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Undergraduate

ACCIDENTAL HOSPITAL DEATHS:

AN EXAMINATION OF A PRESSING PUBLIC HEALTH CONCERN

Prashant Bhat

Fifteen-year-old Nile Moss visited an Orange County hospital for an MRI in 2006. Arriving home later that day, Nile developed a high fever and was admitted to the hospital, where an x-ray revealed he had developed a severe case of pneumonia. At his age, doctors deemed the case nothing too serious to worry about—they planned to administer a couple antibiotics; he'd be back to normal in a few days. He would be able to make it to the school dance the week after next, hang out with his friends, the usual. Rather unexpectedly, he died the next morning. A teenager who came in originally for an MRI scan, something no one associates with an infection-bearing instrument, died in less than 72 hours because of the negligence of hospital staff. Hospital staff had failed to check if he had developed Methicillin-Resistant Staphylococcus Aureus (MRSA), the leading cause of hospital acquired infections in the United States (Imholz, 2008). MRSA is transmitted from skin to skin contact, or transmitted into another human via unclean hospital room instruments. MRSA attacked Nile's bloodstream, and it was the negligence of hospital staff to ensure a sterile environment and perform the appropriate tests to check for the root of the problem.

Hospital staff and doctors bear a strong responsibility to effectively tend to patients and administer the appropriate care—an effort ultimately leading to healthier individuals. However, a pressing problem in both urban and rural hospitals nationwide involves the failure of health personnel to follow sterile techniques when treating patients, resulting in unanticipated bacterial infections killing thousands of otherwise healthy patients. In fact 9600 patients in California alone die due to hospital infections in the same manner as Nile Moss died (Imholz, 2008). The United States boasts its position internationally as the leader in medical advances, but few regulatory agencies have reprimanded the life-threatening errors surgeons, physicians, and nurses make due to operation room stress and a lack of communication among staff. Accidents happen, but “accidentally” contracting an infection leading to death is unacceptable, though avoidable. Hope exists to diminish the 48,000 people who die annually from hospital-acquired infections (Falco, 2010). Both economic and moral lessons vie for a total reduction of these accidents; an examination of

the type of infections transmitted and subsequently what can be done to prevent central line infections will shed light on the existing crisis and how hospitals can curb the possibility of spreading disease in the patients' rooms.

“Hospital staff and doctors bear a strong responsibility to effectively tend to patients and administer the appropriate care”

THE MAIN ISSUE

The most common way bacterial infections are transmitted to patients during treatment is through central venous catheters, which are primarily used to transfer blood, nutrients, and other essential fluids to an ailing body (Landro, 2011). When a catheter is kept inside a patient for more than a couple days, chances of contracting a bacterial infection increase, especially if health personnel fail to follow sterile precautionary measures. In this manner, MRSA infects hundreds of hospital patients daily, and often enters the bloodstream, primarily causing skin infections (Rhode Island Department of Health, 2011). In turn, MRSA is resistant to certain antibiotics, thus obstructing the path for patient recovery.

WHY THE ISSUE IS PREVALENT, AND HOW IT IS EASILY AVOIDABLE

Incidentally, hospital staff including surgeons, surgical staff, nurses, and anesthesiologists specialize in particular subfields; when patients come zipping in to the surgery room, a time-window constrains the amount of time the staff has to put the patient to sleep, make the incision, and finish surgery before the anesthesia wears off. All this while, among the clamor of carrying out orders and assisting other patients, hospital staff must correctly execute an average of 178 daily tasks for each patient (Gawande, 2009). Failure

“Among the clamor of carrying out orders and assisting other patients, hospital staff must correctly execute an average of 178 daily tasks for each patient”

to fulfill any one of these tasks can lead to deleterious consequences. Simple and perhaps seemingly frivolous tasks such as injecting an antibiotic to a person prior to surgery or wiping the skin with chlorhexidine (a special type of antibacterial soap) before inserting the line become hazy when there are 178 other tasks to be completed effectively. Of the five million lines injected into patients each year in the United States, at least eighty thousand patients develop line infections, in which fatalities reach up to a staggering 28% of those infected.

Several studies in the United States have diminished the outbreak of line infections among patients, where simple checklists remind staff to follow a standard protocol before utilizing a central venous catheter. Dr. Peter Provonost of Johns Hopkins Medical Center and Dr. Atul Gawande of Harvard Medical School both are strong proponents of these checklists, as they discuss the documented evidence of the benefits utilizing checklists in hospitals in their respective books, “Safe Patients, Safe Hospitals” and “The Checklist Manifesto”. A case study in a Michigan hospital adopted the checklist program over the course of a few months, and the results were remarkable; central line infections decreased dramatically. However, another key factor in the success rate can be attributed to the increased teamwork among hospital staff; part of the study required hospital staff to introduce themselves to one another prior to beginning surgery, which resulted in better communication and teamwork during surgery, and ultimately not failing to administer the proper care for the patient. A survey of nurses conducted by Dr. Provonost asked, “If you saw a senior physician not comply with the checklist, would you speak up and would the physician comply?” and the overwhelming majority said: no. With better communication among hospital staff, including nurses and physicians, a greater sense of comfort captivates the patient room, thus allowing everyone present to check all sterile procedures are followed. The hospitals that have adopted the checklist program, thus ensuring a sterile atmosphere for both the instruments and the patients, continue to witness a low rate of central line infections.

