

Date Published: 28/06/2012

Next Refresh Date: 31/01/2015

Please read this chapter in conjunction with -

JSNA Chapters:

[Warrington JSNA Sexual Health Chapter](#)

[Warrington JSNA Pregnancy Chapter](#)

[Warrington Joint Strategic Needs Assessment Index](#)

[Warrington JSNA Children and Young People - Immunisations Chapter](#)

[Warrington JSNA Older People - Burden of Ill Health Chapter](#)

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Warrington Joint Strategic Needs Assessment (JSNA) 2011 - Infectious Diseases Chapter



The Joint Strategic Needs Assessment (JSNA) considers a wide range of factors that affect the health and wellbeing of the people of Warrington. The objective of the JSNA is to involve partner organisations, such as the local NHS, local authorities, Police, Fire and third sector organisations in order to provide a top level, holistic view of current and future need within the borough. The JSNA is used to agree key priorities to improve the health and wellbeing of all our communities at the same time as reducing health inequalities.

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Executive Summary

Introduction

Infection control is a high priority in the health service. The Health and Social Care Act 2008 has made it a statutory requirement for all care providers to comply with the ten criteria in its Code of Practice. The guidance sets out what registered providers of health and social care services should do to ensure compliance with the Care Quality Commission Registration requirements for cleanliness and infection control.

Good infection prevention and control are essential to ensure that people who use health and social care services receive safe and effective care. Effective prevention and control of infection must be part of everyday practice and be applied consistently by everyone. Good management and organisational processes are crucial to make sure that high standards of infection prevention and control are set up and maintained.

Not all infections are avoidable, as there are many factors that lead to infections becoming established, not all of which can be controlled, hence the increasing emphasis on reducing the numbers of avoidable infections.

The Infection Control Nurses carry out environmental surveillance of clinical areas in all local clinics, general practice (GP) surgeries, dental surgeries, nurseries and care homes. They also train staff in the appropriate management of a safe clinical environment and work closely with, as well as sharing good practice with, staff in the local hospital trust. The team also run Link Nurse Groups with the care home staff and the Dental Nurses to ensure practice 'infection control champions' are kept up-to-date with developments and requirements. They also provide support and input into the care services provided within two local prisons.

Related to infection control is the immunisation programme, to which the Infection Control Nurses contribute, not only to the training of vaccinators, but also to the actual planning of vaccination programmes and the giving of vaccinations to individuals.

This chapter takes a quite detailed look at **Healthcare Acquired Infections (HAIs)**, and **tuberculosis (TB)**. The infections discussed in this chapter are described in the glossary (Appendix A) There are many more infectious organisms than those covered in this chapter. Those included under the category of HAIs are **MRSA, C. Difficile, MSSA** and **E Coli**. The Infection Control Team also monitor cases and outbreaks of other infectious diseases, particularly infections such as **Norovirus**, which tend to affect the more vulnerable members of society and therefore need to be controlled effectively. There are other infections, such as **seasonal influenza**, for which there is a vaccination programme targeted at people aged over 65 and/or with chronic or long-term conditions, who are deemed at greater risk. The JSNA Chapter on Older People's Ill-Health provides detail on the seasonal flu vaccination uptake. In addition, there is a JSNA Chapter on Childhood Immunisations.

Key Findings, Issues and Gaps

On average, there are around 18 deaths per year in Warrington from all infectious diseases. This equates to a rate of 6.4 per 100,000, in keeping with the England average.

Substantial reductions have been made at local and national levels in the rates of HAIs. Locally, there has been a greater relative decrease in rate of C. Difficile, with the rate of Trust apportioned cases decreasing by 83%.

Rates of TB in Warrington are significantly lower than England, although trends are increasing, most likely due to increases in immigration.

Although the number of measles cases is relatively small, rates within Warrington are higher than national and regional. However, given the small numbers, the differences are not statistically significant.

