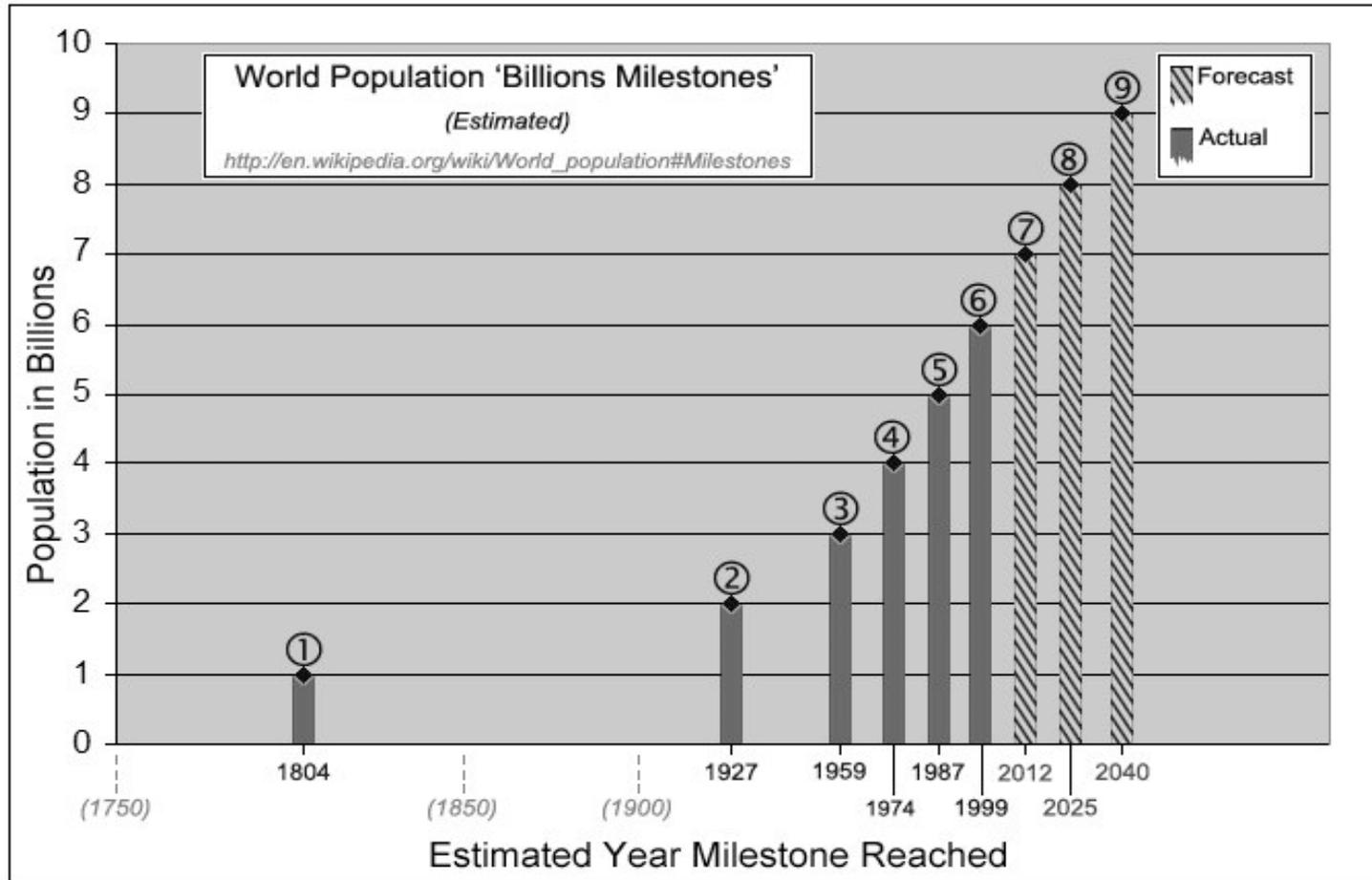


# Global Population Growth

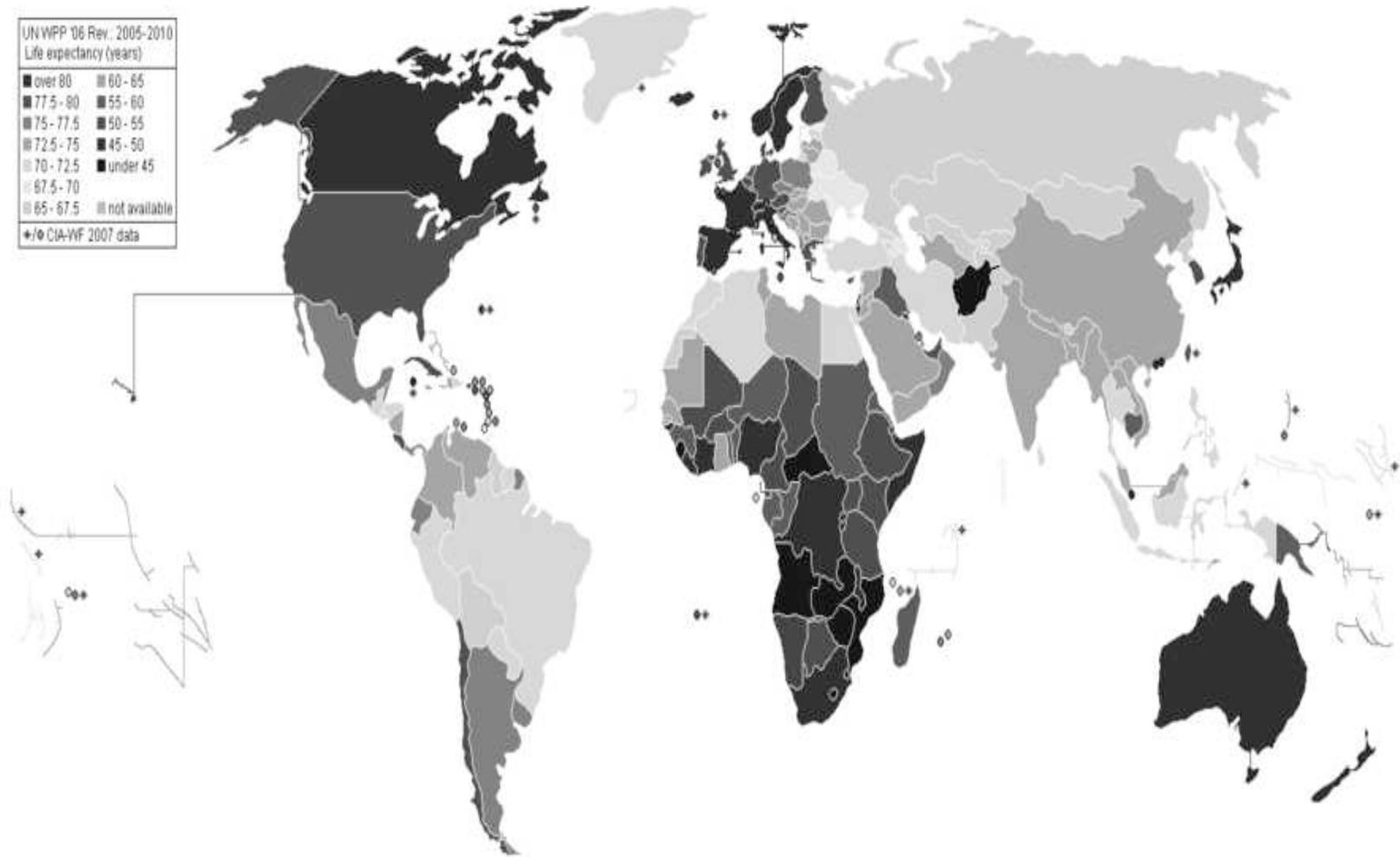


# Life Expectancy

UN WPP '06 Rev. 2005-2010  
Life expectancy (years)

