

Pennsylvania Hospital Teaching Unit

Philadelphia was colonial America's most populated city, and home to the nation's first chartered hospital, the Pennsylvania Hospital. Established in 1751 under the auspices of King George II, the Pennsylvania Hospital served the Philadelphia region through major outbreaks, including the 1793 Yellow Fever Epidemic, as well as every military conflict beginning with the French and Indian War, while adding many medical firsts to its resume.

The following lesson will aid students in the evolution of health care in the new nation.

Lesson 3

Ellen Just Braffman

18th century Medicine

How did the 18th century treat Yellow Fever?

Teacher Note

18th Century medicine was plant based. Most individuals would have kitchen garden containing common plants and herbs used to treat ailments, such as rosemary, mint, and chamomile. Treatment options were limited and harsh. Mercury was a common ingredient in medicine while blood letting and purging were popular procedures. They lacked anesthetic and sanitary conditions. In order to manage pain, patients were often given the option of alcohol or opiates.

Hook

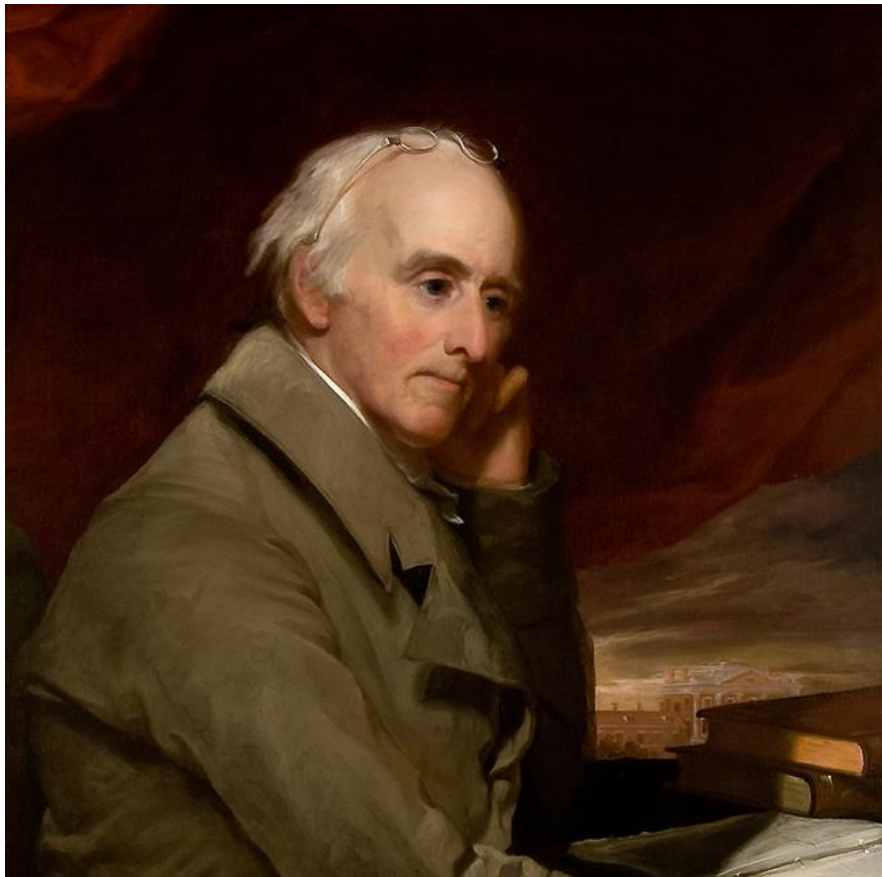
Dr.

