

World Organisation for Animal Health

Training Workshop on Animal Disease surveillance

Risk-based Surveillance for Demonstrating Disease Freedom

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Learning objectives

By the end of the training, participants should be able to:

- Explain the principles of risk-based surveillance.
- Distinguish disease freedom from absence of detected infection.
- Identify and assess animal disease risk factors.
- Classify animal populations according to risk.
- Develop a risk-based sampling strategy.
- Calculate basic sample sizes and surveillance sensitivity.
- Interpret surveillance findings and assess confidence in disease freedom.
- Develop recommendations for improving surveillance programmes.

What is Animal Disease Freedom?

Animal disease freedom refers to a situation in which a defined animal population, geographical area, or country meets the applicable requirements for recognition or demonstration of freedom from a specified disease.

- Important considerations:
    - Which disease are we investigating?
    - Which animal species are included?
    - What geographical area is covered?
    - What period is being assessed?
    - What infection prevalence are we trying to detect?
    - What level of confidence is required?

- **Key message:** Disease freedom is a conclusion supported by epidemiological evidence, not simply the absence of reported outbreaks.

What Does Demonstrating Disease Freedom Mean?

- Disease freedom means providing sufficient scientific evidence that a specified infection is absent from a defined animal population or occurs below a specified prevalence threshold.
- The assessment should define:

Element	Description
Disease	The specific TAD being assessed
Population	Animals or epidemiological units covered
Geographical area	Country, zone or compartment
Design prevalence	Minimum infection prevalence the programme is intended to detect
Confidence	Desired probability of detecting infection if present at the design prevalence
Surveillance period	Period covered by the evidence

WOAH Standards

WOAH Terrestrial Code	Main subject	Relevance
Chapter 1.1	Notification of diseases and epidemiological information	Reporting obligations
Chapter 1.4	Animal health surveillance	Surveillance design and demonstration of freedom
Chapter 1.6	Official recognition and self-declaration	Disease status procedures
Chapters 1.7-1.12 and Relevant disease-specific chapters	TAD-specific provisions	Requirements for individual diseases
WOAH Terrestrial Manual	Diagnostic tests and vaccines	Laboratory methods and test interpretation

WOAH Requirements for Demonstrating Disease Freedom

Requirement	Explanation	Supporting evidence
Disease notification	The disease is subject to notification requirements	National animal health legislation
Early warning system	A functioning system detects and investigates suspected cases	Farmer reporting and veterinary investigation records
Prevention of introduction	Measures address relevant disease introduction pathways	Import controls, quarantine and biosecurity
Wildlife considerations	Relevant wildlife populations and reservoirs are considered	Wildlife surveillance and epidemiological assessments
Disease history	Previous occurrence and eradication are documented where relevant	Outbreak history and control records
Surveillance	Appropriate surveillance is implemented	Surveillance plans, sampling and laboratory reports
Documentation	Evidence is available to support the claimed status	Epidemiological reports and official records

Reference: WOAH Terrestrial Animal Health Code, Chapters 1.4 and 1.6, and the relevant disease-specific chapter.

Requirements for official recognition of PPR-free status according Terrestrial Animal Health Code

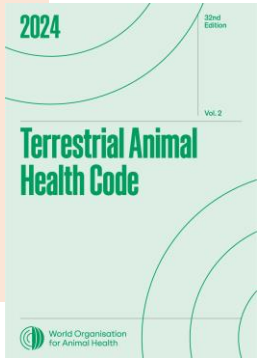
Horizontal Chapters

- Disease notification (1.1.) compliance with WAHIS
- Animal health surveillance (1.4.) surveillance
- Import risk analysis (2.1.)
- Evaluation of Veterinary Services (3.2.) quality of the Veterinary Services
- Veterinary legislation (3.4.) quality of the Veterinary Services
- Import/export procedures (5)
- Obligations related to certification (5.1.)

PPR Specific Chapter – 14.7.

(most recent update adopted in 2021)

- General provisions, case definition (14.7.1.)
- Safe commodities (14.7.2)
- Criteria for disease status: country, zone or compartment (14.7.3-14.7.7.)
- Provisions for import of commodities (14.7.8.-14.7.25.)
- Pathogen inactivation (14.7.26.)
- Specific disease surveillance (14.7.27.-14.7.33.)
- Endorsement of control programme (14.7.34.)



Article 14.7.1. : General provisions

Case definition

Infection of sheep and goats with PPR-virus is defined as…

1. Isolation of PPR-virus *(excl. vaccine strains)*
2. Detection of antigen or RNA *(excl. vaccine strains)*
3. Detection of antibodies to PPR-virus (*excl. those resulting from vaccine strains*)





Article 14.7.1. : General provisions

Infection of sheep and goats with PPR-virus is defined as…

Clinical signs or epidemiological link

1. Isolation of PPR-virus *(excl. vaccine strains)*
2. Detection of antigen or RNA *(excl. vaccine strains)*
3. Detection of antibodies to PPR-virus





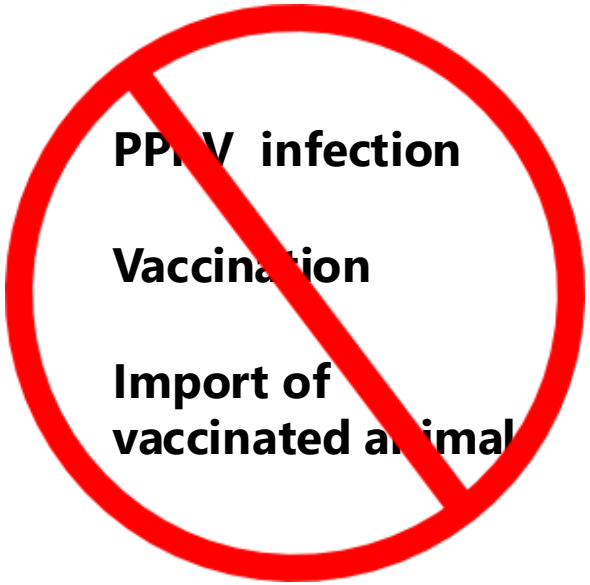
Terrestrial Code for official PPR-free status

Article 14.7.3. *"The freedom article"*

A country or zone may be considered free from PPR when at least for the past 24 months:

- No case of infection with PPRV
- Veterinary authority has current knowledge and authority over all domestic sheep and goats
- Surveillance has been implemented in accordance with:
  - **Article 1.4.6. if historical freedom**
  - **Articles 14.7.27. to 14.7.33. if not historical freedom**
- Measures to prevent the introduction of the infection have been in place (importations or movements)
- No vaccination against PPR has been carried out
- No animals vaccinated against PPR have been introduced since the cessation of vaccination





