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## 1. Objective of the deliverable

A midterm evaluation of the European Joint Action on Vaccination (EU-JAV) program was conducted. The specific objectives were to evaluate the process of the work packages (WP), as well as program meetings. The goal was to understand whether the overall aims of the EU-JAV program were achievable, if WP specific targets had been met in a timely fashion and if there were any unintended outcomes.

## 2. Methodology used to produce this deliverable (initial action plan, work conducted partners involved, timeline, etc.)

The process evaluation of the EU-JAV is a longitudinal assessment throughout the program linked to the planning and organization of the activities. It focuses on whether the activities are implemented according to plan, and if constraining and fostering factors and feedback can be identified during the implementation and dealt with, and how the quality of the JAV implementation will be assured.

The methodology used for the mid-term evaluation was both qualitative and quantitative.

Vertical work package (WP5-WP8) activities and achievements were discussed during quarterly Executive Board meetings with work package leaders and coordinators. For the evaluation of the vertical work packages, data was collected from meeting notes and follow-up of activity plans and milestones and deliverables. Logical framework analysis was performed and a WP-specific self-evaluation questionnaire was applied.

The evaluation of the horizontal work packages (WP1-WP4) was similar to that of the vertical work packages. Horizontal work package activities and achievements were discussed during the quarterly Executive Board meetings. Data was collected from meeting notes and follow-up of activity plans, and milestones and deliverables. Logical framework analysis was performed and a WP-specific self-evaluation questionnaire was used.

The WP-specific self-evaluation questionnaires were adopted for each of the work packages based on the targets and indicators in the WP's logical frameworks.

A process evaluation questionnaire was used for the purpose of catching constraining and fostering internal and external factors.

The process evaluation questionnaire, the generic self-evaluation questionnaire and the logical frameworks for the WPs were used as defined in the Evaluation plan.

Other data used for the evaluation were data from the Kick-off meeting and the First General Assembly meeting of the program collected by notes, participant lists and other information gathered during the program meetings.

To evaluate the First General Assembly meeting, a survey was conducted using a questionnaire that was circulated to the participants after the General Assembly meeting.

## 3. Conclusion: outcome of deliverable findings.

A midterm evaluation report is available.



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# **European Joint Action on Vaccination (EU-JAV)**

## **Midterm evaluation report (WP3 D3.2)**

March 26, 2020

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## Executive summary

A midterm evaluation of the European Joint Action on Vaccination (EU-JAV) program was conducted. The specific objectives were to evaluate the process of the work packages (WP), as well as program meetings. The goal was to understand whether the overall aims of the EU-JAV program were achievable, if WP specific targets had been met in a timely fashion and if there were any unintended outcomes.

The objectives and targets were adhered to and the work package teams work towards accomplishing the milestones and deliverables in a timely manner. Nonetheless, delays and constraints have been voiced.

The positioning of EU-JAV activities in relation to ECDC's and the Commission's activities has been a great concern and it has influenced several of the work package teams' activities. To achieve the intended goals for EU-JAV, there is a need to work in close cooperation with ECDC, WHO and other stakeholders. The signing of the cooperation agreement between ECDC and EU-JAV will facilitate the interaction between EC-JAV-ECDC.

The First General Assembly was well attended, with 17 (24%) of 71 attendees being stakeholders. In planning the next General Assembly, the organizers (THL) should consider the feedback from the previous General Assembly meeting, i.e. refrain from having parallel sessions and provide group meeting facilities to enable more productive WP-specific workshops. Each work package should also consider how best to use the workshop/round table for their needs.

In conclusion, the EU-JAV program is well on track to achieve the intended objectives and the main hurdle identified M12 of the program, the lack of a cooperation agreement between EC-JAV-ECDC, has been overcome.

## Introduction

WHO Europe has for several decades placed a high priority on eliminating measles and rubella in the European region. Yet, from January 1, 2016 to mid-June 2017, 14000 measles cases resulting in 34 deaths were reported by the 30 EU/EEA countries. To achieve elimination goals and the United Nation's goals for sustainable development, effective vaccines and vaccine-preventable disease immunization programs with high coverage are crucial.

Over the last 10 to 15 years, an increasing number of individuals, including health professionals, doubt the benefit of vaccines, express concerns about their safety and question the need for them, the latter being referred to as hesitancy. A study on vaccine confidence conducted in 67 countries has shown that vaccine-safety related sentiment is a predominant driver of hesitancy in the WHO European region. The population also exhibit multiple and complex forms of distrust directed against doctors, governments or industry. Concerns have also been raised regarding the risk of vaccine shortage and stock outs since several episodes of shortages have led to both increased hesitancy and the potential risk of threatening population health. While the European countries face common epidemiologic- and socio-related vaccination issues, current practices in immunization policy vary widely among Member States leading to different vaccine schedules, mandatory vaccinations and vaccine recommendation processes. There are also huge challenges in human vaccine research and development across the value-chain; time to discovery of novel vaccine candidates,

complexities of production, quality control and clinical development, prediction of safety and efficacy at all stages, improvement of modes of administration, analyses of determinants of confidence and evaluation of programs able to durably overcome hesitancy, including appropriate reminder systems, across a large continent rich of different cultures and identities.

The EU-Joint Action on Vaccination (EU-JAV) aims to address several important vaccine-related issues and is structured around eight work packages (WPs) where WP1, WP2 WP3, WP4 are the horizontal, with focus on coordination, dissemination, monitoring and evaluation, and integration in national policies and sustainability, respectively, and will direct the course of the work to ensure the expected outcomes and four core work packages (WP5, WP6, WP7 and WP8) as detailed in Table 1.

Table 1. Work packages

Work package number	Title	Description
1	Coordination of the project	Actions undertaken to manage the project and to make sure that it is implemented as planned
2	Dissemination of the project	Actions undertaken to ensure that the results and deliverables of the project will be made available to the target groups.
3	Evaluation of the project	Actions undertaken to verify if the project is being implemented as planned and reaches its objectives.
4	Integration in national policies and sustainability	Actions undertaken for integration of evidence-based policy initiatives and key recommendations, and to ensure the sustainability of the JA activities at national or on the local or regional level.
5	Immunization information systems to strengthen surveillance	Actions undertaken to increase vaccine surveillance capabilities and to increase vaccination coverage at the national and infra-national/regional levels.
6	Vaccine supply and preparedness	Actions undertaken to define common basic principles for vaccine demand forecasting and explore the feasibility to develop a concept for a data-warehouse for an EU-wide central repository on vaccine supply and demand data.
7	Vaccine research and development priority setting framework	Actions undertaken to define common stages and criteria for priority-setting of vaccine R&D and develop a concept and prototype for a vaccine R&D priority-setting framework.
8	Vaccine hesitancy and uptake. From research and practices to implementation	Actions undertaken to develop a more systematic overview and analysis of the current situation, activities best practices and lessons learned in Member States, among stakeholders and partners, and in the research community concerning vaccine hesitancy and confidence.

An evaluation plan was elaborated in the early phase of the EU-JAV program. It was outlined as a systematic assessment of the success of a project, to be conducted from the onset and throughout the project period (1).

The main objective of the program evaluation is to evaluate internally if the overall aim of the EU-JAV program is achieved concerning the building of concrete tools to strengthen the national responses to the vaccination challenges, and assess if the tools could improve public health in countries participating in JAV and in Europe.

Here, we report an evaluation of the program midterm that serves to assess the progress made by 18 months to allow fine-tuning of upcoming activities and tasks within the program.

The specific objectives of the mid-term evaluation were to:

1. Evaluate the process of the vertical work packages (WP5-WP8)
2. Evaluate the process of the horizontal work packages (WP1-WP4)
3. Evaluate the process of the first General Assembly meeting.

The main research questions in the midterm evaluation were:

1. Are the overall aims of the EU-JAV program achievable?
2. Are the specific targets of the WPs achieved?
3. Are there unintended outcomes (favorable/non favorable)

## **Design and methodology**

As specified in the Evaluation plan (1), the EU-JAV evaluation should analyze, appraise and draw judgment on the success of the project, through systematic analyses of inputs, activities, outputs, outcomes and impacts of the interventions in relation to its objectives.

The process evaluation of the EU-JAV is a longitudinal assessment throughout the program linked to the planning and organization of the activities. It focuses on whether the activities are implemented according to plan, and if constraining and fostering factors and feedback can be identified during the implementation and dealt with, and how the quality of the JAV implementation will be assured.

The methodology used for the mid-term evaluation was both qualitative and quantitative.

Vertical work package (WP5-WP8) activities and achievements were discussed during quarterly Executive Board meetings with work package leaders and coordinators. For the evaluation of the vertical work packages, data was collected from meeting notes and follow-up of activity plans and milestones and deliverables. Logical framework analysis was performed and a WP-specific self-evaluation questionnaire was applied.

The evaluation of the horizontal work packages (WP1-WP4) was similar to that of the vertical work packages. Horizontal work package activities and achievements were discussed during the quarterly Executive Board meetings. Data was collected from meeting notes and follow-up of activity plans, and milestones and deliverables. Logical framework analysis was performed and a WP-specific self-evaluation questionnaire was used.

The WP-specific self-evaluation questionnaires were adopted for each of the work packages based on the targets and indicators in the WP's logical frameworks.

A process evaluation questionnaire was used for the purpose of catching constraining and fostering internal and external factors.

The process evaluation questionnaire, the generic self-evaluation questionnaire and the logical frameworks for the WPs were used as defined in the evaluation plan (1).

Other data used for the evaluation were data from the Kick-off meeting and the first General Assembly meeting of the program collected by notes, participant lists and other information gathered during the program meetings.

To evaluate the First General Assembly meeting, a survey was conducted using a questionnaire (Annex A) that was circulated to the participants after the General Assembly meeting.

## **Results**

### **WP1 Coordination**

The objective of WP1 Coordination is to ensure that appropriate methods and tools are put in place so that the project progresses as described in the work plan, the Grant Agreement and the Consortium Agreement, and reaches its objectives and expected impact.

Targets for WP1 are:

- a) Established governance bodies (Executive Board; the General Assembly, the Member States Committee, the Stakeholders Forum) in charge of executive and strategic orientations for the project.
- b) The tasks respected and completed on time
- c) EU-JAV information communicated between project members and relevant stakeholders.

To this end, five governance bodies were formed in cooperation with WP4 in the early phase of the program (M6, Milestone 1); the Executive Board; the General Assembly, the Member States Committee, and the Stakeholders Forum.

The Executive Board, comprising all WP leaders and the coordinators, met every 3 months in telephone calls. Seven Executive board meetings were held (M1, M4, M7, M10, M14, M17, and M19). An additional extraordinary meeting was held early July 2019 to set the agenda for the first General Assembly meeting October 2. WP1 ensured that Doodles were sent out well in advance to set up the Executive meetings and all WPs participated. Meeting minutes were produced and circulated to all WP leaders for verification.

To follow whether tasks were respected and completed on time, as indicated in the Grant Agreement, an activity report template for reporting of activities, milestones and deliverables was circulated by WP1 three weeks before the Executive Board meetings in order for the WP leaders to summarize accomplishments made and upcoming plans. The WP leaders have in a timely fashion provided the Activity reports as requested and the WP activities were discussed during the meetings and the activity reports were made available together with the Executive Board meeting minutes. Generally, the Executive board meeting minutes were made available 2-4 weeks after the Executive board meeting, but delays up to 9 weeks were noted.

