



## Prevention of Medical Errors

*A two CEU Hour study of root-cause analysis, error reduction and prevention, and patient safety related to the practice of massage therapy*  
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Take the Test

We take for granted that the medical practices of this century are safe, that we have learned from our past mistakes, and that we would never countenance posing significant risks to patients' health from the work we do as doctors. However, medical practices worldwide function with particular cultural contexts which sometimes have within them unquestioned assumptions about health, some of which can be both wrong and unhealthy.

The practice of massage therapy in the United States emerged in part from a region – China - which to this day continues unsafe medical practices that pose ongoing threats to patients. We will examine some of these risks and practices later on, but first we must understand gain a little perspective and humility about our own Western culture and medicine.

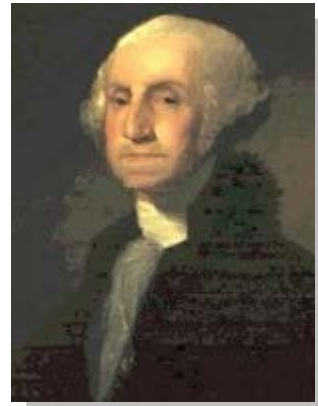
We look back at some of the dangerous practices of past centuries with amazement and amusement. How could doctors of the 1700s have possibly practiced bloodletting (in pints, not drops) as a way to get people well? The following story about our first President, George Washington, is instructive as to how misguided some of America's medical practices were just 200 years ago.

“George Washington finished his second term as the first President of the United States in 1797. Weary of the political infighting surrounding the presidency, he longed for the peace of retirement to his beloved Mount Vernon. Unfortunately, his solitude lasted less than three years as he died on December 14, 1799 at age 67.

## Death of a Founding Father

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*George Washington Custis was the son of John Custis, the son of Martha Washington from her first marriage to Daniel Custis. George Washington Custis was thus Martha Washington's grandson. His father - John - served as an aide to George Washington and **died from camp fever** during the Battle of Yorktown in 1781. Washington immediately adopted the six-month-old Custis and his sister Eleanor as his own children. Custis lived at Mount Vernon and became the darling of the household.*



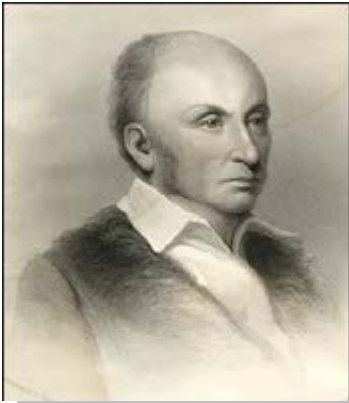
*Custis was nineteen at the time of Washington's death. He describes the scene:*

*"On the morning of the thirteenth, the general was engaged in making some improvements in the front of Mount Vernon. As was usual with him, he carried his own compass, noted his observations, and marked out the ground. The day became **rainy, with sleet**, and the improver remained so long exposed to the inclemency of the weather as to be considerably wetted before his return to the house. About one o'clock he was **seized with chilliness and nausea**, but having changed his clothes, he sat down to his indoor work - there being no moment of his time for which he had not provided an appropriate employment.*

*At night on joining his family circle, the general complained of a slight indisposition, and after a single cup of tea, repaired to his library, where he remained writing until between eleven and twelve o'clock. Mrs. Washington retired about the usual family hour, but becoming alarmed at not hearing the accustomed sound of the library door as it closed for the night, and gave signal for rest in the well-regulated mansion, she rose again, and continued sitting up, in much anxiety and suspense. At length the well-known step was*

heard on the stair, and upon the general's entering his chamber, the lady chided him for staying up so late, knowing him to be unwell, to which Washington made this memorably reply: 'I came so soon as my business was accomplished. You well know that through a long life, it has been my unvaried rule, never to put off till the morrow the duties which should be performed today.'

Having first covered the fire with care, the man of mighty labors sought repose; but it came not, as it long had been wont to do, to comfort and restore after the many and earnest occupations of the well-spent day. The night was passed in feverish restlessness and pain...