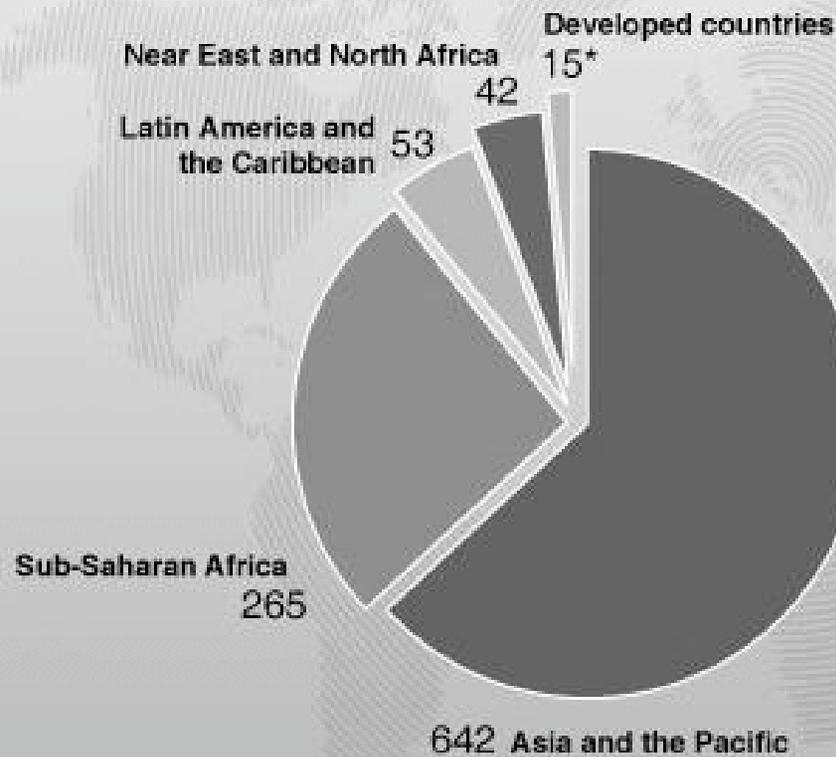
over 80	60 - 65
77.5 - 80	55 - 60
75 - 77.5	50 - 55
72.5 - 75	45 - 50
70 - 72.5	under 45
67.5 - 70	
65 - 67.5	not available

