This foreword is written on board of a high-speed train, headed towards Berlin and the new WHO Hub for Pandemic and Epidemic Intelligence – an apt, almost symbolic setting to start the new year and this first newsletter of 2022. The Hub signals a new era not only for the EIOS initiative but for global collaboration on crucial topics of Public Health Intelligence more broadly. Much remains to be done until it is fully operational, but its vision stands firm, guiding its every step as the new entity takes shape.

While, quite literally, headed towards the future with all its new and exciting possibilities, we have taken a moment to pause and reflect upon the year past. In this newsletter, we summarize the milestones, challenges, and achievements of the EIOS initiative in 2021. Of course, this includes the 2021 EIOS Global Technical Meeting (GTM) in December. In a special edition of the newsletter Spotlight, we cover the event’s highlights on three dedicated pages and wish you all happy reading.

With sincere greetings,  
The EIOS Core Team
EIOS 2021
A YEAR OF GROWTH

If there was one thing that particularly stood out for the EIOS initiative in 2021, it was the incredible growth of its global community. While 2020 was a time of adaptation and coming to terms with the new reality of living in and fighting a global pandemic – which included navigating an unprecedented infodemic, reorganizing one’s work and repositioning one’s resources – 2021 was spurred by new resolve. Undoubtedly, COVID-19 has brought about change in the perception and value of Public Health Intelligence (PHI). The sharp realization that PHI is of crucial importance for global public health safety and that collaboration is indeed imperative, led to renewed interest, investment, and innovation in the field. This opened new doors for the EIOS initiative as well and allowed it to scale up in various ways, most notably through the establishment of the new WHO Hub for Pandemic and Epidemic Intelligence.

With view to expansion in Member States, the US$ 2 million award received from the Solidarity Response Fund at the beginning of 2021 was a major enabler. It allowed the reinforcement of capacity and resources in the WHO regional offices, enabling the training and onboarding of 16 new Member States, compared to only five in 2020. For a full list of communities on the EIOS system, refer to page 4.

Expansion in the African and Eastern Mediterranean regions was particularly strong as were expansion activities in the Americas. While not expanding to as many new individual Member States in the region, Guatemala joined EIOS as the first Central American country and Brazil systematically implemented EIOS at subnational level. Thanks to close collaboration between the WHO regional office for the Americas, the Brazil country office and the Ministry of Health, more than 300 staff were trained on the use of the EIOS system in 2021, making Brazil the largest EIOS community after WHO.

In addition to Member States, 4 new non-governmental communities and networks joined the EIOS community, bringing the total number of active communities to 51. This represents a 70% increase compared to 2020.

Workshops, webinars and online learning
The immense growth of the EIOS community was supported by a record number of EIOS system trainings and refreshers. Overall 27 trainings were delivered remotely (15), face-to-face (8), or as hybrid workshops (4).

To further enable capacity building and facilitate engagement with the growing EIOS community, the EIOS Core Team (ECT) piloted a webinar series in 2021. Between April and November, the team organized 16 webinars showcasing new features in the EIOS system and offering insights into the system’s backend. More than 150 users from over 40 different institutions participated. A large number of attendees also joined an additional 4 webinars that were organized during the 2021 Global Technical Meeting. Based on the positive feedback, the ECT plans to host webinars regularly as of 2022.

To support the rapid onboarding of new EIOS system users worldwide, the team developed a new self-learning online course that can be followed at the participants’ own pace. Rather than replacing the 3-day EIOS system training for new communities, the course is an opportunity to complement the workshops and serves as an additional training resource for existing users. As of February 2022, the course will be available on the OpenWHO platform to everyone with an active EIOS account.

* Indicators represent active communities and teams as well as authorized users on the EIOS system. Changes to this “active” status may affect retrospective data counts and account for any discrepancies seen in the data.
Becoming part of the new WHO Hub

The establishment of the new WHO Hub for Pandemic and Epidemic Intelligence operating out of Berlin, Germany, was one of the biggest milestones for the initiative last year. Publicly announced in May 2021 and inaugurated just four months later, on 1 September 2021, much of the design and thinking behind its creation was in large part made possible and informed by the hard work of members of the ECT. Having pursued a similar vision from the start, highlighting collaboration and transparency to improve Public Health Intelligence (PHI) and minimize the impact of health threats on a global level, the EIOS initiative is an integral part of this new entity.

