

AGENDA ITEM

REPORT TO HEALTH AND WELLBEING BOARD November 2018

REPORT OF DIRECTOR OF PUBLIC HEALTH

HEALTH PROTECTION REPORT 2017-18

SUMMARY

This annual Health Protection Report is report on key issues and indicators reports on key issues and indicators for Health Protection for 2017-18 and to assure the Health and Wellbeing Board that appropriate systems, processes and programmes are in place to protect the health of the local population.

RECOMMENDATIONS

1. The Stockton-On-Tees Health and Wellbeing Board are asked to note the annual Health Protection report and to consider any implications on the health and wellbeing of the population and health inequalities.
2. It is recommended that this report is circulated to relevant partnership groups for consideration.

DETAIL

1. Health protection seeks to prevent or reduce the harm caused by communicable diseases and minimise the health impact from environmental hazards such as chemicals and radiation. As well as major programmes such as the national immunisation programmes and the provision of health services to diagnose and treat infectious diseases, health protection involves planning, surveillance and response to incidents and outbreaks.

Health protection arrangements

2. Local authorities have a critical role in protecting the health of their population, both in terms of planning to prevent threats arising and in ensuring appropriate responses when things do go wrong. The DPH is responsible for the local authority's contribution to health protection matters, including planning for and response to incidents that present a threat to the public's health. To carry this out, they liaise closely with the specialist health protection expertise available in Public Health England (PHE).
3. PHE has a responsibility to deliver the specialist health protection response, including the response to incidents and outbreaks, which is carried out through the Health Protection Team in the North East PHE Centre. These roles are complementary and both are needed to ensure an effective response. In practice this means that there must be early and ongoing communication between the PHE

Centre and DPH regarding emerging health protection issues to discuss and agree the nature of response required and who does what in any individual situation. Environmental health is supporting the investigation and management of food borne outbreaks.

4. The local health protection system therefore involves the delivery of specialist health protection functions by PHE and local authorities providing local leadership for health. In practice, local authorities and PHE work closely together as a single public health system. This joint working with clarity of responsibilities between them is crucial for the safe delivery of health protection.

Delivering health protection

5. There are four key components to the work of protecting the health of the population: prevention, surveillance, control and communication. All agencies have major roles in each of these components.
6. **Prevention** in communicable disease control is exemplified by immunisation but includes a wide range of activities such as promoting safe sex to prevent sexually transmitted diseases and needle exchange programmes to prevent transmission of hepatitis B and C in people who inject drugs. There is also a key role for Environmental Health teams within the local authority in several areas, including for example, food safety. For other hazards such as chemical incidents, prevention is about planning for incidents and emergencies and co-ordinating exercising and training.
7. **Surveillance** is dependent both on the system of disease notification from registered medical practitioners and on organism reporting from hospital laboratories plus a number of other information flows. Effective surveillance systems are essential in identifying trends and outbreaks and monitoring the outcome of control actions.
8. **Control** relates to the management of individual cases of certain diseases to minimise the risk of spread and the specific actions taken to control an outbreak of infectious disease. For other hazards or threats, advice can be provided to agencies co-ordinating the response, in particular on public health risk assessment and actions to protect the public.
9. **Communication** underpins prevention and control and includes the production of routine and ad hoc reports; the networks and groups to which all those involved in health protection contribute; proactive and reactive communications to the media and the communications response in urgent and emergency situations.

Prevention

Awareness, information and training

10. Public Health England provides offers information and resources on a range of topics including infection control, microbial resistance, seasonal health including winter health and flu immunisation, sexual health including HIV, Hepatitis B and C.
11. The environmental health team provides food training across a range of levels including catering courses, hygiene awareness and allergen training

