

THE PRACTICE OF DOMESTIC MEDICINE DURING THE COLONIAL PERIOD

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INTRODUCTION

In the 1700s life expectancy was about 35 years. Of course, that takes into account the high number of infant deaths. But only 35 years of life was expected because of the state of medical practice at that time, along with unchecked epidemics, an ignorance of principles of contagion and sanitation, and the regular ravages of smallpox, typhoid, yellow fever, measles, and the variety of fevers and fluxes—another term for diarrhea, or dysentery. Lice flourished, since bathing was considered by many to be dangerous.

Injuries, sickness, and death were generally viewed fatalistically—at least philosophically—as a manifestation of God's will. There was a morbid interest in illness and death that for many provided a break in the routine of everyday life and material for conversation. Funerals were a social function.

There are only a few written reports of how things were in those days. The Amish, for example, had written reports of buggy accidents and barn fires.

Many families lost children to disease, and grim evidence of this can be found in local cemeteries. In one cemetery I visited you could see families or areas in which children and infants had been ravaged by some disease, and all because of woefully inadequate conditions. A high mortality existed with pregnancies and deliveries because only relatives or midwives were available. Very

little was written about perinatal—care during pregnancy and delivery—problems. Physicians in those times would examine the dead and then go right from there, with their dirty hands, to the delivery room or area for the delivery of children. Purple sepsis ran rampant.

It was hard to find an adult with a full set of teeth. Dental extractions and the setting of broken bones were performed by whoever was available.

In this geographic area, Quakers were considered by outsiders to be a healthier than average breed and were noted for their longevity. During ill health, work generally went on as usual. The urgency of the harvest and the scarcity of labor were motivating factors. Rarely did farmers send themselves to bed while they were still able to work. You had to be really ill in those days to stop working.

EARLIEST PRACTITIONERS

The chief medical person of the time was the housewife, of whom there was no shortage. She was armed with a stock of superstitious folk remedies, family tales, Indian lore, and homegrown herbs. Herb gardens were common. She cared for the family and neighbors. She might have had access to newspapers, almanacs and medical handbooks similar to the Merck Manual of today. There was a variety of English patent medicines available at drug and apothecary stores, plus local concoctions. During the War, privateers provided British medicines, which were supplemented by ingenious

American counterfeits, which I feel can be considered forerunners of today's generic drugs.

Because of the uncertainty of medicine, quacks were numerous and, at least, supplied emotional support. That's important. They may not have known anything but consoling someone was half the battle. The Welsh settlers in the Great Valley had a heritage of medical practice from Wales, where surgeons, by the way, were separated from barbers in 1745. There were also Welsh wizards—sounds like a clan of some type—who employed magic. In Valley Forge, a doctor, Abijah Stevens, was a self taught surgeon and practitioner who had no formal training whatsoever.

PHYSICIANS

By 1776, the colonies had 3000 to 4000 individual practitioners of medicine, 300 to 400 of which had M.D. degrees and were usually in urban areas. These physicians with degrees were, for the most part, postgraduates of the University of Edinburgh in Scotland, which was a model for the first two medical schools established in America during the colonial period.

Philadelphia was better supplied with physicians than any other town. Between 1740 and 1775, about 82% of them had studied in Europe and most had degrees. The supply of physicians in Pennsylvania was comparable to provincial England and a surprising number were in country towns. The 300 to 400 physicians were largely unlicensed as licensure procedures existed only in Europe. In 1772, New Jersey passed a law for licensure exams to be conducted by the supreme court of the state, but it was not fully implemented.

ECONOMIC ASPECTS

The cost of such care was not inexpensive, but even members of the laboring class could afford it. Most physicians earned £100 to £200 annually—today £.55 equals \$1.00—and were able to accumulate £500 of property. Some doctors accepted token payments from the poor and charged the rich higher fees, a longstanding English custom and one

which continued until recent years. A benevolent gesture was the Pennsylvania fund-raising drive to finance smallpox inoculations of the poor, which was actually beneficial for all. If you cut down on the amount of smallpox of all, it was better for everybody.