The Infection Control Nursing Service has been developed over the years to meet the increasing needs of the local population, and the increasing service and legal requirements relating to infection control.

The Infection Control Team is small and currently manages to deal with the increasing level of pressure brought on by additional expectations. However, capacity is limited and, whenever a member of staff is absent for a prolonged period, the work of the team has to be prioritised, with some aspects of the work put on hold.

There is also limited commissioning capacity, as the commissioner for the Infection Control Service also commissions the sexual health service, all screening programmes, and the vaccination and immunisation services, as well as inputting into individual funding requests for treatment on behalf of the Primary Care Trust (PCT).

Recommendations for Commissioning

The Infection Control Service is working well, but capacity is running without an adequate safety margin. Any manpower reductions could have serious consequences and lead to a serious risk situation.

There is a proposed regional review of the Community Infection Control Services to look at capacity, future service provision and ways of increasing capacity/resilience by working across a bigger area. It is hoped that the outcome of the review will not disadvantage the Warrington service, which has been developed and refined over many years, with a small but dedicated team of specialist nurses, who provide a wide variety of services, including TB care.

Ideally, the size of the Infection Control Team needs to be increased, but, it is hoped that, within the current financial constraints, the current size of the team will continue to be maintained. If the team is not maintained, at least at its current level, the service will start to run at risk.

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1) Who's At Risk and Why

Infectious diseases are caused by micro-organisms that are able to invade and reproduce in the human body, and then cause harmful effects. The most common types of infectious micro-organisms are bacteria, viruses and parasites.

Globally, the burden of infectious diseases is substantial, particularly in the developing world. In the developed world, advances in public health over the last century, including safe water supplies and sewage disposal, advances in food hygiene, improvement in housing and general civic environments, use of immunisation, and development of antibiotics, have resulted in a considerable reduction in the burden of infectious disease.

However, there are increasingly new challenges in the UK. Many new infectious organisms have been identified in recent years. Some of these are new diseases, such as **HIV** and **SARS**. Other challenges arise from a resurgence of 'old diseases' that were previously almost eradicated, such as tuberculosis (TB) and **measles**. Increases in the speed and frequency of global travel, and increases in migration, provide greater opportunities for infectious diseases to spread more quickly.

Healthcare acquired infections (HCAIs) had also become a serious issue in the last decade, but, in recent years, steps have been taken to reduce the risk. Numbers of MRSA bacteraemias (bloodstream infections), for example, have dropped considerably in the last four years, reducing by 80%.

Tuberculosis is reducing in the indigenous population, but there has been an increase in immigrants and particular at-risk groups, such as individuals who are HIV-positive. Vaccination in the form of BCG¹ is provided for target at-risk populations, including babies less than four weeks old, and is no longer provided generally for the UK population, as focusing on vaccinating the target groups is more effective at preventing further spread of the infection.

Footnotes

¹ *The Bacillus Calmette-Guérin (BCG) vaccine provides protection against tuberculosis (TB).*

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2) The Level of Need in the Population

This section describes the local burden of ill-health arising from some of the main infectious diseases. It does not cover sexually transmitted infections, which are included in the JSNA Chapter on Sexual Health.

2.1) Mortality from Infectious Diseases: On average, there are around 18 deaths per year in Warrington from all infectious diseases. This equates to a rate of 6.4 per 100,000, in keeping with the England average¹.

