Guidance on Management of Outbreaks of Sexually Transmitted Infections (STIs)

(Adapted from the HPA document "Guidance for Managing STI Outbreaks and Incidents[1]")

Report prepared by STI guideline subgroup of the of the HPSC SAC subcommittee on Managing Outbreaks of Infectious Diseases.

This document will form an appendix of the Guidance for Managing Outbreaks of Infectious Diseases", which is currently in development. This guidance can also be used as a stand-alone document.

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1.0 Introduction

This guidance is designed for health professionals involved in the prevention, investigation, and control of outbreaks of STIs. It is also relevant for Non-Governmental Organisations (NGOs) who may be asked to contribute to and/or support the work of outbreak control teams.

Outbreaks of an STI can occur in a range of diseases such as syphilis, gonorrhoea, HIV, hepatitis B, and lymphogranuloma venereum. The intensity and scope of the investigation and response required will vary depending on the disease involved. Specific guidance for the management of Bloodborne Viruses in the healthcare setting is not covered in this document; this is available elsewhere[2].

An STI outbreak can be defined as a real increase in the observed number of cases compared to expected numbers over a defined time period. It may first come to attention following clinician concerns. To assess whether an outbreak is occurring as opposed to an upsurge in notifications (perhaps due to new testing techniques, the establishment of a new clinic, backlog in reporting of cases etc.) a preliminary investigation should be conducted. The number of epidemiologically-linked cases, the number of cases with specified high risk behaviours, or the number of cases reported from a geographical area in a specific time period as compared to a previous time period (e.g. previous month, quarter, year) should be considered[3].

However, sometimes it may still be difficult to decide whether or not an outbreak is occurring. Regardless of whether an increase in cases is labelled an “outbreak” some level of investigation should be initiated when an increase in cases is noted. The intensity and scope of the investigation and response may differ depending on the number of cases, the magnitude of increase in a specified population, or some other factor.

Cases may be occurring locally, nationally or internationally and/or in a given community. An STI outbreak may also consist of epidemiologically linked cases that are of public health significance (e.g. LGV). The response should therefore be tailored to the individual circumstances surrounding the increase. The steps to be taken, number and types of staff involved, and who in the healthcare system and general community is informed and involved will be necessarily different depending on these circumstances.

2.0 Background

Infections that are sexually acquired can be complex and challenging to investigate. Social stigma and confidentiality can complicate the collection of information and instigation of control measures. Therefore, the investigation and control of an STI outbreak will usually take longer than outbreaks of other infectious diseases. Furthermore, sustained behavioural change in particular sexual networks may be required to reduce the incidence, which can be very challenging. However, the components of an STI outbreak investigation are broadly similar to any other infectious disease outbreak investigation i.e. preliminary investigation, formation of outbreak control team, epidemiological and microbiological investigation, control measures, communications, review and evaluation and formal declaration that the outbreak is over.

The response to an STI outbreak requires a multidisciplinary approach. Consultants in Public Health Medicine, Surveillance Scientists and Officers, GUM/ID Physicians, Microbiologists, GPs, Health Promotion and Improvement Officers, Clinical Nurse Specialists and Sexual Health Advisors at STI clinics may all be involved in the investigation and response. Non-Governmental Organisations (NGOs) may also be involved.

Infectious Disease Regulations

As the designated Medical Officer of Health* (MOH), Specialists/Consultants in Public Health Medicine have a statutory role in relation to the investigation and management of infectious diseases (including STIs) and outbreaks. Medical practitioners are required to notify the MOH of certain infectious diseases and/or outbreaks. The MOH in turn notifies all outbreaks of infectious disease to the Health Protection Surveillance Centre (HPSC). The Principal Regulations relating to the role of the MOH are the Infectious Diseases Regulations 1981 (See Appendix B).

