Improving the knowledge and receptiveness of medical students towards hand hygiene: Exploring new approaches

Rajneesh Kaur
Lowy Cancer Research Centre
Prince of Wales Clinical School
University of New South Wales
Australia

Hosted by Jane Barnett
jane@webbertraining.com

www.webbertraining.com February 21, 2018

BACKGROUND

- Research conducted to date, has documented hand hygiene (HH) compliance rates for medical students ranging between 8% and 52%.
- While compliance rates have increased in recent years for medical students, they are still well below the ideal levels.
- The audit data by hand hygiene Australia indicate that currently hand hygiene of medical students in Australia is around 80%.
- To date, most studies have focused on trained hospital healthcare workers (HCWs) and have underestimated the role that students also have on infection control as future HCWs.

AIMS

Develop and evaluate a new learning/teaching approach for undergraduate medical students around HH
Improving the Knowledge and Receptiveness of Medical Students Towards Hand Hygiene
Rajneesh Kaur, University of New South Wales
A Webber Training Teleclass

Study process

**Needs assessment**
- What are the current teaching approaches used to teach HH in medical schools?
- What other approaches can be used and how much of the new approaches is required.

**Development and pilot testing**
- Evaluation of the teaching module during its delivery i.e. its acceptability and student satisfaction
- Modifications made based on student feedback

**Evaluation**
- Impact of the module on HH knowledge of the students
- Impact on the attitudes of the students

---

**Needs Assessment**

Three components

1. Literature review
2. Qualitative in depth interviews with medical students and academics at UNSW, Sydney
3. Survey of Deans of Medical Education of Australian medical schools

Hosted by Jane Barnett  jane@webbertraining.com
www.webbertraining.com
Literature review

- Burden of HAIs
- Most common microorganisms responsible for causing HAIs
- Healthcare workers' hands and transmission of pathogens causing HAIs
- ‘My five moments of hand hygiene’
- Hand hygiene compliance amongst HCWs
- Measuring hand hygiene compliance

Literature review contd.

- HCWs’ HH compliance worldwide and in Australia
- HH compliance of medical students: worldwide and in Australia
- Facilitators and barriers of HH compliance for all HCWs
- The knowledge, attitudes and practices of medical students towards HH
- Interventions aimed at improving compliance
- Theoretical concepts: Social cognitive models
  Adult learning theories
Improving the Knowledge and Receptiveness of Medical Students Towards Hand Hygiene
Rajneesh Kaur, University of New South Wales
A Webber Training Teleclass

HH Compliance amongst medical students in Australia

Adapted from data by Hand Hygiene Australia (HHA)

Qualitative study

Key stakeholder interviews (n=17)

- Key members of the undergraduate medical teaching team (including faculty staff members and clinical supervisors)
- Medical students from the UNSW

Hosted by Jane Barnett  jane@webbertraining.com
www.webbertraining.com
Improving the Knowledge and Receptiveness of Medical Students Towards Hand Hygiene
Rajneesh Kaur, University of New South Wales
A Webber Training Teleclass

Facilitators and barriers around teaching concepts of hand hygiene to undergraduate medical students
R. Kaur*, H. Razee, H. Seale
School of Public Health and Community Medicine, UNSW Medicine, University of New South Wales, New South Wales, Australia

Selective forgetfulness

“I can’t recall any lectures on infection control or HH.......So if we were taught it, there was not much emphasis on it”. (Medical student)

This failure to remember any teaching around HH by medical students is ‘selective forgetfulness it happens to the concepts not considered important by students” (Academic)

Hosted by Jane Barnett  jane@webbertraining.com
www.webbertraining.com
Not important

‘Monkey see monkey do’, in that medical students go onto the ward, fail to see staff complying with HH and perhaps start to feel that while it is ideal to do it, it is ‘not really necessary’.

Inconvenient

‘It takes you away from what you’re doing, it distracts you, and it’s another process you need to remember, so I think there are multiple ways in which people justify to themselves that this is inconvenient’.
Improving the Knowledge and Receptiveness of Medical Students Towards Hand Hygiene
Rajneesh Kaur, University of New South Wales
A Webber Training Teleclass

Role models

“In most cases, we just do what the consultants do. When they perform HH they actually encourage us to do the same thing.... We might do it for a day or two afterwards, but then the effect wanes off because we don't see the same consultant for a while.”

Hidden curriculum

“The hidden curriculum is basically what the students see being done.... For example, if they see clinicians not changing their communication style... students will start doing the same thing”.

Hosted by Jane Barnett  jane@webbertraining.com
www.webbertraining.com
Scenario Based Learning

“Through a scenario whereby students can see the impact of poor infection control practices and think about what they would be and what the outcomes can be and so forth then I think there is some possibility of engaging them around”.

