Delivering IPC education systems for Africa - one size does not fit all!
Prof. Shaheen Mehtar, Infection Control Africa Network

Broadcast live from the New Zealand Infection Prevention and Control Nurses College

LMI Country Resources

- Major challenges within health systems
  - Inadequate finances- GDP spent on health very low in Africa
  - Clear association between sanitation and infant mortality (Global fund & World Bank)
  - Skills gap
    - No career path or specific training in IPC
    - Unable to identify outbreaks without surveillance
- Knowledge-
  - Community
  - HCW experience
- Training provided by institutions with rigid parameters- excludes many!
Is there a need for IPC and AMS training?

- An online survey using SurveyMonkey
- Questionnaire developed jointly ICAN/ BSAC
- 16 week period (2018)
- Replies= 263
- 92.3% agreed to participate
- Replies mainly from Anglophone countries
- Wanted more involvement in AMS - 238 (92%)

Training of HCW- how was training delivered?

- Work-based portfolios 29.0%
- Workshops 29.9%
- Mixed 31.8%
- e-learning 10.3%
- Other 3.7%
- On the job 67.3%
- Face to face 65.4%

N= 156
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Education for Self in AMS

Of 226 replies, 95.1% (n =216) wanted further training in AMS

- single topic, 23.4%
- part of IPC, 47.7%
- part of patient safety, 28.4%

Challenges faced during delivery

- Cultural
  - Rote method of teaching and learning
  - Cannot tell an older person what to do.
  - Traditional and indigenous knowledge ignored
- Hierarchical
  - Inadequate knowledge of tutors never challenged
  - Seniors feel threatened by new information
- Language barriers
- Social and political instability
  - Conflict and war
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We train the managers!

Impact of IPC at TBH

<table>
<thead>
<tr>
<th>Year</th>
<th>Infections avoided (n)</th>
<th>Cost (million)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2007</td>
<td>31</td>
<td>7.7</td>
</tr>
<tr>
<td>2008</td>
<td>154</td>
<td>38.5</td>
</tr>
<tr>
<td>2009</td>
<td>47</td>
<td>11.7</td>
</tr>
<tr>
<td>2010</td>
<td>171</td>
<td>42.75</td>
</tr>
<tr>
<td>Total saving</td>
<td>356</td>
<td>89</td>
</tr>
</tbody>
</table>

Cost per infection in ICU = Min R250,000

Current IPC training in Africa

- Varied provision for healthcare delivery by province
- IPC is not recognised as a speciality in its own right
- No established career path in IPC which requires specialised training
- Considered a nursing speciality - doctors are not involved - therefore there are no teams as such!
- Research is limited - information gathering is considered intrusive and spying.
- Guidelines/policies are neither well advertised nor promoted
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Distribution of trained IPC professionals in Africa per country (2005 - 2017)

- Botswana
- Kenya
- Namibia
- Nigeria
- Rwanda
- Sierra Leone
- South Africa
- Swaziland
- Zimbabwe

≈ 90% IPC trained professionals are located in South Africa

Face-to-Face Training

- Face-to-face is the most preferred training format in Africa
- Practical demonstrations necessary for clarification
- ICAN virtual learning via VIDEO-teleconferencing PLATFORMS, where lecturer and participants can see each other.
Course structure

• Pre and post knowledge assessment

• Teaching structure
  – Lectures in the morning
  – Clinical rounds and visits in the afternoon
  – Group discussion followed by drafting a policy or SOP or guideline

• Examination – spots and MCQ

• Return to workplace and complete a logbook and project for each module

• A WINNING FORMULA!

HCW competence essential in outbreaks

• Highly experienced and confident

• Prepared to work long hours initially

• Strict compliance with IC and protective clothing policy

• Immune-competent staff

• Work efficiently without any dangerous shortcuts

• You must KNOW WHAT YOU ARE DOING!
Training in Ebola

• Back to basics!

• Sound knowledge about the mode of transmission will give confidence to treat EVD cases as they deserve to be treated

• Contact precautions
  – Single or isolation
  – Look after your hands- hand hygiene & gloves
  – Protection from splashes- gowns & face shield

• No need to spray with chlorine! Wipe only- if needed

• Manage linen with heat disinfection

• Manage waste with heat and/ or incineration

Peer Evaluation of TTT lectures

• Lectures prepared and given by trainers to their peer groups

• Adult education and have to present innovative means of knowledge transfer

• Peer evaluated according to set criteria.
  • Presentation skills
  • Scientific content
  • Interaction with audience
  • Answering questions

• Homework.
  • To train 5 HCW at place of work

Tutors examine knowledge transfer.

