Awareness and Adoption of Community Mitigation Efforts During the Epidemic of Influenza A H1N1: Mexico, 2009

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Outline

- Task and objectives
- Mitigation strategies
- Survey methods
- Results
- Conclusion and recommendations

April 28, 2009: Tasked with . . .

- **Evaluating the effectiveness of community mitigation (CM) efforts implemented in Mexico**
  - **Government action**
  - **Personal action**

Limitations & Opportunity

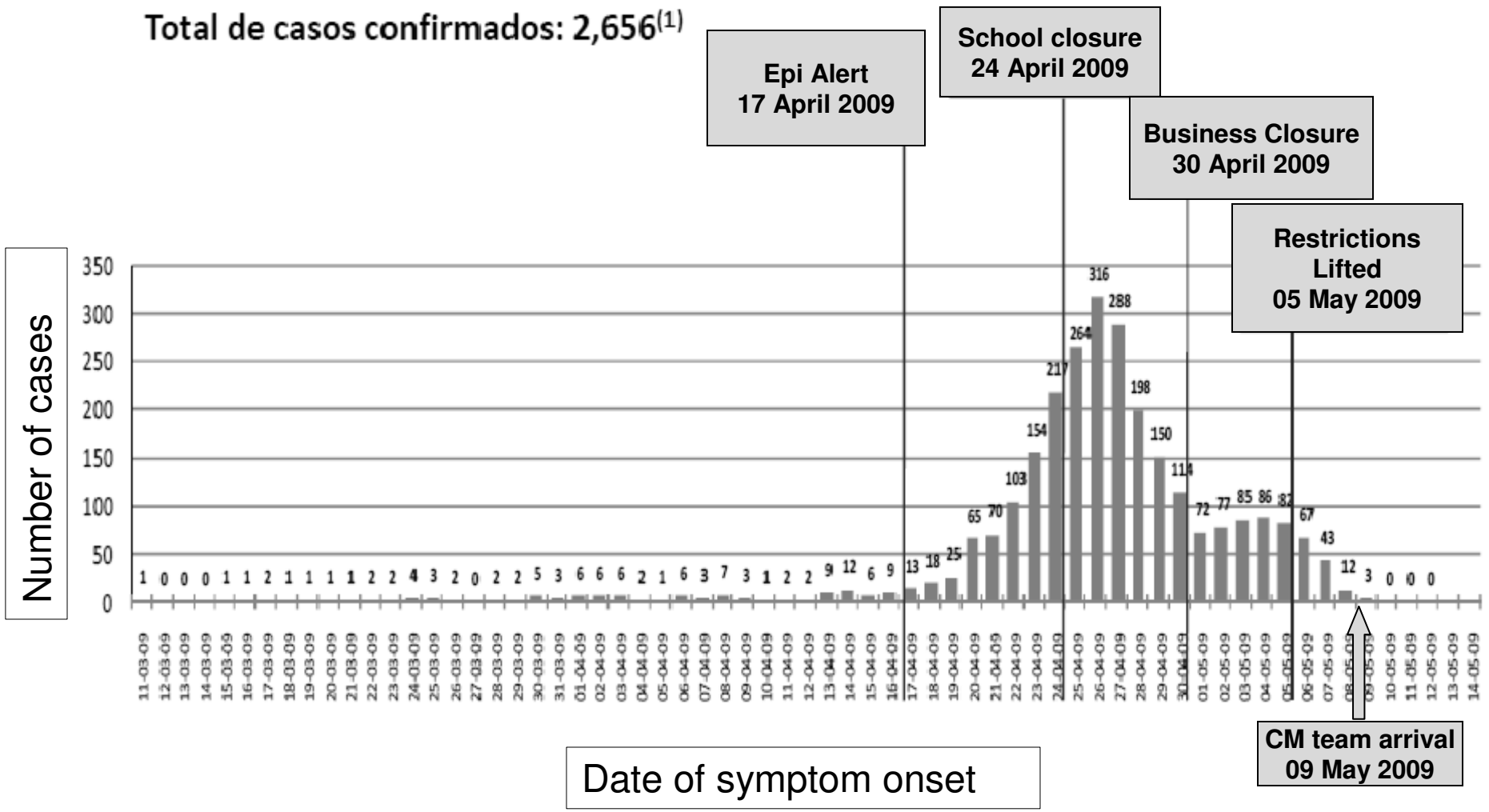
- **Epidemiological data from Mexico not reliable**
- **Not able to measure effectiveness**
- **Collect data during an epidemic while community mitigation (CM) efforts are being actively promoted**

Objectives

- Measure awareness and adoption of CM efforts
- Compare the adoption of CM efforts based on:
  - Living in or outside of the epicenter of epidemic
  - Disease burden in community
  - Perceived severity
  - Awareness of associated symptoms
  - Self-reported ILI
- Describe barriers to adopting CM efforts