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*Introduce
Rush to your
students:
the painting
read the
summary)*

*Rush was
leading
physician in
Philadelphia
promoting
reforms,
advocating
public
and an
abolitionist.
signatory of
Declaration*

of Independence, Surgeon General of the Continental Army, he was proponent to improve education for women and active abolitionist
" As an Enlightenment intellectual, he was committed to organizing all medical knowledge around explanatory theories, rather than rely on empirical methods. Rush argued that illness was the result of imbalances in the body's physical system and was caused by malfunctions in the brain. His approach prepared the way for later medical research, but Rush himself undertook none of it. He promoted public health by advocating clean environment and stressing the importance of personal and military hygiene. His study of mental disorder made him one of the founders of American psychiatry." from Wikipedia

Dr. Rush's Treatment of Yellow Fever

Divide the class into groups of four or three depending on class size. Assign half of the groups to read "Of Purging" and the other half to read "Of Bloodletting". The students can decide how to read (out loud taking turns, silent etc).

Ask students to mark up the text using the following symbols as they read:

+ for an statement they agree with

- for an statement that they disagree with

! for a statement that surprises them

? for a question that they have based on the information in the text

Bring class back together to share symbols and text from the "Purging" and "Bloodletting" groups.

Students read "An Account of the Bilious Yellow Fever, as It Appeared in the City of Philadelphia in the year 1773" by Benjamin Rush, M.D. Professor of the institute, and Clinical Medicine, in the University of Pennsylvania

Of Purging.

I have already mentioned my reasons for promoting this evacuation, and the medicine I preferred for that purpose. It had many advantages over any other purge. It had many advantages over any other purge. It was detergent to the bile and mucus which lined the bowels. It probably acted in a peculiar manner upon the biliary ducts, and it was rapid in its operation. One dose was sometimes sufficient to open the bowels; more especially as part of them was frequently rejected by the stomach. I did not observe any inconvenience from the vomiting which was excited by the jalap. It was always without that straining which is produced by emetics; and it served to discharge bile when was lodged in the stomach. I did not rest the discharge of the contents of the bowels on the issue of one cleaning on the first day. There is all bilious fevers, a reproduction of morbid bile as fast as it is discharged. I therefore gave purge every day while the fever continued. I used castor oil, salts, cremor tartar and rhubarb

(after the mercurial purges had performed their office) according to the inclinations of my patients, in all those cases where the bowels were easily moved; but where this was not the case, I gave a single dose of calomel and jalap every day. Strong as this purge may be supposed to be, it was often ineffectual; more especially after the 20th of September, when the bowels became more obstinately constipated. To supply the place of jalap, I now added gamboge to the calomel. Two grains and an half of each made into a pill, were to an adult every six hours until they procured four or five stools. I had other designs in giving a purge every day besides discharging the re-accumulated bile. I had observed the fever to fall with its principal force upon such parts of the body as had been previously weakened by any former disease. By creating an artificial weak part in the bowels, I diverted the force of the fever to them, and thereby saved the liver and brain from fatal or dangerous congestions. The practice was further justified by the beneficial effects of a plentiful spontaneous diarrhea in the beginning of the disorder; by hemorrhagies from the bowels, when they occurred from no other parts of the body, and by the difficulty or impracticability of reducing the system by means of plentiful sweats. The purges seldom answered the intentions for which they were given, unless they produced four or five stools a day. As the fever showed no regard to day or night in the hours of exacerbations, it became necessary to observe the same disregard to time in the exhibition of purges; I therefor prescribed them in the evening at all times when the patient had passed a day without two or three plentiful stools. When purges were rejected, or slow in their operation, I always directed opening glysters to be given every two hours. The effects of purging were as follow:

1. It raised the pulse when low, and reduce it when it was preternaturally tense or full.
2. It revived the strengthened the patient. This was evident in many cases, in the facility with which patients who flattered to a close stool, walked back again to their beds, after a copious evacuation. Dr. Sydenham takes notice of a similar increase of strength after a plentiful sweat in the plague. They both acted by abstracting excess of stimulus, and thereby removing indirect debility.
3. It abated the paroxism of the fever. Hence arose the advantage of giving a purge in some cases in the evening, when an attack of the fever was expected in the course of the night.
4. It frequently produced sweats when given on the first or second day of the fever, after the most powerful sudorifics had been taken to no purpose.