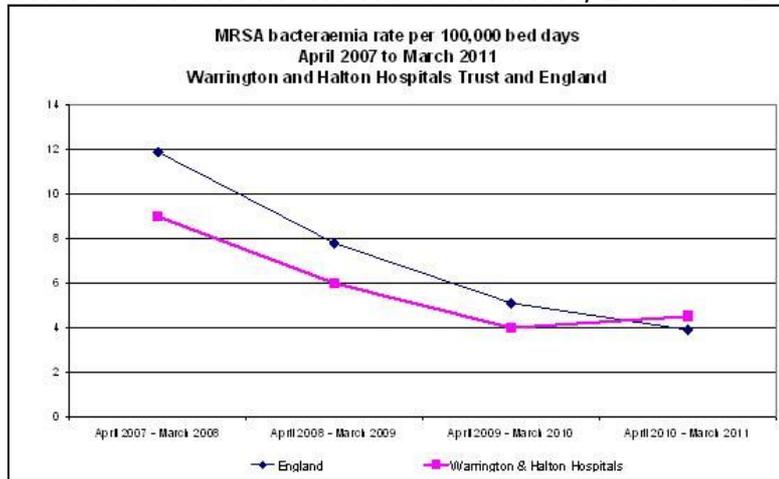
2.2) Healthcare Acquired Infections have become a problem of increasing magnitude over the last decade. The rise in infections is believed to have been due to a combination of factors, including the widespread use of antibiotics and an associated increase in resistance to these by the organisms, as well as the rapid turnover of patients in hospital interfering with effective cleaning routines. However, in recent years, steps have been taken to reduce the risk. A combination of good hygiene and infection control procedures in hospitals and the community, along with more careful and appropriate use of antibiotics, has helped to reduce the incidence of HCAs considerably.

All HCAs are subjected to a process of root cause analysis (RCA), whereby the Community Infection Control Team work with colleagues in primary and secondary care to understand the history of each patient in great detail, to identify any potential lessons to be learnt about errors that may have been made in the way the patient had been cared for. If these could be avoided in the future, this can reduce the risk of further cases of infection. The organisms currently being reported and subjected to RCA are MRSA, *C. difficile*, MSSA, and *E coli* bacteraemias (i.e. serious blood infections, not mere skin contamination).

2.2.1) MRSA: One of the most common and serious healthcare acquired infections is MRSA bacteraemias. The bacteria usually live harmlessly on skin and in the nose of a third of the population, who do not suffer any consequences. However, if the organism enters a wound, or an invasive medical device site, it can cause local infections. In more serious cases, this infection spreads into the bloodstream to cause blood poisoning (bacteraemia). Generally this sort of infection would be treated with antibiotics, but in the case of MRSA, treatment is complicated by the organism's resistance to certain antibiotics.

The reporting of healthcare acquired MRSA infections is a mandatory requirement, with annual reduction targets set. The recent annual targets for MRSA bacteraemias were 6 for 2010/11 and 5 for 2011/12, whereas in previous years the target had been well into double figures. Chart 1 presents the trend in the rate of MRSA infections since 2007. This indicates the substantial reductions that have been made at local and national levels.

Chart 1: Trend in the Rate of MRSA, 2007 to 2011



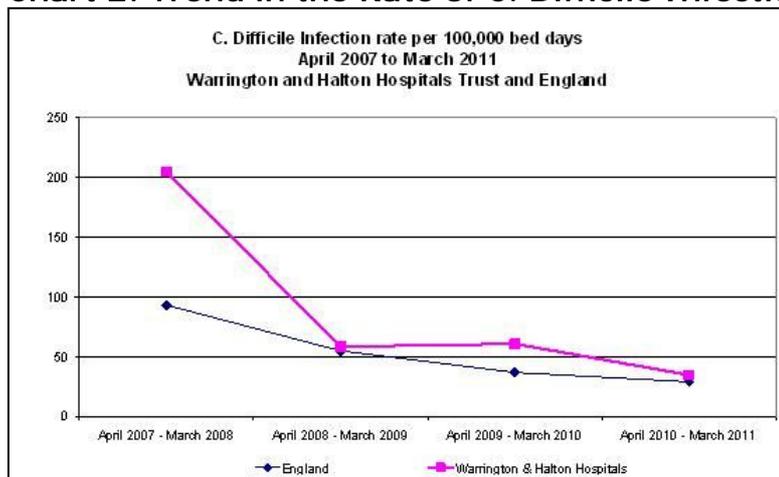
(Source: Health Protection Agency: MRSA Annual Rates)

2.2.2) Clostridium Difficile: The rates of C. diff. infections are also monitored by the Department of Health, again with targets set for annual reductions.

