INFECTION CONTROL TRAINING CENTERS

ASSESSMENT of TRAINING IMPACT on
HOSPITAL INFECTION CONTROL PRACTICES

REPORT for KIEV, UKRAINE

AMERICAN INTERNATIONAL HEALTH ALLIANCE

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I. Executive Summary

The American International Health Alliance (AIHA) initiated an Infection Control Program in 1997 to address the spread of hospital infections in Eurasian countries. The Infection Control Training Center (ICTC) in Kiev began operating in 2001. It develops and implements standardized protocols for conducting active hospital surveillance and effective infection prevention practices, and disseminates infection control reform policies and procedures. As the faculty increased its expertise and demonstrated results through changes in practices and scientific studies, the Ukrainian Ministry of Health began to involve the ICTC in a consultative role to assist the government on national policy reform.

In order to assess the effectiveness of the program, AIHA conducted a telephone survey of twelve hospitals, representing a small sample of hospitals in Kiev, Ukraine. The surveyed institutions ranged in size from 120 to 800 beds (average 420 beds).

All institutions reported the presence of an Infection Control Committee, chaired usually by a senior physician. The Committees met monthly in ten cases, bimonthly in one case, and quarterly in one case. In six hospitals, the Hospital Epidemiologist counted and reported Nosocomial Infections to the Committee. Surveillance of Nosocomial Infections and tracking of surgical wound infections occurred in only six hospitals. The case definition for Nosocomial Infections was inconsistent with the standard definition. Continuous surveillance was practiced at five institutions and quarterly surveillance was practiced at one institution. Multiple methods of surveillance were reported, including (incidence density) surveillance, prevalence studies, passive physician reporting, and microbiological monitoring. None of the hospitals reported environmental culturing or monitoring with sanctions.

Numerator (number of infections) and denominator (patient population) data on Nosocomial Infections was not available for any of the surveyed hospitals. The six reporting hospitals indicated implausible “zero” infections in the last surveillance period.

Six institutions indicated that antibiotic resistance was an important problem in their institution. Eight hospitals reported the use of antibiotic prophylaxis and the most frequently used antibiotic was Cephalosporin. Cultures to identify antibiotic resistance were reported to be “continuously” performed in nine hospitals. Universal precautions were used in ten hospitals, but the frequency and enforcement practices were not reported by any hospital. Three of ten reporting hospitals had observed cases of hepatitis in the past two years.

Only four institutions provided written material on quality improvement for infection control, and none cited sources for infection control protocols. Substantial portions of data from all sections of the questionnaire were not reported. Although hospital infections were considered an important problem and infection control committees were active, infection control processes could not be confirmed at these institutions in the absence of data. The lack of data suggests that current infection control programs are inactive or active at a low level. Additional support should be preceded by a review of the willingness of these institutions to accept, implement, and integrate changes into practice.

II. Introduction

The prevention and control of hospital-acquired infections (nosocomial infections) and other infectious diseases is a significant problem in Eurasian countries due to years of scientific isolation and the absence of evidence-based approaches to medicine and public health. To expand training capacity in infection control, clinical epidemiology, and evidence-based practices and to reduce patient mortality and morbidity due to infections, AIHA developed a Region-wide Cross-partnership Infection Control program. The foundation of the program was the ICTC in St. Petersburg, Russia, established by AIHA in collaboration with US partner expert institutions – Harvard Medical International (HMI) in collaboration with Hospital Infection Prevention and Quality Assessment (INQUAL), the New England Chapter of the Association of Professionals in Infection Control and Epidemiology (APIC), and the Society of Healthcare Epidemiology of America, Inc. (SHEA). The St. Petersburg center was established in 1997 and three additional ICTCs were established by AIHA in 2001 as part of the cross-partnership program. Personnel from the St. Petersburg ICTC conducted the training and initial assessments for the Kiev ICTC and the Center opened in September 2001.

The ICTCs provide theoretical and practical evidence-based courses to practicing epidemiologists, physicians, and nurses. Clinical practice guidelines based on internationally recognized infection control principles and practices and instructional materials, such as the *2nd Edition Basic Infection Control Manual* created by the St. Petersburg/Boston partners and produced by AIHA, are provided. AIHA supplied each center with three to five computers and manuals. AIHA supported Internet connectivity for the centers in order to foster a supportive community of epidemiologists and physicians connected to professional counterparts worldwide.

