

JSNA: Infectious disease

Introduction

An infectious disease is an illness caused, typically, by a specific virus or bacteria that is normally capable of being transmitted from one person to another either directly – such as coughing/sneezing – or indirectly – such as via a contaminated needle. Outbreaks of these diseases can often place tremendous pressure on health services; a recent example of this being the H1N1 (Swine Flu) Influenza pandemic and, most recently, outbreaks of measles. Sometimes the threat is posed by new and emerging diseases, or it can be from the re-emergence of a disease which has existed for a number of years, for instance tuberculosis (TB). A number of national and local strategies are in place to monitor, manage, prevent, and control infectious diseases and to mobilize healthcare services to respond to Public Health emergencies or threats to health.

Infectious diseases are implicated in around 10% of all deaths and constitute the top four reasons for primary care consultations; nationally, 35% of all adult consultations and 50% of all child consultations relate to infectious diseases. The cost of treating infectious diseases in England is approximately £6billion per year (10% of the NHS budget), and of this £900million is spent on hospital admissions.

Implications for commissioning

TB and Hepatitis B and C are listed as key priorities in the Department of Health's *Strategy for Infectious Diseases*¹.

The core of TB control is symptom awareness, early diagnosis and treatment, especially ensuring treatment is completed². One of the consequences of non-completion of treatment is a rise in the number of cases of multi-drug resistant TB (MDRTB). This is especially important for those born outside the UK who have recently settled in Bolton. Mechanisms are in place to ensure that new entrants to the UK are screened at the point of entry, however this initiative may not detect latent disease which could re-emerge in an individual many years after migration. In Bolton, the Thoracic Medicine department at Royal Bolton Hospital take the lead in identifying, contact tracing and treatment of individuals with TB and play a key role in raising awareness about the prevalence of the disease locally.

¹ Department of Health (2007) *A Strategy for Infectious Diseases*, DoH.

² Health Protection Agency (2013)
www.hpa.org.uk/

Increased activity is necessary to ensure that those communities most at risk of developing TB have improved information about TB symptoms. In addition work needs to continue to reduce the stigma associated with the disease and to better enable individuals who have TB to successfully complete treatment.

Nationally, Hepatitis C represents an increasing concern. The Health Protection Agency (HPA) estimates a significant level of undiagnosed cases and unmet need for Hepatitis C, particularly in the injecting drug user population. National guidance recommends the screening of people with a history of/current drug use³. At present, Bolton's Substance Misuse Services offer Hepatitis C testing to all new service users. Those found to be positive are referred for specialist assessment. Royal Bolton Hospital has an appointed Consultant working within the Gastroenterology Department who takes the lead on Hepatitis C locally. Ideally, Royal Bolton should be able to offer the complete referral, assessment and treatment package "in house" and be in a position to provide increased levels of screening in community settings, including primary care.

Hepatitis B is a vaccine preventable disease and as such at risk groups are targeted for immunisation - these include injecting drug users, sex workers, babies born to Hepatitis B positive mothers and certain occupational groups. For people diagnosed with the disease, established referral pathways to Royal Bolton are in place.

There is a need to offer HIV testing and testing/treatment for other STIs in a wider range of community settings including GP practices (see Sexual Health Chapter).

The newly established Clinical Commissioning Group (CCG) needs to continue to set challenging targets for the reduction of Health Care Associated Infections (HCAIs) as advised by the Health Protection Agency/Department of Health, for both the acute trust and the community provider.

Improved engagement with communities is required to increase vaccination uptake rates where these are substantially below the national 95% uptake target.

Targeted work needs to be carried out to increase flu vaccination uptake in pregnant women and front line health and social care staff. Linked to this is the need to increase pneumococcal immunisation uptake, especially in women.

A continued focus on sexual health improvement, good sex and relationships education and improved access to sexual health services needs to be maintained in order to impact on STI transmission.

³ Department of Health (2007) *A Strategy for Infectious Diseases*, DoH.

Wider awareness raising of infection prevention and control interventions is required across the Bolton population in order to continually improve communities' understanding of how the spread of infectious diseases may be ameliorated.

Who's at risk and why?

Potentially, everyone is at risk of contracting an infectious disease. However, certain factors can make some individuals/groups more susceptible to specific infections.

