

Guidelines for large-scale contact tracing

Public Health England

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2 Contents

About Public Health England	2
1 Document control	3
2 Contents	4
3 Introduction	5
4 Governance	5
5 Scope	5
6 Contact tracing definitions and functions	6
7 Triggers for large-scale contact tracing	7
8 PHE Internal Structural Roles & Responsibilities	7
8.1 National Infection Service (NIS)	8
8.2 Health Protection and Medical Directorate	8
8.3 Centres and Regions	9
9 Coordination of large-scale contact tracing activities	9
9.1 Governance and leadership	11
9.2 Activating a contact tracing cell	11
9.3 Standing down a contact tracing cell	11
10 Records Management	11
11 Information sharing	12
12 Acknowledgements	12
Annex 1: Case studies	13
Annex 2: Contact tracing cell Terms of Reference	15
Aims & Objectives	15
Command and Control	15
Responsibilities and accountability	15
Membership	15
Continuity arrangements	16

3 Introduction

A key component of the public health response to infectious and non-infectious disease incidents is the identification of at-risk individuals (including those exposed and potentially exposed) in order to provide health advice, implement effective control measures and monitor health outcomes. Occasionally, contact tracing can be on a scale that demands input from multiple services and special arrangements may be required for rapid public health response. The extent or scale of incidents may vary substantially, both in terms of the numbers of at-risk contacts identified and their dispersal across the country or internationally.

This guideline is designed to establish consistency for large-scale contact tracing arrangements across PHE as part of its Emergency Preparedness, Resilience and Response (EPRR) framework. It is for internal PHE use and can be referred to by any PHE service involved in contact tracing for public health response.

The guideline may only be enacted where PHE has a legal duty to undertake the described activities. The rationale behind activating large-scale contact tracing activities must be recorded in the appropriate incident record or log, along with the decision itself.

4 Governance

This guideline was tasked by the EPRR Delivery Group and developed by a working group with representation from a number of PHE operational functions: the National Infection Service, Centres & Regions, Centre for Radiation, Chemicals and Environmental Hazards (CRCE) and Emergency Response Department.

The PHE EPRR Delivery Group has governance oversight of the development of this guideline and will review and update as lessons are learnt from future contact tracing operations. The PHE EPRR Oversight Group is responsible for approval the use of this guideline across PHE. This guideline sits within the suite of PHE documents supporting the NIERP.

5 Scope

This guideline outlines the principles of large-scale contact tracing, arrangements for co-ordination and processes for setting up a cell which takes responsibility for these activities. It applies to any incident involving large-scale contact tracing, recognising that the operational detail of contact tracing activity may vary and a contact tracing cell may or may not be required depending on the nature of the incident.

Whilst the guideline may be used at all levels of incident response as defined in the PHE National Incident Emergency Response Plan (NIERP), it is anticipated for use when contact tracing activities are outside the day-to-day functions of public health teams, which implies that a 'Standard' or 'Enhanced' incident has been declared with a nominated Incident Management Team (IMT) and Incident Director (ID).

Patient notification exercises (for example a look-back exercise to notify patients of potential risk as a result of surgical procedures performed by a HIV-positive surgeon) and the possible use of a public health incident register are not within scope of this guideline, but is part of the guidance mentioned below.

The following documents were referred to in the writing of these guidelines:

- **National Incident Emergency Response Plan (NIERP)** – PHE ERD
- **Contact tracing protocol for measles related to air travel** – PHE NIS Vaccines & Countermeasures
- **Middle East Respiratory Syndrome Coronavirus (MERS-CoV) Commercial Aircraft Contact Tracing Protocol** – PHE NIS TARGET
- **Guidelines for the management of high consequence infectious disease** – PHE
- **International Health Regulations 2005: UK National Focal Point communications protocol** – PHE NIS IHR NFP
- **Local Health Resilience Partnerships (LHRP) framework** – NHS England
- **Information sharing agreement Transport for London** – PHE Port Health
- **Port Health review of airline data sharing** – PHE NIS
- **Public Health Incident Register Implementation Guidance** – PHE ERD
- **Management of an incident where patient recall or notification may be required: Guidance on risk assessment, lookbacks and patient notification exercises [Draft]** – PHE Health Protection

Operational details are not within the scope of these guidelines, including the role of external stakeholder organisations, which may in practice take on responsibility for giving public health advice and/or prophylaxis in some circumstances.

