P A R T

1

A Brief Introduction to Medicine

Guide to Reading

Medicine is the applied science or practice of the diagnosis, treatment, and prevention of disease. It encompasses a variety of health care practices evolved to maintain and restore health by the prevention and treatment of illness in human beings.

This part gives a brief introduction to medicine, focusing on the history of medicine, the organization and the place to deliver medical services.

To be more specific, the first lecture of this part provides an overview of advances in medicine from ancient to modern times to show how ideas have developed over the centuries; the second lecture takes the United States as an example to illustrate the approaches to allocating medical care and the strategies to rationalize the health care system; and the third describes the classification of modern hospitals and the trends in hospital systems.

The History of Western Medicine[*]

All human societies have medical beliefs that provide explanations for birth, death, and disease. Throughout history, illness has been attributed to witchcraft, demons, astral influence, or the will of the gods. These ideas still retain some power, with faith healing and shrines still used in some places, although the rise of scientific medicine over the past millennium has altered or replaced mysticism in most cases.

1. Medicine in Ancient World

Ancient Greece, as with Ancient Rome and Ancient Egypt, played an important part in medical history. The most famous of all Ancient Greek doctors was Hippocrates (c. 460 B.C.–377 B.C.). By 1200 B.C., Ancient Greece had developed in all areas—trade, farming, warfare, sailing, craftsmanship etc. Their knowledge of medicine developed accordingly. Gods dominated the lives of the Greeks. Natural occurrences were explained away by using gods. This, however, did not occur in medicine where Ancient Greek physicians tried to find a natural explanation as to why someone got ill and died. The Greeks were practicing medicine 1000 years before the birth of Christ. In *Iliad* by Homer (c. 9th century B.C.–8th century B.C.), injured soldiers were treated by doctors and the Greek leader in the tale, Menelaus, was treated for an arrow wound by a doctor-in-arms, Machaon.

However, not all Ancient Greeks turned to physicians when ill. Many still turned to the gods. The god Apollo was consulted at a temple in Delphi and by the 6th century B.C., many turned to the god Asclepius for help. Places called asclepeia were built for those in poor health. These were like temples and here people came to bathe, sleep and meditate. The poor were also allowed to beg for

money in these buildings. Those who went to asclepeias were expected to leave offerings to Asclepius. The asclepeias were run by priests. Patients to asclepeias were encouraged to sleep as it was believed that during sleep they would be visited by Asclepius and his two daughters, Panacea and Hygeia[1]. A visit by these three was expected to cure all ailments. Those who were not cured could stay at the asclepeia where they were.

The Romans learned a great deal from the Ancient Greeks. They first came into contact with the Greeks in about 500 B.C. By 146 B.C., part of Greece had become a province of the Roman Empire, and by 27 B.C., the Romans were in control not only of Greece but of Greek-speaking lands around the Mediterranean. They used the ideas of the Greeks but they did not simply copy them. They ignored Greek ideas they found impractical and it seems that the Romans were keener on things that would lead to the direct improvement of the quality of life of the people in their huge empire. In the early years of the Roman Empire there were no people in what would be a separate medical profession. It was believed that each head of the household knew enough about herbal cures and medicine to treat illnesses in his household. As the Roman Empire expanded into Greece, many Greek doctors came to Italy and Rome. Some of these were prisoners of war and could be bought by wealthy Romans to work in a household. Many of these doctors became valuable additions to a household. It is known that a number of these men bought their freedom and set up their own practices in Rome itself.

The Ancient Romans made a huge input into medicine and health, though their input was mainly concerned with public health schemes. The Romans were great believers in a healthy mind equaling a healthy body. There was a belief that if you kept fit, you would be more able to combat an illness. Rather than spend money on a doctor, many Romans spent money on keeping fit. The Romans did believe that illnesses had a natural cause and that bad health could be caused by bad water and sewage. Hence they desired to improve the public health system in the Roman Empire so that everyone in their empire benefited, not just the rich. Those who worked for the Romans needed good health as did their soldiers. In this sense, the Romans were the first civilization to introduce a program of public health for everyone regardless of wealth. The Romans became practiced at draining marshes to rid areas of malaria-carrying mosquitoes. Julius Caesar (100 B.C.–44 B.C.) drained the Codetan Swamp and planted a forest in its place. The Romans paid special attention to the health of their soldiers as without these soldiers, the Roman Empire could collapse. Great emphasis was placed on soldiers having access to clean water and being able to keep fit. Commanders ordered their junior officers not to set up a camp too near a swamp and the drinking of swamp water was especially discouraged. Soldiers were moved around as it was believed

that if they stayed too long in one place, they would start to suffer from the illnesses that might have existed in that area.

The Ancient Egyptians, like the Ancient Greeks and Romans, have provided modern historians with a great deal of knowledge and evidence about their attitude towards medicine and the medical knowledge that they had. This evidence has come from the numerous papyruses found in archaeological searches. The very dry atmosphere in Egypt has meant that many of these documents have been very well preserved despite their age. Numerous papyrus documents have come from the era 1900 B.C. to 1500 B.C. It is from these documents that we know that the Ancient Egyptians still believed that the supernatural caused some disease. When there was no obvious reason for an illness, many Ancient Egypt doctors and priests believed that disease was caused by spiritual beings. When no one could explain why someone had a disease, spells and magical potions were used to drive out the spirits.

However, their knowledge was also based on an increasing knowledge of the human anatomy and plain common sense. Ancient papyruses inform us that the Ancient Egyptians were discovering things about how the human body worked and they knew that the heart, pulse rates, blood and air were important to the workings of the human body. One papyrus, the Edwin Smith Papyrus[2], has a detailed description of the brain in it so this organ was also well researched by the standards of the time. It is probable that this knowledge came as a result of the practice the Ancient Egyptians had of embalming dead bodies and gave names to organs such as the spleen, the heart, the anus, the lungs etc., so they must have known that these exist.

2. Medicine in the Middle Ages

Medical knowledge in the Middle Ages must have appeared to have stood still. While the Ancient Greeks, Romans and Egyptians had pushed forward medical knowledge, after the demise of these civilizations, the momentum started by these people tended to stagnate and it did not develop at the same pace until the 17th/18th centuries. In Britain, as an example, most things linked to the Romans were destroyed—villas were covered up as the Ancient Britons believed that they contained ghosts and evil spirits. With this approach, it is not surprising that anything medical linked to the Romans fell into disuse in Britain.

By the 14th century, universities had developed in Western Europe that could be classed as medical schools where students could study under a master physician. The University of Montpellier was one such university. Dissections of human bodies were carried out in these universities so anyone wanting to study medicine in the Middle Ages was not totally ignorant of facts about the human

body. Public debates were also encouraged about medical issues and it is known that some medical schools encouraged students to actually challenge the ideas of Galen (c. 129 A.D.–216 A.D.) and Hippocrates. As a result of this refusal to take what Galen and Hippocrates had stated at face value, some progress in certain areas was made in the medical world during this time: (1) The first authentic description of the symptoms of smallpox were recorded by Razi[3] who lived from 860 A.D. to 925 A.D. (2) Urine charts were also used to help physicians diagnose illnesses. Certain colored urine indicated certain illnesses. Combined with a table of the planets, these gave physicians enough information to diagnose a disease. Once the disease had been diagnosed, a treatment was decided on. (3) Physicians still believed that an imbalance of humors played a major part in illnesses. (4) Bloodletting was a popular treatment for many diseases. Many diseases were thought to be caused by an excess of blood in the body and bloodletting was seen as the obvious cure. When a large quantity of blood was required, the appropriate vein was cut. If only a small amount was needed, a leech would be used.

