

34 Enhance Prevention of Healthcare-Associated Infections

Situation

A healthcare-associated infection (HAI), also known as a nosocomial infection, is an infection that a patient contracts while receiving treatment for another condition in a healthcare facility.¹ Patients who are hospitalized, especially patients in critical care units, are constantly at risk of developing nosocomial infections. Patients who incur these infections are hospitalized longer as a result of the infection, and require treatment, leading to higher overall costs for hospitals and payers.^{2,3} A recent study of stroke patients in 36 Japanese hospitals showed a HAI incidence rate of 16.4 percent. Patients who contracted HAIs paid on average the equivalent of an additional USD3,067 in medical fees and remained hospitalized for an additional 16.3 days.⁴

HAIs are preventable. A study evaluating 30 reports on HAIs concluded that “great potential exists to decrease nosocomial infection rates, from a minimum reduction effect of 10 percent to a maximum reduction effect of 70 percent.”⁵ It is well documented that the adoption and implementation of infection control guidelines and programs by hospitals reduces the HAI infection rate, thereby reducing the attributed length of stay and associated costs.⁶

According to the Agency for Healthcare Research and Quality (AHRQ), a research agency within the U.S. Department of Health and Human Services (HHS), “serious HAIs that lead to extended hospital stays, and ultimately increased cost and risk of mortality, include bloodstream infections (BSIs), catheter-associated urinary tract infections (CAUTIs), surgical site infections (SSIs), and ventilator-associated pneumonia (VAP). These four infections account for more than 80 percent of all HAIs.”⁷

Many of these infections are resistant to treatment with antibiotics, leading to serious illnesses, debilitating post-treatment effects, and

in some cases death. Some bacteria that cause HAIs can survive in the healthcare environment, including on medical devices, surgical tools, unwashed hands, and the clothing of hospital personnel, and are easily transmitted from patient to patient when healthcare professionals do not observe good infection control practices.

Active surveillance and “bundled” infection control practices are the solution for preventing HAIs. By knowing in advance that a patient is a carrier of an infectious pathogen, healthcare workers and facilities are better able to take appropriate actions to control and prevent the spread of infection. Special infection prevention programs, such as decontamination before surgery, can help protect patients. Active surveillance is most effective when all hospital in-patients are screened at the time of admission. Active surveillance is most important for patients in intensive care units and emergency rooms and for all high-risk patients, such as those who are immunocompromised or undergoing long-term hospitalization. Active surveillance is not intended to serve as a substitute for the diagnosis of infection. Rather, active surveillance has been found to be an effective tool that healthcare facilities can use for the detection and control of infectious pathogens such as methicillin-resistant *Staphylococcus aureus* (MRSA), vancomycin-resistant *Enterococcus* (VRE), the human immunodeficiency virus (HIV), and hepatitis viruses.

Current Policy

In April 2007, the medical law of Japan was amended to obligate all healthcare institutions in Japan to take measures to secure safety in operation with regard to HAIs. The enforcement ordinance for this amendment includes four core mandates:

1. Execute hospital infection prevention guidelines.
2. Hold hospital infection prevention committee meetings.

3. Implement infection prevention training for employees.
4. Report infectious disease incidence status.

Healthcare institutions not implementing these infection prevention methods may be inspected.

In addition, the Ministry of Health, Labour and Welfare (MHLW) Ministerial Ordinance Official Notice for Infection Prevention in Healthcare Facilities was issued on June 17, 2011. The notice contains guidance regarding the following:

1. Establishing an infection control team and its role.
2. Collaboration between institutions for cases that individual institutions cannot handle, including outbreaks caused by multidrug-resistant bacteria.
3. Criteria on suspected outbreaks and requirements for reporting to health centers. However, the problem remains that, should there be an outbreak of infection at a noncompliant hospital, there is no penalty other than a reprimand for not upholding social responsibility. Stronger infectious disease control mandates are needed.

Japan has worked hard in recent years to enhance surveillance and infection prevention and control nationwide.

Since 2000, Japan Nosocomial Infections Surveillance (JANIS), a Ministry of Health, Labor and Welfare (MHLW) national surveillance program, has targeted infection reporting at approximately 2,100 hospitals with >200 beds. Currently over 1,300 hospitals (including over 70 percent of all hospitals with >500 beds) voluntarily participate in the JANIS program.

