Swine Flu A H1N1 in Costa Rica

Dra. Patricia Allen Flores

Noviembre, 2009
Johannesburg, SA
Clinical Diagnosed, confirmation as as Swine Flu and deaths Costa Rica, April 24th to October 14th 2009

<table>
<thead>
<tr>
<th>Clinical Diagnosed As highly suspicious</th>
<th>Confirmed</th>
<th>1,530</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rejected</td>
<td>7,404</td>
<td></td>
</tr>
<tr>
<td>Deaths</td>
<td>38</td>
<td></td>
</tr>
<tr>
<td>Not confirmed</td>
<td>1,242</td>
<td></td>
</tr>
</tbody>
</table>
Swine Flu Confirm cases by lab, by sex and province
Costa Rica 2009. (Rate 100,000/hab)
Pandemic wave evolution de in Costa Rica: Confirmed cases week 16-37 (April 19th to Sept 16th, 2009)

Gographic dissemination of Influenza AH1N1 in Costa Rica by epidemiological week. 16-38/2009

SE16-19
(19 Abr-16 May)

SE20-23
(24 May-13 Jun.)

SE24-26
(14 Jun-4 Jul.)

SE27-31
(5 Jul.-8 Ag.)

SE32-38
(9 Ag.-26 Sept.)

Fuente: Ministerio de Salud de Costa Rica
Confirmed cases and rates (x 100.000 hab.) of Influenza A H1N1 by age group. Costa Rica, 16 – 37/2009

Numbers…

- Rates 34.4/100,000 hab
- Women has a higher rate
- We found higher rates
  - 5 to 14 years
  - 20 to 29 years
- 62% were less than 30 years
- 60 years and more
  - Lower rates
### Characteristics of the respiratory virus identified
Costa Rica, week 16 – 37/2009

<table>
<thead>
<tr>
<th>Description</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total cases analyzed (lab)</td>
<td>10,139</td>
</tr>
<tr>
<td>Total respiratory virus detected</td>
<td>5,763</td>
</tr>
<tr>
<td>Swine Flu AH1N1</td>
<td>1,381</td>
</tr>
<tr>
<td>Season Influenza A</td>
<td>86</td>
</tr>
<tr>
<td>Swine Flu AH1N1 + Adenovirus</td>
<td>222</td>
</tr>
<tr>
<td>Swine Flu AH1N1 + Parainfluenza 1, 2 o 3</td>
<td>196</td>
</tr>
<tr>
<td>Swine Flu AH1N1 + Respiratory Sincicial Virus</td>
<td>15</td>
</tr>
</tbody>
</table>

% Viral Coinfection = 18%

**Fuente:** Centro Nacional de Influenza, INCIENSA
### Risk factors associated with hospitalized patients with clinical diagnose of Swine Flu AH1N1. Costa Rica (September 25th, 2009)

<table>
<thead>
<tr>
<th>Hospitalizations</th>
<th>1.081</th>
<th>100%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Man</td>
<td>502</td>
<td>46%</td>
</tr>
<tr>
<td>Woman</td>
<td>579</td>
<td>54%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Average age</th>
<th>33.8 years</th>
</tr>
</thead>
</table>

| Critically ill - UCI | 118 | 11% |

<table>
<thead>
<tr>
<th>Risk factors</th>
<th>Count</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asthma</td>
<td>273</td>
<td>25.3%</td>
</tr>
<tr>
<td>Diabetes mellitus</td>
<td>130</td>
<td>12.0%</td>
</tr>
<tr>
<td>EPOC</td>
<td>105</td>
<td>9.7%</td>
</tr>
<tr>
<td>Tobacco</td>
<td>94</td>
<td>8.7%</td>
</tr>
<tr>
<td>Obestity</td>
<td>93</td>
<td>8.6%</td>
</tr>
<tr>
<td>CV</td>
<td>84</td>
<td>7.8%</td>
</tr>
<tr>
<td>Pregnancy</td>
<td>50</td>
<td>4.6%</td>
</tr>
</tbody>
</table>

**Fuente:** Base de datos de egreso hospitalario de pandemia Influenza AH1N1, CCSS
### Characteristics of deaths by Swine flu AH1N1
#### Costa Rica, Week 16 – 37/2009

<table>
<thead>
<tr>
<th>Residence</th>
<th>Total</th>
<th>Out of GAM</th>
<th>100%</th>
<th>86%</th>
<th>14%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>37</td>
<td>5</td>
<td>100%</td>
<td>86%</td>
<td>14%</td>
</tr>
<tr>
<td>Great Metropolitan Area (GAM)</td>
<td>32</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Out of GAM</td>
<td>5</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sex</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Man</td>
<td>23</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Women</td>
<td>14</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Edad</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Rango</td>
<td>8 meses-79 años</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Average</td>
<td>41 años</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Associated Risk Factors</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Obesity</td>
<td>13</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cardioc problems/HTA</td>
<td>12</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chronic Bronquitis/Asthma</td>
<td>10</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Diabetes mellitus</td>
<td>9</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tobacco</td>
<td>7</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pregnancy</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Tipos de factores de riesgo**