[1]* For consistency the term MOH will be used throughout the document and refers to either a Director of Public Health or a Consultant/Specialist in Public Health Medicine

3.0 Planning

Professional responsibilities

The effective control of STI outbreaks is dependent on the provision of adequately resourced sexual health prevention and diagnostic services. A number of key professional groups and organisations play an important role in the prevention and control of STIs. These professionals should be aware of their role and of others on an outbreak control team. These include GUM/ID Physicians, MOH, Microbiologists, GPs, Health Advisers at sexual health clinics and the Gay Men's Health Project. NGOs such as Dublin Aids Alliance, Aids West, Sexual Health Centre Cork, GOSHH etc. all play a pivotal role in sexual health services. There may also be local groups who would play a key role, especially if particular groups needed targeting.

Communication

Mechanisms for regular contact between professionals working in sexual health services should be developed to enable the development of networks between key HSE staff and NGOs. These networks will help facilitate effective investigation and intervention in the event of an outbreak. One such example is The Donegal Sexual Health Forum which has been in existence since 2009. It has a wide membership including Public Health, Health Promotion and Improvement, GUM, SATU, GP, Youth services, Student Health Nurse, Foroige and Women's Centre Representatives. It also has a youth councillor from the Donegal Youth Council. The expertise has supported the establishment of the GUM clinic in Donegal, contributed to local sexual health initiatives and worked on making GP surgeries more 'youth friendly'.

Contingency Planning

A plan should be developed at a local level which should identify financial resources/ contingency funds that may be called upon should financial help be needed in supporting disease control interventions (e.g. extra clinics, increased laboratory services, health promotion and improvement interventions). This funding may need to be requested from different parts of the service, e.g. acute hospital for extra clinics and laboratory surge capacity, Health and Wellbeing for health promotion materials etc. Sources of funding should be discussed early in the course of an incident/outbreak.

4.0 Preliminary Investigation

- The aim of the preliminary investigation is to confirm whether an outbreak is taking place and if yes, to what extent. Once the possibility of an outbreak has been raised a preliminary investigation should commence. This may involve meetings with the relevant professionals. The preliminary investigation is usually done by the MOH in collaboration with the GUM clinician/sexual health specialist/STI clinic service and microbiologist.

- It is important to check for other causes of increased reporting of cases – e.g. new laboratory techniques/tests, new clinic established, health promotion campaign for STI screening – before declaring an outbreak.

- Is the diagnosis confirmed microbiologically? If not request appropriate samples to be taken.

- Conduct a descriptive epidemiologic investigation to establish who (age, gender) is primarily affected, mode of transmission if available, where (local, regional or national) and over what time period. Is a possible source identifiable?

- Based on the preliminary descriptive investigation the Medical Officer of Health* may decide in consultation with the GUM/ID Physicians to declare an outbreak and convene an Outbreak Control Team (OCT) if appropriate.

- Even if an outbreak is not declared some of the following steps will take place in responding to an increase in cases

* For consistency the term MOH will be used throughout the document and refers to either a Director of Public Health or a Consultant/Specialist in Public Health Medicine

5.0 Outbreak Control Team

The role of an outbreak control team is to investigate, control and manage the outbreak. Membership of the OCT should include the key health professionals involved in the investigation and response to the outbreak. The MOH has statutory responsibility for investigating an outbreak and leads the investigations. There are no strict guidelines as to who may be on the OCT and as to when their involvement may occur. This will depend on the nature of the outbreak. The roles and responsibilities should be recorded.

Suggested generic descriptions of roles and responsibilities are outlined below – these are by way of **example only** and may vary depending on the type of outbreak and type of staff available locally. An OCT may include the following:

Membership of OCT

Professional	Generic Role and Responsibilities
Medical Officer of Health*	• The person taking responsibility for OCT chair would be decided at the group's first meeting, but usually it would be the MOH*. • Direct and coordinate management of the outbreak. • Ensure each member of the control team understands his/her role. • Be available throughout the outbreak for consultation and advice. • Ensure timely communication between members of the OCT and other parties.