George Washington Custis

The manly sufferer uttered no complaint, would permit no one to be disturbed in their rest on his account, and it was only at daybreak he would consent that the overseer might be called in, and **bleeding resorted to. A vein was opened, but no relief afforded.** Couriers were dispatched to Dr. Craik, the family, and Drs. Dick and Brown, the consulting physicians, all of whom came with speed. The **proper remedies were administered, but without producing their healing effects;** while the patient, yielding to the anxious looks of all around him, waived his usual objections to medicines, and took those which were prescribed without hesitation or remark. The medical gentlemen spared not their skill, and all the resources of their art were exhausted in unwearied endeavors to preserve this noblest work of nature.

The night approached - the last night of Washington. The weather became severely cold while the group gathered nearer to the couch of the sufferer, watching with intense anxiety for the slightest dawning of hope. He spoke but little. To the respectful and affectionate inquiries of an old family servant, as she smoothed down his pillow, how he felt himself, he answered, 'I am very ill.' To Dr. Craik, his earliest companion-in-arms, longest tried and bosom friend, he observed, 'I am dying, sir - but am not afraid to die.' To Mrs. Washington he said, 'Go to my desk, and in the private drawer you will find two papers - bring them to me.' They were brought. He continued - 'These are my Wills - preserve this one and burn the other,' which was accordingly done. Calling to Colonel Lear, he directed - 'Let my corpse be kept for the usual period of three days.'

The patient bore his acute sufferings with fortitude and perfect resignation to the Divine will, while as the night advanced it became evident that he was sinking, and he seemed fully aware that 'his hour was nigh.' He inquired the time, and was answered a few minutes to ten. He spoke no more - the hand of death was upon him, and he was conscious that 'his hour was come.' With surprising self-possession he prepared to die. Composing his form at length, and folding his arms on his bosom, without a sigh, without a groan, the Father of his Country died. No pang or struggle told when the noble spirit took its noiseless flight; while so tranquil appeared the manly features in the repose of death, that some moments had passed ere those around could believe that the patriarch was no more."

### Modern medical opinion speculates that Washington died of acute laryngitis.

If George Washington had access to a practitioner using the traditional Chinese medicine of that era he would probably have been diagnosed with a wind heat invasion. Instead of being bled by

the pint and thus weakened, our first President would probably have been given Gan Mao Ling Wan or Chuan Xin Lian, and lived a much longer life, maybe even getting on the hundred rather than the one dollar bill.

The 19th century wasn't much better. According to Wikipedia\*, "Ignaz Philipp Semmelweis (July 1, 1818 - August 13, 1865) was the Hungarian physician who demonstrated that puerperal fever (also known as "childbed fever") was contagious and that its incidence could be drastically reduced by enforcing appropriate hand-washing behavior by medical care-givers. He made this discovery in 1847 while working in the Maternity Department of the Vienna Lying-in Hospital. His failure to convince his fellow doctors led to a tragic conclusion; however, he was ultimately vindicated.

Semmelweis realized that the number of cases of puerperal fever was much larger at one of his wards than at the other. After testing a few hypotheses, he found that the number of cases was drastically reduced if the doctors washed their hands carefully before dealing with a pregnant woman. Risk was especially high if they had been in contact with corpses before they treated the women. The germ theory of disease had not yet been developed at the time. Thus, Semelweiss concluded that some unknown "cadaveric material" caused childbed fever.

He lectured publicly about his results in 1850, however, the reception by the medical community was cold, if not hostile. His observations went against the current scientific opinion of the time, which blamed diseases on an imbalance of the basic "humours" in the body. It was also argued that even if his findings were correct, washing one's hands each time before treating a pregnant woman, as Semmelweis advised, would be too much work. Nor were doctors eager to admit that they had caused so many deaths. Semmelweis spent 14 years developing his ideas and lobbying for their acceptance, culminating in a book he wrote in 1861. The book received poor reviews, and he responded with polemic. In 1865, he suffered a nervous breakdown and was committed to an insane asylum where he soon died from blood poisoning.

Only after Dr. Semmelweis's death was the germ theory of disease developed, and he is now recognized as a pioneer of antiseptic policy and prevention of nosocomial disease."

By the 20<sup>th</sup> century we developed the field of ionizing radiation for medical imagery using X-Rays. Unfortunately, to this day, the medical community by and large does not understand how sensitive our genes are to damage from such radiation and regularly overexpose patients. As a result, according to voluminous documentation compiled by Dr. John W. Gofman, M.D., Ph.D. (Physics), discoverer of both plutonium and high and low density lipids, medical radiation is an essential co-factor in 75% of all cases of heart disease and cancer in the USA.

