



GUIDELINES FOR TUBERCULOSIS OUTBREAK MANAGEMENT

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Acknowledgments

We wish to thank Nova Scotia Ministry of Health and Dr. Karen Steingart and representatives from the Francis J. Curry National Tuberculosis Center for providing the template by which this document has been created.



GUIDELINES FOR TUBERCULOSIS OUTBREAK MANAGEMENT

1. Introduction

Tuberculosis (TB) remains an important public health challenge that requires a coordinated approach to prevention and control measures. It remains a concern in specific populations and communities. Though outbreaks occur infrequently in the general population, they occur frequently in Aboriginal communities and other at risk populations. A cluster of cases occurring over a brief period of time may serve as an early warning sign of an impending outbreak; therefore vigilance is vital to effective tuberculosis management and control.

Management of tuberculosis outbreaks is costly and can utilize a significant amount of time and resources. It is critical to ensure all stakeholders are aware and knowledgeable of the process for TB outbreak management.

Purpose

1. To minimize the morbidity associated with TB outbreaks by providing practical and consistent guidelines of practice when managing outbreaks.
2. To provide a structure for coordinating activities of the various stakeholders that have responsibility for the investigation, prevention and control of tuberculosis
3. To define roles and responsibility of key stakeholders during the course of the outbreak.

2. Definitions

2.1 Definition for TB Outbreak

Definitions for TB outbreak are relative to the local context. Outbreak cases can be distinguished from other cases only when certain associations in time, location, patient characteristics, or *Mycobacterium tuberculosis* attributes (e.g., drug resistance or genotype) become apparent. In low-incidence jurisdictions, any temporal cluster of cases is suspicious for an outbreak. A working definition for a potential "TB outbreak" is helpful for planning and response and may include ANY of the following six criteria:

Criteria based on surveillance and epidemiology:

- An increase has occurred above the expected number of TB cases in time and place
- During and because of a contact investigation (CI), two or more contacts are identified as having TB disease, regardless of their assigned priority, (i.e., high-, medium-, or low-priority)
- A genotyping cluster leads to discovery of one or more verified transmission links which were missed during a CI within the prior two years



- Any two or more cases occurring within one year of each other are discovered to be linked , and the linkage is established outside of a CI (e.g., two patients who received a diagnosis of TB disease outside of a CI are found to work in the same office and only one or neither of the persons was listed as a contact to the other)

Criteria based on program resources:

- Transmission is continuing despite adequate control efforts by the TB control program
- CI associated with increased cases requires additional outside help

2.2 Suspected TB Outbreak

A TB outbreak may be suspected on the basis of information from diverse sources, including TB case reports, contact investigations, routine surveillance, and genotyping data. Because of the possibility of uncertainty as to whether an outbreak has occurred, it is helpful to define some initial activities which can be put into place while seeking additional information. This will include convening an outbreak team to determine if this is an outbreak as well as ensuring mechanism are in place to respond. (See section 7).

2.3 Exceptional TB Circumstances

TB transmission has its unique set of factors. As a result, not all situations under an outbreak criterion will merit the same amount of scrutiny and consideration for an outbreak response plan.

“Exceptional TB circumstances” are defined as situations that merit additional scrutiny and discussion, but are not specifically addressed in the above criteria for TB outbreak. An exceptional TB circumstance may prompt initiation of the outbreak response team (ORT). Alternatively, an exceptional TB circumstance may be resolved by standard program operations.