Due to significant budget constraints, AIHA provided minimal ongoing support to the four ICTCs, mostly through a few training workshops, supply of manuals, and Internet connectivity.

III. Objectives

The purpose of this survey was to determine the percentage of hospitals from a pre-selected sample targeted by the AIHA Infection Control Program that demonstrated improved infection control practices among clinical staff and to determine the number of hospitals demonstrating an active infection control program. The survey was designed to assist AIHA in determining the overall success of the Regionwide Cross-partnership Infection Control Program.

IV. Methodology

The survey was conducted using a standardized survey instrument (see Attachment I), designed and developed by AIHA's monitoring and evaluation staff with the expert consultation of Dr. Hierholzer (the former Chair of the American Hospital Association's Technical Panel on Infections within Hospitals, a Past President of SHEA, the former Chair of HICPAC, and a member of the JCAHO Infection Control Indicator and Information Management taskforce). Eleanor Kocharyan, Program Coordinator at AIHA/Kiev, conducted the telephone interviews.

The survey instrument was designed to match categories in AIHA's Infection Control Results Framework. The instrument was pilot tested in Russia, Georgia, Ukraine and Kazakhstan to ensure that questions were appropriate and was revised slightly based on pilot tests.

The telephone survey was conducted with representative infection control participants from twelve area hospitals (Attachment II). The demographic and infection control related characteristics of the individual hospitals, the infection control programs, and pertinent infection control concerns in the hospitals were the focus of the survey. The surveyed institutions ranged in size from 250 to 645 beds (average 400 beds). Only one hospital reported admissions for the previous year (13,000 admissions). Only two of the twelve hospitals reported surgeries performed, at 4,000 and 15,000 per annum.

Substantial portions of the demographic, surveillance, resistance, and practices data were not reported by the hospitals, rendering the analysis incomplete. Ten of the twelve interviewees reported having previously completed a course in infection control.

V. FINDINGS

All twelve institutions reported the presence of an Infection Control Committee. The Committee was most frequently chaired by a senior physician (Chief Physician – 2, Deputy Chief Physician – 8, and Deputy Chief Surgeon -2). In the ten hospitals reporting data, the membership of the Committee is broad and includes the Hospital Epidemiologist (6/10), the Chief Nurse (6/10), Department Chairmen (6/10), a Microbiologist (4/10), and the Deputy Chief Physician (4/10). Other members were: Chief Surgeon, Chief of Obstetrics, Chief of Orthopedics, Chief of the Blood Bank, Chief Operating Room Nurse, Infection Control Nurse, Chief AIDS Physician, and Chief of Therapy. The Committees met monthly in ten cases, bimonthly in one case, and quarterly in one case. In six of the eight hospitals reporting data, the Hospital Epidemiologist counted and reported Nosocomial Infections to the Committee. Data were collected and reported by the Microbiologist in one institution and by the Chief Surgeon in the other institution. In the six institutions, the reporting staff person was considered to be formally trained in infection control.

Surveillance Methods, Reports and Data

Surveillance for Nosocomial Infections occurred in only six of the twelve hospitals and these six also tracked surgical wound infections. Although the case definition of Nosocomial Infections was uniform across these institutions, it was inconsistent with the standard definition due to lack of specificity in timing. Continuous surveillance was practiced in five institutions and quarterly in one institution. There were multiple methods of surveillance reported, including (incidence density) surveillance (4/6), prevalence studies (4/6), passive physician reporting (3/5), and microbiological monitoring (1/6). Neither environmental culturing nor monitoring with sanctions was reported by any of the six hospitals. All six institutions reporting indicated “zero” infections in the previous surveillance period.

None of the hospitals provided numerator (number of infections) and denominator (patient population) data on Nosocomial Infections. Surgical wounds were surveyed in only three institutions. One institution reported reasonable numerator and denominator data for surgical wound infections, but the rate calculated and reported was inconsistent with the raw data.