For example, in the 1960s and 1970s, women were routinely exposed to 10 units of radiation (rads) per mammography exam. Dr. Gofman explains that once a person is exposed to 270 rads, they have 100% chance of developing cancer. Cancer risk is thus calculated as a function of rad exposure. A woman who received yearly mammograms from 1960 to 1979 would have received 200 units of radiation (rads). Thus, from mammographic ionizing radiation alone, her chance of developing cancer would be 200/270 or 74%!

By 1978 Walker had published a study revealing that the number of breast cancer detectable and curable from mammograms at 10 rads per yearly exam would be less than the number of cancers caused by the cumulative dosage of radiation received from these diagnostic procedures. In response to this study and other pressures, by 1983 the standard rad dose for mammograms was reduced to 1/10<sup>th</sup> of a rad per mammogram – without losing image quality, a 100 fold drop!

Since there is a 20 to 30 year latency period before breast cancers show up, after climbing steadily since 1980, rates of increase of breast cancer did not stabilize until 2001 and may have started to fall in 2003. Brenda Edwards of the National Cancer Institute said it could be because “the use of mammography appears to have peaked, the number of women delaying childbearing may have stabilized, and the use of hormones after menopause [another medical error] has plummeted.”

But this is all story for another, much more in depth Healing Centre CEU course: **Medical Imaging –Ionizing Radiation and Human Health – 10 Hours.**

The World Health Organization issued its World Health Report in 2002 called **Reducing Risks, Promoting Healthy Life.** This work describes the 26 leading risk factors in the world by region. Mortality, illness, and years of life lost are described. It’s hard to imagine, but unsafe health care injections rank 18<sup>th</sup>, accounting for more mortality than illnesses caused by illicit drug use, lead exposure, climate change, lack of contraception, occupational injuries, carcinogens from the workplace, and exposure to airborne particles in the workplace.

The countries of South East Asia and the Western Pacific lead the five other areas of the world in mortality from unsafe health care injections. In the year 2000, 501,000 people died worldwide from unsafe health care injections. In countries of South East Asia and the Western Pacific, 377,000 people died in 2000 from unsafe health care injections, 75.25% of the world total! More specifically, it has been reported in the New York Times that 20% of all children under age 21 living in the People’s Republic of China suffer Hepatitis B infections derived from unsterilized needles used in medical practice. Granted, the large majority of these children were infected by hypodermic needles, not from acupuncture, but the situation still reveals an underlying cultural assumption taken for granted in significant measure by those who brought traditional Chinese medicine to America.

In 1990 the Florida Board of Acupuncture, cognizant of this situation and aware that reusable acupuncture needles could not be properly sterilized for less than the 3 cents per needle cost of sterile, disposable needles, passed a rule requiring that only such sterile, disposable needles for one time use be employed in the practice of acupuncture.

The firestorm of protest which followed was most instructive. One practitioner even testified to the board wondering why there was such a fuss about sterility since “in China everyone knew that you had only to wipe the needles with your own saliva before sticking them into the patient.” Politics being what it is in Florida, this same practitioner was then appointed by the Governor to serve on the Board of Acupuncture, and the rule requiring sterile disposable needles for one time use only was rescinded.

Fortunately, the Florida Senate, for the first time in 17 years, overturned the Governor’s ill-advised appointment. The Federal Food and Drug Administration then ruled in 1996 that all acupuncture needles be sterile, disposable, and for one time use only; and the Florida Legislature later codified that FDA ruling into Florida law.

What can Florida’s licensed massage therapists learn from all this? They must ask themselves what are the risks they pose to themselves as professionals and to their clients. Foremost among these risks are nosocomial infections, the spread of which may be promoted through unsanitary massage and colonic practices.

In 2000, Nobel Laureate Dr. Joshua Lederberg, M.D. addressed this issue in lecture given at the Rockefeller University in New York City:

“Well, let me turn just a little bit more immediately to the nosocomial infection issue. I’m going to quote now from the “Emerging Infections”: ...“At least 5% of the hospital admissions patients come out with a disease they didn’t have when they went in. Twenty thousand (20,000) deaths annually. I think that number’s gone up since this report was written. Patients recovering - an extra 10 days of hospital care. Hospitals acquired infections account for an extra 5 to 10 billion dollars a year in additional medical related expenses. And then you can find some of the specific categories in which this occurs.