The following are examples of exceptional TB circumstances

- A patient with infectious tuberculosis is suspected or known to have *Mycobacterium tuberculosis* resistant to at least rifampin
- Persons with HIV infection or other immune-compromising conditions are suspected or known to be exposed to a patient with infectious tuberculosis
- A child five years of age or younger is confirmed to have tuberculosis for which a source of infection is not discovered after an investigation
- An increase in the number of cases over time in a particular area is considered significant by the tuberculosis team
- Extensive TB transmission is confirmed or suspected. These situations may involve workplaces, schools, unconventional social networks, or other circumstances in which screening for TB disease and infection involves a large number of people or in which multiple cases are suspected



- **The exposure involves high-risk settings, including correctional facilities, educational facilities, healthcare settings, shelters, or group settings**

3. Principles of Communicable Disease Outbreak Management

- All reports of suspected outbreaks will be investigated immediately.
- Upon confirmation of the outbreak, an outbreak response team and management plan is developed.
- During and following an outbreak, appropriate intervention and education strategies will be undertaken.
- All appropriate agencies will be kept informed of the status of the outbreak.
- An outbreak report and debriefing(s) will be completed after the outbreak is declared over.

4. Legal Authority/Responsibility

The WRHA Population and Public Health Program tuberculosis team will lead the investigation of an outbreak occurring in the Winnipeg region or other regions as mutually agreed upon with support from Manitoba Health as required.

5. Outbreak Team

The Outbreak Team works in collaboration with appropriate partners (external and internal) to investigate and manage an outbreak. The initial team may be at the community, regional or provincial level. Membership may be dependent upon the geographical extent or potential source of exposure of the outbreak.

Outbreak Team Members

The initial outbreak team may include, but not limited to the following members:

- Medical Officer of Health (MOH)
- Communicable disease coordinator
- Manager TB team
- Public health nurse(s)
- Epidemiologist
- Administrative support
- DSM
- ITBS Medical Director / Director
- TB clinicians

Additional members may include the following:

- Occupational Health
- Communications staff
- Outreach worker(s)



- Public health laboratory representative
- Public Health Agency of Canada (PHAC)
- First Nations and Inuit Health- Community/organizational leadership (if FN affected)
- Manitoba Health
- Infectious disease, infection prevention and control or other subject matter experts
- Contact person(s) from the affected institution/ community (if applicable)
- Others as deemed appropriate

6. Roles and Responsibilities of the Outbreak Team Members

6.1 Role of the WRHA PPH TB Medical Officer of Health

- Determine if an outbreak is present and initiates and chairs an outbreak response team
- Function as the team leader, ensuring appropriate investigation and management of an outbreak situation.
- Inform the appropriate stakeholders by considering impact the outbreak will have across programs, organizations, communities and regions.
- Oversee public health control measures, initiating specific interventions during an outbreak.
- Communicate outbreak information according to regional notifications guidelines
- Ensure that debriefing occurs and final outbreak reporting is complete once the outbreak is declared over.

6.2 Role of the WRHA PPH TB CD Coordinator

- Work closely with the MOH and actively participate on the outbreak team.
- Identifies potential outbreaks and communicates with the MOH
- Notify the HSC Mycobacteriology Lab of any potential outbreaks.
- Ensure the name of the CD Coordinator is listed in the "copy to" section of the requisition. This will ensure that all results (both positive and negative) will be copied to this person (in addition to the originating site that sent the specimen).
- Provide support to public health nurses and outreach workers as needed.
- Contribute to analysis and interpretation the outbreak data to inform interventions.
- Track status of the outbreak reports (initial, update and final reports).
- Contribute to the development of final outbreak reports including evaluations.
- Coordinate Canadian Integrated Outbreak Surveillance Centre (CIOSC) posting as appropriate.

6.3 Role of Public health nurse

Public health nurses are most often the primary investigators, but the role may be filled by others as requested by the Medical Officer of Health, for example staff from First Nations and Inuit Health

- Collect outbreak-related information through interviews and by other means as appropriate, for example, social network investigations
- Communicate with the MOH and the CD Coordinator.
- Provide education and information to the public and others
- Provide support to the person affected by TB and family for successful completion of treatment



- Monitor for, identify and intervene as appropriate individual or system challenges to successful completion of treatment
- Lead or liaise with appropriate agency/staff for appropriate DOT and DOPT support.

