Caduceus

A Publication of the Medical Divison of the American Translators Association

Fall / Winter 2006-2007

CONTENT: Part One

BEST WISHES FOR 2007

Caduceus

A PUBLICATION OF THE MEDICAL DIVISION OF ATA

Fall / Winter 2006/07

Caduceus is a quarterly publication of the Medical Division of the American Translators Association, a non-profit organization dedicated to promoting the recognition of translating and interpreting as professions.

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- It is with the typical combination of sadness and joy - a lot of the first and some of the second - that we say goodbye to one of our solid contributors to Caduceus, Leon McMorrow. Leon has been a steady contributor and can take credit for much of the growth and acceptance of our newsletter. Since our beginning he has shared his creative knowledge and looked for ways to increase readers' participation in our product, not an easy undertaking. Leon is not going far, he just needs to cast his net of interests in a different direction. You will see his fingerprints scattered throughout this issue.

- The lead article deals with the vexing problems of an unfriendly gastrointestinal system. The brain-gut connection remains an axis of evil in the lives of many.

- Maria Rosdolsky has put together for this issue a German to English physical examination glossary. She plans to follow with other future German to English renditions in future issues. Members interested in submitting glossaries, word lists and similar formats in English paired to other languages are welcome to submit their work.

- Assistant editor, Elena Sgarbossa tells us about the "translation" of medical discoveries into the realm of patient care, the pathway from bench to bedside.

- Michael McMann completes his rendition of Ethics and Professionalism in Internet Actions, a wide range commentary on the ethics governing a translator's work as he or she relates to the Internet world.

- Zarita Araujo-Lane and Vonessa Williams bring a very personal medical interpretation experience to our attention along with some derivative advice.

- Completing the issue are the usual columns and sources that we hope you enjoy. Your comments are always welcome.

Instructions to Authors

Submissions for publications must be sent electronically in Word format. The deadline for submissions for the Fall issue of ***Caduceus*** is 31 March, 2007.

by Rafael A. Rivera, M.D., FACP

Man should strive to have his intestines relaxed all the days of his life.
Moses Maimonides. 1135-1204 A.D.

A good set of bowels is worth more to a man than any quantity of brains.
– Josh Billings (Henry Wheeler Shaw), 1818-1885,

Introduction

The word "gut" is almost a term of endearment for gastroenterologists and abdominal surgeons. The ancient Anglo-Saxon word refers to the human digestive system - all of it - nearly 30 feet long if stretched out straight. The string of organs that we know as the alimentary canal or digestive tract comprises the esophagus, the stomach, the small intestine and the large intestine or colon (which includes the rectum) in that order.

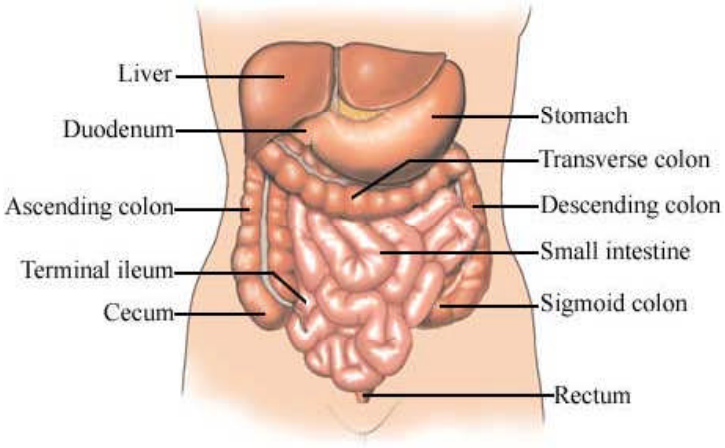
All these organs of the gut are always in motion, driven by the muscular layers within the wall of the gut. Coordinated contractions move foods and fluids and secretions - produced by the gut or entering the gut from adjoining organs - in a propulsive, dynamic motion called peristalsis. The primary purpose of all this activity is called digestion - the breakdown and conversion of foods into nutrients that are absorbable into the circulatory system while leaving the non-absorbable portion to be expelled by a highly efficient disposal system.

The Basics of GI Function

No sooner a lick of ice cream or a morsel of bread or a piece of fruit enters the mouth digestion begins. Besides the physical activity of chewing and moving around the mouth, saliva is secreted to soften the items and convert complex starches into simple sugars, Saliva also allows taste buds to sense flavors. Swallowing is an enormously complicated neuromuscular activity which we do consciously and unconsciously all day long. Once the bolus of food enters the esophagus it doesn't just fall by gravity, it is taken down by a stripping peristaltic motion at a predetermined speed of 3 cm per second. At either end of the esophageal tube there are sphincters – upper and lower esophageal sphincter - which, under normal circumstances, open to allow unidirectional forward passage of food and close promptly to prevent reflux or retrograde flow of contents.