Tuberculosis (TB)

TB only poses an infectious risk to others if it is of the pulmonary type and if the infected person contains traces of TB in their sputum. For this reason, transmission of TB is generally quite difficult to achieve as people need prolonged and repeated exposure. This is why transmission is largely restricted within families/close communities with relatively little spread outside of these groups. Nationally, the most common countries of birth for non-UK born TB cases are India and Pakistan – both of which account for 48% of all such cases.

Hepatitis C

Within the UK and Bolton, Injecting Drug Users (IDUs) are the key risk group for Hepatitis C. Furthermore, prevalence of Hepatitis C in this group in the North West is the highest in the country. The other notable risk group is those born in certain countries outside the UK. Drug services both locally and nationally are reducing the onward transmission of this disease via education relating to the sharing of drug using equipment and the promotion of Needle Exchange Schemes. Similarly, multiple initiatives are taking place within the South East Asian communities which have a higher prevalence of Hepatitis C.

Hepatitis B

Hepatitis B is the most serious type of viral hepatitis. The three major risk factors for Hepatitis B in the UK are injected drug use, unprotected sex between men and women, and travel outside the UK.

Measles, mumps, rubella, meningococcal meningitis

Measles, mumps, and rubella are relatively rare in the UK, largely because of the success of the National Childhood Immunisation Programme. However, nationally there has been an increase in the number of cases of measles and mumps in teenagers. The Greater Manchester conurbation has seen few confirmed cases of measles over the last 12 months. Risk factors associated with meningococcal disease include: being under 5 years of age (although a smaller second peak occurs in the 15-24 age group), contact with other meningococcal cases, travel abroad (especially Africa and Asia), and cigarette smoke

(increases risk of infection from bacteria). Whilst close contact is a key risk factor in transmission, increasingly genetics is now also thought to play a significant role in terms of susceptibility to infection.

Healthcare Acquired Infections (HCAI)

The most significant risk factors regarding HCAs are related to length of stay in hospital, number of admissions and readmissions, long-term antibiotic use, certain surgical procedures, and underlying health issues and medical interventions.

Influenza

Seasonal influenza occurs in winter and prevalence peaks between December and March with new strains of flu constantly emerging. This means that there is potential for epidemics to occur, as seen most recently with the H1N1 strain of the virus. Flu vaccine is now offered each autumn to key groups who are most at risk of the disease and its consequences, especially those aged 65 years and over.

The level of need in the population

Although the majority of these diseases individually are not major killers in Bolton, or indeed England compared to the developed world, they can on occasion cause serious morbidity and/or mortality. It is for this reason that infectious diseases should be prevented, ameliorated, monitored, and effectively managed in the population.

Mortality

In Bolton the mortality rate for infectious diseases is similar to the national average but tends to be lower than that seen across our region and Greater Manchester. Mortality from infectious disease in Bolton, whilst low compared to other disease areas, is currently increasing in line with both national and regional trends. The most deprived fifth of Bolton's population has a significantly higher mortality rate for infectious disease.

The majority of deaths (60%) in Bolton within this disease area are classified as 'other bacterial disease', which mostly includes the various types of septicaemia, with 18% attributed to intestinal infectious diseases, and TB accounting for another 7%.

Prevalence/incidence

Tuberculosis (TB):

- In 2010 there were 70 cases of TB in Bolton. This is the highest number in Greater Manchester with the exception of Manchester (which is significantly higher than all over areas). For Bolton this means a rate of 27.1 (per 100,000 population) which is

significantly worse than England and locally second only to Manchester (41.1) and Oldham (30.9) in Greater Manchester;

- Incidence has been increasing across Greater Manchester over recent years and the area is the highest of all similar areas in the North West. However, this is a result of increases in specific risk groups;
- There is little difference regarding the proportion of cases by sex in the North West. However, with the exception of the 0-14 years age group, males have a higher rate in all age groups, especially those over 75 years of age;
- Regarding ethnicity, the most noticeable change nationally over the past decade is the decrease in the proportion of cases in the White ethnic group, which has now plateaued. The Black African and South Asian groups account for the highest proportion of cases in the 15-34 age group;
- The majority of cases (typically around 70% of cases each year) are reported in people born outside the UK.