* For consistency the term MOH will be used throughout the document and refers to either a Director of Public Health or a Consultant/Specialist in Public Health Medicine

	• OCT has responsibility for declaring the incident over. • Ensure that an outbreak report is written and that lessons identified are disseminated • Communicate with relevant stakeholders during the outbreak. Highlight priority to the Directorate of Health and Wellbeing and advocate if necessary for additional resources to manage the outbreak. • Provide local epidemiological expertise • Maintain heightened surveillance of the infection to evaluate the effectiveness of interventions. • Audit management of local outbreaks in conjunction with OCT members • Develop materials for training purposes from lessons identified (outbreak)
GUM/ID Physician	• Communicate with MOH if clinical concerns re increase in STIs • Facilitate confirmation and investigation of outbreaks through supporting enhanced surveillance and focused epidemiological studies. • Appraise capacity of local GUM services to respond to the STI outbreak and advocate for additional resources for services if necessary • Review and amend/adapt clinical management protocols as appropriate for the outbreak • Identify and help implement locally appropriate and acceptable control measures in conjunction with OCT.
Microbiologist/virologist from Local and/or Reference laboratory	• Identify outbreaks through routine surveillance and report to MOH. • Provide expert advice to OCT on interpretation of

	microbiological data, investigative methods, collection of specimens and outbreak control measures. • Provide expert advice on use of specialist diagnostic methods. • Arrange prompt analysis and reporting of clinical samples. • Arrange further testing at appropriate reference laboratories if required
HPSC	• Identify nationally distributed outbreaks not detected at a local level • Provide guidance on whether the observed increase is an outbreak or could be explained in terms of other factors. • Provide information resources to inform the outbreak response • Provide advice on epidemiological surveillance and analytic studies that may be undertaken to support the outbreak investigation and response. • Assist in development of investigative tools. • Occasionally, provide personnel to assist with field investigation or analysis of results. • Develop methods to evaluate control measures. • Coordinate national or international outbreak investigation • Alert system to the outbreak nationally and internationally when appropriate
Communications office	• Provide expertise on the most appropriate form of media management of the incident, i.e. proactive or

	reactive. • Draft all media messages with the OCT and ensure chair of the OCT signs these off. • Liaise with relevant communications managers of key stakeholders involved in the outbreak. • Liaise with National communications office if national media interest into the outbreak is thought likely • Ensure key messages are shared for the out of hours press office service.
Crisis Pregnancy Sexual Health Programme/Health Promotion and Improvement	• Liaise early with the Crisis Pregnancy Sexual Health Programme regarding Health Promotion and Improvement expertise. Unless there is a specific need HP&I will not routinely sit on an OCT but may be part of a subgroup dealing with communications and campaigns.
NGO	• Advise on local sexual health networks • Assist with the development and implementation of health promotion messages/campaigns • May provide sexual health services to aid response
Surveillance scientists	• Identify possible outbreaks through routine surveillance. • Provide epidemiological expertise and support with the investigation and control of the outbreak. This includes collation, management, analysis and reporting of outbreak data. • Prepare epidemiological reports for each OCT meeting • Development of investigative tools • Assist with the audit process.

	• Support with the development of training exercises. •Assist administrative staff, if so required, e.g. taking minutes of the meetings
Administrative Staff	• Provide administrative support to the OCT • Take minutes of the meetings
Senior Medical Officers/Specialist Registrars in Public Health Medicine	• Provide epidemiological expertise and support with the investigation and control of the outbreak. • Development of investigative tools • Assist with the audit process. • Support with the development of training exercises. • May assist with taking minutes of the meetings
HSE Sexual Health Area Manager (dependent on HSE area)	• Provide advice on local NGOs and sexual health networks • Advise on availability of resources for STI services in the area • Assist with the development of control and intervention methods
Health advisors	• Assist with the investigation of the outbreak • Undertake enhanced surveillance and partner notification to identify networks etc • Provide assistance with the implementation of control measures and any health promotion campaigns • Provide expertise on sexual networks
GPs/ Practice Nurses	• Assist with the investigation of the outbreak • Advise on investigation and response measures for primary care

	• Provide assistance with the implementation of control measures and any health promotion campaigns • Advocate for additional resources if needed
Student Health Services	• Assist with the investigation of the outbreak • Provide assistance with the implementation of control measures and any health promotion campaigns
Others	

Partnership Working

Developing and implementing control measures and campaigns can be very challenging and requires the combined expertise and resources of a wide range of disciplines within the statutory health service and NGOs. Constructive partnership working is key to maximising the contribution of all concerned to the ultimate goals of controlling the outbreak and distilling the learning for future use. As a mutual appreciation of the working processes and constraints of the different organisations is key to ensuring productive partnerships, the roles and expectations of each member of the OCT should be discussed and agreed at the outset and, as necessary, throughout the life of the group. In addition, good project management skills will be required to coordinate the various aspects of the response.