Immunisation and vaccine preventable disease

12. Immunisation remains one of the most effective public health interventions for protecting individuals and the community from serious diseases. The national routine childhood immunisation programme currently offers protection against a wide range of vaccine preventable infections. In addition to the routine childhood programme, selective vaccination is offered for specific age groups (e.g. flu vaccination for children aged 2-9 years and people over 65 years) and patients with underlying medical conditions or risk factors.
13. NHS England is responsible for commissioning local immunisation programmes. Screening and Immunisation Teams employed by PHE Centres and embedded in NHS England provide local leadership and support to providers in delivering improvements in quality and changes in the programmes. The Screening and Immunisation Teams are also responsible for ensuring that accurate and timely data is available for monitoring vaccine uptake and coverage.
14. PHE Centres lead the response to disease outbreaks of vaccine preventable disease and provide expert support and advice to the SITs.
15. Directors of Public Health are responsible for providing independent scrutiny and challenging the arrangements of NHS England, PHE and providers
16. The Joint Committee on Vaccination and Immunisation (JCVI) has updated the national immunisation schedule twice in 2018. Changes in 2018 include the extension of the child flu vaccination programme to children in year 5, the introduction of the quadrivalent flu vaccine for health and social care staff, the introduction of a new flu vaccine for older people and the introduction of a new vaccine for infants including Hep B for children born after September 2017. (see Immunisation Schedule in Appendix)

Childhood immunisations

17. Vaccine coverage rates in for children aged 12 months in Stockton were above the national and similar to the regional average. Uptake in the North East for the routine childhood immunisation programme remains amongst the highest in England.

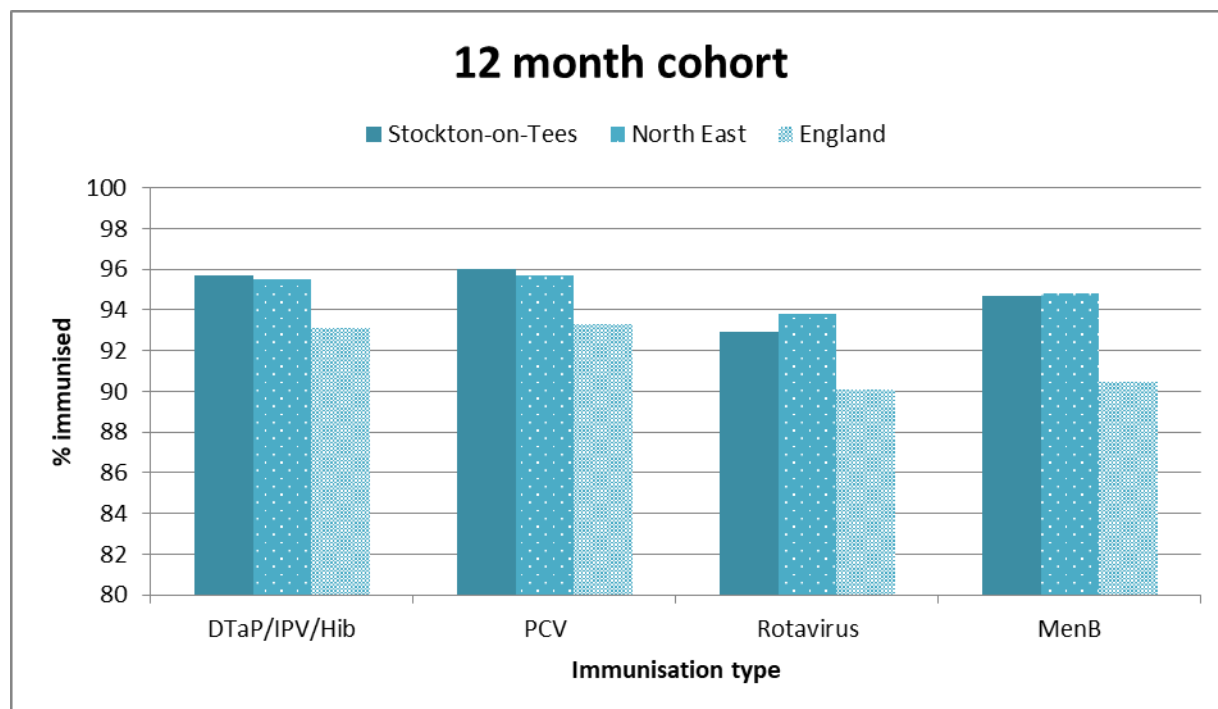


Figure 1 Vaccination coverage rates for children aged 12 months for 2017/18

12 month cohort	Stockton-on-Tees		North East	England
	Number	%	%	%
DTaP/IPV/Hib	2,156	95.7	95.5	93.1
PCV	2,163	96.0	95.7	93.3
Rotavirus	2,094	92.9	93.8	90.1
MenB	2,133	94.7	94.8	90.5

Table 1 Vaccination coverage rates for children aged 12 months for 2017/18

DTaP	Diphtheria, tetanus and acellular pertussis
IPV	Inactivated polio vaccine
Hib	Haemophilus influenzae type b
MenC	Meningitis C
PCV	Pneumococcal conjugate vaccine
MMR	Measles, mumps and rubella
MenB	Meningococcal Group B

18. Vaccine coverage rates in for children aged 24 months in Stockton were above the national but below the regional average.