Terrestrial Code for official PPR-free status

Article 1.4.6. point 2b *"Historical freedom"*

A country or zone may be considered free without formally applying a pathogen-specific surveillance programme when:

- For at least the past **25 years** there has been no occurrence of infection
- For at least the past **10 years**:
  - ✓ **No vaccination** against the disease has been carried out
  - ✓ The prerequisites in 1.4.6. point a) are met:
    - ➢ The infection has been a notifiable disease
    - ➢ An early warning system has been in place
    - ➢ Measures to prevent the introduction of the infection have been in place (importations and movement control)
    - ➢ The infection is not known to be established in wildlife

Article 14.7.28-30: Surveillance

A PPR surveillance programme should include:

- ✓ Early warning system for rapid reporting and investigation of suspected PPR
- ✓ Where a population of a susceptible wildlife species may act as sentinels indicating the spill over of PPRV from domestic sheep and goats, serosurveillance data should be collected (purposive and opportunistic samplings)

Article 14.7.28-30: Surveillance

A PPR surveillance programme should include:

- ✓ When relevant – regular and frequent clinical inspection and serological testing of high-risk groups
- ✓ Clinical surveillance – detects clinical signs of disease
- ✓ Serological surveillance – cornerstone of surveillance
- ✓ Article 14.7.31. – Additional surveillance requirements for Member Countries applying for WOAH endorsement of official PPR-free status

Official Recognition Versus Self-declaration

Feature	Official recognition	Self-declaration
Responsible authority	WOAH under its recognition procedures	Member Country
Disease eligibility	Specified diseases	Other eligible diseases under Chapter 1.6
Evaluation	Formal evaluation under applicable procedures	Administrative and technical screening for possible publication
Supporting evidence	Must satisfy applicable WOAH requirements	Must document compliance with applicable Code provisions
Publication	Official recognition status	Publication of the Member's declaration

Why self-declare an animal health status ?

The animal health status with regard to a specific disease is favourable in your country and you consider that it would be important to:

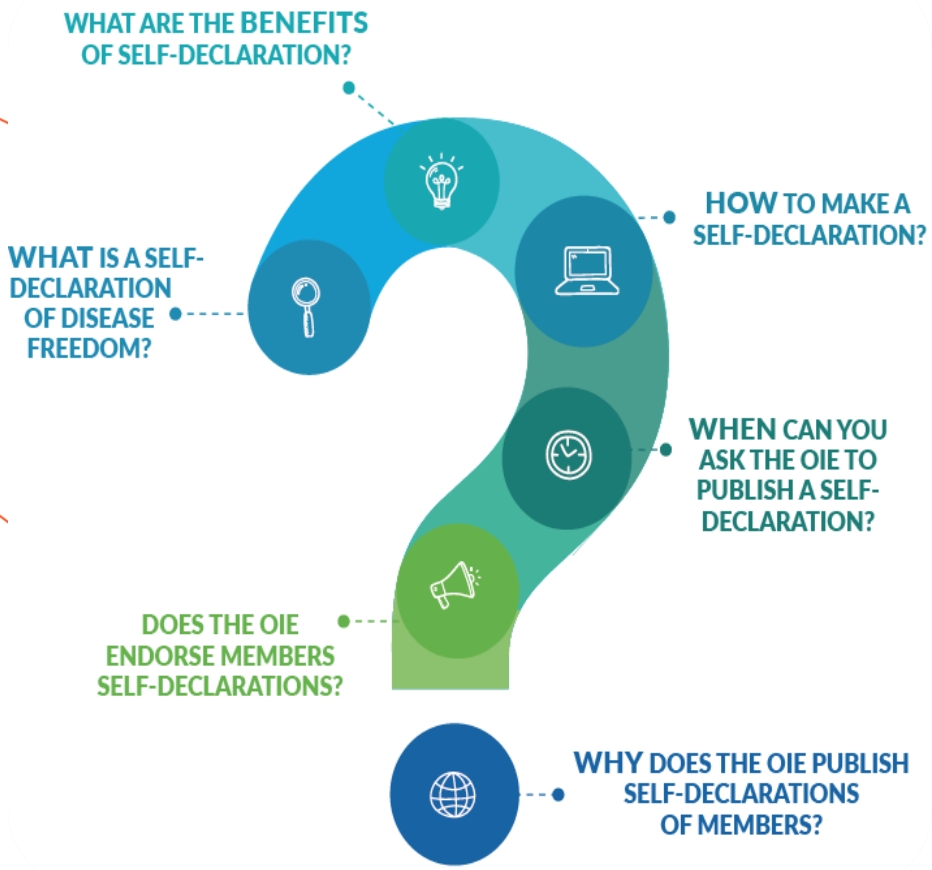


- *Increase* **visibility** *of disease freedom*
- *Promote* **good animal health practice** *&* **quality** *of* **Veterinary Services**
- *Demonstrate* **transparency** *in animal disease situation & continuous* **compliance** *with* **WOAH standards**

Self-declaration of animal health status

A **self-declaration of disease freedom** is a documented statement from the Delegate of the Member and it is entirely under their responsibility.

- Documented **compliance** with the provisions of **Article 1.6.3.** and with **disease-specific articles** of the *Terrestrial Code*
- Following the **Standard Operating Procedure** on the publication of self-declarations



www.woah.org/self-declaration

Self-declaration of animal health status : LSD requirements

Article.11.9.3 (1)

Country or zone free from LSD

- *infection* with LSDV is notifiable in the entire country > state legislation (provide link)
- importation in accordance with this chapter > summarise import requirements, link to relevant legislation
- and either:

Option 1	Option 2	Option 3
Historical freedom: - 10 y. w/o vaccination + EWS, etc. - 25y. no occurrence of LSD	- Vaccination prohibited for THREE YEARS - Clinical surveillance has demonstrated no occurrence of infection with LSDV	- Vaccination prohibited for TWO YEARS - Clinical AND virological surveillance has demonstrated no occurrence of infection with LSDV
1.4.6 (point 2b)	11.9.15 (surveillance)	11.9.15 (surveillance)

Self-declaration of animal health status : LSD requirements

Article.11.9.3 (2)

Country or zone free from LSD

A country or *zone* free from LSD that is adjacent to an infected country or *zone* should include a *zone* in which *surveillance* is conducted in accordance with Article 11.9.15.

A country or *zone* free from LSD will not lose its status as a result of introduction of seropositive or vaccinated bovines or water buffaloes or their *commodities*, provided they were introduced in accordance with this chapter.