Distribution of confirmed cases by date of symptom onset

SALUD

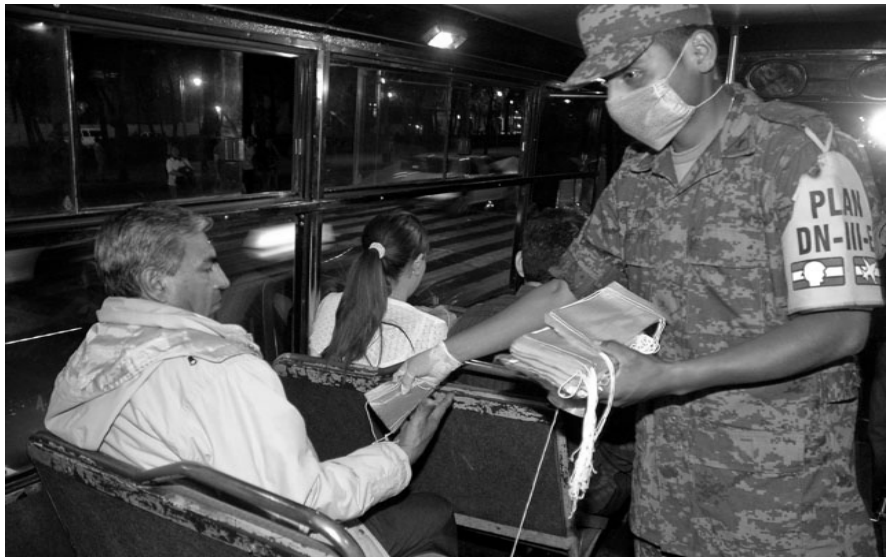


[1] En la figura no se incluyen 20 casos confirmados.

Community Mitigation Measures

- **Government action**
  - **Closing of all schools around the country**
  - **Closing of all non-essential businesses in D.F.**
  - **Suspension of all public gathering**
  - **Cleaning of streets and metro in D.F.**
  - **Digital street signs flashing health messages**
  - **Health caravan trucks**
  - **Mass media campaign**
  - **ILI symptom screening at public locations**

Community Mitigation Measures



Community Mitigation Measures

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Community Mitigation Measures

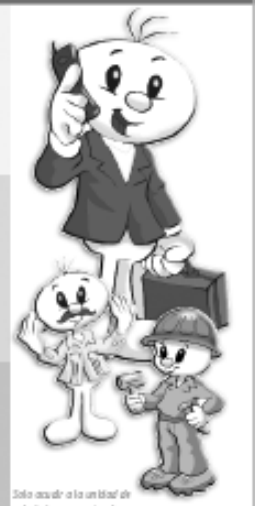
- **Personal action**
  - **Frequent hand washing**
  - **Using of hand gel/sanitizer**
  - **Use of face masks**
  - **Staying home from school/work**
  - **Cover sneeze or cough**
  - **Avoid contact with ill persons**
  - **Avoid shaking hands/kissing when greeting**
  - **Avoid crowds/public gatherings**
  - **Avoid sharing utensils, cups, etc.**

“Promi”
Health promotion mascot

Información para lugares de trabajo: Influenza

SALUD

¿Qué es la Influenza?	Es una enfermedad aguda de las vías respiratorias. El virus que la provoca se llama A H1N1. Esta enfermedad es curable y existen en México medicamentos suficientes –antivirales- para su tratamiento.
¿Cómo se contagia la influenza?	El virus de la influenza A H1N1 se transmite cuando las personas enfermas estornudan o tosen frente a otra sin cubrirse la boca y nariz, cuando comparten utensilios o alimentos o bien, cuando saludan de mano o de beso. También se contagia por tocar superficies contaminadas con este virus, por ejemplo: manijas, teclados, teléfonos, barandales.
¿Cuáles son los síntomas de la influenza?	Inicio súbito, fiebre superior a 38°, dolor de cabeza, dolor muscular y de articulaciones, ataque al estado general y decaimiento, tos, escurrimiento nasal, ojos irritados, dolor de garganta y puede tener diarrea. Si presenta estos síntomas debe acudir a la consulta externa de su unidad de salud para recibir el tratamiento adecuado. **No se automedique.** Si se presenta dificultad para respirar, dolor de pecho, flemas con sangre y confusión o somnolencia, debe acudir de inmediato al hospital.
¿Qué medidas podemos tomar para no contagiarnos?	Mantenerse alejados de personas enfermas, lavarse las manos frecuentemente con agua y jabón de preferencia líquido, si no tiene, puede utilizar jabón en pasta en trozos pequeños; no saludar de beso ni de mano; no acudir a sitios concurridos; no compartir alimentos, bebidas, platos, vasos o cubiertos; ventilar y permitir la entrada del sol; mantener limpias las **cubiertas de baño, manijas, barandales, así** como teléfonos, teclados de computadoras, y objetos de uso común.
¿Qué medidas podemos tomar para no contagiar?	Si presenta síntomas como fiebre alta, tos y dolor de cabeza no asistir al lugar de trabajo, quedarse en casa, usar cubrebocas y mantenerse en reposo, cubrirse nariz y boca con pañuelo desechable o con el ángulo interno del codo al toser o estornudar; tirar el pañuelo desechable en una bolsa de plástico.



