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ODIN project

Strengthening Environmental Surveillance to Advance Public Health Action

Annual General Meeting

Dar es Salaam, Tanzania, 20 – 21 June 2024, hybrid meeting

Report

ODIN Annual General Meeting (AGM), Dar es Salaam 2024

Introduction

ODIN AGM has been held at Protea Hotel in Dar es Salaam on 20 – 21 June 2024. Most of ODIN project stakeholders attended (see attendance list) either onsite or online. During these two days, the different principal investigators and coordinators of the project work packages presented the progress of the project, the success and the difficulties encountered.

The AGM began with the introduction of the attendees, the welcoming word of the meeting host, Dr Vito Baraka (National Institute for Medical Research, NIMR, Tanzania) and the word of ODIN project general coordinator, Prof. Rolf Lood (Lund University, Sweden). The general coordinator presented the purpose and the agenda of the meeting and give the floor to the presenters.

Presentation of the study progress in the three study sites

Professor Vivi Maketa, the principal investigator from the Democratic Republic of the Congo (DRC) and affiliated with the University of Kinshasa, provided an online update on her site's progress. She has established a collaboration with the Institut National de Recherche Biomédicale (INRB), which aids in procuring necessary reagents and materials. She has also obtained ethical approval from her site's committee and authorization from local municipalities for project implementation and sample collection. Additionally, she organized a training course on sampling techniques, which included participants from both her site and the national laboratory (INRB).

The next presenter was Dr Vito Baraka, the principal investigator of Tanzania site, who presented the update of the project. He has delivered protocols and data collection tools for sampling, as well as received ethical approval for the sampling (awaiting certificate). Further mapping and engagement with stakeholders is ongoing, and a possible One Health group uniting the stakeholders may be a road forward. Significant work put into raising awareness for wastewater surveillance. Suggest continuing establishing strong networks, with MoH/NPHL-Polio surveillance (take advantage of their sites and knowledge) and SARS-Cov2 NPHL for an easier implementation. Further, it is suggested to strengthen

The progress of the project in Burkina Faso has been presented by Dr Marc Christian Tahita, Institut de Recherche en Sciences de la Santé (IRSS)/Clinical Research Unit of Nanoro (CRUN). Similarly to DRC and Tanzania, an ethical approval has been submitted to facilitate data sharing, and all certificates have been obtained. This will need to be updated on a yearly basis. The labs are fully equipped with experienced staff, all sampling sites have been identified, and good network with the national secretary of One Health as well as with several ministries where ODIN was invited to discuss the project at a meeting organized by the ministry of Environment.

The main challenges from the three study sites were the delay on the pilot sample collection, the issues with laboratory reagents and consumables (delivery delay and high cost) mainly for sequencing and the sustainability of the capacitation of the sites after ODIN project.

Work package updates

After the presentation of the update from the study sites in Africa began the presentation of the work packages (WP) updates by each WP coordinator.

Prof. Rolf Lood gave a brief presentation on WP1 and WP 8 which focus on the project management. The objectives of the coordinator have been discussed around the few following key points: (i) five people enrolled in the Scientific or Policy Advisor Board, (ii) the manuscript of the opinion paper almost ready, aim for submission in September, (iii) apply for different sources of funding, decisions in the near future and (iv) GenEpi agreement (WP8) almost finalized, first meeting in July, to discuss reagents need.

Prof. Tarja Pitkänen, The Finnish Institute for Health and Welfare, THL, Finland, presented the progress of WP2, the objectives of this WP and the different tasks. Task 2.1 has been completed earlier this year, with a successful stakeholder workshop and survey results summarized and submitted to a scientific peer-reviewed journal. Task 2.2 is ongoing with a deadline in October. All the sampling locations and matrixes are done, but some data still needs to be collected, which is in process. There will be a pilot sampling in July, and then continuous sampling for 1 year starting in the autumn 2024. We will target two main waterborne pathogens, namely *Salmonella typhi* and *Vibrio cholerae*, as well as AMR targets (*E. coli* and *Klebsiella pneumoniae*) where fecal counts will be analyzed. Task 2.3 relates to preparation of a lab handbook and is progressing well. The current deadline is in October 2024 but will need some coordination with the bioinformatics team to add further information on that topic. Task 2.4 is only planned at this stage and not initiated.