WP1 manages the EU-JAV website that was launched 21/12/2018 and plans were to have monthly updates but this is only done irregularly in order to post news of relevance for both EU-JAV partners and external viewers. WP1 have suggested increased update frequencies.

Both internal and external constraining factors were reported by WP1. These included deliverables being late on schedule, negotiations with ECDC taking longer than expected, and information dissemination to institutions being complicated by the lack of main contacts. Also



highlighted was the fact that there are many meetings on the topic of vaccination at the EU level making it difficult for the stakeholders/partners to attend the EU-JAV General Assembly meeting. Fostering factors that may mitigate the constraining factors were the strong involvement of all partners, support from stakeholders and a strong political will from EU and national levels for the EU-JAV program.

Of note is that the coordination team has changed over time. The project manager has changed twice, M3 and M9. Additionally, the EU-JAV program coordinator was changed M16.

## **WP2 Dissemination of the project**

The objective of WP2 is to develop sustainable communication for the EU-JAV program and to engage in open dialogue and exchange of information with stakeholders involved in vaccination activities.

Targets for WP2 are:

- a) The establishment of EU-JAV communications, both internal and external.
- b) A Dissemination Plan (Deliverable 8, estimated 31/01/2019).
- c) Identification of diverse and comprehensive group of stakeholders involved in vaccination in all member states and EU-JAV partner states
- d) Increased general public's awareness on the importance of vaccination through relevant and transparent communication with individuals and organizations, by social media presence, publication of press releases, other publications and the organization of events throughout the project.

The WP2 team provided seven Activity reports, including milestones and deliverables achieved.

To meet the first target, a logo and visual identity, and communication package was developed (Milestone 2.1 estimated 31/10/2018). A website (eu-jav.com) was launched December 21, 2018 (Deliverable 2.1, estimated 31/10/2018). Additionally, a leaflet (Deliverable 2.3, estimated 31/10/2018) to be used as a communication tool was available February 7, 2019. The EU-JAV leaflet has since been updated (validated M11).

The dissemination plan was to include a strategic dissemination plan (SDP) and national dissemination plans developed based on the SDP, and be made available in the early phase of the EU-JAV program (Deliverable 2.4, estimated 31/1/2019).

The stakeholder mapping was to be performed using a stakeholder identification tool and summarized in a report (Stakeholder Mapping and Analysis Report, Deliverable 6, estimated 30/11/2018).

In the WP2-specific self-evaluation questionnaire M12 (an outcome evaluation questionnaire), WP2 reported that while the logo and visual identity package and website tasks were on schedule, the leaflet took longer than expected to develop and the first version did not meet EC's expectations. It was highlighted that the strategic dissemination plan was only finalized after the completion of a complementary stakeholder mapping survey, which provided information about the dissemination and communication needs of the identified stakeholders. It was also noted that it had taken longer than expected for the project partners to fill in the stakeholder identification tool. Frequent reminders and one-to-one sessions were needed.

As reported at the latest Executive board meeting February 11, 2020 (verified by minutes and the WP2 Activity report 1/11/2020-31/01/2020), the strategic dissemination plan was being

reviewed by EC and the national dissemination plans were pending. Thus, the Dissemination Plan was yet to be finalized. The Stakeholder Mapping and Analysis Report that had been compiled had been under review by EC and a revised version was available 07/01/20. EC approval was pending. Nonetheless, the EU-JAV program has been communicated at several events since the start of the program and two newsletters have been posted (M8 and M15). Furthermore, since the launch of the website, more than 72,000 visits to the homepage had been recorded.

Internal and external constraining factors were reported, with delays in receiving feedback on draft deliverables both internally and externally. The delays were linked to changes in the structure of the organization. WP2 suggested closer monitoring of deliverables using a web-based automatic reminder system. Fostering factors were not mentioned.

## **WP3 Evaluation of the project**

The objective of WP3 is the internal evaluation of processes and outcomes of the vertical work packages (WP5 to WP8) and the processes of vertical work packages (WP1-WP4), and to evaluate the process of the EU-JAV general meetings. WP3 will evaluate the program globally and summarize results in reports.

Targets for WP3 are:

- a) Elaborated tools for monitoring processes/outcomes described in an Evaluation Plan (Deliverable 3.1).
- b) An elaborated tool for collection of relevant data to enhance the effectiveness of the general meetings.
- c) The evaluation results reported in a midterm report and final report.
- d) The purpose of a tool measuring long-term effects (ready at M36).

The Evaluation plan describes the evaluation process methodology, targets, indicators and time plan and is used throughout the program.

As reported in WP3's self-evaluation questionnaire M12, the evaluation plan was available on the EU-JAV web site 9/2/2019. The evaluation plan included a list of targets for EU-JAV, logical frameworks for each of the work packages, a quality check list for monitoring, a process evaluation questionnaire, a self-evaluation questionnaire template, and the baseline assessment tool. An evaluation questionnaire had been developed in time for the 1<sup>st</sup> General Assembly meeting.

WP3 provided seven Activity reports, including milestones and deliverables achieved. WP3 reported that the development of logical frameworks for each of the work packages took longer than anticipated and this influenced the finalization of the Evaluation plan. The delay in delivery could be attributed to mainly two factors; a delay in providing work package-specific action plans and a delay in completing logical frameworks. By January 31, 2019 (M6), six of eight logical frameworks were available. The last two (WP2 and WP4) were finalized the first week of February (M7).

According to the EU-JAV grant agreement, the baseline assessment was to be prioritized (M02-04). The baseline assessment tool was developed and distributed to the JAV partners January 18, 2019 (M06). The tool included an introduction, a list of indicators and open-ended questions. The FOHM-team added indicator statistics and EU-JAV members were to verify the data. All 20 states had responded by July 21, 2019 (M12).

WP3 also reported delays in the response to the process-evaluation questionnaire. The process-evaluation questionnaire (Annex D in the Evaluation plan) to be addressed by the WP teams prior to the 1<sup>st</sup> General Assembly meeting October 2, had been distributed July 23

(M11) through the coordination team, with a request for responses by August 31. The final response was only received December 10, 2019 (M17).

Despite the above, WP3 did not note constraining factors or fostering factors in the response to the process evaluation questionnaire.

## **WP4 Integration in national policies and sustainability**

The objectives of WP4 are 1) to establish an EU-JAV vaccine network; 2) to develop sustainable communications and cooperation on vaccine related policy questions that are planned to be integrated into national policies; and 3) to implement pilot actions to explore the feasibility of joint undertakings applying The Integration into National Policies and Sustainability Plan.

Targets for WP4 are:

- a) A vaccine network composed of the Member State Committee (MSC) and the Stakeholders Forum with terms of reference recognized, adopted by MSC and publically available. A secretariat supports the network.
- b) The development of an action plan based on the most relevant outcomes of EU-JAV
- c) Pre- and in-service educational activities implemented in medical and paramedical curricula on vaccines and vaccination programs for health care workers (HCW) and future HCW in Europe.
- d) An interactive platform for discussion and shared advice on policies and guidelines for the purpose of strengthening communication and cooperation between NITAGs.
- e) An analysis of the evidence behind the national immunization programs, which will assist communication and cooperation between NITAGs.
- f) Increased awareness and tailored communication for young adults on the importance of vaccination in general and vaccination against HPV and HBV through the use of the ECL youth ambassadors.

To meet the first target, a secretariat for the network was established and a list of stakeholders and member state representatives were identified to be part of the Vaccine Network. Furthermore, terms of reference were developed. The first Member States Committee meeting was held in February 2019 and the terms of reference were adopted during the first General Assembly meeting in October 2019.

To develop the action plan, a review of the main deliverables described in the Grant Agreement was performed and a list of expected outcomes was available M8. The development of the action plan is in progress and a final version is expected M36.

For the evaluation of the need for in-service training of health care workers, a training barometer was developed and is being evaluated in Belgium (and Spain). A curriculum for in-service training is being prepared and ECDC will be consulted in order to avoid overlap with ongoing training activities at ECDC. As part of the development of sustainable guidelines for learning outcomes and the work plan for an immunization course or module in pre-service training, surveys are conducted to estimate the current basic knowledge among medical students in vaccination, vaccines and vaccination policy in Europe. Deliverable 4.3 Report on in-service training vaccination training-module is expected 31/01/2021.

To explore the possibility of establishing cooperation structure between EU/EEA NITAGs, a survey aimed at NITAGs has been launched and responses from NITAGs are being received. Deliverable 4.4 Report on cooperation of NITAGs is expected 31/07/2021.

To increase awareness and communications with youths, youth ambassadors were identified, and a school competition aiming at raising HPV awareness was conducted. Plans are being made for a second school competition to take place in 2021. The team expects Delivery 19 Report on the communication pilot launched, that will describe common actions of the Youth Ambassadors and school contests, will be delayed and a new estimated delivery date for the report is July 31, 2021.

WP4 has provided seven Activity reports, including milestones and deliverables achieved. WP4 report that no progress has been made in Task 4.3.2.1. for the analysis of the evidence behind the national immunization programs, which will assist communication and cooperation between NITAGs (target 3, objective 3). Thus, Deliverable 20 Methodology and plan for pilot study and draft plan for extended study with estimated delivery 31/03/2019 is as yet outstanding. Deliverable 21 Final Report on evidence-based of national immunization programs: analysis and recommendations is estimated 31/07/2021.

In the self-evaluation questionnaire, WP4 report that task 4.3.2.1 was originally assigned to the Robert Koch Institute (RKI) but has been reassigned and the work is to be initiated.

While WP4 have not identified any internal constraining or fostering factors, two external constraining factors and one fostering factor was reported. The MSC nomination is incomplete and eight Member State nominations for the Vaccine Network are missing. As a consequence, quorum for the first Member States Committee meeting was not reached (only 11 MSC nominees were present). Furthermore, the delay in signing of the Memorandum of Understanding between EU-JAV and ECDC was hampering the planned interactions with ECDC, which may impact the final report.

WP4 described that the Health Steering Committee (HSC) and Steering Group on Health Promotion and Prevention assisted with the dissemination of the invitations to the Members States for the nomination of member state representatives.

WP4 provided an updated Logical framework January 6, 2020 with minor edits (Annex A).

## **WP5 Immunization information systems to strengthen surveillance of vaccine coverage**

The objectives of WP5 are 1) to assess the interoperability of European immunization information systems (IIS) and opportunities for standardization, which also includes compliance of IIS with the new European Interoperability Framework, 2) to establish a pilot platform for harmonized estimation of vaccination coverage in EU member states and partner countries, 3) to review existing European reminder and recall systems and to make recommendations on how reminder systems can be developed in EU-MS and partner countries and 4) to perform a feasibility study that will be a base for a future coordinated cross-border measles vaccination campaign.