3.　Renaissance to Early Modern Period

With the Renaissance came an increase in experimental investigation, principally in the field of dissection and body examination, thus advancing our knowledge of human anatomy. The development of modern anatomy began in the 16th century with Andreas Vesalius (1514–1564) [4], whose work brought a number of important changes to the study of anatomy. Most importantly, Vesalius repeatedly stressed the idea that students must not depend upon the teachings of their elders, but must explore the inner workings of the human body for themselves. The truth is under the skin, and is not necessarily hidden in dusty books. While working on his masterpiece *De humani corporis fabrica* (*On the Structure of the Human Body*) he discovered that a number of Galen's teachings were wrong. By delving into the workings of the human body, Vesalius was able to correct 200 previously unquestioned theories. Vesalius's work is also famous for its detailed and beautifully drafted illustrations, which show the complex formations of the muscles, nervous system, blood vessels, viscera and skeleton.

Understanding of medical sciences and diagnosis improved, but with little direct benefit to health care. Few effective drugs existed, beyond opium and quinine. Folklore cures and potentially poisonous metal-based compounds were popular treatments. For treating firearm wounds, Ambroise Paré (1510–1590) [5] turned to an ancient Roman remedy of turpentine, egg yolk and oil of roses. He applied it to the wounds and found that it relieved pain and sealed the wound effectively. As well as this breakthrough, Paré also introduced the ligatures of arteries. Silk threads would be used to tie up the arteries of amputated limbs to try

and stop the bleeding; unfortunately, as antiseptics had not yet been invented this method led to an increased fatality rate and was quickly abandoned by medical professionals of the time. Additionally, Paré set up a school for midwives in Paris and designed artificial limbs.

4. Medicine in the Modern Era

The years 1919 to 1939 observed many important advances in the history of medicine. World War One had acted as a motivation for medical progress which had been prolonged in the post-war period. The same was exact for the period after World War Two. Many advances had been completed to 1919 but knowledge on how germs produced infections and illness, did not imply that society possessed cures available. At the end of World War One, 18 million persons in Europe died of flu—scientists knew what caused flu but possessed no cure for it.

Many very significant medical advances were made after 1945. One of the most important was the discovery of DNA (deoxyribonucleic acid) by Wilkins, Crick and Watson. These three were also helped by the work done by Rosalind Franklin (1920–1958)[6]. DNA is the substance that makes life—a human cell that contains genes, which are made up of chromosomes, the basis of living tissue. This has in turn allowed the study of disease caused by defective genes such as in cystic fibrosis and Down's Syndrome. In recent years, researchers have been able to identify specific genes that are responsible for specific diseases.

Many new drugs have been created after 1945. The success of penicillin during the war, prodded researchers to study other moulds. Streptomycin, found in chickens, was used successfully to treat TB (tuberculosis). Streptomycin was also found to be capable of treating many other diseases that penicillin could not. After 1951, streptomycin was used with isoniazid in the fight against TB. By the 1970s, five antibiotics existed which could be used against TB. In recent years, despite this array of drugs against TB, there have been fears that TB can be resistant to all drugs that have been developed to fight against it. Transplant surgery has developed aided-by drugs like cortisone, azathioprine and cyclosporine which have helped to reduce rejection. The first successful kidney transplant was done in Boston in 1954; the first heart transplant was in 1967 (performed by Christiaan Barnard[7]); the first liver transplant was in 1963; the first heart and lung transplant was in 1982 and the first brain tissue transplant was in 1987.

The use of ultrasound and magnetic resonance since 1945 has made it easier to diagnose disease. Ian Donald[8], Professor of Midwifery at Glasgow developed ultrasound in the 1950s for looking at unborn babies. MRI (Magnetic Resonance Imaging) can be used to detect diseases without the use of radiation making it less harmful to the patient. Three-dimensional CAT scans (Computer-Aided Test scans)

can also be used. The less use of radiation, the better to the patients, as some patients can be harmed by exposure to large doses of radiation. MRI does away with this problem. The use of modern equipment such as the endoscope has also allowed for the internal examination of patients without the need for surgery.

The major disease that has tested the medical world since the 1980s has been HIV/AIDS. In the 1980s, governments touted HIV as near enough a death sentence and in Britain issued public health warnings on television showing icebergs crashing into the sea. Now, just thirty years on, combination drug therapy offers sufferers hope and a huge amount of research has gone into finding a cure or vaccination for this world-wide disease. "New" diseases have also come to the fore including the Ebola virus.

There is a vast difference in the medical world of 1945 to that of 2012. Developments within medicine would have been expected but they have been in leaps in the last decades. Diseases that would have almost certainly fatal in 1945 to 1950 are now usually treatable and in many instances curable.

Notes

[1] Asclepius had two daughters, Hygeia and Panacea. Hygeia was the guardian of health and champion of common sense practices as the basis of wellness. Panacea, Greek for "all healing" was primarily responsible for the use of interventions such as surgery and the use of chemicals with curative properties.

[2] Edwin Smith, an American Egyptologist, was born in Connecticut（美国康涅狄格州）in 1822. Smith purchased the papyrus in Egypt in 1862, from an Egyptian dealer. The papyrus was in the possession of Smith until his death, when his daughter donated the papyrus to New York Historical Society. From 1938 through 1948, the papyrus was at the Brooklyn Museum. In 1948, the New York Historical Society and the Brooklyn Museum presented the papyrus to the New York Academy of Medicine, where it remains today. The Edwin Smith Papyrus is unique among the four principal medical papyruses in existence that survive today. While other papyruses, such as the Ebers Papyrus and London Medical Papyrus, are medical texts based in magic, the Edwin Smith Papyrus presents a rational and scientific approach to medicine in Ancient Egypt, in which medicine and magic do not conflict.

[3] Razi (865–925), known as Rhazes or Rasis was a Persian physician, chemist, philosopher, and scholar. Numerous "firsts" in medical research, clinical care, and chemistry are attributed to him, including being the first to differentiate smallpox from measles, and the discovery of numerous compounds and chemicals.

[4] Andreas Vesalius was a Flemish anatomist, physician, and author of one of the most influential books on human anatomy, *De humani corporis fabrica* (*On the Structure of the Human Body*). Vesalius is often referred to as the founder

of modern human anatomy.

[5] Ambroise Paré was a French surgeon. He was the great official royal surgeon for kings Henry II, Francis II, Charles IX and Henry III and is considered as one of the fathers of surgery and modern forensic pathology (法医病理学). He was a leader in surgical techniques and battlefield medicine, especially the treatment of wounds. He was also an anatomist and invented several surgical instruments.

[6] Rosalind Franklin was a British biophysicist and X-ray crystallographer (晶体学家) who made critical contributions to the understanding of the fine molecular structures of DNA, RNA, and viruses.

[7] Christiaan Barnard (1922–2001) was a South African cardiac surgeon who performed the world's first successful human-to-human heart transplant.

[8] Ian Donald (1910–1987) was a Scottish physician who pioneered the use of diagnostic ultrasound in medicine. Whilst being Professor of Midwifery at Glasgow University, he first explored the use of ultrasound in the 1950s after seeing it used in the Glasgow shipyards to look for flaws in metallurgy. His article "Investigation of Abdominal Masses by Pulsed Ultrasound," published on June 7, 1958 in the medical journal *The Lancet* (柳叶刀), was one of the defining publications in the field.

