Session 2: Reasons for Vaccine Non-Acceptance
Experience and Case Study from India

Socioeconomic, cultural and behavioural features of prior and anticipated influenza vaccine uptake in urban and rural Pune District

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Overview

- Pandemic influenza in Pune, India
- Community acceptance for vaccine effectiveness
- Research framework
- Preliminary findings

Determinants of vaccine effectiveness

- Efficacious vaccines
- Vaccine delivery systems
- Community awareness and willingness to use available vaccines
  - Neglected component
  - Social, cultural, psychological and political determinants
  - Determinants of trust, confidence and hesitancy

Research partner: Centre for Research and Development (CHRD), Maharashtra Association of Anthropological Sciences (MAAS)
Pandemic influenza in India and Pune

- Active surveillance for pandemic influenza in India from 11 June 2009.
- Pune was major focus of the pandemic in India.
- First pandemic case of H1N1 in Pune on 22 June 2009; first death was a 14-year-old schoolgirl, reported 3 August 2009.
- Of 2,967 clinical samples collected in the city from outpatient departments, 18.2% were positive for pandemic H1N1 and 23.2% were positive for seasonal influenza-A.
- Among hospitalized cases, 17.2% of 3,300 tests were positive for pandemic H1N1 and 12.8% were positive for seasonal influenza-A viruses.
- More pandemic H1N1 than seasonal-A cases in all age groups except over 60 years-old; ratio of men and women was 1:1.4.
- Of 93 reported influenza deaths in Pune district, 65 were urban and 28 were rural. All but 8 urban and 1 rural deaths were from pandemic H1N1.
- Mortality was approximately 1 in 11 confirmed hospitalized cases, and rural areas had higher rates of transmission and mortality.
- By August 2010 press coverage estimated 300 deaths. The National Institute of Virology investigation classified the epidemic as a category 3 level of severity, a severe public health problem.

Framework for acceptance and hesitancy

Research objectives

Urban and rural study of pandemic and seasonal influenza with following specific aims:

- Clarify community experience, meaning and behaviour for influenza
- Explain awareness, preference and use of vaccines
- Clarify influence of clinicians
- Examine adequacy and coherence of policy at various levels
- Elaborate role of local language (Marathi) and English media
Urban study areas

Urban sites in the area of the two hospitals treating patients with pandemic influenza

- Deenanath Mangeshkar Hospital (private in middle-class locale)
- Naidu Hospital (public serving densely populated slum)

Rural study areas

Rural sites

- Velhe in remote area comprising 128 villages, population 56,000
- Maval in area more accessible from Pune, 184 villages with population 305,000

Methods

- Community
  - Focus group discussion
  - Cultural epidemiological survey with explanatory model interviews (EMIC)
  - In-depth case studies (pandemic influenza history and vaccinated persons)
- In-depth interviews with clinicians and policymakers
- Pandemic referral hospital case studies
- Media review (Marathi and English) and reporters involved in coverage

Interviews based on vignettes (variants for sex and age group)

Seasonal (male, young)

I would like you to think back to the period eight years ago, in the year 2004. Ketan was a young man staying in a place very similar to yours. He was 22 years old then. One day he suddenly developed a sore throat, a runny nose and a fever. He also had a cough and his body ached all over. He felt exhausted and did not have the energy to continue his routine work. His mother told him to rest for four days.

Pandemic (female, old)

Pratibha was a middle-aged woman 55 years-old living in a place very similar to yours. In January 2010 she fell sick with a sore throat, runny nose and bad pains throughout her body. She also had a bad cough and a high fever that wouldn’t go away. She was very tired and unable to continue her regular work. A few other people in her community seemed to have the same illness, and there were reports of many cases like that on TV and in the newspapers. The neighbours urged Pratibha to go to a big government hospital for tests to find out what her problem was.
Topical agenda for FGDs

Seasonal and pandemic influenza based on vignettes

- Name of illness
- Other symptoms
- Causes
- Severity, course and outcome
- Help seeking and treatment
- Prevention
- Role of vaccines

Additional

- Pandemic flu experience (2009-10 and 2012)
- Experience and priority of vaccines
  - Value and acceptability
  - Conditions for which vaccines are most and least useful
  - Potential problems

EMIC Interviews

- Based on vignette
  - Respondent matched for same (urban/rural) location, gender, age group
- Similar framework as FGDs
  - Questions formulated for categorical coding and analysis
  - Narrative text
- Influenza experience, meaning and behaviour (risk and prevention)
  - Pandemic and seasonal
- Vaccine awareness, priority and use
  - Acceptability at various levels of cost