We are now a unit within the Hub under the new WHO Health Emergency Intelligence and Surveillance Systems (WSE) division. Our new name Intelligence Innovation and Integration (III) more accurately reflects our activities as we will continue to lead and facilitate the ideation, development, and implementation of solutions to strengthen national, regional, and global PHI capacity. Our role with respect to the EIOS initiative will remain intact, as we continue to host and function as the EIOS Core Team. However, the Hub and new division will accelerate and broaden the scope of activities to strengthen PHI, opening new opportunities for collaboration, research and development, and capacity building. The coming months and years will be crucial in defining and evolving the Hub, and our role within it, as it continues to take form.

The “EIOS in numbers”- section we first included in our January 2021 newsletter was wildly popular with our readers, so it is back this year! On the next page, you will find the highlights of the most relevant system indicators visualized at a glance.

You will see that though continuing to face the challenge of managing an immense data load, the system has continued to evolve and improve throughout the past year. This included several important system updates, including the

- addition of new sources and categories and their constant refinement,
- inclusion of social media sources and the Twitter Dashboard,
- introduction of complex queries and enhanced filtering capabilities,
- integration of ML algorithms for automated abstractive summarization, credibility assessment, and user feedback.

Collaboration

Many of the new features and tools, both within the EIOS system as well as those complementary to it, are the result of collaboration projects that were started in 2020. These include the EIOS web scraping solution, news credibility algorithms and automatic summarization.

Progress has also been made regarding the integration of signal management. At the end of 2021, a first iteration of a new signal application was launched that allows users to better register and track “signals” including directly from the EIOS system. While this app was specifically based on WHO’s needs, we are exploring options to quickly release a generic version that could be piloted by EIOS communities. The signal module is a precursor to the much-anticipated new WHO Event Management System (EMS2), planned to be available later in 2022. Our objective is to release a generic EMS module to all EIOS communities that can be customized and modified according to their needs. The ongoing work on the signal app already enhanced collaborative workflows between WHO headquarters and regional offices in the area of surveillance, and complements other attempts and initiatives to improve system interoperability, as well as communication and collaboration across communities.

Elvis Chem Dzelamonyuy

We are extremely sad to announce the passing of our dear friend and colleague, Elvis Chem Dzelamonyuy.

Elvis was a valued member of the ECT a few years ago, working on the sources in the EIOS system and contributing to many of the ideas and developments of the initiative. His invaluable contribution ensures that he will always be part of our legacy and success.

Elvis was a kind, thoughtful, energetic, hard-working, humble, and very talented young epidemiologist who left the team to pursue a PhD at the London School of Hygiene and Tropical Medicine. He had returned to work for the WHO headquarters’ Public Health Intelligence team while continuing his studies.

Messages of condolence can be posted on the Tribute to Elvis site https://chemdzelamonyuy.muchloved.com/
Categories

More than 100 **new categories** were added to the EIOS system in 2021.

18.2 million articles that entered the EIOS system in 2021 were tagged with **Coronavirus**. While representing a small decrease compared to 2020, this category was still attributed to 74% of all content.

Sources

33,944 webpages visited every day and scraped for relevant content to import to the EIOS system - 1,701 more pages compared to 2020.

Over 519 million **COVID-19 related Tweets** filtered for visualization and analysis.

Total number of articles imported into the EIOS system 2019-2021

- 30.8 million in 2019
- 24.5 million in 2020
- 30.8 million in 2021

Volume of articles imported into the EIOS system by top 10 Coronavirus categories in 2021
In 2022, the EIOS initiative, community, and system will continue to expand and evolve, and it will be crucial to ensure this growth is supported adequately and sustainably. Efficiently positioning the initiative within the new Hub and division, actively contributing to its operationalization and vision, and capitalizing on the strong networks EIOS has been able to build over the past four years will be key to achieving this.

We are committed to bringing people together to create, explore and develop solutions collaboratively. This also applies to our own team as well as the new Hub and division as they take form and welcome new colleagues and collaborators, bringing new skillsets, personalities, and ways of working.

Further, and in addition to the ongoing work on enhancing the EIOS system with our collaborators at the Joint Research Centre (JRC) of the European Commission (refer to left side of this page), we will continue to pursue multiple new and existing projects and endeavours in the year ahead, including:

- **Public Health Intelligence Competency Development**, aimed at defining required competencies across audience types, designing appropriate curricula, and building the relevant training modules.

