

# Acute public health events assessed by WHO Regional Offices for Africa, the Americas, and Europe under the International Health Regulations (2005)

## 2020 Report

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February 2022

## Contents

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| Contents .....   | 2  |
| Executive summary .....  | 3  |
| 1. Introduction .....  | 4  |
| 2. Methodology .....   | 5  |
| 3. Definitions .....   | 6  |
| 4. Results .....   | 7  |
| 4.1. Event detection .....   | 7  |
| 4.2. Event designation .....   | 9  |
| 4.3. Initial source of event information .....   | 13 |
| 4.4. Hazard type .....   | 17 |
| 4.5. COVID-19 and other diseases or conditions .....   | 19 |
| 4.6. Information Dissemination .....   | 21 |
| 5. Discussion and conclusions .....  | 23 |
| References .....   | 25 |
| Annexes .....  | 26 |
| <i>Annex 1. List of States Parties and territories or overseas departments of the WHO African Region, WHO Region of the Americas, and WHO European Region</i>  | 26 |
| <i>Annex 2. Distribution of events recorded in the EMS in the WHO Region of the Americas by subregion and year</i>   | 27 |
| <i>Annex 3. Distribution of events recorded in the EMS in the WHO Region of the Americas by subregion, final designation, and year, 2001-2020</i>  | 28 |
| <i>Annex 4. Distribution of substantiated events recorded in the EMS in the WHO Region of the Americas by subregion, initial source of information, and year, 2001-2020</i>                                | 29 |
| <i>Annex 5. Comparison of the proportion of substantiated events recorded in the EMS in the WHO Region of the Americas by subregion and initial source of information between 2007-2011 and 2012-2017.</i> | 30 |
| <i>Annex 6. Communication tests under IHR (2005) in the Region of the Americas</i>   | 31 |

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## Executive summary

Since 1997, the World Health Organization (WHO) has established a mechanism for outbreak detection, verification, and information sharing as part of global disease surveillance. With the entry into force of the International Health Regulations (2005) (IHR) in June 2007, WHO and States Parties committed to detect, verify, assess and report events that may pose a threat to global health security. Through the IHR channels, WHO and States Parties maintain surveillance, reporting, and response capacities at country, regional, and global levels not only for infectious diseases but also for other categories of potential health related threats (all-hazards approach). Timely communication of potential public health threats aims to enable rapid implementation of response measures for those at risk.

This report describes public health events detected, assessed, and reported from 2001 to 2020, with a primary focus on the year 2020 in three WHO Regions: Africa, the Americas, and Europe. The data on public health events that occurred in States Parties were recorded by WHO in its Event Management System (EMS), a password-protected web-based tool accessible to professional personnel at WHO Country, Regional, and Headquarter Office levels.

Between 2001 and 2020, a total of 7,321 events were recorded globally in the WHO EMS. The majority (68%) were substantiated through a thorough WHO assessment and verification by National Focal Points (NFPs) and/or other relevant authorities. Only a small proportion (9%) were unverifiable or had no designation, emphasizing the effectiveness of the IHR framework for international surveillance and reporting of public health events.

In 2020 alone, among 471 events recorded in the EMS, the coronavirus 2019 (COVID-19) pandemic resulted in an increase in the proportion of substantiated events in the WHO Regions of Africa, the Americas, and Europe, compared to the previous year. Of the 440 substantiated events in 2020, 89 (20%) were recorded in the WHO African Region, 123 (28%) in the WHO Region of the Americas, 93 (21%) in the WHO European Region, and 135 (31%) in other WHO Regions (Eastern Mediterranean, South-East Asia, and the Western Pacific).

In 2020, most of these substantiated events were of infectious origin, and specifically, relating to COVID-19, comprising 55%. Other events such as those related to food safety, contaminated products, chemical, radiological or nuclear hazards, sequelae of civil conflicts, and natural disasters, have also contributed to the burden of international public health events.

Of the events warranting verification by IHR NFPs, during 2020, the proportion of responses to verification requests received within 24 hours was 62% in the WHO Region of the Americas—the highest ever recorded—and 88% in the WHO European Region. Many of these requests for verification were related to COVID-19, and therefore the urgency and attention of the pandemic likely contributed to higher and faster response rates. Overall, the NFP was the initial source of information for a significant proportion of substantiated events reported between 2007 and 2020, in the WHO Regions of the Americas and Europe. In the WHO African Region, NFP contribution could not be accurately estimated.

This report highlights the importance of the IHR framework and engagement between WHO and States Parties for all public health hazards, particularly related to event detection, verification, risk assessment, and information sharing. Furthermore, the COVID-19 pandemic has been a real-life scenario of the critical role of the IHR framework in coordinating a global public health response. Given this, there is an urgent need to continue and sustain resources, funding, and IHR compliance and enforcement mechanisms at the global level.

## 1. Introduction

The International Health Regulations (2005) (IHR) is an international legal framework that facilitates global efforts for detection, verification, risk assessment, and dissemination of information on acute public health events that may threaten public health security.

Under the IHR, 196 States Parties around the world have committed to strengthen their national surveillance and response capacities for the purpose of improving international surveillance and reporting mechanisms of public health events. As part of the accountability and transparency of the Organization, actions undertaken under the IHR are documented using internal recording procedures and tools.

Since 2012, the WHO Regional Office for the Americas and the WHO Regional Office for Europe have prepared joint reports to share with States Parties, which include figures on event detection, initial source of information, designation, and type of hazard. In 2016, the WHO Regional Office for Africa began participating in the preparation of the joint report. This is the fourth edition of the tri-partite annual report.

In the spirit of WHO transparency and accountability, these joint reports have been disseminated through the secure Event Information Site (EIS)<sup>1</sup> for National IHR Focal Points (NFPs)<sup>2</sup> and the WHO Regional Offices' websites<sup>3, 4, 5</sup> since 2014. *The complete list of States Parties in each of these three WHO Regions is available in Annex 1.*

The aim of this report is to provide a summary of acute public health events recorded between 2001 and 2020, with a particular focus on the events that occurred in the WHO Regions of Africa, the Americas, and Europe, during 2020.

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<sup>1</sup> The Event Information Site for the National IHR Focal Points (EIS) is a website developed by WHO to facilitate secure communications with NFPs as part of IHR implementation

<sup>2</sup> The IHR NFP is "the national centre, designated by each State Party which shall be accessible at all times for communications with WHO IHR Contact Points under these Regulations". Information available at: <http://www.who.int/ihr/publications/nfp/en/>

<sup>3</sup> WHO Regional Office for the Americas: [www.paho.org](http://www.paho.org);

<sup>4</sup> WHO Regional Office for Africa: <https://www.afro.who.int/publications>

<sup>5</sup> WHO Regional Office for Europe: <https://www.euro.who.int/en/home>

## 2. Methodology

Events of potential international public health concern are mainly detected through either epidemic intelligence activities conducted by dedicated teams of WHO public health professionals, including through event-based surveillance activities mainly using the Epidemic Intelligence from Open Sources (EIOS)<sup>6</sup> tool, or through direct reporting by States Parties to WHO using NFP channels (urgent communications under IHR 2005, European Commission's Early Warning and Response System (EWRS)), other governmental channels (e.g., the Ministry of Health and national government agencies), or partner networks (e.g., other UN agencies, Global Outbreak, Alert and Response Network (GOARN)).

Information for each detected and assessed event presented in this report was documented and recorded in the WHO Event Management System (EMS)<sup>7,8</sup>. The EMS is a password-protected web-based tool accessible to professional personnel at the three levels of the WHO: Country Office, Regional Office and Headquarters, subject to completion of proper training. The criteria for entering information into the EMS include any event-related urgent communication under the IHR (e.g., an event notified by a State Party;<sup>9</sup> an unofficial report for which a request for verification is sent to a State Party;<sup>10</sup>), but also any events for which WHO assistance is requested, or that might pose a reputational risk to the Organization. The EMS is not intended to be an exhaustive database of all outbreaks occurring worldwide.

After an event is detected or notified to WHO, an initial risk assessment is conducted in close collaboration with subject matter specialists across the three levels of the Organization. Assessed events that may pose a risk to international public health are communicated to States Parties and the international community through different channels, namely: the EIS, the WHO Disease Outbreak News (DONs), websites, external situation reports, and bulletins of WHO Headquarters and Regional Offices, and disease-specific networks.

Data for this report were extracted from the EMS on 24 August 2021. Events were included based on the date of creation within the system between 1 January 2001 to 31 December 2020. Results on event detection, event designation, initial source of event information, type of hazard, diseases or conditions, and information dissemination are presented. Events pertaining to the coronavirus

<sup>6</sup> Epidemic Intelligence from Open Sources <https://www.who.int/initiatives/eios>

<sup>7</sup> The EMS is the central electronic repository for event-related information. National IHR Focal Points (NFPs) and relevant government communications, event details, WHO assessments and decisions are documented and recorded in the EMS. The EMS does not function as a repository of information on all the outbreaks occurring worldwide. Rather, its objective is to support event management accountability.

<sup>8</sup> WHO event management for international public health security. Operational procedures. Working document. June 2008. Available at: [http://www.who.int/csr/HSE\\_EPR\\_ARO\\_2008\\_1.pdf](http://www.who.int/csr/HSE_EPR_ARO_2008_1.pdf)

<sup>9</sup> Pursuant to the IHR (2005), Article 6, Notification: "Each State Party shall assess events occurring within its territory by using the decision instrument in Annex 2. Each State Party shall notify WHO, by the most efficient means of communication available, by way of the National IHR Focal Point [IHR NFP], and within 24 hours of assessment of public health information, of all events which may constitute a public health emergency of international concern within its territory in accordance with the decision instrument, as well as any health measure implemented in response to those events."

<sup>10</sup> Pursuant to the IHR (2005) Article 10, Verification: "1. WHO shall request, in accordance with Article 9, verification from a State Party of reports from sources other than notification or consultations of events which may constitute a public health emergency of international concern allegedly occurring in the State's territory. In such cases, WHO shall inform the State Party concerned regarding the reports it is seeking to verify."

disease 2019 (COVID-19) are highlighted. Previous and future reports may show minor differences in some annual indicators due to routine updates and cleaning of EMS data. Data on EIS postings was extracted on 24 August 2021 from the EIS website, an internal WHO website used for communication by the WHO with NFPs. Data on DONs was extracted on 24 August 2021 from the DON webpage<sup>11</sup>.

### 3. Definitions

- *Epidemic intelligence*, the systematic collection, analysis and communication of any information to detect, verify, assess and investigate events and health risks with an early warning objective.
- *Event*, the IHR define an event as a manifestation of disease or an occurrence that creates a potential for disease (this can include events that are infectious, zoonotic, food safety, chemical, radiological or nuclear in origin and whether transmitted by persons, vectors, animals, goods/food or through the environment.).

During the risk assessment process within the EMS, each event is designated as:

- *substantiated*, when the presence of a hazard is confirmed or the number of human cases exceeds normal thresholds;
- *discarded*, when no international risk is expected;
- *no outbreak*, when the number of human cases or hazard reported is within the normal limits of occurrence;
- *unverifiable*, when no information is forthcoming from the NFP or responsible national authority to substantiate its occurrence, despite the best efforts to obtain such information.
- *Under verification*, when the event continues to be undergoing the process of verification.
- *No designation*, when no information regarding the event designation is available.