Self-declaration of animal health status : LSD requirements

Article.11.9.15 (1)

Surveillance

General principles of *surveillance*

Terrestrial Code	Self-declaration
Awareness-raising programmes for all stakeholders	Examples of campaigns, links to campaigns, frequency of campaigns, target audience,…
A formal and ongoing system for detecting and investigating *cases*	Flow chart, table of investigated suspicions, tests used, results, … Confirm tests follow the *Terrestrial Manual* requirements
A procedure for the rapid collection and transport of samples from suspected *cases* to a *laboratory* for diagnosis;	
A system for recording, managing and analysing diagnostic and *surveillance* data.	

Self-declaration of animal health status : LSD requirements

Article.11.9.15 (2)

Surveillance

Clinical, virological and serological *surveillance*

Terrestrial Code	Self-declaration

Clinical inspections provide a high level of confidence of detection of disease if a sufficient number of clinically susceptible *animals* is examined regularly at an appropriate frequency and investigations are recorded and quantified.	- Briefly describe the population at risk (numbers, geographical distribution, husbandry practices)
	
	- Summarise the surveillance design including:
	  - Sampling strategy,
	  - Frequency of campaigns,
	  - Tests used, results, including follow-up of false-positives
	  - Management of vaccinated animals

Serological and molecular testing of bovines and water buffaloes may be used to detect presence of *infection* with LSDV in naturally infected *animals*. The study *population* used for a serological survey should be representative of the *population* at *risk* in the country or *zone* and should be restricted to susceptible unvaccinated *animals*.	

Self-declaration of animal health status : LSD requirements

Article.11.9.15 (3)

Surveillance

Surveillance in high-*risk* areas

Disease-specific enhanced *surveillance* in a free country or *zone* should be carried out over an appropriate distance from the border with an infected country or *zone*, based upon geography, climate, history of *infection* and other relevant factors.

Terrestrial Code	Self-declaration
At least 20 kilometres from the border with infected country or *zone*, but a lesser distance could be acceptable if features likely to interrupt the transmission of LSDV.	- Describe the zone + map - Description of specificities of surveillance in this zone.
A country or *zone* free from LSD may be protected from an adjacent infected country or *zone* by a *protection zone*.	See specific requirements to describe a protection zone.

Self-declaration of animal health status: Very important points

This is not an official recognition by WOAH

- The responsibility lies entirely under the WOAH Delegate of the Member
- WOAH does not endorse Members' self-declarations
- Self-declaration cannot be made for diseases for which WOAH has an official recognition procedure
- No submission deadline

Why Use Risk-based Surveillance?

Objective	Expected benefit
Improve disease detection	Increased attention to higher-risk populations
Optimize resources	More efficient allocation of sampling and testing resources
Support disease freedom	Generate relevant epidemiological evidence
Strengthen early warning	Improve detection of disease introduction
Improve preparedness	Identify changing disease risks
Support trade	Provide documented evidence of animal health status

Understanding Disease Risk Factors

- Risk factors influencing animal disease introduction, exposure, transmission, and persistence can be classified into the following categories:
- Risk factors should be selected according to the **specific disease, its transmission pathways, and the epidemiological characteristics** of the target animal population.

Risk category	Examples of risk factors
Geographic	Proximity to infected areas, international borders, outbreak locations, and wildlife habitats
Animal movement	Importation of animals, frequent animal trade, animal transportation, and movement between farms
Production system	High animal density, intensive production, communal grazing, and mixed-species farming
Biosecurity	Poor farm hygiene, inadequate quarantine, shared equipment, and uncontrolled farm access
Wildlife	Contact between domestic animals and wild animals that may act as disease reservoirs
Historical	Previous disease outbreaks, past infection, and history of disease occurrence
Environmental	Seasonal conditions, rainfall, temperature, flooding, and environmental conditions favoring pathogen survival

Risk Stratification

- Risk stratification involves grouping farms, herds, flocks, or individual animals according to their estimated likelihood of infection.

Risk category	Characteristics	Surveillance priority
High risk	Frequent animal movement, poor biosecurity, proximity to outbreaks	High
Medium risk	Occasional movement and moderate exposure	Intermediate
Low risk	Limited movement, good biosecurity and few identified exposure pathways	Routine

Designing the Surveillance Strategy

- Define the target population and geographical area
- Epidemiological unit (animal, herd, flock, farm or region).
- Review WOAH general and disease-specific requirements
- Identify disease introduction and transmission pathways
- Conduct risk assessment and stratification
- Select surveillance methods- *risk-based or combinations*
- Define design prevalence and confidence-
- Diagnostic test characteristics- Sensitivity, Specificity
- Determine sample size and sampling allocation
- Collect samples and conduct laboratory testing
- Surveillance frequency and duration.
- Evaluate surveillance sensitivity and findings
- Document evidence and review the programme

Understanding Design Prevalence

- Design prevalence is the minimum level of infection that the surveillance system is designed to detect with a specified level of confidence.
- Two levels should be distinguished:
  - **Herd-level prevalence:** Proportion of infected herds in the target population.
  - **Animal-level prevalence:** Proportion of infected animals within a herd or population.

Example

Parameter	Value
Total number of herds	1,000
Herd-level design prevalence	1%
Number of infected herds represented by the design prevalence	10
Desired confidence	95%

The programme is designed to detect infection if at least 1% of herds are infected, subject to the assumptions of the surveillance design.

Sample Size Calculation

For simple random sampling of independent units, **assuming perfect diagnostic sensitivity and infinite population:**

$n = \ln(1-C)/\ln(1-p)$ Where:

- n= required sample size.
- C= desired confidence.
- p = design prevalence.

For an adjustment for **imperfect diagnostic sensitivity**:

$n = \ln(1-C)/\ln(1-p \times Se)$ Where Se is diagnostic sensitivity.

Example:

- Design prevalence = 5%.
- Test sensitivity = 90%.
- Confidence = 95%.

$$n = \ln(0.05)/\ln(1-0.05\times0.90)$$

$$n \approx 66$$

Approximately 66 independent units are required under these simplified assumptions.

