Entrance examination of the HIGO program, Kumamoto University

Short Essay

Duration of examination 90 min

Attention

1. Please check to ensure all pages are present in the correct order. There are 14 pages (this cover sheet, 8 pages of question sheets and 5 pages of answer sheets).
2. There are two questions, I and II. Select either question to be answered.
3. Use the answer sheets of the selected question and write your applicant number at the top of each answer sheet.

I Read the sentences below and answer the following questions:

Pam is an eighteen-year-old with a history of depression. She has been hospitalized for the past six months for severe weight loss and dehydration. When admitted, she was diagnosed with acute inflammation of the pancreas* and gall bladder**, but it became clear that these issues were secondary to a diagnosis of anorexia*** nervosa. Her weight upon admission was seventy-six pounds. Pam refuses to accept this diagnosis and will not cooperate with any provider who refers to "anorexia" or attempts to discuss her eating disorder.

As a pragmatic strategy for providing care, the medical team has largely avoided referring to anorexia or eating disorders when treating her. But Pam is not the only problem. Pam's mother, the only family member directly involved in her care, also refuses to acknowledge her daughter's anorexia and has supported Pam's extremely restrictive requests to control her hospital meals as she regains her ability to eat by mouth. Prior to admission, Pam was living at home with her mother. She has no contact with her father.

Now that Pam's acute condition has improved, the medical team worries that any further complexity in her denial of her anorexia will hinder attempts to begin eating disorder treatment protocols. Consultants from adolescent medicine and psychiatry tried having a frank discussion with Pam and her mother about Pam's underlying eating disorder. This conversation only succeeded in making them both angry. Her mother ultimately threatened to "fire" these physicians.

The medical team and hospital decided to pursue involuntary commitment**** to treat Pam's anorexia if she does not agree to treatment. Yet when consulting surgeon recommends that Pam's gallbladder be removed, Pam is allowed to consent to surgery. Soon thereafter she is evaluated by a mental health professional, who decides that Pam does not meet criteria for involuntary commitment. Pam insists she be discharged.

Her primary nurse couldn't help but wonder: does Pam have the capacity to make medical decisions, or doesn't she?

(From *The Hastings Center Report*, Vo.40, No.6, 2010)

*pancreas: an organ near the stomach that produces insulin and liquid that helps the body to digest food

**gall bladder: an organ attached to the liver in which bile is stored

***anorexia: an emotional disorder, especially affecting young women, in which there is as abnormal fear of being fat, causing the person to stop eating, leading to dangerous weight loss

****involuntary commitment: a legal process whereby an individual with symptoms of severe mental illness is court-ordered into treatment

Question A: Provide an answer to the wonder of her primary nurse and state the reason for it. (within 200 words)

Question B: What do you suppose is the best behavior for the medical team? And why is it the best?
(within 400 words)

II Read the article of Nate Silver, discuss the appropriate role and responsibility of policy makers and scientists in prevention of infectious diseases.

Answers should range from one to two (1-2) pages; please do not write more than two (2) pages.

Nate Silver
The Signal and the Noise

7

ROLE MODELS

The flu hit Fort Dix like clockwork every January; it had almost become a rite of passage. Most of the soldiers would go home for Christmas each year, fanning out to all corners of the United States for their winter break. They would then return to the base, well-fed and well-rested, but also carrying whichever viruses might have been going around their hometowns. If the flu was anywhere in the country, it was probably coming back with them. Life in the cramped setting of the barracks, meanwhile, offered few opportunities for privacy or withdrawal. If someone—anyone—had caught the flu back home, he was more likely than not to spread it to the rest of the platoon. You could scarcely conjure a scenario more favorable to transmission of the disease.

Usually this was no cause for concern; tens of millions of Americans catch the flu in January and February every year. Few of them die from it, and young, healthy men like David Lewis, a nineteen-year-old private from West Ashley, Massachusetts, who had returned to Fort Dix that January, are rarely among the exceptions. So Lewis, even though he'd been sicker than most of the recruits

and ordered to stay in the barracks, decided to join his fellow privates on a fifty-mile march through the snow-blanketed marshlands of central New Jersey. He was in no mood to let a little fever bother him—it was 1976, the year of the nation's bicentennial, and the country needed order and discipline in the uncertain days following Watergate and Vietnam.[1]

But Lewis never made it back to the barracks: thirteen miles into the march, he collapsed and was later pronounced dead. An autopsy revealed that Lewis's lungs were flush with blood: he had died of pneumonia, a common complication of flu, but not usually one to kill a healthy young adult like Lewis.