The stomach is an extraordinary mixing vat that processes whatever reaches it. The combination of swallowed saliva plus hydrochloric acid and the enzyme pepsin, both produced by the glands that populate the stomach, grind and churn and mash until everything is reduced to a thick liquid called chyme. Once ready the stomach delivers this mix by means of its own peristaltic activity through the pyloric sphincter into the duodenum, the very first portion of the small intestine. The delivery of stomach contents to the duodenum is under the influence of many factors including hormones as well as emotional factors and physical activity, all of which can either delay or hasten gastric emptying. On the average it takes approximately 2 hours for the stomach to convert the composition of food into the typical liquid state required to move ahead. The composition of a meal itself influences the processing time within the stomach. Higher protein takes longer and higher fat content the longest.

In the small intestine - all 21 feet of it - is where most of the digestive processes take place. Food in transit is literally bathed in digestive enzymes. proteins and carbohydrates are broken down into fatty acids, simple sugars and amino acids respectively, all of which can then be absorbed. The first portion of the small gut, as mentioned, is the duodenum where bile from the liver and trypsin, amylase and lipase from the pancreas find their way



into it via respective ducts to promote digestion. Bile emulsifies fat enabling its absorption. Pancreatic enzymes help digest proteins, carbohydrates and fats. Once reduced to absorbable products these nutrients are absorbed through the wall of the bowel and sent to cells throughout the body by way of the bloodstream and the lymphatic system. In addition, minerals such as iron and calcium are also absorbed in the duodenum. After the duodenum lies the jejunum, eight feet long where fats and starches are further broken down, digested and absorbed. Next is the ileum, twelve feet long, where water, vitamin B12 and bile salts are absorbed.

Finally, the leftover material arrives at the colon or large intestine, a four foot long muscular tube about the size of your fist. Approximately a quart of liquid arrives from the ileum each day, 80-90 percent of which will be removed by the colon. Bacteria normally residing in the colon feed of whatever remains of ingested food. Colonic bacteria also produce fatty acids as well as hydrogen and, in some people methane gas. Some of these gases are retained as nutrients while others are expelled as gas. Undigested matter travels to the rectum where a sensitive mechanism of sphincters, internal and external, will trigger the need to have a bowel movement. The external rectal sphincter is under voluntary control allowing release at a convenient time.

What comes out as feces is primarily water, bile, mucus and cells shed from intestinal lining. Undigested food usually makes up very little of the residue. The exception is fiber, the more you take in, the more you will have in the stool.

If all goes according to plan one is hardly aware of this long and complicated process. But for many people the gut is an unfriendly part of the body, the cause of many miseries.

WHAT IS A FUNCTIONAL DISORDER?

Whenever a medical problem is common yet difficult to get a diagnostic handle on it because it is a very personal experience and there are no observable or measurable defects detectable by physical examination or available diagnostic testing, it is customary to call it a 'functional' problem. It is a genuine compromise between what is an undeniable personal experience coupled to the frustrating absence of clues as to possible causation that could lead to appropriate treatment.

Abdominal pain in various locations, abdominal distension, which may or may not be relieved by bowel evacuations, abnormal stool frequency or form of stools, tendency to constipation or diarrhea, flatulence, need to evacuate urgently after meals and presence of mucus in stools are frequent in the life of IBS patients. Physical examination and currently available diagnostic testing modalities are usually normal. Irritability, anxiety or depressive symptoms are fairly common and, as is usual with functional problems, it is difficult to tell whether these are cause or effect of living with an unsolvable medical problem. Treatment is directed at the relief of symptoms.

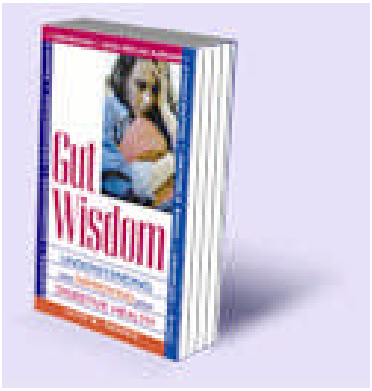
The Irritable Gut

A malfunctioning gut is a problem that afflicts some 20% of the world's population and goes by an increasing number of names, among them:

- spastic colon
- irritable bowel syndrome
- functional bowel syndrome
- functional colitis
- idiopathic constipation
- nervous diarrhea
- nervous indigestion
- intestinal neurosis
- mucous colitis.