Governance of an OCT

An OCT usually functions for a single HSE area. Occasionally one HSE area will be asked to lead a regional OCT that involves another, usually adjacent, HSE area, following discussion among the relevant MOHs. If an outbreak extends across three or more HSE areas, the lead role generally falls to HPSC. (See Appendix C for further details regarding governance of an OCT).

6.0 Epidemiological Investigation

- Establish a case definition (list of symptoms, time period +/- geographical location) for confirmed, probable or possible cases
- Begin case finding. Contact GUM/STI clinics, GPs, other Public Health Departments etc. as appropriate to check for increase in cases.
- Describe outbreak in terms of time, place and person to ensure that its full extent is recognised.
- It may be necessary to develop a questionnaire/surveillance form to facilitate data collection. Detailed case interviews, social and sexual network investigation and monitoring partner notification effectiveness may be undertaken on a subset of cases to generate a hypothesis as to why the outbreak is occurring.
- Form a hypothesis and consider whether an analytical study is required. More complex analytical studies may be necessary to determine possible exposures and methods of transmission. The decision to undertake a case-control or cohort study to identify possible sources of infection depends largely on the objectives of the investigation and the resources available to the OCT.

7.0 Microbiological Investigation

- Identify and document the causative pathogen definitively.
- Liaise with laboratories/microbiologist regarding samples.
- If appropriate, forward isolates to reference laboratories for confirmatory testing and further phenotypic or genotypic typing.

8.0 Control Measures

An objective of the OCT is to develop and implement strategies which focus on interrupting the onward transmission of infection and preventing further cases amongst the affected population.

Interventions used to control STI outbreaks will depend on the specific disease and the population affected. The role of experts within the OCT is to formulate an effective, customised action plan. In general the identification of sexual contacts and sexual networks will be crucial to effective intervention. Health promotion may need to be targeted to specific sub-populations or more widely, and will need to include primary and secondary prevention strategies.

The OCT should ensure that the interventions being implemented are appropriate to the outbreak and the distribution of cases in the population. The OCT should be cognisant of the resources required to implement these measures. The following control methods could be considered:

- Find & treat additional cases (secondary prevention)
    - Partner notification (PN). It is crucial to identifying and reaching sexual networks.
    - Cognisance should be given to the possibility that some people who are infected may be marginalised within society and may not readily access any health services. Such groups need to be identified early in the investigation to ensure appropriate professional bodies are engaged at an early stage.
    - Publicity campaigns to encourage those at risk to come forward for screening.
    - Alert local health professionals (GUM/ID & GPs) to improve case ascertainment and disease presentation.
    - Provision of additional clinic services.
- Attempt to modify sexual risk taking behaviour (primary prevention)
    - General health promotion campaigns. Examples of national campaigns include Man2man.ie, (provides HIV and sexual health information for

gay and bisexual men, and other men who have sex with men in Ireland) and "Johnny's got you covered", a HSE initiative to combat unplanned pregnancy and STIs.

- Targeted health promotion campaigns. Campaigns aimed at specific risk groups include "OMG: Gonorrhoea…It's Trending" aimed at raising awareness among young people regarding the rise in gonorrhoea cases in 2013 [4, 5]. The campaign was jointly run by the Dublin AIDS Alliance, the Union of Students Ireland, SpunOut.ie, the HSE Crisis Pregnancy Programme and Think Contraception.

