



Unit 3: Infectious Diseases

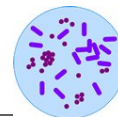
In this unit, we discuss about everyday situations that students may recognize and talk about. Therefore, it is an opportunity to emphasize communicative activities. Group activities are more important than before and are aimed to develop reasoning skills.

Teaching notes 3.1 – Epidemiology

Timing: 2:00 h	Room: ordinary classroom
Teaching aims:	
<ul style="list-style-type: none"> ○ Trends in morbidity and mortality of infectious diseases ○ Chain of transmission of infectious diseases 	
Resources:	
<ul style="list-style-type: none"> ○ Worksheet 3.1 ○ Alternative worksheet for activity 5 in “Supplementary materials” ○ Power point presentation with answer key Unit 3 in “Supplementary materials” ○ Digital projector for feedback 	

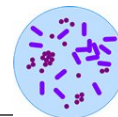
Introduction	
Subject difficulty: ↓	Language difficulty: ↔
Procedure:	
<ul style="list-style-type: none"> ○ Explain starting activity ○ Working individually, students complete the activity ○ They check the answers with their partners ○ Feedback in plenary 	
Resources:	
<ul style="list-style-type: none"> ○ Worksheet 3.1 	
Answer key:	
<p>Infectious diseases were the leading / <i>usual</i> cause of death throughout the world during the XXth century. Medical, social and educational improvements / <i>trends got</i> them under control. But nowadays, we are seeing a rise / <i>decrease</i> in this sorts of diseases again.</p>	

Activity 1 – Warming up: emerging infectious diseases	
Subject difficulty: ↓	Language difficulty: ↓
Procedure:	
<ul style="list-style-type: none"> ○ Explain activity 1 ○ Working in pairs, students discuss the given options and complete the activity ○ They check the answers with another pair ○ Feedback in plenary 	



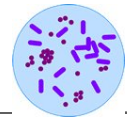
Resources:	
○ Worksheet 3.1	
Answer key:	
Factors favouring disease	Infectious diseases favoured
Some effective interventions stopped	Chlamydia infection
Changes in sexual behaviour	Diphtheria
Injected drug use	SARS
Immunodepression (AIDS, chemotherapy, immunosuppressive therapy)	AIDS
Evolution of microbes	Swine flu
Easy travelling	Tuberculosis

Activity 2 – Chain of transmission	
Subject difficulty: ⇔	Language difficulty: ⇔
Procedure:	
<ul style="list-style-type: none"> ○ Explain activity 2 ○ Students working in pairs complete the table ○ They check the answers with another pair ○ Feedback in plenary 	
Language support:	
○ Labelled diagram	
Resources:	
○ Worksheet 3.1	
Answer key:	
Definitions	Link
An agent that may produce infection. It includes bacteria, viruses, fungi, parasites and prions , as a new nonliving agent.	Infectious agent
A way to enter the new host. It may be the same way as used to exit, that is: respiratory tract, gastrointestinal tract, skin and mucous membranes and blood.	Portal of entry
A way out of the body. It may be through the respiratory tract, the gastrointestinal tract, the skin and mucous membranes and the blood.	Portal of exit
Any person who is at risk of infection. Individual host factors may increase the risk, for example: babies and elderly, malnutrition, immunodepression, etc.	Susceptible host
The source where microorganisms persist and spread. Infection is the entry and multiplication of an infectious agent in the body. This may result in disease and the person becomes sick , or not and we call this state of carrier . Both states may transmit the disease.	Source of microorganisms
How the infectious agent travels from one host to another. It may be through contact, airborne routes, contaminated objects etc.	Mode of transmission

