



Veterinary Services Outbreak Surveillance Toolbox

Introduction to Outbreak Investigation
Module 4 – Establish Disease Monitoring and Surveillance



Objectives of Presentation

- Describe the various sections of information to include in a surveillance plan for detecting all infected herds/flocks at the outset of a confirmed disease outbreak
- Detail the inventory of informational resources in the *Toolbox* available to the user to facilitate completion of each section of the surveillance plan



Introduction

- A critically important activity for containing any highly contagious, infectious disease outbreak is quickly identifying all infected herds/flocks
- A surveillance plan typically provides the framework for how this activity is to be conducted



Introduction

- Construction of the initial surveillance plan can be a highly stressful task, particularly when a very short turn-around time is required
- *VS Outbreak Surveillance Toolbox* was developed to ease the stress of this task



Purpose

- Facilitate development of an initial surveillance plan
 - Detect all other infected herds/flocks at the outset of a confirmed highly contagious disease outbreak
- Standardize the information contained in plan
- Quickly complete each section of plan using a stockpile of information resources (“tools”)



Purpose

- Does not address response activities after an infected herd/flock has been identified
- Does not address preparedness planning activities
- Does not address surveillance planning for demonstrating freedom from disease in the aftermath of a disease outbreak

Format

- Web-based
- CD when there are internet access or connectivity limitations

The screenshot shows the VS Outbreak Surveillance Toolbox website. The header features the VS logo and the title 'Outbreak Surveillance Toolbox' with a banner image of various farm animals. A left-hand navigation menu lists sections from 'Home' to 'Glossary'. The main content area is titled 'VS Outbreak Surveillance Toolbox' and includes a description of the toolbox's purpose. Below this is a section titled 'WHAT'S IN THE TOOLBOX?' which lists several key features with brief descriptions:

WHAT'S IN THE TOOLBOX?	
How to Develop a Surveillance Plan: Instructions	Step-by-step guide for developing a surveillance plan to identify infected herds and animals in a disease outbreak situation.
	Outbreak Surveillance Plan Template (MS Word)
Surveillance Plan Outline	Surveillance plan outline with links to resources for developing each section
Calculators	Calculators to estimate number of premises to sample, number of animals to sample, and other metrics needed for surveillance planning
Case definitions	Library of draft case definitions for use in surveillance plans and guidelines for developing a new case definition
Maps	Resources for developing maps for surveillance plans
Library	Articles and documents about epidemiology, surveillance, statistical methods, laboratory diagnostics, and other related topics
Glossary	Definitions of terms and acronyms

At the bottom of the navigation menu, there is a button that says 'Click Here to Provide Feedback on this Toolbox!'.



Access

- APHIS employees:
 - <http://inside.aphis.usda.gov/vs/ceah/nsu/toolbox/>
- Non-APHIS employees:
 - Password-protected public internet site
 - To request access, send an e-mail to vs.ceah@aphis.usda.gov
 - Email request should include the person's name, organization/employer name, and the following words in its body or subject line, "request access to the VS Outbreak Surveillance Toolbox"

Content

- Sections of surveillance plan template

VS Outbreak Surveillance Toolbox

Home

Develop a Surveillance Plan

Instructions

Introduction

Section 1. Case Definition

Section 2. Premises Classification

Section 3. Disease Control Areas / Zones

Section 4. Sampling Plan

- Specimen Type
- Laboratory Tests
- Target Population
- Sample Size
- Sampling Priorities
- Sampling Frequency

Miscellaneous Content

Final Check

Calculators / Tools

Overview

Premises Sample Size Calculator

Animal Sample Size Calculator

Sample Selection Calculators

- Random Sampling Calculator
- Interval Sampling Calculator

Probability of Failure to Detect Diseased Animals

Resources

All Resources

Case Definitions

Maps

Contact Information

Library

Glossary

[Click Here to Provide Feedback on this Toolbox !](#)

Introduction
Section 1. Case Definition
Section 2. Premises Classification
Section 3. Disease Control Areas / Zones
Section 4. Sampling Plan
Specimen Type
Laboratory Tests
Target Population
Sample Size
Sampling Priorities
Sampling Frequency
Miscellaneous Content

Content

- Surveillance plan template
 - Microsoft Office Word® document
 - Step-by-step instructions
 - Pre-loaded text & fill-in-the-blank fields
 - Applicable to all diseases

VS Outbreak Surveillance Toolbox

VS Outbreak Surveillance Toolbox : Home

VS Outbreak Surveillance Toolbox

The outbreak surveillance Toolbox is designed to provide veterinary epidemiologists with resources to quickly develop a consistent and complete surveillance plan to identify infected herds and animals due to an outbreak of an infectious animal disease. [More about the Outbreak Surveillance Toolbox...](#)

WHAT'S IN THE TOOLBOX?

- [How to Develop a Surveillance Plan: Instructions](#) - Step-by-step guide for developing a surveillance plan to identify infected herds and animals in a disease outbreak situation.
- [Outbreak Surveillance Plan Template \(MS Word\)](#) - Surveillance plan outline with links to resources section
- [Surveillance Plan Outline](#) - Surveillance plan outline with links to resources section

Surveillance Plan Template

General Comments

This template identifies the categories of information that a veterinary epidemiologist should provide in a surveillance plan that has as its immediate primary goals to (1) determine the extent of the current outbreak of the highly contagious disease (HCD) in question, i.e. detect all infected premises (and all diseased animals), and (2) establish outbreak surveillance disease control Areas/Zones. Once the location of all infected premises and animals has been established, it is expected that updates will eventually be made to this initial surveillance plan to delineate the protocol to follow to prove that each Area/Zone is free from the HCD in question.

