TECHNICAL REPORT (PART B)

COVER PAGE

Part B of the Technical Report must be downloaded from the Portal Technical Report (Part B)/Termination Report screen, completed and then assembled and re-uploaded as PDF on that screen.

PROJECT	
Project number:	101132818
Project name:	Development of an Integrated Surveillance and Alert System of Zoonosis in Portugal
Project acronym:	SIVIZ

REPORTING PERIOD ⚠ *Please note that you must report on the entire reporting period.*	
RP number:	1
Duration:	from 01/01/2024 to 30/06/2025

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#@PRO-GRE-PG@# [This document is tagged. Do not delete the tags; they are needed for the processing.]

1. OVERVIEW OF THE PROGRESS

1.1 Summary of work performed and achievements, results and impacts

[OPTION 1 by default (all except OG):

Work performed and main achievements

Short summary of progress towards the project objectives. Highlight significant activities and achievements. Provide clear and measureable details.

Analyse the outcome of the project (so far) and its (actual and expected) impact (on target groups, change, innovation etc.), including a description of the European dimension and added value. For the Final Report, include the conclusions of the action.

Report on objectives not fully achieved or not on schedule.

⚠ *Do not simply cut and paste the project summary (filled in online on the Summary for Publication screen). Contrary to the summary, this section is for reporting to the EU and will not be published.*

The primary objective of this Project is to develop and implement a national, integrated, and innovative surveillance and early warning system for priority zoonotic diseases, namely West Nile Fever (WNF), Rift Valley fever (RVF), Crimean-Congo Hemorrhagic Fever (CCHF), Tick-borne Encephalitis (TBE), Q Fever (FQ) and Hepatitis E (HE), with a focus on animal, environmental, and vector data. This system will complement and support existing human health surveillance infrastructure and enhance intersectoral and response capacity under a One Health approach.

Additionally, the project will contribute to the implementation of joint risk assessment processes, and the improvement of evidence-based and transparent risk communication – both to professionals and the general public.

Ultimately, this project is designed to reinforce and complement existing national surveillance systems and to serve as a scalable model for the progressive establishment of a One Health (OH) surveillance approach across other zoonotic diseases in Portugal in the coming years.

The project also includes the submission of surveillance data to the European Food Safety Authority (EFSA) and other EU bodies, supporting joint risk assessments and contributing to the overall zoonoses preparedness across EU MS and neighboring third countries. A report was received called “EFSA One Health surveillance review of surveillance priorities and methodologies: Survey results (02/06/2025).

SIVIZ project, in the 1st. reporting period have implemented part of the planned activities. For each WP, the activities carried out and postponed are described.

WP2 – Development of IT support to OH network – SIVIZ Platform:

Completed tasks:

DGS, responsible for the WP2 performed a preliminary **data protection impact assessment** and concluded that the data to be exchanged across institutions, as defined in the current scope of the platform, does not constitute sensitive personal data under the GDPR, thereby streamlining its integration within existing public health infrastructure.

Development of the **IT functional and technical specification document**, with core variables and information domains to be shared between institutions (DGS, DGAV, INSA, INIAV), were defined, as well as data and information flows. This plan also includes mechanisms for triggered alerts to the Authorities, the data analysis and reporting, the calculation of automated indicators and access profiles to guarantee appropriate data governance and institutional responsibilities.

Non-completed tasks:

To comply with the Portuguese legal framework governing national public health surveillance, the SIVIZ platform was designed as a supporting platform within the scope of the National Epidemiological Surveillance System (SINAVE) Network, ensuring **interoperability** with SINAVE-MED, as well as with the Prevention and Control System (SPC) from DGAV, INSA-Lab platform from INSA, and NAUTILUS from INIAV, while maintaining its operational autonomy. Therefore, DGS ensured alignment with the Shared Services of the Ministry of Health (SPMS), which was identified as the entity to develop the platform. The interoperability framework remains to be design, to allow for the contract of their development by each partner institution.

DGS has coordinated with SPMS the development of the **microsite** but it has not been developed yet.

As development progresses, the SIVIZ-Group will actively participate in the **testing and validation** of the system to ensure its quality and functionality, preparing for subsequent phases including pilot implementation, corrective maintenance, **simulation** and full deployment.

WP3 – Surveillance: field and laboratory activities and capacity building

Completed tasks:

Procedures development: procedures for sampling were developed with the guidance of EFSA, by the Management Committee and the regional services of the DGAV, responsible for the sampling of certain matrixes and with INIAV responsible for selecting the samples that are submitted as part of other sanitary programmes, to include in the project. Sampling procedures for vectors are established by REVIVE Network, coordinated by INSA. Procedures for testing were developed by the laboratories INIAV and INSA, considering the EFSA disease cards. A document was developed integrating procedures for sampling, testing and OH approach in case of positive results, for each disease under surveillance.

Capacity Building and preparation for sample collection: the draft procedure document was presented and analyzed in each geographical region of mainland Portugal, by joint groups of official veterinarians and medical doctors in 4 workshops. INIAV and INSA also provided laboratory training to prepare for routine laboratory analysis.

Field work: sampling was planned and carried out by the DGAV and INIAV with the participation of official veterinarians from the veterinary services. INSA also developed workshops for the REVIVE network, responsible for mosquito and tick collection. Sampling started in the month of August and was completed in January 2025. For the 6 diseases under surveillance, the percentage of samples collected in comparison with planned numbers varied between 23 and 54%. Sampling continued in 2025.

Laboratory work: the laboratory work at INIAV was carried out regularly without any significant problems. The samples of pig farm effluent, processed by INSA, proved to be very difficult to process, due to their high solids content, but all submitted samples were analyzed. Positive samples were found for Hepatitis E in pigs and effluent waters, for CCHF (in wild ungulates), and, as expected, 67% of the equine WNF suspects were confirmed.

Data management: data was collected at field level using standardized forms developed for the project. These forms were created by DGAV, INIAV and INSA. Data was registered in an Excel database.

Non-completed tasks:

Overall, the percentage of sampling completion was low in the first year and the following problems were identified:

- The sampling for the project was delayed, due to the need to complete the initial organizational phases of the project;
- Certain regional veterinary services did not collect samples for the project due to the scarcity of personnel;
- The organization of samples for the project, from those submitted to the INIAV, should also be improved to ensure the successful completion of SIVIZ sampling.

WP4 – One Health activities

Completed tasks:

Procedures development: procedures for OH approach in case of positive results, for each disease under surveillance, was developed at the first phase of the project and discussed in joint medical and veterinary personnel regional seminars, which represented capacity building activities.

OH activities are linked to the positive results found in the surveillance. In this first year it was difficult to manage the results and only part of the planned activities were developed.

(1) Following the detection of ELISA antibodies against the Crimean-Congo Haemorrhagic Fever virus serum samples from the Guarda district INIAV sponsored a field visit to sample the CCHF-Ab positive farm Confirmation of the positive results by IFA was carried out in a subset of sera from bovine and deer confirming the ELISA results. Ticks collected from the bovine positive farm were all negative by RT-qPCR (results under submission).

(2) All confirmations of WNF were reported by DGAV to the DGS, central and regional services, in order to raise awareness among healthcare workers of the presence of the virus in circulation.

Following the detection of West Nile virus in a wild bird (goshawk), the virus was isolated in Vero cells and fully sequenced by INIAV, enabling its full genetic and phylogeographic characterization.

(3) Hepatitis E: genotyping of some of the positive isolates and identification of the genotypes was carried out by INSA, resulting in the identification of genotype 3, subtypes 3c and 3f, which usually infects

pigs, wild boar and deer. A letter of gratitude and information on the results was sent to the participants in the sampling.

Non-completed tasks:

For those holdings with positive results to HEP-E, a visit by the local official veterinarian and public health officer is planned in 2026 to explain the public health risk and access risks posed by the current destination of the effluent.

WP5 – Communication activities

Completed tasks:

Communication and Dissemination Plan: a plan was prepared and submitted. This plan aims at communicating the importance of the exchange of health data and information between sectors and the advantages of the OH approach to public health and other medical doctors, official and private veterinarians. It includes participation in conferences and seminars, development of SIVIZ webpages in all participating institutions and the production of leaflets.