C. diff. are bacteria that are present naturally in the gut of around two-thirds of children and 3% of adults. Generally, the organism does not cause any problems in healthy people. However, some antibiotics that are used to treat other health conditions can interfere with the balance of 'good' bacteria in the gut. When this happens, C. diff. bacteria can multiply and produce toxins, which cause illness, such as diarrhoea and fever.

Tighter infection control measures have resulted in a rapid decrease in the number of C. diff. infections in recent years. Data available from the Health Protection Agency (HPA) shows that, in 2007-08, there were **55,498** cases reported across England. In 2008-09, there were **21,695** reported cases. This is a decrease of 61% (69% if only Trust apportioned figures are considered). In Warrington, there has been a greater relative decrease, with the rates of Trust apportioned cases decreasing by 83%.

Chart 2: Trend in the Rate of C. Difficile Infections, 2007 to 2011



(Source: Health Protection Agency: MRSA Annual Rates – Trust Apportioned cases)

2.3) Tuberculosis (TB) is a serious, but curable, infectious disease. It can affect any part of the body but is most common in the lungs and lymph glands. Symptoms include cough, night sweats and weight loss. People with active TB affecting the lungs can infect others, but not all people with lung TB are infectious. Most people who get TB have had a prolonged exposure to an infectious person, usually someone in the same household.

TB in the UK declined rapidly during the last century, as antibiotics were introduced and gains were made in dealing with poverty and poor housing, but it was never fully eradicated. Other parts of the world, where treatment availability is very limited and poverty is a continuing problem, still experience very high rates of infection.

Around 9,000 cases of TB are currently reported each year in the United Kingdom (HPA). Most cases occur in major cities. Rates have increased annually since the late 1980's, but provisional data suggest that the 2010 rate has decreased.

As would be expected, numbers within Warrington are very small, with an average of less than 5 cases per year. However, over the period 2007-2009 there was an average of 10 cases per year, increasing the rate from 2 per 100,000 to 5 per 100,000. This rate was still significantly lower than the average for England. In 2010-2011, the number of cases was 11 and, so far this year (2011-2012), there have been 5 cases.

Treatment is very effective in curing TB, but depends on prompt diagnosis and continuing patient compliance. The treatment includes a combination of antibiotics, which have to be given over an extended period of time (usually six months). The Health Protection Agency (HPA) publishes TB outcome data by region. The trend across England as a whole shows that completion rates are increasing year on year. The latest available data is for 2008, which shows that treatment completion rates in the North West (83.1%) are higher than those for England as a whole.

Of the 11 patients in Warrington in 2010-2011, not all remained in the country, but those that did completed the treatment. This confirms that immigration from high risk areas is increasing the pressure on the TB service. Many of the patients from this group will then leave the country.

Mortality rates from TB are low. Based on data from the HPA, across England as a whole there is an average of just under 300 deaths per year. The death rate in Warrington is very low, with less than 5 deaths over the last ten years. These patients died of multiple pathologies, and a number of TB patients have also been HIV positive.

2.4) Measles is a vaccine preventable disease, for which there is a national immunisation programme in the UK. Immunisation rates within Warrington for MMR are relatively high, although there are some concerns about uptake of the second dose of MMR. The first dose of MMR consistently shows an uptake of over 90%, which, although this does not reach the national target of 95%, is very reassuring. The uptake of the second dose, at age 5 years, fluctuates in the low to mid 80% range. The JSNA Chapter on Childhood Immunisations provides more detailed information about the current vaccination related issues.

The incidence of measles cases is monitored by the HPA. Between January and July 2011 there have been 758 reported cases of measles in England, with 36 of these in the North West. Within Warrington, the number of suspected and confirmed cases is very small. The small number of cases in Warrington confirms that the MMR vaccination and immunisation programme is helping to protect the local population very effectively.

