National Health Protection Service of Ireland
An tSeirbhís Náisiúnta um Chosaint Sláinte na h-Éireann

Guidance on the Public Health Management of Diphtheria in Congregate Settings in Ireland

National Diphtheria Working Group,

National Health Protection Service, HSE

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This guidance document was developed to assist the Public Health response to a case of diphtheria in a congregate setting that houses people who are International Protection Applicants (IPAS) or Beneficiaries of Temporary Protection (BOTP). Some sections of this document have been adapted from "***Public health control and management of diphtheria in England Supplementary guidance for cases and outbreaks in asylum seeker accommodation settings"*** (1) and it should be used in conjunction with ***"Public health control and management of diphtheria in England 2022 guidelines".***

Contents

Introduction

Since 2022 there has been an unprecedented influx of displaced persons into Ireland. As of April 2023, over 80,000 people who are Beneficiaries of Temporary Protection (BOTP) as a result of the Russian invasion of Ukraine have been welcomed into the country, as well as an additional 19,000 people who are International Protection Applicants (IPAs) from other countries. The variable, sub-optimal immunisation rates in many of these countries, along with the congregate nature of the settings that many of these displaced persons are housed in, could result in outbreaks of vaccine preventable diseases. A significant number of cases of diphtheria have recently been identified in asylum centres in the UK and specific guidance for these settings was developed by UK Health Security Agency (UKHSA). This document is an adaption of the UK guidance to our context and specific to our health service response. The term 'congregate setting' throughout this document is used to describe any setting that is not a single household unit that houses people who are BOTP or IPAs.

Part 1: Investigation and management of individual cases

1.1 Education and awareness

- Information posters should be posted in the setting to raise awareness amongst residents and encourage those with symptoms to present to the health service via local arrangements. Posters are available here.
- Clinicians should have a high index of suspicion for diphtheria infection when clinically assessing individuals with compatible cutaneous and/or respiratory symptoms who are living in congregate settings for people who are BOTP/IPAs.
- Diphtheria is a notifiable disease to the local Medical Officer of Health.

Clinical presentation:

Cutaneous Diphtheria

- Individuals may present with lesions typical of cutaneous diphtheria with raised edges and a blueish/grey eschar.
- In these congregate settings, however, chronic wounds and skin lesions are common and therefore consideration for further investigation should also be given to:
    - 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
    - the presence of other organisms such as Staphylococcus spp. and Streptococcus spp., as isolation from wound sites or lesions does not exclude co-infections with C. diphtheriae, which have been observed in this population

Respiratory Diphtheria

- Presence of classic respiratory symptoms:
    - presence of sore throat, fever, adherent greyish membrane (bleeds when manipulated or dislodged) of the tonsils, pharynx or nose (but noting a membrane may not always be present)
- Carriage of C. diphtheriae may occur in the throat in the absence of respiratory symptoms and has been isolated in individuals with cutaneous lesions. All individuals with cutaneous lesions where diphtheria is suspected should also have a nose and throat swab to determine presence of respiratory carriage

1.2 Case definition

Regional health protection teams should carry out a risk assessment in conjunction with notifying clinicians to classify cases amongst people who are BOTPs or IPAs according to national case definitions **with an additional criterion**, to increase sensitivity in congregate settings as outlined below.

Clinical criteria for diphtheria
Any person with at least one of the following clinical forms:

Classic respiratory diphtheria:
An upper respiratory tract illness with laryngitis or nasopharyngitis or tonsillitis
AND an adherent membrane/pseudomembrane

Mild respiratory diphtheria:
An upper respiratory tract illness with laryngitis or nasopharyngitis or tonsillitis
WITHOUT an adherent membrane/pseudomembrane.

Cutaneous diphtheria: skin lesion

Diphtheria of other sites: lesion of conjunctiva or mucous membranes

Laboratory criteria
Isolation of toxin producing *C. diphtheriae, C. ulcerans* or *C. pseudotuberculosis* from a clinical specimen

Epidemiological criteria
An epidemiological link to a confirmed case (human or animal)

Case classification
A. **Possible case**
Any person meeting the clinical criteria for classical respiratory diphtheria
B. **Probable case**
Any person meeting the clinical criteria for diphtheria (classic respiratory diphtheria, mild respiratory diphtheria, cutaneous diphtheria, diphtheria of other sites) AND with an epidemiological link to a confirmed case (human or animal) OR **an epidemiological link to a congregate setting*.**
C. **Confirmed case**
Any person meeting the laboratory criteria and at least one of the clinical forms

*** Adding an epidemiological link to a congregate setting that houses people who are IPAs or BOTP means that any person with clinically suspicious diphtheria as assessed and notified by local clinician (where no other diagnosis is considered more likely), who lives in one of these congregate settings is immediately classified as a probable case. A clinical risk assessment should inform case classification.**