Prof. Adriana Krolicka, Norwegian Research Centre, NORCE, Norway, updates on WP3 activities. Training for mobile lab workers has been initiated and three activities remain ongoing, (i) development of protocols to be used at mobile labs, (ii) how can the data be saved, and (iii) how can the analysis be performed on site. Probes and targets are being coordinated with WP2 to align the focus and resources. Currently two different kits are being evaluated for QC, and back-up solutions for filtration being developed (syringe + filters) since pumps tend to fail in these settings. Sampling was conducted in Dar es Salaam during June 18th, 2024. A significant challenge will be how to share information with local authorities (see WP7 too).

Dr Sakina Bombaywala, Ghent University, Belgium, in charge of the WP4 raised several regarding data sharing. Firstly, it was discussed if data could be uploaded to public databases in an automated process. This will be evaluated, since it could make the process more efficient and facilitate the storage of also metadata. Secondly, a discussion was held regarding physical location vs access of the servers. No decision was made in this regard, but we will need to set up a separate meeting to discuss this. Several ideas were raised regarding having the server in Europe, locally in the African countries, or taking advantage of some of the existing networks (e.g. Africa CDC or EAC).

Dr Marc Christian Tahita, coordinator of WP5, updates the work package activities. This work package is an integrated part with WP2 and WP3 and thus a close collaboration has been set up with joint meeting. All collection sites have been chosen and a pilot study will be initiated in July. We have identified the clinical data needed for all countries but are awaiting formal authorization to access it. In case of a cholera outbreak (or other relevant outbreak), there will be an outbreak investigation to determine source and patient zero. These findings will be translated into interventions, and data from WP2 and WP3 will be used for surveillance of the spread. The purpose will be to provide guidelines and recommendations for public. Development of Water Safety Plan have been created for all three involved countries, but will need to be updated and in accordance with World Health Organization guidelines. In opposite, Sanitation Safety Plan will need to be developed in some countries at the national level, and development of Quantitative Microbial Risk Assessments is in progress together with integrating risk and value management (IRVM). Upon verification that environmental surveillance findings can translate into clinical findings, we will need to understand the economic impact of implementing a surveillance system in the different affected countries. For this we will need to identify a health economist. The coordinator will facilitate such identification once we have started to generate data to analyze.

The presentations ended by the update of WP6 and WP7 led by The Global Health Network Team (Paul Kingpriest, Sainabou Laye and Cristine Kirima) and Dr Vito Baraka.

About the progress of WP7, Task 7.1, a communication plan has been submitted, and different communication channels established:

- Teams' groups (established, some issues with accessing the group)
- OwnCloud (established, used for archiving data)

- LinkedIn (established Feb 2024, others being considered)

Task 7.2 – Developed a mechanism to pick-up any paper or related publications (S.O.P., white letters, etc.) related to ODIN, as well as quarterly newsletters to be issued not that regional coordinators have been selected (French and English).

Task 7.3 – Hub was launched (January 2024), and there is a high frequency of visitors from mainly Africa (ten of the twenty countries that most often visited the website are from Africa), indicating that we have reached our goal in spreading knowledge within this region.

Task 7.4 – A tracker is under development to capture any type of publications (abstracts, manuscripts, SOPs, posters, etc.) where ODIN is mentioned.

A larger discussion was being held related to how we share data, as well as quality and content of data. This data should be used for workshops to be held in all the African participating countries. It was also mentioned that we need to improve our dissemination activities (let WP7 know about all activities), and preferentially also disseminate at the EDCTP forum. Due to some changes in the structure of the organization, it is also important that we modify our communication channels, and update e-mail lists, groups, etc. There will be a separate meeting to discuss data sharing (Coordinator will call to the meeting), while updating of lists etc. will be delegated to the ones owning the lists.