New Words and Expressions

普通词汇

antiseptic	n. 杀菌剂，消费剂		momentum	n. 动力，势头
bloodletting	n.（旧时医疗的）放血（术）		potion	n. [文]（有特效或魔力的）饮剂；毒液
Briton	n. [正式] 英国人		prod	v. 刺
camp	n. 营地		quinine	n. 奎宁（治疗疟疾），金鸡纳霜
delve	v. 探索，探究，查考		renaissance	n. 复兴
demise	n. 死亡		sewage	n.（下水道的）污水
dissection	n. 解剖，切开		spell	n. 符咒
embalm	vt.（用化学品、油等）对（尸体）进行防腐处理		stagnate	v. 停滞，不发展
			swamp	n. 沼泽（地）
fore	n. to the fore 变得重要，突出		tout	v. 吹捧
leech	n. 水蛭		turpentine	n. 松节油
ligature	n. 绷带，结扎线		urine	n. 尿
marsh	n. 沼泽，湿地		villa	n.（古罗马四周环绕有土地的）庄园，宅邸

专业词汇

amputate	vt. 截肢		azathioprine	n. 咪唑硫嘌呤（免疫抑制剂）
anus	n. 肛门		CAT scan	计算机 X 射线轴向分层造影扫描图

chromosome	*n.* 染色体	malaria	*n.* 疟疾
cortisone	*n.* 可的松	midwifery	*n.* 产科学，催生
cyclosporine	*n.* 环孢霉素（免疫抑制剂）	mould	*n.* 霉，模具
cystic	*adj.* 膀胱的，胆囊的，囊肿的	opium	*n.* 鸦片
cystic fibrosis	*n.* 囊肿性纤维化（属遗传性胰腺病）	papyrus	*n.* 纸草文献，草纸
Down's Syndrome	先天愚型，21– 三体综合征	penicillin	*n.* 青霉素
Ebola	埃博拉病毒	streptomycin	*n.* 链霉素
fibrosis	*n.* 纤维化	TB	*n.* (tuberculosis) 肺结核
isoniazid	*n.* 异烟肼（抗结核药）	viscera	*n.* 内脏，脏腑（如心、肺、胃等）
magnetic resonance	核磁共振		

专有名词

Asclepius	阿斯克勒庇俄斯（希腊神话中医药神）
Codetan	科德坦（地名）
Crick	克里克（1916–2004，获 1962 年诺贝尔生理学 – 医学奖）
Galen	盖伦（约 129–216，希腊解剖学家、内科医生）
Hippocrates	希波克拉底（约公元前 460– 公元前 370，希腊名医，被称为"医药之父"）
Hygeia	（希腊神话中）司健康的女神
Iliad	《伊利亚特》（古希腊史诗，主要叙述特洛伊战争最后一年的故事，相传为荷马所作）
Julius Caesar	尤利乌斯·恺撒（公元前 100– 公元前 44，古罗马将军、政治家）
the Mediterranean	地中海
Montpellier	蒙彼利埃（法国南部城市）
Panacea	帕那刻亚（希腊神话中医药女神）
the Renaissance	（欧洲 14 至 17 世纪的）文艺复兴时期
Watson	沃森（1928– ，获 1962 年诺贝尔生理学 – 医学奖）
Wilkins	威尔金斯（1916–2004，获 1962 年诺贝尔生理学 – 医学奖）

Review Questions

1 Throughout history, what are the main factors responsible for illness?

2 When did the ancient Greeks start to practice medicine?

3 Why were patients in Ancient Greece encouraged to sleep in asclepeias?

4 When did the Romans first come into contact with the Ancient Greeks and learn a great deal from them?

5 Why would the Ancient Romans spend money on keeping fit rather than on a doctor?

6 Why are the numerous papyrus documents of the Ancient Egyptians from

the era 1900 B.C. to 1500 B.C. well preserved?

7 How did the Ancient Egyptians increase their medical knowledge?

8 When did the universities in Western Europe developed into medical schools where students could study under a master physician?

9 What progress was made in the medical world during the Middle Ages?

10 Why did Vesalius encourage his students to explore the inner workings of the human body?

11 Who was the first one to discover that a number of Galen's teachings were wrong in the 16th century?

12 How did Ambroise Paré treat firearm wounds effectively?

13 What are the implications of the discovery of DNA?

14 When was streptomycin first used with isoniazid in the fight against TB?

15 How to reduce rejection in transplant surgery of the modern era?

Basic Structure and Types of Medical Papers[*]

Many types of papers are published in medical journals. It is important to be aware that each type of paper is specific in nature, serves a distinct purpose, and is hence judged by different criteria. Authors should therefore be clear about the type of paper that they are planning to write, and construct the manuscript according to the prescribed guidelines for the specific type of paper. All journals have their own in-house style, detailed in the "Instructions to Authors" or "Guide for Authors" which can be found either on the website or printed version of the journal.

1. Basic Structure

The basic structure of a medical paper can be summarized by the acronym IMRAD. IMRAD stands for:

Introduction:	What question was asked?
Methods:	How was it studied?
Results:	What was found?
Discussion:	What do the findings mean?

This basic structure is common to the standard medical paper (original article), although there may be minor variations, depending on individual journal house style. Other components include: title page, abstract, keywords, tables, graphs, figures, acknowledgements, and references.

2. Types of Papers

Materials published in medical journals may be classified into a variety of categories. Although its contents may be influenced to a large extent by the type of material submitted to the journal, the editor is chiefly responsible for the types of papers to be published, bearing in mind the need for a balanced mix. The paper types are also dependent on the editorial policy, and the mission and scope of the individual journal.

Types of medical papers include:

(1) Original article;	(2) Case report;	(3) Technical note;
(4) Pictorial essay;	(5) Review;	(6) Commentary;
(7) Editorial;	(8) Letter to the editor;	(9) Others.

2.1   Original Article

This is the most important type of paper. It provides new information based on original research. This category of paper is usually prospective and is supported by in-depth statistical analysis. The conclusions should be supported by the data provided in the results. Some journals subdivide this category of paper into Major Paper and Original Report.

The Original Report is a focused description of original observations concerning unique features of a disease or disorder. This may refer to a previously-undescribed diagnostic finding, procedure or manifestation of a disease. Unlike a Major Paper, the Original Report is usually retrospective and not subject to in-depth statistical analysis.

Original Articles should consist of the following headings: structured abstract, introduction, methods, results and discussion (IMRAD).

2.2   Case Report

This is a description of a single case with unique features. These unique features may consist of previously-unreported observation of a recognized disease, the unique use of imaging or diagnostic test to reveal a disease, previously-unreported clinical condition, previously-unreported treatment in a recognized disease, or previously-unreported complication of a procedure.

Case Reports are usually short and focused. There is often a prescribed limit to the number of figures and references, and sometimes, also the authorship.

Case Reports should consist of the following headings: short unstructured (or no) abstract, brief introduction, case report and discussion.

2.3   Technical Note

Also known as Technical Innovation, this type of article is a description of a specific technique or procedure, modification of an existing technique, or new equipment applicable to a branch of medicine.

Discussion is limited to the specific message. There is often a prescribed limit to the number of figures and references.

Technical Notes should consist of the following headings: short unstructured (or no) abstract, brief introduction, methods, results and discussion. The methods and results sections may be combined under the heading of technique.