1.3 Testing

- The appropriate swabs should be collected for all suspected cases irrespective of clinical presentation and before starting treatment with antibiotics:
    - nose and throat swabs should be taken for all suspected cases (including screening for respiratory carriage in cutaneous cases)
    - skin swabs of wounds and lesions (if present)
    - where a membrane is present, swabs from underneath the membrane or a piece of membrane.
- The clinician should use Dacron, Viscose or flocked applicator swabs (standard bacterial throat swabs) to collect samples from each suspected case and place these in a routine semi-solid transport medium, immediately after collection and send to the local hospital microbiology laboratory for culture, clearly indicating clinical suspicion of diphtheria.
- There is evolving evidence around the epidemiology of a multi-drug resistant strain in Europe, therefore, **ECDC strongly recommend that local laboratories undertake antimicrobial susceptibility testing on all C. diphtheriae isolates.**
- Currently, to confirm toxicity of organism **local microbiology laboratories should send isolates to the Vaccine Preventable Bacteria Section (VPBS), UK Health Security Agency (UKHSA), Respiratory and Vaccine Preventable Bacteria Reference Unit (RVPBRU).**[1]
- Necessary contact details to send samples can be found in the "Public health control and management of Diphtheria in England: 2022 Guidelines" (pg 25)
- Please note that C. diphtheriae, C. ulcerans and C. pseudotuberculosis are toxin-producing Corynebacterium species. *(Other Corynebacterium species identified using a reliable local method of confirmation such as MALDI-TOF are commensal organisms that do not require further testing or further action)*
- *Isolation of the organism in local laboratories can take up to 3 days from sample receipt. Transport will take a minimum of one day. Testing for toxicity in the UK will also take one day but may be longer if there is a weekend involved. Waiting for results should not delay treatment or public health actions.*

1.4 Isolation of cases

- All probable cases should be advised to restrict their contact with others pending confirmation of toxigenicity testing by the UKHSA reference laboratory (RVPBRU).
- If a probable or confirmed case is well and not hospitalised, they should be advised to continue to restrict their contact with others for **the first 6 days of an appropriate course of antibiotics**.
- Particular consideration should be given to restricting contact with others who may be un- or partially immunised. In a congregate/communal accommodation setting, this will mean that they are isolated in their own room or preferably at the HSE National Infectious Diseases Isolation Facility St Ita's Campus Portrane, as they should not share communal facilities on site.

- [1] *Of note, this pathway is under review and any change to it will be communicated nationally to all laboratories.*

- Referrals to National Infectious Diseases Isolation Facility can be made by emailing referral form to isolation.facility@hse.ie, Tel 01 9210251 (24/7). Further information available here and in Appendix A.
- Due to the highly vulnerable population residing in these settings, the period of restricted interaction with others (6-day course of appropriate antibiotic) should be observed as far as possible even for cutaneous cases where lesions are healed or almost healed. This is because wounds can breakdown or become disrupted on contact and direct contact with cutaneous lesions can be as infectious as exposure to respiratory droplets.
- For de novo probable cases, the restriction of movements may cease if the case is recovering and local microbiology laboratory does not isolate a Corynebacterium species or any other infectious disease requiring isolation.
- However, if a contact develops symptoms and becomes a probable case and has had recent antibiotic prophylaxis due to contact with a confirmed case, then the restriction of movement should be continued until the first 6 days of a treatment course is completed.
- Where there are issues with movement restrictions that cannot be resolved, consideration should be given to factors such as the condition or stage and site of lesions, whether they can be covered and compliance with antibiotics, on a case by case basis.

1.5 Treatment of possible, probable or confirmed cases

1.5.1 Diphtheria anti-toxin (DAT)

- Clinicians are reminded that management should proceed based on the clinical assessment, even in the absence of laboratory confirmation and where there is no alternative diagnosis, or in those who have previously received antibiotic prophylaxis.
- All probable and confirmed cases of diphtheria presenting with respiratory symptoms and/or large cutaneous lesions (that is, greater than $2cm^2$) should be promptly assessed by a clinician with access to advice from an ID specialist, for treatment with DAT, in line with UK National guidance.
- DAT should be given to classic respiratory cases without waiting for laboratory confirmation.
- Early treatment with DAT is critical to neutralise free circulating toxin before it can irreversibly bind to tissues causing organ damage. The effectiveness therefore declines with time since onset of symptoms.
- When indicated, treatment with DAT should not be delayed and should be undertaken in a **hospital setting** to ensure appropriate sensitivity testing and that monitoring of hypersensitivity can occur.
- Senior clinicians can currently access diphtheria anti toxin in-hours by calling the National Cold Chain Service (NCCS) at 01-4637770.
- Out-of-hours it can be accessed by calling the National Health Protection Service through National Ambulance Service.
- If local laboratory testing is negative for C. diphtheriae, and diphtheria remains clinically likely, then further testing should be discussed with the local Infectious disease and microbiology consultants and the treatment reviewed, including whether treatment with DAT is appropriate.

1.5.2 Antibiotic treatment

- For guidance on the administration of antibiotics for confirmed cases, please refer to UK national guidance.
- **All confirmed cases should undergo microbiological clearance at the end of their treatment course.**
    - Elimination of the organism, from the site where it was originally detected (including wound, throat, nose), is required **with 2 sets of clearance swabs taken a minimum of 24 hours apart with the first sample taken at least 24 hours after the completion of the recommended antibiotic course**.
- **If clearance is not achieved a further course of antibiotics should be prescribed following the advice of the local Infectious disease and microbiology consultants as guided by local susceptibility testing.** Ideally, a different antibiotic class from that used in the original course is recommended. If the case has clinically improved and remains well, a further restriction of movements in this instance is not indicated.
- Resistant isolates should be referred on to the RVPBRU. In the event of resistance to both macrolides and penicillin, clinicians should be guided by susceptibility testing.
- Probable cases, where original isolation of a local Corynebacterium diphtheriae/ ulcerans/ pseudotuberculosis, or reference laboratory confirmation of a toxigenic Corynebacterium species has not been possible (for example, due to prior receipt of antibiotics), do not require clearance swabs.

1.5.3 Immunisation

- Immunisation status of cases should be reviewed and all attempts should be made for catch-up immunisations once clinically stable.
- Fully vaccinated cases (i.e. received 5 diphtheria vaccine containing vaccines) should receive an age-appropriate dose of diphtheria vaccine regardless of when the previous dose was given.
- Unvaccinated or partially vaccinated cases should complete the age appropriate vaccination schedule during convalescence as infection may not confer long-term immunity.

