipstick serologic tests for diagnosis of brucellosis and typhoid Fever in egypt.**
  Author(s): Ismail TF, Smits H, Wasfy MO, Malone JL, Fadeel MA, Mahoney F.
  Source: Journal of Clinical Microbiology. 2002 September; 40(9): 3509-11.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=12202606

- **Evaluation of the response of human humoral antibodies to Salmonella typhi lipopolysaccharide in an area of endemic typhoid fever.**
  Author(s): Shaheen HI, Girgis NI, Rodier GR, Kamal KA.
  Source: Clinical Infectious Diseases : an Official Publication of the Infectious Diseases Society of America. 1995 October; 21(4): 1012-3.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=8645789

- **Failure of short-course ceftriaxone chemotherapy for multidrug-resistant typhoid fever in children: a randomized controlled trial in Pakistan.**
  Author(s): Bhutta ZA, Khan IA, Shadmani M.
  Source: Antimicrobial Agents and Chemotherapy. 2000 February; 44(2): 450-2.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=10639383

- **Fatal intravascular consumption coagulopathy in typhoid fever.**
  Author(s): Basty H.
  Source: Acta Med Iran. 1974 December; 17(3-4): 131-9. No Abstract Available.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=4470314

- **Febrile Broca's aphasia: a rare presentation of typhoid fever.**
  Author(s): Adehossi E, Parola P, Brouqui P.
  Source: Journal of Travel Medicine : Official Publication of the International Society of Travel Medicine and the Asia Pacific Travel Health Association. 2003 May-June; 10(3): 192-3.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=12757696

- **Fecal elimination of salmonella antigens in typhoid fever. I. An epidemiological survey.**
  Author(s): Kumate J, Villarreal J, Carrillo J, Isibasi A.
  Source: Arch Invest Med (Mex). 1983; 14(1): 51-7 Passim. English, Spanish. No Abstract Available.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=6838310

- **Fluoroquinolones in the treatment of typhoid fever and the carrier state.**
  Author(s): Zavala Trujillo I, Quiroz C, Gutierrez MA, Arias J, Renteria M.
  Source: European Journal of Clinical Microbiology & Infectious Diseases : Official Publication of the European Society of Clinical Microbiology. 1991 April; 10(4): 334-41. Review.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=1864294

- **Fregoli syndrome: a rare persecutory delusion in a 17 year old sufferer of psychosis associated with typhoid fever at Jos University Teaching Hospital, Jos, Nigeria.**
  Author(s): Stanley PC, Andrew AE.
  Source: Niger J Med. 2002 January-March; 11(1): 33-4.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=12073299

- **Frequency of glucose-6-phosphate dehydrogenase (G-6-PD) deficiency in Tanzanian males with typhoid fever.**
  Author(s): Kujwalile JM, Kigoni EP, Nhonoli AM.
  Source: Trop Geogr Med. 1979 June; 31(2): 225-8.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=505552

- **Frequency of glucose-6-phosphate-dehydrogenase deficiency in typhoid fever in Ghana.**
  Author(s): Owusu SK, Foli AK, Konotey-Ahulu FI, Janosi M.
  Source: Lancet. 1972 February 5; 1(7745): 320.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=4109955

- **Fulminant hepatic failure with typhoid fever in childhood.**
  Author(s): Bhutta ZA.
  Source: J Pak Med Assoc. 1991 June; 41(6): 123-6.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=1895494

- **Functional or organic psychosis. (Four cases of typhoid fever initially presenting as various forms of psychiatric disorder).**
  Author(s): Muhangi JR.
  Source: Afr J Med Sci. 1972 October; 3(4): 319-26. No Abstract Available.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=5086888

- **Furazolidone and chloramphenicol for treatment of typhoid fever.**
  Author(s): Carcelen A, Chirinos J, Yi A.
  Source: Scandinavian Journal of Gastroenterology. Supplement. 1989; 169: 19-23.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=2694339

- **Furazolidone and typhoid fever.**
  Author(s): Goyal R.
  Source: Indian Pediatrics. 1998 February; 35(2): 181-5.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=9707866

- **Furazolidone in multi-resistant childhood typhoid fever.**
  Author(s): Sethuraman S, Mahamood M, Kareem S.
  Source: Annals of Tropical Paediatrics. 1994; 14(4): 321-4.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=7880095

- **Furazolidone in typhoid fever.**
  Author(s): Santhoshkumar A.
  Source: Indian Pediatrics. 1996 August; 33(8): 701-2.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=8979558

- **Furazolidone in typhoid fever--correlation of clinical efficacy with serum bactericidal activity.**
  Author(s): Kumar AS, Legori M, Sathy N, Mathew R.
  Source: Indian Pediatrics. 1995 May; 32(5): 533-8.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=8613310

- **Furazolidone therapy in typhoid fever.**
  Author(s): Damany SJ, Bilgi C.
  Source: J Assoc Physicians India. 1968 September; 16(9): 669-75. No Abstract Available.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=5711927

- **Further experience with amoxycillin in typhoid fever in children.**
  Author(s): Scragg JN.
  Source: British Medical Journal. 1976 October 30; 2(6043): 1031-3.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=990748

- **Fusion protein of Salmonella typhi flagellin as antigen for diagnosis of typhoid fever.**
  Author(s): Sukosol T, Sarasombath S, Songsivilai S, Ekpo P, Rungpitarangsi B, Pang T.
  Source: Asian Pac J Allergy Immunol. 1994 June; 12(1): 21-5.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=7872989

- **Gastric acid secretion in patients with typhoid fever.**
  Author(s): Bhalla S, Vij JC, Anand BS, Varghese A, Chuttani HK.
  Source: Gut. 1985 May; 26(5): 491-4.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=3996939

- **Gastric acid secretion in typhoid fever.**
  Author(s): Khosla SN, Jain N, Khosla A.
  Source: Postgraduate Medical Journal. 1993 February; 69(808): 121-3.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=8506192

- **Gastrointestinal phenomena in childhood typhoid fever.**
  Author(s): Colon AR.
  Source: Southern Medical Journal. 1976 July; 69(7): 914.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=945910

- **General considerations in the management of typhoid fever and dysentery.**
  Author(s): Gilman RH.
  Source: Scandinavian Journal of Gastroenterology. Supplement. 1989; 169: 11-8. Review.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=2694338

- **Genes of the class II and class III major histocompatibility complex are associated with typhoid fever in Vietnam.**
  Author(s): Dunstan SJ, Stephens HA, Blackwell JM, Duc CM, Lanh MN, Dudbridge F, Phuong CX, Luxemburger C, Wain J, Ho VA, Hien TT, Farrar J, Dougan G.
  Source: The Journal of Infectious Diseases. 2001 January 15; 183(2): 261-268. Epub 2000 December 21.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=11120931

- **Glomerulitis in typhoid fever.**
  Author(s): Sitprija V, Pipantanagul V, Boonpucknavig V, Boonpucknavig S.
  Source: Annals of Internal Medicine. 1974 August; 81(2): 210-3.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=4210565

- **Glucose-6-phosphate dehydrogenase deficiency in Thai children with typhoid fever.**
  Author(s): Lampe RM, Kirdpon S, Mansuwan P, Benenson MW.
  Source: The Journal of Pediatrics. 1975 October; 87(4): 576-8.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=1159586

- **Gm and Km allotypes and typhoid fever.**
  Author(s): Herrera P, Arcos-Burgos M, Valenzuela CY, Pandey JP.
  Source: Experimental and Clinical Immunogenetics. 1996; 13(3-4): 121-5.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=9165265

- **Guillain-Barre syndrome as first manifestation of typhoid fever.**
  Author(s): Aldrey JM, Fernandez-Rial A, Lopez-Gonzalez FJ, Doval JC, de la Fuente-Fernandez R.
  Source: Clinical Infectious Diseases : an Official Publication of the Infectious Diseases Society of America. 1999 May; 28(5): 1171-2.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=10452662

- **Guillain-Barre syndrome associated with typhoid fever.**
  Author(s): Chanmugam D, Waniganetti A.
  Source: British Medical Journal. 1969 January 11; 1(636): 95-6.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=5761835

- **Guillain-Barre syndrome complicating typhoid fever.**
  Author(s): Berger JR, Ayyar DR, Kaszovitz B.
  Source: Annals of Neurology. 1986 November; 20(5): 649-50.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=3789683

- **Guillain-Barre syndrome following typhoid fever/letter.**
  Author(s): Donoso R.
  Source: Annals of Neurology. 1988 June; 23(6): 627.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=3408245

- **Haematological profile in typhoid fever.**
  Author(s): Khosla SN, Anand A, Singh U, Khosla A.
  Source: Trop Doct. 1995 October; 25(4): 156-8.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=7502322

- **Haemoglobinuric renal failure and typhoid fever.**
  Author(s): Onwubalili JK.
  Source: Transactions of the Royal Society of Tropical Medicine and Hygiene. 1988; 82(3): 482-4.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=3232192

- **Haemophagocytosis in typhoid fever.**
  Author(s): Ramanathan M, Karim N.
  Source: Med J Malaysia. 1993 June; 48(2): 240-3.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=8350805

- **Hair loss following typhoid fever: a forgotten phenomenon.**
  Author(s): Haefeli WE, Ott R, Bircher AJ, Burnens AP.
  Source: Clinical Infectious Diseases : an Official Publication of the Infectious Diseases Society of America. 1995 March; 20(3): 723-4.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=7756509

- **Hemolytic uremic syndrome in association with typhoid fever.**
  Author(s): Albaqali A, Ghuloom A, Al Arrayed A, Al Ajami A, Shome DK, Jamsheer A, Al Mahroos H, Jelacic S, Tarr PI, Kaplan BS, Dhiman RK.
  Source: American Journal of Kidney Diseases : the Official Journal of the National Kidney Foundation. 2003 March; 41(3): 709-13.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=12612998

- **Hemophagocytosis accompanying typhoid fever.**
  Author(s): Fame TM, Engelhard D, Riley HD Jr.
  Source: Pediatr Infect Dis. 1986 May-June; 5(3): 367-9. No Abstract Available.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=3487778

- **Hemophagocytosis with typhoid fever.**
  Author(s): Mallouh AA, Saadi AR.
  Source: Pediatr Infect Dis. 1986 November-December; 5(6): 720. No Abstract Available.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=3797312

- **Hemostasis in typhoid fever.**
  Author(s): Miro-Quesada M, Crosby E, Gotuzzo E, Guerra J, Carrillo C.
  Source: Johns Hopkins Med J. 1981 February; 148(2): 73-7.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=7206402

- **Hepatic involvement with typhoid fever: a report of nine patients.**
  Author(s): Arif N, Khan AA, Iqbal Z.
  Source: J Pak Med Assoc. 1990 January; 40(1): 4-9.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=2109132

- **Hepatic manifestations in typhoid fever.**
  Author(s): Jagadish K, Patwari AK, Sarin SK, Prakash C, Srivastava DK, Anand VK.
  Source: Indian Pediatrics. 1994 July; 31(7): 807-11.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=7890343

- **Hepatitis-like presentation in typhoid fever.**
  Author(s): Dutta P, Lahiri M, Bhattacharya SK, Saha MR, Mitra U, Rasaily R, Pal SC.
  Source: Transactions of the Royal Society of Tropical Medicine and Hygiene. 1992 January-February; 86(1): 92.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=1566322

- **Historical perspectives in hospital nutrition. Diet in typhoid fever. Warren Coleman. Journal of the American Medical Association 1909.**
  Author(s): Coleman W.
  Source: Jpen. Journal of Parenteral and Enteral Nutrition. 1978 May; 2(2): 142-4.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=399303

- **HLA-DRB1*12 is associated with protection against complicated typhoid fever, independent of tumour necrosis factor alpha.**
  Author(s): Dharmana E, Joosten I, Tijssen HJ, Gasem MH, Indarwidayati R, Keuter M, Dolmans WM, Van Der Meer JW.
  Source: European Journal of Immunogenetics : Official Journal of the British Society for Histocompatibility and Immunogenetics. 2002 August; 29(4): 297-300.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=12121274

- **How to estimate the relative importance of different diseases: estimates for typhoid fever from Ghana.**
  Author(s): Morrow RH Jr.
  Source: Trop Doct. 1984 April; 14(2): 86-9. No Abstract Available.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=6610235

- **Humoral and cellular immune responses to Salmonella typhi in patients with typhoid fever.**
  Author(s): Mastroianni CM, Jirillo E, De Simone C, Grassi PP, Maffione AB, Catino AM, Vullo V, Misefari A, Delia S.
  Source: Journal of Clinical Laboratory Analysis. 1989; 3(3): 191-5.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=2754534

- **Hydrocortisone in chloramphenicol-treated severe typhoid fever in Papua New Guinea.**
  Author(s): Rogerson SJ, Spooner VJ, Smith TA, Richens J.
  Source: Transactions of the Royal Society of Tropical Medicine and Hygiene. 1991 January-February; 85(1): 113-6.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=2068737

- **Hydrops of the gallbladder in typhoid fever as demonstrated by sonography.**
  Author(s): Cohen EK, Stringer DA, Smith CR, Daneman A.
  Source: Journal of Clinical Ultrasound : Jcu. 1986 October; 14(8): 633-5.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=3095396

- **Hygiene habits and carriers in families with a child who has had typhoid fever.**
  Author(s): Alvarez ML, Wurgaft F, Espinoza J, Araya M, Figueroa G.
  Source: Revista De Saude Publica. 1992 April; 26(2): 75-81.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=1307431

- **Hypersensitivity reaction following chloramphenicol administration in a patient with typhoid fever.**
  Author(s): Perkins JB, Raasch RH.
  Source: Drug Intell Clin Pharm. 1987 April; 21(4): 343-5.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=3569037

- **Hypertriglyceridemia in patients with typhoid fever.**
  Author(s): Segura F, Force L, Espejo R, Soriano E, San Miguel JG.
  Source: The Journal of Infectious Diseases. 1983 March; 147(3): 606.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=6833805

- **Immigration of Ethiopians with typhoid fever to Israel: apparent lack of influence on the local population.**
  Author(s): Carmeli Y, Schapiro JM, Alkan M.
  Source: Clinical Infectious Diseases : an Official Publication of the Infectious Diseases Society of America. 1994 December; 19(6): 1144-6.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=7888548

- **Immunisation against hepatitis A, hepatitis B and typhoid fever via combined vaccination: rationale, immunogenicity and reactogenicity.**
  Author(s): Proell S.
  Source: Biodrugs : Clinical Immunotherapeutics, Biopharmaceuticals and Gene Therapy. 2003; 17 Suppl 1: 7-10.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=12785871

- **Immunity in typhoid fever: evaluation of live streptomycin-dependent vaccine.**
  Author(s): DuPont HL, Hornick RB, Snyder MJ, Libonati JP, Woodward TE.
  Source: Antimicrobial Agents Chemother. 1970; 10: 236-9. No Abstract Available.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=4939733

- **Immunization against influenza and typhoid fever by the intradermal method--a clinical appraisal.**
  Author(s): Tuft L.
  Source: Ann Allergy. 1971 January; 29(1): 23-9. No Abstract Available.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=5155513

- **Immunological control of typhoid fever.**
  Author(s): Hornick RB.
  Source: J Egypt Public Health Assoc. 1970; 45(1): 236-46. No Abstract Available.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=5484828

- **Impact of age and drug resistance on mortality in typhoid fever.**
  Author(s): Bhutta ZA.
  Source: Archives of Disease in Childhood. 1996 September; 75(3): 214-7.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=8976660

- **In vivo drug resistance during treatment for typhoid fever: a case report.**
  Author(s): Atoba MA, Charzt FA.
  Source: Cent Afr J Med. 2001 January; 47(1): 20-1.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=11961854

- **Increase of gamma/delta T cells in a case of typhoid fever.**
  Author(s): Ikushima S, Hibi S, Kataoka Y, Fujita N, Imashuku S.
  Source: British Journal of Haematology. 1993 January; 83(1): 177-8.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=8435331

- **Index of suspicion. Case 1. Typhoid fever.**
  Author(s): Nazarian S, Stauffer W, Kamat D.
  Source: Pediatrics in Review / American Academy of Pediatrics. 1997 October; 18(10): 357-8.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=9311249

- **Index of suspicion. Case 2. Typhoid fever.**
  Author(s): Batres LA, Marino R.
  Source: Pediatrics in Review / American Academy of Pediatrics. 1999 February; 20(2): 53-5.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=9989112

- **Induction and characterization of heat shock proteins of Salmonella typhi and their reactivity with sera from patients with typhoid fever.**
  Author(s): Tang SW, Abubakar S, Devi S, Puthucheary S, Pang T.
  Source: Infection and Immunity. 1997 July; 65(7): 2983-6.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=9199477

- **Inefficacy of the commercial live oral Ty 21a vaccine in the prevention of typhoid fever.**
  Author(s): Hirschel B, Wuthrich R, Somaini B, Steffen R.
  Source: European Journal of Clinical Microbiology. 1985 June; 4(3): 295-8.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=4018068

- **Influence of sex on clinical features, laboratory findings, and complications of typhoid fever.**
  Author(s): Khan M, Coovadia YM, Connolly C, Sturm AW.
  Source: The American Journal of Tropical Medicine and Hygiene. 1999 July; 61(1): 41-6.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=10432053

- **Interleukin-6, gamma interferon, and tumor necrosis factor receptors in typhoid fever related to outcome of antimicrobial therapy.**
  Author(s): Butler T, Ho M, Acharya G, Tiwari M, Gallati H.
  Source: Antimicrobial Agents and Chemotherapy. 1993 November; 37(11): 2418-21.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=8285627

- **Interpretation of serologic tests for typhoid fever.**
  Author(s): Schroeder SA.
  Source: Jama : the Journal of the American Medical Association. 1968 October 21; 206(4): 839-40.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=5695671

- **Interpretation of the Widal test in the diagnosis of typhoid fever in Bangladeshi children.**
  Author(s): Saha SK, Ruhulamin M, Hanif M, Islam M, Khan WA.
  Source: Annals of Tropical Paediatrics. 1996 March; 16(1): 75-8.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=8787370

- **Investigation of an outbreak of typhoid fever in two settlements near Port Moresby.**
  Author(s): Duncan LE, Bukenya GB.
  Source: P N G Med J. 1995 March; 38(1): 27-35.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=8571675

- **Investigation of concurrent outbreaks of gastroenteritis and typhoid fever following a party on a floating restaurant, France, March 1998.**
  Author(s): Valenciano M, Baron S, Fisch A, Grimont F, Desenclos JC.
  Source: American Journal of Epidemiology. 2000 November 15; 152(10): 934-9.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=11092435

- **Investigation report of an epidemic of typhoid fever.**
  Author(s): Sathe PV, Karandikar VN, Gupte MD, Niphadkar KB, Joshi BN, Polakhare JK, Jahagirdar PL, Deodhar NS.
  Source: International Journal of Epidemiology. 1983 June; 12(2): 215-9.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=6874218

- **Isolated thrombocytopenia: the presenting finding of typhoid fever.**
  Author(s): Serefhanoglu K, Kaya E, Sevinc A, Aydogdu I, Kuku I, Ersoy Y.
  Source: Clinical and Laboratory Haematology. 2003 February; 25(1): 63-5.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=12542445

- **Jaundice in typhoid fever.**
  Author(s): Singh DS, Nair PN, Krishnasamy S, Aurora AL, Chandrasekar S, Bisht DB.
  Source: J Trop Med Hyg. 1978 April; 81(4): 68-70. No Abstract Available.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=650717

- **Lactose-fermenting Salmonella typhi strain isolated from patient with typhoid fever.**
  Author(s): Kechrid A, Karoui H, Amor A, Bouzouaia N.
  Source: Annales De Biologie Clinique. 1996; 54(3-4): 169-70.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=8881364

- **Lactose-fermenting, multiple drug-resistant Salmonella typhi strains isolated from a patient with postoperative typhoid fever.**
  Author(s): Kohbata S, Takahashi M, Yabuuchi E.
  Source: Journal of Clinical Microbiology. 1983 October; 18(4): 920-5.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=6630471

- **Landry-Guillain-Barre-Strohl syndrome in typhoid fever.**
  Author(s): Samantray SK.
  Source: Aust N Z J Med. 1977 June; 7(3): 307-8.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=269693

- **Latex agglutination test (LAT) for the diagnosis of typhoid fever.**
  Author(s): Kalhan R, Kaur I, Singh RP, Gupta HC.
  Source: Indian Pediatrics. 1999 January; 36(1): 65-8.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=10709124

- **Letter: Amoxycillin in typhoid fever.**
  Author(s): Farid Z, Miner WF, Hassan A.
  Source: Lancet. 1975 November 8; 2(7941): 928.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=53408

- **Letter: chloramphenicol- and ampicillin-resistant typhoid fever.**
  Author(s): Lampe RM, Duangmani C, Mansuwan P.
  Source: Jama : the Journal of the American Medical Association. 1975 August 18; 233(7): 768.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=1041280

- **Letter: Diagnosis of typhoid fever.**
  Author(s): Altmann G.
  Source: Lancet. 1975 August 9; 2(7928): 281.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=49830

- **Letter: Ethics of renial biopsies in typhoid fever.**
  Author(s): Sitprija V, Pipatanagul V, Boonpucknavig V, Boonpucknavig S.
  Source: Annals of Internal Medicine. 1975 June; 82(6): 850.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=1138608

- **Letter: Laboratory diagnosis of typhoid fever.**
  Author(s): Foster WD.
  Source: Lancet. 1975 July 12; 2(7924): 80.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=49679

- **Letter: Laboratory diagnosis of typhoid fever.**
  Author(s): Watson KC.
  Source: Lancet. 1975 June 21; 1(7921): 1377.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=48957

- **Letter: Typhoid fever.**
  Author(s): Dodge JS.
  Source: N Z Med J. 1976 April 14; 83(561): 243. No Abstract Available.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=1066543

- **Leukocyte migration inhibition by a specific antigen in human typhoid fever.**
  Author(s): Nyerges G, Szerdahelyi F, Tanko S, Bognar S, Funk O.
  Source: Acta Microbiol Acad Sci Hung. 1976; 23(3): 293-7.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=1020698

- **Life-threatening haemorrhage from typhoid fever.**
  Author(s): Rubin CM, Fairhurst JJ.
  Source: The British Journal of Radiology. 1988 May; 61(725): 415-6.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=3260117

- **Lipopolysaccharide-independent radioimmunoprecipitation and identification of structural and in vivo induced immunogenic surface proteins of Salmonella typhi in typhoid fever.**
  Author(s): Aron L, Faundez G, Gonzalez C, Roessler E, Cabello F.
  Source: Vaccine. 1993; 11(1): 10-7.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=8427032

- **Liver disease in typhoid fever.**
  Author(s): Eisman LR, Saunders SJ.
  Source: Cent Afr J Med. 1978 September; 24(9 Suppl): 28-33. No Abstract Available.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=719743

- **Longevity of antibody responses to a Salmonella typhi-specific outer membrane protein: interpretation of a dot enzyme immunosorbent assay in an area of high typhoid fever endemicity.**
  Author(s): Choo KE, Davis TM, Ismail A, Ong KH.
  Source: The American Journal of Tropical Medicine and Hygiene. 1997 December; 57(6): 656-9.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=9430522

- **Low sensitivity of counter-current immuno-electrophoresis for serodiagnosis of typhoid fever.**
  Author(s): Sharma M, Datta U, Roy P, Verma S, Sehgal S.
  Source: Journal of Medical Microbiology. 1997 December; 46(12): 1039-42.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=9402926

- **Lower gastrointestinal bleed in a patient with typhoid fever.**
  Author(s): Zuckerman MJ, Meza AD, Ho H, Menzies IS, Dudrey EF.
  Source: The American Journal of Gastroenterology. 2000 March; 95(3): 843-5.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=10710109

- **Lupus with serologic typhoid fever.**
  Author(s): Falk AG.
  Source: The New England Journal of Medicine. 1970 September 10; 283(11): 599.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=5450619

- **Lymphoblastic reactivity and chemotactic and phagocytic activity in patients with typhoid fever.**
  Author(s): Martinez-Cairo S, Munoz-Hernandez O, Alanis-Chavarria F, Fabiani R.
  Source: Arch Invest Med (Mex). 1983; 14(3): 287-98. English, Spanish. No Abstract Available.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=6608331

- **Management issues in a major typhoid fever outbreak.**
  Author(s): Convery HT, Frank L.
  Source: American Journal of Public Health. 1993 April; 83(4): 595-6.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=8460746

- **Management of typhoid fever in children.**
  Author(s): Stephens I, Levine MM.
  Source: The Pediatric Infectious Disease Journal. 2002 February; 21(2): 157-8. Review.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=11840084

- **Massive hemorrhage from colonic ulcers in typhoid fever.**
  Author(s): Sood A, Midha V, Sood N.
  Source: Indian J Gastroenterol. 2001 March-April; 20(2): 80. No Abstract Available.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=11305506

- **Mechanism of therapeutic effectiveness of cefixime against typhoid fever.**
  Author(s): Matsumoto Y, Ikemoto A, Wakai Y, Ikeda F, Tawara S, Matsumoto K.
  Source: Antimicrobial Agents and Chemotherapy. 2001 September; 45(9): 2450-4.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=11502513

- **Mexican vaccine against typhoid fever in phase I trial.**
  Author(s): Orellana C.
  Source: The Lancet Infectious Diseases. 2001 December; 1(5): 292.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=11871797

- **Mild typhoid fever.**
  Author(s): Topley JM.
  Source: Archives of Disease in Childhood. 1986 February; 61(2): 164-7.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=3954441

- **Minimum inhibitory concentration of furazolidone in children with typhoid fever.**
  Author(s): Kumar AS, Legori M.
  Source: Indian Pediatrics. 1997 October; 34(10): 951-2.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=9567566

- **Molecular analysis of isolates of Salmonella typhi from patients with fatal or nonfatal typhoid fever or aberrant clinical presentations.**
  Author(s): Arya SC.
  Source: Journal of Clinical Microbiology. 1996 September; 34(9): 2340.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=8862619

- **Molecular analysis of isolates of Salmonella typhi obtained from patients with fatal and nonfatal typhoid fever.**
  Author(s): Thong KL, Passey M, Clegg A, Combs BG, Yassin RM, Pang T.
  Source: Journal of Clinical Microbiology. 1996 April; 34(4): 1029-33.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=8815078

- **Mortality trends in typhoid fever in India.**
  Author(s): Bhasin RC.
  Source: Journal of Postgraduate Medicine. 1970 January; 16(1): 18-25.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=5444600

- **Multi-drug resistant typhoid fever in hospitalised children. Clinical, bacteriological and epidemiological profiles.**
  Author(s): Rasaily R, Dutta P, Saha MR, Mitra U, Lahiri M, Pal SC.
  Source: European Journal of Epidemiology. 1994 February; 10(1): 41-6.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=7957789

- **Multi-drug resistant typhoid fever with diarrhea.**
  Author(s): Dutta P, Mitra U, Rasaily R, Saha MR, Manna B, Chatterjee MK, Garai T, Sengupta M, Bhattacharya SK.
  Source: Indian Pediatrics. 1997 October; 34(10): 891-9.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=9567551

- **Multidrug-resistant typhoid fever in children: epidemiology and therapeutic approach.**
  Author(s): Gupta A.
  Source: The Pediatric Infectious Disease Journal. 1994 February; 13(2): 134-40. Review.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=8190539

- **Multidrug-resistant typhoid fever in Singapore.**
  Author(s): Oh HM, Chew SK, Monteiro EH.
  Source: Singapore Med J. 1994 December; 35(6): 599-601.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=7761884

- **Multidrug-resistant typhoid fever.**
  Author(s): Kabra SK, Madhulika, Talati A, Soni N, Patel S, Modi RR.
  Source: Trop Doct. 2000 October; 30(4): 195-7.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=11075647

- **Multiple drug resistant typhoid fever outbreak in Kashmir Valley.**
  Author(s): Kamili MA, Ali G, Shah MY, Rashid S, Khan S, Allaqaband GQ.
  Source: Indian Journal of Medical Sciences. 1993 June; 47(6): 147-51.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=8406648

- **Multiple drug-resistant Citrobacter freundii infection mimicking typhoid fever.**
  Author(s): Agbonlahor DE, Nwanmut DD.
  Source: Cent Afr J Med. 1986 April; 32(4): 107-9. No Abstract Available.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=3791397

- **Multiple extraintestinal manifestations of typhoid fever.**
  Author(s): Stauffer W, Mantey K, Kamat D.
  Source: Infection. 2002 April; 30(2): 113.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=12018469

- **Multiresistant typhoid fever in Bangladesh.**
  Author(s): Ahasan HA, Chowdhury MA, Azhar MA, Islam QT, Rafiqueuddin AK, Hussain A.
  Source: Trop Doct. 1993 July; 23(3): 130. No Abstract Available.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=8257516

- **Multi-resistant typhoid fever in Nepal.**
  Author(s): Watson JP.
  Source: Trop Doct. 1992 October; 22(4): 172. No Abstract Available.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=1440889

- **Neonatal typhoid fever.**
  Author(s): Reed RP, Klugman KP.
  Source: The Pediatric Infectious Disease Journal. 1994 September; 13(9): 774-7.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=7808844

- **Neonatal typhoid fever.**
  Author(s): Yagupsky P.
  Source: Archives of Disease in Childhood. 1987 October; 62(10): 1088-9.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=3674934

- **Neonatal typhoid fever.**
  Author(s): Chin KC, Simmonds EJ, Tarlow MJ.
  Source: Archives of Disease in Childhood. 1986 December; 61(12): 1228-30.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=3813617

- **Neurological complications of typhoid fever.**
  Author(s): Nair KG.
  Source: J Indian Med Assoc. 1973 June 1; 60(11): 434-5. No Abstract Available.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=4749930

- **Neurological manifestations of typhoid fever in children.**
  Author(s): Biswal N.
  Source: Journal of Tropical Pediatrics. 1994 June; 40(3): 190.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=8078122

- **Neuropsychiatric manifestations of typhoid fever in 959 patients.**
  Author(s): Osuntokun BO, Bademosi O, Ogunremi K, Wright SG.
  Source: Archives of Neurology. 1972 July; 27(1): 7-13.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=4340378

- **Neuropsychiatric manifestations of typhoid fever.**
  Author(s): Ali G, Kamili MA, Shah MY, Koul RL, Aziz A, Hussain A, Allaqaband GQ.
  Source: J Assoc Physicians India. 1992 May; 40(5): 333-5.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=1483995

- **Neuropsychiatric manifestations of typhoid fever.**
  Author(s): Venkatesh S, Grell GA.
  Source: The West Indian Medical Journal. 1989 September; 38(3): 137-41.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=2618030

- **New and improved vaccines. Promising weapons against varicella, hepatitis A, and typhoid fever.**
  Author(s): Conrad DA, Jenson HB.
  Source: Postgraduate Medicine. 1996 October; 100(4): 113-8, 121-5, 127. Review.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=8858086

- **New and old drugs for treating typhoid fever.**
  Author(s): Finkelstein R, Markel A.
  Source: The Journal of Infectious Diseases. 1990 January; 161(1): 159.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=2295854

- **New trends in the chemotherapy of typhoid fever.**
  Author(s): Herzog C.
  Source: Acta Tropica. 1980 September; 37(3): 275-80.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=6106368

- **New typhoid fever vaccine a hit on international scene.**
  Author(s): Macek C.
  Source: Jama : the Journal of the American Medical Association. 1982 July 9; 248(2): 162-3.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=7045425

- **Niridazole-in treatment of typhoid fever.**
  Author(s): Misra RC, Kulpati DD, Bala S, Prakash K, Gupta SK, Chuttani HK.
  Source: Chemotherapy. 1971; 16(5): 326-31.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=4947837

- **Nitroblue tetrazolium (NBT) test in early diagnosis of typhoid fever in children.**
  Author(s): Praharaj SC, Rath U, Kar AK, Praharaj KC.
  Source: Indian Pediatrics. 1981 February; 18(2): 89-93.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=7263014

- **Ofloxacin in the treatment of typhoid fever resistant to chloramphenicol and amoxicillin.**
  Author(s): Khan MA, Hayat Z, Sadick A.
  Source: Clinical Therapeutics. 1994 September-October; 16(5): 815-8.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=7859240

- **Ofloxacin in the treatment of typhoid fever unresponsive to chloramphenicol.**
  Author(s): Yousaf M, Sadick A.
  Source: Clinical Therapeutics. 1990 January-February; 12(1): 44-7.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=2328527

- **Ofloxacin versus co-trimoxazole in the treatment of typhoid fever in children.**
  Author(s): Secmeer G, Kanra G, Figen G, Akan O, Ceyhan M, Ecevit Z.
  Source: Acta Paediatr Jpn. 1997 April; 39(2): 218-21.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=9141258

- **Once daily ceftriaxone vs. chloramphenicol for treatment of typhoid fever in children.**
  Author(s): Moosa A, Rubidge CJ.
  Source: The Pediatric Infectious Disease Journal. 1989 October; 8(10): 696-9.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=2812914

- **Oral administration of fluoroquinolones in the treatment of typhoid fever and paratyphoid fever in Japan.**
  Author(s): Ohnishi K, Kimura K, Masuda G, Tsunoda T, Obana M, Yoshida H, Goto T, Sakaue Y, Kim YK, Sakamoto M, Sagara H.
  Source: Intern Med. 2000 December; 39(12): 1044-8.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=11197787

- **Oral immunisation against typhoid fever in Indonesia with Ty21a vaccine.**
  Author(s): Simanjuntak CH, Paleologo FP, Punjabi NH, Darmowigoto R, Soeprawoto, Totosudirjo H, Haryanto P, Suprijanto E, Witham ND, Hoffman SL.
  Source: Lancet. 1991 October 26; 338(8774): 1055-9.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=1681365