Irritable bowel syndrome (**IBS**) is probably the most commonly used appellative in North America.

Whenever a medical problem goes by many names it usually indicates that there is little if any understanding of the nature of the symptoms. So, the diagnostic effort is directed at excluding the diseases we do understand. It has been said that only 10% of medical illnesses can be attributed to specific mechanisms of diseases. According to the traditional biomedical concept of disease, the functional gastrointestinal disorders – **IBS** and many others are really medical "non entities" because of the absence of detectable structural, biochemical, or physiological abnormalities. Yet, as mentioned, functional gut problems are very real to very many people. It is a very common, if not the most common, set of symptoms in the practice of any gastroenterologist. What it should NOT be confused with is inflammatory bowel disease (**IBD**) which includes two well known serious diagnosable entities - Crohn's disease (also known as regional ileitis or regional enteritis) and ulcerative colitis.



The Brain-Gut Connection

The brain and the gastrointestinal system are intimately connected. Have you ever had a "gut-wrenching experience"? Do certain situations make you nauseous? Isn't it true that your "gut reaction" is often contrary to what you hear from the salesman or the newscaster, or even your best friend? Indeed, the brain and the gut are intimately connected. An intricate communication network present within the walls of the GI tract - known as the enteric nervous system (ENS) (*enteron* refers to the digestive tract) - communicates with the brain via the spinal cord with the help of hormones, neurotransmitters and connections to the central nervous system; these various connections affect muscles**,** mucosa and blood vessels in the digestive tract. This complex "gut-brain system" is nearly equal in size and complexity to the body's central nervous system.

Studies have shown that functional GI symptoms are not necessarily the result of dysfunction in the bowel proper but maybe due to disturbances in the brain-gut nerve pathways that may lower pain thresholds or affect movements and contractions in the GI tract. It is a universal experience that the brain has a direct connection to the stomach if only because the thought of eating something we like very much can set off stomach secretions and contractions even before the food gets there. "*Just the thought of it…*"

Intolerance, allergy, sensitivity or "maybe I ate something gone bad? "

Any of the above can give rise to very similar symptoms but they are not really the same. An allergy is an abnormal response mediated by our immune system, whereas a food intolerance remains a mystery until, through trial and error, we hit the jackpot and learn to avoid the food item that brings on the symptoms. The most typical case of food intolerance is that of lactose (milk sugar) which in the intolerant person - one lacking the enzyme lactase which breaks down lactose - causes

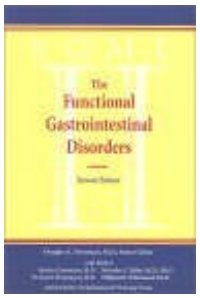
heartburn, gas, nausea, upper abdominal pain, stomach upset, cramps, diarrhea and flatulence, all the common symptoms of a functional disorder. Lactase deficiency is common in certain ethnic groups including Jews, African Americans, Native Americans and Asians. Lactose intolerant persons avoid symptoms by avoiding dairy products or adding a special enzyme preparation called Lactaid.

Another food intolerance centers on difficulties in digesting wheat or substances that contain the wheat protein gluten, found in products containing wheat, rye and barley. Gluten intolerance is different from gluten sensitivity which is an immunological reaction to gluten which causes celiac disease or gluten-sensitive enteropathy - an autoimmune inflammatory disease of the small intestine. Exclusion of dietary gluten results in healing of the intestinal mucosa and resolution of the associated malabsorption syndrome.

The Rome Criteria

In order to elucidate functional situations where an existing medical problem definitely affects normal functioning yet there is no detectable abnormalities that could possibly explain the symptoms, clinical research needs to be based on strictly defined criteria that includes specifically worded symptoms and duration periods. This creates a standard approach that permits data collection and eliminates ambiguity as much as possible. This was the case with the now well established DSM (Diagnostic and Statistical Manual) set of diagnostic criteria for Psychiatric Disorders, currently in its 4th edition enjoying worldwide use. It is also the current approach for all known functional gastrointestinal disorders which is known as the Rome criteria.

The Rome criteria is the product of almost 20 years of diligent work by a number of clinicians and scientists who first met in Rome, Italy in 1988 and have over the years delineated a set of symptom-based diagnostic criteria for functional gastrointestinal disorders. The first book, titled Rome I, was published in 1994 later revised as Rome II in 1998, with the hope that it could help clinicians make "positive" diagnoses of functional bowel disorders - rather than mere diagnoses of exclusion. The latest update released in September 2006 is the Rome III edition.



