



HEALTH AND WELLBEING BOARD 11th April 2019

Health Protection Assurance Report 2017/18 to 2018/19

Report of Cath McEvoy-Carr, Director of Adult Social care and Children's Services

Cabinet Member: Councillor Veronica Jones, Adult Wellbeing and Health

Purpose of report

To provide the Health and Wellbeing Board with information on and assurance of the health protection arrangements in Northumberland. This year's report highlights the impact of gastrointestinal illness and the systems in place locally to protect and improve public health in relation to this.

Recommendations

It is recommended that Health and Wellbeing Board:

- 1. Note the content of the report
- 2. To continue to work with Public Health England (PHE), Northumbria Healthcare NHS Trust (NHFT) and partners to promote infection prevention and control measures in education settings.
- 3. Acknowledge and support ongoing work to increase the uptake of immunisations.
- 4. Agree that there are no major concerns relating to health protection arrangements across Northumberland.

Link to Corporate Plan

Priorities of the corporate plan this report links to are:

Living: To ensure residents feel safe and well, robust health protection measures should be in place to both prevent and minimise risks that may harm health.

Enjoying: Standards of local services need to be high to prevent the spread of infectious disease, for example through infection and prevention control, food hygiene, and clinical governance.

Connecting: Emergency preparedness, response and recovery for environmental and chemical hazards, in addition to control and prevention of infectious disease are required to maintain access to work and education.

Learning: Education and training is required to ensure the workforce and individuals are able to take steps to protect health and minimise the risk of hazards.

<u>Key issues</u>

This report aims to provide assurance to the Health and Wellbeing Board that arrangements for health protection in Northumberland are appropriate and reflect the needs of the population.

The Director of Public Health (DPH) has responsibility on behalf of the Council for ensuring necessary arrangements are in place to plan for, prevent, mitigate and respond to hazards and risks to population health. The DPH is also responsible for the provision of advice and information, and to challenge and work with partners providing health protection arrangements in Northumberland.

This review of health protection arrangements for 2017/18 and 2018/19 provides continued assurance that there are no major concerns and that these functions are being delivered appropriately. Ongoing work is needed to address persistent inequalities relating to health protection activities.

Ensuring equitable uptake of screening and vaccination remains a priority in the county. Overall uptake is good, but there is variation between communities and providers. Further work is needed to increase and or/maintain the uptake of some preschool immunisations and influenza vaccination in some groups.

Gastrointestinal infections represent a significant burden to the population. Whilst often mild and self-limiting, they are easily spread among the population and create a burden for individuals, schools, employers and healthcare. Robust measures and systems are in place for the prevention and control of infection. An ongoing challenge is to ensure settings such as schools are aware of, and implement guidance to prevent and control the spread of illness.

DIRECTOR OF PUBLIC HEALTH ANNUAL HEALTH PROTECTION ASSURANCE REPORT 2017/18 AND 2018/19

Background

Introduction. The Director of Public Health (DPH) has a statutory responsibility for strategic leadership and oversight of health protection functions on behalf of the Council [1]. This includes planning and response to threats to public health such as infectious disease, environmental hazards and contamination, and extreme weather. The Health and Wellbeing board, through the DPH, should be assured that arrangements in place locally are sufficient, robust and implemented accordingly to protect public health. This report aims to provide assurance to the Health and Wellbeing board of health protection arrangements in place, with a specific focus on the burden and management of gastrointestinal illness in the county.

Scope of health protection assurance. Health protection is the domain of public health that seeks to prevent or reduce the harm caused by communicable diseases, and to minimise the health impact of environmental hazards such as chemicals and radiation, and extreme weather events. In the context of the DPH function, it is also extended to include national cancer and non cancer screening programmes.

