



Arab Republic of Egypt



Ministry of Health and Population
Preventive and Endemic Diseases Sector
Epidemiology and Disease Surveillance Unit (ESU)

Controlling Avian Influenza
(pandemic preparedness projects)

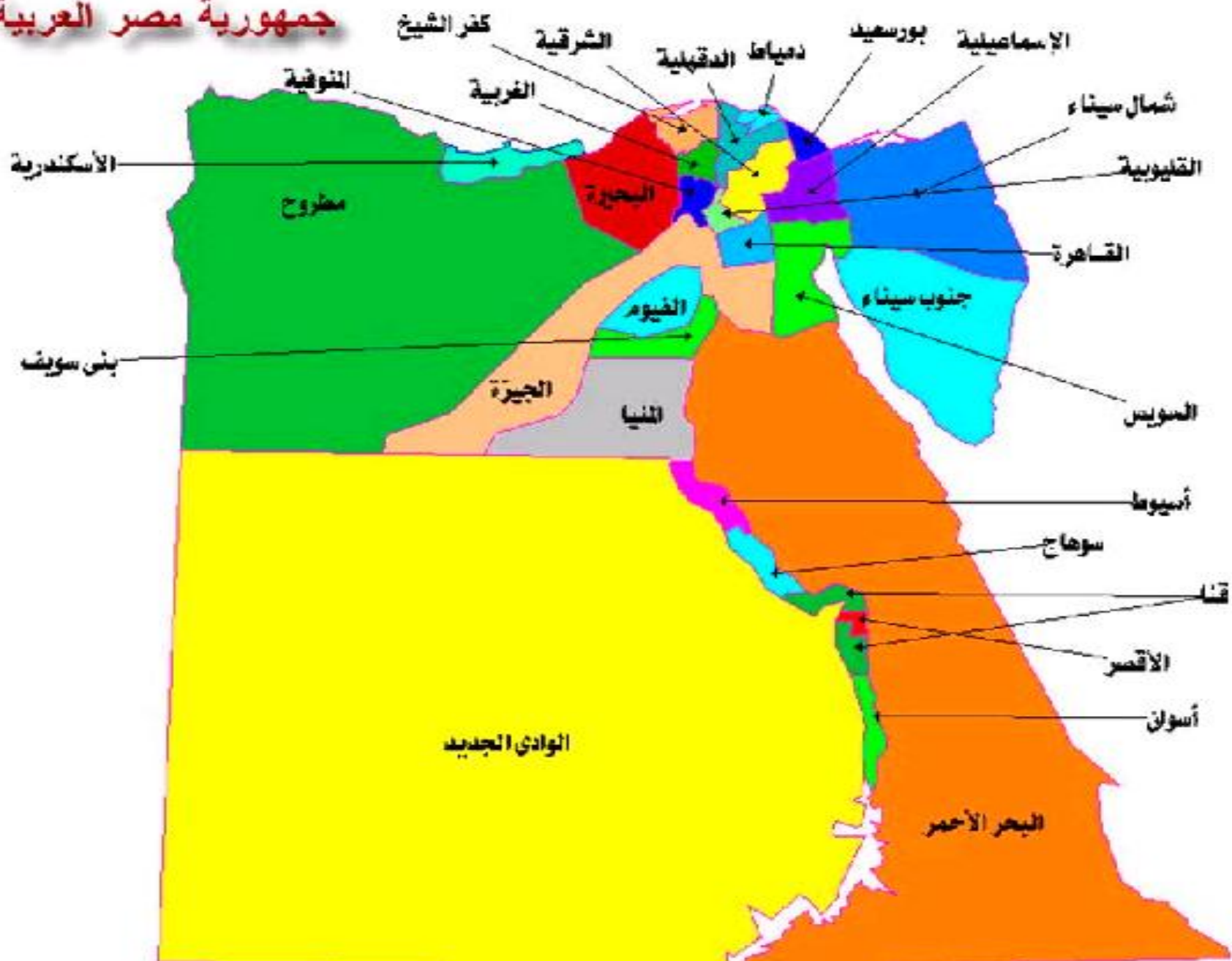
2nd Episouth training Module, Madrid June 2-6, 2008

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Epi-south Focal Point

جمهورية مصر العربية





Current Situation of AI in Egypt

april , 2008

Background

Highly Pathogenic H5N1 outbreak in poultry

- Egypt has been infected by H5N1 virus since February 2006 in domestic poultry
- Up to date the virus outbreaks in poultry was detected in 23 out of the 27 governorates
- Close to 1450 outbreaks had been reported; 920 (65%) commercial and informal poultry farms, 530 (35%) backyards
- Over 40 million birds have been culled
- Poultry industry was badly damaged; costs estimated between 3 and 4 billion USD

Background

Highly Pathogenic H5N1 outbreak in poultry (con't)

- Affected the income of the 1.5 million individuals whose livelihoods depend on poultry
- Reduced access to poultry meat (which had provided more than 50 per cent of the households protein consumed by Egyptians).
- It is estimated that 4-5 million families out of a population of 75 million keep their own poultry
- Most of the families keep their own poultry (mainly in the rural areas)