A REMARKABLE EXPERIENCE

Early researchers relied on basic, yet remarkable observations to learn how the digestive tract responds to emotions. In 1833, Dr. William Beaumont, a US Army surgeon was given an inside view, so to speak, when Alexis St. Martin, a French-Canadian traveler, was accidentally shot in the stomach. He developed a gastric fistula, or opening of the stomach to the skin, that allowed Beaumont not only to observe the pumping to-and-fro motion of the stomach, but also to see what happened when his patient expressed different emotions. In his journals, Beaumont wrote that when St. Martin showed fear, anger or impatience, his stomach mucosa (lining) turned pale and produced less gastric juice. Studies have since shown that powerful emotions evoke both increased and decreased stomach secretions.

In another experiment, a student agreed to allow a view of his sigmoid colon through a sigmoidoscope. During the exam someone present mentioned cancer of the colon and the startled student leapt to the conclusion that this was his diagnosis, the lining of his colon blushed and contracted rapidly, only to relax and regain its normal color when that student was reassured that he did not have cancer.

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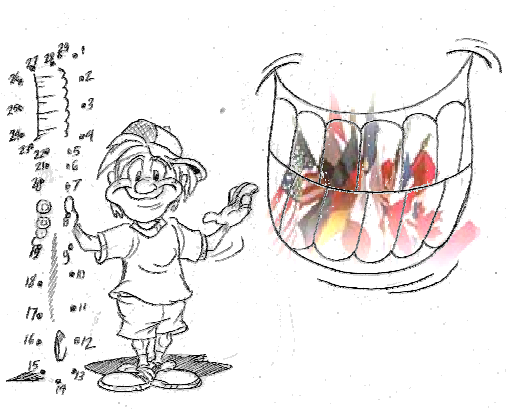
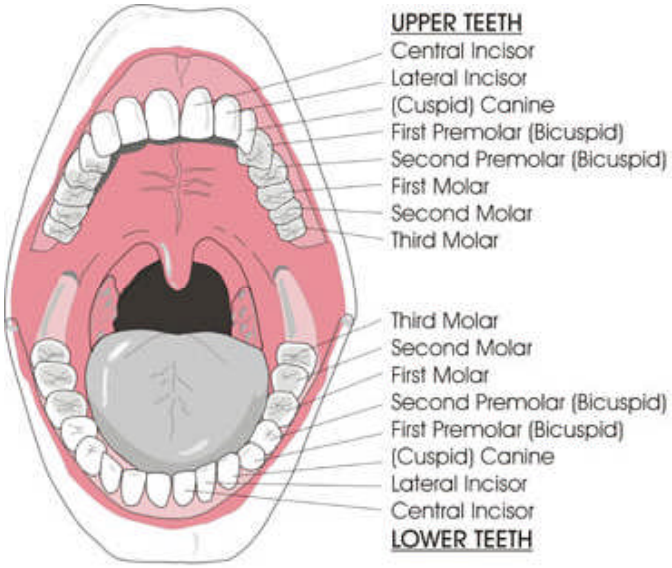
Do you know your teeth by number? – an international dilemma

by Leon McMorrow



As many of you may already know, 3 major tooth numbering systems are in use across the globe, and there are many other little-used methods. Awareness of this fact seems to be more common outside the U.S. Here, the American Dental Association adopted one method for its own purposes (ADA resolution, 1968), and therefore knowledge of other systems is now weak in the U.S. But what is the translator of dental records to do? Serve his reader and supply the local version through conversion? Serve the international community by using the source-

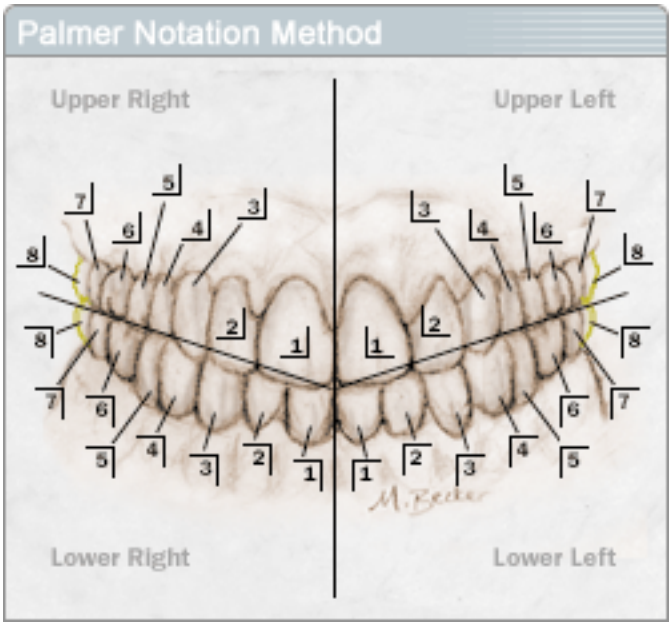


language system (perhaps indicating this in a footnote) and thereby ensuring elimination of error from conversion? Sometimes your client will give you specific instructions; I am asked by a journal editor I work with always to do a conversion to the U.S. system. Here is the story.