Hazards are categorized as:

- *animal*, if there is potential harm to public health from a zoonosis;
- *chemical*, if there is potential harm to public health from the toxic effects of chemical substances, which are chiefly non-medical, as to source;
- *food safety*, if there is potential harm to public health from the toxic effects of food (poisoning or injury);
- *infectious*, if there is potential harm to public health from an infectious disease;
- *disaster*, if there is potential harm to public health from a natural disaster;
- *nutritional deficiency*, if there is potential harm to public health from nutritional deficiencies;

<sup>11</sup> WHO Disease Outbreak News <https://www.who.int/emergencies/disease-outbreak-news>

- *product*, if there is potential harm to public health from contaminated or faulty therapeutic goods including medicines, blood products, tissues and organs, medical devices, diagnostic tests and devices, etc., including poisonings due to mislabelling of therapeutic goods;
- *radionuclear*, if there is potential harm to public health from the toxic effects of ionizing radiation; and
- *undetermined*, if there is potential harm to public health from an undetermined hazard.

## 4. Results

### 4.1. Event detection

From 2001 to 2020, a total of 7,321 public health events were recorded globally in the EMS, of which 5,129 (70%) occurred in the WHO Regions of Africa, the Americas, and Europe (**Figure 1**). Since 2001, the events recorded in the EMS for these three WHO Regions have collectively represented between 47% and 89% of the total number of events recorded annually, with the highest proportions being reported in 2010 (89%), 2015 (89%), and 2016 (86%). In 2020, the proportion of EMS events that were recorded in these three WHO Regions was 69% (327 of 471 events).

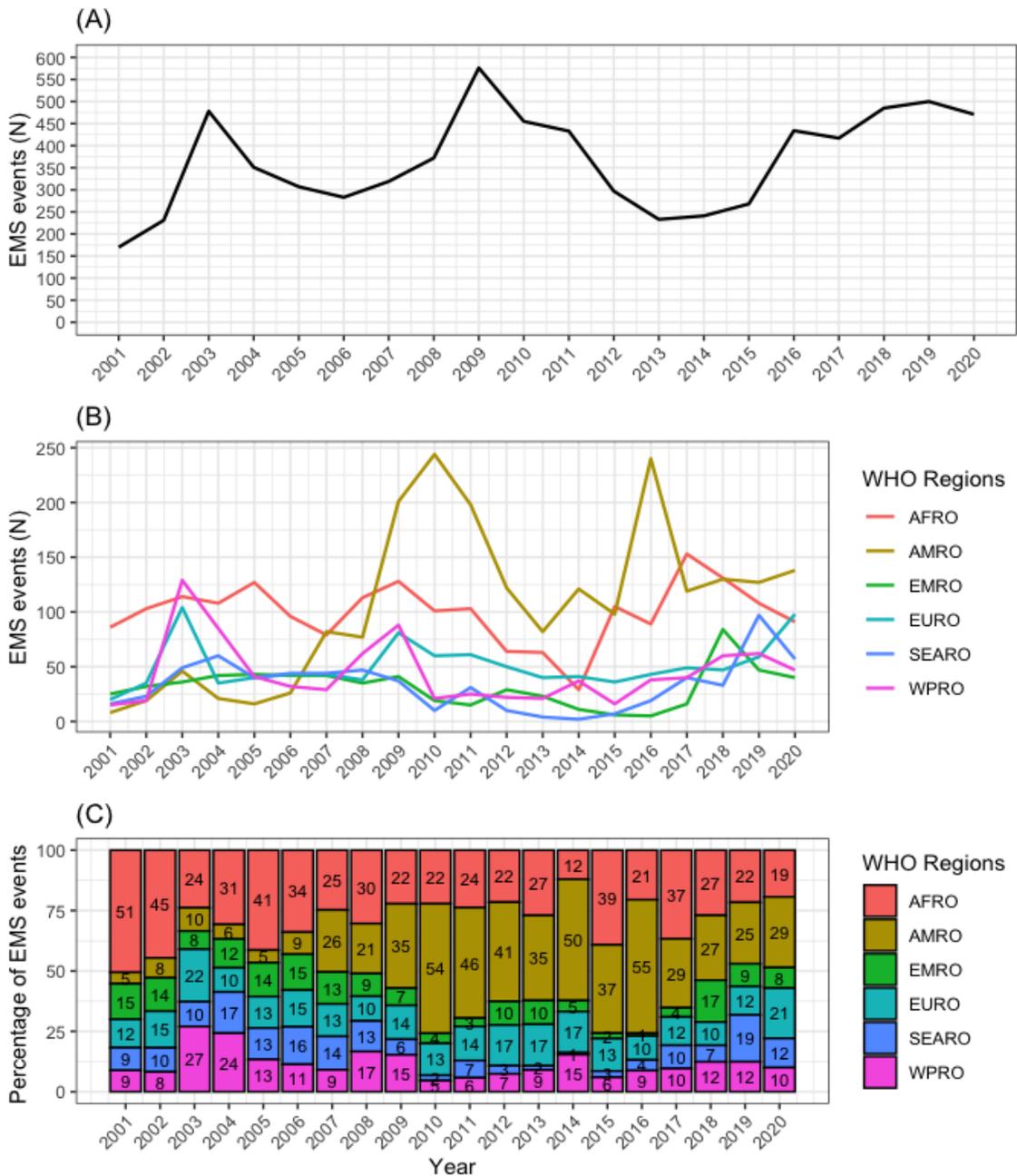
Since 2013, there has been an increase in the number of recorded events observed globally. This could be attributed in part to improved use of the EMS and related trainings for WHO Regions, along with systematic engagement with States Parties to improve national surveillance systems (e.g., joint external evaluations, SimEx, NFP workshops, etc.). Globally, in 2020, a total of 471 public health events were detected, recorded in the EMS, and monitored by WHO, of which 91 (19%) occurred in all 47 IHR States Parties in the WHO African Region, 138 (29%) in all 35 IHR States Parties and all 21 territories in the WHO Region of the Americas, and 98 (21%) in all 55 IHR States Parties and 9 territories or overseas departments in the WHO European Region (*see Annex 1 for a list of IHR States Parties and territories or overseas departments in each of these three WHO Regions*). During 2020, of note, the emergence of COVID-19 was detected and spread globally, and was declared a public health emergency of international concern (PHEIC) on 30 January 2020 and subsequently characterised as a pandemic on 11 March 2020. In 2020, this disease was detected and recorded in the EMS as an individual event in 218 countries, territories, and overseas departments (*see the COVID-19 section for additional information pertaining to COVID-19 EMS events*).

In 2020 compared to 2019, there was a 16% decrease in the number of events recorded in the WHO African Region, a 9% increase in the number of events recorded in the WHO Region of the Americas, and a 66% increase in the number of events recorded in the WHO European Region; the majority of events recorded in each of these Regions were for COVID-19.

In the WHO Region of the Americas, on a sub-regional level comparing 2020 to 2019, increases in the number of events were observed in the Caribbean and Atlantic Ocean Islands (156%) and Central America (17%), while decreases in the number of events were observed in North America (5%) and South America (28%). The increase in the number of events recorded in the EMS, in the Caribbean and Atlantic Ocean Islands and Central America were largely due to the number of COVID-19 events. *The distribution of events recorded in the EMS for the Americas, by subregion, is presented in Annex 2.*

The moderate increase in the WHO European Region might partly be accounted for by enhanced event-based surveillance, including through EIOS (mainly for COVID-19 events), used in the Region and by the WHO Headquarters.

**Figure 1a-c.** Events recorded in the WHO Event Management System (EMS) (N=7,321) globally and by WHO Region, by year. 2001-2020.



## 4.2. Event designation

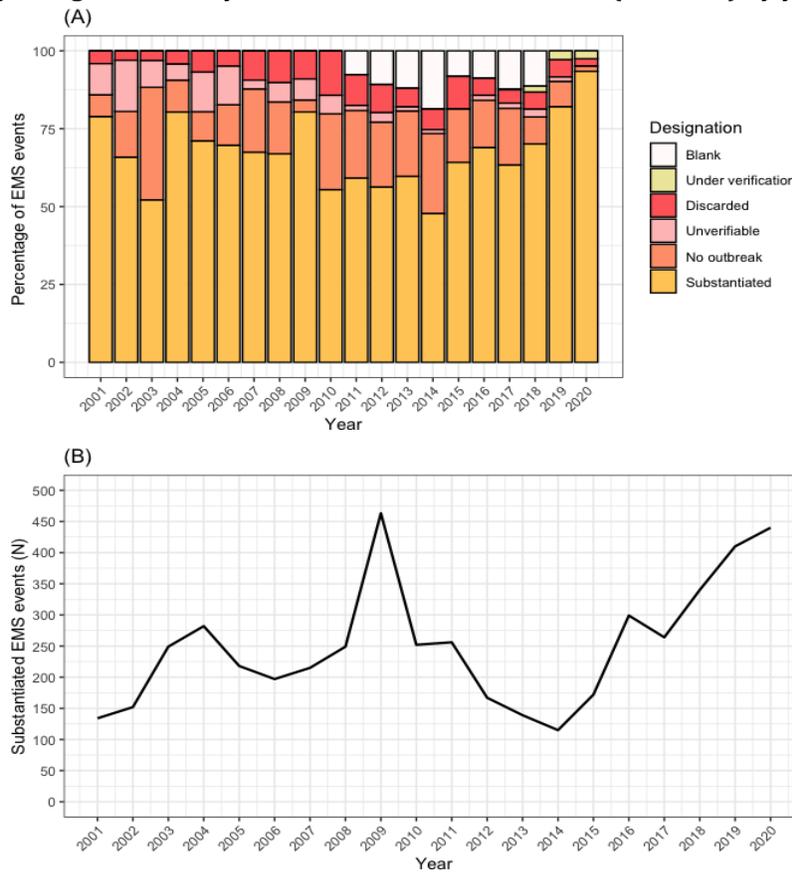
This section summarizes the final designation of events recorded in the EMS since 2001, with a particular focus on substantiated events.

### 4.2.1. Event Designation – Globally

Between 2001 and 2020, of the 7,321 total events assessed globally in the EMS, 5,013 (68%) were designated as substantiated, 1,127 (15%) as no outbreak, 500 (7%) as discarded, 341 (5%) as unverifiable, 304 (4%) had no designation as the investigation was inconclusive, and 36 (<1%) as under verification. The percentage of substantiated events has steadily increased since 2014. (Figure 2)

In 2020 alone, of the 471 total events assessed globally in the EMS, 440 (93%) were designated as substantiated, 12 (3%) as under verification, 8 (2%) as no outbreak, 11 (2%) as discarded, and none as unverifiable; all events had a completed designation. The proportion of events designated as substantiated in 2020 (93%) was the highest annual proportion during the entire 2001-2020 period; this was a result of the volume of substantiated COVID-19 events recorded in the EMS.