Background

Highly Pathogenic H5N1 outbreak in Human

- The first human case was detected March, 15, 2006
- Egypt was the ninth country to report laboratory confirmed human cases

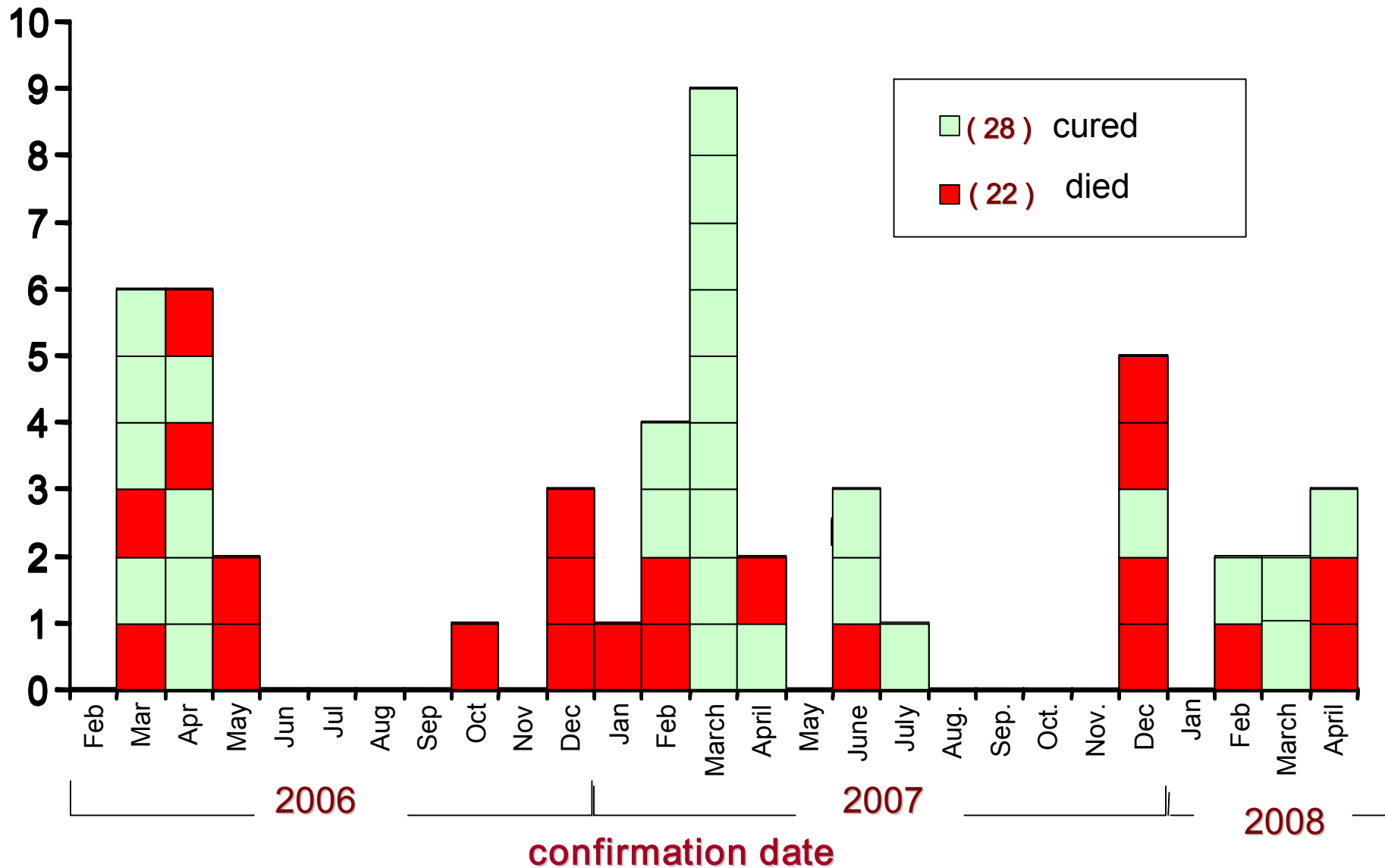
To date:

- Fifteen governorate that have human cases
- Close to 5,000 suspected human cases of AI had been isolated to hospitals, and out of them 50 cases were confirmed positive with 22 fatalities