6.4 Role of WRHA PPH TB team Manager

- Provide support to the WRHA PPH tuberculosis team as needed.
- Assign and manage staff involved in the outbreak.
- Ensure that the final comprehensive reports, evaluations, and lessons learned are reviewed by the ORT and actions are followed up and acted upon as necessary.

6.5 Role of WRHA PPH TB team Administrative Support

- Organize and arrange meetings as required.
- Ensure that minutes are recorded for all meetings.
- Store records of minutes, details of the outbreak, and other information in a secure location.
- Disseminate information to team members, partners, and others as required.

6.6 Role of Laboratory (DSM)

- Act as a consultant to recommend and/or suggest further testing.
- Act as a liaison with other laboratories involved with testing (e.g., regional labs, reference labs).
- Provide input into testing recommendations.
- Complete laboratory testing (in consultation and discussion with the outbreak team).
- Notification and reporting of laboratory results. All positive lab results are communicated as "Critical Results" that require immediate notification.

See DSM Mycobacteriology outbreak protocol appendix 4 .

- In consultation with the Outbreak Team, the Public health and regional labs, make early decisions regarding saving of specimens and/or isolates.

6.7 Role of WRHA Communications

- Provide communication support for outbreak initiatives including media and news releases, issue management, print materials, and others as required.
- Work with communication partners in MH and other jurisdictions as required

6.8 Role of WRHA TB team in other Regional Health Authority

- Provide support, advice and recommendations to regional authority staff during outbreaks.

6.9 Role of Manitoba Health

- Provide support and policy recommendations, as required, to the Outbreak Team.
- Assist with the development of consistent, key provincial educational information and guidelines for public health measures.
- Review and revise the provincial outbreak management guidelines as necessary



6.10 Role of Surveillance and Epidemiology

- Provide support for data management, analysis, and interpretation.
- Assist with data collection, and coordinate the development of a data collection tool if required.
- Summarize the descriptive epidemiology of an outbreak including regular and timely analysis of the data as required by the team
- As a team member, analyze and interpret the outbreak data to inform interventions.
- Contribute to the development of outbreak reports

6.12 Role of Other Members

- Other partners may have significant roles and responsibilities during an outbreak. These roles will be utilized depending upon the type of outbreak and at the request of the Medical Officer of Health or designate

7. Outbreak Investigation and Management

The matrix (appendix 2) serves as a quick reference guide to follow, when managing an outbreak. It focuses on the key components - management team, investigation, control measures and communication. Under each component are examples of activities. The following activities are not necessarily in order of priority and may be done simultaneously, depending on the outbreak situation encountered.

7.1 Confirm the diagnosis

Upon receipt of report, confirm the diagnosis and existence of an outbreak.
Assign an outbreak code.

7.2 Establish an Outbreak Team

See section 4. It provides a list of members to consider on the team

7.3 Establish a case definition

This may include clinical symptoms and/or laboratory confirmation. Refer to the specific disease protocol for details.

7.4 Notify appropriate stakeholders e.g. Manitoba Health, ITBS Directors, FNIHB, community/organization leaders where outbreak is occurring.

Outbreak response lead or designate will be responsible for this communication

7.5 Develop an interview questionnaire/ data collection tool

Develop or modify an interview questionnaire and other forms as required. Review with the Public Health Nurses and other relevant stakeholders to ensure common understanding and interpretation before use.

7.6 Collect information/data



The Outbreak Team determines which team members will investigate and collect all available current information, determining if any additional data is necessary. Information collected will focus on person, place, and time.