Sample size and Surveillance Sensitivity

- **Design prevalence:** The minimum infection prevalence that the system aims to detect.
- **Diagnostic sensitivity:** The probability that an infected animal tests positive.
- **Surveillance sensitivity:** The probability that the entire surveillance system detects infection when it is present at the design prevalence.
    - For a simple random sample of independent units, assuming perfect test sensitivity, the probability of detecting at least one infected unit is:
- $P(\text{detection}) = 1-(1-p)^n$; Where:
- p = design prevalence
- n = sample size

For imperfect test sensitivity Se, a simplified version is:
$P(\text{detection})=1-(1-p*Se)^n$

Example:

If design prevalence is 5%, test sensitivity is 90%, and 66 independent units are sampled:

$P(\text{detection}) = 1-(1-0.05\times0.90)^{66}$

$P(\text{detection}) \approx 95.2\%$

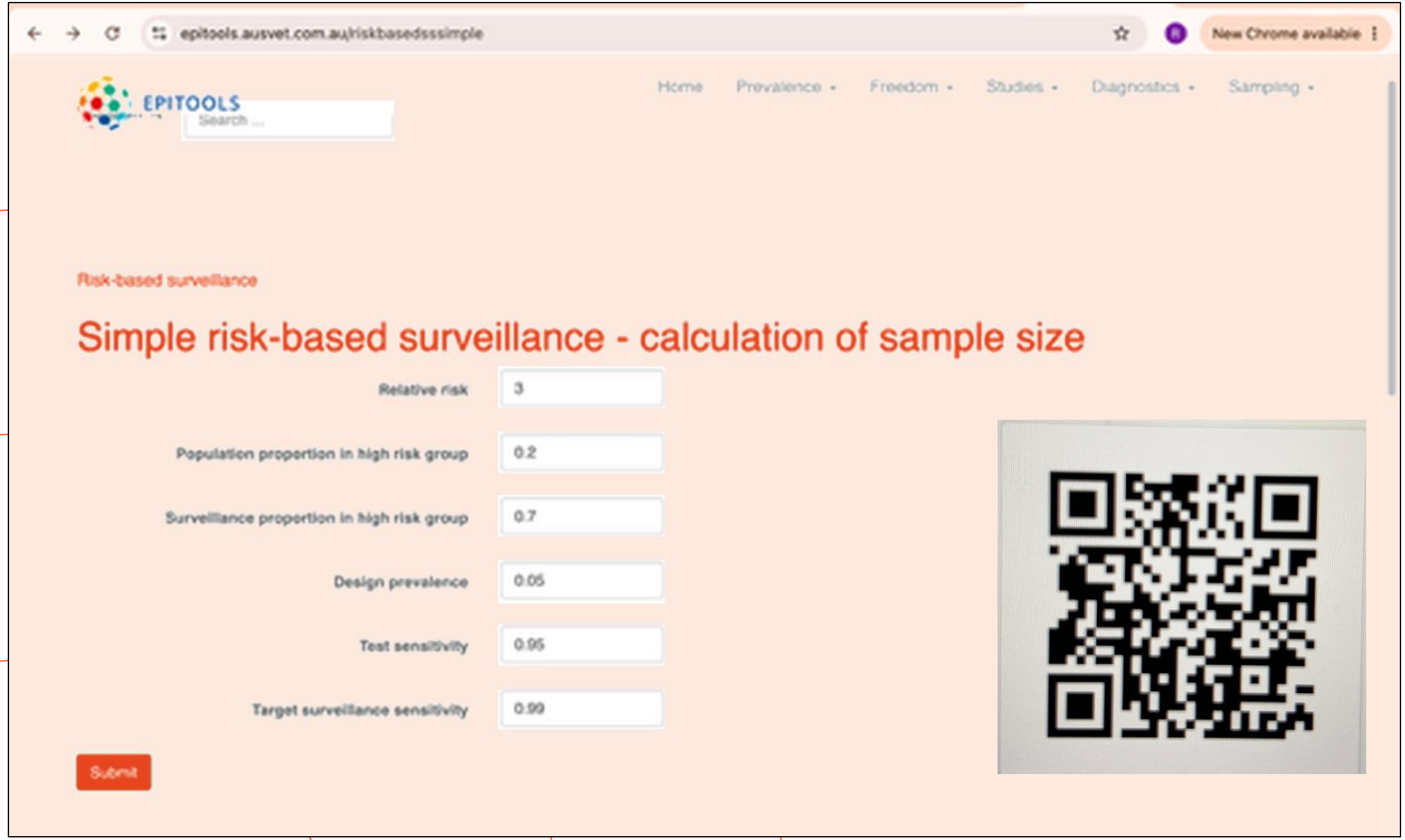
How Risk-based Surveillance Demonstrates Disease Freedom

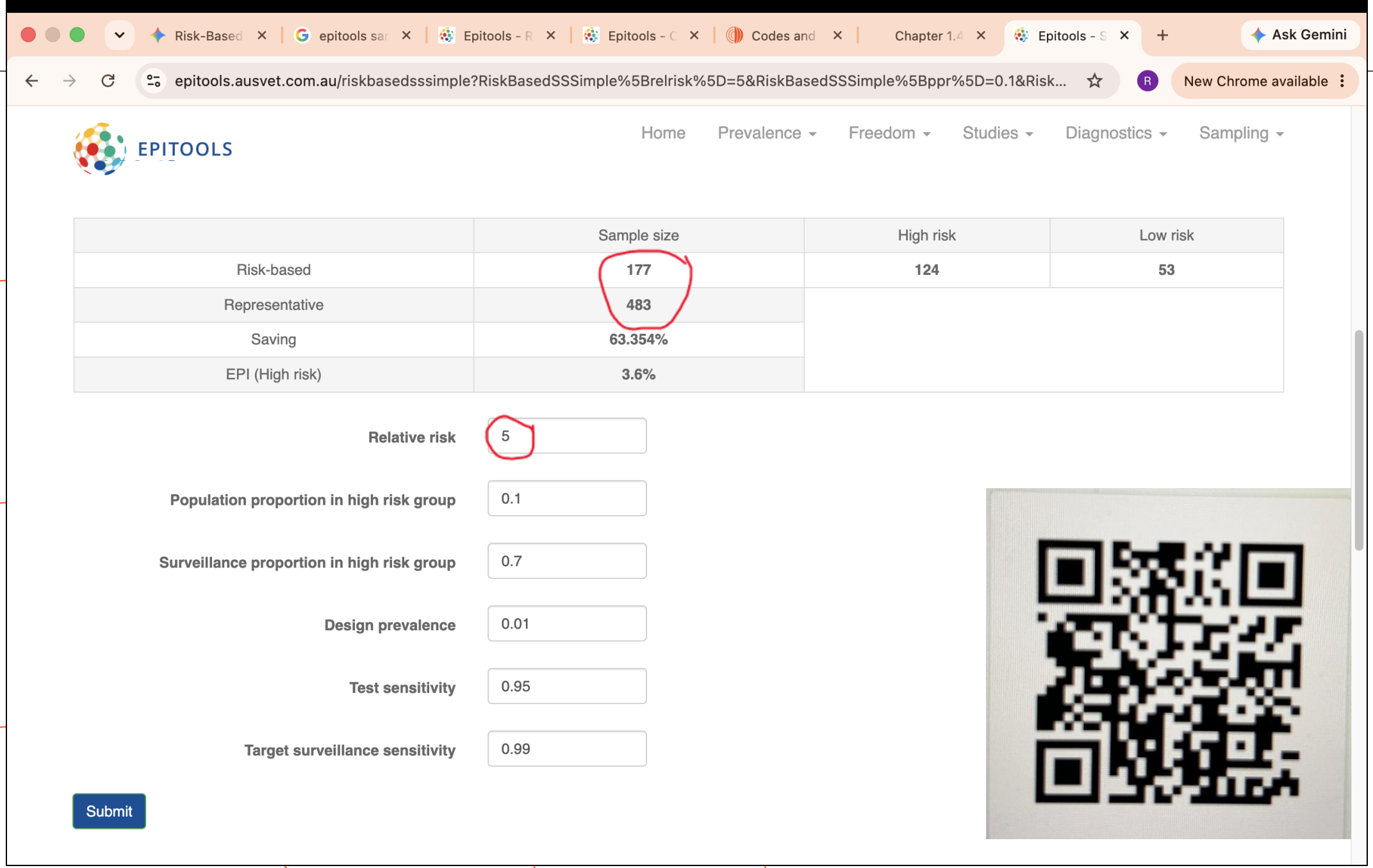
- The central principle is that disease freedom cannot be proven with absolute certainty. Instead, surveillance provides evidence that infection is absent or occurs below a predetermined threshold prevalence, at a specified confidence level.
- Three important statistical concepts are:
  - **Design prevalence:** The minimum level of infection that the surveillance system is intended to detect.
  - **Surveillance sensitivity:** The probability that the surveillance system will detect infection if it is present at the design prevalence.
  - **Confidence level:** The probability of detecting infection if it is present at or above the specified design prevalence.

