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## **TECHNICAL ITEM I**

The role of Animal Health and Veterinary Services in  
One Health and pandemic prevention and  
preparedness

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18/09/2024

**Technical Item I:  
The role of Animal Health and Veterinary Services in One Health and pandemic prevention and preparedness**

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## **Summary**

To better understand the perspectives of WOAHA Members of the Europe region on the role of Animal Health and Veterinary Services (VS) in One Health (OH), on pandemic prevention and preparedness, and on how WOAHA can provide them any needed support in these areas, a [questionnaire](#) was sent to all members to gather information on status of preparations and identify gaps and needs. Forty-one Members completed the questionnaire by the end of July 2024.

The results show that 38 Members have political support and engagement for OH initiatives while 32 have a designated OH coordinating body or mechanism in place. Around 58% answered that there is dedicated funding allocated for OH multisector coordination activities and around 80% has at least one sustainable and effective communication, coordination, and information-sharing channel between the different sectors potentially involved in OH. About 78% reported that surveillance systems are integrated and/or sustainably coordinated to some degree across human, animal, and environmental health sectors, even if they do not always include all sectors, especially the environment.

Almost 57% of Members are involved either on an ad hoc or on a regular basis in addressing upstream drivers for the spillover of infectious pathogens. Every respondent thought that the VS should be involved in awareness raising in a hypothetical HPAI H5N1 scenario. About 63% were involved in the response to the COVID-19 pandemic. Nonetheless, 20 Members reported activities that they thought VS should have performed during the pandemic but could not. The current level of preparedness of the VS to face an unusual event is at least adequate in most cases in two areas, i.e., epidemiological capacity and appropriate regulatory framework, while it sits on the opposite end in the workforce and development of vaccines or therapeutics areas.

The currently available tools to support the implementation of OH and/or to review VS performance and/or conduct workshops have not been extensively used for different reasons. WOAHA could be of most support in creating spaces for sharing knowledge, expertise, experience and perspectives, capacity building, tools development/provision, training, supporting the national authorities for the implementation of OH, and facilitating access to funding opportunities.

## Introduction

During the 90th General Session, held in May 2023, the World Organisation for Animal Health (WOAH) Regional Commission for Europe adopted the topic of “Pandemic preparedness in Europe: the role of Animal Health and Veterinary Services [VS] in One Health [OH] and pandemic preparedness” as the Technical Item I to be presented during its 31<sup>st</sup> Regional Conference .

In March of the same year, the Quadripartite, namely the Food and Agriculture Organization of the United Nations (FAO), the United Nations Environment Programme (UNEP), the World Health Organization (WHO), and WOAH, issued a call to action to advance OH (Quadripartite 2023). Later that year it published a “guide to implementing the [OH] Joint Plan of Action [JPA] at national level”. This plan consists of six action tracks that are linked to three pathways of change, i.e., “Pathway 1 – Governance, policy, legislation, financing and advocacy; Pathway 2 – Organizational and institutional development, implementation and sectoral integration; Pathway 3 – Data, evidence, information systems and knowledge exchange” (World Health Organization, Food and Agriculture Organization of the United Nations, United Nations Environment Programme and World Organisation for Animal Health; 2023).

Members of the Europe Region, recognising the importance of the approach and their own contribution to pandemic prevention and preparedness, have for example applied for and received grants from the Pandemic Fund ([Kazakhstan](#), [Kyrgyzstan](#), [Tajikistan](#), [Turkmenistan](#), [Uzbekistan](#), and [Moldova](#)), established or are planning to establish OH Centers or think tanks (e.g., [Estonia- OH Center of Excellence](#), [France for OH](#)), and/or have structures that facilitate communication between sectors (e.g., [Dutch Signalling Forum for Zoonoses, Human Animal Infections and Risk Surveillance group in the United Kingdom](#)).

Regarding the latter, during the first “One Health Seminar for the European Region”, which took place in mid-June 2024 and was organised by the Quadripartite, several countries, such as France, Sweden and Azerbaijan, presented their national multisectoral collaboration mechanisms. For example, in France, there is an interministerial OH task force, a Committee for Monitoring and Anticipating Health Risks, “[t]hree epidemiological monitoring platforms with a shared governance”, and a OH Institute (World Organisation for Animal Health. Europe Region 2024).

Armenia (Breen, Ghazaryan, et al. 2023), Azerbaijan (Breen, Hasanov, et al. 2023), and Georgia (Breen, Uru-shadze, et al. 2023) have conducted assessments of OH operations and capacities and Montenegro a situational analysis, which, nonetheless, did not include the VS (MediLabSecure 2023).