Since 2008, the ACCJ targeted the need for increasing hospital resources to implement enhanced infection prevention and control and to expand mandated HAI surveillance. In April 2010, for the first time, the MHLW established an additional fee for infection prevention and

control, a JPY1,000 per patient upon admission medical fee for hospitals with >300 beds in an effort to encourage enhance infection prevention and control.

In April 2012, this fee was increased five-fold to a maximum of JPY5,000 for “Infection prevention and control additional fee 1-hospitals” and expanded to include smaller hospitals with JPY1,000 per patient upon admission for “Infection prevention and control additional fee 2-hospitals.” Further progress was made in January 2014, when the scope of the JANIS program was expanded to cover the over 5,500 hospitals of <200 beds. Though hospital infection reporting remains voluntary for hospital <300 beds, infection reporting is now mandatory for “Infection prevention and control additional fee 1-hospitals” in order to qualify for the up to JPY5,000 per patient upon admission medical fee targeting implementation of enhanced infection prevention and control. Continued government funding of infection prevention and control and the expansion the JANIS program from 2,100 larger hospitals to as many as 7,600 hospitals, large and small, should increase surveillance and enhance infection prevention and control practices at hospitals throughout Japan.

A further milestone was reached in April 2014 when the MHLW for the first time mandated infection reporting by “Infection prevention and control additional fee 1-hospitals” as a condition to continued qualification for the per patient reimbursement fee. This mandate to report is the first such mandate by the MHLW to ensure that at least some portion of the per patient fee is used to actually enhance infection prevention and control. The Infection Reporting will also allow the MHLW to measure infection incidence. In time we hope that the MHLW will mandate further actions to enhance infection prevention and control and reduce infection incidences over time.

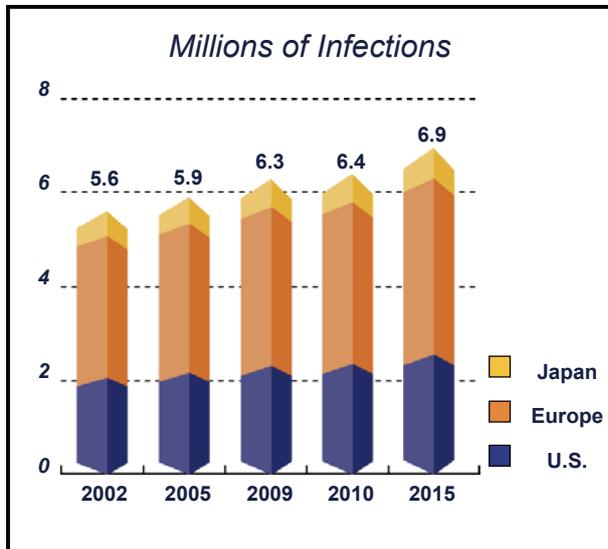
Recommendations

- Develop a comprehensive HAI prevention strategy, including “bundling” of proven infection control practices, education, and cultural change. Such a strategy should consider the impact that enabling technologies, such as rapid molecular diagnostic testing and novel medical devices, have in improving patient safety and reducing HAIs. Information technology should also be utilized to enhance implementation of HAI surveillance and prevention.
- Based on JANIS data, clearly define reasonable HAI prevention targets for healthcare institutions and measure progress over time. Wherever possible, establish baseline HAI incidence rates, using standardized metrics to allow measurement of hospital-specific progress in achieving prevention targets.
- Provide incentives, including rewards and penalties, to promote compliance with HAI prevention targets. Every healthcare facility should develop and maintain a comprehensive HAI control and reduction plan that is consistent with current standards of care and best practices. Facilities that fail to develop, implement, and maintain a current HAI control and reduction plan should face sanctions until they are compliant.
- Coordinate efforts at government and institutional levels with stakeholder support. Prevention and reduction of HAIs will require a concerted effort by all healthcare institutions, with engagement and leadership from policy-setting bodies at different levels of government and with the support of stakeholder organizations.
- Provide the Japanese government with adequate resources, in addition to international, local, and institutional efforts. This also includes identifying and prioritizing gaps in HAI research.
- Implement active surveillance, early screening, detection, and monitoring in the healthcare setting of infectious pathogens, such as multidrug-resistant organisms and bacteria, as well as the well-known pathogens, MRSA, VRE, *Clostridium difficile*, HIV, and hepatitis viruses.
- Develop reimbursement incentives for facilities that implement active surveillance and periodic environmental monitoring for microbial contaminants such as MRSA.
- Expand international cooperation by exchanging best practices and encourage Japan and all 21 Asia-Pacific Economic Cooperation (APEC) member economies to support the current effort by the APEC Life Sciences Innovation Forum to fight HAIs through enhanced infection prevention and control region wide.

