South East London Integrated Care System

NHS South East London

SEL ICS Diphtheria Response

November 2022

Version 1 – updated 24/11/2022

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Diphtheria Context 2022/Background

Diphtheria is an acute bacterial infection that is vaccine preventable. It spreads in communities with low vaccination coverage, following travel to endemic regions, and in cramped/crowded spaces. The risk is highest in the refugee/asylum seeking communities, while the risk to the general UK population is low.

- Since February 2022, there have been a number of cases of toxigenic *C. diphtheriae* in new arrivals to England, linked to initial accommodation settings in the South East Region
  - Other European countries have also reported cases in asylum seekers
  - Most cases are likely to have acquired their infection in their country of origin (including Afghanistan, Syria, Iran and Iraq) or during their journey to the UK
  - Whilst most cases have presented with skin lesions, a small number have presented with respiratory diphtheria

Case Definitions

- **Confirmed diphtheria case**: someone who has microbiologically confirmed diphtheria
- **Suspected diphtheria case**: someone who has been clinically assessed as having suspected diphtheria based on symptoms
- **Contact of diphtheria case**: someone identified as a close contact of a specific individual who has confirmed or suspected diphtheria
- **Potentially exposed person**: someone who has been in the Manston Reception facility or the Kent Intake Unit and arrived there after 31 October 2022

SEL Diphtheria Management Approach

- **Role of Borough Leads – Local Authority/NHS**
  - Develop robust action plans and coordinate their delivery/monitoring. Liaise with other SEL local authorities to avoid duplication of efforts.
  - Bring together key stakeholders to support coordination of response.
  - Daily check-in with sites to identify new individuals and track data
  - Share data and intelligence with primary care and SEL IMT
  - Link with primary care to ensure they have sufficient resources/capacity
  - Local communications, including prevention messaging and guidance to settings and clinicians
- **Role of Primary Care**
  - 1st point of contact for patients
  - Health assessments, vaccination, prescribing of chemoprophylactic antibiotics
  - Respond to confirmed/suspected cases and their immediate contacts within 12 hours (may involve contacting out of hours GP)
  - Respond to potentially exposed individuals next working day
- **Role of SEL Incident Management Taskforce (IMT)**
  - Receive updates/escalations from borough leads/local authority as the 1st point of contact for the ICB
  - Cascade guidance to borough leads/local authority and maintain oversight of programme progression across SEL
  - Conduit between borough leads/local authority, NHSE region and UKHSA
  - Provide infection prevention & control support and subject matter expertise
  - Communications management and cascades
  - **SEL Central Vaccination Team**
    - Support primary care when needed, and prepare for potential large-scale vaccination/chemoprophylactic antibiotic roll out
    - Administrative support, contactable at SELvaccineenquiries@gstt.nhs.uk
- **Role of UKHSA**
  - Case management
  - Contact tracing of confirmed cases
  - Advise borough leads and IMT directly