Trend data available from the NHS Information Centre Indicator Portal suggests that rates in previous years for Warrington have been higher than national and regional figures. However, given the very small numbers involved, the difference is not statistically significant. Comparative data is available for the period 2006-2009. During this period, there were 18 cases amongst children under 1 year of age in Warrington, which equated to a rate of 189.7 per 100,000, and was higher than the England and North West rates of 115.9 per 100,000 and 97.6 per 100,000,

respectively.

Amongst those under the age of 15 years, the picture was similar. The rate in Warrington was 64.3 per 100,000, compared to England at 41.5 per 100,000 and the North West at 34.2 per 100,000 (NCHOD). It must be remembered that, in dealing with small numbers of cases in a relatively small population such as Warrington, there can be significant changes in numbers per 100,000 population, which are based on these small numbers and may project a more severe picture than is actually the case.

In spite of this, it is very reassuring that the numbers of measles cases has been dropping significantly over the years, as MMR uptake has increased over recent years, which will have boosted the levels of protection among the local population of young children.

Footnotes

¹ Rate based on data for 2008 to 2010. Source: National Centre for Health Outcomes Development (NCHOD).

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3) Current Services in Relation to Need

The Infection Control Nursing Service, which was previously part of the PCT, but which is now part of the Bridgewater Community Services provider, is contracted to NHS Warrington via a Service Level Agreement (SLA) and provides the internal NHS Infection Control Specialist Service.

The Infection Control Nurses also work closely with local authority Environmental Health Services in dealing with infection related issues. This includes the inspection of premises and the provision of appropriate advice to staff that may be involved in outbreaks of infectious diseases.

The team visit care homes, schools and other premises when there is a health related issue that needs resolving. The team liaises with the Environmental Health Team of the Council as appropriate. The team usually do not require attendance by the Environmental Health Team unless there is a problem, such as kitchens, that need inspecting.

The Warrington Borough Council (WBC) Public Protection service provides an inspection service of food premises, hospital kitchens, kitchens in other premises, such as care homes, as well as providing food safety training and awards, pest control, and dog wardens.

The Infection Control Nurses advise internally within the NHS and related agencies, such as GP practices and community clinics, about safe disposal of clinical waste, but the ultimate responsibility for the management of waste rests with the Council's Environmental Health Team. The nurses also arrange transport of special (hazardous or clinical) waste from patients' homes.

Needle-stick injuries are a particular concern, as they can lead to the spread of infections to the victims of such incidents, and have to be managed carefully.

The Infection Control Team carry a caseload of TB patients and their contacts, and ensure that, when patients require long-term treatment, they comply with the treatment. If necessary, they will carry out directly observed therapy, to reduce the risk of emergence of resistant TB strains. The team screens new entrants into the area for TB and other potentially infectious diseases. The Infection Control Nurses work with chest physician and paediatrician colleagues in the Warrington and Halton Hospitals NHS Foundation Trust to target investigations, vaccination, contact tracing, and case management in the at-risk populations.

The Infection Control Nurses are notified of cases of infectious disease that require follow-up, primarily by the Health protection Agency, but also by the GP or the hospital. These include **meningitis, legionella, hepatitis A, hepatitis B, botulism**, measles, and **mumps**.

The Infection Control Team monitors many more infectious organisms than those required under the healthcare acquired category, such as MRSA, C. Difficile, MSSA and E Coli. They also monitor cases and outbreaks of other infectious diseases, in particular infections such as Norovirus, which tends to affect the more vulnerable members of society, and therefore needs to be controlled effectively. The nurses work closely with the local hospital and care homes to limit outbreak situations and help to bring them under control.

There is an annual seasonal influenza vaccination programme aimed to immunise the population aged over 65 and those deemed at increased risk due to long-term illness or chronic conditions. The annual target for coverage is 75%. Local uptake figures for 2010/12 were 72.5%. The JSNA Chapter on Older People's Ill-Health provides further detail in terms of the trend in flu uptake and a breakdown at GP Practice level.