Websites development: 3 of the participating institutions created a webpage informing about the project.

Conferences and seminars: SIVIZ Project and EU4Health was promoted in, at least, 12 events and a medical journal interview.

A seminar on HEP-E was organized to present the disease and project results (14/03/2025).

Communication materials in shape of brochures, were prepared in relation to all diseases. Each leaflet has the following structure: causal agent, importance for human health, importance for animal health, transmission, prevention of transmission to humans and to animals, best practices prevention and surveillance, contacts and where to learn more.

Data submission to EFSA was carried out, using SIGMA EST and DCF Platforms. Technical support was provided by EFSA. INSA also completed the submission of vector data in VectorNet.

Non-completed tasks:

Microsite has not been developed and awaits the completion of the SIVIZ Platform.

WP1 – Management

The Kick-off meeting with HaDEA occurred in 22/03/2024. The project coordinator was present in several meetings with EFSA: 21/6, 8/7 and 4/11/2024. In the first year of the Project there were 13 projects coordinating meetings, including meetings dedicated to specific topics: financial administration, sample collection, platform development and Q Fever and Hep E surveillance.

In **summary**, expected SIVIZ activities were carried out under what was primarily planned, but so far the project will complete its activities. The main outputs and added value are the following:

- The team building at local level, with joint workshops and seminars, contacts exchange and presential presentation. Results are already visible because the joint work between veterinary and health services at local level have increased in the recent months with great interest in exchanging information and joint approach.

- Dissemination of SIVIZ Project is also creating expectation about the use of the SIVIZ Platform.

- Finally the added value of the surveillance of certain zoonosis and subsequent risk communication is very important to mention, contributing to awareness and preventive interventions.

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[OPTION 2 for Operating Grants:

Work performed and main achievements

Short summary of progress towards the project objectives. Highlight significant activities and achievements. Provide clear and measureable details

Report on objectives not fully achieved or not on schedule (postponed to next year).

Analyse the outcome of the activities during the period covered by the EU grant and their impact (on target groups, change, innovation etc.), including a description of the European dimension and added value of the project.

⚠ *Do not simply cut and paste the project summary (filled in online on the Summary for Publication screen). Contrary to the summary, this section is for reporting to the EU and will not be published.*
N.A.

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1.2 Consortium set-up

Participants *Report on changes in the consortium composition (including structural, legal or management changes, if any).*
N.A.

Consortium cooperation and division of roles (if applicable) *Report on changes in the way the participants work together (Beneficiaries, Affiliated Entities, Associated Partners, etc.).*
There were no changes in the way the participants of SIVIZ project work together.

1.3 Project teams, staff and experts

Project teams and staff *Report and explain deviations from Annex 1 of the Grant Agreement regarding the organisation of staff or project teams. Provide CVs of key actors that had to be replaced (if required).*
Changes in Project Team occurred on the level of participating institutional members: 1. Change of the TEAM from INIAV Technical personnel that left the project: - Carla Carneiro Technical personnel that enter the project: - Fábio Abade dos Santos – Virology; - Ana Cristina Ferreira – Q Fever diagnostic ELISA; - Maria José Barahona – Q Fever diagnostic PCR. 2. Change of the TEAM from DGS Technical personnel to be removed: - João Vieira Martins; - Maria João Albuquerque; - Diana Mendes; - Paulo Diegues. Technical personnel to be added: - João Gonçalo – Representation of DGS on SIVIZ Project; - Joana Moreno – Food-and Waterborne Diseases and Zoonoses Focal Point; - Carolina Torres – Emerging and Vector-borne Diseases Focal Point; - Ana Mendes – Head of Epidemiology and Statistic Division; - Tiago Artilheiro – Head of Division of Communications and Public Relations; - Gisela Leiras – Head of Division of Literacy, Health and Well-being. In DGAV and INSA, no changes were required.

1.4 Consortium management and decision-making

Consortium management and decision-making (if applicable) *Report on important changes in the management or decision-making mechanisms.*
No changes to report

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1.5 Project management, quality assurance and monitoring and evaluation strategy

Project management, quality assurance and monitoring and evaluation strategy *Report on changes to the overall project management concept, quality assurance and monitoring and evaluation strategy (if any).*
No changes to report

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1.6 Cost effectiveness and financial management

Cost effectiveness and financial management *(n/a for Lump Sum Grants)* *Inform about significant budget overruns or important changes in the financial management (if any).*
N.A.

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1.7 Risk management

Critical risks and risk management strategy *Report on the state of play concerning the risks and risk mitigation measures (if any).*
No foreseen risks have occurred. No unforeseen risks have occurred.

#§RSK-MGT-RM§# #@IMP-ACT-IA@#

1.8 Impact

Impact *Report on changes in your impact analysis/strategy (if any) and the effects on the project/need for adaptations.*
No changes.

#§IMP-ACT-IA§# #@COM-DIS-VIS-CDV@#

1.9 Communication, dissemination and visibility

Communication, dissemination and visibility of funding *Report on the communication and dissemination activities undertaken (to whom, which format, how many, etc.).* *Describe how the visibility of EU funding was ensured.* *If you described your project on your website(s) and/or social media accounts, please provide the links.*

Communication is WP5 of the project.

Websites: DGAV, INIAV and INSA have informing about the SIVIZ project in their websites

Conferences and seminars: SIVIZ was presented in 12 events in 2024 and xx in the first semester of 2025 and an interview was published in a medical journal. A seminar on HEP-E was organized to present the disease and project results (14/03/2025).

Communication materials in shape of brochures, were prepared in relation to all diseases, published in the webpage and used for communication.

Data submission to EFSA was carried out, using SIGMA EST and DCF Platforms. Technical support was provided by EFSA. INSA also completed the submission of vector data in VectorNet.

Due to its importance and prospect of continuity, SIVIZ Project has acquire a excellent visibility and was also recommended for continuation by PHEPA - ECDC Public Health Emergency Preparedness Assessment to Portugal – under Article 8 of the Regulation (EU) 2022/2371. In the Report, at the chapter of Capacity 10 - Zoonotic diseases and threats of environmental origin, including those due to the climate, it is stated in the recommendations: *Guarantee the continuity of SIVIZ project after the end of EU4Health funding in order to support OH approach, extending its use to other sectors.*

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1.10 Sustainability and continuation

Sustainability, long-term impact and continuation

Report on changes in your sustainability analysis/strategy (if any).

For the Final Report, describe the follow-up of the project after the end of the EU grant. How will the results be used or further developed. Describe the strategy to ensure sustainability of results and long-term impact. Comment on possible synergies/complementarities with other (EU funded) activities (if any).

No changes in the sustainability strategy.

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1.11 Follow-up to EU recommendations

Follow-up to EU recommendations

Highlight corrective actions taken as a result of EU monitoring activities (including follow-up to EU project reviews, if any). List each recommendation/comment and explain how they have been followed up.

N.A.

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2. WORK PLAN, WORK PACKAGES, ACTIVITIES, RESOURCES AND TIMING

2.1 Work packages, activities, resources and timing

WORK PACKAGES

Work Package 1

Work Package 1: Project management and coordination

Activities

Report on the implementation status of the activities that were to be implemented during the reporting period and explain deviations from Annex 1 of the Grant Agreement. In case an activity was not implemented or a deliverable not produced, please explain why.