6 Contact tracing definitions and functions

Contact tracing is defined as the process of **identification, listing, risk assessment and follow-up** of individuals who have had sufficient exposure to an infectious or harmful agent to merit public health action.

For the purpose of this guideline, contact tracing is defined as **large-scale** if it demands time/ resource/ personnel/ expertise **beyond the routine day-to-day capacity of the PHE team(s) responding to the incident**. This may be due to any of the following reasons:

- Identification of contacts involves complex arrangements and/ or multiple data sources
- A large number of contacts are identified
- Contacts are geographically dispersed
- The incident involves exposure to an unusual or novel agent
- The incident/contact tracing involves substantial communication with international organisations (such as the World Health Organization and the European Centre for Disease Prevention and Control) or with other countries including via the International Health Regulations National Focal Point

The functions to be delivered during large-scale contact tracing include:

- Leadership, management and co-ordination of contact tracing activity
- Setting case and contact definitions
- Definition of risk assessment parameters and the population at risk
- Identification of contacts
- Data collection regarding risk factors (passive and/ or active)

- Risk assessment of individuals identified for contact tracing
- Data management: documentation of contact details through line-lists
- Follow-up of individuals at risk, including international liaison with organisations and other countries
- Data analysis including descriptive epidemiology, mathematical modelling, GIS mapping and/or other analyses where appropriate
- Production of situation reports (SitReps)

7 Triggers for large-scale contact tracing

The ID in consultation with the IMT should consider each the following when deciding if large-scale contact tracing activities are indicated:

- Reflect on the incident dynamic risk assessment
- What skills, expertise and resources are needed to deliver the contact tracing activities specific to the given incident
- Has the definition of large-scale contact tracing been met
- How to make the most effective use of PHE resources

If additional support is needed beyond day-to-day functions of the responding team(s), the ID should confirm through discussion with leads of those team(s) and the IMT, whether the criteria for large-scale contact tracing is met.

It is important to recognise that the capacity of the team(s) responsible for undertaking contact tracing is subject to change as the incident evolves or as other events impact on the availability of resources and personnel. The need for additional support should be regularly evaluated by means of **dynamic risk assessment**: the continuous identification of hazards, evaluation of risk, and situation review during an ongoing incident. The **dynamic risk assessment** provides a means of iteratively assessing the situation in order to modify contact tracing activity, taking into consideration the following criteria:

- Scale of contact tracing
- Geographical spread of contacts
- Complexity of contact tracing
- Availability of resources
- Speed of public health response
- Degree of national/ international interest and concern
- International spread of contacts

Case study 1 in Annex 1 illustrates triggers to requesting additional contact tracing support and establishing a contact tracing cell in the context of a large-scale measles outbreak.

8 PHE Internal Structural Roles & Responsibilities

The PHE response to an incident involving large-scale contact tracing may require input from more than one division/ service across the organisation. It may also involve external agencies (public sector, voluntary or corporate) within the UK or overseas.

Depending on the nature of incident, the ID will assign responsibility for large-scale contact tracing to the appropriate PHE service within the context of appropriate governance structures through the IMT. Usually, **the National Infection Service Field Service (NIS FS) will lead on delivery of large-scale contact tracing during incidents**, working with HPTs and other services as necessary.

The following section outlines roles and responsibilities, and lists examples of services which offer specific functions and specialist support in the context of large-scale contact tracing.

8.1 National Infection Service (NIS)

The NIS Directorate includes laboratory services, specialist infection services and epidemiology services which routinely provide advice and support to IMTs including specialist clinical advice regarding public health management of infectious hazards. NIS supports delivery of rapid interventions and post-exposure treatment (vaccines and immunoglobulin therapies) across PHE regions and in some cases internationally.

NIS is able to provide leadership and/or undertake responsibility for specific functions during large-scale contact tracing activities as described in section 6.