5. It sometimes checked that vomiting which occurs in the beginning of the disorder; and it always affiliated in preventing the more alarming occurrence of the symptom, about the 4th or 5th day.
6. It removed obstructions in the lymphatic system. I ascribe it wholly to the action of mercury, that is no instance did any of the glandular swellings, which I formerly mentioned, terminate in a suppuration.
7. By discharging the bile through the bowels as soon as fast it was secreted, it prevented in most cases a yellowness of the skin.

Of Bloodletting.

The theory of this fever which led me to administer purges, determined me to pursue bloodletting, as soon as it should be indicated. I am disposed to believe, that I was tardy in the use of this remedy, and I shall long regret the loss of three patients, who might probably have been saved by it. I cannot blame my self for not having used it earlier, for the immense number of patients which poured upon me, in the first week of September, prevented my attending so much to each of them, as was necessary to determine upon the propriety of. I was in the situation of a surgeon in battle, who runs to every call, and only stays long enough with each soldier, to stop the bleeding of his wound, while the increase of the wounded, and the unexpected length of the battle, leave his original patients to suffer from the want of more suitable dressings. The reasons which determined me to bleed were,

1. The state of the pulse, which became more tense, in proportion as the weather became cool.
2. The appearance of a moist, and white tongue on the first day of the disorder; a certain sign inflammatory fever!
3. The frequency of hemorrhages from every part of the body, and the perfect relief given in some cases, by them.
4. The symptoms of congestion in the brain resembling those which occur in the first stage of hydrocephalus internus, disease in which I had lately used bleeding with success.
5. The character of the diseases which had preceded the yellow fever. They were all more or less inflammatory. Even the scarlatina anginosa had partaken so much of the diathesis, as to require one bleeding to subdue it.

6. The warm and dry weather which had likewise preceded the fever. Dr. Sydenham attributes a highly inflammatory state of the small pox, to a previously hot and dry summer, and I have since observed the Dr. Hillary, takes notice of inflammatory fevers having frequently succeeded hot and day weather in Barbados. He informs us further, that the yellow fever is always most acute and inflammatory, after a very hot season.
7. The authority of Dr. Mosely had great weight with me in advising the loss of blood, more especially as his ideas of the highly inflammatory nature of the fever, accorded so perfectly with my own.
8. I was induced to prescribe blood-letting by recollecting it's good effects in Mrs. Palmer's son, whom I bled on 20th of august; and who appeared to have been recovered by it.

Post Discussion Questions:

Do Dr. Rush's remedies surprise your students since he was such a proponent of empirical science?

Do your students have any hypotheses to explain the discrepancy?

Ask students who they think was the intended audience for this "Account"?

Based on these recommendations for treatment, what does this tell us about the beliefs of 18th century medicine.

Teacher Note

Doctors of the period believed an imbalance in any one of the four humours (blood, yellow bile, black bile, phlegm) lead to illness. By this point students will understand that Yellow Fever was believed to be a contagious disease. While Rush advocated bloodletting and purging he also endorsed isolation, reduce exposure to sun and burning of gun powder.

Closure: Ticket Out the Door or Exit Slip

At the very end of the lesson ask students to answer this prompt on an index card:

Describe Dr. Benjamin Rush to a seventh grader who has not studied this unit and has no knowledge of 18th century medicine or Dr. Rush. In addition to stating facts, how would characterize him.

Post trip lesson

Yellow Fever Today: Jigsaw Experts

- 1. Place students in groups of five. Assign each group of the following topics from the CDC website link <http://www.cdc.gov/yellowfeverwebsite>: Prevention, Vaccine, Transmission, Symptoms /Treatment and Maps.**
- 2. Each group is responsible to learn as much as they about their topic so that they can teach their fellow students.**
- 3. After each student group has gained expertise in their area, regroup the students with one expert from each expert group to form new groups.**
- 4. Now have each student share their information with their fellow students.**