There has been progress also at a regional level. In August of 2022 the Quadripartite established “the Regional One Health Coordination Mechanism for Europe and Central Asia”, which “consolidates cooperation between the regional offices of the FAO, the WOAH, the WHO and the UNEP for the European Region (including Central Asia)”. Three layers compose this mechanism: the OH Executive Group, the OH Technical Group, and the Regional OH Partner Platform for Europe (World Organisation for Animal Health. Europe Region. 2024b). Also, Antimicrobial resistance (AMR) is a prominent topic of OH collaboration in the region. In fact, WHO Europe states that “significant work has been done across the Region to strengthen multisectoral coordination and develop integrated AMR surveillance systems” (World Health Organization 2024).

The OH High-Level Expert Panel, i.e., the Quadripartite Advisory Panel, defines OH as “*an integrated, unifying approach that aims to sustainably balance and optimise the health of people, animals, and ecosystems. It recognises the health of humans, domestic and wild animals, plants, and the wider environment (including ecosystems) are closely linked and interdependent. The approach mobilises multiple sectors, disciplines, and communities at varying levels of society to work together to foster well-being and tackle threats to health and ecosystems, while addressing the collective need for healthy food, water, energy, and air, taking action on climate change and contributing to sustainable development.*” (One Health High-Level Expert Panel (OHHLEP) et al. 2022)

To understand what the role of VS is in OH and pandemic preparedness and how to support Members in developing an appropriate environment to implement OH and pandemic prevention and preparedness, a 14-question long [questionnaire](#) was prepared. It focused on four main areas: 1. what is already in place; 2. what is planned; 3. how OH is put into practice related to pandemic prevention and preparedness; and 4. how WOAH can bolster VS in their goals of implementing OH more productively and improving pandemic prevention and preparedness. Questions 1 through 5 were adapted from the questionnaire “One Health: coordination, communication, and cooperation between Veterinary, Public Health and Environmental Protection Services” in the Middle East Region: Survey for Animal Health Sector”. This questionnaire was developed in preparation of a similar technical item for the Middle East Regional Commission conference held in 2023 (Elmobashar and Al

Muhairi 2023). WOAHP sent the questionnaire to all 53 Members of the Europe Region on 21 June 2024 with a one month-period to respond.

It included open and close-ended questions and was divided in the following five sections:

(1) Current enabling environment that determines the implementation of One Health in your country (3 questions)

(2) One Health in practice: how One Health is translated into the workings of Veterinary Services on prevention and preparedness for pandemics (4 questions)

(3) The potential role that VS had during the COVID-19 pandemic and how prepared VS are for a further unusual event (3 questions)

(4) Tools and evaluations that VS have performed, used, and/or might need (3 questions)

(5) Looking forward: how can WOAHP support the work of VS in your country to enhance One Health prevention and preparedness for pandemics (1 question).

## Results

The results are presented according to these five sections, followed by a brief discussion and conclusion framed by the JPA three pathways of change.

Forty-one Members completed the questionnaire by the end of July. Mainly (83%) delegates, Chief Veterinary Officers (48,8%) or focal points (35,9%) completed the questionnaire. The following Members responded: Albania, Austria, Belgium, Bosnia and Herzegovina, Croatia, Czech Republic, Denmark, Finland, France, Georgia, Germany, Hungary, Ireland, Italy, Kazakhstan, Kyrgyzstan, Latvia, Liechtenstein, Lithuania, Luxembourg, Malta, Moldova, Montenegro, North Macedonia (Repl. of), The Netherlands, Norway, Portugal, Republic of Türkiye, Romania, Russia, San Marino, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkmenistan, Tajikistan, United Kingdom, and Uzbekistan.

### 1. Current enabling environment that determines the implementation of One Health in your country

The three questions in this section gathered data regarding the context within which VS operate. This context may or not facilitate the implementation of OH and the existence of certain structures can be a sign of the embeddedness of OH in the government's vision.

38Members answered that there is political support and engagement for OH initiatives in their country. This happens at different and sometimes several levels (Table 1), the most common (19) being at the ministerial level combined with further levels. The second most common levels (15) are at a specific program combined with further levels.

Table 1. Level of political support and engagement for OH activities (based on all responses)

Level of Political support and engagement for OH activities	Number
Ministerial level along with further levels	19
<i>Only at the ministerial level</i>	9
Director-General level along with further levels	4
<i>Only at the Director-General level</i>	2
Specific program level along with further levels	15
<i>Only at a specific program level</i>	3
Field level along with further levels	8
Community level along with further levels	5
Different type of level along with further levels	2

Two out of the three Members that do not yet have political support or engagement for OH activities at any level are actively seeking paths to garner it.