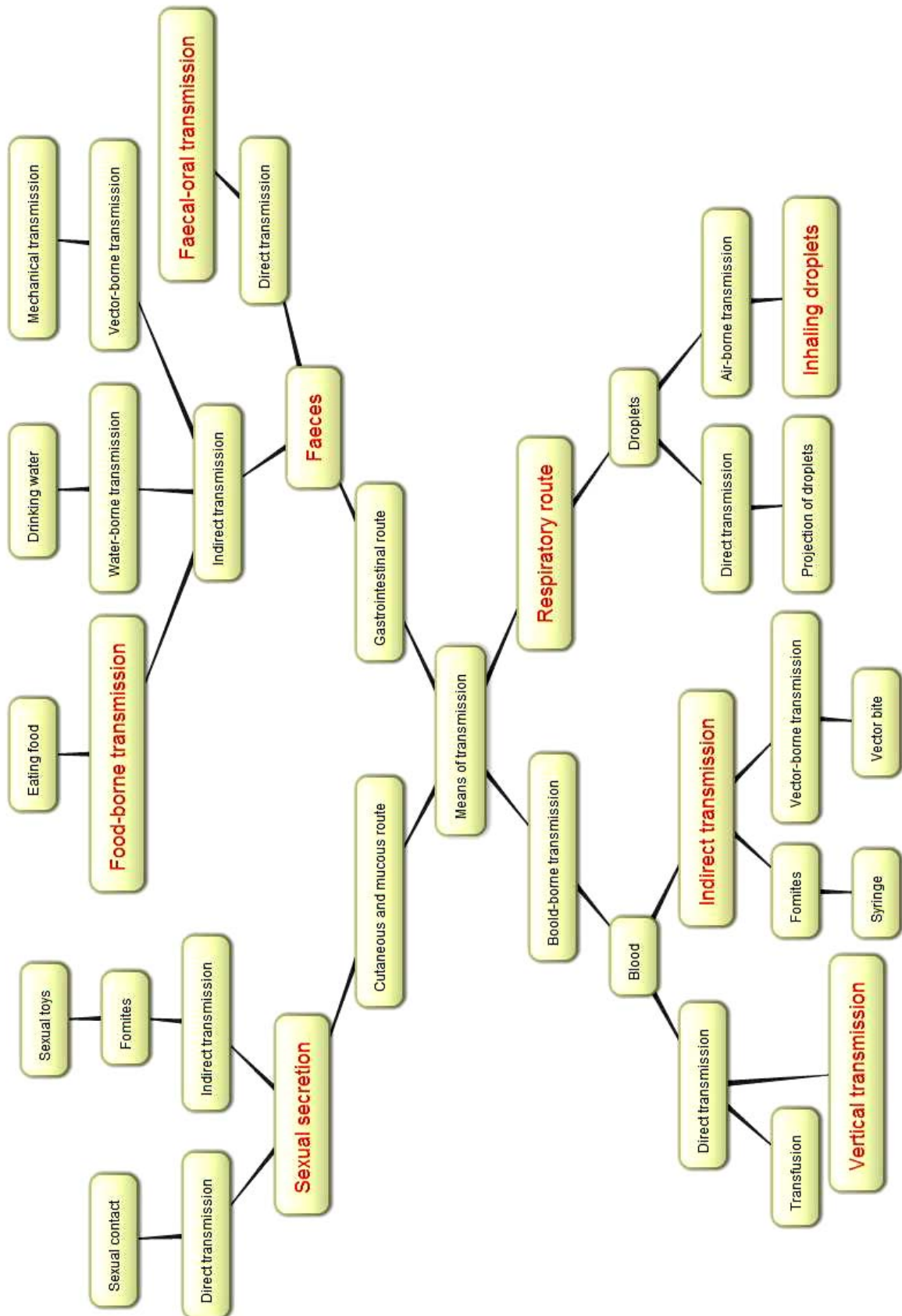


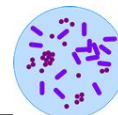
Activity 3 – Groups at risk	
Subject difficulty: ⇄	Language difficulty: ⇄
Procedure: <ul style="list-style-type: none"> ○ Explain activity 3 ○ Students working in pairs discuss the cases presented and complete the table ○ They check the answers with another pair ○ Feedback in plenary 	
Language support: <ul style="list-style-type: none"> ○ Text frame ○ Word bank ○ Pictures 	
Resources: <ul style="list-style-type: none"> ○ Worksheet 3.1 	
Answer key: <ol style="list-style-type: none"> a. An 11-month old baby whose brother has an extended rash and has been diagnosed with rubella. The baby still hasn't been vaccinated and she will probably catch rubella. b. A boy whose classmate has contracted meningitis. They don't sit very close together in class. The boy might catch meningitis. c. A soldier has developed jaundice and has been diagnosed with hepatitis A. He is worried about passing the disease on to his colleagues. His colleagues will probably become infected if he doesn't wash his hands when he goes to the toilet. d. A patient has been receiving chemotherapy and his white blood count is very low. Now his wife has caught flu. He will probably catch it too. 	

Activity 4 – Means of transmission	
Subject difficulty: ↑	Language difficulty: ⇄
Procedure: <ul style="list-style-type: none"> ○ Explain activity 4 ○ Students work in pairs to read the text and complete the mind map ○ They check the answers with another pair ○ Feedback in plenary 	
Language support: <ul style="list-style-type: none"> ○ Labelled mind map, only 8 labels missing 	
Option: <ul style="list-style-type: none"> ○ In mixed skilled groups match one strong student with one weak 	
Resources: <ul style="list-style-type: none"> ○ Worksheet 3.1 	

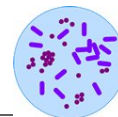


Answer key:





Activity 5 – Applied chains of transmission			
Subject difficulty: ↑		Language difficulty: ↑	
Procedure:			
<ul style="list-style-type: none"> ○ Explain activity 5 ○ Working in groups of three, students read the fact sheets, analyse them and complete the chart ○ They check the answers with another group ○ Feedback in plenary 			
Language support:			
<ul style="list-style-type: none"> ○ Picture ○ Some cells completed in the chart 			
Option:			
<ul style="list-style-type: none"> ○ In mixed skilled groups match two strong students with one weak 			
Resources:			
<ul style="list-style-type: none"> ○ Worksheet 3.1 ○ Alternative worksheet for activity 5 in “Supplementary materials” 			
Answer key:			
		SARS	Hepatitis B
Infectious agent		SARS-CoV	HBV
Source of microorganisms		Infected persons	Infected persons and carriers
Means of transmission A	Portal of exit (transmission routes and vehicles for transmission)	Respiratory route: respiratory droplets	Blood-borne route: blood and body fluids
	Mode of transmission	Direct: droplets deposited on mucous membranes	Direct: contaminated blood
	Portal of entry (transmission routes and vehicles for transmission)	Cutaneous and Mucous route: droplets on mucous membranes of nose, mouth, eye	Blood-borne route: blood transfusion
Means of transmission B	Portal of exit (transmission routes and vehicles for transmission)	Respiratory route: respiratory droplets	Cutaneous and mucous route: sexual secretions, blood
	Mode of transmission	Indirect: droplets deposited on inanimate surfaces	Direct: sexual intercourse, perinatal transmission
	Portal of entry (transmission routes and vehicles for transmission)	Cutaneous and Mucous route: hands touch the object and then the mucous of nose, mouth, eye	Cutaneous and mucous route: mucous membranes of sexual organs, mucous of newborn

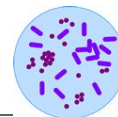


Means of transmission C	Portal of exit (transmission routes and vehicles for transmission)	Respiratory route: respiratory droplets	Blood-borne route: blood and body fluids
	Mode of transmission	Air-borne: droplets on the air	Indirect: objects contaminated by blood or body fluids
	Portal of entry (transmission routes and vehicles for transmission)	Respiratory route: inhalation of droplets on the air	Cutaneous and mucous route: needle prick
Susceptible host		Respiratory illness	Serious liver disease: jaundice, fatigue, fever, and nausea. Possible lifelong infection.

Teaching notes 3.2 – Intervention measures

Timing: 2 h	Room: computer room
Teaching aims: <ul style="list-style-type: none"> ○ Epidemiological parameters: prevalence, incidence ○ Measures relating to the source of infection, the means of transmission and the host ○ Critical thinking 	
Resources: <ul style="list-style-type: none"> ○ Worksheet 3.2 ○ Power point presentation with answer key Unit 3 in “Supplementary materials” ○ Digital projector for feedback 	

Activity 1 – Disease reporting system	
Subject difficulty: ⇄	Language difficulty: ⇄
Procedure: <ul style="list-style-type: none"> ○ Explain activity 1 ○ Working individually, students complete the activity ○ They check the answers with their partner ○ Feedback in plenary 	
Language support: <ul style="list-style-type: none"> ○ Time diagram ○ Sentence starters ○ Worked example 	



Resources:

- Worksheet 3.2

Answer key:

1.a

- **Incidence** of a disease is the number of new cases of a disease that occur in a defined population during a specific period of time. It gives an idea of the speed of spread.
- **Prevalence** is the number of diseases present in a particular population at a particular time. It gives an idea of the moment.

1.b

	Prevalence	Incidence
Monday	4	3
Tuesday	5	1
Wednesday	5	2
Thursday	4	1
Friday	3	1
Saturday	2	1
Sunday	1	0

- The outbreak has affected **10** babies at the moment
(we don't know if it's finished. It's open: present perfect tense)
- The peak of the outbreak was on **Tuesday and Wednesday**
(because the peak has finished: past tense)
- The outbreak has been slowing down since **Thursday**
(we may still be in this period of slowness: present perfect because it happens now)
- The outbreak may have been contained from **Sunday**
(we don't know if it is finished or still not. It's open)

Activity 2 – Measures relating to the source of infection

Subject difficulty: ⇔

Language difficulty: ⇔

Procedure:

- Explain activity 2
- Students work individually to complete the activity
- They check the answers with their partner
- Feedback in plenary

Language support:

- Labelled diagram
- Text frame
- Line graph

Resources:

- Worksheet 3.2



Answer key:

The overall number of cases of paediatric AIDS **quickly decreased** because in 1996 AZT chemoprophylaxis was included for HIV infected pregnant women. In 1993, the number of cases **increased sharply** and reached **a peak**. With AZT therapy, it has had a **quick decrease** and even some years dropped to zero with combined therapy prophylaxis. From then up to now, the number of cases remained **stationary** and we may say this is the trend in the future.

