Thanks for getting a flu vaccine in pregnancy mum

Maternal Immunisation Report Card

• Coverage
• Safety
• Effectiveness

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It’s on the agenda!

• Coverage
  – FluMum, WA, SA, Vic
• Safety
  – Systematic Review
  – Australian data
  – Cultural safety
• Program delivery
  – Antenatal clinics
  – State-based roll-out

• Effectiveness
  – Program evaluation
• Aust. Imm. Register
• PBAC submission

• Annette Regan
• Amy Creighton
• Donna Mak
• Heidi Hutton
• Janice Kitson
• Jeanette Young
• Kathryn Riley
• Lisa McHugh
• Mark McMillan
• Margie Danchin
• Sonya Nicholl
• Ross Andrews
Uptake of Influenza and Pertussis Vaccines

<table>
<thead>
<tr>
<th>Year</th>
<th>Influenza Vaccine</th>
<th>Pertussis Vaccine</th>
</tr>
</thead>
<tbody>
<tr>
<td>2012</td>
<td>20%</td>
<td>40%</td>
</tr>
<tr>
<td>2013</td>
<td>30%</td>
<td>50%</td>
</tr>
<tr>
<td>2014</td>
<td>10%</td>
<td>20%</td>
</tr>
<tr>
<td>2015</td>
<td>50%</td>
<td>80%</td>
</tr>
</tbody>
</table>

Slip courtesy of Annette Regan, WA Dept of Health. & Uni of WA

Strategies for Improvement

<table>
<thead>
<tr>
<th>Survey result</th>
<th>Strategy for improvement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Recommendation is consistently the strongest predictor of vaccination</td>
<td>Encourage health providers to recommend vaccination during pregnancy</td>
</tr>
<tr>
<td>90% of women said they were vaccinated to protect the baby</td>
<td>Communicating the benefits of vaccination to the baby to mothers</td>
</tr>
<tr>
<td>Women report concern about the safety of vaccine is a common barrier to vaccination, particularly for influenza vaccine</td>
<td>Reassuring pregnant women about the safety of maternal vaccination</td>
</tr>
<tr>
<td>Influenza vaccine uptake lags behind pertussis vaccine</td>
<td>Promotion specific to influenza vaccine may be needed</td>
</tr>
</tbody>
</table>

Slide courtesy of Annette Regan, WA Dept of Health. & Uni of WA
## Predictors of influenza vaccine in pregnancy, 2015

45% (2755)

### If mum thinks flu ...

<table>
<thead>
<tr>
<th></th>
<th>Yes % uptake(n)</th>
<th>No % uptake(n)</th>
<th>Difference</th>
<th>RR</th>
</tr>
</thead>
<tbody>
<tr>
<td>in pregnancy is serious</td>
<td>50% (2030)</td>
<td>34% (448)</td>
<td>+16%</td>
<td>1.5</td>
</tr>
<tr>
<td>VIP stops flu in newborn</td>
<td>58% (1099)</td>
<td>39% (887)</td>
<td>+18%</td>
<td>1.5</td>
</tr>
<tr>
<td>VIP means less severe flu in preg.</td>
<td>50% (1960)</td>
<td>34% (414)</td>
<td>+17%</td>
<td>1.5</td>
</tr>
<tr>
<td>VIP stops flu in pregnancy</td>
<td>57% (1064)</td>
<td>41% (1291)</td>
<td>+16%</td>
<td>1.4</td>
</tr>
<tr>
<td>VIP could make you sick</td>
<td>35% (1205)</td>
<td>59% (1273)</td>
<td>-24%</td>
<td>0.6</td>
</tr>
<tr>
<td>VIP is worse than flu in pregnancy</td>
<td>25% (154)</td>
<td>49% (2381)</td>
<td>-24%</td>
<td>0.5</td>
</tr>
<tr>
<td>VIP could harm unborn baby</td>
<td>13% (282)</td>
<td>57% (1991)</td>
<td>-43%</td>
<td>0.2</td>
</tr>
</tbody>
</table>

### Predictors of influenza vaccine in pregnancy, 2015

45% (2755)