Responsibilities

Responsibility for health protection is shared among a number of organisations:

- Local Authority. Through the DPH, the local authority is responsible for providing advice and information to individuals and organisations in preparing for and responding to risks to public health. The leadership role relates to the provision of health protection services for which the coordination and commissioning lies elsewhere. In addition, local authorities are responsible for protecting public health through environmental health functions.
- Public Health England (PHE). PHE has responsibility for national public health functions and as such, provides core services relevant to health protection. These include; surveillance of infectious disease and identification of clusters and outbreaks of illness; coordination and advice in response to cases, outbreaks and incidents; specialist advice for screening and immunisation programmes.
- NHS England. NHS England is responsible for commissioning screening and immunisation programmes in Northumberland. Along with the DPH, they also ensure local health services and the CCG have health protection plans and arrangement in place. NHS England also chairs the Local Health Resilience Partnership (LHRP), which feeds into the Local Resilience Forum (LRF) for emergency planning resilience and response (EPRR).
- Northumberland Clinical Commissioning Group (CCG). The CCG commissions treatment services important in the control of infectious disease, for example, services to treat and prevent the spread of tuberculosis.

Commissioned settings, such as hospital services, also require robust infection control policies to manage and prevent the spread of infection.

Follow up from the 2016/17 report

Influenza was a key focus in the 2017/18 report and priorities set out included increased vaccination coverage in specific groups.

- Flu vaccination increased among healthcare workers at Northumberland, Tyne And Wear NHS Foundation Trust and Northumbria Healthcare NHS Foundation Trust (NHFT) from 70% and 46% in 2017 to 72% and 62% in 2018 respectively [2].
- The proportion of eligible people receiving flu vaccination aged over 65, or under 65 and in a clinical risk group has fallen from 2017/18 although for the former, the actual number of people vaccinated was fairly similar (see Table 1). This reflects increasing need as the population aged over 65 increases, requiring further resource and increased numbers of vaccination. Further work is needed to increase uptake across groups in order to reach the WHO vaccination target of 75% and national targets [3,4]. The national target for 2 and 3 years olds of 48% was exceeded in Northumberland.
- During the 2018/19 season there were challenges to the provision of influenza vaccine in primary care due to a phased supply of the vaccine, as well as delays in the delivery of some vaccines. In addition, some GP practices underestimated the level of vaccine needed. In November, a relaxation of the Medicines and Healthcare products Regulatory Agency (MHRA) guidelines allowed redistribution of the vaccine between practices, which was supported by leads in NHS England. However, these challenges may have reduced vaccination coverage this season, despite the issues being recognised early in the 2018/19 season and mitigating actions.

	% (COUNT) SEASONAL FLU VACCINE COVERAGE						
NHS NORTHUMBERLAND CCG	65 and over Target: 75%	Under 65 (at-risk only) Target: 55%	Pregnant Target: 55%	2-4 year olds Target: 48%			
2018/19*	72.1 (57,389)	48.4 (19,460)	47.3 (1154)	49.2 (3074)			
2017/18	74.3 (57,745)	50.7 (20,368)	50 (1388)	51 (3118)			
2016/17	74.0 (53,061)	51.7 (19,124)	50 (2725)	46.3 (4,431)			
2015/16	73.5 (54,936)	48.2 (20,616)		44.5 (4,459)			
2014/15	75.2 (54,961)	54.0 (20,804)		45.3 (4,713)			

Table 1. S	Seasonal flu	vaccine u	ptake in	Northumberland	2014/15	- 2018/19
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* data for 2018/19 is provisional.

Source: Public Health England. Seasonal flu vaccine uptake in GP patients: monthly data, 2014/15 to 2018/19.

• NHS England held planning meetings with stakeholders throughout 2018 for the implementation of a programme to increase influenza vaccine uptake among pregnant women in GP services. An action plan has been developed and shared with NHFT. Uptake varies by practice best practice continues to be identified and shared to help address this variation.

