A Systems Approach to Improving Immunisation Timeliness

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With Acknowledgments to the rest of the ABCD Project team and to participating services and staff

Sydney - July 2009
Overview

- The ABCD Action-Research Cycle
- The Child Health Audit
- Focus on timeliness of immunisation
- Audits results
- Systems Assessment
- Potential for Systems Improvement
The ABCD Action-Research Cycle

**Evidence Base**
- Indigenous health research values and ethics
- Quality improvement
- Action learning
- Diffusion of innovation

**STEP 1:** Signed Agreement

**STEP 2:** Training/Orientation

**STEP 3:** Audits, system assessment

**STEP 4:** Participatory Interpretation.
Data analysis & report preparation

**STEP 5:** Action Planning.
Clinic feedback, workshop & goal setting for system changes

**STEP 6:** act
Implement changes

Bailie et al MJA 2007
• Diabetes
• Preventive Care
• Maternal Health
• Child Health
Child Health Audit

- General Information (e.g. Medicare No, DoB, Sex, Indigenous status, Region)

- Most recent attendance at the health centre

- Key Summary Health Information (Growth chart, Immunisation chart, Child health check)

- Scheduled Immunisations

- Scheduled Clinical Services (according to age)

- Follow up of abnormal findings
## Participating Health Centres / Children

<table>
<thead>
<tr>
<th></th>
<th>NT</th>
<th>FW NSW</th>
<th>WA</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of health centres</td>
<td>13</td>
<td>6</td>
<td>5</td>
<td>24</td>
</tr>
<tr>
<td>Number of children</td>
<td>340</td>
<td>157</td>
<td>148</td>
<td>645</td>
</tr>
<tr>
<td>Aboriginal (not stated)</td>
<td>92%</td>
<td>75%</td>
<td>95%</td>
<td>89%</td>
</tr>
<tr>
<td></td>
<td>(1%)</td>
<td>(14%)</td>
<td>(1%)</td>
<td>(4%)</td>
</tr>
<tr>
<td>Attended HC within 12 months</td>
<td>99%</td>
<td>80%</td>
<td>86%</td>
<td>91%</td>
</tr>
<tr>
<td>(range between health centres)</td>
<td>(95-100%)</td>
<td>(52-100%)</td>
<td>(69-97%)</td>
<td>(52-100%)</td>
</tr>
</tbody>
</table>
Example of system issues - Childhood Immunisation

- Relevance to Chronic Disease
- High coverage as reported by ACIR (90%+)
- Timeliness as ‘the next frontier’
- Limitations of Australian Childhood Immunisation Register
  - Not all vaccines
  - Reported coverage allows for significant lags
  - Limited access
  - Limited reporting capacity
## Audit of Scheduled Immunisations

### Scheduled Age (delivery timeframe)

<table>
<thead>
<tr>
<th>Age</th>
<th>Vaccine Schedule</th>
<th>N</th>
<th>Timely Delivery</th>
</tr>
</thead>
<tbody>
<tr>
<td>Birth (within 7 days)</td>
<td>Hep B</td>
<td>526</td>
<td>80%</td>
</tr>
<tr>
<td>2 Months (before 3 months of age)</td>
<td>Hep B, DTPa, Hib, Polio, 7vPCV</td>
<td>523</td>
<td>79-85%</td>
</tr>
<tr>
<td>4 months (before 5 months of age)</td>
<td>Hep B, DTPa, Hib, Polio, 7vPCV</td>
<td>499</td>
<td>77-82%</td>
</tr>
<tr>
<td>6 months (before 7 months of age)</td>
<td>Hep B, DTPa, Hib*, Polio, 7vPCV</td>
<td>472, 38</td>
<td>71-75%, 55%</td>
</tr>
<tr>
<td>12 months (before 14 months of age)</td>
<td>Hib, MMR, MenCCV, Hep A*</td>
<td>354, 87</td>
<td>72-80%</td>
</tr>
<tr>
<td>18 months (before 20 months of age)</td>
<td>VZV*, 23vPPV*, Hep A*</td>
<td>45, 199, 62</td>
<td>64%, 76%, 73%</td>
</tr>
<tr>
<td>4 years (before age 4 years and 6 months)</td>
<td>DTPa, MMR, Polio</td>
<td>57</td>
<td>68-77%</td>
</tr>
<tr>
<td>Age Group</td>
<td>N</td>
<td>Timely Delivery</td>
<td>95% CI</td>
</tr>
<tr>
<td>--------------</td>
<td>-----</td>
<td>----------------</td>
<td>------------</td>
</tr>
<tr>
<td>0-12 months</td>
<td>145</td>
<td>64%</td>
<td>57-71%</td>
</tr>
<tr>
<td>1-2 years</td>
<td>199</td>
<td>41%</td>
<td>35-48%</td>
</tr>
<tr>
<td>3-4 years</td>
<td>182</td>
<td>34%</td>
<td>28-39%</td>
</tr>
<tr>
<td>Combined (0-4 years)</td>
<td>526</td>
<td>45%</td>
<td>41-49%</td>
</tr>
</tbody>
</table>
## Primary Care Systems

### 603 records

<table>
<thead>
<tr>
<th></th>
<th>NT (12) 53% (23-97%)</th>
<th>FW NSW (6) 32% (21-53%)</th>
<th>WA (5/2) 32% (23-41%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Delivery</td>
<td>CHC staff</td>
<td>CHC staff Nurses GPs</td>
<td>Com Health Nurses NOT Hlth Centre staff</td>
</tr>
<tr>
<td>Documentation</td>
<td>Clinical record</td>
<td>Various</td>
<td>Com Hlth Record NOT in Clinical record</td>
</tr>
<tr>
<td>Database</td>
<td>Childhood Immunisation Database ? ACIR</td>
<td>? ACIR</td>
<td>? ACIR State Health Database</td>
</tr>
<tr>
<td>Audit</td>
<td>Clinical Record</td>
<td>Various</td>
<td>Com Hlth record - IF accessible</td>
</tr>
</tbody>
</table>
Variation between health centres

Timely immunisation

Developmental assessment

Average, 38
Average, 42
Variation in antenatal care, birth outcomes, postnatal care

FBE
- Average: 80

Preterm birth (<37 weeks)
- Average: 11

Syphilis serology
- Average: 72

Postnatal visit
- Average: 53
Discussion

• Multiple levels of system deficiency
  – Delivery system
  – Linkages
  – Information system (local and national)

• Rationalise and coordinate local approach to:
  – Delivery
  – Information

• Upgrade national information system (ACIR)

• Quality monitoring and quality management
  – Constructive and responsible use of:
    • data
    • power and influence
Potential Enhancements to ACIR

- Incorporate measure of timeliness into ACIR reports
- Report on high risk groups (Indigenous, jurisdictions)
- On-line access to all primary care providers
- Automated recall/reminder lists to all providers
- Report on population level timeliness measures
- More equitable incentives for timely reporting
Thank you

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Bailie et al, A systems approach to improving timeliness of immunisation.
Vaccine 27 (2009) 3669-3674

www.abcdproject.org.au