



MINISTRY OF HEALTH
SINGAPORE

Transforming Healthcare Preparedness in the face of Emerging Infectious Diseases – Roles of Primary Care

May 2008

BACKGROUND





"The time
has come to
close the
book on
infectious
diseases...."
(in his 1967
annual report)

William H. Stewart

US Surgeon General (1965-1969)

Emerging Infectious Diseases

Definition:

- Diseases of infectious origin whose incidence in humans has increased within the recent past or threatens to increase in the near future
- Include infections that appear in new geographic areas or increase abruptly
- Infectious diseases that re-emerge after a period of quiescence

Newly discovered organisms of public health importance

Year Microbe

1973 Rotavirus
1975 Parvovirus B-19
1976 *Cryptosporidium parvum*
1977 Ebola virus
1977 *Legionella pneumophila*
1977 Hantaan virus
1977 *Campylobacter jejuni*
1980 Human T-lymphotropic virus I (HTLV-I)
1981 Toxin producing strains of *Staphylococcus aureus*
1982 *Escherichia coli* O157:H7
1982 HTLV-II
1982 *Borrelia burgdorferi*
1983 Human immunodeficiency virus
1983 *Helicobacter pylori*

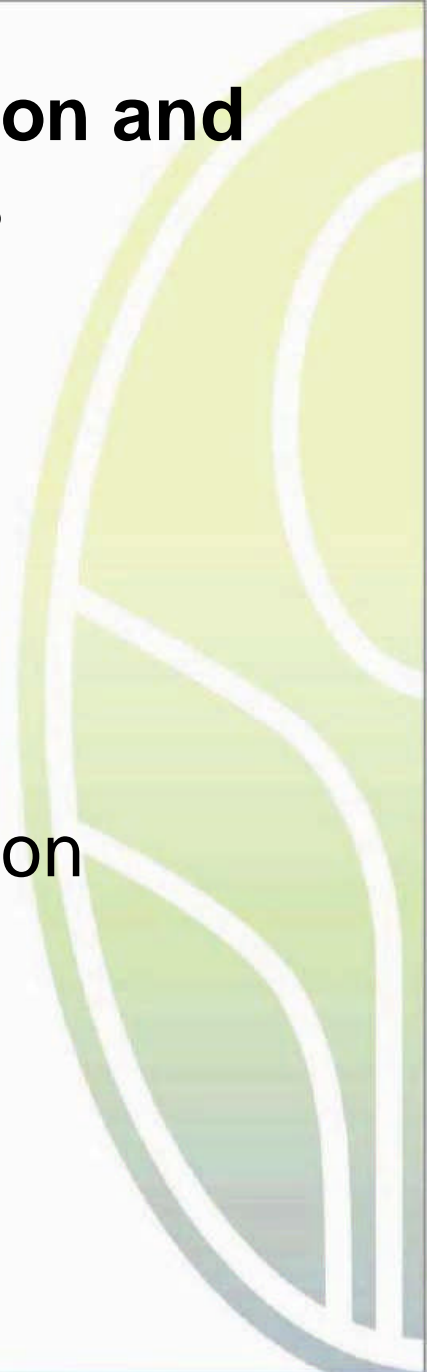
Year Microbe

1985 *Enterocytozoon bieneusi*
1986 *Cyclospora cayatanensis*
1988 Hepatitis E virus
1989 *Ehrlichia chafeensis*
1989 Hepatitis C
1991 Guanarito virus
1991 *Encephalitozoon hellem*
1991 New species of *Babesia*
1992 *Vibrio cholerae* O139
1992 *Bartonella henselae*
1993 Sin nombre virus
1993 *Encephalitozoon cuniculi*
1994 Sabia virus
1995 HHV-8
1999 Nipah virus
2003 SARS virus

Roles of Primary Care in the Prevention and Control of Infectious Diseases of Public Health importance


Prevention

- 1) Vaccination
- 2) Advice on Disease Prevention
- 3) Advice on Prevention of Transmission



Roles of Primary Care in the Prevention & Control of Infectious Diseases of Public Health importance

Surveillance

- 1) Early diagnosis
 - 2) Prompt notification
 - 3) Appropriate and early referral of cases
 - 4) Detection and notification of cluster of cases
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Role of Primary Care in the Prevention & Control of Infectious Diseases of Public Health importance