So the problem seems to be easily solvable and simple to avert, right? Not exactly. Only a very few amount of hospitals have adopted this checklist program, either deeming it a scandal or an added burden to the hundreds of other important tasks hospital staff need to complete on a daily basis. But the problem still prevails; thousands still acquire hospital infections due to ignorance of hospital staff to administer the right care to patients. Strikingly, estimates show that keeping patients who have acquired hospital infections extra days amounts to \$8.1 billion annually to health care costs, a seemingly unimaginable number considering how the issue is avertable. Thus, not only are lives being lost, but a significant amount of money as well.



Sterile measures during open-heart surgery. In addition to gloves, masks, and full body drapes, the instruments used during surgery must be sterilized and not come in contact with any other person's skin prior to incision.

HOW TO MOVE FORWARD

Hospital-acquired infections still take thousands of lives today, but not as many as a decade ago when hospitals did not take initiative to circumvent the unanticipated diseases. Progress has been made, and studies claiming successful reduction in infection rates provide sound evidence that hospitals can indeed eradicate hospital-acquired infections.

BSJ interviewed Susan Comninel, a research nurse who has led efforts to increase sterile measures among hospital staff at Columbia University Medical Center (CUMC). Comninel has given in-services to many nurses and doctors on hand hygiene and the importance of following protocol for ensuring safer patients. “When I was in the Infection Control Dept,” Comninel recalls, “nurses would flush the line or instill medications and then cover using the same cap that was on to begin with. It is mandatory that a new sterile cap should be used when doing this and this is [both] taught and enforced.” It is reassuring hospitals

The Pronovost Checklist

Central venous catheters, or lines, are used for medications, blood, fluids or nutrition and can stay in for days or weeks. But bacteria can grow in the line and spread a type of infection to the bloodstream, which causes death in one out five patients who contract it. This five-step checklist for doctors and nurses to use before inserting a line can prevent infections and death.

1. Wash hands with soap and water or an alcohol cleanser

2. Wear sterile clothing—a mask, gloves, and hair covering—and cover patient with a sterile drape, except for a very small hole where the line goes in

3. Clean patient's skin with chlorhexidine (a type of soap) when the line is put in

4. Avoid veins in arm and leg, which are more likely to get infected than veins in chest

5. Check the line for infection each day and remove when no longer needed

Source: Dr. Peter Pronovost

Dr. Pronovost's simple checklist for hospital staff. Fulfilling these simple tasks leads to a dramatic reduction in hospital acquired infections.

educate hospital personnel on small details that can potentially avert disease propagation. Comninel also discussed common protocol that all physicians, nurses, and other staff are expected to follow: "Dressings must be changed every 7 days or sooner if need be, sterile technique must be used, [and] hand hygiene is also extremely important. Bacteria can migrate up a line and infect a patient so it is of the utmost importance that hands are washed or [hand sanitizer] is used prior to any procedure as well as between each patient or entering or leaving a room. Secret observers watch in each unit to actually count how many staff do and do not use hand hygiene appropriately" (Comninel, 2011).

Hospitals must adopt a standard protocol in order to ensure that physicians, surgeons, nurses, and

other staff use gloves, wash hands with antibacterial soap, wipe the surface of patients' skin with chlorhexidine, and check the line for infection each day to avoid any chance of transmitting an unanticipated infection. For both Drs. Pronovost and Gawande, checklists have worked and decreased medical error among hospitals, consequently saving thousands of lives. Whether it is a checklist, mandatory sterile safety training, or something of the sort, "accidental" hospital deaths need to be averted, since this issue completely counters the primary goal of health care: helping people rather than killing them.

Comninel provided a hopeful story of a MRSA outbreak in the newborn unit at New York Presbyterian Hospital—Cornell Campus. "It was a lot of work eliminating the cause and involved having one of the infection control nurses on the unit observing, training and intervening every single day. It was a challenge to make sure the portable thermometer did not just get dropped into the next baby isolette after being used. Obvious way to spread MRSA from baby to baby if the thermometer is not de-germed in between." However, it was the teamwork of the doctors, nurses, and technicians to communicate and follow sterile measures and protocol in a timely manner that proved to be effective in the end; all babies were safe, and the MRSA was eventually eliminated. This type of prompt action to eliminate any chance of unanticipated infections would have prevented thousands like Nile Moss from dying. Doctors are supposed to be the good guys, and they certainly will continue to be once hospitals start regulating the sterile measures needed to prevent the onset of hospital-acquired infections.

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