



2003 Health and Human Development GA 3: Written examination

GENERAL COMMENTS

Teachers should note that the comments made in this report are based on the *Health and Human Development Study Design, 2000–2003*. A reaccredited study design has been implemented in 2004.

The paper covered the examination criteria and the areas of study in Units 3 and 4. The study design provides only a limited number of examples to be studied. In order for students to have enough information to answer questions, this information is then included in the question, though this has led to criticism about the amount of reading required.

There was an increase in the number of parts to questions and questions on the paper ranged in their level of difficulty from recall to justification and application. Fewer students used highlighting and pencil in the answers. Students should be reminded that they should not rewrite the question, as it wastes time.

SPECIFIC COMMENTS

Question 1

a

Marks	0	1	2	3	Average
%	36	29	21	14	1.13

Answers should have covered three of the following points for full marks.

Development is:

- slow (following rapid development in infancy and toddlerhood)
- steady (even development through childhood)
- predictable (development occurs in a predetermined order followed by all normally developing individuals in a nearly identical pattern)
- sequential (development occurs in logical stages, for example, learn a skill, master it and move to the next).

b

Marks	0	1	2	3	4	Average
%	6	15	31	25	23	2.45

Students had to provide one genetic and one environmental factor that may account for the differences in the body types of Sally and John. Possible answers could be drawn from the examples which follow. Genetic – body build, basal Metabolic Rate, growth rates – amount of growth hormone secreted may differ between males and females.

Environmental – food intake and/or exercise level may differ. Each factor required some explanation. If students only offered genetic factors then the maximum they could receive was 2 marks.

c

Marks	0	1	2	3	4	5	6	Average
%	3	29	27	19	12	6	4	2.42

The nutrients essential for the development of teeth and bones are:

- for the production of collagen matrix – protein and Vitamin C
- for hardening – calcium, phosphorus, fluoride
- for the absorption and transport of minerals – Vitamin D.

The question asked for an explanation of how the nutrients interrelate in the development of healthy teeth and bones.

For example: Protein provides the matrix for the teeth and bones onto which calcium and phosphorus are deposited.

Vitamin C is essential to the production of collagen. Water transports the nutrients to cells. Phosphorus combines with calcium as calcium phosphate and forms the rigid framework for teeth and bones. Fluoride is deposited in the enamel of developing teeth to make them more resistant to acid attack. Vitamin D enables calcium and phosphorus to be absorbed in the small intestine to be used in teeth and bone development.

One mark was given for each nutrient and its role and there had to be an explanation for each nutrient for full marks to be awarded. If students only named the nutrients up to half marks were awarded. Many students showed scant knowledge of the nutrients and what they did, while other students just listed the foods that provide calcium.

An answer that covers many important points was:

Nutrients essential for the development of bones and teeth are protein, calcium, phosphorus, fluoride, vitamin A, vitamin D and water. Protein provides the structural basis for the matrix of bones and teeth. This matrix is then filled with minerals – calcium and phosphorus, which consequentially make up the bulk of the volume and provide strength to the bones and teeth. Fluoride hardens a layer of enamel which protects teeth from decay. Vitamin A is important for the stimulation of growth of cells. Vitamin D enhances the absorption of calcium and the deposition into bones and teeth. Water is the medium for all chemical reactions such as the growth of cells.

d

Marks	0	1	2	Average
%	44	38	18	0.74

Reasons for the changes in the proportions of children requiring dental treatment relate to the stages of development. One mark was given for each of two reasons. Examples of answers were:

- four years – primary teeth decay and may require dental treatment before they are replaced
- primary teeth may be injured because of play activities as children are not well coordinated and many require dental treatment after falls and accidents
- as primary teeth are replaced they may not require dental treatment although some children may have accidents or caries or require dental treatment because of drugs they may be prescribed for some illnesses
- 13 years – secondary teeth may be growing inappropriately and may require treatment such as straightening, checking for crowding, sports injuries.

One student wrote:

There is a slightly lower rate of children needing dental treatment around the ages of 8 through to 11. This could be due to the loss and replacement of baby teeth with their adult teeth (this process most commonly occurs around this time). Therefore children wouldn't need as much dental treatment as they have a new set of teeth.

