



Chapter 7

Disease prevention and control

(การป้องกันและควบคุมโรค)

Wanpen Waelveerakup, Dr.P.H.

Email: wanpenw@webmail.npru.ac.th



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Disease Control

Definition of Prevention & Control

- Prevention is defined as “actions aimed at eradicating, eliminating or minimizing the impact of disease and disability.

Prevention



Control means reducing the number of new diseased or infections, the number of people currently diseased or infected, and the number of people who become sick or die from a disease in local settings.

Control





1

Disease Prevention

1. Primary prevention

refers to actions aimed at avoiding the manifestation of a disease

Principle of primary prevention

Stage of susceptibility

1. Susceptibility such as vaccination
2. Reduce the chance of those who have the disease (Susceptible individual)
3. Eliminate or reduce the causes of disease

Primary prevention tasks

- Promote health promotion behaviors
- Promote a healthy environment & Sanitation
- Promote specific protection (mask, belt, helmet, vaccination, smoking cessation, quitting alcohol or limiting the amount, prophylaxis)



Herd immunity = Community Immunity



Population
Immunity

=

Community
Immunity

=

Herd Immunity

To prevent the spread of disease by the principle of herd immunity or group immunity.

It is necessary to immunize the majority of people in the community (about 80 percent or more) either naturally or by vaccination or a combination of both.

(Department of Mental Health
Ministry of Public Health, 2021)

Herd immunity, also known as 'population immunity', is the indirect protection from an infectious disease that happens when a population is immune either through vaccination or immunity developed through a previous infection.

2. Secondary prevention

prevention when the disease has already occurred

Objectives

- to find the disease in the early stages before the symptoms appear.
- to reduce the severity of the disease and prevent the spread of the disease
- to stop the progression of the disease (reducing the duration of illness and reducing disabilities as well as complications that will occur)
- to prevent the disease from spreading faster to other people in the case of infectious disease



2. Secondary prevention

2.1 Early detection of asymptomatic cases: screening of diseases such as

- Blood pressure measurement in annual health check
- Breast palpation and female mammogram to look for breast cancer
- Blood glucose test to look for diabetes
- Prostate-Specific Antigen (PSA) test to look for prostate cancer
- Pap smear to look for uterine cancer

2.2 Early diagnosis of symptomatic cases and prompt treatment



3. Tertiary prevention

Tertiary prevention is the stage of disability or advanced disease prevention.

- To stop and controls disability and its effects.
- To reduce complications of the disease.
- To reduce disability as well as the negative consequences
- To prevent the loss of that disease, such premature loss of life.

3.1

Disability limitation

- It is important to treat patients with functional and structural disabilities, visual impairment, and hearing disabilities such as
 - Treatment of diabetic patients with cataracts
 - Putting a splint on a patient with a broken arm after retracting

3.2

Rehabilitation

- The key goal is to provide patients with the ability to help themselves, and a quality of life as close to normal as possible, giving the opportunity to use the handicapped part to the maximum benefit and able to live in society without much burden to society.



2

Disease Control

Disease Control



- The reduction of disease incidence, prevalence, morbidity, or mortality to a locally acceptable level as a result of deliberate efforts; continued intervention measures are required to maintain the reduction.



กรมควบคุมโรค
Department of Disease Control

แนวทางการดำเนินงาน
ป้องกันควบคุมโรคและภัยสุขภาพ สำหรับพื้นที่
ประจำปีงบประมาณ พ.ศ. 2565

ร้อยละ 95 ของหญิงตั้งครรภ์ที่ติดเชื้อไวรัสตับอักเสบบี (HBeAg Positive) ได้รับยาต้านไวรัส HB

อัตราการตายก่อนวัยอันควร อายุระหว่าง 30-70 ปี จากโรคหัวใจและหลอดเลือด โรคมะเร็ง โรคเบาหวาน และโรคปอดเรื้อรัง ลดลง 25% ในปี 2568 (257.29 ต่อประชากรแสนคน)

- ร้อยละของการคัดกรอง DM และ HT ในประชาชนอายุ 35 – 59 ปี (เป้าหมายร้อยละ 80)
- ร้อยละประชาชนอายุ 35 – 59 ปี ในจังหวัดเป้าหมาย (เขต 1,4,9,12) ได้รับการคัดกรอง DM HT แบบดิจิทัล (เป้าหมายร้อยละ 80)
- ร้อยละการตรวจติดตามกลุ่มเสี่ยงป่วย DM HT (เป้าหมายร้อยละ 80)
- ร้อยละผู้ป่วย DM ที่ควบคุมระดับน้ำตาลได้ดี (เป้าหมายร้อยละ 40) ร้อยละผู้ป่วย HT ที่ควบคุมความดันได้ดี (เป้าหมายร้อยละ 60)