It is assumed that the information contained in this initial surveillance plan will also be used to help develop the initial outbreak response action plan to eradicate the HCD in question and return the region/State to a disease status without movement restrictions.

- ❖ Keep in mind that this template serves as a guide only, and may be customized as necessary. Detailed instructions for completing each section of the template can be found at:
 - Inside APHIS: http://inside.aphis.usda.gov/vs/ceah/nsu/surveillance_toolbox
 - Public: http://www.aphis.usda.gov/animal_health/surveillance_toolbox
- ❖ Since this is a template, it should remain a template. Thus, it is imperative that you open the template as a read-only file and immediately **save a copy of this template under another name prior to beginning construction of your surveillance plan.**
- ❖ Each section or subsection of this template contains text that is bracketed and highlighted in a gray background color [example] for the purpose of either (1) presenting examples of text to use in a particular section or subsection of the template, (2) prompting inclusion of additional text to complete a particular section or subsection of the template, or (3) providing general instructions specific to Microsoft Word, which is the word processing platform used to construct your surveillance plan.
- ❖ To remove gray highlighting upon completion of the document: select specific text or all text of document (control + A); in the font toolbar, click the arrow next to the text highlight color, click no color

Content

- *Introduction* section of surveillance plan template

VS Outbreak Surveillance Toolbox

VS Outbreak Surveillance Toolbox : Home

VS Outbreak Surveillance Toolbox

The outbreak surveillance Toolbox is designed to provide veterinary epidemiologists with resources to quickly develop a consistent and complete surveillance plan to identify infected herds and animals due to an outbreak of an infectious animal disease. [More about the Outbreak Surveillance Toolbox...](#)

WHAT'S IN THE TOOLBOX:

[How to Develop a Surveillance Plan](#) - Step-by-step guide for developing a surveillance plan

WHAT TO INCLUDE

Participating agencies and their roles

List the agencies (federal, State, local) that are known to be involved in the outbreak. This can be expanded later on, so do not worry if the list is not complete in the first draft. Some of the resources that may be helpful for completing this subsection of the surveillance plan are:

- **VS Memo 580.4**- Procedures for the investigation of potential foreign animal disease/emerging disease incidents (FAD/EDI)
- **AVIC List** - names and contact info for VS AVICs
- **State Animal Health Officials List** - names and contact information for State chief animal health officials
- **National Wildlife Disease Program** - names and contact information for USDA APHIS Wildlife Services staff that can assist with surveillance activities for a FAD in wildlife
- **FSIS** - USDA Food Safety Inspection Services Office of Field Operations List- names and contact information for USDA FSIS staff that can assist with implementing surveillance activities by veterinary and lay inspectors for a FAD in livestock that enter federally-inspected slaughter plants

If APHIS is taking the lead in responding/managing the response, then this sentence may be included: "The Emergency Management Response System ([EMRS](#)) database will be used to manage the [insert disease] outbreak."

Surveillance Goals

Describe the goals that the surveillance is intended to accomplish. For example, the immediate goals might be to (1) determine the extent of the current outbreak of the highly contagious disease in question, i.e. detect all infected premises (and all diseased animals), and (2) establish the appropriate outbreak surveillance disease control Areas/Zones. Another goal might be to maintain business continuity.

Background Information

Provide an overview of the current disease outbreak situation that has led to the need for this version of the Surveillance Plan. This might include chronology of the outbreak, the location of all infected premises, and the current status of surveillance activities.

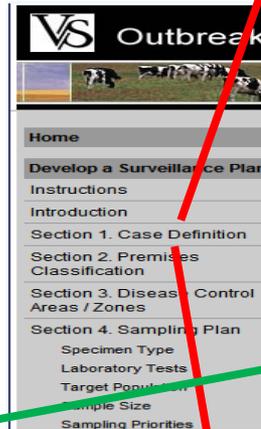
Maps

Provide map(s) of the State(s) in which the outbreak is occurring. Include location of premises currently known to be involved in the outbreak as well as other reference points such as county lines and cities/towns.

Click here to Provide Feedback on this Toolbox!

Content

- *Case Definition* section of surveillance plan template



DRAFT CASE DEFINITIONS

These draft case definitions may be cut and pasted into a surveillance plan and modified as needed.

- Avian influenza (notifiable)
- Contagious equine metritis
- Classical swine fever
- Eastern equine encephalitis
- Equine piroplasmiasis
- Foot and mouth disease
- Newcastle disease (virulent)
- Rift Valley fever

3. Case Definition:

3.1. *Suspect case*: An FMD-susceptible animal that has either:

3.1.1 Clinical signs consistent with FMD; **OR**

3.1.2 Inconclusive or positive laboratory test results performed during routine surveillance, with or without the presence of a suspect case.

3.2. *Presumptive positive case*: A suspect case that has both:

3.2.1 Epidemiological information indicative of FMD; **AND**

3.2.2 Positive laboratory test results (see laboratory criteria below):

3.2.2.1. Identification of antibodies to NSP 3D by AGID or detection of proteins by virus neutralization for serotype identification.

3.2.2.2. Identification of FMDV nucleic acid by RT-PCR; **OR**

3.2.2.3. Identification of FMDV serotype by antigen ELISA.

3.3. *Confirmed positive case*: An animal from which FMDV has been isolated and identified.



Library
Glossary

Click Here to
Provide Feedback
on this Toolbox !