\*/o CIA-WF 2007 data



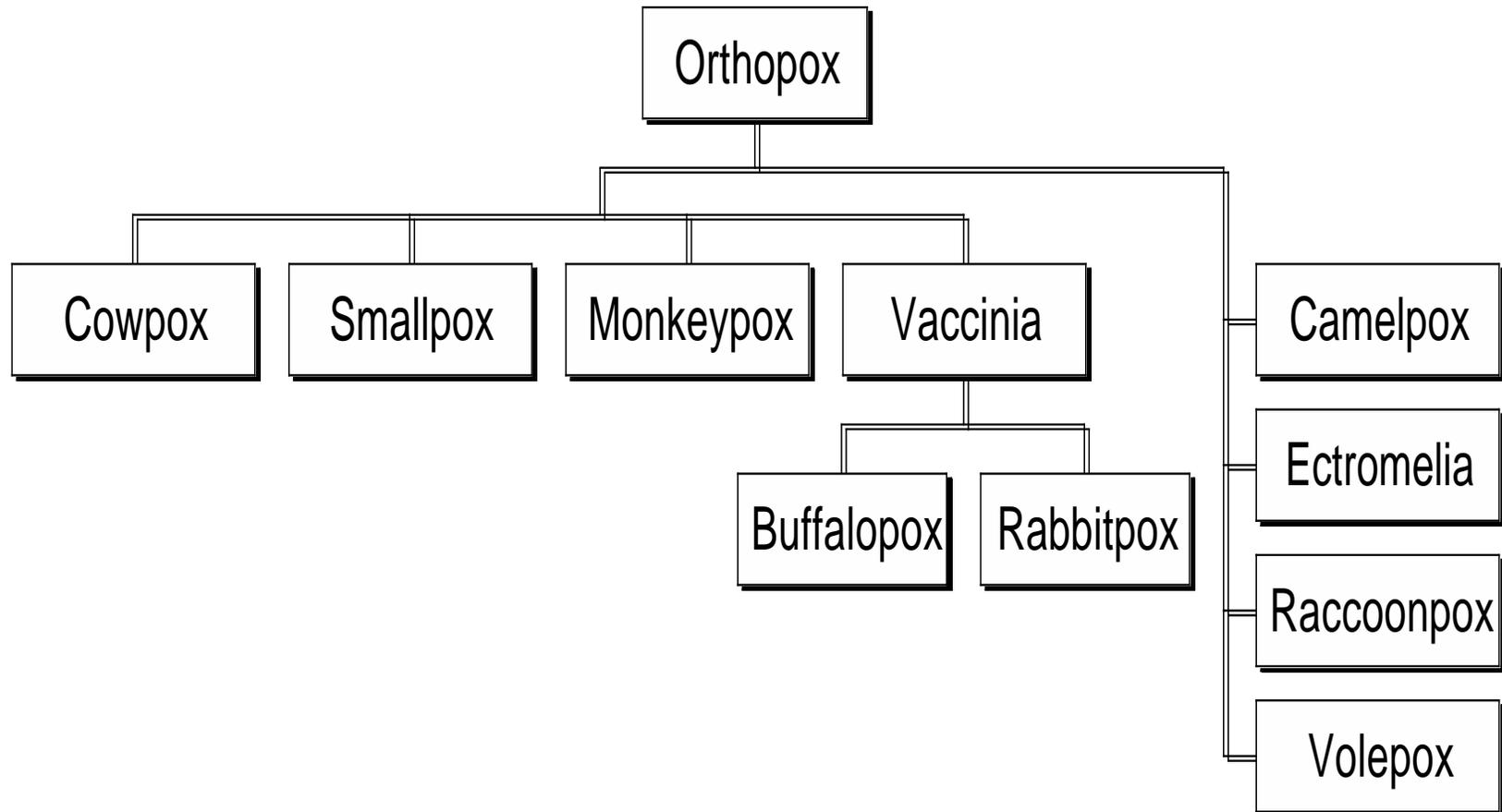
# World Hunger

More than 1.02 billion hungry people



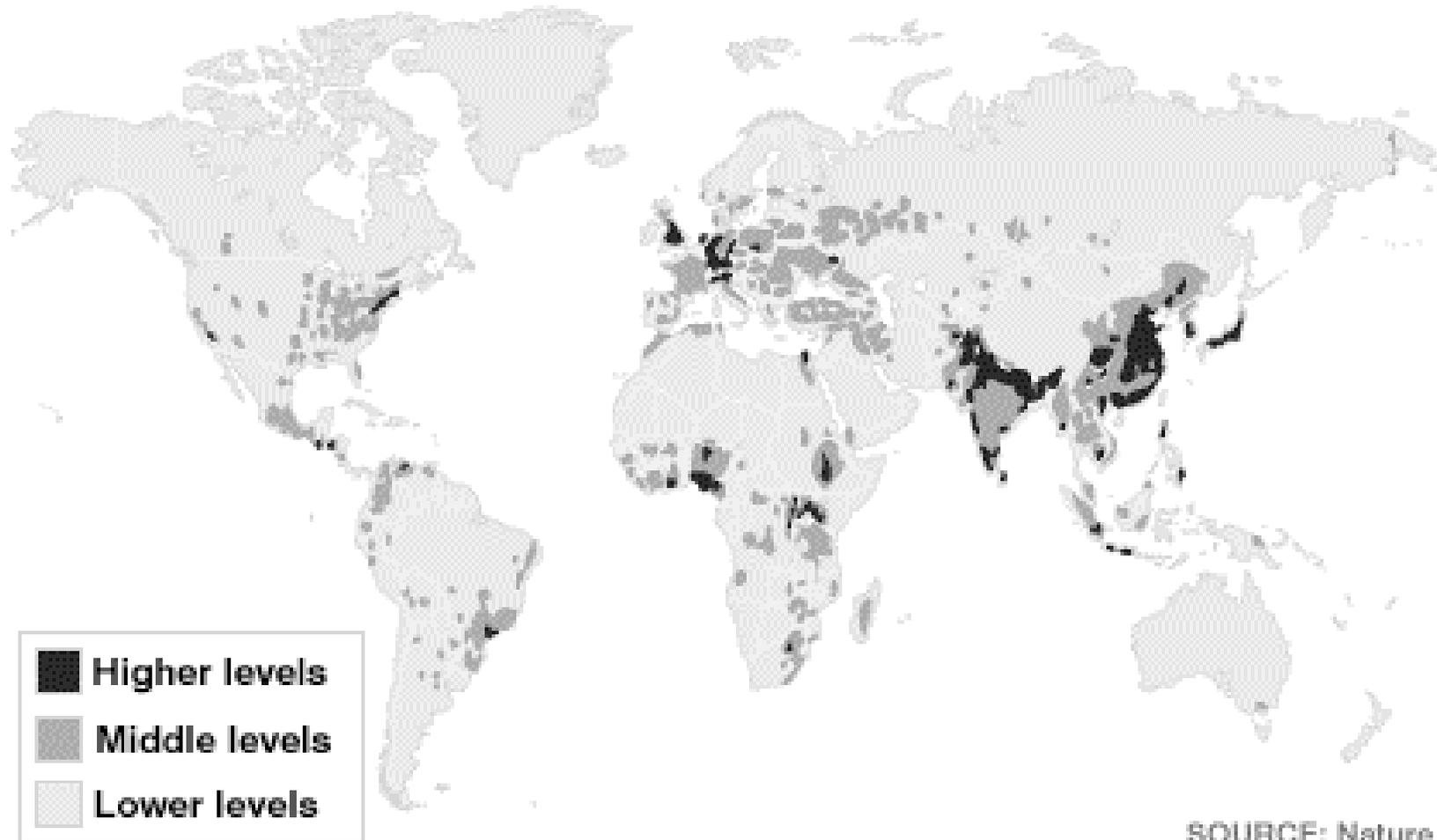
\*Millions of people

# Zoonoses

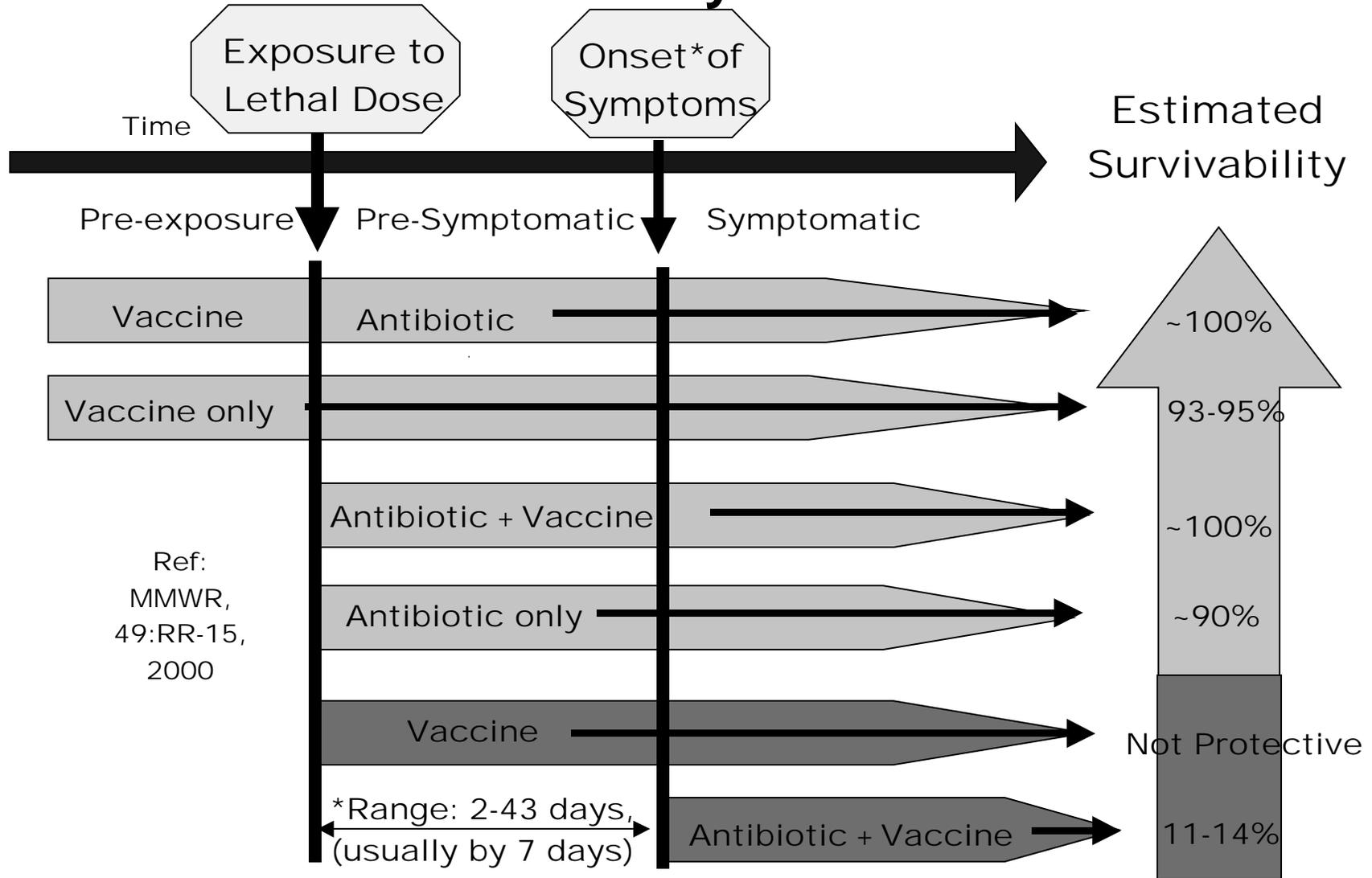


# Emerging Infectious Disease

INFECTIOUS DISEASES TRANSMISSIBLE BETWEEN ANIMALS & HUMANS