Targets for WP5 are:

- a) Assessment of data quality, collection processes and interoperability on ISS in at least 10 European countries.
- b) Development of specifications for a pilot platform
- c) At least 6 partners have adopted the pilot platform
- d) A computer algorithm is developed and shared and accepted for tests by the 6 partners on a pilot platform.
- e) At least 4 countries are providing MMR coverage data for the pilot study

- f) A description of approaches by organization, distribution channels used, timing and frequency of reminders for reminder systems.
- g) Analyze and map main target groups for a possible measles vaccination campaign per country based on MMR coverage data
- h) Identify structures, criteria and funding needed for a coordinated measles vaccination campaign in 2021.
- i) Explore the willingness in EU and associated countries for a joint cross-border measles immunization campaign.

WP5 has provided seven Activity reports, including milestones and deliverables achieved.

To assess data quality, collection processes and interoperability on IIS, information has been gathered from partner countries and a survey on assessment of IIS interoperability and compliance with the new European Interoperability Framework was conducted. Analysis of the data is ongoing, and information that is inadequate or incomplete will be resolved through interviews. A report on the operability of IIS in the EU area is due M24 31/07/2020 and the task is expected to be completed on time.

A report has been written and submitted detailing functional specifications for a pilot platform (Deliverable 5.1 31/1/2020).

Information on current methods for assessment of MMR1 and MMR2 vaccination coverage has been gathered and reported. R-programs to estimate MCV dose 1 and dose 2 coverage were developed using Danish test data. These R-programs have been transferred to Finland and Netherlands for testing. Thus, work towards the accomplishment of Deliverable 5.3 Report on Standardized estimations of vaccine coverage due M30 is well under way. D5.4 Report on reminder systems is due M36.

For the feasibility study of a cross-border measles vaccination campaign, meetings were held with WHO, ECDC, expert consultants in the field and within the JAV. The original plan, to use IIS data acquired through the JAV WP5 work, was abandoned due to overlapping timelines. The adjusted work plan includes the use of data from the EU Observatory report, the JAV Baseline assessment and the ECDC Rapid Risk Assessment, as well as country-specific data obtained through the interviews. A workshop was organized at the annual meeting in Rome in October 2019. In this workshop the options, possibilities and interest concerning joint cross-border activities in the field of measles were reviewed and discussed. Based on these discussions, a plan for more detailed and structured work has been drafted, which includes the plans for regional (North, South, Central-Eastern) workshops. Furthermore, questions aiming at documenting cross-border collaborations linked to vaccine hesitancy and uptake in the Member States have been included in the EU-JAV survey on vaccine hesitancy and uptake conducted by WP8. A report describing the feasibility of coordinating cross-border measles vaccination campaigns is due M36 (31/07/2021)..

WP5 answered the process evaluation questionnaire but did not report constraining or fostering factors.

WP5 did not provide an updated Logical framework.

## **WP6 Vaccine supply and preparedness**

The objectives of WP6 are a) to map the needs and vaccine demand at the European level in consortium member states and define basic principles for vaccine demand forecasting, b) to reinforce the mechanisms of forecasting, supply and stocks, C) explore the feasibility of and

develop a concept for an EU data warehouse for sharing of vaccine supply and demand among dedicated stakeholders.

Targets for WP6 are:

- a) A survey collecting data on previous (last 3 years) and current vaccine shortages and response at the national and European level, and information on procurement modalities from a representative sample of JAV participating countries.
- b) An evaluation of financing mechanisms for purchase and stocking of vaccines in at least 10 consortium member countries, with the purpose of identifying sustainable solutions for centralized procurement.
- c) An understanding of mechanisms for defining the anticipated needs of geographical nature to ensure sufficient size of supply and stockpiles.
- d) A gap and opinion analysis (concept analysis) on the possibilities for a regional or European virtual stockpile on vaccine management needs and stocks.
- e) An elaboration of procedures and methods to estimate needs and procurement of vaccines in consortium member countries in the short and long-term.
- f) A recommendation on mechanisms of management of forecasting, supply and stocks.

WP6 has provided seven Activity reports, including milestones and deliverables. The survey on previous and current vaccine shortages has been conducted, analyzed and reported on time (Deliverable D6.1 31/07/2019).

Work towards understanding financial mechanisms for purchasing and stocking of vaccines is ongoing. The work has involved a literature review, data collection from institutions and the development of a questionnaire to capture local vaccine mechanisms in Member States. It complements the earlier survey and explores local financing mechanisms for vaccines included in the national immunization plans, financial mechanisms for centralized procurement and experiences with joint procurement. A report is due M24 of the program (D6.3).

A report on the anticipated needs to ensure sufficient size of supply and stockpiles was delivered on schedule M12 (D6.4)

A report on possibilities, gaps and options for building of a regional or European virtual stockpile has recently been submitted to the partners M18. Three different concepts to be further explored are presented. The concepts are voluntary sharing/rapid exchange mechanism on available vaccines, regional virtual stockpiles and a virtual EU data warehouse. This report constitutes Deliverable 6.5 with estimated delivery 31/01/2020.

In the self-evaluation, WP6 note that the distinctions between tasks 6.1 (Mapping vaccine needs and demands, led by the Italian ISS team) and task 6.2 (Mechanisms of management of forecasting, supply and stocks, led by the Norwegian FHI team) were not clear at the start of the program, with certain overlap between objectives. The report on the anticipated needs to ensure sufficient size of supply and stockpiles, including their sustainability delivered explains the objective of 6.2. , which will focus on 1) understanding mechanisms for defining the anticipated needs to ensure sufficient size of supply and stockpiles and 2) explore possibilities, gaps and options for the concept analysis for a regional of European data warehouse for sharing data/information of vaccine supply and demand among relevant stakeholders.

In the process evaluation M12, WP6 did not report internal constraining or fostering factors.

WP6 has suggested a revision of their Logical framework and a draft was provided (Annex B).

## **WP7 Vaccine research and development priority-setting framework**

The objectives of WP7 are to a) define tools and methods for priority-setting for vaccine and vaccination research, b) identify financial (and other) mechanisms that increase technical collaboration and cooperation on research funding of vaccine and vaccination research among MS, and c) that half of research topics from the prioritization list are used by international and national funding programs within the 5 years following the end of the program.

Targets for WP7 are:

- a) Evidence-based tools and methods, based on multiple criteria decision analysis (MCDA) methodology, are developed with the purpose to identify and prioritize vaccine and vaccination research in EU.
- b) Financial mechanisms are identified with the purpose to cooperate among EU MS to fund key vaccine and vaccination research along the value chain, and according to the prioritization (annual list 1 and 2) in EU.
- c) Mechanisms are identified with the purpose to strengthen collaboration in key vaccine and vaccination research in EU.

WP7 has provided seven Activity reports, including milestones and deliverables achieved.

Three milestones have been accomplished. The WP7 team consolidated a list of four vaccines (influenza, HPV, measles containing vaccines and pertussis) on which the program would focus (milestone 7.1). They next decided on the methods and tools for research prioritization (milestone 7.2). Thereafter, the criteria for priority setting were established (milestone 7.3). Work towards dissemination of the first annual report on vaccine and vaccination research priorities to inform funding programs is in progress. Out of 125 research question proposals, a list of 27 research questions have been consolidated, rated and ranked. Six research questions were scored as tier 1 questions and these address each of the four pilot vaccines and include medical, epidemiological and social science aspects.

The work on analysis of funding gaps and hurdles of cooperation among funders is in progress and a report is anticipated 31/07/2020. The work includes the mapping of existing and possible funding mechanisms by using a survey. In the self-evaluation questionnaire M12, WP7 reported that the organizations that they targeted in the survey did not respond and that the response rate for the survey was lower than expected. They were collecting information from the organizations by collecting information from publicly available documents.

In the process evaluation M12, WP7 identified an internal constraining factor in that it was difficult to engage JAV partners when they were not direct contributors. Reminders were used to mitigate. No external constraining or fostering factors were reported.

WP7 has provided a revised Logical framework where timelines for some activities have been slightly modified and the list of external risks related to the Report on a proposal for shared funding mechanisms have increased (Annex C).

## **WP8 Vaccine hesitancy and uptake. From research and practices to implementation**

The objectives of WP8 are to a) develop a systematic overview and analysis of the current situation, including best practices, lessons learned and experiences of implementing into action research-based knowledge concerning vaccine hesitancy, and uptake in Member States, among stakeholders and partners, in the research community and among policy makers, b) to provide guidance for developing practices and policies for maintaining good vaccine uptake in general and for supporting public health responses to hesitancy by creating mechanisms and tools for disseminating research-based knowledge and best practices and lessons learned throughout Member States, and c) to detect early signals of lowering public confidence in real time and monitoring over time and space (geographic differences within EU) of the sentiment, opinion and attitude towards vaccination in real time.

Targets for WP8 are:

- a) The best practices and lessons learned in vaccine-hesitancy-related work in the MS and their regions and among stakeholders and partners, research community and existing and ongoing projects and programs are systematically overviewed and reported by M36.
- b) An online working environment (e-learning platform) is developed to provide research-based knowledge and best practices and lessons learnt for Member State and stakeholder actors working with NIPs throughout Member States and Non-Member States participating in JAV.
- c) By M30, finalize a report on frameworks and methods for a) detecting early signals of lowering public confidence in real time; b) monitoring over time and space the opinions towards vaccination. At least 20% of the participating countries are involved in identifying vaccine-related topics and keywords.
- d) By M24, a public vaccine confidence monitoring platform is completed and delivered.

WP8 has provided seven Activity reports, which include milestones and deliverables achieved.

The work towards identifying barriers and enablers behind suboptimal vaccination coverage is ongoing. In the self-evaluation M12, WP8 reported that they had recognized that the identification of key stakeholders and partners was best done in connection with the data gathering survey mapping best practices and lessons learned. In the latest Activity report it is noted that this data gathering survey is currently being conducted and by 30 January, 2020, thirteen countries out of 32 had submitted their answers. Participants have been reminded by email to submit their answers and consultation and support had been given on request by the WP8 team. A data assessment workshop was planned for March/April 2020. A final report on the mapping of best practices and lessons learnt is estimated for M36.

Work towards development of the e-learning platform was initiated M1 (reported in the WP8 self-evaluation M12). The goal was to develop the platform in cooperation with ECDC since health professionals in MS are used to using ECDC platforms. However, as mentioned previously, there was a delay in signing the cooperation agreement with ECDC. At the General Assembly meeting in Rome (M14), the Coordination team and ECDC agreed on terms for the cooperation. Following negotiations with ECDC, WP8 is continuing the work on the technical development of the platform. A delay in reaching Milestone 37 (an online working environment in the form of an e-learning platform launched, estimated M12) and



Milestone 39 (a searchable database including country and stakeholder reports is available online, estimated M15) was inevitable due to the delay in signing the JAV-ECDC agreement..

Additional work reported to be in progress towards establishing real time monitoring of public vaccine confidence through social media and promotion healthy behavior through the web involve the development of the features of the platform, the development of a plan of analysis for data visualization, development and testing of an algorithm for event detection on Twitter and other sources, validation of keywords related to vaccines using a framework previously reported in literature, a selection of vaccine-related topics and a survey to validate the same. Additionally, an algorithm is being developed to select the most influential online players in the Twitter network. Thus, while WP8 is seeing delays according to the original timelines the overall objectives and targets will be achieved during the program.

