Engage Education Foundation

Units 3 and 4 Health and Human Development

Practice Exam Solutions

Stop!

Don't look at these solutions until you have attempted the exam.

Any questions?

Check the Engage website for updated solutions, then email practiceexams@ee.org.au.

Question 1a

An indication of how long a person can expect to live. It is the number of years of life remaining to a person at a particular age if death rates do not change.

Question 1b

The further remote from major cities people live, the lower their life expectancy.

OR: As people live in more and more rural/remote areas, their life expectancy decreases.

While students do not have to quote the data from the table for one mark, they should be aware that including data in all answers where data is provided reduces risk of accidentally losing a mark.

Question 1c

Students must name a determinant (e.g. biological) and an example of this determinant [1 mark] and then link this to the difference in life expectancy between rural and metropolitan groups [1 mark].

Examples could include:

- Behavioural – smoking: rural/remote groups have higher rates of smoking overall than metropolitan groups, leading to higher mortality rates from cardiovascular disease and lung cancer and thus lower life expectancy in rural/remote groups than in metropolitan groups.
- Social – social isolation: rural/remote groups are more likely to be socially isolated than metropolitan groups, leading to higher rates of suicide due to depression and thus lower life expectancy in rural/remote groups than in metropolitan groups.
- Social – income: rural/remote groups tend to have lower income than metropolitan groups, decreasing their access to healthcare and healthy foods. This could lead to higher mortality rates from diet-related conditions such as type 2 diabetes, cardiovascular disease and some cancers, and thus lower life expectancy in rural/remote groups than in metropolitan groups.
- Social – employment: those in rural/remote areas have higher rates of unemployment than those in metropolitan areas, decreasing their income and access to healthy foods and increasing their stress. This could lead to higher mortality rates from diet-related conditions (type 2 diabetes, cardiovascular disease) and suicide, and thus lower life expectancy in rural/remote groups than in metropolitan groups.
- Physical environment – access to healthcare: those in rural/remote areas may have less physical access to healthcare facilities such as GPs than metropolitan groups, decreasing the frequency with which they access healthcare. This could lead to conditions such as high blood pressure, atherosclerosis or cancers not being caught as early in rural/remote groups, contributing to higher mortality rates from cardiovascular disease and cancers and thus lower life expectancy in rural/remote groups than in metropolitan groups.
- Physical environment – access to fresh fruit and vegetables: rural/remote groups may have less access to fresh fruit and vegetables (due to transportation difficulties) than metropolitan groups. This could lead to higher mortality rates from diet-related conditions such as cardiovascular disease and colorectal cancer, and thus lower life expectancy in rural/remote groups than in metropolitan groups.
- Physical environment – quality of roads and road signage: those living in rural/remote areas may have poorer roads and road signage than those in metropolitan areas, leading to higher mortality rates from road accidents and thus lower life expectancy in rural/remote groups than in metropolitan groups.

Question 1d

Students must name two examples of biological determinants [1 mark each, up to 2 marks], and then explain how they account for the difference in life expectancy between males and females [1 mark each, up to 2 marks]. Examples include:

- Biological – body weight: on average, males have higher rates of overweight and obesity than females. This may lead to higher mortality rates in males from weight-related conditions such as cardiovascular disease and some cancers, and thus lower life expectancy in males than in females.
- Biological – fat distribution: males tend to store more fat round the abdomen (a risk factor for cardiovascular disease), while females tend to store fat round the hips and thighs. This could lead to higher mortality rates from cardiovascular disease in males, and thus lower life expectancy in males than in females.
- Biological – hormones: pre-menopausal females have more oestrogen (a protective factor against cardiovascular disease) than males, and thus males are likely to have higher mortality rates from cardiovascular disease (in the 30-50 age bracket) than females, leading to lower life expectancy in males than in females.
- Biological – hormones: males have more testosterone than females, a hormone which increases risk-taking behaviours. This could lead to higher mortality rates from injury and traffic accidents in males than in females, and thus lower life expectancy in males than in females.

Question 2

Sample answers include:

- The Australian Guide to Healthy Eating encourages people to consume a large number of serves of vegetables, which are high in fibre. As soluble fibre lows blood cholesterol and blood glucose levels, this may help decrease burden of disease from conditions such as cardiovascular disease and type 2 diabetes.
- With a glass of water in the corner, the Australian Guide to Healthy Eating encourages people to drink plenty of water. As water adds softness and bulk to the faeces, increasing bowel movements, this promotes frequent elimination of any cancer agents lingering in the bowel, which may decrease mortality rates from colorectal cancer in Australia.
- The Australian Guide to Healthy Eating encourages people to eat high-kilojoule foods, such as alcohol, cakes and chips, only sometimes or in small amounts. This may help decrease people's daily energy intake, promoting a healthy body weight and decreasing burden of disease from weight-related conditions such as cardiovascular disease and type 2 diabetes.