2.4 Pictorial Essay

This is a teaching article that relies on the quality of its images. The text is usually limited with much of the message contained in the figure legends. The message should however be current and practical, and does not introduce new information. Emphasis is placed on the teaching value of the article. This type of article usually allows a large number of figures but a limited number of references.

Pictorial Essays should consist of the following headings: short unstructured (or no) abstract, brief introduction, optional subheadings and optional discussion.

2.5 Review

This is a detailed analysis of recent developments on a specific topic. It serves to highlight important points that have been previously reported in the literature. This type of paper does not introduce new information and does not include the author's opinion or personal experience. A large number of relevant references are expected.

Reviews should consist of the following headings: unstructured abstract, introduction and subheadings.

Reviews are usually invited by the editor (hence, are also known as Invited Reviews).

2.6 Commentary

This is a short article that describes an author's personal experience of a specific topic. The subject may be controversial and the author's perspective is provided. This type of paper does not introduce new information, and should outline the various viewpoints that exist. It may be based on a current hot topic or may be commissioned to accompany an original paper on the same topic. The number of references and illustrations should be limited to support the author's opinion.

Commentaries should consist of the following headings: unstructured (or no) abstract, introduction and subheadings.

Commentaries are usually invited by the editor (hence, are also known as Invited Commentaries).

2.7 Editorial

This may take several forms, most often: a short review or critique of original articles accepted for publication in the same issue of the journal, a brief description of a subject that does not warrant a full review, or serve to draw attention to very recent innovations or subjects of general interest to readers. The number and types of editorials vary according to the editorial policy.

Editorials are invited by the editor or written by the editor.

2.8　Letter to the Editor

Many journals have a Letters or Correspondence section. Letters are usually short and can be written on any subject of interest to the journal reader, including comments on previously-published articles. These comments should be objective and constructive. Authors of previously-published articles commented on by the letter-writer, are usually invited to make a written response (Author's Reply to Letter).

This section may sometimes also be used for floating new hypotheses, and for drawing readers' attention to important hazards and points of interest or relevance to clinical practice.

2.9　Others

There are many other types of papers. These depend on the mission and style of individual journals, and contribute to the character of the individual journal. Examples include: historical articles, works-in-progress or short communications, special report, evidence-based practice, health policy and practices, experimental studies, information technology, how I do it, teaching articles, book reviews, proceedings of scientific meetings, obituaries (讣告), tributes (颂词), speeches, and special communications.

Review Questions

1　What should be clear for you before you plan to write and construct your manuscripts?

2　What's the basic structure of a medical paper?

3　How many types do medical papers generally include? What are they?

4　Which type of medical paper is the most important? Why?

5　What's the use of the Letters or Correspondence section in a medical journal?

1. Summarize the differences between conventional Western medicine and Traditional Chinese Medicine. You need to cover their differences in:

   a. Definition of health;   b. Terminology;
   c. Diagnostic system;   d. Therapeutic system.

2. Write an essay entitled "The Past, Present and Future of Traditional Chinese Medicine" in about 500 words.

3. Read the quotes, and do the tasks that follow.

   > (1) Medicine is a science of uncertainty and an art of probability. —Sir William Osler (1849–1919)
   >
   > (2) Wherever the art of Medicine is loved, there is also a love of Humanity. —Hippocrates
   >
   > (3) Medicine is of all the arts the most noble; but, owing to the ignorance of those who practice it, and of those who, inconsiderately, form a judgment of them, it is at present behind all the arts. —Hippocrates

   a. Retell these quotes in your own words.
   b. Tell your classmates to what extent you agree or disagree with the quotes, and which part you agree with, and which part, you disagree with.
   c. Give specific examples to support your opinions.

4. Randomly collect an article from one of the top medical journals, such as, *New England Journal of Medicine, The Lancet,* and *The Journal of the American Medical Association.* Tell your classmates the basic structure and type of the article.

Lecture 2

The American Health Care System[*]

America is the largest, most diverse society on the planet, and our medical system reflects that. We spend almost US$2 trillion per year on health care, nearly one in every seven dollars in the economy, yet we are still one of the few nations where all citizens do not automatically have medical coverage. For many Americans, health insurance is a perk most often tied to their job, or it comes as a result of a government program such as Medicare[1] and Medicaid[2]. It is ironic that the United States, a nation that spends the most money per capita on health care and has the most technologically advanced medical system in the world, is not the healthiest society on earth.

Of course, the medical system is not entirely to blame. The variance in our health care outcomes is a product of both public health and social issues. As a society, we are fatter, under more stress, and less active than people in other countries, and our medical system has to batter against public health and cultural issues that go to the root of how Americans live. Maybe we should have chosen the European model—more vacations and fewer possessions—but we did not. So, we live with some of those problems. But let me put that aside and come to the real health care problem, which is this: American health care professionals know how to keep us healthy, but often they can not give patients the care they need because the medical system gets in their way.

The American medical system is highly fragmented, with complicated rules (often set state-by-state and city-by-city) and a combination of private and public bureaucracies that decide which patient can get what treatment. An American doctor has to be a genius to know the rules for treating or taking care of each patient without getting questioned by the insurance companies or others. On the other hand, Americans are more comfortable with fragmentation than

[*] The text is based on "Overview of the US Health Care System" written by Kao-Ping Chua in 2006. The original PDF file was at http://download.book5.org/o/overview-of-the-u.s.-health-care-system-w1154.html.

other nationalities. As a nation, we are suspicious about a "single" anything—like a single-payer system for health insurance. But in health care, our cultural preference comes at a high price. Most Americans are unhappy with our health care system. Even Americans who are covered think the US medical system is broken. The majority of them want to tear it up and start over. From where we are now, our challenge is twofold: We have to find a way to cover all our people; and we have to figure out how to get better value for the US$2 trillion we currently spend on health care.

One urgent national need is to find a way to cover all of our people. Part of the problem is money. Simply: If the government has enough money, we can subsidize the uncovered and get them covered. If we do not have enough money, we can not. Right now, it costs an average of US$12,000 to insure a family of four. The income required to make this a sensible purchase is far higher than the average income earned by an American family, meaning expensive subsidies by taxpayers if every American is to be insured. Maybe we can fudge this a little in the short term, but over the long term, we have to figure out where the money is going to come from. Americans are not very excited about paying more taxes and pouring more money into a health care system they rightly feel is broken in the first place. So, what to do? The answer hinges on what we economists call rationalizing the health care system.

Rationalizing the system means figuring out how to save money while delivering better care to more people. Right now, many independent estimates say that we overspend by 50 percent on health care, wasting US$1 trillion a year. That is a lot of money to waste. But the solutions do not come in a neat policy package. Blanket allocation of care is never a good idea. For starters, there is no guarantee that we will make efficient decisions about what is the most critical. The vast bulk of people who are insured do not get enough of the things they need to stay healthy—adequate management of chronic diseases, medications, treatments, and screenings when they need them. We need to provide more of some things even as we provide fewer of others. Broken as the system is, there are initiatives that can make a significant impact towards rationalizing our medical system. While no single one of them is the complete answer, by putting into action five or six strategies simultaneously, we can at least be rowing the boat in the right direction.