Solo acudir a la unidad de salud, si se presentan los síntomas ya mencionados.

Para más información llame **sin costo** al: **01 800 123 1010** o al ***1010**

http://www.promocion.salud.gob.mx http://www.salud.gob.mx
http://www.presidencia.gob.mx

Fecha del documento:
11 de Mayo, 2009

No trates de burlar la defensa

Los microorganismos se mueven muy rápido. Evítale a los pacientes tiempo extra por infecciones nosocomiales. Saca a los bichos del juego.

Lava tus manos

SALUD

www.salud.gob.mx

Para más información llame sin costo al: 01 800 123 1010 o al *1010

Fecha del documento:
28 de abril, 2009

No hay que bajar la guardia, debemos seguir protegiéndonos ante la influenza

SALUD

Si tienes alguna enfermedad respiratoria, quédate en casa

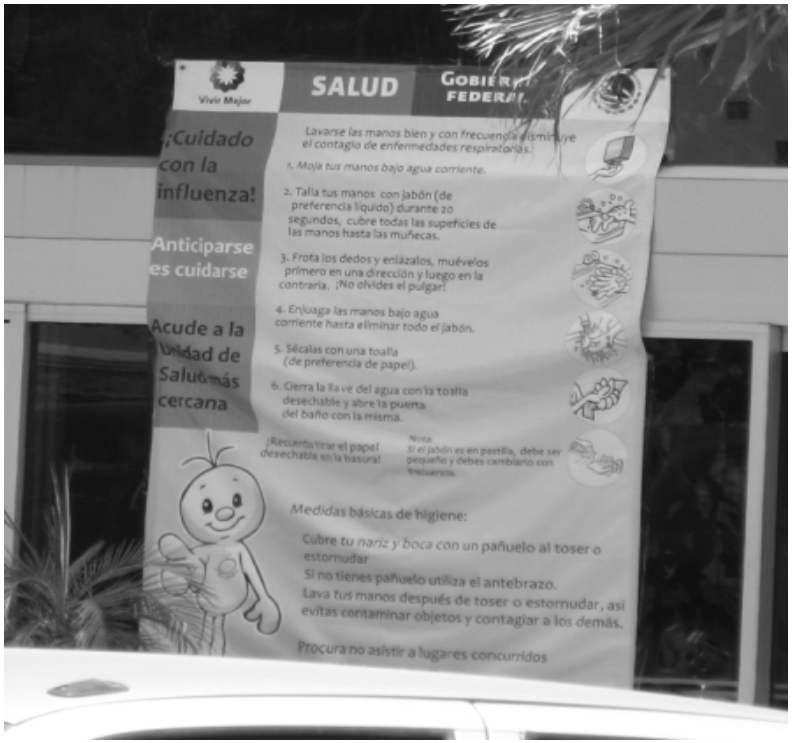
Para más información llame sin costo al : 01800 123 1010 ó al *1010