Person

- Personal characteristics (date of birth, sex, immune status, marital status, medical conditions, occupation, cultural norms, and activities, predisposing or protecting factors)
- Symptom inquiry: type of symptoms
- Classification as case or contact when appropriate

Time

- Time period over which people became ill
- Onset of symptoms
- Duration of symptoms
- Time between exposure to potential source (if known) and onset of symptoms

Place

- Common social event, such as a wedding, reception, anniversary, party, sports, event; common places visited (mall, school, beach, etc.); or other
- Travel
- Possible exposures

Information sources may include:

- Interviews with cases, relatives, and contacts
- Literature review
- Consultation with experts
- Lab testing
- Interview with primary care physicians, clinics, health-care facility staff
- Interviews with people from community sites involved such as school, day-care centre, restaurant, work places, public places

7.7 Complete preliminary and ongoing analysis of information

- Review the case definition and modify if necessary.
- Formulate a tentative hypothesis regarding source and transmission.
- Initiate social network analysis as required.
- Update data collection tools as required.
- Apply statistical analysis as required.

7.8 Notify key stakeholders



These notifications are for confidential information sharing. For initial outbreak reports, updates (including related shared documents and correspondence), and final outbreak reports, consider notifying the following:

- Appropriate Regional Health Authority staff (e.g., PH Directors, ITBS Directors, VP Community Health, and Communications) and partners (e.g., labs): Notify FNIHB as required
- Manitoba Health: Consider informing the Public health division and Office of the Chief provincial public health office.
- National colleagues: Consider if a CIOSC alert is necessary.

7.9 Develop a communication plan

Work closely with appropriate communications staff to:

- Consider target groups (public, people at risk, health-care providers, media)
- Consider key messages and methods to disseminate (fact sheets, web postings, press releases, letters, etc.)
- Assign an Outbreak Team member as media spokesperson.

7.10 Develop and implement control measures based on findings

Determine interventions and treatment such as the following:

- Necessity of contact tracing
- Preventative measures—early detection, isolation of cases, immunization, exclusion, prophylaxis and treatment

7.11 Document the outbreak as it progresses

It is required that all outbreak-related activities are documented and the records stored in a secure location. For example, log the following:

- All agenda's and minutes of outbreak-related team meetings and conference calls. (*see appendix #3*)
- All notifications, alerts, and correspondence
- All pertinent dates such as date outbreak declared and date outbreak declared over

7.12 Re-evaluate most current information and outbreak control measures on a continuous basis

Determine the frequency of meetings as the outbreak progresses

7.13 Consider further studies or special investigations

Further studies or special investigations may be warranted to gain insight into the source, transmission, or more-effective control measures.

7.14 Determine when the outbreak is over

This will be decided by the Outbreak Team and communicated

7.15 Evaluate the outbreak control and management



- The Outbreak Team will review the investigation and management of the outbreak (debriefing sessions, lessons learned). The Outbreak Evaluation Guide (Appendix #5) may be useful for this process.
- Recommendations will be made as required.
- Modifications to policies/programs will be made as required.

7.16 Complete epi and surveillance data

Complete the final report using applicable documentation tools.

7.17 Complete final outbreak report

The WRHA TB MOH is responsible for ensuring that the final, detailed report is completed and distributed to the appropriate persons as soon as possible following the declaration that the outbreak is over. (Final report template Appendix #6)

7.18 Review reports

Program and Outbreak team will review recommendations from report and update outbreak policies as necessary. Report will be shared with key partners as required.

8. Surveillance

**Surveillance is the ongoing, systematic collection, analysis, and interpretation of data essential to the planning, implementation, and evaluation of public health practice, closely integrated with the timely dissemination of these data to those responsible for prevention and control. TB surveillance includes regular review of cases; epidemiologic, program, and genotyping data; and findings from CIs. Surveillance is an essential component of TB outbreak planning.*

8.1 Process in the Winnipeg Health Region (WHA)

- Winnipeg region notifies Manitoba Health using the agreed upon process and format outlined by Manitoba Health.
- Winnipeg region submits outbreak reports to MH using the defined reporting process.
- MOH or delegate determines the need for a national CIOSC/CNPHI alert.

References

Control of Communicable Diseases Manual, 19th edition. David L. Heymann, ed. Washington, DC: American Public Health Association, 2008.