Task No (continuous numbering linked to WP)	Task Name	Implemented? (Yes/No/Partially)	Justification (explain what was done and by whom; explain what was not done and why not; indicate how you intend to handle the situation and new timing; indicate if it was a one-off issue or how you intend to avoid similar issues in the future)
T1.1	**Project Management**	Yes	The Kick-off meeting with HaDEA occurred in 22/03/2024. EFSA meetings were attended by project coordinator at the following dates: 21/6, 8/7 and 4/11/2024. Coordination meetings were carried out - 13 in 2024 and 2 in the first semester of 2025. Agenda and minutes were prepared by project coordinator. Some thematic meetings were those dedicated to financial administration, sample collection, platform development and Q Fever surveillance. The coordination body of the project involves 1-4 representatives of DGAV. DGS, INSA and INIAV.
T1.2	**Reporting**	Yes	Reporting of the first year of the project was prepared and shared with project partners

Other issues *Mention and explain unexpected events and adjustments that had to be made. Explain impact on other tasks, available resources and planning/timing.*	
Milestones and deliverables (outputs/outcomes)	
MS1 - 1st annual report, was prepared; furthermore minutes of the meetings were prepared shared with the Management Committee. Summary: 17 coordination meeting in the reporting period	

Work Package 2

Work Package 2: Development of the IT support to OH network			
Activities *Report on the implementation status of the activities that were to be implemented during the reporting period and explain deviations from Annex 1 of the Grant Agreement. In case an activity was not implemented or a deliverable not produced, please explain why.*			
Task No (continuous numbering linked to WP)	Task Name	Implemented? (Yes/No/Partially)	Justification (explain what was done and by whom; explain what was not done and why not; indicate how you intend to handle the situation and new timing; indicate if it was a one-off issue or how you intend to avoid similar issues in the future)
T2.1	**Development of specifications for IT development**	YES	In April 2024, the SIVIZ Management Committee defined the core variables and information domains to be shared between institutions (DGS, DGAV, INSA, INIAV), laying the foundation for the platform's structure and interoperability logic. Based on this work, DGS led the development of a comprehensive Project Plan for the platform, structured in eight key implementation phases: Phase 0 – Project Initiation; Phase I – Solution Development; Phase II – Solution Validation; Phase III – Pilot Testing; Phase IV – Corrective and Evolutive Maintenance; Phase V – Full Implementation; Phase VI – Knowledge Transfer to the Contracting Entity;

			Phase VII – API Implementation; Phase VIII – Project Closure. This plan also includes the definition of the data registry and integration area, a data integration model per institution, a data and activity management framework, mechanisms for triggered alerts to the Health Authority, automatic analysis of case criteria, the central database, as well as automated indicators, dashboards, and reporting outputs. It also foresees access profiles to guarantee appropriate data governance and institutional responsibilities. To comply with the Portuguese legal framework governing national public health surveillance, the SIVIZ platform was designed as a supporting platform within the scope of the National Epidemiological Surveillance System (SINAVE) Network, ensuring interoperability with SINAVE-MED, as well as with the Prevention and Control System (SPC), INSA-Lab, and NAUTILUS, while maintaining its operational autonomy. Therefore, DGS ensured alignment with the Shared Services of the Ministry of Health (SPMS), which was identified as the entity to develop the platform. DGS performed a preliminary data protection impact assessment and concluded that the data to be exchanged across institutions, as defined in the current scope of the platform, does not constitute sensitive personal data under the GDPR, thereby streamlining its integration within existing public health infrastructure. The functional and technical final specifications were elaborated by SPMS, based on the previously approved project plan and data structure models and awaits final revision to be carried out in July 2025..
T2.2	**Tender process**	YES	The contract between DGS and SPMS is signed
T2.3	**Development and testing of IS, platform and microsite**	NO	It will be initiated in the second half of 2025.
T2.4	**Maintenance and refinement of IS**	NO	Not applicable – not foreseen for the period
Other issues *Mention and explain unexpected events and adjustments that had to be made. Explain impact on other tasks, available resources and planning/timing.*		The adjustments to be made are related with the time for the implementation of activities and not to the work to be developed. The development of the integrated digital platform and microsite has been delayed due to a combination of procedural and external constraints. While the terms of the contract with the selected supplier have been elaborated, it is still awaiting formal approval and sign-off by the institutions,	

	which has extended the timeline for initiation. In parallel, the technical specifications for the platform are under ongoing discussion, particularly regarding interoperability between sectors. An additional layer of complexity has been the definition of data governance and data protection mechanisms. Throughout most of 2024, the DGS did not have active support from Data Protection Officer services, which has hampered the timely development of a solid framework for data handling and compliance with national and EU-level regulations. These external factors, beyond the consortium's direct control, have importantly affected the progress of WP2.
Milestones and deliverables (outputs/outcomes)	
The expected milestones included the IT specifications, the tender and the SIVIZ Platform and Microsite. While the first 2 milestones were achieved, the Platform and Microsite are not yet developed and these outputs were suggested to be postponed to 2026. Summary: SIVIZ Platform and Microsite Specification Document is available.	

Work Package 3

Work Package 3: Surveillance activities: field and laboratory			
Activities *Report on the implementation status of the activities that were to be implemented during the reporting period and explain deviations from Annex 1 of the Grant Agreement. In case an activity was not implemented or a deliverable not produced, please explain why.*			
Task No (continuous numbering linked to WP)	Task Name	Implemented? (Yes/No/Partially)	Justification (explain what was done and by whom; explain what was not done and why not; indicate how you intend to handle the situation and new timing; indicate if it was a one-off issue or how you intend to avoid similar issues in the future)
T3.1	**Preparation of procedures for sampling**	YES	Sampling procedures were developed by the Coordination Committee, with the guidance of EFSA, during working sessions involving also colleagues from the regional services of the DGAV, who were responsible for the sampling of certain samples. Other samples are collected by the National Reference Laboratory for animal diseases, INIAV, from those submitted as part of other sanitary programmes, to be analysed under SIVIZ. Sampling procedures for vectors are those applied in REVIVE Network, coordinated by INSA.

			A procedural document has been produced that consolidates, for each disease under surveillance, the protocols for sampling, testing, and implementation of the One Health approach (especially in the case of positive results).
T3.2	**Preparation of procedures for laboratory testing**	YES	Procedures for testing were developed by the laboratories INIAV and INSA, considering the EFSA disease cards. Thers procedures were integrated into the document referred above. At the beginning of the project, INIAV and INSA provided laboratory training to prepare for routine laboratory analysis.
T3.3	**Identification and training of partners for sample collection**	YES	The sampling was organised by the DGAV and INIAV with the participation of official veterinarians from the veterinary services. Instructions were given to the official veterinarians responsible for data collection. INSA also developed workshops for the REVIVE network, responsible for mosquito and tick collection, with 371 persons. The Regional workshops for the refinement of OH procedures is also considered a capacity building event as it explained the function of SIVIZ and the role of the local veterinarian and medical staff.
T3.4	**Acquisition of materials for sampling and testing**	Partially	Some of the material remain to be purchased as the project develops.
T3.5	**Sampling and data registration**	Partially	Data was collected at field level using standardized forms developed for the project. These forms were created by DGAV, INIAV and INSA. Data was registered in an Excel database. Sampling in this 1st. year started late (in the month of August) and was completed in January 2025. For CCHF the annual number of samples was set in 140 and 46 were collected, resulting in 33% of accomplishment of sampling. For WNF the annual number of samples was set in 363 and 84 were collected, resulting in 23% of accomplishment of sampling. In this case, the expected number of notifications of clinical suspicions in horses was 60 while only 43 were notified.

			For RVF the annual number of samples was set in 78 and 32 were collected, resulting in 41% of accomplishment of sampling. For TBE the annual number of samples was set in 160 and 51 were collected, resulting in 32% of accomplishment of sampling. For FQ the annual number of samples was set in 240 and 55 were collected, resulting in 23% of accomplishment of sampling. For HE the annual number of samples was set in 480 and 260 were collected, resulting in 54% of accomplishment of sampling. Overall, the percentage of sampling completion was low in the first year and the following problems were identified: - The sampling for the project was delayed, due to the need to complete the initial organizational phases of the project; - Certain regional veterinary services did not collect samples for the project due to the scarcity of personnel; - The organization of samples for the project, from those submitted to the INIAV, should also be improved to ensure the successful completion of SIVIZ sampling. This activity will continue in the following period.
T3.6	**Laboratory testing data registration and network evaluation**	Partially	The laboratory work at INIAV was carried out regularly without any significant problems. The samples of pig farm effluent, processed by INSA, proved to be very difficult to process, due to their high solids content. The team considered sampling only the final effluent (risk of environmental contamination) in 2025, but concluded that the differences in positive results found in the initial and final effluents were important to consolidate with further sampling and no changes will be made. Positive samples were found for Hepatitis E, for CCHF, and as expected, 67% of the equine WNF suspects were confirmed. This activity will continue in the following period.
Other issues *Mention and explain unexpected events and adjustments that had to be made. Explain impact on other tasks, available resources and planning/timing.*		Although not all the sampling foreseen was completed, the activity was carried out in a normal way, with a very important participation of the official vets at local level of DGAV. One of the Regions as explained could not participate, due to the lack of human resources.	