1.6 National Surveillance

- An enhanced surveillance form should be completed for all probable and confirmed cases of Diphtheria. Forms can be found here.

Part 2: Management of Close Contacts of Confirmed Cases

2.1 Risk assessment for close contacts of confirmed cases

- The incubation period for C. diphtheriae, C. ulcerans and C. pseudotuberculosis is usually 2 to 5 days, but may be longer, with duration of up to 10 days reported.
- The infectious period is not well-defined for the period prior to symptom onset; therefore, all individuals who have had contact with the case in the time from 10 days prior to symptom onset should be considered for risk assessment. The rationale for using this time frame is to identify the possible infection source and eliminate established carriage, thereby reducing onward transmission (from both source and confirmed case).
- As the risk of infection is directly related to the closeness and duration of contact, prophylaxis is required in the following circumstances:
    1. if the contact is with a case or known carrier in a household type setting;
    2. those who have had transient close contact but who may have been directly exposed to large particle droplets or secretions (following the same principles of meningococcal disease e.g. kissing/sexual contacts);
    3. if the contact has been exposed to an undressed wound of a cutaneous case.
- For congregate accommodation settings, examples of contacts who should be considered for prophylaxis are:
    1. those sleeping in the same room as the index case;
    2. residents that may have had direct exposure to open wounds, or particle droplets (via shared food or drinks);
    3. those sharing bathroom facilities;
    4. kissing/sexual contacts of the case.
- An algorithm summarizing contact management can be found at Appendix B.

2.1.1 Issues identifying close contacts

- Where it is difficult to identify close contacts (for example, reception tents, boats, transfer coaches), a 'warn and inform' letter should be given to all those staying in the same setting (where possible), with appropriate translations. (Appendix C)
- A low threshold for referral for clinical assessment and testing should be considered for symptomatic individuals, and restriction of their contact with others is advised.

2.2 Isolation of close contacts

- All identified close contacts of confirmed and probable cases should be given a close contact letter and information leaflet (Appendix D) in appropriate language.
- All should be swabbed, started on chemoprophylaxis, vaccinated where appropriate depending on vaccination history and should restrict their movements pending microbiological results.
- Particular consideration should be given to restricting contact with others who may be un- or partially immunised and in a congregate/communal setting this will mean that they are isolated in their own room as they should not share communal facilities on site. Referral to the HSE national isolation facility at St Ita's in Portrane may be required.
- If C. diphtheriae, C. ulcerans or C. pseudotuberculosis is identified in a contact by local laboratory testing, then the close contact needs to restrict his/her movements until toxigenicity testing is undertaken by the UK reference laboratory.

- In the case that toxigenicity is confirmed in the close contact, the close contact should be managed according to the confirmed case definition; this includes a change from prophylaxis to the treatment course of antibiotics and to continue to restrict their movements until completion of the first 6 days of appropriate antibiotic treatment.
- If C. diphtheriae, C. ulcerans or C. pseudotuberculosis is not identified by local laboratory testing then close contacts do not require further restriction on their movements. **However, completion of chemoprophylaxis is recommended.**

2.3 Chemoprophylaxis of close contacts

- The recommended agents for chemoprophylaxis are a 5-day course of azithromycin (1g first day, then 500mg od) or 10-day course of clarithromycin (500mg bd). As an alternative, in certain circumstances when more easily administered, a single intramuscular (IM) dose of benzylpenicillin can be given with dosing according to the Monthly Index of Medical Specialties(MIMS)

2.4 Immunisation of close contacts

- Immunisation status of close contacts should be reviewed and all attempts should be made for catch up immunisations in line with recommendations of the National Immunisation Guidelines.
- Fully vaccinated contacts (i.e. received 5 diphtheria vaccine containing vaccines) should receive an age appropriate dose of diphtheria vaccine.
- Unvaccinated or partially vaccinated contacts should complete the age appropriate vaccination schedule

2.4.1 Immunisation for staff and healthcare workers in congregate/communal accommodation settings

- All staff and HCW involved in the care of recent arrivals should have their immunisation status reviewed and those with incomplete schedules should be brought up to date.

2.5 Close contacts identified outside the eligibility criteria for prophylaxis

- Asymptomatic close contacts identified outside the 10-day window should be tested (nose, throat +/- wound) and offered vaccination.
- Antibiotic prophylaxis is not routinely recommended outside the 10-day eligibility period.
- These contacts are not required to restrict their movements pending test results if they remain well.

Part 3: Infection Prevention and Control

- The advice outlined in Public Health Advisory REF No. 006: Guidance on the Minimum Hygiene and Public Health Standards required in communal centres used to temporarily shelter persons displaced from war in Ukraine (May 2022) should be implemented in all congregate settings housing vulnerable migrants.
- This document outlines measures required to
    1. minimise the risk of spread from communicable diseases
    2. meet the Minimum Standards in Humanitarian Response as outlined in the Sphere Handbook (such as adequate and appropriately spaced and sited shelter)
    3. provide assistance that reduces risks that people may face in meeting their needs with dignity
- Diphtheria is most easily spread by direct contact with a person with infection or carriage, such as to those directly exposed to large respiratory particles or secretions and direct contact with an undressed wound. It is more rarely spread through contact with articles soiled by discharges from lesions on infected people. There is limited published evidence of transmission through fomites, but the evidence does suggest that individuals with cutaneous diphtheria are more likely to contaminate the environment than those with respiratory infection.
- All employers have a duty to ensure safe systems of working are in place in the workplace and that they meet their duty of care to their employees under Health and Safety legislation.
- It is expected that once a case is confirmed they will be transferred to St Ita's National Isolation Unit; cleaning and waste management will be required at the accommodation centre following transfer (see below).