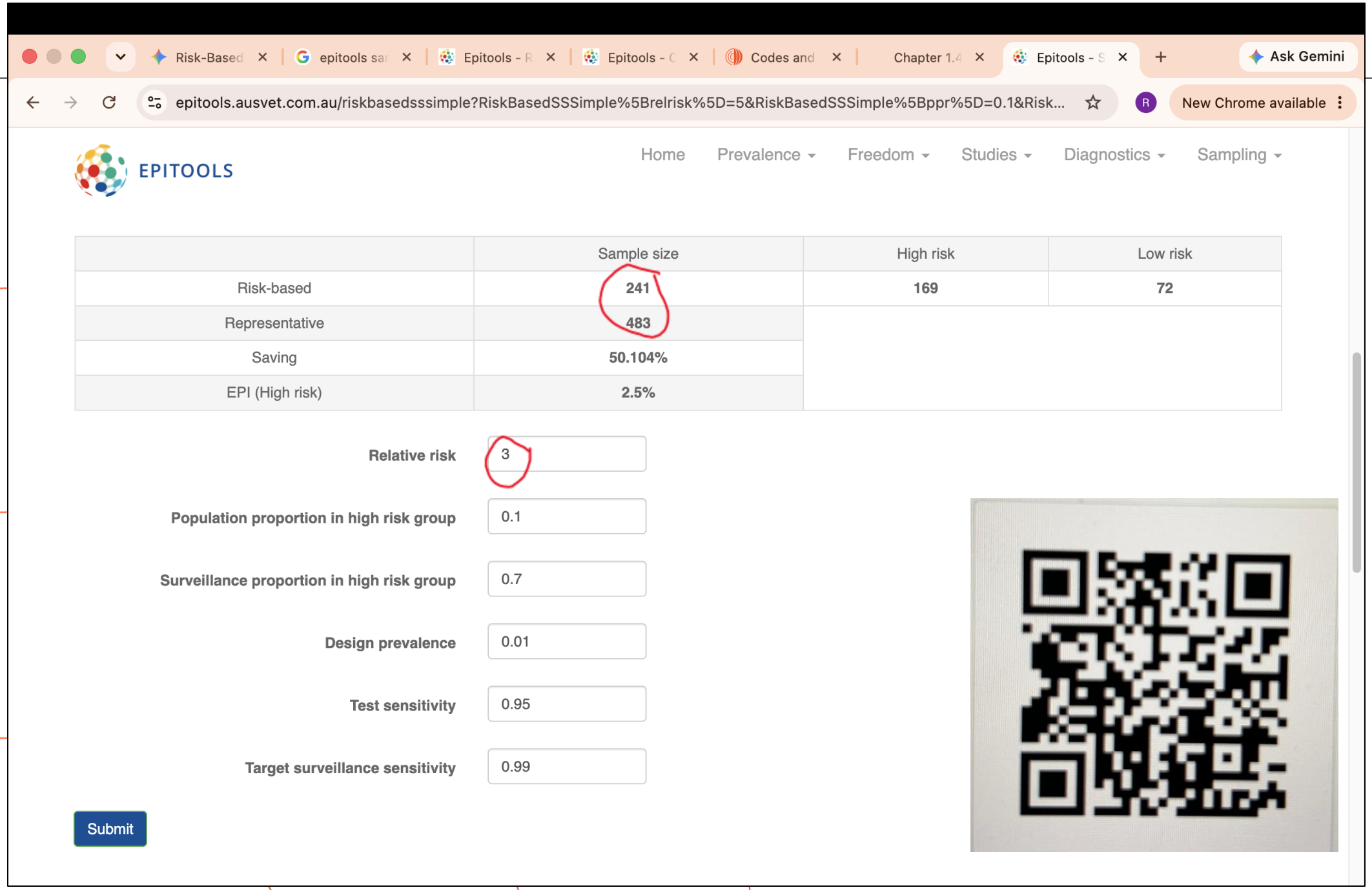
For example, a surveillance programme may be designed to achieve:

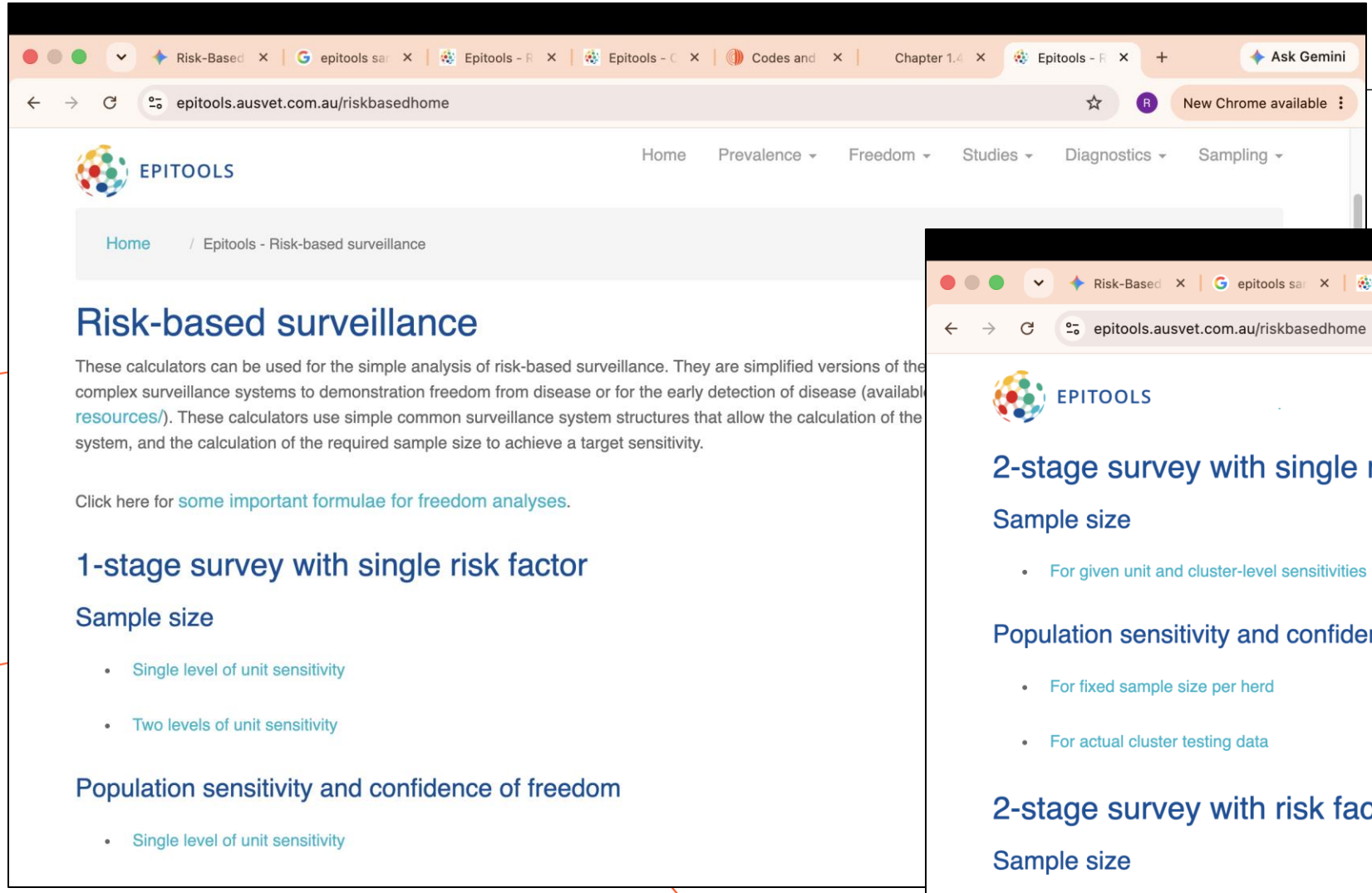
- Design prevalence: 1% of herds infected.
- Confidence level: 95%.
- Target population: All eligible cattle herds in a defined region.

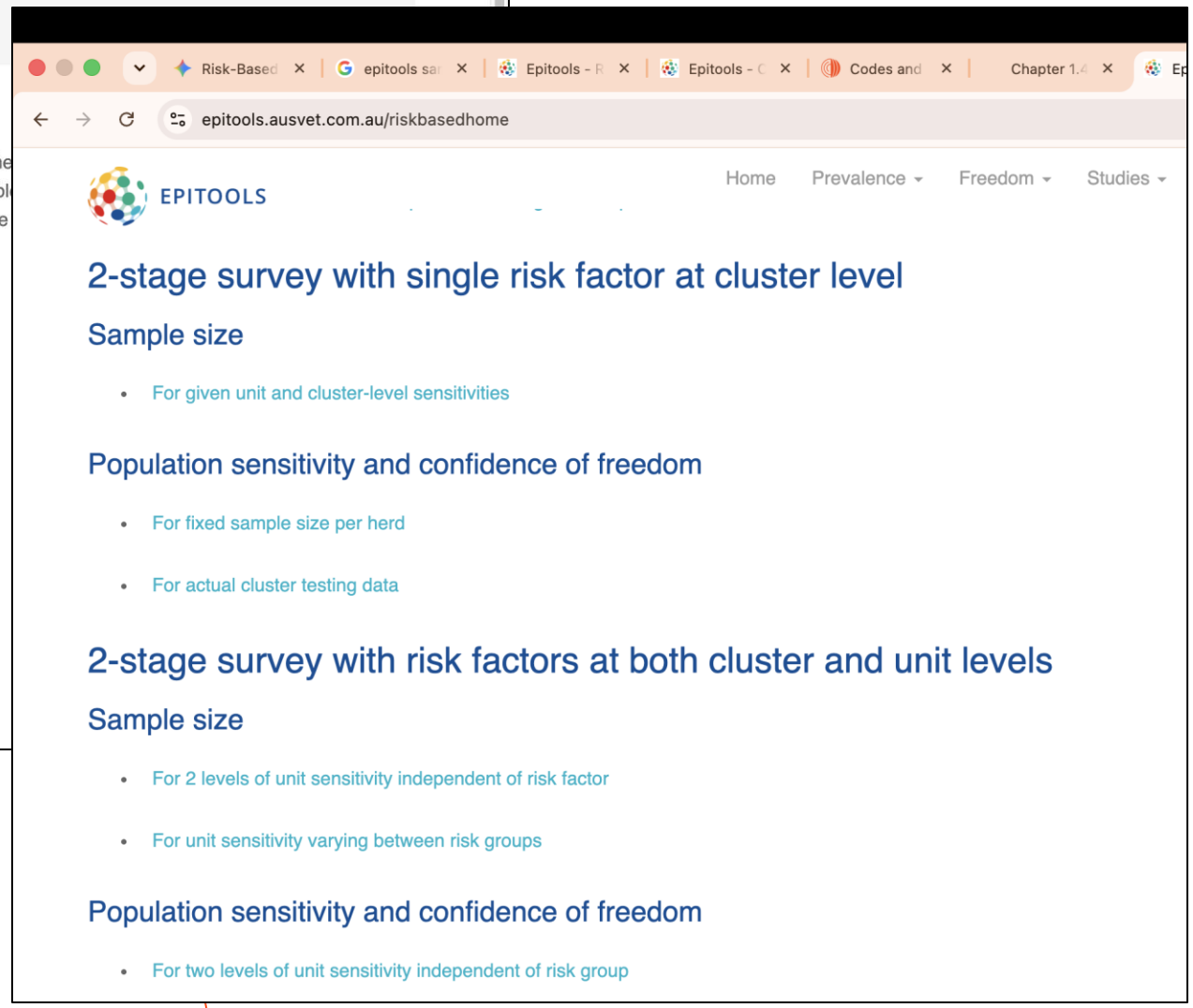
A negative surveillance result would support the conclusion that infection is unlikely to be present at or above the 1% herd prevalence threshold, assuming the sampling design and test-performance assumptions are valid.