**Figure 2a-b.** Distribution of events recorded in the WHO Event Management System (EMS) (N=7,321) by designation and year, and substantiated events (N=5,013) by year. 2001-2020.



#### 4.2.2. Event Designation – WHO Regions of Africa, the Americas, and Europe

Between 2001 and 2020, the highest proportion of the 7,321 events assessed globally in the EMS when comparing these three WHO Regions occurred in the WHO Region of the Americas (2,115, 29%), followed by the WHO African Region (1,991, 27%) and the WHO European Region (1,203, 14%).

The highest proportion of substantiated events was in the WHO African Region (84%), followed by the WHO European Region (69%) and the WHO Region of the Americas (57%). With regards to events designated as discarded or no outbreak, the largest proportion was found in the WHO Region of the Americas, followed by the WHO European Region. The percentage of events designated as unverifiable ranged from 2-6% across the three WHO Regions, while less than 1% of events in the WHO African Region were designated as not designation or under verification. (**Table 1**)

It is important to note that, in the WHO African Region, not all requests for verification are entered into the EMS; those that are not true events are less likely to be recorded, leading to a higher proportion of substantiated events among the total recorded events and an underrepresentation of the total number of events detected and monitored in this Region.

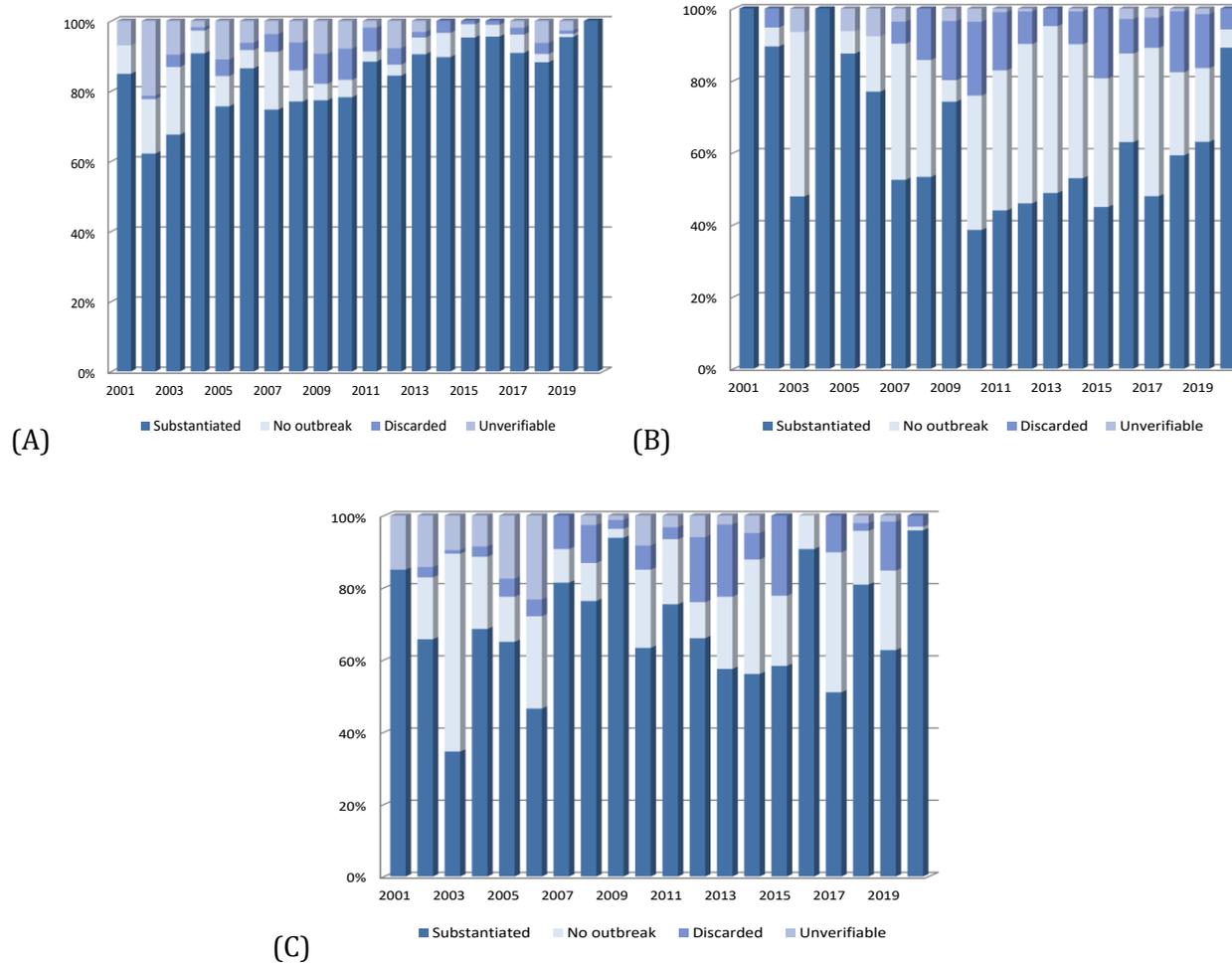
**Table 1.** Designation of events recorded in the WHO Event Management System (EMS) in the WHO African Region, WHO Region of the Americas, and WHO European Region. 2001-2020.

| Event designation  | WHO African Region | WHO Region of the Americas | WHO European Region |
|--------------------|--------------------|----------------------------|---------------------|
| Substantiated      | 1,671 (84%)        | 1,208 (57%)                | 702 (69%)           |
| No outbreak        | 131 (7%)           | 606 (29%)                  | 197 (19%)           |
| Unverifiable       | 114 (6%)           | 42 (2%)                    | 55 (5%)             |
| Discarded          | 69 (3%)            | 259 (12%)                  | 68 (7%)             |
| Not designated*    | 4 (<1%)            | -                          | -                   |
| Under verification | 2 (<1%)            | -                          | -                   |
| <b>Total</b>       | <b>1,991</b>       | <b>2,115</b>               | <b>1,203</b>        |

\*The event has not been designated as the investigation was inconclusive.

When examining the designation of events over time in the last 10 years, we observe an increase in the percentage of substantiated events in the WHO Region of the Americas and a more varied pattern in the WHO African Region and the WHO European Region. In the last five years (2016 to 2020), the proportion of events which were substantiated ranged from 85% to 98% (median 95%) for the WHO African Region; 48% to 89% (median 63%) for the WHO Region of the Americas; and 51% to 95% (median 81%) for the WHO European Region (**Figure 3**).

**Figure 3a-c.** Distribution of events recorded in the WHO Event Management System (EMS) in the WHO African Region (N=1,991), the WHO Region of the Americas (N=2,115), and the WHO European Region (N=1,203) by final designation and year. 2001–2020.

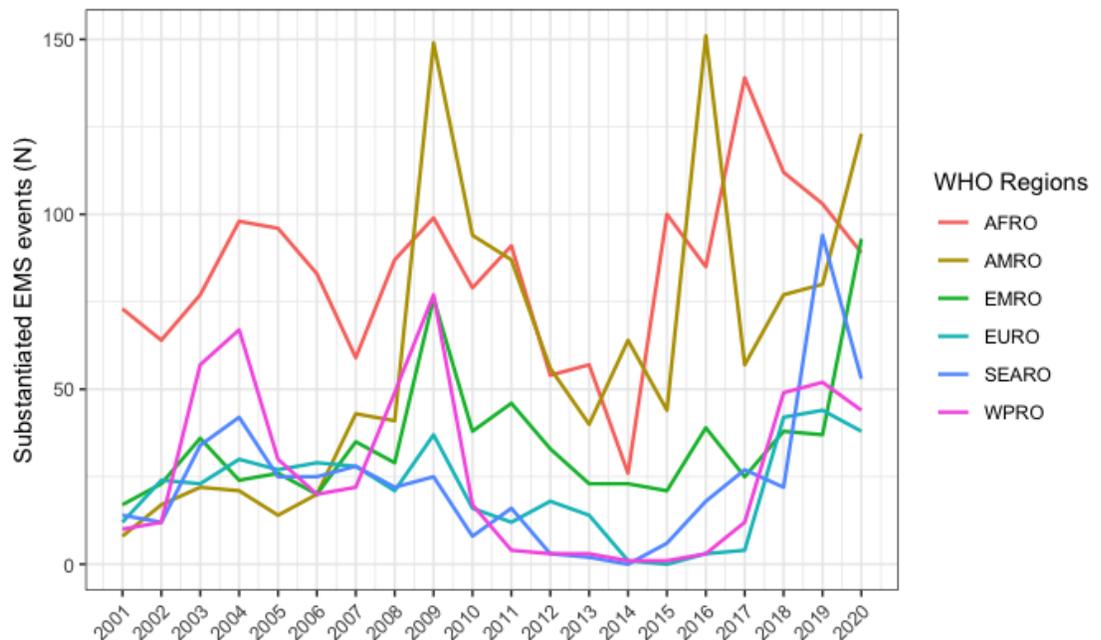


With regards to 2020 data, the highest proportion of the 471 events assessed globally in the EMS occurred in the WHO Region of the Americas (138, 29%), while 98 (21%) and 91 (19%) events occurred in the WHO European Region and African Region, respectively.

Almost 90% of all events in 2020 in the three WHO regions were substantiated; 123 (89%) in the WHO Region of the Americas, 89 (98%) in the WHO African Region and 93 (95%) in the WHO European Region (**Figure 3**). In 2020, in all three WHO regions, the proportions of substantiated events increased compared to the previous year while the proportions of events designated as discarded, unverifiable, no outbreak, and not designated, decreased. For the WHO Region of the Americas, the proportion of substantiated events in 2020 increased in each subregion of the Americas except for the Central America, which slightly decreased. *The distribution of events by final designation in the subregions of the Americas is presented in Annex 3.*

When examining only the 5,013 substantiated events between 2001 and 2020, the majority of substantiated events over time occur in the WHO African Region (**Figure 4**). While, between 2001-2020, 71% (3,581) were events recorded in the WHO Regions of Africa, the Americas, and Europe. Among these three WHO Regions, the WHO African Region accounts for the highest proportion of substantiated events recorded in the EMS between 2001 and 2020 (1,671/5,013; 33%), followed by the WHO Region of the Americas (1,208/5,013; 24%), and the WHO European Region (702/5,013; 14%). Of the 440 substantiated events in 2020, 69% were events recorded in the WHO Regions of Africa, the Americas, and Europe (**Figure 4**).

**Figure 4.** Substantiated events recorded in the WHO Event Management System (EMS) (N=5,013) by WHO Region and year. 2001–2020.