3.1 Congregate setting

3.1.1 Personal Protective Equipment (PPE)

- Adequate PPE should be made available in congregate settings to manage any suspect cases while confirmation is awaited.
- For possible, probable and confirmed cases, the minimum PPE is:
    - fluid repellent surgical facemask (FRSM)
    - disposable gloves
    - disposable apron

3.1.2 Hand hygiene

- Hand hygiene is important and should be encouraged for all residents and staff. Staff should follow best practice regarding hand hygiene including when removing PPE. Alcohol-based hand sanitiser can be used as an alternative to soap and water for visibly clean, dry hands.
- For further information on the use of PPE and hand hygiene best practice please refer to the NCEC National Clinical Guideline No. 30 – Infection Prevention and Control (IPC) 2022.

3.1.3 Cleaning and disinfection/environmental controls

- It remains important to reduce the risk of transmission from the contaminated environment. This risk can be reduced by following agreed cleaning methods based on standard cleaning and disinfection protocol using usual products in accordance with manufacturer's instructions.
- Increased cleaning is likely to reduce risk of all infections, including the risk of transmission of diphtheria. Regular cleaning will also minimise the build-up of dust.
- Anyone cleaning a room occupied by a suspected or confirmed case of diphtheria should wear PPE (as per minimum requirements listed above).
- Any single use cloths and mop heads (if used) must be disposed of and should be put into waste bags after each cleaning of the room. Reusable cloths can be washed at high temperatures and reused.
- Once the person is transferred out, then a final clean of their room should be undertaken while wearing gloves and an apron as a minimum requirement.
- Standard cleaning detergent and disinfection products can be used:
    - remove all disposable items and dispose of in waste bags
    - bag and transfer used laundry in accordance with the laundry providers procedures for the management of contaminated laundry
    - clean all hard surfaces including floors, chairs, bed frame, mattress, frequent hand touch surfaces and ensuite facilities
    - any soft furnishings should be steam cleaned or vacuumed. Where possible, use a vacuum cleaner with HEPA filtration
- Multiple occupancy rooms require regular cleaning, with particular attention given to bathroom facilities and frequent hand touch surfaces.
- Adherence to adequate hand hygiene after PPE is removed is essential.

3.1.4 Waste management

- Individuals should dispose of tissues and other waste products in a timely manner.
- All waste produced by the case in isolation (whilst infectious) should be bagged.
- This bag should be placed into another waste bag outside the room for transport to the appropriate waste collection bin for usual domestic waste management.

3.1.5 Management of laundry/linen

- There is a potential risk that infections such as diphtheria can be spread via contact with clothing or linens (such as bedding or towels) used by an infected person therefore handling should be minimised.
- Linens and bedding should be carefully lifted and rolled to prevent dispersion of infectious particles from lesions and body fluids. Laundry should be washed at a minimum of 60C.
- Laundry staff should wear gloves and an apron while handling dirty linen.
- Where possible, such linen should ideally be bagged by the infected or recovering person. This bag should be placed directly into a clean plastic bag immediately outside the room prior to these being transported to the laundry.

3.1.6 Transport

- Respiratory cases should wear a mask if tolerated.

- Frequent touch points should be cleaned with standard cleaning detergent and disinfection products.
- Refer to NCEC National Clinical Guideline No. 30 – Infection Prevention and Control (IPC) 2022.
  as required.

3.2 Clinical setting

- On presentation to clinical settings (example primary care, medical assessment units and emergency department) a point of care risk assessment should be conducted and patient managed accordingly. Refer to resources available here.
- Any clinician referring a probable case for further investigation and management should alert the receiving unit of clinical suspicion of diphtheria so that appropriate precautions may be taken by staff undertaking further assessment.
- In a clinical setting, all healthcare staff should receive appropriate training and be competent in the use of PPE and hand hygiene. They should be aware of standard precautions available here.
- AMRIC Infection Prevention and Control training resources are available at www.HSEland.ie
- Staff should know their local procedures for reporting any PPE breach or other risk contact with a confirmed or probable case so that they can be assessed for follow-up.
- For possible, probable and confirmed cases of cutaneous diphtheria contact precautions should be in place.
- For possible, probable and confirmed cases of respiratory diphtheria droplet precautions should be adopted as NCEC National Clinical Guideline No. 30 – Infection Prevention and Control (IPC) 2022.

3.2.1 Hand hygiene

- Perform Hand hygiene as per WHO 5 moments. Alcohol-based hand sanitiser can be used as an alternative to soap and water for visibly clean, dry hands.
- For further information on the use of PPE and hand hygiene best practice please refer to the NCEC National Clinical Guideline No. 30 – Infection Prevention and Control (IPC) 2022.

