Planning and Implementing an Infection Prevention and Control Training Program for Healthcare Providers in Latin America

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Nothing to Disclose
Introduction

• 1.4 million people worldwide suffer complications caused by healthcare associated infections (HAI).
• HAI rates are indicators of health care quality.
• *Infection Preventionists (IP) are professionals who specialize in health care quality control in the areas of infection prevention and control.*

Infection Preventionist

• In 2008 APIC* proposed a new term for the infection prevention professional:

  **Infection Preventionist**

  The term emphasizes infection prevention.

  Other terms that refer to infection preventionist are:
  - infection control nurse,
  - infection control coordinator,
  - epidemiology nurse,
  - infection control agent,

*Association of Professionals in Infection Control (APIC, 3rd ed. 2009)*
Objectives

1. Describe the role of the Infection Preventionist (IP).
2. Describe the historical context and timeline in the development of the role of an IP in Latin America.
3. Name the activities of IP within the institutional Infection Prevention and Control (IPC).
4. Summarize educational programs to improve local IP capacity throughout Latin America.

Infection Preventionist

Functions:
- Consultant
- Educator
- Model
- Researcher
- Agent of Change

APIC 2009

The preventionist collaborates daily in all aspects of health care.

APIC 2009
What is expected of the Preventionist?

WHO:
- To exercise authority to manage an effective program.
- To prepare and render reports directly to top management.
- To prepare annual work plan for IPC committee and administration.
- To provide scientific and technical support, Examples: surveillance; formulation and evaluation of policies and practical supervision; assessment of existing supplies; sterilization and disinfection control; and implementation of training programs.
- To support and participation in research and evaluation programs at national and international levels.

WHO 2008; WHO 2002

APIC:
- Collect and analyze data.
- Evaluate products and procedures.
- Education on how to reduce infection risks.
- Provide high quality service in a cost-effective way.
- Participate in an outbreak investigation.
- Develop and revise policies and procedures.
- Consult in evaluation of infection risk, prevention and control strategies.
- Apply epidemiological principles, such as actions to improve patient care.
- Implement changes required by regulatory agencies, accreditation and licensing (including reporting on communicable diseases to health departments).

APIC, 3rd ed. 2009

Job Description

- Monitors HAI
- Evaluates IPC and recommends corrective measures
- Prepares agenda for IPC committee
- Monitors IPC in hospital departments and among personnel
- Initiates and reviews IPC policies and procedures
- Researches outbreaks and initiates control measures
- Reports existence of communicable diseases to the state, as required by law
- Imparts education – seminars, orientation
- Consults with department directors and physicians to improve patient care
- Initiates follow-up to patients’ and employees’ exposure to communicable diseases, as well as compliance on the part of employees
- Is available as a resource
- Participates in activities geared toward improving performance
- Participates in short- and long-term planning of the IPC program
- Works in other areas, as needed

2004 ICP Associates, LLC
Historic Outline:
Florence Nightingale
(1820 – 1910)
Dossey BM, 1999

Administration: Hospital reform
Education: Training in nursing, writer of
nursing and hospital administration topics
Research: Infection control, hospital epidemiology

Administration

• 1853 (age 33): Director of Hospital for Invalid Gentlewoman.
• 1854 – 1856 (ages 34 to 36): Devoted her work to improving the hospital located at Scutari military quarters in Turkey.
• Implemented hospital hygiene reform and inpatient mortality decreased from 42% to 5% in less than a year.

Education

Published a surveillance report of British military hospitals in Turkey in 1858 (age 38). An inspection of British military hospitals is conducted as a result.
Nursing school opens in London in 1860 (age 40). Published her nursing notes in 1860 (age 40) and they are used around the world.
Established the East London Nursing Society, the National Nursing Society, and the Nursing Institute in 1868 (age 48).

Dossey BM, 1999
Research

1. Surveillance and Reports
2. Report on Hospital Personnel Health
3. Policies and Procedures

Worldwide Reach

On the year of her death at age 90 (~1810) there were Nightingale system-based nursing training programs established in 20 countries.

Dossey BM, 1999
In the United States

1950 – IPC measures formally start in hospitals as a result of increased intensive care services and staphylococcus infections.