Question 3

A dietician would probably recommend Product 1, because [three of]:

- Fat (total): product 1 has less fat per 100g (1.4g) than product 2 (33.8g), and thus consuming product 1 could lead to less adipose storage and thus lower body than product 2, decreasing risk of cardiovascular disease.
- Saturated fat: product 1 has less saturated fat per 100g (0.3g) than product 2 (21.4g), and thus consuming product 1 could lead to lower levels of low-density lipoproteins (LDLs) in the blood than product 2. This could decrease atherosclerosis, lowering risk of cardiovascular disease.
- Dietary fibre: product 1 has more fibre per 100g (3.3g) than product 2 (<0.1g), which could lead to lower cholesterol levels in the blood, decreasing atherosclerosis and lowering cardiovascular disease risk.
- Sodium: product 1 has less sodium per 100g (270mg) than product 2 (647mg), which could lead to lower blood pressure, decreasing risk of cardiovascular disease.

Successfully identifying product 1 as the product, or three nutrients, does not gain any marks. While students are not required to reference data from the table to gain full marks, they are advised to always reference data just in case.

P.S. If you're curious, Product 1 = Weetbix, Product 2 = Woolworths Tasty Cheese. A bonus mark if you guessed correctly.

Question 4a

A diverse group of diseases in which some body tissues become defective, behave abnormally and may spread out of control and invade and damage body tissues.

Question 4b

List one indirect cost to the community and one indirect cost to the individual of cancer. (2)

Community – one of:

- An individual with cancer may not be able to come to work, decreasing workplace productivity.
- An individual with cancer may earn a lower income, decreasing taxation revenue.
- An individual with cancer may be unable to work, and thus may be on social security payments funded by the community's taxes.

Individual – one of:

- An individual with cancer may be unable to work, decreasing their income.
- An individual with cancer may have to employ someone to complete household tasks (e.g. gardening)
- An individual with cancer may have to pay for taxis to go to doctors appointments as they can't drive.

Question 4c

By providing subsidised, affordable access to services such as GP consultations, Medicare may encourage more people to go for check-ups if they show any symptoms. This increases the chance of catching and thus treating a tumour early, decreasing the mortality rates from cancer.

Question 4d

Sample answers:

- Nutrition Australia could produce and distribute brochures explaining how increasing intake of fruit, vegetables and wholegrain cereals and drinking more water could reduce risk of colorectal cancer.
- Nutrition Australia could publish high-fibre recipes on their website, encouraging people to substitute them for their own recipes and explaining how they promote bowel health.
- Nutrition Australia could develop a healthy eating pyramid which emphasises the need to Eat Most vegetables, fruit and wholegrain cereals, and less of high-fat and low-fibre foods. A large tap pouring out water could also be displayed beside the pyramid.

Question 5

1 mark for naming each value, up to 2 marks:

- Safe
- Effective
- Efficient
- Continuous
- Accessible
- Responsive
- Sustainable

1 mark for explaining how the PCEHR system links to these values, up to 2 marks – sample answers:

- Effective: by ensuring that information is communicated between healthcare providers, the PCEHR system will help the care to achieve the required results and be relevant to the patient's needs
- Efficient: the PCEHR system conveys information between care providers cost- and time-effectively, and ensures that the team has access to all information and tests so they do not repeat anything unnecessarily
- Continuous: the PCEHR system provides coordinated, uninterrupted care across practitioners and organisations over time.
- Accessible: the PCEHR system helps people like Mrs Jones to find healthcare providers regardless of their geographic location, so that those in rural/remote areas can access healthcare at the right time and place.
- Responsive: the PCEHR system can help develop a care team directly related to the patient's specific needs, and encourages patients like Mrs Jones to participate in her care
- Sustainable: because the PCEHR system is more efficient (cost and time-effective), it will be sustainable in the future, and it is responding to emerging needs.

Students should refer directly to the PCEHR system in their answer, and ideally reference phrases from the case study.

Question 6a

1 mark for identifying any of the 5 action areas (to a total of 3 marks), and 1 mark for identifying an example of each area from the information (to a total of 3 marks).

- Build healthy public policy: VicHealth contributes to and advocates for healthy public policy and regulation
- Create supportive environments: VicHealth creates environments that foster good health
- Develop personal skills: VicHealth facilitates participation and skill development
- Strengthen community action
- Reorient health services

Question 6b i

One of:

- Promote healthy eating
- Encourage regular physical activity
- Prevent tobacco use
- Prevent harm from alcohol
- Improve mental wellbeing

Question 6b ii

1 mark for naming a program relevant to the priority area, and 2 marks for describing details and linking to the priority area.

