NEW EMERGING DISEASE: SARS,BIRD FLU and SWINE FLU Community Health Care Setting

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INTRODUCTION

- Severe Acute Respiratory Syndrome (SARS)
- The first cases of SARS are now known to have emerged in mid-November 2002 in Guangdong Province, China
- Airborn disease caused by SARS Corona Virus (SARS CoV)
- Affected 305 persons and caused 5 deaths

Spreading to: (HOT ZONE)

- Hongkong
- Vietnam(first identified in Viet Nam 28 Feb'03 by Dr.Carlo Urbani)
- Singapore
- Canada (Toronto)
- No cases confirm in Indonesia

INTRODUCTION

- BIRD FLU respiratory infection by influenza A H5N1
- First cases in Vietnam December 2003
- Incubation 2-7 days
- Spreading to:
  - Hongkong
  - China
  - Thailand
  - Indonesia (sporadic cases to date)
  - Cambodia

INTRODUCTION

- Swine Origin Influenza Virus (Swine Flu)
- Airborn Disease caused by New Influenza A,H1N1
- First cases April 2009 in Mexico
- Incubation 2-7 days
- Spreading to hundreds countries to date
- Indonesia > 100 cases
- Yogyakarta 2 cases death

SARS

- Diagnosis :
  - Influenza Like Illness (ILI)
  - Coming from country confirm SARS
  - Within 1-7 days
  - Severe dyspnea on day 2-3

SARS

- CLINICAL FINDING (Influenza Like Ilness=ILI)
  - Fever >38 degree C
  - Cough
  - Sputum production
  - Chills
  - Dyspnea (in day 2-3)

SARS

- Laboratory finding:
  - Leukocytosis (day 1-3)
  - Thrombocytopenia (day 1-3)
  - Lymphopenia (day 1-3)
  - Anaemia
- Risk factor:
  - Elderly
  - Diabetic
  - Immunocompromized

SARS

- CHEST RADIOGRAPHIC
- Infiltrate bilateral
- ARDS

SARS

- Management :
  - Isolation ward
  - Masker N95
  - Secure universal precaution
  - Negative pressure ward
  - Handwash procedure

- Universal Precaution

SARS

- TREATMENT:
  - Supportive care
  - Non Invasive ventilation, or
  - Mechanical ventilation
  - No antiviral tx
  - Antibiotics for secondary infection (bacterial pneumonia)

SARS

- Mortality 60-80 %
- Prognosis for survival ► lung fibrosis post ARDS
- 30-48 % healthworker patients

BIRD FLU
(Human Influenza A, H5N1)

- Evidence is consistent transmission with :
  - bird-to-human,
  - possibly environment-to-human, and
  - limited, nonsustained human-to-human transmission
  - Same virus in human and bird
  - Mortality >80%

Bird Flu: pathogenesis

- The biological basis for this unusual disease severity is not fully understood
- the major site of H5N1 viral replication in the lung is the pneumocyte
- hyperinduces proinflammatory cytokines, including tumor necrosis factor alpha (TNF-alpha) → MODS
- "cytokine storming" → diffuse alveolar damage → ARDS
- Reactive haemophagocytosis was also observed in the hyperplastic bone marrow and in the parafollicular areas of the bronchial and hilar lymph nodes

Bird Flu: histopathological changes

- Organising diffuse alveolar damage, with interstitial fibrosis;
- hepatic central lobular necrosis (Reye's syndrome)
- acute renal tubular necrosis;
- lymphoid depletion.

BIRD FLU

- Diagnosis :
  - Influenza Like Illness (ILI)
  - Coming from poultry and death bird confirm H5N1
  - Within 1-7 days contact
  - Severe dyspnea on day 2-3
  - Positive H5N1 from pharynx swab

BIRD FLU:Clinical Finding

Table 2. Clinical Characteristics of the Patients on Admission.