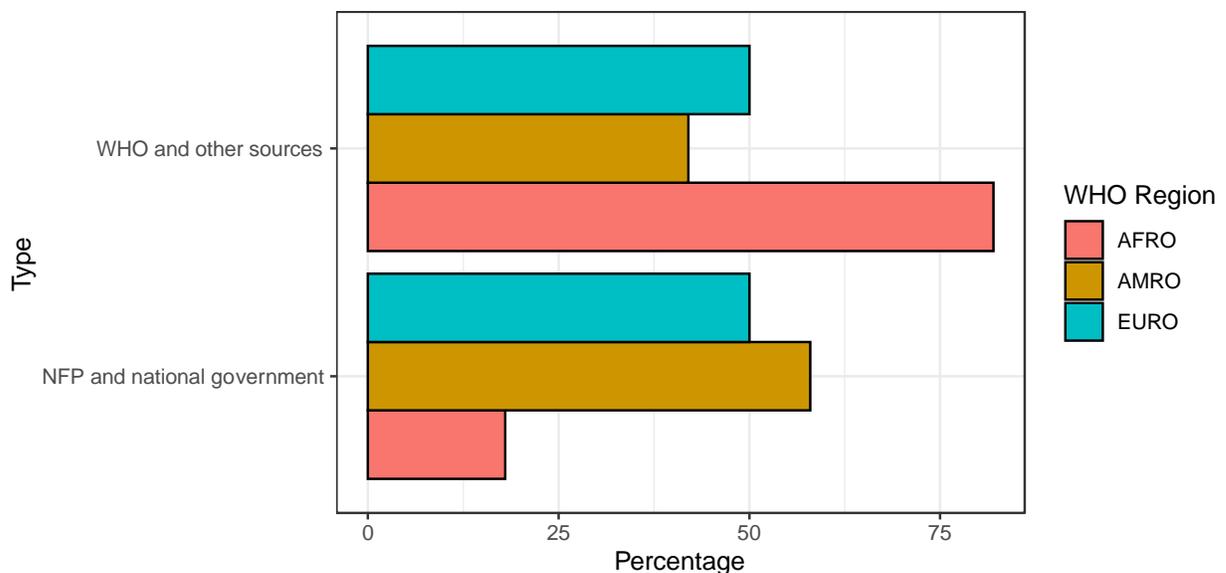
### 4.3. Initial source of event information

This section summarizes the initial source of information for events designated as substantiated in the EMS since 2001. Certain considerations should be taken into account when interpreting the following data: a) the International Health Regulations (2005) entered into force in 2007, after which NFPs were designated by States Parties as a channel of communication with WHO, and b) variations exist in event reporting and EMS recording procedures between each of the WHO Regions that impact the data collected on initial source of event information.

Between 2001 and 2020, among 5,013 substantiated events recorded globally in the EMS, 3,324 (66%) listed WHO as the initial source of event information and 1,689 (34%) listed the NFP and national government as the initial source. Between 2007 and 2020, the global annual average of events listing the NFP and national government as the initial source was 43%.

Between 2001 and 2020, there were 3,581 substantiated events recorded in the EMS in the WHO African Region (1,671), WHO Region of the Americas (1,208), and WHO European Region (702). Of these, 50-60% were listed as directly reported by NFPs and national governments in the WHO Region of the Americas and the WHO European Region, while this proportion was 28% in the WHO African Region. Subsequently, the vast majority of substantiated events recorded in EMS in the WHO African Region (82%) were either reported by the WHO Country Offices (which, in the WHO African Region, serve as an intermediary between NFPs and the WHO Regional Office) or detected through routine epidemic intelligence activities coordinated by the WHO Regional Office (including indicator and event-based surveillance) (Figure 5).

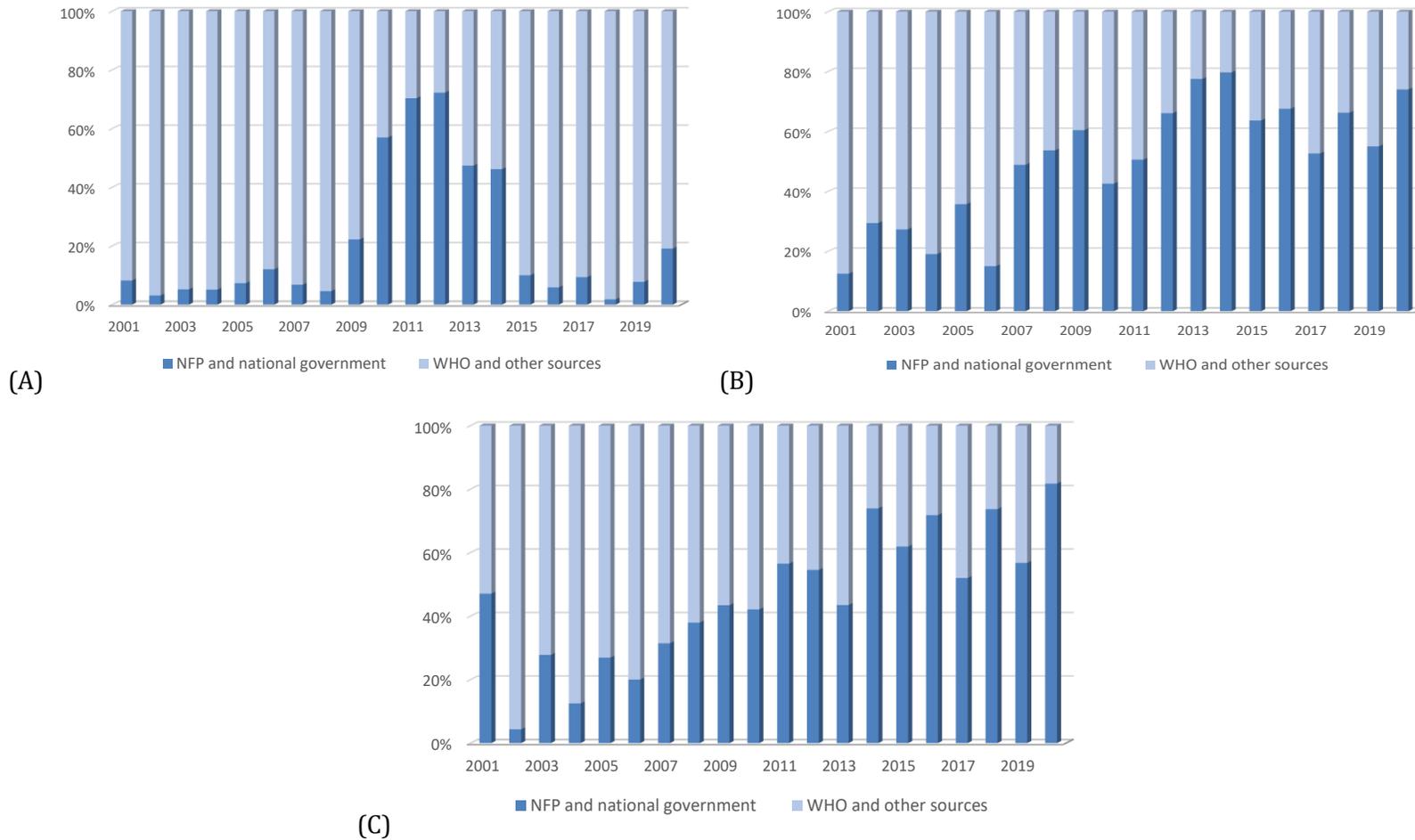
**Figure 5.** Percentage of substantiated events recorded in the WHO Event Management System (EMS) in the WHO African Region, WHO Region of the Americas, and WHO European Region by source of initial information (N=3,581). 2001–2020.



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When examining the proportion of records with NFPs and national governments designated as the information source in the WHO African Region, it significantly increased after 2008 followed by a strong decrease in 2015. It remained low through 2019, with a slight uptick in 2020 (**Figure 6**). However, this trend in the WHO African Region might reflect changes in event reporting and EMS recording procedures rather than changes in NFP participation.

**Figure 6a-c.** Distribution of substantiated events recorded in the WHO Event Management System (EMS) in the WHO African Region (N=1,671), WHO Region of the Americas (N=1,208) and WHO European Region (N=702), by source of initial information and year. 2001-2020.



In the WHO Region of the Americas and the WHO European Region an increasing trend in NFPs and national governments as the initial source of substantiated events has been observed from 2007 to 2013 and 2014, after which there was a gradual decrease. In 2020, there was an increase observed compared to 2019. In the WHO European Region, the increasing trend could be due to previous NFP workshops (one in 2017, one in 2018, and two in 2019) and the Joint Assessment and Detection of Events (JADE) simulation exercises in 2018 and 2019 that had built up the readiness for IHR communications, and the more frequent IHR communications during the COVID-19 pandemic.

In 2020, of the 89 substantiated events recorded in the WHO African Region, 17 events (19%) had the NFPs and national governments listed as the initial source of information, and 72 (81%) had WHO or other sources listed. Due to the limited availability of data regarding verification requests entered into the EMS for the WHO African Region, we were not able to assess the timeliness of responses to verification requests in this Region.

In contrast, in 2020, in the WHO Region of the Americas, of the 123 substantiated events, 91 (74%) had NFPs and national governments listed as the initial source of information, while the remaining 32 events (26%) had WHO or other sources listed. During this year, requests for verification were sent to NFPs to verify information and obtain further details for 42 events. Of these, **NFP responses were received within less than 24 hours** for 26 (62%) events, between 24 and 48 hours for 8 (19%) events, and more than 48 hours for 4 (10%) events; no response was received for 4 events (9%). In 2020, the overall response rate for verification requests received within 24 hours was the highest recorded.

Regarding subregions in the Americas, the proportion of substantiated events reported by NFPs or national governments as the initial source of information increased in 2020 compared to 2019 for all subregions except for Central America, which decreased slightly (*see Annex 4*). Comparing two quinquennia (2007-2011 and 2012-2017) by subregion (with South America further subdivided into the Andean Region and Southern Cone), there was an improvement in the proportion of substantiated events with NFPs or national governments as the initial source of information between these two periods in all subregions, with Central America and the Andean Region observing the largest improvements and North America with a smaller increase (*see Annex 5*).

Similar to the WHO Region of the Americas, in 2020, in the WHO European Region, of the 93 substantiated events, 76 (82%) had NFPs, and national governments indicated as the initial source of information, while the remaining 17 events (18%) had WHO or other sources listed. During 2020, requests for verification were sent to NFPs to verify information and obtain further details for 17 events. Of these, NFP responses were received **within less than 24 hours** for 15 (over 88%) events, and beyond 48 hours for 2 (12%) events. In 2019, the overall response rate for verification requests was 100% compared to 95% in 2018. Data regarding requests for verification response rates were not systematically documented in EMS prior to 2017, and therefore, are not included.

#### 4.4. Hazard type

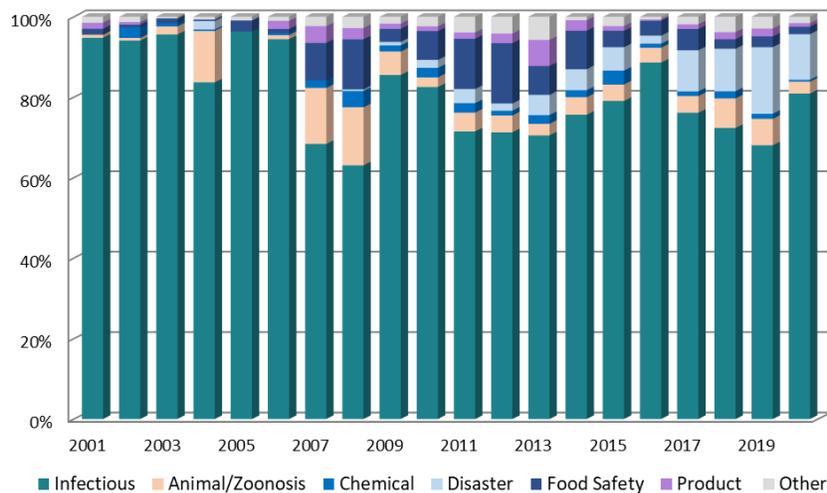
This section summarizes the hazard type<sup>12</sup> for events designated as substantiated in the EMS between 2001 and 2020.