In response to the process evaluation questionnaire, the WP8 team highlights that the EU-JAV program is extensive with different institutional partners contributing to the various work packages and they raise internal communication within the institution as a possible internal constraining factor. To mitigate, better internal communication within the institution may be needed. The WP8 team reiterated the issue of the delay in reaching an agreement with ECDC as an external constraining factor and suggested increased exchanges between EU-JAV-DG Santé and DG Research to mitigate. These interactions are also noted as a fostering factor. The WP8 team mentions that non-JAV members do not understand how to position themselves towards JAV. They therefore suggest that JAV keep all member states informed of the JAV activities and that they are invited to the JAV meetings. Additionally, it is noted that EPIET fellows would provide an important group of actors who could both gain themselves by joining the JAV activities while they would provide much needed assistance to surveys and other JAV relevant activities. This again belongs to the domain of ECDC and need to be discussed. On the division of labor between GD Santé-ECDC and JAV, WP8 raise a question regarding the fact that DG Santé is building a portal on best practices and ask what role that portal will have for vaccine-related issues in comparison to the ECDC e-portal on VDP and vaccines.

The WP8 team has provided a revised Logical framework that reflects the altered timelines and changes in methodology (Annex D).

## **Program meetings**

### **Kick-off meeting**

The Kick-off meeting was organized by the Coordination team in Paris September 4-5, 2018 (M2) of the program. This 2-day meeting served as an introduction to the program. Day 1 targeted all members of EU-JAV and the stakeholders. The workshops on day 2 were attended by 60 JAV members that represented 18 of 20 JAV partners, representation from Bulgaria and Malta was missing.

### **First General Assembly meeting**

The first General Assembly meeting was held in Rome October 2-3, 2019. Seventeen of the JAV partner countries were represented. The partners from Bulgaria, Slovakia and Greece did not attend. The Greek team had planned to come but could not make it. Nonetheless, a total of 56 JAV members and 17 stakeholder representatives attended the meeting.

The first day of the meeting was dedicated to work package-specific workshops. The workshop on WP4 (Integration in National Policies and Sustainability) was held in parallel with WP8 (Vaccine hesitancy and uptake) before lunch. In the afternoon, the workshop for

WP3 (Evaluation of the project) and WP6 (Vaccine supply and preparedness) was held in parallel, and the workshop for WP7 (Vaccine research and development) was in parallel with WP5's workshop (Immunization information systems to strengthen surveillance of vaccine coverage and A plan for a feasibility study for a future cross-border initiative to further strengthen measles vaccination coverage in the EU). The afternoon ended by a session with brief information from the Coordination team.

The second day was dedicated to the progress of the six specific objectives of the EU-JAV (1. build option for a sustainable mechanism of cooperation and communication; 2. Strengthen the interaction of immunization information systems in Europe; 3. Establish mechanisms of vaccine forecasting, supply and stock management; 4. Define tools and methods for vaccine research priority setting and identify mechanisms to increase cooperation; 5. Develop a more systematic overview and analysis of the current situation, activities related to vaccine hesitancy and uptake, from research and practices to implementation; 6. Ensure an efficient dissemination of activities and outcomes from the project and contribute to sustaining its results). Furthermore, a round table session was also held to discuss the cooperation between the Commission, ECDC, JAV and Member States.

Following the First General Assembly, a meeting survey was conducted through email distribution to all attendees for the purpose of assessing the relevance of the meeting (for WP tasks), the possibility to solve problems during the meeting, receiving relevant information from the other WPs, and general assessment of the meeting (Annex E). Sixteen responses were received. The respondents represented both JAV members and stakeholders.

The respondents were asked to rate two statements related to the opportunity to share and network and to solve problems on a scale of 1-4 with 1 being 'Poor' and 4 being 'Excellent'. The majority agreed that the General Assembly meeting was *A valuable opportunity to share experiences and network*, as indicated by a rating of Excellent (12/16, 75%) or Good (3/16, 18%). One respondent (6%) rated it Fair. Similarly, *A valuable opportunity to solve problems* scored Excellent (8/16, 50%) or Good (4/16, 25%) by the majority. Another 4/16 (25%) rated it as Fair and 4/16 (25%) rated it Poor.

In the post-meeting survey five statements were related to the meeting organization. Once again the respondents were asked to give ratings on a scale of 1-4 with 1 being 'Poor' and 4 being 'Excellent'. The results are shown in Table 1.

Table no. 1. Scoring of the organization of the meeting

Statement	Score (number of respondents)			
	Excellent	Good	Fair	Poor
<b>Agenda clear and concise</b>	8	3	4	1
<b>Meeting date, time and length acceptable</b>	11	4	1	0
<b>Overall meeting organization</b>	8	4	1	2
<b>Quality of food and beverage</b>	15	0	0	0
<b>Overall conference facilities</b>	11	1	3	0

We next asked whether the six workshops for the work packages WP3-WP8 were relevant and meaningful using the scoring 1-4, with 1 being 'Poor' and 4 being 'Excellent'. The findings are shown in Table 2. The majority of the respondents indicated Excellent or Good. Of note is the low response rate to the workshop held by WP7 for which only four respondents gave a rating.

Table no. 2. Scoring of the work package workshops for relevance and meaningfulness

Work package workshop	Score (number of respondents)			
	Excellent	Good	Fair	Poor
<b>3 Evaluation</b>	6	2	3	1
<b>4 Integration in national policies and sustainability</b>	4	4		1
<b>5 Immunization information systems to strengthen surveillance</b>	4	4		
<b>6 Vaccine supply and preparedness</b>	9	3	1	
<b>7 Vaccine research and development priority-setting framework</b>	3	1		
<b>8 Vaccine hesitancy and uptake</b>	6	4	1	

The WP-specific workshops were arranged as parallel sessions and one of the queries was if this was suitable or not. The respondents' attendance to the workshops and their expressed interest is shown in table 2.

The number of respondents expressing an interest in attending a workshop exceeded the number of actual attendances for four of six workshops (WP4, WP5, WP7 and WP8) as shown in Table 3.

Table no 3. The number of respondents wishing to attend a workshop and their attendance

	WP3	WP4	WP5	WP6	WP7	WP8
<b>Expressed interest</b>	10	13	11	12	6	12
<b>Attended</b>	12	9	10	12	5	11

In response to the statement *The next time we have the General Assembly, make this change* sentiments such as the following were shared “Avoid parallel workshops so that participants have the options to participate in all workshops”, “allow for everyone to be part of every workshop”, “avoid parallel sessions”, “fewer plenary sessions and more closeness to the workshops”, “I prefer it if the time frame is longer...no parallel sessions”, and “parallel sessions shorten the needed length of the assembly, but also make it impossible to attend some of the workshops, which hinder sharing ideas and experiences. Consider having as little parallel sessions if possible”.

Examples of other sentiments shared were:

“Avoid that the General Assembly overlaps with other vaccine-related initiatives such as European Health Forum Gastein, which led to many stakeholders not being able to attend the EU-JAV General Assembly. 2) Involve more stakeholders such as civil society leaders and advocacy groups. 3) Include examples of citizens daily experiences, such as anecdotes of shortcomings in the health sector related to vaccination, but also good practices.”

“More interactive sessions. Sessions with just lectures not meaningful – this information could be given out beforehand. Avoid too many discussions in full group – this is meaningful when we need to decide issues. Not meaningful to have more or less the same presentations on two different days.”

“Workshop format does not work. I practice workshop and presentation was almost the same. So, could have had GA in one day. In order to have a fruitful workshop the format needs to change. Smaller groups and only people active in work package maybe. Start meeting and sessions on time. Make sure infrastructure (microphones, computers) works and make sure it is clear who is responsible. Have presentations ready on computer before each day starts. Not effective as it was handled during GA.”

“Circulate the agenda in advance”

We also asked the respondents to list *Things I liked best about the General Assembly meeting*. To this, the following comments were given:

“The possibility to share ideas and experiences face-to-face with other colleagues and also the chance to get to know each other better.”

“The productive workshops, especially WP 8 presentations from Italy and Finland about vaccine hesitancy”

“Good opportunity to meet, network and sort out possible overlaps and possibly synergies. Important to meet and discuss difficult issues like sustainability”

“The overall conference facilities”

“Sharing progress, good discussions (often outside meeting room) and networking. Inspiring to engage with vaccine network in EU”

“The network itself “

“Team spirit”

“Face to face communication with the different partners”

“Having the time to discuss with other colleagues and their input”

“Receiving relevant information from other WPs, awareness of the high complexity in a multilingual Europe with different Health Systems, seeing and feeling the enthusiasm in the different WP’s.”

In summary, the General Assembly meeting served as an excellent opportunity for networking and interactions. Nonetheless, from the feedback given, it is clear that the format of the meeting could be refined, parallel sessions avoided and the ‘workshop’ format improved.

## **Conclusions and recommendations**

The midterm evaluation shows that the program objectives and targets as identified in the logical frameworks were adhered to and the work package teams work towards accomplishing the milestones and deliverables in a timely manner. Nonetheless, delays and constraints have been voiced. For example, the WP2 team have had a number of delays in their deliveries and will therefore need continued support from the coordination team.

The logical frameworks developed by the work package leaders M6 define the work package’s objectives, targets, indicators, outputs, output activities, and envisioned intended and unintended outcomes. They are included in the Evaluation plan and the evaluation team will evaluate progress in relation to the targets and timelines given. The logical frameworks also serve as reference for the Coordination team, EC and other stakeholders. We therefore

urge work package leaders to provide updated logical frameworks when changes (for example timelines and/or methodology) are made.

The process evaluation questionnaire M12 gave insight into constraints and possible fostering factors. However, we also note that some of the work packages have refrained from voicing constraints, while it was noted in the Activity reports and thus available for action by the Coordination team. A second process evaluation will be undertaken M24, and we would recommend that the work packages critically assess their work and report any constraining and fostering factor at the time.

The positioning of EU-JAV activities in relation to ECDC's activities has been a concern for several of the work package teams, and especially so for WP8. To achieve the intended goals for EU-JAV, there is a need to work in close cooperation with both ECDC and the Commission. The signing of the cooperation agreement between ECDC and EU-JAV will facilitate the interaction. Of note is that the cooperation was only agreed on a year into the program. It would have been valuable to the program if such an agreement would have been available at the start of the program (M1).

The first General Assembly meeting gathered 54 JAV member as well as 17 stakeholders, suggesting a strong interest in the program.

In planning the next General Assembly, the organizers (THL) should consider the feedback from the previous General Assembly meeting, i.e. refrain from having parallel sessions and provide group meeting facilities to enable more productive WP-specific workshops. Each work package should also consider how best to use the work-shop/round table for their needs.

In conclusion, the EU-JAV program is well on track to achieve the intended objectives and the main hurdle identified M12 of the program, the lack of a cooperation agreement between EC-JAV-ECDC, has been overcome.

At the time of drafting this report, we did not know then what we know now – that a new virus (SARS CoV-2) would emerge that would bring many parts of society to a standstill.