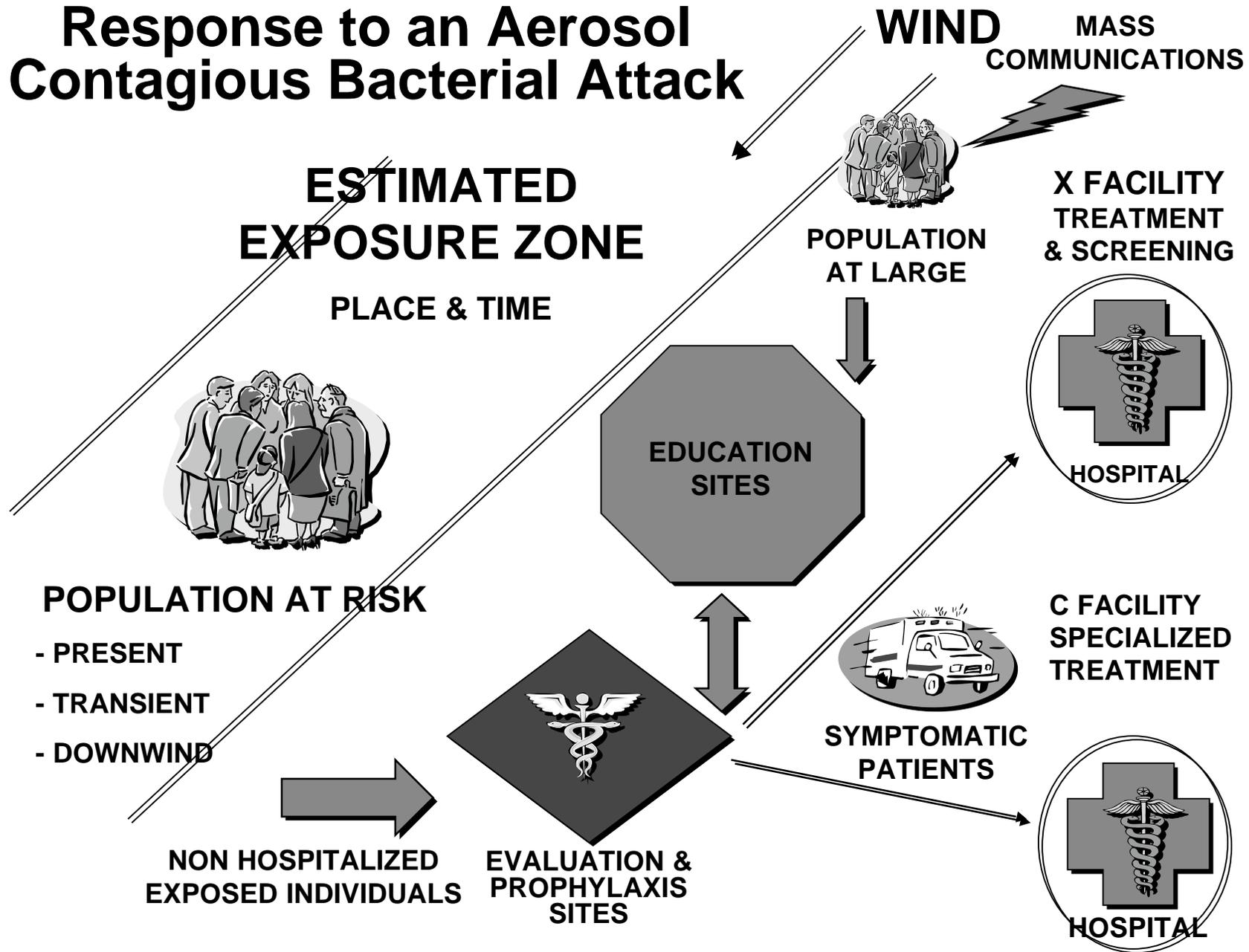
# Estimated Survivability for Inhalation Anthrax



Note: Antibiotic = 30-60 days of Ciprofloxacin or Doxycycline at recommended dose, ideally begun in first 48 hours after exposure  
 Vaccine=Anthrax Vaccine Adsorbed (AVA)