NIS Divisions which may be involved include (but are not limited to) the Field Service; Healthcare- Associated Infections and Antimicrobial Resistance (HCAI & AMR); and Tuberculosis, Acute Respiratory, Gastrointestinal, Emerging/Zoonotic Infections and Travel and Migrant Health Division (TARGET); Blood Safety, Hepatitis, Sexually Transmitted Infections (STIs) & HIV; Immunisation and Countermeasures; Regional, national and specialist reference laboratory services, including the Rare and Imported Pathogens Laboratory (RIPL).

The **International Health Regulations National Focal Point (IHR-NFP)** is coordinated by TARGET and takes responsibility for:

- Alerting WHO/ ECDC of events that may have international public health significance under **International Health Regulations IHR (2005)**
- Disseminating information from WHO regarding international events with potential significance
- Making UK public health authorities aware of international events which require follow-up of contacts on return to the UK from overseas
- Alerting NFPs in other Member States regarding international contact tracing

8.2 Health Protection and Medical Directorate

The Health Protection and Medical Directorate comprises national services for the prevention and control of infectious diseases and environmental hazards, and for public health emergency preparedness and response. These include:

Emergency Response Department (ERD)

In addition to supporting Enhanced response incidents at the national level, ERD can also offer support for Standard response incidents. This might include facilitating access to mutual aid and providing links to other government departments and agencies.

Centre for Radiation, Chemical and Environmental Hazards (CRCE)

CRCE provides specialist support in response to an incident involving a chemical, radiation or environmental hazard. In addition to the generic contact tracing responsibilities this might involve developing systems for triaging contacts, for example using NHS 111 services, providing information to at-risk individuals or coordinating collection and laboratory analysis of samples.

CRCE operates its own case management system with the capacity to deal with large numbers of contacts.

8.3 Centres and Regions

Health Protection Teams (HPTs) routinely deal with situations requiring contact tracing. They have a key role in ensuring follow-up and public health action to protect the health of at-risk individuals.

Contact details, risk assessments and public health actions are documented by the HPT using the PHE secure electronic case management system. Contacts that are not within the geographical boundaries of the responding Centre are generally referred to the appropriate HPT or specialist service for follow-up.

HPTs typically work closely with other PHE services within the Centre geographical area may also draw on resources from neighboring Centre-level services via mutual aid agreement to ensure business continuity during incident response.

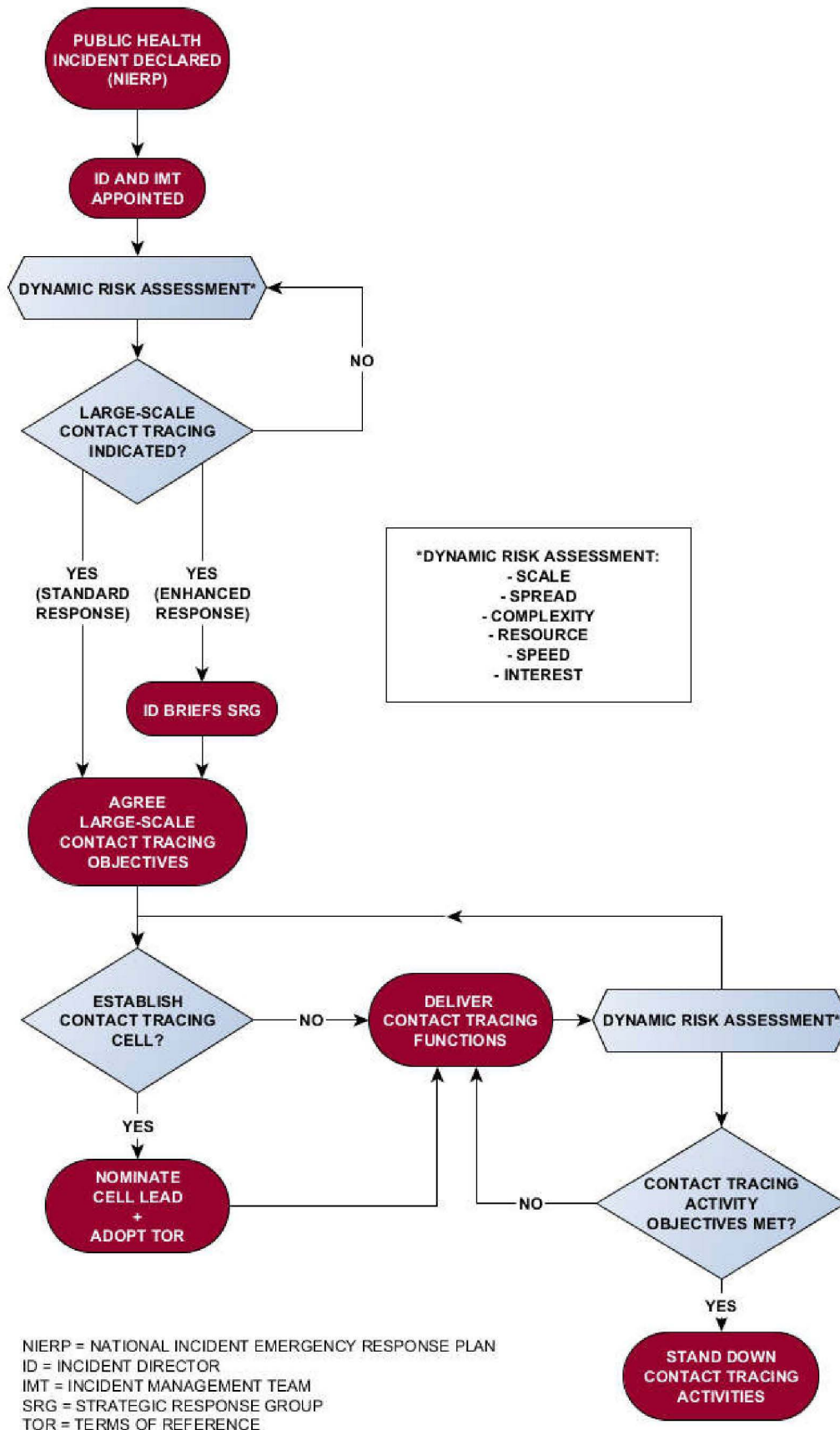
9 Coordination of large-scale contact tracing activities