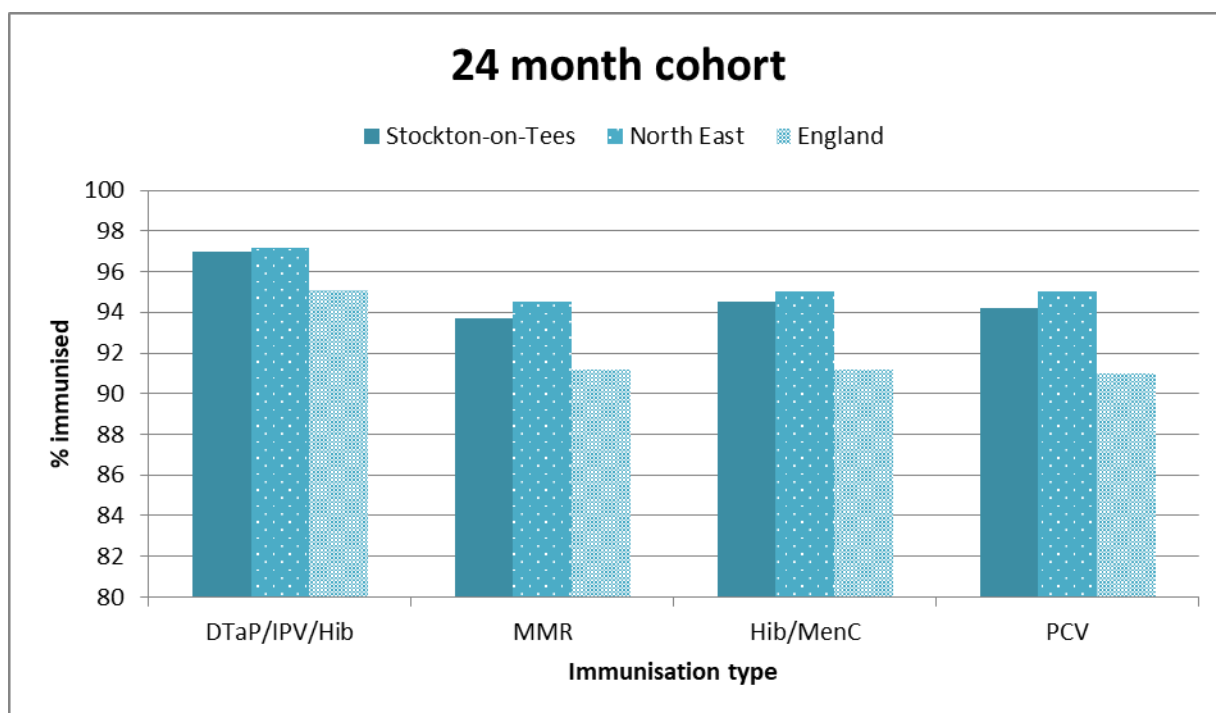


Figure 2 Vaccination coverage rates for children aged 24 months for 2017/18

24 month cohort	Stockton-on-Tees		North East	England
	Number	%	%	%
DTaP/IPV/Hib	2,178	97.0	97.2	95.1
MMR	2,103	93.7	94.5	91.2
Hib/MenC	2,122	94.5	95.0	91.2
PCV	2,114	94.2	95.0	91.0