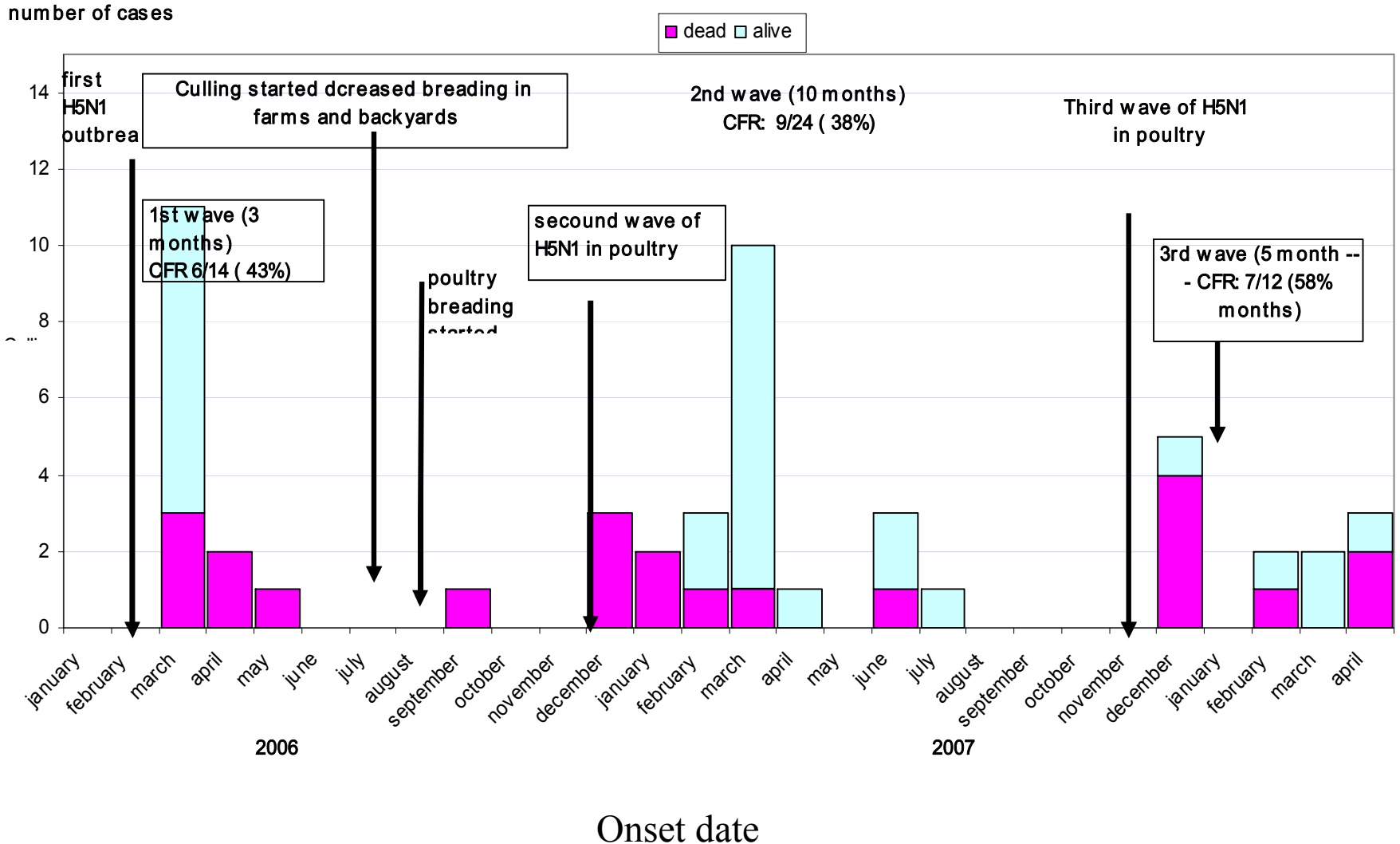
Description of Positive H5N1 Human Cases

- Total Positive Cases 50
 - ✓ 22 Deaths
 - ✓ 28 Recovered
- Distribution by Gender :
 - ✓ 16 Males
 - ✓ 34 Females
- Breeding Type:
 - ✓ 3 Cases Farm workers
 - ✓ 45 Cases Backyard Owners
 - ✓ One case poultry seller
 - ✓ One unknown

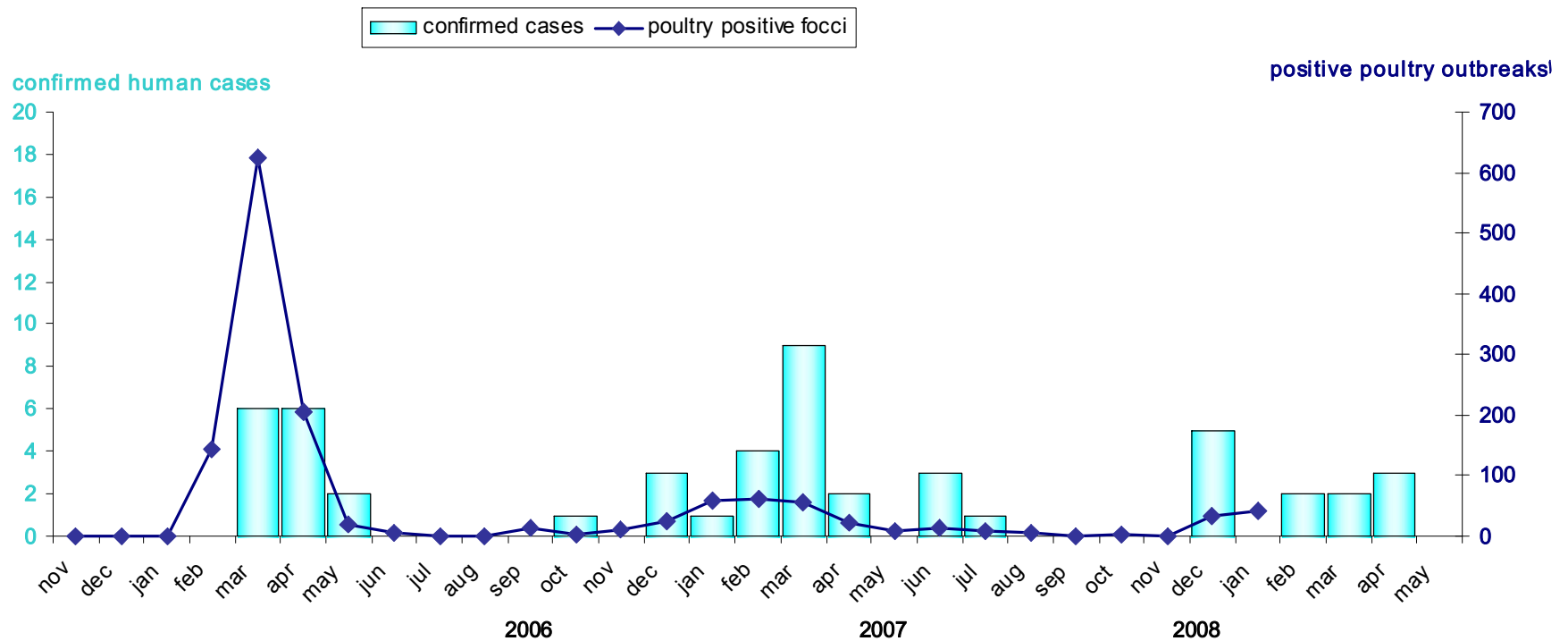
Epi curve of Confirmed H5N1 Human Cases 2006-2008