1. ***Palmer Notation Method***

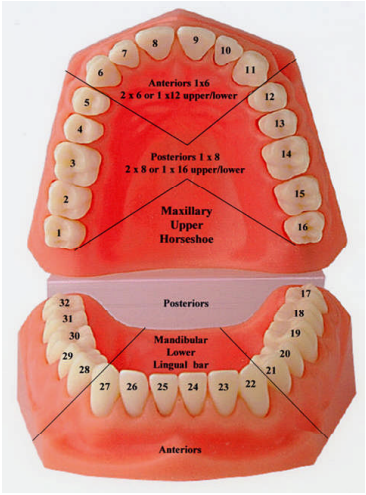
Originally developed by an Austrian dentist (Zsigmondy) in 1861, the method looks at the dentition (the two dental arches) as a scientist or geographer would, in terms of quadrants or 4 sections on 2 planes (upper/lower and left/ right). The upper left arch (left maxilla) is named the upper left quadrant (ULQ) and given the symbol of a capital L (└). The individual teeth are numbered 1–8, starting from the left front tooth (1) and moving backward to the left upper wisdom tooth (8), whether this is present or not.

The upper right arch (right maxilla) is named the upper right quadrant (URQ) and given the symbol of a backwards L (┘).



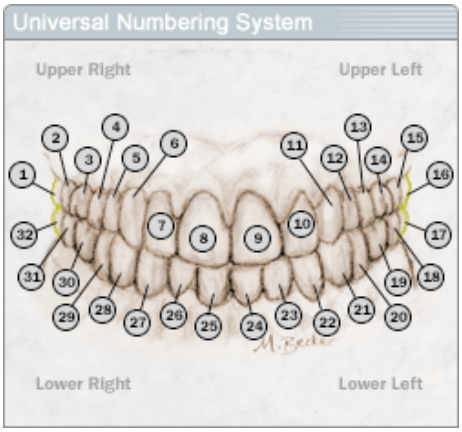
The same approach is adopted to the lower arch (mandible), except that the L and backward L are upside down (┌ and ┐ respectively). The individual tooth number is placed inside the quadrant symbol, which is quite easy to do in writing, but a nuisance with a typewriter or printer. Hence it has fallen out of favor with the introduction of the FDI system.

2. *FDI* (World Dental Federation) system.
The Palmer approach is basically replicated, using the quadrant method, but instead of being given awkward symbols, the quadrants are given the numbers 1 to 4. Quadrant numbers are: 1 = right upper quadrant; 2 = left upper quadrant; 3 = right lower quadrant; and 4 = left lower quadrant. The individual tooth numbers are similar to the Palmer method. Therefore the maxillary (upper) and mandibular (lower) central and lateral incisors are called the "ones" and "twos" respectively (in German *die Einer/ Zweier*). The other individual teeth are numbered as follows: canines = "threes" (*Dreier* in German); premolars = "fours" and "fives"; and the molars = "sixes" / "sevens" / "eights" (similarly in German). A nice chart is provided in Wikipedia at http://en.wikipedia.org/wiki/FDI_World_Dental_Federation_notation



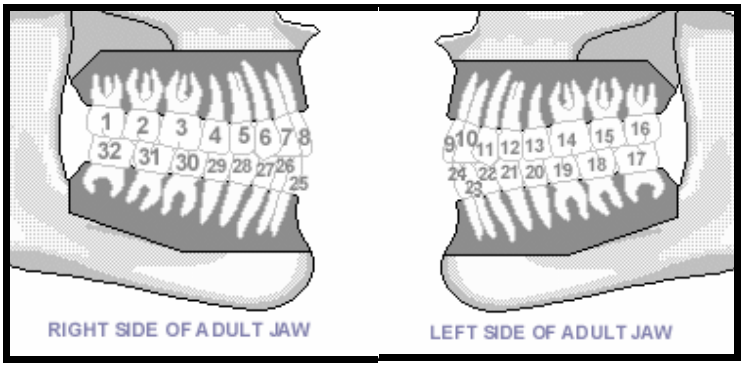
When the teeth are coded, they appear for example as 11 / 21 / 31 / 41, meaning the central incisor in each of the four quadrants. The wisdom tooth (third molar) in each of the four quadrants is coded as 18, 28, 38, and 48. ***Caution:*** 11, 18, 21, 28, 31, 38, 41 and 48 are not sequential numbers, but codes for a quadrant + tooth. This is a major problem for the unpracticed translator, when comparing teeth here with those in the next system.