- **An evaluation of social media platforms** to assess their utility for public health intelligence and focused specifically on chatter around specific COVID topics.

- **Knowledge Representation and Reasoning (KR²)** will continue to explore how we can connect data from different sources, domains, jurisdictions and sectors, looking at concepts and relationships across the data, while keeping it with its custodians.

- **Further growth of the EIOS community**, including continued support to WHO regional and country offices with EIOS expansion and adoption across Member States, as well as onboarding and support of other relevant organisations and networks.

- **Building on the signal application pilot**, ongoing development of the EMS2 application builder and working on interoperability solutions to connect external solutions with the EIOS system and other relevant applications.

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**List of active* communities on the EIOS system**

*(as of 31 January 2022)*

**Member States**
Afghanistan, Albania, Argentina, Brazil, Cameroon, Cote d’Ivoire, Dominica, Egypt, Germany, Guatemala, Guinea, Haiti, Iraq, Lebanon, Liberia, Nigeria, Japan [NIID Pilot], Oman, Republic of Korea, Republic of Moldova, Republic of Singapore, Rwanda, Saint Lucia, Senegal, Sierra Leone, South Africa, Sudan, Tunisia, Turkey, Uganda, United Kingdom

**Organizations, networks, and groups**
Africa CDC, Assistance Coordination Unit, ECHO, EIOS WGs, External for WHO PHI, FAO, GHSI, GLEWS, GOARN, Guest, IYCF [Infant and Young Child Feeding], MPHO Safety [Medical Products of Human Origin], MSF, OIE, Public Health Measures, Research, UNICEF, UNODC, Vaccine Safety Net, WHO

* A community is considered active once identified users have been added to it; This list excludes communities that do not pertain to PHI surveillance, such as Test, Training, EIOS Trainers, etc. Communities that joined in 2021 are marked in orange.

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**Planned EIOS system enhancements 2022:**

- Automated anomaly detection, aiming to iteratively improve the EIOS system’s ability to automatically identify and alert the community of new, unexpected or unusual events.

- Upgrade of the EIOS user interface and user experience including support for multiple languages.

- Integration of additional automated information extraction including entities, quotes, and information on case numbers and outcome.

- Improved communication capabilities and workflows across communities.

- Enhanced search and filter capabilities based on complex queries.

- Refactoring of the processing pipeline to enhance scalability and a flexible modular approach.

- Integration of automated cluster analysis for the identification of news stories.

- New source and category editor enhancing the management and quality control of feeding sources and category definitions.
COMMUNITY and COLLABORATION TAKE CENTRE STAGE

“Collaboration is not some nice to have thing that we may or may not want to do: It is an existential necessity if we really want to keep this world safe” summarized Chikwe Ihekweazu the main take away of the third EIOS Global Technical Meeting (GTM), which took place from 6-10 December 2021.

As a new Assistant Director-General (ADG) of the World Health Organization (WHO), Chikwe is leading the recently launched WHO Hub for Pandemic and Epidemic Intelligence, of which the EIOS initiative will form an integral part. Pre-dating and in line with the Hub’s vision of global collaboration for “better data, better insights and better decisions” when it comes to health emergencies, the GTM has been the initiative’s key annual event since 2018. In the spirit of EIOS, it brings together multi-disciplinary experts focusing on issues of Public Health Intelligence (PHI) once a year to further strengthen existing networks, build new alliances as well as to discuss topical challenges, solutions, and innovations in the field.

After a hiatus in 2020 due to the emergence of SARS-CoV-2, the 2021 GTM was held virtually and explored, from multiple perspectives, how the COVID-19 pandemic has impacted the PHI function.

The ability to convene communities from around the world, working together under the common mission of “making the world a safer place through public health intelligence” was also recognized by Mike Ryan, Executive Director of WHO’s Emergencies Programme. In his welcome address to participants he noted that the Hub was “in large part, not only a response to the pandemic, but also a result of the success of the EIOS initiative” and called the EIOS community a “cornerstone” of the new entity.

“The 2021 participant list bears testimony to the initiative’s expansion over the past years, as well as the diversity and incredible richness that is the wider EIOS community today.”