SEL Diphtheria Leads & Contacts

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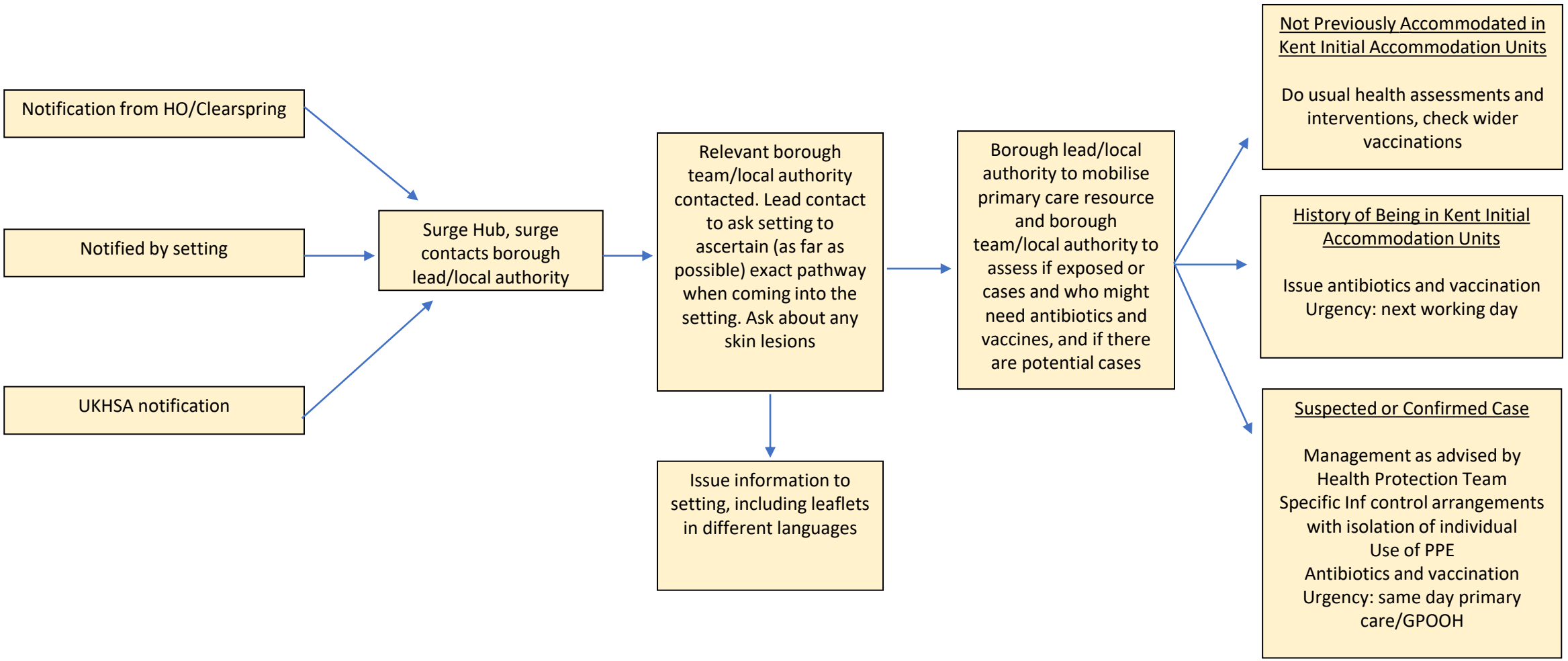
ICB Leads	Kate Moriarty-Baker	ICB Gold team	kate.moriarty-baker@selondonics.nhs.uk
	Angela Bhan	Bromley PEL, PH lead	angela.bhan@selondonics.nhs.uk
	Bernadette Buckley	Head of Nursing	bernadette.buckley@selondonics.nhs.uk
	Carmen Rojas	Asylum Seekers and Refugees Programme Lead	carmen.Rojas@selondonics.nhs.uk
	Francesca Davies	EPRR	Francesca.Davies@selondonics.nhs.uk
	David Rose	Comms Lead	david.rose@selondonics.nhs.uk
	Sam Hepplewhite	SRO	sam.hepplewhite@selondonics.nhs.uk
	Paul Wade	Consultant Pharmacist – Infectious Diseases	Paul.Wade@gstt.nhs.uk
SEL Vaccs Team	Jo Turville	Director of Operations, SEL Vaccs Team	joanna.turville@gstt.nhs.uk
	Yvonne Akande	General Manager, SEL Vaccs Team	Yvonne.Akande@gstt.nhs.uk
	Paul Wade	Consultant Pharmacist – Infectious Diseases	Paul.Wade@gstt.nhs.uk
	Aimee Tandoi	Project Manager, SEL Vaccs Team	Aimee.Tandoi@gstt.nhs.uk
UKHSA	Rachel Thorn Heathcock	SL HPT	rachel.thornheathcock@ukhsa.gov.uk
Lambeth	Ese Lyasere	PH	eiyasere@lambeth.gov.uk
	Michelle Elston	PC Commissioning Lead	michelle.elston@selondonics.nhs.uk
Southwark	Sangeeta Leahy	DPH	Sangeeta.Leahy@southwark.gov.uk
	Sylvia Garry	PH Consultant	Sylvia.garry@southwark.gov.uk
	Kate Kavernah	Healthy Populations Programme Lead	Katherine.Kavanagh@selondonics.nhs.uk
Lewisham	Kerry Lonergan	PH Consultant	Kerry.Lonergan@lewisham.gov.uk
	Chima Olugh	PC Commissioning Lead	Chima.Olugh@selondonics.nhs.uk
Greenwich	David Pinson	PH	David.Pinson@royalgreenwich.gov.uk
Bromley	Angela Bhan	Place Exec Lead	angela.bhan@selondonics.nhs.uk
	Cheryl Rehal		Cheryl.Rehal@selondonics.nhs.uk
Bexley	Nicole Klynman	DPH	Nicole.Klynman@bexley.gov.uk
	Renata Pereira	HP IPC	Renata.Pereira@bexley.gov.uk
OoHs	SEL On Call Team		SELOC@selondonics.nhs.uk

