WHO Three I’s Meeting

Infection Control

AC Peters
CDC South Africa
Background: South Africa

- South Africa has the highest TB incidence in the world
  - 948 cases per 100,000 population in 2007 (WHO 2009).
- High incidence is partly attributed to poor TB infection control in primary health care (PHC) facilities (Sissolak et al 2009).
- Growing numbers of undiagnosed and untreated TB suspects together with HIV patients at PHC facilities increases chances of infection and re-infection with TB (Parsons et al. 2008).
- TB is the most common opportunistic infection and a leading cause of death of persons infected with AIDS (CDC, WHO & IUTLD2006).
- The lack of proper infection control in PHC facilities in South Africa has fuelled increasing numbers of MDR TB as well as outbreaks of XDR TB (Mvusi in Bateman 2010; Padayatchi et al 2010)
Partnerships

- NDOH, CDC, USAID, Global Fund, Italian Cooperation and several PEPFAR partners etc
- Activities include: infection control assessments, trainings and support on all aspects of infection control to NDOH, PDOH, districts and to other partners
- 5 year CoAg with the Council of Scientific and Industrial Research
- Three I’s – priority areas for PEPFAR
The Eastern Cape Experience
Background Eastern Cape

- Eastern Cape had the second highest provincial TB incidence in 2008
  - 965.5 cases per 100 000 population (Stats SA in Bateman 2010).
- It is also one of the four provinces with the highest burden of MDR and XDR TB (Mvusi in Bateman 2010).
- The Eastern Cape has six districts, and encompasses the rural western area.
Cacadu

- A series of infection control interventions were implemented in Cacadu District.
- The intervention commenced in the Camdeboo Sub-District, which comprises four of the eight local municipalities.
- Staff from the two other sub-districts attended several trainings.
Cacadu

The training consisted of three sessions, one each for:

- District, sub-district and primary health care clinic managers
- Staff from hospitals, community health centres and clinics
- Other health care staff identified to be trained on infection control
Cacadu

- Training focused on: environmental controls, managerial controls and personal protection controls.
- A district environmental officer was trained to undertake infection control assessments and support the district.
- Mechanisms for separating TB suspects from other patients were prioritised by training domestic workers and cleaners as “cough officers”.
- Cough etiquette and hand washing posters were developed, tested in the field and displayed in clinics.
Cacadu

- Facility specific infection control guidelines/policies developed
- Open-window stickers and registers developed and implemented (as well as open door stickers)
- Consulting rooms/hospital wards - flow of air measured and changes made to rooms where TB patients were seen
- TB/HIV integrated consulting rooms
Cacadu

- Developed “Reminder” stickers for patients cards to remind staff to screen for TB if patients are coughing
- Strengthened staff screening for TB
- Developed activity books for children to make them aware of TB, HIV and nutrition
- Started a community project
Cacadu

- Persons trained in infection control undertook baseline (just prior to intervention) and follow-up (three and twelve months after intervention) assessments.
- The assessments included interviews and observations at 34 clinics.
- All information was captured electronically and analysed using SPSS17.
- Frequencies were calculated and provide a before and after picture of infection control practices at clinics.
### Cacadu: Outcomes

<table>
<thead>
<tr>
<th>Work practice and administrative controls</th>
<th>Before (%)</th>
<th>After 3 months (%)</th>
<th>After 12 months (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appointed infection control officer</td>
<td>7.4</td>
<td>8.8</td>
<td>66</td>
</tr>
<tr>
<td>Infection control policy in place</td>
<td>46.4</td>
<td>52.9</td>
<td>75</td>
</tr>
<tr>
<td>Actively screening for coughing</td>
<td>46.7</td>
<td>55.9</td>
<td>80</td>
</tr>
<tr>
<td>Patients coughing &gt; two weeks sent for sputum test</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>Coughing patients separated from non-coughing patients</td>
<td>20.0</td>
<td>35.3</td>
<td>65</td>
</tr>
</tbody>
</table>
## Cacadu Outcomes

<table>
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<tr>
<th>Work practice and administrative controls</th>
<th>Before (%)</th>
<th>After 3 months (%)</th>
<th>After 12 months (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coughing patients given tissues (respiratory hygiene)</td>
<td>37.9</td>
<td>26.5</td>
<td>45</td>
</tr>
<tr>
<td>Sputum collection in front of open window /outside</td>
<td>80</td>
<td>97.0</td>
<td>100</td>
</tr>
<tr>
<td>Health education given at clinic on infection control</td>
<td>73.9</td>
<td>94.1</td>
<td>96</td>
</tr>
<tr>
<td>Patient cough etiquette posters on walls</td>
<td>0</td>
<td>47.1</td>
<td>80</td>
</tr>
<tr>
<td>Hand washing posters/stickers at washbasins</td>
<td>0</td>
<td>36.8</td>
<td>85</td>
</tr>
</tbody>
</table>
Implementing TB infection control: SACBC

