Unit 36: Communicable Diseases

Unit code: H/600/8993

QCF Level 3: BTEC Nationals

Credit value: 10

Guided learning hours: 60

Aim and purpose

This unit aims to enable learners to understand the international context of health and social care in relation to patterns of communicable diseases and how they can be treated, prevented and controlled.

Unit introduction

Learners will gain an understanding of international patterns of communicable disease and, through this, an understanding of worldwide inequalities in health and some of the reasons for this.

The unit gives learners opportunities to look in depth at communicable diseases of worldwide importance, their prevalence and their current and future significance to public health in the UK. Several different aspects of the diseases will be explored, including the agents of infection, methods of transmission, factors affecting transmission, signs and symptoms, possible treatment and different methods of control. The unit provides opportunities for learners to explore different diseases in depth.

Learners will also consider the effects of climate change on the patterns of disease and the implications.

This unit will be useful for all learners, specifically those who plan to work in the health and social care sectors.

Learning outcomes

On completion of this unit a learner should:

1 Know the worldwide impact of communicable diseases

2 Understand how international communicable diseases are transmitted

3 Understand how international communicable diseases develop and are treated/prevented.

Unit content

1 Know the worldwide impact of communicable diseases

Disease distribution patterns: international and intercontinental patterns of disease, eg malaria, HIV/AIDS, tuberculosis, infant diahrroea, measles, poliomyelitis, parasitic diseases

Data: related to disease, eg mortality rates, morbidity rates, Disability Adjusted Life Years (DALYs), disease incidence, disease prevalence

Sources of data: international, eg World Health Organization; national, eg government departments

Diseases: common diseases, eg acute/chronic diahrroea, roundworm, scabies, chlamydia and trachoma, HIV/AIDS, measles, meningitis, pertussis, poliomyelitis, respiratory infections; less common and tropical diseases, eg malaria and dengue fever, smallpox, tetanus, tuberculosis, parasitic diseases, eg schistosomiasis, leptospirosis, leishmaniasis

Impact: of diseases, eg human costs, economic costs, public health implications

2 Understand how international communicable diseases are transmitted

Infection: agents of infection, eg virus, bacteria, protozoa, parasites, fungus; reservoirs of infection, spore/cyst formation; carriers, eg water-borne diseases, vector (insect) -borne diseases, helminthes, human contact, raw or infected food

Transmission: methods, eg direct contact, fomites, directly into bloodstream, air-borne, food-borne, water-borne, vector-borne, transplacental

Host factors: susceptibility, eg genetic, age, sex; nutritional status, cultural and lifestyle factors, acquired resistance, personal hygiene; virulence, toxicity, dose response

Environmental factors: relationship of climate to tropical disease, implications of climate change and global warming, seasonality, vector presence, sanitation, clean water supply, de-forestation, industrialisation and urbanisation, pollution

Social factors: education, social and financial resources, eg wealth/poverty, housing conditions, nutrition, access to health services, international travel, migration and immigration patterns

3 Understand how international communicable diseases develop and are treated/prevented

Signs and symptoms: incubation periods; symptoms, eg elevated body temperature, shivering, diahrroea, coughing, headache and other pains, rash, unusual swelling

Treatment: as appropriate to disease, eg antibiotics, rehydration, anti-malarial drugs, anti-parasitic medicines

Public health prevention/control methods:

- *primary*: national health education, eg personal hygiene, use of condoms, dietary advice; specific protection, eg immunisation, prophylactic drug treatment, mosquito nets, insect repellants; international/dealing with source, eg draining swamps for malaria prevention, aid distribution, eg World Food Programme
- *secondary*: screening interventions, eg microbiological examination of stools, blood screening, X-rays
- *tertiary*: disease treatment and limitation, rehabilitation, prophylaxis

Assessment and grading criteria

In order to pass this unit, the evidence that the learner presents for assessment needs to demonstrate that they can meet all the learning outcomes for the unit. The assessment criteria for a pass grade describe the level of achievement required to pass this unit.

Assessment and grading criteria		
To achieve a pass grade the evidence must show that the learner is able to:	**To achieve a merit grade the evidence must show that, in addition to the pass criteria, the learner is able to:**	**To achieve a distinction grade the evidence must show that, in addition to the pass and merit criteria, the learner is able to:**
P1 describe worldwide distribution patterns of communicable diseases [IE1]	**M1** explain reasons for communicable diseases	
P2 describe the impact of communicable diseases on the world [IE3]		
P3 explain factors that affect the transmission of communicable diseases [IE1; CT2]	**M2** discuss factors that affect the transmission of two communicable diseases	**D1** evaluate factors that affect the transmission of two communicable diseases
P4 explain the possible signs and symptoms of communicable diseases [CT2]		
P5 explain methods for treating, controlling and preventing communicable diseases. [RL5; EP3]	**M3** discuss the methods for treating, controlling and preventing two communicable diseases.	**D2** evaluate the methods for treating, controlling and preventing two communicable diseases.

PLTS: This summary references where applicable, in the square brackets, the elements of the personal, learning and thinking skills which are embedded in the assessment of this unit. By achieving the criteria, learners will have demonstrated effective application of the referenced elements of the skills.