Hepatitis C:

- North West level epidemiology shows the region to have a relatively high prevalence of Hepatitis C, with the burden of disease increasing. The estimated prevalence of Hepatitis C in Bolton is 1,838 individuals and by 2015 7% of these will have died from the disease;
- Injecting drug use remains by far the most significant risk factor for Hepatitis C, especially in our region with 65% of injecting drug users tested anonymously in 2010 having evidence of infection. This compares with the national figure of 49%;
- Whilst the number of drug users aware of their infection in the North West has exceeded 50%, this leaves a large proportion unaware that they have hepatitis C. This may result in a greater risk of transmission to others;
- In Bolton the estimated cost of treating those individuals already identified as having Hepatitis C is £1,492,437. However, it is estimated there are at least an additional 21 people requiring treatment each year which leads to an additional annual cost of £156,364 on top of the earlier figure.

Hepatitis B:

- Across the North West, the number of hospital admissions with Hepatitis B as the primary diagnosis has fallen from 67 in 2006/07 to 30 in 2010/11 and a similar pattern is seen for admissions with Hepatitis B in all diagnosis fields (258 in 2006/07 to 179 in 2010/11);

- In the North West, the majority of Hepatitis B acute reports occur in men (around 75%), with those aged 35-44 years having the greatest prevalence;
- Laboratory reports of acute Hepatitis B to the HPA show that from 2008 to 2010 the number of acute cases fell by 17% (620 to 512) in England and 46% (123 to 66) in the North West;
- Data regarding deaths are too few to be meaningful – across the North West there are only around 10 deaths reported with an underlying cause of Hepatitis B.

Measles, mumps, rubella, meningococcal meningitis:

- Bolton's number of cases of Measles, Mumps, and Rubella is significantly below the number expected for a population of our size;
- The numbers of meningococcal meningitis notifications are very few, with just 15 across the whole of the North West in 2010.

Vaccinations:

- In general, Bolton has better childhood immunisation coverage than is average for both England and the North West region;
- Child immunisation coverage as a whole is typically between 90% and 100% and so the differences between small areas of Bolton is often not significant;
- Seasonal Influenza poses an annual challenge to the population. To a certain extent, the effects can be mitigated by vaccination. To this end, the Department of Health has an annual campaign to vaccinate those most at risk of serious illness if they contract Influenza. Bolton has consistently exceeded the 70% target set for immunising the over 65s but is currently lower than both the North West and England averages. Around 72% of Bolton's 65+ population have the flu vaccine each year exceeding the national target of 70%. However, average flu vaccine uptake for over 65s across England is higher than this suggesting that it is possible to further improve local flu immunisation rates in this cohort. More positively, however, Bolton has a higher than average uptake of flu vaccination in people with long-term conditions such as coronary heart disease, stroke, diabetes and chronic obstructive pulmonary disease. Nevertheless, locally as well as nationally, there is still more work to be done to encourage pregnant women and frontline health care staff to take up the offer of the vaccine in order to protect themselves and prevent onward transmission of the disease to the wider population

Healthcare Associated Infections (HCAs):

- The latest figures show that Royal Bolton Hospital has a slightly higher rate of MRSA than the national average, but lower rates of C. Difficile;
- Since 2007/08 rates of both MRSA and C. Difficile have fallen sharply for both Royal Bolton Hospital and the national total;
- In general, Bolton has lower rates of both MRSA and C. Difficile than in average for the Greater Manchester conurbation.

Key JSNA Indicator Sheets

- MORTALITY: Infectious Diseases
- CHILD AND MATERNAL HEALTH: Childhood Immunisation
- BEHAVIOUR AND ACCESS TO SERVICES: Tuberculosis
- BEHAVIOUR AND ACCESS TO SERVICES: Influenza Immunisation

Current services in relation to need

Some diseases are more prevalent in different parts of the UK for a number of reasons. Greater Manchester has a disease profile consistent with that of a highly populated multicultural urbanized area. Within Greater Manchester there are "pockets" of disease where some diseases are more/less common than in neighbouring boroughs - again the reasons for this are often varied and complex. From Bolton's perspective, there are a number of diseases such as TB, and Hepatitis B and C and to a slightly lesser degree HIV, which pose a particular challenge to local services, along with other sexually transmitted infections (STIs) especially Chlamydia. MRSA and Clostridium Difficile also pose a challenge, particularly for our inpatient facilities.