The medics at Fort Dix had already been nervous about that year's flu bug. Although some of the several hundred soldiers who had gotten ill that winter had tested positive for the A/Victoria flu strain—the name for the common and fairly benign virus that was going around the world that year[2]—there were others like Lewis who had suffered from an unidentified and apparently much more severe type of flu. Samples of their blood were sent to the Center for Disease Control (CDC) in Atlanta for further testing.

Two weeks later the CDC revealed the identity of the mysterious virus. It was not a new type of flu after all but instead something altogether more disturbing, a ghost from epidemics past: influenza virus type H1N1, more commonly known as the swine flu. H1N1 had been responsible for the worst pandemic in modern history: the Spanish flu of 1918–20, which afflicted a third of humanity and killed 50 million,[3] including 675,000 in the United States. For reasons of both science and superstition, the disclosure sent a chill though the nation's epidemiological community. The 1918 outbreak's earliest manifestations had also come at a military base, Fort Riley in Kansas, where soldiers were busy preparing to enter World War I.[4] Moreover, there was a belief at that time—based on somewhat flimsy scientific evidence—that a major flu epidemic manifested itself roughly once every ten years.[5] The flu had been severe in 1938, 1947, 1957, and 1968;[6] in 1976, the world seemed due for the next major pandemic.

A series of dire predictions soon followed. The concern was not an immediate outbreak—by the time the CDC had positively identified the H1N1 strain, flu season had already run its course. But scientists feared that it foreshadowed something much worse the following winter. There had never been a case, a

prominent doctor noted to the *New York Times*,[7] in which a newly identified strain of the flu had failed to outcompete its rivals and become the global hegemon: wimpy A/Victoria stood no chance against its more virulent and ingenious rival. And if H1N1 were anywhere near as deadly as the 1918 version had been, the consequences might be very bad indeed. Gerald Ford's secretary of health, F. David Mathews, predicted that one million Americans would die, eclipsing the 1918 total.[8]

President Ford found himself in a predicament. The vaccine industry, somewhat like the fashion industry, needs at least six months of lead time to know what the hip vaccine is for the new season; the formula changes a little bit every year. If they suddenly had to produce a vaccine that guarded against H1N1—and particularly if they were going to produce enough of it for the entire nation—they would need to get started immediately. Meanwhile, Ford was struggling to overcome a public perception that he was slow-witted and unsure of himself—an impression that grew more entrenched every weekend with Chevy Chase's bumbling-and-stumbling caricature of him on NBC's new hit show, *Saturday Night Live*. So Ford took the resolute step of asking Congress to authorize some 200 million doses of vaccine, and ordered a mass vaccination program, the first the country had seen since Jonas Salk had developed the polio vaccine in the 1950s.

The press portrayed the mass vaccination program as a gamble.[9] But Ford thought of it as a gamble between money and lives, and one that he was on the right side of. Overwhelming majorities in both houses of Congress approved his plans at a cost of $180 million.[10]

By summer, however, there were serious doubts about the government's plans. Although summer is the natural low season for the flu in the United States,[11] it was winter in the Southern Hemisphere, when flu is normally at its peak. And nowhere, from Auckland to Argentina, were there any signs of H1N1; instead, the mild and common A/Victoria was the dominant strain again. Indeed, the roughly two hundred cases at Fort Dix remained the only confirmed cases of H1N1 anywhere in the world, and Private Lewis's the only death. Criticism started to pour in from all quarters: from the assistant director of the CDC,[12] the World Health Organization,[13] the prestigious British medical journal *The Lancet*,[14] and the editorial pages of the *New York Times*, which was al-

ready characterizing the H1N1 threat a "false alarm."[15] No other Western country had called for such drastic measures.