Surveillance of Antibiotic Use and Antibiotic Resistance

Among the nine institutions reporting data, six indicated that antibiotic resistance was an important problem in their institution. Three hospitals indicated that it was not and three others failed to respond to this question. Eight hospitals reported the use of antibiotic prophylaxis and

the most frequently used antibiotic was a Cephalosporin. Cultures to identify antibiotic resistance were "continuously" performed in the nine hospitals reporting data. The remaining three institutions responded that cultures are performed: "monthly" (1), "extremely rarely" (1), and "by algorithm" (1). *Staphylococcus aureus* (3), *E. coli* (2), and *Pseudomonas aeruginosa* and *Klebsiella Pneumonea* (1 each) were the isolates reported.

Universal Precautions (Standard Practice)

Universal precautions were used in ten of twelve hospitals, but the frequency and enforcement practices were not reported by any institution. Gloves were routinely used during surgery by all participants. At eleven hospitals, gloves were used during cleanup and at ten hospitals gloves were used during instrument processing. Needles were reused in only one hospital and autoclaving was practiced at this hospital. Three of ten reporting hospitals had observed cases of hepatitis among personnel in the past two years.

Nursing Practices Related to Infection Control

Nine of the eleven reporting hospitals in this category had written nursing guidelines for infection control. These guidelines were reviewed and updated by the Chief Nurse at six hospitals and by the Hospital Epidemiologist at five hospitals. In four hospitals, over 70% of the nurses (average 82%) received "frequent" infection control training. Data for the remaining eight hospitals was absent or variable.

Quality Improvement for Infection Control

Four of the six institutions reporting data had written material on quality improvement for infection control, but none reported how these were developed and no sources for infection control protocols were cited by any institution.

VI. Conclusions

Substantial portions of the data from all sections of the questionnaire were not reported from the hospitals in the Ukraine, making analysis difficult. The hospitals reported that data was collected through surveillance methods, but none of the institutions indicated the presence of any Nosocomial Infections and the one institution reporting surgical wound infection data reported an inaccurate infection rate.

Although the hospitals indicated that Nosocomial Infections were an important problem and reported active infection control committees with appropriate membership, including a Hospital Epidemiologist, associated data on surveillance, wound surveillance, antibiotic use, microbiological culturing, and clinical infection control was sparse. This made it difficult to confirm appropriate infection control processes in these institutions.

While the responses to the questionnaire revealed an interest in administrative infection control activities and infection control staff from Ukraine attended regional and local training courses, the dearth of reported data renders incomplete an assessment of the output of such programs. The lack of data suggests that current activity in infection control programs is at a low or inactive level. The institutions do not appear to have accepted and integrated such activities in clinical processes. Recommendations for further support need to be based on a review of their willingness to accept, implement, and integrate these changes into medical practice.

Attachment I: Questionnaire

Survey of Hospital Trainees in Infection Control

Date of Interview:

Name of Respondent:

Title:

Name of Institution:

When did you complete an AIHA course on Infection Control?
Yr._____ Month_____ Did not complete course ____

General Information

1. What is your Hospital's current census? _____ How many admissions to your hospital have there been in the past year? _____ Does your Hospital have a surgical service? (Yes/No) If yes, how many surgeries (procedures) were done in the past year? _____

2. Does your Hospital have an Infection Control Committee? (Yes/No) How frequently does it meet? _____Who is the Chairman of the Committee? (Position) _____ What are the positions of the other members of the committee?
_____

3. Please provide the case definition of nosocomial infections utilized by your institution.
_____
_____
_____
_____

4. Are Hospital Infections an important problem in your hospital at the current time? Yes____ No____ Don't know____

(Results Framework Objective 1: Improved surveillance and assessment capacity in the areas of nosocomial infections and a/b resistant microorganisms.)

Improved Surveillance (nosocomial infections)

5 Have you surveyed for Hospital Infections in the past year? (Yes/No) If yes, how frequently were these surveys conducted? _____

6. What method(s) did you use for surveillance? Please provide specific details.
[Note to interviewer: The type of responses we are looking for include: Active surveillance (concurrent, prospective or retrospective); Prevalence studies; and/or Passive surveillance]

7. Did you survey for Surgical Wound Infections in the past year? (Yes/No) If yes, what was your rate for those surgeries surveyed ___% (Please provide the raw numerator and denominator if possible i.e. 3 infections in 136 surgeries done and surveyed.) ___/_____

8. Do you use antibiotic prophylaxis in surgery? (Yes/No) If yes, please list the antibiotics that are used for each surgical procedure.
_____
_____
_____
_____