Response & Management

- 1) Appropriate treatment
- 2) Counselling and advice
- 3) Infection control



Role of Primary Care in specific areas of focus



Notification and Information



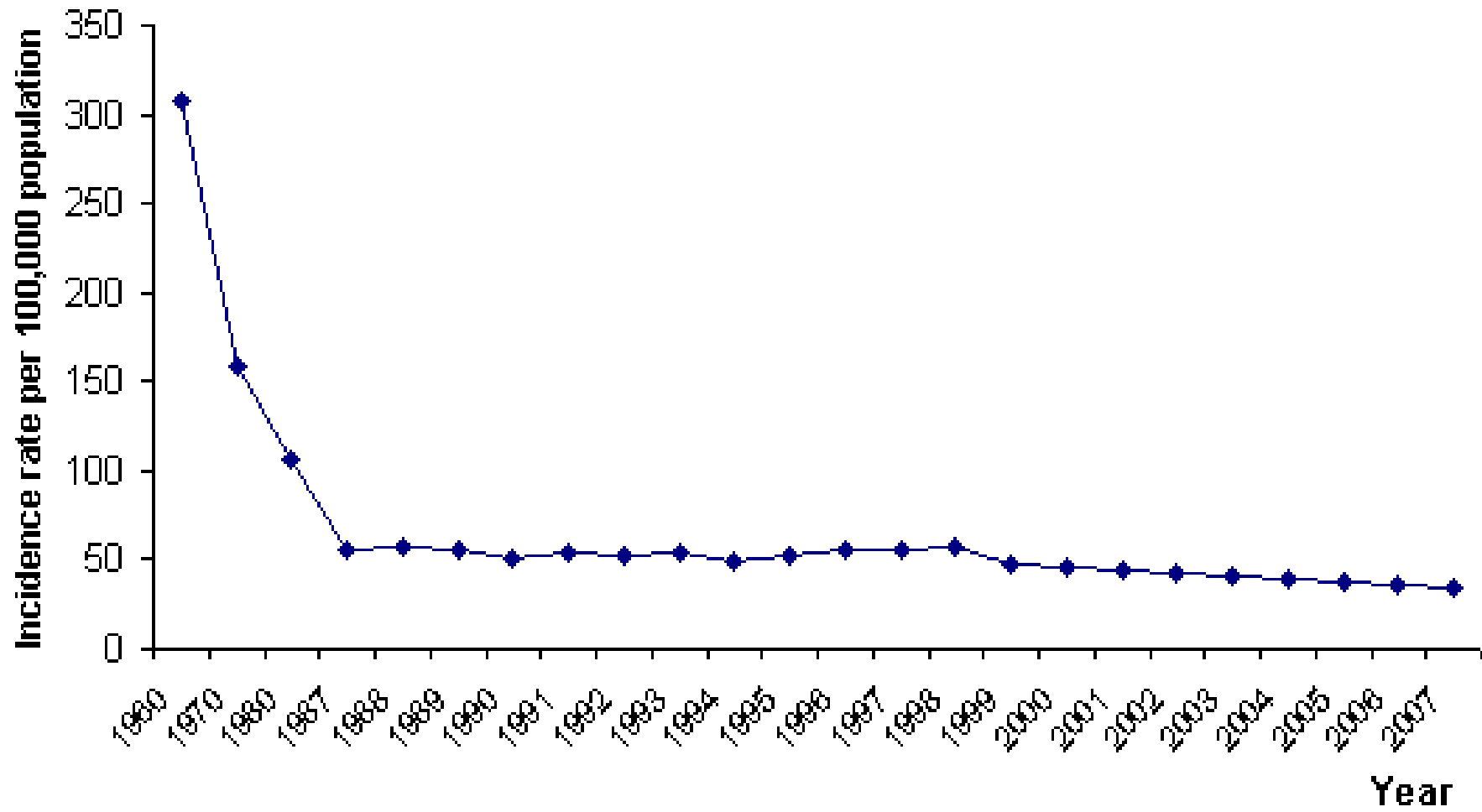
CD-LENS Portal

- Notification of infectious diseases is an important component of the national surveillance system for infectious diseases.
- CD-Lens (www.cdLens.moh.gov.sg) is a one-stop web portal developed for infectious disease notification and outbreak management as well as real time information access to local and global infectious disease events. It was launched in 2006