Sample answers:

- Quit (prevent tobacco use): this program aims to help smokers to quit tobacco smoking through telephone counselling, Quit courses, and media campaigns. It also works to stop young people taking up smoking through supporting legislation to raise cigarette price and restrict advertising to under-18s, and running smoking prevention education programs in schools.
- TeamUp (encourage regular physical activity): this program involves a smartphone and Facebook app that links people with physical activity opportunities, making it easier for people to increase their physical activity. The app helps people overcome barriers to physical activity, such as time, transport, social isolation and cost, by linking people with others in the area.

Question 7a

Two of:

- Organise local immunisation programs
- Maintain a sanitary environment (e.g. through street sweeping and garbage removal services)
- Maintain roads and public places to uphold public safety
- Manage recreational and cultural facilities
- Manage local maternal and child health services

Question 7b

- Organise local immunisation programs: increasing immunisation rates in Australian children could decrease morbidity and mortality rates from conditions such as measles, rubella, TB and tetanus.
- Maintain roads and public places to uphold public safety: safe public places and smooth roads could decrease risk of falls and road accidents, decreasing the mortality and morbidity rates from injury in Australia.
- Manage recreational and cultural facilities: this could foster a sense of belonging in migrant groups and promote relaxation, decreasing stress and improving mental health. Thus, it could decrease burden of disease from mental health issues such as depression and anxiety in Australia.
- Manage local maternal and child health services: constant maternal and infant checkups could catch issues such as post-natal depression, haemorrhaging, or child malnutrition. This could thus decrease the maternal and infant mortality rate in Australia.

Question 8a

Sample answer (only need to cover two e.g.s of the biomedical model of health, rather than this many):

GPs could notice risk or symptoms of lung cancer and refer patients to specialists, who could use medical imaging such as CAT scans and MRIs could be used to diagnose lung cancer. Treatments such as chemotherapy, radiotherapy, or surgery could be used to remove cancerous tumours.

Question 8b

Describe, referring to two principles of the social model of health, how the social model of health could be used to address the burden of disease from lung cancer. (6)

1 mark for naming a principle of the social model of health (up to 2 marks) and 2 marks for explaining how it could be used to address lung cancer BOD.

- Involve inter-sectorial collaboration: local health providers could work with schools to educate students about the negative effects of smoking, also working together with local governments to develop non-smoking policies in public places where children and teenagers are.
- Act to enable access to healthcare: a free lung screening program for all when they turn 50 could be implemented, with promise of free GP consultations if any cancer is found.
- Act to reduce social inequities: clinics with GPs and lung-screening facilities could be made available at a very low cost, and involve interpretation services, so that people would be able to access healthcare despite income or language.
- Address the broader determinants of health: media campaigns (on buses, TV and the radio) could be developed, addressing social determinants such as peer pressure and social smoking.
- Empower individuals and community: telephone and online counselling could be made available to help empower individuals to learn to say no in social smoking situations and to learn how to resist cravings.

Question 8c

The social model of health is likely to be more effective, as it aims to empower people not to smoke, thus reducing lung cancer risk, whereas the biomedical model of health merely treats people once they already have the disease, and thus there are higher mortality and morbidity rates. Also, the social model of health acknowledges other determinants such as income and peer pressure, so people are more likely to access healthcare and thus decrease their burden of disease from lung cancer through this model than through the biomedical model which assumes they will come to the doctor, even if their circumstances do not permit it.

Question 9a

The number of deaths of children under 5 years of age, per 1000 live births.

Question 9b

Some sample answers:

Political stability:

- Australia has political stability, so it has stable safe water and healthcare systems, whereas the other countries may suffer conflict arising from political instability, and thus have less access to safe water and healthcare. Hence, children in Australia are less likely to die of water-borne diseases such as diarrhoea and cholera, and immunisable diseases such as measles, than in the other countries.
- The other countries may suffer conflict arising from political instability, which could result in destruction of crops and food insecurity, whereas Australia's political stability could lead to food security. Hence, there may be higher child mortality rates from malnutrition in other countries than in Australia.
- The other countries may suffer conflict arising from political instability, whereas Australia has political stability and peace, which could lead to higher child mortality rates from injury (from landmines and air-raids) in the other countries than in Australia.