One thing we can do is to wire up the medical system. With good information technology in the medical sphere, we will be able to eliminate all sorts of duplicative tests, we will know what really needs to be done for individual patients, and patients will be engaged with their care. Doctors will be much more efficient when they have computerized their patients' medical records and can get away from writing everything on small scraps of paper that have to be physically

transferred from place to place. Wiring the medical system will be an expensive proposition—the best estimates are that it will take five years and cost US$150 billion to US$200 billion to install. That equates to perhaps ten percent of a single year's US medical spending. At least part of the money will have to come from the federal government, since the government pays for nearly half of medical care.

A second important strategy is to undertake a sustained study of comparative effectiveness. Are newer drugs really better than older drugs? Are newer procedures really worth much relative to older procedures? If we can track effectiveness of care over time, we can get a handle on the new drugs, the spiffy diagnostics, new medical devices, and treatment protocols to determine which really deliver better results.

A third strategy is to do a better job of managing chronic diseases by spending more time and energy on prevention. The poster child is perhaps diabetes. We know how to keep the disease better controlled and make sure people do not get kidney disease, lose limbs, or suffer vision deficits. But the information and financial incentives are not in the right place. No one gets paid money for preventing serious illness.

That leads to the fourth set of reforms—to change the incentives in medicine. We can pay doctors not just for what they do, but for what they do well. We can give insurance companies incentives to focus more on taking care of the sick than on coming up with rationales to insure only the healthy. If we can keep the sick from getting sicker, we should be able to save money. As a result, big employers—in other words, those who have enough employees to be able to negotiate health insurance costs, terms, and coverage with insurers—will get lower rates, and over time, insurance should become less expensive as we keep people out of the hospital. Not because we decree that we will not pay for their stays, but because if they stay well longer, they will need less hospitalization.

None of these approaches are mutually exclusive. The right thing is to try all of them. I think of these as classic supply-side strategies that make the flow of 'product' (in this case health care) much more efficient. We figure out what works—getting better information technology, paying doctors in a smarter way, etc.—and then commit to those areas. I believe that the bulk of the evidence supports the idea that these supply-side strategies will be beneficial.

There are other voices that believe we should be doing more to limit demand for health care. The argument is that Americans are wasteful of their health care dollars because most of us receive them as a benefit, not as a bill. If health care were like other markets, where people take charge of what they get and what they buy, health care would work better. This idea does not work for me. I am not a big fan of putting consumers in charge of paying a lot of money for their health care,

because I do not think they will do it very well. We know, for example, that people are very bad at undertaking actions with costs in the short term and benefits only down the road (witness saving for retirement). But is that not the hallmark of caring for chronic disease? People need help managing their chronic illness; leaving them adrift is not the way to go. Others say, "Let's only cover the things that are medically necessary." The problem is that the medically necessary list is long, and the optional list is far too small. In health care, it is very difficult to draw bright lines between what is medically valuable and what is not. Some things are valuable for some patients and not for others. Allocating medical care is a very difficult proposition, no matter where and how it is proposed. The commonality in these strategies for changing the American medical system is getting the money and knowledge right. Under the right circumstances, we could implement many of these strategies and see significant changes within five years that would get the health care system flowing in the right direction. If we rationalize health care we can deliver a healthier America and gradually reduce the average cost of family health insurance down from US$12,000 to US$10,000 and even lower, making it easier to cover everyone in the country and make the US system the best and most sensible health care system in the world.

Notes

[1] Medicare is a federal program specifically designed for Americans over age 65 and for some people under 65 who have disabilities. Original Medicare has two parts: Part A (hospital insurance) and Part B (coverage for doctor services, outpatient hospital care, and some medical services not covered by Part A). Controversial and costly prescription drug coverage, Medicare Prescription Drug, Improvement, and Modernization Act, was added in 2003; it took effect in 2006.

[2] Medicaid is a jointly funded, Federal-State health insurance program for low-income and needy people. It covers children, the aged, blind, and/or disabled and other people who are eligible to receive federally assisted income maintenance payments.

New Words and Expressions

普通词汇

adrift	*adj.* 漫无目的的	**decree**	*v.* 裁定；颁布
allocation	*n.* 分配，配给	**duplicative**	*adj.* 重复的
blanket allocation	统括性配置	**fudge**	*vt.* 回避；敷衍；搪塞

hallmark	*n.* 特点	**scrap**	*n.* 小片
hinge	*v.* hinge on 取决于	**screening**	*n.* 筛查
incentive	*n.* 刺激，鼓励，动机	**spiffy**	*adj.* 整洁漂亮又时髦的
initiative	*n.* 计划；措施	**subsidize**	*v.* 给……津贴（补贴）
perk	*n.* 额外收入，津贴	**supply-side**	*adj.* 供应经济学政策的
poster child	典型人物，典型事物	**sustained**	*adj.* 持续的，持久的
proposition	*n.* 主张，建议	**variance**	*n.* 变异，不一致
protocol	*n.* 草案，协议		

Review Questions

1 According to the author, how much are spent on the health care in the United States per year?

2 How does the American health care system run in an ironic way?

3 What is the real health care problem in the United States?

4 Why is the American health care system regarded as being highly fragmented?

5 What does "rationalizing the system" mean in Paragraph 5?

6 How many strategies are proposed to avoid the waste of money on health care? What are they?

7 What are the advantages of wiring up the medical system?

8 What are the problems solved by tracking effectiveness of care over time?

9 In what way can the chronic diseases be controlled?

10 How can the incentives in medicine be changed?

The Title and Title Page of a Medical Article[*]

The title gives the first impression of a medical article, and should accurately convey to a reader what the whole article is about. A good title is short, informative and attractive. The title page provides information about the authors, their affiliations and the corresponding author's contact details.

Medical writing follows certain expected conventions. In preparing a manuscript for submission to a medical journal, organization and structure take precedence over literary skills. Although individual journals have their own in-house style, medical manuscripts submitted to most journals follow standard conventions. For original articles, the components are: title and title page, abstract, keywords, text arranged according to IMRAD, acknowledgements (if any), references, tables, figures and figure legends, and appendices (if any).

1. Title

The title is usually the first part of a submitted manuscript to be seen by the editor, and then by the reviewers. After publication, it is usually the first part of the paper to be seen by journal readers. The title also appears in the journal issue contents page, and may also be part of an email notification or Internet search result. The title therefore gives the intended audience its first impression of the author's work. If the title is unable to attract the attention of the potential reader, the rest of the article is less likely to be read. Having a good title is therefore desirable.

The title should accurately convey to the reader what the whole article is about. Ideally, this should be done in as few words as possible. Try to avoid lengthy titles as these may not only be difficult to decipher (破解), but may also put off the potential reader. The subject matter should be indicated in the title. Authors should avoid the temptation of adding extraneous details, such as the objectives, methods or results from the study. In summary, the ideal title should be concise and yet informative.

For example, a title such as "A Novel Study on the Usefulness of Thermoimaging in the Diagnosis of Osteoid Osteoma of Bone: Analysis of Imaging Features and Comparison with Radiographs, Ultrasonography, Computed Tomography and Other Conventional Imaging Techniques, with Clinical Follow-

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Up of Lesions (损伤，病变) in 24 Patients at the Sotong General Hospital" not only contains too many unnecessary and unhelpful words, but is downright boring. It can easily be replaced by "Thermoimaging in Diagnosis of Osteoid Osteoma," or simply "Thermoimaging of Osteoid Osteoma."

On the other hand, a title like "Imaging of Osteoid Osteoma" or "Diagnosis of Osteoid Osteoma" will not be specific enough. One should avoid abbreviations in the title [e.g. TI (Thermal Imager) of OO (Object Oriented)] or jargon/slang (e.g. Thermoimaging rocks!).