Most Members (32) have a designated OH coordinating body or mechanism in place. Of these, only one has a coordinating body at a higher level than the ministries; 19 have a coordinating body at the ministerial level, of which three also have a coordinating body on an ad hoc basis; seven have a coordinating body on an ad hoc basis only; and the remaining five have a different type of coordinating body. One Member, which has an

ad hoc coordinating body also has a coordination mechanism for “specific priority areas such as emerging zoonoses, AMR, and Food Safety”. Of the five Members that have a different type of coordinating body, two have a similar mechanism to the one just described, further two have informal working groups, and the fifth has “an intersectoral coordinating committee on the implementation [of the] [OH] approach” and the Ministry of Health and Medical Industry is the one responsible for OH.

The minority of respondents (21,9%) do not have a coordinating body. Of these Members, most respondents did not know or were not sure if there are any plans or intentions to establish one.

More than half of respondents (58,5%) answered that there is dedicated funding allocated for OH multisector coordination activities. As for political support and engagement, funding can come from different and sometimes several sources (Table 2), the majority (11) coming from international organisations' grants along with further sources. The second most common source of funding is each individual ministry (7). The two Members that have only other sources of funding evidenced that this comes on an ad hoc basis (Table 2).

*Table 2. Sources of dedicated funding allocated for OH multisector coordination activities (based on the 24 positive answers)*

<b>Source of dedicated funding</b>	<b>Number</b>
Government budget allocation along with further sources	5
Ministry of Health, Agriculture or Environment (National budget allocation for One Health) along with further sources	5
<i>Only Ministry of Health, Agriculture or Environment (National budget allocation for One Health)</i>	7
Ministry of Finance (dedicated One Health fund) along with further sources	1
Donor funding along with further sources	4
International organisations' grants along with further sources	11
<i>Only international organisations' grants</i>	2
Private sector contributions along with further sources	2
Sustainable revenue generation mechanisms	0
Public-Private partnerships for funding along with further sources	2
Other along with further sources	2
<i>Only other</i>	2

A little less than half of the respondents (41.4%) stated that there is no dedicated funding allocated for OH multisector coordination activities. Nonetheless, most of these Members (16) are currently exploring several plans or intentions for resource mobilisation (Table 3).

Table 3. Plans or intentions for resource mobilisation (based on the 16 Members that have a plan)

<b>Plans or intentions for resource mobilisation</b>	<b>Number</b>
Advocate for the inclusion/increase of dedicated national funds for One Health coordination in the government budget along with further plans or intentions	6
<i>Only advocate for the inclusion/increase of dedicated national funds for One Health coordination in the government budget</i>	2
Seek support from international organisations and donors for funding along with further plans or intentions	6
<i>Only seek support from international organisations and donors for funding</i>	1
Explore public-private partnerships for financial support along with further plans or intentions	4
Develop proposals for grants and funding opportunities for One Health coordination along with further plans or intentions	4
Establish a dedicated One Health fund for sustainable financing along with further plans or intentions	5
Explore revenue generation mechanisms for long-term funding along with further plans or intentions	2
Other along with further plans or intentions	1
<i>Only other</i>	1

## **2. One Health in practice: how One Health is translated into the work of Veterinary Services in pandemic prevention and preparedness**

The first three questions gathered information about existing links that can shape interactions with other sectors. The fourth question investigated what the respondents think the VS should do if a similar outbreak to the current highly pathogenic avian influenza (HPAI) H5N1 outbreak in dairy cows were to happen in their own country.

A large majority of Members (80,5%) has at least one sustainable and effective communication, coordination, and information-sharing channel between the different sectors potentially involved in OH (Table 4).

Table 4. Number of Members with at least one sustainable and effective communication, coordination, and information-sharing channel between the different sectors potentially involved in OH (based on 33 positive answers)

Sector	Environment (the ecosystem except for wildlife)	Environment (wildlife)	Public health	Legal	Finance/Economy	Defense/border control	Business association /Individual Business/ Trade union	NGO	Academia	Professional associations	Civil-society organization/citizen association/other types of citizen group	Private or public research institute	Other
Number of Members with at least one communication channel	19	21	30	18	15	19	16	20	23	22	15	21	2

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Of the eight Members that do not have any channel, three preferred not to respond or did not know. The remaining five have at least a plan or intention (Table 5).

