IC Programs in developing countries

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Health care-associated infections affect hundreds of millions of patients worldwide every year.

- In developed countries, it impacts on 5-15% of hospitalized patients.
- The burden in developing countries is likely to be several times higher.
FIRST QUESTION
WHAT IS A DEVELOPING COUNTRY?
Developing countries

- Nation with a low level of material well-being.
- No single definition of the term.
- Levels of development may vary widely within so-called developing countries.
Reality in ICPs

- All the countries have some initiatives and activities
- Big differences among countries
- Guidelines
- Regulations
- Human Resources
- Scientific Societies
- Training
- National approach in small number of countries
- People in some settings are not conscious of the risks and don’t pressure for having preventive policies.
Prevalence of HAI in developed countries

** Incidence

Average in Europe: 7.1%
ECDC, Comm Dis Report 2008
Known prevalence of HAI in low and middle income countries
1. program (30%)
2. Guidelines (20%)
3. Surveillance (16.7%)
## Surveillance in selected countries

<table>
<thead>
<tr>
<th>Year</th>
<th>Argentina</th>
<th>Chile</th>
<th>Peru 5</th>
<th>Uruguay</th>
<th>Guatemala</th>
</tr>
</thead>
<tbody>
<tr>
<td>2009</td>
<td>7,1</td>
<td>1,9</td>
<td>4,9</td>
<td>2,8</td>
<td>18</td>
</tr>
<tr>
<td>BSI/1000 CVC</td>
<td>17,1</td>
<td>18,0</td>
<td>26,3</td>
<td>15,1</td>
<td>22</td>
</tr>
<tr>
<td>VAP/1000 VM</td>
<td>2,2</td>
<td>1,1</td>
<td>2,1</td>
<td>2,3</td>
<td></td>
</tr>
<tr>
<td>SSI/C-section %</td>
<td>2,2</td>
<td>1,1</td>
<td>2,1</td>
<td>2,3</td>
<td></td>
</tr>
</tbody>
</table>
Research about strategies to prevent bacteremia by MRSA, 28 hospitals in LA

- 70% have surveillance system
- 60% didn’t publish their rates

Central Europe
45% didn’t make root cause analysis
25% yes but not in all cases

- 86% are not requested to communicate the rates to the Ministry of Health

Central Europe
28% didn’t audit HH
- 70% don’t analyze HH compliance

Implement Project IFIC 2011
What is a real difference

Very limited resources

countries

• 35 countries
• Don’t have basic structure
– Tap water
– Electricity
– Food
– Minimum support in basic assistance in health

For them really IC needs to start from the very basic
What is a real difference in terms of research

• 90% money available for research is used in 10% of the countries

• So probably there is a bias in relation to the information we manage in IC

• In general, the information coming for “so calling” developing countries is not considered or not cited as reference
Socioeconomic impact on device-associated infections in limited-resource neonatal intensive care units: findings of the INICC.

<table>
<thead>
<tr>
<th>Infection site</th>
<th>Private</th>
<th>Teaching</th>
<th>P</th>
<th>Public</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>CLA-BSI/1000mpt days</td>
<td>10,8</td>
<td>14,3</td>
<td>&lt;0,05</td>
<td>14,2</td>
<td>NS</td>
</tr>
<tr>
<td>VAP</td>
<td>2,4</td>
<td>13,2</td>
<td>&lt;0,005</td>
<td>4,9</td>
<td>&lt;0,05</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Infection site</th>
<th>Lower income</th>
<th>Medium</th>
<th>P</th>
<th>Upper</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>CLA-BSI/1000mpt days</td>
<td>37,0</td>
<td>11,9</td>
<td>&lt;0,01</td>
<td>17,6</td>
<td>&lt;0,001</td>
</tr>
<tr>
<td>VAP</td>
<td>11,8</td>
<td>3,8</td>
<td>&lt;0,001</td>
<td>6,7</td>
<td>NS</td>
</tr>
</tbody>
</table>