# Response to an Aerosol Contagious Bacterial Attack



# Smallpox Infection Timeline

Post-exposure vaccination fully or partially protective through day 4 after exposure.

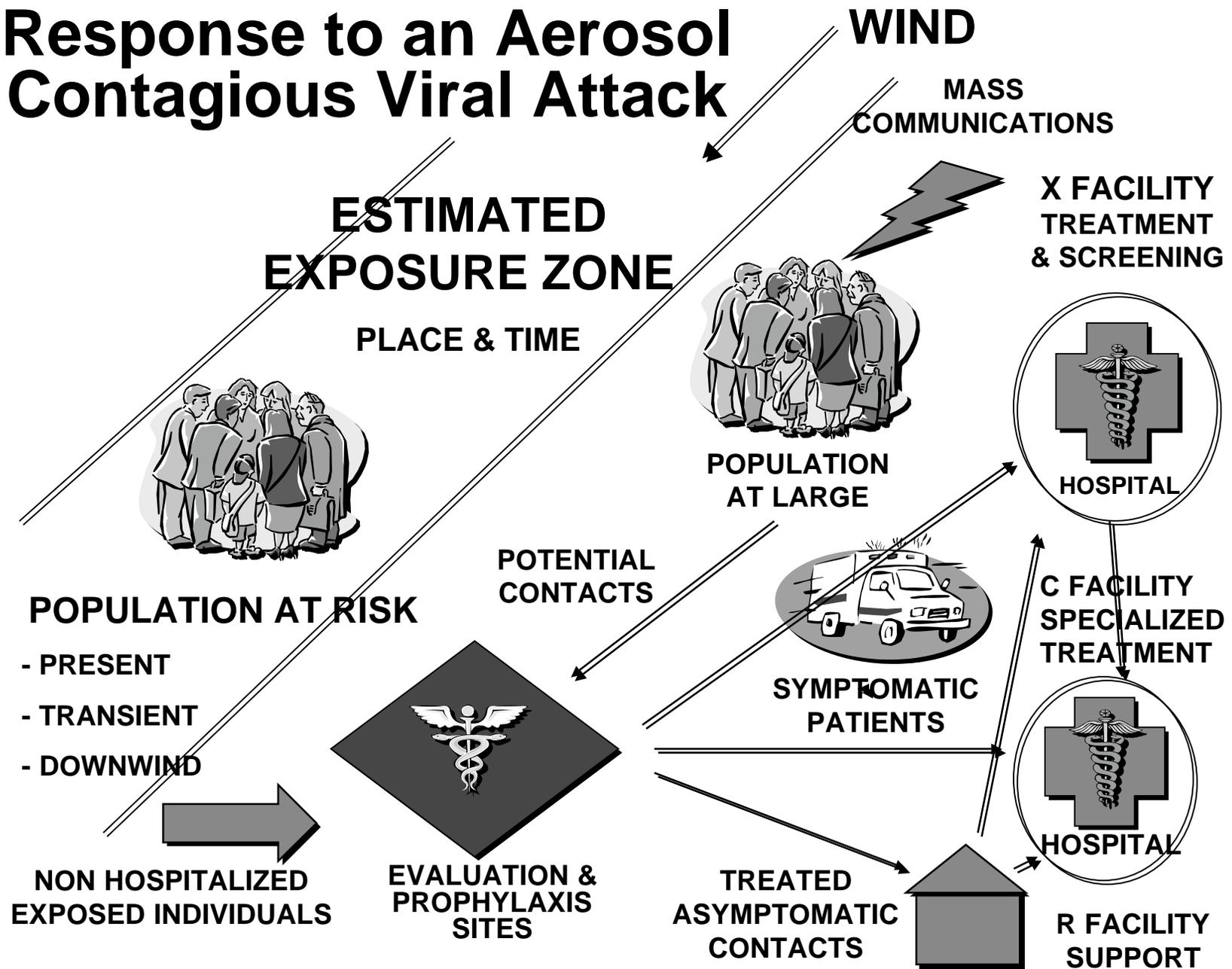
Average smallpox case infects 3 to 5 people. About half of close contacts are infected.