SEL Diphtheria Management Flow Chart for Managing Confirmed Cases or Contacts



Infection Prevention & Control - Best Practices

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- Nominate staff member to monitor cleaning standards daily (including shared toilets and bathrooms)
- Cleaning staff to wear aprons, gloves
- Encourage residents to regularly wash their hands
- Check communal soap and paper towel dispensers are filled
- Ensure alcohol gel is accessible to decontaminate hands
- Check used bedding/towels are bagged before moving to central collection point
- Ensure supply of PPE (surgical mask, gloves, aprons, eye protection)
- Staff immunisations should be complete and up to date

Infection Prevention & Control - Information for Accommodation Staff

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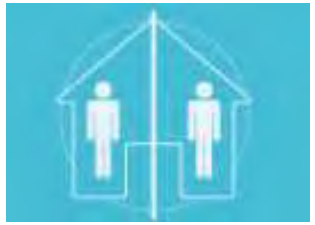
What do you need to do?



If well, isolate resident in their room immediately until health protection/ healthcare team advise

Provide facilities for resident to clean their room

Resident to bag laundry and leave outside

Provide meals in room. Ensure resident has separate crockery, utensils linen & towels.

Undertake regular welfare checks. Ask about any new symptoms (especially sore throat, breathing difficulty, swollen neck, fever)

If resident unwell or new symptoms - contact 111 (non-emergency, or on-site clinical team) or 999 if very unwell. Inform them of suspected Diphtheria.

Report suspected/confirmed cases immediately to: slhp.oncall@ukhsa.gov.uk

Diphtheria Epidemiology

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- **Organisms**: *Corynebacterium diphtheriae*, *C. ulcerans* and *C. pseudotuberculosis*

- **Transmission:**
  - *C. diphtheriae* – person-to-person/close contact (respiratory droplets, wound secretions, etc.)
  - *C. ulcerans* – consumption of raw, unpasteurized milk, contact with infected animals, possibly person-to-person

- **Source:**
  - *C. diphtheriae* - Nose or throat of human case or carrier. Infected skin lesions are common in tropical regions.
  - *C. ulcerans* - historically cattle, now companion animals as well

- **Incubation**: 2-5 days (up to 10 days)

- **Clinical Implications:** Binds to cardiac, neural and respiratory tissues
  - If left untreated, may lead to myocarditis, endocarditis, polyneuropathies (may mimic Guillain-Barre), limb weakness, diaphragmatic palsy, airway obstruction, etc.

Clinical Presentation of Classical Respiratory Diphtheria

Due to its rarity, screening is not routinely done and confirmatory lab tests are complex/expensive. It can easily go undetected by practitioners. Classic pseudomembrne may not be present.

- **Classical Respiratory Diphtheria**
  - Inflammatory pseudomembrane on tonsils, oropharynx and pharynx
  - “bull neck”
  - Sore throat, fever
  - Difficulty breathing

- **Laryngeal Diphtheria**
  - Hoarseness – stridor

- **Nasal Diphtheria**
  - Mild or chronic nasal discharge – clear to bloody

Clinical Presentation of Cutaneous Diphtheria

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- Usually on exposed limbs (arms, legs)
- Lesions start as vesicles and form small, clearly demarcated ulcers
  - Note: ulcers may be difficult to distinguish from impetigo
- Lesions usually covered with an eschar, a hard slightly raised bluish-grey membrane
- However chronic lesions in asylum seekers are common so consider further investigation of
  - Chronic wounds/lesions or wounds that do not heal as expected
  - Other common cutaneous presentations for example lacerations, ulcers, abscesses, infected insect or animal bites

Diphtheria Case Management

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- Isolate the patient and ensure proper PPE measures are in place
- Where there is a high clinical suspicion of diphtheria, discuss with local infectious disease/microbiology team
- Acute respiratory diphtheria requires early diagnosis and prompt administration of anti-toxin (if patient is hospitalised)
- Consider prophylaxis treatment for confirmed or highly probably cases
    - Chemoprophylactic Antibiotic Treatment
        - Azithromycin, Penicillin, Clarithromycin, Erythromycin
        - After completion of 7-day course, take 2 throat and nasopharyngeal swabs (as well as skin swabs for cutaneous cases)
        - If swabs are positive for a toxigenic strain, discuss further 10 days of antibiotics with microbiologist
        - Asymptomatic carriers of toxigenic strains should be treated with same antibiotic regime as cases with appropriate swabs taken on completion of therapy to ensure eradication
    - Anti-toxin (DAT) <u>for hospitalised patients only</u>