Milestones and deliverables (outputs/outcomes)

Milestones included the development of Procedures for sampling and testing and these are accomplished.

The simulation exercise to test the SIVIZ platform needed to be postponed to 2026 because it requires the completion of the IT system. The simulation exercise is designed to test the operational functionality of the integrated platform and stakeholder response mechanisms. This will ensure the activity yields useful insights and supports system improvement goals.

Summary: The following table presents the effort of sample collection for each disease under the project.

Agent Total	Animal species	Matrix	Samples per year	Tested samples	% sampling accomplished
CCHF 46 samples	Bovine	Sera	50	10	20%
	Ovine	Sera	50	13	26%
	Dear	Sera	20	11	55%
		Organs	20	12	60%
WNF 84 samples	Equine (susp)	Sera	60	42	70%
		LCR	3	0	0
	Dom. birds	Sera	200	10	5%
		Organs	50	22	44%
	Wild birds	Organs	50	10	20%
RVF 32 samples	Bovine	Milk	30	12	40%
		Abortions	9	1	11%
	Ovine/Caprine	Milk	30	16	53%
		Abortions	9	3	33%
TBE 51 samples	Bovine	Sera	50	10	20%
		Milk	30	12	40%
	Ovine/Caprine	Sera	50	13	26%
		Milk	30	16	53%
QF 55 samples	Bovine	Sera	40	10	25%
		Milk	50	12	24%
		Abortions	30	1	3%

	Ovine/Caprine	Sera	40	13	33%
		Milk	50	16	32%
		Abortions	30	3	10%
HE 260 samples	Swine	Feces	300	170	57%
	Slurry	Affluent	90	50	55%
		Effluent	90	46	51%

Work Package 4

Work Package 4: Intervention in the framework of OH

Activities

Report on the implementation status of the activities that were to be implemented during the reporting period and explain deviations from Annex 1 of the Grant Agreement. In case an activity was not implemented or a deliverable not produced, please explain why.

Task No (continuous numbering linked to WP)	Task Name	Implemented? (Yes/No/Partially)	Justification (explain what was done and by whom; explain what was not done and why not; indicate how you intend to handle the situation and new timing; indicate if it was a one-off issue or how you intend to avoid similar issues in the future)
T4.1	**Preparation of procedures for OH interventions**	YES	Procedures for OH interventions were prepared by the Coordination Committee and integrated into the SIVIZ procedures document. The draft of the procedure document was presented and analysed in each geographical region of mainland Portugal, by joint groups of official veterinarians and medical doctors in 4 workshops, involving 32 vets and 52 medical doctors
T4.2	**OH interventions**	Partially	OH activities are linked to the positive results found in the surveillance. In this first year it was difficult to manage the results and only part of the planned activities were developed. (1) Following the detection of antibodies against the Crimean-Congo Haemorrhagic Fever virus in bovine serum samples from the Guarda district using a commercial blocking ELISA, the specificity of this detection was

			confirmed by immunofluorescence assay (IFA). INIAV sponsored a field visit to sample the CCHF-Ab positive farm (Guard, ZR): among the 24 bovine sampled, more than 8 additional seropositive animals were found, all of them young cattle. They were positive by ELISA, but negative by RT-qPCR. Confirmation of the positive results by IFA was carried out in a subset of sera from bovine and deer confirming the ELISA results. Ticks collected from the bovine positive farm were all negative by RT-qPCR (results under submission). (2) All confirmations of WNF were reported to the DGS, central and regional services, in order to raise awareness among healthcare workers of the presence of the virus in circulation. Following the detection of West Nile virus in a wild bird (goshawk), the virus was isolated in Vero cells and fully sequenced using Illumina technology, enabling its full genetic and phylogeographic characterization. The data has recently been published in an international peer-reviewed journal. Maroco, D.; Parreira, R.; dos Santos, F.A.; Lopes, Â.; Simões, F.; Orge, L.; Seabra, S.G.; Fagulha, T.; Brazio, E.; Henriques, A.M.; et al. Tracking the Pathways of West Nile Virus: Phylogenetic and Phylogeographic Analysis of a 2024 Isolate from Portugal. Microorganisms 2025, 13, 585. https://doi.org/10.3390/microorganisms13030585 (3) Hepatitis E: genotyping of some of the positive isolates and identification of the genotypes was carried out by INSA, resulting in the identification of genotype 3, subtypes 3c and 3f, which usually infects pigs, wild boar and deer. A letter of gratitude and information on the results was sent to the participants in the sampling.
Other issues *Mention and explain unexpected events and adjustments that had to be made. Explain impact on other tasks, available resources and planning/timing.*			The implementation of communication of positive signals through the SIVIZ Platform will facilitate the exchange of information and the intervention at field level. For those holdings with positive results to HEP-E, a visit by the local official veterinarian and public health officer is planned in 2026 to explain the public health risk and access risks posed by the current destination of the effluent.
Milestones and deliverables (outputs/outcomes)			
Milestones included the Procedure for OH interventions, which were completed and the Minutes/Reporting of OH meetings/interventions – this last activity was only partially carried out and will be facilitated with the use of SIVIZ Platform. Summary: the document with SIVIZ Procedures are available; results on the follow-up of positive cases are available; one scientific publication			

Work Package 5

Work Package 5: Communication			
Activities *Report on the implementation status of the activities that were to be implemented during the reporting period and explain deviations from Annex 1 of the Grant Agreement. In case an activity was not implemented or a deliverable not produced, please explain why.*			
Task No (continuous numbering linked to WP)	Task Name	Implemented? (Yes/No/Partially)	Justification (explain what was done and by whom; explain what was not done and why not; indicate how you intend to handle the situation and new timing; indicate if it was a one-off issue or how you intend to avoid similar issues in the future)
T5.1	**Preparation of materials for communication with professionals and the public**	Yes	Communication materials were prepared in relation to all diseases, mainly the brochures for each disease. Each leaflet has the following structure: causal agent, importance for human health, importance for animal health, transmission, prevention of transmission to humans and to animals, best practices prevention and surveillance, contacts and where to learn more.
T5.2	**Develop continuous communication with professionals and the public**	Partially	The Microsite has not been developed and awaits the completion of the SIVIZ Platform and is fundamental for the communication with the public and professionals. However, a series of communications with professionals were developed - 12 communications in 2024 and 3 in the first semester of 2025. - Project results were presented to official veterinarians and public health doctors at a seminar held on the 14 of March 2025, with special emphasis on HE results and the way forward.
T5.3	**Communication with EFSA**	Yes	Communication with EFSA was completed and the following activities were carried out for the submission of data to EFSA: - Completeness of sample metadata: some gaps identified that were corrected/ completed - Coding of data; - Submission and subsequent corrections; - Confirmation.

			Technical support was provided by EFSA. INSA also completed the submission of vector data in VECTORNET.
T5.4	**Public presentation of project results**	NO	Seminar foreseen for the end of the project
Other issues *Mention and explain unexpected events and adjustments that had to be made. Explain impact on other tasks, available resources and planning/timing.*			
Milestones and deliverables (outputs/outcomes)			
Milestones included the preparation of communication materials, which was completed but will be further developed with the development of the microsite and the Seminar organization, foreseen to the end of 2026. Summary: the following documents were prepared: - Communication plan; - 6 leaflets, one for each disease; - 15 communications referring SIVIZ project; - Capacity building report.			

Budget implementation — Use of resources (deviations) *(n/a for Lump Sum Grants) (n/a for Additional Prefinancing Report)* *Explain deviations from the budget planning (i.e. differences between actual and planned use of resources, especially for personnel).* *Include explanations on transfers of cost categories in the estimated budget (if applicable)* *Don't forget to attach the detailed cost reporting table (if any).*	
No deviations to record.	
Other issues	

Subcontracting

Subcontracting (new subcontracts) *(n/a for Lump Sum Grants) (n/a for Additional Prefinancing Report)*

Report on new subcontracts. Explain the specific circumstances that caused the need for a subcontract

Include only subcontracts that are best-value-for-money and for which there is no conflict of interest. Keep in mind that subcontracting is not possible for key coordinator tasks and may normally not cover a major part of the action.