Assessment

“I don’t think I would like to be assessed but I think that would be the best way to learn”.
Improving the Knowledge and Receptiveness of Medical Students Towards Hand Hygiene

Rajneesh Kaur, University of New South Wales
A Webber Training Teleclass

3. Survey of Australian medical school
A questionnaire was sent to all medical schools across Australia (n=17)

Exploring the approaches used to teach concepts of hand hygiene to Australian medical students

Rajneesh Kaur, Husna Razee and Holly Seale

Hosted by Jane Barnett  jane@webbertraining.com
www.webbertraining.com
### Current teaching approaches used in medical schools

<table>
<thead>
<tr>
<th>Teaching approaches</th>
<th>No.</th>
<th>%age</th>
</tr>
</thead>
<tbody>
<tr>
<td>Case Scenarios</td>
<td>15</td>
<td>88.2</td>
</tr>
<tr>
<td>Lectures</td>
<td>15</td>
<td>88.2</td>
</tr>
<tr>
<td>Videos</td>
<td>10</td>
<td>58.8</td>
</tr>
<tr>
<td>e-learning</td>
<td>6</td>
<td>35.3</td>
</tr>
<tr>
<td>Skills stations</td>
<td>17</td>
<td>100</td>
</tr>
<tr>
<td>Reflective learning</td>
<td>8</td>
<td>47.1</td>
</tr>
</tbody>
</table>

### Useful learning/teaching approaches for improving HH of medical students

<table>
<thead>
<tr>
<th>Approach (N=17)</th>
<th>Disagree n (%)</th>
<th>Agree n (%)</th>
<th>Unsure n (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lectures</td>
<td>9 (52.9)</td>
<td>7 (41.2)</td>
<td>1 (5.9)</td>
</tr>
<tr>
<td>Case-based problem solving</td>
<td>5 (29.4)</td>
<td>7 (42.2)</td>
<td>5 (29.4)</td>
</tr>
<tr>
<td>Online material</td>
<td>0 (0.0)</td>
<td>12 (70.6)</td>
<td>5 (29.4)</td>
</tr>
<tr>
<td>Reflection</td>
<td>0 (0.0)</td>
<td>12 (70.6)</td>
<td>5 (29.4)</td>
</tr>
<tr>
<td>Practical exercises</td>
<td>0 (0.0)</td>
<td>15 (88.2)</td>
<td>2 (11.8)</td>
</tr>
</tbody>
</table>
Improving the Knowledge and Receptiveness of Medical Students Towards Hand Hygiene

Rajneesh Kaur, University of New South Wales

A Webber Training Teleclass

Development and appraisal of a hand hygiene teaching approach for medical students: a qualitative study

Rajneesh Kaur, Husna Razee and Holly Seale

Development and pilot testing of the prototype

Qualitative group interviews (8 groups)

- **28 students** from year 1 to 5

**HH module prototype**

- PowerPoint presentation
- Practical demonstration
- Scenario based learning activity
- Interview activity

Hosted by Jane Barnett  jane@webbertraining.com

www.webbertraining.com
Improving the Knowledge and Receptiveness of Medical Students Towards Hand Hygiene
Rajneesh Kaur, University of New South Wales
A Webber Training Teleclass

Contents of the final HH teaching tool

<table>
<thead>
<tr>
<th>Topics</th>
<th>Resources</th>
<th>Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Information about HAIs and HH</td>
<td>Information was based on educational materials utilised by WHO</td>
<td>10 minutes</td>
</tr>
<tr>
<td>Practical demonstration of HH</td>
<td>Demonstration of actual technique and duration of HH</td>
<td>5 minutes</td>
</tr>
<tr>
<td>HH Scenario</td>
<td>SBL scenario of a medical student forgetting to carry out HH during the clinical skills session in hospital setting</td>
<td>15 minutes</td>
</tr>
</tbody>
</table>

My 5 moments of hand hygiene

My 5 moments of hand hygiene

1. Before touching a patient
2. Before aseptic procedure
3. After body fluid exposure risk
4. After touching a patient
5. After touching patient surroundings

Hosted by Jane Barnett  jane@webbertraining.com
www.webbertraining.com
Phase 3: Implementing and evaluating the developed approach

Journal of Hospital Infection 95 (2017) 375–378
Available online at www.sciencedirect.com
Journal of Hospital Infection
journal homepage: www.elsevierhealth.com/journals/jhin

Short report
Setting the right foundations: improving the approach used to teach concepts of hand hygiene to medical students
R. Kaur*, H. Razee, H. Seale
School of Public Health and Community Medicine, UNSW Medicine, University of New South Wales, New South Wales, Australia

Study process

- Recruitment of medical students from year one and two
- Baseline questionnaire at time period T1 (paper based)
- Delivery of intervention
- First follow up questionnaire at 2 weeks after the intervention, time period T2
- Second follow up questionnaire at 6 months after the intervention, time period T3
Results: Knowledge and attitude variable mean scores over three periods of time