- **Orchitis: a rare complication of typhoid fever.**
  Author(s): Aleem HM.
  Source: J Assoc Physicians India. 1990 June; 38(6): 443. No Abstract Available.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=2384467

- **Orchitis--an unusual complication of typhoid fever.**
  Author(s): Srivastava MP, Mittal A.
  Source: J Assoc Physicians India. 1989 October; 37(10): 674. No Abstract Available.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=2632524

- **Orelox (cefodoxime) in typhoid fever.**
  Author(s): Dhanjee A, Sheikh MA, Yaqub M, Alam SE.
  Source: J Pak Med Assoc. 1999 June; 49(6): 148-9.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=10599198

- **Outbreak of typhoid fever due to multiresistant Salmonella typhi in northern India--a preliminary report.**
  Author(s): Ayyagari A, Pal N.
  Source: Transactions of the Royal Society of Tropical Medicine and Hygiene. 1991 March-April; 85(2): 302.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=1887494

- **Outbreak of typhoid fever on the French Riviera.**
  Author(s): Pradier C, Keita-Perse O, Bernard E, Gisbert C, Vezolles MJ, Armengaud A, Carles D, Grimont F, Desenclos JC, Dellamonica P.
  Source: European Journal of Clinical Microbiology & Infectious Diseases : Official Publication of the European Society of Clinical Microbiology. 2000 June; 19(6): 464-7.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=10947223

- **Outbreaks of typhoid fever in the United States, 1960-99.**
  Author(s): Olsen SJ, Bleasdale SC, Magnano AR, Landrigan C, Holland BH, Tauxe RV, Mintz ED, Luby S.
  Source: Epidemiology and Infection. 2003 February; 130(1): 13-21.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=12613741

- **Outcome in three groups of patients with typhoid fever in Indonesia between 1948 and 1990.**
  Author(s): van den Bergh ET, Gasem MH, Keuter M, Dolmans MV.
  Source: Tropical Medicine & International Health : Tm & Ih. 1999 March; 4(3): 211-5.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=10223217

- **Patterns of proinflammatory cytokines and inhibitors during typhoid fever.**
  Author(s): Keuter M, Dharmana E, Gasem MH, van der Ven-Jongekrijg J, Djokomoeljanto R, Dolmans WM, Demacker P, Sauerwein R, Gallati H, van der Meer JW.
  Source: The Journal of Infectious Diseases. 1994 June; 169(6): 1306-11.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=8195608

- **PCR diagnosis of typhoid fever.**
  Author(s): Song JH.
  Source: Journal of Clinical Microbiology. 1994 August; 32(8): 2038.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=7989568

- **Persistent efficacy of Vi conjugate vaccine against typhoid fever in young children.**
  Author(s): Mai NL, Phan VB, Vo AH, Tran CT, Lin FY, Bryla DA, Chu C, Schiloach J, Robbins JB, Schneerson R, Szu SC.
  Source: The New England Journal of Medicine. 2003 October 2; 349(14): 1390-1.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=14523155

- **Pharmacokinetics of oral and intravenous ofloxacin in children with multidrug-resistant typhoid fever.**
  Author(s): Bethell DB, Day NP, Dung NM, McMullin C, Loan HT, Tam DT, Minh LT, Linh NT, Dung NQ, Vinh H, MacGowan AP, White LO, White NJ.
  Source: Antimicrobial Agents and Chemotherapy. 1996 September; 40(9): 2167-72.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=8878600

- **Phytochemical and antimicrobial properties of constituents of "Ogwu Odenigbo", a popular Nigerian herbal medicine for typhoid fever.**
  Author(s): Ebi GC, Kamalu TN.
  Source: Phytotherapy Research : Ptr. 2001 February; 15(1): 73-5.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=11180528

- **Poor food hygiene and housing as risk factors for typhoid fever in Semarang, Indonesia.**
  Author(s): Gasem MH, Dolmans WM, Keuter MM, Djokomoeljanto RR.
  Source: Tropical Medicine & International Health : Tm & Ih. 2001 June; 6(6): 484-90.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=11422963

- **Postmarketing safety surveillance for typhoid fever vaccines from the Vaccine Adverse Event Reporting System, July 1990 through June 2002.**
  Author(s): Begier EM, Burwen DR, Haber P, Ball R; Vaccine Adverse Event Reporting System Working Group.
  Source: Clinical Infectious Diseases : an Official Publication of the Infectious Diseases Society of America. 2004 March 15; 38(6): 771-9. Epub 2004 February 26.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=14999618

- **Prevalence of multi-drug resistant Salmonella typhi among clinically diagnosed typhoid fever patients in Lagos, Nigeria.**
  Author(s): Akinyemi KO, Coker AO, Olukoya DK, Oyefolu AO, Amorighoye EP, Omonigbehin EO.
  Source: Z Naturforsch [c]. 2000 May-June; 55(5-6): 489-93.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=10928566

- **Prevalence of typhoid fever in febrile patients with symptoms clinically compatible with typhoid fever in Cameroon.**
  Author(s): Nsutebu EF, Martins P, Adiogo D.
  Source: Tropical Medicine & International Health : Tm & Ih. 2003 June; 8(6): 575-8.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=12791064

- **Pulmonary manifestations of multidrug-resistant typhoid fever.**
  Author(s): Koul PA, Wani JI, Wahid A, Shah P.
  Source: Chest. 1993 July; 104(1): 324-5.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=8369071

- **Quantitation of bacteria in blood of typhoid fever patients and relationship between counts and clinical features, transmissibility, and antibiotic resistance.**
  Author(s): Wain J, Diep TS, Ho VA, Walsh AM, Nguyen TT, Parry CM, White NJ.
  Source: Journal of Clinical Microbiology. 1998 June; 36(6): 1683-7.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=9620400

- **Quantitation of bacteria in bone marrow from patients with typhoid fever: relationship between counts and clinical features.**
  Author(s): Wain J, Pham VB, Ha V, Nguyen NM, To SD, Walsh AL, Parry CM, Hasserjian RP, HoHo VA, Tran TH, Farrar J, White NJ, Day NP.
  Source: Journal of Clinical Microbiology. 2001 April; 39(4): 1571-6.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=11283089

- **Quinolones in the treatment of typhoid fever.**
  Author(s): Akalin HE.
  Source: Drugs. 1999; 58 Suppl 2: 52-4. Review.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=10553706

- **Randomized comparison of aztreonam and chloramphenicol in treatment of typhoid fever.**
  Author(s): Gotuzzo E, Echevarria J, Carrillo C, Sanchez J, Grados P, Maguina C, DuPont HL.
  Source: Antimicrobial Agents and Chemotherapy. 1994 March; 38(3): 558-62.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=8203854

- **Rapid diagnosis of typhoid fever by co-agglutination in an Indian hospital.**
  Author(s): Mukherjee C, Malik A, Khan HM, Malik A.
  Source: Journal of Medical Microbiology. 1993 July; 39(1): 74-7.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=8326516

- **Rapid diagnosis of typhoid fever by enzyme-linked immunosorbent assay detection of Salmonella serotype typhi antigens in urine.**
  Author(s): Fadeel MA, Crump JA, Mahoney FJ, Nakhla IA, Mansour AM, Reyad B, El Melegi D, Sultan Y, Mintz ED, Bibb WF.
  Source: The American Journal of Tropical Medicine and Hygiene. 2004 March; 70(3): 323-8.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=15031525

- **Rapid diagnosis of typhoid fever by PCR assay using one pair of primers from flagellin gene of Salmonella typhi.**
  Author(s): Massi MN, Shirakawa T, Gotoh A, Bishnu A, Hatta M, Kawabata M.
  Source: Journal of Infection and Chemotherapy : Official Journal of the Japan Society of Chemotherapy. 2003 September; 9(3): 233-7.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=14513391

- **Rapid diagnosis of typhoid fever.**
  Author(s): Kalhan R, Kaur I, Singh RP, Gupta HC.
  Source: Indian J Pediatr. 1998 July-August; 65(4): 561-4.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=10773905

- **Rapid serodiagnosis of typhoid fever by dot enzyme immunoassay in an endemic area.**
  Author(s): Choo KE, Oppenheimer SJ, Ismail AB, Ong KH.
  Source: Clinical Infectious Diseases : an Official Publication of the Infectious Diseases Society of America. 1994 July; 19(1): 172-6.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=7948526

- **Re: Health and safety problems and lack of information among international visitors backpacking through North Queensland. A single dose, combined vaccine against typhoid fever and hepatitis A: consistency, immunogenicity, and reactogenicity.**
  Author(s): Leggat PA, Speare R.
  Source: Journal of Travel Medicine : Official Publication of the International Society of Travel Medicine and the Asia Pacific Travel Health Association. 2001 September-October; 8(5): 281.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=11712513

- **Retrospective analysis of typhoid fever in a tropical tertiary health facility.**
  Author(s): Otegbayo JA, Daramola OO, Onyegbutulem HC, Balogun WF, Oguntoye OO.
  Source: Trop Gastroenterol. 2002 January-March; 23(1): 9-12. Erratum In: Trop Gastroenterol. 2002 April-June; 23(2): P3. Daramola O O O [corrected to Daramola O O M].
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=12170927

- **Risk factors for typhoid fever in the Mekong delta, southern Viet Nam: a case-control study.**
  Author(s): Luxemburger C, Chau MC, Mai NL, Wain J, Tran TH, Simpson JA, Le HK, Nguyen TT, White NJ, Farrar JJ.
  Source: Transactions of the Royal Society of Tropical Medicine and Hygiene. 2001 January-February; 95(1): 19-23.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=11280056

- **Risk factors predicting complications in blood culture-proven typhoid fever in adults.**
  Author(s): Khan M, Coovadia Y, Connolly C, Sturm AW.
  Source: Scandinavian Journal of Infectious Diseases. 2000; 32(2): 201-5.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=10826909

- **Salmonella typhi, the causative agent of typhoid fever, is approximately 50,000 years old.**
  Author(s): Kidgell C, Reichard U, Wain J, Linz B, Torpdahl M, Dougan G, Achtman M.
  Source: Infection, Genetics and Evolution : Journal of Molecular Epidemiology and Evolutionary Genetics in Infectious Diseases. 2002 October; 2(1): 39-45.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=12797999

- **Secreted effector proteins of Salmonella enterica serotype typhimurium elicit host-specific chemokine profiles in animal models of typhoid fever and enterocolitis.**
  Author(s): Zhang S, Adams LG, Nunes J, Khare S, Tsolis RM, Baumler AJ.
  Source: Infection and Immunity. 2003 August; 71(8): 4795-803.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=12874363

- **Sexual transmission of typhoid fever: a multistate outbreak among men who have sex with men.**
  Author(s): Reller ME, Olsen SJ, Kressel AB, Moon TD, Kubota KA, Adcock MP, Nowicki SF, Mintz ED.
  Source: Clinical Infectious Diseases : an Official Publication of the Infectious Diseases Society of America. 2003 July 1; 37(1): 141-4. Epub 2003 June 24.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=12830419

- **Short-course azithromycin for the treatment of uncomplicated typhoid fever in children and adolescents.**
  Author(s): Frenck RW Jr, Mansour A, Nakhla I, Sultan Y, Putnam S, Wierzba T, Morsy M, Knirsch C.
  Source: Clinical Infectious Diseases : an Official Publication of the Infectious Diseases Society of America. 2004 April 1; 38(7): 951-7. Epub 2004 March 12.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=15034826

- **Sick sinus syndrome--a rare complication of typhoid fever.**
  Author(s): Rajeshwari K, Yadav S, Puri RK, Khanijo CM.
  Source: Indian Pediatrics. 1994 August; 31(8): 995-8.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=7883357

- **Simple dipstick assay for the detection of Salmonella typhi-specific IgM antibodies and the evolution of the immune response in patients with typhoid fever.**
  Author(s): Hatta M, Goris MG, Heerkens E, Gooskens J, Smits HL.
  Source: The American Journal of Tropical Medicine and Hygiene. 2002 April; 66(4): 416-21.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=12164298

- **Spontaneous splenic rupture in typhoid fever.**
  Author(s): Ali G, Kamili MA, Rashid S, Mansoor A, Lone BA, Allaqaband GQ.
  Source: Postgraduate Medical Journal. 1994 July; 70(825): 513-4.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=7937433

- **Studies on patients with Schistosomiasis mansoni, HCV and/or typhoid fever.**
  Author(s): El-Shazly AM, Soliman M, El-Kalla MR, Rezk H, El-Nemr HE, Handousa AE, Helmy MM.
  Source: J Egypt Soc Parasitol. 2001 August; 31(2): 583-92.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=11478457

- **Suicide in typhoid fever: a rare neuropsychiatric manifestation of Salmonella infection.**
  Author(s): Bharani A, Jain N, Bhargava KD.
  Source: J Assoc Physicians India. 1994 August; 42(8): 661. No Abstract Available. Erratum In: J Assoc Physicians India 1994 October; 42(10): 791.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=7868570

- **Surgical complications of typhoid fever.**
  Author(s): Wilson SJ, Green R, Britto E, Mahmoud A.
  Source: Trop Doct. 1993 July; 23(3): 133-4. No Abstract Available.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=8356749

- **The death of Albert Prince Consort: the case against typhoid fever.**
  Author(s): Paulley JW.
  Source: The Quarterly Journal of Medicine. 1993 December; 86(12): 837-41.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=8108541

- **Treatment of typhoid fever with ceftriaxone for 5 days or chloramphenicol for 14 days: a randomized clinical trial.**
  Author(s): Islam A, Butler T, Kabir I, Alam NH.
  Source: Antimicrobial Agents and Chemotherapy. 1993 August; 37(8): 1572-5.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=8215265

- **Typhoid fever as cellular microbiological model.**
  Author(s): de Andrade DR, de Andrade Junior DR.
  Source: Revista Do Instituto De Medicina Tropical De Sao Paulo. 2003 July-August; 45(4): 185-91. Epub 2003 September 17. Review.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=14502344

- **Typhoid fever associated with adult respiratory distress syndrome.**
  Author(s): Buczko GB, McLean J.
  Source: Chest. 1994 June; 105(6): 1873-4.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=8205894

- **Typhoid fever in children: experience in King Chulalongkorn Memorial Hospital.**
  Author(s): Wongsawat J, Pancharoen C, Thisyakorn U.
  Source: J Med Assoc Thai. 2002 December; 85(12): 1247-50.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=12678160

- **Typhoid fever in New York City, 1980 through 1990.**
  Author(s): Mathieu JJ, Henning KJ, Bell E, Frieden TR.
  Source: Archives of Internal Medicine. 1994 August 8; 154(15): 1713-8.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=8042888

- **Typhoid fever in north London.**
  Author(s): McEvoy M, Susman MD.
  Source: Commun Dis Rep Cdr Rev. 1993 June 18; 3(7): R98-100. No Abstract Available.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=7693165

- **Typhoid fever.**
  Author(s): Maskalyk J.
  Source: Cmaj : Canadian Medical Association Journal = Journal De L'association Medicale Canadienne. 2003 July 22; 169(2): 132.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=12874163

- **Typhoid fever: a review of its impact and diagnostic problems.**
  Author(s): Petit PL, Wamola IA.
  Source: East Afr Med J. 1994 March; 71(3): 183-8.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=7956866

- **Typhoid fever: clinical diagnosis versus laboratory confirmation.**
  Author(s): Ngwu BA, Agbo JA.
  Source: Niger J Med. 2003 October-December; 12(4): 187-92.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=14768191

- **Uncommon presentation of typhoid fever: a case report.**
  Author(s): Yap I, Wee A.
  Source: Ann Acad Med Singapore. 1993 November; 22(6): 943-4.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=8129363

- **Unusual complications of typhoid fever.**
  Author(s): Chikanza IC, Latif AS, Neill P, Mason P, Olweny CL.
  Source: Cent Afr J Med. 1986 February; 32(2): 31-4. No Abstract Available.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=3742582

- **Unusual hepatic manifestations in typhoid fever.**
  Author(s): Ramanathan M.
  Source: Singapore Med J. 1991 October; 32(5): 335-7.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=1788579

- **Unusual neurologic complications of typhoid fever (aphasia, mononeuritis multiplex, and Guillain-Barre syndrome): a report of two cases.**
  Author(s): Ozen H, Cemeroglu P, Ecevit Z, Secmeer G, Kanra G.
  Source: Turk J Pediatr. 1993 April-June; 35(2): 141-4.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=8249195

- **Unusual presentation of typhoid fever: cutaneous vasculitis, pancreatitis, and splenic abscess.**
  Author(s): Lambotte O, Debord T, Castagne C, Roue R.
  Source: The Journal of Infection. 2001 February; 42(2): 161-2.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=11531326

- **Unusual presentations of typhoid fever.**
  Author(s): Ahasan HA, Chowdhury MA, Azhar MA, Rafiqueuddin AK.
  Source: J Indian Med Assoc. 1997 March; 95(3): 86-7. No Abstract Available.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=9212580

- **Use of ciprofloxacin and its resistance in typhoid fever.**
  Author(s): Biswal N, Mathai B, Bhatia BD, Srinivasan S.
  Source: Indian Pediatrics. 1994 February; 31(2): 229-30.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=7875855

- **Use of trimethoprim and sulphamethoxazole in tropical Africa: typhoid fever, salmonella typhi carriage and staphylococcus aureus sepsis.**
  Author(s): Pugsley DJ, Mwanje L, Pearson C, Blowers R.
  Source: Postgraduate Medical Journal. 1969 November; 45: Suppl: 95-9.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=5361317

- **Use of vaccines for the prevention of typhoid fever.**
  Author(s): Levine MM.
  Source: Indian Pediatrics. 2003 November; 40(11): 1029-34.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=14660833

- **Usefulness of the Widal test in diagnosing childhood typhoid fever in endemic areas.**
  Author(s): Choo KE, Razif AR, Oppenheimer SJ, Ariffin WA, Lau J, Abraham T.
  Source: Journal of Paediatrics and Child Health. 1993 February; 29(1): 36-9.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=8461177

- **Vaccination against typhoid fever with a live oral vaccine.**
  Author(s): Germanier R.
  Source: Dev Biol Stand. 1976; 33: 85-8.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=782975

- **Vaccination against typhoid fever: present status.**
  Author(s): Ivanoff B, Levine MM, Lambert PH.
  Source: Bulletin of the World Health Organization. 1994; 72(6): 957-71. Review.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=7867143

- **Vaccines for preventing typhoid fever.**
  Author(s): Engels EA, Lau J.
  Source: Cochrane Database Syst Rev. 2000; (2): Cd001261. Review.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=10796623

- **Value of a single Widal test in the diagnosis of typhoid fever.**
  Author(s): Rasaily R, Dutta P, Saha MR, Mitra U, Bhattacharya SK, Manna B, Mukherjee A, Chakravorty S, Pal SC.
  Source: The Indian Journal of Medical Research. 1993 May; 97: 104-7.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=8406630

- **Value of a single-tube widal test in diagnosis of typhoid fever in Vietnam.**
  Author(s): Parry CM, Hoa NT, Diep TS, Wain J, Chinh NT, Vinh H, Hien TT, White NJ, Farrar JJ.
  Source: Journal of Clinical Microbiology. 1999 September; 37(9): 2882-6.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=10449469

- **Value of single Widal test in the diagnosis of typhoid fever.**
  Author(s): Kulkarni ML, Rego SJ.
  Source: Indian Pediatrics. 1994 November; 31(11): 1373-7.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=7896336

- **Value of the Widal test in the diagnosis of typhoid fever in an endemic area and suggestions for a modification. A preliminary study.**
  Author(s): Boomsma LJ, Guinee PA, Jansen WH, Maas HE.
  Source: Trop Geogr Med. 1988 April; 40(2): 103-8.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=3406998

- **Vi antigen from Salmonella typhosa and immunity against typhoid fever. 11. Safety and antigenicity in humans.**
  Author(s): Levin DM, Wong KH, Reynolds HY, Sutton A, Northrup RS.
  Source: Infection and Immunity. 1975 December; 12(6): 1290-4.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=54336

- **Volunteer studies of typhoid fever and vaccines.**
  Author(s): Woodward WE.
  Source: Transactions of the Royal Society of Tropical Medicine and Hygiene. 1980; 74(5): 553-6.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=7210105

- **Waterborne typhoid fever in Haifa, Israel: clinical, microbiologic, and therapeutic aspects of a major outbreak.**
  Author(s): Finkelstein R, Markel A, Putterman C, Lerman A, Hashman N, Merzbach D.
  Source: The American Journal of the Medical Sciences. 1988 July; 296(1): 27-32.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=3407678

- **White blood cells and bone marrow in typhoid fever.**
  Author(s): Mallouh AA, Sa'di AR.
  Source: The Pediatric Infectious Disease Journal. 1987 June; 6(6): 527-9.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=3615066

- **Why are typhoid vaccines not recommended for epidemic typhoid fever?**
  Author(s): Taylor DN, Levine MM, Kuppens L, Ivanoff B.
  Source: The Journal of Infectious Diseases. 1999 December; 180(6): 2089-90.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=10558978

- **Widal and blood picture in the diagnosis of typhoid fever.**
  Author(s): Wahab MF.
  Source: J Egypt Public Health Assoc. 1970; 45(1): 85-108. No Abstract Available.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=4991901

- **Widal reaction as a support to the diagnosis of typhoid fever.**
  Author(s): Lingga NS, Sutedjo.
  Source: Paediatr Indones. 1964 October-December; 4(4): Suppl: 276-81. No Abstract Available.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=5873104

- **Widal test in diagnosis of typhoid fever in Turkey.**
  Author(s): Willke A, Ergonul O, Bayar B.
  Source: Clinical and Diagnostic Laboratory Immunology. 2002 July; 9(4): 938-41.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=12093703

- **William Budd and typhoid fever.**
  Author(s): Cook GC.
  Source: Journal of the Royal Society of Medicine. 2003 January; 96(1): 54.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=12519817

- **William Budd and typhoid fever.**
  Author(s): Vaile MS.
  Source: Journal of the Royal Society of Medicine. 2003 January; 96(1): 53-4.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=12519814

- **William Budd and typhoid fever.**
  Author(s): Moorhead R.
  Source: Journal of the Royal Society of Medicine. 2002 November; 95(11): 561-4.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=12411628

CHAPTER 2. NUTRITION AND TYPHOID FEVER

Overview

In this chapter, we will show you how to find studies dedicated specifically to nutrition and typhoid fever.

Finding Nutrition Studies on Typhoid Fever

The National Institutes of Health's Office of Dietary Supplements (ODS) offers a searchable bibliographic database called the IBIDS (International Bibliographic Information on Dietary Supplements; National Institutes of Health, Building 31, Room 1B29, 31 Center Drive, MSC 2086, Bethesda, Maryland 20892-2086, Tel: 301-435-2920, Fax: 301-480-1845, E-mail: ods@nih.gov). The IBIDS contains over 460,000 scientific citations and summaries about dietary supplements and nutrition as well as references to published international, scientific literature on dietary supplements such as vitamins, minerals, and botanicals.[7] The IBIDS includes references and citations to both human and animal research studies.

As a service of the ODS, access to the IBIDS database is available free of charge at the following Web address: **http://ods.od.nih.gov/databases/ibids.html**. After entering the search area, you have three choices: (1) IBIDS Consumer Database, (2) Full IBIDS Database, or (3) Peer Reviewed Citations Only.

Now that you have selected a database, click on the "Advanced" tab. An advanced search allows you to retrieve up to 100 fully explained references in a comprehensive format. Type "typhoid fever" (or synonyms) into the search box, and click "Go." To narrow the search, you can also select the "Title" field.

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[7] Adapted from **http://ods.od.nih.gov**. IBIDS is produced by the Office of Dietary Supplements (ODS) at the National Institutes of Health to assist the public, healthcare providers, educators, and researchers in locating credible, scientific information on dietary supplements. IBIDS was developed and will be maintained through an interagency partnership with the Food and Nutrition Information Center of the National Agricultural Library, U.S. Department of Agriculture.

The following information is typical of that found when using the "Full IBIDS Database" to search for "typhoid fever" (or a synonym):

- **Antibacterial activity of black tea (Camelia sinensis) extract against Salmonella serotypes causing enteric fever.**
  Author(s): Department of Microbiology, Kasturba Medical College, Manipal-576 119.
  Source: Ciraj, A M Sulaim, J Mamatha, B Gopalkrishna, B K Shivananda, P G Indian-J-Med-Sci. 2001 July; 55(7): 376-81 0019-5359
- **Non-radioisotopic glucose turnover in children with falciparum malaria and enteric fever.**
  Author(s): Department of Medical Microbiology and Parasitology, Universiti Sains Malaysia, Kubang Kerian, Kelantan, Malaysia.
  Source: Singh, B Choo, K E Ibrahim, J Johnston, W Davis, T M Trans-R-Soc-Trop-Med-Hyg. 1998 Sep-October; 92(5): 532-7 0035-9203

Federal Resources on Nutrition

In addition to the IBIDS, the United States Department of Health and Human Services (HHS) and the United States Department of Agriculture (USDA) provide many sources of information on general nutrition and health. Recommended resources include:

- healthfinder®, HHS's gateway to health information, including diet and nutrition: **http://www.healthfinder.gov/scripts/SearchContext.asp?topic=238&page=0**
- The United States Department of Agriculture's Web site dedicated to nutrition information: **www.nutrition.gov**
- The Food and Drug Administration's Web site for federal food safety information: **www.foodsafety.gov**
- The National Action Plan on Overweight and Obesity sponsored by the United States Surgeon General: **http://www.surgeongeneral.gov/topics/obesity/**
- The Center for Food Safety and Applied Nutrition has an Internet site sponsored by the Food and Drug Administration and the Department of Health and Human Services: **http://vm.cfsan.fda.gov/**
- Center for Nutrition Policy and Promotion sponsored by the United States Department of Agriculture: **http://www.usda.gov/cnpp/**
- Food and Nutrition Information Center, National Agricultural Library sponsored by the United States Department of Agriculture: **http://www.nal.usda.gov/fnic/**
- Food and Nutrition Service sponsored by the United States Department of Agriculture: **http://www.fns.usda.gov/fns/**

Additional Web Resources

A number of additional Web sites offer encyclopedic information covering food and nutrition. The following is a representative sample:

- AOL: **http://search.aol.com/cat.adp?id=174&layer=&from=subcats**
- Family Village: **http://www.familyvillage.wisc.edu/med_nutrition.html**

- Google: **http://directory.google.com/Top/Health/Nutrition/**
- Healthnotes: **http://www.healthnotes.com/**
- Open Directory Project: **http://dmoz.org/Health/Nutrition/**
- Yahoo.com: **http://dir.yahoo.com/Health/Nutrition/**
- WebMD®Health: **http://my.webmd.com/nutrition**
- WholeHealthMD.com: **http://www.wholehealthmd.com/reflib/0,1529,00.html**

CHAPTER 3. ALTERNATIVE MEDICINE AND TYPHOID FEVER

Overview

In this chapter, we will begin by introducing you to official information sources on complementary and alternative medicine (CAM) relating to typhoid fever. At the conclusion of this chapter, we will provide additional sources.

National Center for Complementary and Alternative Medicine

The National Center for Complementary and Alternative Medicine (NCCAM) of the National Institutes of Health (**http://nccam.nih.gov/**) has created a link to the National Library of Medicine's databases to facilitate research for articles that specifically relate to typhoid fever and complementary medicine. To search the database, go to the following Web site: **http://www.nlm.nih.gov/nccam/camonpubmed.html**. Select "CAM on PubMed." Enter "typhoid fever" (or synonyms) into the search box. Click "Go." The following references provide information on particular aspects of complementary and alternative medicine that are related to typhoid fever:

- **Antibacterial activity of black tea (Camelia sinensis) extract against Salmonella serotypes causing enteric fever.**
  Author(s): Ciraj AM, Sulaim J, Mamatha B, Gopalkrishna BK, Shivananda PG.
  Source: Indian Journal of Medical Sciences. 2001 July; 55(7): 376-81.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=11883337

- **Antibacterial effect of some leaf extracts on Salmonella typhi.**
  Author(s): Gehlot D, Bohra A.
  Source: Indian Journal of Medical Sciences. 2000 March; 54(3): 102-5.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=11227613

- **Anti-Salmonella activity of medicinal plants from Cameroon.**
  Author(s): Nkuo-Akenji T, Ndip R, McThomas A, Fru EC.

Source: Cent Afr J Med. 2001 June; 47(6): 155-8.
http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=12201022

- **Chemical and immunological characterization of a low molecular weight outer membrane protein of Salmonella typhi.**
  Author(s): de Andrade CM, Ferreira AG, da Silva JD, Nascimento HJ, da Silva JG Jr.
  Source: Microbiology and Immunology. 1998; 42(8): 521-6.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=9776392

- **Dr F. W. E. Hare and the cold bath treatment of typhoid fever.**
  Author(s): Thearle MJ.
  Source: Occas Pap Med Hist Aust. 1987; 3: 151-71. No Abstract Available.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=11621832

- **Efficacy of some nupe medicinal plants against Salmonella typhi: an in vitro study.**
  Author(s): Evans CE, Banso A, Samuel OA.
  Source: Journal of Ethnopharmacology. 2002 April; 80(1): 21-4.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=11891083

- **Emergency medicine expeditions to the developing world: the Loma Linda University experience in Papua New Guinea.**
  Author(s): Clem KJ, Green SM.
  Source: Academic Emergency Medicine : Official Journal of the Society for Academic Emergency Medicine. 1996 June; 3(6): 624-33.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=8727634

- **Enteric fever in young Yoruba children.**
  Author(s): Duggan MB, Beyer L.
  Source: Archives of Disease in Childhood. 1975 January; 50(1): 67-71.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=804867

- **Evaluation of thiol broth for the culture of Salmonella typhi and other bacteria from blood.**
  Author(s): Chong Y, Kang MS, Lee SY.
  Source: Yonsei Medical Journal. 1990 June; 31(2): 163-7.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=2145703

- **Government medical officer in Lesotho.**
  Author(s): Benney WE.
  Source: Bristol Med Chir J. 1970 July; 85(315): 69-74. No Abstract Available.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=4319614

- **Indigestion in Harvey's time.**
  Author(s): Hunt T.
  Source: The American Journal of Medicine. 1978 December; 65(6): 891-3.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=369371

- **Phytochemical and antimicrobial properties of constituents of "Ogwu Odenigbo", a popular Nigerian herbal medicine for typhoid fever.**
  Author(s): Ebi GC, Kamalu TN.
  Source: Phytotherapy Research : Ptr. 2001 February; 15(1): 73-5.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=11180528

- **Prophylactic therapy of Salmonella typhi septicemia in mice with a traditionally prescribed crude drug formulation.**
  Author(s): Sohni YR, Kaimal P, Bhatt RM.
  Source: Journal of Ethnopharmacology. 1995 February; 45(2): 141-7.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=7776663

- **Rapid laboratory confirmation of human brucellosis by PCR analysis of a target sequence on the 31-kilodalton Brucella antigen DNA.**
  Author(s): Matar GM, Khneisser IA, Abdelnoor AM.
  Source: Journal of Clinical Microbiology. 1996 February; 34(2): 477-8.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=8789045

- **Secrets of the Bulgarian bacillus.**
  Author(s): Dixon B.
  Source: The Lancet Infectious Diseases. 2002 April; 2(4): 260.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=11937429

- **Serological survey of salmonellosis in grey duiker (Sylvicapra grimmia) in Asejire, Irewole Local Government Area, Osun State, Nigeria.**
  Author(s): Ogunsanmi AO, Taiwo VO, Iroeche PC, Sobaloju SO.
  Source: Afr J Med Med Sci. 2001 March-June; 30(1-2): 115-8.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=14510164

- **Typhoid fever in the park: epidemiology of an outbreak at a cultural interface.**
  Author(s): Cote TR, Convery H, Robinson D, Ries A, Barrett T, Frank L, Furlong W, Horan J, Dwyer D.
  Source: Journal of Community Health.

Additional Web Resources

A number of additional Web sites offer encyclopedic information covering CAM and related topics. The following is a representative sample:

- Alternative Medicine Foundation, Inc.: **http://www.herbmed.org/**
- AOL: **http://search.aol.com/cat.adp?id=169&layer=&from=subcats**
- Chinese Medicine: **http://www.newcenturynutrition.com/**
- drkoop.com®: **http://www.drkoop.com/InteractiveMedicine/IndexC.html**
- Family Village: **http://www.familyvillage.wisc.edu/med_altn.htm**
- Google: **http://directory.google.com/Top/Health/Alternative/**
- Healthnotes: **http://www.healthnotes.com/**
- MedWebPlus: **http://medwebplus.com/subject/Alternative_and_Complementary_Medicine**
- Open Directory Project: **http://dmoz.org/Health/Alternative/**
- HealthGate: **http://www.tnp.com/**
- WebMD®Health: **http://my.webmd.com/drugs_and_herbs**
- WholeHealthMD.com: **http://www.wholehealthmd.com/reflib/0,1529,00.html**
- Yahoo.com: **http://dir.yahoo.com/Health/Alternative_Medicine/**

The following is a specific Web list relating to typhoid fever; please note that any particular subject below may indicate either a therapeutic use, or a contraindication (potential danger), and does not reflect an official recommendation:

- **Herbs and Supplements**

  Bilberry
  Source: Prima Communications, Inc.www.personalhealthzone.com

General References

A good place to find general background information on CAM is the National Library of Medicine. It has prepared within the MEDLINEplus system an information topic page dedicated to complementary and alternative medicine. To access this page, go to the MEDLINEplus site at **http://www.nlm.nih.gov/medlineplus/alternativemedicine.html**. This Web site provides a general overview of various topics and can lead to a number of general sources.