- Targeted outreach work. If the investigation indicates that target outreach work is appropriate then it should be supported by the OCT. [Outreach work was carried out during the syphilis outbreak among MSM in Dublin over the period 2001 to 2003 [6]. The purpose of this work was to raise awareness about syphilis and to actively find cases through the provision of on-site blood sampling, for subsequent testing for syphilis. During this time four rounds of site visits were carried out, each involving four different venues where MSM socialise and meet sexual contacts (two clubs, one pub and one sauna). The prevalence of new cases detected from testing MSM at these venues declined from 5.7% in the first round in 2001 to 1.9% in the final round in 2003[7].

- Focused research studies may be undertaken to understand the social context driving the local epidemic and may be useful with marginalised populations.

9.0 Communications

OCT Communications

- As with all outbreaks of infectious diseases an STI outbreak must be reported to the MOH, who in turn shall notify HPSC. The outbreak will be notified to the Assistant National Director, Health and Wellbeing – Public Health and Child Health, and the Director of Health and Wellbeing. Depending on the size and nature of the outbreak the Department of Health may also be informed.
- Consider communications to GPs/hospital consultants/STI clinics/Medical Directors of Laboratories to inform them of the outbreak and also for case finding.
- Consider information requirements for patients and the media. A draft press release may be needed at an early stage.
- Agree methods of communications between OCT members.
- Minutes of each OCT meeting will need to be documented.
- Sexual health services/STI clinics should consider informing their line manager/hospital manager of the outbreak so as to prepare for a possible increased demand on clinical and laboratory services.

Regional Communications Office

- Liaise early with the HSE Regional Communications Office.
- Communications office to advise on internal and external communications.
- An OCT member(s) should be nominated to draft all media information in close contact with the communications office and ensure these are signed off by the chair of the OCT.
- Consider information requirements (if any) for the various HSE directorates and DOH.
- Communications office may need to liaise with communication managers of the relevant stakeholders including NGOs involved in the outbreak.

Health Promotion Campaign

- Engage early with Crisis Pregnancy Sexual Health Programme about generating general or targeted health promotion campaigns.
- Consider the most appropriate form of media to utilise in developing a media and awareness strategy.
- If a health promotion campaign is being run by a third party such as NGOs ensure there is close collaboration between the NGO, the OCT, CPP/Sexual Health Programme and the communications office.

10.0 Review and Evaluation

Review and evaluation, should be an ongoing process during the outbreak to refine or alter control measures if appropriate and undertaken as part of the outbreak report. Production of an interim report, scientific presentations and publications can all assist this process and are also useful methods for communicating with various stakeholders[8]. Evaluation methodology including both process and outcome measures should be considered at the start so that information can be collected prospectively. Broad principles of communication campaign evaluation have been outlined in the literature and are available to public health professionals and researchers to help guide the development of an evaluation strategy[9]. It should be acknowledged that it may be challenging to gather complete information on process and outcome measures.

Key process measures will depend on the intervention, but could include:

- proportion of target population accessed;
- numbers of target population accessing intervention;
- uptake of intervention;
- frequency and coverage of intervention delivery;
- number and uptake of STI screening tests; and
- number, range, coverage and type of health promotion interventions.

The primary outcome measure is the change in the number of reported cases. In some instances, a decline in cases reported may never return to the pre-outbreak baseline due to overall increasing secular trends in the general population or the establishment of the infection in hard to reach core groups. Other measures that could be considered for evaluation after closure of the outbreak response are the cost of response and the organisation and leadership of the response effort [3].

To ensure that the standards of outbreak investigation remain relevant and that new aspects of investigation and/or control are identified, the MOH* may audit the management of local outbreaks in conjunction with GUM/ID and HPSC. See Appendix D for Standards for Managing Outbreaks.

11.0 Outbreak Over

- Declaration that the outbreak is over.
- Production of a final report.

Declaring that an outbreak is over

The OCT formally declares the outbreak over. Heightened surveillance should be maintained to monitor the effectiveness of interventions. There are no strict criteria for declaring that an STI outbreak is over. A variety of criteria may apply which include:

- Stabilisation and/or decline in incident case reports (although with STIs an endemic phase may develop at a higher level than was previously observed).
- Decline in case reports to 'baseline' levels.
- Decrease in reports to levels which can be managed within existing resources.
- Return of local disease rates to expected levels.
- Reduction in disease prevalence (where available).
- High coverage (screening, vaccination) of at-risk groups.
- High awareness and uptake of intervention among at-risk group.