Subcontract number (continuous numbering linked to WP)	Subcontract name (subcontracted action tasks)	Description (including task number and BEN/AE to which it is linked)	Costs (EUR)	Justification (why did subcontracting become necessary?)	Best-value-for-money (how did you ensure it?)

Other issues	
If subcontracting for the project rises above 30% of the total eligible costs during the project implementation, give specific reasons. Mention and explain other issues, if needed.	

Specific action-level indicators

Work Package	Indicator	Accomplishment	Level of accomplishment	Comment
WP1 (D1)	Coordination	Annual report 1	Prepared	
WP2	IT specifications and Tender by DGS	Completed (MS4&5)	Accomplished	With delay
WP2 (D3)	Operational Platform	Month 24 (MS6)	n.a.	
WP2 (D4)	Operational microsite	Month 24 (MS7)	n.a.	
WP3 (D5)	Elaborate procedures for sampling	Available (MS8)	Accomplished	
WP3 (D6)	Elaborate procedures for testing	Available (MS9)	Accomplished	
WP3 (D7)	Simulation exercise to test IT Platform	No (MS10)	Not accomplished	This deliverable awaits the completion of D3
WP3 (D8)	Number of samples CCHF - 140	46	32,9%	
WP3 (D8)	Vector samples CCHF (Hyaloma) - 40	22	55,0%	
WP3 (D8)	Number of samples WNF - 363	84	23,1%	The number of samples from suspected horses estimated, was 30% higher than the real number of cases. Also the number of sera from domestic birds to be collected was too high.
WP3 (D8)	Vector samples WNF (Culex) - 380	493	>100%	

WP3 (D8)	Number of samples RVF - 78	32	41,0%	
WP3 (D8)	Vector samples WNF (Culex) - 380	768	>100%	
WP3 (D8)	Number of samples TBE - 160	51	31,9%	
WP3 (D8)	Vector samples TBE (Ixodes) - 40	40	100%	
WP3 (D8)	Number of samples QFev - 240	55	22,9%	The number of abortions to be submitted for this diagnostic was overestimated
WP3 (D8)	Number of samples HepE - 480	266	55,4%	There was an overestimation of the number of samples that regional veterinary services can in facto collect
WP3 (D9)	Elaborate Capacity Building Report	Prepared	Accomplished	
WP4 (D10)	Elaborate procedures for OH interventions	Available (MS10)	Accomplished	
WP4 (D11)	Minutes of OH meetings	Minutes available	Partially completed	
WP4	Number of positive results with further investigation or OH intervention	96 positive results / 45 followed	46,9%	The joint visits to the holdings positive to HepE area prepared and will be taking place in 2026
WP5 (D12)	Production of leaflets about the diseases under surveillance	Expected 6 / completed 4	66%	

3. OTHER

3.1 Ethics

Ethics
If your Application Form contains a section on ethics, report on any changes to ethics issues identified in Annex 1 of the Grant Agreement (if any).
No changes foreseen

#§ETH-ICS-EI§# #@SEC-URI-SU@#

3.2 Security

Security
If your Application Form contains a section on security, report on any changes to security issues identified in Annex 1 of the Grant Agreement (if any).
No changes foreseen

#§SEC-URI-SU§# #@DEC-LAR-DL@#

4. DECLARATIONS

[OPTION 1 by default (all except OG):

Double funding	
Information concerning other EU grants for this project ⚠ *Please note that there is a strict prohibition of double funding from the EU budget (except under EU Synergies actions).*	**YES/NO**
We confirm that to our best knowledge neither the project as a whole nor any parts of it benefit/have benefitted from any other EU grant *(including EU funding managed by authorities in EU Member States or other funding bodies (e.g. EU Regional Funds, EU Agricultural Funds, tc)*. If NO, explain and provide details	YES
We confirm that to our best knowledge neither the project as a whole nor any parts of it are (nor will be) submitted for any other EU grant *(including EU funding managed by authorities in*	YES

EU Member States or other funding bodies (e.g. EU Regional Funds, EU Agricultural Funds, etc). If NO, explain and provide details.	

#§DEC-LAR-DL§# *]*

[OPTION 2 for Operating Grants:

Rate of use for the action *(n/a for Additional Prefinancing Report)* *Declare if there were any changes to the rate of use for the action (i.e. the percentage of your organisation's activities which is eligible under this grant, meaning the percentage of activities that comply with the policy objectives of the call, is inside the geographic area of eligibility, etc as compared to the percentage of activities that are ineligible). Make sure this information is consistent with the rate in the detailed cost reporting table (if any).*	
Rate of use for the action:	

Double funding	
Information concerning other EU operating grants ⚠ *Please note that there is a strict prohibition of double funding from the EU budget (except under EU Synergies actions).*	**YES/NO**
We confirm that to our best knowledge we do not benefit/have not benefitted from any other EU operating grant for the same period. If NO, explain and provide details.	
We confirm that we have not requested any other EU operating grant for the same period. If NO, explain and provide details.	

#§DEC-LAR-DL§# *]*

ANNEX I. SIVIZ – 1st ANNUAL REPORT January to December 2024

ANNEX II. EFSA REPORT

SIVIZ – 1st ANNUAL REPORT

January to December 2024

Project: ***Development of an Integrated Surveillance and Alert System of Zoonosis in Portugal*** (Project: 101132818 — SIVIZ — EU4H-2022-DGA-MS-IBA3)

Financed by: EU4H-2022-DGA-MS-IBA-05: Direct grants to Member States' authorities: setting up a coordinated surveillance system under the One Health approach for cross-border pathogens that threaten the Union (AWP Ref: CP-g-22-04.01)

Period: 01-01-2024 a 31-12-2026

Co-funded by the European Union

Funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union.

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SIVIZ 1st ANNUAL REPORT

INTRODUCTION

Period of reporting: January 2024 to March 2025

Partners: Direção Geral de Alimentação e Veterinária (DGAV) also with the coordination, Direção Geral da Saúde (DGS), Instituto de Investigação Agrária e Veterinária (INIAV), Instituto Nacional de Saúde Dr. Ricardo Jorge (INSA).

Objectives of the project:

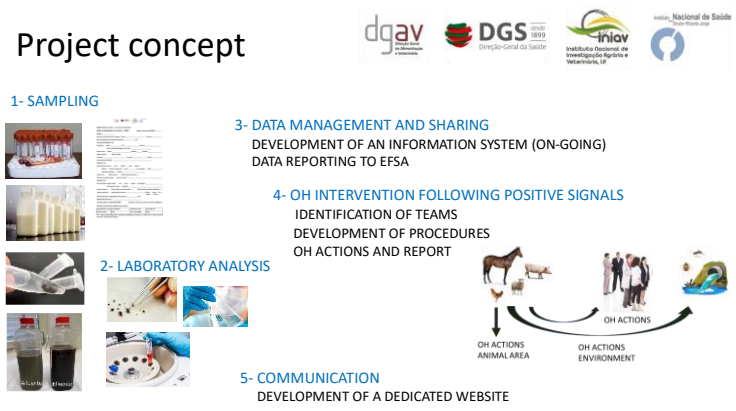
The primary objective of this Project is to develop and implement a national, integrated, and innovative surveillance and early warning system for priority zoonotic diseases, namely West Nile Fever (WNF), Rift Valley fever (RVF), Crimean-Congo Hemorrhagic Fever (CCHF), Tick-borne Encephalitis (TBE), Q Fever (FQ) and Hepatitis E (HE), with a focus on animal, environmental, and vector data. This system will complement and support existing human health surveillance infrastructure and enhance intersectoral and response capacity under a One Health approach.

SIVIZ aims to enable real-time data sharing and interoperability between information systems from the relevant sectors – public health, animal health, environmental health and national reference laboratories – thus strengthening the integrated detection, risk assessment, and management of zoonotic threats.

A key component of the project includes the regular and systematic submission of surveillance data to the European Food Safety Authority (EFSA) and other EU bodies, supporting joint risk assessments and contributing to the overall zoonoses preparedness across EU MS and neighboring third countries.

Additionally, the project will enhance the institutional capacity building of the participating entities through the development of sustainable coordination mechanisms, the promotion of regular knowledge exchange, the implementation of joint risk assessment processes, and the improvement of evidence-based and transparent risk communication – both to professionals and the general public.