CHAPTER 4. DISSERTATIONS ON TYPHOID FEVER

Overview

In this chapter, we will give you a bibliography on recent dissertations relating to typhoid fever. We will also provide you with information on how to use the Internet to stay current on dissertations. **IMPORTANT NOTE:** When following the search strategy described below, you may discover non-medical dissertations that use the generic term "typhoid fever" (or a synonym) in their titles. To accurately reflect the results that you might find while conducting research on typhoid fever, we have not necessarily excluded non-medical dissertations in this bibliography.

Dissertations on Typhoid Fever

ProQuest Digital Dissertations, the largest archive of academic dissertations available, is located at the following Web address: **http://wwwlib.umi.com/dissertations**. From this archive, we have compiled the following list covering dissertations devoted to typhoid fever. You will see that the information provided includes the dissertation's title, its author, and the institution with which the author is associated. The following covers recent dissertations found when using this search procedure:

- **PEASANTS, DOCTORS AND TYPHOID FEVER: THE FRENCH DEPARTMENT OF THE HIGH ALPS, 1780-1870.** by SPEARS, JOHN VERNON, PHD from The Johns Hopkins University, 1979, 352 pages
  http://wwwlib.umi.com/dissertations/fullcit/7906487

Keeping Current

Ask the medical librarian at your library if it has full and unlimited access to the *ProQuest Digital Dissertations* database. From the library, you should be able to do more complete searches via **http://wwwlib.umi.com/dissertations**.

CHAPTER 5. PATENTS ON TYPHOID FEVER

Overview

Patents can be physical innovations (e.g. chemicals, pharmaceuticals, medical equipment) or processes (e.g. treatments or diagnostic procedures). The United States Patent and Trademark Office defines a patent as a grant of a property right to the inventor, issued by the Patent and Trademark Office.[8] Patents, therefore, are intellectual property. For the United States, the term of a new patent is 20 years from the date when the patent application was filed. If the inventor wishes to receive economic benefits, it is likely that the invention will become commercially available within 20 years of the initial filing. It is important to understand, therefore, that an inventor's patent does not indicate that a product or service is or will be commercially available. The patent implies only that the inventor has "the right to exclude others from making, using, offering for sale, or selling" the invention in the United States. While this relates to U.S. patents, similar rules govern foreign patents.

In this chapter, we show you how to locate information on patents and their inventors. If you find a patent that is particularly interesting to you, contact the inventor or the assignee for further information. **IMPORTANT NOTE:** When following the search strategy described below, you may discover non-medical patents that use the generic term "typhoid fever" (or a synonym) in their titles. To accurately reflect the results that you might find while conducting research on typhoid fever, we have not necessarily excluded non-medical patents in this bibliography.

Patents on Typhoid Fever

By performing a patent search focusing on typhoid fever, you can obtain information such as the title of the invention, the names of the inventor(s), the assignee(s) or the company that owns or controls the patent, a short abstract that summarizes the patent, and a few excerpts from the description of the patent. The abstract of a patent tends to be more technical in nature, while the description is often written for the public. Full patent descriptions contain much more information than is presented here (e.g. claims, references, figures, diagrams, etc.). We will tell you how to obtain this information later in the chapter. The following is an

[8]Adapted from the United States Patent and Trademark Office: **http://www.uspto.gov/web/offices/pac/doc/general/whatis.htm**.

example of the type of information that you can expect to obtain from a patent search on typhoid fever:

- **Attenuated mutants of salmonella which constitutively express the Vi antigen**

  Inventor(s): Levine; Myron M. (Columbia, MD), Noriega; Fernando R. (Baltimore, MD), Sztein; Marcelo B. (Columbia, MD)

  Assignee(s): University of Maryland, Baltimore (baltimore, Md)

  Patent Number: 6,190,669

  Date filed: May 13, 1998

  Abstract: Attenuated Salmonella mutants which constitutively express the Vi antigen are disclosed, as well as vaccines against **typhoid fever** containing the same, live vector vaccines containing the same, and DNA-mediated vaccines containing the same.

  Excerpt(s): The present invention relates to attenuated Salmonella mutants which constitutively express the Vi antigen, as well as vaccines against **typhoid fever** containing the same, live vector vaccines containing the same, and DNA-mediated vaccines containing the same. The Vi antigen, a capsular polysaccharide, was first described by Felix et al, Lancet, 227:186-191 (1934). This capsular polysaccharide is present in Salmonella, such as S. typhi, S. paratyphi C, and S. dublin, as well as in Citrobacter freundii. Structurally, the Vi antigen is a linear polymer of.beta.-4,2-deoxy-2N-acetylgalacturonic acid with variable O-acetylation (Daniels et al, Infect. Immun., 57:3159-3164 (1989)). Its presence in S. typhi has been correlated, in vitro, with a significant decrease in lysis by serum, complement activation and phagocytosis (Looney et al, J. Lab. Clin. Med., 108:506-516 (1986)). Thus, the Vi antigen may act as a shield protecting S. typhi against the immune system. The Vi capsular polysaccharide of S. typhi is a virulence factor and a protective antigen in humans (Felix et al (1934), supra). Purified Vi polysaccharide is a licensed parenteral typhoid vaccine that elicits a moderate degree of protective immunity following inoculation with a single dose, and protection is mediated by serum IgG antibodies (Acharya et al, New England Journal of Medicine, 317:1101-1104 (1987); and Klugman et al, Lancet, 2:1165-1169 (1987)). In contrast, while attenuated S. typhi strain Ty21a, a licensed live oral vaccine, does not express the Vi antigen, nor does it elicit serum Vi antibody; nevertheless, Ty21a confers at least moderate levels of protection (Wahdan et al, J. Infect. Dis., 145:292-296 (1982); and Levine et al, Lancet, 1:1049-1052 (1987a)). It is believed that cell-mediated immune mechanisms mediate protection in this situation. Several new attenuated strains of S. typhi that express the Vi antigen in vitro have failed to elicit serum Vi antibodies when administered as oral vaccines, even though they elicit high titers of O and H antibodies (Tacket et al, J. Infect. Dis., 163:901-904 (1991); Tacket et al, Vaccine, 10:443-446 (1992a); and Tacket et al, Infect. Immun., 65:452-456 (1997)). The likely explanation for this phenomenon is that the expression of the Vi antigen is highly regulated in relation to osmotic stimuli (Pickard et al, supra). The supposition is that Vi antigen expression is interrupted, except when the bacteria are extracellular in the blood or other body fluids (e.g., bile).

  Web site: http://www.delphion.com/details?pn=US06190669__

- **Nucleic acid probe and method for the rapid detection of typhoid fever bacteria**

  Inventor(s): Barson; Louis S. (Silver Spring, MD), Kopecko; Dennis J. (Rockville, MD), Rubin; Fran A. (Bethesda, MD)

  Assignee(s): The United States of America AS Represented by the Secretary of the Army (washington, Dc)

  Patent Number: 5,055,394

  Date filed: June 23, 1986

  Abstract: This invention relates to a nucleic acid probe and method for the rapid detection of **typhoid fever** bacteria by use of a nucleic acid hybridization probe, equivalent to the DNA region encoding the Vi antigen of enteric bacteria such as Salmonella typhi, S. paratyphi C, or Citrobacter freundii, in a nucleic acid hybridization reaction with a clinical specimen containing **typhoid fever** bacteria.

  Excerpt(s): All publications or patents mentioned in this specification are herein incorporated by reference. This invention relates to a unique nucleic acid hybridization probe and method for the rapid detection of **typhoid fever** bacteria. Diarrheal diseases caused by enteric bacteria are still a major cause of illness and death worldwide, especially among infants and young children in developing nations. Also, these maladies are an important military problem in deployed soldiers. Although the incidence of diarrheal disease is highest in tropical countries, geography is not as important a factor as socioeconomic conditions; e.g. as manifested by drinking water purity, sewage disposal methods, and the availability of balanced diets. Some enteric diseases are short-lived, self-limiting and result in a mild gastroenteritis (e.g. certain Salmonella serotypes). In contrast, **typhoid fever,** caused by Salmonella typhi, is a prolonged, generalized, and usually serious infection of humans of all age groups. Similar enteric diseases are caused by related bacteria such as Salmonella paratyphi A, B, and C and by other Salmonella serotypes.

  Web site: http://www.delphion.com/details?pn=US05055394__

- **Oral vaccine for immunization against enteric disease**

  Inventor(s): Baron; Louis S. (Silver Spring, MD), Formal; Samuel B. (Kensington, MD), Kopecko; Dennis J. (Rockville, MD)

  Assignee(s): The United States of America AS Represented by the Secretary of the Army (washington, Dc)

  Patent Number: 4,632,830

  Date filed: July 31, 1981

  Abstract: A living, attenuated, oral vaccine system is described for the immunization gainst enteric disease. This oral vaccine is a genetic hybrid derivative of an attenuated galactose epimeraseless strain of S. typhi which carries at least one protective antigen other than normal somatic S. typhi antigens. The oral vaccine can provide protection against both **typhoid fever** and at least one other enteric disease. A bivalent oral vaccine is described wherein the non-typhoid protective antigen is the plasmid-encoded form I antigen of Shigella sonnei. A protective antigen from Shigella sonnei was transferred to a streptomycin resistant mutant of S. typhi strain Ty21a. The transconjugant S. typhi strain expressed both S. typhi and S. sonnei antigens and protected experimental animals against lethal infections with either S. typhi or S. sonnei. This strain is

considered to be useful as a vaccine against **typhoid fever** and bacillary dysentery caused by S. sonnei. The mutated galactose epimeraseless S. typhi strain such as S. typhi Ty21a strain can be utilized as a carrier strain for other protective antigens.

Excerpt(s): This invention relates broadly to a class of oral vaccines for the prevention of enteric disease. A living, non-pathogenic mutant, oral vaccine strain of Salmonella typhi has already been shown to be safe and effective in protecting against **typhoid fever;** it is a mutant, galactose epimeraseless strain of S. typhi designated as Ty21a. Its preparation, safety, and efficacy as an oral vaccine have already been described in Germanier, R. and Furer, J. Infect. Dis. 131:553-558, 1975; Wahdan, N. H. et al., Bull. WHO. 58:469-474; and U.S. Pat. No. 3,856,935 to R. Germanier, the disclosure of which is hereby incorporated by reference. Bacterial diseases of the gastrointestinal tract usually occur by one of three overall mechanisms. The first mechanism, termed "intoxication," occurs by bacterial secretion of an exotoxin that oftentimes is preformed in food prior to ingestion by the host. This process is exemplified by staphylococcal or clostridial food poisoning. In contrast, the remaining two processes require living and multiplying disease agents. In the "enterotoxigenic" mechanism, bacteria colonize the small intestine, usually in the jejunum or duodenum. These bacteria multiply on the intestinal surface and elaborate an enterotoxin that stimulates excessive fluid and electrolyte efflux resulting in a watery diarrhea. Enterotoxigenic Escherichia coli and Vibrio cholera serve as typical examples. Finally, a third group of organisms, termed "invasive," actually penetrate the epithelial mucosa of the large intestine. Subsequently, these organisms multiply intracellularly and disseminate within or through the mucosa. This latter mechanism, classically typified by Shigella and Salmonella, is now thought to be used by invasive strains of E. coli, Yersinia, and, possibly, Campylobacter. In contrast to other invasive bacterial diseases like salmonellosis, in which the invading bacteria are disseminated throughout the host, shigellosis is a disease normally confined to the intestinal lining. Thus, these features distinguish the toxigenic from the invasive mechanism of intestinal disease. Two common and essential features of invasive bacteria are their ability to penetrate and to multiply within the epithelial cells of the colon. Mutants of Shigella strains that fail to penetrate or that penetrate but cannot multiply intracellularly have been isolated. Both types of mutants are avirulent. The process of invasion has thus far been characterized in microscopic, but not biochemical detail. The first visible alteration in the host intestinal epithelium is a localized destruction of the microvilli, the outermost structure of the intestinal lining. The invading bacteria are then engulfed by means of an invagination of the intestinal cell membrane and are contained intracellularly within vacuoles. Subsequently, the microvilli are reestablished and intracellular bacterial multiplication occurs. These bacterial then destroy the vacuole and disseminate to adjacent cells, causing necrosis and resulting in acute inflammation and focal ulceration of the epithelium. The resulting dysentery is characterized by a painful, bloody, and mucous diarrhea, normally of relatively small volume.

Web site: http://www.delphion.com/details?pn=US04632830__

- **Process for obtaining an antigenic reagent useful for the indirect determination of Salmonella typhi**

  Inventor(s): Calva-Mercado; Edmundo (Cuernavaca Mor., MX), Rodriguez; Antonio V. (Col. Miraval, MX), Ruiz Palacios; Guillermo M. (Ursula Xitla Mexico, MX), Vidal; Yolanda L. (Col. E. Zapata Mexico, MX)

  Assignee(s): Universidad Nacional Autonoma DE Mexico (mexico City, Mx)

  Patent Number: 5,405,754

  Date filed: March 21, 1991

  Abstract: The invention described herein consists of a process for preparing an antigenic reagent useful for the indirect determination of Salmonella typhi, the organism that is the causal agent of **typhoid fever** (TF). The invention consists on the following steps: to grow Salmonella typhi in a culture medium, characterized by containing a free-iron chelator, which generates a specific S. typhi outer membrane protein (OMP) pattern, OMPs that are used as a selective antigen for the detection of specific serum antibodies, by an immunoassay technique (ELISA).

  Excerpt(s): As other gram-negative bacteria, S. typhi has three envelopes, constituted by two membranes, the internal and external, and an intermediate cell wall or peptidoglycan. One of the major S. typhi outer membrane proteins (mOMPs) is OmpC (Puente J.L. et al., 1987, Isolation of an OmpC-like outer membrane protein gene from Salmonella typhi. Gene 61: 75-83.) The composition of the gene that codifies OmpC is very similar to that from E. coli (Puente, J.L. et al.) Comparative analysis of the Salmonella typhi and Escherichia coli OmpC genes. Gene 83: 197-206). OmpC (a porin) in E. coli forms a trimer that constitutes a 1.1 amstrong-diameter pore, which allows the passing of hydrophilic molecules. In E. coli, OmpF (a porin) forms trimers that constitute 1.2 amstrong-diameter pores. Another mOMP is OmpA which is a structural monomer. In addition, in both: E. coli and in S. typhimurium exist a variety of proteins, some of which are regulated by metabolites such as calcium, phosphate, iron, maltose and others. To this respect, in the case of iron (Fe) it has been observed that there is a competition for this metal, between the host and the invader in such a way that both have developed different mechanisms for its acquisition or its sequestering during infection (Bullen, J.J., 1981, The significance of iron in infection. Rev. Infect. Dis. 3: 1127-1138; Weinberg, E.D., 1978, Iron and Infection. Microbiol. Rev. 42: 45-66).

  Web site: http://www.delphion.com/details?pn=US05405754__

- **Production of the E. coli LT-B enterotoxin subunit in S. typhi**

  Inventor(s): Clements; John D. (New Orleans, LA), El-Morshidy; Sawsan E. (Metarie, LA)

  Assignee(s): Praxis Biologics, Inc. (rochester, Ny)

  Patent Number: 5,079,165

  Date filed: June 29, 1988

  Abstract: Methods and compositions are provided for the cloning and expression of plasmids bearing genes coding for the non-toxic subunit of the heat-laible enterotoxin (LT-B) of E. coli. These plasmids may be cloned into stable avirulent strains of Salmonella typhi and used to make oral bivalent vaccines. Such vaccines may be used to prevent **typhoid fever** and cholera-like enterotoxin-induced diarrheal disease.

Excerpt(s): This invention relates to a process for the production of a non-toxic B subunit of the heat-labile enterotoxin (LT-B) from a human isolate of an enterotoxigenic strain of Escherichia coli. This process utilizes recombinant DNA techniques, in which the requisite gene sequence is inserted by means of a suitable DNA vector into a non-pathogenic microbial strain. The use of a stable avirulent Salmonella typhi strain as a host cell for this DNA vector is described, and the resulting recombinant strain may be formulated as a bivalent oral vaccine to provide protection against both **typhoid fever** and cholera-like enterotoxin-induced diarrheal disease. Acute diarrheal disease due to the temporary colonization of the small intestine by enterotoxigenic strains of certain bacteria is a major health problem of global significance. Among the responsible bacteria, perhaps the most widely recognized is Vibrio cholerae. Less well known but of greater practical significance are particular strains of Escherichia coli (E. coli) which, together with rotavirus, produce acute diarrheic episodes that are fatal each year to an estimated 10 million infants living in underdeveloped tropical countries [Black et al., Lancet i: 141 (1981)]. These E. coli strains also generally account for a high incidence of the acute diarrhea that afflicts visitors to tropical regions. Both Vibrio cholerae and the enterotoxigenic E. coli strains produce their diarrheic effects through production of an enterotoxin. The cholera enterotoxin has been isolated and purified to homogeneity by Finkelstein [Crit. Rev. Microbiol. 2: 553(1973)]. Furthermore, Finkelstein and LoSpalluto [J. Exp. Med. 130: 185 (1969)] have separated a protein subunit from the cholera toxin that has reduced biological activity. What has emerged from these and from other studies is the finding that the cholera enterotoxin is an 84,000 dalton protein that consists of an A and a B subunit.

Web site: http://www.delphion.com/details?pn=US05079165__

- **Synthesis of typhoid fever vaccine from a plant or fruit polysaccharide**

  Inventor(s): Bystricky; Slavomir (Silver Springs, MD), Szu; Shousun Chen (Bethesda, MD)

  Assignee(s): The United States of America AS Represented by the Secretary of the (washington, Dc)

  Patent Number: 5,738,855

  Date filed: October 17, 1994

  Abstract: The present invention is a modified plant, fruit or synthetic oligo- or polysaccharide which has been structurally altered so as to render the modified saccharide antigenically similar to the Vi of Salmonella typhi. The modified saccharide may be conjugated to a carrier to form a conjugate that is immunogenic against S. typhi. Antibodies produced in response to the immunogenic conjugate are protective against **typhoid fever.** Methods are provided for making the modified saccharide and the immunogenic conjugate.

  Excerpt(s): The present invention relates to immunoprophylaxis and vaccines. More particularly it relates to modifying a plant, fruit or synthetic polysaccharide such that it is immunogenic and may be used as a vaccine to prevent **typhoid fever** in infants and young children. Typhoid fever, caused by Salmonella typhi, remains a common and serious disease in many parts of the world. The capsular polysaccharide (Vi) is both an essential virulence factor and a protective antigen of Salmonella typhi ›19!. Tacket et al. in J. Infect. Dis. 154:342-345 (1986) disclose a vaccine made from the Vi capsular polysaccharide of Salmonella typhi. Field trials in Nepal and in the Republic of South Africa showed that a single injection of Vi conferred about 70% protection against

typhoid fever in older children and in adults ›1,13!. The mechanism of its protective action, similar to other polysaccharide vaccines, is to elicit a critical level of serum antibodies. The immunologic properties of the Vi that limits its use as a vaccine are: 1) only.about.70% efficacy in individuals 5 to 45 years of age; 2) an age-dependent serum antibody response, Vi elicited a comparatively short-lived antibody responses in 2 to 5 year old children and only low levels of antibodies in a fraction of children <2 years-old and; 3) reinjection did not elicit a booster antibody response (T-cell independent) ›15,19!. To increase its immunogenicity and to induce T-cell dependence, the Vi was conjugated to proteins ›22,24,25!. A clinical trial in adults in the United States showed that Vi-protein conjugates elicited significantly higher levels of serum antibodies than the Vi alone ›25!.

Web site: http://www.delphion.com/details?pn=US05738855__

Patent Applications on Typhoid Fever

As of December 2000, U.S. patent applications are open to public viewing.[9] Applications are patent requests which have yet to be granted. (The process to achieve a patent can take several years.) The following patent applications have been filed since December 2000 relating to typhoid fever:

- **DNA sequence encoding the specific and antigenic outer membrane protein of salmonella typhi**

  Inventor(s): A. Kader, Zainoodin S.; (Pulau Pinang, MY), Hai, Ong Kok; (Kuala Lumpur, MY), Ismail, Asma Binti; (Pulau Pinang, MY), Ravichandran, Manickam; (Pulau Pinang, MY)

  Correspondence: Lowe Hauptman Gilman & Bermer, LLP.; 1700 Diagonal Road, Suite 310; Alexandria; VA; 22314; US

  Patent Application Number: 20020012668

  Date filed: February 28, 2001

  Abstract: The genetic material encoding for a specific outer membrane protein (OMP) of Salmonella typhi has been isolated and characterized. This genetic material (ST50) allows for the production of specific proteins/peptides/DNA/RNA for its use in diagnostics, detection of the bacteria S.typhi or in the production of vaccines for **typhoid fever.**

  Excerpt(s): This invention relates to the field of genetic engineering, diagnostics and vaccinology in relation to the gene encoding for the specific OMP of S. typhi (ST50). The protein is estimated to have a molecular weight of 50 kDa. This protein is available as a result of genetic engineering of the gene that encodes it. Typhoid fever remains a public health problem in most developing countries. The available conventional methods for the diagnosis of the disease remain unsatisfactory since they are too slow to allow quick decision by the clinician. Culture method may show specificity but it lacked sensitivity and speed. It produced results within 2-7 days and cases of culture negative typhoid were well recognised. The antibody detection test (Widal test) although widely used, lacked speed, sensitivity and specificity. For meaningful interpretation of the test, demonstration of 4-fold rise in antibody titers between acute and convalescent sera 10-

[9] This has been a common practice outside the United States prior to December 2000.

14 days later was essential. An ideal diagnostic test for typhoid should be rapid, easy to perform sensitive as well as specific. Neither of the above methods mentioned above satisfied the criteria. Thus there is a need to develop a rapid and specific test. Combined with sensitive diagnosis, the test would provide for prompt, effective and definite management of **typhoid fever.** In line with the rapid diagnosis for **typhoid fever,** we have previously made a significant breakthrough in typhoid diagnosis with the discovery of the 50 kDa OMP that is specific for the aetiologic agent, Salmonella typhi (Ismail A, et al. 1991 Biochem Biophys Res Commun 27:301-5). The discovery of the specific 50 kDa antigen in the outer membrane of Salmonella typhi has been patented in Malaysia (Malaysian patent No: MY-106708-A). Using the isolated OMP, we have successfully developed a rapid dot EIA test (TYPHIDOT.TM.) to detect for the presence of specific IgM and IgG antibodies to the bacteria. The test has a sensitivity of >95%, a high negative predictive value and could produce results within 1-3 hours. The detection of IgM alone or with IgG would suggest acute typhoid while the detection of IgG only posed several interpretations such as convalescence or possible re-infection. Due to the lack of effective immunity to **typhoid fever,** patients in highly endemic areas often have re-infections. In the event of current re-infection, there will be a secondary immune response with a significant "boosting" effect of IgG over IgM such that the latter may not be detected. A possible strategy to resolve this problem is to "unmask" the presence of IgM by removing total IgG. The development of a 3 hour IgM detection test (TYPHIDOT-M.TM.) is useful in areas of high endemicity since it could differentiate new from convalescent cases. Data from studies to demonstrate the sensitivity, specificity and advantages of the various tests compared to conventional methods showed that the tests provided reliable alternatives to the Widal test. In order to produce the protein on a large scale, we have purified and determined the amino acid sequence of the 50 kDa OMP. Based on this finding we have isolated, cloned and sequenced the DNA encoding for the 50 kDa OMP. Further we have identified the immunogenic epitope of the protein by epitope mapping. This epitope has been used successfully for the upscaling of the 50 kDa OMP in the diagnosis of **typhoid fever.** The present invention provides genetic material encoding for the 50 kDa OMP of Salmonella typhi. The genetic material can be used to produce sufficient quantities of proteins to be used in diagnostic methods for **typhoid fever.** Additionally, the genetic material can be used as a probe for the detection of S.typhi. The entire protein or epitopes derived from the protein can be used for the diagnosis and vaccine development for **typhoid fever.** Further use includes development of DNA/RNA vaccines for **typhoid fever.**

Web site: http://appft1.uspto.gov/netahtml/PTO/search-bool.html

Keeping Current

In order to stay informed about patents and patent applications dealing with typhoid fever, you can access the U.S. Patent Office archive via the Internet at the following Web address: **http://www.uspto.gov/patft/index.html**. You will see two broad options: (1) Issued Patent, and (2) Published Applications. To see a list of issued patents, perform the following steps: Under “Issued Patents,” click “Quick Search.” Then, type “typhoid fever” (or synonyms) into the “Term 1” box. After clicking on the search button, scroll down to see the various patents which have been granted to date on typhoid fever.

You can also use this procedure to view pending patent applications concerning typhoid fever. Simply go back to **http://www.uspto.gov/patft/index.html**. Select "Quick Search" under "Published Applications." Then proceed with the steps listed above.

CHAPTER 6. BOOKS ON TYPHOID FEVER

Overview

This chapter provides bibliographic book references relating to typhoid fever. In addition to online booksellers such as **www.amazon.com** and **www.bn.com**, excellent sources for book titles on typhoid fever include the Combined Health Information Database and the National Library of Medicine. Your local medical library also may have these titles available for loan.

Book Summaries: Federal Agencies

The Combined Health Information Database collects various book abstracts from a variety of healthcare institutions and federal agencies. To access these summaries, go directly to the following hyperlink: **http://chid.nih.gov/detail/detail.html**. You will need to use the "Detailed Search" option. To find book summaries, use the drop boxes at the bottom of the search page where "You may refine your search by." Select the dates and language you prefer. For the format option, select "Monograph/Book." Now type "typhoid fever" (or synonyms) into the "For these words:" box. You should check back periodically with this database which is updated every three months. The following is a typical result when searching for books on typhoid fever:

- **Oral and Cutaneous Manifestations of Hematogenously Disseminated Systemic Infections: A Monograph**

  Source: Research Triangle Park, NC: Glaxo, Inc. 1993. 79 p.

  Contact: Available from Glaxo-Wellcome Education Resource Center. 5 Moore Drive, Research Triangle Park, NC 27709. (800) 824-2896. PRICE: Single copy free. Stock Number GVL251.

  Summary: This monograph describes oral and dermatologic manifestations resulting from systemic infections. Written as a continuing education tool for physicians, the monograph features 26 sections, each of which includes a description of dermatologic manifestations, other clinical features, laboratory findings, and epidemiologic factors. Diseases covered include AIDS, blastomycosis, candidiasis, coccidioidomycosis, cryptococcoses, erythema infectiousum (Fifth disease), gonococcemia, gram-negative bacterial sepsis, hand-foot-and-mouth disease, infectious mononucleosis, infective

endocarditis, Kawasaki syndrome, leprosy, lyme disease, meningococcemia, Rocky Mountain spotted fever, roseola, rubella (German measles), rubeola (measles), scarlet fever, secondary (disseminated) syphilis, staphylococcal scalded skin syndrome, toxic shock syndrome, **typhoid fever,** varicella (chickenpox), and Vibrio vulnificus infection. Each section is illustrated with full-color photographs depicting patients with manifestations of the disease under consideration. The monograph includes a glossary of illustrations to help with diagnosis and classification. The monograph concludes with a self-test and instructions for receiving continuing medical education credits. A subject index is also included. 12 references.

Book Summaries: Online Booksellers

Commercial Internet-based booksellers, such as Amazon.com and Barnes&Noble.com, offer summaries which have been supplied by each title's publisher. Some summaries also include customer reviews. Your local bookseller may have access to in-house and commercial databases that index all published books (e.g. Books in Print®). **IMPORTANT NOTE:** Online booksellers typically produce search results for medical and non-medical books. When searching for "typhoid fever" at online booksellers' Web sites, you may discover non-medical books that use the generic term "typhoid fever" (or a synonym) in their titles. The following is indicative of the results you might find when searching for "typhoid fever" (sorted alphabetically by title; follow the hyperlink to view more details at Amazon.com):

- **Disease in the Popular American Press: The Case of Diphtheria, Typhoid Fever, and Syphilis, 1870-1920 (Contributions in Medical Studies)** by Terra Ziporyn (Author); ISBN: 0313260354; http://www.amazon.com/exec/obidos/ASIN/0313260354/icongroupinterna
- **The Official Patient's Sourcebook on Typhoid Fever** by James N. Parker, Icon Health Publications; ISBN: 0597829756; http://www.amazon.com/exec/obidos/ASIN/0597829756/icongroupinterna
- **Typhoid and Paratyphoid Fevers: A Report**; ISBN: 0686091795; http://www.amazon.com/exec/obidos/ASIN/0686091795/icongroupinterna
- **Typhoid Fever (Deadly Diseases and Epidemics)** by Donald Emmeluth, et al; ISBN: 0791074641; http://www.amazon.com/exec/obidos/ASIN/0791074641/icongroupinterna
- **Typhoid Fever (Epidemics)** by Kurt Ray; ISBN: 0823935728; http://www.amazon.com/exec/obidos/ASIN/0823935728/icongroupinterna
- **Typhoid Fever: Its Nature, Mode of Spreading and Prevention (Public Health in America Series)** by William Budd; ISBN: 040509809X; http://www.amazon.com/exec/obidos/ASIN/040509809X/icongroupinterna
- **Typhoid Fever: Strategies for the 90's: Selected Papers from the First Asia-Pacific Symposium on Typhoid Fever** by Malaysia)/ Koh, C.L./ Puthucheary, S.D. Asia-Pacific Symposium on Typhoid Fever 1991 Kuala Lumpur (Editor), T. Pang; ISBN: 9810209533; http://www.amazon.com/exec/obidos/ASIN/9810209533/icongroupinterna

Chapters on Typhoid Fever

In order to find chapters that specifically relate to typhoid fever, an excellent source of abstracts is the Combined Health Information Database. You will need to limit your search to book chapters and typhoid fever using the "Detailed Search" option. Go to the following hyperlink: **http://chid.nih.gov/detail/detail.html**. To find book chapters, use the drop boxes at the bottom of the search page where "You may refine your search by." Select the dates and language you prefer, and the format option "Book Chapter." Type "typhoid fever" (or synonyms) into the "For these words:" box. The following is a typical result when searching for book chapters on typhoid fever:

- **Infectious Diarrhea and Bacterial Food Poisoning**

  Source: in Feldman, M.; Friedman, L.S.; Sleisenger, M.H. Sleisenger and Fordtran's Gastrointestinal and Liver Disease: Pathophysiology/Diagnosis/Management. 7th ed. [2-volume set]. St. Louis, MO: Saunders. 2002. p. 1864-1913.

  Contact: Available from Elsevier. 11830 Westline Industrial Drive, St. Louis, MO 63146. (800) 545-2522. Fax (800) 568-5136. Website: www.us.elsevierhealth.com. PRICE: $229.00 plus shipping and handling. ISBN: 0721689736.

  Summary: This chapter on infectious diarrhea and bacterial food poisoning is from a comprehensive and authoritative textbook that covers disorders of the gastrointestinal tract, biliary tree, pancreas, and liver, as well as the related topics of nutrition and peritoneal disorders. Topics include changes in normal flora caused by diarrhea; classification of bacterial diarrhea; toxigenic diarrheas, including cholera, other vibrios, Aeromonas, Plesiomonas shigelloides, and Escherichia coli; invasive pathogens, including Shigella, nontyphoidal Salmonellosis, **typhoid fever,** Campylobacter, and Yersinia; viral diarrhea, including that due to rotavirus, calicivirus, enteric andenovirus, astrovirus, and torovirus; traveler's diarrhea, including microbiology, epidemiology, clinical features, and prevention; diarrhea in the elderly; diagnosis of infectious diarrheal disease; treatment of infectious diarrhea, including with fluid therapy, diet, antimicrobial drugs, and nonspecific therapy; tuberculosis of the gastrointestinal tract; and bacterial food poisoning, including that from Clostridium perfringers, Saphylococcus auerus, Listeria, Bacillus cereus, botulism, and Bacillus anthracis. The chapter includes a mini-outline with page citations, illustrations, and extensive references. 8 figures. 16 tables. 329 references.

- **Routes of Transmission of Pathogenic Microorganisms**

  Source: in Joneja, J.M. and Bielory, L. Understanding Allergy, Sensitivity, and Immunity: A Comprehensive Guide. New Brunswick, NJ: Rutgers University Press. 1990. p. 20-25.

  Contact: Available from Rutgers University Press. 109 Church Street, New Brunswick, NJ 08901. (201) 932-7037. PRICE: $35 (cloth) or $13.95 (paperback). ISBN: 0813515203 (cloth) or 0813515211 (paperback).

  Summary: This chapter, from a comprehensive guide to understanding allergy, sensitivity, and immunity, discusses the routes of transmission of pathogenic microorganisms, notably the digestive route. Microorganisms in food, water, and other beverages are introduced into the digestive tract during eating and drinking. They may cause infections of the alimentary system alone or in other organ systems after dissemination from the initial infection site. Cholera, **typhoid fever,** and shigellosis are intestinal infections caused by bacteria that can be transmitted in contaminated water

supplies. Hepatitis A virus can be transmitted in the same manner. Escherichia coli, a normal inhabitant of the healthy intestinal tract, but which can cause gastroenteritis, is commonly present in water contaminated with feces. The authors also discuss the variety of ways that food can be contaminated.

CHAPTER 7. PERIODICALS AND NEWS ON TYPHOID FEVER

Overview

In this chapter, we suggest a number of news sources and present various periodicals that cover typhoid fever.

News Services and Press Releases

One of the simplest ways of tracking press releases on typhoid fever is to search the news wires. In the following sample of sources, we will briefly describe how to access each service. These services only post recent news intended for public viewing.