Management of Close Contacts of Confirmed Diphtheria Case

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- Who is considered a close contact?
  - Household members, sexual partners, carers, those who sustained prolonged exposure to respiratory droplets/secretions, those who were exposed to undressed wounds, etc.
  - Healthcare and outreach workers should be risk assessed (considering PPE use)
    - Minimum PPE = fluid-repellent surgical face mask and, depending on the situation, disposable gloves and aprons for wound care or any aerosol, respiratory secretion generating procedure
    - For respiratory cases, health care workers who have given mouth to mouth resuscitation to or intubated the index case (without appropriate PPE) would normally be considered as close contacts

Management of contacts would be coordinated and advised by Health Protection Team, but would include:

1. Inform contact (and GP, Occupational health as appropriate)
2. Advise self-monitoring for 10 days from date of last contact with case
3. Collect nasopharyngeal, throat and lesion swabs (if present)
   - If positive for a toxigenic strain, then manage them as a confirmed case
   - If becomes symptomatic, then arrange urgent clinical assessment
4. Offer chemoprophylaxis with antibiotics for 7 days
5. Exclude from high-risk occupations until bacteriological clearance is confirmed
6. Immunise as appropriate

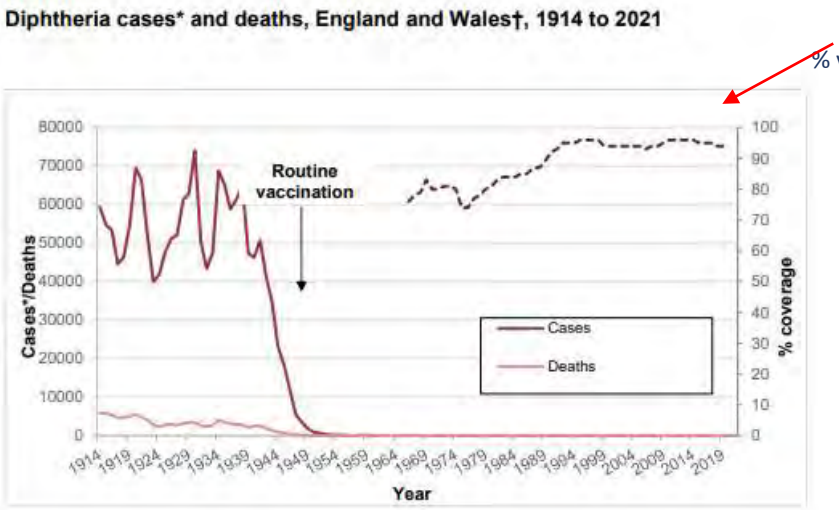
Diphtheria Vaccination

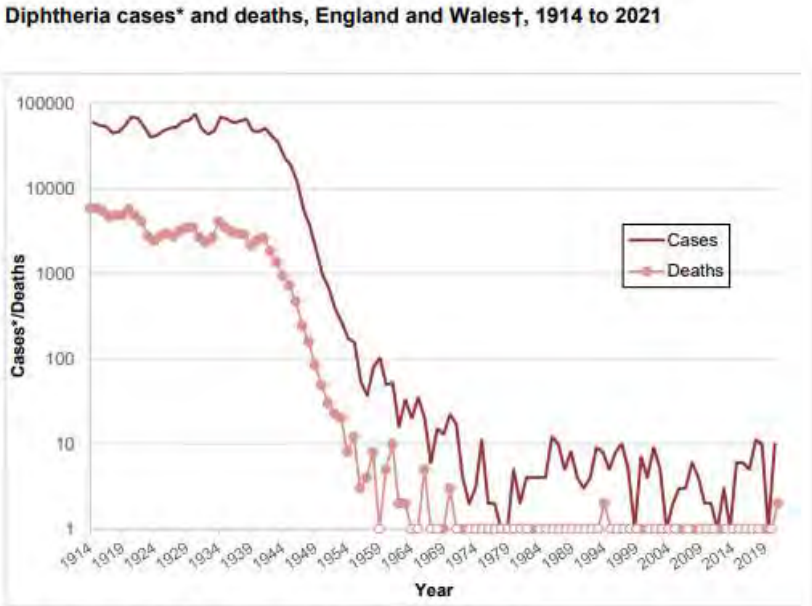
- Health Protection Team will advise. Summary below.