FORMAL TRAINING

Two medical schools were established during the colonial period: the Medical Department of the College of Philadelphia—later the University of Pennsylvania—in 1765, and Kings College—later Columbia University—in New York City in 1768. By 1776, only 51 degrees had been conferred by these schools. Classes were suspended because of the War. The Medical College of Philadelphia was founded by two prominent physicians named John Morgan and William Shippen, names I know you've probably heard. These men assumed important roles during the Revolutionary War but became adversaries in the process and never did reconcile their differences.

School was of two years duration, running from November to June of each year. The first year consisted of pre-clinical subjects in the liberal arts, with mathematics, natural history, a working knowledge of Latin, and preferably French as well—somewhat similar to a pre-med course of today.

The second year included subjects in the following order: anatomy, materia medica—the use of medicines, botany, chemistry, physiology, pathology, and clinical medicine with instruction, lectures, and, at the College of Philadelphia, demonstrations with patients at nearby Pennsylvania Hospital.

At the end of the second year, an examination for the bachelor's medical degree was given. This was followed by an additional three years of study and practice, which led to a stiffer exam, a written exam in Latin, and a thesis which had to be defended before the faculty, much like with the Ph. D degree of today.

APPRENTICES

Most of the practicing physicians were trained solely as apprentices' assistants—they were called "doctor's boy"—and were ac-

corded the same rights as those with college training. They were almost universal in New England. One of the first three professors of Harvard Medical School, John Warren, of Bunker Hill fame, came from their ranks. Some even began their apprenticeships at the age of fifteen. According to Dr. Benjamin Rush of Philadelphia fame, the only prerequisite was the ability to stand the sight of blood.

After three to six years of apprenticeship to a physician, a certificate of proficiency was awarded and recipients could begin to practice medicine. Their strength was in the development of the practical bedside approach under the eye of a father figure that is still very important today, but that we don't always have now.

In cities such as Boston, New York, and Philadelphia, apprentices were permitted to sit in on medical lectures. One element of training for physicians were cadavers or body parts snatched from graves for dissection. Usually, they were bodies of criminals, paupers, or an occasional soldier, which led to stern disapproval from General Washington. The bodies were secured at night on cemetery forays and those involved were known as nocturnal "Resurrectionists"—an appropriate term. As an alternative, wax molds of bodies or body parts with veins and arteries injected with wax became popular in Boston and even were observed by John Adams, second President.

DRUGGISTS AND APOTHECARIES

An emerging profession in colonial America was that of druggist and apothecary entrepreneur. The druggists were only in the largest cities and prepared drugs for physicians. Apothecaries were far more numerous and were found in large towns as well. Often the owners were physicians and, if the establishment was large enough, they might employ a chemist to prepare the prescriptions. These shops were identified by signs showing a pestle and mortar and were very common. When I was in medical school, proper training in pharmacy was the use of the pestle and mortar. The first written prescription was by

a physician, Abraham Chovet, from Philadelphia, just prior to the Revolutionary War. In addition to prescription items, over-the-counter preparations made up of secret remedies were sold to many people and were known as "sovereign remedies" or "sure specific." Shades of the medical hawkers of a later period, and to some extent today.

Even at the time of the colonial period, as in the present, concern was voiced about physician-owned apothecaries. Dr. John Morgan felt the combination of apothecary ownership and physician was not in the best interest of curing patients, a situation which has been addressed in recent years.

HOSPITALS

Hospitals first appeared in America early in the 18th century. They were basically built to confine those with contagious diseases during epidemics, and were located primarily in seaport towns such as New York City, Philadelphia, Newport, Rhode Island, and Charlestown, South Carolina.

Later in the 18th century, the almshouse was established solely for the poor of the cities, since those better off financially chose to be treated in their homes. These almshouses were the first institutions to provide continuous care and were organized as acts of charity by individuals and occasionally by colonial governments. Their upkeep rested with the local governments. They had a multitude of functions: care of the destitute and sick, as orphanages, for criminal incarceration, and for confinement of the insane. The first one was in Philadelphia, organized by William Penn in 1713, and was originally started for destitute Quakers. It's hard to believe that there were destitute Quakers.