Monthly distribution of Confirmed H5N1 Human Cases 2006- 2008



Confirmed H5N1 human Cases and positive poultry outbreaks 2006- 2008



Working on the Front Line



Pre - Epidemic



Capacity Building

- Establishment of Rapid Response to Avian Flu,
- Inter-ministerial Consultation Workshop :
 - Ministry of Health and Population (MOHP), Ministry of Agriculture (MOA), Ministry of Environment (MOE), WHO, NAMRU-3, and USAID (November 2005)
- Rapid Response Teams Training Workshops for; central level, health directorates, fever hospitals and chest hospitals (January 2006)

Capacity Building (con't)

- Training Workshop for Rapid Response to combat Avian Flu out break,
 - **Teams from MOH, MOA, and MOE on governmental level** (January – February 2006)
 - **Quarantine Staff** (January 2006)
- Infection Control Procedures for **Main Fever Hospitals**, (January 2006)

Evaluation field Visit

- Site visit to 3 governorates (Port Said, Qaliobia and Monofia) in co-operation with WHO, FAO and NAMRU3 (January 2006)
- Evaluation of AI outbreak preparedness

Establishment of Surveillance Tools

- Case definition
- Guidelines on Influenza (Flu) Epidemics and Response
- Investigation forms for poultry farms and backyards
- Investigation forms for human cases
- Surveillance system data base
- Investigation forms for lab
- Fever / chest hospitals reporting form
- Poultry active survey reporting list

Notification

Examination, Registration, History of the Disease and Documentation

Area of 5 km around confirmed Focus

New Case

Notify Ministry of Health to examine contacts

Ministry of Health Human Specimen

Governor ntal

Ministry of Environmental affairs

In case of positive immediate reporting to
Repoter
Ministry

C.P.H.L.
Negative

N.L.Q.P.
Positive

Migratory birds

Notification Confirmation

In Case of Dead bird

Distribution of instructions and guidelines to people by governorate and environmental affairs

- Sending a Team include Veteranian Doctor has PPE to collect 2 specimens per bird
- Sending specimens to NAMRU-3 and N.L.Q.P.

Notification to Concerning Authorities

Directorate

Encirclement

Execution'

Disinfection

Remnant Transportation

Burn - Burying

Reporting for Concerning Authorities

In Cities and Crowded villages
At least 3 Streets all around

Farms
1 km circle around affected farm

Disinfection of Equipments and Cars

Specimens Results

Notification to Central Emergency room

Reporting by central Committee to State Information Service

During Epidemic

Training

- Orientation Workshop for discussing human cases of Avian Flu and standardizing management protocol of a case of Avian Influenza in fever and chest hospitals
- Risks-related, universal precautions of avian flu infection and safe disposal of dead poultry
- Prevention, control and management of Avian Flu for fever hospital physicians and for Private sector physicians



Published Material for Avian Flu

- An “Eye on Epidemiology” magazine which was designed by ESU. The scientific topics were chosen by ESU to disseminate newly acquired information in Epidemiology, Public Health as well as Infectious & Chronic Diseases.
- “Avian Flu Control & Management Guidelines” that distributed in Egypt according to training program.
- Booklets and resumes on “prevention and Control of Avian Flu”.

Published Material for Avian Flu

- Resumes on “Avian Flu for laymen” specially those dealing with domestic birds.
- Posters on prevention and Control of Avian Flu
 - Q and A about disease
 - Brochures
 - Epi bullitten
 - Central instructions and news letters

أنفلونزا الطيور

معلومات للمتعاملين مع الطيور الحية

لحماية نفسك وأسرتك من أنفلونزا الطيور اتبع الخطوات التالية

- الوقاية
- التعرف
- احتواء المرض
- الإبلاغ

الوقاية

ابتعد الأطفال عن الطيور.



