Public Health Aspects of CHD

Suggested responses to workbook questions and exercises

Q1. How can you explain the higher CHD death rate and burden in low and middle income countries?
People in low- and middle-income countries who suffer from CVDs and other non-communicable diseases have less access to effective and equitable health care services (including early diagnosis). Therefore, many people in low- and middle-income countries die younger from CVDs.
Also, people in low- and middle-income countries are more exposed to risk factors leading to CVDs and are less exposed to prevention methods (e.g. healthy eating, stop smoking service) than people in high-income countries.

Q2. What effect will these adverse trends in risk behaviours have on CHD mortality rates?
It may reverse the downward trends in CHD mortality seen in the UK.

Q3. Why is CHD a major public health concern?
Many reasons, some suggestions are;
- Leading cause of death among men and women in the UK, accounting for one in five deaths in men and one in seven deaths in women.
- Despite declines in CHD mortality the UK still has one of the highest CHD death rates in the world (see MONICA studies).
- CHD has significant impact on the individual (premature death, disability etc.) and society (cost to UK Health Care Services in 2006 approx £3.2Billion).

Q4. What are the strengths and weaknesses of using these health surveys to record information on risk behaviours?
- Strengths

Representative of the population.
Results are generalisable to the population.
Can look at changes in risk factors over time.
- Limitations

Rely upon individuals correctly recalling and reporting information about their lifestyles. This may introduce bias, resulting in an under estimate of certain risk behaviours (e.g. alcohol consumption).
The Health Survey for England also collates information on people's self reported doctor diagnosis of CHD - this may under-estimate CHD prevalence in younger populations and over-estimate CHD in older people.

Q5.

Topic	Policy
a. Smoking	England: To reduce adult smoking in all social classes so that the overall rate falls from 28% in 1996 to 21% or less by 2010. Department of Health (1998) Smoking Kills: A white paper on Tobacco. London. England: To reduce smoking rates among manual groups from 32% in 1998 to 26% by 2010, in order to narrow the health gap (and reduce inequalities).
b. Cholesterol	Guidelines are from the Joint British Societies. See British Cardiac Society, British Hypertension Society, Diabetes UK, HEART UK, Primary Care Cardiovascular Society, The Stroke Association (2005). JBS2: Joint British Societies' guidelines on prevention of cardiovascular diseases in clinical practices. Heart. 91 (suppl V): v1-v52
c. Obesity	England: To halt the year on year risk in obesity among children under 11 by 2010 in the context of a broader strategy to tackle obesity in the population as a whole. (Department of Health, 2004. National Standards, Local Action: Health and social care standards and planning framework 2005/06 and 2007/08. (www.dh.gov.uk)

Q6. How do you think psychosocial well being can affect CHD risk?
- Direct effect: e.g. via increased blood pressure.
- Indirect effect: through work stress, lack of social support, depression (including anxiety) and personality. Also it may lead to a change in behaviour: increased smoking, drinking, poor diet.

Q8. What factors are likely to influence levels of activities from an individual and wider society perspective?
Individual: Education, family income, employment status, and other factors related to social class tend to moderate the different levels of physical inactivity.
Social : social norms, social networks, safety in the area, availability of sports facilities, cost.
See: http://www.ijbnpa.org/content/6/1/1 "Socioeconomic differences in lack of recreational walking among older adults: the role of neighbourhood and individual factors". Kamphuis et al International Journal of Behavioral Nutrition and Physical Activity, Jan 2009, 6:1.

Exercise 1. What are the key patterns in CHD risk factors by age, sex, ethnicity, deprivation and region?
Look at the data provided and summarise.

Q 12. What are the ethical considerations in a population based approach?
- Individual consent to a public health intervention at a population level is not possible.
- For some risk factors, a small proportion of the population may already have very low levels of exposure e.g. BMI and blood pressure, and a population approach, pushing risk levels even lower, may put these individuals at increased risk of poor health. Therefore this method may have the potential to harm.
- The utilitarian principle (greatest food for the greatest number of people) may be achieved with the potential harm being considered as unavoidable or unimportant
- Further info see: *High-Risk and Population Strategies of Prevention: Ethical Considerations,* Geoffrey Rose Annals of Medicine 1989, Vol. 21, No. 6: Pages 409-413.

Q13. Why might the efficacy and effectiveness for an intervention differ?
Efficacy how well the treatment can work under ideal circumstances e.g. in a RCT where individuals are followed up to ensure compliance with treatment. Whereas effectiveness is examined in routine circumstances – i.e. in "real life" situations, where individuals may forget to take treatment, or stop taking it because they feel there is no benefit.

Q14. Discuss the rationale for a targeting high risk groups – whole population
Atherosclerosis develops over many years. If people at high risk of CHD can be identified early then they can be provided primary prevention interventions to prevent a CHD event e.g. angina, or MI.
Furthermore, the short term costs of screening (identifying those at risk) will be less than long term costs of managing patients with CHD.
It is essential that a high-risk approach is complemented by population-wide strategies. Without population-wide public health prevention efforts, CHD events will continue to occur in people with low and moderate levels of risk, who are the majority in any population.
Population wide approaches can effectively slow down the development of atherosclerosis and reduce incidence of CHD. Population-wide strategies will also support lifestyle modification in those at high risk.