The next type of hospital was the voluntary hospital—a necessity for the growing and increasingly organized middle class, which demanded better care than was given at almshouses. They were generally started by philanthropic gifts with ongoing operations financed by voluntary contributions and patients' fees—similar to today. The first such hospital was Pennsylvania Hospital at 8th and Spruce Streets in Philadelphia, which

was co-founded in 1751 by Dr. Thomas Bond and Benjamin Franklin, for "the inhabitation of strangers."

However, New York Hospital, founded in 1775, was the first American hospital after the War to use systemized instruction with medical students.

MEDICAL LITERATURE

At the onset of the Revolutionary War, American medical literature consisted of one medical book by the professor of surgery at King's College on the treatment of wounds and fractures. There were also reprints of three other medical works and twenty pamphlets. There was a dearth of printed information at this time.

THEORIES AND PRACTICES

The first theory in medical practice in the colonial era—or preceding it, really—was a Grecian theory of humours, based upon bodily fluids—blood, phlegm, black bile, and yellow bile. These must remain in balance for good health. An excess was relieved by bleeding, purging, and sweating. A deficit was replenished by rest, diets, and medicinals.

Later on, in the 17th century, the humour theory was replaced by one of acidity/alkalinity/saltiness/tension and relaxation.

This was followed, in the 18th century, by the concept of nerve irritation, which could alter bodily fluids and lead to illness. This led to a massive and complex classification of diseases—a textbook. The symptoms were matched to the text to achieve the diagnosis.

A unity theory was proposed by a Scotsman, John Brown, who felt that good health depended upon a proper balance of nerve stimulation to muscles and a blood vessel response. It is well known today that nerve stimulation to muscle and blood vessel response does occur in some situations. Excessive stimulation triggered muscular spasm, which led to disease. Too little stimulation resulted in weakness and atony. This theory prevailed at the time of the Revolution.

TREATMENT

The treatment for excessive nerve stimula-

tion with fever and infection was bleeding, purging, and vomiting, plus alcohol and diet. Local irritant stimuli were treated with skin blistering, oral mercury, and medicinals via the mouth or rectum. Excessive irritability was removed by bloodletting, generally up to one quart daily, or every second day. It was thought at that time that the body contained twelve, not six, quarts of blood. Lancing was considered as important as today's thermometer is in the home. Even lay people used it. One physician stated that he never saw a failure from bloodletting. It was said that George Washington had nine quarts of blood drawn in twenty-four hours—if that's possible—because of his pneumonia. So he didn't die of pneumonia. He was bled out. No wonder he died.

When I was a teenager, I knew of a druggist on Arch Street at the foot of the Benjamin Franklin Bridge, who advertised and sold leeches. This form of treatment followed the use of bloodletting of the colonial days.

There's also some other things for treating excessive tissue irritability: blistering, counter-irritants, cataplasms—also called poultices, formentation—applications of hot moist substances such as flannel with hot water, clysters—rectal administration of medications, and so forth.

When tissue irritability was decreased, the attempt was made to build up nervous energy by administering anodynes such as opium and laudanum, cathartics, purgatives, rube-facients—substances to irritate or redden the skin—stimulants and diet.

Medications used for tissue irritability were anodynes, antiarthritics, antidysenterics such as ipecac, blackberry wine, opium—a good bowel blocker, antipyretics—also called febrifuges because they reduced fever, and emetics to get rid of stomach illness—ipecac to induce vomiting. Often they would give you these medications until your vomitus was clear. Until you were laid out, almost. They had medications to relieve muscular spasm and salivation. You could hold mercury in your mouth until you stimulated saliva and, of course, stomach irritation—if you survived. Sudorifics and diaphoretics produced

perspiration and sweat. Sweatbaths, borrowed from the Indians, were also used for this purpose.

You've all heard of diuretics. That's an in thing with medicine today too. In fact, it is considered the number one medication for hypertension. Diuretics were to increase the urine flow in dropsy—the old term for edema, or tissue swelling. Each illness was felt to have a characteristic urine. Check the urine. It goes way back east. They even found diabetes by tasting urine and by continuing to taste urine to follow the course of the illness.

Bloodletting, purging, and blistering were used with any of the above. You could combine these things. And there was a diet of recommended diuretic drinks: barley water, flax seed tea, and watery gruel. The body might also be exposed to cool water and air to relieve fever. We do that today.