Tuberculosis



Incidence of tuberculosis among Singapore residents, 1960-2007



Tuberculosis

- Incidence of TB in 2007: 35.1 per 100,000
- 1256 cases.
- Concern over MDR and XDRTB.
- Control of TB involves :
 - Early detection
 - Effective treatment
 - Contact tracing

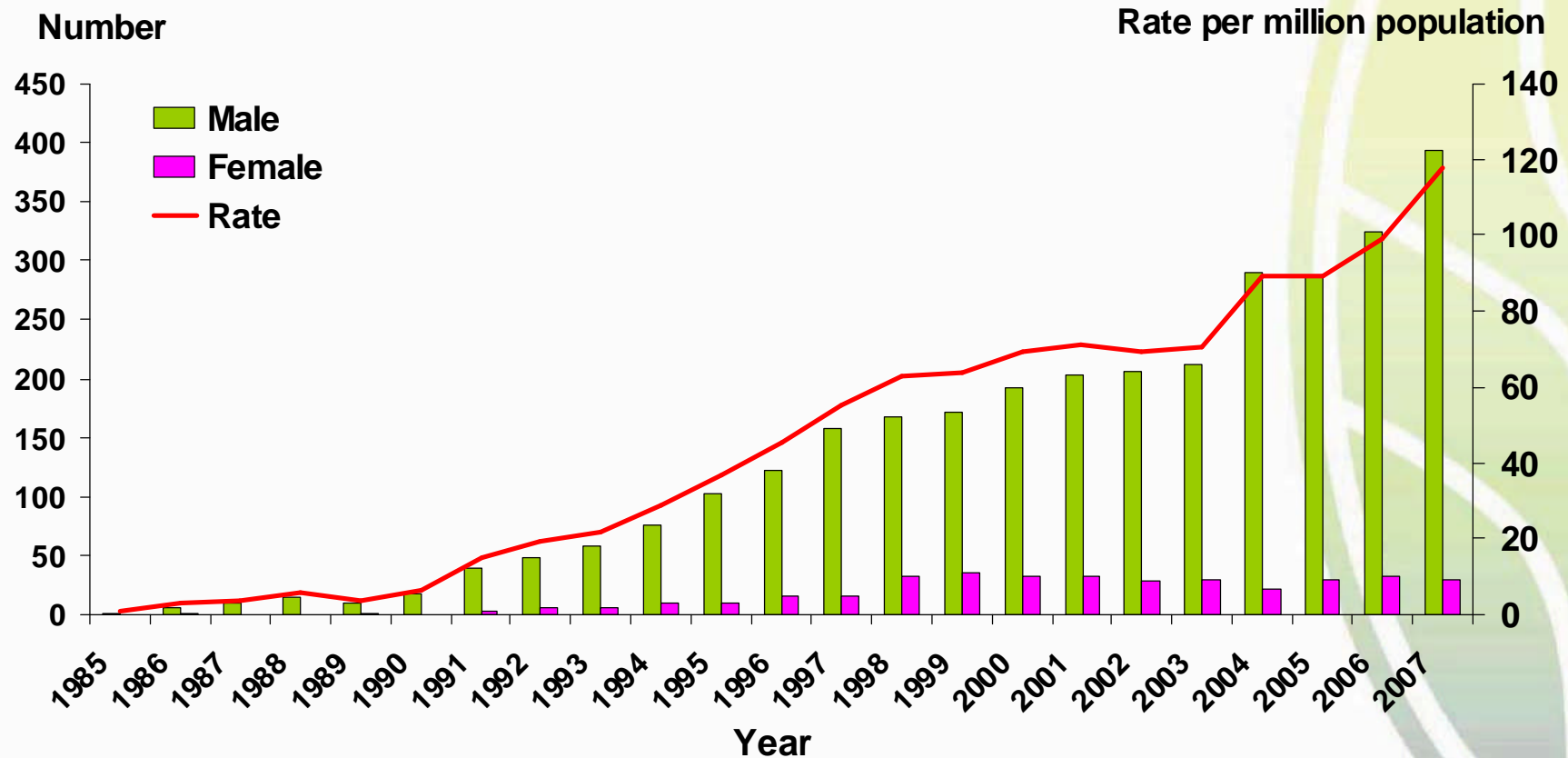
Role of Primary Care in TB

- Early identification of suspected TB patients based on symptoms e.g. prolonged cough
- If identified, refer for TB management

HIV



HIV notifications among Singapore residents, 1985 - 2007



HIV

- 422 reported cases in 2007
- 53% had <200 CD4 cells per cu mm
- Strategies for control include
 - safer sex practices,
 - early testing and identification,
 - early treatment and management.