استخدام ملابس واقية عند التعامل مع الطيور:
قفاز- قناع واقى - مريلة - حذاء واقى
او كيس بلاستيك.



غسل اليدين بالماء والصابون دائما.



إن الطرق الشائعة لنقل العدوى إلى البشر هي
مخلفات وزرق الطيور المصابة لذلك ننصح بتنظيف
الأحذية بصفة دائمة قبل دخول المنازل.



صحتك ... ثروتك

صحتك ... ثروتك

التعرف

الأعراض في الطيور:

- ضعف
- حمى
- إسهال
- عطش وكحة
- فقدان الشهية
- عطش شديد

تورم وانتفاخ في الوجه وتورم في الأرجل
تغير في لون العرق والنقار إلى شمسجي
انتفاخ في الريش
الموت المفاجئ
إقلال شديد في وضع البيض



إحتواء المرض

وضع الطيور النافقة في أكياس بلاستيك سميقة
ومزوجة ثم إبلاغ السلطات المعنية لعمل اللازم.



الإبلاغ

إذا شكيت إن الطيور التي لديك مصابة أو أي شخصاً من المتعاملين مع الطيور
مصاباً فقم بالإبلاغ القوي على الأرقام التالية:

٠٨٠٠٥٥٥٣٥٥٥

٠٢٧٩٢٣٧٣٩ \ ٠٢٧٩٢٣٦٠٨ \ ٠٢٧٩٢١٠٦٠



Field activities

- Active surveillance in bird in collaboration with Vet.
- Follow up of culling procedures applied in positive foci



Field activities

- Field Investigation for confirmed human cases



Establishment of Surveillance activities

- Case investigation and case detection
- Contact monitoring
- Data processing
- Mapping
- Hot line activities
- Report formulation

Coordination

Supreme National Committee:

- ❑ Supreme National Committee with regular meetings and getting information on the situation of the virus as well as action taken and/or constraints encountered
- ❑ Supreme National Committee members (25 member) :
 - Minister Of Health
 - Minister Of Agriculture
 - Minister Of Environment
 - Officials From GVO, MOH, SIS, ..etc
 - Governors and others governmental officials, including Military, Police...etc
 - Representatives from WHO, FAO And NAMRU-3.

Coordination (con't)

- In July 2004, MOHP established a center for Influenza Surveillance in the CPHL as a cooperative centre with WHO and CDC
- approximately 3,500 samples from influenza patients are examined annually
- causative viruses are isolated, classified and part of the examined samples are sent twice a year to the referral labs in CDC and WHO
- Influenza Surveillance Center in CPHL is one of six regional centers on the Eastern Mediterranean Region.

Co-operation between GOVs & MOHP

- Preparation of building long term co-operation and coordination between GOVS – Animal health and MOHP public health
 - ✓ Preparation for a protocol and SOPs for co-operation
 - ✓ Extend protocol to both providence-governorate and district level
 - ✓ Extent to sub district and unit level
- SOPs for change of information

Co-operation between GOVs & MOHP

- **Field activities**

- ✓ Active surveillance for positive H5N1 foci
- ✓ Co-operative field activity for preventive activities like poultry vaccination and culling
- ✓ shared village level seminars and workshops for limiting exposure and enhance reporting for dead poultry
- ✓ shared table top exercises, and simulation of central team on oversight and rapid response to H5N1 outbreaks
- ✓ Combined surveillance training at level of Gov. & District
- ✓ Cooperation for preparation of Unique reporting and investigation form for H5N1
- ✓ Technical assistance in database skills for surveillance and reporting
- ✓ Implementation of combined epi-studies related to risk factors and behaviors of H5N1 transmission and infection

Epidemiological Studies

- Survey of knowledge, Attitude and Practice about H5N1 Virus in Qaliobia Governorate
- Confirmed human cases descriptive analysis
- Case control study

KAP Survey

sources of information and following news:

Response	No.	%
Egyptian television	163	81.5
Radio	5	2.5
Satellite channels	5	2.5
Governmental newspapers	5	2.5
Other newspapers	1	0.5
Don't follow	14	7
Others	7	3.5
TOTAL	200	100

67% follow the new in the evening after 6 pm

Note: Others: includes at work, internet, veterinary, relatives

Epidemiologic characteristics of confirmed H5N1 human cases 2006-2008

Characteristics	No of Cases (n-50)*	Percentage
Year		
2006	18	36%
2007	25	50%
2008	7	14%
Age:		
Median	17 years	
Range	16 months-75 yrs	
≤15 years	23	46%
Sex		
Male	17	34%
Female	33	66%
Area		
Rural	41	82%
Urban	9	18%

Epidemiologic characteristics of confirmed H5N1 human cases 2006-2008

Characteristics	No of Cases (n-50)*	Percentage
Case fatality (CF)		
Overall CF	22	44%
Sex specific CF		
Male CF	2/17	12%
Female CF	20/33	61%
Age specific CF		
≤ 15 years old	2/23	9%
>15 years old	20/27	74%
CFR by onset-admission duration* (n)=49		
≤2 days		
>2 days	3/25	12%
	19/24	79%