Technical discussion on the different work packages took place at the EOB. This includes the laboratory equipment, especially the mobile laboratory. The logistic expert Alan Le Tressoler (NORCE, Norway) is working on this. Other technical discussion points were about the communication channels within ODIN project and the management of data sharing.

Keynote presentations

Mr. Andreas Berglöf (WaterAid, Sweden),

He is introducing the consortium to WaterAid and their focus on WASH to improve the health of the population, and to prevent several health-related concerns. Mr. Berglöf continues to discuss the dire situation in the world related to lack of clean water (>700 million), lack of adequate sanitation (>1700 million), and high numbers of deaths per year in kids below age of five due to diarrheal diseases caused by poor sanitation (>300,000). There is a clear gender bias in this, due to girls and women mainly working at home, gathering water, and as well as during delivery of babies in unsafe environments (e.g. non-sterile). Mr. Berglöf continues to demonstrate that investment in WASH would be a good investment in the country's economy, but still there are few actions taken to prevent.

One Health approach: fostering pandemic preparedness, prevention, and response – Prof. Gerald Misinzo (Africa SACIDS, Sokoine University, Tanzania)

Prof. Misinzo discussed the challenges, uneven resources between the North (Europe) and the South (Africa), as well as the dynamic in coordinated work between the two continents due to fear of spread in Europe. A specific goal to achieve would be the 7-1-7 metric (7 days to detect, 1 day to notify public health authorities, and 7 days to complete initial response), meaning an outbreak could be controlled within 15 days.

Role of National Public Health Laboratories in investigating outbreaks - Dr. Nyambura Moremi (Director of National Lab, Tanzania)

Dr. Nyambura spoke about the NPHL in Tanzania, its structure and strengths (several individuals there), but also challenges (juniority of the employees, resources) and opportunities.

East African Community and usage of mobile laboratory solutions – Dr. Muna Affara

Dr. Affara discussed the current organization and structure of the East African Community, and how they are working with building and classifying mobile laboratory capacities within this geographical location to improve outbreak response and preparedness.

Clean Water, good toilets and good hygiene in Tanzania – Christina Mhando (WaterAid, Tanzania)

Ms. Mhando introduced WaterAid Tanzania, and their policy work in particular working with the government of Zanzibar to implement several policy changes related to WASH and waterborne diseases. They are mainly approaching their work through ABCDE (Assess, Build, Create, Deliver, Evaluate). In Ms. Mhando's mind it was not difficult implementing changes and policies in this region, but it was imperative to build good relations and to package the message according to audience.

Panel discussion

Moderator: Dr. Nyambura Moremi

Attendees: BF, TZ, DRC, Prof. Gerald Misinzo (SU, Tanzania), Christina Mhando (WaterAid Tanzania)

- Challenges in wastewater surveillance

Prof. Misinzo stresses that, as ODIN has suggested, a non-targeted approach in wastewater will be difficult due to the significant amount of DNA that will contribute to background (e.g. human DNA, animal/plant DNA). Therefore, good sample preparation, processes, and bioinformatics flow charts will be key for the success. Finally, a major challenge may also be permission to sample, and communicate data.

- How do we communicate the findings?

MoH from BF mention that there are several mechanisms in place for this to translate findings into policies, based on the findings there are different programs in existence. The key here is to communicate with the programs, the ministry and the general population.

Ms. Mhando adds that if the right approach is taken, there is no hard group to communicate with, but the message just needs to be tailored to target the right audience. You must know the audience's key interest so you can focus on this.

- Data sharing

MoH from DRC discusses that the challenge of data sharing is the chain of sharing. If one link of the chain believes the data to be irrelevant, or that the data will be received poorly, they will not share the data with the next link. Training and understanding the importance of the data and process is critical here. Sharing the data on a national level can still lead to regional complications due to not understanding the importance. Communication is key, to lead to changed behaviors.