- NHFT introduced the offer of vaccination through outpatient appointments for patients with liver disease, in addition to midwives offering influenza vaccination at antenatal appointments. This will be reviewed to identify barriers and facilitators to uptake.
- NHS England introduced a funded vaccination programme for care home staff. Care home staff in the county were able to access vaccination from their GP, pharmacy or employer. It is difficult to know the level of uptake in this group; although pharmacy data is monitored, it does not provide sufficient detail to evaluate this initiative. Regionally, there is ongoing work to share best practice in improving uptake and the council should continue to work with care home providers to seek assurance that staff are both offered and take up the offer of flu vaccination.
- All schools in Northumberland have provided vaccination data for 2018/19. Table 2 demonstrates uptake for seasonal flu vaccination by year group from September 2018 to January 2019. Northumberland had the second highest uptake of influenza vaccine in schools in the region [5].

Table 2.	Seasonal	flu	vaccine	coverage	in	Northumberland	schools	by	year	group
(2018/19)				_				-	-	

	% SEASONAL (SCHOOLS)	FLU VACCINE C			
RECEPTION	Year 1	Year 2	Year 3	Year 4	Year 5
76.8	75.7	73.9	73.3	71.2	70.6

Source: Public Health England. Seasonal flu vaccine uptake in children of primary school age: monthly data, 2018 to 2019.

Level of assurance

Screening programmes. Uptake of screening varies by area across the county. Uptake of the three cancer screening programmes (breast, cervical and bowel) in Northumberland are higher than both regional and national averages [6]. This masks inequalities between areas and work is ongoing to increase uptake and reduce inequalities through the Northumberland Cancer Strategy and action plan.

Non-cancer screening programmes in Northumberland are maintaining an acceptable threshold of activity. NHFT is a regional exemplar for the Newborn Infant Physical Examination screening programme. A recent quality assurance visit has taken place for the Abdominal Aortic Aneurysm Screening Programme, with results due to be published imminently.

Immunisation programmes. Generally the uptake of immunisations in Northumberland about the same or better than the England average although it also varies by local area and GP practice. The data suggests that shingles vaccination uptake rates in older adults have fallen over the period 14/15 to 17/18 although the numbers being vaccinated have increased. Changes to the eligibility criteria during 2017/18 will have affected this data collection though and it is possible that actually,

coverage increased from 2016/17 to 2017/18. Vaccination in this age group is important due to the increased risk of more severe illness and reactivation of the virus with age. Pneumococcal vaccination uptake in adults reduced from 2016/17 to 2017/18 but again, the data suggests that the numbers of individuals vaccinated increased. Cases of mumps spiked in Northumberland in 2017 at a rate of 15.8 per 100,000 population, which was significantly higher than the England average and previous years [9]. This links to an increased rate among young people aged 15-25 in the northern half of the North East region that year. This highlights the importance of good MMR vaccination coverage. In Northumberland, MMR vaccination uptake at two and five years is higher than the national average, however, further action is needed to meet the 95% population coverage required. An MMR steering group has been set up to lead on this work regionally.

Within the childhood immunisation programme, immunisation rates are generally either above the lower threshold of 90% or above the 95% standard but locally and nationally, uptake rates for many childhood immunisations are falling. Plans are in progress to increase the uptake of preschool boosters through work with practice nurses, information through the GP bulletin and improvements to data quality.

Vaccine coverage in girls in Year 9 remains above the standard of 90% but there is a downward trend. Recent work has been completed to evaluate the best method for increasing uptake and to understand parent and child attitudes. In 2019, there will be a change to the immunisation schedule, with HPV vaccination being introduced for boys as well.

Significant Incidents. There are three incidents of significance that have occurred since the last report; two national incidents and one local. The first national incident concerned the breast screening programme when a number of women were not invited for their final breast screen. Since 2009 approximately 5000 women across England were not invited for their screen [7]. An independent review was conducted and published in December 2018, which makes a number of recommendations for PHE, the Department of Health and Social Care and the NHS regarding clarity around when women are invited for their final screen, technical processes and governance.¹

A further national incident regarding cervical screening was declared in October 2018, when it came to light that 43,220 women over the period January- June 2018 had not received their invitation or reminder to attend for screening [8]. A further 4508 did not receive their results letter. NHS England is undertaking an independent review of this incident.