The target readership should be considered when constructing the title, as the title should be tailored accordingly. For a subspecialty journal, the authors can assume that the reader will be familiar with certain terms which can then be omitted from the title. In contrast, these same terms may be required to provide clarity for readers of a general medical journal. However, articles that are wider in scope tend to have shorter titles, while highly specialized topics may need a longer title to fully encapsulate the subject content.

Indexing and abstracting services depend heavily on the accuracy of the title. Improperly-titled articles may not reach its intended audience. The title should also ideally contain the keywords of the subject matter. Short titles are usually more interesting to the reader, take up less space (fonts for the title are often larger than the rest of the text), and are favored by editors. Authors can consider a provocative title—if the subject matter warrants it (e.g. "Is Thermoimaging Really Useful for Diagnosing Osteoid Osteoma?") —but avoid being sensationist.

When should the title be written? Experienced authors recommend drafting a provisional title when doing the initial draft of the manuscript. This is usually revised and refined several times during the course of writing the manuscript, until the author is satisfied that it accurately reflects the article contents in an attractive manner. It is therefore worthwhile investing time and careful thought in formulating an appropriate and effective title.

Some journals require a "running title" which is a short version of the title. This is usually printed as a header at the top of each or alternate journal pages. The running title is limited in length by a maximum number of characters specified in the journal's author guidelines.

What constitutes a good title: short, informative and attractive.

2. Title Page

Most medical journals require two title pages: one blinded and one complete (unblinded). The blinded title page consists of only the title and is sent to the reviewers with the rest of the blinded manuscript. There should not be any identifying information on the blinded title page.

The complete title page contains the title, as well as names of all authors, affiliations of all authors, and the complete contact information of the corresponding author. This part of the title page serves to identify and give credit to the authors who did the work and to the institution(s) at which the work was done.

As individual journals have their own in-house style, authors are advised to follow exactly the particular journal's "Instructions to Authors" or "Author Guidelines" for constructing the title page. Some journals require each author's full names, although the more common conventions are: first name, middle initial, then surname; or simply initials and surname. Some journals list the authors' qualifications (usually limited to two or three), while others also include each author's academic and/or professional appointments.

Authors embarking on their writing career will need to carefully consider the format of their names during first submission, and resist the temptation to change their names later on. For example, Lee Ee Meng may be inaccurately cited as "LE Meng" instead of "EM Lee." Taufik bin Rosli may prefer to be cited as "R Taufik" rather than "TB Rosli," and therefore may want to omit the "bin" during manuscript submission. Asian authors should ideally structure their names according to Western convention, i.e. surname or desired name last, especially when submitting to international journals.

Female authors need to consider whether to stick to their maiden surname or to adopt a new surname after marriage. After marriage, Dolly White may become Dolly McCall or even Dolly White-McCall. Religious conversions also often entail a name change. Therefore, the former Baliwant Dhillon Singh may be renamed BD Abdullah. A name change will mean separation of an author's work in the scientific literature databases, and a source of potential confusion for other researchers.

Each author's institutional affiliation should be clearly connected to the author's name. The institution listed should be the one at which the work was done. When two or more authors are listed, each in a different institution, the addresses should be listed in the same order as the authors and clearly labeled to the author's name, usually by alphabetical or numeral superscripts, or symbols. If the manuscript is submitted by, say, four authors from two institutions, each author's affiliation should be similarly labeled. Authors should avoid listing multiple affiliations for a single author.

If an author has moved to another address before publication, the journal editorial office should be informed. Some journals add the new address as a "present address" footnote. This is particularly important for the corresponding author. Failing to provide an updated address may lead to a delay in publication.

Following publication, the corresponding author may need to respond quickly to letters to the editor, to provide reprints, or answer queries from readers and other researchers. The corresponding author's contact information consists of full mailing address (including postal code), telephone and fax numbers (with country and city codes), and current email address.

Contents of unblinded (complete) title page: title and running title, names of all authors, author affiliations, and corresponding author's contact information.

Review Questions

1 What are the conventional components of original medical articles?
2 When should the title be written?
3 Why is it desirable to have a good title?
4 What is a running title?
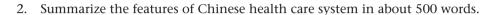5 What constitutes a good title?

1. Compare American health care system with Canada's. You need to cover at least the following four areas:

   a. National policy;   b. Coverage;
   c. Providers;   d. Accessing health care.

2. Summarize the features of Chinese health care system in about 500 words.

3. Read the quotes, and do the tasks that follow.

   > (1)The world today has 6.8 billion people. That's heading up to about nine billion. Now if we do a really great job on new vaccines, health care & reproductive health services, we could LOWER that by perhaps 10 or 15 percent. —Bill Gates (1955–)
   > (2) If people let the government decide what foods they eat and what medicines they take, their bodies will soon be in as sorry a state as the souls who live under tyranny. —Thomas Jefferson (1743–1826)

   a. Retell these quotes in your own words.
   b. Tell your classmates to what extent you agree or disagree with the quotes, and which part you agree with, and which part, you disagree with.
   c. Give specific examples to support your opinions.

4. Group work in pairs: One group selects five articles from the top medical journals, such as, *New England Journal of Medicine, The Lancet,* and *The Journal of the American Medical Association*, and then hides the information on the title page. The other group reads the articles carefully and supplies the missing information on the title page. The second group should:
   a. Work out the titles (full title and running title), and compare them with the original ones;
   b. Replace names of authors with the names of your group members;
   c. Replace affiliations of authors with the affiliations of your group members;
   d. Replace the contact information of the corresponding author with that of your teacher's.

Lecture 3

Hospitals in the US[*]

Hospitals are a vital part of society's infrastructure—as important as schools, the police department, or a dependable firefighting service. It is important to understand some macro information, such as the number of hospitals available, how hospitals are classified, the typical cost per day and per stay, and the average length of stay (ALOS) that might be expected.

Of equal importance are trends in hospital systems: Are hospitals increasing or decreasing in number, and are they becoming more or less profitable?

1. Classification

Hospitals may be classified in a number of different ways, such as by location (e.g. rural or community hospitals) or specialty (e.g. women's hospitals, orthopedic hospitals, cardiac hospitals, surgical hospitals or, in the past, tuberculosis hospitals). Hospitals can also be classified by size, such as community-access hospitals (small, rural hospitals with fewer than 25 beds) or, at the other extreme, tertiary-care or academic medical centers that offer every specialty and subspecialty that is practiced in medicine (e.g. pediatric cardiology).

Hospitals may also be commonly classified as governmental or non-governmental. Examples of governmental entities would be the Veterans Administration, the Indian Health Service, and military hospitals. When analyzing or comparing hospitals, such as a physician-owned orthopedic hospital and a government-owned military hospital, it is important to bear in mind the institutional differences between them.

[*] The text is based on "Fast Facts on US Hospitals," available at the website of American Hospital Association: http://www.naph.org/Homepage-Sections/Explore/History.aspx.

2. Trends in Hospitals

Trend 1: Downsizing, Mergers, and Closures

In the 1990s, the hospital industry in the United States underwent a host of consolidations and mergers, reflecting the fact that the system was "overbedded," with too many providers. Many hospitals had less than 50% occupancy and struggled to maintain enough revenue to operate efficiently. It was commonplace to see several hospitals in large metropolitan areas close, downsize, or merge with competitors, although this was not always bad. For example, in a metropolitan area with seven hospitals, three might battle to be the dominant purveyor of acute-care services. To avoid underutilization of the other hospitals, a common ownership could be established under which each hospital could specialize in a different field. For example, one might focus on cardiac care, the second on women's and obstetrics issues, and the third on general care (provided that this business arrangement would be allowed under antitrust statutes).