Table 2 Vaccination coverage rates for children aged 24 months for 2017/18

19. Vaccine coverage rates in for children aged 5 years in Stockton were above the national and regional averages.

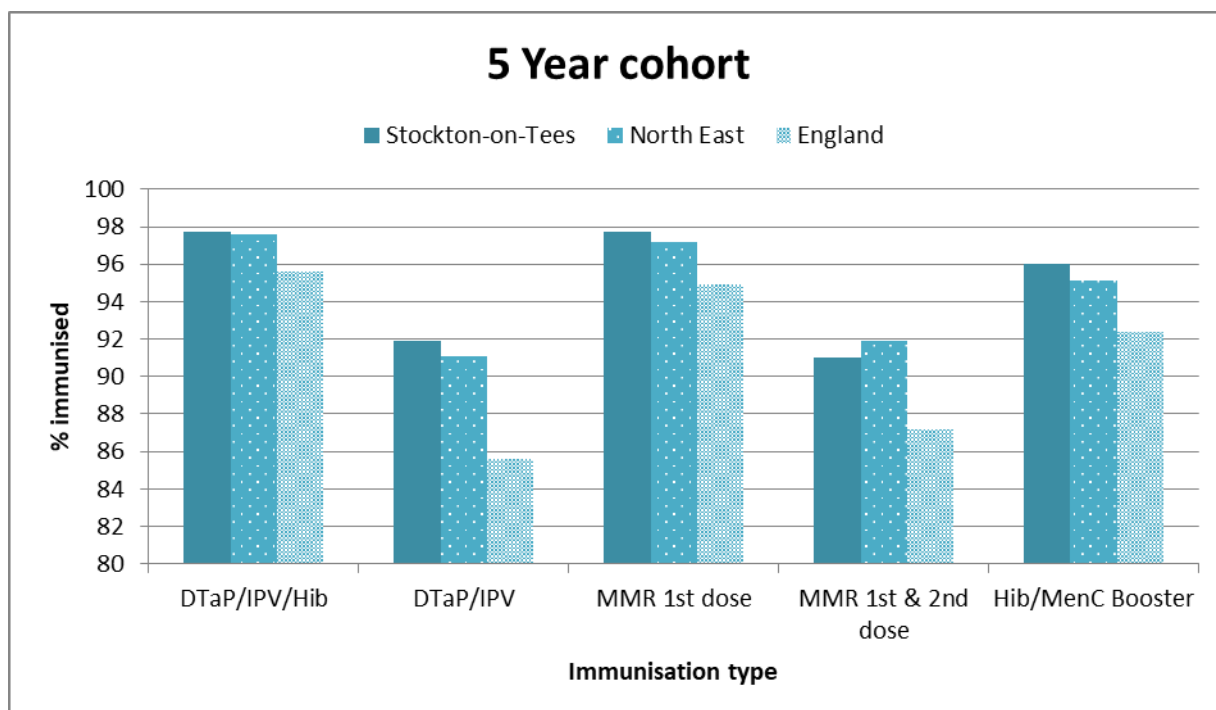


Figure 3 Vaccination coverage rates for children aged 5 years for 2017/18

5 year cohort	Stockton-on-Tees		North East	England
	Number	%	%	%
DTaP/IPV/Hib	2,474	97.7	97.6	95.6
DTaP/IPV	2,327	91.9	91.1	85.6
MMR 1st dose	2,474	97.7	97.2	94.9
MMR 1st & 2nd dose	2,305	91.0	91.9	87.2
Hib/MenC Booster	2,431	96.0	95.1	92.4

Table 3 Vaccination coverage rates for children aged 5 years for 2017/18

Control - specific diseases

Gastroenteric disease

20. Stockton Borough has seen the following cases of disease in 2017/18: campylobacter is the most frequent cause of bacterial food poisoning, typically affecting several hundred individuals per year (274) in Stockton-on-Tees. Other bacterial causes of gastroenteric disease are less common and trends are difficult to comment on at local level due to the relatively low numbers and hence often significant fluctuation in rates (for small amounts of cases) from year to year.

Gastroenteric disease 2017/18					
	Stockton-on-Tees		North East		England
	n	rate	n	rate	rate
Salmonella enteritidis	10	5.1	126	4.8	4.1
Salmonella typhimurium	<5	<5	111	4.2	3.6
Salmonella other	9	4.6	168	6.4	8.5
Escherichia coli o157	<5	<5	39	1.5	1.0
Campylobacter	274	140.0	3457	131.1	98.8
Cryptosporidium	11	5.6	288	11.3	7.3
Giardia	25	12.8	298	11.3	8.8
Shigella	<5	<5	48	1.8	3.5

Table 4 Numbers and incidence (annualised rate per 100,000 population) of selected gastroenteric diseases/organisms for 2017/18