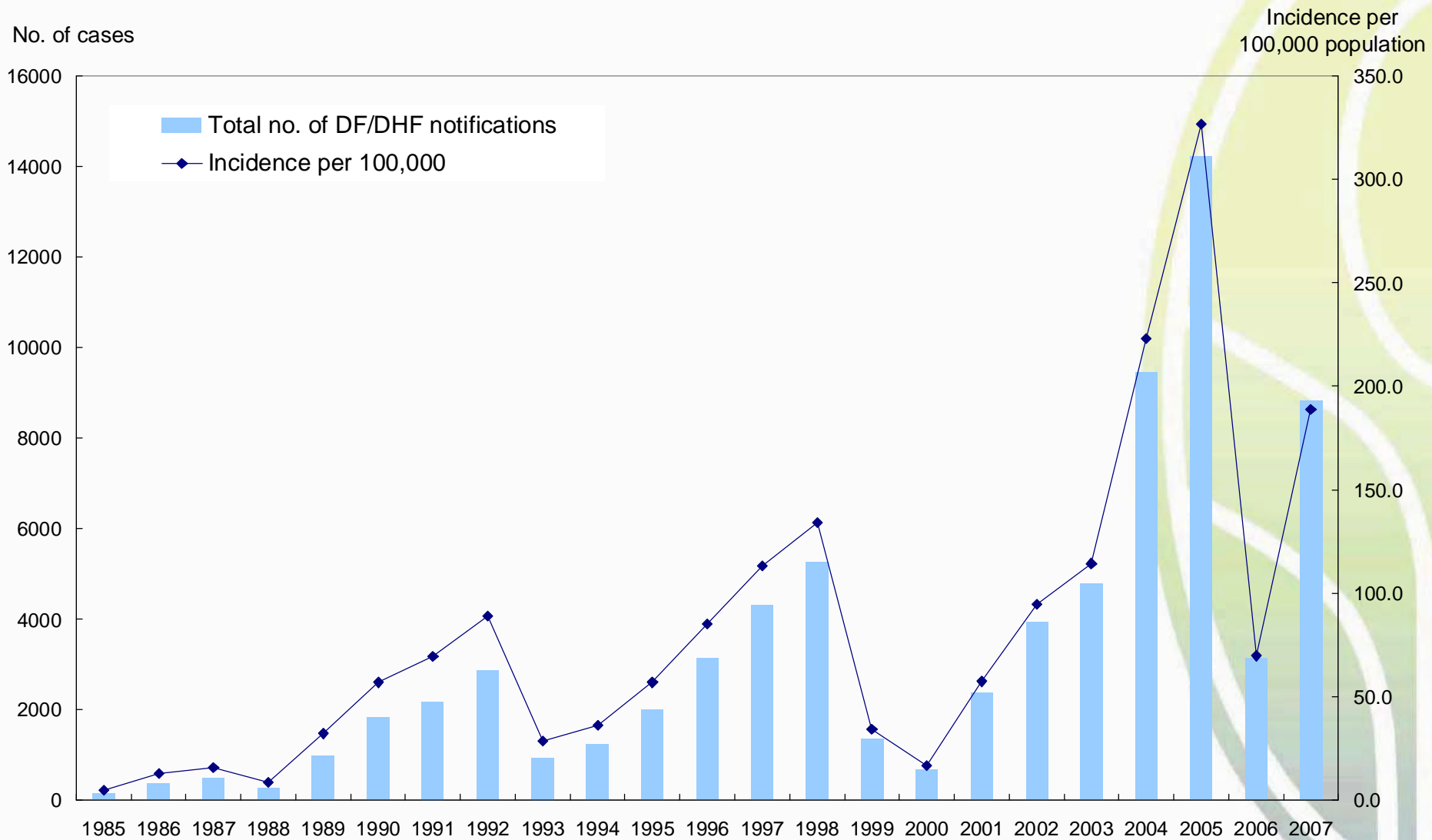
Role of Primary Care in HIV/AIDS

- Offer testing to high risk patients (e.g. patients presenting with STI)
- Opportunistic testing
- Advice on safer sex
- Early diagnosis – early contact tracing and counseling – reduce transmission
- Referral of cases for HIV management