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4) Projected Service Use and Outcomes in 3-5 Years and 5-10 Years

It is difficult to robustly project trends around incidence of infectious diseases as many occur in outbreaks, which are difficult to predict in advance.

For vaccine-preventable diseases, ensuring high uptake of immunisation is crucial. Systems are in place to monitor local uptake on a timely basis and take appropriate action where necessary.

The Infection Control Team are also involved in emergency preparedness work, as well as the provision of support to the vaccination and immunisation programmes, by supporting training and carrying out actual vaccinations. In planning for possible pandemics, the team plan for the provision of helplines, training in the use of protective equipment, the implementation of mass vaccination programmes, providing advice to the public and professionals about the prevention of new cases, and the management and treatment of cases as they occur.

Future additions of new vaccines to the current vaccination schedule will add to the protection provided for the local population and will reduce the incidence of new cases of infectious diseases, but no vaccination programme will ever be 100% effective. Therefore, there will be a continuing need for the advisory and follow-up work provided by the Infection Control Nursing Team.

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5) Evidence of What Works

Reduction of the incidence of infectious diseases and their sequelae (other diseases or conditions arising from an initial infection) have come about as a result of the national comprehensive vaccination and immunisation programme, in which the Infection Control Nursing Team is involved.

There have been well documented reductions in the numbers of healthcare acquired and other infections, as improved hygiene and the management of individual cases of infection has **reduced the risk of further spread. RCAs carried out on each case will also continue to inform the systems that need to be put in place to constantly reduce the risk of future infections.**

The Infection Control Team has been part of a concerted effort to reduce the risks of infections in all manner of environments across Warrington. This has involved working with colleagues in other agencies, auditing workplaces and environments where patient care is provided, providing advice and training to staff from all agencies about safe patient care and infection prevention, and identifying cases of infection and following them up appropriately. Advice on safe environments and the development and implementation of appropriate guidance continue to be a key aspect of the work provided for all local agencies.

Close working with colleagues within the community health trust, the local GP, Care Homes and Dental providers, enables them to comply with the requirements of the Health and Social Care Act 2008 by monitoring their compliance with its requirements, auditing their practice, and providing appropriate training and guidance. The Infection Control Nursing Team also work closely with the Care Quality Commission (CQC), to enable the CQC to be aware of services which are, or have been, a cause for concern and in which remedial action is required to enhance patient and/or staff safety.

There is recently released and updated guidance on the [clinical diagnosis and management of tuberculosis, and measures for its prevention and control](#) from the National Institute for Health & Clinical Excellence (NICE) CG117 (2011).

General guidance on [differences in the uptake of immunisations \(including targeted vaccines\)](#) in people younger than 19 years is also the subject of a NICE guideline PH21 (2009).

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6) (Target) Population/Service User Views

The Infection Control Team provides a broad range of services to individuals, professionals and agencies. Pressure on the team's time, and their increasing workload, attests to the increasing reliance of colleagues and members of the public on their services, their direct hands-on care, guidance provided, and provision of appropriate, up-to-date and relevant information.

Colleagues and the general public continue to request their help and support, because their expertise and their ability to provide appropriate support and training, has increased the demands that have been placed on them.

The team always ensure that they can respond to requests for information and support as quickly as required by the circumstances of the specific events, e.g. supporting the establishment of helplines in outbreak or pandemic situations. As the team is small, work has to be prioritised, but this is always done in the most appropriate way, to ensure that the most urgent requests are dealt with most quickly.

The team have asked TB patients to complete patient satisfaction questionnaires. The team also follow up requests for advice and support, in order to obtain feedback for what has been done to rectify the issue in question. When premises or services are audited, there is always follow-up, to ensure that appropriate actions have been put into place. Every audit is accompanied by the production of an action plan, which needs to be complied with.