##### 4.4.1. Hazard type - Globally

The aetiology of the 5,013 substantiated events between 2001-2020 was predominately due to infectious diseases (4,018; 80%), followed by animal/zoonosis (266; 5%), disaster (238; 5%), food safety (236; 5%), other causes (106; 2%), product (76; 2%), and chemical (73; 1%).

While the IHR (2005) uses an all-hazards approach, infectious diseases have represented the vast majority of hazards among substantiated events reported globally since 2001. However, between 2017-2019, an increasing proportion of substantiated events were non-infectious, particularly disaster related (**Figure 7**). In 2020 alone, for the 440 substantiated events, infectious diseases (356; 81%) were still the eminent aetiology, followed by disasters (50; 11%), animal/zoonosis (13; 3%), food safety (8; 2%), other causes (7; 2%), product (4; 1%), and chemical (2; <1%).

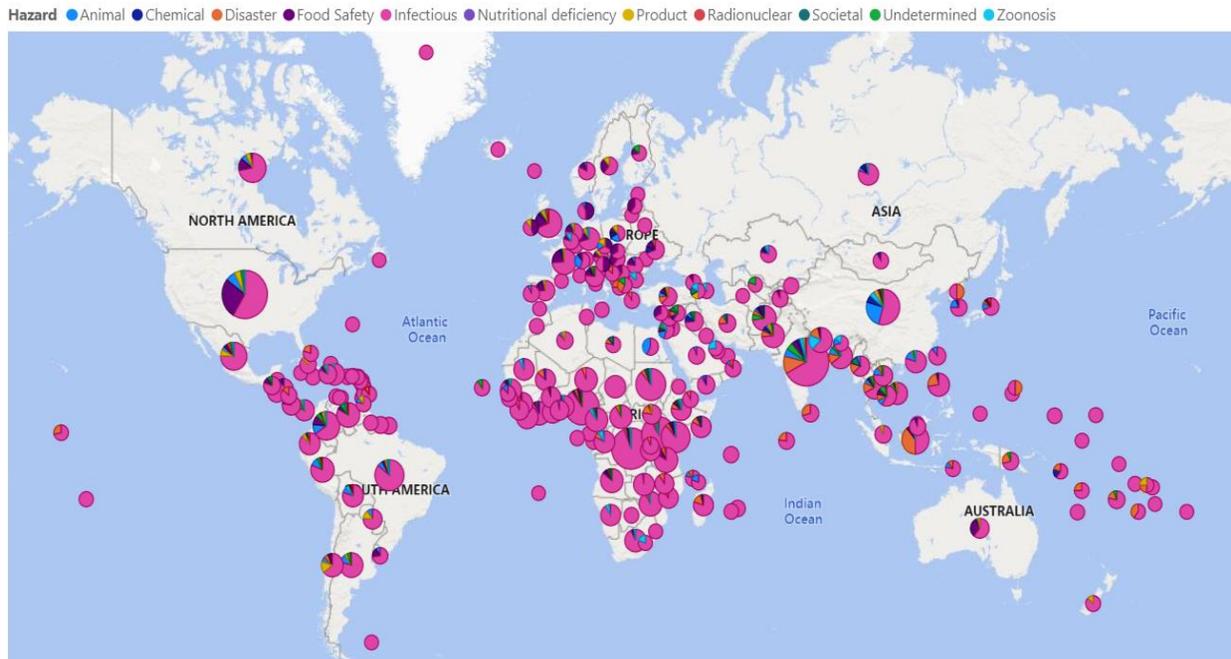
**Figure 7.** Distribution of substantiated events recorded in the WHO Event Management System (EMS) globally (N=5,013) by hazard type and year. 2001 to 2020.



**Figure 8** depicts events that were substantiated during 2020 by hazard type globally. The size of each pie chart indicates the volume of recorded events within a country/territory. While some countries had substantiated events due to more than one hazard type, the majority of events overall were of infectious origin.

<sup>12</sup> The hazard types available within the EMS are as follows: animal, chemical, disaster, food safety, infectious, nutritional deficiency, product, radionuclear, societal, undetermined, and zoonosis. For this report, animal and zoonosis hazards have been combined as 'animal/zoonosis', and nutritional deficiency, societal, radionuclear, and undetermined are classified as 'other causes'. In previous years' reports, product was also included in 'other causes'; therefore, this change may affect the interpretation of these categories over time.

**Figure 8.** Global geographic distribution of substantiated events recorded in the WHO Event Management System (EMS), by hazard type. 2020.



#### 4.4.2. Hazard Type - WHO Regions of Africa, the Americas, and Europe

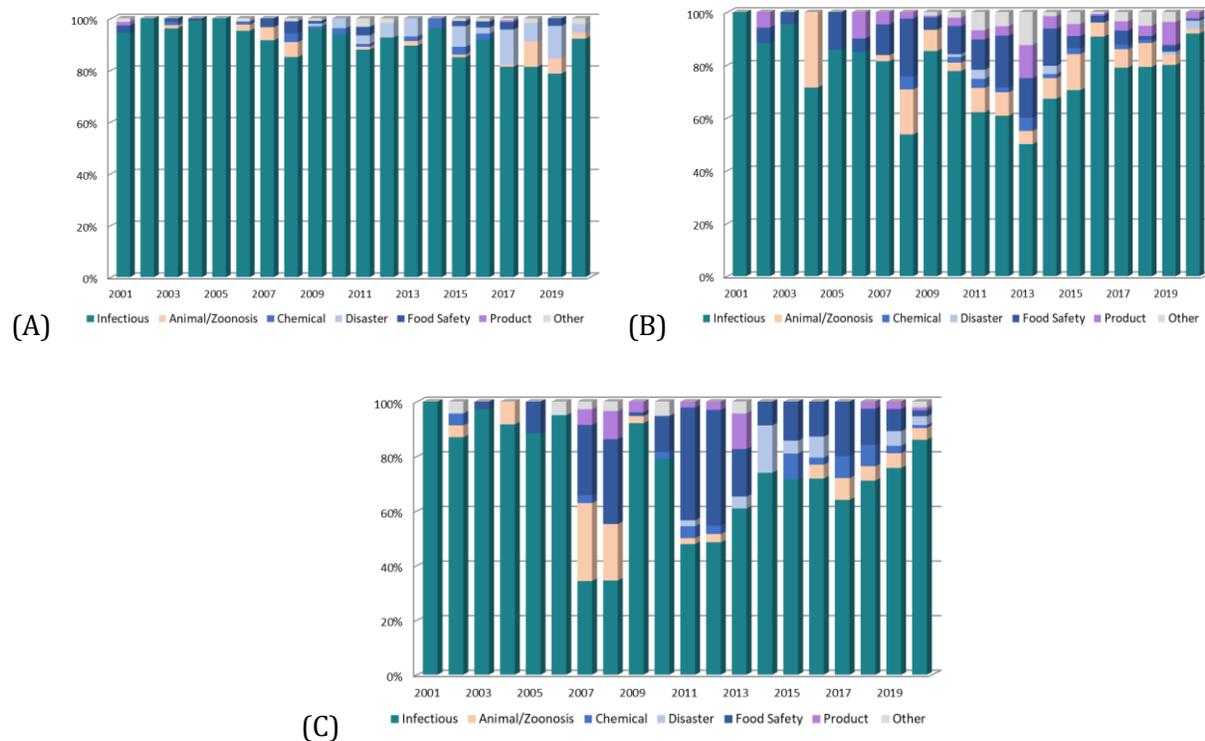
Between 2001 and 2020, the aetiology of the majority of substantiated events reported in the WHO African Region, WHO Region of the Americas and the WHO European Region was infectious (>70% in all three regions). The second most common aetiology were disasters in the WHO African Region, Animal or zoonoses and food safety in the WHO Region of the Americas and Food safety in the WHO European Region, which is partly due to well-established partnerships (e.g., INFOSAN, The European Centre for Disease Prevention and Control Epidemic Intelligence Information System for food- and waterborne diseases and zoonoses (ECDC EPIS-FWD), and the European Commission Rapid Alert System for Food and Feed (EC RASFF)) (Table 2).

**Table 2.** Substantiated events recorded in the WHO Event Management System (EMS) in the WHO African Region, Region of the Americas, and the WHO European Region, by hazard type. 2001-2020.

| Hazard type     | WHO African Region | WHO Region of the Americas | WHO European Region |
|-----------------|--------------------|----------------------------|---------------------|
| Infectious      | 1,512 (90%)        | 947 (78%),                 | 521 (74%)           |
| Disaster        | 67 (4%)            | 11 (1%)                    | 15 (2%)             |
| Animal/zoonosis | 34 (2%)            | 79 (7%),                   | 35 (5%)             |
| Food safety     | 25 (1%)            | 85 (7%),                   | 90 (13%)            |
| Chemical        | 16 (1%)            | 14 (1%),                   | 16 (2%)             |
| Other causes    | 15 (1%)            | 31 (3%),                   | 9 (1%)              |
| Product         | 2 (<1%)            | 41 (3%),                   | 16 (2%)             |
| <b>Total</b>    | <b>1,671</b>       | <b>1,208</b>               | <b>702</b>          |

Between 2001 and 2020, substantiated events with an infectious aetiology comprised the majority of events in all three WHO Regions. In 2020, 82 (92%), 113 (92%), and 80 (86%) were classified as infectious in the WHO African Region, WHO Region of the Americas, and WHO European Region (**Figure 9**). In the WHO African Region and WHO Region of the Americas, the second most common hazard type among substantiated events was disasters in 2020. In contrast, in the WHO European Region, the second most common hazard types among substantiated events in 2020, was animal/zoonosis.