- Both cases and contacts should be immunised once clinically stable, recommendations based on vaccination history
  - Those who are appropriately immunised for their age but have not had a vaccination within the last 12 months are to be given a booster vaccination
  - Those who are not appropriately immunised are to be given a diphtheria-containing dose immediately. The schedule is to be completed according to the guidelines available

- **Immunised** children **under 10 years of age** – one injection of adsorbed diphtheria containing vaccine (either Td/IPV, dTaP/IPV or DTaP/IPV)
- **Immunised** children aged **10 years and over and adults** – one injection of adsorbed low-dose diphtheria-containing vaccine for adults (for example, Td/IPV)
- **Unimmunised** children **under 10 years of age** – 3 injections of adsorbed full dose diphtheria-containing vaccine (for example DTaP/IPV/Hib/HepB) at monthly intervals
- **Unimmunised** children aged **10 years and over and adults** – 3 injections of adsorbed low-dose diphtheria-containing vaccine (for example, Td/IPV) at monthly intervals
- **Unknown immunisation status** – where there is no reliable history of previous immunisation, it should be assumed that they are unimmunised and follow as above
- **Pregnant and breastfeeding women** – diphtheria-containing vaccine may be given to pregnant or breastfeeding women when the need for protection is required without delay. There is no evidence of risk from vaccinating pregnant or breastfeeding women with inactivated viral or bacterial vaccines/toxoids.

UK Immunisation Schedule for Diphtheria





* notifications up to 1985, laboratory confirmed cases 1986 to 2021

† from 2016, data from England only

Age due	Disease protected against	Vaccine given (Trade name)
8 weeks	**Diphtheria**, tetanus, pertussis (whooping cough), polio and *Haemophilus influenzae* type b (Hib) and hepatitis B	DTaP/IPV/Hib/HepB (Infanrix hexa or Vaxcelis)
12 weeks	**Diphtheria**, tetanus, pertussis, polio, Hib and hepatitis B	DTaP/IPV/Hib/HepB (Infanrix hexa or Vaxcelis)
16 weeks	**Diphtheria**, tetanus, pertussis, polio, Hib and hepatitis B	DTaP/IPV/Hib/HepB (Infanrix hexa or Vaxcelis)
3 years 4 months or soon after	**Diphtheria**, tetanus, pertussis and polio	DTaP/IPV (Boostrix-IPV)
14 years old (school year 9)	Tetanus, **diphtheria** and polio	Td/IPV (Revaxis)

***Immunisation protects against toxic manifestations but not necessarily against acquisition of infection**

Number of cases of toxigenic *C. ulcerans* and toxigenic *C. diphtheriae* in humans and animals, England 2009-2021