3.2.2 Cleaning and disinfection/environmental controls

- It remains important to reduce the risk of transmission from the contaminated environment. The risk can be reduced by following agreed cleaning methods based on standard cleaning and disinfection using usual products in accordance with manufacturer's instructions.
- Increased cleaning is likely to reduce risk of all infections, including the risk of transmission of diphtheria. Regular cleaning will also minimise the build-up of dust.
- Anyone cleaning a room occupied by a suspected or confirmed case of diphtheria should wear appropriate PPE as described above.
- Any used cloths and mop heads (if used) must be disposed of and should be put into waste bags after each cleaning of the room in accordance with the local waste disposal policy.
- Once the person is discharged a final clean of their room should be undertaken while wearing gloves and an apron as a minimum requirement.
- Standard cleaning detergent and disinfection products can be used:
  - remove all disposable items and dispose of in waste bags;

  - bag and transfer used laundry in accordance with the laundry providers procedures for the management of contaminated laundry;
  - clean all hard surfaces including floors, chairs, bed frame, mattress, frequent hand touch surfaces and ensuite facilities;
  - any soft furnishings should be steam cleaned or vacuumed. Where possible, use a vacuum cleaner with HEPA filtration.
- Multiple occupancy rooms require regular cleaning, with particular attention given to bathroom facilities and frequent hand touch surfaces.
- Adherence to adequate hand hygiene after PPE is removed is essential.
- For details on cleaning and disinfection refer to NCEC National Clinical Guideline No. 30 – Infection Prevention and Control (IPC) 2022.

3.2.3 Waste management

- In a clinical setting, protective equipment should be worn by people handling waste and hand hygiene as per WHO 5 moments washed on disposal of PPE.
- Waste generated by healthcare should be disposed of as healthcare risk waste according to local procedures

3.2.4 Management of laundry/linen

- Refer to management of linen in NCEC National Clinical Guideline No. 30 – Infection Prevention and Control (IPC) 2022.
- There is a potential risk that infections such as diphtheria can be spread via contact with clothing or linens (such as bedding or towels) used by an infected person therefore handling should be minimised.
- Linens and bedding should be carefully lifted and rolled to prevent dispersion of infectious particles from lesions and body fluids and placed in a water soluble bag and managed as per NCEC National Clinical Guideline No. 30 – Infection Prevention and Control (IPC) 2022.

Part 4: Outbreaks

- Given the current epidemiology in Ireland and risk of spread in communal settings, a single probable case of diphtheria in a communal setting would warrant convening an Outbreak Control Team. This will be based on initial risk assessment.
- The OCT will be chaired by the local MOH on duty and will include relevant stakeholders as required.
- Following appropriate investigation and risk assessment a warn and inform letter will be distributed to residents within the setting. (See Appendix C)
- Where a limited number of cases and contacts exist, these should be managed as per case and contact management guidance above.
- However, outbreak management within challenging environments may require a move away from an individual targeted approach involving contact tracing, testing and prophylaxis which becomes unsustainable and ineffective, towards mass control measures that can be implemented at scale and pace.
- Evidence suggests a similar impact on transmission may be achieved by applying control measures to a larger at-risk population whilst also alleviating pressure on stretched healthcare provision.
- In models of outbreak scenarios, mass prophylaxis has been suggested to interrupt transmission even with relatively low coverage and mass vaccination reduces transmission likely through reduced symptomatic shedding (4).
- Prioritisation for mass prophylaxis and vaccination should be considered as follows:
    1. Children under 5 years of age.
    2. Families with children under 12 years of age.
    3. Those arriving from Afghanistan and Syria where diphtheria appears to be particularly prevalent and recent health infrastructure has been disrupted.
- The intervention includes:

1. Mass antibiotic prophylaxis:

First line azithromycin (adults and children aged 12 years and over, 500mg once daily for 6 days); children under 12 years of age, 12mg/kg (up to maximum 500mg) once daily for 6 days.

First line antibiotics	Dose	Duration (days)
Adults and children aged 12 years and over		
Azithromycin	500mg od	6
Children aged under 12 years		
Azithromycin	12mg/kg od (up to a maximum of 500mg)	6

2. Vaccination

All the above should be offered a single dose of diphtheria containing vaccine as per NIAC guidance:

- Children under 10 years should receive full dose diphtheria vaccine (D) as DTaP/IPV/Hib/Hep B or DTaP/IPV (or Tdap/IPV in the event of a temporary shortage).
- All aged 10 years and over should receive low dose diphtheria vaccine (d) as Td or Td/IPV or Tdap or Tdap/IPV depending on other vaccine requirements.

Residents with symptoms compatible with respiratory diphtheria, such as upper respiratory tract illness characterised by sore throat and/or low-grade fever, should be

clinically assessed in accordance with Part One, and receive treatment as per UK National Guidance.

4.1 Current pathways for incident response measures:

- Traditionally, in most cases, GP colleagues support the incident or outbreak response by performing swabs as required and administering post exposure prophylaxis vaccination.
- Due to national GP capacity issues, a large proportion of residents in these settings will not have a named GP assigned to them. Thus, this pathway will not be viable.
- Some regional departments of Public Health have the capability to administer PEP vaccination, as well as swab and prescribe chemoprophylaxis.
- The National Ambulance Service currently provides assistance with urgent response to vaccine preventable diseases and outbreaks in congregate settings via the Emerging Threats team within the National Ambulance service.
- The requesting MOH should contact NAS National Emergency Operations Centre (NEOC) on **0818 501 999.** NEOC will allocate the call to the Emerging Threats Team.
- The MOH should identify to NAS the residents requiring swabbing and/or vaccination.
- Further details of operating procedures and necessary contact details can be found in *"Protocol for the provision of urgent testing and/or vaccination services in the event of a case or an outbreak of specified infectious diseases in congregate accommodation setting(s)"*

References

1) "Public health control and management of diphtheria in England Supplementary guidance for cases and outbreaks in asylum seeker accommodation settings" UKHSA, 2022. https://www.gov.uk/government/publications/diphtheria-public-health-control-and-management-in-england-and-wales
2) CDC. 'Diphtheria in Epidemiology and Prevention of Vaccine-Preventable Diseases (The Pink Book)' 14th edition. *Washington, D.C. Public Health Foundation, 2021*
3) Polonsky JA and others. 'Epidemiological, clinical, and public health response characteristics of a large outbreak of diphtheria among the Rohingya population in Cox's Bazar, Bangladesh, 2017 to 2019: A retrospective study' *Public Library of Science Medicine 2021: volume 18 number 4*
4) Truelove SA and others. 'Clinical and Epidemiological Aspects of Diphtheria: A Systematic Review and Pooled Analysis' Clinical Infectious Diseases 2020: volume 71 number 1