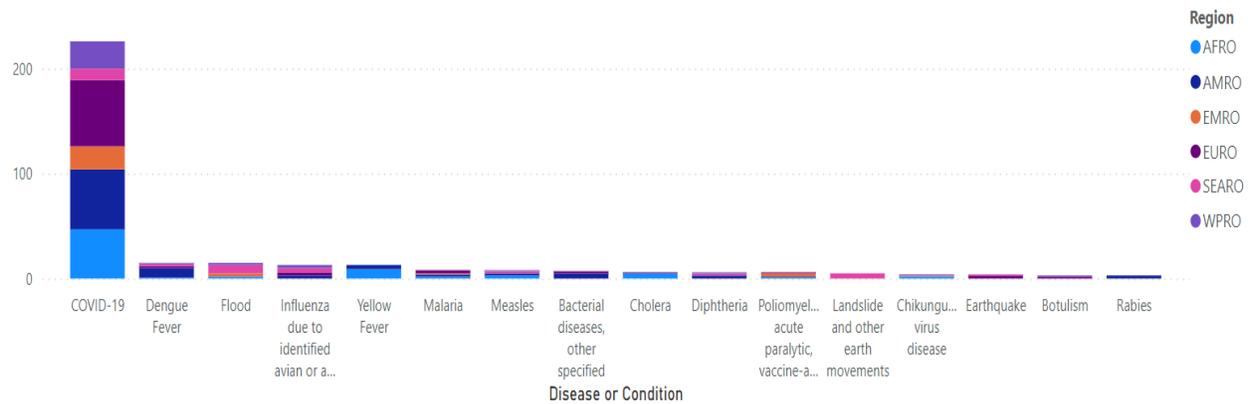
**Figure 9a-c.** Distribution of substantiated events recorded in the WHO Event Management System (EMS) in the WHO African Region (N=1,671), WHO Region of the Americas (N=1,208) and WHO European Region (N=702), by hazard type and year. 2001–2020.



#### 4.5. COVID-19 and other diseases or conditions

COVID-19 was first reported to WHO on 31 December 2019 and resulted in a rapid global spread in early 2020, leading to a PHEIC being declared by the WHO Director-General and it being characterised as a pandemic. Among the 440 substantiated events in 2020 globally, 241 (55%) were for COVID-19 across all WHO Regions (**Figure 10**).

**Figure 10.** Distribution of substantiated events recorded in the WHO Event Management System (EMS) globally with a disease or condition listed (N=396) by WHO Region. 2020.



Among the 305 substantiated events in the three WHO Regions in 2020, 184 (60%) were for COVID-19. Of the 89, 123, and 93 substantiated events in the WHO African Region, the WHO Region of the Americas; and the WHO European Region, respectively, 47 (53%), 75 (61%), and 62 (67%) were for COVID-19. It should be noted that the recording of COVID-19 related events was not uniform across all Regions; i.e., in some Regions, events related to COVID-19 were reported as a new event and some were reported as an update to the original event. If the latter was the case, it would not therefore be reflected in these figures which only includes new events.

In the WHO Region of the Americas, 18 of the 75 (24%) substantiated COVID-19 events were related to multisystem inflammatory syndrome among children and adolescents (MIS-C) temporally related to COVID-19, and 3 (4%) were related to newly identified SARS-CoV-2 variants.

While COVID-19 accounted for the majority of substantiated EMS events in 2020, other diseases and public health events continued to occur. In particular, vaccine-associated poliomyelitis was recorded in all three of the WHO Regions in 2020. Specially, in the WHO African Region, 9% of the 89 substantiated events were related to yellow fever and 6% were related to cholera. In the WHO Region of the Americas, 7% of the 123 substantiated events were related to dengue, 4% to bacterial diseases otherwise not specified within the EMS (including *Candida auris*, *Burkholderia*, and *Ralstonia* infections), and 3% to yellow fever. Similarly, in the WHO European Region, 3% of the 93 substantiated events were related each to earthquakes, influenza due to identified avian or animal influenza viruses, and malaria, respectively.

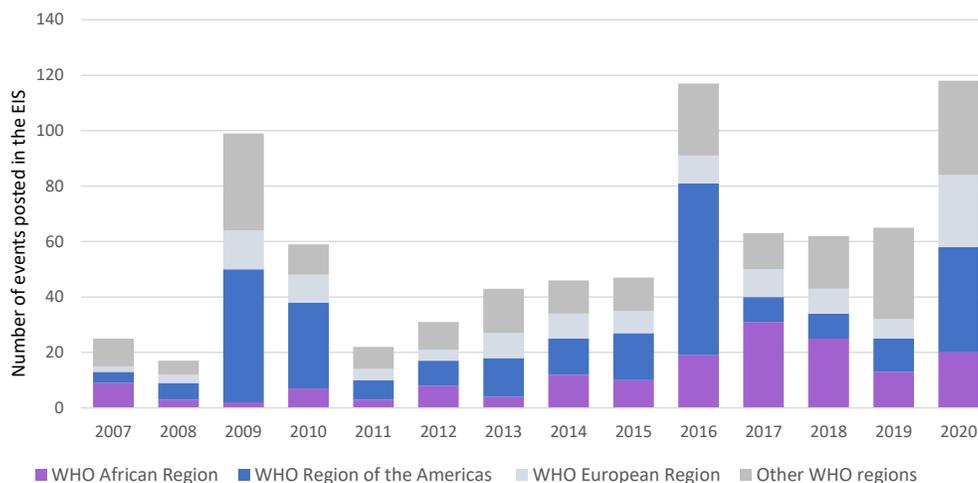
## 4.6. Information Dissemination

Under the provisions of the IHR, WHO is mandated to share independent and authoritative information on a potential PHEIC with States Parties, stakeholders, and the general public, in order to prepare for and prevent the occurrence of similar events. In order to fulfil this mandate to alert and inform the international community about new, ongoing, and updated public health events, WHO uses various sources of communication channels including EIS postings, Disease Outbreak News (DON) publications, situation reports, health cluster bulletins, Twitter updates, Facebook updates, and respective WHO Regional Office bulletins and webpages.

### 4.6.1 Information dissemination - Globally

In 2020, there were a total of 69 DON publications and 118 EIS postings pertaining to new events for all WHO Regions. An additional 18 EIS postings were updated during 2020. Furthermore, a notable 175 EIS announcements were published, often applying to multiple or all WHO Regions. The distribution of new events published in the EIS by WHO Region and year since 2007 (N=814) is presented in **Figure 11**.

**Figure 11.** Distribution of events published in the WHO Event Information Site for National IHR Focal Points (EIS) (N=814) by WHO Region and year. 2007–2020.



The number of new EIS postings increased by 82% compared to 2019, primarily due to the fact that in the beginning of the pandemic, the first detection of COVID-19 in a new country/territory were published in the EIS; of the 118 new EIS postings in 2020, 68% were related to COVID-19. The previous comparable number of EIS postings was in 2016, during the 2016 Zika virus disease epidemic. Conversely, DONs were not intended to be published for every detection of COVID-19 in the respective countries; therefore, there were 8 DONs related to COVID-19 during 2020, including

one global DON for COVID-19, while the remaining DONs pertained to other diseases or events. In addition, 209 daily situation reports on COVID-19 were published and 25 weekly epidemiological updates. Of the 175 EIS announcements, 108 (62%) were related to COVID-19, including health measures implemented by States Parties, guidance pertaining to SARS-CoV-2 case definitions and laboratory testing, and weekly COVID-19 information sessions for States Parties. Thirty-nine EIS announcements pertained to poliovirus, and 9 EIS announcements pertained to falsified medical product alerts.

#### 4.6.2. *Information dissemination - WHO Regions of Africa, the Americas, and Europe*

Overall, 54 (78%) of the 69 DON postings and 84 (71%) of the 118 EIS postings pertained to events occurring in or related to the three WHO Regions included in this report.

In 2020, the **WHO African Region** contributed to 20 (17%) new EIS postings and 45 (65%) DON publications. The majority of the 45 DONs published in 2020 for the WHO African Region were related to the Ebola virus disease (EVD) in the Democratic Republic of the Congo, but there were other events including but not limited to measles in the Central African Republic; yellow fever in Uganda, Ethiopia, South Sudan, Gabon, Nigeria, Togo, Senegal, and Guinea; monkeypox in the Democratic Republic of the Congo; and Rift Valley fever in Mauritania. Only 3 of the 20 (15%) EIS postings pertained to COVID-19, while the remaining pertained to other events, many of which were published as a DON. In addition to EIS and DON postings, other information products related to events occurring in this Region were disseminated to the international community, including 24 external situation reports on the EVD outbreaks in the Democratic Republic of the Congo<sup>13</sup> and 51 editions of a regional weekly bulletin on outbreaks and other emergencies, which was launched in March 2017<sup>14</sup>.

The **WHO Region of the Americas** contributed to 38 (32%) new EIS postings and 6 (9%) DON publications in 2020. The majority (74%) of the 38 EIS postings were related to COVID-19, but the remaining EIS postings were related to influenza due to identified avian or animal influenza viruses, dengue, measles, yellow fever, Arenavirus hemorrhagic fevers, Mayaro virus disease, and Oropouche virus disease, among others. Additionally, 6 reports on events occurring in the Region were shared directly with NFPs by email and 36 Epidemiological Alerts and Updates were disseminated via the regional website, of which 20 were for COVID-19, 10 were related to diphtheria, measles, and other vaccine-preventable diseases, and 6 were related to dengue, malaria, and other arboviral diseases<sup>15</sup>.

The **WHO European Region** contributed to 26 (22%) new EIS postings and 3 (4%) DON publications in 2020. The majority (81%) of the 26 EIS postings were related to COVID-19, but the remaining EIS postings were related to influenza due to identified avian or animal viruses, dengue, and Junin virus. Additionally, there were a number of regional featured events published on the official WHO Europe's website (e.g., antimicrobials, conflicts, SARS-CoV-2 and its variants,).

<sup>13</sup> <https://www.afro.who.int/health-topics/ebola-virus-disease>

<sup>14</sup> <https://www.afro.who.int/health-topics/disease-outbreaks/outbreaks-and-other-emergencies-updates>

<sup>15</sup> PAHO/WHO Epidemiological Alerts and Updates available at: <https://www.paho.org/en/epidemiological-alerts-and-updates>

## 5. Discussion and conclusions

The results from this report highlight the volume of infectious and non-infectious hazards that are detected, assessed, and reported under the IHR framework within the WHO Regions of Africa, the Americas, and Europe in coordination with States Parties. It also further highlights the critical role of the IHR framework for event detection and information sharing between States Parties and WHO Regional Offices in response to the COVID-19 pandemic.

Though there are additional public health events being detected within each of the WHO Regions, the EMS is not intended to be the unique repository for every public health event, but rather those that are assessed and reported under the IHR framework, and there are contributing factors such as differing protocols that contribute to the varying number of events recorded in the EMS for each WHO Region. Despite these differences, the use of an online platform continues to be instrumental for the efficient management of data related to public health events that may pose a threat to global health security and serves as a historical repository of such events. The platform allows the Organization to rapidly communicate information on public health events and share informed risk assessments in a consistent, timely, and transparent manner across the three levels of the Organization. Further modernization and standardization of the EMS within the Organization will allow for enhanced capabilities for cross-cutting information sharing, analysis, and report creation.

While the majority of the 7,321 events assessed globally and recorded in the EMS between 2001 and 2020 were substantiated through WHO assessment and verification by NFPs and/or other relevant authorities, accounting for 68% of the total events, there were also more than 1,600 events (>22%) that had been assessed and underwent the verification process and that were determined as no outbreak, discarded, or remained under verification, while only a small proportion (9%) were unverifiable or had no designation. This emphasizes the usefulness of the IHR framework for international surveillance and reporting mechanisms of public health events. In 2020, COVID-19 led to an increase in the proportion of substantiated events in the WHO Regions of Africa, the Americas, and Europe, compared to the previous year.