Yasmin Rabiyan, EIOS Engagement Officer
THE PROGRAMME

Similar to the successful 2019 event that took place in Seoul, Republic of Korea, in November 2019, the 2021 agenda was almost entirely driven by the growing community behind the EIOS initiative. More than 80 speakers contributed to 18 live sessions over the five conference days, which were co-hosted by Philip AbdelMalik and Yasmin Rabiyan from the EIOS Core Team. Individual sessions were chaired by a range of external and internal moderators guiding speakers and participants through the various topics.

Designed with a virtual experience in mind, each conference day was divided into two tracks to facilitate participation across time-zones. A common theme connected the two tracks and new live sessions were facilitated under this theme every day. This meant that whether participants were attending one track or the other, they had the opportunity to participate in similar sessions while being exposed to different speakers and discussions. In addition, they were able to access recordings of all sessions on the conference platform within a few hours.

Topics discussed ranged from lessons learned from the pandemic, the infodemic, and how to better connect and derive insights from data, to issues around PHI for all hazards, capacity building and the future of global PHI collaboration. Besides live presentations and panel discussions, a series of four webinars were offered for collaborative learning and debate – both around the EIOS system, as well as on cross-cutting topics such as social media for PHI and collaboration for improved emergency response.

ARTS AND ENGAGEMENT

Renowned cartoonist Alex Hughes from Drawnalism captured GTM sessions and presentations in 53 illustrations and spoken word artist Muneera Pilgrim delighted the audience with two poetry performances. Both poems were specifically written for and dedicated to the GTM audience and the wider PHI community. In fact, the second poem “A Better for All,” which Muneera performed at the meeting’s closure, was written with the help of GTM participants who contributed their voices and thoughts by answering a set of questions on Day 1.

Besides co-writing their community poem, participants had the possibility to engage and interact throughout the GTM – both with the conference content and speakers, as well as with each other. Via the virtual meeting platform, participants were able to submit questions during the live sessions, leave comments and observations in the session chats and directly message and connect with fellow participants. They were further encouraged to visit the exhibition section, where 12 collaborators from the wider PHI community showcased their work and shared resources via virtual booths. By participating in the “2021 GTM championship,” attendees were able to score points for interactions on the virtual meeting platform. On the final day, the five most active participants were awarded the title of “EIOS champions” and received a meeting souvenir in the form of a personalized caricature portrait by Alex Hughes (more on page 7).

FROM DUSK TILL DAWN

Thanks to Global EIOS Support Team (GEST) members for sending below snapshots from their front row seats at the 2021 GTM!
Peter Babigumira Ahabwe, Technical Advisor for Emergency Preparedness and Response at the Uganda Public Health Emergency Operations Center, is the 2021 GTM champion!

He reached the highest score in the virtual GTM game, gaining points for interacting with fellow conference participants, content and features. Making the most of the virtual event, Peter demonstrated what the GTM is all about: professional exchange, engagement and fun! In a short interview, he tells us why he thinks the GTM is an important event and what he particularly enjoyed about the 2021 edition.

What did you like best about the event?  
Sessions with spoken word artist Muneera Pilgrim. As a scientist I have found that Arts and culture are an untapped resource that can strengthen our work. It was great to see these sessions at the GTM.

What was your favorite session?  
“PHI for all Hazards” was my favourite session. For small EBS teams, the question of comprehensive coverage for all hazards presents a challenge so I enjoyed these deliberations and insights.

What would you like to see at the 2022 GTM?  
Legal options for strengthening evidence generation and application of PHI in decision making.

Where do you see the biggest challenge for PHI currently?  
Currently, decision-makers have little reference or reliance on PHI outputs and as such its growth and application remains stunted.

Finish this sentence: “The GTM is an important event because...”  
... it provides a platform and forum for dialogue in addition to providing continuous professional education through the tutorials and learning sessions.”

Last but not least: Which message would you like to share with the wider EIOS community?  
ENDURE! Many times, the work of analysts is never used, referenced, or financed and even then, we must continue to work hard to detect these events in as near real time as possible.

A heartfelt “Thank You” from the ECT to our GTM champions and to everyone who participated in and contributed to making the 2021 GTM a success! If you have missed the event or would like to rewatch any of the sessions, keep an eye on the EIOS website at www.who.int/eios: the GTM 2021 page, including all session recordings, will be coming soon!