Ultimately, this project is designed to reinforce and complement existing national surveillance systems and to serve as a scalable model for the progressive establishment of a One Health (OH) surveillance approach across other zoonotic diseases in Portugal in the coming years.



DESCRIPTION OF WORKING PACKAGES (WP) ACTIVITIES

1. WP1 – Project Management and Coordination

DGAV is leading this task which also involves all partner institutions.

The Kick-off meeting with HaDEA occurred in 22/03/2024.

The project coordinator was present in several meetings with EFSA: 21/6, 8/7 and 4/11/2024.

In the first year of the Project there were 13 projects coordinating meetings, including meetings dedicated to specific topics: financial administration, sample collection, platform development and Q Fever surveillance.

These meetings were subjected to agenda and minutes to document project developments and decisions taken. The collection of the minutes is attached to the present report (**A1.1** and **A1.2**).

2. WP2 – Development of IT support to OH network – SIVIZ Platform

This Work Package is coordinated by the DGS (Ministério da Saúde), also involving all partner institutions, and focuses on the design, development and implementation of the SIVIZ platform and a complementary public microsite, both essential tools for enabling integrated zoonoses surveillance and operational response under the One Health framework.

In April 2024, the SIVIZ Management Committee defined the core variables and information domains to be shared between institutions (DGS, DGAV, INSA, INIAV), laying the foundation for the platform's structure and interoperability logic. Based on this work, DGS led the development of a comprehensive Project Plan for the platform, structured in eight key implementation phases:
Phase 0 – Project Initiation;
Phase I – Solution Development;
Phase II – Solution Validation;
Phase III – Pilot Testing;
Phase IV – Corrective and Evolutive Maintenance;
Phase V – Full Implementation;
Phase VI – Knowledge Transfer to the Contracting Entity;
Phase VII – API Implementation;
Phase VIII – Project Closure.

This plan also includes the definition of the data registry and integration area, a data integration model per institution, a data and activity management framework, mechanisms for triggered alerts to the Health Authority, automatic analysis of case criteria, the central database, as well as automated indicators, dashboards, and reporting outputs. It also foresees access profiles to guarantee appropriate data governance and institutional responsibilities.

To comply with the Portuguese legal framework governing national public health surveillance, the SIVIZ platform was designed as a supporting platform within the scope of the National Epidemiological Surveillance System (SINAVE) Network, ensuring interoperability with SINAVE-MED, as well as with the Prevention and Control System (SPC), INSA-Lab, and NAUTILUS, while maintaining its operational autonomy. Therefore, DGS ensured alignment with the Shared Services of the Ministry of Health (SPMS), which was identified as the entity to develop the platform.

DGS performed a preliminary data protection impact assessment and concluded that the data to be exchanged across institutions, as defined in the current scope of the platform, does not constitute sensitive personal data under the GDPR, thereby streamlining its integration within existing public health infrastructure.

Currently, the contract between DGS and SPMS is in process to be signed, and the functional and technical final specifications are in elaboration, based on the previously approved project plan and data structure models. DGS continues to coordinate the technical and legal steps required to ensure a compliant and functional platform, demonstrating a strong institutional commitment to the successful execution of the project.

In parallel, DGS has identified the Microsite as a priority tool for public engagement and dissemination. This digital interface will provide structured information for professionals and the public, including:

- Background and prevention of the zoonotic diseases under surveillance;
- Symptom recognition and public health guidance;
- Access to project results;
- A Citizen Science area, focused on tick-borne diseases, including prevention practices, proper tick removal techniques, and an incentive mechanism to submit ticks to INSA for analysis. Individualized feedback will be provided to contributors.

DGS has already coordinated with the company responsible for its official website to integrate the development of the microsite within their existing contract, ensuring consistency with institutional digital standards. The microsite development is currently awaiting initiation, following the platform timeline.

The next steps under WP2 involve the finalization and signing of the contract between DGS and SPMS, followed by the completion of the functional analysis that will guide the technical development of the SIVIZ platform. Once these are concluded, development of the platform (Phase I) will commence, in alignment with the project implementation plan. In parallel, coordination will continue with DGAV, INIAV, and INSA to define and initiate the development of the institutional webservices necessary for secure and interoperable data transmission to the SIVIZ platform. As development progresses, the SIVIZ-Group will actively participate in the testing and validation of the system to ensure its quality and functionality, preparing for subsequent phases including pilot implementation, corrective maintenance, and full deployment.

The development of the microsite will be initiated once the contractual procedures with the DGS website provider are finalized, ensuring its integration with the broader communication and citizen engagement strategy of the project.

The DGS remains fully engaged in WP2, ensuring technical coherence, legal compliance, and project sustainability, in close collaboration with all partners. The integrated SIVIZ platform and microsite will be fundamental tools to operationalize the One Health strategy in Portugal, with long-term benefits for national zoonoses surveillance and public health preparedness.

3. WP3 – Surveillance: field and laboratory activities and capacity building

3.1. Surveillance activities

Development of procedures:

Sampling procedures were developed with the guidance of EFSA during working sessions of the Management Committee and colleagues from the regional services of the DGAV, who were responsible for the sampling of certain samples.

Other samples also reported here, were submitted to the National Reference Laboratory for animal diseases, INIAV, as part of other sanitary programmes, and were selected to be analysed under SIVIZ.

Sampling procedures for vectors are those applied in REVIVE Network, coordinated by INSA.

Procedures for testing were developed by the laboratories INIAV and INSA, considering the EFSA disease cards.

A procedural document has been produced that consolidates, for each disease under surveillance, the protocols for sampling, testing, and implementation of the One Health approach (especially in the case of positive results).

Attached to this document is the file under the following name: **A3.1_3.2_4.1 – Procedures for sampling, testing and OH interventions.**

Capacity Building and preparation for sample collection:

The draft procedure document was presented and analyzed in each geographical region of mainland Portugal, by joint groups of official veterinarians and medical doctors in 4 workshops. The results are presented in Annex A3.5_Capacity Building Report.

The sampling was organised by the DGAV and INIAV with the participation of official veterinarians from the veterinary services.

INSA also developed workshops for the REVIVE network, responsible for mosquito and tick collection.

At the beginning of the project, INIAV and INSA provided laboratory training to prepare for routine laboratory analysis.

Samples collection:

Sampling in this 1st. year started late (in the month of August) and was completed in January 2025.

For CCHF the annual number of samples was set in 140 and 46 were collected, resulting in 33% of accomplishment of sampling.

For WNF the annual number of samples was set in 363 and 84 were collected, resulting in 23% of accomplishment of sampling. In this case, the expected number of notifications of clinical suspicions in horses was 60 while only 43 were notified.

For RVF the annual number of samples was set in 78 and 32 were collected, resulting in 41% of accomplishment of sampling.

For TBE the annual number of samples was set in 160 and 51 were collected, resulting in 32% of accomplishment of sampling.

For FQ the annual number of samples was set in 240 and 55 were collected, resulting in 23% of accomplishment of sampling.

For HE the annual number of samples was set in 480 and 260 were collected, resulting in 54% of accomplishment of sampling.

Overall, the percentage of sampling completion was low in the first year and the following problems were identified:

- The sampling for the project was delayed, due to the need to complete the initial organizational phases of the project;
- Certain regional veterinary services did not collect samples for the project due to the scarcity of personnel;
- The organization of samples for the project, from those submitted to the INIAV, should also be improved to ensure the successful completion of SIVIZ sampling.

The sampling per disease and matrix is presented in the tables 3.1 to 3.5 at section 3.2 of this report.

Laboratory work

The laboratory work at INIAV was carried out regularly without any significant problems.

The samples of pig farm effluent, processed by INSA, proved to be very difficult to process, due to their high solids content. The team considered sampling only the final effluent (risk of environmental

contamination) in 2025, but concluded that the differences in positive results found in the initial and final effluents were important to consolidate with further sampling and no changes will be made.

The results of surveillance (D3.4) for the first year are presented in point 3.2 of this report and in the annex **D3.4 – Results of SIVIZ surveillance 2024**.

Positive samples were found for Hepatitis E, for CCHF, and as expected, 67% of the equine WNF suspects were confirmed.