<table>
<thead>
<tr>
<th>Topic</th>
<th>Score (20)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Basic Microbiology</td>
<td>15</td>
</tr>
<tr>
<td>Standard Precautions</td>
<td>12.1</td>
</tr>
<tr>
<td>Transmission based</td>
<td>14.3</td>
</tr>
<tr>
<td>Risk assessment</td>
<td>14</td>
</tr>
<tr>
<td>Clinical services</td>
<td>14.8</td>
</tr>
</tbody>
</table>
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Train the Trainer course (SUN)

<table>
<thead>
<tr>
<th>Type to Test</th>
<th>Pre</th>
<th>Post</th>
<th>Increase in knowledge/speed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Written test: max marks</td>
<td>50</td>
<td>50</td>
<td></td>
</tr>
<tr>
<td>Allocated time (min)</td>
<td>30</td>
<td>30</td>
<td>NA</td>
</tr>
<tr>
<td>Average Completion time (min)</td>
<td>30</td>
<td>14.7</td>
<td>15 minutes</td>
</tr>
<tr>
<td>Average score</td>
<td>31.15</td>
<td>44</td>
<td>13 marks</td>
</tr>
<tr>
<td>% score</td>
<td>62.30%</td>
<td>88%</td>
<td>25.70%</td>
</tr>
<tr>
<td>Spots- Visual test</td>
<td>20</td>
<td>20</td>
<td></td>
</tr>
<tr>
<td>(10 spots x2 min) max marks</td>
<td>13.2</td>
<td>15.8</td>
<td>3 marks (15%)</td>
</tr>
</tbody>
</table>

ICAN- Cape to Cairo Education Programme

- We need to use all the available facilities to teach and improve knowledge in IPC
  - Verbal communication (face to face learning)
  - Electronic platforms
  - Mobile Phones and telecommunication
  - Social media
- Think of innovative ways of transferring knowledge!

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Designing e- IPC education for Africa

Advantages
• Interactive lectures - exciting
• Quizzes interspersed in the lectures – test of knowledge
• Movement within the talks
• Can learn in one’s own time and repeat if necessary
• Much more user friendly once you get used to it.
• Can be linked to an SMS programme
• Standardised measure of outcome

Disadvantages
• Most learning in Africa is rote
• A very new concept in Africa for teaching IPC
• Access to the internet may be limited
• The programmes might be too big for the band width
• Unfamiliar territory
• May be resistance from learners
• Resistance from tutors

What is the true size of Africa?

Courtesy Dr A Bulabula

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ICAN/ SUN TEACHING IN AFRICA- 2005-2019

25 countries plus 2 outside Africa.

Face to face IPC TRAINING is expensive

- Admission
- Tuition
- Insurance
- Immigration
- Airfare
- Meals
- Accommodation

= FEES

An Expensive EXERCISE

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Challenges in delivering IPC training

- Face to face training in Africa is expensive for the majority of Africans.
- Requires travelling and studies’ stay costs
- Accessibility a major issue: reduced mobility due to civil unrest

ICAN had to find contextualised innovative ways to provide IPC training:

IPC Virtual Learning platform!

Expanding IPC in Africa: ICAN_VL

The largest IPC organization in Africa

- Strengthening of National IPC structures
- Research
- Education

International partners: WHO, CDC, US, AFRICA CDC, MSF, IPAC Canada, Universities, Ministries of Health, etc.

Website: [http://www.icanetwork.co.za/](http://www.icanetwork.co.za/)

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Solution to Distance and Costs

- Face 2 Face IPC training is VERY EXPENSIVE for African professionals.
- COST EFFECTIVE
- Accessible IPC quality solutions
- Covers wider areas
- DISTANCE
- African higher education institutions offering IPC training are FAR FROM THE NEEDS

Courtesy Dr A Bulabula

ICAN – VIRTUAL LEARNING : Hub and Nodes

WELCOME TO ICAN VIRTUAL LEARNING
PLEASE LOGIN ABOVE OR REGISTER TO CONTINUE

Login

Courtesy Dr A Bulabula

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ICAN _VL: Teaching Platform

Knowledge HUB (Lecturer)  Classroom=NODE
Plus a local tutor

Uploading of materials on the platform prior to the live class
Lecturer teaches during the day
Local tutor reviews and runs practical sessions in a clinical environment in the afternoon.