Access to education:

- Educated girls are likely to have children later than uneducated girls, decreasing their risk of complications at birth due to a more fully developed body. Hence countries such as Australia with greater access to education are likely to have lower infant mortality rates than the other countries.
- Educated girls are more likely to have knowledge of health-promoting behaviours, such as hygiene, nutrition and immunisation, than uneducated girls. Hence, countries such as Australia with greater access to education are likely to have lower under-five mortality rates from malnutrition, water-borne diseases such as cholera and diarrhoea, and immunisable diseases such as measles, than the other countries in the table.

Question 9c

1 mark for naming an Australian NGO, such as:

- CARE Australia
- TEAR Australia
- Oxfam Australia
- Caritas Australia
- Save the Children Australia
- World Vision Australia
- WaterAid Australia

3 marks for describing a program (2 marks for describing how it could be implemented, 1 mark for linking to how it could reduce child mortality rates). Sample answers: immunisation, safe water, infant care, nutrition

- CARE Australia could supply families with infants and young children with fertiliser, polybags and seeds and teach them to grow vegetables. This could increase food security and decrease malnutrition in young children, strengthening their immune system and thus decreasing child mortality.

- Caritas Australia could set up post-natal care clinics, training locals as maternal and child health nurses. They would monitor infants' health and weight and teach mothers about hygiene and feeding, decreasing the child mortality rate from malnutrition and contamination of food.
- Save the Children Australia could set up immunisation posts in villages, and send out trusted locals door-knocking to explain the need for infants and children to be immunised. By increasing immunisation rates, this could decrease child mortality from diseases such as measles.
- WaterAid Australia could build wells, dams, pumps and pit toilets in villages to provide safe water and sanitation, and deliver a handwashing and hygiene demonstration through drama and music. This could decrease child mortality from communicable water-borne diseases such as cholera.

Quesiton 9d

1 mark for correctly identifying a developing country and suggesting a reasonable mortality stratum, and 1 mark for justifying this based on child and adult mortality rates.

- Bangladesh

Stratum D. Justification – Bangladesh has high child mortality (41) and very high adult mortality (159)

- Guinea

Stratum D. Justification – Guinea has high child mortality (101) and very high adult mortality (306). OR:
Stratum E. Justification – Guinea has very high child mortality (101) and very high adult mortality (306)

- Mauritania

Stratum D. Justification – Mauritania has high child mortality (84) and very high adult mortality (235). OR possibly: stratum E. Justification – Mauritania has very high child mortality (84) and very high adult mortality (235).

Question 10a

The HDI is measured by four indicators (gross national income, life expectancy at birth, mean years of schooling and expected years of schooling), and hence if two countries have very similar gross national income but very different life expectancy and schooling indicators, they will have different HDIs.

Question 10b

Standard of living

Question 11a

Answers could include:

- Targeting effective governance could help build stable governments and peace, decreasing the risk of conflict. As conflict can lead to crop destruction, promoting peace could increase families' income, so they may have access to knowledge, health and a decent standard of living. Also, conflict reduces government spending on education (due to spending on military expenses), and thus peace could expand children's capabilities and choices and help them develop to their full potential.
- A stable, productive government will provide a foundation for strong education and healthcare systems, allowing people access to knowledge, health and a decent standard of living. Increased access to education may expand people's capabilities and choices, so they are more employable and can live productive and creative lives in accord with their needs and interests.
- Developing a government's financial management and economic policies could promote increased trade, increasing the gross national income and individuals' incomes. Families with increased income can gain access to knowledge, health and a decent standard of living, and send their children to school so they can lead productive and creative lives in accord with their needs and interests.

Question 11b

List one other priority of Australian aid. (1)

One of:

- Infrastructure, trade facilitation and international competitiveness
- Agriculture, fisheries and water
- Education and health
- Building resilience: humanitarian assistance, disaster risk reduction and social protection
- Gender equality and empowering women and girls

Question 12a

Students can link this to health, health status, human development, or sustainable human development, as long as they explain thoroughly enough. Some examples include:

- If girls are educated, they are more likely marry later. As their bodies will be more developed when they have children, this decreases the infant and maternal mortality and morbidity rates from obstructed births and obstetric fistula. They are also more likely to use family planning, and thus have fewer and healthier children, decreasing the child mortality rate.
- If girls are educated, they are more likely to understand and use health-promoting behaviours such as infant feeding and care, hygiene and sanitation, nutrition and immunisation. This may decrease the infant and child mortality rate from malnutrition, water-borne diseases such as cholera and diarrhoea, and measles.
- If girls are educated, they have a chance to expand their choices and enhance their capabilities. They may be able to gain decent employment and income, so they can lead productive and creative lives in accord with their needs and interests and have access to health and a decent standard of living. Sending girls to school like boys may also increase their voice and participation in their community.
- If girls are educated, they are more likely to send their children to school, passing on knowledge to future generations and providing opportunity to their children to lead productive and creative lives in accord with their needs and interests and have enhanced capabilities and choices.