- อัตราป่วยโรคไข้เลือดออกลดลงร้อยละ 15 ของค่ามัธยฐานย้อนหลัง 5 ปี
- อัตราป่วยตายด้วยโรคไข้เลือดออกในกลุ่มอายุ 15 ปีขึ้นไป ไม่เกินร้อยละ 0.10
- จำนวนผู้ป่วยโรคไข้ปวดข้อยุงลายลดลง ร้อยละ 50 จากปีงบประมาณ 2564
- ร้อยละ 100 ของหญิงตั้งครรภ์ในหมู่บ้านที่มีรายงานผู้ป่วยโรคติดเชื้อไวรัสซิกา ได้รับการตรวจหาเชื้อไวรัสซิกา
- ร้อยละ 80 ของอำเภอเสี่ยงสูงมีค่าดัชนีลูกน้ำยุงลายได้ตามเกณฑ์ที่กำหนด

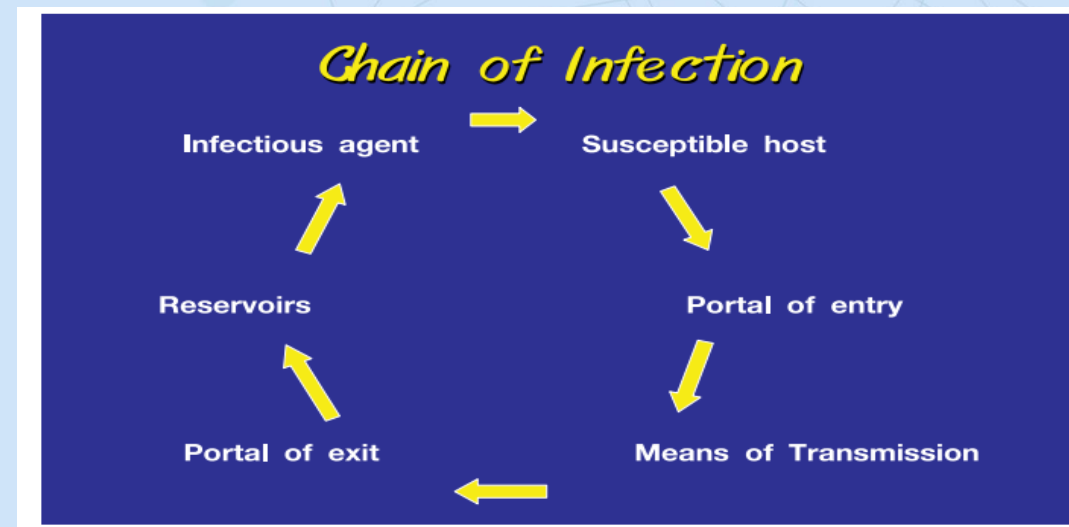
Source:

<https://ddc.moph.go.th/uploads/publish/1189220211018081043.pdf>

Basic Principles of Control of Communicable Diseases



- ✓ 1) Must first consider where the germ is. (Reservoirs (รังโรค) or Source (แหล่งโรค))
- ✓ 2) If a person has to be considered as a person who is sensitive or has low immunity.
- ✓ 3) Must have knowledge of methods of transmission (Mode of Transmission: contact transmission, droplet transmission, airborne transmission, other)
- ✓ 4) Must know portal of entry





1. Divided according to the level of the target group as follows:

- 1.1 **Population approach:** including law enforcement, awareness campaign encourages the importance of or encourages the masses to have healthy behaviors in a good way
- 1.2 **High-risk approach:** providing home isolation for those at risk for COVID-19, providing a smoking-cessation clinic for smokers, medication to lower blood pressure in people with high blood pressure, surveillance of COVID-19 in people in at-risk groups

2. Divided according to the nature of the measures as follows:

- 2.1 **Fiscal measures** include taxation of public service grants
- 2.2 **Legal measures** include the use of law enforcement such as helmets, seat belts, infectious disease reporting, etc.
- 2.3 **Educational measures** include educational campaigns such as radio and television health education spots.
- 2.4 **Social measures** include trying to involve society in various measures, for example, against non-cooperative people, keeping distance or being detained in their own homes, etc.

3. Divided according to the nature of enforcement as follows:

- Voluntary measures (มาตรการที่เลือกได้)
- Compulsory measures (มาตรการที่ผู้ใช้ไม่สามารถเลือกได้) such as legal measures or the design of a car with an automatic seat belt