Table 5. Number of Members with at least one intention or plan to establish effective communication, coordination, and data sharing (based on the five Members that have a plan or intention)

Sector	Environment (the ecosystem except for wildlife)	Environment (wildlife)	Public health	Legal	Finance/Economy	Defense/border control	Business association /Individual Business/ Trade union	NGO	Academia	Professional associations	Civil-society organisation/citizen association/other types of citizen group	Private or public research institute
Number of Members with at least one intention or plan to establish effective communication, coordination, and data sharing	4	5	5	3	1	2	2)	1	2	2	1	2



Most respondents (78,1%) reported that surveillance systems are integrated and/or sustainably coordinated to some degree across human, animal, and environmental health sectors, even if they do not always include all sectors (Table 6). Of these, 25% plan surveillance and share the data and reporting among all the different sectors. On the other hand, 28,1% does not include the environmental health sector to at least some degree. Lastly, one Member does not include public health in joint surveillance planning.

*Table 6. Types of integrated and/or sustainably coordinated surveillance systems across human, animal, and environmental health sectors (based on 32 positive answers)*

<b>Type of integration and/or coordination of surveillance systems</b>	<b>Number</b>
Joint surveillance planning along with further types	16
Surveillance data sharing and reporting along with further types	30
<i>Only surveillance data sharing and reporting</i>	1
Joint zoonotic disease surveillance along with further types	27
Joint vector-borne disease surveillance along with further types	21
Joint wildlife disease surveillance along with further types	15
Joint foodborne disease surveillance along with further types	19
Cross-sectoral laboratory coordination and information sharing along with further types	19
Intersectoral outbreak investigation along with further types	19
Joint environmental health surveillance and monitoring along with further types	1
Other	2

Most of the nine Members (8) that do not have integrated and/or sustainably coordinated surveillance systems across human, animal, and environmental health sectors have at least one intention or plan for surveillance and early warning system coordination (Table 7).

*Table 7. Number of Members with at least one intention or plan for surveillance and early warning system coordination (based on the eight Members with a plan)*

<b>Intention or plan for surveillance and early warning system coordination</b>	<b>Number</b>
Strengthen collaboration between human and animal health, and environmental authorities for coordinating or integrating surveillance along with further plans or intentions	8
Establish joint surveillance and reporting mechanisms along with further plans or intentions	6
Conduct capacity-building programs to enhance integrated disease surveillance and reporting along with further plans or intentions	4
Seek technical support from international organisations to implement integrated surveillance systems along with further plans or intentions	2
Other	2

A bit less than 50% of Members stated that VS in their country are involved on ad hoc basis in addressing upstream drivers for the spillover of infectious agents between species with the aim of identifying risk factors and risk reduction practices to prevent a potential spillover. Some examples of how VS are involved on an ad hoc basis are the consultation of VS in one Member regarding felling and the potential disturbance of badger population within the bovine tuberculosis control programme. A further example is how the VS in, yet another Member are sometimes “consulted for work involving digging or excavation to assess the risk of anthrax, and have made risk assessments regarding spreading of manure and evaluations to base decisions regarding infectious agents in relation to wild birds on public beaches.”

VS in eight Members are involved on a regular basis. On the other hand, 13 respondents stated that VS are not consulted but they think it should.

The questionnaire included questions about unusual events, aimed at better gauging pandemic prevention and preparedness. VS confronted in these last years a pandemic and this questionnaire aimed at gathering data to understand better which role, if any, VS had during this period. Importantly, it also gathered information on which role the respondents think it should have had, if it would currently be prepared for such an unusual event and, drawing from a real-life example, what actions it should implement if something like the current HPAI H5N1 outbreak in dairy cows were to happen in their own countries.

Table 8 summarises the actions that the respondents thought that the VS should implement in a hypothetical HPAI H5N1 scenario. All respondents selected at least one action. Every respondent thought that the VS should be involved in awareness raising; most of them (37) thought that the VS should provide advice to both

farm owners and workers. Most responded regarding the monitoring and surveillance area (40) and more than 40% thought that the VS should undertake active and passive surveillance of animals and/or their products, and of farm workers and/or owners (Table 8).