In addition to the issue of surplus acute-care beds, another factor that resulted in mergers and downsizing was that physicians began to shift their focus from inpatient care to outpatient care in facilities in which they had partial ownership. Procedures that could be performed without an overnight stay in the hospital began to move to the forefront of many practices. These included procedures performed in outpatient surgery, outpatient imaging (CT, MRI, and PET), and even outpatient cancer treatment centers. This reduction in hospitals was also driven by improvement in medicine, tighter reimbursement policies, and better management. It is fair to say that the less sick benefited from the greater availability of outpatient services and less hospitalization. Together, these factors led to both fewer hospital admissions and shorter ALOS in American hospitals.

This trend in hospital closures, admissions, and shorter ALOS will likely soon be reversed. As Americans age, the need for additional health care will increase, and in turn, more hospitals and physicians will be required. The country may now be at the bottom of a trough, and the number of hospitals and hospital beds can be expected to increase in the immediate future (2010–2025).

Trend 2: Tighter Profit Margins

The downsizing of hospitals has not resulted in lower hospital expenses. Because of the skyrocketing costs of technology (physicians want the latest and greatest MRI and CT scanners, and other hardware), the rising number of uninsured (before passage of the Patient Protection and Affordable Care Act in March 2010), the relatively low reimbursement rate of Medicare and Medicaid (which usually cover 40%–50% of hospitalized patients), the trend is towards much tighter profit margins—if a profit is made at all. The future of many general

acute-care facilities may be in jeopardy, while at the same time society will need more hospitals because of the aging baby boomers.

As for an average hospital's payer mix, "private pay" represents nearly all payments other than Medicare and Medicaid, which in this case includes third-party insurance and self-pay patients. This payer mix is of critical concern because of the currently low Medicare and Medicaid payment rates. In its annual survey, the AHA[1] estimated that this payment structure has resulted in a $33 billion shortfall for all community hospitals in the United States. This downwardly negative payment structure is increasing negative operating costs and decreasing total profit margins. In other words, when operating revenues and expenses are plotted over time, we begin to see expenses exceeding revenues.

Trend 3: Increased Building of Specialty Hospitals

Specialty hospitals which are frequently proprietary (for-profit) and physician-owned institutions, can be controversial. Instead of offering care to the entire general population as traditionally done by acute-care hospitals, specialty hospitals appear to serve a favorable selection of patients and avoid charity care and emergency services. Critics also contend that physician ownership creates incentives that may inappropriately affect referrals and clinical behaviors.

Advocates contend, however, that specialty hospitals can provide better and more efficient treatment for greater number of patients who need the same specialization of care.

For most health services, the Stark Law[2] (or physician self-referral[3] law) prohibits the referral of Medicare/Medicaid patients to facilities in which the physician has a financial interest; however, there is an important exception, termed the "whole-hospital exception." Physicians are permitted to refer patients if they have an ownership interest in the entire hospital and are also authorized to perform services there.

To address concerns about the negative effect of physician-owned hospitals on community hospitals, Congress established a moratorium from December 8, 2003, through June 7, 2005, to prohibit specialty hospitals from submitting claims for services as a result of physician-owner referrals. During this moratorium, the Department of Health and Human Services was charged with examining the overall impact of specialty hospitals.

As a result of the preceding study, the whole hospital exception to Stark will soon be a thing of the past. The Patient Protection and Affordable Care Act (commonly known as health care reform), signed into law on March 23, 2010, along with modifications specified by the Health Care and Education Reconciliation Act of 2010 (commonly known as the amendment to health care

reform), signed into law on March 30, 2010, will ban physician ownership of hospitals beginning in 2011. Unless they are repealed or amended, these acts should slow the construction of new specialty hospitals.

It is worth noting that physician-owned hospitals are exempt from Stark if they do not rake Medicare reimbursement. In fact, many of such specialty hospitals tend to treat well-insured, lower-acuity patients while avoiding Medicare, Medicaid, and uninsured patients.

Trend 4: Increasing Shortage of Nursing Personnel

Because of the increasing number of aging baby boomers, hospitals and the entire health care industry in general will need an increasing supply of nurses. Yet, just the opposite is predicted to occur. The majority of nurses today are in their mid 40s, and for every eight who leave the field, only five enter. This will lead to an ever-increasing demand for nurses while the supply curve moves downward. As a result, hospitals should expect higher increases in nursing salaries.

Although hospitals have declined in number, they are now better controlling the ALOS. Medicare and Medicaid expenses are exceeding revenues in most hospitals. Because of the negative economy, many Americans are without jobs and thus without health insurance. The health care industry and hospitals in particular have lost the support of employer-backed health insurance, which largely made up for the deficiencies of Medicare and Medicaid.

The Patient Protection and Affordable Care Act may serve to close this gap by mandating that most citizens purchase health insurance. However, this could be offset by cuts to the Medicare budget. As an interesting result of this legislation, physicians may be forced to divest themselves of ownership in specialty hospitals, allowing general acute-care facilities to regain their foothold in some areas of medicine that are more profitable.

Notes

[1]   AHA (The American Hospital Association) is an organization that promotes the quality provision of health care by hospitals and health care networks. Founded in 1898 and hosting offices in Chicago, Illinois and Washington, D.C., the AHA hosts a Resource Center with more than 47,000 books on health care (some services fee based) and maintains an extensive, frequently updated Health Planning and Administration database, which provides information related to health care unrelated to clinical treatment. More than 5,600 organizations and 41,000 individuals are members of the AHA.

[2]   Stark law, actually three separate provisions,

governs physician self-referral for Medicare and Medicaid patients. The law is named for United States Congressman Pete Stark, who sponsored the initial bill.

[3] Physician self-referral is the practice of a physician referring a patient to a medical facility in which the physician has a financial interest, be it owner-ship, investment, or a structured compensation arrangement. Critics argue that this practice is an inherent conflict of interest, because the physician benefits from the physician's own referral. They suggest that such arrangements may encourage overutilization of services, in turn driving up health care costs. In addition, they believe that it would create a captive referral system, which limits competition by other providers.

New Words and Expressions

普通词汇

acuity	n.（疾病的）剧烈，敏锐		rake	v. 仔细搜寻
antitrust	adj. 反垄断的		reimbursement	n. 付还，退还
divest	v. 转让，出售		repeal	v. 废除（法律）
exempt	adj. 被免除的		revenue	n. 收益，收入
infrastructure	n. 基本设施		skyrocket	v. 剧增，激增
jeopardy	n. in jeopardy 在危险中		statute	n. 法令，条例
mandate	vt. 命令，指示		surplus	adj. 过剩的
moratorium	n. 允许延期偿债的法律（协议）		tertiary	adj. 第三的
plot	vt. 密谋，策划		trough	n. 低谷，萧条期
proprietary	adj. 所有的；所有权的		veteran	n. 退伍军人
purveyor	n. 供应者，提供者			

专业词汇

cardiology	n. 心脏病学		orthopedic	adj. 整形外科的
CT	computerized tomography X 线断层摄影术		pediatric	adj. 小儿科的
MRI	magnetic resonance imaging 核磁共振成像		PET	positron emission tomography 正子电脑断层摄影
obstetrics	n. 产科学			

Review Questions

1 What is ALOS short for?

2 What are the possible ways the author mentioned for classifying the hospitals?

3 What are the main trends of American modern hospitals summarized by the author?

4 What are the factors that likely lead to both fewer hospital admissions and shorter ALOS in American hospitals?

5 Why will the trend in hospital closures, admissions, and shorter ALOS be soon reversed?

6 Has the downsizing of American hospitals resulted in lower hospital expenses? Why or why not?

7 What will the structure of the downwardly negative payment in American health care system result in?

8 In what way do specialty hospitals differ from the acute-care hospitals?

9 What prohibits the referral of Medicare/Medicaid patients to facilities in which the physician has a financial interest?