Note: All rates calculated from mid-2016 population estimates from ONS

Vaccine Preventable Disease/ Exanthema

21. In 2017/18, there were no confirmed case of measles, 7 confirmed cases of Mumps and no confirmed cases of rubella in Stockton-on-Tees, it is important to maintain MMR vaccination rates to ensure there are no future cases. There was a higher rate than normal rate of mumps in Q2 2017/18, where there were 5 confirmed cases; this was also an issue for the North East, where there were 194 confirmed cases.
22. Whooping cough (pertussis infection) can be particularly dangerous in small infants and this is why, following an upsurge in cases a few years ago, a programme of vaccination in pregnant women has been introduced in recent years in order to try to prevent transmission to the most vulnerable. There were fewer than 5 confirmed cases of whooping cough in Stockton.
23. Meningococcal disease can be particularly serious and often causes much anxiety amongst parents. Rates have been falling in recent years and with the introduction of new vaccination programmes to include both serogroups B and W for certain age groups, it is hoped this can be controlled even further. There were fewer than 5 confirmed case of meningococcal disease in 2017/18 in Stockton.

Vaccine preventable disease						
		Stockton-on-Tees		North East		England
		n	rate	n	rate	rate
Measles	confirmed	0	0	5	0.2	0.6
	reported	20	10.2	139	5.3	-
Meningococcal disease	confirmed	<5	<5	28	1.1	1.8
	reported	5	2.5	55	2.1	-
Mumps	confirmed	7	3.6	285	10.8	0.9
	reported	47	24.1	1056	40.1	-
Rubella	confirmed	0	0	<5	<5	0.2
	reported	0	0	18	0.7	-
Whooping cough	confirmed	<5	<5	148	5.6	3.3
	reported	14	7.2	323	12.3	-

Table 5 Number and incidence (annualised rate per 100,000 population) of cases of common vaccine preventable diseases and other exanthema reported in 2017/18

Note: All rates calculated from mid-2016 population estimates from ONS

Other selected organisms

24. There were no cases of Hepatitis A or listeria in Stockton-on-Tees in 2017/18, but there were 17 cases of Hepatitis B, 9 cases of Hepatitis C and <5 cases of Legionella. Key elements of protection against Hepatitis are provided though Hep A and B immunisation programmes of at risk groups and needle exchange programmes via local drug services. Legionnaires' Disease is an uncommon, though potentially serious, infection transmitted via droplets from poorly maintained water systems. Business operators who use cooling towers and evaporative condensers have a duty to report these to the local authority so a register of all such industrial units can be maintained. This may be useful in the investigation of cases, clusters and outbreaks of Legionnaires' Disease.

Other organisms					
	Stockton-on-Tees		North East		England
	n	rate	n	rate	rate
Hepatitis A	0	0	5	0.3	1.7
Hepatitis B	17	8.7	149	7.5	21.2
Hepatitis C	9	4.6	286	14.5	28.6
Legionella	<5	<5	14	0.7	0.5
Listeria	0	0	7	0.4	0.2

Table 6 Numbers and incidence (annualised rate per 100,000 population) of other selected diseases/organisms for 2017/18 Note: All rates calculated from mid-2016 population estimates from ONS

Tuberculosis

25. In 2017/8 there were a total of 5 TB cases reported in Stockton-on-Tees at a rate of 2.5 per 100,000. North East rate of 4.2 per 100,000 (published figure for 2017). The North East in general is a low incidence area for TB. England saw 5102 cases in 2017 at a rate of 9.2 per 100,000, so approximately double the North East rate. This is a steady reduction from 2011 when 8780 cases at 15.6 per 100,000 were reported. (For comparison purposes you may want to use published data for Stockton, in 2017 there were 7 cases, rate of 3.6 per 100,000 population. A 3-year average rate of 5.3 based on 10.3 cases on average 2015,16,17)

Sexual Health

26. All sexually transmitted infection (STI) rates in Stockton were lower than the North East average. Chlamydia infections were most common with 661 cases, followed by genital warts with 137 cases and gonorrhoea with 118 cases. There were 112 cases of genital herpes and 14 cases of Syphilis in 2017.

Other organisms					
	Stockton-on-Tees		North East		England
	n	rate	n	rate	rate
Gonorrhoea	118	60.2	1777	67.4	78.8
Chlamydia	661	337	9432	358	361
Syphilis	14	7.1	202	7.7	12.5
Genital warts (first episode)	137	69.9	2750	104.3	103.9
Genital herpes (first episode)	112	57.2	1538	58.3	56.7

Table 7 Number and incidence per 100,000 population of cases of common sexually transmitted infections reported in 2017

Control - outbreaks

Care home outbreaks

27. Outbreaks of illness are relatively common in the care home setting. These are typically viral outbreaks with person to person spread in a closed setting. As can be seen in Table 8, there were 22 such outbreaks in 2017/18 in Stockton-on-Tees.