3. *Universal Numbering System.*
This system is a straight 1–32 number sequence, beginning at the right upper wisdom tooth (third molar), whether or not this is present. The numbers continue around to the other end of the maxillary arch at the left upper wisdom tooth (= 16) and then drop to the wisdom tooth below it (= 17) and continue back around the mandibular arch to the lower right wisdom tooth (= 32). Tooth 32 is directly under 1, while 17 is under 16.



These charts show how human teeth are numbered in the United States by general dentists.

Please note that countries outside of the US as well as orthodontists may use different systems in which they divide the teeth into four quadrants and start at the front and number 1– 8 to represent the 8 teeth in each arch. Each quadrant should have a number and then the tooth number after it. In addition orthodontists will draw an "L" shaped angle around the number and point "arms" of the "L" in the direction of the quadrant. For example an "L" with number 3 written in it would be the upper left canine - also known as number "11" using the more commonly used system below.



by Elena Sgarbossa, M.D.

What is "Clinical Translation?"

At first glance *clinical translation* suggests *medical translation* - yet it is not. *Clinical translation* is a recently coined term that refers to an integrative concept in medicine. The concept alludes to the efficient transfer of recent scientific discoveries into new medical treatments; the transit "from bench to bedside" is strongly encouraged. In addition, this "bench to bedside" path is expanded, so that *bench* includes not only experimental science but also new diagnostic tools and therapeutic strategies. *Clinical translation* is also called *knowledge translation*. More common names for this discipline are *translational medicine* and *translational research*.

Translational medicine emerged from a need. For decades it had been obvious that clinicians often lacked understanding of scientific aspects of disease, while basic scientists lacked appreciation of the difficulties inherent in dealing with humans. Thus basic scientists and clinicians typically engaged in "parallel talking." Transforming this sterile pattern of communication into an ongoing conversation is the core of translational medicine.

Ultimately, translational medicine strives to close the gap between *what is known* and *what is offered to patients*. This can be achieved by accelerating the transfer to clinical practice of diagnostic and therapeutic advances that were proven effective in well-conducted trials (i.e., evidence-based). Translational research also recognizes that while discoveries travel from the laboratory to the clinic, the opposite is also true. Clinical observations, human tissues and samples, and diagnostic images are the substratum upon which new understanding of diseases is built. Thus, a two-way street develops: bench to bedside *and* bedside to bench.

This comprehensive approach encompasses several areas including the scientific, regulatory, and clinical arenas. It requires interaction and cooperation between basic researchers, clinicians, laboratory professionals and manufacturers. This is how translational medicine will ultimately impact health policy.

How can these ambitious goals be realized? A crucial step is that of procuring public funds. For this purpose the National Institutes of Health (NIH) has established an Office of Translational Research, at both the national and local levels. To obtain grants, researchers must define project milestones and specify timelines. The early stages of a project serve to identify candidate therapeutics; in late stages, researches may submit to the FDA an Investigational New Drug (IND) or Investigational Device Exemptions (IDE). Obtaining NIH funding has never been a facile or expeditious process for any discipline, however -and translational medicine is no exception.

The editors of the *Journal of Translational Medicine* have posed, not long ago, that translational medicine may still be "lost in translation." Basic research and computer models produce results that are indeed difficult to extrapolate (or translate) into clinical medicine. One reason is the disparate nature of biological research - which leads to sound hypothesis building - and the clinical realm - which does not yield directly to the development of useful treatment strategies dictated from "clean" basic science. The translation paradigm also raises new ethical questions. What could be, for example, the implications of prioritizing research goals according to their potential for translation?

. Translational medicine, thus, has arisen to fill a need. Yet the implementation of translational medicine in the "real world" is undoubtedly complex. Several challenges remain unresolved.

Some of its goals, however, have been already included in several programs in medical centers and scientific societies countrywide. Hence, in our daily work we may be reading and hearing more about *clinical translation* –which will not mislead us into thinking "medical translation".

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COMING SOON

Medical Division Website

Sneak Preview

The program for our first mid-year conference is still in progress ....