PR Newswire

To access the PR Newswire archive, simply go to **http://www.prnewswire.com/**. Select your country. Type "typhoid fever" (or synonyms) into the search box. You will automatically receive information on relevant news releases posted within the last 30 days. The search results are shown by order of relevance.

Reuters Health

The Reuters' Medical News and Health eLine databases can be very useful in exploring news archives relating to typhoid fever. While some of the listed articles are free to view, others are available for purchase for a nominal fee. To access this archive, go to **http://www.reutershealth.com/en/index.html** and search by "typhoid fever" (or synonyms). The following was recently listed in this archive for typhoid fever:

- **Ulcer bug linked to typhoid fever in India**
  Source: Reuters Health eLine
  Date: December 24, 2002
- **1998 outbreak of typhoid fever in Florida linked to imported frozen fruit**
  Source: Reuters Medical News
  Date: August 06, 2002

- **Typhoid fever spread sexually in Ohio cluster**
  Source: Reuters Health eLine
  Date: April 26, 2001
- **Avant granted rights to typhoid fever vaccine patent in deal with Megan Health**
  Source: Reuters Industry Breifing
  Date: August 23, 2000
- **Ceftibuten is effective in treatment of children with typhoid fever**
  Source: Reuters Medical News
  Date: March 27, 2000
- **Jaundice an indicator of serious hepatic injury in patients with typhoid fever**
  Source: Reuters Medical News
  Date: March 29, 1999
- **FDA warns consumers about tropical fruit tied to typhoid fever**
  Source: Reuters Medical News
  Date: February 23, 1999
- **Cystic Fibrosis Gene Protects Carriers Against Typhoid Fever**
  Source: Reuters Medical News
  Date: May 07, 1998
- **Typhoid Fever Threat to Travelers**
  Source: Reuters Health eLine
  Date: March 27, 1998

The NIH

Within MEDLINEplus, the NIH has made an agreement with the New York Times Syndicate, the AP News Service, and Reuters to deliver news that can be browsed by the public. Search news releases at **http://www.nlm.nih.gov/medlineplus/alphanews_a.html**. MEDLINEplus allows you to browse across an alphabetical index. Or you can search by date at the following Web page: **http://www.nlm.nih.gov/medlineplus/newsbydate.html**. Often, news items are indexed by MEDLINEplus within its search engine.

Business Wire

Business Wire is similar to PR Newswire. To access this archive, simply go to **http://www.businesswire.com/**. You can scan the news by industry category or company name.

Market Wire

Market Wire is more focused on technology than the other wires. To browse the latest press releases by topic, such as alternative medicine, biotechnology, fitness, healthcare, legal, nutrition, and pharmaceuticals, access Market Wire's Medical/Health channel at **http://www.marketwire.com/mw/release_index?channel=MedicalHealth**. Or simply go to Market Wire's home page at **http://www.marketwire.com/mw/home**, type "typhoid fever" (or synonyms) into the search box, and click on "Search News." As this service is technology

oriented, you may wish to use it when searching for press releases covering diagnostic procedures or tests.

Search Engines

Medical news is also available in the news sections of commercial Internet search engines. See the health news page at Yahoo (**http://dir.yahoo.com/Health/News_and_Media/**), or you can use this Web site's general news search page at **http://news.yahoo.com/**. Type in "typhoid fever" (or synonyms). If you know the name of a company that is relevant to typhoid fever, you can go to any stock trading Web site (such as **http://www.etrade.com/**) and search for the company name there. News items across various news sources are reported on indicated hyperlinks. Google offers a similar service at **http://news.google.com/**.

BBC

Covering news from a more European perspective, the British Broadcasting Corporation (BBC) allows the public free access to their news archive located at **http://www.bbc.co.uk/**. Search by "typhoid fever" (or synonyms).

Academic Periodicals covering Typhoid Fever

Numerous periodicals are currently indexed within the National Library of Medicine's PubMed database that are known to publish articles relating to typhoid fever. In addition to these sources, you can search for articles covering typhoid fever that have been published by any of the periodicals listed in previous chapters. To find the latest studies published, go to **http://www.ncbi.nlm.nih.gov/pubmed**, type the name of the periodical into the search box, and click "Go."

If you want complete details about the historical contents of a journal, you can also visit the following Web site: **http://www.ncbi.nlm.nih.gov/entrez/jrbrowser.cgi**. Here, type in the name of the journal or its abbreviation, and you will receive an index of published articles. At **http://locatorplus.gov/**, you can retrieve more indexing information on medical periodicals (e.g. the name of the publisher). Select the button "Search LOCATORplus." Then type in the name of the journal and select the advanced search option "Journal Title Search."

CHAPTER 8. RESEARCHING MEDICATIONS

Overview

While a number of hard copy or CD-ROM resources are available for researching medications, a more flexible method is to use Internet-based databases. Broadly speaking, there are two sources of information on approved medications: public sources and private sources. We will emphasize free-to-use public sources.

U.S. Pharmacopeia

Because of historical investments by various organizations and the emergence of the Internet, it has become rather simple to learn about the medications recommended for typhoid fever. One such source is the United States Pharmacopeia. In 1820, eleven physicians met in Washington, D.C. to establish the first compendium of standard drugs for the United States. They called this compendium the U.S. Pharmacopeia (USP). Today, the USP is a non-profit organization consisting of 800 volunteer scientists, eleven elected officials, and 400 representatives of state associations and colleges of medicine and pharmacy. The USP is located in Rockville, Maryland, and its home page is located at **http://www.usp.org/**. The USP currently provides standards for over 3,700 medications. The resulting USP DI® Advice for the Patient® can be accessed through the National Library of Medicine of the National Institutes of Health. The database is partially derived from lists of federally approved medications in the Food and Drug Administration's (FDA) Drug Approvals database, located at **http://www.fda.gov/cder/da/da.htm**.

While the FDA database is rather large and difficult to navigate, the Phamacopeia is both user-friendly and free to use. It covers more than 9,000 prescription and over-the-counter medications. To access this database, simply type the following hyperlink into your Web browser: **http://www.nlm.nih.gov/medlineplus/druginformation.html**. To view examples of a given medication (brand names, category, description, preparation, proper use, precautions, side effects, etc.), simply follow the hyperlinks indicated within the United States Pharmacopeia (USP).

Below, we have compiled a list of medications associated with typhoid fever. If you would like more information on a particular medication, the provided hyperlinks will direct you to ample documentation (e.g. typical dosage, side effects, drug-interaction risks, etc.). The

following drugs have been mentioned in the Pharmacopeia and other sources as being potentially applicable to typhoid fever:

Typhoid Vaccine Live Oral

- **Systemic - U.S. Brands:** Vivotif Berna
  http://www.nlm.nih.gov/medlineplus/druginfo/uspdi/202638.html

Typhoid Vi Polysaccharide Vaccine

- **Systemic - U.S. Brands:** Typhim Vi
  http://www.nlm.nih.gov/medlineplus/druginfo/uspdi/202763.html

Commercial Databases

In addition to the medications listed in the USP above, a number of commercial sites are available by subscription to physicians and their institutions. Or, you may be able to access these sources from your local medical library.

Mosby's Drug Consult™

Mosby's Drug Consult™ database (also available on CD-ROM and book format) covers 45,000 drug products including generics and international brands. It provides prescribing information, drug interactions, and patient information. Subscription information is available at the following hyperlink: **http://www.mosbysdrugconsult.com/**.

PDR*health*

The PDR*health* database is a free-to-use, drug information search engine that has been written for the public in layman's terms. It contains FDA-approved drug information adapted from the Physicians' Desk Reference (PDR) database. PDR*health* can be searched by brand name, generic name, or indication. It features multiple drug interactions reports. Search PDR*health* at **http://www.pdrhealth.com/drug_info/index.html**.

Other Web Sites

Drugs.com (**www.drugs.com**) reproduces the information in the Pharmacopeia as well as commercial information. You may also want to consider the Web site of the Medical Letter, Inc. (**http://www.medletter.com/**) which allows users to download articles on various drugs and therapeutics for a nominal fee.

If you have any questions about a medical treatment, the FDA may have an office near you. Look for their number in the blue pages of the phone book. You can also contact the FDA through its toll-free number, 1-888-INFO-FDA (1-888-463-6332), or on the World Wide Web at **www.fda.gov**.

APPENDICES

APPENDIX A. PHYSICIAN RESOURCES

Overview

In this chapter, we focus on databases and Internet-based guidelines and information resources created or written for a professional audience.

NIH Guidelines

Commonly referred to as "clinical" or "professional" guidelines, the National Institutes of Health publish physician guidelines for the most common diseases. Publications are available at the following by relevant Institute[10]:

- Office of the Director (OD); guidelines consolidated across agencies available at **http://www.nih.gov/health/consumer/conkey.htm**
- National Institute of General Medical Sciences (NIGMS); fact sheets available at **http://www.nigms.nih.gov/news/facts/**
- National Library of Medicine (NLM); extensive encyclopedia (A.D.A.M., Inc.) with guidelines: **http://www.nlm.nih.gov/medlineplus/healthtopics.html**
- National Cancer Institute (NCI); guidelines available at **http://www.cancer.gov/cancerinfo/list.aspx?viewid=5f35036e-5497-4d86-8c2c-714a9f7c8d25**
- National Eye Institute (NEI); guidelines available at **http://www.nei.nih.gov/order/index.htm**
- National Heart, Lung, and Blood Institute (NHLBI); guidelines available at **http://www.nhlbi.nih.gov/guidelines/index.htm**
- National Human Genome Research Institute (NHGRI); research available at **http://www.genome.gov/page.cfm?pageID=10000375**
- National Institute on Aging (NIA); guidelines available at **http://www.nia.nih.gov/health/**

[10] These publications are typically written by one or more of the various NIH Institutes.

- National Institute on Alcohol Abuse and Alcoholism (NIAAA); guidelines available at **http://www.niaaa.nih.gov/publications/publications.htm**
- National Institute of Allergy and Infectious Diseases (NIAID); guidelines available at **http://www.niaid.nih.gov/publications/**
- National Institute of Arthritis and Musculoskeletal and Skin Diseases (NIAMS); fact sheets and guidelines available at **http://www.niams.nih.gov/hi/index.htm**
- National Institute of Child Health and Human Development (NICHD); guidelines available at **http://www.nichd.nih.gov/publications/pubskey.cfm**
- National Institute on Deafness and Other Communication Disorders (NIDCD); fact sheets and guidelines at **http://www.nidcd.nih.gov/health/**
- National Institute of Dental and Craniofacial Research (NIDCR); guidelines available at **http://www.nidr.nih.gov/health/**
- National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK); guidelines available at **http://www.niddk.nih.gov/health/health.htm**
- National Institute on Drug Abuse (NIDA); guidelines available at **http://www.nida.nih.gov/DrugAbuse.html**
- National Institute of Environmental Health Sciences (NIEHS); environmental health information available at **http://www.niehs.nih.gov/external/facts.htm**
- National Institute of Mental Health (NIMH); guidelines available at **http://www.nimh.nih.gov/practitioners/index.cfm**
- National Institute of Neurological Disorders and Stroke (NINDS); neurological disorder information pages available at **http://www.ninds.nih.gov/health_and_medical/disorder_index.htm**
- National Institute of Nursing Research (NINR); publications on selected illnesses at **http://www.nih.gov/ninr/news-info/publications.html**
- National Institute of Biomedical Imaging and Bioengineering; general information at **http://grants.nih.gov/grants/becon/becon_info.htm**
- Center for Information Technology (CIT); referrals to other agencies based on keyword searches available at **http://kb.nih.gov/www_query_main.asp**
- National Center for Complementary and Alternative Medicine (NCCAM); health information available at **http://nccam.nih.gov/health/**
- National Center for Research Resources (NCRR); various information directories available at **http://www.ncrr.nih.gov/publications.asp**
- Office of Rare Diseases; various fact sheets available at **http://rarediseases.info.nih.gov/html/resources/rep_pubs.html**
- Centers for Disease Control and Prevention; various fact sheets on infectious diseases available at **http://www.cdc.gov/publications.htm**

NIH Databases

In addition to the various Institutes of Health that publish professional guidelines, the NIH has designed a number of databases for professionals.[11] Physician-oriented resources provide a wide variety of information related to the biomedical and health sciences, both past and present. The format of these resources varies. Searchable databases, bibliographic citations, full-text articles (when available), archival collections, and images are all available. The following are referenced by the National Library of Medicine:[12]

- **Bioethics:** Access to published literature on the ethical, legal, and public policy issues surrounding healthcare and biomedical research. This information is provided in conjunction with the Kennedy Institute of Ethics located at Georgetown University, Washington, D.C.: **http://www.nlm.nih.gov/databases/databases_bioethics.html**
- **HIV/AIDS Resources:** Describes various links and databases dedicated to HIV/AIDS research: **http://www.nlm.nih.gov/pubs/factsheets/aidsinfs.html**
- **NLM Online Exhibitions:** Describes "Exhibitions in the History of Medicine": **http://www.nlm.nih.gov/exhibition/exhibition.html**. Additional resources for historical scholarship in medicine: **http://www.nlm.nih.gov/hmd/hmd.html**
- **Biotechnology Information:** Access to public databases. The National Center for Biotechnology Information conducts research in computational biology, develops software tools for analyzing genome data, and disseminates biomedical information for the better understanding of molecular processes affecting human health and disease: **http://www.ncbi.nlm.nih.gov/**
- **Population Information:** The National Library of Medicine provides access to worldwide coverage of population, family planning, and related health issues, including family planning technology and programs, fertility, and population law and policy: **http://www.nlm.nih.gov/databases/databases_population.html**
- **Cancer Information:** Access to cancer-oriented databases: **http://www.nlm.nih.gov/databases/databases_cancer.html**
- **Profiles in Science:** Offering the archival collections of prominent twentieth-century biomedical scientists to the public through modern digital technology: **http://www.profiles.nlm.nih.gov/**
- **Chemical Information:** Provides links to various chemical databases and references: **http://sis.nlm.nih.gov/Chem/ChemMain.html**
- **Clinical Alerts:** Reports the release of findings from the NIH-funded clinical trials where such release could significantly affect morbidity and mortality: **http://www.nlm.nih.gov/databases/alerts/clinical_alerts.html**
- **Space Life Sciences:** Provides links and information to space-based research (including NASA): **http://www.nlm.nih.gov/databases/databases_space.html**
- **MEDLINE:** Bibliographic database covering the fields of medicine, nursing, dentistry, veterinary medicine, the healthcare system, and the pre-clinical sciences: **http://www.nlm.nih.gov/databases/databases_medline.html**

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[11] Remember, for the general public, the National Library of Medicine recommends the databases referenced in MEDLINE*plus* (**http://medlineplus.gov/** or **http://www.nlm.nih.gov/medlineplus/databases.html**).

[12] See **http://www.nlm.nih.gov/databases/databases.html**.

- **Toxicology and Environmental Health Information (TOXNET):** Databases covering toxicology and environmental health: **http://sis.nlm.nih.gov/Tox/ToxMain.html**
- **Visible Human Interface:** Anatomically detailed, three-dimensional representations of normal male and female human bodies: **http://www.nlm.nih.gov/research/visible/visible_human.html**

The NLM Gateway[13]

The NLM (National Library of Medicine) Gateway is a Web-based system that lets users search simultaneously in multiple retrieval systems at the U.S. National Library of Medicine (NLM). It allows users of NLM services to initiate searches from one Web interface, providing one-stop searching for many of NLM's information resources or databases.[14] To use the NLM Gateway, simply go to the search site at **http://gateway.nlm.nih.gov/gw/Cmd**. Type "typhoid fever" (or synonyms) into the search box and click "Search." The results will be presented in a tabular form, indicating the number of references in each database category.

Results Summary

Category	Items Found
Journal Articles	7467
Books / Periodicals / Audio Visual	354
Consumer Health	561
Meeting Abstracts	26
Other Collections	12
Total	8420

HSTAT[15]

HSTAT is a free, Web-based resource that provides access to full-text documents used in healthcare decision-making.[16] These documents include clinical practice guidelines, quick-reference guides for clinicians, consumer health brochures, evidence reports and technology assessments from the Agency for Healthcare Research and Quality (AHRQ), as well as AHRQ's Put Prevention Into Practice.[17] Simply search by "typhoid fever" (or synonyms) at the following Web site: **http://text.nlm.nih.gov**.

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[13] Adapted from NLM: **http://gateway.nlm.nih.gov/gw/Cmd?Overview.x**.

[14] The NLM Gateway is currently being developed by the Lister Hill National Center for Biomedical Communications (LHNCBC) at the National Library of Medicine (NLM) of the National Institutes of Health (NIH).

[15] Adapted from HSTAT: **http://www.nlm.nih.gov/pubs/factsheets/hstat.html**.

[16] The HSTAT URL is **http://hstat.nlm.nih.gov/**.

[17] Other important documents in HSTAT include: the National Institutes of Health (NIH) Consensus Conference Reports and Technology Assessment Reports; the HIV/AIDS Treatment Information Service (ATIS) resource documents; the Substance Abuse and Mental Health Services Administration's Center for Substance Abuse Treatment (SAMHSA/CSAT) Treatment Improvement Protocols (TIP) and Center for Substance Abuse Prevention (SAMHSA/CSAP) Prevention Enhancement Protocols System (PEPS); the Public Health Service (PHS) Preventive Services Task Force's *Guide to Clinical Preventive Services*; the independent, nonfederal Task Force on Community Services' *Guide to Community Preventive Services*; and the Health Technology Advisory Committee (HTAC) of the Minnesota Health Care Commission (MHCC) health technology evaluations.

Coffee Break: Tutorials for Biologists[18]

Coffee Break is a general healthcare site that takes a scientific view of the news and covers recent breakthroughs in biology that may one day assist physicians in developing treatments. Here you will find a collection of short reports on recent biological discoveries. Each report incorporates interactive tutorials that demonstrate how bioinformatics tools are used as a part of the research process. Currently, all Coffee Breaks are written by NCBI staff.[19] Each report is about 400 words and is usually based on a discovery reported in one or more articles from recently published, peer-reviewed literature.[20] This site has new articles every few weeks, so it can be considered an online magazine of sorts. It is intended for general background information. You can access the Coffee Break Web site at the following hyperlink: **http://www.ncbi.nlm.nih.gov/Coffeebreak/**.

Other Commercial Databases

In addition to resources maintained by official agencies, other databases exist that are commercial ventures addressing medical professionals. Here are some examples that may interest you:

- **CliniWeb International:** Index and table of contents to selected clinical information on the Internet; see **http://www.ohsu.edu/cliniweb/**.
- **Medical World Search:** Searches full text from thousands of selected medical sites on the Internet; see **http://www.mwsearch.com/**.

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[18] Adapted from **http://www.ncbi.nlm.nih.gov/Coffeebreak/Archive/FAQ.html**.

[19] The figure that accompanies each article is frequently supplied by an expert external to NCBI, in which case the source of the figure is cited. The result is an interactive tutorial that tells a biological story.

[20] After a brief introduction that sets the work described into a broader context, the report focuses on how a molecular understanding can provide explanations of observed biology and lead to therapies for diseases. Each vignette is accompanied by a figure and hypertext links that lead to a series of pages that interactively show how NCBI tools and resources are used in the research process.

APPENDIX B. PATIENT RESOURCES

Overview

Official agencies, as well as federally funded institutions supported by national grants, frequently publish a variety of guidelines written with the patient in mind. These are typically called "Fact Sheets" or "Guidelines." They can take the form of a brochure, information kit, pamphlet, or flyer. Often they are only a few pages in length. Since new guidelines on typhoid fever can appear at any moment and be published by a number of sources, the best approach to finding guidelines is to systematically scan the Internet-based services that post them.

Patient Guideline Sources

The remainder of this chapter directs you to sources which either publish or can help you find additional guidelines on topics related to typhoid fever. Due to space limitations, these sources are listed in a concise manner. Do not hesitate to consult the following sources by either using the Internet hyperlink provided, or, in cases where the contact information is provided, contacting the publisher or author directly.

The National Institutes of Health

The NIH gateway to patients is located at **http://health.nih.gov/**. From this site, you can search across various sources and institutes, a number of which are summarized below.

Topic Pages: MEDLINEplus

The National Library of Medicine has created a vast and patient-oriented healthcare information portal called MEDLINEplus. Within this Internet-based system are "health topic pages" which list links to available materials relevant to typhoid fever. To access this system, log on to **http://www.nlm.nih.gov/medlineplus/healthtopics.html**. From there you can either search using the alphabetical index or browse by broad topic areas. Recently, MEDLINEplus listed the following when searched for "typhoid fever":

Bacterial Infections
http://www.nlm.nih.gov/medlineplus/bacterialinfections.html

Dengue
http://www.nlm.nih.gov/medlineplus/dengue.html

Food Contamination and Poisoning
http://www.nlm.nih.gov/medlineplus/foodcontaminationandpoisoning.html

Gastroenteritis
http://www.nlm.nih.gov/medlineplus/gastroenteritis.html

Hemorrhagic Fevers
http://www.nlm.nih.gov/medlineplus/hemorrhagicfevers.html

Salmonella Infections
http://www.nlm.nih.gov/medlineplus/salmonellainfections.html

Tick Bites
http://www.nlm.nih.gov/medlineplus/tickbites.html

Traveler's Health
http://www.nlm.nih.gov/medlineplus/travelershealth.html

Viral Infections
http://www.nlm.nih.gov/medlineplus/viralinfections.html

You may also choose to use the search utility provided by MEDLINEplus at the following Web address: **http://www.nlm.nih.gov/medlineplus/**. Simply type a keyword into the search box and click "Search." This utility is similar to the NIH search utility, with the exception that it only includes materials that are linked within the MEDLINEplus system (mostly patient-oriented information). It also has the disadvantage of generating unstructured results. We recommend, therefore, that you use this method only if you have a very targeted search.

The Combined Health Information Database (CHID)

CHID Online is a reference tool that maintains a database directory of thousands of journal articles and patient education guidelines on typhoid fever. CHID offers summaries that describe the guidelines available, including contact information and pricing. CHID's general Web site is **http://chid.nih.gov/**. To search this database, go to **http://chid.nih.gov/detail/detail.html**. In particular, you can use the advanced search options to look up pamphlets, reports, brochures, and information kits. The following was recently posted in this archive:

- **Travel to Developing Countries**

  Source: New York, NY: Nidus Information Services, Inc. 1996. 8 p.

  Contact: Available from Nidus Information Services, Inc. 175 Fifth Avenue, Suite 2338, New York, NY 10010. (800) 334-9355 or (212) 260-4268. Fax (212) 529-2349. E-mail: nidus@panix.com. PRICE: $5.95; discounts available for orders of 15 or more reports.

  Summary: This health report provides advice for travelers planning to visit developing countries. Topics include general health precautions; general guidelines for immunizations; health insurance considerations; precautions for specific travel

situations, including motion sickness, air travel, cruise ships, high altitude, and below sea level (scuba diving); and health problems that may concern the traveler to developing countries, including traveler's diarrhea, malaria, cholera, yellow fever, **typhoid fever,** hepatitis, rabies, poliomyelitis, measles, meningococcal disease, Japanese B encephalitis, insect-and other vector-borne disease, diptheria, plague, and AIDS. The report describes each disease and gives recommendations for prevention, including immunization where appropriate. The report concludes with a section describing how travelers with special health problems such as diabetes, cardiac or pulmonary disease, or pregnancy, should protect themselves. A list of information resource organizations is appended.

The National Guideline Clearinghouse™

The National Guideline Clearinghouse™ offers hundreds of evidence-based clinical practice guidelines published in the United States and other countries. You can search this site located at **http://www.guideline.gov/** by using the keyword "typhoid fever" (or synonyms). The following was recently posted:

- **(1) Measles, mumps, and rubella: vaccine use and strategies for elimination of measles, rubella, and congenital rubella syndrome and control of mumps. Recommendations of the Advisory Committee on Immunization Practices (ACIP)**

  Source: Centers for Disease Control and Prevention - Federal Government Agency [U.S.]; 1998 May 22; 45 pages

  http://www.guideline.gov/summary/summary.aspx?doc_id=2378&nbr=1604&string=typhoid+AND+fever

- **2001 USPHS/IDSA guidelines for the prevention of opportunistic infections in persons infected with human immunodeficiency virus**

  Source: Centers for Disease Control and Prevention - Federal Government Agency [U.S.]; 1999 August (updated 2001 November 28); 64 pages

  http://www.guideline.gov/summary/summary.aspx?doc_id=3080&nbr=2306&string=typhoid+AND+fever

- **Adult low back pain**

  Source: Institute for Clinical Systems Improvement - Private Nonprofit Organization; 1994 June (revised 2002 Sep); 61 pages

  http://www.guideline.gov/summary/summary.aspx?doc_id=3498&nbr=2724&string=enteric+AND+fever

- **American Gastroenterological Association medical position statement: guidelines for the management of malnutrition and cachexia, chronic diarrhea, and hepatobiliary disease in patients with human immunodeficiency virus infection**

  Source: American Gastroenterological Association - Medical Specialty Society; 1996 December (reviewed 2001); 31 pages

  http://www.guideline.gov/summary/summary.aspx?doc_id=837&nbr=41&string=enteric+AND+fever

- **American Gastroenterological Association medical position statement: short bowel syndrome and intestinal transplantation**

  Source: American Gastroenterological Association - Medical Specialty Society; 2003 April; 6 pages

  http://www.guideline.gov/summary/summary.aspx?doc_id=3795&nbr=3021&string=enteric+AND+fever

- **Diagnosis and management of foodborne illnesses: a primer for physicians**

  Source: American Medical Association - Medical Specialty Society; Reprint released 2001 January; 88 pages

  http://www.guideline.gov/summary/summary.aspx?doc_id=2707&nbr=1933&string=typhoid+AND+fever

- **Diagnosis and treatment of adult degenerative joint disease (DJD) of the knee**

  Source: Institute for Clinical Systems Improvement - Private Nonprofit Organization; 1996 June (revised 2002 May); 42 pages

  http://www.guideline.gov/summary/summary.aspx?doc_id=3355&nbr=2581&string=enteric+AND+fever

- **Epididymitis. Sexually transmitted diseases treatment guidelines 2002**

  Source: Centers for Disease Control and Prevention - Federal Government Agency [U.S.]; 1993 (revised 2002 May 10); 2 pages

  http://www.guideline.gov/summary/summary.aspx?doc_id=3239&nbr=2465&string=enteric+AND+fever

- **General recommendations on immunization: recommendations of the Advisory Committee on Immunization Practices (ACIP) and the American Academy of Family Physicians (AAFP)**

  Source: American Academy of Family Physicians - Medical Specialty Society; 2002 February 8; 36 pages

  http://www.guideline.gov/summary/summary.aspx?doc_id=3180&nbr=2406&string=typhoid+AND+fever

- **Guidelines for preventing opportunistic infections among hematopoietic stem cell transplant recipients**

  Source: American Society for Blood and Marrow Transplantation - Professional Association; 2000 October 20; 126 pages

  http://www.guideline.gov/summary/summary.aspx?doc_id=2573&nbr=1799&string=typhoid+AND+fever

- **HIV disease management**

  Source: University of Texas Medical Branch Correctional Managed Care - Academic Institution; 1996 September (revised 2002 Jul); 7 pages

  http://www.guideline.gov/summary/summary.aspx?doc_id=3477&nbr=2703&string=enteric+AND+fever

- **Management of Crohn's disease in adults**

  Source: American College of Gastroenterology - Medical Specialty Society; 2001 March; 9 pages

  http://www.guideline.gov/summary/summary.aspx?doc_id=2802&nbr=2028&string=enteric+AND+fever

- **Pelvic inflammatory disease. Sexually transmitted diseases treatment guidelines 2002**

  Source: Centers for Disease Control and Prevention - Federal Government Agency [U.S.]; 1993 (revised 2002 May 10); 5 pages

  http://www.guideline.gov/summary/summary.aspx?doc_id=3238&nbr=2464&string=enteric+AND+fever

- **Practice guidelines for the management of infectious diarrhea**

  Source: Infectious Diseases Society of America - Medical Specialty Society; 2001 February; 21 pages

  http://www.guideline.gov/summary/summary.aspx?doc_id=2791&nbr=2017&string=typhoid+AND+fever

- **Vaccine preventable STDs. Sexually transmitted diseases treatment guidelines 2002**

  Source: Centers for Disease Control and Prevention - Federal Government Agency [U.S.]; 1993 (revised 2002 May 10); 6 pages

  http://www.guideline.gov/summary/summary.aspx?doc_id=3242&nbr=2468&string=enteric+AND+fever

- **Yellow fever vaccine. Recommendations of the Advisory Committee on Immunization Practices (ACIP), 2002**

  Source: Centers for Disease Control and Prevention - Federal Government Agency [U.S.]; 2002 November 8; 10 pages

  http://www.guideline.gov/summary/summary.aspx?doc_id=3489&nbr=2715&string=typhoid+AND+fever

Healthfinder™

Healthfinder™ is sponsored by the U.S. Department of Health and Human Services and offers links to hundreds of other sites that contain healthcare information. This Web site is located at **http://www.healthfinder.gov**. Again, keyword searches can be used to find guidelines. The following was recently found in this database:

- **Preventing Typhoid Fever: Frequently Asked Questions**

  Summary: If you are planning to travel outside the United States, you should know about typhoid fever and what steps you can take to protect yourself.

  Source: National Center for Infectious Diseases, Centers for Disease Control and Prevention

  http://www.healthfinder.gov/scripts/recordpass.asp?RecordType=0&RecordID=2951

The NIH Search Utility

The NIH search utility allows you to search for documents on over 100 selected Web sites that comprise the NIH-WEB-SPACE. Each of these servers is "crawled" and indexed on an ongoing basis. Your search will produce a list of various documents, all of which will relate in some way to typhoid fever. The drawbacks of this approach are that the information is not organized by theme and that the references are often a mix of information for professionals and patients. Nevertheless, a large number of the listed Web sites provide useful background information. We can only recommend this route, therefore, for relatively rare or specific disorders, or when using highly targeted searches. To use the NIH search utility, visit the following Web page: **http://search.nih.gov/index.html**.

Additional Web Sources

A number of Web sites are available to the public that often link to government sites. These can also point you in the direction of essential information. The following is a representative sample:

- AOL: **http://search.aol.com/cat.adp?id=168&layer=&from=subcats**
- Family Village: **http://www.familyvillage.wisc.edu/specific.htm**
- Google: **http://directory.google.com/Top/Health/Conditions_and_Diseases/**
- Med Help International: **http://www.medhelp.org/HealthTopics/A.html**
- Open Directory Project: **http://dmoz.org/Health/Conditions_and_Diseases/**
- Yahoo.com: **http://dir.yahoo.com/Health/Diseases_and_Conditions/**

- WebMD®Health: **http://my.webmd.com/health_topics**

Finding Associations

There are several Internet directories that provide lists of medical associations with information on or resources relating to typhoid fever. By consulting all of associations listed in this chapter, you will have nearly exhausted all sources for patient associations concerned with typhoid fever.

The National Health Information Center (NHIC)

The National Health Information Center (NHIC) offers a free referral service to help people find organizations that provide information about typhoid fever. For more information, see the NHIC's Web site at **http://www.health.gov/NHIC/** or contact an information specialist by calling 1-800-336-4797.

Directory of Health Organizations

The Directory of Health Organizations, provided by the National Library of Medicine Specialized Information Services, is a comprehensive source of information on associations. The Directory of Health Organizations database can be accessed via the Internet at **http://www.sis.nlm.nih.gov/Dir/DirMain.html**. It is composed of two parts: DIRLINE and Health Hotlines.

The DIRLINE database comprises some 10,000 records of organizations, research centers, and government institutes and associations that primarily focus on health and biomedicine. To access DIRLINE directly, go to the following Web site: **http://dirline.nlm.nih.gov/**. Simply type in "typhoid fever" (or a synonym), and you will receive information on all relevant organizations listed in the database.

Health Hotlines directs you to toll-free numbers to over 300 organizations. You can access this database directly at **http://www.sis.nlm.nih.gov/hotlines/**. On this page, you are given the option to search by keyword or by browsing the subject list. When you have received your search results, click on the name of the organization for its description and contact information.

The Combined Health Information Database

Another comprehensive source of information on healthcare associations is the Combined Health Information Database. Using the "Detailed Search" option, you will need to limit your search to "Organizations" and "typhoid fever". Type the following hyperlink into your Web browser: **http://chid.nih.gov/detail/detail.html**. To find associations, use the drop boxes at the bottom of the search page where "You may refine your search by." For publication date, select "All Years." Then, select your preferred language and the format option "Organization Resource Sheet." Type "typhoid fever" (or synonyms) into the "For these words:" box. You should check back periodically with this database since it is updated every three months.

The National Organization for Rare Disorders, Inc.

The National Organization for Rare Disorders, Inc. has prepared a Web site that provides, at no charge, lists of associations organized by health topic. You can access this database at the following Web site: **http://www.rarediseases.org/search/orgsearch.html**. Type "typhoid fever" (or a synonym) into the search box, and click "Submit Query."

APPENDIX C. FINDING MEDICAL LIBRARIES

Overview

In this Appendix, we show you how to quickly find a medical library in your area.

Preparation

Your local public library and medical libraries have interlibrary loan programs with the National Library of Medicine (NLM), one of the largest medical collections in the world. According to the NLM, most of the literature in the general and historical collections of the National Library of Medicine is available on interlibrary loan to any library. If you would like to access NLM medical literature, then visit a library in your area that can request the publications for you.[21]

Finding a Local Medical Library

The quickest method to locate medical libraries is to use the Internet-based directory published by the National Network of Libraries of Medicine (NN/LM). This network includes 4626 members and affiliates that provide many services to librarians, health professionals, and the public. To find a library in your area, simply visit **http://nnlm.gov/members/adv.html** or call 1-800-338-7657.