- Focus areas for ODIN to reach success

Prof. Misinzo points out the importance to bring the message to the policy makers, and preferentially face-to-face, to build strong networks and personal relations with the stakeholders. Further, he adds that the young researchers are the future, they should be the ones shouldering this project and be capacitated. Delegate tasks to them and lead them to success to also enable the PIs to focus on strategic decisions.

Ms. Mhando adds that a strong communication, between collaborators, stakeholders, agencies, organizations and the public will facilitate a good result. BF is agreeing, stressing that the One Health approach should be applied, and connect/communicate with these sectors in a similar fashion as during the stakeholder workshop. Nurture these collaborations, and bring data into actions that can be developed into policies and inform the population.

MoH from BF mentions that we need to consider the sustainability of the project after it has ended. What is the step after surveying and identifying a pathogen in water? We need to have practical actions ready. We need to know that the area we surveille represents the country, or the region, and that it tells the right story – otherwise we cannot move forward. Prof. Misinzo agrees and believes that prevention should be the focus, and not necessarily on managing the disease. He further adds that as soon as we received the funding, we should consider the project implemented and done, and start considering the next steps, and start doing those steps now.

MoH from DRC adds further to the sustainability discussion and agrees that three years is a very short time for a project. We need to develop a long-term plan for the people that were trained during the project, to make sure they can continue to work in the project and thus build a true capacity; focus on building strong networks locally for the success of the project and expand to other areas since one or two cities/regions will not be enough since the countries are so vast.

Ms. Mhando finalizes the discussion by adding some of their experience with focusing on schools and healthcare facilities to teach the young individuals good WASH techniques, and that ODIN needs to work similarly to target their audience and build infrastructure, communication, and teach these changes to see results.

- Coordination of projects within ministries

MoH from BF mentions that all the ministries are in contact in an informal way, but once it comes to action, the One Health secretary coordinates all efforts. Higher level decisions go through the government and the prime minister that coordinates communication between ministries.

Similarly in Tanzania, there is a One Health section where all the ministries talk and are coordinated under the prime minister. Communication is very informal, like what is described in Burkina Faso. Action groups already exist, and they already have awareness on how to coordinate the work between ministries.

For DRC, the system is partly different. There is also a One Health approach, but in the shape of an institute, which then works differently. Therefore, it is not always easy to know which ministry the problem belongs to, so all the stakeholders are invited to workshops and meetings so they can involve the key individuals (ministries, city council, prime minister).

Main Conclusions & Follow-ups

- All stakeholders stressed the importance of the sustainability, funding and implementation of our project; that these three pillars need to be in the center of the project.
- Action: Call for a specific meeting discussing these pillars with the PIs of ODIN to further put focus on these topics. Coordinator will call to a meeting.
- Several individuals raised the topic of better understanding the flow within different parts of the project, be it flow of data, decision-making, communication, or results. An ambition could therefore be to develop flow-charts for all processes, to also be able to better identify the current gaps.
- Action: As part of our DMP strategy, we will develop flowcharts for all our processes, which not only will enable a more efficient workflow, but also highlight current gaps. Coordinator will call to a meeting with relevant partners.
- Integration of our project with currently existing governmental processes would be key for a sustainable project. We will need to investigate how we can make such arrangements and facilitate inter- and intra-communication between different ministries within the countries.