7) Unmet Needs and Service Gaps

The Infection Control Nursing Service has been developed over the years to meet the increasing needs of the local population, and the increasing service and legal requirements relating to infection control.

The Infection Control Team is small and currently manages to deal with the increasing level of **pressure brought on by additional expectations. However, capacity is limited and, whenever a member of staff is absent for a prolonged period, the work of the team has to be prioritised, with some aspects of the work put on hold.**

Ideally, the size of Infection Control Team needs to be increased, but, it is hoped that, **within the current financial constraints, the current size of the team will continue to be maintained. If the team is not maintained, at least at its current level, the service will start to run at risk.**

There is also limited commissioning capacity, as the commissioner for the Infection Control Service also commissions the sexual health service, all screening programmes, and the vaccination and immunisation services, as well as inputting into individual funding requests for treatment on behalf of the Primary Care Trust (PCT).

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8) Recommendations for Commissioning

The Infection Control Service is working well, but capacity is running without an adequate safety margin. **Any manpower reductions could have serious consequences and lead to a serious risk situation.**

There is a proposed regional review of the Community Infection Control Services to look at capacity, future service provision and ways of increasing capacity/resilience by working across a **bigger area. It is hoped that the outcome of the review will not disadvantage the Warrington service, which has been developed and refined over many years, with a small but dedicated team of specialist nurses, who provide a wide variety of services, including TB care.**

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9) Recommendations for Needs Assessment Work

The risks involved in infection control and prevention are well known, as are the solutions that **work. There are programmes and action plans in place for all aspects of infection control. The main risk is the provision of an appropriate level of staffing and the available staffing capacity to ensure that the increasing requirements of the Infection Control Service can be met.**

There are some gaps in knowledge, particularly in relation to spend across agencies, and around projected future service use.

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Key Contacts

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Appendix A

Glossary

Botulism

Botulism is a rare but potentially fatal infection caused by toxins produced by bacteria called *Clostridium botulinum*. These toxins are the most powerful naturally occurring toxins known to science. They attack the nervous system (nerves, brain and spinal cord) and cause paralysis (muscle weakness). Left untreated, the paralysis will spread to the lungs, causing breathing failure followed by death.

The three main types of botulism are foodborne, wound and infant.

Clostridium Difficile (C. Difficile or C. Diff.)

Clostridium difficile are bacteria that are present naturally in the gut of around two-thirds of children and 3% of adults.

C. difficile does not cause any problems in healthy people. However, some antibiotics that are used to treat other health conditions can interfere with the balance of 'good' bacteria in the gut. When this happens, *C. difficile* bacteria can multiply and produce toxins (poisons), which cause illness such as diarrhoea and. At this point, a person is said to be infected with *C. difficile*.

Escherichia Coli (E Coli)

Food poisoning is an illness caused by eating contaminated food. Most people will get better without the need for treatment.

In most cases, the food that causes the illness has been contaminated by bacteria, such as salmonella, or a virus, such as the Norovirus.

Healthcare Acquired Infections (Health Care Associated Infections or HCAs)

HCAIs are infections that are acquired as a result of healthcare interventions. There are a number of factors that can increase the risk of acquiring an infection, but high standards of infection control practice minimise the risk of occurrence.

Hepatitis A

Hepatitis A is an infection of the liver caused by the hepatitis A virus. It leads to inflammation of the liver. Hepatitis A is the most common type of viral hepatitis.

Hepatitis A is not very common in the UK. It is more common in countries where sanitation and sewage disposal are poor. It is usually caught by putting something in your mouth that has been contaminated with the stools (faeces) of someone with hepatitis A.

Hepatitis B

Hepatitis B is a type of virus that can infect the liver. Many people don't realise they have been infected with the virus, because the symptoms may not develop immediately, or even at all. Hepatitis B can be spread through blood and body fluids and a mother can pass on the hepatitis B infection to her newborn baby. If the baby is vaccinated immediately after birth, the infection can be prevented.