Appendix A: HSE National Self Isolation Facility Referral Form

Please Complete in Block Capitals)

All correspondence should be sent to isolation.facility@hse.ie

For all queries contact 01 9210251 / 01 9210158 / 087 1800130 (8:00 to 19:00 daily)

Client Name:	
Address:	
Gender: ☐ **Male** ☐ **Female**	**DOB** (DD/MM/YYYY): / /
Consent to receive Text messages: ☐ **Yes** ☐ **No**	**Tel/Mobile #:**

Parent/Guardian/ Next of Kin		**GP Name**	
Relationship to client		**Address**	
Tel / Mobile #		**Tel/ Mobile #**	

Referral Source: ***Acute Hospital*** ☐ ***GP*** ☐ ***Assessment Hub*** ☐ ***Public Health*** ☐ ***Other*** ☐

If other, please specify: _____

Is patient a Healthcare Worker: ☐**Yes** ☐**No**

Infectious Disease Status **Please complete all sections**	**COVID** ☐ **Mpox** ☐ **Chickenpox** ☐ **Measles** ☐ **Norovirus** ☐ **Scabies** ☐ **Other** ☐ If "Other" please state type of Infectious Disease: _____ Is the patient a confirmed case: ☐Yes ☐No Date of onset of symptoms: / / Type of Symptoms: _____ **Or**: Date of contact with known / suspected case: _____ Date of test, if done (NOT date of result: _____ Date of last documented fever_____ Expected date of completion of isolation: _____ Vaccination Status (for Mpox, Chickenpox & Measles) : ☐Yes ☐No ☐Unknown Date of vaccination: _____

Reason for Referral ***i.e. reason they are unable to self-isolate at home, please be specific:***

Background Information	Smoker: ☐ Yes ☐ No Drug Dependency: ☐ Yes ☐ No Alcohol Dependency ☐ Yes ☐ No Psychiatric Illness ☐ Yes ☐ No Seizures/Epilepsy ☐ Yes ☐ No	**Interpreter required**: ☐ Yes ☐ No Language _____
Past Medical History		
Medications Please include Dose & Frequency	**Does the resident have sufficient medication for their isolation period?** ☐ Yes ☐ No	
Allergies		**Dietary Requirements:**

Mobility / Disability (Hearing / visual impairment)? **Note that the potential resident must be self-caring**
Please outline.

Checklist for Referrer:

1.	This Resident is suitable for isolation in a self-caring facility	☐ Yes	☐ No
2.	The resident has agreed to isolated in the facility for necessary period of time	☐ Yes	☐ No
3.	Has resident consented to this referral?	☐ Yes	☐ No
4.	Has the resident consented to sharing of their information?	☐ Yes	☐ No
5.	If discharging from an **Acute Hospital**, Discharge Summary attached	☐ Yes	☐ No

Please confirm you will accept this patient back to your hospital should they become unwell: ☐ **Yes** ☐ **No**

Signed: _____ **Date:** / /

Referred By (Title & Name): PLEASE PRINT _____

Place of Work: _____

Signature: _____ **Date:** _____

Tel: _____ **Email:** _____

For residents under 18 years of age:

Parent/Guardian/Next of Kin Signature: _____ **Date:** _____

Important Information - Not to be returned with Referral Form
(To be given to Patients in advance of Admission)

Items to be brought by residents to Isolation Facility: -

- Mobile telephone and a charger
- Enough personal clothing for the duration of your stay (up to 14 days)
- List of prescription medication
- Bring a supply of prescription medication for the duration of stay (up to 21 days)
- Reading glasses, if worn
- Laptop and charger if desired - Wi-Fi is available free of charge in the facility
- Apple iPad or android tablet or kindle if desired – Wi-Fi is available free of charge in the facility
- Reading materials such as books and magazines, study materials
- Notebook and pens (for personal use)
- Walking shoes, warm outdoor coat/raincoat, hat, scarf and gloves and an umbrella
- Personal toiletries and cosmetics
- Personal supply of face masks and alcohol gel, if you have them
- Own hairdryer if preferred
- Snacks/treats for own use. Dried products only. No take-away deliveries or perishable foods are allowed.