Data management

Data was collected at field level using standardized forms developed for the project. These forms were created by DGAV, INIAV and INSA.

Data was registered in an Excel database.

The simulation exercise (D3.3) required the completion of the IT system and was therefore delayed.

3.2. Surveillance outcomes

Table 3.1 – Results from CCHF and WNF surveillance activities

Virus	Animal species	Matrix	Test	Samples per year	Tested samples	Positive samples	% sampling accomplished
CCHF 46 samples	Bovine	Sera	ELISA Ab	50	10	0	20%
	Ovine	Sera	ELISA Ab	50	13	0	26%
	Dear	Sera	ELISA Ab	20	11	4	55%
		Organs	PCR	20	12	0	60%
WNF 84 samples	Equine (susp)	Sera	ELISA IgM	60	42	31 (73.8%)	70%
		LCR	RT-qPCR	3	0	-	0
	Dom. birds	Sera	ELISA IgG	200	10	0	5%
		Organs	RT-qPCR	50	22	0	44%
	Wild birds	Organs	RT-qPCR	50	10	2*	20%

* *Strix aluco* and *Accipiter gentilis*

Regarding seropositive samples to CCF, subsequent PCR assays were negative. Immunofluorescence assay (IFA) was adapted to bovine and deer sera allowing to confirm the positivity in the ELISA tests.

Equine samples that tested positive for WNF-IgM were obtained from animals exhibiting clinical signs suggestive of the disease. Based on these findings the clinical diagnosis confirmation rate stands at 73.8%.

Table 3.2 – Results from RVF and TBE surveillance activities

Virus	Animal species	Matrix	Test	Samples per year	Tested samples	Positive samples	% sampling accomplished
RVF **32 samples**	Bovine	Milk	RT-qPCR	30	12	0	40%
		Abortions	RT-qPCR	9	1	0	11%
	Ovine/Caprine	Milk	RT-qPCR	30	16	0	53%
		Abortions	RT-qPCR	9	3	0	33%
TBE **51 samples**	Bovine	Sera	ELISA IgG	50	10	0	20%
		Milk	RT-qPCR	30	12	0	40%
	Ovine/Caprine	Sera	ELISA IgG	50	13	0	26%
		Milk	RT-qPCR	30	16	0	53%

Disease	Animal species	Matrix	Test	Samples per year	Tested samples	Positive samples	% sampling accomplished
QF **55 samples**	Bovine	Sera	ELISA	40	10	0	25%
		Milk	qPCR	50	12	4	24%
		Abortions	qPCR	30	1	0	3%
	Ovine/Caprine	Sera	ELISA	40	13	0	33%
		Milk	qPCR	50	16	0	32%
		Abortions	qPCR	30	3	0	10%
HE **266 samples**	Swine	Feces	RT-qPCR	300	170	2	57%
	Slurry	Affluent	RT-qPCR	90	50	23	55%
		Effluent	RT-qPCR	90	46	14	51%

Some Q Fever milk samples were positive but were not followed up.

The detection of HEV provided the most compelling results, with slurry and particularly influent samples collected at the inlet of the treatment system showing greater sensitivity for virus detection than the feces. Of the 20 farms with positive results, 11 were positive in the both influent and effluent samples, 7 were positive in influent only and 2 were positive in effluent only. Notably, the 2 positives fecal samples corresponded to positive slurry samples, highlighting the potential of slurry as a more reliable matrix for HEV surveillance.

VECTOR SURVEILLANCE RESULTS

The following tables present the monitoring of the presence of virus in mosquitoes and ticks.

All results of vector surveillance were negative to the virological analysis (mosquitoes – WNF and ticks – CCHF).

Results of surveillance presented by EFSA are shown in the Annex **D3.4 – Results of SIVIZ surveillance 2024.**

Table 3.4 – Results from *Culex* spp. surveillance activities (n.º specimens)

***Cullex* spp**	**Region**						
Months	**Alentejo**	**Algarve**	**Centro**	**LVT**	**Norte**	**Total**	Results **WNFV**
May	10	12	24	16	14	76	Neg
June	19	10	11	39	10	89	Neg
July	44	20	10	23	10	107	Neg
Aug	0	25	0	39	11	75	Neg
Sept	65	35	2	29	15	146	Neg
Total	**138**	**102**	**47**	**146**	**60**	**493**	

***Cullex* spp**	**Region**						
Months	**Alentejo**	**Algarve**	**Centro**	**LVT**	**Norte**	**Total**	Results **RVFV**
May	10	24	24	16	37	111	Neg
June	32	28	11	39	33	143	Neg
July	74	26	10	25	10	145	Neg
Aug	9	61		57	11	138	Neg
Sept	30	18		36	33	117	Neg
Oct	12	18		13	20	63	Neg
Nov		17				51	Neg
Total	**167**	**192**	**45**	**186**	**178**	**768**	

Table 3.5 – Results from *Hyalomma* spp. surveillance activities (n.º specimens)

***Hyalomma* spp. (n)**		**Region**				
Host	**Months**	**Centro**	**LVT**	**Alentejo**	**Total**	Results **CCFV**
Birds	June			3	3	Neg
	Aug			1	1	Neg
	Sept	4			4	Neg
Equine	May	6	3		9	Neg
	June	1			1	Neg
Ruminants	July			2	2	Neg
	Sept	2			2	Neg
Total		**13**	**3**	**6**	**22**	

Table 3.6 – Results from *Ixodes ricinus* surveillance activities (n.º specimens)

***Ixodes ricinus* (n)**		**Region**					
Host	**Months**	**Norte**	**Centro**	**LVT**	**Alentejo**	**Total**	Results **TBEV**
Pet	Sept		1			1	Neg
	Oct	11	7			18	Neg
	Nov	2	6	3	2	13	Neg
Ruminant	Oct				2	2	Neg
Human	Oct	1	1			2	Neg
	Nov	1				1	Neg
Vegetation	Oct	1	1	1		3	Neg
		16	**16**	**4**	**4**	**40**	

4. WP4 – One Health activities

• OH Activity Procedures (October 2024) – completed with workshops: document **D3.1_3.2_4.1 – Procedures for sampling, testing and OH interventions**

• OH Meeting Reports (2024) – completed, Document **D3.5 – Capacity Building Report**

• OH Activities

OH activities are linked to the positive results found in the surveillance. In this first year it was difficult to manage the results and only part of the planned activities were developed.

Crimean Congo Haemorrhagic Fever

Following the detection of antibodies against the Crimean-Congo Haemorrhagic Fever virus in bovine serum samples from the Guarda district using a commercial blocking ELISA, the specificity of this detection was confirmed by immunofluorescence assay (IFA).

INIAV sponsored a field visit to sample the CCHF-Ab positive farm (Guard, ZR): among the 24 bovine sampled, more than 8 additional seropositive animals were found, all of them young cattle. They were positive by ELISA, but negative by RT-qPCR. Confirmation of the positive results by IFA was carried out in a subset of sera from bovine and deer confirming the ELISA results. Ticks collected from the bovine positive farm were all negative by RT-qPCR (results under submission).

West Nile Fever

Following the detection of West Nile virus in a wild bird (goshawk), the virus was isolated in Vero cells and fully sequenced using Illumina technology, enabling its full genetic and phylogeographic characterization. The data has recently been published in an international peer-reviewed journal.

Maroco, D.; Parreira, R.; dos Santos, F.A.; Lopes, Â.; Simões, F.; Orge, L.; Seabra, S.G.; Fagulha, T.; Brazio, E.; Henriques, A.M.; et al. Tracking the Pathways of West Nile Virus: Phylogenetic and Phylogeographic Analysis of a 2024 Isolate from Portugal. Microorganisms ***2025***, 13, *585. https://doi.org/10.3390/microorganisms13030585*

All confirmations of WNF were reported to the DGS, central and regional services, in order to raise awareness among healthcare workers of the presence of the virus in circulation.

Hepatitis E

Genotyping of some of the positive isolates and identification of the genotypes was carried out by INSA, resulting in the identification of genotype 3, subtypes 3c and 3f, which usually infects pigs, wild boar and deer. A letter of gratitude and information on the results was sent to the participants in the sampling.