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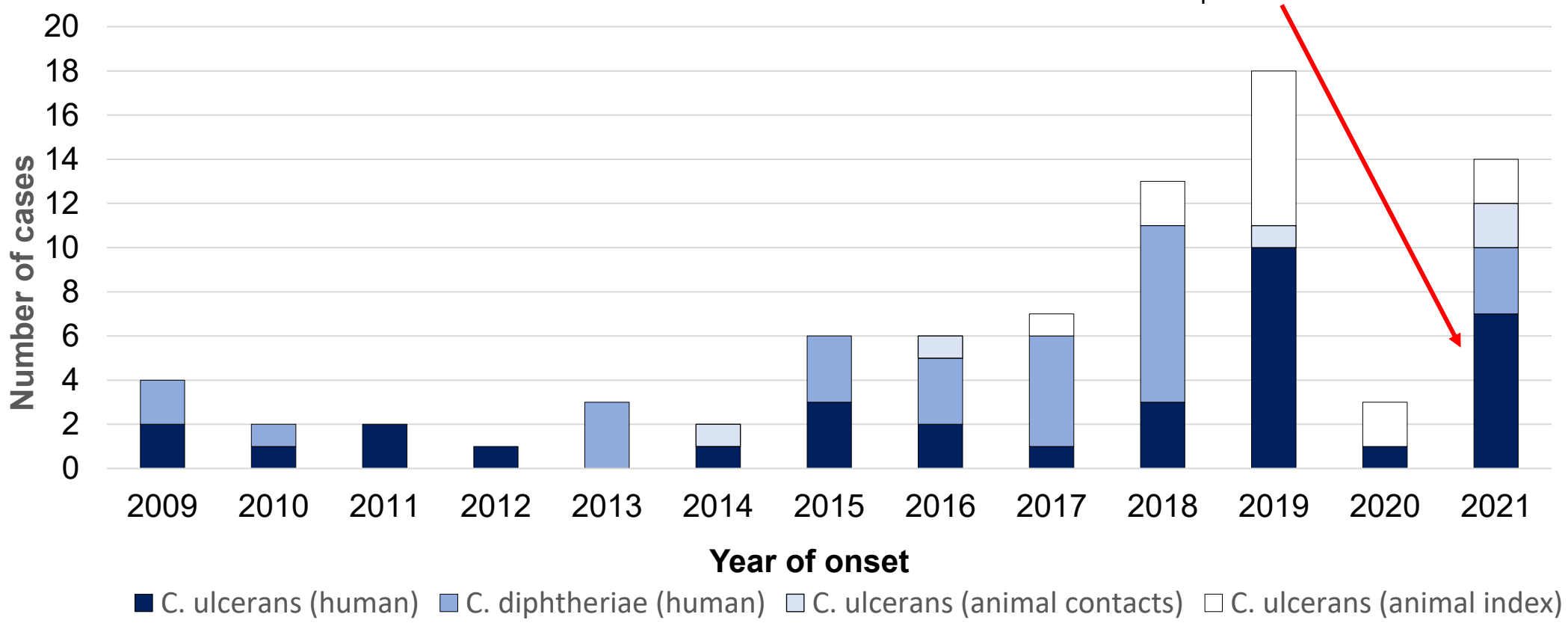
7 cases of toxigenic *C. ulcerans* reported in 2021

- 3 cutaneous lesions, 2 respiratory symptoms
- All had contact with domestic pets in a household setting
- None had a history of foreign travel
- No consumption of unpasteurised dairy products nor contact with livestock reported



Resources for Health Professionals

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Diagnosis and Management

1. https://www.gov.uk/government/publications/diphtheria-laboratory-guidelines-for-diagnosis
2. https://www.gov.uk/government/publications/diphtheria-public-health-control-and-management-in-england-and-wales
3. https://www.gov.uk/government/publications/diphtheria-anti-toxin-dat-information-for-healthcare-professionals/diphtheria-anti-toxin-dat-information-for-healthcare-professionals
4. https://www.gov.uk/government/publications/immunoglobulin-when-to-use
5. https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1030895/R3_Vaccine_Preventable_Bacteria_Section_BRDW0147.04.pdf
6. https://www.gov.uk/government/publications/diphtheria-disease-and-azithromycin-pgd-template
7. Public health management of toxigenic C. ulcerans in animals (pending publication)

Resources for Health Professionals

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Vaccine and Incident Guidance

1. https://www.gov.uk/government/publications/diphtheria-surveillance-form-for-follow-up
2. https://www.gov.uk/government/collections/immunisation-against-infectious-disease-the-green-book
3. https://www.gov.uk/government/publications/vaccination-of-individuals-with-uncertain-or-incomplete-immunisation-status/vaccination-of-individuals-with-uncertain-or-incomplete-immunisation-status
4. https://www.gov.uk/government/publications/diphtheria-disease-and-azithromycin-pgd-template
5. https://www.healthpublications.gov.uk/ViewArticle.html?sp=Sazithromycindosageinstructions
6. Diphtheria anti-toxin: clinical guidance
7. DAT: Information for healthcare professionals

Resources for Health Professionals

Guidance on assisting refugees/asylum seekers:

Leaflets in various languages are available:

1. Diphtheria Fact Sheets https://www.healthpublications.gov.uk/ViewArticle.html?sp=Sdiphtheriafactsheettranslations
2. Information and Treatment Record Card https://www.gov.uk/government/publications/diphtheria-vaccination-resources
3. https://www.gov.uk/government/collections/migrant-health-guide
4. https://www.doctorsoftheworld.org.uk/news/simple-steps-to-make-your-surgery-more-welcoming-to-refugees/
5. https://www.bma.org.uk/advice-and-support/ethics/refugees-overseas-visitors-and-vulnerable-migrants/refugee-and-asylum-seeker-patient-health-toolkit
6. https://www.book2look.com/book/8hqc59wyDv