http://www.promocion.salud.gob.mx
http://www.salud.gob.mx

http://www.presidencia.gob.mx

Actualizado al:
16 de Junio

Community Mitigation Measures



Community Mitigation Measures

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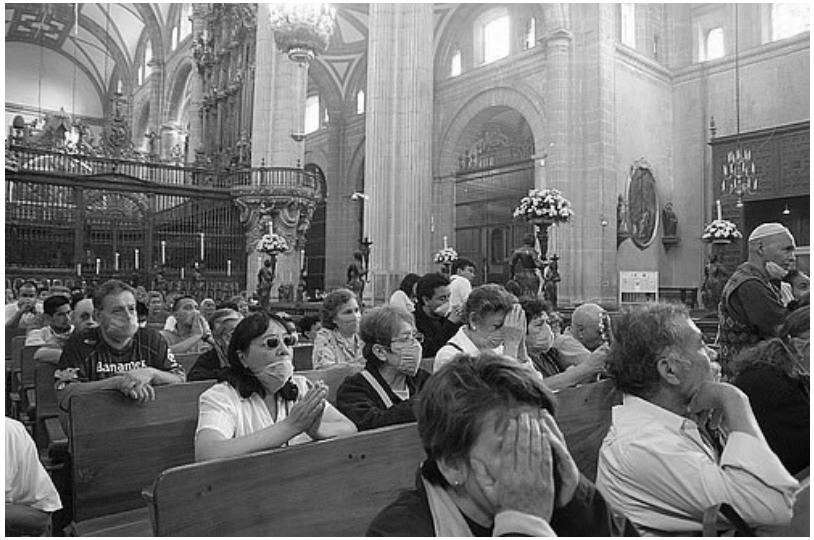
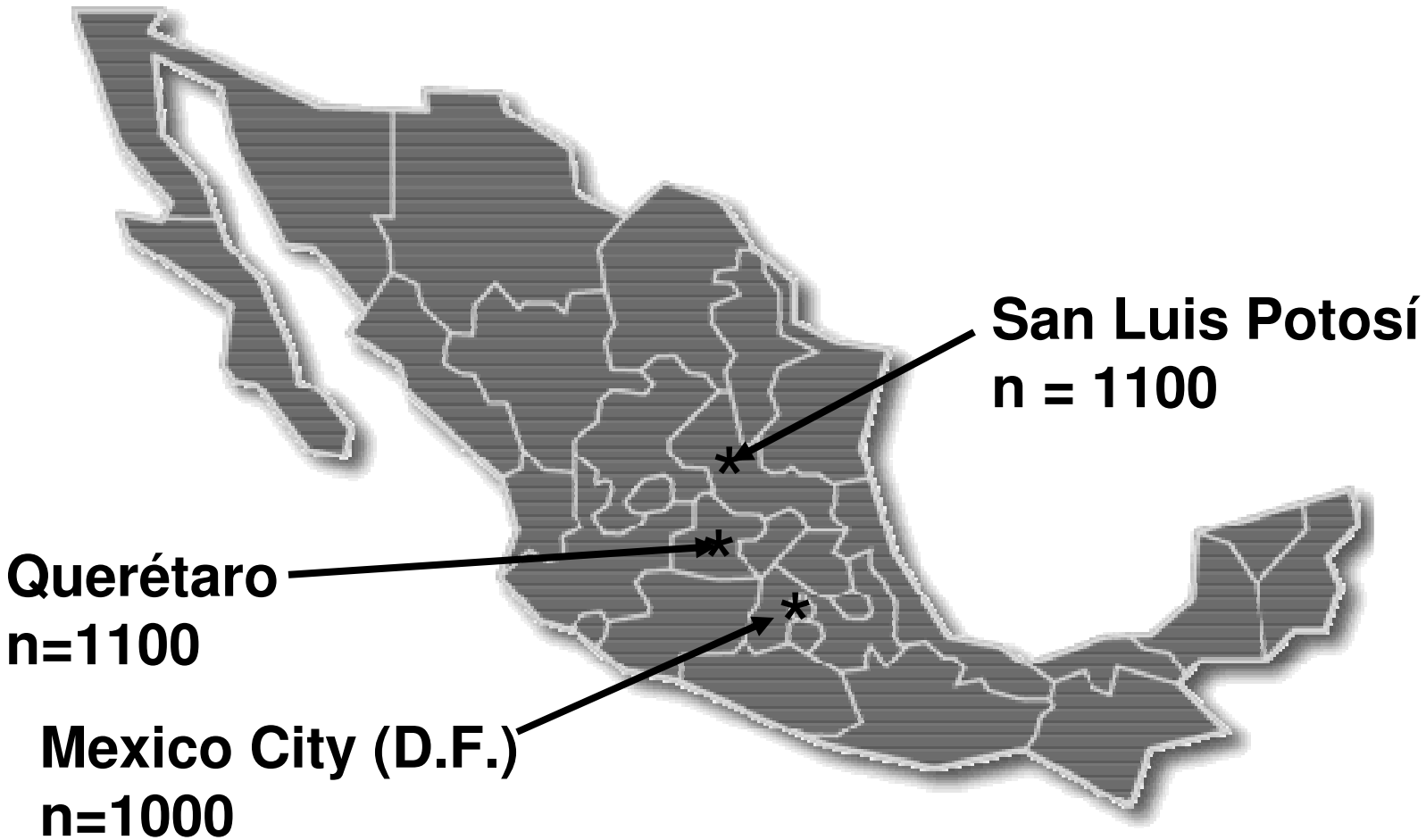


METHODS

Sample Selection



Sample: Surveyed Cities

	Population*	Distance from D.F.	H1N1 case rate** per 100,000
Mexico City (D.F.)	8,720,916	N/A	14.3
San Luis Potosí (SLP)	957,753	219 mi (353 km)	16.0
Querétaro	950,828	124 mi (200 km)	1.6