The local incident concerned school based immunisations when it came to light that children in some alternative education providers may not have been offered these immunisations. A look back exercise was conducted to identify children who had not been offered vaccination and a catch up programme put into place.

¹ <u>https://www.gov.uk/government/publications/independent-breast-screening-review-report</u>

EPRR. The Northumbria LRF is in place to prepare, plan, and respond to emergencies in Northumberland and Tyne and Wear, in addition to supporting recovery. Potential hazards are identified through the community risk register which was last published in 2016 [10]. In Northumberland, hazards of significance include flooding, animal disease, pandemic influenza, industrial accidents and adverse weather. Northumberland County Council has an Emergency Community Assistance plan in place which is reviewed annually by the local civil contingencies team [11]. It outlines responsibilities in relation to the Civil Contingencies Act 2004, in addition to the role of council departments. The North East PHE health protection team and emergency planning manager at PHE supports the mobilisation of national specialists at a regional level, including the Centre for Radiation, Chemical and Environmental Hazards.

The LHRP is facilitated across Northumbria and Durham. In 2017 an audit of the group took place as part of a quality assurance exercise requested nationally by PHE, NHS England and the Association of Directors of Public Health. The findings of this audit are being reviewed by the LHRP, with a plan to add improvements to the work plan as required [12].

Communicable disease control. There continues to be strong working arrangements and relationships in place between health protection staff at PHE, Public Health and Public Protection teams in the council and NHS staff. Outbreaks and incidents of significance in 2018 include a hepatitis A incident in a school and a cluster of cryptosporidium cases associated with a leisure centre pool. Communication between agencies is key to enable an effective response that prevents further spread and risk to public health. This is managed through council participation in outbreak control meetings, regular updates on specific issues, and regular multi-agency meetings.

FOCUS ON GASTROINTESTINAL INFECTIONS

Background

Gastrointestinal (GI) infections are common, with one in five people in the UK experiencing GI infection annually [13]. GI infections can be caused by bacteria, viruses and other organisms. Depending on the pathogen, they can spread as a result of environmental sources (e.g. the air or by touching contaminated surfaces), foodborne sources or from person to person.

Whilst unpleasant, many GI infections are mild and self-limiting and can be treated with self-care at home. However, some infections, such as E.coli 0157 can cause serious and life-threatening illness in some vulnerable groups. Furthermore, outbreaks of GI infection can place a significant burden on health and social care services, and impact on workplace and school absence.

This report will review information on GI infections in Northumberland and provide an overview of systems in place to prevent and control their spread.

Burden of GI infection

The burden of GI infection in the UK is substantial. One study identified a prevalence of 17 million GI infections annually [14]. Whilst this may have declined since the study was published in 2012 because of interventions such as the introduction of routine rotavirus vaccination, notable GI infections and their incidence are summarised below.

Norovirus is the most common cause of GI infection, responsible for 3 million infections in the UK annually [15]. It can occur throughout the year, but its occurrence is most frequent in winter. It is extremely contagious and as such can have a significant impact on settings such as schools, care-homes, and hospitals. Surveillance systems are in place to monitor the burden of norovirus nationally and regionally through PHE. Viruses are responsible for many GI infections but illness is often short-lived and therefore may not be reported to healthcare services [14].

The most common bacterial GI infection is **campylobacter**. Campylobacter lives in the gut of farm animals and pets. People can become unwell with campylobacter as a result of eating raw or undercooked meat, unpasteurised milk or through contaminated water or food [16] so prevention needs to take place at each stage of meat production and within the home. The rate of campylobacter infections is significantly higher in Northumberland than the national rate at 130 infections per 100,000 population in 2017 compared to 97/100,000 in England [17].