Common problems associated with High HAI rates

- Insufficient resources
- No basic implementation,
- Big expenses in ineffective and unsafe practices,
- No consciousness of authorities,
- Lack of information and national regulations,
- Difficult access to knowledge,
- No networks and insufficient training.
Initiatives
### Antimicrobial Excess (DDD)

<table>
<thead>
<tr>
<th>Infection Type</th>
<th>Patients</th>
<th>Stay Excess (days)</th>
<th>Antimicrobial Excess (DDD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>UTI</td>
<td>107</td>
<td>7.5-31.2</td>
<td>3.9-61.2</td>
</tr>
<tr>
<td>SSI</td>
<td>44</td>
<td>13-49.3</td>
<td>2.9-113.9</td>
</tr>
<tr>
<td>END</td>
<td>91</td>
<td>2.6-5.6</td>
<td>7.1-18.7</td>
</tr>
<tr>
<td>PNEU</td>
<td>47</td>
<td>8.1-44.7</td>
<td>28-73.5</td>
</tr>
<tr>
<td>BSI</td>
<td>52</td>
<td>6.6-64.0</td>
<td>0.5-58.4</td>
</tr>
<tr>
<td>SSI C-section</td>
<td>124</td>
<td>1-7.9</td>
<td>6.8-47.9</td>
</tr>
</tbody>
</table>

Cost control of avoided ineffective measures
Carlos Van Buren Hospital, Chile 2004

- Shoe cover in ICU, NICU and OR
  - Annual cost updated US$ 30,000
- Surgical prophylaxis more than 24 hr
  - Annual cost updated US$ 15,000
- Sterile clothes in NICU
  - Annual cost updated US$ 24,000
- Surgical hand washing with brush in OR
  - Annual cost updated US$ 11,000

P. Nercelles  El Hospital Público vol. III www.minsal.cl
Rapid Guide to evaluate ICP in LA hospitals, OPS/DPC/CD/A/338/05
July 2005 results 28 hospitals

Ecuador 14
Bolivia 9
Perú 5
CINELA
Controlando Las Infecciones
Nosocomiales en Latino América

Universidad de Valparaíso
CHILE

IFTIC
## Cinela Project Results

<table>
<thead>
<tr>
<th></th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
</tr>
</thead>
<tbody>
<tr>
<td>Countries</td>
<td>12</td>
<td>18</td>
<td>8</td>
</tr>
<tr>
<td>Leaders</td>
<td>9</td>
<td>25</td>
<td>19</td>
</tr>
<tr>
<td>Courses</td>
<td>21</td>
<td>42</td>
<td>8</td>
</tr>
<tr>
<td>Participants</td>
<td>735</td>
<td>1600</td>
<td>300</td>
</tr>
<tr>
<td>Approval</td>
<td>71.4% (*)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* Range 50-100%
What Works
Accreditation in HAI Chile 1990 - 2005

- 432 evaluations/
  135 hospitals
- Better compliance in successive evaluations

% accredited

<table>
<thead>
<tr>
<th>Accreditation Number</th>
<th>% Accredited</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>135</td>
</tr>
<tr>
<td>II</td>
<td>101</td>
</tr>
<tr>
<td>III</td>
<td>75</td>
</tr>
<tr>
<td>IV</td>
<td>53</td>
</tr>
<tr>
<td>V</td>
<td>26</td>
</tr>
<tr>
<td>VI</td>
<td>13</td>
</tr>
<tr>
<td>VII</td>
<td>6</td>
</tr>
</tbody>
</table>

% accredited
Tasa Nacional de ITU asociada a catéter vesical (por mil) y uso de sv
UCls MQ Uruguay 2009