Many students just described the table without providing reasons for the changes.

ei

Marks	0	1	2	Average
%	24	24	52	1.27

One mark was available for naming an appropriate biomedical approach to health care and one mark for the explanation of how it could assist in the maintenance of dental health in children. One student wrote:

One biomedical approach to health care in association with dental health in children would be having fillings put in the child's tooth or teeth when there are holes found. This assists in the maintenance of dental health of children as it allows the holes in the teeth to be filled, ensuring that the teeth will be safe from holes becoming any bigger which will ensure there are less of a chance of there becoming more serious dental problems.

eii

Marks	0	1	2	Average
%	16	27	57	1.41

One mark was available for naming an appropriate preventive approach to health care and one mark for the explanation of how it could assist in the maintenance of dental health in children. Possible answers included:

- regular brushing of teeth and flossing
- discouraging the eating of sweet, sticky food
- encouraging consumption of foods that assist in good dental health – milk, apples
- encouraging chewing sugar free gum rather than sugared gum
- wearing mouthguards when playing sport.

Question 2

Medicare had not been well covered by all students. Although some students knew this area extensively others found it a difficult question. Medicare is a key part of the Australian Health Care system and the underlying principles are keys to the way that Medicare operates. Question 2a was set at the recall level whereas the following questions entailed more analysis and knowledge.

ai

Marks	0	1	Average
%	60	40	0.40

One mark was awarded if the student included in their answer that Medicare is a Commonwealth funded national subsidy scheme which provides access to health care for all Australians through a tax payer funded health scheme administered by the Health Insurance Commission. The key point was the first part of the sentence.

a ii

Marks	0	1	2	3	Average
%	38	29	21	12	1.07

The principles of Medicare are that Medicare should be:

- universal
- equitable
- accessible
- efficient
- simple.

Any three were acceptable.

aiii

Marks	0	1	2	Average
%	27	55	18	0.91

Medicare is funded through general taxation, and a Medicare levy graduated according to taxable income. Low income earners are exempt from the levy while a surcharge is payable by high income earners who are not in private health insurance. For full marks content similar to the first sentence must have been included in the answer

b

Marks	0	1	2	Average
%	28	43	29	1.01

Examples of trends could have been chosen from those listed below. One mark was allocated for each of two examples.

- more use of biomedical procedures and diagnosis
- increase in expensive technology means more money spent on health services
- increase in population – more costs
- increase in aged population – require more health care/hospitalisation.

c

Marks	0	1	2	Average
%	50	35	15	0.64

Ways the Commonwealth government encourages people to provide some payment for their own health care could have included any two examples from the following list.

- lifetime cover – encourage young people to take out private health insurance at a young age. If taken out when over 30 then a higher premium is charged
- provide a rebate on premium to people who take out private health insurance
- decrease access to bulk billing
- co-payment along with Medicare rebate for doctors services
- Medicare levy on high income earners.

Question 3

Many students discussed only negative impacts of development for men in the age group indicated. Many examples were more relevant to the old age stage of development. A common response was to write ‘wrinkles’ with no explanation; however, reasons for the development of wrinkles would have been acceptable.

a

Marks	0	1	2	3	4	5	6	Average
%	12	15	20	21	17	9	6	2.69

Up to 2 marks were available for each of the three areas of physical, social and emotional development. Some possible answers were:

- physical – decline in metabolic rate, decrease in number of active cells in the body, reduction in vision, reduction in hearing and taste, some grey hair, changes in body shape, decrease of muscle strength
- social – may face changes in employment, may have more satisfaction with work, transition to retirement, new relationships with adult children, time to return to sporting activities, increase in community activities
- emotional – heightened sense of self and satisfaction with life, feel pride in achievements, emotional stability, loss of partner, changing relationships with children.

One student wrote:

One major characteristic in the physical development of males aged 45 – 65 years is that their basal metabolic rate slows down meaning that energy levels are lower and they are more prone to putting on weight as their body does not burn energy and food they have eaten off so quickly. Men tend to struggle with their weight the most at this stage of the lifespan. Money concerns and the prospect of retirement are a major characteristic of emotional development. The men may feel stressed as they wonder how they may pay when they decide to retire. Through having established a career and work and with older children, the men may be able to spend more time socialising with friends through sporting activities like bowls.

Understanding of development for this stage of the lifespan was important to enable appropriate answers to the following questions.

bi

Marks	0	1	2	3	Average
%	15	26	35	24	1.67

Three factors that may cause the lower life expectancy of males in Area 2 and Area 3 include:

- environmental – more limited access to doctors and other medical services, exposure to sun – working outdoors with little protection, difficulties in making a living from agricultural work, distances to travel to larger towns for medical attention
- behavioural – more labour intensive work, for example, farming, forest work, manual work or working with agricultural machinery, working long hours
- social – working alone, unlikely to seek medical attention, unlikely to share feelings with others, macho view of interactions with others.