Key			
	IE – independent enquirers	RL – reflective learners	SM – self-managers
	CT – creative thinkers	TW – team workers	EP – effective participators

Essential guidance for tutors

Delivery

This unit should be delivered by a tutor who is appropriately qualified in biological sciences or public health, preferably with some knowledge of international development. External speakers from charitable or aid organisations could provide a useful perspective on this unit.

Initially, learners need an introduction to communicable diseases in general before tutors provide an international context to include the worldwide distribution patterns of different diseases. Depending on previous experience, learners are likely to need varying levels of support in understanding the details of communicable diseases, including the agents of infection, methods of transmission, and presenting features of a range of communicable diseases. Learners could be provided with some disease distribution statistics to be used in class and then divided into small groups to collect further statistics for different named communicable diseases as the basis of independent inquiry, discussion and debate.

The use of DVDs, followed by class discussions, will be useful to discuss the link between communicable diseases and inequalities in health status, together with possible reasons for these inequalities. Learners are likely to have some knowledge of differences in health status between developed and less developed nations, probably gained from media coverage of major events such as famine or war, which can be used to stimulate discussions. The social factors affecting health status need to be discussed and it would be helpful to draw international comparisons, for example by using a particular disease and a country where it is prevalent as an illustration.

Learners need to investigate the strategies for the prevention, control and treatment of communicable diseases and the issues associated with implementing such measures nationally and internationally. The implications for public health in the UK and internationally need to be explored, together with the issues associated with greater population mobility and likely changes in patterns of disease caused by climate change.

The list of suggested diseases is not exhaustive, and learners should be encouraged to research diseases that may be of particular interest to them.

It is suggested that learners who have not previously studied *Unit 35: Introduction to Microbiology for Health and Social Care* will need support in gaining underpinning knowledge of the agents of infection and methods of transmission.

Outline learning plan

The outline learning plan has been included in this unit as guidance and can be used in conjunction with the programme of suggested assignments.

The outline learning plan demonstrates one way in planning the delivery and assessment of this unit.

Topic and suggested assignments/activities and/assessment
Unit introduction.
Tutor input: introduction to different diseases – bacteria, viruses, parasites etc; how they develop, agents of infection; signs and symptoms; use of DVDs, internet, guest speakers where possible.
Tutor input: transmission and factors affecting transmission – host, environmental, social (including financial).
DVD presentation: communicable diseases in an international context.
Group discussion: implications of disease transmission; worldwide inequalities in health status; impact on humans, economy, public health.
Learner research: mortality and morbidity of communicable diseases and presentation of findings.
Case study: group examination of a specific disease and its prevalence in one country, eg AIDS, tuberculosis, malaria.
Tutor input: introduce world map of diseases.
Class discussion/debate: reasons for prevalence of diseases in particular areas; international patterns.
Tutor input: introduction to treatments; where are they available?
Tutor input: introduction to prevention and control – who does what? international, national, local.
Guest speaker: from aid organisation to discuss prevention and control of communicable diseases.
Tutor input: implications of climate change for disease patterns – effects on individuals, countries and prevention programmes.
Assignment 1: Task 1: Distribution patterns of communicable diseases (P1, P2, M1); Task 2: Transmission factors of communicable diseases (P3, M2, D1); Task 3: Treatment, prevention and control of communicable diseases (P4, P5, M3, D2)
Unit review and assessment.

Assessment

It is suggested that this unit is assessed using one holistic assignment assessed summatively towards the end of the period of delivery. Learners will have carried out research into various communicable diseases throughout the unit which could be submitted for formative assessment. Learners will look into their pattern of distribution and their contribution to worldwide mortality and morbidity. It is important for learners to understand the link between poverty and health.

Learners should be encouraged to choose communicable diseases that they are interested in, and also that provide them with sufficient scope to achieve the higher grades. The range of diseases considered for a pass grade will be broad but for the higher grades two diseases with different methods of transmission, for example, should provide the necessary scope.

Evidence submitted for assessment should not significantly duplicate that submitted for *Unit 35: Introduction to Microbiology for Health and Social Care*. Learners who study both units will need support in ensuring that their choice of communicable diseases is such that duplication is largely avoided.

For P1 and P2, learners need to describe worldwide distribution patterns of communicable diseases and their importance in relation to mortality and morbidity, supported by statistical evidence and visual images such as graphs and charts. Learners must also consider the impact on the economy and public health. For M1, learners will explain the links between poverty and mortality and morbidity caused by communicable diseases. They will show understanding of the disproportionate effect on some individuals, populations and countries and the reasons for this, supported by statistical evidence.

For P3, learners will explain the different factors that affect the transmission of communicable diseases, considering the various methods of transmission. For M2, learners will look in-depth at two communicable diseases, discussing the factors that affect their transmission. For D1, learners need to evaluate the relative roles of the various factors in the transmission of two communicable diseases, compare these and consider their potential and relative importance in the transmission of the chosen diseases.