As of 24 March 2020, 182470 cases of COVID-19 (the disease caused by SARS CoV-2) have been reported in the EU/EEA and the UK; Italy (63927), Spain (33089), Germany (29212), France (19856), United Kingdom (6650), Netherlands (4749), Austria (4486), Belgium (3743), Norway (2371), Portugal (2060), Sweden (2016), Denmark (1460), Czech Republic (1236), Ireland (1125), Luxembourg (875), Poland (749), Finland (700), Greece (695), Iceland (588), Romania (576), Slovenia (442), Estonia (352), Croatia (306), Bulgaria (201), Slovakia (191), Hungary (187), Latvia (180), Lithuania (179), Cyprus (116), Malta (107) and Liechtenstein (46). The death toll is high and rising, and by March 24 the number of deaths exceeded 10000 in the EU/EEA and the UK.

It is not possible to predict how long the outbreak will last and how the pandemic will unfold. The pandemic will inevitably impact the Joint Action on Vaccination since all countries have enforced countermeasures that restrict interactions and travel.

## References

1. EU-JAV Evaluation plan. Available at: <https://eu-jav.com/wp-content/uploads/2019/02/EU-JAV-D3.1-WP3-Evaluation-plan.pdf>
2. ECDC Coronavirus Threats and outbreaks COVID-19. Available at: <https://www.ecdc.europa.eu/en/cases-2019-ncov-eueea>

## **Annexes**



## **Logical framework**

### **Work package 4**

Integration into national policies and sustainability

Date: January 6, 2020

**Work package leader: Ministry of Health (MoH),  
France**

<b><u>Specific objective 1</u></b>	<b>Establish the vaccine network for preparation of key decision-making and ensure ways to leverage sustainability beyond the EU-JAV. Representatives from all EU-JAV MS and from the main EU-JAV stakeholders are part of the network</b>
<b>Target 1</b>	<p>Composition and role of the Vaccine network. The Vaccine network composed of two bodies: Member States Committee (MSC) and the Stakeholders Forum (SHF) is established at M6, terms of reference (ToR) is recognized, adopted by MSC and the SHF, and publicly available. [An approved action plan is outlined at M12]. A secretariat supports the network with the agendas for meetings, minutes, action plan drafts, follow-ups.</p> <p>The target groups are the following actors: representatives of competent authorities (Ministry of health) of each of the 27 Member States of the European Union, representatives of competent authorities (Ministry of Health) of each of the 3 EU-JAV Associated countries (Bosnia and Herzegovina, Moldova, Serbia,), major organizations and institutions having a legitimate interest in the Joint Action (WHO, EMA, OECD, ECDC).</p>
Indicator 1	A secretariat is established including 1 contact point from INSERM and other contact point from the French Ministry of Health (M1-M2). Measured by documents (ToR available on the Extranet at the draft stage and on the public part of the Website when they are validated)
Indicator 2	Elaboration of a list of stakeholders and member states representative to be part of the network: in collaboration with WP2 (M1-M4). Measured by information (on the Extranet at the draft stage and on the public part of the Website when they are validated)
Indicator 3	Terms of reference of the Vaccine Network are available (M1-M5). Measured by document (on the Extranet at the draft stage and on the public part of the Website when they are validated)
Indicator 4	Terms of reference of the Vaccine Network are adopted (M1-M6). Measured by document (on the Extranet at the draft stage and on the public part of the Website when they are validated)
Indicator 5	Regular meetings held by the Vaccine Network Measured by meeting agendas and minutes from meetings (on the Extranet at the draft stage and on the public part of the Website when they are validated)
Output 1	<ol style="list-style-type: none"> <li>1. A comprehensive list of actors that should be represented in the network.</li> <li>2. A developed TOR-document adopted by MSC and SHF</li> <li>3. A scheme of regular meetings from M6 to M36.</li> <li>4. A prioritization of work at the M12 meeting formulated in an action plan.</li> </ol> <p>Internal/external risks: Not having on time all the representatives of each Member States and Stakeholders.</p> <p>Consequences: The Vaccine Network is not settled on time and a meeting cannot be held.</p>
Activities in logical order	1) Identification of stakeholders and member state representatives (M1-M2)



	2) Invitation letter to Member States Committee (M1-M2) 3) Drafting terms of reference (ToR) of the Vaccine Network (M1-M5) 4) ToR adopted by the Vaccine Network (M5-M6)
Intended outcomes	Active participation of the Members States Committee, good representativeness of their Ministry of Health (MoH) commitment to support the main outcomes of the EU JAV in national policies
Unintended outcomes	Low level of participation of the Member States Committee, poor representativeness of their MoH, low commitment in the action plan. Consequences: The network has low efficiency in the work which will affect the support for the main outcomes of the EU-JAV into national policies.

<b><u>Specific objective 2</u></b>	<b>Develop a sustainable communication and cooperation on vaccine related policy questions that will be integrated into national policies.</b>
<b>Target 1</b>	Main outlines of the action plan has been developed at M12, based on a review of the main deliverables expected within the WP5 to 8 and based on needs and expectations from EU-MS. The target groups are the members of the Vaccine Network and the WP leaders of the WP 5 to 8.
Indicator 1	Review of the main concrete deliverables that can be sustain after the project described in the EU-JAV grant agreement performed at M6. Measured by a list of expected outcomes
Indicator 2	Survey among the Member States Committee collecting their country's needs and expectations regarding what JAV outcomes could potentially be integrated into national policies and be further developed at EU level, launched at M6-M7 Measured by questionnaire sent to the Members States Committee.
Indicator 3	Mapping of needs and expectations finalized at M9 measured by MoH. Measured by a list of vaccine policy topics to be considered in priority.
Indicator 4	Indicators arising from the JA that are coherent with the vaccine topic considered by the Vaccine Network to be integrated in the action plan defined. Measured by the action plan on the Extranet at the draft stage and on the public part of the Website when they are validated.
Output 1	1. A report highlighting the recommendations of the Member States Committee nominees, regarding their needs and expectations on a sustainable cooperation on vaccination between EU Member States (MS) and their point of view regarding the future governance of the Vaccine Network after the 3 years of the project. M8-9  2. An action draft plan with main outlines based on indicators of the JAV, on MS needs and expectations ready at M12
Activities in logical order	1. Review of the main outcomes and deliverables of the JA

	<p>2. Survey among the Member States Committee</p> <p>3. Draft a report based on the answers of the survey that will be integrated into the action plan</p> <p>4. Draft 1 of the main outline of the action plan is circulating for comments to the Member States committee and WP leaders</p> <p>5. Main outlines of the action plan adopted at M12</p>
Intended outcomes	<p>High level of collected outcomes regarding: vaccine hesitancy, harmonization of vaccine schedules and vaccine surveillance tools, vaccine supply and preparedness and vaccine R&amp;D priority setting framework.</p> <p>Preliminary draft, including overview of the priorities identified by the MS and the outcomes and the deliverables of the WPs5-8 that need to be promoted at the national level (M30).</p>
Unintended outcomes	<p>Difficulties on defining the most relevant outcomes of the JAV to be integrated in the action plan. Not strong involvement of EU countries and of the WP5 to 8 leaders in development of the main outlines of the plan.</p>
<b>Target 2</b>	<p>Action plan has been developed at M36, with agreed measures to ensure that there will be sustainable communication and cooperation between MS and non-EU JAV consortium member countries. The target group are the members of the Vaccine Network (MSC).</p>
Indicator 1	<p>There is a final action plan sent to all members of the vaccine network. Measured by document with signatures by French MoH.</p>
Output 1	<p>A final and validated recommendations version of the action plan based on the outputs from JAV. Action plan for sustainable cooperation on vaccine policy among EU MS with concrete public health actions to implement into national policies.</p> <p>Internal/external risks: Lack of consensus or weak consensus on the list of actions in the sustainable plan.</p>
Activities in logical order:	<ol style="list-style-type: none"> <li>1. Conditional approval of Draft 2 report (M24 July 2020)</li> <li>2. Preliminary draft 2 report (M30 January 2021)</li> <li>3. Conditional approval final report (M35 June 2021)</li> <li>4. Final report (M36 July 2021)</li> </ol>
Intended outcomes	<p>A sustainable communication and cooperation among Member States and other actors on vaccine related policies and question</p>
Unintended outcomes	<p>Difficulties on defining the most relevant outcomes of the JAV to be integrated in the action plan. Not strong involvement of EU countries and of the WP5 to 8 leaders in development of the main outlines of the plan (which worsens or at least does not improve the sustainable communication and cooperation).</p>
<b><u>Specific objective 3</u></b>	<p><b>Implement pilot actions to explore the feasibility of joint undertakings applying “the integration into national policies and sustainability”-plan, with focus on three areas: educational activities targeting professionals, NITAGs collaboration and cooperation, and communication directed towards school children and young adults.</b></p>

<b>Target 1</b>	Pre- educational activities are implemented in medical and paramedical curricula on vaccines and vaccination programs for future HCW in Europe, as well as in-service training for HCW in Europe. Target groups are HCW and students under education to HCW in participating EU MS and associated countries in JAV.
Indicator 1	Mapping of 'In service trainings' available in Europe at M14. Define optimal content, learning objectives for in-service vaccinology training
Indicator 2	An "in-service training" barometer installed at M18. Measured by the implementation of an (electronic) system aiming at measure the trainings need of in-service healthcare workers (HCW).
Indicator 3	Criteria and tools for optimal in-service training developed at M30. Measured by information on the Extranet at the draft stage and on the public part of the Website when they are validated.
Indicator 4	Measure pre-service training by a questionnaire towards medical students (response rate/ the quantitative target for distributing the questionnaire to students) Develop sustainable guidelines for learning outcomes and work plan for immunization course in pre-service curricula of future HCW in EU MS. Measured by a toolkit to be implemented in future HCW curricula at M34.
Output 1	<ol style="list-style-type: none"> <li>1. An pre-service training mapping showing the content of the course in vaccinology.</li> <li>2. An in-service training barometer is implemented with the objective to mapping unmet needs in their training among a representative HCW.</li> <li>3. A report on in-service vaccinology training will be delivered.</li> <li>4. A list of criteria and tools (training module) will be provided to the MS to improve in-service training in vaccinology.</li> <li>5. A pilot study will be performed to test the training module.</li> <li>6. A toolkit for implementation a training module in the different MS is available.</li> </ol>
Activities in logical order	<ol style="list-style-type: none"> <li>1. Make an inventory of available "in-service training" in vaccinology (M1-M9).</li> <li>2. Assess the need of in-service training of HCW in 3 pilot countries States (M1-M9).</li> <li>3. Develop in-service training barometer – define specifications (M9-M18) that can be implemented in all MS</li> <li>4. Write a report on in-service vaccinology training.</li> <li>5. Develop criteria and evaluation tools for optimal in-service training in vaccinology (M26).</li> <li>6. Implement the training module in some countries as a pilot (M30).</li> <li>7. A proposed tool kit for EU ministers in charge of curricula of future HCW (M34).</li> </ol>
Intended outcomes	Standardized training module in vaccinology for HCW in Europe, Improvement of knowledge, behavior changes and confidence in vaccination among HCW and future HCW.
Unintended outcomes	The training module is inappropriate because of conflicts between standardization and country adoptions.