Exercise 2: Work out a ten point plan to reduce CHD in your area
Primary and secondary prevention plan e.g. ideas to improve rates of physical activity/nutrition for specific risk groups – or within general population (such as schemes to use bikes – walking buses to schools – stop smoking services for particular risk groups etc.) Also should include risk assessment (how to encourage take up for general population at risk). Should link to socio-economic/ethnic factors and strategies to address health differences. For guidance on service standards see
http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_4094275

The following questions are included in the notes section on relevant slides on statistics/trends on CHD and therefore not included in workbook. These to be used if required. They could form a pre-unit activity (set questions with the workbook appendix as an exercise prior to undertaking the unit).

Q 15. Complete the table on the strengths and weaknesses of different data sources for collecting information on CHD morbidity.
These answers are not exhaustive;

	Strengths	Weaknesses
Hospital data	Information on clinical diagnosis and treatment in hospital.	May be no information on risk factors Underestimate incidence and prevalence because cases in the community would be excluded from the in-hospital statistics
Primary care	Clinical diagnosis. Information on treatment. Representative. Patients can be followed up over time.	Information on risk factors may be incomplete. Possible selection bias due to general practices voluntarily electing to provide data.
Self reported surveys	Information on individual risk factors.	Self report of diagnosis and treatment may not be correct.
Research studies	Can investigate specific questions.	Findings may not be generalisable. Different levels of reliability and validity.

Q 16. Describe the incidence by gender figure 20. How would the data be better presented?
The figures report the total number of cases in each year. Differences between men and women may be due to the differences in population sizes. Data would be better presented as a rate, number of cases per 100,00 population. This would be easier to compare between sexes.

Q 17. What is the weakness of using self reported diagnosis to determine prevalence?
May include diagnoses other than CHD leading to an over estimation of CHD.

Q 18. Comment on the regional and gender differences in incidence trends.
Overall reduction in incidence over last 3 to 4 decades.
Greatest reduction in men and in Belfast. Some increase in women in Glasgow.
Unclear if these trends can be extrapolated to the Northern Irish and Scottish populations without considering whether the data source is representative of these populations.

Q19. What drives trends in incidence?
Incidence is the number of new cases.
Primary prevention will reduce the incidence of newly diagnosed CHD
Secondary prevention will reduce the incidence of repeat events (e.g. MI).

Q20 By looking at the source of prevalence do you think this may be a true reflection?
This is self reported data, so consider the implications of this source. It may not be reliable.

Q 21. What effect do you think upward trends in the prevalence of obesity will have on the incidence and prevalence of CHD?
Will increase the population at risk of CHD, and may result in increasing incidence, particularly among the younger ages (where prevalence of obesity is highest).
Increasing incidence will increase prevalence of CHD (if there is no change in mortality).

Q22. What is the public health importance of increasing prevalence?
Upward trends in prevalence mean there is an increasing burden of CHD in the population i.e. an increasing proportion of the population living with CHD. This will have even greater impact of social and economic aspects of health – See section 1.5.

Q23. What could be possible explanations for the positive relationship between deaths from circulatory diseases and levels of deprivation?
Socioeconomic status (SES) can have an effect at the individual and area levels;

Individual
- Low SES is associated with lower levels of education, increased risk factors (smoking, alcohol consumption, poor diet, and low levels of physical exercise).
- Low SES may also be a risk factor for stress, low self esteem, and isolation.
- Access to care and treatment.

Area level
- Results from the British Women's Heart and Health study showed that adverse area-level socioeconomic characteristics, , are associated with increased coronary heart disease, over and above individual life-course SES (**see "**Life-Course Socioeconomic Position, Area Deprivation, and Coronary Heart Disease: Findings From the British Women's Heart and Health Study" Lawlor et al. Jan 2005, Vol 95,1. American Journal of Public Health 91-97.)

Q24. How could these differences be addressed?
The NSF requires all NHS organisations to ensure that the services they provide are accessible and acceptable to the people they serve, regardless of their background. This includes accessing and meeting people's needs in ways that are culturally, religiously and linguistically appropriate. The NSF detailed 12 standards for improved prevention, diagnosis, treatment and rehabilitation and goals to secure fair access to high quality services. For the full document see
http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_4094275

Q25. Discuss possible reasons for inequality in CHD mortality among South Asians.
- Differences in risk factors among the South Asian population compared to the White population which makes them more susceptible to CHD.
- Cultural differences in understanding about risk factors and CHD prevention.
- Language barriers delaying seeking care.
- Lack of knowledge about structure of Health Care Services in the UK, and the provision of health care.

(See: "Coronary heart disease in South Asia: Need to redefine risk" Ahmad 2006, International Journal of Cardiology, Vol 107 (2); 289-290.)

Q 26. What could be possible explanations for different rates of decline in CHD mortality in different developed countries?
Differences due to health promotion campaigns in different populations. Differences in access to services, treatment (both prevention e.g. statins and intervention measures e.g. CABG), acute care (e.g. speed of response, distance to hospital), waiting times for elective surgery.