Framework of analysis of survey data

- Cultural epidemiology of illness experience, meaning and behaviour
  - Urban/rural comparison
  - Seasonal/pandemic comparison
- Vaccine acceptance
  - During pandemic
  - Anticipated at various levels of cost
- Determinants of vaccine acceptance

Preliminary qualitative findings: features of hesitancy limiting acceptance

- Limited awareness of Vaccine option
- Doubts about the value of an influenza vaccine
  - Questions of efficacy / effectiveness
  - Perception that influenza is unavoidable
- Perceived limitations to access
  - Limited availability
  - Expect vaccine to come to them instead of going to get it
- Inadequate promotion by the health system, especially general practitioners
- Vaccine for adults regarded to be a new concept
- Unfamiliar concept of annual vaccine (seasonal)
- Issues and concerns about nasal instead of injectable vaccine
- Rural perception of influenza as an urban problem
Narrative indications of hesitancy

- **Uncertain availability, especially rural**
  "They say that there is no vaccine available for swine flu. Till now nobody has taken it, nobody has given it. It has come to Pune (city). We have heard that, but nobody has given it. Now, we cannot say anything about it." (Rural Housewife, 48 years)

- **Doubts about efficacy**
  "Getting vaccinated is definitely a good thing but I am not sure whether this vaccine is a proved one like the other vaccines. I don't know about this new vaccine." (Urban Graduate Woman, 65 years)

- **Swine flu dismissed as urban problem**
  "It was greater in Pune, in the city. The swine flu had not come here in the villages. So, nobody had taken the injection (vaccine)." (Rural Youth, 20 years)
  "We never experienced it. It did not come to our village. So no one got infected with Swine Flu in the village. Also, we did not know about the vaccine." (Rural Youth, 18 years)

- **Dismissed as a matter of destiny; nothing to be done about it**
  "We did not take the vaccine. [Why?] According to me it can affect someone regardless of taking the vaccine or not. The illness will occur if it has to. It can affect anyone. I don't believe that illness can be prevented by doing something. You will get it anyway, even if you do anything (to prevent it)." (Rural Woman, 46 years)

- **Government doesn’t promote vaccine**
  "No cases occurred here. Neither did the government carry out any promotion activities. There is no compulsion done by the government to take the vaccine." (Rural Retired Man, 62 years)

- **Doctors did not recommend vaccine**
  "We had not been recommended by the doctor. One shall think of taking the vaccine only after the doctor suggests so. How will we take it by our own self?" (Rural Woman, 33 years)

Cultural epidemiological survey data

- **Descriptive tables for comparison of distinctive features of urban/rural and seasonal/pandemic influenza**
- **Vaccine acceptance**
- **Explaining vaccine acceptance in analysis of explanatory variables**
Identification of "Swine flu"

<table>
<thead>
<tr>
<th>Illness Identification</th>
<th>Overall sample (n=416)</th>
<th>Rural site (n=223)</th>
<th>Urban site (n=223)</th>
<th>P value*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group 1: Influenza-like illness</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Swine flu, H1N1 influenza or Pandemic flu</td>
<td>26.4</td>
<td>16.3</td>
<td>36.7</td>
<td>0.000</td>
</tr>
<tr>
<td>Seasonal or common flu</td>
<td>1.6</td>
<td>1.4</td>
<td>1.9</td>
<td>0.721</td>
</tr>
<tr>
<td>Viral (fever/infection)</td>
<td>0.5</td>
<td>0.0</td>
<td>0.9</td>
<td>0.124</td>
</tr>
<tr>
<td>Common cold</td>
<td>0.9</td>
<td>0.9</td>
<td>0.9</td>
<td>1.000</td>
</tr>
<tr>
<td>Fever, chills, cough</td>
<td>3.4</td>
<td>2.3</td>
<td>4.5</td>
<td>0.216</td>
</tr>
<tr>
<td>Group 2: Other illness</td>
<td>38.8</td>
<td>39.4</td>
<td>38.1</td>
<td>0.464</td>
</tr>
<tr>
<td>HIV/AIDS</td>
<td>3.2</td>
<td>3.6</td>
<td>2.8</td>
<td>0.787</td>
</tr>
<tr>
<td>Tuberculosis (TB)</td>
<td>9.6</td>
<td>9.0</td>
<td>10.2</td>
<td>0.786</td>
</tr>
<tr>
<td>Typhoid</td>
<td>3.4</td>
<td>1.1</td>
<td>1.9</td>
<td>0.151</td>
</tr>
<tr>
<td>Dengue</td>
<td>8.3</td>
<td>5.4</td>
<td>11.2</td>
<td>0.058</td>
</tr>
<tr>
<td>Malaria</td>
<td>5.3</td>
<td>5.9</td>
<td>4.7</td>
<td>0.670</td>
</tr>
<tr>
<td>Other</td>
<td>8.9</td>
<td>10.6</td>
<td>7.4</td>
<td>0.316</td>
</tr>
<tr>
<td>Group 3: Cannot specify</td>
<td>20.5</td>
<td>20.8</td>
<td>20.0</td>
<td>0.000</td>
</tr>
</tbody>
</table>