<b>Target 2</b>	Strengthen the communication and cooperation between EU/EEA NITAGs. The target group are: NITAGS, NITAG chairs, Member States, NITAGS network (WHO), MSC.
Indicator 1	Identification of existing NITAG and of Chair/person of these NITAG done at M3 through the Member States Committee (vaccine network). Measured by a list of relevant persons.
Indicator 2	Identification of other stakeholders involved in NITAG collaboration at M3. Measured by a list of relevant stakeholders.
Indicator 3	Legal framework and operational context of each EU NITAG analyzed at M24, in collaboration with ECDC. Measured by a mapping of these procedures.
Indicator 4	A study is performed looking at the range of attributable costs and tools used for the most recent NITAG evaluations in EU/EEA Member States (MS). Measured by a questionnaire.(The response rate/the quantitative target for distributing the questionnaire to NITAG)
Outputs	<ol style="list-style-type: none"> <li>1. List of NITAG chairman in EU MS.</li> <li>2. List of stakeholder involved in NITAG cooperation.</li> <li>3. Mapping (i.e., the output 3 is analyzed) legal frameworks needed for establishing an appropriate cooperation structure between NITAGS and other EU/EEA competent authorities and their networks, in collaboration with ECDC</li> <li>4. Survey results on the range of attributable costs and tools used for the most recent NITAG evaluations in EU/EEA MS.</li> <li>5. Report on collaboration between NITAGS.</li> </ol> <p>Internal external risks: Poor involvement of NITAGs including NITAGs chairman, difficulties to collect information.</p>
Activities in logical order	<ol style="list-style-type: none"> <li>1. Identify stakeholder and NITAG chairman through email contacts.</li> <li>2. Collect EU-level and national legal, technical frameworks and operational criteria for decision-making on vaccination policies (including HTAs) (M1-M3).</li> <li>3. Perform a survey on the range of attributable costs and the tools used for the most recent MS-NITAG evaluations available (e.g. disease transmission, evidence-based results on efficacy and safety, and cost-effectiveness)</li> <li>4. Analyze the survey and proceed to a mapping of all the national procedures.</li> <li>5. Write the final report including an strengthened collaboration between NITAGs (M36)</li> </ol>
Intended outcome	A strengthened collaboration and cooperation between NITAGs at the EU level
Unintended outcome	Collected information (Recommendation and guideline) for a NITAG collaboration will not ensure a sustainable cooperation at EU level.

<b>Target 3</b>	An analysis of the evidence based behind the national immunization programs will be a base for a strengthened communication and cooperation between NITAGS.
Indicator 1	Selection of 4 countries for a pilot study M2. Measured by a list of countries
Indicator 2	Literature review on decision making and recommendation for single vaccine limited to the 4 countries M8. Measured by a review document on the Extranet at the draft stage and then on the public part of the Website when validated.
Indicator 3	Interviews of NITAG members performed. Measured by a questionnaire (M1-M12).(response rate/ the quantitative target for distributing the questionnaire to NITAGs)
Indicator 4	Recommendations for an extensive study Measured by minutes from meeting with an expert.
Indicator 5	Implementation of an extensive feasibility study Measured by meetings and webseminar.
Outputs	<ol style="list-style-type: none"> <li>1. List of 4 pilot countries defined.</li> <li>2. Report on the literature review.</li> <li>3. Report on the quantitative study conducted among NITAG members.</li> <li>4. Protocol for an extensive study.</li> <li>5. Final report with recommendations arising from the feasibility study.</li> </ol> <p>Internal/external risks: Poor involvement of the NITAG members, low participation of countries (below 12), unable to provide recommendation.</p>
Activities in logical order	<ol style="list-style-type: none"> <li>1. Selection of a small number of country to conduct the pilot study (M1-M18)</li> <li>2. Selection of small number of vaccine for the pilot study (M1-M18)</li> <li>3. Literature review (M1-M18)</li> <li>4. Identification of stakeholders, representative of MS, NITAGS member to construct interviews.</li> <li>5. Presentation of the pilot study results (M1-M18)</li> <li>6. Presentation and decision on scope and methodology of extended study (M18-M36)</li> <li>7. Results of all participating countries collected (M18-M30).</li> <li>8. Final report evidence-base of National immunization programmes: analysis and recommendations (M30-M36).</li> </ol>
Intended outcome	Better understanding of the rationale behind national immunization programme.
Unintended outcome	Lack of usable resources. Difficulties to compare the evidence-base considered by NITAGS and the rationale behind the decision-making regarding the introduction of new vaccines in National Immunization Programmes in the past 20 years. Difficulties on analysing the rationale underpinning vaccine schedules.
<b>Target 4</b>	Increased awareness and tailored communication for young adults on the importance of vaccination in general and vaccination against HPV and HBV through the use of the ECL youth ambassadors. The target groups are the network groups of the ECL Youth Ambassadors and young people living in the EU.

Indicator 1	<p>Engagement of the Youth Ambassadors in the project.</p> <p>Measured by the participation in the meetings.</p>
Indicator 2	<p>Reaching the youth and general public in communicating the importance of HPV and HBV vaccination through the younger generation.</p> <p>Measured by social media outreach numbers.</p>
Indicator 3	<p>Raise awareness among Young people through competition targeting educational institutions during the European Immunisation week.</p> <p>Measured by the number of pupils/students reached through the competition announcement (call to the competition and those who vote) and by how many educational institutions participate in the competition.</p>
Outputs	<ol style="list-style-type: none"> <li>1. Workshops with Youth Ambassadors with training on vaccination.</li> <li>2. Competitions on vaccination communication targeting young people.</li> <li>3. Report on this communication.</li> </ol> <p>External risks: Youth Ambassadors and schools would not be interested in participating in initiatives related to HBV and HPV, due to the controversies or misinformation around them.</p> <p>Consequences: The communication campaign has no positive impact on the target groups of youth and general population.</p>
Activities in logical order	<p>Workshop with Youth ambassadors with training and presentation on communication (M1-M18).</p> <p>Selection of topic to be communicate in some voluntary countries. Creation of additional activities (supporting communication) by the students for the annual competition.</p> <p>Launch additional activities (if any) and the communication during the European Immunization week (M20).</p> <p>A report on the communication pilot launched will be developed (M33).</p>
Intended outcomes	<p>Overcoming vaccine hesitancy among young people and raising awareness on vaccination. Strong involvement of all stakeholder (Youth Ambassadors, institutions present in the European Immunization Week, Schools), other national and European stakeholder groups.</p>
Unintended outcomes	<p>Indifference of the young people towards campaigns. Adverse effects. Low participation of young people, Youth Ambassadors, low participation of students in the competition during the European Immunization Week, lack of interest by Youth Ambassadors to develop</p>

## Annex A

	additional activities, and lack of interest by teachers and schools due to vaccination being a controversial subject in their countries.
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## **Logical framework**

### **Work package 7**

Vaccine research and development  
priority setting framework

Date: December 10, 2019

**Work package leaders: INSERM, France and FHI,  
Norway**



<b><u>Specific Objectives</u></b>	<p><b>1. Tools and methods for priority-setting for vaccine and vaccination research are defined.</b></p> <p><b>2. Financial [and other] mechanisms are identified that increase technical collaboration and cooperation on research funding on vaccine and vaccination research among MS.</b></p> <p><b>3. Half of research topics from the prioritized list used by international and national funding programmes within the 5 years following the end of the project.</b></p>
<b>Target 1</b>	<p>Evidenced-based tools and methods, based on the Multi-criteria decision analysis (MCDA) methodology, are developed with the purpose to identify and prioritize vaccine and vaccination research in EU.</p> <p>Target groups are international and national research programmes, MS research institutions, civil society, charitable organizations and the vaccine industry.</p>
Indicators target 1	<p>1. A detailed description of tools and methods for prioritizing vaccine and vaccination research (measured by availability of documents) at M18</p> <p>2. A first annual detailed list of vaccine and vaccination research priorities for the 3-6 pilot vaccines at M24 (measured by the document First Annual list)</p> <p>3. A second detailed list of vaccine and vaccination research priorities beyond the pilot vaccines at M34 (measured by the document Second Annual list)</p>
Output 1 target 1	<p>Through a survey of WP7 collaborators (conducted at M2) following by information to JAV partners (at M3), a list of 3-6 different vaccines used in different stages of life, are selected (at M5) to be used as pilots for the development of the research prioritization framework.</p> <p>Internal risk: possible disagreement on pilot vaccines chosen by the working group. Will be mitigated through consultation throughout the process.</p>
Activities in logical order	<p>1. Consult WP7 team through email on first draft list of vaccines eligible for participating in the pilot to (M2 to M3)</p> <p>2. Consult JAV partners through email on WP7 summary list of vaccines eligible for participating in the pilot to (M3 to M5)</p> <p>3. Produce report for JAV website on final list of pilot vaccines (M6)</p>
Output 2 target 1	<p>Concept framework for decision-making on research priorities:</p> <p>1. A literature review on prioritization methodologies is available on M4 to validate the proposed tools and methods.</p> <p>2. Through consultation of stakeholders and JAV partners a summary list of research topics is finalized at M10</p> <p>3. A list of weighed criteria is established through expert consultations and available at M14</p>

	<p>4. A report is posted on the JAV website on Guidelines/Best practices to establish priorities for vaccine and vaccination research to increase vaccination coverage</p> <p>Internal risk: WP7 is not successful in convening sufficient or the right level of expertise. Will be mitigated through consultation of MS participating in JAV.</p>
Activities in logical order	<ol style="list-style-type: none"> <li>1. Map existing priority setting tools used for research available and choice of most appropriate method (M1 to M6)</li> <li>2. Prepare roster of experts and stakeholders for each part of the prioritization process (M3 to M5)</li> <li>3. Finalize list of research topics through stakeholder consultation (M8 to M16)</li> <li>4. Produce list of criteria through email consultation (M6 to M10)</li> <li>5. Produce list of weighted criteria through expert consultation to enable finalization of the concept prioritization framework (M10 to M15)</li> </ol>
Output 3 target 1	<p>The concept framework finalized at M16 is applied to the list of research topics for the pilot vaccines, to be finalized at M10. This will result into the first annual priority list (at M24).</p> <p>Internal risk: WP7 is not successful in convening enough or the right level of expertise. Will be mitigated through early consultation of MS participating in JAV and stakeholders.</p> <p>External risks: The list of priority is un-noticed by our targets. Will be mitigated by appropriate communication through WP2.</p>
Activities in logical order	<ol style="list-style-type: none"> <li>1. Convene face-to-face expert consultation to apply concept prioritization framework to the list of research topics (M16 to M20)</li> <li>2. Produce report on first prioritized list of research topics for the EU (M21 to M24)</li> </ol>
Output 4 target 1	<p>The concept framework is applied to the list of research topics extended to all vaccines used by MS. This will result into the second annual priority list (at M34).</p> <p>Internal and external risks: Same as for Output 3</p>
Activities in logical order	<ol style="list-style-type: none"> <li>1. Review and update list of research topics to ensure applicability to the broader set of vaccines used in the EU (M25 to M30)</li> <li>2. Convene face -to-face expert consultation to apply concept prioritization framework to the list of extended research topics (M25 to M30)</li> <li>3. Produce report on first prioritized list of research topics for the EU (M31 to M34)</li> </ol>
<b>Target 2</b>	<ol style="list-style-type: none"> <li>1. Financial mechanisms are identified with the purpose to cooperate among EU MS to fund key vaccines and vaccination research along the value chain, and according the prioritization (annual list 1 and 2) in EU. Target groups are international and national research funders, MS, the European Commission, the vaccine industry and charitable organizations</li> <li>2. Mechanisms are identified with the purpose to strengthen collaboration in key vaccines and vaccine research in EU. Target</li> </ol>