*2005 Census

**All case rates based on data as of May 13, 2009

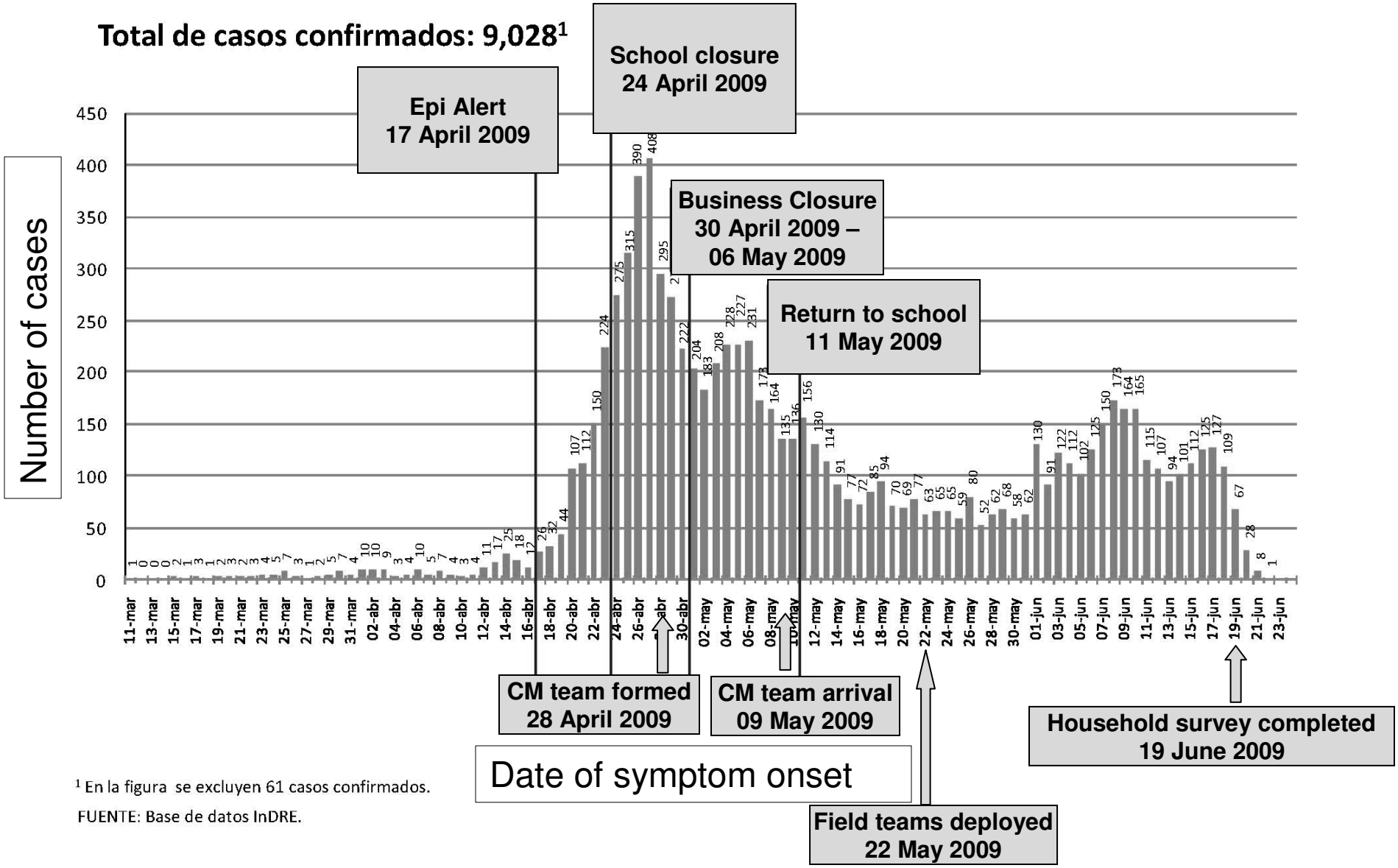
May 22 – June 19, 2009 : Field Work

- Household survey awareness & adoption
  - 7 teams (12 field staff per team)
    - 2 teams to D.F.
    - 3 teams to SLP
    - 2 teams to Querétaro

- Interviewer-administered using laptops
- Daily review and downloading of data

Distribution of confirmed cases by date of symptom onset

SALUD



[1] En la figura se excluyen 61 casos confirmados.

FUENTE: Base de datos InDRE.

Analysis

- **Descriptive statistics (prevalence and 95%CI):**
  - **Knowledge of disease and symptoms**
  - **Persons perceiving H1N1 to be very severe/severe**
  - **Adoption of CM practices**
  - **Barriers to adoption of CM practices**
  - **Self-reported ILI of household member**

- **Comparison of adoption of CM efforts based on:**
  - **City**
  - **Perceived severity of disease**
  - **Knowledge of H1N1 symptoms**
  - **Presence of ILI in household**