Dengue



Dengue notifications 1985-2007



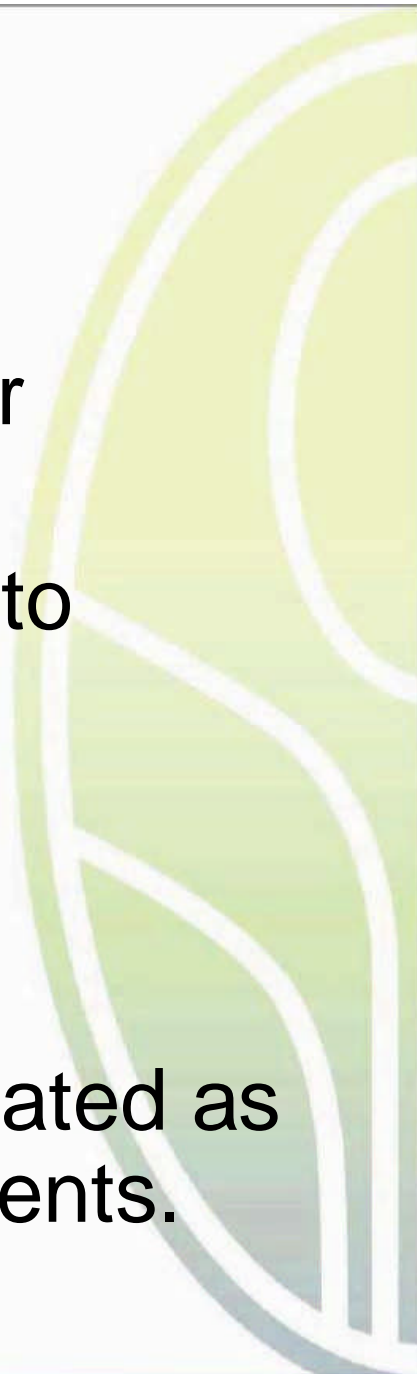
Dengue

- Early diagnosis and notification is important for vector control.
- Early diagnosis also enables patients to take measures to prevent mosquito bites.
- Use of dengue NS1 antigen test for early dengue detection (positive from Day 1 of fever compared to >Day 5 for dengue IgM).
- Close monitoring & referral to hospital when necessary

Influenza



Seasonal influenza

- Vaccinate persons at higher risk for complications.
 - Important for medical practitioners to identify at risk groups and advise vaccination.
 - Need to improve vaccine uptake of patients.
 - Doctors and their staff to be vaccinated as well to prevent transmission to patients.
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Avian influenza

- Risk of imported case from affected countries.
- Fever, cough, breathlessness + travel history + contact with poultry.
- If case is suspected, immediate infection control – surgical mask patient, don N95 mask, call MOH.

Pandemic influenza

- Large numbers of people will be infected.
- MOH estimates 25% of population will be infected.
- Most patients (98-99%) only require outpatient care.
- MOH will supply PPE and oseltamivir to clinics in Primary Care Network.

Vaccine- preventable diseases



Vaccine-preventable diseases

- Childhood immunization programme in Singapore offers vaccination against TB, hepatitis B, diphtheria, pertussis and tetanus; poliomyelitis and measles, mumps and rubella.
- Diphtheria and measles immunization are compulsory by law.
- Danger of the risk of re-emergence of vaccine preventable diseases once immunization coverage drops.