One mark was available for listing (no explanation required) each of three appropriate examples that related to lower life expectancy. Many students included poor access to food, water and sanitation but these are issues more appropriate to developing countries and not issues in Victoria.

bii

Marks	0	1	2	3	Average
%	32	30	25	13	1.20

This part of the question asked for an explanation of how each of these factors may have impacted on either physical or social or emotional health of males aged 45–65 years in Area 2 or Area 3. Answers could have been similar to these examples.

- social health – longer working hours may mean less time to interact with family/friends, tired after working long hours in labour intensive work may not want to interact with others. Culture that encourages socialising at a pub or sporting club with excessive drinking and smoking which may impact on family relationships and/or result in violence
- emotional health – macho image – keep feelings to themselves, bottle up feelings which may erupt in violence
- feelings of aloneness
- physical health – working outdoors may increase possibility of skin cancer, physical work can lead to back problems that may not be checked by medical services.

One student response does show understanding of how the factors impact on health:

Due to the remoteness of these areas there are probably far fewer health services offered and the distance travelled to get to them is far greater. This would impact on the physical health of men as they would be accessing these services less frequently and could die earlier as a result. Often these men work outside on farming properties. They would be coming into contact with hazardous chemicals (cattle drench, pesticides) and would be operating dangerous machinery (tractors, harvesters, motorbikes). They would be at greater risk of serious accident or death from workplace dangers than most men in the cities. This would impact on their physical health. A lot of these men not only work hard but also play hard. They may consume a lot of alcohol (the pub is often the only social outlet) and many of them are most likely to smoke. These behaviours could impact on physical health causing lung and liver problems. It may also impact on emotional health as possible alcohol abuse may affect relationships with families and loved ones.

The last part of the answer provides two effects on health – only the first example would have been assessed.

c

Marks	0	1	2	3	Average
%	37	35	20	8	1.00

Students should have named and then described an appropriate program a local government could use to promote preventive health care for males aged 45–65 years in Area 2 or Area 3. The program must have been relevant to men at this stage of the lifespan. Students could have used the factors they identified in parts a. and b. to help guide their answer. The students could have drawn from examples such as:

- Men’s Health Forums in local areas – guest speakers discuss the importance of regular checks for sunspots, prostate cancer, blood pressure, cholesterol, blood sugar, have the checks done at the forum
- local government could have work policies to encourage council workers to work effectively outdoors. Encourage preventative measures such as wearing sunscreen if working outside, drinking water often while doing manual work, lifting correctly
- Strengthening Community Action programs could be taken on by local government to convene activities for local men to become involved in a healthy way in their local communities
- local governments could convene meetings where issues like depression could be discussed by bringing in people from groups like Beyond Blue
- using programs like Quit, Heart Health, (note without describing how local governments would use these programs did not gain any marks).

Question 4

ai

Marks	0	1	2	3	Average
%	15	30	33	22	1.62

Students were asked to describe the food consumption patterns that might have contributed to the health problems of Betty at age 60 that might have been related to her diet.

- overweight – high kilojoule/fat, low fibre foods, high cholesterol diet
- late onset diabetes – high saturated fat intake and high kilojoule intake that led to being overweight, insufficient complex carbohydrate foods.

Students could have answered in the manner above or could have just written the foods high in fat, cholesterol, sodium and low in fibre – either was acceptable. Some students confused osteoarthritis with osteoporosis. Osteoarthritis is not the same as osteoporosis and is not usually directly diet related but may be exacerbated by a person being overweight.

aii

Marks	0	1	2	3	Average
%	10	22	27	41	1.99

The dietary advice that might have been given to Betty to improve her health.

- enjoy a wide variety of nutritious foods
- eat at least 3 meals a day
- eat plenty of vegetables and fruit
- eat plenty of cereals, breads and pastas
- eat a diet low in saturated fat
- drink adequate amounts of water and/or other fluids
- limit alcohol intake
- choose foods low in salt and use salt sparingly
- include foods high in calcium
- use added sugars in moderation
- keep active to maintain muscle strength and a healthy body weight.