Final Report

It is important that every OCT prepares a report so that the lessons identified from the investigation and recommendations made are shared with other colleagues and used to improve these guidelines. Report writing can be time consuming, therefore, the staff involved need to be supported by their line managers. The report should acknowledge all those involved in investigating and controlling the outbreak.

Figure 1 outlines the various stages of the response to a reported increase in cases of an STI.

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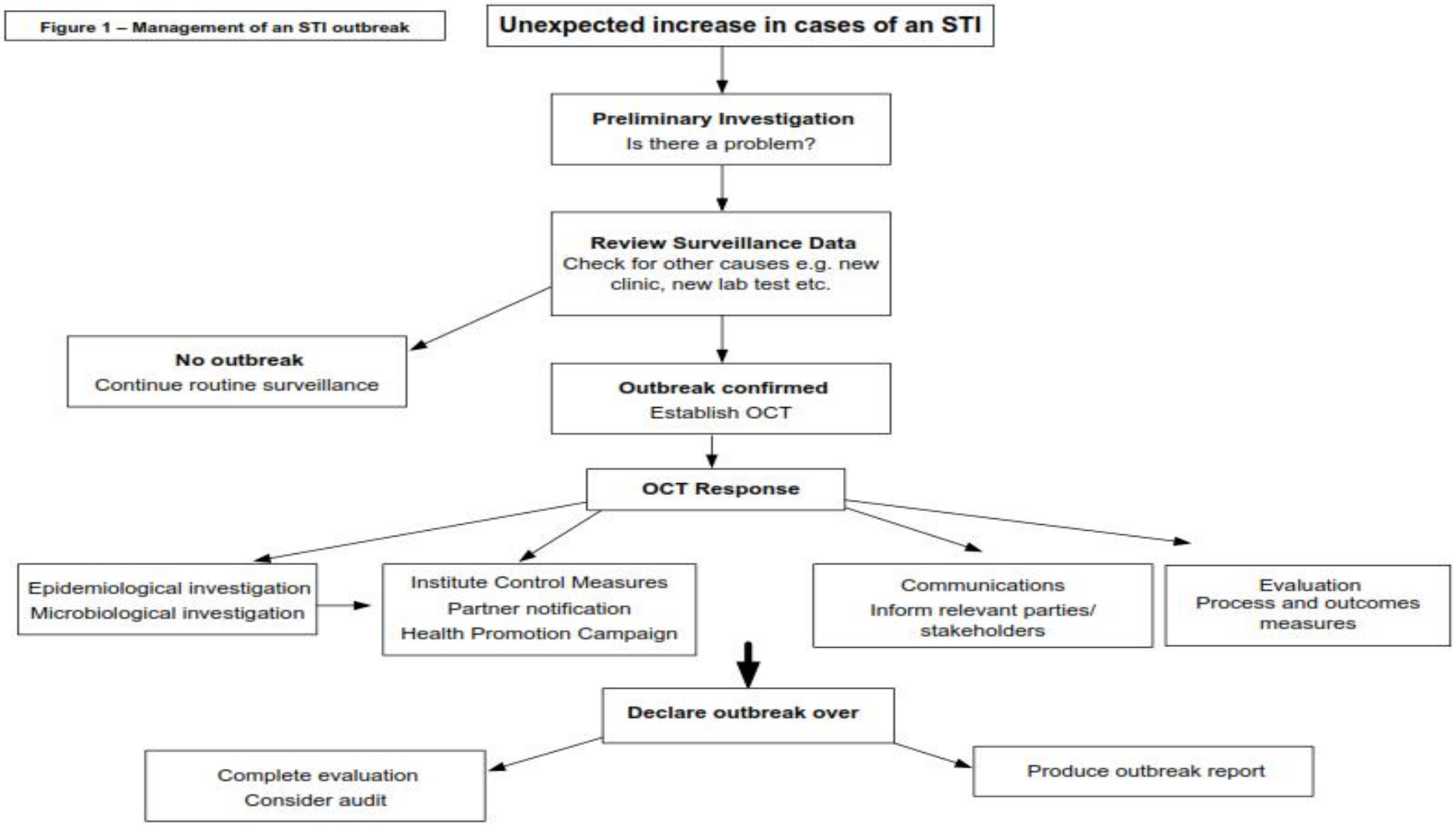
Figure 1 – Management of an STI outbreak