Almost three-fourths of the number of substantiated events in the EMS between 2001 and 2020 were recorded in the WHO Regions of Africa, the Americas, and Europe. Since the implementation of the IHR in 2007, with the exception of 2012-2014, there has been a general increasing trend in the number of substantiated events. Furthermore, since 2007, there has been a general increasing trend in the proportion of substantiated events for which the NFPs and national governments were identified as the initial source of information across the WHO Region of the Americas and the WHO European Region, and an increase in these proportions was observed in 2020 compared to 2019.

In 2020, the proportion of requests for verification for which a response (i.e. provision of information allowing an informed risk assessment)<sup>16</sup> was received within 24 hours within the WHO Region of the Americas was the highest recorded (62%). Many of these requests for verification were related to

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<sup>16</sup> Pursuant to IHR (2005) Article 10, Verification: “2. Pursuant to the foregoing paragraph [Article 10.1] and to Article 9, each State Party, when requested by WHO, shall verify and provide: (a) within 24 hours, an initial reply to, or acknowledgement of, the request from WHO; (b) within 24 hours, available public health information on the status of events referred to in WHO’s request; and (c) information to WHO in the context of an assessment under Article 6, including relevant information as described in that Article.”

COVID-19, and therefore the urgency and attention of the pandemic likely contributed to higher and faster response rates. In the WHO European Region, most of the events were notified by IHR NFPs or from official sources that did not need verification requests. For the events that verification was requested, the response received from IHR NFPs within 24 hours was 88%. In the WHO African Region, this data was not systematically recorded in the EMS and therefore could not be analysed. In the WHO Region of the Americas, since at least 2015, additional means of communication (i.e. text messages and instant messaging services via mobile devices) have consistently and increasingly been used to improve event notification by NFPs.

Between 2001 and 2020, an infectious disease was the most common hazard type for events recorded in the EMS globally. However, overall, there have been more events related to non-infectious hazards observed across all WHO Regions since 2007 compared the period prior to 2007. This reflects the adoption, in June 2007, of the revised IHR (2005) for which the scope was expanded to include any public health hazards (irrespective of origin or source) that presents or could present significant harm to humans. In 2020, the proportion of infectious disease-related hazards globally was the highest observed since 2016 during the Zika virus disease epidemic, due to COVID-19. Following this, disasters continued to account for the second most frequent hazard.

In addition to COVID-19, a wide range of infectious disease events occurred across the three WHO Regions in 2020, with yellow fever, dengue, malaria, measles, cholera, influenza due to avian or animal influenza virus, and other bacterial diseases accounting for approximately one-quarter of substantiated events of infectious origin reported in these Regions. Vaccine-associated poliomyelitis, dengue and malaria were the only infectious disease events reported across all three WHO Regions in 2020.

Several information products related to new, ongoing, and updated events were disseminated to the international community in 2020. This has enabled the Organization to share transparent, independent, and authoritative information on events as well as to provide specific guidance and recommendations to States Parties through reports and EIS postings shared with NFPs. These information products have been instrumental during the COVID-19 pandemic. Additionally, in the WHO African Region, a large proportion of the disseminated information products were related to the EVD outbreaks in the Democratic Republic of the Congo. In the WHO Region of the Americas, several information products related to vaccine-preventable diseases and arboviral diseases were disseminated. For the WHO European Region, regular situation reports were issued for several graded emergencies, including the Nogorno-Karabakh conflict, measles updates, and the COVID-19 pandemic.

Overall, this report highlights the importance engagement between WHO and States Parties for the implementation of the IHR framework, particularly related to event detection, verification, risk assessment, and information sharing. Furthermore, the COVID-19 pandemic has been a real-life scenario of the critical role of the IHR framework in coordinating a global public health response. Given this, there is an urgent need to continue and sustain resources, funding, and IHR compliance and enforcement mechanisms at the global level.

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## Annexes

### *Annex 1. List of States Parties and territories or overseas departments of the WHO African Region, WHO Region of the Americas, and WHO European Region*

The **WHO African Region** consists of the following 47 States Parties:

Algeria, Angola, Benin, Botswana, Burkina Faso, Burundi, Cameroon, Cabo Verde, Central African Republic, Chad, Comoros, Congo, Côte d'Ivoire, Democratic Republic of Congo, Equatorial Guinea, Eritrea, Ethiopia, Eswatini, Gabon, Gambia, Ghana, Guinea, Guinea-Bissau, Kenya, Lesotho, Liberia, Madagascar, Malawi, Mali, Mauritania, Mauritius, Mozambique, Namibia, Niger, Nigeria, Rwanda, Sao Tome and Principe, Senegal, Seychelles, Sierra Leone, South Africa, South Sudan, Togo, Uganda, United Republic of Tanzania, Zambia, Zimbabwe

The **WHO Region of the Americas** consists of the following 35 States Parties and 21 territories:

**States Parties:** Antigua and Barbuda, Argentina, the Bahamas, Barbados, Belize, Bolivia, Brazil, Canada, Chile, Colombia, Costa Rica, Cuba, Dominica, the Dominican Republic, Ecuador, El Salvador, Grenada, Guatemala, Guyana, Haiti, Honduras, Jamaica, Mexico, Nicaragua, Panama, Paraguay, Peru, Saint Kitts and Nevis, Saint Lucia, Saint Vincent and the Grenadines, Suriname, Trinidad and Tobago, the United States of America, Uruguay, Venezuela

**Territories:** Anguilla, Aruba, Bermuda, Bonaire, British Virgin Islands, Cayman Islands, Curacao, Falkland Islands (Malvinas), French Guiana, Guadeloupe, Martinique, Montserrat, Puerto Rico, Saba, Saint Barthelemy, Saint Martin, Saint Pierre and Miquelon, Sint Eustatius, Sint Maarten, Turks and Caicos Islands, United States Virgin Islands

The **WHO European Region** consists of the following 55 States Parties and 9 territories or overseas departments:

**States Parties:** Albania, Andorra, Armenia, Austria, Azerbaijan, Belarus, Belgium, Bosnia and Herzegovina, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Georgia, Germany, Greece, Holy See, Hungary, Iceland, Ireland, Israel, Italy, Kazakhstan, Kyrgyzstan, Latvia, Liechtenstein, Lithuania, Luxembourg, Malta, Monaco, Montenegro, Netherlands, North Macedonia, Norway, Poland, Portugal, Republic of Moldova, Romania, Russian Federation, San Marino, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Tajikistan, Turkey, Turkmenistan, Ukraine, United Kingdom, Uzbekistan

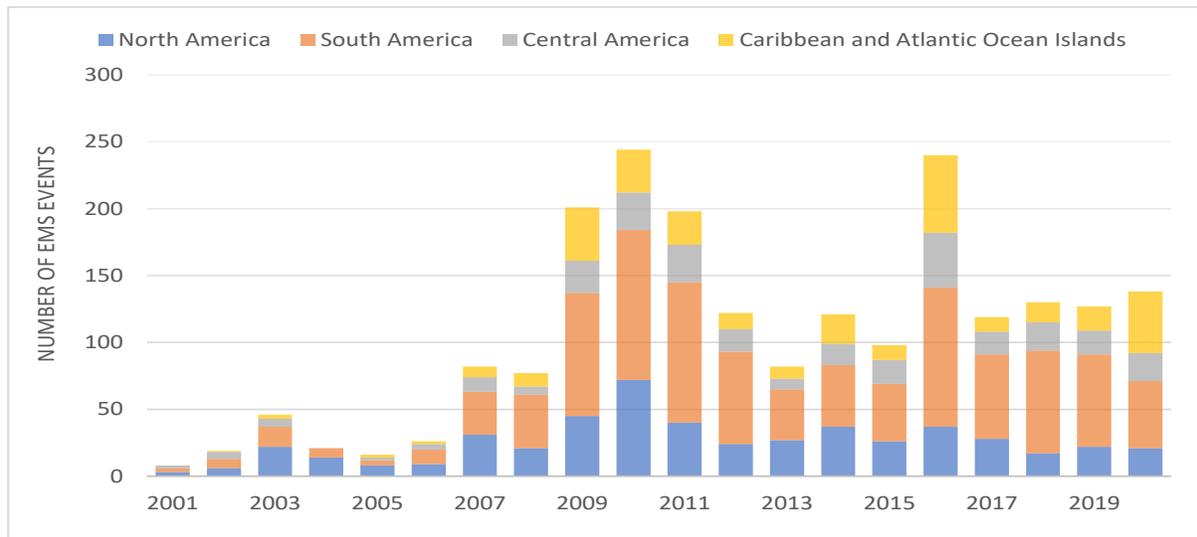
**Territories or Overseas Departments:** Faroe Islands, Gibraltar, Greenland, Guernsey, Isle of Man, Jersey, Kosovo<sup>17</sup>, Mayotte, Réunion

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<sup>17</sup> All references to Kosovo in this document should be understood to be in the context of the United Nations Security Council resolution 1244 (1999)

**Annex 2. Distribution of events recorded in the EMS in the WHO Region of the Americas by subregion and year**

**Figure 1.** Distribution of events recorded in the WHO Event Management System (EMS) in the WHO Region of the Americas (N=2,115) by subregion and year. 2001-2020.



*\*Caribbean and Atlantic Ocean Islands:* Anguilla, Antigua and Barbuda, Aruba, the Bahamas, Barbados, Bermuda, Bonaire, Saint Eustatius and Saba, the British Virgin Islands, the Cayman Islands, Cuba, Curacao, Dominica, the Dominican Republic, Grenada, Guadeloupe, Haiti, Jamaica, Martinique, Monserrat, the Netherlands Antilles, Puerto Rico, Saint Barthélemy, Saint Kitts and Nevis, Saint Lucia, Saint Martin, Sint Maarten, Saint Vincent and the Grenadines, Trinidad and Tobago, Turks and Caicos, and the U.S. Virgin Islands

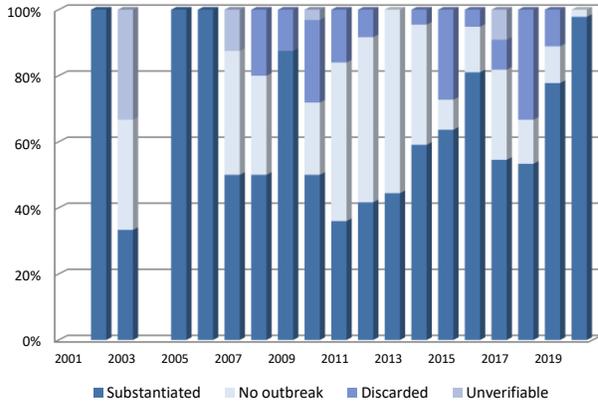
*\*Central America:* Belize, Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua, and Panama