<table>
<thead>
<tr>
<th></th>
<th>Yes % uptake(n)</th>
<th>No % uptake(n)</th>
<th>Difference</th>
<th>RR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pertussis vaccine in pregnancy</td>
<td>73% (1243)</td>
<td>23% (1441)</td>
<td>+50%</td>
<td>3.2</td>
</tr>
<tr>
<td>Obstetrician recommended</td>
<td>77% (393)</td>
<td>40% (2322)</td>
<td>+37%</td>
<td>1.9</td>
</tr>
<tr>
<td>GP recommended</td>
<td>68% (852)</td>
<td>35% (1863)</td>
<td>+33%</td>
<td>1.9</td>
</tr>
<tr>
<td>Midwife recommended</td>
<td>66% (410)</td>
<td>42% (2305)</td>
<td>+25%</td>
<td>1.6</td>
</tr>
<tr>
<td>Influenza vaccine in 12mths prior</td>
<td>61% (770)</td>
<td>39% (1938)</td>
<td>+22%</td>
<td>1.6</td>
</tr>
<tr>
<td>to pregnancy</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Aboriginal and/or Torres Strait</td>
<td>38% (90)</td>
<td>46% (2659)</td>
<td>-8%</td>
<td>0.8</td>
</tr>
<tr>
<td>Islander mum/baby</td>
<td></td>
<td></td>
<td></td>
<td>(0.6, 1.1)</td>
</tr>
</tbody>
</table>
Influenza and pertussis vaccine in pregnancy, 2015

FluMum Study
(2015, n=2755)

FluMum data, as of 23 Apr 2016

mother-infant pairs recruited
Feb-Aug, except Darwin

45% flu vaccine
46% pertussis

FluMum data summary as of 23 Apr 2016 (n=9910)

Flu vaccine in pregnancy

Year of Infant Birth
Influenza and pertussis vaccine in pregnancy

FluMum data, as of 23 Apr 2016

* births in Oct-Dec quarter excluded

Flu vaccine in pregnancy

FluMum data summary as of 23 Apr 2016 (n=2645 doses)

If you don’t get vaccinated in April … you don’t get vaccinated!
FluMum Study
(2015, n=2755)

mother-infant pairs recruited
Feb-Aug, except Darwin

45% flu vaccine
46% pertussis

FluMum data, as of 23 Apr 2016

Flu vaccine in pregnancy

FluMum data summary as of 23 Apr 2016

Year of Infant Birth

Influenza vaccination in pregnancy

- unknown
- unvaccinated
- unconfirmed
- 3rd trimester
- 2nd trimester
- 1st trimester

Brisbane
Influenza and pertussis vaccine in pregnancy

FluMum data, as of 23 Apr 2016

Brisbane Site

Month of infant birth, 2012-2015

Jan-Mar Apr-Jun Jul-Sep Oct-Dec

2012 2013 2014 2015

% Influenza vaccine in pregnancy

% Pertussis vaccine in pregnancy

FluMum Study (2015, n=2755)
Flu vaccine in pregnancy

FluMum data summary as of 23 Apr 2016

Influenza vaccination in pregnancy

Year of Infant Birth

unknown
unvaccinated
unconfirmed
3rd trimester
2nd trimester
1st trimester

FluMum data, as of 23 Apr 2016

Influenza and pertussis vaccine in pregnancy

FluMum data, as of 23 Apr 2016

Influenza and pertussis vaccine in pregnancy

FluMum data, as of 23 Apr 2016
Influenza and pertussis vaccine in pregnancy, 2015

FluMum Study (2015, n=2755)

Mother-infant pairs recruited Feb-Aug, except Darwin

45% flu vaccine
46% pertussis

FluMum data, as of 23 Apr 2016

Flu vaccine in pregnancy

FluMum data summary as of 23 Apr 2016

Influenza vaccination in pregnancy
Year of Infant Birth
unknown
unvaccinated
unconfirmed
3rd trimester
2nd trimester
1st trimester