PRELIMINARY RESULTS

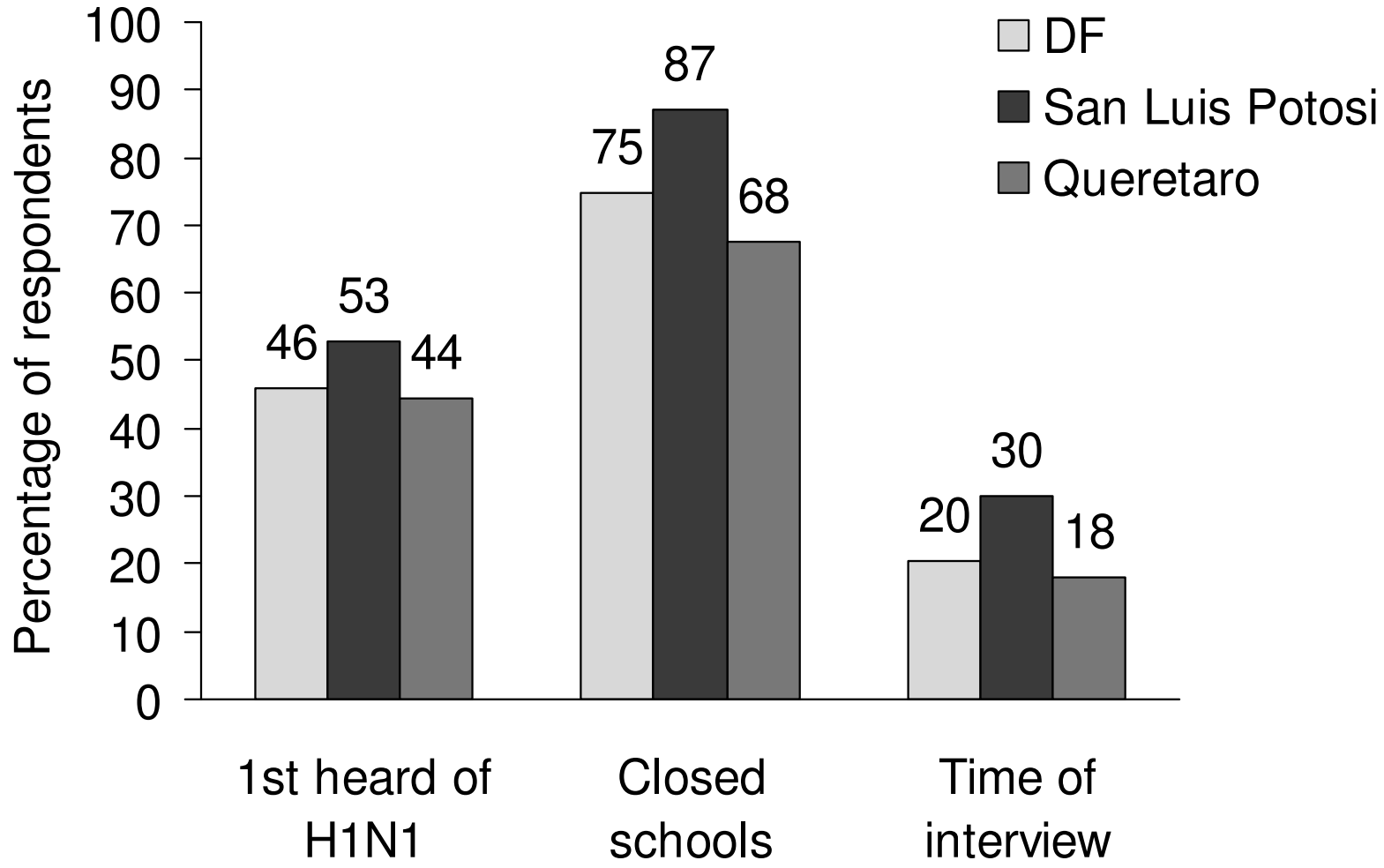
Household Survey

	D.F.	SLP	Querétaro	Total
Households, n	837	951	878	2666
Response Rate, %	83.7	86.5	79.8	83.3
Individuals, n	3037	3916	3421	10,374

Demographics
Respondent Characteristics

	D.F. (n = 791)	SLP (n = 921)	Querétaro (n = 786)
Mean age, years	46	40	41
Female, %	59	71	66
< High school education, %	49	61	54
Highest SES tertile, %	36	25	33

Prevalence of Those Who Perceived H1N1 to be Very Severe or Severe



Modes of Communication*

	D.F.		SLP		Querétaro	
	%	(95%CI)	%	(95%CI)	%	(95%CI)
TV	92.7	(90.7 - 94.6)	94.8	(93.6 - 95.9)	94.8	(93.7 – 96.0)
Radio	37.1	(33.7 - 40.4)	31.0	(27.1 - 34.9)	38.2	(33.8 - 42.6)
Newspaper	16.6	(12.2 - 20.9)	10.5	(8.2 - 12.7)	8.4	(5.5 - 11.2)
Family/friends	12.9	(10.4 - 15.4)	18.3	(15.8 - 20.8)	10.9	(9.1 - 12.8)
Internet (MoH)	6.3	(4.5 - 8.0)	6.3	(4.4 - 8.1)	6.6	(3.7 - 9.4)
Internet (other)	11.1	(6.4 - 15.7)	7.5	(4.9 - 10.1)	10.6	(8.2 - 13.0)
Posters/flyers	10.7	(8.3 - 13.1)	18.8	(16.4 - 21.1)	4.6	(2.4 - 6.8)
Healthcare provider	4.2	(0.9 - 5.4)	8.7	(7.1 - 10.0)	2.8	(1.7 - 3.9)
Have not received info	2.8	(1.7 - 3.8)	8.6	(6.6 - 10.7)	6.1	(3.7 - 8.6)