Year	Month	Stockton-on-Tees	North East
2017	April	2	33
	May	1	18
	June	1	18
	July	1	18
	August	1	17
	September	2	22
	October	3	17
	November	1	29
	December	4	39
2018	January	3	32
	February	1	42
	March	2	45
Total		22	330

Table 8 Number of gastrointestinal outbreaks in care homes by month and Local Authority

28. The causative organism in care home outbreaks is most commonly norovirus (the vast majority of outbreaks), though other viral causes such as rotavirus, astrovirus and sapovirus can be seen. However, it is often the case that no organism is identified, either because samples could not be obtained or they did not test positive in the laboratory. There can be occasional outbreaks linked to food production such as from *Clostridium perfringens* or *Salmonella*.

Emergency preparedness, resilience and response (EPRR)

29. Emergency planning aims, where possible, to prevent emergencies occurring and when they do occur good planning should reduce, control or mitigate the effects of the emergency. It is a systematic and ongoing process which should evolve as lessons are learnt and circumstances change.

30. It is the responsibility of the local authority to prepare emergency plans to detail its response to a major incident or emergency.

31. The Major Incident Response Plan has been reviewed and updated for 2018 in accordance with Section 5 of Emergency Preparedness – Guidance on Part 1 of the Civil Contingencies Act (2004), its associated Regulations and non-statutory arrangements.

32. The plan aims to allow for flexible management and adaptability to a wide range of circumstances. In addition it provides a means of coordinating the activities of all council staff and partners engaged in responding to major emergencies such as to

provide support to initial responder, maintain essential services and lead on post incident recovery.

33. The authority continues to meet its duties under the Control of Major Accident Hazard Regulations (2015) relating to the chemical industry.
34. A Cleveland Incident Recovery Plan details the mechanisms and protocols by the Local Resilience Forum in the event of an incident requiring a restoration phase. Local authorities will normally lead the recovery process. Recovery training and exercises for SBC have been led by the Emergency Planning Unit
35. The council is represented on multiagency planning and strategic groups such as the Cleveland Local Resilience Forum (LRF). The LRF coordinates the multi-agency planning, training and exercising in relation to a range of threats identified in their community risk register.
36. Training and exercising have been undertaken both internally within the authority and as part of the wider LRF arrangements.
37. There have been no major incidents in Stockton in 2017/18.

Environmental Health

38. The Environmental Health Unit has three main themes, Commercial, Environmental Protection and Animal Health and Welfare. These three areas cover a diverse range of issues including food safety and improving work conditions to reduce the occurrence of accidents and ill health, improving the quality of the environment for residents of Stockton-On-Tees, pest control, animal welfare and investigating public nuisance.
39. The Commercial Team undertook a total of 478 food safety inspections in 2016/7. Broad compliance was achieved in 96% of the 1630 food premises that are registered within the Borough. The majority of the others required informal notices only to secure improvement.
40. A total of 463 informal written warning and advice letters were issued, in addition to 2 simple cautions and 2 food hygiene prosecutions undertaken against food businesses. A further 11 premises were 'Voluntarily Closed' due to poor standards; unfit foodstuffs were 'Voluntarily Surrendered' in 8 premises.
41. All non-compliant premises are thoroughly investigated and either worked with to secure compliance or subject to further formal action as detailed above.
42. The team carried out 211 bacteriological samples during the year and responded to many food safety requests for service. These included 411 complaints about premises and 86 food complaints. In terms of investigation of notified infectious disease, there were a total of 341 food poisoning notifications.
43. The team provided food training across a range of levels including catering courses, hygiene awareness and allergen training. A total of 378 attendees were trained in level 2 Food Hygiene, 24 in level's 3&4 Food Hygiene, 49 in HACCP for manufacturers and 12 on allergens.