Outbreak Summary Reporting Application User Manual v.1. Public Health Agency of Canada, 2008.



APPENDIX 1: RECOMMENDED OUTBREAK RESPONSE KIT COMPONENTS

- Laboratory approved specimen containers (check expiry dates).
- Re-sealable plastic bags with pockets
- Requisitions, e.g., laboratory, CXR
- Stamps with MOH name and address; ink pad
- Outbreak stickers—bright coloured
- Note paper and sticky notes
- Pens and highlighters
- Case management forms
- Manitoba Health outbreak reporting form as necessary
- Instruction for specimen collection and labeling
- Elastic bands
- Brown paper bags
- Gloves
- Hand sanitizer
- Current list of contact names and phone numbers (MOH, provincial public health laboratory contacts, and appropriate district staff)
- Tubersol

Outbreak Response Kits should not be stored in vehicles, as specimen containers may not be effective if exposed to extreme temperatures.



APPENDIX 2: OUTBREAK INVESTIGATION & CONTROL – MATRIX FOR DETAILED APPROACH:

Type of Activity	Preliminary Work Outbreak suspected	Early Outbreak confirmed	Middle	Late/Post
Management	<ul style="list-style-type: none"> consult with epi/surv, clinicians/ MOH 	<ul style="list-style-type: none"> Establish Outbreak management team 	<ul style="list-style-type: none"> Coordinate all activities 	<ul style="list-style-type: none"> Declare Outbreak over Institute long term surveillance/prevention as appropriate
Investigation	<ul style="list-style-type: none"> Verify diagnosis Confirm outbreak exists 	<ul style="list-style-type: none"> Case definition Case finding and surveillance Specimen collection Documentation of symptoms, dates of onset, hospitalization etc. 	<ul style="list-style-type: none"> Preview lab and cases data analysis – describe Outbreak wrt time, place, person Special investigation as required 	<ul style="list-style-type: none"> Final analysis and conclusions
Control	<ul style="list-style-type: none"> Immediate control measures 	<ul style="list-style-type: none"> Ensure treatment of cases Contact f/u and prophylaxis and or Rx Prevent spread and monitor control measures 	<ul style="list-style-type: none"> Adapt control measures as appropriate considering agent, host, environment 	<ul style="list-style-type: none"> Plan long term surveillance and control
Communication	<ul style="list-style-type: none"> notify manager and key senior management staff 	<ul style="list-style-type: none"> Identify spokesperson Develop communication plan Inform health institutions, public and people at risk prn 	<ul style="list-style-type: none"> Inform health institutions, public and people at risk prn 	<ul style="list-style-type: none"> Write and disseminate report with recommendations



APPENDIX 3: AGENDA/MINUTE TEMPLATE

TB Outbreak Investigation Meeting	
Date:	
Time:	
Location:	

Members:							

Chair / Recorder:		
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Agenda Item	Discussion	Action
1. Welcome and review attendance (ensure all key partners represented)		
2. Review agenda (assign recorder)		
3. Review previous meeting notes (if applicable)		



4. Review current state of Outbreak (case/contact definitions) <ul style="list-style-type: none">• Epi curve• Network diagram		
5. Laboratory analysis (DSM/NML)		
6. Update on investigations (challenges, successes)		
7. Control measures (challenges, successes)		
8. Communication <ul style="list-style-type: none">• Community/organization• Media• Others		
•		