*Text messages, call center, pharmacists, religious leader reported by < 1%

Knowledge of Transmission of H1N1

	D.F.		SLP		Querétaro	
	%	(95%CI)	%	(95%CI)	%	(95%CI)
Close contact with person with H1N1	92.3	(90.2 - 93.9)	86.1	(82.1 - 89.3)	86.6	(83.7 - 89.0)
Contact with contaminated surfaces	28.2	(26.4 - 30.1)	36.8	(30.5 - 43.6)	24.0	(19.8 - 28.7)
Sharing eating utensils	6.4	(5.1 - 8.1)	11.7	(9.2 - 14.7)	8.9	(6.6 - 11.9)
Contact with a pig (s)	0.3	(0.1 – 1.0)	1.1	(0.4 - 3.6)	1.3	(0.7 - 2.4)
Eating/handling pork	0.6	(0.2 - 1.4)	1.1	(0.6 – 2.0)	0.9	(0.4 - 1.7)
Drinking contaminated water	0.5	(0.1 - 1.8)	1.1	(0.6 - 2.3)	0.3	(0.1 - 0.7)
Sexual intercourse	0.6	(0.3 - 1.2)	0.7	(0.3 - 1.4)	1.1	(0.4 - 2.6)
Don’t know not sure	1.8	(0.9 - 3.5)	3.8	(2.6 - 5.6)	4.1	(2.9 - 5.7)

Knowledge of Symptoms of H1N1

	D.F.		SLP		Querétaro	
	%	(95%CI)	%	(95%CI)	%	(95%CI)
Fever	90.5	(88.2 - 92.5)	84.1	(81.1 – 86.7)	83.8	(79.9 - 87.0)
Headache	70.3	(67.4 - 73.0)	74.2	(71.3 - 76.9)	69.6	(65.7 - 73.2)
Body aches	57.1	(54.8 - 59.4)	63.7	(58.9 - 68.2)	52.2	(47.0 - 57.2)
Nasal Congestion	48.8	(42.9 - 54.8)	57.6	(54.5 - 60.6)	40.8	(37.1 - 44.5)
Cough	47.9	(44.9 - 51.0)	45.7	(42.1 - 49.3)	41.5	(38.8 - 44.3)
Sore throat	25.9	(21.9 - 30.3)	20.5	(17.5 - 23.9)	18.3	(15.2 - 22.0)
Diarrhea	6.3	(4.8 - 8.1)	6.3	(5.0 - 8.0)	10.0	(8.0 - 12.4)
Vomit	6.4	(5.4 - 7.4)	6.6	(5.1 - 8.5)	8.5	(7.0 - 10.4)
Loss of appetite	1.1	(0.6 - 2.0)	1.1	(0.5 - 2.2)	1.7	(1.1 - 2.5)
Shortness of breath	2.7	(1.6 - 4.5)	3.3	(1.9 - 5.4)	1.8	(1.0 - 3.3)
Don’t know	1.6	(1.0 - 2.8)	1.6	(0.9 - 3.0)	2.1	(1.3 - 3.4)

Adoption of CM Practices

	D.F.		SLP		Querétaro	
	%	(95%CI)	%	(95%CI)	%	(95%CI)
Frequent hand washing	89.2	(86.5 - 91.3)	80.6	(78.4 – 82.5)	76.0	(72.8 - 78.8)
Use a mask	63.2	(59.9 - 66.4)	64.3	(60.1 - 68.2)	50.0	(45.3 - 54.7)
Avoid crowds	20.1	(16.2 - 24.6)	29.5	(26.1 - 33.2)	23.9	(20.3 - 28.0)
Avoid shaking hands/kissing	11.8	(9.6 - 14.5)	16.0	(12.5 - 20.2)	18.6	(15.5 - 22.1)
Avoid contact with sick	10.3	(7.7 - 13.5)	11.2	(8.3 - 14.9)	11.8	(8.9 - 15.6)
Stay home work/school	1.2	(0.7 - 2.0)	2.0	(1.2 - 3.2)	2.5	(1.7 - 3.5)
Keep kids home	1.4	(0.9 - 2.2)	3.2	(2.0 - 5.0)	2.5	(1.8 - 3.5)
Self medicate	0.7	(0.2 - 2.4)	0.3	(0.1 - 0.8)	0.9	(0.4 - 1.8)
Left town to avoid illness	0.6	(0.2 - 1.6)	0.2	(0.0 - 1.2)	0.4	(0.2 - 0.9)
Did not do anything	2.2	(1.6 - 3.1)	1.5	(0.9 - 2.6)	6.5	(4.3 - 9.7)

Adoption of CM Practices by Perceived Severity

	Perceived H1N1 to be very severe/severe % (95CI)	Perceived H1N1 NOT to be very severe/ severe % (95CI)
Avoid crowds	29.1 (23.4 - 35.5)	18.8 (15.9 - 22.2)