Instead of admitting that they had overestimated the threat, the Ford administration doubled down, preparing a series of frightening public service announcements that ran in regular rotation on the nation's television screens that fall.[16] One mocked the naïveté of those who refused flu shots—*"I'm the healthiest fifty-five-year-old you've ever seen—I play golf every weekend!"* the balding everyman says, only to be shown on his deathbed moments later. Another featured a female narrator tracing the spread of the virus from one person to the next, dishing about it in breathy tones as though it were an STD—"Betty's mother gave it to the cabdriver . . . and to one of the *charming* stewardesses . . . and then she gave it to her friend Dottie, who had a heart condition and died."

The campy commercials were intended to send a very serious message: *Be afraid, be very afraid.* Americans took the hint. Their fear, however, manifested itself as much toward the vaccine as toward the disease itself. Throughout American history, the notion of the government poking needles into everyone's arm has always provoked more than its fair share of anxiety. But this time there was a more tangible basis for public doubt. In August of that year, under pressure from the drug companies, Congress and the White House had agreed to indemnify them from legal liability in the event of manufacturing defects. This was widely read as a vote of no-confidence; the vaccine looked as though it was being rushed out without adequate time for testing. Polls that summer showed that only about 50 percent of Americans planned to get vaccinated, far short of the government's 80 percent goal.[17]

The uproar did not hit a fever pitch until October, when the vaccination program began. On October 11, a report surfaced from Pittsburgh that three senior citizens had died shortly after receiving their flu shots; so had two elderly persons in Oklahoma City; so had another in Fort Lauderdale.[18] There was no evidence that any of the deaths were linked to the vaccinations—elderly people die every day, after all.[19] But between the anxiety about the government's vaccination program and the media's dubious understanding of statistics,[20] every death of someone who'd gotten a flu shot become a cause for alarm. Even Walter Cronkite, the most trusted man in America—who had broken from his trademark austerity to admonish the media for its sensational handling of the

story—could not calm the public down. Pittsburgh and many other cities shuttered their clinics.[21]

By late fall, another problem had emerged, this one far more serious. About five hundred patients, after receiving their shots, had begun to exhibit the symptoms of a rare neurological condition known as Guillain–Barré syndrome, an autoimmune disorder that can cause paralysis. This time, the statistical evidence was far more convincing: the usual incidence of Guillain–Barré in the general population is only about one case per million persons.[22] In contrast, the rate in the vaccinated population had been ten times that—five hundred cases out of the roughly fifty million people who had been administered the vaccine. Although scientists weren't positive why the vaccines were causing Guillain–Barré, manufacturing defects triggered by the rush production schedule were a plausible culprit,[23] and the consensus of the medical community[24] was that the vaccine program should be shut down for good, which the government finally did on December 16.

In the end, the outbreak of H1N1 at Fort Dix had been completely isolated; there was never another confirmed case anywhere in the country.[25] Meanwhile, flu deaths from the ordinary A/Victoria strain were slightly below average in the winter of 1976–77.[26] It had been much ado about nothing.

The swine flu fiasco—as it was soon dubbed—was a disaster on every level for President Ford, who lost his bid for another term to the Democrat Jimmy Carter that November.[27] The drug makers had been absolved of any legal responsibility, leaving more than $2.6 billion in liability claims[28] against the United States government. It seemed like every local paper had run a story about the poor waitress or schoolteacher who had done her duty and gotten the vaccine, only to have contracted Guillain–Barré. Within a couple of years, the number of Americans willing to take flu shots dwindled to only about one million,[29] potentially putting the nation in grave danger had a severe strain hit in 1978 or 1979.[30]

Ford's handling of H1N1 was irresponsible on a number of levels. By invoking the likelihood of a 1918-type pandemic, he had gone against the advice of medical experts, who believed at the time that the chance of such a worst-case outcome was no higher than 35 percent and perhaps as low as 2 percent.[31]

Still, it was not clear what had caused H1N1 to disappear just as suddenly as it emerged. And predictions about H1N1 would fare little better when it came back some thirty-three years later. Scientists at first missed H1N1 when it reappeared in 2009. Then they substantially overestimated the threat it might pose once they detected it.