First symptoms develop 7 to 17 days after exposure; average depicted here as day 11.

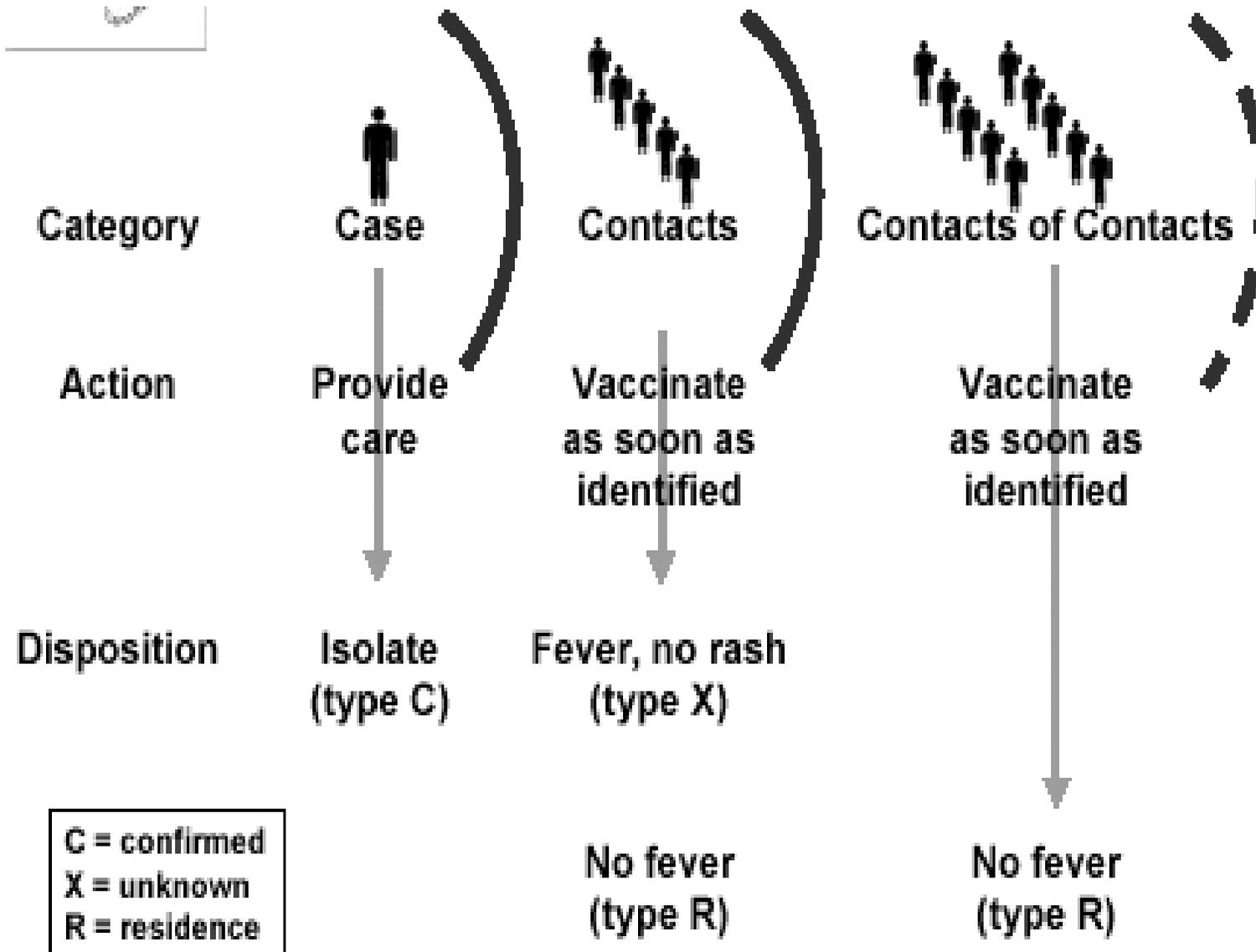
After symptoms develop, isolate case. Trace and vaccinate contacts.