Students should have listed at least three examples to gain 3 marks.

b

Marks	0	1	2	3	Average
%	5	20	38	37	2.07

Difficulties in changing Betty's food consumption practices may include any three of the following reasons:

- changing eating behaviour will not occur simply as a result of knowing more about health and nutrition
- nutrition education often focuses on what changes to make rather than how to make them
- she may not know how to interpret models that have been developed to establish permanent changes in eating behaviour
- Betty's ability to make a change depends on how she sees herself and the need to change; tradition may be entrenched in her eating practices
- she may not have the skills or equipment to change her food preparation and her disabilities may make it difficult to do so
- living in a small community may restrict the choices of foods or make them more expensive
- Betty may not have transport to enable her to purchase fresh foods
- Meals on Wheels and similar programs may not be available in her area
- grief may impact on her ability to eat and prepare food.

Most students covered this question well.

c

Marks	0	1	2	3	4	Average
%	45	17	28	6	4	1.08

Two ways in which governments work towards improving the nutritional status of older Australians could be drawn from the following examples:

- Local Governments – provide Meals on Wheels, centre-based meal service where elderly citizens get a meal which has been especially prepared for them. These are based on nutritional requirements for the elderly
- Commonwealth Government – Dietary Guidelines for Elderly Australians (the revised Dietary Guidelines for Older Australians was released in 2003) sets out guides for older people to follow to have an adequate diet for health. The Australian Guide for Healthy Eating caters for the 60+ age group by providing specific guides to foods to eat
- State Governments – contribute to program 'Eat Well Australia' which provides strategies to address nutritional requirements for groups like the elderly.

Students should have described two of the above examples for 2 marks each (just listing an example gained half marks).

di

Marks	0	1	2	Average
%	28	26	46	1.18

The question indicated that the focus was on health problems suffered by Betty and Bert other than those that were diet related. Question 4di asked for a description of a relevant strategy. Some students just named a strategy without describing it so only half marks could be awarded. One example of an appropriate answer was:

The anti-cancer council 'Sunsmart' promotion is not diet related. Skin cancer is caused by harmful rays from the sun. The 'Sunsmart' campaign aims to prevent skin cancer by covering up with clothing, wearing a hat, staying out of the hottest part of the day and promoting the use of sunscreen.

Two marks were given if the student named the strategy then wrote a brief description of the strategy that included the key features.

dii

Marks	0	1	2	Average
%	35	37	28	0.93

Students had to justify why this strategy should continue to be funded. Appropriate responses were: this campaign is focused on prevention; the costs of treating skin cancer as a result of excess exposure to the sun are much greater than the costs of the education program; education is a major way of changing behaviour as can be seen where children are

wearing hats while outside, and prevention is less expensive emotionally, socially and financially than medical interventions after damage has been done to the skin.

This student justified the answer they gave in Question 4di:

This strategy should continue to be funded because it is extremely effective. It is simple to follow, it does not require too much effort by individuals. Since this promotional campaign began, it has raised the communities' awareness of the dangers of sun exposure and has been successful in reducing the incidence of skin cancer. It has also changed behaviours and attitudes to sunbaking and the idea that to be healthy is to be tanned.

Students could have used costs as a justification as well as levels of success, ease of introduction, ease of use, extent of outcomes for 2 marks.

Question 5

This question provided an example of a health problem in developing countries. In this case, which may not have been studied by all students, a simple explanation of the health issues was provided in a table. Limiting the examples for students should have enabled a focus on key issues rather than generalisations about health issues in developing countries. There was a strong divide between students who did this question well and others who had difficulty in understanding it. The question was divided into parts to guide students in answering the questions beginning with a focus on general criteria for judging the success or otherwise of a strategy, followed by the application of the general criteria to a specific example.

ai

Marks	0	1	2	3	Average
%	42	19	17	22	1.19

Three criteria that could be used to evaluate the likely effectiveness of a public health strategy in a developing country could have been drawn from the following examples:

- is it sustainable?
- does it involve local people in decisions?
- is it culturally inclusive?
- is it suitable for this environment?
- does it educate as well as prevent?
- is it cost effective?
- are the resources easily available?
- does it develop a health public policy?
- does it strengthen community actions?
- is it creating a supportive environment? Does it develop personal skills?
- does it reorient policy towards health prevention rather than cure?

One student gained three marks for simply writing:

Does it educate the people? Does it focus on women? Does it involve the community?