Variable	Patient 1	Patient 2	Patient 3	Patient 4	Patient 5	Patient 6	Patient 7	Patient 8	Patient 9	Patient 10
Days between exposure to poultry and onset of illness	—	—	—	—	3	2	3	4	3	3
Days since onset of illness	3	7	7	5	8	6	5	6	5	7
Sex	Female	Male	Male	Female	Female	Male	Female	Male	Male	Male
Age (yr)	12	5	10	8	8	13	16	18	24	23
Cough	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Dyspnea	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Sputum	No	No	No	No	Yes	No	Yes	Yes	Yes	Yes
Diarrhea	Yes	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes
Rash	No	No	No	No	No	No	No	No	No	No
Myalgia	No	No	No	No	No	No	No	No	No	No
Conjunctivitis	No	No	No	No	No	No	No	No	No	No
Fever	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Temperature (°C)	39.5	38.8	39.0	38.5	38.5	39.6	40.0	40.0	39.5	38.7
Blood pressure (mm Hg)	90/60	112/54	105/80	80/40	104/64	110/70	110/60	100/60	110/60	120/80
Respiratory rate (breaths/min)	65	70	64	60	40	40	40	60	50	28
Crackles	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes
Wheeze	No	No	No	No	No	Yes	No	No	No	No
Other	Enlarged liver	—	—	Bleeding gums	—	—	—	—	—	—