Large-scale contact tracing activities are coordinated and delivered by PHE services working in context of an IMT.

Depending on the dynamic risk assessment, the ID may decide to establish a contact tracing cell or other cell with wider role (e.g. epidemiology cell) which takes responsibility for contact tracing. A contact tracing cell can facilitate PHE Standard and Enhanced incident response by ensuring dedicated staff and resources are available to coordinate complex flows of information from multiple sources, maintain information security and robust line lists for reporting and public health management, and provide a single authoritative source of information on at-risk persons.

Figure 1 outlines key stages and decisions leading the ID to activate or stand down large-scale contact tracing activities.

Figure 1 Stages and decisions in large-scale contact tracing activities



9.1 Governance and leadership

In the first instance, the ID (reporting to the IMT as per established governance structures) should liaise with the Field Service team to discuss establishing a contact tracing cell. The cell lead will usually be expected to report directly to the ID through the IMT.

A protocol should be produced to govern the work of the cell, and approved as appropriate through the PHE incident response structure.

9.2 Activating a contact tracing cell

A contact tracing cell may formally be established through the following process:

1. PHE incident response declared in accordance with the National Incident and Emergency Response Plan (NIERP)
2. ID appointed and IMT convened (although the PH response may be initiated before this stage)
3. Indication for large-scale contact tracing met and agreed by ID through the IMT
4. SRG briefed by ID (enhanced response incidents only); decision taken whether to establish a contact tracing cell, and provided with detail of the cell's activity and governance structures
5. Cell lead identified to direct the work, establish the cell and co-ordinate its functions according to the terms of reference (see [Annex 1 Contact tracing cell terms of reference](#))

9.3 Standing down a contact tracing cell

The ID (through the IMT as per governance structures) should agree the criteria for standing down the contact tracing cell, for example when all contacts have been followed up and associated public health actions are complete. The contact tracing cell may be stood-down independently of other cells and the IMT.

10 Records Management

PHE must ensure robust processes are in place for the timely and secure capture and storage of data for contact tracing. This includes recognising the role that external agencies (public sector, voluntary and corporate) play, and building in processes for secure management and transfer of data when planning contact tracing operations.