Late 1960 – Mid 1970s - IPC programs extend to thousands of hospitals in the US as a response to the requirements of organizations, such as the American Hospital Association, the Joint Commission.

1970s – Changes in IPC programs occurred as a result of requirements on the part of state and federal agencies, professional organizations and scientific information.

1972 – APIC is founded to strengthen and improve IPC through dissemination of information and scientific reports.

1981 – IPC certification is established

1993 – APIC Research Foundation is created to fund priority research projects.

2000 – Government and patient safety advocacy organizations become increasingly interested in IPC.

Modern concept of IPC expands to include other areas, such as risk studies for health care personnel, assessment and maintenance of physical environment, contingency plans for disasters and other adverse events.

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In Latin America

Argentina:
1979 IPC starts in Argentina at Sanatorio Guemes in Buenos Aires

1994 Argentinian Association of Infection Control Nurses (ADECI) is founded

Chile:
1982 IPC programs start with the objectives of maintaining surveillance, developing prevention and control policies and strategies, training health care providers, and supervising compliance.

Paraguay:
2004 Law requiring the existence of infection control programs is enacted

2005 Infection control personnel is trained via St. Jude Intensive IPC Course.

Maione S, Email Communication, October 2010
Mexico

1995 – The Mexican Association for the Study of Nosocomial Infections (AMEIN) is created to promote IPC education.

1996 – Hospital Network of Epidemiological Surveillance (RHoVE) is established as a government organization to do HAI surveillance in Mexico’s public hospitals.

The Mexican Infectology and Microbiology Association is dedicated to promoting good IPC practices since 2000.

Through its agencies, the Mexican government actively promotes IPC programs. In collaboration with three of Mexico City’s leading hospitals, St. Jude has been conducting the Intensive Infection Prevention and Control Course since 2009 geared toward Latin American IPs and, most recently, for Mexican IPs.

Huertas M, Personal Communication, June, 2012

Features of an IPC Program

- An organizational structure designed to develop policies, goals and strategies for HAI prevention and control.
- Provides a legal and technical framework for monitoring HAIs.
- Has qualified personnel well-defined tasks and responsibilities.
- Has the necessary budget to meet planned activities.

WHO 2008

Objectives of an IPC Program

1. Prevent HAIs.
2. Prepare institution for early detection and management of epidemics, and organizing a fast, effective response.
3. Contribute to producing a coordinated response to an endemic, epidemic or community infection that could spread in a health care institution setting.
4. Contribute to preventing the emergence of resistance to antibiotics and/or dissemination of resistant strains.
5. Minimize the environmental impact of these infections or their management.

WHO 2008
Stakeholders of an IPC Program

Core Component of an IPC Program:
1. Infection Prevention and Control team (IPC):
2. IPC committee
3. IPC manual
4. IPC work plan
5. Physical area to work in with office equipment

Support to IPC Program:
1. Administration
2. Medical and nursing staff
3. Microbiology lab
4. Pharmacy
5. Sterilization service
6. Food service
7. Laundry service
8. Cleaning service
9. Maintenance service

WHO 2008; WHO 2002; APIC 2009

Core Components of an IPC Program

1. Infection Prevention and Control (IPC) team – composed of a preventionist, a IPC program director, a secretary, a statistician/data management support.
2. IPC committee – provides a multi-disciplinary forum to express opinions, exchange information and cooperate.
3. PCI manual – compilation of policies and procedures for patient care.
4. PCI work plan – annual plan to evaluate and promote quality health care, proper isolation, sterilization and other practices, personnel training, and epidemiological surveillance.

