When the great influenza epidemic struck Philadelphia in 1918, the author was just starting his third year at the University of Pennsylvania School of Medicine. After a single lecture on influenza, classes for the third and fourth year students were suspended while he and his mates manned an emergency hospital, in which they worked under little or no medical supervision and in the presence of an alarming patient mortality. This essay describes what happened in the hospital, and in the city as a whole, during the pandemic. Certain features of the clinical course of most patients permit the hope that modern therapy will prevent a repetition of the horrendous mortality.

For author affiliation, see end of text.
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While this was going on in my ward, the life of the 

city had almost stopped. Public assembly was forbidden, so 

there were no plays, movies, concerts, or church services. 

Schools were closed. Some stores and businesses stayed 

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Joseph Stokes Jr., MD [1896–1972], was Chairman, De-

partment of Pediatrics, School of Medicine, University of 

Pennsylvania.)

Soon the beds were full, but nobody on my floor was 

very ill. The patients had fever but little else. Many seemed 
to have sought admission chiefly because everybody in the 

family was sick and no one was left at home who could 
take care of them.

Unhappily the clinical features of many soon changed 
dramatically. As their lungs filled with rales the patients 

became short of breath and increasingly cyanotic. After gasp-
ing for several hours they became delirious and inconti-

ent, and many died struggling to clear their airways of a 

blood-tinted froth that sometimes gushed from their nose 

and mouth. It was a dreadful business.

Thinking of my function as that of a nurse, I was 

prepared to carry out the orders given me. But for most 

patients there were no orders, and many died without hav-

ing been seen by any medical attendant but me.

The doctors who put in an occasional appearance were 

drawn chiefly from among specialists long retired. They 
did their best. I recall a laryngologist who seeing herpes 

labialis on a gasping cyanotic patient was much interested 
in it and prescribed application of guaiac. Another old 

physician showed me how to do “cupping,” and I became 

expert in lighting a wisp of cotton in a tumbler and apply-

ing its rim to the skin without burning the patient. An-

other ordered digitalis for a dying patient in dosage many 
times that which I had been taught was maximal; it was 

not given.

One doctor bawled me out for not keeping the win-

dows open, a standard practice in the treatment of pneu-

monia at the time; I was undoubtedly remiss and deserved 

the reprimand. But not long afterward there was shouting 

from the street, and we discovered that Mike the piano 
mover was poised on the window ledge ready to jump. 

Gathering the medical cohorts we converged on him, di-

verted his attention, rushed him, seized his arms and legs, 
carried him triumphantly back to bed, and strapped him 
in. But a little later there was another commotion on the 

ward; Mike, delirious, had turned the bed over on top of 
himself and was moving it up the ward on his back. He 

lasted only a few hours after this.

Then there was the Jewish family whose 18-year-old 
daughter was desperately ill. She was flushed with fever, 

and to my eye she was very beautiful. Father, mother, 

brothers, and sisters had gathered around, and they would 

not leave her. After suffering for a few days, it was she who 

left them.

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the camphor. On some occasions the pulse picked up after 
such an injection, but I was too busy and too fatigued to 

get real evidence. And the patients soon died nevertheless. 

We had some tanks of oxygen but no effective way of 

administering it. (John Scott Haldane [1860–1936] had 

already initiated oxygen therapy in Great Britain [2].) 

Therefore our attempts at therapy were exercises in futility, 

but perhaps our efforts served to keep me and everyone else 

too busy to notice how useless they were.

Thus my patients who often entered the ward with 

what appeared to be a minor illness became in a few days 
delirious and incontinent, gasping for breath and deeply 
cyanicotic. After a day or two of intense struggle, they died. 

When I returned to duty at 4 p.m. I found few whom I 

had seen before. This happened night after night. I think it 

likely that those charged with admissions, in the laudable 

aim of separating patients who might recover from those 

obviously destined to die, were concentrating the latter in 

my ward on the top floor. The deaths in the hospital as a 

whole exceeded 25% per night during the peak of the 

epidemic. To make room for others the bodies were being 
tossed from the cellar into trucks, which when filled carted 

them away.