All information gathered for the purposes of contact tracing activity should be collected, stored and used in compliance with the [Data Protection Act 2018](#), [PHE Data Protection and Information Governance Policies](#), [PHE Information Security policy](#) and [PHE records management policy](#).

A range of tools may be used for the purpose of delivering the functions of large-scale contact tracing. They may be reviewed and taken into account when considering how/ what data should be collected for analysis and to inform public

health action. A list of data capture, case management and line-listing tools in use at the time of publication is summarised in [section 5: Scope](#).

Key decisions made within the context of an established contact tracing cell should be recorded along with the rationale. In accordance with the NIERP, this can be done as part of the incident logging process (e.g. via the IMT), using email records or as a minute document during an IMT or Strategic Response Group meeting.

11 Information sharing

Data sharing between governmental departments and their agencies may be required for the purposes of public health response, according to the [Health Service \(Control of Patient Information\) Regulations 2002](#). The [Civil Contingencies Act 2004](#) and accompanying legislature provides a framework for data sharing between governmental and non-governmental organisations as part of emergency response.

Secure transfer of information must be arranged in accordance with information governance policies listed above in [section 10: Records Management](#).

When requesting personally identifiable information (PII) from external agencies such as the police, international health authorities or transport operators PHE should refer to the PHE [Personal Information Charter](#) as well as the PHE data sharing checklist, General Data Protection Regulation (GDPR) and other relevant legislation which can be accessed through the [PHE Caldicott site](#) on SharePoint.

Passenger information is routinely requested from travel operators for the purposes of public health follow-up of individuals who have had exposure to a health risk whilst in the UK, or whilst in transit to/ from the UK.

In some cases, data sharing may be facilitated by information sharing agreements between Public Health England and other governmental and non-governmental organisations to facilitate the identification and listing of at-risk individuals for public health follow-up. At the time of writing, several Memoranda of Understanding (MoU) are in development; these are listed in [Section 5: Scope](#). Data sharing with authorities in other countries and with international organisations (such as WHO or ECDC) may also be required for risk assessment and contact tracing. The PHE [Office for Data Release \(ODR\)](#) provides support for establishing robust data sharing agreements, conducting privacy impact assessments and ensuring that proportionate risk mitigation strategies are applied prior to releasing data.

Information should be gathered in a manner that is sensitive to the nature of the incident and vulnerability of affected individuals.