Giardia can cause human illness as a result of direct contact with infected humans or animals, or through contaminated food and water. It is also frequently associated with foreign travel. In 2017, it was the second most reported infection in Northumberland. The rate per 100,000 persons was 14.2 which was significantly higher than the England rate of 8.5 [17]. Giardia infections have increased in the North East since 2012. This rise is thought to be due to improved detection through the introduction of increased testing and new laboratory techniques [18]. In 2017, 12% of cases in Northumberland were associated with foreign travel, compared to 36% cases in the North East [18]. This suggests that in Northumberland, a greater proportion of people who are ill as a result of giardia were exposed to the infection locally, compared to other areas.

Salmonella food poisoning is the third most common bacterial GI infection in Northumberland and the second most common regionally [17]. The rate of salmonella food poisoning is lower in Northumberland than the rate for England at 12.7/100,000 persons compared to 15.6/100,000 in 2017 but this difference is not statistically significant [17]. Despite salmonella's lower incidence than campylobacter, it is responsible for a higher proportion of hospital admissions nationally [19]. Each case of salmonella food poisoning is investigated by the PHE health protection team and council Environmental Health Officers (EHOs).

STEC (Shiga toxin-producing Escherichia coli) serogroup O157 is an important cause of GI infection as approximately 5% of cases go on to develop serious and severe complications that can sometimes be fatal [17]. Infants, young children and the elderly are particularly vulnerable. STEC O157 can occur through contact with animals or their faeces, contaminated food or water, or as a result of person to person infection. Incidence of STEC O157 is low in comparison to other GI infections

so rates are looked at over 5 years. From 2012-16, the rate of STEC O157 was 1.6/100,000 in Northumberland, which was about the same as the England rate. There were no outbreaks of STEC during 2017[17].

Death as a result of intestinal infection is rare but highest among older age groups. Of all deaths in the over 70's diarrhoeal illness accounts for just 0.22% deaths. In 2017, there were 12.79 deaths per 100,000 persons aged over 70 in Northumberland [20], about the same as the UK rate.

The data presented is likely to represent just a fraction of the true burden of illness caused by gastrointestinal infection. This is because many infections are mild so many people will self-care at home, or if they do present to healthcare, specimens may not be taken and sent to the laboratory for confirmatory testing [14]. Further information on bacterial causes of GI infection is available through PHE's Health Protection Profile.²

The economic burden as a result of GI infection is also substantial. Norovirus, campylobacter and rotavirus in the UK is estimated to cost in excess of £150 million annually to individuals and healthcare services. Most costs are borne by individuals due to loss of earnings [15]. Norovirus is the costliest GI infection estimated to be in excess of £80 million annually [15].

Outbreaks

In 2018, among the 70 registered care homes in Northumberland, there were 44 outbreaks of diarrhoea and vomiting, one more than in 2017. Among Local Authorities North of Tyne, 33% of these outbreaks were laboratory confirmed Norovirus as the cause. However, the true proportion is likely to be higher as not all care homes submit samples for microbiological testing. Norovirus is the most common cause of GI infection in care homes and is associated with excess mortality among elderly populations [21]. When an outbreak is confirmed, care homes close to admissions, discharges and transfers which can increase pressure on individuals, families and hospitals. Prompt closure is associated with outbreaks of shorter duration [21] and the CQC require care homes to notify PHE of a suspected outbreak.

Regionally, care homes are the most frequent setting for outbreaks of GI infection. This also demonstrates how quickly GI infection can spread in this kind of setting and the need for robust infection control measures to limit the spread of infection. Outbreaks in care homes and hospital settings are closely monitored due to the vulnerability of residents and patients. Levels of illness in settings such as schools may be higher, but could be underreported. Figure 1 provides a summary of GI outbreaks across the North East by setting from mid 2017 to Feb 2019.

Figure 1: All reports of suspected or confirmed gastrointestinal illness outbreaks in the North East by setting, week and year since week 27, 2017 to week 9 2019.