- Obesity: 13 (35%)
- Cardioc problems/HTA: 12 (32%)
- Chronic Bronquitis/Asthma: 10 (27%)
- Diabetes mellitus: 9 (24%)
- Tobacco: 7 (19%)
- Pregnancy: 3 (8%)

**Fuente:** Ministerio de Salud de Costa Rica.
Organization and response

- Simulations for the avian flu pandemic helped
  - Necessary to change and “re-learn” some things
- Decrees
  - Sanitary Emergency
  - Regulate the oseltamivir administración
  - Especific guidelines for different sectors and ministries – health, tourism, work, education, others,
  - Distance work for pregnant women
  - Vaccine as a regulated public good.
- Quick shift from surveillance to a more effective and efficient mitigation strategy
- Unify and unique guidelines to health services network
  - Public and private sectors
  - Local level as the way of entrance.
- Social separation strategy
  - Cost effectiveness and risk criteria
- Controlling dissemination
  - Protecting health services capacity
Flu and pneumonia (J100-J189) hospitalizations by month. Costa Rica, 2008 y 2009

Hospitalizations increased - July
GAM

Sanitary Alert

One week extra of vacations for schools and high schools in July

Romería Virgen de Los Ángeles: 2 agosto

Fuente: CCSS, Base de datos egresos hospitalarios * Se incluye causa (J100-J189) de 1-2-3-4 y 5 diagnóstico de egreso
Using polls to evaluate and follow up the pandemia

Working together
Statistics School,
University of Costa Rica

1ª Poll: May 2009
2ª Poll: August 2009

Porcentaje que responde espontáneamente a los hábitos para el lavado de manos
(excluye alternativa "no lo hace")

1 Incluye entre paréntesis la diferencia de puntos porcentuales entre agosto y mayo del 2009

Waves changes in time and context:

IMPORTANT:

- We can`t avoid the wave
- We can change it
- Grow up slowly and try to lower the peak

México: Casos confirmados de Influenza A H1N1, 2009

- Total de casos confirmados: 16,442
Comunication and information

- Comunication focused on risk
  - Always keep the people informed
  - Health services must never colllapse

- Only one speaking
  - Very high political level
  - Very good knowledge
  - Permanent access to media

- Transparency and accuracy in informacion
  - Bulletins, press conferences, interviews, forums, videoconferences, otros

- Turn out “crisis” or “ghossip”
  - Educational opportunities

- Informative materials for diferente audiences

- Alliances with mass media
  - Inform and educate permanently
Perspectives and challenges

- **Pandemic wave in CR**
  - Broad bases
  - Moderate rates
  - Limited to certain geographic areas

- **Modulate the pandemic wave**
  - Keep the response capacity of health services
  - Extend spreading time

- **Essential**
  - Be alert without panic
  - Make a change healthy habits

- **Plan step by step**
  - Appropriate decisions
  - Adapting response to the moment of the pandemic

- **Unique guideline**
  - Based in knowledge
  - Different source of data
Segunda ola inicia mayo-junio 2010
Test Costs Influenza AH1N1

- Costo análisis PCR (sin extras $13,851.78)
  - US$ 24

- Costo análisis Inmunofluorescencia (sin extras $27,917.70)
  - US$ 50

- Corte abril al 30 agosto (5 meses) (Fuente CNRV)
  - 2.831 análisis PCR
  - 9.116 análisis IFA
  - 43,3 millones por mes
  - US$ 71.600/mes
## Private Health Facilities
*(al 26 de setiembre del 2009)*