Content

- *Premises Classification* section of surveillance plan template

VS Outbreak

Home

Develop a Surveillance Plan

Instructions

Introduction

Section 1. Case Definition

Section 2. Premises Classification

Section 3. Disease Control Areas / Zones

Section 4. Sampling Plan

Specimen Type

Laboratory Tests

Target Population

Sample Size

Sampling Priorities

Sampling Frequency

Miscellaneous Content

Final Check

Calculators / Tools

Overview

Premises Sample Size Calculator

Animal Sample Size Calculator

Sample Selection Calculators

Random Sampling Calculator

Interval Sampling Calculator

Probability of Failure to Detect Diseased Animals

Resources

All Resources

Case Definitions

Maps

Contact Information

Library

Glossary

Click Here to Provide Feedback on this Toolbox!

WHAT TO INCLUDE

The premises classification section of a surveillance plan should include:

1. Definitions of each type of premises classification that will be used in the surveillance effort, and
2. The protocol for investigating and classifying a premises to determine if it is infected and what classification it should receive

ACTION ITEMS



Write the Premises Classification section of the surveillance plan - Open your draft surveillance plan and **modify** the information that is already provided in the Premises Classification Section. [Click here](#) to preview the template content in your browser.



Tip: This section should not require much time because the text provided in the template does not need very much modification.

MORE ABOUT PREMISES CLASSIFICATION

The following table shows in which **Area / Zone** the premises classification types occur.

Premises Classifications	Area / Zone Classification
Infected Premises	Infected Zone
Contact Premises	Infected Zone, Buffer Zone
Suspect Premises	Infected Zone, Buffer Zone, Surveillance Zone, Containment Vaccination Zone, Protection Vaccination Zone, Free Area
At-Risk Premises	Infected Zone, Buffer Zone
Monitored Premises	Infected Zone, Buffer Zone
Free Premises	Surveillance Zone, Free Area
Vaccinated Premises	Containment Vaccination Zone, Protection Vaccination Zone

Content

- *Disease Control Areas/Zones* section of surveillance plan template

VS Outbreak

- Home
- Develop a Surveillance Plan
 - Instructions
 - Introduction
 - Section 1. Case Definition
 - Section 2. Premises Classification
 - Section 3. Disease Control Areas / Zones
 - Section 4. Sampling Plan
 - Specimen Type
 - Laboratory Tests
 - Target Population
 - Sample Size
 - Sampling Priorities
 - Sampling Frequency
 - Miscellaneous Content
 - Final Check
- Calculators / Tools
 - Overview
 - Premises Sample Size Calculator
 - Animal Sample Size Calculator
 - Sample Selection Calculators
 - Random Sampling Calculator
 - Interval Sampling Calculator
 - Probability of Failure to Detect Diseased Animal
- Resources
 - All Resources
 - Case Definitions
 - Maps
 - Contact Information
 - Library
 - Glossary
- Click Here to Provide Feedback on this Toolbox!

WHAT TO INCLUDE

The disease control areas / zones section of a surveillance plan defines:

1. The physical location and boundaries of the **Control Area**, **Surveillance Zone**, and **Free Area**, and
2. The permissible activities in each Area/Zone that will facilitate accomplishing the immediate goals of any surveillance activities being conducted, and
3. The length of time that each Area/Zone boundary should be maintained.

ACTION ITEMS

Define boundaries of each Area / Zone - The dimensions should be developed in collaboration with other parties involved in the outbreak such as the State Animal Health Official, Federal Area Veterinarian in Charge (AVIC), and Federal Area Emergency Coordinator (AEC).

Provide maps - If possible, consult with a GIS specialist to map actual boundaries. VS GIS specialists may be located in regional offices. See the [Map resources](#) in this Toolbox for contact information and resources.



Write the Disease Control Area / Zone section of the surveillance plan - Open your draft surveillance plan and modify the Disease Control Zones content. [Click here](#) to preview the template content in your browser.

MORE ABOUT DISEASE CONTROL AREAS / ZONES

The primary outbreak surveillance disease Areas/Zones defined in the surveillance plan are the Control Area, Free Area, and Surveillance Zone (part of the Free Area). The Control Area is further divided into an Infected Zone and a Buffer Zone. The Area/Zone sizes described below are specific to highly contagious diseases (HCDs). Area/Zone sizes for non-HCDs vary for each situation and depend upon input from collaborating parties.

The following schematic (Figure 1) is a simplified representation of the interrelationship of the boundaries for outbreak disease control Areas/Zones.

Outbreak Disease Control Zones / Areas

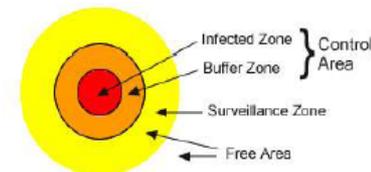


Figure 1. Outbreak disease control Area and Zone boundaries

Content

- *Sampling Plan* section of surveillance plan template

VS Outbreak Surveillance Toolbox

VS Outbreak Surveillance Toolbox : [Home](#)

VS Outbreak Surveillance Toolbox

The outbreak surveillance Toolbox is designed to provide veterinary epidemiologists with resources to quickly develop a consistent and complete surveillance plan to identify infected herds and animals due to an outbreak of an infectious animal disease. [More about the Outbreak Surveillance Toolbox...](#)

WHAT'S IN THE TOOLBOX?