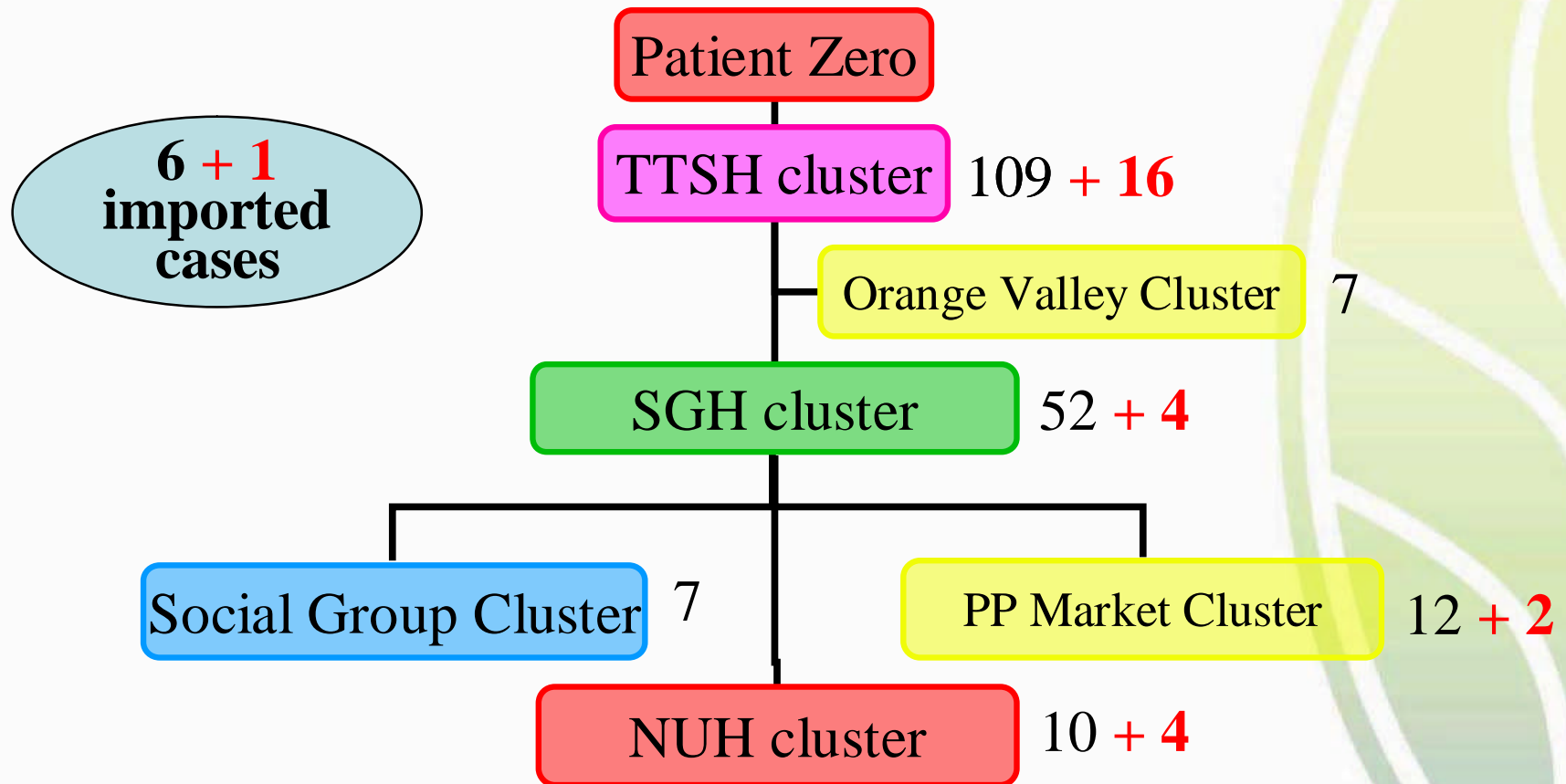
Vaccine-preventable diseases

- Need to ensure that foreign children also immunised.
- Dispel myths of concerns about vaccination e.g. risk of autism.
- Need to maintain high levels of immunisation coverage for herd immunity.
- >90% for most diseases; >95% for measles.

New emerging infectious diseases



SARS transmission pattern, Singapore (Reclassification n=238)



6 + 1
imported
cases

2 + 5
unlinked



Chikungunya

- First local outbreak of Chikungunya in Jan 2008
- Dr S.L. Sarma, a family physician in Little India identified the first local case of chikungunya.
- The patient had fever, chills and was very tired. He could hardly walk due to severe joint pains.
- Her action has allowed public health officers to step in immediately and prevent the spread of the disease.
- Risk of chikungunya continues due to high volume of travel between Singapore and affected countries and presence of vector (Aedes)

Travel Health



Travel Health

- Faeco-oral pathogens
 - Salmonellosis
 - Hepatitis A (vaccine available)
 - Typhoid (vaccine available)
 - Brucellosis (unpasteurised camel's milk)
 - Poliomyelitis (vaccine booster)
- Vector-borne diseases
 - Malaria (prophylaxis)
 - Dengue



Travel Health

- Close contact / respiratory droplets
 - Influenza (vaccine available)



Thank You