Communicability	Exposure = Day 0	Symptoms	Day of Symptoms	Disease Progress		
Not contagious	Day 1	No symptoms		Virus introduced to respiratory tract		
	2					
	3					
	4					
	5					
	6					
	7					
	8					
	9					
	10					
	Contagious			11	First symptoms	Day 1
12		2				
13		3				
14		4				
15		5				
Very contagious		16	Rash	6		Fever, backache, headache, nausea, malaise
		17		7		
		18		8		
		19		9		
		20		10		
		Contagious		21		Scabs contagious
	22			12		
	23			13		
	24			14		
	25			15		
	Not contagious			26	Scars	
27			17			
28			18			
29			19			
30			20			
Not contagious			31	Scars		
		32				

# Response to an Aerosol Contagious Viral Attack



# Regaining Control

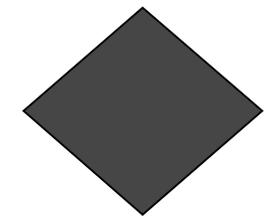


# Response to a Droplet Contagious Viral Agent (Flu)

POPULATION AT LARGE



POPULATION AT RISK



POD  
EVALUATION &  
PROPHYLAXIS  
SITES



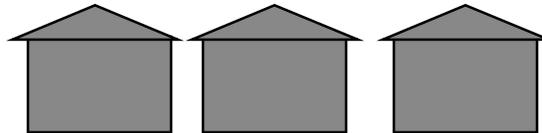
STAGED  
TELEPHONE  
TRIAGE

MASS  
COMMUNICATIONS



HIGHLY  
SYMPTOMATIC  
PATIENTS

NON HOSPITALIZED  
EXPOSED INDIVIDUALS



R1, R2, R3, . . . RESIDENTIAL FACILITY (SUPPORT)

C FACILITY  
SPECIALIZED  
TREATMENT



HOSPITAL

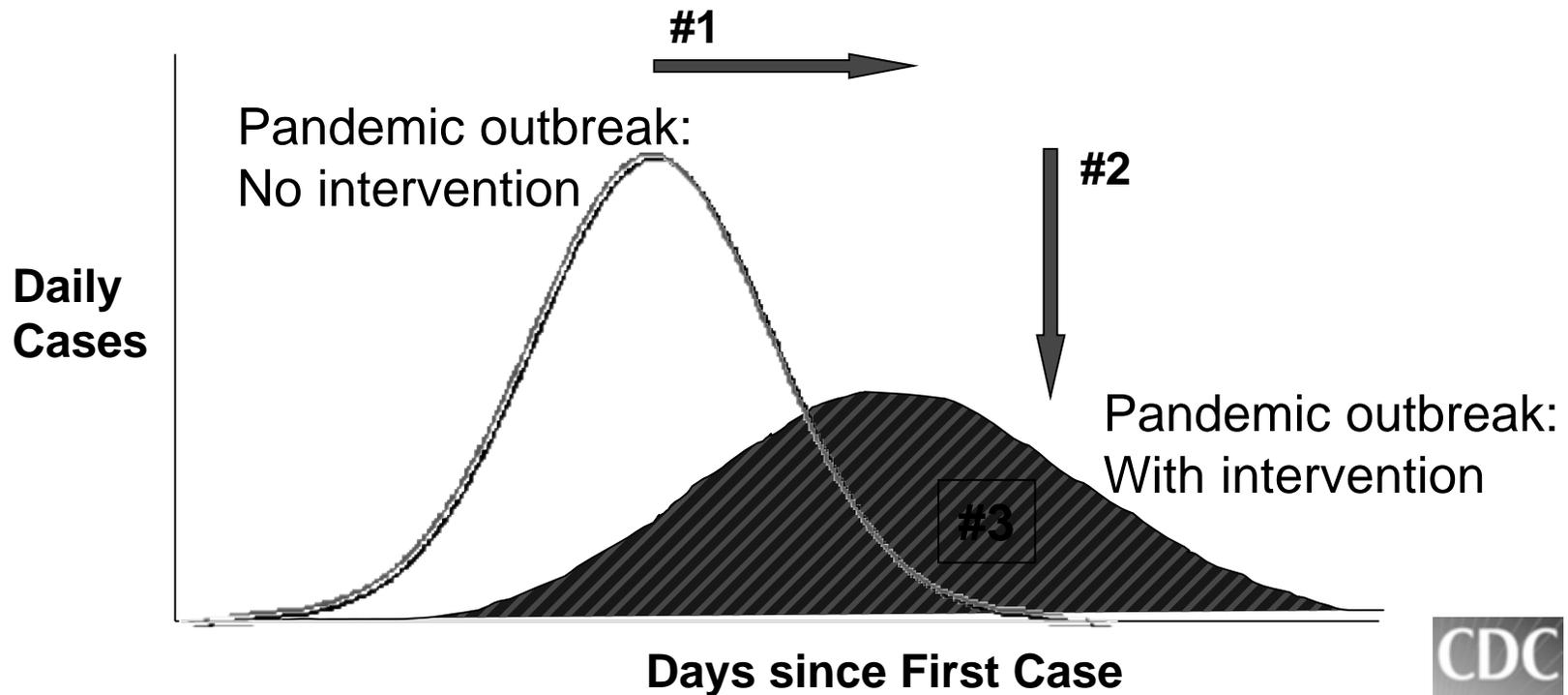
X FACILITY  
TREATMENT  
& SCREENING



HOSPITAL

# Surge Capacity & Triage Management

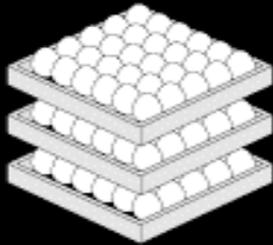
1. Delay disease transmission & outbreak peak
2. Decompress peak burden on infrastructure
3. Diminish overall cases and health impacts



# Vaccine Makers Struggle to Speed Output

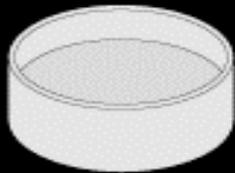
## Two Ways to Produce a Flu Vaccine

### Traditional method



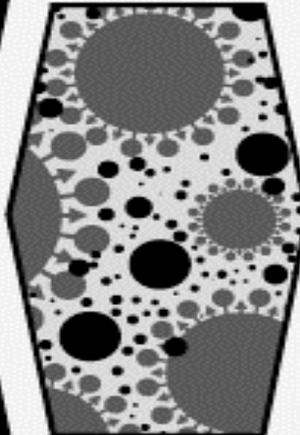
Live viruses are injected into chicken eggs, where they grow and multiply.