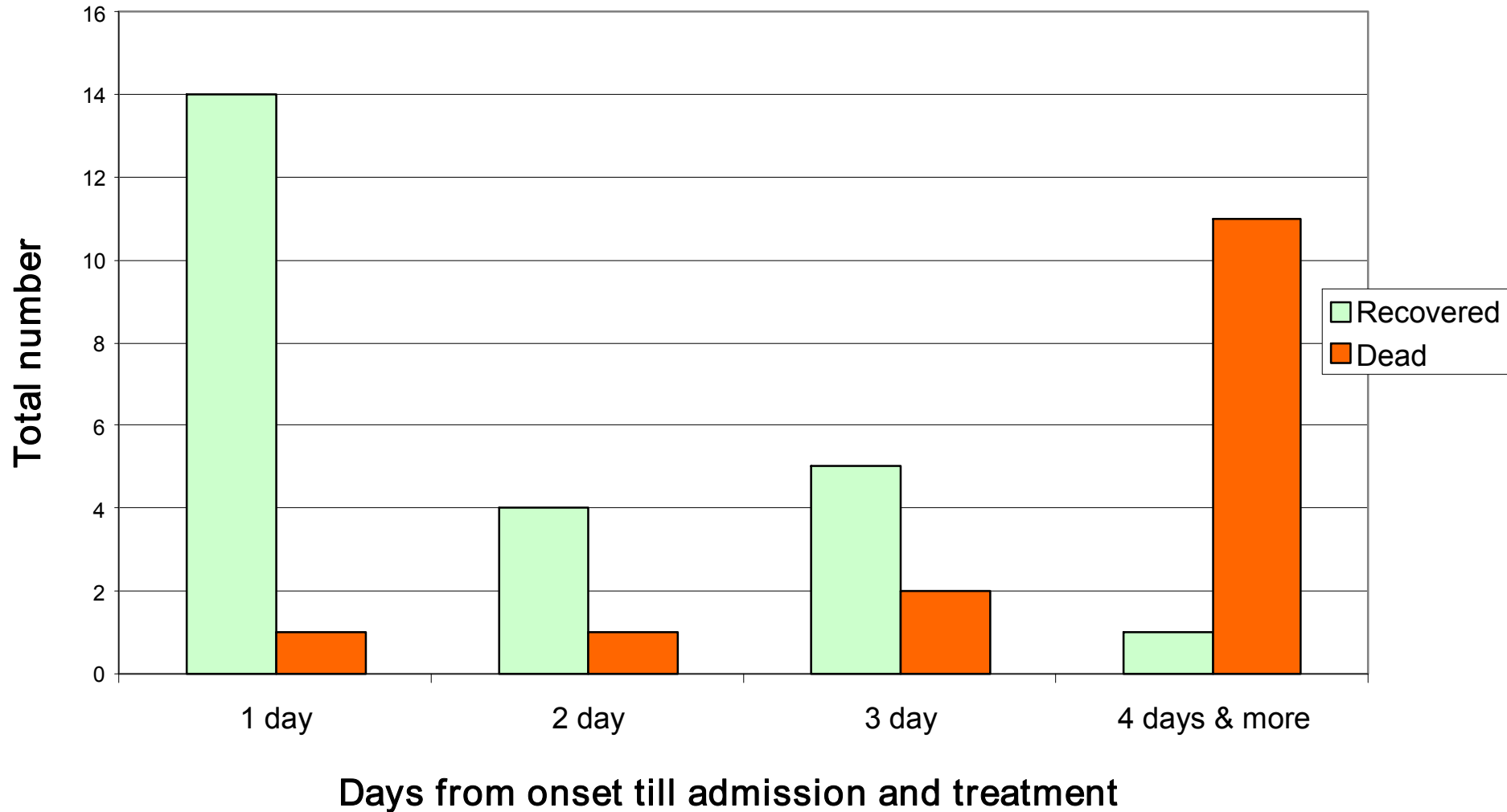
Epidemiologic characteristics of confirmed H5N1 human cases 2006-2008

Characteristics	No of Cases (n-50)	Percentage
Type of Exposure		
Commercial Poultry farm House	3	6%
Poultry backyard Poultry retail shop	45	90%
Unknown	1	2%
Confirmed / probable human case	1	2%
	0	0

Incidence rate of the reported Avian Flu cases by regional governorates 2006-2008

Governorate n= 27	Governorate affected No. (%)	Cases n=50 No. (%)	Estimated population	Incidence rate / 10 ⁷
Overall governorate affected	15/27 (55.5%)	50	70.668.129	7.1
Upper Egypt	6/8 (75%)	20 (40%)	20.648.963	9.71
Lower Egypt	7/9 (77%)	22 (44%)	27.179.115	8.01
Metropolitan	2/5 (40%)	8 (16%)	21.826.110	3.7
Frontier	0/5	0	1.013.941	0

Prognosis and Days Before Treatment



Relationship between type of exposures and Avian influenza A H5N1 infection, 2006-2007