Nationally and regionally, the prevalence of TB has been increasing for the last ten years and will continue to do so in the specific at risk groups. Bolton sees on average between 70-80 cases per year, which equates to a rate of approximately 26 per 100,000. This compares favourably with Blackburn (37 cases per 100,000) and Manchester (38 per 100,000) which have a comparable population mix to Bolton. Bolton has a degree of expertise with treating TB - this is reflected in the fact that NHS Bolton has taken on a leadership role for commissioning TB services across Greater Manchester. Additionally Bolton has pioneered the use of Directly Observed Therapy (DOT) for people with Multi Drug Resistant TB and has a schools based ongoing programme of identifying and immunising at risk individuals.

Rates of TB are far higher in migrant groups born outside the UK than in the indigenous population, further contributing to Bolton's health inequalities.

In the North West over 90% of TB cases in people born outside the UK develop the disease over a year after entry into the UK. For this reason ongoing awareness after initial entry screening in migrant groups is vital.

Hepatitis C prevalence is very high in the North West region and the burden of this disease is increasing.

Regarding Hepatitis B, the capturing of appropriate data from Primary Care, maternity units, and the drug service is a priority.

HCAIs continue to pose a challenge throughout the local health economy. The two main infections here are MRSA (Methicillin Resistant Staphylococcus Aureus) and Clostridium Difficile (C. Diff.). Mandatory reporting of all cases is in place with all NHS Acute Trusts. Royal Bolton Hospital has shown significant success in reducing the numbers of both infections.

Projected service use and outcomes

Regionally, prevalence of TB has been increasing for the last decade and so we can reasonably expect this to increase in the future. However, the increase in prevalence will continue to be highest amongst specific at-risk groups.

In Bolton the burden of Hepatitis C in 2015 is estimated to be 1,177 people at a mild to moderate level of illness, 58 people at cirrhotic/end stage, and 125 people are expected to have died.

In the UK, rates of hepatitis B infection are likely to rise with increases in foreign travel and the impact of migration.

Evidence of what works

Bolton's Health Matters has created a collection of evidence and intelligence to ensure best practice in decision within this area. To view this collection, please [click here](#).

Community views and priorities

No recent work regarding community views into infectious diseases and immunisations has been carried out. If you are aware of any such work locally please let us know at [Bolton Health Matters](#)

Equality impact assessments

No recent local equality impact assessments have been carried out that we are aware of. If you are aware of any such work locally please let us know at [Bolton Health Matters](#).

Unmet needs and service gaps

Infectious diseases are an important cause of health inequalities as they have greatest impact upon the most vulnerable, and frequently excluded groups – older people, young children, drug users, the chronically ill, and recent immigrants (especially those with language difficulties).

The greatest risk of failing to meet the TB need is the impact of delayed diagnosis on onward transmission and poor health outcomes, ongoing awareness after initial screening for migrants entering the area, and poor treatment observance.

Recording of treatment outcomes for TB are improving in the North West, but this is an acknowledged problem and its maximisation is recommended by our regional HPA.

Access to treatment for Hepatitis C remains a serious issue throughout the North West.

A needs assessment carried out by Greater Manchester Hepatitis C Strategy Group found considerable increases in service activity for Hepatitis C across the conurbation, whilst concluding that this only represents a small proportion of the infected population.

There is an acknowledged problem in the North West for recording of Hepatitis B infections regarding drug services, maternity units, and GUM clinics. This is being addressed regionally by the HPA as this is the organisation having responsibility for the surveillance of infectious disease.

Furthermore, whilst Bolton's measles vaccine coverage exceeds the national average uptake, challenges remain as vaccine uptake in some areas of the borough are lower than the Bolton average (e.g. in parts of Halliwell, Farnworth and Kearsley). In addition, 2008 and 2009 saw an increase in measles following several years of low immunisation. Subsequently in 2012 and into 2013 small outbreaks of measles have been observed in both children and young people across the borough. Therefore, there needs to be renewed emphasis on enabling the uptake of MMR in the areas with lowest coverage.

Recommendations for further needs assessment work

Assessment and regular monitoring/analysis of the Public Health Outcomes Framework indicators linked to infectious disease are necessary. These are: 3.3 Population vaccination coverage; 3.5 Treatment completion for TB.

There are acknowledged gaps in Hepatitis C intelligence across the region. Improved surveillance is vital for local commissioners.

Further works needs undertaking in respect of Hepatitis B and TB.

Further detailed work is required locally to understand reasons for different levels of immunisation uptake by GP/locality.

Key contacts

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