- Action: We will set up individual meetings with our associated MoH and NPHL colleagues from Burkina Faso, DRC, and Tanzania, to better understand the road to implementation. The PIs in the individual countries will reach out and summarize the findings.
- Improved communication and dissemination. We currently have our data on different platforms and communicate through a variety of channels (Google Drive, Teams, e-mails, WhatsApp, phone, etc.). We will need to streamline this, and make sure everyone has a reasonable access to all data.
- Action: Develop a list of names with all ODIN-associated researchers and gain their approval for being on such list to comply with GDPR (Uni Oxford). Open Google Drive data for everyone to have read/comment-access to the whole folder (Coordinator). Consider using a dedicated server for storage of ODIN-data. Coordinator to set up a meeting with TGHN and WP4-leads to discuss.
- Reagents need. It is imperative that we can identify a sustainable way to provide reagents to our partners.
- Action: A discussion is currently being held with Gates Foundation, to go via Africa CDC, which possibly would provide a sustainable solution. The GenEpi platform will be an important partner in this, to provide more leverage in the discussions. We need to build something that will survive even after the project has been finalized. The coordinator will follow-up on this.
- Servers. It is imperative that we take a decision on where to place / integrate the servers for this project. It is currently clear that we will be able to send data to servers even outside of Africa if it is related to the research project. For later implementation, we will need to find a different solution that works within the national organizations.
- Action: Set up a meeting to discuss the server whereabouts and identify both a short-term and a long-term solution. Coordinator will call to a meeting with relevant partners to delegate tasks.
- Attention to the project. A main point that was made during the meeting was how to get attention to the project from key stakeholders. It was concluded that it is imperative to build strong local presence and maintain and build these relations. It may further be of relevance to not necessarily only focus on cholera (or waterborne infections), but broaden it to AMR, or general Prevention.
- Action: Finalize opinion piece for global spread of action, as well as having a material to provide to stakeholders. Continue building close relations with stakeholders, possibly through a new workshop. Involve Regional Coordinators in these activities.

Annexes

Attendee list

- On site
 - Rolf Lood (Lund University, Sweden)
 - Paul Kingpriest (Oxford University, UK)
 - Sainabou Ndure (Oxford University, UK)
 - Tim Van Den Bossche (VIB, Belgium)
 - Sakina Bombaywala (VIB, Belgium)
 - Berenger Kabore (IRSS-CRUN, Burkina Faso)
 - Marc Christian Tahita (IRSS-CRUN, Burkina Faso)
 - Evodie Ngelesi Nyama (Unikin, DRC)
 - Adriana Krolicka (NORCE, Norway)
 - Hillary Sebukot (NIMR, Tanzania)
 - Dady Mbwana (NIMR, Tanzania)
 - Alan Le Tressoler (NORCE, Norway)
 - Palpouguini Lompo (IRSS-CRUN, Burkina Faso)
 - Paulin Küssone Somda (MoH/NPHI, Burkina Faso)
 - Peter Lukama (MoH/NPHI, Tanzania)
 - Eric Lyimo (NIMR, Tanzania)
 - Lusajo Mfurango (WI, Tanzania)
 - Hypolite Muhindo Mavoko (Unikin, DRC)
 - Vito Baraka (NIMR, Tanzania)
 - Maria Joao Silva (Lund University, Sweden)
 - Gerald Misinzo (SUA, Tanzania)
 - Ibrahim Mgumba (SUA, Tanzania)
 - Ibrahim S. Mauky (MoH/NPHL, country)
 - Nyambura Moremi (MoH/NPHL, Tanzania)
 - Adda Lowosa (MoH, country)
 - Fausta Michael (MoH, country)
 - Christina Mhando (WaterAid, Tanzania)
- Online
 - Bart Mesuere (Ugent, Belgium)
 - Haider Al-Hello (THL, Finland)
 - Taru Miller (THL, Finland)
 - Tarja Pitkänen (THL, Finland)
 - Vivi Maketa (Unikin, DRC)
 - Ana Maria de Roda Husman (RIVM, The Netherlands)
 - Jose Antonio Baz Lomba (FHI, Norway)
 - Melissa Kabena (UniKin, DRC)
 - Pelby Pelenda (UniKin, DRC)
 - Ilkka Miettinen (THL, Finland)
 - Päivi Meriläinen (THL, Finland)
 - Andreas berglöf (WaterAid, Sweden)
 - Ananda Tiwari (THL, Finland)
 - Muna Affara (EAC)
 - Suzanna Tevuzula (UniKin, DRC)
 - Happiness Willbroad (WaterAid, Tanzania)

- Eunice Uboma (WRC, South-Africa)
- Christine Kirima (Oxford University, UK)



Group photo