<table>
<thead>
<tr>
<th></th>
<th>Mean (95% CI)</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>T1 N=96</td>
<td>T2 N=96</td>
</tr>
<tr>
<td>Knowledge score HAI</td>
<td>2.3 (2.2-2.5)</td>
<td>3.8 (3.6-3.96)</td>
</tr>
<tr>
<td>Knowledge score HH</td>
<td>7.9 (7.5-8.4)</td>
<td>9.2 (8.8-9.7)</td>
</tr>
<tr>
<td>Knowledge score HH</td>
<td>1.3 (1-1.5)</td>
<td>3.8 (3.6-4)</td>
</tr>
<tr>
<td>Knowledge score HH</td>
<td>3.1 (2.9-3.4)</td>
<td>6.7 (6.5-7)</td>
</tr>
<tr>
<td>Knowledge score HH</td>
<td>2.8 (2.7-3)</td>
<td>3.8 (3.6-3.9)</td>
</tr>
<tr>
<td>Knowledge score HH</td>
<td>48.5 (47.6-49.5)</td>
<td>56.2 (55.3-57.3)</td>
</tr>
</tbody>
</table>

Student knowledge of ‘My 5 moments of HH’
Improving the Knowledge and Receptiveness of Medical Students Towards Hand Hygiene
Rajneesh Kaur, University of New South Wales
A Webber Training Teleclass

Attitudes of medical students to HH over three time periods

Student feedback on the HH teaching session done at first follow up survey at time-period 2 (T2)

<table>
<thead>
<tr>
<th>Statement (n=96)</th>
<th>Agree n (%)</th>
<th>Not sure n (%)</th>
<th>Disagree n (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>I am satisfied with the amount of information provided in the session</td>
<td>92 (95.8)</td>
<td>2 (2.1)</td>
<td>2 (2.1)</td>
</tr>
<tr>
<td>The information provided was not sufficient</td>
<td>0</td>
<td>9 (9.4)</td>
<td>87 (90.6)</td>
</tr>
<tr>
<td>The information in today’s session was easy to understand</td>
<td>94 (97.9)</td>
<td>2 (2.1)</td>
<td>0</td>
</tr>
<tr>
<td>The length of the session was too long</td>
<td>5 (5.2)</td>
<td>4 (4.2)</td>
<td>87 (90.6)</td>
</tr>
<tr>
<td>There were parts of the session that I didn’t understand</td>
<td>3 (3.1)</td>
<td>1 (1)</td>
<td>92 (95.8)</td>
</tr>
<tr>
<td>The information provided was overwhelming</td>
<td>2 (2.1)</td>
<td>2 (2.1)</td>
<td>92 (95.8)</td>
</tr>
<tr>
<td>I trusted the information delivered in the session</td>
<td>93 (96.9)</td>
<td>3 (3.1)</td>
<td>0</td>
</tr>
<tr>
<td>The training program in hand hygiene was clinically relevant to infection control</td>
<td>95 (99)</td>
<td>1</td>
<td>0</td>
</tr>
</tbody>
</table>
Limitations

- Generalisability
- Uncontrolled design
- Self reports vs actual practices
- No long term follow up
- Transition away from the university

Future directions

- Use reflection and assessment
- Check actual compliance
- Use control group/RCTs
- Empowerment

Acknowledgments

- All academics and medical students who participated in four different studies

Hosted by Jane Barnett  jane@webbertraining.com
www.webbertraining.com
Improving the Knowledge and Receptiveness of Medical Students Towards Hand Hygiene
Rajneesh Kaur, University of New South Wales
A Webber Training Teleclass

<table>
<thead>
<tr>
<th>Date</th>
<th>Topic</th>
<th>Speaker, Institution</th>
</tr>
</thead>
<tbody>
<tr>
<td>February 22, 2016</td>
<td>Root cause analysis to support infection control in healthcare premises</td>
<td>Dr. Anne-Gaëlle Venier, University Hospital Centre of Bordeaux, France</td>
</tr>
<tr>
<td>February 26, 2016</td>
<td>Why leadership matters for effective infection prevention and control</td>
<td>Julie Storr, World Health Organization</td>
</tr>
<tr>
<td>March 6, 2016</td>
<td>Infection prevention in nursing homes and palliative care</td>
<td>Prof. Patricia Stone, Columbia University, New York</td>
</tr>
<tr>
<td>March 15, 2016</td>
<td>Clostridium difficile asymptomatic carriers – the hidden part of the iceberg</td>
<td>Dr. Yves Longtin, McGill University, Montreal</td>
</tr>
<tr>
<td>March 22, 2016</td>
<td>Challenges and facilitators to nurse-driven antibiotic stewardship: results from a multisite qualitative study</td>
<td>Prof. Eileen J. Carter, Columbia University School of Nursing</td>
</tr>
</tbody>
</table>

Thanks to Teleclass Education
**Patron Sponsors**

- [Diversey](http://www.diversey.com)
- [Virox](http://www.virox.com)
- [GOJO](http://www.gojo.com)
- [World Health Organization](http://www.who.int/gpsc/en)

Hosted by Jane Barnett  jane@webbertraining.com
www.webbertraining.com