Table 8. Actions that the respondents thought that the VS should implement in a hypothetical HPAI H5N1 scenario (number of responses is presented in parenthesis, next to the row header)

Area	Action	Number	Responsible
<b>Awareness raising (41 responses)</b>	Provide advice to both <u>farm owners and workers</u>	37	Mainly public health and VS, frequently dividing farm owners (VS) from farm workers (public health)
	<i>Provide advice only to farm owners</i>	3	<i>Not only VS</i>
	<i>Provide advice only to farm workers</i>	1	<i>VS, industry, and public health</i>
<b>Infection prevention (35 responses)</b>	Provide protective personal equipment (PPE) to both <u>farm owners and workers, and private veterinarians working on the farm</u>	29	Mainly the private sector (the farm owners or beef organisation)
	Provide PPE to <u>farm workers and private veterinarians working on the farm</u>	5	A mix between public (mainly VS) and private (farm owners)
	<i>Provide PPE only to private veterinarians working on the farm</i>	2	<i>Data not available</i>
<b>Monitoring and surveillance (40 responses)</b>	Undertake active and passive surveillance of animals and/or their products, and of farm workers and/or owners along with further actions	17	Public sector with mostly public health handling anything human-related and VS anything animal-related (including monitoring of potential regulations set in place. Notwithstanding this frequent stated division, many respondents thought VS should hold and analyse any potential human data)
	Undertake active and passive surveillance of animals and/or their products along with further actions	10	
	<i>Only undertake active and passive surveillance of animals and/or their products</i>	2	
	Undertake active surveillance of animals and/or their products, and of farm workers and/or owners along with further actions	1	
	Undertake passive surveillance of animals and/or their products, and of farm workers and/or owners along with further actions	2	
	Undertake active surveillance of animals and/or their products and passive surveillance of farm workers and/or owners along with further actions	2	
	Undertake active surveillance of animals and/or their products and passive surveillance of animals and/or their products, and of farm workers and/or owners along with further actions	2	

	Undertake active surveillance of animals and/or their products and of farm workers and/or owners, and passive surveillance of animals and/or their products, along with further actions	2	
	Undertake active surveillance of animals and/or their products and passive surveillance of animals and/or their products and of farm workers and/or owners, along with further actions	2	
	Hold and analyse any potential human data along with further actions	19	
<b>Broader social context (40 responses)</b>	Inform the public and compensate farm owners for any potential expenses	29	Mainly public sector: VS or the Ministry of Agriculture
	<i>Only inform the public</i>	11	<i>Public institutions dealing with human and animal health</i>
<b>Conduct research on the topic (based on the total number of Members)</b>		36	A mixture of public and private and will depend on the circumstances
<b>Other (based on the total number of Members)</b>		1	

### 3. The potential role that VS had during the COVID-19 pandemic and how prepared VS are for a further unusual event

More than half of the VS were involved in the response to the COVID-19 pandemic: 43,9% on a regular basis and 19,5% on an ad hoc basis. VS were for example involved in dealing with SARS-CoV-2 in mink farms and with diagnostics of human samples. Some VS were involved with providing medications and equipment to treat COVID-19 in humans, establishing working groups to tackle SARS-CoV-2 in animals in general, and participating in cross-sectoral meetings. Seven respondents stated that the VS were not involved in the response to the COVID-19 pandemic but thought it should have been. The remaining did not know, were not sure, or preferred not to respond.

Twenty Members reported activities that they thought VS should have performed during the pandemic but could not. It was frequently reported that VS could have been of more assistance managing the emergency, due to its inherent expertise in dealing with outbreaks, especially regarding diagnostics, epidemiology, and population control.

The respondent from one Member stated that “[t]he "one health" approach should be systematically used in case of epidemics and pandemics (in particular for zoonotic diseases) to ensure sustainable solutions for health (human and animal) and the environment. VS should be systematically involved in case of outbreaks, epidemics and pandemics (in particular for -potentially- zoonotic diseases)”. Another Member’s respondent reported that VS are well equipped to reach “citizens [who] live in rural areas due to the widespread veterinary service structure in the field.” Yet another respondent reported that the role of VS is not clear and that it would be better to have a protocol determining this in advance, not limiting the viewpoint to human health. In one case, the VS could not assist with human sample collection because of a lack of staff and/or appropriate legislation. Lastly, respondents also thought that VS should have done more regarding mink, pets, and surveillance of animals in general, stating for example that people diagnosed with COVID-19 should have been asked about the health of their pets.

The level of preparedness of the VS to face such an unusual event currently is at least adequate in most cases in two areas, i.e., epidemiological capacity and appropriate regulatory framework (Table 9). The largest proportion of VS (41,5%, amongst all areas) where it has an inadequate level of preparedness is in the workforce area, but initiatives are being undertaken to improve it. Development of vaccines or therapeutics is the only area where there is a considerable proportion (24,4%) of VS with an inadequate level of preparedness and no specific initiatives are being undertaken to improve this area. Interestingly though, a slightly lower proportion (21,9%) has an adequate level of preparedness in this area and it is constantly being evaluated and improved.