10 What did Congress establish from 2003 through 2005 to prohibit specialty hospitals from submitting claims for services as a result of physician-owner referrals?

11 What are the main causes responsible for the shortage of nursing personnel in American hospital system?

12 What may serve to make up the deficiencies of Medicare and Medicaid by mandating that most citizens purchase health insurance?

How to Write an Abstract and Keywords[*]

Also known as a summary, an abstract can be regarded as an abbreviated and accurate representation of the paper contents, i.e. a mini-version of the entire paper. After the title, the abstract is probably the next most read part of a medical paper. Normally placed at the beginning of an article, following the title page, the abstract assumes great practical importance because it is often the only part of the article that is read by editors and readers. It also leaves the reader with an impression of what is to come. It is therefore to the author's advantage to be able to construct as perfect an abstract as possible.

1. Abstract

According to the International Committee of Medical Journal Editors (ICMJE), the abstract should provide the context or background for the study and should state the study's purposes, basic procedures (including selection of study subjects or laboratory animals, observational and analytical methods), main findings (giving specific effect sizes and their statistical significance, if possible), and principal conclusions. The new and important aspects of the study or observations should be emphasized.

Besides being part of a medical paper submitted for publication, the abstract is also an essential part of a thesis or dissertation. The abstract is also the sole representation of a research project submitted as a proffered oral presentation or poster for a scientific congress. Personal databases and records can also be summarized into abstracts. As abstracts are the only substantive portion of the article indexed in many electronic databases, authors need to be careful that abstracts accurately reflect the contents of the paper. Unfortunately, many abstracts disagree with the text of the article. Authors need to ensure that all the information and conclusion contained in the abstract appears in the body of the manuscript.

The format and length required for abstracts differ from journal to journal. Authors should aim to prepare their abstracts in the format specified by the journal they have chosen. Abstracts may be unstructured or structured, depending on the journal style. In general, unstructured abstracts are used for certain types of articles, e.g. case reports, review articles, invited commentaries and pictorial essays.

Most original medical articles require a structured abstract. Abstracts may also be classified into informative and indicative abstracts. Some journals use more than one type of structure.

Example 1	***Example 2***
• Objective	• Objective
• Design	• Data sources
• Setting	• Review methods
• Participants	• Results
• Interventions	• Conclusion
• Main outcome measures	
• Results	
• Conclusion	

Whatever the format it is, the purpose of the abstract is to give the reader the essence of the research done. If accepted, it will be indexed with the complete paper in major databases, such as MEDLINE/PubMed and Science Citation Index. Researchers often browse quickly through abstracts to keep abreast of the latest developments in their fields and decide whether the rest of the article is worth retrieving/reading/citing. Given its importance, many authors regard the abstract as the most difficult part of a medical paper to write. Experienced authors therefore recommend writing the abstract last, i.e. after completing the body of the manuscript.

Most medical journals impose a word limit on the abstract. Typically, this is 150–200 words or less for unstructured abstracts, and 200–300 words or less for structured abstracts. A "generic" structured abstract should be divided into four paragraphs with the following headings.

• **Aims (or objectives):** State the hypothesis being tested or the procedure being evaluated in one to two sentences. (Why was the study done?)

• **Materials and methods (or Subjects and methods, or Methodology):** Briefly state what was done and what materials were used, including who the study sample or population was, if it was a prospective or retrospective study, and whether or not the study population was randomized. The sample size or patient number should be included. State how the study was performed, what measurements were made, the methods used to assess the data and to control bias, and how the data was analyzed. (What was done and how was it done?)

• **Results:** Provide the findings of the study, including indicators of statistical significance. The data should include actual numbers as well as percentages. (What was found?)

• **Conclusion:** Summarize in one or two sentences the conclusion made on

the basis of the findings. (What was concluded?)

The abstract should be completely self-contained, i.e. contain enough information to be stand-alone. Actual data should be included. References should be excluded. Avoid using abbreviations, unless a long term is used several times in an abstract. Avoid jargon and ambiguous terms. When starting to write an abstract, one can begin by making a list of the most important sentences that were written for each section of the paper, i.e. aims, materials and methods, results and conclusion. The author usually needs several drafts in order to prioritize and refine the inclusion of essential information in a succinct yet attractive manner. Less experienced authors should seek help from collaborators and guidance from an experienced mentor (导师).

2. Keywords

Immediately following the abstract, most medical journals require the authors to provide, and identify as such, three to ten keywords or short phrases that capture the main topics of the article. These will assist indexers in cross-indexing the article and are often published with the abstract. A proper choice of the keywords will help the paper to be located easily during a literature search, particularly an online search. To choose the most appropriate keywords, authors should understand the subject and purpose of the paper. The most important concepts should be selected, and then these concepts should be expressed in words which match the retrieval words of readers. Typically, keywords reflect the anatomical region of interest, the modality and procedure used, and the pathological process investigated.

The selected keywords should be checked against established indexing systems or databases, e.g. MEDLINE/PubMed. Ideally, terms from the Medical Subject Headings (MeSH)[1] list should be used. If suitable MeSH terms are not yet available for recently-introduced terms, present terms may be used.

[1] MeSH is the US National Library of Medicine (NLM)'s controlled vocabulary thesaurus, and is used by NLM for indexing articles from 4,800 of the world's leading biomedical journals for the MEDLINE/PubMed database. MeSH descriptors are arranged in both an alphabetical and a hierarchical structure, with more specific headings found at more narrow levels of the multilevel hierarchy.

Review Questions

1   What should the abstract provide and state according to the ICMJE?
2   What is the purpose of the abstract?
3   What is a "generic" structured abstract like?
4   How to choose the most appropriate keywords?
5   What do keywords reflect?

1. Describe the organizational structure of a general hospital at a county level in China. In your description, you need to include the hospital's:

    a. Administrative services;   b. Therapeutic services;

    c. Diagnostic services;   d. Supporting services.

2. Summarize the changes of the hospital in your hometown over the last 10 years in about 500 words.

3. Read the quote, and do the tasks that follow.

    > We try never to forget that medicine is for the people. It is not for the profits. The profits follow, and if we have remembered that, they have never failed to appear. The better we have remembered it, the larger they have been. —George W. Merck (1894–1957)

    a. Retell the quote in your own words.
    b. Tell your classmates to what extent you agree or disagree with the quote, and which part you agree with, and which part, you disagree with.
    c. Give specific examples to support your opinions.

4. Randomly collect an article from one of the top medical journals, such as, *New England Journal of Medicine, The Lancet,* and *The Journal of the American Medical Association*, hide its abstract and keywords, and then write an abstract and supply the keywords for this article by yourself. Remember to structure your abstract well by organizing it into four parts (aim, materials and methods, results and conclusion), and finally compare the abstract and keywords provided by you with those of the original article.