Divided implementation of TB infection control measures in five components
First Component Training

- First training October 2008 - half-day training for 45 ART site managers on TB
- Second training February 2009 - 90 HIV nurses trained on TB
- Third training September 2009 – 2-day workshop by CSIR/DOH/CDC - 65 nurses, doctors and site managers trained on infection control
- At end of third training, all sites had draft infection control plans and began implementation of certain components, i.e. opening doors and windows
Every Person
Every Visit
Every Time
SCREEN
Second Component
Construction of open air waiting areas

- SACBC/CRS facilitating construction of open-air waiting areas
- Sites designed own structures according to needs and preferences, e.g. space available, construction materials preferred, etc.
Seating under open-air waiting areas

• Some sites chose stationary benches
• Some chose loose chairs that can be moved to the sun or the shade, depending on weather
Side Blinds

• Side blinds attached to some structures
• Allow adequate ventilation through slits and openings
• Enable patients to sit in outside waiting areas, even in cold and rainy weather
Patio heaters
Posters and stickers

- Field-tested posters on cough hygiene and hand washing was distributed to all facilities
- Open window and open door stickers placed on doors and windows to remind site personnel and patients to keep windows and doors open
- All materials were translated in all relevant languages
Third component
Strategy

• Appoint TB infection control manager to take responsibility for the plan and implementing the plan
• Appoint one or two TB infection control officers to assist manager
• *Train cough officers as first point of contact to patients to, verbally screen patients for cough, provide on the spot health education on cough hygiene, provide patients with tissues/paper towels/toilet paper to cover cough, fast-track or separate coughing*
Third component
Strategy

• Open windows and doors
• Ensure mechanical ventilation systems switched on and working
• Arrange group infection control health education while patients wait
• Display posters where patients will see them
• Periodically follow up on mechanical ventilation service
• Reviewed final drafts of plans
Fourth component
Mechanical ventilation

• For adequate ventilation, 6 to 12 air changes per hour required
• SACBC/CRS contracted out design and coordination of mechanical ventilation in service points to an engineering company ProjectWay
Whirly birds expel air from inside park home

Whirly birds suck in fresh air through openings
Fifth component
Continuous on-site evaluation of plans

• Evaluate the implementation of TB infection control practices three monthly
• Provide technical support for the implementation of infection control plans
Concerns
Reality?

- 127 Clinics in 3 districts (Eastern Cape and Northern Cape)
- November 2010
## Infection Control Training

<table>
<thead>
<tr>
<th>Category</th>
<th>n</th>
<th>Trained</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Professional nurses</td>
<td>361</td>
<td>120</td>
<td>33</td>
</tr>
<tr>
<td>Other categories of nurses</td>
<td>144</td>
<td>29</td>
<td>20</td>
</tr>
<tr>
<td>Community workers</td>
<td>1852</td>
<td>105</td>
<td>6</td>
</tr>
</tbody>
</table>
### Outcomes

<table>
<thead>
<tr>
<th>Work practice and administrative controls</th>
<th>Implementation (n = 127)</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appointed infection control officer</td>
<td>58</td>
<td>46</td>
</tr>
<tr>
<td>Infection control committee</td>
<td>51</td>
<td>40</td>
</tr>
<tr>
<td>Infection control policy in place</td>
<td>52</td>
<td>41</td>
</tr>
<tr>
<td>Actively screening for coughing</td>
<td>99</td>
<td>78</td>
</tr>
<tr>
<td>Patients coughing &gt; two weeks sent for sputum test</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>Coughing patients separated from non-coughing patients</td>
<td>61</td>
<td>48</td>
</tr>
<tr>
<td>N95 masks available</td>
<td>58</td>
<td>46</td>
</tr>
<tr>
<td>Coughing patients offered masks/tissues</td>
<td>57</td>
<td>55</td>
</tr>
<tr>
<td>Coughing patients separated</td>
<td>61</td>
<td>48</td>
</tr>
<tr>
<td>Staff contracting TB (# clinics)</td>
<td>55</td>
<td>43</td>
</tr>
</tbody>
</table>
Lessons learned

- **OWNERSHIP** the key to success
- Training to all levels of health care workers / other staff and community workers
- Have a support system in place
- Buy in and involvement of all levels of staff
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To learn more about CDC, visit www.cdc.gov

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