References

1. U.S. HHS. Agency for Healthcare Research and Quality, www.ahrq.gov/qual/haiflyer.htm.
2. Lee, J., Imanaka, Y., Sekimoto, M., Ikai, H., Otsubo, T. 2011. Healthcare-associated infections in acute ischaemic stroke patients from 36 Japanese hospitals: risk-adjusted economic and clinical outcomes. *Int J Stroke* 6:16 – 24.
3. Chen, Y., et al. 2009. Incidence rate and variable cost of nosocomial infections in different types of intensive care units, *Infect Control Hosp Epidemiol* 30:39 – 46.
4. Lee, J., et al. Op. cit.
5. Harbarth, S. 2003. The preventable proportion of nosocomial infections: an overview of published reports, *Journal of hospital infection* 54:258 – 266.
6. Rosenthal, V., et al. 2010. International nosocomial infection control consortium (INICC) report, data summary for 2000 – 2008 issued June 2009, *American Journal of Infection Control* 38:95 – 106.
7. www.who.int/gpsc/statements/countries/cah_japan_pledge_2010_en.pdf.

34. Healthcare Associated Infections: A Global Healthcare Issue



Source: Inhibitex

- ✓ Nearly 6 million HAIs annually in U.S., Europe and Japan
- ✓ 1.7 million cases and 99,000 deaths annually in the U.S.
- ✓ In some developing countries, more than 25% of patients admitted to hospitals acquire HAIs
- ✓ Hundreds of millions of patients impacted worldwide each year

34. Summary Report of MRSA HAI Surveillance in 2009

Medical expense with and without MRSA infection

	wo MRSA	w MRSA
(n =)	60,558	167
Ave days in Hosp	15.78	96.07
Medical expense - Patient/day	51,779	55,843

Total medical expense for MRSA infection

1. Total number of in patient per day		39,953 (2008)
2. rate of inpatient become MRSA		0.4 %
3. Total MRSA infection (incident/day)		160/day
4. From above, medical expense	w MRSA: 55.843 X 96.07	= 5,364,837
	wo MRSA: 51,779 X 15.78	= 817,072.6
5. Difference	5,364,837 - 817,072.6	= 4,547,764.4
6. Total = difference X incident/day X 365 day	4,547,764.4 X 160 X 365	= 265,589,440,960 yen

**Total of more than 265 Billion yen is spent for MRSA HAI.
Patient stays more than 80 days longer in Hospital w/HAI.**

Source: Kobayashi H., et al Journal of Japanese Environmental Infection Vol. 26, No.2, 2011.

Note: Methicillin-resistant Staphylococcus aureus (MRSA) is a bacterium that has developed resistance to standard types of antibiotics, which makes infections more difficult to treat and thus more dangerous.

34. “Bundles” of Best Practices

Comprehensive Bundles” of Best Practices include:

- ✓ Screening patients for multi-resistant organisms
- ✓ Hand Hygiene
- ✓ Isolation and contact precautions
- ✓ Improved environmental cleaning
- ✓ Antibiotic stewardship
- ✓ Optimal management of safety-engineered vascular access devices

There are various guidelines for preventing HAIs such as

- SHEA Guideline (2003)
- CDC/HICPAC Guideline (Nov. 2006)
- Best practice guide for preventing MRSA infection by APIC (March 2007)
- Guidelines for the control and prevention of MRSA in healthcare facilities by HIS, UK (2006)

34. Must Improve Japanese System for Preventing HAIs

- No HAI prevention strategy
- No HAI data
- No HAI prevention target
- No incentive to prevent HAI



- HAI prevention strategy, including “bundles” of proven infection control practices
- Require regular reports as a way to grasp actual situation
- Define reasonable HAI prevention targets
- Provide incentives, including rewards and penalties, to promote compliance with HAI prevention targets.