Table 9. VS level of preparedness to respond to an unusual event (based on all responses)

Area	Inadequate and no initiatives are being undertaken to improve it	Inadequate but initiatives are being undertaken to improve it	Adequate	Adequate and is constantly being evaluated and improved	I don't know/ I am not sure	Prefer not to respond
Dedicated financing streams (e.g., emergency funding)	6	10	12	10	3	
Workforce (in terms of numbers, knowledge, gender distribution)	2	17	9	10	3	
Epidemiological capacity (sampling, analysis, etc.)	1	5	14	18	3	
Development of vaccines or therapeutics	10	5	8	9	8	1
Appropriate regulatory framework (e.g., memoranda of understanding, regulations)		6	13	17	5	

#### 4. Tools and evaluations that VS have performed, used, and/or might need

This section gathered data to understand if and how VS has used existing tools to analyse its current processes and support its work.

Sixteen Members' VS have used at least one of the Tripartite Zoonoses Guide (TZG) operational tools (OTs) (i.e., Joint Risk Assessment OT, Multisectoral Coordination Mechanism OT, and Surveillance and Information Sharing OT). Respondents who did not know or who were not sure followed this proportion in size (26,8%). The same proportion of respondents stated that the VS had not used any tool as the proportion of respondents who stated that the VS had used a non-listed tool (17,1%). The non-listed tools had usually been produced locally or in one case, it was linked to audits undertaken to abide by legislation of the European Union. The VS that have not used any tool, have not had the need (1), did not know they existed (1) or in most cases have not had the possibility (5).

Following the COVID-19 pandemic, eight out of 26 Members that responded have not performed any type of evaluation/assessment/review either because they were not expected to or because they did not have the possibility. On the other hand, 10 VS have performed other types of evaluation, two the Joint External Evaluation (JEE), and one the Performance of Veterinary Services (PVS) Evaluation (two respondents stated that the VS would have been interested in this had it not been for budgetary and/or staff constraints). In three cases, the evaluations regarded the whole government and in one case, it even included a pre-pandemic assessment.

Lastly, regarding workshops: 18 of the 30 respondents reported that the VS had performed a non-listed type of workshop, seven used a One Health Zoonotic Disease Prioritization workshop (an eight respondent stated that this workshop has been performed in the country without including the VS), three organised the International Health Regulations-PVS National Bridging Workshops, one conducted an in-country alignment or implementation of the Quadripartite One Health Joint Plan of Action workshop, and four have used none of the tools.

## 5. Looking forward: how can WOAH support the work of VS in your country to enhance One Health prevention and preparedness for pandemics

Table 10 presents the areas where the respondents think WOAH could be of most assistance to the Members of the Europe Region. The area that most interested respondents was “facilitate the development of an enabling environment for the implementation of One Health” (all respondents answered the questions pertaining to this area). Within that area, they were mostly interested in WOAH facilitating communication, collaboration, and cooperation, especially at the regional level (24), with the public sector (23), and at the global level (21). Seven respondents thought that WOAH should facilitate communication, collaboration, and cooperation with all listed sectors and at all levels.

“Support an enhanced implementation of One Health” was the second area that interested respondents the most (38 responses), especially the actions “broaden capacity building and training initiatives” (29), “clarify and enhance the awareness of the One Health approach” (28), “strengthen and support performance monitoring and evaluation mechanisms” (25), and “promote the integration of environmental considerations” (19).

A bit less than half of all respondents would like to receive assistance from WOAH with the strengthening of risk communication and community engagement and for WOAH to build/give guidelines on interoperable data and information-sharing platforms that can work as in-country models.

Table 10. Areas where the respondents think WOAH could be of most assistance to the Members of the Europe Region (number of responses is presented in parenthesis, next to the row header)

Area	Action	Number	
<b>Facilitate the development of an enabling environment for the implementation of One Health (41 responses)</b>	Facilitate communication, collaboration, and cooperation	with the public sector along with further actions	23
		with the private sector along with further actions	20
		with academia along with further actions	16
		with other professionals in your area of expertise or beyond along with further actions	19
		at national level along with further actions	17
		at regional level along with further actions	24
		at global level along with further actions	21
		<i>Only facilitate communication, collaboration, and cooperation with the public and private sector, academia, and at the national, regional and global level</i>	1
		<i>Only facilitate communication, collaboration, and cooperation at the national and regional level</i>	1
		<i>Only facilitate communication, collaboration, and cooperation with other professionals in your area of expertise or beyond</i>	1
		<i>Only facilitate communication, collaboration, and cooperation with the public sector</i>	1
<b>Facilitate the development of an enabling environment for the implementation of One Health (41 responses)</b>	Promote One Health to enhance political support and engagement along with further actions	13	