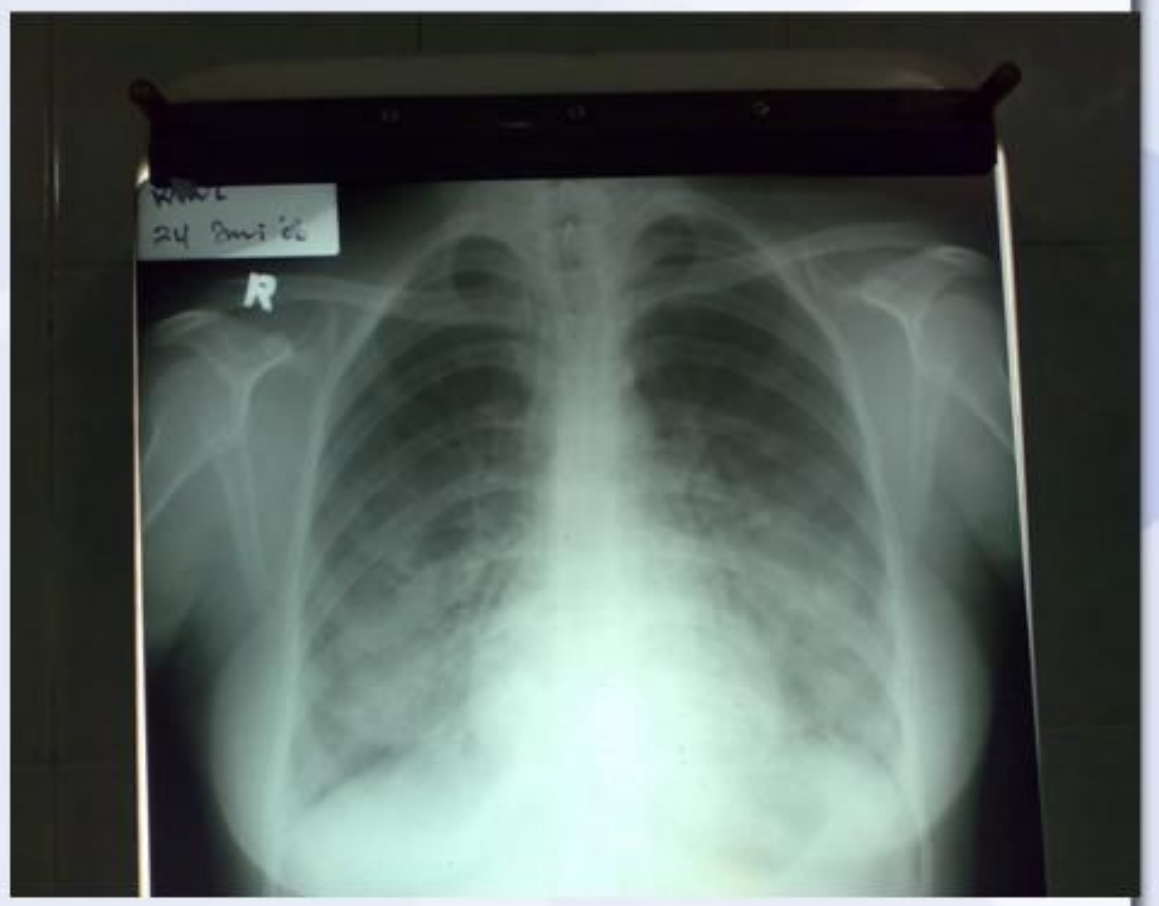
BIRD FLU

- Laboratory finding:
  - Leukopenia
  - Lymphopenia
  - Thrombocytopenia
  - Increase transaminase (Liver dysfunction)
  - Increase ureum and creatinin (renal dysfunction)

BIRD FLU

- Chest X-ray
- Bilateral consolidation

- ARDS



BIRD FLU

- Management:
  - Isolation ward
  - Negative pressure ward
  - Universal precaution
  - Masker N 95
  - Hand washing procedure

BIRD FLU

- TREATMENT:
  - Supportive care
  - Antiviral oseltamivir 75 mg/12 hours on day 1-2 of symptoms for 5 days
  - Antibiotics for secondary bacterial pneumonia
  - Non Invasive ventilation if ARDS, or
  - Mechanical ventilation

FLU H1N1?

- MEXICO → NORTH AMERICA
- INFLUENZA TYPE A SUBTYPE H1N1
- FROM SWINE?
- HUMAN → SWINE → HUMAN?
- MORTALITY <0,5%
- **Why Mexico?** Well overcrowding, poor nutrition and overall poor immunity, all of which are indigenous to Mexico will radically increase your risk of death

SWINE FLU SPREADING

- 25 May 2009 -- 47 countries have officially reported >12954 cases of influenza A(H1N1) infection, death 92
- Mexico has reported 4174 confirmed human cases of infection, including 80 deaths.
- The higher number of cases from Mexico in the past 48 hours reflects ongoing testing of previously collected specimens.
- USA reported >100.000 laboratory confirmed human cases, including >50 death.

SWINE FLU

- Diagnosis :
  - Influenza Like Illness (ILI)
  - Coming from country confirm Flu A, H1N1
  - Within 1-7 days contact patient confirm Flu A,H1N1
  - Severe dyspnea on day 2-3
  - Positive H1N1 from pharynx swab

SWINE FLU: SPREADING

- Countries have **reported laboratory confirmed** cases :
  - TOTALY 168 countries
  - 162.380 cases
  - deaths 1154 cases
  - PANDEMI Juni'09 →**INDONESIA > 100, death 3**

SWINE FLU

- CLINICAL FINDING: (ILI)