WHO 2008

IPC Team Members:
- Preventionist
- Epidemiologist
- Infectologist / microbiologist
- Secretary/data manager

IPC Team at Hospital La Mascota, Nicaragua
Characteristics of Efficient IPC Programs

**SENIC:**
- Organized surveillance and control activities
- An infection control nurse for every 250 beds
- Trained infection control personnel
- System to inform incidence of infections to individuals in charge (e.g., surgeons)

*Haley RW, et al. Study on Efficacy of Nosocomial Infection Control (SENIC)*
Am J Epidemiol 1985;121:182-205

**WHO:**
- Education of health care personnel
- Well-organized surveillance system to fight nosocomial infections
- Consistent implementation of basic infection control measures
- Related legislation


St. Jude Children’s Research Hospital

St. Jude Children’s Research Hospital Worldwide Reach

Finding cure, saving children: currently 20 partner institutions
Educational Resources for Preventionists

- **WHO:** Publishes guidelines for infection control and Clean Care is Safer Care in 2005, promoting best hand hygiene practices. ([www.who.int/csr/resources/publications](www.who.int/csr/resources/publications)).

- **CDC:** Publishes tools for surveillance and practices and training modules ([www.cdc.gov/nhsn/Training](www.cdc.gov/nhsn/Training)).

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**APIC Education Resources**

**Individual Readings**
- APIC Text of Infection Control and Epidemiology
- AJIC: Content available for subscribers
- APIC Elimination Guides

**CIC certification**, since 1983
to date

**Live Learning:**
- Annual Conference: Offered yearly
- Education for Prevention of Infection: Spring and Fall Courses
- EPI™ 101 (basic) and EPI™ 201 (intermediate)
- Infection Prevention for Ambulatory Surgery Centers

**APIC ANYWHERE®:** On line IPC education
- APIC Webinars
- Essentials of Infection Prevention™
- Microbiology 101 for Infection Preventionists
- Infection Prevention Competency Review Course
- Disinfection and Sterilization

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Educational Resources for Preventionists

- **Chile:** Universidad de Valparaiso offers a Masters in Infection Control since 2001.

- **Mexico:**
  - The Instituto Nacional de Nutricion, Mexico City, has been offering a 2-month course in IPC since the late 90s (50 graduates).
  - The National Institute of Public Health of Mexico in Cuernavaca offers 2-week (20 hours) of training in Epidemiology and IPC.

- **Argentina:** Local universities offers Hospital Epidemiology and IPC courses, some of them with a distance learning component.

Perez-R V, Huertas M. Personal Communication, June 2012
Other Educational Resources for Preventionists

An Infection Control Course for Latin America or CINELA (Control de Infecciones Nosocomiales para LatinoAmerica)

In 2009 – 2010: With 3M support, Universidad de Valparaiso, Chile, trained 24 leaders from 17 Latin American countries to deliver the CINELA course in their countries. As September 2010, 63 courses were delivered with 2335 participants. Currently, the leaders are evaluating the impact of the training.


St. Jude IPC Course

• Back in 2004, I needed a short and comprehensive IPC course, mainly, but not exclusively for hospitals treating children with cancer.
• Using available educational resources of APIC, the CDC, the WHO and expert advise among my colleagues I built a training curriculum.
• Obtained funding for a one-month IPC training in 2004.
• In February 2005, we delivered the first one-month course for 20 IP of Latin America in collaboration with Universidad de El Salvador, the Hospital Bloom and the Nursing Society in El Salvador.
St. Jude IPC Course: Planning

Foundations for the Training Program:

- Previous and ongoing international infection control training by the St. Jude ID-IOD laid the basic foundation for this project:
  - Training at St. Jude
  - Training at international sites
- Resources at international sites (San Salvador):
  - International Training Center for Nurses
  - Infection Prevention and Control Program at Hospital Bloom
  - Health Research Center at the University of El Salvador


St. Jude IPC Course Curriculum

- To provide basic knowledge to practice IPC, for current or prospects IPs in Latin America.
- To build the course content, we based on:
  - Knowledge / skills needs by IP.
  - Available course educators / trainers / collaborating institutions
- To select course candidates we relied on the recommended of:
  - the director of the Infectious Disease program or the Hematology / Oncology program, and the hospital director.


St. Jude IPC Course Trainees

Selection criteria of trainees:

1. Be or planning to be IP.
2. Able to complete course.
3. Continue working as IP for at least 1 year after completing the course.
5. The nominating institution were asked:
   - to approve 1 month paid absence for the candidate
   - to introduce the IPC changes suggested by trainees when they return to work.