Medical Libraries in the U.S. and Canada

In addition to the NN/LM, the National Library of Medicine (NLM) lists a number of libraries with reference facilities that are open to the public. The following is the NLM's list and includes hyperlinks to each library's Web site. These Web pages can provide information on hours of operation and other restrictions. The list below is a small sample of

[21] Adapted from the NLM: **http://www.nlm.nih.gov/psd/cas/interlibrary.html**.

libraries recommended by the National Library of Medicine (sorted alphabetically by name of the U.S. state or Canadian province where the library is located)[22]:

- **Alabama:** Health InfoNet of Jefferson County (Jefferson County Library Cooperative, Lister Hill Library of the Health Sciences), **http://www.uab.edu/infonet/**
- **Alabama:** Richard M. Scrushy Library (American Sports Medicine Institute)
- **Arizona:** Samaritan Regional Medical Center: The Learning Center (Samaritan Health System, Phoenix, Arizona), **http://www.samaritan.edu/library/bannerlibs.htm**
- **California:** Kris Kelly Health Information Center (St. Joseph Health System, Humboldt), **http://www.humboldt1.com/~kkhic/index.html**
- **California:** Community Health Library of Los Gatos, **http://www.healthlib.org/orgresources.html**
- **California:** Consumer Health Program and Services (CHIPS) (County of Los Angeles Public Library, Los Angeles County Harbor-UCLA Medical Center Library) - Carson, CA, **http://www.colapublib.org/services/chips.html**
- **California:** Gateway Health Library (Sutter Gould Medical Foundation)
- **California:** Health Library (Stanford University Medical Center), **http://www-med.stanford.edu/healthlibrary/**
- **California:** Patient Education Resource Center - Health Information and Resources (University of California, San Francisco), **http://sfghdean.ucsf.edu/barnett/PERC/default.asp**
- **California:** Redwood Health Library (Petaluma Health Care District), **http://www.phcd.org/rdwdlib.html**
- **California:** Los Gatos PlaneTree Health Library, **http://planetreesanjose.org/**
- **California:** Sutter Resource Library (Sutter Hospitals Foundation, Sacramento), **http://suttermedicalcenter.org/library/**
- **California:** Health Sciences Libraries (University of California, Davis), **http://www.lib.ucdavis.edu/healthsci/**
- **California:** ValleyCare Health Library & Ryan Comer Cancer Resource Center (ValleyCare Health System, Pleasanton), **http://gaelnet.stmarys-ca.edu/other.libs/gbal/east/vchl.html**
- **California:** Washington Community Health Resource Library (Fremont), **http://www.healthlibrary.org/**
- **Colorado:** William V. Gervasini Memorial Library (Exempla Healthcare), **http://www.saintjosephdenver.org/yourhealth/libraries/**
- **Connecticut:** Hartford Hospital Health Science Libraries (Hartford Hospital), **http://www.harthosp.org/library/**
- **Connecticut:** Healthnet: Connecticut Consumer Health Information Center (University of Connecticut Health Center, Lyman Maynard Stowe Library), **http://library.uchc.edu/departm/hnet/**

[22] Abstracted from **http://www.nlm.nih.gov/medlineplus/libraries.html**.

- **Connecticut:** Waterbury Hospital Health Center Library (Waterbury Hospital, Waterbury), **http://www.waterburyhospital.com/library/consumer.shtml**
- **Delaware:** Consumer Health Library (Christiana Care Health System, Eugene du Pont Preventive Medicine & Rehabilitation Institute, Wilmington), **http://www.christianacare.org/health_guide/health_guide_pmri_health_info.cfm**
- **Delaware:** Lewis B. Flinn Library (Delaware Academy of Medicine, Wilmington), **http://www.delamed.org/chls.html**
- **Georgia:** Family Resource Library (Medical College of Georgia, Augusta), **http://cmc.mcg.edu/kids_families/fam_resources/fam_res_lib/frl.htm**
- **Georgia:** Health Resource Center (Medical Center of Central Georgia, Macon), **http://www.mccg.org/hrc/hrchome.asp**
- **Hawaii:** Hawaii Medical Library: Consumer Health Information Service (Hawaii Medical Library, Honolulu), **http://hml.org/CHIS/**
- **Idaho:** DeArmond Consumer Health Library (Kootenai Medical Center, Coeur d'Alene), **http://www.nicon.org/DeArmond/index.htm**
- **Illinois:** Health Learning Center of Northwestern Memorial Hospital (Chicago), **http://www.nmh.org/health_info/hlc.html**
- **Illinois:** Medical Library (OSF Saint Francis Medical Center, Peoria), **http://www.osfsaintfrancis.org/general/library/**
- **Kentucky:** Medical Library - Services for Patients, Families, Students & the Public (Central Baptist Hospital, Lexington), **http://www.centralbap.com/education/community/library.cfm**
- **Kentucky:** University of Kentucky - Health Information Library (Chandler Medical Center, Lexington), **http://www.mc.uky.edu/PatientEd/**
- **Louisiana:** Alton Ochsner Medical Foundation Library (Alton Ochsner Medical Foundation, New Orleans), **http://www.ochsner.org/library/**
- **Louisiana:** Louisiana State University Health Sciences Center Medical Library-Shreveport, **http://lib-sh.lsuhsc.edu/**
- **Maine:** Franklin Memorial Hospital Medical Library (Franklin Memorial Hospital, Farmington), **http://www.fchn.org/fmh/lib.htm**
- **Maine:** Gerrish-True Health Sciences Library (Central Maine Medical Center, Lewiston), **http://www.cmmc.org/library/library.html**
- **Maine:** Hadley Parrot Health Science Library (Eastern Maine Healthcare, Bangor), **http://www.emh.org/hll/hpl/guide.htm**
- **Maine:** Maine Medical Center Library (Maine Medical Center, Portland), **http://www.mmc.org/library/**
- **Maine:** Parkview Hospital (Brunswick), **http://www.parkviewhospital.org/**
- **Maine:** Southern Maine Medical Center Health Sciences Library (Southern Maine Medical Center, Biddeford), **http://www.smmc.org/services/service.php3?choice=10**
- **Maine:** Stephens Memorial Hospital's Health Information Library (Western Maine Health, Norway), **http://www.wmhcc.org/Library/**

- **Manitoba, Canada:** Consumer & Patient Health Information Service (University of Manitoba Libraries), **http://www.umanitoba.ca/libraries/units/health/reference/chis.html**
- **Manitoba, Canada:** J.W. Crane Memorial Library (Deer Lodge Centre, Winnipeg), **http://www.deerlodge.mb.ca/crane_library/about.asp**
- **Maryland:** Health Information Center at the Wheaton Regional Library (Montgomery County, Dept. of Public Libraries, Wheaton Regional Library), **http://www.mont.lib.md.us/healthinfo/hic.asp**
- **Massachusetts:** Baystate Medical Center Library (Baystate Health System), **http://www.baystatehealth.com/1024/**
- **Massachusetts:** Boston University Medical Center Alumni Medical Library (Boston University Medical Center), **http://med-libwww.bu.edu/library/lib.html**
- **Massachusetts:** Lowell General Hospital Health Sciences Library (Lowell General Hospital, Lowell), **http://www.lowellgeneral.org/library/HomePageLinks/WWW.htm**
- **Massachusetts:** Paul E. Woodard Health Sciences Library (New England Baptist Hospital, Boston), **http://www.nebh.org/health_lib.asp**
- **Massachusetts:** St. Luke's Hospital Health Sciences Library (St. Luke's Hospital, Southcoast Health System, New Bedford), **http://www.southcoast.org/library/**
- **Massachusetts:** Treadwell Library Consumer Health Reference Center (Massachusetts General Hospital), **http://www.mgh.harvard.edu/library/chrcindex.html**
- **Massachusetts:** UMass HealthNet (University of Massachusetts Medical School, Worchester), **http://healthnet.umassmed.edu/**
- **Michigan:** Botsford General Hospital Library - Consumer Health (Botsford General Hospital, Library & Internet Services), **http://www.botsfordlibrary.org/consumer.htm**
- **Michigan:** Helen DeRoy Medical Library (Providence Hospital and Medical Centers), **http://www.providence-hospital.org/library/**
- **Michigan:** Marquette General Hospital - Consumer Health Library (Marquette General Hospital, Health Information Center), **http://www.mgh.org/center.html**
- **Michigan:** Patient Education Resouce Center - University of Michigan Cancer Center (University of Michigan Comprehensive Cancer Center, Ann Arbor), **http://www.cancer.med.umich.edu/learn/leares.htm**
- **Michigan:** Sladen Library & Center for Health Information Resources - Consumer Health Information (Detroit), **http://www.henryford.com/body.cfm?id=39330**
- **Montana:** Center for Health Information (St. Patrick Hospital and Health Sciences Center, Missoula)
- **National:** Consumer Health Library Directory (Medical Library Association, Consumer and Patient Health Information Section), **http://caphis.mlanet.org/directory/index.html**
- **National:** National Network of Libraries of Medicine (National Library of Medicine) - provides library services for health professionals in the United States who do not have access to a medical library, **http://nnlm.gov/**
- **National:** NN/LM List of Libraries Serving the Public (National Network of Libraries of Medicine), **http://nnlm.gov/members/**

- **Nevada:** Health Science Library, West Charleston Library (Las Vegas-Clark County Library District, Las Vegas), **http://www.lvccld.org/special_collections/medical/index.htm**
- **New Hampshire:** Dartmouth Biomedical Libraries (Dartmouth College Library, Hanover), **http://www.dartmouth.edu/~biomed/resources.htmld/conshealth.htmld/**
- **New Jersey:** Consumer Health Library (Rahway Hospital, Rahway), **http://www.rahwayhospital.com/library.htm**
- **New Jersey:** Dr. Walter Phillips Health Sciences Library (Englewood Hospital and Medical Center, Englewood), **http://www.englewoodhospital.com/links/index.htm**
- **New Jersey:** Meland Foundation (Englewood Hospital and Medical Center, Englewood), **http://www.geocities.com/ResearchTriangle/9360/**
- **New York:** Choices in Health Information (New York Public Library) - NLM Consumer Pilot Project participant, **http://www.nypl.org/branch/health/links.html**
- **New York:** Health Information Center (Upstate Medical University, State University of New York, Syracuse), **http://www.upstate.edu/library/hic/**
- **New York:** Health Sciences Library (Long Island Jewish Medical Center, New Hyde Park), **http://www.lij.edu/library/library.html**
- **New York:** ViaHealth Medical Library (Rochester General Hospital), **http://www.nyam.org/library/**
- **Ohio:** Consumer Health Library (Akron General Medical Center, Medical & Consumer Health Library), **http://www.akrongeneral.org/hwlibrary.htm**
- **Oklahoma:** The Health Information Center at Saint Francis Hospital (Saint Francis Health System, Tulsa), **http://www.sfh-tulsa.com/services/healthinfo.asp**
- **Oregon:** Planetree Health Resource Center (Mid-Columbia Medical Center, The Dalles), **http://www.mcmc.net/phrc/**
- **Pennsylvania:** Community Health Information Library (Milton S. Hershey Medical Center, Hershey), **http://www.hmc.psu.edu/commhealth/**
- **Pennsylvania:** Community Health Resource Library (Geisinger Medical Center, Danville), **http://www.geisinger.edu/education/commlib.shtml**
- **Pennsylvania:** HealthInfo Library (Moses Taylor Hospital, Scranton), **http://www.mth.org/healthwellness.html**
- **Pennsylvania:** Hopwood Library (University of Pittsburgh, Health Sciences Library System, Pittsburgh), **http://www.hsls.pitt.edu/guides/chi/hopwood/index_html**
- **Pennsylvania:** Koop Community Health Information Center (College of Physicians of Philadelphia), **http://www.collphyphil.org/kooppg1.shtml**
- **Pennsylvania:** Learning Resources Center - Medical Library (Susquehanna Health System, Williamsport), **http://www.shscares.org/services/lrc/index.asp**
- **Pennsylvania:** Medical Library (UPMC Health System, Pittsburgh), **http://www.upmc.edu/passavant/library.htm**
- **Quebec, Canada:** Medical Library (Montreal General Hospital), **http://www.mghlib.mcgill.ca/**

- **South Dakota:** Rapid City Regional Hospital Medical Library (Rapid City Regional Hospital), **http://www.rcrh.org/Services/Library/Default.asp**
- **Texas:** Houston HealthWays (Houston Academy of Medicine-Texas Medical Center Library), **http://hhw.library.tmc.edu/**
- **Washington:** Community Health Library (Kittitas Valley Community Hospital), **http://www.kvch.com/**
- **Washington:** Southwest Washington Medical Center Library (Southwest Washington Medical Center, Vancouver), **http://www.swmedicalcenter.com/body.cfm?id=72**

ONLINE GLOSSARIES

The Internet provides access to a number of free-to-use medical dictionaries. The National Library of Medicine has compiled the following list of online dictionaries:

- ADAM Medical Encyclopedia (A.D.A.M., Inc.), comprehensive medical reference: **http://www.nlm.nih.gov/medlineplus/encyclopedia.html**
- MedicineNet.com Medical Dictionary (MedicineNet, Inc.): **http://www.medterms.com/Script/Main/hp.asp**
- Merriam-Webster Medical Dictionary (Inteli-Health, Inc.): **http://www.intelihealth.com/IH/**
- Multilingual Glossary of Technical and Popular Medical Terms in Eight European Languages (European Commission) - Danish, Dutch, English, French, German, Italian, Portuguese, and Spanish: **http://allserv.rug.ac.be/~rvdstich/eugloss/welcome.html**
- On-line Medical Dictionary (CancerWEB): **http://cancerweb.ncl.ac.uk/omd/**
- Rare Diseases Terms (Office of Rare Diseases): **http://ord.aspensys.com/asp/diseases/diseases.asp**
- Technology Glossary (National Library of Medicine) - Health Care Technology: **http://www.nlm.nih.gov/nichsr/ta101/ta10108.htm**

Beyond these, MEDLINEplus contains a very patient-friendly encyclopedia covering every aspect of medicine (licensed from A.D.A.M., Inc.). The ADAM Medical Encyclopedia can be accessed at **http://www.nlm.nih.gov/medlineplus/encyclopedia.html**. ADAM is also available on commercial Web sites such as drkoop.com (**http://www.drkoop.com/**) and Web MD (**http://my.webmd.com/adam/asset/adam_disease_articles/a_to_z/a**). The NIH suggests the following Web sites in the ADAM Medical Encyclopedia when searching for information on typhoid fever:

- **Basic Guidelines for Typhoid Fever**

  Typhoid fever
  Web site: http://www.nlm.nih.gov/medlineplus/ency/article/001332.htm

- **Signs & Symptoms for Typhoid Fever**

  Abdominal pain
  Web site: http://www.nlm.nih.gov/medlineplus/ency/article/003120.htm

  Abdominal tenderness
  Web site: http://www.nlm.nih.gov/medlineplus/ency/article/003120.htm

  Agitation
  Web site: http://www.nlm.nih.gov/medlineplus/ency/article/003212.htm

  Chills
  Web site: http://www.nlm.nih.gov/medlineplus/ency/article/003091.htm

Confusion
Web site: http://www.nlm.nih.gov/medlineplus/ency/article/003205.htm

Constipation
Web site: http://www.nlm.nih.gov/medlineplus/ency/article/003125.htm

Cough
Web site: http://www.nlm.nih.gov/medlineplus/ency/article/003072.htm

Decreased urine output
Web site: http://www.nlm.nih.gov/medlineplus/ency/article/003147.htm

Diarrhea
Web site: http://www.nlm.nih.gov/medlineplus/ency/article/003126.htm

Erythema
Web site: http://www.nlm.nih.gov/medlineplus/ency/article/003220.htm

Fatigue
Web site: http://www.nlm.nih.gov/medlineplus/ency/article/003088.htm

Fever
Web site: http://www.nlm.nih.gov/medlineplus/ency/article/003090.htm

GI bleeding
Web site: http://www.nlm.nih.gov/medlineplus/ency/article/003133.htm

Hallucinations
Web site: http://www.nlm.nih.gov/medlineplus/ency/article/003258.htm

Headache
Web site: http://www.nlm.nih.gov/medlineplus/ency/article/003024.htm

Hepatomegaly
Web site: http://www.nlm.nih.gov/medlineplus/ency/article/003275.htm

Hepatosplenomegaly
Web site: http://www.nlm.nih.gov/medlineplus/ency/article/003275.htm

Lethargic
Web site: http://www.nlm.nih.gov/medlineplus/ency/article/003088.htm

Loss of appetite
Web site: http://www.nlm.nih.gov/medlineplus/ency/article/003121.htm

Malaise
Web site: http://www.nlm.nih.gov/medlineplus/ency/article/003089.htm

Myalgia
Web site: http://www.nlm.nih.gov/medlineplus/ency/article/003178.htm

Patches
Web site: http://www.nlm.nih.gov/medlineplus/ency/article/003231.htm

Rash
Web site: http://www.nlm.nih.gov/medlineplus/ency/article/003220.htm

Sore throat
Web site: http://www.nlm.nih.gov/medlineplus/ency/article/003053.htm

Splenomegaly
Web site: http://www.nlm.nih.gov/medlineplus/ency/article/003276.htm

Stools, bloody
Web site: http://www.nlm.nih.gov/medlineplus/ency/article/003130.htm

Weakness
Web site: http://www.nlm.nih.gov/medlineplus/ency/article/003174.htm

- **Diagnostics and Tests for Typhoid Fever**

Abdominal film
Web site: http://www.nlm.nih.gov/medlineplus/ency/article/003815.htm

ALT
Web site: http://www.nlm.nih.gov/medlineplus/ency/article/003473.htm

Biopsy
Web site: http://www.nlm.nih.gov/medlineplus/ency/article/003416.htm

Blood culture
Web site: http://www.nlm.nih.gov/medlineplus/ency/article/003744.htm

Bone marrow biopsy
Web site: http://www.nlm.nih.gov/medlineplus/ency/article/003934.htm

Bone marrow culture
Web site: http://www.nlm.nih.gov/medlineplus/ency/article/003682.htm

ELISA
Web site: http://www.nlm.nih.gov/medlineplus/ency/article/003332.htm

Platelet count
Web site: http://www.nlm.nih.gov/medlineplus/ency/article/003647.htm

Platelets
Web site: http://www.nlm.nih.gov/medlineplus/ency/article/003647.htm

Serology
Web site: http://www.nlm.nih.gov/medlineplus/ency/article/003511.htm

Stool culture
Web site: http://www.nlm.nih.gov/medlineplus/ency/article/003758.htm

White blood cell count
Web site: http://www.nlm.nih.gov/medlineplus/ency/article/003643.htm

- **Surgery and Procedures for Typhoid Fever**

Cholecystectomy
Web site: http://www.nlm.nih.gov/medlineplus/ency/article/002930.htm

- **Background Topics for Typhoid Fever**

Antibody
Web site: http://www.nlm.nih.gov/medlineplus/ency/article/002223.htm

Antigen
Web site: http://www.nlm.nih.gov/medlineplus/ency/article/002224.htm

Chronic
Web site: http://www.nlm.nih.gov/medlineplus/ency/article/002312.htm

Electrolytes
Web site: http://www.nlm.nih.gov/medlineplus/ency/article/002350.htm

Endemic
Web site: http://www.nlm.nih.gov/medlineplus/ency/article/002362.htm

Hepatic
Web site: http://www.nlm.nih.gov/medlineplus/ency/article/002378.htm

Immunity
Web site: http://www.nlm.nih.gov/medlineplus/ency/article/000821.htm

Intravenous
Web site: http://www.nlm.nih.gov/medlineplus/ency/article/002383.htm

Phenol
Web site: http://www.nlm.nih.gov/medlineplus/ency/article/002903.htm

Systemic
Web site: http://www.nlm.nih.gov/medlineplus/ency/article/002294.htm

Online Dictionary Directories

The following are additional online directories compiled by the National Library of Medicine, including a number of specialized medical dictionaries:

- Medical Dictionaries: Medical & Biological (World Health Organization): **http://www.who.int/hlt/virtuallibrary/English/diction.htm#Medical**
- MEL-Michigan Electronic Library List of Online Health and Medical Dictionaries (Michigan Electronic Library): **http://mel.lib.mi.us/health/health-dictionaries.html**

- Patient Education: Glossaries (DMOZ Open Directory Project):
  http://dmoz.org/Health/Education/Patient_Education/Glossaries/
- Web of Online Dictionaries (Bucknell University):
  http://www.yourdictionary.com/diction5.html#medicine

TYPHOID FEVER DICTIONARY

The definitions below are derived from official public sources, including the National Institutes of Health [NIH] and the European Union [EU].

Abdominal: Having to do with the abdomen, which is the part of the body between the chest and the hips that contains the pancreas, stomach, intestines, liver, gallbladder, and other organs. [NIH]

Aberrant: Wandering or deviating from the usual or normal course. [EU]

Abscess: A localized, circumscribed collection of pus. [NIH]

Acetaminophen: Analgesic antipyretic derivative of acetanilide. It has weak anti-inflammatory properties and is used as a common analgesic, but may cause liver, blood cell, and kidney damage. [NIH]

Acetylcholine: A neurotransmitter. Acetylcholine in vertebrates is the major transmitter at neuromuscular junctions, autonomic ganglia, parasympathetic effector junctions, a subset of sympathetic effector junctions, and at many sites in the central nervous system. It is generally not used as an administered drug because it is broken down very rapidly by cholinesterases, but it is useful in some ophthalmological applications. [NIH]

Actin: Essential component of the cell skeleton. [NIH]

Adenylate Cyclase: An enzyme of the lyase class that catalyzes the formation of cyclic AMP and pyrophosphate from ATP. EC 4.6.1.1. [NIH]

Adverse Effect: An unwanted side effect of treatment. [NIH]

Age Groups: Persons classified by age from birth (infant, newborn) to octogenarians and older (aged, 80 and over). [NIH]

Aged, 80 and Over: A person 80 years of age and older. [NIH]

Algorithms: A procedure consisting of a sequence of algebraic formulas and/or logical steps to calculate or determine a given task. [NIH]

Alimentary: Pertaining to food or nutritive material, or to the organs of digestion. [EU]

Alkaline: Having the reactions of an alkali. [EU]

Alternative medicine: Practices not generally recognized by the medical community as standard or conventional medical approaches and used instead of standard treatments. Alternative medicine includes the taking of dietary supplements, megadose vitamins, and herbal preparations; the drinking of special teas; and practices such as massage therapy, magnet therapy, spiritual healing, and meditation. [NIH]

Amino Acid Sequence: The order of amino acids as they occur in a polypeptide chain. This is referred to as the primary structure of proteins. It is of fundamental importance in determining protein conformation. [NIH]

Amino Acids: Organic compounds that generally contain an amino (-NH2) and a carboxyl (-COOH) group. Twenty alpha-amino acids are the subunits which are polymerized to form proteins. [NIH]

Amino Acids: Organic compounds that generally contain an amino (-NH2) and a carboxyl (-COOH) group. Twenty alpha-amino acids are the subunits which are polymerized to form proteins. [NIH]

Amoxicillin: A broad-spectrum semisynthetic antibiotic similar to ampicillin except that its

resistance to gastric acid permits higher serum levels with oral administration. [NIH]

Ampicillin: Semi-synthetic derivative of penicillin that functions as an orally active broad-spectrum antibiotic. [NIH]

Amplification: The production of additional copies of a chromosomal DNA sequence, found as either intrachromosomal or extrachromosomal DNA. [NIH]

Anaerobic: 1. Lacking molecular oxygen. 2. Growing, living, or occurring in the absence of molecular oxygen; pertaining to an anaerobe. [EU]

Anaesthesia: Loss of feeling or sensation. Although the term is used for loss of tactile sensibility, or of any of the other senses, it is applied especially to loss of the sensation of pain, as it is induced to permit performance of surgery or other painful procedures. [EU]

Anaphylatoxins: The family of peptides C3a, C4a, C5a, and C5a des-arginine produced in the serum during complement activation. They produce smooth muscle contraction, mast cell histamine release, affect platelet aggregation, and act as mediators of the local inflammatory process. The order of anaphylatoxin activity from strongest to weakest is C5a, C3a, C4a, and C5a des-arginine. The latter is the so-called "classical" anaphylatoxin but shows no spasmogenic activity though it contains some chemotactic ability. [NIH]

Anemia: A reduction in the number of circulating erythrocytes or in the quantity of hemoglobin. [NIH]

Animal model: An animal with a disease either the same as or like a disease in humans. Animal models are used to study the development and progression of diseases and to test new treatments before they are given to humans. Animals with transplanted human cancers or other tissues are called xenograft models. [NIH]

Annealing: The spontaneous alignment of two single DNA strands to form a double helix. [NIH]

Anorexia: Lack or loss of appetite for food. Appetite is psychologic, dependent on memory and associations. Anorexia can be brought about by unattractive food, surroundings, or company. [NIH]

Anthrax: An acute bacterial infection caused by ingestion of bacillus organisms. Carnivores may become infected from ingestion of infected carcasses. It is transmitted to humans by contact with infected animals or contaminated animal products. The most common form in humans is cutaneous anthrax. [NIH]

Anthropogenic: Of human origin or influence. [NIH]

Antibacterial: A substance that destroys bacteria or suppresses their growth or reproduction. [EU]

Antibiotic: A drug used to treat infections caused by bacteria and other microorganisms. [NIH]

Antibodies: Immunoglobulin molecules having a specific amino acid sequence by virtue of which they interact only with the antigen that induced their synthesis in cells of the lymphoid series (especially plasma cells), or with an antigen closely related to it. [NIH]

Antibodies, Anticardiolipin: Antiphospholipid antibodies found in association with systemic lupus erythematosus (lupus erythematosus, systemic), antiphospholipid syndrome, and in a variety of other diseases as well as in healthy individuals. The antibodies are detected by solid-phase immunoassay employing the purified phospholipid antigen cardiolipin. [NIH]

Antibodies, Antiphospholipid: Autoantibodies directed against phospholipids. These antibodies are characteristically found in patients with systemic lupus erythematosus, antiphospholipid syndrome, related autoimmune diseases, some non-autoimmune diseases,

and also in healthy individuals. [NIH]

Antibody: A type of protein made by certain white blood cells in response to a foreign substance (antigen). Each antibody can bind to only a specific antigen. The purpose of this binding is to help destroy the antigen. Antibodies can work in several ways, depending on the nature of the antigen. Some antibodies destroy antigens directly. Others make it easier for white blood cells to destroy the antigen. [NIH]

Anticoagulant: A drug that helps prevent blood clots from forming. Also called a blood thinner. [NIH]

Antifungal: Destructive to fungi, or suppressing their reproduction or growth; effective against fungal infections. [EU]

Antigen: Any substance which is capable, under appropriate conditions, of inducing a specific immune response and of reacting with the products of that response, that is, with specific antibody or specifically sensitized T-lymphocytes, or both. Antigens may be soluble substances, such as toxins and foreign proteins, or particulate, such as bacteria and tissue cells; however, only the portion of the protein or polysaccharide molecule known as the antigenic determinant (q.v.) combines with antibody or a specific receptor on a lymphocyte. Abbreviated Ag. [EU]

Antigen-Antibody Complex: The complex formed by the binding of antigen and antibody molecules. The deposition of large antigen-antibody complexes leading to tissue damage causes immune complex diseases. [NIH]

Antigen-presenting cell: APC. A cell that shows antigen on its surface to other cells of the immune system. This is an important part of an immune response. [NIH]

Antimicrobial: Killing microorganisms, or suppressing their multiplication or growth. [EU]

Antimycotic: Suppressing the growth of fungi. [EU]

Antiphospholipid Syndrome: The presence of antibodies directed against phospholipids (antibodies, antiphospholipid). The condition is associated with a variety of diseases, notably systemic lupus erythematosus and other connective tissue diseases, thrombopenia, and arterial or venous thromboses. In pregnancy it can cause abortion. Of the phospholipids, the cardiolipins show markedly elevated levels of anticardiolipin antibodies (antibodies, anticardiolipin). Present also are high levels of lupus anticoagulant (lupus coagulation inhibitor). [NIH]

Aphasia: A cognitive disorder marked by an impaired ability to comprehend or express language in its written or spoken form. This condition is caused by diseases which affect the language areas of the dominant hemisphere. Clinical features are used to classify the various subtypes of this condition. General categories include receptive, expressive, and mixed forms of aphasia. [NIH]

Aqueous: Having to do with water. [NIH]

Arginine: An essential amino acid that is physiologically active in the L-form. [NIH]

Arterial: Pertaining to an artery or to the arteries. [EU]

Arteries: The vessels carrying blood away from the heart. [NIH]

Aspirate: Fluid withdrawn from a lump, often a cyst, or a nipple. [NIH]

Assay: Determination of the amount of a particular constituent of a mixture, or of the biological or pharmacological potency of a drug. [EU]

Astrovirus: A genus of small, circular RNA viruses in the family Astroviridae. They cause gastroenteritis and are found in the stools of several vertebrates including humans. Transmission is by the fecal-oral route. There are at least seven human serotypes and the

type species is human astrovirus 1. [NIH]

Asymptomatic: Having no signs or symptoms of disease. [NIH]

Attenuated: Strain with weakened or reduced virulence. [NIH]

Atypical: Irregular; not conformable to the type; in microbiology, applied specifically to strains of unusual type. [EU]

Autodigestion: Autolysis; a condition found in disease of the stomach: the stomach wall is digested by the gastric juice. [NIH]

Azithromycin: A semi-synthetic macrolide antibiotic structurally related to erythromycin. It has been used in the treatment of Mycobacterium avium intracellulare infections, toxoplasmosis, and cryptosporidiosis. [NIH]

Aztreonam: A monocyclic beta-lactam antibiotic originally isolated from Chromobacterium violaceum. It is resistant to beta-lactamases and is used in gram-negative infections, especially of the meninges, bladder, and kidneys. It may cause a superinfection with gram-positive organisms. [NIH]

Bacillus: A genus of Bacillaceae that are spore-forming, rod-shaped cells. Most species are saprophytic soil forms with only a few species being pathogenic. [NIH]

Back Pain: Acute or chronic pain located in the posterior regions of the trunk, including the thoracic, lumbar, sacral, or adjacent regions. [NIH]

Bacteremia: The presence of viable bacteria circulating in the blood. Fever, chills, tachycardia, and tachypnea are common acute manifestations of bacteremia. The majority of cases are seen in already hospitalized patients, most of whom have underlying diseases or procedures which render their bloodstreams susceptible to invasion. [NIH]

Bacteria: Unicellular prokaryotic microorganisms which generally possess rigid cell walls, multiply by cell division, and exhibit three principal forms: round or coccal, rodlike or bacillary, and spiral or spirochetal. [NIH]

Bactericidal: Substance lethal to bacteria; substance capable of killing bacteria. [NIH]

Bacteriophage: A virus whose host is a bacterial cell; A virus that exclusively infects bacteria. It generally has a protein coat surrounding the genome (DNA or RNA). One of the coliphages most extensively studied is the lambda phage, which is also one of the most important. [NIH]

Bacterium: Microscopic organism which may have a spherical, rod-like, or spiral unicellular or non-cellular body. Bacteria usually reproduce through asexual processes. [NIH]

Base: In chemistry, the nonacid part of a salt; a substance that combines with acids to form salts; a substance that dissociates to give hydroxide ions in aqueous solutions; a substance whose molecule or ion can combine with a proton (hydrogen ion); a substance capable of donating a pair of electrons (to an acid) for the formation of a coordinate covalent bond. [EU]

Benign: Not cancerous; does not invade nearby tissue or spread to other parts of the body. [NIH]

Beta-Lactamases: Enzymes found in many bacteria which catalyze the hydrolysis of the amide bond in the beta-lactam ring. Well known antibiotics destroyed by these enzymes are penicillins and cephalosporins. EC 3.5.2.6. [NIH]

Bile: An emulsifying agent produced in the liver and secreted into the duodenum. Its composition includes bile acids and salts, cholesterol, and electrolytes. It aids digestion of fats in the duodenum. [NIH]

Bile Acids: Acids made by the liver that work with bile to break down fats. [NIH]

Bile Acids and Salts: Steroid acids and salts. The primary bile acids are derived from

cholesterol in the liver and usually conjugated with glycine or taurine. The secondary bile acids are further modified by bacteria in the intestine. They play an important role in the digestion and absorption of fat. They have also been used pharmacologically, especially in the treatment of gallstones. [NIH]

Bile Ducts: Tubes that carry bile from the liver to the gallbladder for storage and to the small intestine for use in digestion. [NIH]

Bile Pigments: Pigments that give a characteristic color to bile including: bilirubin, biliverdine, and bilicyanin. [NIH]

Biliary: Having to do with the liver, bile ducts, and/or gallbladder. [NIH]

Biliary Tract: The gallbladder and its ducts. [NIH]

Biochemical: Relating to biochemistry; characterized by, produced by, or involving chemical reactions in living organisms. [EU]

Biological response modifier: BRM. A substance that stimulates the body's response to infection and disease. [NIH]

Biopsy: Removal and pathologic examination of specimens in the form of small pieces of tissue from the living body. [NIH]

Biosynthesis: The building up of a chemical compound in the physiologic processes of a living organism. [EU]

Biotechnology: Body of knowledge related to the use of organisms, cells or cell-derived constituents for the purpose of developing products which are technically, scientifically and clinically useful. Alteration of biologic function at the molecular level (i.e., genetic engineering) is a central focus; laboratory methods used include transfection and cloning technologies, sequence and structure analysis algorithms, computer databases, and gene and protein structure function analysis and prediction. [NIH]