Human Immunodeficiency Virus (HIV)

HIV is a virus most commonly caught by having unprotected sex or by sharing infected needles to inject drugs. HIV is found in the body fluids of an infected person, but it is not spread easily compared to other viruses, like colds or flu. Individuals with HIV are said to be 'HIV-positive'.

The virus weakens the body's ability to fight infections and disease, such as cancer. AIDS is the final stage of HIV infection, when the body can no longer fight life-threatening infections. There is no cure for HIV, but there are treatments to enable most people with the virus to live a long and healthy life.

Legionella

Legionnaires' disease is a potentially fatal lung infection (pneumonia) that is caused by the legionella bacteria. Legionnaires' disease is caught by breathing in small droplets of contaminated water. It is not contagious and cannot be spread directly from person to person.

Measles

Measles is a highly infectious viral illness. It can be very unpleasant and possibly lead to serious complications, including blindness and even death. However, it's now rare in the UK due to the effectiveness of the MMR vaccination.

The measles virus is contained in the millions of tiny droplets that come out of the nose and mouth when an infected person coughs or sneezes. The most familiar symptom is a red-brown spotty rash that usually starts behind the ears, then spreads around the head and neck before spreading to the legs and the rest of the body.

Meningitis

Meningitis is an infection of the meninges (the protective membranes that surround the brain and spinal cord). The infection can be caused by bacteria or a virus, and it leads to the meninges becoming inflamed (swollen). This can damage the nerves and brain.

Methicillin-resistant Staphylococcus aureus (MRSA)

Methicillin-sensitive Staphylococcus aureus (MSSA)

Staphylococcus aureus (also known as staph) is a common type of bacteria. It is often carried on the skin, inside the nostrils and the throat and can cause mild infections of the skin, such as boils and impetigo.

If staph bacteria get into a break in the skin, they can cause life-threatening infections, such as blood poisoning or endocarditis (an infection of the inner lining of the heart).

Mumps

Mumps is a contagious viral infection that used to be common in children. Mumps is spread inside infected droplets of saliva that can be inhaled or picked up from surfaces and passed into the mouth or nose.

It is most recognisable by the painful swellings located at the side of the face under the ears (the parotid glands).

Norovirus

Norovirus, better known as the winter vomiting bug, is the most common stomach bug in the UK, affecting people of all ages. The virus, which is highly contagious, causes vomiting and diarrhoea. Norovirus is not generally dangerous and most people make a full recovery within a couple of days.

Severe Acute Respiratory Syndrome (SARS)

SARS is a serious and potentially life-threatening viral infection that mostly affects the lungs. The infection is caused by the SARS coronavirus.

The SARS virus is spread in small droplets of saliva that are coughed or sneezed into the air by an infected person. Infection can occur if the droplets are breathed in or someone with the virus touches surfaces, such as door handles, with unwashed hands. Others that touch the surface could then also become infected.

Seasonal Influenza (Seasonal Flu)

Flu is a highly infectious and very common viral illness that is spread by coughs and sneezes. It is not the same as the common cold. Flu is caused by a different group of viruses and symptoms tend to be more severe and last for longer.

Flu can be caught all year round, but it is especially common in winter. Flu causes a sudden high temperature, headache and general aches and pains, tiredness and sore throat.

Tuberculosis (TB)

Tuberculosis is a bacterial infection. It is spread through inhaling tiny droplets of saliva from the coughs or sneezes of an infected person.

TB mainly affects the lungs. However, the infection can spread to many parts of the body, including the bones and nervous system.

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References

The following guidance and websites are a useful selection of sources of information on Control of Infection.

Department of Health. (2009). New regulations for the Code of Practice for Healthcare Associated Infections.

Department of Health. (2008). The Health and Social Care Act 2008 – Code of practice for the prevention and control of health care associated infections and related guidance.

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