Appendix 4

TB Outbreak Protocol

1. Public Health determines that there is an outbreak of TB in a community and establishes who will be the “point person” responsible for handling this outbreak. The Point person identifies those community contacts who require follow up testing.
2. The Point Person completes the requisitions and indicates on the requisition that there is an outbreak. In addition they complete the “copy to” section of the requisition with their name and secure fax number. This ensures that all results for this sample are sent to the Point person (both positive and negative reports as well as all preliminary reports).
3. There will be no lab defined “Outbreak code” assigned; rather the Point person will give the outbreak a name (e.g. God’s Lake TB Outbreak). They will contact the Microbiologist on call at the HSC Microbiology laboratory and notify them of the outbreak and the approximate number of contacts that will be tested. This is needed so that the lab can ensure they have adequate supplies and staff to accommodate the increased work load.
4. There is no need to declare the outbreak over, as the Point person or outbreak designate will simply no longer be filling in requisitions for follow-up.
5. The DSM Microbiology lab will continue to do their reporting as usual to the site/ward and Manitoba Health. In addition reporting will be done to the Point person (see Table 1) by autofax.

Table 1 MTB Reporting Template

	Direct specimen AFB smear	TB PCR Report	Culture showing growth of AFB	Probe result for culture	Preliminary molecular resistance report (only if MTB)	Final growth based susceptibility report (only if MTB)	MIRU
Site/nursing unit/IP&C that sent specimen	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
Manitoba Health	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> (if AFB smear +)	<input checked="" type="checkbox"/> (only if MTB or AFB smear +)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Outbreak Point Person*	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	

*This requires the Point person to complete the “**copy to**” section of the DSM Microbiology requisition with their name and secure fax number. They must also indicate in Clinical details: “**TB Outbreak (Name of community involved)**”.

APPENDIX 5: OUTBREAK EVALUATION GUIDE

EVALUATION GUIDE FOR OUTBREAK MANAGEMENT		
Effectiveness of the Outbreak Management Structure		
Evaluation Questions	Indicator	Method
<p>Was the outbreak Management Team efficient and effective?</p> <ul style="list-style-type: none"> • What worked well? • What could have been improved 	<ul style="list-style-type: none"> • Timely establishment of the Outbreak Team • Appropriate composition of the Outbreak Team • Clearly defined and understood roles and responsibilities for the Outbreak Team • Engagement of Outbreak team members • Ability of the Outbreak Team to engage appropriate stakeholders in the response • Perceived strengths/challenges of the Outbreak Team in responding to the outbreak 	<p>Interview</p> <p>Document Review</p>
<p>Was there a coordinated response to the outbreak?</p> <ul style="list-style-type: none"> • What worked well? • What were the challenges? 	<ul style="list-style-type: none"> • Established guidelines/documentated procedures to coordinate the efficient flow of information • Timely flow of information, (re. resource needs) • Established procedures to avoid duplication • Development of strategies to address inefficient procedures • Adequate (human, financial & other) resources available and accessible to attend the outbreak • Perceived strengths/challenges in the coordination across the system 	<p>Interview</p> <p>Document Review</p>
Clinical Services		
Evaluation Questions	Indicator	Method
<p>Were the clinical services responsive to the outbreak?</p>	<ul style="list-style-type: none"> • Physician use of the clinical case definition when requesting laboratory tests? (i.e. confirming the diagnosis) • Development of an acceptable (accurate) treatment algorithm if applicable • A reliable case definition established within an acceptable time frame • Accurate diagnosis of cases by physician • Timely processing of laboratory specimens • Perceived strengths/challenges in establishing a case definition and processing of laboratory specimens 	<p>Interview</p> <p>Document Review</p> <p>Interview</p> <p>Document Review</p>