*\*North America:* Canada, Mexico and the United States of America

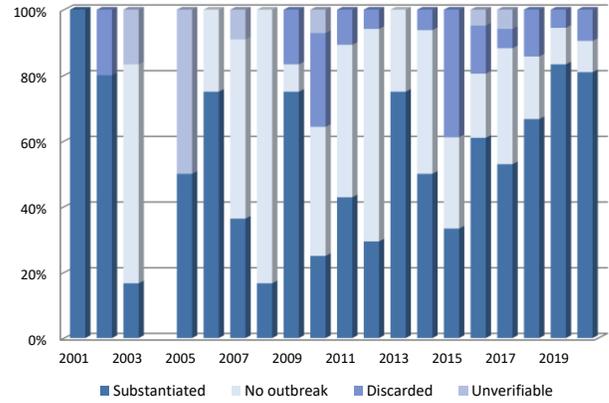
*\*South America:* Argentina, Bolivia, Brazil, Chile, Colombia, Ecuador, Falkland Islands (Malvinas), French Guiana, Guyana, Paraguay, Peru, Suriname, Uruguay, and Venezuela

**Annex 3. Distribution of events recorded in the EMS in the WHO Region of the Americas by subregion<sup>18</sup>, final designation, and year, 2001-2020**

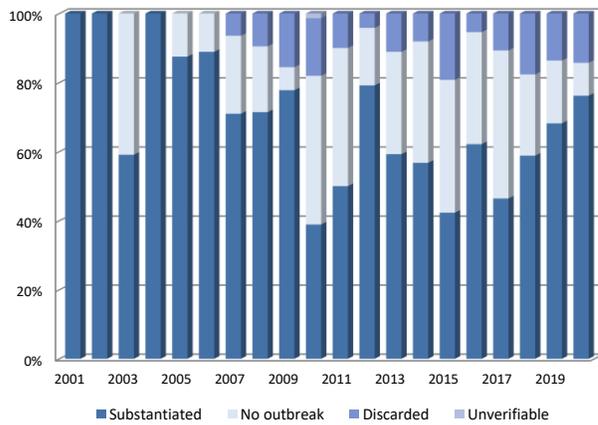
**Figure 1.** Distribution of events in the EMS by final designation and year in the Caribbean, 2001-2020, N=325



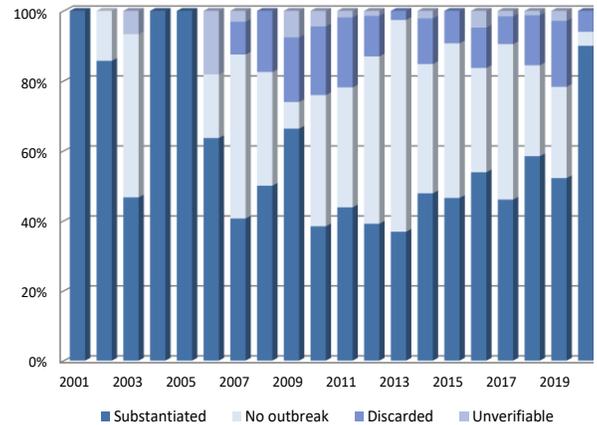
**Figure 2.** Distribution of events in the EMS by final designation and year in Central America, 2001-2020, N=293



**Figure 3.** Distribution of events in the EMS by final designation and year in North America, 2001-2020, N=510



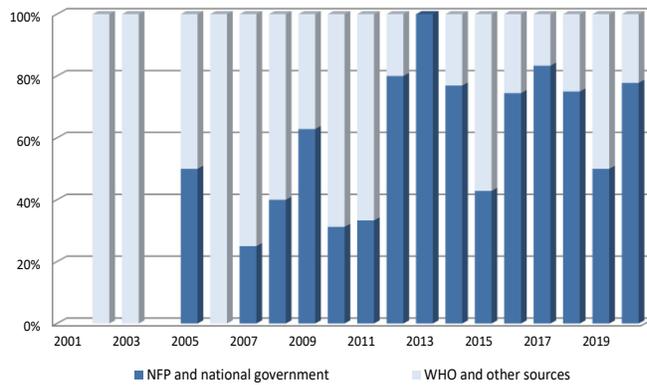
**Figure 4.** Distribution of events in the EMS by final designation and year in South America, 2001-2020, N=987



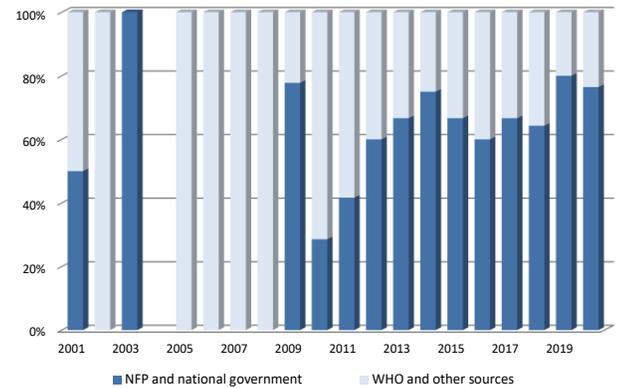
<sup>18</sup> Annex 2 provides a list of the countries and territories included in the data for each subregion

**Annex 4. Distribution of substantiated events recorded in the EMS in the WHO Region of the Americas by subregion<sup>19</sup>, initial source of information, and year, 2001-2020**

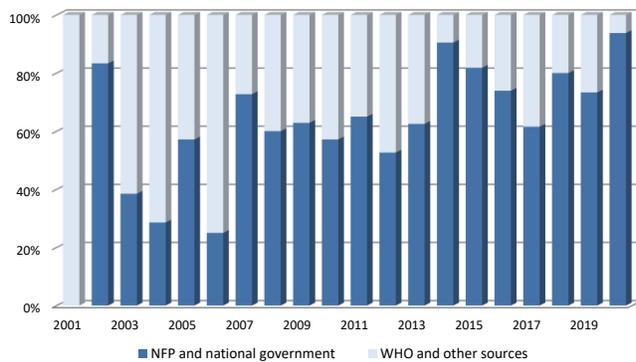
**Figure 1.** Distribution of substantiated events in the EMS by source of information and year in the Caribbean, 2001-2020, N= 224



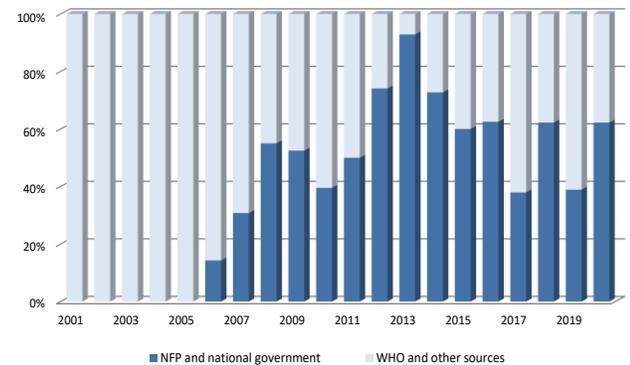
**Figure 2.** Distribution of substantiated events in the EMS by source of information and year in Central America, 2001-2020, N=158



**Figure 3.** Distribution of substantiated events in the EMS by source of information and year in North America, 2001-2020, N=315



**Figure 4.** Distribution of substantiated events in the EMS by source of information and year in South America, 2001-2020, N=511



<sup>19</sup> Annex 2 provides a list of the countries and territories included in the data of each subregion

*Annex 5. Comparison of the proportion of substantiated events recorded in the EMS in the WHO Region of the Americas by subregion<sup>20</sup> and initial source of information between 2007-2011 and 2012-2017.*

| Subregion       | 2007-2011                       |             | 2012 - 2017                     |             |
|-----------------|---------------------------------|-------------|---------------------------------|-------------|
|                 | NFP and National Government (%) | WHO (%)     | NFP and National Government (%) | WHO (%)     |
| Andean          | 35.7                            | 64.3        | 55.6                            | 44.4        |
| Central America | 26.8                            | 73.2        | 56.3                            | 43.8        |
| Caribbean       | 39.4                            | 60.6        | 56.7                            | 43.3        |
| North America   | 35.0                            | 65.0        | 37.1                            | 62.9        |
| Southern Cone   | 39.5                            | 60.5        | 54.4                            | 45.6        |
| <b>Total</b>    | <b>36.0</b>                     | <b>64.0</b> | <b>50.3</b>                     | <b>49.7</b> |

<sup>20</sup> Annex 2 provides a list of the countries and territories included in the data of each subregion

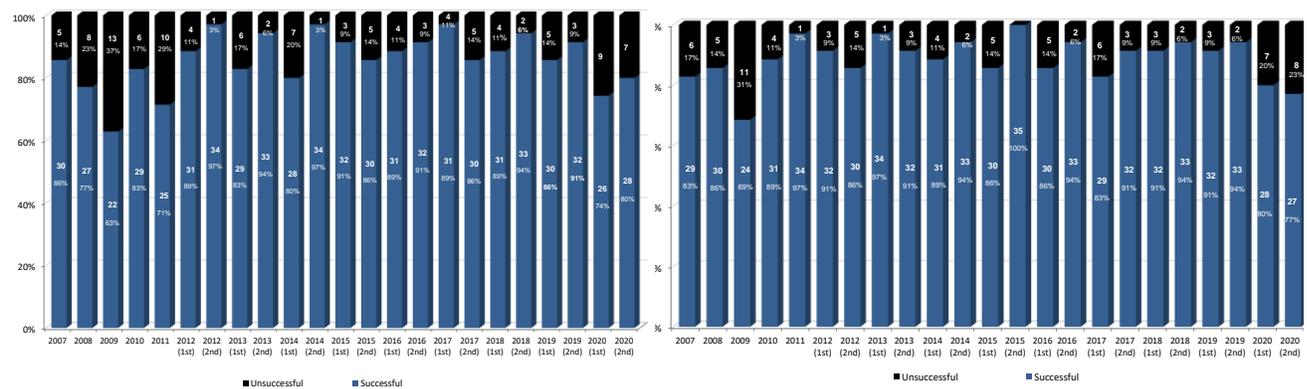
## Annex 6. Communication tests under IHR (2005) in the Region of the Americas

Ensuring that States Parties have fully functional means of communication, pursuant to Article 4 of the IHR, is integral to the exchange of event information with NFPs. Accordingly, in 2020, the WHO IHR Contact Point for the Region of the Americas carried out two communication tests with the 35 NFPs of the Americas, testing the official contact information provided for 24/7 communication with WHO and other NFPs.

The communication tests have been carried out with NFPs in the WHO Region of the Americas since 2007<sup>21</sup>. After each test, the outcome is shared with NFPs to address any unsuccessful results. Results of the phone communication test are categorized as successful if it is possible to reach the NFP at any of the official phone numbers listed in the WHO directory for NFPs. Phone communication tests are categorized as unsuccessful if it is not possible to reach an NFP or someone from the NFP team through each of the phone numbers listed and after calling on at least two different dates. Email communication tests are categorized as successful if an acknowledgement is received for the email communication test message. Email communication tests are categorized as unsuccessful if no acknowledgement is received for the email communication test message. The figures below show a comparison of the phone and email communication test results; notably both semester results in 2020 were among the lowest response results since 2009, during which the Region also experienced a pandemic.

**Email communication test results from 2007-2020, WHO Region of the Americas.**

**Phone communication test results from 2007-2020, WHO Region of the Americas.**



<sup>21</sup> From 2007 to 2011 communication tests were conducted once a year. Starting in 2012, the communication tests have been conducted twice a year, once during the first semester and a second time during the second semester.