Many students used criteria like the number of new incidences reported, mortality rates and life expectancy; however, these are criteria to be used after the strategy has been implemented.

aii

Marks	0	1	2	3	Average
%	52	18	15	15	0.92

Each of the criteria then had to be justified.

An example of an appropriate answer from the same student was:

Does it educate the people? This criteria should be used because if the people are being educated about the disease they then have a better understanding about how to prevent and treat the disease. Does it focus on women? It should be used because women will look after sick children/offspring as well as give birth therefore they need to know about the prevention of the disease, its symptoms and treatment. Does it involve the community? This criteria should be used to determine how good the strategy is because the community must work together to support each other in preventing and fighting the disease

Other examples could have included:

- sustainable, able to be maintained by local people without extended reliance on outside resources
- involves all local people in every phase of the strategy, including women
- culturally inclusive, adapted to fit local environment and cultural practices
- educates as well as treats – helps people to understand why the strategy is necessary and how it works
- cost effective – must be within the money available in the local community
- resources must be available readily to the people who are the focus of the strategy – for example, information should be relevant and accessible to the local people.

b

Marks	0	1	2	3	4	5	6	Average
%	54	10	11	8	8	4	5	1.35

The same three factors had to be used to judge whether the *Roll Back Malaria* program would be successful. Some examples follow:

- involves the local people – involves health workers and local shopkeepers to identify and correctly treat malaria and encourages local mosquito net industries to ensure nets are available at affordable prices
- sustainable – persuade governments to abolish taxes on insecticides – treated mosquito nets and insecticides required to re-treat them therefore making nets and insecticides affordable and sustainable
- education – organise public education programs plus educate shopkeepers and women and health workers to identify and correctly treat malaria, educate women to check home environment.

One student answered this part as follows:

By using these 3 criteria the program should be successful. These criteria are evident in the program, especially educating the people and focusing on women. The program educates the people by educating health workers and shop keepers to identify and correctly treat malaria and organising public education programs. By organising public education programs the whole community is able to learn about the disease. The strategy has 2 aims that involve women. The strategy aims at identifying the groups most at risk including pregnant women and encouraging pregnant women to sleep under insecticide- treated mosquito nets and insecticides required to retreat them. The program involves the community because it aims for all groups of people such as pregnant women, shopkeepers, governments and even manufacturers. This enables people to interact and help each other out and to work together as a community.

The student successfully applied the criteria identified in part 1 and then to the specific strategy.

c

Marks	0	1	2	3	4	Average
%	37	11	26	13	13	1.52

This question asked for actions not aims – students had to read the action column and judge which would be the most difficult to implement in a developing country and provide adequate reasons as to why it would be difficult to implement. Many students chose education but were unable to explain why it would be difficult apart from saying they did not know English. Two possible examples were:

- recognise risks posed by mining, logging and agricultural processes – difficult to change habits. Main income of the area may rely on these so, unless some other income production is introduced, income may be more important than health
- experiment with gene modification of mosquitoes – difficult as it is a long-term project where results may not be seen immediately; reliance is on large funding/research agencies outside control of local area.

One good response was:

Experiment with gene modification of mosquitoes – is difficult to implement in a developing country because of limited funds, technology, resources and knowledge that is needed for such research and experimenting. Persuade governments to abolish taxes on insecticide treated mosquito nets and insecticides required to treat them would be difficult as many governments in developing countries are already very poor and in great debt and rely on such taxes. Also many governments in developing countries may be corrupt and greedy.

Students had to identify one of the examples in column two of the figure and provide an adequate reason for why it would be difficult to implement as the two examples above show. Two marks were given for appropriate actions and 2 marks for justification, or 2 marks for each of two actions and justifications.

d

Marks	0	1	2	3	4	Average
%	23	29	26	13	9	1.56

Students had to read the description of the symptoms then link these with development of children under 5 in developing countries. An understanding of physical development at this age was important.

A clear answer was:

Malaria may affect physical development of children by making them physically ill – giving fever, headache which requires a lot of energy to treat and energy is thus diverted from the growth of the children and infants in dealing with the fever and infection. Growth is thus slowed. Vomiting can cause the food the child has eaten to be thrown up before it is absorbed so nutritional status is affected. Reduced uptake of protein affects growth, lack of calcium affects bone lengthening. Anaemia caused by the clogging of capillaries can make children tired and lethargic. This may reduce cognitive ability as oxygen to the brain is reduced and the ability to interact in games may reduce motor skills development.

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