² <u>https://fingertips.phe.org.uk/profile/health-protection</u>



Source: Public Health England. Protecting the population of the North East from communicable disease and other hazards. Annual Report 2017/18

From 01/2016 to 02/2019, 14 outbreaks of GI illness in schools in Northumberland were reported to PHE. Schools are not required to notify PHE of outbreaks, so the actual number is likely to be higher.

Outbreaks can also occur in hospitals and may result in ward closure and impact on patient flow within the hospital due to the control measures that need to be taken. Furthermore, as norovirus and influenza both peak in the winter months, they add significant pressure to both the community and hospital healthcare systems. In 2017, NHFT experienced a higher than usual incidence of norovirus among patients with peaks of over 25 reported cases in weeks 38, 41, and 51. During 2018, much lower levels were seen throughout the Trust (see Figure 2).

Figure 2. Number of norovirus positive specimens over weeks 35 - 52 in Northumbria Trust (2016/17 - 2018/19).



Source: Northumbria Healthcare NHS Foundation Trust, 2019.

Prevention and control measures

Care homes. When a care home notices a higher than normal level of diarrhoea and vomiting among residents they notify PHE. Key control measures include increased environmental cleaning, hand hygiene, personal protective equipment for staff, isolation of those affected if possible and monitoring the spread of illness. The aim is to prevent the spread of infection to other care homes and hospitals, so during an outbreak the home closes to admissions, discharges and transfers. EHOs, hospital and community infection control nurses are routinely informed about outbreak. The home must be free of symptoms for 48 hours before it can reopen.

To limit the spread of infection, illness among staff is also monitored. Staff with symptoms of illness should remain off work until 48 hours after their symptoms have resolved. The "48 hour rule" refers to the time period after symptoms have resolved within which a person may remain infectious.

The majority of care home outbreaks are due to norovirus. However, at the start of an outbreak the home is risk assessed and if it appears the spread of infection is more indicative of another type of infection, for example food poisoning, PHE will work closely with council EHOs to identify the potential source of infection and put in control measures to improve food hygiene and safety.

In addition, care homes are provided with specimen pots for faecal samples to be collected. This enables identification of the pathogen, which in turn supports management and surveillance of GI infections.

Schools. A resource pack is available to schools to help them respond and manage outbreaks of infectious illnesses including GI infection. Schools, like care homes, can be supported by PHE. The same principles of prevention apply. Food borne infection is ruled out through initial risk assessment and then special attention is given to increased environmental cleaning and hand hygiene. Exclusion of symptomatic staff and pupils until 48 hours after symptoms have cleared is vital to prevent ongoing spread of infection and continuation of the outbreak. Enquiries to PHE indicate there may be variations in implementing this policy due to the focus on improving attendance since schools are assessed on level of attendance among pupils by Ofsted [22]. In guidance set out by DfE, schools should authorise absence due to illness, but can request medical evidence where authenticity is in doubt [23]. If pupils attend school whilst still infectious though, levels of absence may increase through further spread of infection. Schools should be encouraged to follow PHE guidance surrounding the 48-hour rule.

In addition to support during outbreaks, infection control nurses from NHFT have offered further support to schools during 2018, through the provision of hand hygiene education for pupils and teachers of KS1 and KS2. During the year, 38 schools in Northumberland responded to this offer and 1521 children in KS1/EYFS and 315 in KS2 were reached through the initiative. School nurses are now encouraged to be link practitioners for infection control and are invited to attend quarterly meetings to network and discuss infection control. Further training has also been provided to school nurses supporting special schools with more specific needs.

Hospitals. NHFT has a policy in place for the management of outbreaks of diarrhoea and vomiting. This policy clearly sets out the process for identifying and managing an outbreak, including responsibilities and control measures to be taken.