Courtesy Dr A Bulabula

ICAN –VL Participating countries

Burundi (University of Burundi – Research and Innovation Centre)
Cameroon (Cameroon Baptist Convention Health Services)
Sierra Leone (Njala University and Freetown)
DRC: setting up IPC training for EVD teams IN 2020

For the 4 nodes, +/- 150 participants attended the inaugural BASIC IPC topic lectures

Uni of Burundi- attending virtual classes

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Demonstrations incorporated into the e-learning programmes

- Principles of vacuum and entry of steam in a steam sterilizer
- Checking the same parameters on a functioning sterilizer

Case based learning

ICAN ECHO IPC
First IPC ECHO programme globally!
A multi-country ECHO program in IPC

Courtesy Dr A Bulabula
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ECHO Structure
Learning in Africa: ICAN initiatives

Any health care facility
Presenting a situation/case/problem in IPC
INTERNET

Panel of experts + the invited Audience (IPC and non-IPC)

Spoke

IPC solutions = Empowerment

ICAN ECHO

ECHO- Flow diagram

IPC CASE / SCENARIO

PRESENTATION & DISCUSSION + DIDACTIC LECTURE

EXPERT RECOMMENDATIONS

Time: one hour every week or fortnight usually around lunchtime.
Atmosphere: relaxed and conversational- “a comfortable space”
Respectful attitude to contributions from the audience

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ICAN ECHO IPC Teleclinic session

Didactic Lecture

Examples of clinical cases

<table>
<thead>
<tr>
<th>Examples of IPC cases presented</th>
<th>Didactic lectures</th>
</tr>
</thead>
<tbody>
<tr>
<td>BSI with <em>Candida parapsilosis</em> in neonates</td>
<td><em>Candida parapsilosis</em> – Prof Shaheen Mehtar</td>
</tr>
<tr>
<td><em>Proteus mirabilis</em> in caesarean section</td>
<td>Caesarean SSI – Dr Anne Eastaway</td>
</tr>
<tr>
<td>Needlestick injury - Occupational Malaria</td>
<td>Malaria as Occupational Disease – Dr Jack Meintjes</td>
</tr>
<tr>
<td>BSI with MRSA and <em>Enterococcus faecalis</em></td>
<td><em>S. aureus</em>: What’s the fuss… - Prof Andrew Whitelaw</td>
</tr>
<tr>
<td>Lessons learned from a pseudo outbreak of <em>Burkholderia gladioli</em></td>
<td>Pseudo-outbreak of <em>Burkholderia cepacia</em> Prof Shaheen Mehtar</td>
</tr>
</tbody>
</table>

Examples of IPC cases presented: 
- BSI with *Candida parapsilosis* in neonates
- *Proteus mirabilis* in caesarean section
- Needlestick injury - Occupational Malaria
- BSI with MRSA and *Enterococcus faecalis*
- Lessons learned from a pseudo outbreak of *Burkholderia gladioli*

Didactic lectures:
- *Candida parapsilosis* – Prof Shaheen Mehtar
- Caesarean SSI – Dr Anne Eastaway
- Malaria as Occupational Disease – Dr Jack Meintjes
- *S. aureus*: What’s the fuss… - Prof Andrew Whitelaw
- Pseudo-outbreak of *Burkholderia cepacia* Prof Shaheen Mehtar

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Examples of non clinical cases

<table>
<thead>
<tr>
<th>Example of ICAN ECHO Talk series</th>
<th>Presenters</th>
</tr>
</thead>
<tbody>
<tr>
<td>Implementation of IPC bundles</td>
<td>Sr Marina Aucamp, South Africa</td>
</tr>
<tr>
<td>IPC, what is the place of lab capacity? Case of Kenya</td>
<td>Sr Loyce Kihungi, Kenya</td>
</tr>
<tr>
<td>The state of WASH/IPC in Cameroon</td>
<td>Mr Jacob Nkwaan, Cameroon</td>
</tr>
<tr>
<td>Progress on IPC/WASH in Tanzania, Opportunities and Challenges</td>
<td>Dr Hokororo / Mr Robert Mussa, Tanzania</td>
</tr>
<tr>
<td>MDRO spread in a Tunisian Hospital</td>
<td>Prof Basma Mnif, Tunisia</td>
</tr>
<tr>
<td>IPC in Ebola Virus Disease: the reality in Africa</td>
<td>Prof Shaheen Mehtar, S Africa</td>
</tr>
</tbody>
</table>

Courtesy Dr A Bulabula

Participating countries from Africa

The 5 AU regions have been participating in ICAN ECHO IPC

11 countries from all AU regions participate

More than 100 participants ICAN ECHO IPC sessions

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Growing interest in IPC discussions Africa wide
In DR Congo, ICAN ECHO sessions have helped the local team to control a large *Klebsiella pneumoniae* outbreak in an NNU

Participating countries have found a non judgmental space to share challenges and find solutions from peers in just an hour per week

Courtesy Dr A Bulabula

Next Steps

Establish an ICAN ECHO Outbreak Response Network “on call”

ICAN ECHO ..... 