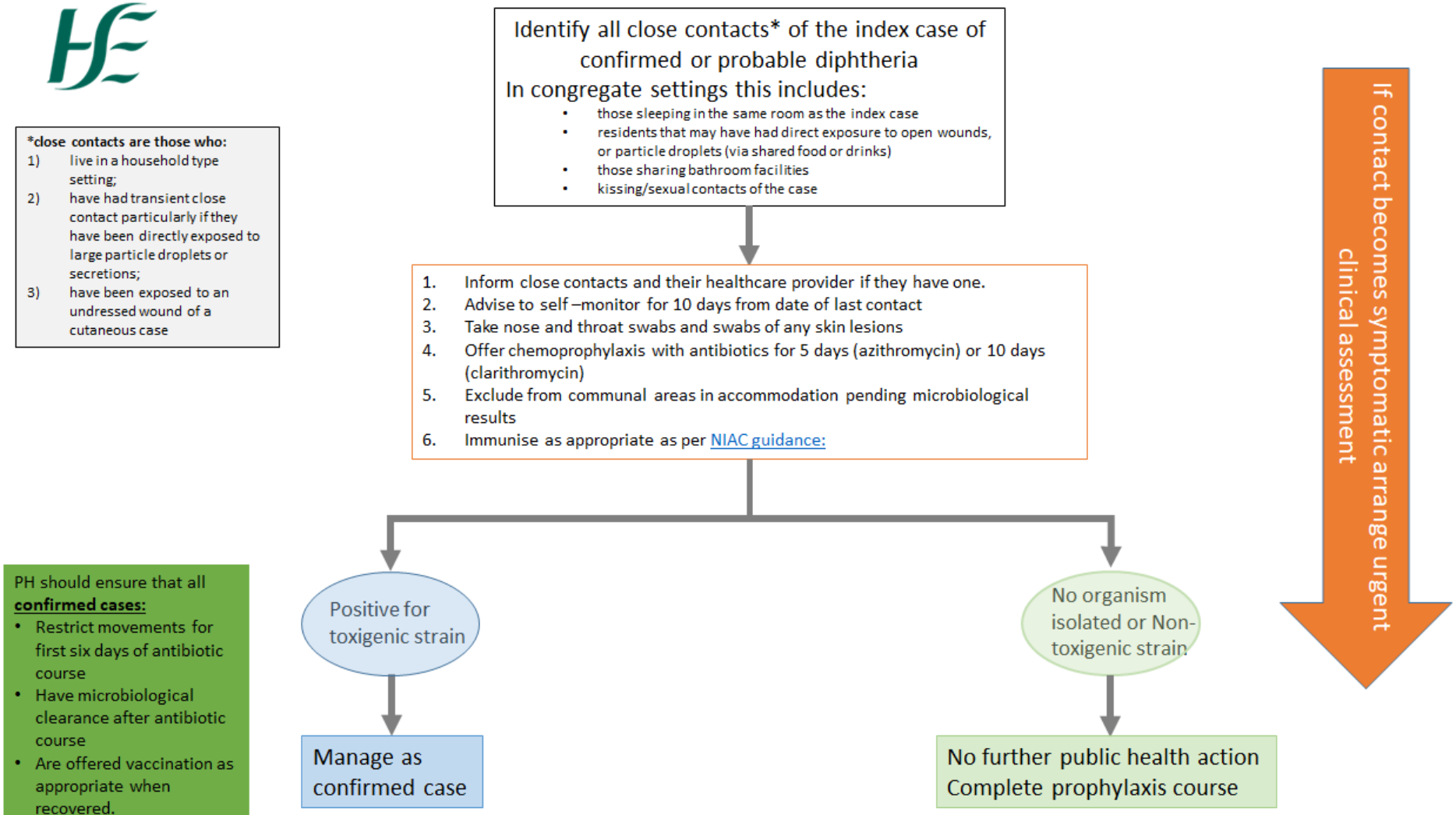
Residents with children:

Please note that in the event that you become unwell during your isolation period or require hospitalisation, your child(ren) will attend hospital ED with you and will be transferred to the care of the hospital social services during the period of your ED assessment or Treatment.

- Enough changes of clothing
- Nappies and or pull ups
- Baby wipes and baby toiletries
- Calpol and/or Neurofen
- Prescription medications
- Electric Steriliser and bottles – Microwave facility **not** available
- Toys, books, colouring books, colouring pencils & crayons and games
- Outdoor clothing

Please do not bring valuables with you to the facility

Appendix B: Algorithm for close contact management



Appendix C: Warn and inform letter

Date:

Dear Sir/Madam,

This letter is to inform you that a person who lives at [*insert centre name*] has been diagnosed with an infection called diphtheria. You are not a close contact so your risk of getting this infection is very low.

While your risk of infection is small, if you have any symptoms of diphtheria it is important that you are seen by a doctor as soon as possible. This is so that you can be tested for diphtheria and treated if needed. Please read the diphtheria factsheet at the end of this letter, which gives information about diphtheria. If you are worried that you or someone close to you has diphtheria, please seek urgent medical attention and bring this letter to show your doctor.

It is important that you are up to date with the vaccinations that are recommended in Ireland. If you are registered with a GP/family doctor practice, they should be able to advise you about vaccinations you might need. This is especially important if you are unvaccinated or are unsure of what vaccines you have already received.

If you do not have a GP/family doctor you can find information on the Irish vaccination schedule here and ask for advice from members of the HSE team that visit your accommodation centre.

Yours sincerely,

_____

Dr. [*insert name*]
Consultant in Public Health Medicine

Diphtheria Factsheet

What is diphtheria?
Diphtheria is a serious infection that usually begins with a sore throat and can cause breathing problems. Occasionally it can affect the skin.

What are the signs and symptoms of diphtheria?
The most common symptoms of are:
- Throat: sore throat, loss of appetite, and slight fever, swelling of neck, difficulty breathing
- Nose: nasal discharge and superficial ulceration or sores
- Skin: sores and shallow ulcers

How serious is the disease?
Diphtheria can be fatal - between 5% and 10% of diphtheria patients die, even if properly treated. If untreated, the disease claims even more lives.

How is diphtheria diagnosed and treated?
If you have any of the above symptoms you need to be seen by a doctor for testing and treatment.

The doctor or nurse will take a swab to test for the diphtheria. Treatment includes antibiotics and, if diphtheria is confirmed, anti-toxin may be required.

How is diphtheria spread?
Diphtheria is spread by contact with respiratory droplets from the throat of a person with diphtheria or one who carries the bacteria, through coughing and sneezing. Occasionally, spread may also occur through touching objects which have been in contact with skins sores or ulcers of infected people.