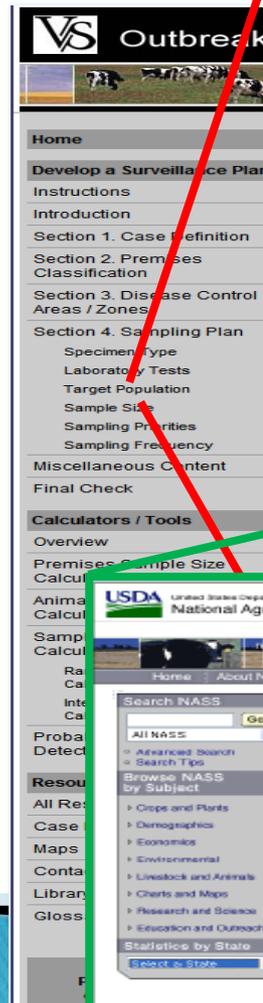
How to Develop a Surveillance Plan: Instructions	Step-by-step guide for developing a surveillance plan to identify infected herds and animals in a disease outbreak situation.
Surveillance Plan Outline	Surveillance plan outline with links to resources for developing each section
Calculators	Calculators to estimate number of premises to sample, number of animals to sample, and other metrics needed for surveillance planning

Section 4. Sampling Plan

- Specimen Type
- Laboratory Tests
- Target Population
- Sample Size
- Sampling Priorities
- Sampling Frequency

Content

- *Sampling Plan* section of surveillance plan template
- Target population



HOW TO DEFINE THE TARGET POPULATION

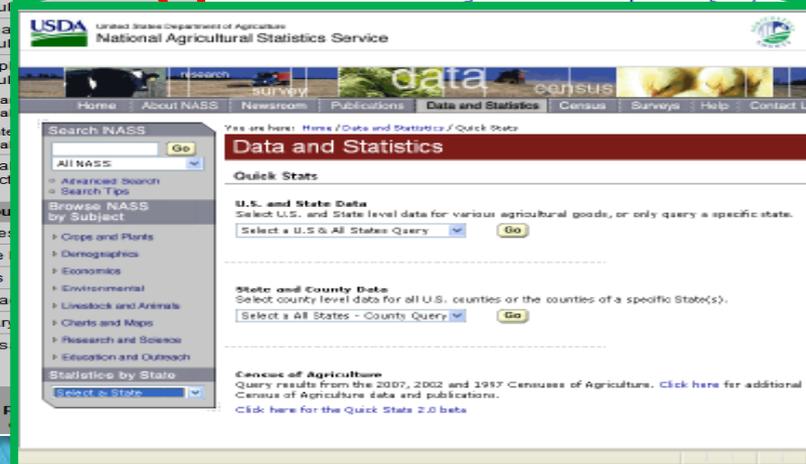
As a starting point, information from the State Animal Health Official, Federal Area Veterinarian in Charge (AVIC), Federal Area Emergency Coordinator (AEC) for the State, and/or individuals involved in the emergency response with local knowledge should be used to identify specific information about the target population of premises and the animal species contained therein that are susceptible to the disease in question.

Alternatively, the National Agricultural Statistics Service (NASS) resources may also be used to help define the target population. However, because NASS data is collected at the county level, it is likely useful only if control zones are defined on a county basis.



Tip: NASS resources can be helpful in defining a target population, but it may also take a great deal of time to sort through NASS data to find the desired information. It may be necessary to develop a rough draft of the target population description initially and then refine it later as more information is gained, either from NASS or local experts.

- [NASS Quick Navigation Guide \(pdf\)](#) - overview of NASS resources and instructions for quickly searching NASS livestock statistics and animal inventory maps to define a target population
- [NASS Data and Statistics](#) - provides U.S., State, and county level statistics encompassing nearly all areas of U.S. agriculture.
- [NASS Census of Agriculture Desktop Data Query Tool](#) - provides access to the data as a spreadsheet or into a data analysis tool.



Content

- *Sampling Plan* section of surveillance plan template
- Sample size

Buffer Zone	Contact Suspect	ALL
	At-Risk Monitored	Sample ALL if resources are available OR Use Premises Sample Size Calculator *
Surveillance Zone	Free	Sample ALL if resources are available OR Use Premises Sample Size Calculator *
Free Area	Free	Sample ALL if resources are available OR Use Premises Sample Size Calculator *

Use this matrix to determine:

Minimum Number of Premises to Sample for Detecting Disease at its Expected Inter-Premises Prevalence from among At-Risk Premises

Confidence Level (α) default is 95.00% Input value only if different from default

Diagnostic test sensitivity (S_n) Input value is required; it should be the same number that will be used in the Animal Sample Size Calculator

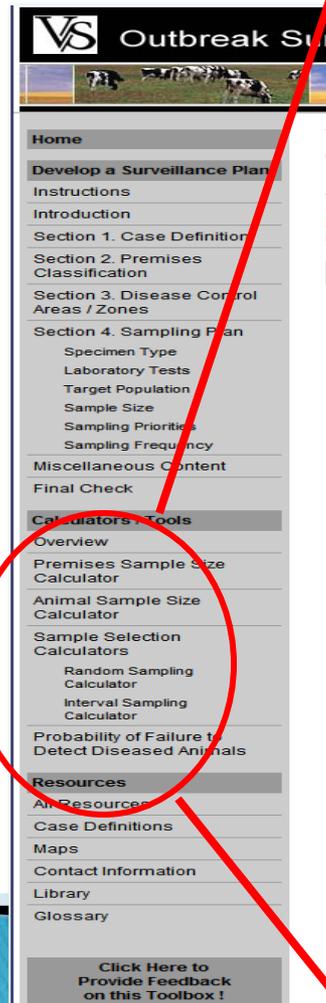
 - the number of at risk or free premises that should be sampled is the same as the total number of at risk or free premises in a Zone available to sample

Number of At-Risk Premises or Free Premises in a Zone	Inter-Premises Prevalence of Disease																				
	0.01%	0.10%	0.50%	1.00%	2.00%	3.00%	4.00%	5.00%	6.00%	7.00%	8.00%	9.00%	10.00%	11.00%	12.00%	13.00%	14.00%	15.00%	16.00%	17.00%	18.00%
1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7
8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9
10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10	10

Introduction to Outbreak Investigation 17

Content

- *Sampling Plan* section of surveillance plan template
 - Sample size



Calculators / Tools

Overview

Premises Sample Size Calculator

Animal Sample Size Calculator

Sample Selection Calculators

Random Sampling Calculator

Interval Sampling Calculator

Probability of Failure to Detect Diseased Animals

Content

- *Miscellaneous content* section of surveillance plan template
- Optional

VS Outbreak Surveillance Toolbox

VS Outbreak Surveillance Toolbox : [Home](#)

VS Outbreak Surveillance Toolbox

The outbreak surveillance Toolbox is designed to provide veterinary epidemiologists with resources to quickly develop a consistent and complete surveillance plan to identify infected herds and animals due to an outbreak of an infectious animal disease. [More about the Outbreak Surveillance Toolbox...](#)

WHAT'S IN THE TOOLBOX?