Fever >38^0 C

Cough

Sore throat

Myalgia

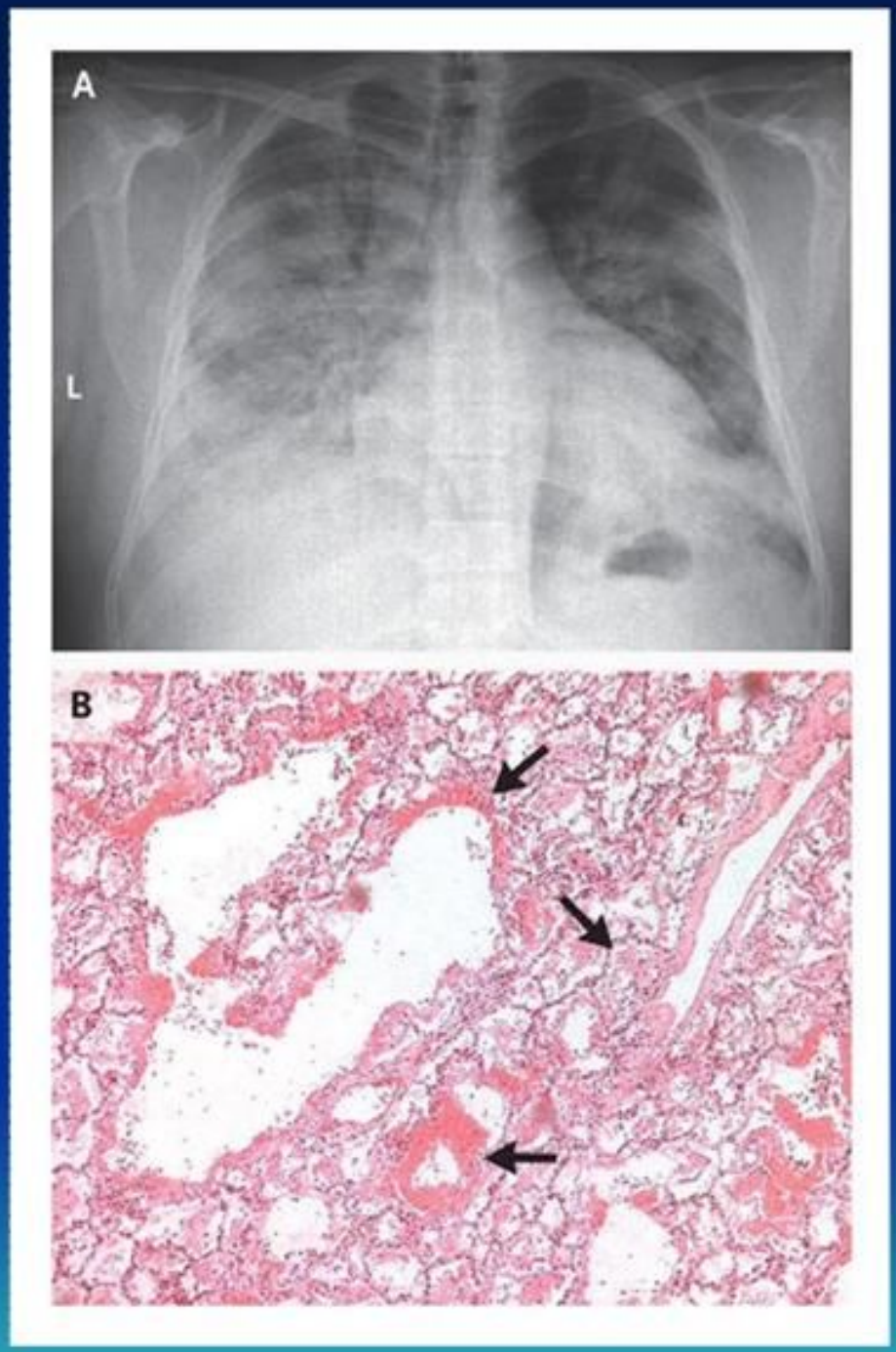
Cephalgia

Malaise

Vomity, nausea, diarhoe

Risk factor: DM,Pregnant,CVD,COPD,child,cancer, ASTHMA,Elderly,Heart disease,HIV

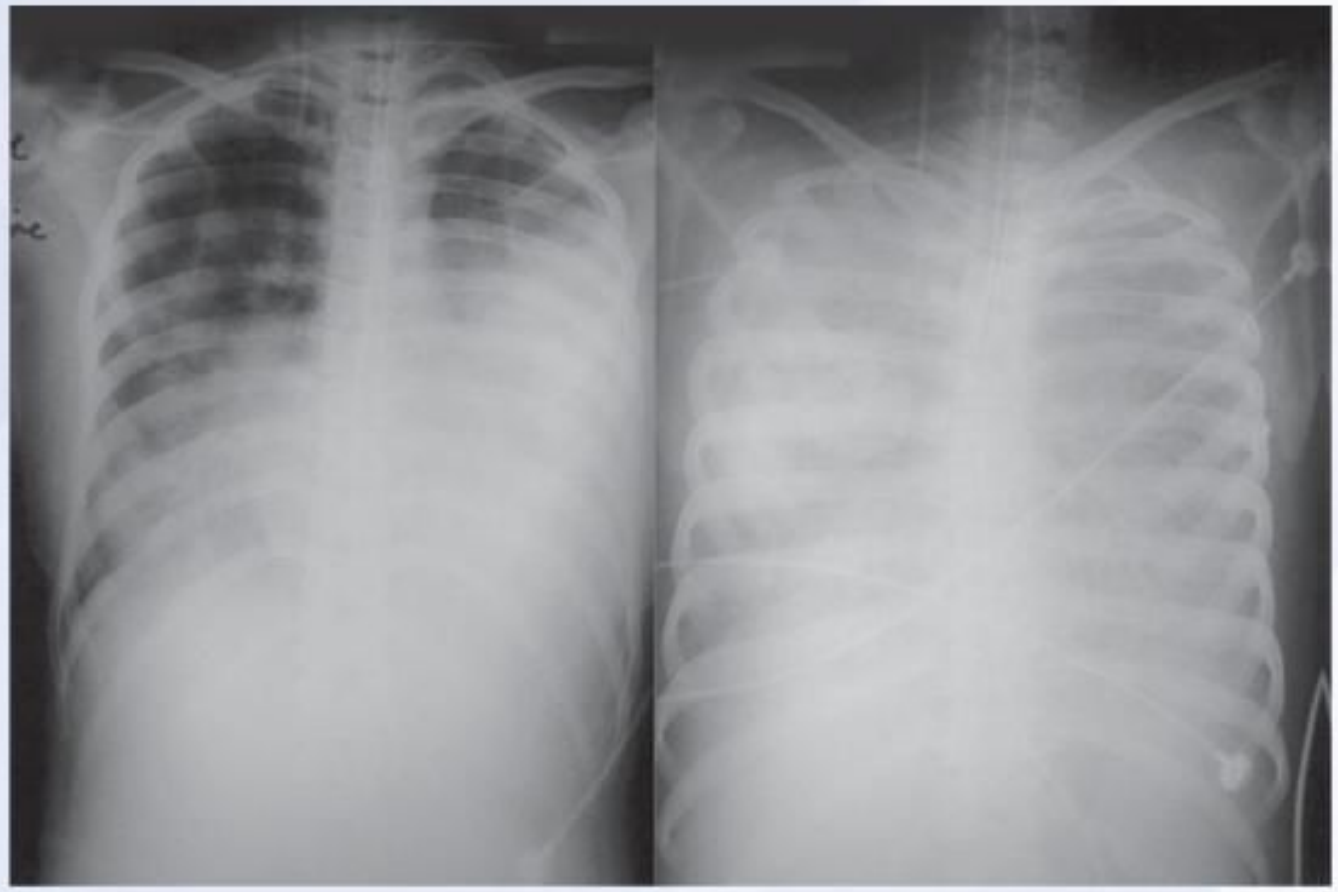
Initial Radiograph of the Lung and Lung-Tissue Sample from Patient 3