EPIDEMIC DISEASES

Smallpox was the principal disease of the century and the only one with a proven prophylaxis—preventive treatment. During the winter of 1777, General Washington ordered all soldiers and nearby civilians—these could have been the campfollowers, I don't know, but there certainly were enough of them—to be pox-proofed. Only one in a thousand failed to recover from the procedure. That isn't bad, really, considering the alternative.

A non-seriously-ill donor would supply clear serum from an early vesicle, which was opened with a toothpick and scooped up with a quill. Then the recipient's skin would be scratched and the material introduced. This is similar to the way it's done, even today. These procedures were used until cowpox was discovered in 1798.

Typhus was also known as hospital or jail fever because that's where you usually acquired it. It was caused by an organism known as a Rickettsia, a small little fellow—neither a virus nor a bacteria—introduced into the body by the bite of a louse. Dr. Rush suspected that the louse was involved. The lice were transferred from hospitals and military camps by blankets or clothing. Contributing

factors were considered to be the lifestyle of the colonists, poor health and diet, fatigue, the use of linen rather than woolen clothing in summers—heavier material was harder for the louse to move through. Particularly susceptible were drunks, convalescents, and black people.

The characteristic lesion was petechiae—red spots which you've all seen, I'm sure—which appeared diffusely on the skin. It was considered an excessive stimulation disease and emetics were the usual therapy. Blacks were considered to be particularly susceptible, because their health conditions were poor. They were mistreated, of course, as slaves and therefore their health problems were more rampant.

Typhoid, called malignant bilious fever, was considered by some to be a disease like typhus, but with unknown differences in symptoms and signs such as diarrhea and rose-colored spots on the chest and abdomen. It was spread by contaminated excreta, food, clothing, and bedding.

Dysentery—diarrhea and flux—was later found to be caused by the same organism as Typhoid. It was caused by drinking contaminated water, eating bad food, exposure to cold air, and sleeping in wet clothing.

Diphtheria and scarlet fever were considered to be the same disease. They were thought to be from an "infection of the air," and not from other infected people. The treatment for such excessive stimulation was bleeding, like George Washington had. This was frequently sublingual—beneath the tongue. They made incisions underneath the tongue. The next time you stand in front of the mirror, turn your tongue up, and see these little veins—that's what they used. A gargle of alum, dissolved in honey and sharp vinegar, could be added.

Colds included influenza or catarrh. They were thought to be caused by close contact and corrupt air, animal droppings, perspiration, stale clothes, unturned bedsheets,

closed rooms, and a lack of exercise. Some of these things are apropos today.

Yellow fever, also called The Great Sickness, The American Plague, Barbados Distemper, or Bilious Plague, was a virus carried by the mosquito, *Aedes aegypti*. One epidemic occurred on Front Street in Philadelphia. It was a frequent problem in seaports and southern camps.

Prophylaxis consisted of a variety of measures, including heating vinegar in bowls to produce fumes to discourage mosquitos, the oral use of tobacco—cigars in the mouths of women and children must have been a pretty sight—handkerchiefs infused with vinegar or camphor, chewing garlic and putting garlic in pockets and shoes, and also cleaning areas with gunpowder—that would cure yellow fever for sure, if you exploded.

A sensible step for those who could afford it, was to shift their residence outside the city of Philadelphia to higher ground, such as Fairmount Park. If you've ever taken a tour of the mansions of Fairmount Park, you'll hear how, in the summer, people would move to the mansions of Fairmount Park to get away from the low-lying city of Philadelphia and from disease.

Dengue, also called "breakbone" fever, was of viral origin and was also transmitted by the mosquito, *Aedes aegypti*. The disease is characterized by severe back, hip, and leg pain. This became more prominent in World War II at Fort Bragg, North Carolina, when it was called Fort Bragg fever, and young troops would be incapacitated with it.

Malaria, called intermittent fever—and that sort of describes it—was related to bad air in those days because of the association with the "exhalations of marshes." It was distinguished from yellow fever and dengue by the periodic onset of chills and high fever. If you've ever seen anybody suffering from malaria, what they go through is something you will never forget. Again, mosquitoes were the vector and carried the organism, *Plasmodium*. The therapy, quinine bark, was on tar-

get—they used it way back then—and used it until relatively recent years.