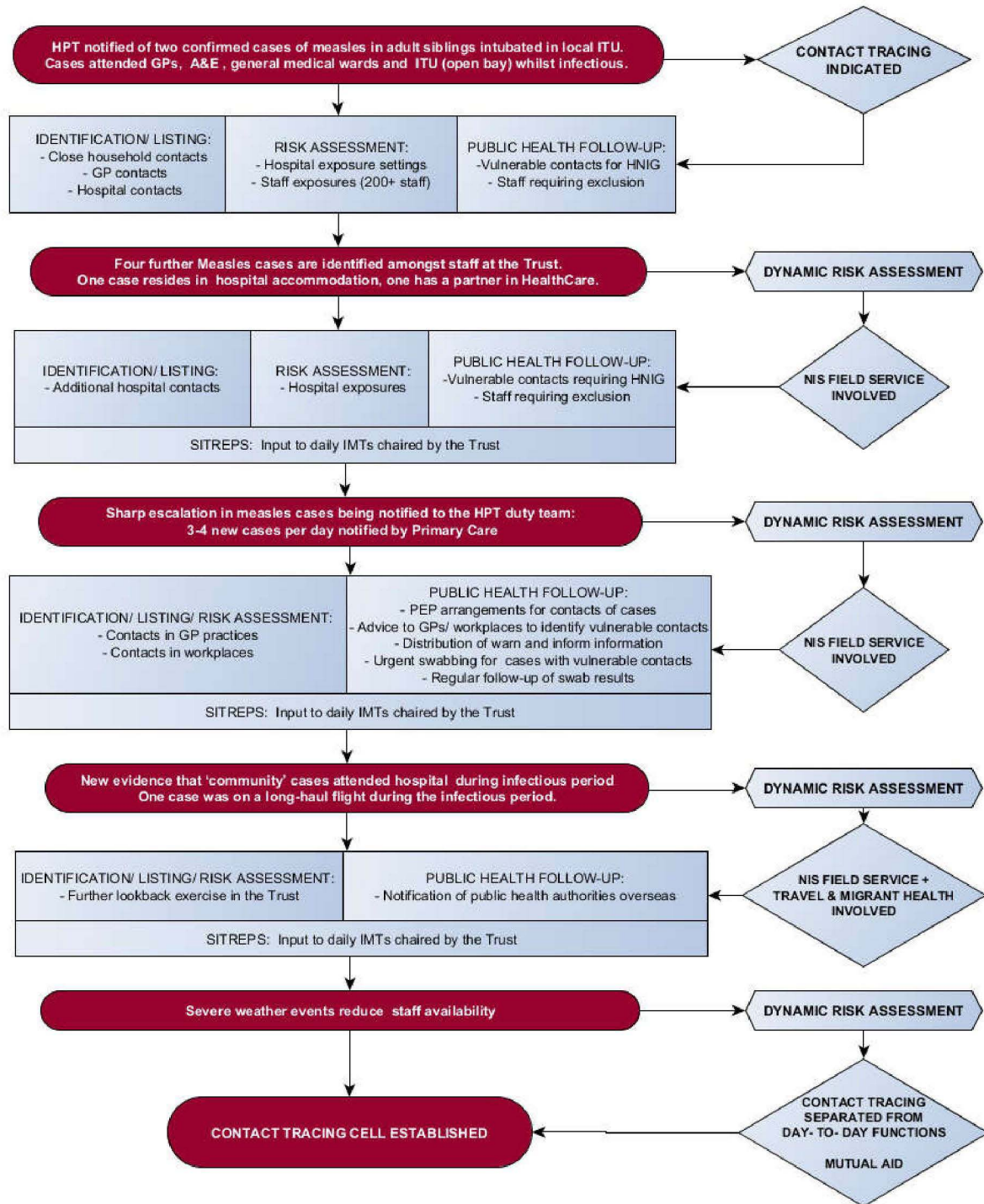
12 Acknowledgements

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Annex 1: Case studies

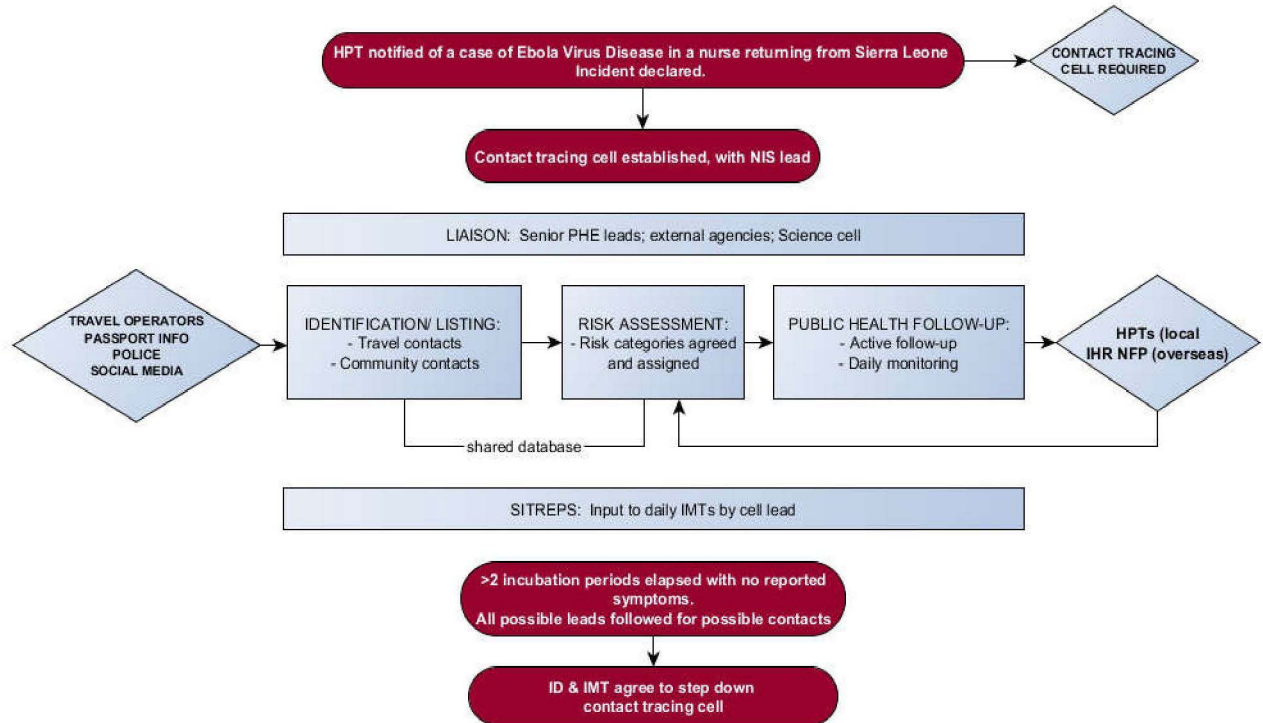
Case Study 1 Large-scale measles outbreak