	<i>Only promote One Health to enhance political support and engagement</i>	4
	Facilitate in-country workshops/meetings to promote the implementation of One Health between different sectors and disciplines along with further actions	7
	<i>Only facilitate in-country workshops/meetings to promote the implementation of One Health between different sectors and disciplines</i>	1
	Facilitate in-country workshops/meetings for the prioritisation of actions among sectors along with further actions	5
	Assist with structuring a coordinating body/leadership along with further actions	2
<b>Facilitate the development of an enabling environment for the implementation of One Health and linkages to dedicated financing streams (35 responses)</b>	Provide/facilitate the development of legal frameworks and/or models that can help overcome potential legislation gaps along with further actions	16
	<i>Only provide/facilitate the development of legal frameworks and/or models that can help overcome potential legislation gaps</i>	5
	Assist with the integration of surveillance systems along with further actions	15
	Assist with the strengthening of risk communication and community engagement along with further actions	19
	<i>Only assist with the strengthening of risk communication and community engagement</i>	3
	Build/give guidelines on interoperable data and information-sharing platforms that can work as in-country models along with further actions	18
	<i>Only build/give guidelines on interoperable data and information-sharing platforms that can work as in-country models</i>	2
<b>Facilitate linkages to dedicated financing streams for One Health (22 responses)</b>	Coordination and other activities	5
	<i>Coordination only</i>	11
	<i>Activities only</i>	6
<b>Support an enhanced implementation of One Health (38 responses)</b>	Broaden capacity building and training initiatives along with further actions	29
	Promote the integration of environmental considerations along with further actions	19
	<i>Only promote the integration of environmental considerations</i>	1
	Clarify and enhance the awareness of the One Health approach along with further actions	28

	<i>Only clarify and enhance the awareness of the One Health approach</i>	3
	Strengthen and support performance monitoring and evaluation mechanisms along with further actions	25
	<i>Only strengthen and support performance monitoring and evaluation mechanisms</i>	2

The open-ended questions indicated that the respondents thought that WOAHA, in certain cases along with the other agencies that comprise the Quadripartite, could be most helpful in five different areas: provision of spaces for knowledge, expertise, experience, and perspectives sharing; facilitation of funding streams; tool development/provision; improvement of the national context for the implementation of OH; and capacity building.

The first area is the provision of spaces for knowledge, expertise, experience, and perspectives sharing, both at the national level between different sectors and agencies, and at the regional level between VS. Respondents stated that WOAHA could organise more offline trainings (including in situ), workshops, seminars, dialogue forums, meetings, and working groups, mostly at the regional level. Nonetheless, several respondents emphasised the importance of keeping a global outlook, hence, having these types of initiatives at a global level as well. A respondent highlighted that it would be important to have authorities participating in these events. When appropriate, these spaces should also include people from other sectors to increase collaboration and understanding. These comments point to the fact that the currently available tools and workshops might not reflect the needs of the VS when it comes to OH and or pandemic prevention and preparedness implementation or that the VS do not know them.

This particularly prominent area (mentioned in 10 of the 20 responses) links to the fact that facilitating communication, collaboration, and cooperation was one of the actions that WOAHA can be of support with that the respondents were most interested in. Albeit it is in contrast with the fact that around 80% has at least one sustainable and effective communication, coordination, and information-sharing channel between the different sectors potentially involved in OH.

The second area is the provision/development of tools, such as digital platforms that could help the sharing of data between sectors, as well as exploring the possibility of “integrating climatic/meteorological data into epidemiological surveillance”. Other tools could be indicators to assess OH as well as self-assessment modalities.

The third area is improvement of the national context for the implementation of OH. Within this area WOAHA can be of support by assisting the development of legal structures, such as a “supra-ministerial coordination mechanism” that would allow to overcome current legislative barriers, and/or joint committees that would bring the three OH sectors together. It could also assist in garnering political support, enhancing OH awareness and understanding, increasing “communication and information campaigns between the private and public sectors”, and improving communication with the public and civil society organisations (e.g., associations).

The fourth area is facilitation of funding streams, for example for training. One respondent thought that WOAHA could engage in a train the trainers endeavour on the implementation of OH and assist with facilitating funding the following step, that is, training people at the national level.

Regarding capacity building, this should be targeted at both the VS and civil society organisations (e.g., associations) and be organically linked to the previous areas. Capacity building should be at the root of the aforementioned areas, as well as complement them to achieve their effective implementation.