Question 12b

Marking scheme:

- 1 mark for naming the program and who has implemented it
- 2 marks for outlining details about the program
- 2 marks for describing how it promotes SHD

Sample answer:

The NGO Save the Children Australia has implemented the program 'Literary Boost', which provides monthly workshops for teachers, teaching them interactive teaching methods and how to teach and assess reading skills. It also provides a Book Bank, a small library with books for students to take home and read with their families. By promoting increased literacy, this program expands children's opportunities and choices and helps them develop to their full potential, and with increased employment and income opportunities they may have greater access to knowledge, health and a decent standard of living. They are also more likely to send their children to school, ensuring future generations also have opportunities to lead productive and creative lives.

Question 13a

One of: [1 mark]

- No poverty
- Zero hunger
- Gender equality
- Good health and wellbeing

Description: [2 marks]

- Zero hunger: this goal aims to end hunger and malnutrition, ensuring everyone and especially children, pregnant women and elderly have enough nutritious food all year; this involves developing sustainable agricultural practices to improve agricultural productivity.
- Gender equality: this goal aims to reduce discrimination and violence against all females, give women equal rights to all resources and opportunities to lead, promote shared responsibility for unpaid family/domestic work, and increase women's access to sexual health and technologies.
- Good health and wellbeing: this goal aims to reduce maternal and child mortality rates, and reduce mortality from NGDs, communicable diseases, road traffic accidents, and pollution. It aims to achieve this through occur through achieving universal health coverage and reproductive healthcare, reducing substance abuse and tobacco use, and increasing health financing and workforce.

Explanation: [1 mark]

- Zero hunger: having more water in wells and pumps may increase crop production, decreasing poverty and hunger.
- Gender equality: as 60% of water committees are led by women, and 54% of water committee members are women, this program empowers women to participate in the development of their community.
- Good health and wellbeing: provision of clean water may decrease the incidence of water-borne diseases such as cholera, hookworm and diarrhoea, and the mosquito-borne disease malaria.

Question 13b

1 mark for naming each element, and 1 mark for explaining how each element is evident in this program.

- Appropriateness: this program is appropriate to the community's needs, as it targets those most at risk of dirty water. OR: this program involves local community members in its implementation, who can ensure that it is appropriate to the community's needs.
- Equity: this program caters to those 'most at risk', and also to women, ensuring that marginalised groups are targeted.
- Affordability: the pumps, wells, and toilets are free to the communities, so they can afford them. OR: Once the pumps and wells have been established, there very little ongoing cost, as building the infrastructure is a once-off cost and the community is trained to carry out maintenance themselves.

Question 14

1 mark for an example:

- Providing food drops for immediate use when floods prevent access to food stores
- Providing tents for short-term accommodation after an earthquake
- Providing water immediately after a tsunami until regular water supplies are fixed
- Providing short-term medical care and medical personnel immediately after an earthquake
- Providing clothing and hygiene resources immediately after a flood

2 marks for linking to global health:

- Food: providing access to food could reduce mortality rates from starvation and malnutrition, promoting equity in health worldwide by improving the health and health status of disadvantaged countries.
- Water: access to clean water when other supplies are contaminated or broken could decrease mortality in the population from water-borne diseases such as cholera and diarrhoea, or dehydration. This promotes equity in health worldwide by improving the health and health status of countries suffering severely poorer health.
- Medical care: medical personnel could treat injuries from a natural disaster or illnesses from contaminated water and poor living quarters, reducing mortality and morbidity from these conditions. This promotes equity in health worldwide by improving the health and health status of countries suffering severely poorer health.

Question 15

For full marks, students must explain how the priority impacts each of the three elements, but they must also show the connections between the three. Sample answer:

By improving access to affordable, effective medications, and medical products such as immunisations, this leadership priority will promote physical health as people are less likely to become ill from diseases such as measles, TB or hepatitis, also decreasing the population's mortality rates from these conditions. This will improve their social health as they will be healthy and thus able to interact with one another and participate in the community. Healthier individuals are more able to go to school and develop to their full potential. As education enhances their capabilities and choices, and as the medicines provided may improve their physical health, they may be able to earn more income and thus have access to knowledge, health and a decent standard of living. Educated people with a decent income are more likely to send their children to school, passing on their knowledge and opportunities and helping future generations to meet their own needs, promoting social sustainability. In the future, these children are then likely to have higher levels of health and development.