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New Chrome available
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Freedom
Studies
Diagnostics
Sampling
Risk-based surveillance
Simple risk-based surveillance - calculation of sample size
Relative risk
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Population proportion in high risk group
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Surveillance proportion in high risk group
0.7
Design prevalence
0.05
Test sensitivity
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Target surveillance sensitivity
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Target surveillance sensitivity
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Population proportion in high risk group
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Surveillance proportion in high risk group
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Test sensitivity
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Risk-based surveillance
These calculators can be used for the simple analysis of risk-based surveillance. They are simplified versions of the
complex surveillance systems to demonstration freedom from disease or for the early detection of disease (availabl
resources/). These calculators use simple common surveillance system structures that allow the calculation of the
system, and the calculation of the required sample size to achieve a target sensitivity.
Click here for some important formulae for freedom analyses.
1-stage survey with single risk factor
Sample size
Single level of unit sensitivity
Two levels of unit sensitivity
Population sensitivity and confidence of freedom
Single level of unit sensitivity


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EPITOOLS
Home
Prevalence
Freedom
Studies
2-stage survey with single risk factor at cluster level
Sample size
For given unit and cluster-level sensitivities
Population sensitivity and confidence of freedom
For fixed sample size per herd
For actual cluster testing data
2-stage survey with risk factors at both cluster and unit levels
Sample size
For 2 levels of unit sensitivity independent of risk factor
For unit sensitivity varying between risk groups
Population sensitivity and confidence of freedom
For two levels of unit sensitivity independent of risk group

EXAMPLE OF RISK-BASED SURVEILLANCE FOR PPR

Risk factors for PPR

- Proximity to countries reporting PPR outbreaks.
- Cross-border movement of sheep and goats.
- Informal livestock trade.
- Seasonal pastoral migration.
- High-density livestock markets.
- Shared grazing and watering points.
- Weak veterinary service coverage.
- Limited disease reporting and investigation.

Priority populations for risk-based surveillance:

- Sheep and goat flocks in border districts.
- Animals originating from infected neighbouring countries.
- Pastoral and nomadic livestock populations.
- Animals entering major livestock markets.

Example of Risk-based Surveillance in Border District of a County for PPR Detection

- **Target population:** Domestic sheep and goats.
- **Main surveillance objective:** Detect any possible PPR virus circulation, including in areas with a high risk of introduction.
- **Country scenario (illustrative):** A country is free from PPR, but shares a border with a neighbouring country where PPR outbreaks are regularly reported.
- **Risk factors:**
  - Sheep and goats move across informal border routes.
  - Livestock markets receive animals from different districts.
  - Pastoral communities move animals seasonally.
  - Veterinary services have limited access to remote villages.

Risk-based surveillance activities: Example

High-risk location	Surveillance activity
Border villages	Monthly clinical inspections of sheep and goats
Livestock markets	Clinical examination of animals before sale
Pastoral migration routes	Participatory disease surveillance
Quarantine stations	Clinical inspection and investigation of suspicious animals
Villages close to infected neighbouring areas	Targeted serological testing

Example of Risk-based Surveillance in Border District of a County for PPR Detection

- Instead of distributing surveillance resources equally across all districts, the Veterinary Authority identifies high-risk districts based on proximity to infected borders, livestock movement and market connectivity.
- The country then:
    - Conducts more frequent clinical inspections in these high risk districts.
    - Trains community animal health workers to recognize PPR signs.
    - Collects samples from animals showing compatible clinical signs.
    - Conducts targeted serological surveys.
    - Maintains passive surveillance in the remaining districts.

Expected outcome

- Early detection of possible PPR introduction while generating documented evidence to support the country's freedom claim.

Case study on PPR- Armenia and Georgia – Integrated surveillance and probability of disease freedom

- **Surveillance period:** 2019–2020.
- **Population:** Nearly 6,600 sheep and goats.
- **Methods:**
    - Serological surveillance.
    - Molecular testing for PPR viral RNA.
    - Participatory disease surveillance.
    - Interviews and focus-group discussions with livestock owners.
    - Bayesian/probabilistic assessment of disease freedom.
- **Important findings:**
    - All blood samples were negative for viral RNA.
    - Only 23 serum samples were seropositive, without spatial or temporal clustering.
    - Estimated probability of freedom for 2021 was 70.8% for Armenia and 73.8% for Georgia, using a 5% design prevalence and probability of introduction.
- **Why this study is particularly valuable:** It demonstrates how laboratory surveillance, participatory surveillance and statistical modelling can be combined to estimate the probability of disease freedom.

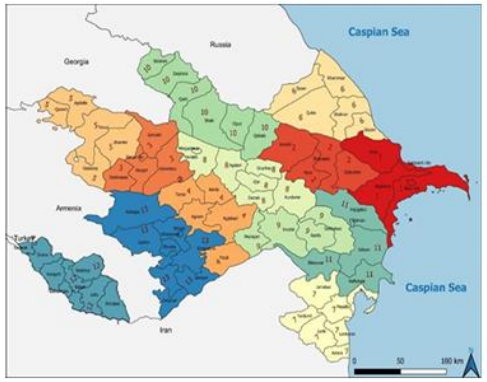
The sampling was designed as a two-stage clustered risk-based surveillance approach to quantify sero-prevalence and virus circulation in high-risk areas of both Armenia and Georgia. Sampling targeted specific higher-risk areas as opposed to a national coverage.

Baron JN, Vepkhvadze NG, Markosyan T, Gulbani A, Enukidze T, Basiladze V, Chaligava T, Khelaia D, Kartskhia N, Kurashvili T, Kharatyan S, Sargsyan K, Goginashvili K, Kokhreidze M, Tigilauri T, Toklikishvili N, Turmanidze M, Mamisashvili E, Ståhl K, Risatti G, Chenais E. Serosurveillance and participatory disease surveillance of Peste des Petits Ruminants (PPR) in Georgia and Armenia in 2019-2020. BMC Vet Res. 2026 Sep 4;22(1):516. doi: 10.1186/s12917-026-05781-5. PMID: 42701182; PMCID: PMC13545762.