How to Develop a Surveillance Plan: Instructions	Step-by-step guide for developing a surveillance plan to identify infected herds and animals in a disease outbreak situation.
Surveillance Plan Outline	Surveillance plan outline with links to resources for developing each section
Calculators	Calculators to estimate number of premises to sample, number of animals to sample, and other metrics needed for surveillance planning
Case definitions	Library of draft case definitions for use in surveillance plans and guidelines for developing a new case definition
Maps	Resources for developing maps for surveillance plans
Library	Articles and documents about epidemiology, surveillance, statistical methods, laboratory diagnostics, and other related topics
Glossary	Definitions of terms and acronyms

Miscellaneous Content

Click Here to Provide Feedback on this Toolbox !

Supportive Materials

VS Outbreak Surveillance Toolbox

VS Outbreak Surveillance Toolbox : [Home](#) >> Resources

VS Outbreak Surveillance Toolbox - Resources

Resources for Developing a Surveillance Plan:

Calculators	Calculators to estimate number of premises to sample, number of animals to sample, and other metrics needed for surveillance planning
Case definitions	Library of draft case definitions for use in surveillance plans and guidelines for developing a new case definition
Maps	Resources for developing maps for surveillance plans
Contacts	Contact information for key groups and people who may assist in developing an outbreak surveillance plan
Glossary	Definitions of terms and acronyms
Library	Articles and documents about epidemiology, surveillance, statistical methods, laboratory diagnostics, and other related topics
Laboratory Information	Specimen collection guidelines and sample routing information from NVSL

Left Sidebar:

- Home
- Develop a Surveillance Plan
 - Instructions
 - Introduction
 - Section 1. Case Definition
 - Section 2. Premises Classification
 - Section 3. Disease Control Areas / Zones
 - Section 4. Sampling Plan
 - Specimen Type
 - Laboratory Tests
 - Target Population
 - Sample Size
 - Sampling Priorities
 - Sampling Frequency
 - Miscellaneous Content
 - Final Check
- Calculators / Tools**
 - Overview
 - Premises Sample Size Calculator
 - Animal Sample Size Calculator
 - Sample Selection Calculators
 - Random Sampling Calculator
 - Interval Sampling Calculator
 - Probability of Failure to Detect Diseased Animals
- Resources**
 - All Resources
 - Case Definitions
 - Maps
 - Contact Information
 - Library
 - Glossary
- [Click Here to Provide Feedback on this Toolbox!](#)

Supportive Materials

- Mapping tools

VS of

Home

Develop a Surveillance System

Instructions

Introduction

Section 1. Case Definition

Section 2. Prevalence and Incidence

Section 3. Disease Burden

Section 4. Sampling

Specimen Typing

Laboratory Testing

Target Population

Sample Size

Sampling Probability

Sampling Frame

Miscellaneous

Final Check

Calculators / Tools

Overview

Premises Sampling Calculator

Animal Sampling Calculator

Sample Selection Calculators

Random Sampling Calculator

Interval Sampling Calculator

Probability of Finding a Disease

Resources

All Resources

Case Definitions

Maps

Contact Information

Library

Glossary

Click Here to Provide Feedback on this Toolbox!

ADDITIONAL RESOURCES

To help visualize the area of an outbreak and to start planning surveillance activities prior to obtaining an official diagnosis.

1. [Delorme Street Atlas](#) - has simple drawing features (roads, etc.)
2. [National Atlas](#) - interactive features (roads, etc.)
3. [Emergency Management](#) - includes maps
4. [Microsoft Map Point](#) - requires installation.
5. [Acme Mapper](#) - provides simple mapping tools **only - maps obtained from this site are not suitable for inclusion in the surveillance plan!**
6. [Google Maps](#) - street view and satellite images **only - maps obtained from this site are not suitable for inclusion in the surveillance plan!**
7. [Google Earth](#) - detailed satellite images allows user to "fly over" areas; you must first download the free software to your local computer. **For informational purposes only - maps obtained from this site are not suitable for inclusion in the surveillance plan!**
8. [FreeMapTools.com](#) - radius tool to determine radii around a point; useful for visualizing zone distances and area. **For informational purposes only - maps obtained from this site are not suitable for inclusion in the surveillance plan!**

Free Map Tools

Maps you can make use of...

Access to this site is free!

Street View

3D Street View

Navigation:

Popular Map Tools:

ZIP Codes Inside a Radius

How Far Can I Travel

How Far is it Between

Radius From UK Postcode

UK Postcode Map

Measure Distance

Area Calculator

Radius Around Point

Distance Between UK Postcodes

UK Postcodes Inside Radius

How Far Does Santa Have To Travel

Map Resources

Download UK Postcodes

About

News

Contact

FAQ's

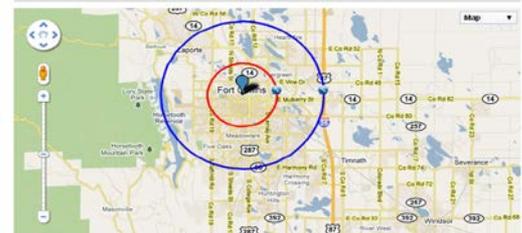
Free Online Advertising See What 75% of Free Google Ads Can Do For Your Business. Try It Now!

