

INFECTION CONTROL TRAINING CENTERS
ASSESSMENT of TRAINING IMPACT on
HOSPITAL INFECTION CONTROL PRACTICES

REPORT for TBILISI, GEORGIA



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 Tbilisi 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 Ministries of Health in the Caucasus 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 seven hospitals, representing a small sample of the medical institutions in Tbilisi, Georgia. The institutions were locally selected as part of a demonstration project of the new Teaching Center of the Georgian CDC. The surveyed institutions ranged in size from 60 to 500 beds (average 255 beds). All seven hospitals performed surgical operations, ranging from 350 to 2,500 surgeries per year.

An Infection Control Committee was present in all seven institutions, chaired usually by a senior physician. In all hospitals, the Committee met monthly and a trained Hospital Epidemiologist counted and reported Nosocomial Infections to the Committee. Surveillance for Nosocomial Infections occurred in all seven hospitals, but only three tracked surgical wound infections. The case definition for Nosocomial Infections deviated from the standard definition. Continuous surveillance was practiced in four hospitals. Active (incidence density) surveillance and prevalence studies were used by three of the four institutions with continuous surveillance. None of the hospitals reported environmental culturing or monitoring with sanctions.

Six institutions indicated antibiotic resistance as an important problem in their institutions. Four of the six hospitals reported using antibiotic prophylaxis, but cultures to identify antibiotic resistance were rarely, or very rarely, used. Universal precautions were used in all seven hospitals, enforced by infection control procedures in six and by administrative procedures in the seventh. Gloves were routinely used and needles were not reused. No cases of hepatitis were reported in personnel during the past two years.

Only two of the seven institutions provided written material on quality improvement for infection control. Material from the US CDC and the WHO were the basis of infection control protocols in three hospitals, and the basis for the other four institutions was not given.

The AIHA partnerships between Minneapolis and associated institutions in Boston and New Haven and the Centers for Disease Control in Tbilisi, Georgia developed a successful Infection Control Training Center which has trained practitioners from Georgia and other NIS countries. The assessment indicated that infection control programs with basic functioning components are present in at least seven institutions in Tbilisi. A new effort is recommended to identify, accept, and use standard epidemiologic and laboratory methods for guiding and documenting improved outcomes in infection control.

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 Regionwide 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, including the center in Tbilisi, were established by AIHA in 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. The Tbilisi Center is self-sustaining and with the graduation of the Tbilisi/Minneapolis partnership AIHA does not anticipate supporting the Center.

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 Region-wide 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). Ruzan Avetisyan, Program Coordinator at AIHA/Armenia and Zaza Varsimashvili, Program Coordinator and M&E Coordinator at AIHA/Tbilisi, 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 seven 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 60 to 500 beds (average 255 beds) with 400 to 4,500 admissions per year (average 2,143 admissions per year). All seven hospitals performed surgical operations, ranging from 350 to 2,500 surgeries per year, with an average of 1,083 surgeries in the previous year.

V. FINDINGS

Infection Control Committee Organization and Function

All seven institutions reported the presence of an Infection Control Committee. The Committee was most frequently chaired by a senior physician (Chief Physician, 6/7). The Committee membership uniformly included a Hospital Epidemiologist, a Microbiologist, the Chief Nurse, and the Chief Surgeon. One institution included the Deputy Chief Engineer. The Committee met monthly in each hospital. In all seven hospitals, the Hospital Epidemiologist counted and reported Nosocomial Infections to the Committee and all Hospital Epidemiologists were considered to be formally trained in infection control.

Surveillance Methods, Reports and Data

Surveillance for Nosocomial Infections was reported to occur in all seven hospitals, but only three of the hospitals tracked surgical wound infections. Although the case definition of Nosocomial Infections was uniform across these institutions, it was inconsistent with the standard definition in that the timing of the infection related to the time of admission was not stated precisely. Continuous surveillance occurred in only four of the seven institutions. No data on surveillance activity were available for the remaining three hospitals. Active (incidence density) surveillance and prevalence studies were reported as the methodology used by three of the four institutions with continuous surveillance. Neither environmental culturing nor monitoring with sanctions was reported by any of the seven hospitals.

Numerator (number of infections) and denominator (patient population) data on Nosocomial Infections were available for only three hospitals. Surgical wounds were surveyed in only three institutions, and the reported data were reasonable and supported by associated, appropriate, and credible numerators and denominators.

Surveillance of Antibiotic Use and Antibiotic Resistance

Six of the seven institutions reported that antibiotic resistance was an important problem in their institutions. Four of the six hospitals reported using antibiotic prophylaxis and the most frequently used antibiotics were cephalosporins and amikacin. However, cultures to identify antibiotic resistance were rarely (6 hospitals) or very rarely performed. When cultures were performed, *Staphylococcus aureus* and *Pseudomonas aeruginosa* were the most frequent isolates reported.

Universal Precautions (Standard Practice)

Universal precautions were used in all seven hospitals, enforced by infection control procedures in six and by administrative procedures in the seventh. Gloves were routinely used during surgery by all participants and during cleanup and instrument processing at all institutions. Needles were not reused at any of the hospitals and no cases of hepatitis were reported in personnel at any of the hospitals during the past two years.

Nursing Practices Related to Infection Control

Only three hospitals had written nursing guidelines for infection control. These guidelines were reviewed and updated by the Hospital Epidemiologist or a Nursing administrator. A low percentage (< 15%) of nurses in these institutions received infection control training. Whereas training was rarely or very rarely offered in five of the seven hospitals, the remaining two hospitals reported offering it monthly or more frequently.

Quality Improvement for Infection Control

Only two of the seven institutions had written material on quality improvement for infection control developed and reviewed by the Infection Control Committee or a senior administrator. Material from the US CDC and the WHO were cited as sources of infection control protocols in three hospitals, but no sources were cited by the other four hospitals.

VI. Conclusions

As part of AIHA's partnership training for the Tbilisi ICTC, an extensive cooperative training and observation visit was conducted in September 2001. The Tbilisi ICTC faculty was observed conducting training for epidemiologists in Tbilisi and elsewhere in Georgia. The monitoring team included two hospital epidemiology physicians and an infection control practitioner nurse from partner hospitals in Boston, New Haven, and Minneapolis. An evaluation and critique was submitted at the end of the observation period, supporting the presence of a highly successful undertaking by the Tbilisi faculty and staff.

The partnerships between Minneapolis and associated institutions in Boston and New Haven and the CDC in Tbilisi have developed a successful Infection Control Training Center at the CDC in Tbilisi. This center trained practitioners from Georgia and other NIS countries, including Ukraine and Kazakhstan. The assessment indicated a small but growing number of infection control programs with basic functioning components in at least seven institutions in Tbilisi, three of which presented supportive data for this report. In addition, the microbiology laboratories at the CDC functioned as both reference and teaching facilities for other laboratories in Georgia.

Continued future support for these programs should reinforce the administrative and personnel requirements for infection control programs in these and all medical care institutions. A new effort is recommended to identify, accept, and use standard epidemiologic and laboratory methods for guiding and documenting improved outcomes in infection control.

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 not 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

Iashvili Central Children's Hospital

Central Clinic of Tbilisi State Medical University

National Center of Surgery

Clinical Hospital #4

Clinical Hospital #5

National Center of Surgery

Jhvania Pediatric Clinic of Tbilisi State Medical University