FluMum data, as of 23 Apr 2016

Melbourne
Influenza and pertussis vaccine in pregnancy

Melbourne Site

Melbourne Site

Influenza and pertussis vaccine in pregnancy, 2015

FluMum Study
(2015, n=2755)
Flu vaccine in pregnancy

FluMum data summary as of 23 Apr 2016

Adelaide

Influenza and pertussis vaccine in pregnancy

FluMum data, as of 23 Apr 2016

Adelaide
Influenza and pertussis vaccine in pregnancy, 2015

FluMum Study (2015, n=2755)

Mother-infant pairs recruited Feb-Aug, except Darwin

- Flu vaccine: 45%
- Pertussis: 46%

FluMum data, as of 23 Apr 2016

FluMum data summary as of 23 Apr 2016

Flu vaccine in pregnancy

Year of Infant Birth

- 1st trimester
- 2nd trimester
- 3rd trimester
- Unknown
- Unvaccinated
- Unconfirmed

Influenza vaccination in pregnancy

Perth
Influenza and pertussis vaccine in pregnancy
FluMum data, as of 23 Apr 2016

Perth Site

% Influenza vaccine in pregnancy
Month of infant birth, 2012-2015
Perth Site

2012 2013 2014 2015

% Pertussis vaccine in pregnancy
Month of infant birth, 2014-2015

Influenza and pertussis vaccine in pregnancy
FluMum Study (2015, n=2755)

45% flu vaccine
46% pertussis

32% 32% 40% 40% 40%

32% 32% 27% 27% 32%

57% 57% 56% 56% 53%

63% 63% 53% 53% 44%

45% 45% 44% 44% 45%

FluMum Study (2015, n=2755)
Flu vaccine in pregnancy

FluMum data summary as of 23 Apr 2016

<table>
<thead>
<tr>
<th>Year of Infant Birth</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>Influenza vaccination in pregnancy</td>
<td>42%</td>
<td>34%</td>
<td>33%</td>
<td>44%</td>
</tr>
</tbody>
</table>

- unknown
- unvaccinated
- unconfirmed
- 3rd trimester
- 2nd trimester
- 1st trimester

Influenza and pertussis vaccine in pregnancy

FluMum data, as of 23 Apr 2016

<table>
<thead>
<tr>
<th>Month of Infant Birth, 2012-2015</th>
<th>Darwin Site</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jan-Mar</td>
<td>Apr-Jun</td>
</tr>
<tr>
<td>2012</td>
<td>2013</td>
</tr>
<tr>
<td>Influenza</td>
<td>58%</td>
</tr>
<tr>
<td>Pertussis</td>
<td>76% (144)</td>
</tr>
</tbody>
</table>
How are we going?

Report Card

The Australian Immunisation Handbook

• Influenza vaccine
  ➢ Recommended during any stage of pregnancy
  ✓ Nationally funded
  😊 Aust. Immunisation Register

  67% uptake
  FluMum: Q3 2015

  C+ can do better!

• Pertussis vaccine

  20 April 2015 update
  ➢ Recommended during 3rd trim.
  🏆 State/Territory funded
  😊 Aust. Immunisation Register

  74% uptake
  FluMum: Q3 2015

  B+ great start!

Pivotal studies

• Influenza vaccine
  ➢ VE 63% (5-85%) against lab. conf influenza in infants <6mo

  ➢ VE 70% (54-81%) against lab. conf influenza in infants <6mo
    Shakib et al, Pediatrics 2016

• Pertussis vaccine
  ➢ 64% uptake in UK
    82 cases <3mo
    • VE 91% (84-95%) screening
    • VE 93% (81-97%) case/control
      17% (10/58) cases vaccd
      71% (39/55) ctrls vaccd
      Amirthalingam et al. Lancet 2014
Conclusion

• Thinking of doing a Masters or PhD in maternal immunisation?
• Come and see us!

FluMum Chief Investigators:
• Ross Andrews
• Kerry-Ann O'Grady
• Terry Nolan
• Peter Richmond
• Nicholas Wood
• Helen Marshall
• Stephen Lambert
• Mark Chatfield