“Many factors which increase nosocomial infection in a hospital are inherent in any health care setting [including massage therapy clinics]; not only are persons with serious infections frequently admitted to hospitals, providing an intra-hospital source of pathogenic organisms, but these people also tend to be immune compromised. What’s not mentioned in this chart is that a hospital is also a place of very concentrated use of antibiotics; therefore no surprise that you’re going to see the emergence of and continued selection of antibiotic resistant organisms in that kind of setting.

“In addition, there are invasive procedures, especially the use of catheters, which gravely enhance the risk of nosocomial infection in the very process. So a whole constellation of factors. What can be done about it? Probably the most comprehensive statement appeared in the January 17, 1946 issue of *JAMA*, which is an issue devoted to emergent infections, and you get a lot of the further statistics and recommendations; but first of all there needs to be a system. There needs to be a systematic approach, a recognition that this is a problem, that the angels of mercy are also angels of death and disease willy nilly.

“The system for rapid detection and reporting of resistant micro-organisms, when we’ll get to the point of routine screening of health care workers for nasal carriage of infectious disease, I’m not sure, but I think it’s in the cards: I think the next major scandal that can be attributed and then the lawsuits that will follow. So it’s a rather unpleasant prospect. It may mean severe dislocations in employment and employability, but I don’t see how this can be eventually avoided.

“I think in the meantime the best way to forefend it is to institute the strictest of hygiene regimes in order to limit the gravity of these conditions during the interval: **facilities for hand washing, isolation, environmental hygiene, managerial goals and accountability for reductions of colonization of infection resistant organisms** [emphasis added].

“Not indicated on this chart is that this system can not be confined to the individual hospital. It has to be accepted a responsibility of the hospital community, and I think it will be scandalous if there are examples of hospitals withholding information about their own experience when it’s important that that be shared with the rest of the professional community in order to anticipate emergent resistance, specific kinds of problems, [and] what needs to be done to clean it up.

“I suspect this will be mandated by government authorities. Before very long there’ll be systematic reporting of the incidence of nosocomial infection. There will be injustice. There will be hospitals, because they accept a higher proportion of compromised patients and practice invasive procedures more frequently, out of necessity will appear to get a black eye because they’ll have an unhealthier outcome; and there’ll have to be an

important educational program to have and evaluate such statistics. That's still being worked out at the present time, how to achieve that without doing undue injury.

“But the lessons really plain in the meantime, and that is much more aggressive steps are needed in the intra-hospital setting in order to control these kinds of problems. And although in the case of multiple resistant staph aureus, nasal carriage is probably the main reservoir, several authorities indicate that transient colonization of hands of the providers is the most important medium of that transmission.

“So many hospitals don't even have decent facilities for hand washing at the right locations, or **there's the myth that if you put on a glove, that's going to be protection.** [emphasis added] It may protect you, but it may be the medium of transmission to the very next patient. So on and off, on and off, would be the only imaginable way – there have been surveys of practice on the part of practitioners and providers that indicate 40-50% of physicians don't wash their hands between patients. Now this probably includes patients who have a very low likelihood of carrying infectious agents and so on, but it's certainly not a routinely ingrained habit from point to point. That's got to be looked after.

So those are the remedial measures that we have to think about. Well, it's a problem to some degree that's been swept under the rug; but it's not going to stay there, I think, associated with what's going on in the evolution of pathogenicity and of drug resistance, which after all is a component of pathogenicity. It behooves us to take a very close look at what we can all do to prevent this piece of the problem.”

## **Recommendations for Massage Therapists?**

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1. Wash hands between patients.
2. Preferably apply an anti-microbial hand sanitizer to your hands when working. Microdine hand scrub, for example, coats the skin with Povidone Iodine which provides FDA compliant, 6 hour persistence at suppressing microbes.
3. Use fresh, clean linen with each and every patient.
4. Wipe off countertops and treatments table tops when possible with an anti-microbial solution or disinfectant.
5. Equipment used for colonic irrigation must absolutely be sterile when used with a client.