Following the increased incidence of norovirus and outbreaks in 2017, the Trust sought external assurance from a national subject matter expert on its management of outbreaks. NHFT's responses were described as rigorous and appropriate, and practice as exemplary. NHFT has since proactively taken steps to help prevent and control the spread of norovirus in 2018/19. Winter planning continued throughout the year involving management teams, infection control nurses and microbiologists. Through the peak season, meetings were held twice weekly to monitor and review the situation. Communications increased, including a summary of activity circulated twice a day and daily contact with care homes was undertaken.

During the 2018/19 winter season, visiting hours were restricted to reduce exposure to illness circulating in the community. Previously, this would only occur following an outbreak, but in taking in a proactive approach during the peak time of illness, it is expected that the spread of illness to the hospital has reduced. Visiting times were reduced to twice daily for one hour and patients provided with alternative methods for contacting relatives, such as mobile phones or iPads.

Environmental cleaning following the identification of norovirus has become more effective by using a hydrogen peroxide vaporiser. This is a time-consuming process and can take 5-6 hours before the bay or room is ready again for use by patients and staff. It is also logistically difficult as bays of up to 6 beds need to be vacated.

However, the time and process is seen as necessary if it prevents further illness and the closure of hospital wards.

Prevention of Foodborne and Environmental GI infection

The Public Protection Unit and Business Compliance and Public Safety Unit of Northumberland County Council have a lead role in the prevention and management of foodborne illness. Their work includes food safety, food standards, port health, animal health, feed hygiene and infectious disease control.

Work to protect health through the prevention of foodborne illness is achieved via a number of methods including visits to food businesses undertaking full and partial inspections and audits in line with Food Law Code of Practice issued by the Food Standards Agency (FSA). Investigation and control of foodborne diseases includes food poisoning outbreaks, sampling of food for microbiological contamination and standards compliance, responding to and investigating food and premises complaints, in addition to 'food alerts' received from the FSA.

In 2017/18 the Public Protection Unit were notified of 595 cases of infectious disease via PHE. Of these cases, 396 were confirmed as campylobacter infections for which postal information is sent to affected individuals. A further 340 cases were reported with salmonella, cryptosporidium, and E. coli. These cases were contacted by EHOs and trawling questionnaires developed by PHE were used to obtain information from affected cases.

Members of the public are also able to contact the Public Protection Unit to submit complaints or concerns about food hygiene, premises and standards. In 2017/18, 359 complaints of this nature were received which was a 10% increase on the previous year. A challenge faced with regards to food complaints is often due to timescale. For instance, the incubation period for common food borne pathogens can be days or sometimes weeks therefore it is unlikely that any remaining food samples can be obtained for analysis. Many cases relate their illness to food most recently consumed so it is important to obtain faecal samples and detailed history of food, travel and other potential exposures to help identify the source of the illness and prevent further illness. The incubation period for salmonella is usually 12 to 36 hours, for campylobacter 2 to 5 days and for E. coli usually 3 to 4 days [24] so illness may not always correlate to the meal that was last eaten. In addition to ensuring that safe hygiene practices in commercial premises are in place, education for individuals is often required to prevent illness from poor handling, storage and incorrect cooking in a domestic setting.

Outbreaks as a result of food poisoning or environmental exposure

Outbreaks of GI infection as a result of food exposure or an environmental exposure, such as a farm visit or through contaminated water, may either be identified through a complaint via environmental health, or via the detection of a cluster of cases linked by time and place, through surveillance of GI infections. In this instance an outbreak control team (OCT) may be convened by PHE. Membership of the OCT would include the DPH, EHOs from the relevant local authorities, microbiologists, and other pertinent health professionals. It would be the responsibility of the OCT to investigate

the source of the outbreak and co-ordinate control measures to prevent further spread and mitigate risk to the general public. The OCT may meet either in person or via teleconference on a number of occasions to discuss progress until PHE is satisfied that the outbreak is over and all risk factors have been satisfactorily removed or controlled.