When our burdens were at their worst, we began to 

get help from unexpected sources. A nun stopped me in 

the hall, said she had been given my name and that she and 
some other sisters were eager to help. Of these, three wore 

the black habits of the ordinary Sisters of Charity. Three 

others in white habits belonged to a cloistered order and, I 

was informed, had been given special permission by the 
bishop to work in the hospital for the duration of the 

emergency. A Catholic priest arrived to give extreme unc-
tion to the dying; there were so many of these he had time 

for little else. Two Protestant clergymen arrived together 

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Stokes and I often counted the cars we passed while mo-
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gency hospital in center city; on one of our midnight trips we passed no cars at all.

A widow of great wealth living with her servants in a large house in the suburbs was taken ill and died without being able to secure the services of either doctor or nurse. The medical students not assigned to the emergency hospital, using cars bearing medical insignia, would motor into the city’s slums and stop to be immediately surrounded by a crowd imploring them to see friends or relative sick nearby. There was a frightful mortality among pregnant young women.

The reinforcements to our staff got things going better on the ward. Soon all patients were fed promptly, the incontinent were cleaned up without too much delay, the moribund were screened from general view, and the dead were removed promptly. After about 2 weeks the deaths on the top floor began to diminish, and then they diminished rapidly. While chronic pulmonary disease such as empyema and bronchiectasis because a problem for some of those who survived the acute attack, after 3 weeks the worst was clearly over.

A mild febrile disease, identified as part of the epidemic only by the fact that there was no other explanation for it, appeared in the population with decreasing frequency for the next few weeks. I came down with this myself and was sick for a few days only. So, as mysteriously as it had come, the killer departed.

After about 5 weeks medical classes resumed, and our lives slowly returned to normal.

Lessons for the Future?

As I look back on those unforgettable medical experiences, I can hardly believe that they took place nearly 60 years ago and that I am one of the few remaining American physicians who served during this great tragedy. Recent alarm about the possibility of another epidemic has prompted me to record my experiences in the last one, in the hope that medical attendants will be better prepared for what they might have to face than were we. Our experience in Philadelphia was not unique, and the main features of the clinical picture in 1918 deserve emphasis.

The dual character of the illness seemed obvious. The initial features were those of a febrile disease of only moderate severity; after a week or more most patients recovered uneventfully. But a distressing number, after several days of the same mild illness, suddenly developed pulmonary complications of devastating severity. At its maximum the cyanosis reached an intensity that I have never seen since. Indeed the rumor got about that the “black death” had returned, and I have no doubt that the cyanosis accompanying the medieval pneumonic plagues was very similar in its physiologic origin to that which I saw in my patients. At the height of the epidemic about one fifth of the total patient population of the emergency hospital died each night. Seeing one case after another go to pieces after admission to our hospital made us wonder whether there was a reservoir of infection in the hospital itself that was responsible for the heavy mortality. The fact that the medical attendants who worked there were so largely spared makes this hypothesis most unlikely; none of my classmates died, and very few became ill. Perhaps the masks, gowns, and handwashing did more to protect us than we had a right to expect. Certainly, with death all around us, we had every encouragement to be as careful as we could, but we were so busy and so tired that we forgot about precautions, and patient after patient coughed into our faces as we tended to their needs.

There is good reason to believe that a future epidemic could be handled much more effectively than was the last. The possibilities of prevention inherent in the new vaccines I am incompetent to judge. While certainly not proved, the hypothesis that the initial mild illness was of viral origin and the pulmonary complications of bacterial origin fits the facts as we saw them in 1918. If the antibiotics available today will prevent or cure the complicating pneumonia, as they do bacterial pneumonias of so many other types, there should be little or no mortality in a future epidemic of influenza.

From University of Pennsylvania School of Medicine, Philadelphia, Pennsylvania.


References