How is diphtheria prevented?
The most effective way of preventing diphtheria to get the vaccine

How many doses of diphtheria vaccine are recommended?
In Ireland, at least 5 doses of vaccine containing diphtheria toxoid are recommended.

Additional boosters may be needed to maintain immunity for those at particular risk of infection.

Further information on vaccination is available from the HSE National Immunisation Office which provides up-to-date information about HSE immunisation programmes for children, adults and healthcare professionals in Ireland.

Appendix D: Close contact letter

Date:

Dear Sir/Madam,

You have been in contact with someone who has an infection called diphtheria. The risk to you of getting this infection is low. We advise that you should take antibiotics to reduce your risk of developing diphtheria infection.

A member of the local Public Health team will be in contact with you.

They will:

- Check if you have any symptoms of diphtheria infection
- Arrange a swab of your nose and throat and any skin lesions you may have to test for diphtheria
- Prescribe antibiotics for you to reduce the risk of you developing diphtheria
- Check if you have been vaccinated against diphtheria and arrange additional diphtheria vaccination for you if needed.
- Advise you on what will happen next

Although the antibiotics prescribed for you reduces your risk of developing diphtheria, they do not completely eliminate the risk, so remain alert for diphtheria symptoms as described in the factsheet below. If you develop any symptoms, please seek urgent medical attention and bring this letter to show your doctor.

You should avoid contact with people who are not fully vaccinated until the test results are available, this means staying in your room and avoiding shared areas where you live.

Please read the factsheet attached which gives you information about diphtheria.

Yours sincerely,

_____

Dr. [*insert name*]
Consultant in Public Health Medicine

Diphtheria Factsheet

What is diphtheria?
Diphtheria is a serious infection that usually begins with a sore throat and can cause breathing problems. Occasionally it can affect the skin.

What are the signs and symptoms of diphtheria?
The most common symptoms of are:
- Throat: sore throat, loss of appetite, and slight fever, swelling of neck, difficulty breathing
- Nose: nasal discharge and superficial ulceration or sores
- Skin: sores and shallow ulcers

How serious is the disease?
Diphtheria can be fatal - between 5% and 10% of diphtheria patients die, even if properly treated. If untreated, the disease claims even more lives.

How is diphtheria diagnosed and treated?
If you have any of the above symptoms you need to be seen by a doctor for testing and treatment.

The doctor or nurse will take a swab to test for the diphtheria. Treatment includes antibiotics and, if diphtheria is confirmed, anti-toxin may be required.

How is diphtheria spread?
Diphtheria is spread by contact with respiratory droplets from the throat of a person with diphtheria or one who carries the bacteria, through coughing and sneezing. Occasionally, spread may also occur through touching objects which have been in contact with skins sores or ulcers of infected people.

How is diphtheria prevented?
The most effective way of preventing diphtheria is to get the vaccine

How many doses of diphtheria vaccine are recommended?
In Ireland, at least 5 doses of vaccine containing diphtheria toxoid are recommended.

Additional boosters may be needed to maintain immunity for those at particular risk of infection.

Further information on vaccination is available from the HSE National Immunisation Office which provides up-to-date information about HSE immunisation programmes for children, adults and healthcare professionals in Ireland.

Appendix E: Vaccine information close contact

Diphtheria Vaccination Information Leaflet for Close Contacts

Why am I being offered this vaccine?
You are being offered this vaccine because you are a close contact of someone who has an infection called diphtheria. Diphtheria vaccination is the best way to protect against diphtheria infection.

What is diphtheria?
Diphtheria is a serious disease that usually begins with a sore throat and can quickly cause breathing problems. It can damage the heart and nervous system and, in severe cases, it can kill. The same bacteria can also cause ulcers on the skin, particularly the legs.

How is diphtheria spread?
Diphtheria is spread by contact with respiratory droplets from the throat of a person with diphtheria or one who carries the bacteria, through coughing and sneezing. Occasionally, spread may also occur through touching objects which have been in contact with skins sores or ulcers of infected people.

How is diphtheria prevented?
Diphtheria vaccination is given as part of the childhood immunisation programme worldwide. The vaccine is very effective and safe and so the disease is now rare in Ireland. In countries where immunisation services have been disrupted, diphtheria infection is more common.

Will the vaccine stop me developing diphtheria?
You are now being offered diphtheria vaccination because you are a close contact of a person who has diphtheria infection. This vaccine also provides important protection against polio and tetanus infections.

If you have already been fully vaccinated against diphtheria when you were a child, one dose of vaccine is recommended now to boost your protection and is very safe.

If you have not been fully vaccinated as a child (or you are not sure if you have been fully vaccinated), you are recommended to receive one dose of vaccine now. This vaccination will help to start your protection against diphtheria, but it is also important that you receive more doses of vaccine later to complete the vaccination course and ensure that you are fully protected.

Is there anyone who cannot have the vaccine?
There are very few reasons why you cannot receive the vaccine. You should not get the vaccine if you have had a very severe allergic reaction (anaphylaxis) to a previous vaccine or to any part of the vaccine. Please tell the Public Health or medical Team who are organising the vaccination if this has happened to you.

Are there any side effects from the vaccine?
Like all medicines, vaccines can cause side effects. Most of these are mild to moderate, short-term, and not everyone gets them.
You may have some redness, swelling or tenderness in the arm where you had the injection, or you may have a temperature or a headache. These symptoms will usually disappear in a few days.

Serious side effects, like a severe allergic reaction, are extremely rare. Your vaccinator is trained to treat very rare serious allergic reactions.
If you are very unwell after getting a vaccine, you may be sick for some other reason. If you are concerned, please seek medical advice.