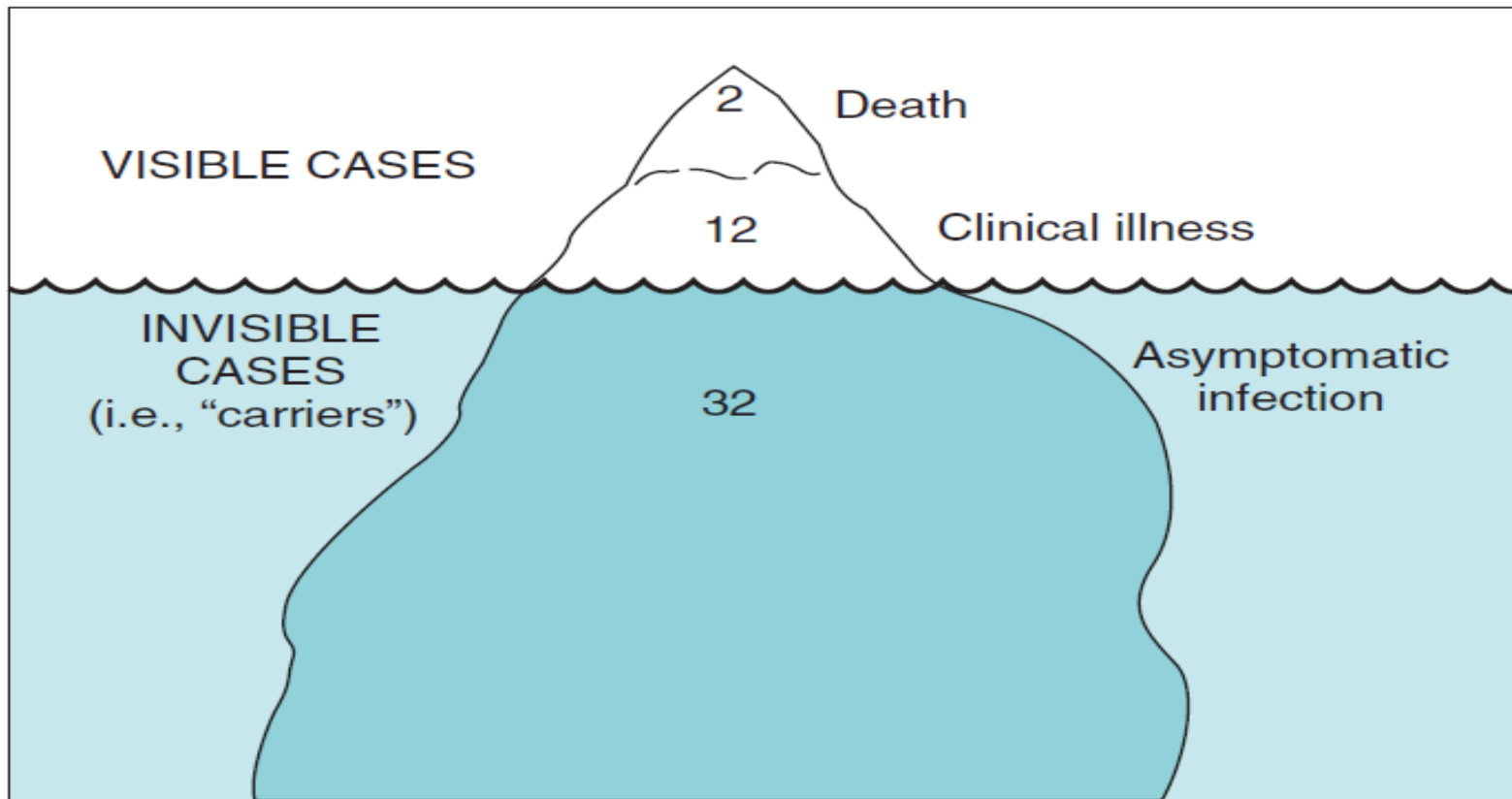


Figure 1-3 Iceberg phenomenon, as illustrated by a diphtheria epidemic in Alabama. In epidemics, the number of people with severe forms of the disease (part of iceberg above water) may be much smaller than the number of people with mild or asymptomatic clinical disease (part of iceberg below water). (Data from Jekel JF et al: *Public Health Rep* 85:310, 1970.)

Infectious and Contaminated Person

- 1. control source of infection
- 2. Patient Isolation
- 3. Contaminated person quarantine
- 4. Early diagnosis and prompt treatment
- 5. Disinfection (การทำลายเชื้อ)
- 6. Disease surveillance
- 7. Investigation and control of epidemic

Environment

- **8. Blocking of transmission**
 - 8.1 Water-borne diseases: Boil water & milk
 - 8.2 Air-born diseases: Mask & Distancing
 - 8.3 Vector-borne diseases:
- **9. Environmental control**
 - 9.1 Vector control
 - 9.2 Sanitation

Immunity & Health Education

- **10. Health promotion**
 - 10.1 Physical activity
 - 10.2 Nutrition
 - 10.3 Stress reduction
- **11. Specific protection**
 - 11.1 Vaccination
 - 11.2 Drug or Chemoprophylaxis
- **12. Health education**
 - Mass communication (ประชาสัมพันธ์ทางสื่อสารมวลชน)
 - Community participation (และกระตุ้นให้เกิดความร่วมมือของชุมชน)

Natural Diseases and Diseases Prevention



Natural of Diseases	Pre pathogenesis Period		Pathogenesis Period		Post pathogenesis Period
		Susceptibility	Preclinic	Clinical	Post Clinical
Prevention	Advance Prevention		Diseased Prevention		Post Diseased Prevention
	Primordial Prevention	Primary Prevention	Secondary Prevention		Tertiary Prevention

Summary

- ✓ Disease prevention and control are a public health process undertaken to reduce the risk factors of disease.
- ✓ Disease prevention and control applied knowledge about the nature of disease as a guideline for the operation.
- ✓ The prevention and control of communicable diseases must be to control the source of infection, eliminate the chain of transmission, and prevent at-risk populations from contracting the disease.



Thank You for Your Attention



Email: wanpenw@webmail.npru.ac.th