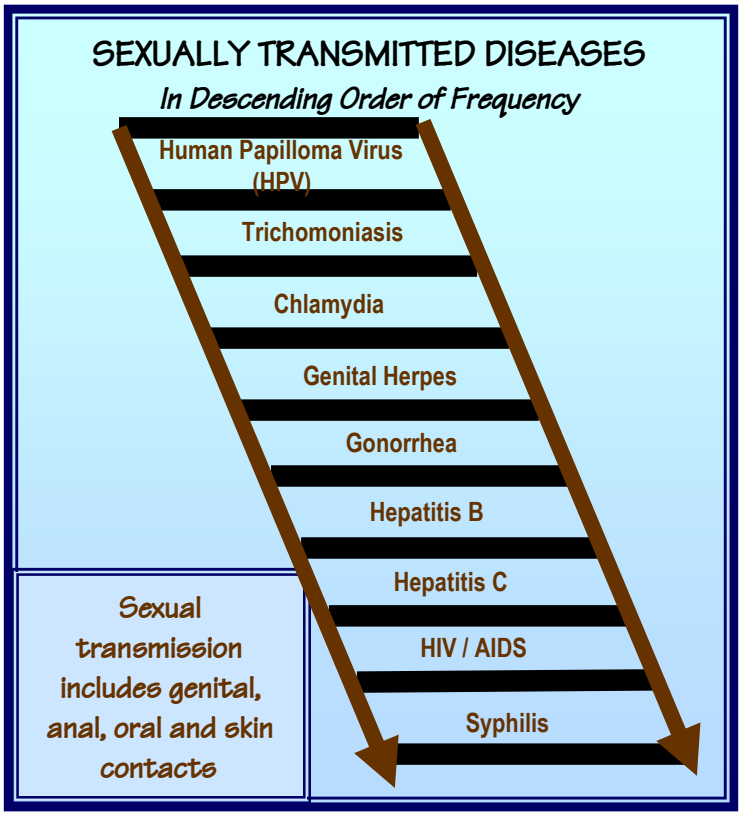
- What's it like to manage the delivery of health care to patients coming from all over the world. The Executive Director of Global Patient Services at the Cleveland Clinic Foundation will give us an overview of life in the world of tertiary medicine. What's it like to be a medical interpreter in this environment?
- View live cardiac surgery performed at the Cleveland Clinic via direct satellite feed with explanation of what's happening by a physician from the Cleveland Clinic.
- All about becoming a medical interpreter.
- Legal - ethical issues in medical interpretation - a panel.
- Understanding congenital heart defects.
- Anatomy and physiology of the Central Nervous System presentation followed by complementary breakout sessions in German, French and Spanish.
- Advances in thoracic and cardiovascular surgery.
- Clinical Trials - an overview of terminology.
- End of Life - overview, terminology, approach to adults and children.
- Understanding the unspeakable - psychoanalysis and psychotherapy research.
- Translational research on disease prevention - from terminology to practical recommendation.
- Holly Mikkelson will be with us.
- And much more…….

MARK YOUR CALENDAR NOW!

A little bit of everything

evidence based medicine - A common phrase these days, is the application of the best available medical evidence in making decisions about the care of individual patients. Normally, practicing physicians integrate new medical evidence derived from controlled studies into their clinical expertise i.e., their accumulated knowledge derived from actual experience in the treatment of patients. The difficulty for clinicians is keeping up with the overwhelming number of reports that appear in the medical literature. Also the conversion of evidence reports into practice strategies is not that simple. (See Pitfalls and Caveats in this issue)

cervical cancer vaccine for boys - The FDA has already approved a 3 shot series of the HPV (human papilloma virus) vaccine for women ages 9 to 26 , hopefully to be given before girls become sexually active, since it does not protect those already infected with the virus. The FDA is now considering approval for use in boys. (source: H. Lee Moffitt Cancer Center, Tampa, FL)