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Appendix A: Membership of Guideline Writing Group

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Appendix B: The Principal Regulations relating to the role of the MOH are the Infectious Diseases Regulations 1981.

Under these and subsequent amendments:

- Medical practitioners, including Directors of Laboratories, must notify the MOH of an infectious diseases on the schedule as per the regulations and shall also notify the MOH of any unusual clusters or changing patterns of any illness or where he or she is of the opinion that there is a serious outbreak of infectious disease in the locality. The MOH shall in turn notify HPSC.
- The MOH has the obligation to "make such enquiries and take such steps as are necessary or desirable for:
    - investigating the nature and source of such infection
    - for preventing the spread of such infection
    - and for removing conditions favourable to such infection"
- MOH authority is given in the ID Regulations 1981 as follows: "a person who refuses to comply with a requirement or direction given or a request for information made in pursuance of any of the provisions of these Regulations shall be guilty of a contravention of these Regulations"

Case definition of an outbreak as per infectious Diseases Regulations:

> *An outbreak of infection or food-borne illness may be defined as two or more linked cases of the same illness or the situation where the observed number of cases exceeds the expected number, or a single case of disease caused by a significant pathogen (e.g. diphtheria or viral haemorrhagic fever). Outbreaks may be confined to some of the members of one family or may be more widespread and involve cases either locally, nationally or internationally*

Appendix C: Governance of an OCT

An OCT usually functions for a single HSE area. Occasionally one HSE area will be asked to lead a regional OCT that involves another, usually adjacent, HSE area, following discussion among the relevant MOHs. If an outbreak extends across three or more HSE areas, the lead role generally falls to HPSC. (See Appendix C for further details regarding governance of an OCT).

Role of HPSC in National Outbreaks

If an outbreak extends across three or more HSE areas, the lead role generally falls to HPSC. This may be done in conjunction with the National Medical Officer of Health (MOH), who may Chair or co-chair the OCT. [The National MOH, may request HPSC to coordinate or lead a national outbreak, on his/her behalf]. In addition, HPSC takes the lead role in international outbreaks in which Ireland has the most cases, or where Ireland identified the source as being within Ireland.

Appendix D: Standards for Managing STI Outbreaks (Adapted from HPA document: The Communicable Disease Outbreak Plan: Operational Guidance)

Outbreak Recognition	Initial investigation to clarify the nature of the outbreak begun within 5 working days of outbreak suspected
	Immediate risk assessment undertaken and recorded following receipt of initial information
Outbreak declaration	Decision made and recorded at the end of the initial investigation regarding outbreak declaration and convening of outbreak control team (OCT)
Outbreak Control Team	OCT held within 10 working days of decision to convene
	All agencies/disciplines involved in investigation and control represented at OCT meeting
	Roles and responsibilities of OCT members agreed and recorded
	Lead organisation with accountability for outbreak management agreed and recorded
Outbreak Investigation and Control	Control measures documented with clear timescales for implementation and responsibility
	Case definition agreed and recorded
	Descriptive epidemiology undertaken and reviewed at OCT. To include: Number of cases in line with case definition; epidemic curve; description of key characteristics including gender, geographic spread, pertinent risk factors; hypothesis generated
	Analytical study considered and rationale for decision recorded
	Investigation protocol prepared if an analytical study is undertaken
Communications	Communications strategy agreed at first OCT meeting

End of Outbreak	The outbreak report completed within 6 months of the formal closure of the outbreak
	Report recommendations and lessons learnt identified within 12 months after formal closure of the outbreak