ArcGIS Server Templates Get Fast, easy help with your ArcGIS Server implementation.

Radius Around Point

You can use this tool to find the radius around a point on the map. First type in the radius required in kilometers or miles and then click on the map at the center of where you wish the circle to appear. You can then create as many radii as you wish.

Radius Around Point Map



STATE MAPS SHOWING COUNTIES

- Alabama ([html map](#), [gif map](#))
- Alaska ([html map](#), [gif map](#))
- Arizona ([html map](#), [gif map](#))
- Arkansas ([html map](#), [gif map](#))
- California ([html map](#), [gif map](#))
- Colorado ([html map](#), [gif map](#))
- Connecticut ([html map](#), [gif map](#))
- Delaware ([html map](#), [gif map](#))
- District of Columbia ([html map](#), [gif map](#))

Supportive Materials

- Contact information

VS Outbreak S

- Home
- Develop a Surveillance Plan
- Instructions
- Introduction
- Section 1. Case Definition
- Section 2. Premises Classification
- Section 3. Disease Control Areas / Zones
- Section 4. Sampling Plan
 - Specimen Type
 - Laboratory Tests
 - Target Population
 - Sample Size
 - Sampling Priorities
 - Sampling Frequency
- Miscellaneous Content
- Final Check
- Calculators / Tools
 - Overview
 - Premises Sample Size Calculator
 - Animal Sample Size Calculator
 - Sample Selection Calculators
 - Random Sampling Calculator
 - Interval Sampling Calculator
 - Probability of Failure to Detect Diseased Animals
- Resources
 - All Resources
 - Case Definitions
 - Maps
 - Contact Information
 - Library
 - Glossary
- Click Here to Provide Feedback on this Toolbox !

VS Outbreak Surveillance Toolbox : [Home](#) >> [Resources](#) >> [Contacts](#)

VS Outbreak Surveillance Toolbox - Contact Information

- [FADDL](#) - VS Foreign Animal Disease Diagnostic Laboratory
- [NVSL](#) - National Veterinary Services Laboratory
- [NCAHEM](#) - National Center for Animal Health Emergency Management
- [CEAH](#) - Centers for Epidemiology and Animal Health
- [WS](#) - USDA APHIS Wildlife Services National Wildlife Disease Program
- [FSIS](#) - USDA Food Safety Inspection Services Office of Field Operations

VS FOREIGN ANIMAL DISEASE DIAGNOSTIC LABORATORY - FADDL

USDA/APHIS/FADDL
Orient Point Warehouse, 40550 RT 25
579 Edwards Ave., Calverton, NY 11933
Orient, NY 11957

During Business Hours: Monday-Friday 8:30 AM – 4:15 PM Eastern Time
631-323-3256 or 631-323-3206

After hours or weekends:
Acting Diagnostic Services Section Head 631-332-6814
Barry Latney 631-377-9877

If unable to reach someone listed above:
National Animal Disease Center Dispatch 515-663-7200

NATIONAL VETERINARY SERVICES LABORATORY - NVSL

Supportive Materials

- Document library

VS Outbreak Surveillance Toolbox - L...

The links provided below provide additional information for surveillance planning.

COMPLETE DOCUMENTS - BY CATEGORY:

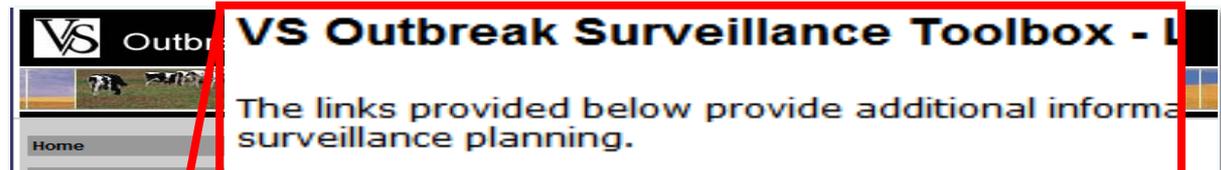
- Climatic factors affecting disease spread
- Diseases
- **Epidemiology and surveillance**
- Insect vectors
- Laboratory diagnostics
- Statistics
- Veterinary Services - including VS Emergency
- World Organisation for Animal Health (OIE)

EPIDEMIOLOGY AND SURVEILLANCE REFERENCES

Alban L, Boes J, Kreiner H, Valentin Petersen J, Willeberg P. Towards a risk-based surveillance for *Trichinella* spp. in Danish pig production. *Prev. Vet. Med* 2008;87:340-357.

Branscum AJ, Gardner IA, Johnson WO. Bayesian modeling of animal- and herd-level prevalences. *Prev Vet Med* 2004;66:101-112.

Supportive Materials



VS Outbreak Surveillance Toolbox - L

The links provided below provide additional information for surveillance planning.



Available online at www.sciencedirect.com

ELSEVIER ScienceDirect PREVENTIVE VETERINARY MEDICINE

*Towards a risk-based surveillance for *Trichinella* spp. in Danish pig production*

Lis Alban^{a,*}, Jaap Boes^a, Henrik Kreiner^b,
Jesper Valentin Petersen^a, Preben Willeberg^{b,c}

^aDanish Meat Association, Møllevvej 11, DK-5620 Kjellerup, Denmark
^bDanish Veterinary and Food Administration, Møllehøj 19

- Document library



Calculators
Random Sampling Calculator
Interval Sampling Calculator
Probability of Failure to Detect Disease
Resources
All Resources
Case Definition
Maps
Contact Information
Library
Glossary

Click Here to Provide Feedback on this Tool

Alban L, Boes J, Kreiner H, Valentin Petersen J, Willeberg P. Towards a risk-based surveillance for *Trichinella* spp. in Danish pig production. *Prev. Vet. Med* 2008;87:340-357.