9. How many Hospital (nosocomial) infections were identified in your hospital in the most recent month surveyed? _____ How many patients were surveyed? _____

10. Who identifies, counts and reports Hospital Infections to your Committee in your hospital? (Position?) _____Has this individual attended a course on Infection Control? (Yes/No)

Improved Surveillance (antibiotic resistance)

11. Is antibacterial resistance an important problem in your Hospital? (Yes/No)

12. How often does your hospital microbiology laboratory test for antimicrobial resistance in bacteria causing infections in your hospital? _____

13. What is the most prevalent resistant bacteria detected in your hospital? _____

Universal Precautions: General

14. Does your Hospital practice Universal (Standard) Precautions for blood-borne diseases?
Yes____ No_____ Don't know ____ Not familiar with term ____

If Yes: Does your hospital practice universal precautions: All of the time ____ Part of the time ____ Rarely____?

If No, please explain why not : _____
[*Note to interviewer: potential responses include: (1) because they are not told to do so; (2) because they are not properly supervised to do so; (3) because they do not believe that it is important to do so; or (4) because they do no have adequate equipment and supplies to do so.]*

15. How does your hospital enforce practice of universal precautions?_____
_____

16. Are injection and/or intravenous needles reused at your hospital? (Yes/No)

If Yes: Does your hospital reuse injection and/or intravenous needles: All of the time ___ Part of the time ____ Rarely____

How are they disinfected? _____
[*Note to interviewer: potential responses include: boiled, steam/heat sterilized, use of liquid/chemical]*

Universal Precautions: Surgical

17. Do **all** individuals **performing or assisting** in all major and minor surgical procedures wear gloves during the **entire** procedure? (Yes/No)

If Yes: Do they wear gloves during surgical procedures: Always____ Sometimes ____ Rarely____?

18. Do **all** individuals **performing or assisting** in all major and minor surgical procedures wear gloves during cleanup of instruments and Operating Room surfaces after the cases? (Yes/No)

If Yes: Do they wear gloves during cleanup: Always____ Sometimes ____ Rarely____?

19. Do **all individuals conducting surgical instrument cleaning and sterilization** after surgical cases wear gloves during this process? (Yes/No)

If Yes: Do they wear gloves during cleaning and sterilization of the surgical instruments: Always____ Sometimes ____ Rarely____?

20. Have any of the surgical (surgeons, physicians), nursing, support staff or students on your surgical services and wards developed Hepatitis (B or C) in the past 2 years? (Yes/No)

Nursing Practices

(Results Framework Objective 3, Reference indicator 3.1: % of hospitals targeted by AIHA Infection control program with improved infection control practices of clinical staff)

21. Does your institution have infection control protocols/guidelines in place for nurses? (Yes/No)
If yes, who is responsible for reviewing and updating these guidelines? (Position) _____

22. What percentage of the nurses at your institution have received training in infection control? _____
Please describe the length and nature of the training:
_____
_____
_____
_____

23. How frequently do your nurses receive training on infection control practices?
_____

Quality Improvement

(Results Framework Objective 3: Improved infection control practices based on evidence-based clinical and management practice protocols.)

24. Does your institution have written infection control protocols in place? (Yes/No)

25. What is the method utilized for developing, reviewing, and/or implementing infection control protocols at your institution?
[*Note to interviewer: Try to find out whether these activities are done by a committee (which committee?), or by an individual; who directs, who determines, who reviews? What are the positions of the important actors in the process and what are their titles]*

_____
_____
_____

26. What public-domain resources, if any, does your institution utilize when developing/reviewing infection control protocols?
[*Note to interviewer: Anticipated responses include the following:* US Centers for Disease Control (CDC); World Health Organization (WHO); Internet; Cochran database]

Attachment II: Institutions contacted for survey

Children's Clinical Hospital # 2

Kiev City Pediatric Clinic # 1

Kiev City Clinical Hospital # 18

Kiev City Clinical Hospital # 10

Kiev City Clinical Hospital # 6

Kiev City Clinical Hospital #12

Kiev City Clinical Hospital # 5, Kiev City AIDS Center

Kiev maternity Hospital # 3

Kiev City Clinical Hospital # 11

Kiev City Clinical Hospital # 9

Kiev City Clinical Hospital # 1