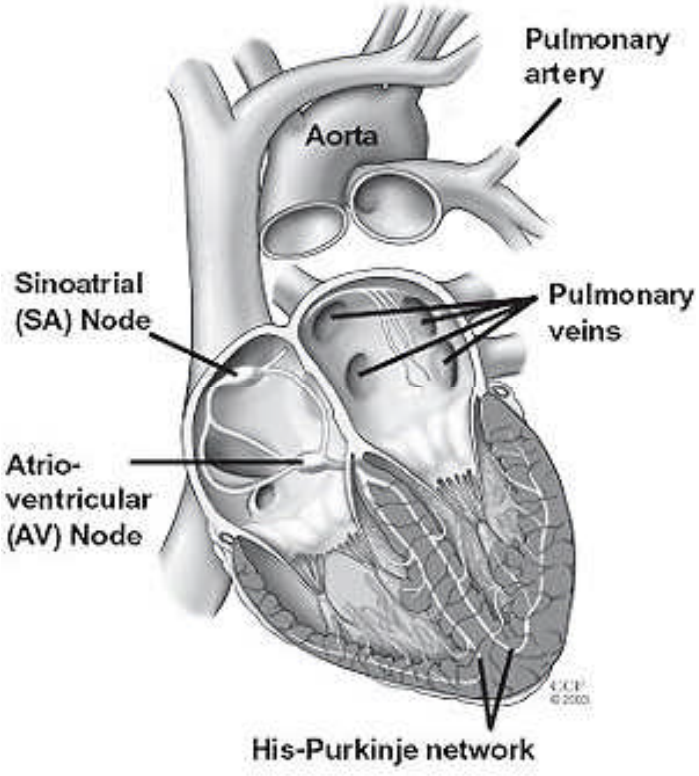
"superbug" - The rising incidence of hospital acquired infections is of great concern in American hospitals. Of yet greater concern is the rising resistance to antibiotics. At the top of the list is a well known organism called *Staphyloccus aureus, S. aureus,* or just *staph* for short (remember *strep*, short for *Streptococcus*, as in *strep* throat). The name "superbug" has been given by the press to a methicillin-resistant *Staph aureus* - MRSA, which is increasingly common in both hospitals and communities. MRSA is resistant to all kinds of penicillins, including amoxicillin, dicloxacillin, methicillin, as well as penicillin-like drugs called cephalosporins, for example cephalexin. MRSA is a global problem. For further information go to Centers for Disease Control, cdc.gov and World Health Organization, who.int.

HOW DOES ANTIBIOTIC RESISTANCE DEVELOPS?

Antibiotic resistance develops when changes (mutations) that occur in bacteria cause each new generation of the organism to be less susceptible or even fully resistant to the effect of an antibiotic.

Drug Reactions - Speaking about drugs, as many as 700,000 Americans end up in hospital emergency rooms every year because of adverse reactions to prescription medications, often mixed with over the counter drugs and herbal supplements. People over 65 were twice as likely as younger ones to be seen in ER departments and several times as likely to require admission to the hospital in 2004 and 2005. High on the list of drugs involved were insulins for diabetes, opiate-containing pain killers such as OxyContin and blood thinners such as Coumadin. Also common were reactions to antibiotics and over the counter cold remedies.

ablation - Tricky medical word. From the Latin *ablatio, ablatus*, meaning ".. to carry away" Historically used as a synonym of excision, removal, extirpation or amputation of a diseased body part or tissue by surgical means. Currently, with advancing technology, the use has narrowed to the virtual destruction or elimination of diseased or abnormal tissue via the delivery of some form of energy - electrical, chemical, thermal, radiofrequency, others. A good example is a procedure called pulmonary vein ablation (PVI) in which an interventional cardiologist can deliver bursts of radiofrequency energy into the left atrium at the base of the four pulmonary veins *[see figure below]* to eliminate the source of abnormal electrical impulses that cause atrial fibrillation, the most common cardiac arrhythmia in advancing age. Also the lining of the uterus can be entirely ablated while leaving the rest of the uterus in place in pre-menopausal women with heavy menstrual bleeding who do not contemplate any further childbearing.



Electrical Conduction System

antidepressants and suicide - An unlikely couple? Not so. Antidepressants are effective medications proven to reduce the overall suicide rate in depressed patients. However, recent data has shown that antidepressants can increase the risk of suicidal behavior in younger adults ages 18 – 24. An additional 2004 FDA warning for use in children led to a falloff in antidepressant prescription for children – and a concomitant increase in suicides in that age group. What a conundrum. Experts worry that additional warnings would curtail the use and ultimately do more harm than good. A general consensus is simply to monitor all patients antidepressants more closely.

SAD DUE TO SAD?

SAD stands for Seasonal Affective Disorder, a seasonal depression that occurs and recurs in the Winter. Sadness, loss of energy, increase or decrease in appetite, excessive sleeping, irritability or anxiety, loss of interest in social activities - just like in any other case of depression - are all typical clinical symptoms of SAD. The observation that the change from Fall to Winter is associated with a diminution of sunlight which in susceptible persons leads to a depressive syndrome has been confirmed as result of the interesting discovery that exposure to artificial sunlight can afford relief to SAD patients. This is called light therapy and can be used alone or in combination with standard antidepressants.