Exposure	No. (%) of exposures		OR	(95% CI)
	Cases	Controls		
Contact with dead poultry				
Did contact	27/38 (71.1%)	56/114 (49.1%)	3.50	1.23-9.85
Threw dead poultry	14/38 (36.8%)	24/114(21.1%)	2.64	1.03-6.44
Duration of exposure \geq 1 hours	22/27(81.5%)	30/55(54.5%)	3.81	1.28-12.54
Contact with sick poultry				
Did de-feathering	14/38 (36.8%)	32/114 (20.2%)	4.60	1.34-22.51
Attended slaughtering	16/38 (42.1%)	3/114 (2.6%)	3.00	1.36-7.35
Attended de-feathering	14/38 (36.8%)	22/114 (19.3%)	4.14	1.46-13.76
Transport sick poultry	8/38 (21.1%)	21/114 (18.4)	4.60	1.53-19.94
Attend slaughtering movement of birds	24/32 (75%)	26/67 (38.8%)	5.80	1.64-17.5
Contact of sick birds \geq 1 hours	33/37(89.2%)	61/103(59.2%)	7.53	2.09-40.37
Cooking	7/38 (18.4%)	20/114 (17.5%)	1.00	0.27-31.66

**Summary
and
Lessons Learnt**

Preparedness and Prevention

- Training of investigation and response teams at Governorates level to increase level of preparedness
- Provision of teams with PPEs has encouraged quick and safe field interventions
- Incompliance with global safety standards in poultry sector contributed in:
 - quick spread of disease in birds
 - Increase in human exposure
- Implementation of the national preparedness plan is a collective responsibility

Diagnosis and Detection

- Establishment of laboratory facilities in two governorates to facilitate diagnosis, confirmation and surveillance of AI cases (Decentralization)
- Delay in getting information on the exposure status of human cases resulted in:
 - Negative prognosis
 - Difficulty in revising/updating case definition

Surveillance

Effective surveillance and investigation resulted in:

- Immediate reporting of all suspected cases
- Promptness and accuracy of epidemiological investigation
- Quickness in sending lab specimens to CPHL
- Development/Implementation of an effective comprehensive surveillance plan at all levels
- Involvement of private sector in diagnosis and referral of cases

Referral of Patients

Ministry of Health and Population;

- Nominated two hospitals in Cairo for management of AI (one for pediatric cases and another one for adult cases)
- Preparing 57 hospitals with all resources needed to function in all governorates

Epidemiological Investigation

- Rural areas were severely hit
- Domestic birds were the major source of transmitting the infection to human beings
- All cases were closely exposed to infected birds

Awareness and Social Mobilization

- One spokesperson
- Condensation of awareness campaigns in the affected Governorates assisted in reducing exposure
- The desire and insistence of the community to deal with live birds (raising and slaughtering) has increased the possibility of human infection
- Refusing the idea of frozen birds
- Rumors and inadequate communication to the public could be detrimental and wasteful of resources

Treatment and Prognosis

- Adherence to WHO guidelines for treatment and clinical management has saved lives
- Implementation of infection control guidelines in health facilities helped in reducing the spread of disease among humans
- The delay in reporting and referral to designated health facilities has affected negatively the prognosis
- Early detection and reporting of AI cases among children by mothers helped in quick recovery

Pandemic Plan

Catalyzing Popular Movements for Health Security

ONE WORLD, ONE HEALTH, ONE LEGACY

- Diseases threaten our future security (HIV, SARS, Ebola)
- Diseases do not respect borders and appear without warning
- Animals are a key source
- Animal health, environmental health, food safety and human health
- Governments, voluntary sector and business and community – together

Ministry of Health and Population Preparedness Influenza Pandemic Plan

Printed and distributed
to all governorates

Training will be provided
to health care providers



Main objectives

- Prevent the consequences of Influenza pandemic
- Reduce incidence and morbidity rates
- Provide essential elements of preparedness

Secondary objectives

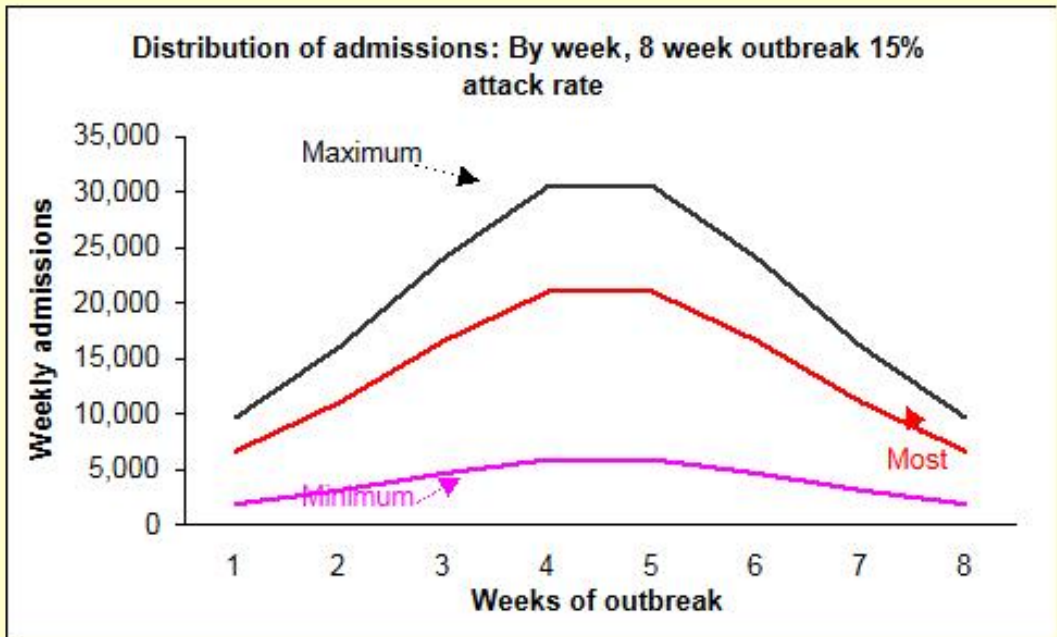
- Promote the surveillance system in the different levels of health care facilities
- Develop a well-prepared health facilities, institutions...etc
- Stockpiling of antiviral medications, PPE and medical supplies