St. Jude IPC Course
Instructors/Reading

Selection criteria of instructors:
1. Experts in the subjects and be willing to deliver the educational materials provided.
2. Experience in educating healthcare professionals and proficient in Spanish.

Educational materials:
1. Reading materials from the WHO.
2. Published review articles in Spanish Journals.
3. Translation of materials from APIC and the CDC.
4. Textbooks in Spanish.


St. Jude IPC Course
Implementing

Addressing course related issues:
1. Curriculum
2. Oversight
3. Schedule
4. Instructors
5. Educational materials

Addressing logistic issues:
1. Housing
2. Food
3. Transportation
4. Electronic communications and tools: computers, telephones, photocopies machine


St. Jude IPC Course
Implementing

Addressing Training:
1. Continually engage the educational board.
2. Prepare instructors via e-mail, telephone, and online meetings.
3. Remind educators of teaching responsibilities.
4. Revise curriculum and schedule as needed.
5. Inspect resources and remind hospital / educational center leaders in using their facilities for classes and practices.
7. Evaluate students performance.
8. Evaluate course performance.

St. Jude IPC Course Schedule

5 Modules: “what, why?”
- Infectious processes, HAI definitions
- Hospital epidemiology and basic statistics
- Infection prevention
- Management of IPC and adult education

7 Practice sessions: “how?”
- Building P&Ps
- Evaluating P&P compliance
- Conducting surveillance of HAI and their risk factors
- Outbreak investigations
- Microbiology laboratory
- Data management
- Adult education

St. Jude IPC Course

- Because of the great need and interest of IPs, in subsequent years, St. Jude continued providing funding for training.
- From 2005 – 2008, we offered the 4-week course yearly in El Salvador with local collaborating institutions.
- From 2009 – to date, we offer the course in two steps:
  - On-line 10-week Didactic Lectures using the St. Jude www.cure4kids.org
  - followed by 2-week Practice Sessions in Mexico City in collaboration with local healthcare institutions

Collaborating Institutions in El Salvador

El Salvador University  Bloom Children’s Hospital

Local Professional Association for Nurses (SODEPROE)
Infection Prevention & Control Course Graduates 2008

Centro de Investigación y Desarrollo en Salud

The Infection Prevention & Control Course

Mexico Team (2009 - 2012)

Instituto Nacional de Pediatría

Dra. H. Hernández  Dr. A. de Colsa

Instituto Nacional de C. Medicas y Nutrición

Dra. A. Macias  Lic. M. Huertas  Dr. A. Nava  Dr. V. Pérez

Hospital Infantil de México

Dr. A. de Colsa  Dr. V. Pérez


4 wks: 136 hrs

2005 - 2008: 108 Preventionists from 16 Latin American Countries
St. Jude IPC Course Graduates

-8 weeks distance learning via Cure4Kids (27 students)
-2 weeks practicum (best 12 students)

St. Jude IPC Impact

- Better hand hygiene and safe vascular access training: less phlebitis, less hospital infections.
- Better hand hygiene, Intravenous teams: better hand hygiene compliance, less phlebitis.

IPC in Pediatric Cancer Units

**Cancer Unit, Honduras**
- Better hand hygiene: lowered hospital infection 60% (2007-10); ventilator associated pneumonia, 40%; catheter related infection, 32%.
- Less days of stay and death in NICU
- Savings: US$200,000

**Cancer Unit, Guatemala**
- Better hand hygiene, Intravenous teams: better hand hygiene compliance, less phlebitis.

**Hospital Bloom, El Salvador**
- Better hand hygiene: lowered hospital infection 60% (2007-10); ventilator associated pneumonia, 40%; catheter related infection, 32%.
- Less days of stay and death in NICU
- Savings: US$200,000
- Safe vascular access and better waste management: Savings
IPC in Pediatric Cancer Units
Cancer Unit, Hospital General in Tijuana, Mexico

Better surveillance of HAI
Better IP procedures
practices by hospital staff

Cancer Unit, Quito, Ecuador:

<table>
<thead>
<tr>
<th>Variables</th>
<th>Pre Oral Care Program</th>
<th>Post Oral Care Program</th>
</tr>
</thead>
<tbody>
<tr>
<td>TPN days</td>
<td>57</td>
<td>37</td>
</tr>
<tr>
<td>VAP / 100 vent. days</td>
<td>6.3</td>
<td>2.3</td>
</tr>
</tbody>
</table>

Better hand hygiene
Better oral health
training and practices

IPC in Pediatric Hospitals

Hospital de Niños JM de los Ríos, Caracas, Venezuela
Better IPC organization and hospital staff training

Hospital de Especialidades Pediátricas, Maracaibo, Venezuela
Better IPC organization

Hospital de Niños Notti, Mendoza, Argentina
Better IPC organization

Hospital Nacional de Pediatria, Acosta Nu, Paraguay
Better IPC organization and critical functions

Centro Materno Infantil, Asuncion, Paraguay
Better IPC organization and its critical function

Caniza MA, et al. (Abstract) 33rd Annual APIC Conference, 2006

IPC in Pediatric Hospitals

Hospital Infantil de Mexico, Federico Gomez, Mexico City, Mexico
Better surveillance of HAI and their risk factors

Hospital de Niños de Toluca, Mexico
Better surveillance of HAI and their risk factors

Instituto Nacional de Pediatria, Mexico City, Mexico
Better surveillance of HAI and their risk factors

Hospital de infantil Manuel Rivera, “La Mascota”, Managua, Nicaragua
Better IPC organization and its critical function

Hospital Nacional de Niños Benjamin Bloom, El Salvador:
Better hand hygiene, waste management
**IPC Country Wide**

**Paraguay**

- In 2005:
  - 20 infection control professionals trained:
    - Training: St. Jude / Graduate
    - Financial Support: PAHO
    - Host: Paraguay’s Ministry of Health

**Last Follow-up**

- Infection control awareness increased in country’s institutions
- 50% had the support of the directors of their respective institutions
- Infection control programs prospered in 6 institutions
- 80% continued working in infection control

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**IPC Country Wide**

**Venezuela**

**In 2007:**

Graduates of the St. Jude IPC course replicated on site the St. Jude IPC course and trained 22 nurses from main hospitals in Venezuela.

Caniza MA, et al. (Abstract) 33rd Annual APIC Conference, 2006

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**IPC Country Wide**

**El Salvador**

**1980s** Only one hospital had an infection control nurse.

**2004** National IPC program is created within Health Ministry. 5 hospitals created infection control programs. No trained personnel available in the past.

**2005-2008:** 14 IPs trained via the St. Jude IPC Course

To improve IPC, graduates focused on:

- Training preventionist duplicating St. Jude’s IPC Course.
- Advocate to have 1 preventionist for each one of the 30 public hospitals.
- Strengthen newly-established IPC programs.

Rivera C. ..., Caniza MA. Abstract. 9th Congress of the IFIC, Chile, 2008.
St. Jude Course Graduates
El Salvador

By the end of 2007:
- 29 infection control nurses were trained
- 22 hospitals had infection control nurses
- St. Jude Course graduates were periodically visiting 26/30 hospitals and supervising their IPC procedures
- 20 hospitals had implemented IPC procedures
- 13 hospitals had active surveillance of HAI
- 14 hospitals were reporting their incidence of HAI

Since 2007:
- National awareness of HAI through yearly IPC conferences starting in 2007.

Rivera C, ..., Cantza MA. Abstract. 9th Congress of the IFIC, Chile, 2008.

IPC Country Wide
Mexico

Improving Capacity of IPs:
- Collaboration:
  - 3 main institutions in Mexico
  - Mexico’s leading experts in pediatrics / IPC
- Goal: Training IPs from healthcare centers including those centers with PCUs (about 80).
- Since 2009, we have trained: 50 IPs

Graduates of the St. Jude IPC Course

50 graduates
Improving the Capacity of IPs Improves the
Capacity of the Healthcare Personnel

Improving the Capacity of IPs Improves
Infection Prevention and Control

Improving the Capacity of the
Preventionist Increases Infection
Prevention Awareness and Improves
the Overall Quality of Health Care
Thank You!

Related talks in www.cure4kids.org