Bivalent: Pertaining to a group of 2 homologous or partly homologous chromosomes during the zygotene stage of prophase to the first metaphase in meiosis. [NIH]

Bladder: The organ that stores urine. [NIH]

Blastomycosis: A fungal infection that may appear in two forms: 1) a primary lesion characterized by the formation of a small cutaneous nodule and small nodules along the lymphatics that may heal within several months; and 2) chronic granulomatous lesions characterized by thick crusts, warty growths, and unusual vascularity and infection in the middle or upper lobes of the lung. [NIH]

Blood Cell Count: A count of the number of leukocytes and erythrocytes per unit volume in a sample of venous blood. A complete blood count (CBC) also includes measurement of the hemoglobin, hematocrit, and erythrocyte indices. [NIH]

Blood Coagulation: The process of the interaction of blood coagulation factors that results in an insoluble fibrin clot. [NIH]

Blood Platelets: Non-nucleated disk-shaped cells formed in the megakaryocyte and found in the blood of all mammals. They are mainly involved in blood coagulation. [NIH]

Blood vessel: A tube in the body through which blood circulates. Blood vessels include a network of arteries, arterioles, capillaries, venules, and veins. [NIH]

Blot: To transfer DNA, RNA, or proteins to an immobilizing matrix such as nitrocellulose. [NIH]

Body Fluids: Liquid components of living organisms. [NIH]

Bone Marrow: The soft tissue filling the cavities of bones. Bone marrow exists in two types, yellow and red. Yellow marrow is found in the large cavities of large bones and consists

mostly of fat cells and a few primitive blood cells. Red marrow is a hematopoietic tissue and is the site of production of erythrocytes and granular leukocytes. Bone marrow is made up of a framework of connective tissue containing branching fibers with the frame being filled with marrow cells. [NIH]

Bowel: The long tube-shaped organ in the abdomen that completes the process of digestion. There is both a small and a large bowel. Also called the intestine. [NIH]

Bowel Movement: Body wastes passed through the rectum and anus. [NIH]

Bradykinin: A nonapeptide messenger that is enzymatically produced from kallidin in the blood where it is a potent but short-lived agent of arteriolar dilation and increased capillary permeability. Bradykinin is also released from mast cells during asthma attacks, from gut walls as a gastrointestinal vasodilator, from damaged tissues as a pain signal, and may be a neurotransmitter. [NIH]

Branch: Most commonly used for branches of nerves, but applied also to other structures. [NIH]

Broad-spectrum: Effective against a wide range of microorganisms; said of an antibiotic. [EU]

Brucellosis: Infection caused by bacteria of the genus Brucella mainly involving the reticuloendothelial system. This condition is characterized by fever, weakness, malaise, and weight loss. [NIH]

Cachexia: General ill health, malnutrition, and weight loss, usually associated with chronic disease. [NIH]

Calcium: A basic element found in nearly all organized tissues. It is a member of the alkaline earth family of metals with the atomic symbol Ca, atomic number 20, and atomic weight 40. Calcium is the most abundant mineral in the body and combines with phosphorus to form calcium phosphate in the bones and teeth. It is essential for the normal functioning of nerves and muscles and plays a role in blood coagulation (as factor IV) and in many enzymatic processes. [NIH]

Calicivirus: A genus in the family Caliciviridae containing many species including feline calicivirus , vesicular exanthema of swine virus, and San Miguel sea lion viruses. [NIH]

Candidiasis: Infection with a fungus of the genus Candida. It is usually a superficial infection of the moist cutaneous areas of the body, and is generally caused by C. albicans; it most commonly involves the skin (dermatocandidiasis), oral mucous membranes (thrush, def. 1), respiratory tract (bronchocandidiasis), and vagina (vaginitis). Rarely there is a systemic infection or endocarditis. Called also moniliasis, candidosis, oidiomycosis, and formerly blastodendriosis. [EU]

Candidosis: An infection caused by an opportunistic yeasts that tends to proliferate and become pathologic when the environment is favorable and the host resistance is weakened. [NIH]

Capsular: Cataract which is initiated by an opacification at the surface of the lens. [NIH]

Carbohydrate: An aldehyde or ketone derivative of a polyhydric alcohol, particularly of the pentahydric and hexahydric alcohols. They are so named because the hydrogen and oxygen are usually in the proportion to form water, (CH2O)n. The most important carbohydrates are the starches, sugars, celluloses, and gums. They are classified into mono-, di-, tri-, poly- and heterosaccharides. [EU]

Carcinogenic: Producing carcinoma. [EU]

Cardiac: Having to do with the heart. [NIH]

Carrier State: The condition of harboring an infective organism without manifesting symptoms of infection. The organism must be readily transmissable to another susceptible

host. [NIH]

Case report: A detailed report of the diagnosis, treatment, and follow-up of an individual patient. Case reports also contain some demographic information about the patient (for example, age, gender, ethnic origin). [NIH]

Causal: Pertaining to a cause; directed against a cause. [EU]

Cecum: The beginning of the large intestine. The cecum is connected to the lower part of the small intestine, called the ileum. [NIH]

Cefamandole: Semisynthetic wide-spectrum cephalosporin with prolonged action, probably due to beta-lactamase resistance. It is used also as the nafate. [NIH]

Cefixime: A third-generation cephalosporin antibiotic that is stable to hydrolysis by beta-lactamases. [NIH]

Ceftriaxone: Broad-spectrum cephalosporin antibiotic with a very long half-life and high penetrability to usually inaccessible infections, including those involving the meninges, eyes, inner ears, and urinary tract. [NIH]

Cell: The individual unit that makes up all of the tissues of the body. All living things are made up of one or more cells. [NIH]

Cell Division: The fission of a cell. [NIH]

Cell membrane: Cell membrane = plasma membrane. The structure enveloping a cell, enclosing the cytoplasm, and forming a selective permeability barrier; it consists of lipids, proteins, and some carbohydrates, the lipids thought to form a bilayer in which integral proteins are embedded to varying degrees. [EU]

Cellulose: A polysaccharide with glucose units linked as in cellobiose. It is the chief constituent of plant fibers, cotton being the purest natural form of the substance. As a raw material, it forms the basis for many derivatives used in chromatography, ion exchange materials, explosives manufacturing, and pharmaceutical preparations. [NIH]

Cervical: Relating to the neck, or to the neck of any organ or structure. Cervical lymph nodes are located in the neck; cervical cancer refers to cancer of the uterine cervix, which is the lower, narrow end (the "neck") of the uterus. [NIH]

Character: In current usage, approximately equivalent to personality. The sum of the relatively fixed personality traits and habitual modes of response of an individual. [NIH]

Chemotactic Factors: Chemical substances that attract or repel cells or organisms. The concept denotes especially those factors released as a result of tissue injury, invasion, or immunologic activity, that attract leukocytes, macrophages, or other cells to the site of infection or insult. [NIH]

Chemotherapy: Treatment with anticancer drugs. [NIH]

Chickenpox: A mild, highly contagious virus characterized by itchy blisters all over the body. [NIH]

Chlorophyll: Porphyrin derivatives containing magnesium that act to convert light energy in photosynthetic organisms. [NIH]

Cholera: An acute diarrheal disease endemic in India and Southeast Asia whose causative agent is vibrio cholerae. This condition can lead to severe dehydration in a matter of hours unless quickly treated. [NIH]

Cholera Toxin: The enterotoxin from Vibrio cholerae. It is a protein that consists of two major components, the heavy (H) or A peptide and the light (L) or B peptide or choleragenoid. The B peptide anchors the protein to intestinal epithelial cells, while the A peptide, enters the cytoplasm, and activates adenylate cyclase, and production of cAMP.

Increased levels of cAMP are thought to modulate release of fluid and electrolytes from intestinal crypt cells. [NIH]

Cholesterol: The principal sterol of all higher animals, distributed in body tissues, especially the brain and spinal cord, and in animal fats and oils. [NIH]

Chromosomal: Pertaining to chromosomes. [EU]

Chronic: A disease or condition that persists or progresses over a long period of time. [NIH]

Chronic Disease: Disease or ailment of long duration. [NIH]

Ciprofloxacin: A carboxyfluoroquinoline antimicrobial agent that is effective against a wide range of microorganisms. It has been successfully and safely used in the treatment of resistant respiratory, skin, bone, joint, gastrointestinal, urinary, and genital infections. [NIH]

CIS: Cancer Information Service. The CIS is the National Cancer Institute's link to the public, interpreting and explaining research findings in a clear and understandable manner, and providing personalized responses to specific questions about cancer. Access the CIS by calling 1-800-4-CANCER, or by using the Web site at http://cis.nci.nih.gov. [NIH]

Clinical trial: A research study that tests how well new medical treatments or other interventions work in people. Each study is designed to test new methods of screening, prevention, diagnosis, or treatment of a disease. [NIH]

Cloning: The production of a number of genetically identical individuals; in genetic engineering, a process for the efficient replication of a great number of identical DNA molecules. [NIH]

Clotrimazole: An imidazole derivative with a broad spectrum of antimycotic activity. It inhibits biosynthesis of the sterol ergostol, an important component of fungal cell membranes. Its action leads to increased membrane permeability and apparent disruption of enzyme systems bound to the membrane. [NIH]

Coagulation: 1. The process of clot formation. 2. In colloid chemistry, the solidification of a sol into a gelatinous mass; an alteration of a disperse phase or of a dissolved solid which causes the separation of the system into a liquid phase and an insoluble mass called the clot or curd. Coagulation is usually irreversible. 3. In surgery, the disruption of tissue by physical means to form an amorphous residuum, as in electrocoagulation and photocoagulation. [EU]

Coccidioidomycosis: An infectious disease caused by a fungus, Coccidioides immitis, that is prevalent in the western United States and is acquired by inhalation of dust containing the spores. [NIH]

Cofactor: A substance, microorganism or environmental factor that activates or enhances the action of another entity such as a disease-causing agent. [NIH]

Colitis: Inflammation of the colon. [NIH]

Colloidal: Of the nature of a colloid. [EU]

Commensal: 1. Living on or within another organism, and deriving benefit without injuring or benefiting the other individual. 2. An organism living on or within another, but not causing injury to the host. [EU]

Communicable disease: A disease that can be transmitted by contact between persons. [NIH]

Complement: A term originally used to refer to the heat-labile factor in serum that causes immune cytolysis, the lysis of antibody-coated cells, and now referring to the entire functionally related system comprising at least 20 distinct serum proteins that is the effector not only of immune cytolysis but also of other biologic functions. Complement activation occurs by two different sequences, the classic and alternative pathways. The proteins of the

classic pathway are termed 'components of complement' and are designated by the symbols C1 through C9. C1 is a calcium-dependent complex of three distinct proteins C1q, C1r and C1s. The proteins of the alternative pathway (collectively referred to as the properdin system) and complement regulatory proteins are known by semisystematic or trivial names. Fragments resulting from proteolytic cleavage of complement proteins are designated with lower-case letter suffixes, e.g., C3a. Inactivated fragments may be designated with the suffix 'i', e.g. C3bi. Activated components or complexes with biological activity are designated by a bar over the symbol e.g. C1 or C4b,2a. The classic pathway is activated by the binding of C1 to classic pathway activators, primarily antigen-antibody complexes containing IgM, IgG1, IgG3; C1q binds to a single IgM molecule or two adjacent IgG molecules. The alternative pathway can be activated by IgA immune complexes and also by nonimmunologic materials including bacterial endotoxins, microbial polysaccharides, and cell walls. Activation of the classic pathway triggers an enzymatic cascade involving C1, C4, C2 and C3; activation of the alternative pathway triggers a cascade involving C3 and factors B, D and P. Both result in the cleavage of C5 and the formation of the membrane attack complex. Complement activation also results in the formation of many biologically active complement fragments that act as anaphylatoxins, opsonins, or chemotactic factors. [EU]

Complement Activation: The sequential activation of serum components C1 through C9, initiated by an erythrocyte-antibody complex or by microbial polysaccharides and properdin, and producing an inflammatory response. [NIH]

Complementary and alternative medicine: CAM. Forms of treatment that are used in addition to (complementary) or instead of (alternative) standard treatments. These practices are not considered standard medical approaches. CAM includes dietary supplements, megadose vitamins, herbal preparations, special teas, massage therapy, magnet therapy, spiritual healing, and meditation. [NIH]

Complementary medicine: Practices not generally recognized by the medical community as standard or conventional medical approaches and used to enhance or complement the standard treatments. Complementary medicine includes the taking of dietary supplements, megadose vitamins, and herbal preparations; the drinking of special teas; and practices such as massage therapy, magnet therapy, spiritual healing, and meditation. [NIH]

Complementation: The production of a wild-type phenotype when two different mutations are combined in a diploid or a heterokaryon and tested in trans-configuration. [NIH]

Computational Biology: A field of biology concerned with the development of techniques for the collection and manipulation of biological data, and the use of such data to make biological discoveries or predictions. This field encompasses all computational methods and theories applicable to molecular biology and areas of computer-based techniques for solving biological problems including manipulation of models and datasets. [NIH]

Congestion: Excessive or abnormal accumulation of blood in a part. [EU]

Conjugated: Acting or operating as if joined; simultaneous. [EU]

Conjunctiva: The mucous membrane that lines the inner surface of the eyelids and the anterior part of the sclera. [NIH]

Connective Tissue: Tissue that supports and binds other tissues. It consists of connective tissue cells embedded in a large amount of extracellular matrix. [NIH]

Connective Tissue: Tissue that supports and binds other tissues. It consists of connective tissue cells embedded in a large amount of extracellular matrix. [NIH]

Connective Tissue Diseases: A heterogeneous group of disorders, some hereditary, others acquired, characterized by abnormal structure or function of one or more of the elements of connective tissue, i.e., collagen, elastin, or the mucopolysaccharides. [NIH]

Consumption: Pulmonary tuberculosis. [NIH]

Contamination: The soiling or pollution by inferior material, as by the introduction of organisms into a wound, or sewage into a stream. [EU]

Contraindications: Any factor or sign that it is unwise to pursue a certain kind of action or treatment, e. g. giving a general anesthetic to a person with pneumonia. [NIH]

Convalescence: The period of recovery following an illness. [NIH]

Coronary: Encircling in the manner of a crown; a term applied to vessels; nerves, ligaments, etc. The term usually denotes the arteries that supply the heart muscle and, by extension, a pathologic involvement of them. [EU]

Coronary Thrombosis: Presence of a thrombus in a coronary artery, often causing a myocardial infarction. [NIH]

Co-trimoxazole: A combination of two anti-infection drugs, sulfamethoxazole and trimethoprim. It is used to fight bacterial and protozoal infections. [NIH]

Cranial: Pertaining to the cranium, or to the anterior (in animals) or superior (in humans) end of the body. [EU]

Cryptosporidiosis: Parasitic intestinal infection with severe diarrhea caused by a protozoan, Cryptosporidium. It occurs in both animals and humans. [NIH]

Curative: Tending to overcome disease and promote recovery. [EU]

Cutaneous: Having to do with the skin. [NIH]

Cyclic: Pertaining to or occurring in a cycle or cycles; the term is applied to chemical compounds that contain a ring of atoms in the nucleus. [EU]

Cyst: A sac or capsule filled with fluid. [NIH]

Cytokines: Non-antibody proteins secreted by inflammatory leukocytes and some non-leukocytic cells, that act as intercellular mediators. They differ from classical hormones in that they are produced by a number of tissue or cell types rather than by specialized glands. They generally act locally in a paracrine or autocrine rather than endocrine manner. [NIH]

Cytoplasm: The protoplasm of a cell exclusive of that of the nucleus; it consists of a continuous aqueous solution (cytosol) and the organelles and inclusions suspended in it (phaneroplasm), and is the site of most of the chemical activities of the cell. [EU]

Databases, Bibliographic: Extensive collections, reputedly complete, of references and citations to books, articles, publications, etc., generally on a single subject or specialized subject area. Databases can operate through automated files, libraries, or computer disks. The concept should be differentiated from factual databases which is used for collections of data and facts apart from bibliographic references to them. [NIH]

Decompression: Decompression external to the body, most often the slow lessening of external pressure on the whole body (especially in caisson workers, deep sea divers, and persons who ascend to great heights) to prevent decompression sickness. It includes also sudden accidental decompression, but not surgical (local) decompression or decompression applied through body openings. [NIH]

Degenerative: Undergoing degeneration : tending to degenerate; having the character of or involving degeneration; causing or tending to cause degeneration. [EU]

Dehydration: The condition that results from excessive loss of body water. [NIH]

Deletion: A genetic rearrangement through loss of segments of DNA (chromosomes), bringing sequences, which are normally separated, into close proximity. [NIH]

Delusion: A false belief, not susceptible to argument or reason, and determined,

pathologically, by some form of mental disorder. [NIH]

Denaturation: Rupture of the hydrogen bonds by heating a DNA solution and then cooling it rapidly causes the two complementary strands to separate. [NIH]

Dendrites: Extensions of the nerve cell body. They are short and branched and receive stimuli from other neurons. [NIH]

Dendritic: 1. Branched like a tree. 2. Pertaining to or possessing dendrites. [EU]

Dendritic cell: A special type of antigen-presenting cell (APC) that activates T lymphocytes. [NIH]

Density: The logarithm to the base 10 of the opacity of an exposed and processed film. [NIH]

Deprivation: Loss or absence of parts, organs, powers, or things that are needed. [EU]

Developing Countries: Countries in the process of change directed toward economic growth, that is, an increase in production, per capita consumption, and income. The process of economic growth involves better utilization of natural and human resources, which results in a change in the social, political, and economic structures. [NIH]

Diagnostic procedure: A method used to identify a disease. [NIH]

Diarrhea: Passage of excessively liquid or excessively frequent stools. [NIH]

Diarrhoea: Abnormal frequency and liquidity of faecal discharges. [EU]

Digestion: The process of breakdown of food for metabolism and use by the body. [NIH]

Digestive tract: The organs through which food passes when food is eaten. These organs are the mouth, esophagus, stomach, small and large intestines, and rectum. [NIH]

Dilatation: The act of dilating. [NIH]

Diploid: Having two sets of chromosomes. [NIH]

Direct: 1. Straight; in a straight line. 2. Performed immediately and without the intervention of subsidiary means. [EU]

Diving: An activity in which the organism plunges into water. It includes scuba and bell diving. Diving as natural behavior of animals goes here, as well as diving in decompression experiments with humans or animals. [NIH]

Drug Interactions: The action of a drug that may affect the activity, metabolism, or toxicity of another drug. [NIH]

Drug Resistance: Diminished or failed response of an organism, disease or tissue to the intended effectiveness of a chemical or drug. It should be differentiated from drug tolerance which is the progressive diminution of the susceptibility of a human or animal to the effects of a drug, as a result of continued administration. [NIH]

Drug Tolerance: Progressive diminution of the susceptibility of a human or animal to the effects of a drug, resulting from its continued administration. It should be differentiated from drug resistance wherein an organism, disease, or tissue fails to respond to the intended effectiveness of a chemical or drug. It should also be differentiated from maximum tolerated dose and no-observed-adverse-effect level. [NIH]

Duct: A tube through which body fluids pass. [NIH]

Duodenum: The first part of the small intestine. [NIH]

Dura mater: The outermost, toughest, and most fibrous of the three membranes (meninges) covering the brain and spinal cord; called also pachymeninx. [EU]

Dysentery: Any of various disorders marked by inflammation of the intestines, especially of the colon, and attended by pain in the abdomen, tenesmus, and frequent stools containing

blood and mucus. Causes include chemical irritants, bacteria, protozoa, or parasitic worms. [EU]

Ecosystem: A dynamic complex of plant, animal and micro-organism communities and their non-living environment interacting as a functional unit. [NIH]

Edema: Excessive amount of watery fluid accumulated in the intercellular spaces, most commonly present in subcutaneous tissue. [NIH]

Effector: It is often an enzyme that converts an inactive precursor molecule into an active second messenger. [NIH]

Efficacy: The extent to which a specific intervention, procedure, regimen, or service produces a beneficial result under ideal conditions. Ideally, the determination of efficacy is based on the results of a randomized control trial. [NIH]

Electrolyte: A substance that dissociates into ions when fused or in solution, and thus becomes capable of conducting electricity; an ionic solute. [EU]

Electrons: Stable elementary particles having the smallest known negative charge, present in all elements; also called negatrons. Positively charged electrons are called positrons. The numbers, energies and arrangement of electrons around atomic nuclei determine the chemical identities of elements. Beams of electrons are called cathode rays or beta rays, the latter being a high-energy biproduct of nuclear decay. [NIH]

Electrophoresis: An electrochemical process in which macromolecules or colloidal particles with a net electric charge migrate in a solution under the influence of an electric current. [NIH]

Embryo: The prenatal stage of mammalian development characterized by rapid morphological changes and the differentiation of basic structures. [NIH]

Encephalitis: Inflammation of the brain due to infection, autoimmune processes, toxins, and other conditions. Viral infections (see encephalitis, viral) are a relatively frequent cause of this condition. [NIH]

Encephalitis, Viral: Inflammation of brain parenchymal tissue as a result of viral infection. Encephalitis may occur as primary or secondary manifestation of Togaviridae infections; Herpesviridae infections; Adenoviridae infections; Flaviviridae infections; Bunyaviridae infections; Picornaviridae infections; Paramyxoviridae infections; Orthomyxoviridae infections; Retroviridae infections; and Arenaviridae infections. [NIH]

Encephalopathy: A disorder of the brain that can be caused by disease, injury, drugs, or chemicals. [NIH]

Endemic: Present or usually prevalent in a population or geographical area at all times; said of a disease or agent. Called also endemial. [EU]

Endocarditis: Exudative and proliferative inflammatory alterations of the endocardium, characterized by the presence of vegetations on the surface of the endocardium or in the endocardium itself, and most commonly involving a heart valve, but sometimes affecting the inner lining of the cardiac chambers or the endocardium elsewhere. It may occur as a primary disorder or as a complication of or in association with another disease. [EU]

Endocardium: The innermost layer of the heart, comprised of endothelial cells. [NIH]

Endothelium: A layer of epithelium that lines the heart, blood vessels (endothelium, vascular), lymph vessels (endothelium, lymphatic), and the serous cavities of the body. [NIH]

Endothelium-derived: Small molecule that diffuses to the adjacent muscle layer and relaxes it. [NIH]

Endotoxic: Of, relating to, or acting as an endotoxin (= a heat-stable toxin, associated with the outer membranes of certain gram-negative bacteria. Endotoxins are not secreted and are

released only when the cells are disrupted). [EU]

Endotoxin: Toxin from cell walls of bacteria. [NIH]

Enteric bacteria: Single-celled microorganisms that lack chlorophyll. Some bacteria are capable of causing human, animal, or plant diseases; others are essential in pollution control because they break down organic matter in the air and in the water. [NIH]

Enteritis: Inflammation of the intestine, applied chiefly to inflammation of the small intestine; see also enterocolitis. [EU]

Enterocolitis: Inflammation of the intestinal mucosa of the small and large bowel. [NIH]

Environmental Health: The science of controlling or modifying those conditions, influences, or forces surrounding man which relate to promoting, establishing, and maintaining health. [NIH]

Enzymatic: Phase where enzyme cuts the precursor protein. [NIH]

Enzyme: A protein that speeds up chemical reactions in the body. [NIH]

Enzyme-Linked Immunosorbent Assay: An immunoassay utilizing an antibody labeled with an enzyme marker such as horseradish peroxidase. While either the enzyme or the antibody is bound to an immunosorbent substrate, they both retain their biologic activity; the change in enzyme activity as a result of the enzyme-antibody-antigen reaction is proportional to the concentration of the antigen and can be measured spectrophotometrically or with the naked eye. Many variations of the method have been developed. [NIH]

Epidemic: Occurring suddenly in numbers clearly in excess of normal expectancy; said especially of infectious diseases but applied also to any disease, injury, or other health-related event occurring in such outbreaks. [EU]

Epidemiologic Factors: Events, characteristics, or other definable entities that have the potential to bring about a change in a health condition or other defined outcome. [NIH]

Epidemiological: Relating to, or involving epidemiology. [EU]

Epidermis: Nonvascular layer of the skin. It is made up, from within outward, of five layers: 1) basal layer (stratum basale epidermidis); 2) spinous layer (stratum spinosum epidermidis); 3) granular layer (stratum granulosum epidermidis); 4) clear layer (stratum lucidum epidermidis); and 5) horny layer (stratum corneum epidermidis). [NIH]

Epigastric: Having to do with the upper middle area of the abdomen. [NIH]

Epithelial: Refers to the cells that line the internal and external surfaces of the body. [NIH]

Epithelial Cells: Cells that line the inner and outer surfaces of the body. [NIH]

Epithelium: One or more layers of epithelial cells, supported by the basal lamina, which covers the inner or outer surfaces of the body. [NIH]

Epitope: A molecule or portion of a molecule capable of binding to the combining site of an antibody. For every given antigenic determinant, the body can construct a variety of antibody-combining sites, some of which fit almost perfectly, and others which barely fit. [NIH]

Epitope Mapping: Methods used for studying the interactions of antibodies with specific regions of protein antigens. Important applications of epitope mapping are found within the area of immunochemistry. [NIH]

ERV: The expiratory reserve volume is the largest volume of gas that can be expired from the end-expiratory level. [NIH]

Erythema: Redness of the skin produced by congestion of the capillaries. This condition may result from a variety of causes. [NIH]

Erythrocyte Indices: Quantification of size and cell hemoglobin content or concentration of the erythrocyte, usually derived from erythrocyte count, blood hemoglobin concentration, and hematocrit. Includes the mean cell volume (MCV), mean cell hemoglobin (MCH), and mean cell hemoglobin concentration (MCHC). Use also for cell diameter and thickness. [NIH]

Erythrocytes: Red blood cells. Mature erythrocytes are non-nucleated, biconcave disks containing hemoglobin whose function is to transport oxygen. [NIH]

Erythromycin: A bacteriostatic antibiotic substance produced by Streptomyces erythreus. Erythromycin A is considered its major active component. In sensitive organisms, it inhibits protein synthesis by binding to 50S ribosomal subunits. This binding process inhibits peptidyl transferase activity and interferes with translocation of amino acids during translation and assembly of proteins. [NIH]

Esophagus: The muscular tube through which food passes from the throat to the stomach. [NIH]

Exhaustion: The feeling of weariness of mind and body. [NIH]

Exocrine: Secreting outwardly, via a duct. [EU]

Exotoxin: Toxic substance excreted by living bacterial cells. [NIH]

Expeditions: Usually refers to planned scientific data-gathering excursions. [NIH]

Expiratory: The volume of air which leaves the breathing organs in each expiration. [NIH]

Expiratory Reserve Volume: The extra volume of air that can be expired with maximum effort beyond the level reached at the end of a normal, quiet expiration. Common abbreviation is ERV. [NIH]

Extracellular: Outside a cell or cells. [EU]

Family Planning: Programs or services designed to assist the family in controlling reproduction by either improving or diminishing fertility. [NIH]

Fascioliasis: Helminth infection of the liver caused by species of Fasciola. [NIH]

Fat: Total lipids including phospholipids. [NIH]

Fatal Outcome: Death resulting from the presence of a disease in an individual, as shown by a single case report or a limited number of patients. This should be differentiated from death, the physiological cessation of life and from mortality, an epidemiological or statistical concept. [NIH]

Febrile: Pertaining to or characterized by fever. [EU]

Feces: The excrement discharged from the intestines, consisting of bacteria, cells exfoliated from the intestines, secretions, chiefly of the liver, and a small amount of food residue. [EU]

Fermentation: An enzyme-induced chemical change in organic compounds that takes place in the absence of oxygen. The change usually results in the production of ethanol or lactic acid, and the production of energy. [NIH]

Flagellin: A protein with a molecular weight of 40,000 isolated from bacterial flagella. At appropriate pH and salt concentration, three flagellin monomers can spontaneously reaggregate to form structures which appear identical to intact flagella. [NIH]

Flagellum: A whiplike appendage of a cell. It can function either as an organ of locomotion or as a device for moving the fluid surrounding the cell. [NIH]

Fluid Therapy: Therapy whose basic objective is to restore the volume and composition of the body fluids to normal with respect to water-electrolyte balance. Fluids may be administered intravenously, orally, by intermittent gavage, or by hypodermoclysis. [NIH]

Fold: A plication or doubling of various parts of the body. [NIH]

Foodborne Illness: An acute gastrointestinal infection caused by food that contains harmful bacteria. Symptoms include diarrhea, abdominal pain, fever, and chills. Also called food poisoning. [NIH]

Frameshift: A type of mutation which causes out-of-phase transcription of the base sequence; such mutations arise from the addition or delection of nucleotide(s) in numbers other than 3 or multiples of 3. [NIH]

Frameshift Mutation: A type of mutation in which a number of nucleotides not divisible by three is deleted from or inserted into a coding sequence, thereby causing an alteration in the reading frame of the entire sequence downstream of the mutation. These mutations may be induced by certain types of mutagens or may occur spontaneously. [NIH]

Fulminant Hepatic Failure: Liver failure that occurs suddenly in a previously healthy person. The most common causes of FHF are acute hepatitis, acetaminophen overdose, and liver damage from prescription drugs. [NIH]

Fungi: A kingdom of eukaryotic, heterotrophic organisms that live as saprobes or parasites, including mushrooms, yeasts, smuts, molds, etc. They reproduce either sexually or asexually, and have life cycles that range from simple to complex. Filamentous fungi refer to those that grow as multicelluar colonies (mushrooms and molds). [NIH]

Fungus: A general term used to denote a group of eukaryotic protists, including mushrooms, yeasts, rusts, moulds, smuts, etc., which are characterized by the absence of chlorophyll and by the presence of a rigid cell wall composed of chitin, mannans, and sometimes cellulose. They are usually of simple morphological form or show some reversible cellular specialization, such as the formation of pseudoparenchymatous tissue in the fruiting body of a mushroom. The dimorphic fungi grow, according to environmental conditions, as moulds or yeasts. [EU]

Gallbladder: The pear-shaped organ that sits below the liver. Bile is concentrated and stored in the gallbladder. [NIH]

Gangrenous: A circumscribed, deep-seated, suppurative inflammation of the subcutaneous tissue of the eyelid discharging pus from several points. [NIH]

Gas: Air that comes from normal breakdown of food. The gases are passed out of the body through the rectum (flatus) or the mouth (burp). [NIH]

Gastric: Having to do with the stomach. [NIH]

Gastric Acid: Hydrochloric acid present in gastric juice. [NIH]

Gastroenteritis: An acute inflammation of the lining of the stomach and intestines, characterized by anorexia, nausea, diarrhoea, abdominal pain, and weakness, which has various causes, including food poisoning due to infection with such organisms as Escherichia coli, Staphylococcus aureus, and Salmonella species; consumption of irritating food or drink; or psychological factors such as anger, stress, and fear. Called also enterogastritis. [EU]

Gastrointestinal: Refers to the stomach and intestines. [NIH]

Gastrointestinal tract: The stomach and intestines. [NIH]

Gavage: Feeding by a tube passed into the stomach; called also tube feeding. [NIH]

Gene: The functional and physical unit of heredity passed from parent to offspring. Genes are pieces of DNA, and most genes contain the information for making a specific protein. [NIH]

Gene Expression: The phenotypic manifestation of a gene or genes by the processes of gene action. [NIH]

Genetic Code: The specifications for how information, stored in nucleic acid sequence (base sequence), is translated into protein sequence (amino acid sequence). The start, stop, and order of amino acids of a protein is specified by consecutive triplets of nucleotides called codons (codon). [NIH]

Genetic Engineering: Directed modification of the gene complement of a living organism by such techniques as altering the DNA, substituting genetic material by means of a virus, transplanting whole nuclei, transplanting cell hybrids, etc. [NIH]

Genetic testing: Analyzing DNA to look for a genetic alteration that may indicate an increased risk for developing a specific disease or disorder. [NIH]

Genetics: The biological science that deals with the phenomena and mechanisms of heredity. [NIH]

Genital: Pertaining to the genitalia. [EU]

Genotype: The genetic constitution of the individual; the characterization of the genes. [NIH]

Gland: An organ that produces and releases one or more substances for use in the body. Some glands produce fluids that affect tissues or organs. Others produce hormones or participate in blood production. [NIH]

Glomerular: Pertaining to or of the nature of a glomerulus, especially a renal glomerulus. [EU]

Glucose: D-Glucose. A primary source of energy for living organisms. It is naturally occurring and is found in fruits and other parts of plants in its free state. It is used therapeutically in fluid and nutrient replacement. [NIH]

Glycoprotein: A protein that has sugar molecules attached to it. [NIH]

Governing Board: The group in which legal authority is vested for the control of health-related institutions and organizations. [NIH]

Graft: Healthy skin, bone, or other tissue taken from one part of the body and used to replace diseased or injured tissue removed from another part of the body. [NIH]

Gram-negative: Losing the stain or decolorized by alcohol in Gram's method of staining, a primary characteristic of bacteria having a cell wall composed of a thin layer of peptidoglycan covered by an outer membrane of lipoprotein and lipopolysaccharide. [EU]

Gram-Negative Bacteria: Bacteria which lose crystal violet stain but are stained pink when treated by Gram's method. [NIH]

Gram-positive: Retaining the stain or resisting decolorization by alcohol in Gram's method of staining, a primary characteristic of bacteria whose cell wall is composed of a thick layer of peptidologlycan with attached teichoic acids. [EU]

Granulocytes: Leukocytes with abundant granules in the cytoplasm. They are divided into three groups: neutrophils, eosinophils, and basophils. [NIH]