Challenges moving forward

"**Presenteeism**", when employees continue to work despite illness risk increasing the spread of GI illness [25]. Policies and contracts should be conducive to supporting staff to remain off work whilst unwell and until clear of symptoms as per public health guidelines. In the case of general GI illness this would be 48 hours clear, but may be longer for specific GI infections depending on risk in relation to job role and type of infection [24]. One study found that almost a third of food handlers in the UK returned to work before being 48 hours clear of symptoms[26]. It is important the 48 hour rule is recognised across sectors including social care, education and healthcare as a way of preventing the spread of further illness.

Environmental health officers identified the need for **education on food hygiene in domestic settings** to help prevent foodborne illness. A number of risk taking activities among the public have been identified including not washing hands after handling raw meat and serving meat that is on the turn [26]. Individuals affected by foodborne illness are given advice to prevent infection in future. Food and nutrition is included in the Design and Technology curriculum for schools but does not explicitly reference food hygiene [27]. Going forward, public health and protection teams may wish to seek assurances that food education includes provision for the safe storage, handling and cooking of food to prevent food-borne illness.

A range of legislation and regulation that support health protection work, for example air quality, food standards, radiation and chemicals, is drawn from **EU legislation** [28]. The impact of exiting the EU on legislation pertinent to health protection will need to be monitored and understood to ensure action is taken as necessary to mitigate hazards and protect public health.

Priorities for 2019/20

To support PHE to work with schools to impress the importance of infection and prevention control in educational settings.

Public Protection will continue to work with lower rated premises to improve compliance with food hygiene standards and will investigate outbreaks and infectious disease notifications as a priority.

Lessons learned from any outbreaks or incidents in the coming year will continue to be used to inform practice for the prevention of GI illness.

Conclusion

Based on data available, this report is able to provide a reasonable level of assurance that the appropriate health protection measures are implemented within Northumberland. There are no major concerns regarding provision, though ongoing

work is needed to address persistent inequalities related to health protection. Furthermore, working with partners, promotion of infection prevention and control measures, including food hygiene education and exclusion following illness of diarrhea and vomiting are required across settings, including within the education sector.

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BACKGROUND PAPERS

There are no background documents for this report within the meaning of the Local Government (Access to Information) Act 1985.

IMPLICATIONS ARISING OUT OF THE REPORT

Policy:	There is no national policy on how the statutory health protection assurance function is to be achieved. A comparison with other areas indicates that a range of approaches has been taken which vary in complexity. The DPH has chosen not to pursue the introduction of a more formal Health Protection Board to review plans and processes in this area. Any concerns which require escalation will be addressed through normal working arrangements.
Finance and value for money:	Finance and value for money implications will only arise if health protection shortfalls are
	identified which require additional resources.
	None have been identified in this report.
Legal:	The assurance review confirms that NCC and its partners are meeting their legal responsibilities under the various acts governing their health protection responsibilities.
Procurement:	None identified.
Human Resources:	Staffing capacity has reduced in the majority of organisations involved in the health protection function. Although the general perception of system leaders is that this has not impacted upon the management of incidents and emergencies, there has been increased pressure on organisations' abilities to undertake preventative and strategic work, particularly non-statutory

	responsibilities.
Property:	No direct implications identified
Equalities: (Impact Assessment attached)	
Yes No N/A x	
Risk Assessment:	The assurance process is designed to ensure that system risks are identified and mitigated against through existing governance arrangements, planning and the exercise of health protection functions.
Crime & Disorder:	No direct implications identified
Customer Considerations:	No direct implications identified
Carbon Reduction:	No direct implications identified
Wards:	All

Report sign off

Finance Officer	N/A
Monitoring Officer/Legal	LH
Human Resources	N/A
Procurement	N/A
I.T.	N/A
Executive Director	CMC
Portfolio Holder(s)	VJ

Louise Sweeney - Specialty Registrar in Public Health Tel: 01670 620111 Email: louise.sweeney@northumberland.gov.uk