Illness priorities of H1N1 and Seasonal flu vignettes

Meaning and perceived causes of pandemic and seasonal influenza

Meaning and perceived causes of pandemic and seasonal influenza
Meaning and perceived causes of pandemic and seasonal influenza

Anticipated vaccine acceptance at different levels of cost

<table>
<thead>
<tr>
<th>Nasal</th>
<th>Total % (n=436)</th>
<th>Prominence</th>
<th>Y</th>
<th>P</th>
<th>U</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Free</td>
<td>2.80</td>
<td>92.2</td>
<td>0.9</td>
<td>1.4</td>
<td>5.5</td>
<td></td>
</tr>
<tr>
<td>Low (Rs. 75)</td>
<td>2.75</td>
<td>89.7</td>
<td>0.5</td>
<td>1.8</td>
<td>6.9</td>
<td></td>
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<tr>
<td>Medium</td>
<td>2.62</td>
<td>84.6</td>
<td>3.2</td>
<td>1.8</td>
<td>10.3</td>
<td></td>
</tr>
<tr>
<td>High (Rs. 300)</td>
<td>2.88</td>
<td>79.1</td>
<td>3.4</td>
<td>3.4</td>
<td>14.0</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Injectable</th>
<th>Total % (n=436)</th>
<th>Prominence</th>
<th>Y</th>
<th>P</th>
<th>U</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Free</td>
<td>2.83</td>
<td>92.1</td>
<td>0.9</td>
<td>0.9</td>
<td>4.6</td>
<td></td>
</tr>
<tr>
<td>Low (Rs. 250)</td>
<td>2.71</td>
<td>86.5</td>
<td>4.6</td>
<td>1.4</td>
<td>7.3</td>
<td></td>
</tr>
<tr>
<td>Medium</td>
<td>2.20</td>
<td>68.8</td>
<td>5.3</td>
<td>3.0</td>
<td>22.9</td>
<td></td>
</tr>
<tr>
<td>High (Rs. 1000)</td>
<td>1.87</td>
<td>58.5</td>
<td>3.2</td>
<td>5.0</td>
<td>33.3</td>
<td></td>
</tr>
</tbody>
</table>

Anticipated vaccine acceptance at different levels of cost

<table>
<thead>
<tr>
<th>Urban % (n=221)</th>
<th>Rural % (n=221)</th>
<th>Urban % (n=221)</th>
<th>Rural % (n=221)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>Prominence Y P U N</td>
<td>Prominence Y P U N</td>
<td>Prominence Y P U N</td>
</tr>
<tr>
<td>Adult</td>
<td>2.77</td>
<td>95.7</td>
<td>1.4</td>
</tr>
<tr>
<td>Low (Rs. 75)</td>
<td>2.25</td>
<td>89.2</td>
<td>0.5</td>
</tr>
<tr>
<td>Medium (Rs. 250)</td>
<td>2.72</td>
<td>87.4</td>
<td>3.7</td>
</tr>
<tr>
<td>High (Rs. 300)</td>
<td>2.49</td>
<td>80.5</td>
<td>2.8</td>
</tr>
<tr>
<td>Injectable</td>
<td>Prominence Y P U N</td>
<td>Prominence Y P U N</td>
<td>Prominence Y P U N</td>
</tr>
<tr>
<td>Adult</td>
<td>2.74</td>
<td>89.8</td>
<td>1.4</td>
</tr>
<tr>
<td>Low (Rs. 75)</td>
<td>2.64</td>
<td>86.0</td>
<td>4.7</td>
</tr>
<tr>
<td>Medium (Rs. 250)</td>
<td>2.23</td>
<td>72.1</td>
<td>3.1</td>
</tr>
<tr>
<td>High (Rs. 300)</td>
<td>1.90</td>
<td>60.0</td>
<td>2.3</td>
</tr>
</tbody>
</table>

P-values based on Wilcoxon test for comparison of prominence.
Anticipated vaccine acceptance at different levels of cost

Further analysis to explain vaccine acceptance

- Analysis of explanatory variables
- Coherence of policymaking at global, national and local levels
- Case studies of referral hospital experience
- Media analysis

Products ... making use of findings and experience

- Academic reports
- Dissemination and use of findings
  - Community
  - Health system
  - Policymakers
- Generic protocols for interdisciplinary study and programme guidance