<p style="text-align: center;">Surveillance What were the strengths/challenges of the surveillance function (I.e. the collection, analysis, and dissemination of the disease outbreak?)</p>		
Evaluation Questions	Indicator	Method
Was the data collection process accurate, timely and efficient?	<ul style="list-style-type: none"> • Timely reporting of positive lab results • Physician case reporting met Provincial guidelines for reporting (i.e. timeliness and accuracy?) • Established procedures and tools for reporting positive lab results and related information (ex. Patient contact information) • Established procedures/mechanisms to avoid data entry errors or duplication • Adequacy of the available human and technical resources to efficiently perform the data analysis • Timeliness of the data analysis process • Perceptions of strengths/challenges in case reporting (what worked well? What could improve? E.g. receiving data from RHA/ lab in timely manner; accuracy of data from the RHA/lab; barriers/breakdown in the data collection process) 	<p>Interview</p> <p>Document Review</p>
Was the data collection process timely and efficient?	<ul style="list-style-type: none"> • Perceptions of the timeliness of the data analysis • Perceptions of what worked well in the process of data analysis • Perceptions of what could have been improved 	<p>Interview</p> <p>Document Review</p>
Was the data analysis process timely and efficient? What were the challenges? How could this have been improved?	<p>Ability of the Outbreak Team leader to report on the outbreak (number of cases, location etc.) in a timely manner</p> <ul style="list-style-type: none"> • Timeliness of the epi-curve • Use of the epi-curve (how, by whom?) • Formulation of the tentative hypothesis (how? By whom? Timeliness?) • Timeliness of establishing/verifying the existence of an outbreak 	<p>Interview</p> <p>Document Review</p>
Was data analysis used to inform and update the case definition and inform application of community public health measures?	<ul style="list-style-type: none"> • Ability of analysis to provide field interview and investigation staff to better focus work • Was the analysis useful in validating the infective agent, mode of transmission, effectiveness of intervention or prevention methodology? 	<p>Interview</p> <p>Document Review</p>
Public Health Measures		

Evaluation Questions	Indicator	Method
<p>Case Management</p> <p>What case management activities were used?</p> <p>Did case management occur for all patients?</p>	<ul style="list-style-type: none"> • Establishment and adherence to process for case management (e.g. education of all patients to prevent transmission) 	<p>Interview</p> <p>Document Review</p>
<p>Contact Tracing</p> <p>Did contact tracing occur for all cases?</p>	<ul style="list-style-type: none"> • Established process for contact tracing • Contact tracing process successfully identified those at high risk of transmitting the disease • Perceived contribution of contact tracing to the management of the outbreak (prevention & control measures)? • Perceived strengths/challenges with the contact tracing process 	<p>Interview</p> <p>Document Review</p>
<p>Community Measures</p> <p>What community measures were implemented?</p> <p>Challenges in implementing community measures?</p>	<ul style="list-style-type: none"> • Description of community measures implemented and their target group • If employed, were immunization strategies delivered in a timely manner if necessary? • Were community interventions undertaken? • If vaccines and /or immunization were employed, were the NACI standards for cold chain storage adhered to throughout the outbreak? What were the barriers? • Description of the community's/organization's assessment of the interventions taken. • Description from the community/organization as to what worked, what didn't work and what would the community/organization like the health care system to learn for the next time? 	<p>Interview</p> <p>Document Review</p>
Communications		
Evaluation Questions	Indicator	Method
<p>Effectiveness of communication strategies (1-800 line; letter to physicians; physician video; posters; WRHA/MH website)</p>	<ul style="list-style-type: none"> • Communication strategies reached their target audiences? • Messages of communication strategies were clear to the intended audience? • Target audience acted upon the communication messages • Stakeholders consulted in the development of communication strategies • Communication materials were culturally sensitive 	<p>Interview</p> <p>Document Review</p>
<p>Was the process for communicating the onset of an outbreak (Provincially? Regionally? Nationally?) efficient?</p>	<ul style="list-style-type: none"> • Documented process for communicating the onset of an outbreak (Provincially? Regionally? Nationally?) • Clear and timely communication to 	<p>Interview</p> <p>Document</p>