Neumonia relacionada a ventilador.
UCI MQ. Uruguay

<table>
<thead>
<tr>
<th>AÑO</th>
<th>Nº DIAS RESPIRADOR</th>
<th>Nº NAV</th>
<th>TASA MEDIA NAV (POR MIL)</th>
<th>P25</th>
<th>P50</th>
<th>P75</th>
<th>IC 95%</th>
</tr>
</thead>
<tbody>
<tr>
<td>2007</td>
<td>40.306</td>
<td>618</td>
<td>15.3</td>
<td>8.2</td>
<td>13.2</td>
<td>22.0</td>
<td>14.2-16.4</td>
</tr>
<tr>
<td>2008</td>
<td>41.821</td>
<td>651</td>
<td>15.6</td>
<td>9.3</td>
<td>13.7</td>
<td>19.4</td>
<td>14.3-16.7</td>
</tr>
<tr>
<td>2009</td>
<td>53.321</td>
<td>804</td>
<td>15.1</td>
<td>7.9</td>
<td>14.3</td>
<td>17.9</td>
<td>14.0-16.1</td>
</tr>
<tr>
<td>2010</td>
<td>17.421</td>
<td>278</td>
<td>15.9</td>
<td>9.6</td>
<td>16</td>
<td>19.3</td>
<td>14.1-17.8</td>
</tr>
</tbody>
</table>
Hand hygiene compliance improvement in pilot sites, WHO 2007

The graph shows the improvement in hand hygiene compliance across different countries and regions. The countries and regions included are:

- Costa Rica
- Bangladesh
- Hong Kong SAR
- Italy
- Mali
- Saudi Arabia (1, 2)
- Pakistan

The graph compares the baseline compliance (red bars) to the follow-up compliance (blue bars) for each location. The y-axis represents the percentage of compliance, ranging from 0 to 100%.
Efficacy of an IC program in reducing blood infections in a Senegalese NICU

- March to May 2005
- 125 discharges before and 148 after program
- Interventions: clustering of nursing care, algorithm for empirical therapy, minimal invasive care and promotion of early discharge
- Rates 10.9 before and 2.9/1000 patient-days ($P=0.03$).

Impact of International Nosocomial Infection Control Consortium (INICC) strategy on CLABSI in ICU of 15 developing countries

- Comparison of two periods (before and after intervention, (53,719 patients (190,905 central line-days).
- CLABSI decreased from 14.5 to 9.7 per 1,000 days and deaths in patients with CLABSI decreased by 58%.
- Conclusions: Education, feedback, and outcome and process surveillance improved infection control adherence, and reduce CLABSI and death

Rosenthal V, Infect Control Hosp Epidemiol. 2010 Dec;31(12):1264-72
Common elements of these programs

- Identified leaders,
- Well-trained staff,
- Methods to identify and to proactively address infection risks,
- Appropriate policies and procedures,
- Staff education, and coordination throughout the organization.
- Surveillance
- Audit practices

*Joint Commission International Accreditation Standards For Hospitals, 4th Edition*
Importance of structured training programs and good role models in hand hygiene in developing countries.

- Two hospitals 1764 questionnaires, 41% returned.
- All professional believed that good hand hygiene effectively prevents infections (98%)
- In multivariate analysis, high self reported adherence to hand hygiene was independently associated with receipt of structured training in hand hygiene and strong normative
- Conclusions: more resources have to be allocated for training of HCWs and easy access for hand hygiene products.

The importance of networking and sharing
Best practices to prevent infections

Bacteremia
Review daily necessity of CVC

CAUTI
Avoid unnecessary catheterization

Is not only a matter of resources

Aseptic technique
Proper skin preparation

Position 30 to 40 degrees
Oral hygiene, HH
In conclusion

Today

• It is possible to control and prevent HAI
• Problems are similar in facilities with similar circumstances and so strategies to reduce HAI
• There are successful experiences that can be shared among countries and regions
Challenges

- Create consciousness
- Improve training
- Encourage national approach
- Guidelines in all languages
- Better surveillance
- Improve evidence based practices and avoid unsafe and ineffective ones
- Effective networking and support
- Multicentric Projects

Developed or not Developed country
Effective agents of change

• IC Societies: one of the main sources of training and support
• Hospitals
• Active National Infection Programs (national leadership)
• Regulatory Agencies (IFIC, WHO, PAHO)
Poverty of knowledge
Lack of consciousness
Lack of commitment
In everywhere
Thanks you