### Cell-culture method

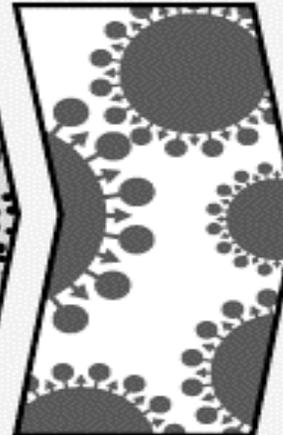


Viruses are added to a vat containing dog-kidney cells, which may encourage faster growth than is possible with eggs.

A new Novartis plant in North Carolina will make flu vaccines through cell culture rather than the traditional technique involving chicken eggs.



Once enough viruses are produced...



...they are filtered from the growth medium.



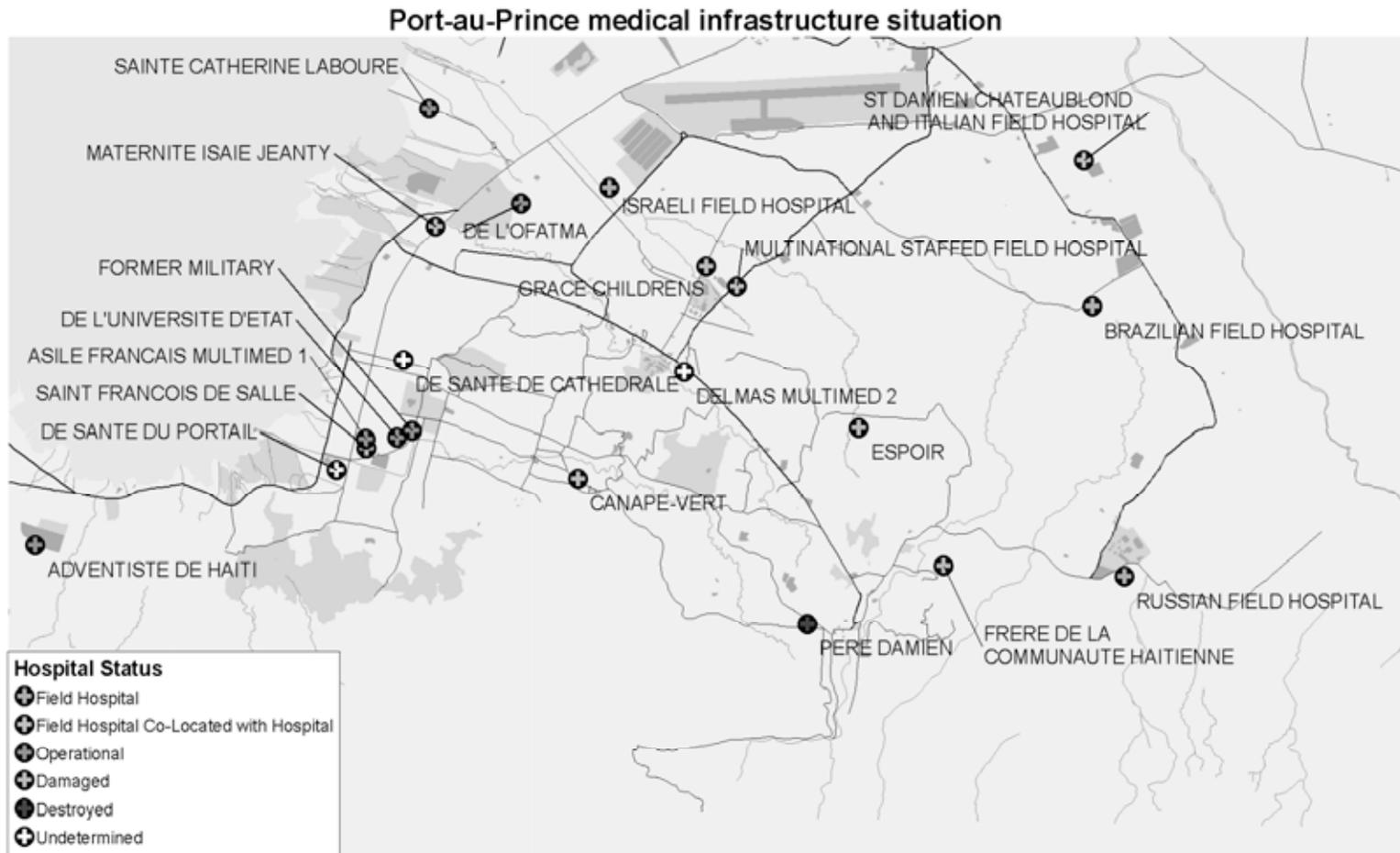
The viruses are then inactivated and split apart, removing any contaminants...



...and packaged into vaccines.

Source: Novartis

# Medical Command & Control



The boundaries and names shown and the designations used on this map do not imply the expression of any opinion whatsoever on the part of the World Health Organization concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. Dotted lines on maps represent approximate border lines for which there may not yet be full agreement.

Map produced: 21 January 2010, 16:00 GMT

Data Source: National Center for Medical Intelligence (NCMI), United Nations Stabilization Mission in Haiti (MINUSTAH GIS)  
 Map Production: Public Health Information and Geographic Information Systems (GIS)  
 World Health Organization



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