ICAN ECHO ....

Lecture series on most relevant IPC matters for Africa - 2020

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Measuring knowledge improvement

• Pre and post assessment - written
  – Multiple choice questions
  – Pairing of questions and answers
  – True or False
  – Short answers

• Spots: (2 min each)
  – A child with MDR-TB. Comment on this slide from an IPC point of view.

Pre and post assessment of IPC training

Sierra Leone IPC HCW training Increase in Knowledge achieved 2-6 March 2015

- Overall average increase of knowledge 22%

Class average

<table>
<thead>
<tr>
<th>% Increase in Knowledge</th>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre test average</td>
<td>11.18</td>
<td>13.25</td>
<td>16.11</td>
</tr>
<tr>
<td>Post test average</td>
<td>17.64</td>
<td>18.31</td>
<td>18.35</td>
</tr>
<tr>
<td>Increase knowledge %</td>
<td>29.55</td>
<td>22.99</td>
<td>10.18</td>
</tr>
</tbody>
</table>

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Assessment second round of training - av. increase from 13% to 72% at pre test level
Pre- and Examination average
19-30 October 2015

SL HCW IPC TRAINING – student evaluation of tutors, 2015- n=25
Excellent/ very good: 96%

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Measurable outcomes that can be done on line

• Pre assessment
  • Provision
  • Knowledge
  • Application of knowledge in clinical practice
• Intervention- training, videos, ECHO
• Post assessment
• Certificate of Competence

What should be incorporated in education for LMI countries

• Social and cultural context is important
• Good robust guidelines- easy and simple to follow
• Provision- water, hand wash system, alcohol rub
• How to work safely when provisions are not available
• Accountability- Link nurses, managers
• Surveillance (simple) associated with HAI & AMS

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Constant reminders

NOW BEING CONVERTED INTO A SMART PHONE APP

IPC Survival Kit
• All clinical healthcare workers underwent a 5 day Basic IPC training course
• Covered the Core Elements of IPC
• Issued with the IPC kit as a reminder and a personal reference.
• Very useful for the Link Nurses

Converting information into apps - easy access

http://apps.who.int/iris/handle/10665/250232

OR go to the Apple store and use this link to download it https://apps.apple.com/gb/app/id2984811791, or look for “ICAN Decontamination”.
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WELCOME! And thank you!

8th ICAN Congress
Infection Control Africa Network
23 – 26 August 2020
Century City Conference Centre
Cape Town | South Africa

INFECTION PREVENTION AND CONTROL (IPC) AND PATIENT SAFETY

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### Schedule

<table>
<thead>
<tr>
<th>Date</th>
<th>Topic</th>
<th>Speaker</th>
</tr>
</thead>
<tbody>
<tr>
<td>September 26, 2019</td>
<td>POSITIVE DEVIANCE AND HAND HYGIENE: WHAT CAN WE LEARN FROM THE BEST?</td>
<td>Josiane Létoumeau, University of Montreal</td>
</tr>
<tr>
<td>October 3, 2019</td>
<td>BEWARE OF DRY BIOFILMS: THE NEXT CHALLENGE IN INFECTION CONTROL</td>
<td>Prof. Jean-Yves Malillard, Cardiff University, Wales</td>
</tr>
<tr>
<td>October 10, 2019</td>
<td>ENDOSCOPE REPROCESSING: PARADIGM SHIFT</td>
<td>Dr. Michelle Alfa, University of Manitoba</td>
</tr>
<tr>
<td>October 16, 2019</td>
<td>SELF-REPORTED BEHAVIORS AND PERCEPTIONS OF AUSTRALIAN PARAMEDICS IN RELATION TO HAND HYGIENE AND GLOVING PRACTICES IN PARAMEDIC-LED HEALTHCARE</td>
<td>Prof. Nigel Barr, University of the Sunshine Coast, Australia</td>
</tr>
<tr>
<td></td>
<td>INFECTION CONTROL ISSUES IN HEALTHCARE CONSTRUCTION, PART 2 - NEW BUILD</td>
<td></td>
</tr>
</tbody>
</table>

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