Activity 3 – Measures relating to the means of transmission

Subject difficulty: ↑

Language difficulty: ↑

Procedure:

- Explain activity 3
- Students work in groups of three to complete the activity
- Students discuss the influence of the factors listed to interfere in the means of transmission of infectious diseases. Then, they classify the factors in the chart by sort of factor and by significance to transmission (are they risk or preventive action?).
- Finally, they suggest how the negative factors could be improved
- They check the answers with another group
- Feedback in plenary

Language support:

- Discussion frame
- Visual organiser
- Word bank of modal verbs of deduction

Resources:

- Worksheet 3.2

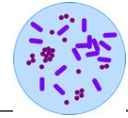
Suggested answer key:

Individual issues		Improvement by means of ...
Preventive		
Risk	Undernourishment Immunodeficiency	Improving welfare
Environmental issues		
Preventive	Safe drinking water Sewage disposal Food-handler card	Sanitation inspections
Risk	Flies	Legislating
Health habits issues		
Preventive	Use of condoms Wash vegetables Washing hands after using the toilet Covering coughs and sneezes	



Risk	Mid cooking food Drinking just milked milk	Improving education of children, consumers,
Socioeconomic issues		
Preventive	Use of mosquito nets	
Risk	Crowded living conditions	Improving welfare Fighting unemployment Fighting poverty Creating social care services

Activity 4 – Measures relating to the susceptible host	
Subject difficulty: ↑	Language difficulty: ↑
Procedure: <ul style="list-style-type: none"> ○ Explain activity 4 ○ Students work in groups of three to complete the activity ○ They discuss the text, search for information in the Internet and complete the discussion frame ○ Feedback in plenary 	
Language support: <ul style="list-style-type: none"> ○ Discussion frame ○ Statistics 	
Resources: <ul style="list-style-type: none"> ○ Worksheet 3.2 ○ Search for information on: <ul style="list-style-type: none"> - http://www.nih.gov/JJID/57/1.pdf (smallpox case) - http://www.cdc.gov/mmwr/preview/mmwrhtml/su48a7.htm 	
Suggested answer key: <ol style="list-style-type: none"> 1. What reasons might have the Russian health authorities had to stop diphtheria vaccination? They believed that as the rate was decreasing it would run alone and continue decreasing, but when you stop a measure, you give advantages to the microorganism to transmit and develop and so cases increase. 2. Was diphtheria eradicated when they decided to stop vaccination? Differentiate between eradication and elimination. Elimination means no cases in your country. Eradication means no cases in the whole world, and a period of certification of 2 years without cases (smallpox case). Diphtheria was not eradicated: there were still some cases. 3. What are the requirements needed to declare “eradicated” a disease? Are considerations about number of cases enough? Eradication means no cases in the whole world, and a period of certification of 2 years without cases (smallpox case). The safety time of 2 years is added because clinicians sometimes do not report cases and just relying on the number of cases is not enough to make any declaration about the disease. 	



4. Does vaccination have some disadvantage?

Vaccination has some minor disadvantages: **side effects like swelling around the site of the injection, slight redness to the skin, fever, diarrhoea.** There exists a controversy as well about **the safety of vaccinations. It has existed since vaccinations began in the late 18th century. Opponents claim that vaccines have some serious adverse effects. It is true, but they are rare and on the other hand they evidence great benefits.**

5. What is the role of international organizations? What is WHO?

ABOUT WHO: WHO is the acronym of World Health Organization. WHO is the directing and coordinating authority for health within the United Nations system. It is responsible for providing leadership on global health matters, shaping the health research agenda, setting norms and standards, articulating evidence-based policy options, providing technical support to countries and monitoring and assessing health trends. In the 21st century, health is a shared responsibility, involving equitable access to essential care and collective defence against transnational threats.

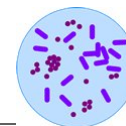
Assessment

Procedure:

- At the end of the unit, students in groups of four do a power point on a topic from a list.
- They prepare the activity by their own and give the presentation in plenary
- After the presentations, ask them 3 questions about each topic based on the given information
- Assessment criteria as shown below

Resources:

- Assessment 3 in "Supplementary materials"
- Tick box template for assessment



Tick box template – Assessment criteria UNIT 3

Criteria		Students																			
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1	Does the student include 20 slides?																				
2	Does the student develop all the suggested issues?																				
3	Can the student develop some new issue not listed?																				
4	Can the student link the contents presented?																				
5	Can the student explain concepts properly?																				
6	Can the student use technical words correctly?																				
7	Does the student show self-confidence?																				
8	Can the student talk fluently?																				
9	Can the student answer 3 questions about each presentation?																				