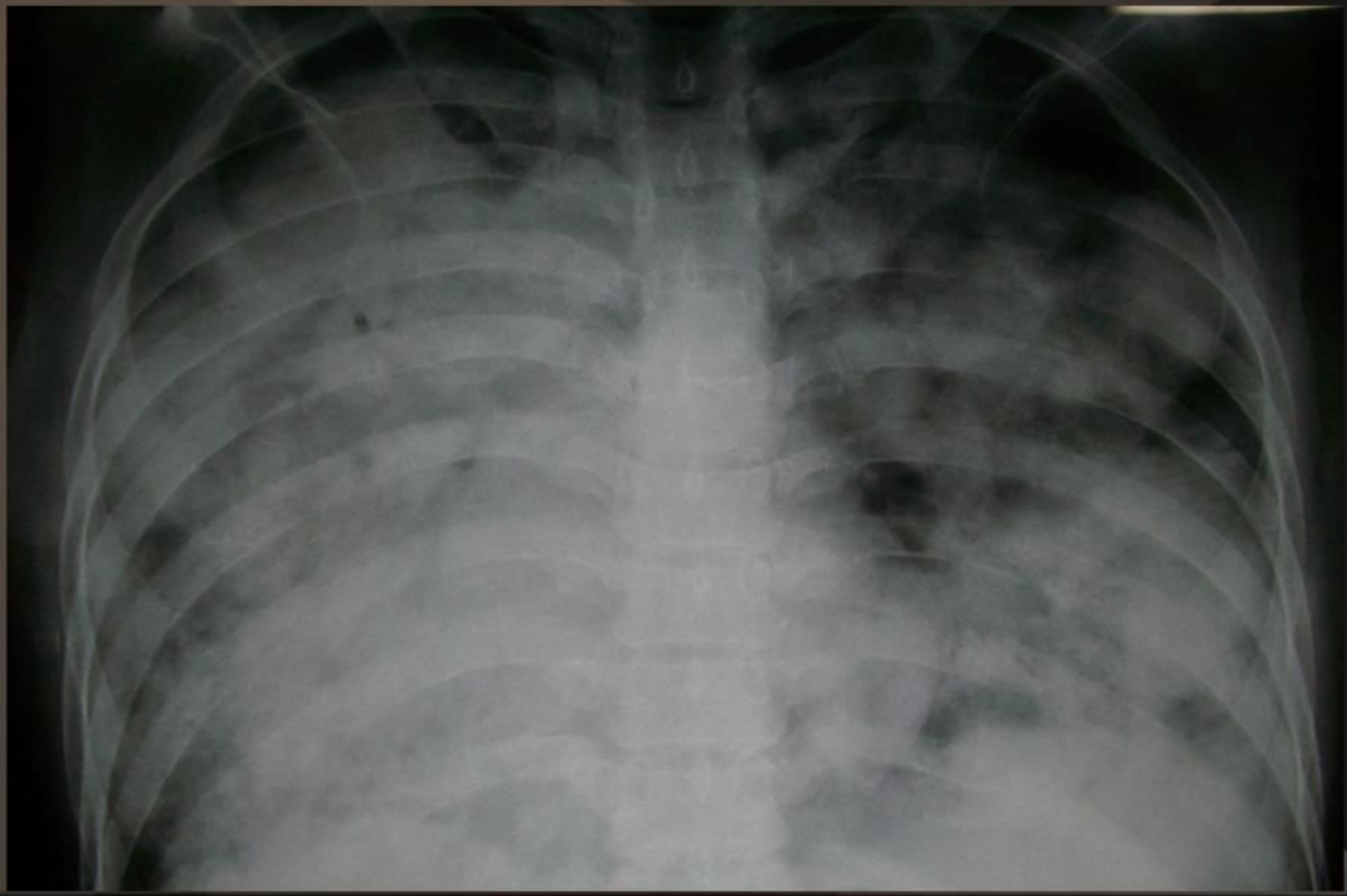
Perez-Padilla R et al. N Engl J Med 2009;10.1056/NEJMoa0904252

Swine Flu: Clinical appearance

- Flu symptoms and signs
- Severe dyspnea on day 2 or 3 of illness
- Leucopenia
- Lymphopenia
- Increase serum transaminases
- Increase serum BUN & creatinin



CASE ARDS:
Pregnant Woman, 29 yo H1N1(+) Sleman (die)



SWINE FLU

- MANAGEMENT:
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SWINE FLU

- TREATMENT:
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  - Mechanical ventilation

PREVENTION

- VACCINATION for RISK PEOPLE:
  - PREGNANT WOMEN
  - CHILD
  - HIV
- VACCINE:
  - INACTIVATED VIRUS
  - VIRUS COMPONENT/DEATH VIRUS

SUMMARY

- AIRBORN DISEASE VIRAL INFECTION
- SPREADING EFFICIENTLY
- GLOBAL PANDEMIC
- NEED AWARNESS: Bird Flu and Swine Flu
- RISK FACTOR
- VACCINATION
- ISOLATION WARD

ALHAMDULILLAH

THANK YOU FOR YOUR ATTENTION