Example health essay

With reference to the UK, discuss the reasons why tuberculosis (TB) is a contemporary public health issue and give examples of relevant public health and health promotion initiatives.

With the exception of HIV/AIDS, infection with the Mycobacterium tuberculosis complex (MTB) causes more human deaths each year than any other infectious agent (World Health Organization, 2014a). The symptoms of tuberculosis (TB) are often non-specific and depend on the site of infection. Patients may present with fever, anorexia, weight loss, night sweats or lassitude, but a persistent productive cough is the hallmark of pulmonary tuberculosis (Department of Health, 2006). MTB bacilli multiply within infected macrophages for long periods of time and may be transported in the lymphatics or bloodstream to any part of the body (Gill and Beeching, 2004).

Humans are the only reservoir of infection and transmission of tuberculosis occurs when infectious respiratory secretions are aerosolized by coughing, sneezing or talking. These may remain suspended in the air for long periods and are small enough to reach terminal air spaces if inhaled (Gill and Beeching, 2004). Patients with lung disease are the main source of infection and 52% of cases notified in the UK in 2013 had pulmonary disease (Public Health England, 2014c). 5 to 10% of people will develop active tuberculosis after primary infection reducing to 3% within one year of exposure; however over 90% of MTB infection is non-pathogenic within a normal human lifespan (Gill and Beeching, 2004).

The incidence of tuberculosis in the UK in 2013 (12. 3/100 000) was higher than most other Western European countries (European Centre for Disease

Prevention and Control (ECDC)/WHO Regional Office for Europe, 2013) and nearly five times as high as the United States (Centers for Disease Control and Prevention, 2013), having increased steadily since the late 1980's (Public Health England, 2014a). Rates of infection have declined by 11. 6% in the past two years, where 73% of cases occurred among people born outside the UK. Of these, India, Pakistan and Somalia were the most common countries of origin but only 15% were recent migrants indicating a high rate of reactivation of latent tuberculosis (Public Health England, 2014c). The number of migrants from countries with very high TB incidence (> 250 per 100, 000) decreased by 68% in the last decade and indicators of recent transmission reflect a decline in primary infections. However, the rate of infection among the UK born adult population has remained stable (Public Health England, 2014c) and strain typing suggests that up to 40% of all UK cases may be newly acquired (Public Health England, 2014a). Consequently, Public Health England has identified TB as a major priority (12).

Globally, tuberculosis affects predominately young adults (World Health Organization, 2014b) and the highest rates of infection in the non-UK born population are among 25 to 29 year olds. Of patients born in Britain, TB is most virulent in those aged over 75 years and both sexes are equally at risk (Public Health England, 2014c). The burden of TB in England is concentrated in the most deprived communities of large urban areas and London accounted for 37. 8% of patients in 2013 (Public Health England, 2014c). Nearly half of these cases were unemployed and 10% had a history of alcohol or drug misuse, homelessness or imprisonment. 6% were health-care workers (Public Health England, 2014c). Tuberculosis is particularly virulent

among the immunosuppressed and people with HIV are 26 to 31 times more likely to contract the disease. Tobacco use has also been associated with 20% of TB cases worldwide (World Health Organization, 2014b).

TB is transmitted most effectively in environments where MTB microbes accumulate in the atmosphere, for example in overcrowded and poorly ventilated living and working conditions (Gill and Beeching, 2004). Individuals with close and/or prolonged contact with a patient with pulmonary tuberculosis or connections to higher-prevalence areas of the world are particularly at risk (Department of Health, 2006). Transmission is also favoured by dark and humid conditions, such as mines and prisons (Gill and Beeching, 2004) and several authors have implicated vitamin D deficiency in the disease pathogenesis, although findings are varied and inconclusive (Kearns et al., 2014). Active TB may be mild or asymptomatic for many months and sufferers may unknowingly infect up to 15 people over the course of a year (World Health Organization, 2014b). Drug-resistant TB is an increasing problem in the UK and multi-drug resistant TB comprised 1. 6% of cases in 2012 (Public Health England, 2013a). Although MDR tuberculosis is unlikely to be more contagious, patients are infectious for longer than those with fully sensitive tuberculosis (Borrell and Gagneux, 2009, Anderson et al., 2014).

The features of effective national TB control programmes have been well documented (National Institute for Health and Care Excellence, 2011, Story et al., 2012, Department of Health – TB Action Plan Team, 2007, Public Health England, 2014a) and include transparent systems of accountability, adequate resources, active local implementation and close outcome

monitoring (Abubakar et al., 2011). These activities are managed in the UK by Public Health England together with a wide range of stakeholders such as NHS England, and include screening. Screening strategies differ for the detection of early active and latent asymptomatic TB, the latter of which is recommended by NICE for individuals at high risk of infection (National Institute for Health and Care Excellence, 2011) and referred to as active case finding (ACF) (Golub et al., 2005, Zenner et al., 2013). Identifying tuberculosis early allows for prompt treatment and reduces transmission (Public Health England, 2014b).

In the UK, ACF is targeted at healthcare workers involved in exposure prone procedures, close contacts of known or suspected tuberculosis patients, and people with social risk factors such as homelessness, drug or alcohol misuse, imprisonment or migration from high risk countries (National Institute for Health and Care Excellence, 2012). Several local authorities and primary care trusts have successfully piloted such schemes, although weaknesses in coordination and targeting have been identified (Pareek et al., 2011a). London’s UCLH Find and Treat Service, for example, screens almost 10 000 socially vulnerable people at high risk of tuberculosis annually (University College London Hospitals NHS Foundation Trust, 2014). Various UK charities, such as ‘ TB Alert’, raise public awareness of tuberculosis and support Primary Care Trusts. They build capacity of third sector organisations and inform and subsidize patients and communities (TB Alert, 2014).

The UK Border Agency, in collaboration with the International Organization for Migration, conducts pre-entry screening for active infection across 15 countries where tuberculosis is common (over 40/100, 000) (Home Office UK

Border Agency, 2012, Public Health England, 2013b). Visa applicants from these countries wishing to stay in the UK for more than 6 months are screened for pulmonary TB and granted entry only on receipt of a certificate of clearance (Public Health England, 2014b). Funding from the Health Protection Agency (HPA) also supports screening activity at Heathrow and Gatwick airports (Home Office UK Border Agency, 2012). Screening is routinely offered to asylum seekers and refugees accepted for resettlement into the UK through the Gateway Programme (Home Office UK Border Agency, 2012). There is further evidence that screening migrants for latent TB on entry to the UK is cost effective for the NHS (Pareek et al., 2011b).

Internationally, the World Health Organization operates via the Stop TB Partnership to set targets, procure and grant funds and resources, lobby governments, educate and advocate on behalf of TB communities (World Health Organization, 2006, Stop TB Partnership, 2014). Simultaneously, not-for-profit product development partnerships such as the TB Alliance endeavour to develop new TB drug regimens (Horsburgh et al., 2013, Lienhardt et al., 2012a, Lienhardt et al., 2012b, Clinton Health Access Initiative et al., 2010). School vaccination of the indigenous UK population was halted in 2005 following a decline in the incidence of TB and the Bacillus Calmette-Guérin immunisation (BCG) is now targeted at neonates within high risk groups (Department of Health, 2006). These UK endeavours contribute towards the WHO target to eliminate TB as a public health problem by 2050 (World Health Organization, 2006).

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