<table>
<thead>
<tr>
<th>Establecimiento</th>
<th>No PCR</th>
<th>Monto PCR</th>
<th>N° IFA</th>
<th>Monto IFA</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clínica Bíblica</td>
<td>15</td>
<td>448,436</td>
<td>45</td>
<td>652,871</td>
<td>1,101,307.95</td>
</tr>
<tr>
<td>Clínica Católica</td>
<td>36</td>
<td>1,076,248</td>
<td>177</td>
<td>2,567,960</td>
<td>3,644,208.33</td>
</tr>
<tr>
<td>Clínica Coopesaín de Tibás</td>
<td>14</td>
<td>418,540</td>
<td>57</td>
<td>826,970</td>
<td>1,245,511.17</td>
</tr>
<tr>
<td>Clínica Coopesalud R.L., Pavas</td>
<td>91</td>
<td>2,720,515</td>
<td>318</td>
<td>4,613,623</td>
<td>7,334,139.48</td>
</tr>
<tr>
<td>Clínica Coopesana</td>
<td>8</td>
<td>239,166</td>
<td>50</td>
<td>725,412</td>
<td>964,578.74</td>
</tr>
<tr>
<td>Clínica COOPESIBA, Barva</td>
<td>9</td>
<td>269,062</td>
<td>52</td>
<td>754,429</td>
<td>1,023,491.02</td>
</tr>
<tr>
<td>Clínica Jerusalén</td>
<td>2</td>
<td>59,791</td>
<td>6</td>
<td>87,049</td>
<td>146,841.06</td>
</tr>
<tr>
<td>Clínica Santa Ana</td>
<td>-</td>
<td>-</td>
<td>5</td>
<td>72,541</td>
<td>72,541</td>
</tr>
<tr>
<td>Clínica Santa Catalina</td>
<td>17</td>
<td>508,228</td>
<td>76</td>
<td>1,102,627</td>
<td>1,610,855</td>
</tr>
<tr>
<td>Hospital Cima</td>
<td>115</td>
<td>3,438,014</td>
<td>292</td>
<td>4,236,409</td>
<td>7,674,423</td>
</tr>
<tr>
<td>Laboratorio Clínico Coopesana R.L.</td>
<td>1</td>
<td>29,895</td>
<td>1</td>
<td>14,508</td>
<td>44,404</td>
</tr>
<tr>
<td>Laboratorio Clínico Sarchí</td>
<td>1</td>
<td>29,895</td>
<td>5</td>
<td>72,541</td>
<td>102,437</td>
</tr>
<tr>
<td>Laboratorio Clínico Servisalud</td>
<td>57</td>
<td>1,704,059</td>
<td>152</td>
<td>2,205,254</td>
<td>3,909,313</td>
</tr>
<tr>
<td>Laboratorio Clínico UCR</td>
<td>18</td>
<td>538,124</td>
<td>106</td>
<td>1,537,874</td>
<td>2,075,998</td>
</tr>
<tr>
<td>Laboratorio Microbiología Industrial</td>
<td>1</td>
<td>29,895</td>
<td>2</td>
<td>29,016</td>
<td>58,912</td>
</tr>
<tr>
<td>Los Ángeles (Santo Domingo)</td>
<td>1</td>
<td>29,895</td>
<td>1</td>
<td>14,508</td>
<td>44,404</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>386</strong></td>
<td><strong>11,539,771</strong></td>
<td><strong>2.044</strong></td>
<td><strong>18,860,725</strong></td>
<td><strong>31,053,367</strong></td>
</tr>
</tbody>
</table>

**Costo PCR**
- 29,895.78

**Costo IFA**
- 14,508.25

**US$ 51.600 total (10.000/month)**
Samples for Swine Flu

<table>
<thead>
<tr>
<th>Facility</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hospitals</td>
<td>69</td>
</tr>
<tr>
<td>Clínics, EBAIS, other</td>
<td>31</td>
</tr>
</tbody>
</table>

Change of guideline:
- From risk factor to hospitalization.
<table>
<thead>
<tr>
<th>Tipo</th>
<th>Total</th>
<th>Nacional</th>
<th>East</th>
<th>South</th>
<th>North East</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>138</td>
<td>9</td>
<td>34</td>
<td>25</td>
<td>70</td>
<td>50,7%</td>
</tr>
<tr>
<td>Hospitals</td>
<td>28</td>
<td>6</td>
<td>5</td>
<td>5</td>
<td>12</td>
<td>42,9%</td>
</tr>
<tr>
<td>Clínicas</td>
<td>13</td>
<td>3</td>
<td>4</td>
<td>3</td>
<td>3</td>
<td>23,1%</td>
</tr>
<tr>
<td>Health Areas</td>
<td>97</td>
<td>25</td>
<td>17</td>
<td></td>
<td>55</td>
<td>56,7%</td>
</tr>
</tbody>
</table>
Health care network CCSS

- Week 34, 35, 36 Total: 1.284
- Ambulatory Total: 428 33,3%
- Hospitalized Total: 856 66,7%

- Network
  - NorthEast
    - H. México
      - Ambulatory Total: 169 39,5%
      - Hospitalized Total: 347 40,5%
  - South
    - HSJD
      - Ambulatory Total: 37 9,0%
      - Hospitalized Total: 244 28,5%
  - East
    - HCG
      - Ambulatory Total: 214 50,0%
      - Hospitalized Total: 263 30,7%
Vaccine

• Priorities
  – Personal salud y equipos respuesta inmediata: policía, bomberos, fronteras.
  – Pregnant women – last three months
  – People with risk factors (6 m to 64 years)
• Estimated: 1,8 millones (40% pob)
• Public health good
  – Regulated purchase
  – No aditional cost
• Revolving fund - PAHO
• Trying to negotiate a “benefit back” with industry
• Preparing guidelines and strategy
Lab descentralization

- Great impact
  - Time and resources
    - Packing the samples
    - Transfering samples (risk, ambulance costs)
    - Less days of hospitalization or treatment
  - Second wave (scenarios)
  - Sorting samples (high and low risk)
- Epidemiologic surveillance
- National Reference Center
  - Quality Assurance and External performance Evaluation
Pandemia brings opportunities

• **Improve coordination**
  – Institutions
  – Public and private sector
  – Mass media, authorities and people

• **Strengthen surveillance**
  – Neumonia and respiratory infections

• **Creating experience**
  – Sanitary alert management
  – International Health Regulation

• **Improve**
  – People with better health practices
  – Improving environmental conditions
  – Less infectious diseases in general
Muchas Gracias!!!