	groups are international and national programmes, MS research institutions and the vaccine industry.
Indicator target 2	1. Report available on a proposal for a shared funding mechanism in the EU for vaccine and vaccination research priorities on M24 2. Report available on first annual priority list with funding opportunities on M34
Output 1 target 2	Mapping overview is available on the JAV website at M16 of existing and possible funding mechanisms for identified priorities along the value chain. Internal risk: uncomplete identification of existing funding mechanisms by the working group. Will be mitigated through extensive consultation throughout the process.
Activities in logical order	1. Validate the proposed methodology (M2 to M4) 2. Plan consultations and develop a survey to identify existing and possible funding mechanisms (M5 to M6) 3. Map existing and possible funding mechanisms (M6 to M16) 4. Produce report on critical assessment of existing and possible funding mechanisms, gaps and hurdles for potential cooperation in working progress based on the survey results (M16 to M19)
Output 2 target 2	Report on a proposal for shared funding mechanism (at M36). This report results from consultations of experts, institutions and companies and mapping of existing and possible funding mechanisms. External risk: The funding proposal is unrecognized by our targets. Relevance of the WP7 results and interest in the topic among the partnersTheResearch and Innovation Framework Programme, Horizon Europe is being formed now, and feedback on the need to fund strategic objectives of the EU-JAV or collaborative mechanism should be raised rather soon. The results of the EU-JAV is not final in due time. Will be mitigated by in-depth discussion with the EC.
Activities in logical order	1. Map alternative funding mechanisms (M12 to M22) 2. Finalize report on alternative funding mechanisms (M24 to M36)
Intended Outcome (targets 1 and 2)	Incorporation of identified prioritized research topics in international and national funding programmes
Indicator intended outcome	Half of research topics from the prioritized list used by international and national funding programmes within the 5 years following the end of the project
Unintended outcome (targets 1 and 2)	Addressing vaccination coverage through research is seen by policy-makers as too long-term, which decreases funding availability further. Inability to identify a funding mechanism that is specific and attainable with existing resources.



# **Logical framework**

## **Work package 6**

Vaccine supply and preparedness

Date: January 31, 2019

**Work package leaders: ISS, Italy and FHI,  
Norway**

<b><u>Specific objective 1</u></b>	<b>Improve mapping of needs and vaccine demand at European level in consortium member states, to ensure adequate availability of high quality vaccines, and define basic principles for vaccine demand planning and forecasting and other issues related to preparedness based on experiences.</b>
<b>Target 1</b>	By M12, a survey collecting data on previous (last 3 years) and current vaccine shortages and response at the national and European level, and on vaccine procurement modalities, from a representative sample of JAV participating countries, is completed (including analysis and report). Data will be collected from the MSs through the collaboration with MS's country procurement and supply units. By M12 Information will also be collected from other relevant stakeholders, such as national regulatory agencies and product manufacturers. Target groups are the consortium member states
Indicator 1	A list of key stakeholders is elaborated. Measured by a list of stakeholders.
Indicator 2	A questionnaire to be administered to MS is available and has been forwarded to MS. Measured by available questionnaire and email correspondence.
Indicator 3	A representative sample of JAV participating countries have completed the survey. Measured by information in the report, based on the survey.
Indicator 4	A report on previous experiences (last 3 years) and current state of vaccine shortages and responses of EU countries is completed. Measured by a report published on the official website or on the intranet
Output 1	Report on previous experiences on vaccine shortage and response at national and at European level, and on vaccine procurement modalities in the Member States, by M12. Risks: Delayed (or no) response to the surveys could lead to a delayed output (report).
Activities in logical order	<ol style="list-style-type: none"> <li>1. From M3 to M6, prepare a list of key stakeholders in MS, and industry (EFPIA) from whom to collect relevant documents.</li> <li>2. From M3 to M6, develop a survey together with Task 6.2 and pilot test it among selected EU JAV partners with the purpose to validate questions. Make suggested changes to survey.</li> <li>3. From M7 to M8, administer survey to all key stakeholders identified.</li> <li>4. From M9 to M10, analyse survey results and integrate with other sources of information.</li> <li>5. From M11-to 12. Prepare report.</li> </ol>
Intended outcomes	The survey will allow us to describe the problem of vaccine shortages in EU Member States and the responses at national and EU level.
Unintended outcomes	Non representativeness of results because of low response rate. Incomplete information because of lack of motivation of participants.
<b>Target 2</b>	By M24, an evaluation of financing mechanisms for purchase and stocks of vaccines in at least 10 consortium member countries, with the purpose to identify sustainable solutions for improving vaccine supply, including centralized procurement. The target groups are the consortium member

	countries.
Indicator 1	A report on the financial mechanisms to ensure sustainable supply for the purchase of vaccines, including centralized procurement is available. Measured by a report.
Indicator 2	Evaluation is based on financing mechanisms in at least 10 countries. Measured by data in the report (see indicator 1).
Output	Report on financial mechanisms for centralized procurement and analysis of the financing mechanisms to ensure sustainable supply for the purchase of vaccines, by M24 Risks: Delayed (or no) response to the survey could lead to a delayed output (report).
Activities in logical order	<ol style="list-style-type: none"> <li>1. From M13 to M17, literature review on financing mechanisms for vaccines</li> <li>2. From M18 to M20, collect and analyse information from MS about local financing and procurement mechanisms.</li> <li>3. analyse procurement mechanisms and systems in place in MS.</li> <li>4. From M21 to M22, identify best solution for sustainable purchase and stock of vaccines.</li> <li>5. From M23 to M24, write report.</li> </ol>
Intended outcomes	The collected information will allow us to propose solutions for sustainable purchase and stock of vaccines
Unintended outcomes	Low response rate. No viable solutions identified.
<b>Target 3</b>	By M30, elaborate procedures and methods to estimate needs and procurement of vaccines in consortium member countries in the short and long-term. Procedures and methods will be validated by at least 50% of participating countries (including Northern, Central and Southern MS and if possible countries that have legal vaccine mandates) and once validated will be made available to all consortium members. Target group are all consortium members.
Indicator 1	Procedures and methods validated by at least 50% of participating countries. Measured by documents from participating countries
Indicator 2	Guidelines are available to all consortium members. Measured by guideline documents available on the JAV-intranet
Output	Guidelines on procedures to estimate vaccine needs and procurement in EU by M30 Risks: Collected information is not sufficient or the modalities to estimate vaccine needs and procurement procedures is so different among EU and consortium member countries so that it is not possible to define common basic principles to estimate needs and procurement of vaccines in the short and long-term.
Activities in logical order	<ol style="list-style-type: none"> <li>1. From M12 to M20, literature review on vaccine demand and forecasting and centralized procurement.</li> <li>2. From M20-M24, identify criteria and data to estimate demand.</li> <li>3. From M24-M30, write guidelines.</li> </ol>
Intended outcomes	Make available guidelines to estimate vaccine needs and improve procurement in the short and long-term.
Unintended	Difficulties in implementing guidelines

outcomes	
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<b><u>Specific objective 2</u></b>	<b>Reinforce mechanisms of management of forecasting, supply and stocks.</b>
<b>Target 1</b>	By M12, Understanding mechanisms for defining the anticipated needs (i.e. geographical issues) to ensure sufficient size of supply and stockpiles, including their sustainability. The target groups are MS, to the JAV associated countries and stakeholders.
Indicator 1	A list of key stakeholders is available for the WP to collect relevant documents and respondents to the Survey is developed. Measured by a list of stakeholders.
Indicator 2	A questionnaire to be administered to relevant respondents in MS is available and has been circulated to the MS. Measured by available questionnaire and email correspondence.
Indicator 3	A plan developed with industry and other stakeholders to anticipate changes in vaccine recommendations and gain critical information to ensure preparedness is available. Measured by documents on the intranet.
Output 1	Report on mechanisms for defining the anticipated needs (i.e. geographical issues) to ensure sufficient size of supply and stockpiles, including their sustainability by M12. It is too early to consider internal and external risks.
Activities in logical order	<ol style="list-style-type: none"> <li>1. Prepare a list of key stakeholders in MS, industry from whom to collect relevant documents. End date: M7</li> <li>2. Develop a survey and pilot test it among selected EU JAV partners. Make suggested changes to survey. End date: M6</li> <li>3. Administer survey to all relevant stakeholders in EU MS. End date: M7</li> <li>4. Analyze survey results and integrate with other sources of information.</li> <li>5. Write report. End date: M14.</li> </ol>
Intended outcomes	Reinforce mechanisms of management of forecasting, supply and stocks to ensure sufficient supply for immunization programs and preparedness in EU
Unintended outcomes	Low response rates and/or low validity of data will limit the understanding of the mechanisms and therefore defining the anticipated needs.

<b><u>Specific objective 3</u></b>	<b>Explore the feasibility and develop a concept for an EU data warehouse for sharing of vaccine supply and demand data/information among dedicated stakeholders.</b>
<b>Target 1</b>	By M18, A gap and option analysis (concept analysis) on the possibilities for a regional or European virtual stockpiles on vaccine management needs and stocks has been performed. The target groups are MS, to JAV associated countries and the stakeholders.
Indicator 1	The methodology has been validated with the working group. Measured by email correspondence.
Indicator 2	Results of the Survey and other sources of information (e.g. literature

	review and consultation with stakeholders) are available and feeds into the concept analysis. Measured by data from survey and documented feedback from stakeholder consultations.
Indicator 3	Critical assessment of options and possible scenarios for the concept analysis has been performed. Report submitted to the partners for review, internal approval (27.06.2019) and measured by a report delivered in July 2019.
Output 1	Report on possibilities, gaps and options for building a “concept type” for regional or European virtual stockpiles, by M18. It is too early to consider internal and external risks.
Activities in logical order	<ol style="list-style-type: none"> <li>1. Validating the methodology. End date: M6</li> <li>2. Review of other sources of information and projects to feed into the work with the report. End date: M9</li> <li>3. Consolidating results of the Survey and other sources of information to feed into the concept analysis.</li> <li>4. Critical assessment of options and possible scenarios for the concept analysis. End date: M12</li> </ol> <p>Write report. The options and possible scenarios for the concept analysis were partly delivered in July 2019. The relevant results from the survey and an analysis was included in a joint report to the partners on the deliverable of the specific objective 2:</p> <p><i>I. Understanding mechanisms for defining the anticipated needs to ensure sufficient size of supply and stockpiles, including their sustainability</i></p> <p><i>II. Possibilities, gaps and options for building a “concept type” for regional or European virtual stockpiles on vaccine management needs and stocks</i></p> <p>A summary of the planned ongoing work and status will be further summarized to the partners in the deliverable for 31/01/2020, but a full new report will not be written. End date: M18.</p>
Intended outcome	Develop a concept for an EU data warehouse for sharing of vaccine supply and demand data/information
Unintended outcome	See unintended outcome target 1, specific objective 2.
<b>Target 2</b>	By M36, the knowledge gained from the work in task 6.2 (the mechanisms for defining the anticipated needs and the concept analysis) is used to develop a recommendation on mechanisms of management of forecasting, supply and stocks
Indicator 1	Critical elements for the recommendations identified and agreed upon in the working group. Measured by documents on the JAV-intranet and a final recommendation published on the official website
Indicator 2	Options and possible scenarios developed. Measured by documents on the JAV-intranet and a final recommendation published on the official website
Indicator 3	Critical assessment of options and possible scenarios has been performed.