Environmental Protection Team

44. The Environmental Protection Team covers issues such as air quality, contaminated land and investigations into noise and statutory nuisances such as smoke, dust, fumes and industrial odours.
45. According to Public Health England, poor air quality is the largest environmental risk to public health in the UK. Evidence from the World Health Organization (WHO) shows that older people, children, people with pre-existing lung and heart conditions, and people on lower incomes may be most at risk. Air quality has improved significantly in recent decades. Stockton-on-Tees has formally reviewed air quality since 2000 and the annual reports to Government show that air quality has consistently met national objectives. The annual report for 17/18 is currently with DEFRA for ratification and will be published on the SBC website.
46. Air quality (for PM 2.5) in Stockton has been just above the threshold suggested by the WHO. Indicators from the public health outcomes framework associated with air quality suggest the level of particulate matter in the air in Stockton-on-Tees (7.3 µg/m³) is lower than national averages (9.3 µg/m³) and the mortality attributable to particulate matter (4.1% of mortality) is also lower than national average (5.3%).
47. There are many sites in the borough that may require remediation to develop due to the contamination of land. Planning policy is in place to ensure any contamination will be removed before development can occur. There are also sites where there may be existing contamination due to historic uses such as landfill. This map plots current and historic landfill sites across the Borough overlaying deprivation and shows a concentration of historic sites along the river Tees from Stockton to Billingham where deprivation is high. Contaminated land officers are working closely with planners on remediation of sites as they get developed.

FINANCIAL IMPLICATIONS

There are no direct financial implications of this update.

LEGAL IMPLICATIONS

There are no specific legal implications of this update.

RISK ASSESSMENT

Consideration of risk will be included in the narrative around any health protection issues, together with actions being taken to mitigate this risk.

SUSTAINABLE COMMUNITY STRATEGY IMPLICATIONS

Reporting on health protection issues and performance across Board organisations will have a positive impact on coordinated activity to deliver both the Sustainable Community Strategy and Joint Health and Wellbeing Strategy themes.

CONSULTATION

Consultation has been an integral part of generating priorities for action, through the Joint Strategic Needs Assessment and Joint Health and Wellbeing Strategy development process.

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Appendix

The routine immunisation schedule		from Autumn 2018		
Age due	Diseases protected against	Vaccine given and trade name		Usual site
Eight weeks old	Diphtheria, tetanus, pertussis (whooping cough), polio, <i>Haemophilus influenzae</i> type b (Hib) and hepatitis B	DTaP/IPV/Hib/HepB	Infanrix hexa	Thigh
	Pneumococcal (13 serotypes)	Pneumococcal conjugate vaccine (PCV)	Prevenar 13	Thigh
	Meningococcal group B (MenB)	MenB	Bexsero	Left thigh
	Rotavirus gastroenteritis	Rotavirus	Rotarix	By mouth
Twelve weeks old	Diphtheria, tetanus, pertussis, polio, Hib and hepatitis B	DTaP/IPV/Hib/HepB	Infanrix hexa	Thigh
	Rotavirus	Rotavirus	Rotarix	By mouth
Sixteen weeks old	Diphtheria, tetanus, pertussis, polio, Hib and hepatitis B	DTaP/IPV/Hib/HepB	Infanrix hexa	Thigh
	Pneumococcal (13 serotypes)	PCV	Prevenar 13	Thigh
	MenB	MenB	Bexsero	Left thigh
One year old (on or after the child's first birthday)	Hib and MenC	Hib/MenC	Menitorix	Upper arm/thigh
	Pneumococcal	PCV	Prevenar 13	Upper arm/thigh
	Measles, mumps and rubella (German measles)	MMR	MMR VaxPRO ² or Priorix	Upper arm/thigh
	MenB	MenB booster	Bexsero	Left thigh
Eligible paediatric age groups ¹	Influenza (each year from September)	Live attenuated influenza vaccine LAIV ^{2,3}	Fluenz Tetra ^{2,3}	Both nostrils
Three years four months old or soon after	Diphtheria, tetanus, pertussis and polio	DTaP/IPV	Infanrix IPV or Repevax	Upper arm
	Measles, mumps and rubella	MMR (check first dose given)	MMR VaxPRO ² or Priorix	Upper arm
Girls aged 12 to 13 years	Cervical cancer caused by human papillomavirus (HPV) types 16 and 18 (and genital warts caused by types 6 and 11)	HPV (two doses 6-24 months apart)	Gardasil	Upper arm
Fourteen years old (school year 9)	Tetanus, diphtheria and polio	Td/IPV (check MMR status)	Revaxis	Upper arm
	Meningococcal groups A, C, W and Y disease	MenACWY	Nimenrix or Menveo	Upper arm
65 years old	Pneumococcal (23 serotypes)	Pneumococcal Polysaccharide Vaccine (PPV)	Pneumococcal Polysaccharide Vaccine	Upper arm
65 years of age and older	Influenza (each year from September)	Inactivated influenza vaccine	Multiple	Upper arm
70 years old	Shingles	Shingles	Zostavax ²	Upper arm