Branscum AJ, Gardner IA, Johnson WO. Bayesian modeling of animal- and herd-level prevalences. *Prev Vet Med* 2004;66:101-112.

Supportive Materials

- Glossary of terms with accompanying definitions
- Acronyms

VS Outbreak Surveillance Toolbox

VS Outbreak Surveillance Toolbox : [Home](#) >> [Resources](#) >> [Glossary](#)

VS Outbreak Surveillance Toolbox - Glossary

Alternative Test

Test methods considered in the OIE Terrestrial Manual that are suitable for the diagnosis of disease in a local situation, and that can also be used for import/export by bilateral agreement.

At-Risk Premises (ARP)

Premises located in the Control Area with susceptible animals, but none have clinical signs compatible with the FAD. Premises objectively demonstrates that it is not an Infected Premises, Contact Premises, or Suspect Premises. At-Risk Premises seek to move susceptible animals or products within the Control Area by permit. Only At-Risk Premises are eligible to become Monitored Premises. [More information on Premises Classification.](#)

Buffer Zone (BZ)

Zone immediately surrounding the Infected Zone or a Contact Premises. The BZ is a scalable area with a width that is never less than the width of the IZ, but may be much larger than the IZ. The width of the BZ may be as small as 4.35 mi (7km) beyond the perimeters of the IZ. Width is generally not less than the minimum radius of the associated IZ, but may be much larger. The size of the BZ and CA depends upon the FAD agent and circumstances of the outbreak. The BZ may initially be as large as a county, township, district, regional area, State, Tribal Nation, or other jurisdictional level. The boundaries of the BZ can be modified or redefined as needed by the circumstances of the outbreak. [Toolbox information on Disease Control Zones](#)

Case

An individual in a population or study group identified as having a particular disease or other health related event that is being investigated, with or without clinical signs.

Case Definition

A set of diagnostic criteria that must be fulfilled in order to identify an individual as a case of a particular disease. Case definition can be based on clinical, laboratory, or combined clinical and laboratory criteria.

Clinical Case Definition

Can be used to broaden or restrict the sensitivity of a surveillance system by designating the species of animal(s) under surveillance and inclusion or exclusion of clinical signs or lesions for the disease or condition under investigation. Clinical case definition may be used to screen animals for additional testing.

Close Contact

Animal is housed with an animal that is a confirmed case of the disease in question or having a high likelihood of direct contact with the confirmed case.

[Click Here to Provide Feedback on this Toolbox !](#)

Supportive Materials

- Laboratory Information

The screenshot displays the 'VS Outbreak Surveillance Toolbox' website. The left sidebar contains a navigation menu with categories like 'Home', 'Develop a Surveillance Plan', 'Calculators / Tools', and 'Resources'. The main content area is titled 'VS Outbreak Surveillance Toolbox - Laboratory Information' and includes sections for 'SPECIMEN COLLECTION GUIDELINES FROM NVSL' and 'SUGGESTED SAMPLE ROUTING'. A table lists diagnostic specimens and their routing to NVSL and FADDL. A red box highlights the 'SUGGESTED SAMPLE ROUTING' section, and a red arrow points from the 'Laboratory Information' menu item to this section.

VS Outbreak Surveillance Toolbox - Laboratory Information

SPECIMEN COLLECTION GUIDELINES FROM NVSL

- NVSL guidelines for specimen collection
- NVSL Disease-specific guide to specimen collection for foreign animal diseases

SUGGESTED SAMPLE ROUTING

Type of diagnostic specimen	NVSL	FADDL
Ruminants		
Bovine spongiform encephalopathy (BSE) suspects	YES - PL	No
Heartwater suspects	YES - DVL	YES
All other ruminant specimens	No	No
Avian		
Entomologic specimens, all species	YES - PL	No
Equine (including African horse sickness suspects)	YES - DVL	No
Swine		
Foot and mouth disease (FMD)	No	YES
Swine vesicular disease (SVD) suspects	No	YES
Classical swine fever (CSF) suspects	No	YES
African swine fever (ASF) suspects	No	YES
All other swine diagnostic samples	YES - DVL	No