Venereal Disease was a very vague subject at that time. It was conveyed by European soldiers; something they shared with us. The treatment was oral saltpeter and sumac root, or a mixture of salts and turpentine.

Consumption, or tuberculosis, was not understood at the time and was one of the worst diseases that could befall anyone. It was more common in women and I don't know if it was because women were more of the caretaker type and therefore more associated with disease and people who were sick. I don't know.

Dental deterioration was extremely common. Rotten teeth were pulled by anyone who was available. Herbs were used as well, especially with associated gum infections. These rotten teeth would cause gum infections or gingivitis. They'd try to put something on it and try to make it feel better. It was awfully painful to yank the rotten teeth out of the gums. They would use herbs for that.

Stress has always occurred in times of uncertainty, and it was also manifested in 1774 and 1775. At that time it was related to awaiting the results of a petition to the King with regards to a possible reconciliation—or war. In Philadelphia a large number of cases of apoplexy—loss of consciousness—were reported. Even a member of Congress, Peyton Randolph, was affected. Suicides, in fact, during the colonial period were not uncommon, and were usually accomplished by hanging.

That is my story of a period of time known as the Revolutionary War in colonial times. Philadelphia was a hotbed of medicine in those days and still continues to be.

Comment: A hundred years from now, the medicine we have today will look OK.

Reply: I envision no surgery being done, not

as we know it today. We'll be treated externally. Radiation will be used. You won't have to have an operation for gall bladder or removal of the appendix. Cancer will be improved upon. Also, obstruction of the bowels. I just think that's what's going to happen. There are good days ahead.

Comment: Regarding the history of anesthesiology. During the Revolutionary War, if there was surgery, they would just use alcohol. The first use of an anesthetic was during the Civil War. Alcohol was the first anesthetic.

Reply: Yes, it was easier to just get them dead drunk. A dentist used the first anesthetic.

Question: How did they figure out that something abnormal in the body was causing smallpox. They figured out that germs were causing it, but the germ theory wasn't developed until much later. How did they connect the dots?

Reply: They didn't. It took people like Louis Pasteur to get that going. Air and vapors—humours as they called it—was what they thought caused it. Or divine intervention.

Comment: With smallpox, they observed that the dairy girls did not get it. That's how they made that connection and developed cowpox.

Reply: It was the Dutch that invented microscopes, but it takes a while to connect things. In the San Gabriel Mountains in California, there's a nature trail you can take featuring native herbs. It's amazing what the Indians knew—far more than the white man. What they knew about illness was just by observation.

Question: The Chinese believe in yin and yang. This kind of ties into, maybe, those "humours." If so, is there a good basis for yin and yang?

Reply: I don't know enough about it, but I do know that they are opposing forces and I know that some people believe in it and blend Chinese and American medicine. The

use of acupuncture, for example. We have a physician at the hospital who performs acupuncture. Is it a cult? I don't know. Sometimes it takes a while to establish whether something works or not. I don't know. It seems to be an idea that's been around for centuries. It must work for the Chinese so there's probably something to be said for it.

Comment: I ran into an interesting story about the dissection of cadavers. It was frowned upon, but occasionally, it was legal. A building was built in Baltimore specifically for the purpose of dissecting cadavers; built conveniently next to a large cemetery. The nocturnal resurrectionists would steal the bodies from the graves and put them in barrels of whiskey to preserve them, presumably, until they could be smuggled into the back door of this place and be used by the physicians. And what happened to that whiskey? It was sold to the poor people. That's how we got the term rot-gut whiskey.

Reply: Speaking of preservatives, I can remember the cadavers we had in medical school. I don't know what they were preserved in—maybe methyl alcohol or formaldehyde and something else. It was so strong that our fingers would shrivel. And the fumes....

SOURCE

C. Keith Wilbur. *Revolutionary Medicine: 1700-1800*. Chester, CT.: The Globe Pequot Press, 1980.

Dr. L. G. "Skip" Eichner's relatives came to the United States through the port of Baltimore. They were German. One later served in the Civil War. Skip received his medical degree from Thomas Jefferson Medical College in 1954. This was presented at the April 25, 2004 meeting of the Tredyffrin Easttown History Club. It was transcribed by Bonnie Haughey.