1. See Green book chapter 19 or visit www.gov.uk/government/publications/influenza-the-green-book-chapter-19 or www.nhs.uk/conditions/vaccinations/child-flu-vaccine/

2. Contains porcine gelatine.

3. If LAIV (live attenuated influenza vaccine) is contraindicated and child is in a clinical risk group, use inactivated flu vaccine.

All vaccines can be ordered from www.immform.dh.gov.uk free of charge except influenza for adults and pneumococcal polysaccharide vaccine.

Selective immunisation programmes

Target group	Age and schedule	Disease	Vaccines required
Babies born to hepatitis B infected mothers	At birth, four weeks and 12 months old ^{1,2}	Hepatitis B	Hepatitis B (Engerix B/HBvaxPRO)
Infants in areas of the country with TB incidence $\geq 40/100,000$	At birth	Tuberculosis	BCG
Infants with a parent or grandparent born in a high incidence country ³	At birth	Tuberculosis	BCG
At risk children	From 6 months to 17 years of age	Influenza	LAIV or inactivated flu vaccine if contraindicated to LAIV or under 2 years of age
Pregnant women	During flu season At any stage of pregnancy	Influenza	Inactivated flu vaccine
Pregnant women	From 16 weeks gestation	Pertussis	dTa ₁ IPV (Boostrix-IPV or Repevax)

1. Take blood for HBsAg at 12 months to exclude infection.

2. In addition hexavalent vaccine (Infanrix hexa) is given at 8, 12 and 16 weeks.

3. Where the annual incidence of TB is $\geq 40/100,000$ – see www.gov.uk/government/publications/tuberculosis-tb-by-country-rates-per-100000-people

Additional vaccines for individuals with underlying medical conditions

Medical condition	Diseases protected against	Vaccines required ¹
Asplenia or splenic dysfunction (including due to sickle cell and coeliac disease)	Meningococcal groups A, B, C, W and Y Pneumococcal Haemophilus influenzae type b (Hib) Influenza	Hib/MenC MenACWY MenB PCV13 (up to two years of age) PPV (from two years of age) Annual flu vaccine
Cochlear implants	Pneumococcal	PCV13 (up to two years of age) PPV (from two years of age)
Chronic respiratory and heart conditions (such as severe asthma, chronic pulmonary disease, and heart failure)	Pneumococcal Influenza	PCV13 (up to two years of age) PPV (from two years of age) Annual flu vaccine
Chronic neurological conditions (such as Parkinson's or motor neurone disease, or learning disability)	Pneumococcal Influenza	PCV13 (up to two years of age) PPV (from two years of age) Annual flu vaccine
Diabetes	Pneumococcal Influenza	PCV13 (up to two years of age) PPV (from two years of age) Annual flu vaccine
Chronic kidney disease (CKD) (including haemodialysis)	Pneumococcal (stage 4 and 5 CKD) Influenza (stage 3, 4 and 5 CKD) Hepatitis B (stage 4 and 5 CKD)	PCV13 (up to two years of age) PPV (from two years of age) Annual flu vaccine Hepatitis B
Chronic liver conditions	Pneumococcal Influenza Hepatitis A Hepatitis B	PCV13 (up to two years of age) PPV (from two years of age) Annual flu vaccine Hepatitis A Hepatitis B
Haemophilia	Hepatitis A Hepatitis B	Hepatitis A Hepatitis B
Immunosuppression due to disease or treatment ²	Pneumococcal Influenza	PCV13 (up to two years of age) ² PPV (from two years of age) Annual flu vaccine
Complement disorders (including those receiving complement inhibitor therapy)	Meningococcal groups A, B, C, W and Y Pneumococcal Haemophilus influenzae type b (Hib) Influenza	Hib/MenC MenACWY MenB PCV13 (to any age) PPV (from two years of age) Annual flu vaccine

1. Check relevant chapter of green book for specific schedule.

2. To any age in severe immunosuppression.

3. Consider annual influenza vaccination for household members and those who care for people with these conditions.

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immunisation

The safest way to protect children and adults

NHS