To achieve P4, learners need to explain the signs and symptoms of the communicable diseases they are researching. For P5, learners need to explain how communicable diseases are treated, prevented and controlled. This should be supported by knowledge of programmes that are in place either in the UK or another country, in relation to one or more diseases, preferably those considered significant by the WHO. For M3, learners must discuss the methods available for two of these diseases and for D2 they must evaluate the different methods of treatment, control and prevention for the two chosen diseases. Choosing a variety of diseases to research will enable learners to suitably evaluate primary, secondary and tertiary methods of health prevention and control.

Programme of suggested assignments

The table below shows a programme of suggested assignments that cover the pass, merit and distinction criteria in the assessment and grading grid. This is for guidance and it is recommended that centres either write their own assignments or adapt any Edexcel assignments to meet local needs and resources.

Criteria covered	Assignment title	Scenario	Assessment method
P1, P2, M1	Task 1: Distribution patterns of communicable diseases	You are working for a charitable health organisation and have been asked to prepare a report to compare three communicable diseases which are having an impact locally, nationally and internationally. The diseases should be suitably different to enable a thorough comparison.	Written report.
P3, M2, D1	Task 2: Transmission factors of communicable diseases		
P4, P5, M3, D2	Task 3: Treatment, prevention and control of communicable diseases		

Links to National Occupational Standards (NOS), other BTEC units, other BTEC qualifications and other relevant units and qualifications

This unit forms part of the BTEC Health and Social Care sector suite (see *Appendix A*) and has links with units from other qualifications in that suite. See *Appendix E* for NOS links and *Appendix G* for a mapping of the NHS Knowledge and Skills Framework against particular units in this qualification.

Essential resources

The following resources are essential for delivery of this unit:

- an appropriately qualified tutor
- library resources with key texts and other reference sources.

In addition, audio and visual records are considered to be highly valuable.

Employer engagement and vocational contexts

Visits to relevant organisations or sessions with guest speakers will greatly enhance the delivery of the unit.

Indicative reading for learners

Textbooks

Hawker J – *Communicable Disease Control Handbook* (Blackwell, 2005) ISBN 9781405124249

Kent M – *Advanced Biology (Advanced Science)* (Oxford University Press, 2000) ISBN 9780199141951

Myers B – *The Natural Sciences* (Nelson Thornes, 2004) ISBN 9780748785834

Stretch B and Whitehouse M – *BTEC Level 3 Nationals in Health and Social Care Student Book 1* (Pearson, 2010) ISBN 9781846907663

Stretch B and Whitehouse M – *BTEC Level 3 Nationals in Health and Social Care Student Book 2* (Pearson, 2010) ISBN 9781846907470

Thomson H, Meggitt C, Aslangul S and O'Brien – *Further Studies for Health* (Hodder Arnold, 2002) ISBN 9780340804230

Toole A and S – *Understanding Biology for Advanced Level* (Nelson Thornes, 1999) ISBN 9780748739578

Journals and magazines

Biological Science

New Scientist

Nursing Times

Other publications

World Health Report 2008

Websites

www.bbc.co.uk	BBC
www.hpa.org.uk	Health Protection Agency
www.who.int/en	World Health Organization

Delivery of personal, learning and thinking skills

The table below identifies the opportunities for personal, learning and thinking skills (PLTS) that have been included within the pass assessment criteria of this unit.

Skill	When learners are ...
Independent enquirers	[IE1] identifying questions to answer when researching distribution patterns of communicable diseases and how they are transmitted [IE3] exploring issues from different perspectives when describing the various impacts that communicable diseases have on the world population, world economy and public health
Creative thinkers	[CT2] asking questions regarding the signs and symptoms of communicable diseases and how they are transmitted
Reflective learners	[RL5] evaluating learning about the methods of controlling and preventing communicable diseases to inform future study in this area
Effective participators	[EP3] proposing practical ways forward when researching methods for controlling and preventing communicable diseases.

Functional Skills – Level 2

Skill	When learners are ...
ICT – Find and select information	
Select and use a variety of sources of information independently for a complex task	searching for information on agents of infection and methods of transmission for communicable diseases, using a variety of sources
Access, search for, select and use ICT-based information and evaluate its fitness for purpose	accessing ICT-based information, evaluating its suitability for assignment work
ICT – Develop, present and communicate information	
Enter, develop and format information independently to suit its meaning and purpose including: • text and tables • images • numbers • records	entering and developing a variety of information, including text, tables and graphs, when preparing a report on communicable diseases
Mathematics	
Select and apply a range of skills to find solutions	interpreting data related to mortality and morbidity rates interpreting graphs related to the distribution of communicable diseases
Draw conclusions and provide mathematical justifications	interpreting the results of calculations related to the distribution patterns of communicable diseases
English	
Speaking and listening – make a range of contributions to discussions and make effective presentations in a wide range of contexts	contributing to group discussions about the implications of the worldwide distribution of communicable diseases and inequalities in health status generating and asking questions for guest speakers
Reading – compare, select, read and understand texts and use them to gather information, ideas, arguments and opinions	reading, comparing and understanding various texts when researching mortality and morbidity of communicable diseases
Writing – write documents, including extended writing pieces, communicating information, ideas and opinions, effectively and persuasively	producing a written report to cover all assessment criteria.