## Discussion and Conclusion

Within pathway of change 1 of the JPA, namely governance, policy, legislation, financing and advocacy, most Members have made good progress. Over 90% (38) of respondents answered that there is political support and engagement for OH initiatives in their country. This can be regarded as the first step for OH implementation. The second step seems to be having a coordinating body and the third one having sustainable funding. Just over half (23) of VS have political support, a coordinating body, and sustainable funding. Nine Members have political support and a coordinating body but lack sustainable funding. Only four have political support but lack both sustainable funding and a coordinating body. Only one VS has political and financial support but lacks a coordinating body.

The few Members (21,9%) lacking a designated OH coordinating body might have a less effective network according to network collaboration (Provan and Milward 1995; Turrini et al. 2010). The JPA implementation guide states that “[a] national multisectoral, One Health coordination mechanism [...] is critical for overseeing the governance and coordination of One Health implementation” (World Health Organization, Food and Agriculture Organization of the United Nations, United Nations Environment Programme and World Organisation for Animal Health; 2023). Moreover, only 4 VS receive funding through collaboration with the private sector (be it through private sector contributions or Public-Private partnerships, Table 2), and only 5 have engagement at the community level (Table 1). Other than pathway 1, these factors also negatively affect pathway 2, i.e., organisational and institutional development, implementation and sectoral integration. Furthermore, the “existence of geographic and cultural diversity”, “breadth and heterogeneity of Membership” and the incorporation of “diverse voices in partnerships” have been listed among factors defining network effectiveness (Turrini et al., 2010 and references therein, p. 535-539).

Political support also leads to sustained and effective communication, coordination, and information exchange between the different sectors potentially involved in OH as well. Indeed, there is no communication if there is no political support. Sustainable funding and the existence of a coordinating body can also play a role. Only three Members have communication without having a coordinating body and nine Members have communication without sustainable funding.

In the hypothetical HPAI H5N1 outbreak scenario presented to respondents, it is noticeable that farm owners and/or the beef association were viewed as the ones who should be responsible for some of the actions. Nonetheless, private sector financial contributions to OH are minimal (2, Table 2) and almost half (20, Table 10) of the respondents would like WOA to facilitate communication, collaboration, and cooperation with the private sector. This questions the feasibility of the potential plan and emphasises the need to focus on pathways of change 2 and 3 of the JPA, where pathway 3 refers to data, evidence, information systems and knowledge exchange.

In a review of the management of the COVID-19 pandemic in 28 countries to explore the resilience of their human healthcare systems, Haldane et al. (2021) argued that there is the need for a holistic approach that engages different stakeholders (including the community) at different levels and in different sectors. For example, countries that the authors categorised as high performing had instituted multi-ministry task forces and relied on non-human health sector manufacturers.

This relates to pathways of change 2 and 3, the role or lack thereof of VS in the COVID-19 pandemic, and the handling of a hypothetical HPAI H5N1 outbreak, pointing to the need to have a more comprehensive and integrated approach, i.e. the OH approach, at least in response to outbreaks. It could be useful to establish, in times of peace, a well-defined legal framework with clear expectations to be used in future emergencies and for the benefit of both the animal and human health sectors.

Respondents mentioned that they would like and/or they think WOA should support in improving the inclusion of the environment sector only three times at the end of the questionnaire. Nonetheless, out of 32 Members that have surveillance systems integrated and/or sustainably coordinated across OH sectors, 9 mentioned that the environment sector is not included. Hence, there is room for improvement in this area, once more shining a light on the work to be done regarding pathway 2, as well as 3.

The JPA implementation guide, within pathway 3, stresses that “drivers of health threats at the animal-human-plant-environment interface”, such as biodiversity loss, land use change, etc., should be tracked. Further, it also stresses that data from sectors that can signal important variations in a system, such as food production systems, trade trends, migration, etc., should also be collected (World Health Organization, Food and Agriculture Organization of the United Nations, United Nations Environment Programme and World Organisation for Animal Health; 2023). Several studies have concluded that it is more cost-effective to prevent infectious agents in the first place than to deal with them once they have made the species jump (Bernstein et al. 2022; Pike et al. 2014). Therefore, it would be important for more VS to be involved in addressing upstream drivers for the spillover of infectious agents between species with the aim of identifying risk factors and risk reduction practices to prevent a potential spillover.

In conclusion, overall, the responses show that the Europe Region is going towards implementing and improving OH and pandemic prevention and preparedness. Nonetheless, there is a wide range of degrees of implementation and a lot of areas to be strengthened. Therefore, Members still need to enhance their efforts to embed OH more effectively into their work. WOA, and the Quadripartite, have a critical role to support this endeavour and make it happen.



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