## Annex B

	Measured by documents on the JAV-intranet and a final recommendation published on the official website
Output 1	Final report and recommendation on mechanisms of management of forecasting, supply and stocks by M36 has been developed. It is too early to consider internal and external risks.
Activities in logical order	<ol style="list-style-type: none"> <li>1. Review of the sources of information to feed into the work with the report</li> <li>2. Assessment of the different scenarios by Working group and consultation with Stakeholders</li> <li>3. Development of the recommendation. End date: M30</li> <li>4. Write report. End date: M36</li> </ol>
Intended outcome	Develop a recommendation on mechanisms of management of forecasting, supply and stock. The MS have agreed upon the recommendation and it is used operatively.
Unintended outcome	The recommendation is not agreed by the MS and therefore not functioning operatively.



## **Logical framework**

### **Work package 8**

Vaccine hesitancy and uptake. From research and practices to implementation.

Date: December 9, 2019

**Work package leaders: THL, Finland and ISS, Italy**

<b><u>Specific objective 1</u></b>	<b>To develop a systematic overview and analysis of the current situation, including best practices, lessons learned and experiences of implementing into action research-based knowledge concerning vaccine hesitancy and uptake in: Member States, among stakeholders and partners, in the research community, and among policy makers</b>
<b>Target 1</b>	The best practices and lessons learned in vaccine hesitancy-related work in the MS and their regions and among stakeholders and partners, research community and existing and ongoing projects and programmes are systematically overviewed and reported by M36 (July 2021).
Indicator 1	Elaborating a list of key stakeholders and partners together with the participants by M29 (December 2020).
Indicator 2	To have conducted mapping of best practices and lessons learned in the MS and selected countries (Bosnia and Herzegovina, Serbia, Norway, Iceland) using a web-based survey tool. 50 per cent of the countries mapped within the EU-JAV by M24 (see also Target 2) (July 2020). (measured by documents).
Indicator 3	To have conducted review of the survey data with at least 50 per cent of participants by M24 (July 2020). (measured by documents)
Output 1	JAV participants and stakeholders have received ‘country reports’ on the research-based determinants behind high and low vaccination coverage identified in the region. Data gathering to start M16. First reports ready by M25 (September 2020). One external risk is low response rate and a poor representability of the data. This could result in low use (unintended outcome). Another external risk that might affect the overall use of the data is lack of communication and marketing of the reports.
Activities in logical order	M6 (January 2019): TC with task 8.1 participants on data gathering tools. M14 (January 2019): mapping tools (survey and toolkit for interviews ready). M22 (June 2020): Template for country reports ready. M22 (June 2020–M36 (July 2021): Elaborating country reports. M36: Conducting final report.
Intended outcomes	Communicating knowledge on effective methods between MS and to other countries.
Unintended outcomes	The main target groups are the Member State representatives responsible for the NIPs in the respective country/region. Secondary targets groups are key stakeholders and partners, research community, and policy makers that work with vaccine hesitancy related issues in a specific country/region. The diversity of target groups can, and the fact that NIPs are not managed by one, central authority in all Member States, increases challenges for the data gathering, as comprehensive and reliable data can be challenging to obtain.

<b><u>Specific objective 2</u></b>	<b>To provide guidance for developing practices and policies for maintaining good vaccine uptake in general and for supporting public health responses to hesitancy by creating mechanisms and tools for disseminating research-based knowledge and best practices and lessons learned throughout Member States</b>
<b>Target 1</b>	An online working environment (e-learning platform) is developed to provide research-based knowledge and best practices and lessons learned for Member State and stakeholder actors working with NIPs throughout Member States and Non-MS participating in JAV.
Indicator 1	Online portal launched M22 (June 2020).
Indicator 2	Reports produced in 8.1 and other materials and information from other WPs are uploaded on the platform between M25 (September 2020) and M36 (July 2021).
Indicator 3	A discussion area is functional on the platform by M22 (June 2020)
Indicator 4	A database is functional on the platform by M22 (June 2020)
Output 1	The technical work with the online platform is completed M22 (June 2020)
Activities in logical order	M06 (January 2019): Identify critical issues with respect to GDPR. M06 (January 2019): TC with WP8 participants about the design of the online platform. M07 (February 2019): Mapping of the need for the platform ready. M07 (February 2019): Start technical development of the online platform M22 Launch of the platform
Intended outcomes	Communicating knowledge on effective methods for strengthening vaccination coverage in MS and among stakeholders.
Unintended outcomes	The work process and launch of the platform is delayed due to technical and formal difficulties.
Output 2	EU-JAV participants and stakeholders take part of the information on the platform starting M17 (January 2020). (Measured by Appraisal report on dissemination tools and activities M33 (April 2021), measuring both quantitative and qualitative values on platform use.)
Activities in logical order	M25 (May 2020): Share reports produced in 8.1 M28 (December 2020): Share reports produced in 8.1 M31 (February 2021): Share reports produced in 8.1 M34 (May 2021): Share reports produced in 8.1
Intended outcomes	Information on the platform is used and implemented in MS and among stakeholders.
Unintended outcomes	Information on the platform is not used or not considered useful due to poor quality of data or lack of information about the data and platform.
Output 3	EU-JAV participants and stakeholders produce video lectures or webinars on the platform.
Activities in logical order	M22 (June 2020–M24 (August 2020): At least, one video lecture, webinar, podcast, article or other material produced by participant, partner or stakeholder on the platform. M25 (September 2020–M27 (November 2020): At least, one video lecture, webinar, podcast, article or other material produced by participant, partner or stakeholder on the platform.

	M28 (December 2020–M30 (February 2021): At least, one video lecture, webinar, podcast, article or other material produced by participant, partner or stakeholder on the platform. M31 (March 2021–M33 (May 2020): At least, one video lecture, webinar, podcast, article or other material produced by participant, partner or stakeholder on the platform.
Intended outcomes	Taking part and implementing knowledge on effective methods through the online platform.
Unintended outcomes	<ul style="list-style-type: none"> <li>• The platform is not used effectively resulting in poor dissemination of knowledge and weak effect.</li> <li>• Conflicts in messages from different producers.</li> <li>• Low quality of the products.</li> </ul>

<b><u>Specific objective 3</u></b>	<b>Detection of early signals of lowering public confidence in real time and monitoring over time and space (geographic differences within EU) of the sentiment, opinions and attitude towards vaccination in real time.</b>
<b>Target 1</b>	By M30, finalize a report on frameworks and methods for A) detecting early signals of lowering public confidence in real time; B) monitoring over time and space the opinions etc towards vaccination. At least 20% of the participating countries are involved in identifying vaccine-related topics and keywords.
Indicator 1	A detailed description of most reliable tools for monitoring public sentiment on vaccines on the web in real time are available (measured by a document)
Indicator 2	At least 4 countries participating in the project, by M3
Indicator 3	A list of at least 10 topics agreed upon by at least 3 countries and translated in at least 3 languages, by M6
Indicator 4	A list of at least 100 key words agreed upon by at least 3 countries and translated in at least 3 languages, by M6
Indicator 5	A confidential report on collective attention data analysis and on the Immunization Opinion and Sentiment Analysis Framework and Methods is available, by M30.
Output 1	List of all available tools for monitoring public sentiment on vaccines on the web in real time (e.g. Twitter, Facebook, Health Map, Google trends, Google adwords, etc). Internal and external risks not yet identified
Activities in logical order	<p>From M1 to M6:</p> <p>Scoping review of available tools in the literature and on the web directly</p> <p>Identify experts in real-time data monitoring</p> <p>Contact experts to collect information on different experiences and on the tools available</p> <p>Evaluate available tools and draw a list of the most relevant tools</p>
Output 2	List of countries that will participate in the selection of topics and validation of the vaccine-related keywords. Internal and external risks not yet identified
Activities in logical order	By M3, send a questionnaire to all participating countries to identify which activities they would like to be involved in and identify which of

	the countries is interested in the selection of topics and validation of the vaccine-related keywords for vaccine confidence monitoring
Output 3	List of at least 10 topics and 100 key words agreed upon by at least 3 countries in at least 3 languages. Internal and external risks not yet identified
Activities in logical order	By M6, identify vaccine-related topics in English and key words that will be monitored in three EU languages, From M6: Contact project partners that agreed to contribute, to validate the list of topics From M7: Translate the topics in the relative languages M9: Final validation of the translated topics by evaluating the research volumes
Output 4	Written report, Internal and external risks not yet identified.
Activities in logical order	Analyse collective attention data from selected data visualisation tools Prepare draft report Share report with participating countries for comments Finalize report by M30
Intended outcomes	See intended outcomes target 2
Unintended outcomes	See unintended outcomes target 2
<b>Target 2</b>	By M24, a public vaccine confidence monitoring platform is completed and delivered. The target groups are the general public in EU and in other countries, professionals in health care, policy makers.
Indicator 1	Agreement reached, among group of countries working on this activity, on the main characteristics of the web platform for the integration and visualization of different data (European/ country-specific platform? open/ limited access? features of platform), by M6.
Indicator 2	Existence of a written description of the main features of the web platform.
Indicator 3	A vaccine confidence monitoring platform freely accessible is available by M24
Output 1	Web platform concept for the integration and visualization of different data. Internal and external risks not yet identified
Activities in logical order	Identify the tool according with WP2 premises Contact project partners, that agreed to contribute, to validate the tool and visualization methods in different languages Final validation of the tool with all the partners in WP8
Output 2	Written description of the main features of the web platform. Internal and external risks not yet identified
Activities in logical order	Prepare a draft report on the main features of the web platform (Guide) Final validation of the Guide with all participating partner in the Web platform concept
Output 3	A vaccine confidence monitoring platform freely accessible is available. Internal and external risks not yet identified
Activities in logical order	Test the platform with all the partners in WP8 Validate the platform after feedback from the participating partners
Intended outcomes	Analysing public opinions on vaccines will help us understand the reasons behind the low vaccine coverage and come up with corresponding strategies to improve vaccine uptake.

## Annex D

	Detection in real time could give faster responses from public health authorities and others that will decrease the spread of false information
Unintended outcomes	Anti-vaccine movements could be against the use of vaccine sentiment detection tools and hinder their use. The information is not used for several reasons (not relevant, not updated, not attractive, not easy to find, etc).