Growth: The progressive development of a living being or part of an organism from its earliest stage to maturity. [NIH]

Guanylate Cyclase: An enzyme that catalyzes the conversion of GTP to 3',5'-cyclic GMP and pyrophosphate. It also acts on ITP and dGTP. (From Enzyme Nomenclature, 1992) EC 4.6.1.2. [NIH]

Haematoma: A localized collection of blood, usually clotted, in an organ, space, or tissue, due to a break in the wall of a blood vessel. [EU]

Haemorrhage: The escape of blood from the vessels; bleeding. Small haemorrhages are classified according to size as petechiae (very small), purpura (up to 1 cm), and ecchymoses (larger). The massive accumulation of blood within a tissue is called a haematoma. [EU]

Hair follicles: Shafts or openings on the surface of the skin through which hair grows. [NIH]

Half-Life: The time it takes for a substance (drug, radioactive nuclide, or other) to lose half of its pharmacologic, physiologic, or radiologic activity. [NIH]

Haploid: An organism with one basic chromosome set, symbolized by n; the normal condition of gametes in diploids. [NIH]

Headache: Pain in the cranial region that may occur as an isolated and benign symptom or as a manifestation of a wide variety of conditions including subarachnoid hemorrhage; craniocerebral trauma; central nervous system infections; intracranial hypertension; and other disorders. In general, recurrent headaches that are not associated with a primary disease process are referred to as headache disorders (e.g., migraine). [NIH]

Health Policy: Decisions, usually developed by government policymakers, for determining present and future objectives pertaining to the health care system. [NIH]

Hematocrit: Measurement of the volume of packed red cells in a blood specimen by centrifugation. The procedure is performed using a tube with graduated markings or with automated blood cell counters. It is used as an indicator of erythrocyte status in disease. For example, anemia shows a low hematocrit, polycythemia, high values. [NIH]

Hemoglobin: One of the fractions of glycosylated hemoglobin A1c. Glycosylated hemoglobin is formed when linkages of glucose and related monosaccharides bind to hemoglobin A and its concentration represents the average blood glucose level over the previous several weeks. HbA1c levels are used as a measure of long-term control of plasma glucose (normal, 4 to 6 percent). In controlled diabetes mellitus, the concentration of glycosylated hemoglobin A is within the normal range, but in uncontrolled cases the level may be 3 to 4 times the normal conentration. Generally, complications are substantially lower among patients with Hb levels of 7 percent or less than in patients with HbA1c levels of 9 percent or more. [NIH]

Hemolytic: A disease that affects the blood and blood vessels. It destroys red blood cells, cells that cause the blood to clot, and the lining of blood vessels. HUS is often caused by the Escherichia coli bacterium in contaminated food. People with HUS may develop acute renal failure. [NIH]

Hemorrhage: Bleeding or escape of blood from a vessel. [NIH]

Hepatic: Refers to the liver. [NIH]

Hepatitis: Inflammation of the liver and liver disease involving degenerative or necrotic alterations of hepatocytes. [NIH]

Hepatobiliary: Pertaining to the liver and the bile or the biliary ducts. [EU]

Hepatocytes: The main structural component of the liver. They are specialized epithelial cells that are organized into interconnected plates called lobules. [NIH]

Hepatomegaly: Enlargement of the liver. [NIH]

Heredity: 1. The genetic transmission of a particular quality or trait from parent to offspring. 2. The genetic constitution of an individual. [EU]

Heterogeneity: The property of one or more samples or populations which implies that they are not identical in respect of some or all of their parameters, e. g. heterogeneity of variance. [NIH]

Homologous: Corresponding in structure, position, origin, etc., as (a) the feathers of a bird and the scales of a fish, (b) antigen and its specific antibody, (c) allelic chromosomes. [EU]

Hormone: A substance in the body that regulates certain organs. Hormones such as gastrin help in breaking down food. Some hormones come from cells in the stomach and small

intestine. [NIH]

Horseradish Peroxidase: An enzyme isolated from horseradish which is able to act as an antigen. It is frequently used as a histochemical tracer for light and electron microscopy. Its antigenicity has permitted its use as a combined antigen and marker in experimental immunology. [NIH]

Host: Any animal that receives a transplanted graft. [NIH]

Humoral: Of, relating to, proceeding from, or involving a bodily humour - now often used of endocrine factors as opposed to neural or somatic. [EU]

Humour: 1. A normal functioning fluid or semifluid of the body (as the blood, lymph or bile) especially of vertebrates. 2. A secretion that is itself an excitant of activity (as certain hormones). [EU]

Hybrid: Cross fertilization between two varieties or, more usually, two species of vines, see also crossing. [NIH]

Hybridization: The genetic process of crossbreeding to produce a hybrid. Hybrid nucleic acids can be formed by nucleic acid hybridization of DNA and RNA molecules. Protein hybridization allows for hybrid proteins to be formed from polypeptide chains. [NIH]

Hydrocephalus: Excessive accumulation of cerebrospinal fluid within the cranium which may be associated with dilation of cerebral ventricles, intracranial hypertension; headache; lethargy; urinary incontinence; and ataxia (and in infants macrocephaly). This condition may be caused by obstruction of cerebrospinal fluid pathways due to neurologic abnormalities, intracranial hemorrhages; central nervous system infections; brain neoplasms; craniocerebral trauma; and other conditions. Impaired resorption of cerebrospinal fluid from the arachnoid villi results in a communicating form of hydrocephalus. Hydrocephalus ex-vacuo refers to ventricular dilation that occurs as a result of brain substance loss from cerebral infarction and other conditions. [NIH]

Hydrogen: The first chemical element in the periodic table. It has the atomic symbol H, atomic number 1, and atomic weight 1. It exists, under normal conditions, as a colorless, odorless, tasteless, diatomic gas. Hydrogen ions are protons. Besides the common H1 isotope, hydrogen exists as the stable isotope deuterium and the unstable, radioactive isotope tritium. [NIH]

Hydrogen Bonding: A low-energy attractive force between hydrogen and another element. It plays a major role in determining the properties of water, proteins, and other compounds. [NIH]

Hydrolysis: The process of cleaving a chemical compound by the addition of a molecule of water. [NIH]

Hydrophilic: Readily absorbing moisture; hygroscopic; having strongly polar groups that readily interact with water. [EU]

Hyperbilirubinemia: Pathologic process consisting of an abnormal increase in the amount of bilirubin in the circulating blood, which may result in jaundice. [NIH]

Hyperplasia: An increase in the number of cells in a tissue or organ, not due to tumor formation. It differs from hypertrophy, which is an increase in bulk without an increase in the number of cells. [NIH]

Hypertension: Persistently high arterial blood pressure. Currently accepted threshold levels are 140 mm Hg systolic and 90 mm Hg diastolic pressure. [NIH]

Hypertrophy: General increase in bulk of a part or organ, not due to tumor formation, nor to an increase in the number of cells. [NIH]

Id: The part of the personality structure which harbors the unconscious instinctive desires

and strivings of the individual. [NIH]

Idiopathic: Describes a disease of unknown cause. [NIH]

Ileum: The lower end of the small intestine. [NIH]

Imidazole: C3H4N2. The ring is present in polybenzimidazoles. [NIH]

Immune response: The activity of the immune system against foreign substances (antigens). [NIH]

Immune Sera: Serum that contains antibodies. It is obtained from an animal that has been immunized either by antigen injection or infection with microorganisms containing the antigen. [NIH]

Immune system: The organs, cells, and molecules responsible for the recognition and disposal of foreign ("non-self") material which enters the body. [NIH]

Immunity: Nonsusceptibility to the invasive or pathogenic effects of foreign microorganisms or to the toxic effect of antigenic substances. [NIH]

Immunization: Deliberate stimulation of the host's immune response. Active immunization involves administration of antigens or immunologic adjuvants. Passive immunization involves administration of immune sera or lymphocytes or their extracts (e.g., transfer factor, immune RNA) or transplantation of immunocompetent cell producing tissue (thymus or bone marrow). [NIH]

Immunoassay: Immunochemical assay or detection of a substance by serologic or immunologic methods. Usually the substance being studied serves as antigen both in antibody production and in measurement of antibody by the test substance. [NIH]

Immunochemistry: Field of chemistry that pertains to immunological phenomena and the study of chemical reactions related to antigen stimulation of tissues. It includes physicochemical interactions between antigens and antibodies. [NIH]

Immunodeficiency: The decreased ability of the body to fight infection and disease. [NIH]

Immunogenic: Producing immunity; evoking an immune response. [EU]

Immunoglobulin: A protein that acts as an antibody. [NIH]

Immunologic: The ability of the antibody-forming system to recall a previous experience with an antigen and to respond to a second exposure with the prompt production of large amounts of antibody. [NIH]

Immunology: The study of the body's immune system. [NIH]

Impairment: In the context of health experience, an impairment is any loss or abnormality of psychological, physiological, or anatomical structure or function. [NIH]

In vitro: In the laboratory (outside the body). The opposite of in vivo (in the body). [NIH]

In vivo: In the body. The opposite of in vitro (outside the body or in the laboratory). [NIH]

Incision: A cut made in the body during surgery. [NIH]

Indicative: That indicates; that points out more or less exactly; that reveals fairly clearly. [EU]

Induction: The act or process of inducing or causing to occur, especially the production of a specific morphogenetic effect in the developing embryo through the influence of evocators or organizers, or the production of anaesthesia or unconsciousness by use of appropriate agents. [EU]

Infant, Newborn: An infant during the first month after birth. [NIH]

Infarction: A pathological process consisting of a sudden insufficient blood supply to an area, which results in necrosis of that area. It is usually caused by a thrombus, an embolus,

or a vascular torsion. [NIH]

Infection: 1. Invasion and multiplication of microorganisms in body tissues, which may be clinically unapparent or result in local cellular injury due to competitive metabolism, toxins, intracellular replication, or antigen-antibody response. The infection may remain localized, subclinical, and temporary if the body's defensive mechanisms are effective. A local infection may persist and spread by extension to become an acute, subacute, or chronic clinical infection or disease state. A local infection may also become systemic when the microorganisms gain access to the lymphatic or vascular system. 2. An infectious disease. [EU]

Infectious Diarrhea: Diarrhea caused by infection from bacteria, viruses, or parasites. [NIH]

Infectious Mononucleosis: A common, acute infection usually caused by the Epstein-Barr virus (Human herpesvirus 4). There is an increase in mononuclear white blood cells and other atypical lymphocytes, generalized lymphadenopathy, splenomegaly, and occasionally hepatomegaly with hepatitis. [NIH]

Inflammation: A pathological process characterized by injury or destruction of tissues caused by a variety of cytologic and chemical reactions. It is usually manifested by typical signs of pain, heat, redness, swelling, and loss of function. [NIH]

Inflammatory bowel disease: A general term that refers to the inflammation of the colon and rectum. Inflammatory bowel disease includes ulcerative colitis and Crohn's disease. [NIH]

Influenza: An acute viral infection involving the respiratory tract. It is marked by inflammation of the nasal mucosa, the pharynx, and conjunctiva, and by headache and severe, often generalized, myalgia. [NIH]

Ingestion: Taking into the body by mouth [NIH]

Inhalation: The drawing of air or other substances into the lungs. [EU]

Initiation: Mutation induced by a chemical reactive substance causing cell changes; being a step in a carcinogenic process. [NIH]

Inner ear: The labyrinth, comprising the vestibule, cochlea, and semicircular canals. [NIH]

Interferon: A biological response modifier (a substance that can improve the body's natural response to disease). Interferons interfere with the division of cancer cells and can slow tumor growth. There are several types of interferons, including interferon-alpha, -beta, and -gamma. These substances are normally produced by the body. They are also made in the laboratory for use in treating cancer and other diseases. [NIH]

Interferon-alpha: One of the type I interferons produced by peripheral blood leukocytes or lymphoblastoid cells when exposed to live or inactivated virus, double-stranded RNA, or bacterial products. It is the major interferon produced by virus-induced leukocyte cultures and, in addition to its pronounced antiviral activity, it causes activation of NK cells. [NIH]

Intermittent: Occurring at separated intervals; having periods of cessation of activity. [EU]

Interstitial: Pertaining to or situated between parts or in the interspaces of a tissue. [EU]

Intervertebral: Situated between two contiguous vertebrae. [EU]

Intervertebral Disk Displacement: An intervertebral disk in which the nucleus pulposus has protruded through surrounding fibrocartilage. This occurs most frequently in the lower lumbar region. [NIH]

Intestinal: Having to do with the intestines. [NIH]

Intestine: A long, tube-shaped organ in the abdomen that completes the process of digestion. There is both a large intestine and a small intestine. Also called the bowel. [NIH]

Intoxication: Poisoning, the state of being poisoned. [EU]

Intracellular: Inside a cell. [NIH]

Intracellular Membranes: Membranes of subcellular structures. [NIH]

Intracranial Hypertension: Increased pressure within the cranial vault. This may result from several conditions, including hydrocephalus; brain edema; intracranial masses; severe systemic hypertension; pseudotumor cerebri; and other disorders. [NIH]

Intramuscular: IM. Within or into muscle. [NIH]

Intravascular: Within a vessel or vessels. [EU]

Intravenous: IV. Into a vein. [NIH]

Invasive: 1. Having the quality of invasiveness. 2. Involving puncture or incision of the skin or insertion of an instrument or foreign material into the body; said of diagnostic techniques. [EU]

Ions: An atom or group of atoms that have a positive or negative electric charge due to a gain (negative charge) or loss (positive charge) of one or more electrons. Atoms with a positive charge are known as cations; those with a negative charge are anions. [NIH]

Irritants: Drugs that act locally on cutaneous or mucosal surfaces to produce inflammation; those that cause redness due to hyperemia are rubefacients; those that raise blisters are vesicants and those that penetrate sebaceous glands and cause abscesses are pustulants; tear gases and mustard gases are also irritants. [NIH]

Jaundice: A clinical manifestation of hyperbilirubinemia, consisting of deposition of bile pigments in the skin, resulting in a yellowish staining of the skin and mucous membranes. [NIH]

Jejunum: That portion of the small intestine which extends from the duodenum to the ileum; called also intestinum jejunum. [EU]

Joint: The point of contact between elements of an animal skeleton with the parts that surround and support it. [NIH]

Kb: A measure of the length of DNA fragments, 1 Kb = 1000 base pairs. The largest DNA fragments are up to 50 kilobases long. [NIH]

Labile: 1. Gliding; moving from point to point over the surface; unstable; fluctuating. 2. Chemically unstable. [EU]

Laparotomy: A surgical incision made in the wall of the abdomen. [NIH]

Large Intestine: The part of the intestine that goes from the cecum to the rectum. The large intestine absorbs water from stool and changes it from a liquid to a solid form. The large intestine is 5 feet long and includes the appendix, cecum, colon, and rectum. Also called colon. [NIH]

Lectin: A complex molecule that has both protein and sugars. Lectins are able to bind to the outside of a cell and cause biochemical changes in it. Lectins are made by both animals and plants. [NIH]

Lens: The transparent, double convex (outward curve on both sides) structure suspended between the aqueous and vitreous; helps to focus light on the retina. [NIH]

Leprosy: A chronic granulomatous infection caused by Mycobacterium leprae. The granulomatous lesions are manifested in the skin, the mucous membranes, and the peripheral nerves. Two polar or principal types are lepromatous and tuberculoid. [NIH]

Lesion: An area of abnormal tissue change. [NIH]

Lethal: Deadly, fatal. [EU]

Leukocytes: White blood cells. These include granular leukocytes (basophils, eosinophils, and neutrophils) as well as non-granular leukocytes (lymphocytes and monocytes). [NIH]

Library Services: Services offered to the library user. They include reference and circulation. [NIH]

Linkages: The tendency of two or more genes in the same chromosome to remain together from one generation to the next more frequently than expected according to the law of independent assortment. [NIH]

Lipid: Fat. [NIH]

Lipid A: Lipid A is the biologically active component of lipopolysaccharides. It shows strong endotoxic activity and exhibits immunogenic properties. [NIH]

Lipopolysaccharide: Substance consisting of polysaccaride and lipid. [NIH]

Lipoprotein: Any of the lipid-protein complexes in which lipids are transported in the blood; lipoprotein particles consist of a spherical hydrophobic core of triglycerides or cholesterol esters surrounded by an amphipathic monolayer of phospholipids, cholesterol, and apolipoproteins; the four principal classes are high-density, low-density, and very-low-density lipoproteins and chylomicrons. [EU]

Liver: A large, glandular organ located in the upper abdomen. The liver cleanses the blood and aids in digestion by secreting bile. [NIH]

Localized: Cancer which has not metastasized yet. [NIH]

Locomotion: Movement or the ability to move from one place or another. It can refer to humans, vertebrate or invertebrate animals, and microorganisms. [NIH]

Low Back Pain: Acute or chronic pain in the lumbar or sacral regions, which may be associated with musculo-ligamentous sprains and strains; intervertebral disk displacement; and other conditions. [NIH]

Lumbar: Pertaining to the loins, the part of the back between the thorax and the pelvis. [EU]

Lupus: A form of cutaneous tuberculosis. It is seen predominantly in women and typically involves the nasal, buccal, and conjunctival mucosa. [NIH]

Lyme Disease: An infectious disease caused by a spirochete, Borrelia burgdorferi, which is transmitted chiefly by Ixodes dammini and pacificus ticks in the United States and Ixodes ricinis in Europe. It is a disease with early and late cutaneous manifestations plus involvement of the nervous system, heart, eye, and joints in variable combinations. The disease was formerly known as Lyme arthritis and first discovered at Old Lyme, Connecticut. [NIH]

Lymph: The almost colorless fluid that travels through the lymphatic system and carries cells that help fight infection and disease. [NIH]

Lymph node: A rounded mass of lymphatic tissue that is surrounded by a capsule of connective tissue. Also known as a lymph gland. Lymph nodes are spread out along lymphatic vessels and contain many lymphocytes, which filter the lymphatic fluid (lymph). [NIH]

Lymphadenopathy: Disease or swelling of the lymph nodes. [NIH]

Lymphatic: The tissues and organs, including the bone marrow, spleen, thymus, and lymph nodes, that produce and store cells that fight infection and disease. [NIH]

Lymphatic system: The tissues and organs that produce, store, and carry white blood cells that fight infection and other diseases. This system includes the bone marrow, spleen, thymus, lymph nodes and a network of thin tubes that carry lymph and white blood cells. These tubes branch, like blood vessels, into all the tissues of the body. [NIH]

Lymphocyte: A white blood cell. Lymphocytes have a number of roles in the immune system, including the production of antibodies and other substances that fight infection and diseases. [NIH]

Lymphoid: Referring to lymphocytes, a type of white blood cell. Also refers to tissue in which lymphocytes develop. [NIH]

Lytic: 1. Pertaining to lysis or to a lysin. 2. Producing lysis. [EU]

Major Histocompatibility Complex: The genetic region which contains the loci of genes which determine the structure of the serologically defined (SD) and lymphocyte-defined (LD) transplantation antigens, genes which control the structure of the immune response-associated (Ia) antigens, the immune response (Ir) genes which control the ability of an animal to respond immunologically to antigenic stimuli, and genes which determine the structure and/or level of the first four components of complement. [NIH]

Malabsorption: Impaired intestinal absorption of nutrients. [EU]

Malabsorption syndrome: A group of symptoms such as gas, bloating, abdominal pain, and diarrhea resulting from the body's inability to properly absorb nutrients. [NIH]

Malaise: A vague feeling of bodily discomfort. [EU]

Malaria: A protozoan disease caused in humans by four species of the genus Plasmodium (P. falciparum (malaria, falciparum), P. vivax (malaria, vivax), P. ovale, and P. malariae) and transmitted by the bite of an infected female mosquito of the genus Anopheles. Malaria is endemic in parts of Asia, Africa, Central and South America, Oceania, and certain Caribbean islands. It is characterized by extreme exhaustion associated with paroxysms of high fever, sweating, shaking chills, and anemia. Malaria in animals is caused by other species of plasmodia. [NIH]

Malaria, Falciparum: Malaria caused by Plasmodium falciparum. This is the severest form of malaria and is associated with the highest levels of parasites in the blood. This disease is characterized by irregularly recurring febrile paroxysms that in extreme cases occur with acute cerebral, renal, or gastrointestinal manifestations. [NIH]

Malaria, Vivax: Malaria caused by Plasmodium vivax. This form of malaria is less severe than malaria, falciparum, but there is a higher probability for relapses to occur. Febrile paroxysms often occur every other day. [NIH]

Malnutrition: A condition caused by not eating enough food or not eating a balanced diet. [NIH]

Manic: Affected with mania. [EU]

Manic-depressive psychosis: One of a group of psychotic reactions, fundamentally marked by severe mood swings and a tendency to remission and recurrence. [NIH]

Mastitis: Inflammatory disease of the breast, or mammary gland. [NIH]

Mediate: Indirect; accomplished by the aid of an intervening medium. [EU]

MEDLINE: An online database of MEDLARS, the computerized bibliographic Medical Literature Analysis and Retrieval System of the National Library of Medicine. [NIH]

Meiosis: A special method of cell division, occurring in maturation of the germ cells, by means of which each daughter nucleus receives half the number of chromosomes characteristic of the somatic cells of the species. [NIH]

Membrane: A very thin layer of tissue that covers a surface. [NIH]

Membrane Proteins: Proteins which are found in membranes including cellular and intracellular membranes. They consist of two types, peripheral and integral proteins. They include most membrane-associated enzymes, antigenic proteins, transport proteins, and

drug, hormone, and lectin receptors. [NIH]

Meninges: The three membranes that cover and protect the brain and spinal cord. [NIH]

Meningitis: Inflammation of the meninges. When it affects the dura mater, the disease is termed pachymeningitis; when the arachnoid and pia mater are involved, it is called leptomeningitis, or meningitis proper. [EU]

Mental Disorders: Psychiatric illness or diseases manifested by breakdowns in the adaptational process expressed primarily as abnormalities of thought, feeling, and behavior producing either distress or impairment of function. [NIH]

Mental Health: The state wherein the person is well adjusted. [NIH]

Metaphase: The second phase of cell division, in which the chromosomes line up across the equatorial plane of the spindle prior to separation. [NIH]

MI: Myocardial infarction. Gross necrosis of the myocardium as a result of interruption of the blood supply to the area; it is almost always caused by atherosclerosis of the coronary arteries, upon which coronary thrombosis is usually superimposed. [NIH]

Microbe: An organism which cannot be observed with the naked eye; e. g. unicellular animals, lower algae, lower fungi, bacteria. [NIH]

Microbiological: Pertaining to microbiology : the science that deals with microorganisms, including algae, bacteria, fungi, protozoa and viruses. [EU]

Microbiology: The study of microorganisms such as fungi, bacteria, algae, archaea, and viruses. [NIH]

Microorganism: An organism that can be seen only through a microscope. Microorganisms include bacteria, protozoa, algae, and fungi. Although viruses are not considered living organisms, they are sometimes classified as microorganisms. [NIH]

Micro-organism: An organism which cannot be observed with the naked eye; e. g. unicellular animals, lower algae, lower fungi, bacteria. [NIH]

Microscopy: The application of microscope magnification to the study of materials that cannot be properly seen by the unaided eye. [NIH]

Microvilli: Minute projections of cell membranes which greatly increase the surface area of the cell. [NIH]

Migration: The systematic movement of genes between populations of the same species, geographic race, or variety. [NIH]

Mitochondrial Swelling: Increase in volume of mitochondria due to an influx of fluid; it occurs in hypotonic solutions due to osmotic pressure and in isotonic solutions as a result of altered permeability of the membranes of respiring mitochondria. [NIH]

Modification: A change in an organism, or in a process in an organism, that is acquired from its own activity or environment. [NIH]

Molecular: Of, pertaining to, or composed of molecules : a very small mass of matter. [EU]

Molecule: A chemical made up of two or more atoms. The atoms in a molecule can be the same (an oxygen molecule has two oxygen atoms) or different (a water molecule has two hydrogen atoms and one oxygen atom). Biological molecules, such as proteins and DNA, can be made up of many thousands of atoms. [NIH]

Monocytes: Large, phagocytic mononuclear leukocytes produced in the vertebrate bone marrow and released into the blood; contain a large, oval or somewhat indented nucleus surrounded by voluminous cytoplasm and numerous organelles. [NIH]

Mononuclear: A cell with one nucleus. [NIH]

Mononucleosis: The presence of an abnormally large number of mononuclear leucocytes (monocytes) in the blood. The term is often used alone to refer to infectious mononucleosis. [EU]

Motion Sickness: Sickness caused by motion, as sea sickness, train sickness, car sickness, and air sickness. [NIH]

Mucosa: A mucous membrane, or tunica mucosa. [EU]

Mucus: The viscous secretion of mucous membranes. It contains mucin, white blood cells, water, inorganic salts, and exfoliated cells. [NIH]

Myalgia: Pain in a muscle or muscles. [EU]

Myocardium: The muscle tissue of the heart composed of striated, involuntary muscle known as cardiac muscle. [NIH]

Nasal Mucosa: The mucous membrane lining the nasal cavity. [NIH]

Nausea: An unpleasant sensation in the stomach usually accompanied by the urge to vomit. Common causes are early pregnancy, sea and motion sickness, emotional stress, intense pain, food poisoning, and various enteroviruses. [NIH]

NCI: National Cancer Institute. NCI, part of the National Institutes of Health of the United States Department of Health and Human Services, is the federal government's principal agency for cancer research. NCI conducts, coordinates, and funds cancer research, training, health information dissemination, and other programs with respect to the cause, diagnosis, prevention, and treatment of cancer. Access the NCI Web site at http://cancer.gov. [NIH]

Necrosis: A pathological process caused by the progressive degradative action of enzymes that is generally associated with severe cellular trauma. It is characterized by mitochondrial swelling, nuclear flocculation, uncontrolled cell lysis, and ultimately cell death. [NIH]

Need: A state of tension or dissatisfaction felt by an individual that impels him to action toward a goal he believes will satisfy the impulse. [NIH]

Neoplasm: A new growth of benign or malignant tissue. [NIH]

Nervous System: The entire nerve apparatus composed of the brain, spinal cord, nerves and ganglia. [NIH]

Neural: 1. Pertaining to a nerve or to the nerves. 2. Situated in the region of the spinal axis, as the neutral arch. [EU]

Neurologic: Having to do with nerves or the nervous system. [NIH]

Nitric Oxide: A free radical gas produced endogenously by a variety of mammalian cells. It is synthesized from arginine by a complex reaction, catalyzed by nitric oxide synthase. Nitric oxide is endothelium-derived relaxing factor. It is released by the vascular endothelium and mediates the relaxation induced by some vasodilators such as acetylcholine and bradykinin. It also inhibits platelet aggregation, induces disaggregation of aggregated platelets, and inhibits platelet adhesion to the vascular endothelium. Nitric oxide activates cytosolic guanylate cyclase and thus elevates intracellular levels of cyclic GMP. [NIH]

Nuclear: A test of the structure, blood flow, and function of the kidneys. The doctor injects a mildly radioactive solution into an arm vein and uses x-rays to monitor its progress through the kidneys. [NIH]

Nuclei: A body of specialized protoplasm found in nearly all cells and containing the chromosomes. [NIH]

Nucleic acid: Either of two types of macromolecule (DNA or RNA) formed by polymerization of nucleotides. Nucleic acids are found in all living cells and contain the

information (genetic code) for the transfer of genetic information from one generation to the next. [NIH]

Nucleic Acid Hybridization: The process whereby two single-stranded polynucleotides form a double-stranded molecule, with hydrogen bonding between the complementary bases in the two strains. [NIH]

Nucleocapsid: A protein-nucleic acid complex which forms part or all of a virion. It consists of a capsid plus enclosed nucleic acid. Depending on the virus, the nucleocapsid may correspond to a naked core or be surrounded by a membranous envelope. [NIH]

Nucleus: A body of specialized protoplasm found in nearly all cells and containing the chromosomes. [NIH]

Ofloxacin: An orally administered broad-spectrum quinolone antibacterial drug active against most gram-negative and gram-positive bacteria. [NIH]

Oligo: Chemical and mineral elements that exist in minimal (oligo) quantities in the body, in foods, in the air, in soil; name applied to any element observed as a microconstituent of plant or animal tissue and of beneficial, harmful, or even doubtful significance. [NIH]

Opacity: Degree of density (area most dense taken for reading). [NIH]

Operon: The genetic unit consisting of a feedback system under the control of an operator gene, in which a structural gene transcribes its message in the form of mRNA upon blockade of a repressor produced by a regulator gene. Included here is the attenuator site of bacterial operons where transcription termination is regulated. [NIH]

Opportunistic Infections: An infection caused by an organism which becomes pathogenic under certain conditions, e.g., during immunosuppression. [NIH]

Organ Culture: The growth in aseptic culture of plant organs such as roots or shoots, beginning with organ primordia or segments and maintaining the characteristics of the organ. [NIH]

Osmosis: Tendency of fluids (e.g., water) to move from the less concentrated to the more concentrated side of a semipermeable membrane. [NIH]

Osmotic: Pertaining to or of the nature of osmosis (= the passage of pure solvent from a solution of lesser to one of greater solute concentration when the two solutions are separated by a membrane which selectively prevents the passage of solute molecules, but is permeable to the solvent). [EU]

Overdose: An accidental or deliberate dose of a medication or street drug that is in excess of what is normally used. [NIH]

Pachymeningitis: Inflammation of the dura mater of the brain, the spinal cord or the optic nerve. [NIH]

Palliative: 1. Affording relief, but not cure. 2. An alleviating medicine. [EU]

Pancreas: A mixed exocrine and endocrine gland situated transversely across the posterior abdominal wall in the epigastric and hypochondriac regions. The endocrine portion is comprised of the Islets of Langerhans, while the exocrine portion is a compound acinar gland that secretes digestive enzymes. [NIH]

Pancreatic: Having to do with the pancreas. [NIH]

Pancreatitis: Acute or chronic inflammation of the pancreas, which may be asymptomatic or symptomatic, and which is due to autodigestion of a pancreatic tissue by its own enzymes. It is caused most often by alcoholism or biliary tract disease; less commonly it may be associated with hyperlipaemia, hyperparathyroidism, abdominal trauma (accidental or operative injury), vasculitis, or uraemia. [EU]

Pancytopenia: Deficiency of all three cell elements of the blood, erythrocytes, leukocytes and platelets. [NIH]

Parasite: An animal or a plant that lives on or in an organism of another species and gets at least some of its nutrition from that other organism. [NIH]

Parasitic: Having to do with or being a parasite. A parasite is an animal or a plant that lives on or in an organism of another species and gets at least some of its nutrients from it. [NIH]

Paratyphoid Fever: A prolonged febrile illness commonly caused by serotypes of Salmonella paratyphi. It is similar to typhoid fever but less severe. [NIH]

Parenteral: Not through the alimentary canal but rather by injection through some other route, as subcutaneous, intramuscular, intraorbital, intracapsular, intraspinal, intrasternal, intravenous, etc. [EU]

Pathogen: Any disease-producing microorganism. [EU]

Pathogenesis: The cellular events and reactions that occur in the development of disease. [NIH]

Pathologic: 1. Indicative of or caused by a morbid condition. 2. Pertaining to pathology (= branch of medicine that treats the essential nature of the disease, especially the structural and functional changes in tissues and organs of the body caused by the disease). [EU]

Patient Education: The teaching or training of patients concerning their own health needs. [NIH]

Pefloxacin: An orally administered broad spectrum quinolone antibacterial agent active against most gram-negative and gram-positive bacteria. It is effective against urinary tract infections as well as against many other systemic infections. The drug is well tolerated in adults, but should not be given to children and pregnant women. [NIH]

Penicillin: An antibiotic drug used to treat infection. [NIH]

Peptide: Any compound consisting of two or more amino acids, the building blocks of proteins. Peptides are combined to make proteins. [NIH]

Perineum: The area between the anus and the sex organs. [NIH]

Peripheral Nerves: The nerves outside of the brain and spinal cord, including the autonomic, cranial, and spinal nerves. Peripheral nerves contain non-neuronal cells and connective tissue as well as axons. The connective tissue layers include, from the outside to the inside, the epineurium, the perineurium, and the endoneurium. [NIH]

Peritoneal: Having to do with the peritoneum (the tissue that lines the abdominal wall and covers most of the organs in the abdomen). [NIH]

Peritoneum: Endothelial lining of the abdominal cavity, the parietal peritoneum covering the inside of the abdominal wall and the visceral peritoneum covering the bowel, the mesentery, and certain of the organs. The portion that covers the bowel becomes the serosal layer of the bowel wall. [NIH]

Petechiae: Pinpoint, unraised, round red spots under the skin caused by bleeding. [NIH]

Phagocytosis: The engulfing of microorganisms, other cells, and foreign particles by phagocytic cells. [NIH]

Pharmacologic: Pertaining to pharmacology or to the properties and reactions of drugs. [EU]

Pharyngitis: Inflammation of the throat. [NIH]

Pharynx: The hollow tube about 5 inches long that starts behind the nose and ends at the top of the trachea (windpipe) and esophagus (the tube that goes to the stomach). [NIH]

Phenotype: The outward appearance of the individual. It is the product of interactions

between genes and between the genotype and the environment. This includes the killer phenotype, characteristic of yeasts. [NIH]

Phospholipids: Lipids containing one or more phosphate groups, particularly those derived from either glycerol (phosphoglycerides; glycerophospholipids) or sphingosine (sphingolipids). They are polar lipids that are of great importance for the structure and function of cell membranes and are the most abundant of membrane lipids, although not stored in large amounts in the system. [NIH]