Adoption of CM Practices by Knowledge of H1N1 symptoms*

	Could identify H1N1 (n=2050) % (95%CI)	Could NOT identify H1N1 (n=616) % (95%CI)
Frequent hand washing	90.4 (88.0 - 92.5)	77.8 (72.4 - 82.4)
Use a mask	65.2 (61.7 - 68.5)	52.3 (48.0 - 56.7)
Use hand gel	33.0 (28.7 - 37.7)	17.2 (13.8 - 21.3)
Self quarantine	10.0 (8.0 - 12.5)	4.5 (2.7 - 7.4)
Did not do anything	1.9 (1.3 - 2.8)	5.1 (3.8 - 6.7)

*H1N1 defined as fever and one or more: cough, sore throat, headache

Reported Barriers to Adopting CM Practices

	D.F.		SLP		Queretaro	
	%	(95CI)	%	(95CI)	%	(95CI)
Lack of information about what to do	7.0	(4.9 - 9.8)	10.4	(8.0 - 13.4)	5.9	(4.4 - 7.9)
Recommendations were confusing	19.3	(16.1 - 23.0)	18.1	(16.6 - 19.8)	15.7	(13.2 - 18.6)
Soap/gel too expensive	36.8	(31.6 - 42.2)	45.7	(43.4 - 48.1)	38.3	(32.7 - 44.2)
Masks too expensive	46.8	(41.4 - 52.3)	68.5	(65.7 - 71.2)	52.4	(46.7 - 58.0)
No water available to wash hands	10.9	(5.9 - 19.2)	17.2	(13.7 - 21.2)	7.7	(5.3 - 11.1)
Masks not available	55.3	(50.9 - 59.6)	67.3	(63.6 - 70.8)	62.8	(57.8 - 67.5)
Could not stay home - had to work	21.7	(19.0 - 24.7)	31.3	(27.1 - 35.8)	32.8	(28.6 - 37.3)

Reported Barriers to Adopting CM Practices by SES Tertile

	Lowest		Middle		Highest	
	%	(95CI)	%	(95CI)	%	(95CI)
Lack of information about what to do	9.9	(6.9 - 12.9)	6.2	(3.5 - 8.9)	4.6	(2.4 - 6.9)
Recommendations were confusing	24.1	(18.6 - 29.5)	19.4	(17.1 - 21.8)	11.8	(8.2 - 15.3)
Soap/gel too expensive	34.1	(28.7 - 39.4)	40.4	(33.9 - 46.8)	34.1	(27.4 - 40.8)
Masks too expensive	52.5	(47.6 - 57.5)	51.8	(45.6 - 58.1)	37.6	(31.3 - 43.8)
No water available to wash hands	14.8	(6.9 - 22.7)	11.8	(5.5 - 18.1)	6.6	(1.7 - 11.4)
Masks not available	55.8	(51.8 - 59.9)	58.7	(52.3 - 65.0)	49.3	(43.7 - 54.8)
Could not stay home - had to work	20.8	(17.5 - 24.0)	24.2	(18.9 - 29.5)	20.9	(15.2 - 26.7)

Economic Impact

	D.F.		SLP		Querétaro	
	% (95CI)		% (95CI)		% (95CI)	
Household income affected by closures	50.0	(43.6 - 53.4)	44.8	(39.7 - 50.0)	43.9	(39.6 - 48.1)

Economic Impact

	D.F.		SLP		Querétaro	
	%	(95CI)	%	(95CI)	%	(95CI)
Household income affected by closures	50.0	(43.6 - 53.4)	44.8	(39.7 - 50.0)	43.9	(39.6 - 48.1)
Loss of wages because of job loss	12.8	(9.1 - 16.4)	9.8	(6.7 - 12.9)	9.8	(6.2 - 13.4)
Loss of wages because of fewer hours or clients	83.1	(79.8 - 86.3)	89.6	(86.1 - 92.9)	89.1	(85.8 - 92.4)
Increment in wages because of more hours or clients	1.6	(0.8 - 2.4)	0.2	(0.0 - 0.6)	0.2	(0.0 - 0.6)

Conclusions

- **Mexico implemented a rapid and comprehensive response to epidemic**
  - **> 90% reported hearing about H1N1**
- **Most respondents had basic knowledge of H1N1**
  - **> 85% cited close contact transmission risk**
  - **> 80% cited fever as symptom**
  - **< 50% cited cough as symptom**
- **Majority (> 90%) reported adopting hygiene practices**
  - **Personal responsibility**
- **Few differences among cities**

Conclusions

- ~8% did not know how to protect themselves
- ~20% found messages confusing
- Methods of communication accessed were limited
- Knowledge of H1N1 affected adoption of CM practices but knowledge gaps common
- CM practices not always feasible for the population
- Economic impact reported by half of population

Lessons Learned

- **Clear, simple, consistent messaging is paramount**
- **Messaging to target knowledge and feasible action**
- **Formative research needed to determine most efficient communication methods**
- **Protocols and instruments needed to determine effective community mitigation practices**

Acknowledgments

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Extra Slides