Pandemic Planning Guidelines

- Command and control
- Disease monitoring
- Preventive procedures
- Curative procedures
- Training
- Communication
- Supervision and evaluation

Risk of Pandemic on Egypt

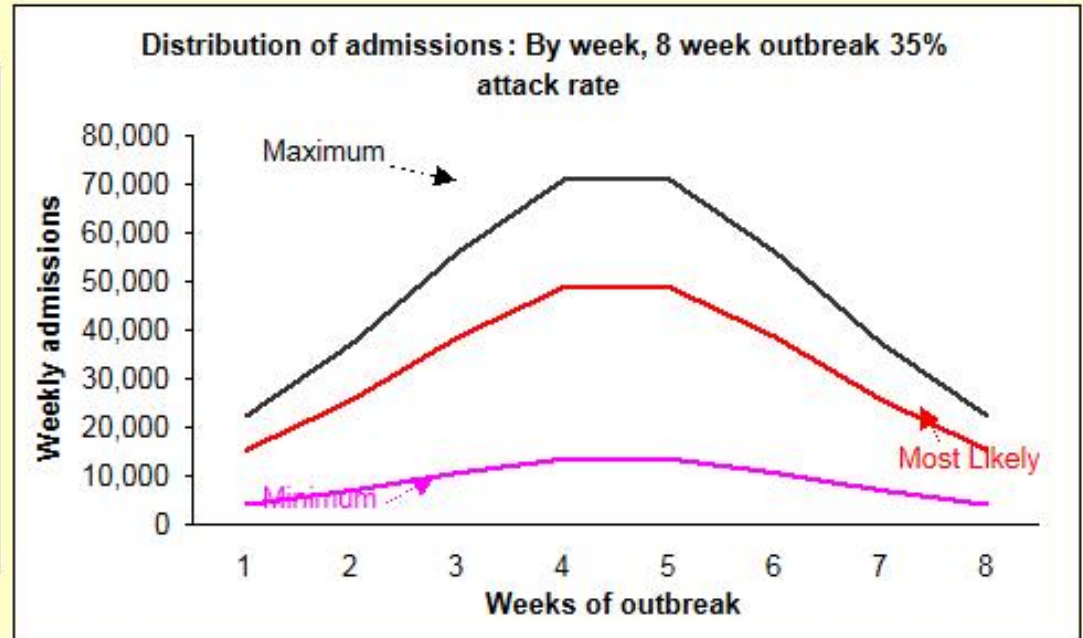
Pandemic Influenza Impact / Attack Rate	15%
Total Hospital Admissions	
Most Likely Scenario	110,463
Minimum Scenario	30,718
Maximum Scenario	160,486
Total Deaths	
Most Likely Scenario	17,857
Minimum Scenario	6,114
Maximum Scenario	36,557



Hosp Adm. / Week	1	2	3	4	5	6	7	8
Most Likely Scenario	6,628	11,046	16,569	20,988	20,988	16,569	11,046	6,628
Minimum Scenario	1,843	3,072	4,608	5,836	5,836	4,608	3,072	1,843
Maximum Scenario	9,629	16,049	24,073	30,492	30,492	24,073	16,049	9,629

Risk of Pandemic on Egypt

Pandemic Influenza Impact / Attack Rate	35%
Total Hospital Admissions	
Most Likely Scenario	257,747
Minimum Scenario	71,675
Maximum Scenario	374,467
Total Deaths	
Most Likely Scenario	41,666
Minimum Scenario	14,265
Maximum Scenario	85,300



Hosp Adm. / Week	1	2	3	4	5	6	7	8
Most Likely Scenario	15,465	25,775	38,662	48,972	48,972	38,662	25,775	15,465
Minimum Scenario	4,301	7,168	10,751	13,618	13,618	10,751	7,168	4,301
Maximum Scenario	22,468	37,447	56,170	71,149	71,149	56,170	37,447	22,468

Assessment of the Egyptian National Preparedness Plan for Human Pandemic Influenza

Joint WHO/CDC/MOH&P Mission to Egypt
28 January – 12 February 2007





Conclusion

- MOHP and provincial officials have established an excellent surveillance system for detecting H5N1
- Planning needs to detail response to:
 - large numbers of sick and dead during pandemic
 - maintenance of functional society
- Reasons for success: Transparency, leadership and teamwork
- Areas for potential improvement:
 - Detailing (micro-planning)
 - Costing
- Challenges:
 - Maintaining momentum
 - Changing behavior of people
 - Replicating success stories of Menofia and Gharbia



Thanks