	<p>stakeholders of the process</p> <ul style="list-style-type: none"> • Perceptions of gaps • Suggestions of how the process can be improved in the future 	Review
Were the resources developed for dissemination of information (i.e. fact sheets, FAQ's) effective in increasing the public's awareness of the outbreak?	<ul style="list-style-type: none"> • Increased awareness among the public of the outbreak 	<p>Interview</p> <p>Document Review</p>
Lessons learned re: communication with the media	<ul style="list-style-type: none"> • Perceptions of approaches that worked well in communicating with the media • Recommendations for communicating with the media in future outbreaks 	<p>Interview</p> <p>Document Review</p>
Did communication with stakeholders address their needs for information on the outbreak?	<ul style="list-style-type: none"> • Stakeholder satisfaction with information on the outbreak 	<p>Interview</p> <p>Document Review</p>
Roles and responsibilities in communicating the outbreak?	<ul style="list-style-type: none"> • Were the roles and responsibilities clearly defined, and appropriate people involved in communicating the outbreak? 	<p>Interview</p> <p>Document Review</p>

APPENDIX 6: FINAL OUTBREAK REPORT

Outline of Final Outbreak Report

- I. Executive Summary
- II. Introduction and Background
- III. Methods
 - a) Epidemiological
 - b) Laboratory
- IV. Results
 - a) Epidemiological
 - b) Laboratory
- V. Discussion
- VI. Conclusions
- VII. Evaluation/Recommendations (See Appendix 4)
- VIII. Acknowledgements
- IX. Appendices

Explanation

I. Executive Summary

Include the key features of the outbreak, addressing the “who, what, where, and when” of the outbreak. A description of the outbreak or the causal hypothesis based on the evidence should be included. Identify lessons learned, recommendations, interventions (could be ongoing), or areas that need further attention. Include important points in the report and be prepared to answer any questions with detail.

II. Introduction and Background

Describe the specific events that led to the investigation, including how the outbreak was first reported, steps taken to confirm the outbreak (including surveillance trends), and who assisted in the investigation. Identify the members of the outbreak team and objectives of the investigation. Background information identifies the population demographics, previous, similar outbreaks, describing the area, site or facility involved.

III. Methods

Outline the steps taken to investigate the outbreak.

Epidemiological methods: Explain how cases are defined and ascertained. Outline the process and include interview tools and techniques used for investigation.

Laboratory analysis: Describe the number and types of specimens submitted for analysis.

IV. Results

Describe what was discovered.

Epidemiological results: Highlight the number of cases, personal details, and clinical features, including geographical distribution, epidemic curve, risk factor analysis, and attack rates.

Laboratory results: Summarize the results of testing.

V. Discussion

This section brings together all aspects of the outbreak. Discussion will include the main hypotheses and justification of conclusions and actions being based on evidence or balance of probabilities. Actions taken to protect public health are described. As well, highlight the problems encountered during the investigation including the lessons learned during the outbreak, including those identified in the debriefing(s).

VI. Conclusion

Give a brief summary of the outbreak.

VII. Evaluation/Recommendations

Describe what should be done to control the outbreak, prevent future outbreaks, and improve management of outbreaks in the future. The purpose of this section is to educate, so specificity is important. Recommendations for any changes to the Outbreak management guideline should be included.

VIII. Acknowledgements

This is an opportunity to thank those who assisted with the outbreak.

IX. Appendices

These may include a chronology of events, Outbreak Team membership, maps, references, questionnaires, letters to health-care professionals, media releases, and fact sheets.

APPENDIX 7: ACRONYM LIST

CD	Communicable Disease
CDC	Communicable Disease Control
CIOSC	Canadian Integrated Outbreak Surveillance Centre
CPPHO	Chief Provincial Public Health Officer
CNPHI	Canadian Network for Public Health Intelligence
DCMOH	Deputy Chief Medical Officer of Health
RHA	Regional Health Authority
DHW	Department of Health and Wellness
GIS	Geographic Information System
LTCF	Long term Care Facility
MH	Manitoba Health
MOH	Medical Officer of Health
PH	Public Health
PHN	Public Health Nurse
PPHLN	Provincial Public Health Laboratory Network
SSA	Shared Service Area
WRHA	Winnipeg Regional Health Authority