Phosphorus: A non-metallic element that is found in the blood, muscles, nevers, bones, and teeth, and is a component of adenosine triphosphate (ATP; the primary energy source for the body's cells.) [NIH]

Physiologic: Having to do with the functions of the body. When used in the phrase "physiologic age," it refers to an age assigned by general health, as opposed to calendar age. [NIH]

Plague: An acute infectious disease caused by Yersinia pestis that affects humans, wild rodents, and their ectoparasites. This condition persists due to its firm entrenchment in sylvatic rodent-flea ecosystems throughout the world. Bubonic plague is the most common form. [NIH]

Plant Diseases: Diseases of plants. [NIH]

Plants: Multicellular, eukaryotic life forms of the kingdom Plantae. They are characterized by a mainly photosynthetic mode of nutrition; essentially unlimited growth at localized regions of cell divisions (meristems); cellulose within cells providing rigidity; the absence of organs of locomotion; absense of nervous and sensory systems; and an alteration of haploid and diploid generations. [NIH]

Plasma: The clear, yellowish, fluid part of the blood that carries the blood cells. The proteins that form blood clots are in plasma. [NIH]

Plasma cells: A type of white blood cell that produces antibodies. [NIH]

Plasmid: An autonomously replicating, extra-chromosomal DNA molecule found in many bacteria. Plasmids are widely used as carriers of cloned genes. [NIH]

Plasminogen: Precursor of fibrinolysin (plasmin). It is a single-chain beta-globulin of molecular weight 80-90,000 found mostly in association with fibrinogen in plasma; plasminogen activators change it to fibrinolysin. It is used in wound debriding and has been investigated as a thrombolytic agent. [NIH]

Platelet Aggregation: The attachment of platelets to one another. This clumping together can be induced by a number of agents (e.g., thrombin, collagen) and is part of the mechanism leading to the formation of a thrombus. [NIH]

Platelets: A type of blood cell that helps prevent bleeding by causing blood clots to form. Also called thrombocytes. [NIH]

Poisoning: A condition or physical state produced by the ingestion, injection or inhalation of, or exposure to a deleterious agent. [NIH]

Polymerase: An enzyme which catalyses the synthesis of DNA using a single DNA strand as a template. The polymerase copies the template in the 5'-3'direction provided that sufficient quantities of free nucleotides, dATP and dTTP are present. [NIH]

Polymerase Chain Reaction: In vitro method for producing large amounts of specific DNA or RNA fragments of defined length and sequence from small amounts of short oligonucleotide flanking sequences (primers). The essential steps include thermal denaturation of the double-stranded target molecules, annealing of the primers to their complementary sequences, and extension of the annealed primers by enzymatic synthesis

with DNA polymerase. The reaction is efficient, specific, and extremely sensitive. Uses for the reaction include disease diagnosis, detection of difficult-to-isolate pathogens, mutation analysis, genetic testing, DNA sequencing, and analyzing evolutionary relationships. [NIH]

Polymorphic: Occurring in several or many forms; appearing in different forms at different stages of development. [EU]

Polymorphism: The occurrence together of two or more distinct forms in the same population. [NIH]

Polypeptide: A peptide which on hydrolysis yields more than two amino acids; called tripeptides, tetrapeptides, etc. according to the number of amino acids contained. [EU]

Polysaccharide: A type of carbohydrate. It contains sugar molecules that are linked together chemically. [NIH]

Porins: Protein molecules situated in the outer membrane of gram-negative bacteria that, in dimeric or trimeric form, constitute a water-filled transmembrane channel allowing passage of ions and other small molecules. Porins are also found in bacterial cell walls, and in plant, fungal, mammalian and other vertebrate cell and mitochondrial membranes. [NIH]

Posterior: Situated in back of, or in the back part of, or affecting the back or dorsal surface of the body. In lower animals, it refers to the caudal end of the body. [EU]

Postoperative: After surgery. [NIH]

Potentiating: A degree of synergism which causes the exposure of the organism to a harmful substance to worsen a disease already contracted. [NIH]

Practice Guidelines: Directions or principles presenting current or future rules of policy for the health care practitioner to assist him in patient care decisions regarding diagnosis, therapy, or related clinical circumstances. The guidelines may be developed by government agencies at any level, institutions, professional societies, governing boards, or by the convening of expert panels. The guidelines form a basis for the evaluation of all aspects of health care and delivery. [NIH]

Preclinical: Before a disease becomes clinically recognizable. [EU]

Precursor: Something that precedes. In biological processes, a substance from which another, usually more active or mature substance is formed. In clinical medicine, a sign or symptom that heralds another. [EU]

Probe: An instrument used in exploring cavities, or in the detection and dilatation of strictures, or in demonstrating the potency of channels; an elongated instrument for exploring or sounding body cavities. [NIH]

Progression: Increase in the size of a tumor or spread of cancer in the body. [NIH]

Progressive: Advancing; going forward; going from bad to worse; increasing in scope or severity. [EU]

Promoter: A chemical substance that increases the activity of a carcinogenic process. [NIH]

Prophase: The first phase of cell division, in which the chromosomes become visible, the nucleus starts to lose its identity, the spindle appears, and the centrioles migrate toward opposite poles. [NIH]

Prophylaxis: An attempt to prevent disease. [NIH]

Proportional: Being in proportion : corresponding in size, degree, or intensity, having the same or a constant ratio; of, relating to, or used in determining proportions. [EU]

Protein C: A vitamin-K dependent zymogen present in the blood, which, upon activation by thrombin and thrombomodulin exerts anticoagulant properties by inactivating factors Va and VIIIa at the rate-limiting steps of thrombin formation. [NIH]

Protein Conformation: The characteristic 3-dimensional shape of a protein, including the secondary, supersecondary (motifs), tertiary (domains) and quaternary structure of the peptide chain. Quaternary protein structure describes the conformation assumed by multimeric proteins (aggregates of more than one polypeptide chain). [NIH]

Protein S: The vitamin K-dependent cofactor of activated protein C. Together with protein C, it inhibits the action of factors VIIIa and Va. A deficiency in protein S can lead to recurrent venous and arterial thrombosis. [NIH]

Proteins: Polymers of amino acids linked by peptide bonds. The specific sequence of amino acids determines the shape and function of the protein. [NIH]

Proteolytic: 1. Pertaining to, characterized by, or promoting proteolysis. 2. An enzyme that promotes proteolysis (= the splitting of proteins by hydrolysis of the peptide bonds with formation of smaller polypeptides). [EU]

Protocol: The detailed plan for a clinical trial that states the trial's rationale, purpose, drug or vaccine dosages, length of study, routes of administration, who may participate, and other aspects of trial design. [NIH]

Protozoa: A subkingdom consisting of unicellular organisms that are the simplest in the animal kingdom. Most are free living. They range in size from submicroscopic to macroscopic. Protozoa are divided into seven phyla: Sarcomastigophora, Labyrinthomorpha, Apicomplexa, Microspora, Ascetospora, Myxozoa, and Ciliophora. [NIH]

Protozoal: Having to do with the simplest organisms in the animal kingdom. Protozoa are single-cell organisms, such as ameba, and are different from bacteria, which are not members of the animal kingdom. Some protozoa can be seen without a microscope. [NIH]

Pseudotumor Cerebri: A condition marked by raised intracranial pressure and characterized clinically by headaches; nausea; papilledema, peripheral constriction of the visual fields, transient visual obscurations, and pulsatile tinnitus. Obesity is frequently associated with this condition, which primarily affects women between 20 and 44 years of age. Chronic papilledema may lead to optic nerve injury (optic nerve diseases) and visual loss (blindness). [NIH]

Psychiatric: Pertaining to or within the purview of psychiatry. [EU]

Psychiatry: The medical science that deals with the origin, diagnosis, prevention, and treatment of mental disorders. [NIH]

Psychosis: A mental disorder characterized by gross impairment in reality testing as evidenced by delusions, hallucinations, markedly incoherent speech, or disorganized and agitated behaviour without apparent awareness on the part of the patient of the incomprehensibility of his behaviour; the term is also used in a more general sense to refer to mental disorders in which mental functioning is sufficiently impaired as to interfere grossly with the patient's capacity to meet the ordinary demands of life. Historically, the term has been applied to many conditions, e.g. manic-depressive psychosis, that were first described in psychotic patients, although many patients with the disorder are not judged psychotic. [EU]

Public Health: Branch of medicine concerned with the prevention and control of disease and disability, and the promotion of physical and mental health of the population on the international, national, state, or municipal level. [NIH]

Public Policy: A course or method of action selected, usually by a government, from among alternatives to guide and determine present and future decisions. [NIH]

Publishing: "The business or profession of the commercial production and issuance of literature" (Webster's 3d). It includes the publisher, publication processes, editing and

editors. Production may be by conventional printing methods or by electronic publishing. [NIH]

Pulmonary: Relating to the lungs. [NIH]

Purpura: Purplish or brownish red discoloration, easily visible through the epidermis, caused by hemorrhage into the tissues. [NIH]

Quinolones: Quinolines which are substituted in any position by one or more oxo groups. These compounds can have any degree of hydrogenation, any substituents, and fused ring systems. [NIH]

Rabies: A highly fatal viral infection of the nervous system which affects all warm-blooded animal species. It is one of the most important of the zoonoses because of the inevitably fatal outcome for the infected human. [NIH]

Race: A population within a species which exhibits general similarities within itself, but is both discontinuous and distinct from other populations of that species, though not sufficiently so as to achieve the status of a taxon. [NIH]

Randomized: Describes an experiment or clinical trial in which animal or human subjects are assigned by chance to separate groups that compare different treatments. [NIH]

Randomized clinical trial: A study in which the participants are assigned by chance to separate groups that compare different treatments; neither the researchers nor the participants can choose which group. Using chance to assign people to groups means that the groups will be similar and that the treatments they receive can be compared objectively. At the time of the trial, it is not known which treatment is best. It is the patient's choice to be in a randomized trial. [NIH]

Reagent: A substance employed to produce a chemical reaction so as to detect, measure, produce, etc., other substances. [EU]

Reality Testing: The individual's objective evaluation of the external world and the ability to differentiate adequately between it and the internal world; considered to be a primary ego function. [NIH]

Receptor: A molecule inside or on the surface of a cell that binds to a specific substance and causes a specific physiologic effect in the cell. [NIH]

Recombinant: A cell or an individual with a new combination of genes not found together in either parent; usually applied to linked genes. [EU]

Rectum: The last 8 to 10 inches of the large intestine. [NIH]

Refer: To send or direct for treatment, aid, information, de decision. [NIH]

Refraction: A test to determine the best eyeglasses or contact lenses to correct a refractive error (myopia, hyperopia, or astigmatism). [NIH]

Regimen: A treatment plan that specifies the dosage, the schedule, and the duration of treatment. [NIH]

Regulon: In eukaryotes, a genetic unit consisting of a noncontiguous group of genes under the control of a single regulator gene. In bacteria, regulons are global regulatory systems involved in the interplay of pleiotropic regulatory domains. These regulatory systems consist of several operons. [NIH]

Relapse: The return of signs and symptoms of cancer after a period of improvement. [NIH]

Renal failure: Progressive renal insufficiency and uremia, due to irreversible and progressive renal glomerular tubular or interstitial disease. [NIH]

Repressor: Any of the specific allosteric protein molecules, products of regulator genes, which bind to the operator of operons and prevent RNA polymerase from proceeding into

the operon to transcribe messenger RNA. [NIH]

Resection: Removal of tissue or part or all of an organ by surgery. [NIH]

Respiratory distress syndrome: A lung disease that occurs primarily in premature infants; the newborn must struggle for each breath and blueing of its skin reflects the baby's inability to get enough oxygen. [NIH]

Reversion: A return to the original condition, e. g. the reappearance of the normal or wild type in previously mutated cells, tissues, or organisms. [NIH]

Rhinitis: Inflammation of the mucous membrane of the nose. [NIH]

Ribosome: A granule of protein and RNA, synthesized in the nucleolus and found in the cytoplasm of cells. Ribosomes are the main sites of protein synthesis. Messenger RNA attaches to them and there receives molecules of transfer RNA bearing amino acids. [NIH]

Rigidity: Stiffness or inflexibility, chiefly that which is abnormal or morbid; rigor. [EU]

Risk factor: A habit, trait, condition, or genetic alteration that increases a person's chance of developing a disease. [NIH]

Rod: A reception for vision, located in the retina. [NIH]

Rotavirus: A genus of Reoviridae, causing acute gastroenteritis in birds and mammals, including humans. Transmission is horizontal and by environmental contamination. [NIH]

Rubella: An acute, usually benign, infectious disease caused by a togavirus and most often affecting children and nonimmune young adults, in which the virus enters the respiratory tract via droplet nuclei and spreads to the lymphatic system. It is characterized by a slight cold, sore throat, and fever, followed by enlargement of the postauricular, suboccipital, and cervical lymph nodes, and the appearances of a fine pink rash that begins on the head and spreads to become generalized. Called also German measles, roetln, röteln, and three-day measles, and rubeola in French and Spanish. [EU]

Saliva: The clear, viscous fluid secreted by the salivary glands and mucous glands of the mouth. It contains mucins, water, organic salts, and ptylin. [NIH]

Salivary: The duct that convey saliva to the mouth. [NIH]

Salmonella: A genus of gram-negative, facultatively anaerobic, rod-shaped bacteria that utilizes citrate as a sole carbon source. It is pathogenic for humans, causing enteric fevers, gastroenteritis, and bacteremia. Food poisoning is the most common clinical manifestation. Organisms within this genus are separated on the basis of antigenic characteristics, sugar fermentation patterns, and bacteriophage susceptibility. [NIH]

Salmonella typhi: A serotype of Salmonella enterica which is the etiologic agent of typhoid fever. [NIH]

Salmonellosis: Infection by salmonellae. [NIH]

Sanitation: The development and establishment of environmental conditions favorable to the health of the public. [NIH]

Scarlet Fever: Infection with group A streptococci that is characterized by tonsillitis and pharyngitis. An erythematous rash is commonly present. [NIH]

Screening: Checking for disease when there are no symptoms. [NIH]

Secretion: 1. The process of elaborating a specific product as a result of the activity of a gland; this activity may range from separating a specific substance of the blood to the elaboration of a new chemical substance. 2. Any substance produced by secretion. [EU]

Secretory: Secreting; relating to or influencing secretion or the secretions. [NIH]

Semisynthetic: Produced by chemical manipulation of naturally occurring substances. [EU]

Sepsis: The presence of bacteria in the bloodstream. [NIH]

Septicaemia: A term originally used to denote a putrefactive process in the body, but now usually referring to infection with pyogenic micro-organisms; a genus of Diptera; the severe type of infection in which the blood stream is invaded by large numbers of the causal. [NIH]

Septicemia: Systemic disease associated with the presence and persistence of pathogenic microorganisms or their toxins in the blood. Called also blood poisoning. [EU]

Sequencing: The determination of the order of nucleotides in a DNA or RNA chain. [NIH]

Serologic: Analysis of a person's serum, especially specific immune or lytic serums. [NIH]

Serologic Tests: Diagnostic procedures involving immunoglobulin reactions. [NIH]

Serology: The study of serum, especially of antigen-antibody reactions in vitro. [NIH]

Serotypes: A cause of haemorrhagic septicaemia (in cattle, sheep and pigs), fowl cholera of birds, pasteurellosis of rabbits, and gangrenous mastitis of ewes. It is also commonly found in atrophic rhinitis of pigs. [NIH]

Serum: The clear liquid part of the blood that remains after blood cells and clotting proteins have been removed. [NIH]

Shigellosis: Infection with the bacterium Shigella. Usually causes a high fever, acute diarrhea, and dehydration. [NIH]

Ships: Large vessels propelled by power or sail used for transportation on rivers, seas, oceans, or other navigable waters. Boats are smaller vessels propelled by oars, paddles, sail, or power; they may or may not have a deck. [NIH]

Shock: The general bodily disturbance following a severe injury; an emotional or moral upset occasioned by some disturbing or unexpected experience; disruption of the circulation, which can upset all body functions: sometimes referred to as circulatory shock. [NIH]

Short Bowel Syndrome: A malabsorption syndrome resulting from extensive operative resection of small bowel. [NIH]

Side effect: A consequence other than the one(s) for which an agent or measure is used, as the adverse effects produced by a drug, especially on a tissue or organ system other than the one sought to be benefited by its administration. [EU]

Sigma Factor: A protein which is a subunit of RNA polymerase. It effects initiation of specific RNA chains from DNA. [NIH]

Signs and Symptoms: Clinical manifestations that can be either objective when observed by a physician, or subjective when perceived by the patient. [NIH]

Skeleton: The framework that supports the soft tissues of vertebrate animals and protects many of their internal organs. The skeletons of vertebrates are made of bone and/or cartilage. [NIH]

Skull: The skeleton of the head including the bones of the face and the bones enclosing the brain. [NIH]

Small intestine: The part of the digestive tract that is located between the stomach and the large intestine. [NIH]

Smallpox: A generalized virus infection with a vesicular rash. [NIH]

Social Problems: Situations affecting a significant number of people, that are believed to be sources of difficulty or threaten the stability of the community, and that require programs of amelioration. [NIH]

Soft tissue: Refers to muscle, fat, fibrous tissue, blood vessels, or other supporting tissue of

the body. [NIH]

Solvent: 1. Dissolving; effecting a solution. 2. A liquid that dissolves or that is capable of dissolving; the component of a solution that is present in greater amount. [EU]

Soma: The body as distinct from the mind; all the body tissue except the germ cells; all the axial body. [NIH]

Somatic: 1. Pertaining to or characteristic of the soma or body. 2. Pertaining to the body wall in contrast to the viscera. [EU]

Specialist: In medicine, one who concentrates on 1 special branch of medical science. [NIH]

Species: A taxonomic category subordinate to a genus (or subgenus) and superior to a subspecies or variety, composed of individuals possessing common characters distinguishing them from other categories of individuals of the same taxonomic level. In taxonomic nomenclature, species are designated by the genus name followed by a Latin or Latinized adjective or noun. [EU]

Specificity: Degree of selectivity shown by an antibody with respect to the number and types of antigens with which the antibody combines, as well as with respect to the rates and the extents of these reactions. [NIH]

Spectrum: A charted band of wavelengths of electromagnetic vibrations obtained by refraction and diffraction. By extension, a measurable range of activity, such as the range of bacteria affected by an antibiotic (antibacterial s.) or the complete range of manifestations of a disease. [EU]

Spirochete: Lyme disease. [NIH]

Spleen: An organ that is part of the lymphatic system. The spleen produces lymphocytes, filters the blood, stores blood cells, and destroys old blood cells. It is located on the left side of the abdomen near the stomach. [NIH]

Splenomegaly: Enlargement of the spleen. [NIH]

Spores: The reproductive elements of lower organisms, such as protozoa, fungi, and cryptogamic plants. [NIH]

Sprains and Strains: A collective term for muscle and ligament injuries without dislocation or fracture. A sprain is a joint injury in which some of the fibers of a supporting ligament are ruptured but the continuity of the ligament remains intact. A strain is an overstretching or overexertion of some part of the musculature. [NIH]

Staphylococcal Scalded Skin Syndrome: A disease of infants due to group 2 phage type 17 staphylococci that produce an epidermolytic exotoxin. Superficial fine vesicles and bullae form and rupture easily, resulting in loss of large sheets of epidermis. [NIH]

Staphylococcus: A genus of gram-positive, facultatively anaerobic, coccoid bacteria. Its organisms occur singly, in pairs, and in tetrads and characteristically divide in more than one plane to form irregular clusters. Natural populations of Staphylococcus are membranes of warm-blooded animals. Some species are opportunistic pathogens of humans and animals. [NIH]

Staphylococcus aureus: Potentially pathogenic bacteria found in nasal membranes, skin, hair follicles, and perineum of warm-blooded animals. They may cause a wide range of infections and intoxications. [NIH]

Stomach: An organ of digestion situated in the left upper quadrant of the abdomen between the termination of the esophagus and the beginning of the duodenum. [NIH]

Stool: The waste matter discharged in a bowel movement; feces. [NIH]

Strand: DNA normally exists in the bacterial nucleus in a helix, in which two strands are

coiled together. [NIH]

Streptococci: A genus of spherical Gram-positive bacteria occurring in chains or pairs. They are widely distributed in nature, being important pathogens but often found as normal commensals in the mouth, skin, and intestine of humans and other animals. [NIH]

Streptokinase: Streptococcal fibrinolysin . An enzyme produced by hemolytic streptococci. It hydrolyzes amide linkages and serves as an activator of plasminogen. It is used in thrombolytic therapy and is used also in mixtures with streptodornase (streptodornase and streptokinase). EC 3.4.-. [NIH]

Streptomycin: O-2-Deoxy-2-(methylamino)-alpha-L-glucopyranosyl-(1-2)-O-5- deoxy-3-C-formyl-alpha-L-lyxofuranosyl-(1-4)-N,N'-bis- (aminoiminomethyl)-D-streptamine. Antibiotic substance produced by the soil actinomycete Streptomyces griseus. It acts by inhibiting the initiation and elongation processes during protein synthesis. [NIH]

Stress: Forcibly exerted influence; pressure. Any condition or situation that causes strain or tension. Stress may be either physical or psychologic, or both. [NIH]

Subacute: Somewhat acute; between acute and chronic. [EU]

Subclinical: Without clinical manifestations; said of the early stage(s) of an infection or other disease or abnormality before symptoms and signs become apparent or detectable by clinical examination or laboratory tests, or of a very mild form of an infection or other disease or abnormality. [EU]

Subcutaneous: Beneath the skin. [NIH]

Subspecies: A category intermediate in rank between species and variety, based on a smaller number of correlated characters than are used to differentiate species and generally conditioned by geographical and/or ecological occurrence. [NIH]

Substance P: An eleven-amino acid neurotransmitter that appears in both the central and peripheral nervous systems. It is involved in transmission of pain, causes rapid contractions of the gastrointestinal smooth muscle, and modulates inflammatory and immune responses. [NIH]

Substrate: A substance upon which an enzyme acts. [EU]

Superinfection: A frequent complication of drug therapy for microbial infection. It may result from opportunistic colonization following immunosuppression by the primary pathogen and can be influenced by the time interval between infections, microbial physiology, or host resistance. Experimental challenge and in vitro models are sometimes used in virulence and infectivity studies. [NIH]

Symptomatic: Having to do with symptoms, which are signs of a condition or disease. [NIH]

Synergistic: Acting together; enhancing the effect of another force or agent. [EU]

Syphilis: A contagious venereal disease caused by the spirochete Treponema pallidum. [NIH]

Systemic: Affecting the entire body. [NIH]

Systemic lupus erythematosus: SLE. A chronic inflammatory connective tissue disease marked by skin rashes, joint pain and swelling, inflammation of the kidneys, inflammation of the fibrous tissue surrounding the heart (i.e., the pericardium), as well as other problems. Not all affected individuals display all of these problems. May be referred to as lupus. [NIH]

Tachycardia: Excessive rapidity in the action of the heart, usually with a heart rate above 100 beats per minute. [NIH]

Tachypnea: Rapid breathing. [NIH]

Temporal: One of the two irregular bones forming part of the lateral surfaces and base of the

skull, and containing the organs of hearing. [NIH]

Tenesmus: Straining, especially ineffectual and painful straining at stool or in urination. [EU]

Therapeutics: The branch of medicine which is concerned with the treatment of diseases, palliative or curative. [NIH]

Thermal: Pertaining to or characterized by heat. [EU]

Thoracic: Having to do with the chest. [NIH]

Thrombin: An enzyme formed from prothrombin that converts fibrinogen to fibrin. (Dorland, 27th ed) EC 3.4.21.5. [NIH]

Thrombocytes: Blood cells that help prevent bleeding by causing blood clots to form. Also called platelets. [NIH]

Thrombocytopenia: A decrease in the number of blood platelets. [NIH]

Thrombolytic: 1. Dissolving or splitting up a thrombus. 2. A thrombolytic agent. [EU]

Thrombolytic Therapy: Use of infusions of fibrinolytic agents to destroy or dissolve thrombi in blood vessels or bypass grafts. [NIH]

Thrombomodulin: A cell surface glycoprotein of endothelial cells that binds thrombin and serves as a cofactor in the activation of protein C and its regulation of blood coagulation. [NIH]

Thrombopenia: Reduction in the number of platelets in the blood. [NIH]

Thromboses: The formation or presence of a blood clot within a blood vessel during life. [NIH]

Thrombosis: The formation or presence of a blood clot inside a blood vessel. [NIH]

Thymus: An organ that is part of the lymphatic system, in which T lymphocytes grow and multiply. The thymus is in the chest behind the breastbone. [NIH]

Ticks: Blood-sucking arachnids of the order Acarina. [NIH]

Tissue: A group or layer of cells that are alike in type and work together to perform a specific function. [NIH]

Tissue Culture: Maintaining or growing of tissue, organ primordia, or the whole or part of an organ in vitro so as to preserve its architecture and/or function (Dorland, 28th ed). Tissue culture includes both organ culture and cell culture. [NIH]

Tolerance: 1. The ability to endure unusually large doses of a drug or toxin. 2. Acquired drug tolerance; a decreasing response to repeated constant doses of a drug or the need for increasing doses to maintain a constant response. [EU]

Tonsillitis: Inflammation of the tonsils, especially the palatine tonsils. It is often caused by a bacterium. Tonsillitis may be acute, chronic, or recurrent. [NIH]

Torovirus: A genus of the family Coronaviridae characterized by enveloped, peplomer-bearing particles containing an elongated tubular nucleocapsid with helical symmetry. Toroviruses have been found in association with enteric infections in horses (Berne virus), cattle (Breda virus), and humans. Transmission takes place probably via the fecal-oral route. [NIH]

Toxic: Having to do with poison or something harmful to the body. Toxic substances usually cause unwanted side effects. [NIH]

Toxicity: The quality of being poisonous, especially the degree of virulence of a toxic microbe or of a poison. [EU]

Toxicology: The science concerned with the detection, chemical composition, and pharmacologic action of toxic substances or poisons and the treatment and prevention of

toxic manifestations. [NIH]

Toxins: Specific, characterizable, poisonous chemicals, often proteins, with specific biological properties, including immunogenicity, produced by microbes, higher plants, or animals. [NIH]

Toxoplasmosis: The acquired form of infection by Toxoplasma gondii in animals and man. [NIH]

Transfection: The uptake of naked or purified DNA into cells, usually eukaryotic. It is analogous to bacterial transformation. [NIH]

Transfer Factor: Factor derived from leukocyte lysates of immune donors which can transfer both local and systemic cellular immunity to nonimmune recipients. [NIH]

Translation: The process whereby the genetic information present in the linear sequence of ribonucleotides in mRNA is converted into a corresponding sequence of amino acids in a protein. It occurs on the ribosome and is unidirectional. [NIH]

Translational: The cleavage of signal sequence that directs the passage of the protein through a cell or organelle membrane. [NIH]

Transplantation: Transference of a tissue or organ, alive or dead, within an individual, between individuals of the same species, or between individuals of different species. [NIH]

Trauma: Any injury, wound, or shock, must frequently physical or structural shock, producing a disturbance. [NIH]

Treatment Failure: A measure of the quality of health care by assessment of unsuccessful results of management and procedures used in combating disease, in individual cases or series. [NIH]

Tropism: Directed movements and orientations found in plants, such as the turning of the sunflower to face the sun. [NIH]

Tuberculosis: Any of the infectious diseases of man and other animals caused by species of Mycobacterium. [NIH]

Tumor Necrosis Factor: Serum glycoprotein produced by activated macrophages and other mammalian mononuclear leukocytes which has necrotizing activity against tumor cell lines and increases ability to reject tumor transplants. It mimics the action of endotoxin but differs from it. It has a molecular weight of less than 70,000 kDa. [NIH]

Tumour: 1. Swelling, one of the cardinal signs of inflammations; morbid enlargement. 2. A new growth of tissue in which the multiplication of cells is uncontrolled and progressive; called also neoplasm. [EU]

TYPHI: The bacterium that gives rise to typhoid fever. [NIH]

Typhimurium: Microbial assay which measures his-his+ reversion by chemicals which cause base substitutions or frameshift mutations in the genome of this organism. [NIH]

Typhoid fever: The most important member of the enteric group of fevers which also includes the paratyphoids. [NIH]

Typhoid fever: The most important member of the enteric group of fevers which also includes the paratyphoids. [NIH]

Ulcer: A localized necrotic lesion of the skin or a mucous surface. [NIH]

Ulceration: 1. The formation or development of an ulcer. 2. An ulcer. [EU]

Unconscious: Experience which was once conscious, but was subsequently rejected, as the "personal unconscious". [NIH]

Uraemia: 1. An excess in the blood of urea, creatinine, and other nitrogenous end products

of protein and amino acids metabolism; more correctly referred to as azotemia. 2. In current usage the entire constellation of signs and symptoms of chronic renal failure, including nausea, vomiting anorexia, a metallic taste in the mouth, a uraemic odour of the breath, pruritus, uraemic frost on the skin, neuromuscular disorders, pain and twitching in the muscles, hypertension, edema, mental confusion, and acid-base and electrolyte imbalances. [EU]

Uremia: The illness associated with the buildup of urea in the blood because the kidneys are not working effectively. Symptoms include nausea, vomiting, loss of appetite, weakness, and mental confusion. [NIH]

Urethra: The tube through which urine leaves the body. It empties urine from the bladder. [NIH]

Urinary: Having to do with urine or the organs of the body that produce and get rid of urine. [NIH]

Urinary tract: The organs of the body that produce and discharge urine. These include the kidneys, ureters, bladder, and urethra. [NIH]

Urinary tract infection: An illness caused by harmful bacteria growing in the urinary tract. [NIH]

Urine: Fluid containing water and waste products. Urine is made by the kidneys, stored in the bladder, and leaves the body through the urethra. [NIH]

Vaccination: Administration of vaccines to stimulate the host's immune response. This includes any preparation intended for active immunological prophylaxis. [NIH]

Vaccine: A substance or group of substances meant to cause the immune system to respond to a tumor or to microorganisms, such as bacteria or viruses. [NIH]

Vacuole: A fluid-filled cavity within the cytoplasm of a cell. [NIH]

Vagina: The muscular canal extending from the uterus to the exterior of the body. Also called the birth canal. [NIH]

Vaginitis: Inflammation of the vagina characterized by pain and a purulent discharge. [NIH]

Varicella: Chicken pox. [EU]

Vascular: Pertaining to blood vessels or indicative of a copious blood supply. [EU]

Vasculitis: Inflammation of a blood vessel. [NIH]

Vasodilators: Any nerve or agent which induces dilatation of the blood vessels. [NIH]

Vector: Plasmid or other self-replicating DNA molecule that transfers DNA between cells in nature or in recombinant DNA technology. [NIH]

Vein: Vessel-carrying blood from various parts of the body to the heart. [NIH]

Venereal: Pertaining or related to or transmitted by sexual contact. [EU]

Venous: Of or pertaining to the veins. [EU]

Venous blood: Blood that has given up its oxygen to the tissues and carries carbon dioxide back for gas exchange. [NIH]

Vesicular: 1. Composed of or relating to small, saclike bodies. 2. Pertaining to or made up of vesicles on the skin. [EU]

Vesicular Exanthema of Swine: A calicivirus infection of swine characterized by hydropic degeneration of the oral and cutaneous epithelia. [NIH]

Vesicular Exanthema of Swine Virus: The type species of the genus Calicivirus, an RNA virus infecting pigs. The resulting infection is an acute febrile disease which is clinically indistinguishable from foot and mouth disease. Transmission is by contaminated food. [NIH]

Veterinary Medicine: The medical science concerned with the prevention, diagnosis, and treatment of diseases in animals. [NIH]

Vibrio: A genus of Vibrionaceae, made up of short, slightly curved, motile, gram-negative rods. Various species produce cholera and other gastrointestinal disorders as well as abortion in sheep and cattle. [NIH]

Vibrio cholerae: The etiologic agent of cholera. [NIH]

Viral: Pertaining to, caused by, or of the nature of virus. [EU]

Virulence: The degree of pathogenicity within a group or species of microorganisms or viruses as indicated by case fatality rates and/or the ability of the organism to invade the tissues of the host. [NIH]

Virus: Submicroscopic organism that causes infectious disease. In cancer therapy, some viruses may be made into vaccines that help the body build an immune response to, and kill, tumor cells. [NIH]

Viscera: Any of the large interior organs in any one of the three great cavities of the body, especially in the abdomen. [NIH]

Vitro: Descriptive of an event or enzyme reaction under experimental investigation occurring outside a living organism. Parts of an organism or microorganism are used together with artificial substrates and/or conditions. [NIH]

Vivo: Outside of or removed from the body of a living organism. [NIH]

White blood cell: A type of cell in the immune system that helps the body fight infection and disease. White blood cells include lymphocytes, granulocytes, macrophages, and others. [NIH]

Xenograft: The cells of one species transplanted to another species. [NIH]

Yellow Fever: An acute infectious disease primarily of the tropics, caused by a virus and transmitted to man by mosquitoes of the genera Aedes and Haemagogus. [NIH]

Yellow Fever Vaccine: Vaccine used to prevent yellow fever. It consists of a live attenuated 17D strain of the yellow fever virus. [NIH]

Yellow Fever Virus: The type species of the Flavivirus genus. Principal vector transmission to humans is by Aedes spp. mosquitoes. [NIH]

Zoonoses: Diseases of non-human animals that may be transmitted to man or may be transmitted from man to non-human animals. [NIH]

Zymogen: Inactive form of an enzyme which can then be converted to the active form, usually by excision of a polypeptide, e. g. trypsinogen is the zymogen of trypsin. [NIH]

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