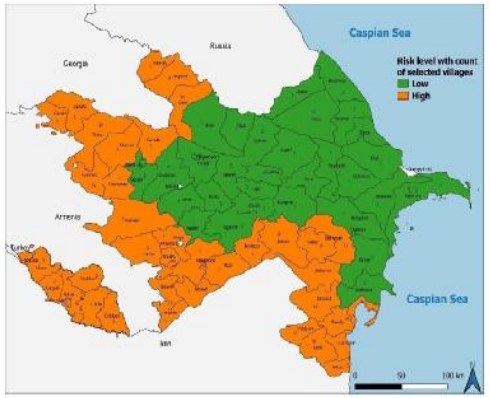
Azerbaijan – National surveillance and evidence dossier for official PPR freedom

- Surveillance approaches- ACTIVE, PASSIVE, SENTINEL, WILFLIFE SURVEYS

Active surveillance maps



Epidemiological pools (13 pools are devided



High risk and low risk zones

7

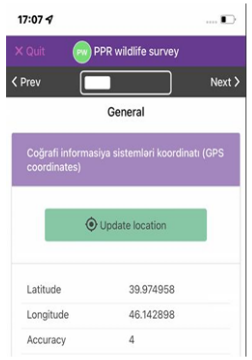
Sentinel surveillance

- ✓In order to ensure the constant epizootiological observation in all seasons of the year, one herd was designated as a sentinel herd in each of 15 villages in 12 rayons belonging to high-risk areas.
- ✓Village herds range from around 400 to more than 15.000 in these villages and sub-herds were selected as sentinels using a design prevalence of 1%, leading to sentinel sub-herds between 212 to 258 in the different villages.
- ✓ Keepers of these herds were trained in clinical observation of signs indicative of PPR, handling of animals for sampling and general principles of surveillance.
- ✓ Monthly serum sampling and clinical examinations were carried out in the herds, and blood samples were taken and analysed from 13 randomly selected 6 – 12 month old animals in each herd.
- ✓ Samples were taken by private veterinarians serving the herds and veterinary specialists of the district Animal Health and Veterinary Service Centres under the supervision of the veterinary inspectors of the relevant regional divisions of AFSA.

8

PPR in Wildlife survey

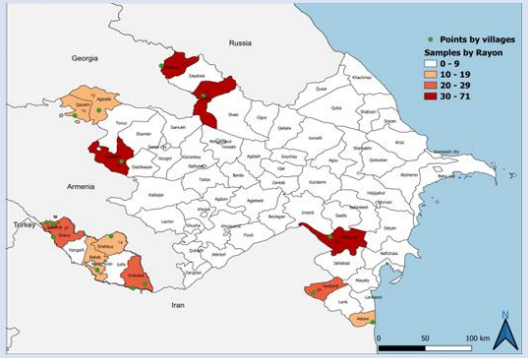
- A questionnaire was set up in EpiCollect 5. Officers of AFSA and rayon AH&VSC visited 80 stakeholders in wildlife and natural conservation areas all over the main territory and applied the questionnaire.
- Questions covered the sighting of susceptible wild ruminants, their numbers and species as well as findings of dead or sick animals (numbers, species, clinical signs) and whether samples of dead or sick wild ruminants had ever been taken for laboratory analysis.
- The survey revealed that dead animals were occasionally found, but no samples have been taken and no clinical signs that match PPR symptoms were observed.
- **Since 2022 the wildlife PPR survey carry out together with HPAI survey between October-May.**



14

PPR sentinel surveillance in the border regions of the country

- 14 districts of the country
- 15 border villages
- 1 herd of animals per village
- two stage cluster sampling
- 378 total samples per month



https://rr-europe.woah.org/app/uploads/2025/03/9_Azerbaijans_experience_PPR_en.pdf?

Evaluation of applications from Azerbaijan for official recognition of PPR-free status

In August 2023, Azerbaijan submitted a dossier for the official recognition of its PPR-free status based on historical grounds.

The WOAH evaluated the application on the following basis-

1. Animal disease reporting

- A record of regular and prompt animal disease reporting to WOAH and that PPR was a notifiable disease in the country as per legislation since 2006.
- Efforts to engage its relevant stakeholders with its plan to have its PPR-free status officially recognised by WOAH by using different occasions
- Significant improvement of the early warning system over the last two years and recommended that Azerbaijan maintain this enhanced awareness programme going forward.

2. Veterinary Services

- Improved veterinary services and tracing of animal movements

Evaluation of applications from Azerbaijan for official recognition of PPR-free status

3. Situation of PPR in the past 24 months

- PPR had never been reported in the country. Based on the findings of the enhanced passive surveillance and the active surveillance for PPR in place (*cf.* sections *i. and iv.*), the Group concluded that PPR was absent during at least the past 24 months.

4. Surveillance for PPR

- Active, passive, wildlife, participatory, and sentinel

5. Measures to prevent the introduction of PPRi n particular regarding the importations of small ruminant commodities

6. Absence of vaccination against PPR and no entry of vaccinated animals in the past 24 months

7. Compliance with the questionnaire in Article 1.12.1

Six Dimensions for Interpreting surveillance

Geographical coverage

- Does surveillance cover all important sheep and goat production areas, including border districts, remote areas and livestock movement corridors?

Population coverage

- Are different production systems represented, including commercial farms, smallholders, pastoral herds and backyard flocks?

Surveillance sensitivity

- Would the surveillance system detect PPR if it were present at the predefined design prevalence?

Risk coverage

- Are high-risk areas and populations receiving more surveillance attention than low-risk areas?

Time coverage

- Has surveillance operated consistently for the required period, with no significant gaps?

Operational performance

- Are suspected cases reported, investigated, sampled and tested promptly, with reliable laboratory performance?

Distinction between the diseases under WOAH standards

- **PPR:** A country seeking freedom must demonstrate no PPR outbreak and no evidence of PPRV infection for at least 24 months, alongside the other applicable requirements, including no vaccination during that period.
- **LSD:** WOAH provides two principal pathways: at least three years without vaccination supported by clinical surveillance, or at least two years without vaccination supported by clinical, virological and serological surveillance, in addition to the other applicable requirements.
- Therefore, a country should not claim freedom simply because no clinical outbreaks have been reported. The surveillance programme must be sufficiently sensitive, appropriately designed and supported by documented evidence.

Take Home Message

- Risk is not the same as prevalence. A farm may have a high likelihood of disease introduction but not necessarily have a high probability of currently being infected.
- Targeted sampling alone may not establish population-wide freedom. targeted surveillance is combined with representative sampling and other surveillance evidence.
- Disease-specific requirements take precedence. WOAH requirements differ among diseases, and a national programme must also consider its applicable legal and trade requirements.
- Risk-based surveillance should be driven by epidemiological evidence, not simply administrative boundaries.
- Surveillance effectiveness depends on the entire system, including reporting, field investigation, laboratory capacity and data management.
- Evidence of freedom should be quantified, documented, periodically reviewed and adapted to changing risks.

Effective disease-freedom surveillance is not about testing the largest number of animals. It is about generating the strongest possible evidence from the available resources.

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Thank you

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