DVL = Diagnostic Virology Laboratory
PL = Pathobiology Laboratory

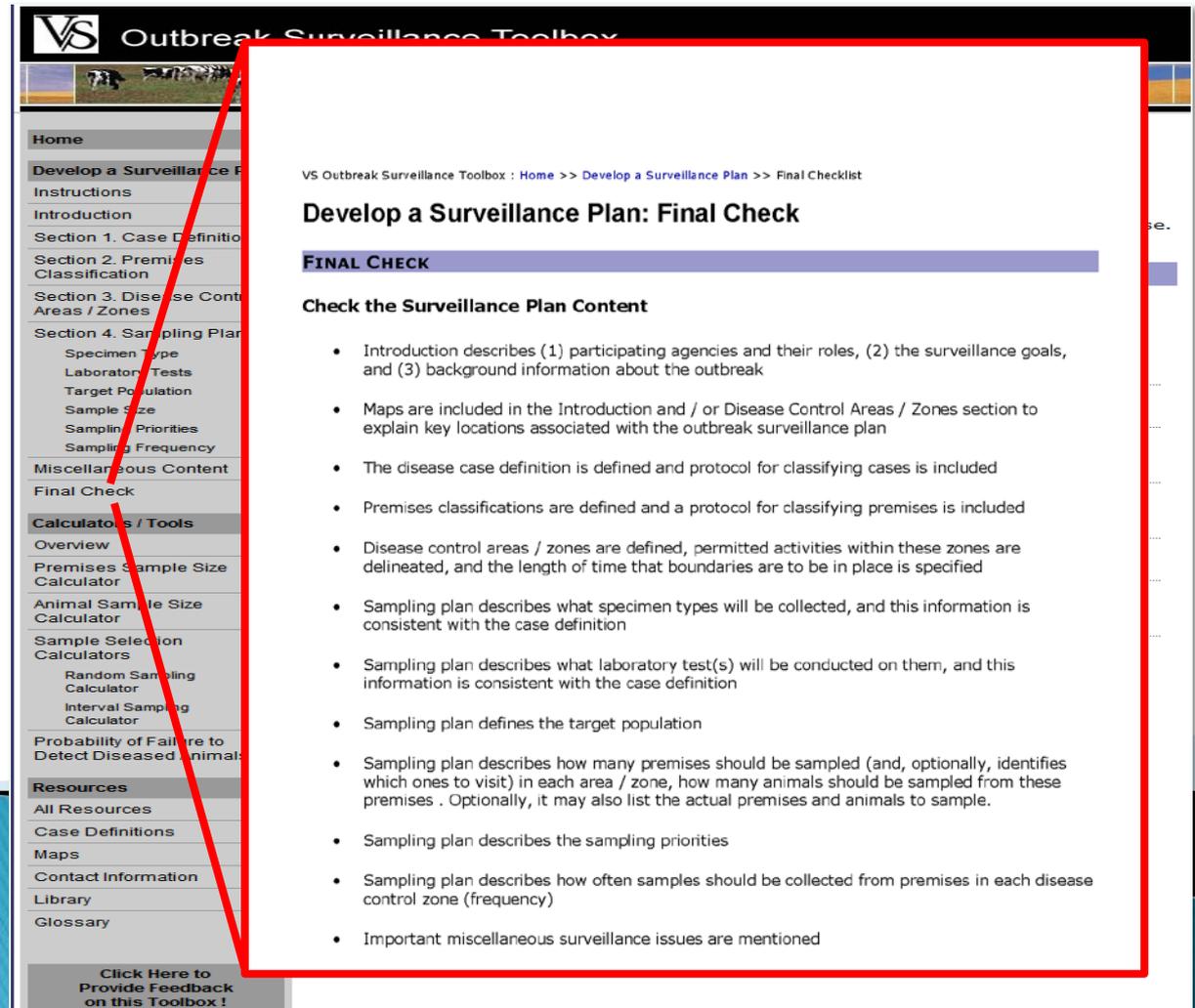
If more than one laboratory at NVSL will perform diagnostic testing (e.g., virology, bacteriology, pathology), then separate sets of diagnostic samples need to be labeled for each NVSL laboratory department.

CSF or ASF Suspects

- NVSL strongly recommends that if CSF or ASF is suspected, then non-FAD conditions be included in the differential diagnosis; NVSL recommends that one set of diagnostic samples be sent to FADDL and a second set of diagnostic samples be sent to NVSL.
- The diagnostic samples submitted to NVSL must be clearly marked **"Hold until cleared for exotic disease by FADDL."**
- Notify FADDL and NVSL when two sets of samples are being shipped or transported for the same investigation

Final Check

- Review a checklist of information that should be in surveillance plan prior to its printing



VS Outbreak Surveillance Toolbox

Home

Develop a Surveillance Plan

Instructions

Introduction

Section 1. Case Definition

Section 2. Premises Classification

Section 3. Disease Control Areas / Zones

Section 4. Sampling Plan

Specimen Type

Laboratory Tests

Target Population

Sample Size

Sampling Priorities

Sampling Frequency

Miscellaneous Content

Final Check

Calculators / Tools

Overview

Premises Sample Size Calculator

Animal Sample Size Calculator

Sample Selection Calculators

Random Sampling Calculator

Interval Sampling Calculator

Probability of Failure to Detect Diseased Animal

Resources

All Resources

Case Definitions

Maps

Contact Information

Library

Glossary

Click Here to Provide Feedback on this Toolbox!

VS Outbreak Surveillance Toolbox : Home >> Develop a Surveillance Plan >> Final Checklist

Develop a Surveillance Plan: Final Check

FINAL CHECK

Check the Surveillance Plan Content

- Introduction describes (1) participating agencies and their roles, (2) the surveillance goals, and (3) background information about the outbreak
- Maps are included in the Introduction and / or Disease Control Areas / Zones section to explain key locations associated with the outbreak surveillance plan
- The disease case definition is defined and protocol for classifying cases is included
- Premises classifications are defined and a protocol for classifying premises is included
- Disease control areas / zones are defined, permitted activities within these zones are delineated, and the length of time that boundaries are to be in place is specified
- Sampling plan describes what specimen types will be collected, and this information is consistent with the case definition
- Sampling plan describes what laboratory test(s) will be conducted on them, and this information is consistent with the case definition
- Sampling plan defines the target population
- Sampling plan describes how many premises should be sampled (and, optionally, identifies which ones to visit) in each area / zone, how many animals should be sampled from these premises . Optionally, it may also list the actual premises and animals to sample.
- Sampling plan describes the sampling priorities
- Sampling plan describes how often samples should be collected from premises in each disease control zone (frequency)
- Important miscellaneous surveillance issues are mentioned



Summary

- The *Toolbox* aids construction of the initial surveillance plan to detect all other infected herds/flocks at the outset of a confirmed highly contagious disease outbreak
- The surveillance plan template standardizes content
- An extensive web-based set of resources provides the substantive information to quickly complete each section of template