For those with positive results, a visit by the local official veterinarian and public health officer is planned to explain the public health risk and access risks posed by the current destination of the effluent. This will take place in May-June 2025.

5. WP5 – Communication activities

5.1. Communication and Dissemination Plan

- Objectives: to present and disseminate (1) the SIVIZ Project, funded by the EU4Health; (2) the OH procedures developed under the program; (3) the future Platform;

- Key messaging: the importance of the exchange of health data and information between sectors and the advantages of the OH approach;

- Target audiences: public health and other medical doctors, official and private veterinarians;

- Communication channels: conferences and seminars, webpages, leaflets.

- Work plan:

Date	Action	Audience	Organizer
12/4/2024	REVIVE Network meeting	Health technicians	INSA
06/2/2025	Seminar on results presentation and HE infection	Public Health Doctors and official veterinarians	DGAV, INSA, INIAV
10/9/2025	Seminar on West Nile Fever	Public Health Doctors and official veterinarians and private equine veterinarians	DGAV
5/11/2025	Seminar on Q Fever	Public Health Doctors and official veterinarians and private ruminant's veterinarians	DGAV, INIAV

5.2. Project website and the project presentation on the beneficiary's website

Project website was prepared with the objectives and expected outcomes.
It can be found in: https://www.dgav.pt/informacaoutil/content/programas-e-projetos/siviz/

SIVIZ Project is referred in the webpages of each partner institution, namely:
INIAV: https://www.iniav.pt/projetos/siviz
INSA: https://www.insa.min-saude.pt/category/projetos/siviz/

5.3. Communication for professionals and the public

The list of the technical meetings where the project was presented, starting at the project preparation phase, is the following:

N.º	Event - organizer	Date	Main audience
1	Workshop REVIVE – INSA-CEVDI / Águas de Moura	13/04/2023	Health technicians responsible for vector collection

2	ECDC-DGS Conference "Current challenges and innovation for public health in the future" – DGS / Lisboa	20/04/2023	Public Health and other doctors and ECDC personnel
3	Scientific Network in Risk Assessment in AHW – EFSA / Parma	22/09/2023	AHAW Network members
4	Conference CPLP "One Health" – CPLP/ Praia – Cape Verde	13/10/2023	Portuguese speaking countries (Portugal, Brazil and African countries health authorities)
5	Workshop of the Working Group "One Health" of DGAV / Lisboa	26/10/2023	Internal meeting of DGAV professionals
6	EFSA 3rd meeting of the One Health surveillance subgroup / online	03/11/2023	OH Subgroup members
7	Master "One Health" – University of Evora / Évora	18/11/2023	Master's students and lecturers
8	Conference "One Health in all policies" – APSP / Lisboa	21/11/2023	Public Health Association members (medical doctors)
9	Master of Veterinary Medicine – University of Lisbon / Lisboa	26/03/2024	Veterinary Medicine Students
10	V Congress "Public Health" in Andaluzia / Ayamonte	25/04/2024	Public health doctors and veterinarians from Andaluzia - Spain
11	National Congress of Public Health Doctors _ APSP	1/10/2024	Public health doctors
12	EFSA 4th meeting of the One Health surveillance subgroup	4/11/2024	OH Subgroup members

Interview with project coordinator: https://www.veterinaria-atual.pt/na-pratica/conheca-o-siviz-sistema-de-vigilancia-e-detecao-precoce-de-zoonoses-alicercado-no-conceito-one-health/

5.4. Preparation of communication materials

• Communication materials (D.5.1) were prepared in relation to all diseases, mainly the brochures for each disease and are presented in attachment.

- D5.1.1_Leaflet on HE
- D5.1.2_Leraflet on CCF
- D5.1.3_Leaflet on WNF
- D5.1.4_Leaflet on QF
- D5.1.5_Leaflet on RVF
- D5.1.6_Leaflet on TBE

Each leaflet has the following structure: causal agent, importance for human health, importance for animal health, transmission, prevention of transmission to humans and to animals, best practices prevention and surveillance, contacts and where to learn more.

• Microsite has not been developed and awaits the completion of the SIVIZ Platform.

5.5. Presentation of the project results

Project results were presented to official veterinarians and public health doctors at a seminar held on the 14 of March 2025, with special emphasis on HE results and the way forward.

5.6. Data submission to EFSA

The following activities were necessary for the submission of data to EFSA (in excel format):
- Completeness of sample metadata: some gaps identified that were corrected/ completed
- Coding of data;
- Submission and subsequent corrections;
- Confirmation.

Technical support was provided by EFSA.
INSA also completed the submission of vector data.

SUMMARY OF PROJECT DELIVERABLES DUE FROM MONTH 4 TO 13

The following table summarizes the SIVIZ project achievements in 2024

Number	Deliverable	Month due	State of play
D1.1	1st. annual report	13	Prepared
D2.1	OH Platform	12	Started
D3.1	Procedures for sampling	4	Completed
D3.2	Procedures for testing	4	Completed
D3.3	Simulation exercise report	7	Postponed
D3.4	Outcome of surveillance	13	Completed
D4.1	Procedures for OH interventions	4	Completed
D4.2	Minutes of OH meetings	4	Completed
D5	Communication materials	12	Partially completed

AMENDMENTS

- Changes of Annex 1, Part B

1. Change of the TEAM from INIAV

Technical personnel to be removed:

- Carla Carneiro

Technical personnel to be added:

- Fábio Abade dos Santos – virology;
- Ana Cristina Ferreira – Q Fever diagnostic ELISA;
- Maria José Barahona – Q Fever diagnostic PCR.

2. Change of the TEAM from DGS

Technical personnel to be removed:

- João Vieira Martins;
- Maria João Albuquerque;
- Diana Mendes;
- Paulo Diegues.

Technical personnel to be added:

- João Gonçalo – Representation of DGS on SIVIZ Project;
- Joana Moreno – Food-and Waterborne Diseases and Zoonoses Focal Point;
- Carolina Torres – Emerging and Vector-borne Diseases Focal Point;
- Ana Mendes – Head of Epidemiology and Statistic Division;
- Tiago Artilheiro – Head of Division of Communications and Public Relations;
- Gisela Leiras – Head of Division of Literacy, Health and Well-being.

3. Changes of dates of deliverables

The following table presents the proposed dates of deliverables:

Number	Deliverable	Month due	Proposed month of deliverable
D2.1	OH Platform	12	22
D2.2	OH Microsite	18	24
D3.3	Simulation exercise report	7	24
D5.1	Communication materials	12	18

Risks management:

- **Explanation for non-completion of the Platform**

The development of the integrated digital platform has been delayed due to a combination of procedural and external constraints. While the terms of the contract with the selected supplier have been elaborated, it is still awaiting formal approval and sign-off by the institutions, which has extended the timeline for initiation. In parallel, the technical specifications for the platform are under ongoing discussion, particularly regarding interoperability between sectors. An additional layer of complexity has been the definition of data governance and data protection mechanisms. Throughout most of 2024, the DGS did not have active support from Data Protection Officer services, which has hampered the timely development of a solid framework for data handling and compliance with national and EU-level regulations. These external factors, beyond the consortium's direct control, have importantly affected the progress of the platform.

- **Explanation for non-completion of Microsite**

The microsite is part of the same contract package as the main platform, and its development is interdependent. However, unlike the platform, the microsite is still at an early stage, with only preliminary structural ideas and communication objectives defined. Content drafting and design have not progressed importantly, as they rely on both the technical implementation and the broader coordination with communication strategies linked to the platform. Finalization and launch of the microsite will depend on resolving contractual issues.

- **Explanation for non-completion of the Simulation exercise**

The simulation exercise is designed to test the operational functionality of the integrated platform and stakeholder response mechanisms. As the platform is not yet implemented, the necessary digital infrastructure and data flows required to conduct the exercise under realistic conditions are not available. Consequently, the exercise has been postponed to a later stage of the project, once the platform is functional and tested. This will ensure the activity yields useful insights and supports system improvement goals.

- **Explanation for the non-completion of communication materials**

Part of the communication materials has already been finalized and made available to the public via institutional websites. The materials are being aligned with the technical developments and communication strategy of the project and are expected to be completed and released in the short term, namely the leaflets and the texts for the microsite.