Flow diagram illustrating HPT response to an evolving incident ('business as usual'). Contact tracing initially managed as part of routine day-to-day functions with support from specialist services co-located within the Centre; later separated from routine functions with mutual aid provided by a neighbouring Centre.



Case study 2 Imported case of Ebola Virus Disease

Illustration of contact tracing operations in response to a national Enhanced incident. Contact tracing cell established at the outset, managed by NIS with input from HPTs, the IHR NFP and external agencies. Cell lead responsible for communicating with other incident leads/ cells and for daily situation reports to the ID via the IMT.



Annex 2: Contact tracing cell Terms of Reference

Aims & Objectives

The aim of the contact tracing cell is to identify those potentially at risk of adverse health outcomes following exposure to an infectious or harmful exposure in order to initiate public health action. The objectives are to:

- Define case/ contact categories to risk assess individuals according to their need for public health follow-up
- Establish a protocol to govern the operational processes of the large-scale contact tracing activities
- Compile a list of cases/ contacts, along with relevant epidemiological risk factors and contact details necessary to fulfil the requirements of public health action
- Deliver the operational processes to identify individuals who meet the case/ contact definitions, provide public health advice and support delivery of any interventions as appropriate
- Produce situation reports (SitReps) and communicate these through the appropriate incident response governance structure
- As appropriate, communicate with the relevant national or international public health authority to ensure public health follow-up of cases/ contacts who are not resident in England or British nationals

Command and Control

The contact tracing cell lead will be nominated by the Incident Director, in conjunction with the IMT.

Responsibilities and accountability

The **Incident Director** holds responsibility for ensuring that the incident is managed responsibly, and for providing assurance to the Strategic Director (SD)/ senior PHE officials that appropriate action is being taken. The contact tracing cell reports directly to the Incident Director via the **contact tracing cell lead**.

Individual services operating within the contact tracing cell are accountable for the quality of their contributions through their managerial lines of accountability.

Public health management of cases/ contacts remains the responsibility of Centre HPTs, or the relevant public health authority.

The UK International Health Regulations National Focal Point (IHR-NFP) takes responsibility for communicating with international public health authorities and with other countries' public health authorities.

Membership

The contact tracing cell will be led and coordinated by a nominated PHE service (typically NIS Field Service); other PHE services may be represented within the cell, to provide appropriate expertise for each element of contact tracing.

Senior staff may be required for:

1. Strategic leadership and liaison with PHE senior hierarchy and other divisions
2. Operational leadership of contact tracing cell
3. Liaison with Advice cell/ Health Protection Teams in relation to public health follow-up of contacts
4. Data management
5. Clinical team leadership (contact and advice etc)
6. Liaison with gatekeepers for contact data (requires capacity to negotiate and if necessary escalate quickly for political support)
7. Business management

Specific skilled groups may be required for:

- Patient / contact liaison – may require clinical background and communication skills of HP practitioners
- Database development or editing
- Data management including automated merging and uploads
- Batch PDS checking and individual PDS check – individuals with skills and access to datasets

Continuity arrangements

It is important to establish contact tracing procedures and ensure a trained workforce to undertake those procedures throughout the incident response.

Mutual aid arrangements should help to maintain secure staffing of the contact tracing cell.