

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

## 2019 Report

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October 2020

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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 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 2019, with a primary focus on the year 2019, in three WHO Regions: Africa, the Americas, and Europe. The data on public health events that occurred in States Parties from 2001 to 2019 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.

From 2001 to 2019, a total of 6,859 events were recorded in the WHO EMS, of which 500 were recorded in 2019 alone. Of these 500 events in 2019, 410 (67%) were substantiated following the official WHO verification process. Substantiated events in 2019 were distributed across Regions as follows: 103 (25%) in the WHO African Region, 80 (20%) in the WHO Region of the Americas, 37 (9%) in the WHO European Region, and 190 (46%) in other WHO Regions (Eastern Mediterranean, South-East Asia, and the Western Pacific). While most of these events were of infectious origin (e.g., cholera, measles, dengue fever, influenza, etc.), 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 National Focal Points (NFPs), during 2019, the proportion of responses to verification requests received within 24 hours was 43% in the WHO Region of the Americas and 88% in the WHO European Region. There is a continued need to understand and address the reasons to improve the timeliness of getting relevant and valid information obtained through the official IHR verification channel. There are currently no effective IHR enforcement mechanisms in place globally.

Effective surveillance systems and timely communication and information sharing through the global network of NFPs of States Parties is critical to manage the impact posed by complex and severe events that occur. Overall, the NFP was the initial source of information for a significant proportion of substantiated events reported between 2007 and 2019, in the WHO Regions of the Americas and Europe. In the WHO African Region, NFP contribution could not be accurately estimated since the initial source of information came mainly from the WHO Country Office that acts as the liaison between the Regional Office and States Parties.

This report highlights the importance of continuously strengthening WHO engagement and collaboration with States Parties in order to achieve their full commitment and contribution in all aspects of the IHR implementation, particularly those related to detection, verification, risk assessment, and reporting of events. This will require dedicated human resources, close collaboration with partners and other stakeholders, transparent information-sharing among States Parties, and sustained funding. There is an urgent need to develop effective IHR compliance and enforcement tools globally.

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## 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 2019, with a particular focus on the events that occurred in the WHO Regions of Africa, the Americas, and Europe, during 2019.

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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>

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## 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) 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, verified, and assessed event presented in this report was documented and recorded in the WHO Event Management System (EMS)<sup>6,7</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>8</sup> an unofficial report for which a request for verification is sent to a State Party;<sup>9</sup>), but also any events for which WHO assistance is requested, or that might pose a reputational risk to the Organization.

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.

The data and information used in this report were extracted from the EMS on 14 July 2020. Events were included based on the date of creation within the system between 1 January 2001 to 31 December 2019. The results presented in this report are structured as follows: event detection, event designation, initial source of event information, type of hazard, and information dissemination. Given the routine update and cleaning of EMS data, previous and future reports may show minor differences in some annual indicators.

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<sup>6</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>7</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>8</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>9</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."



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## 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 informal risk assessment process, 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.

Hazards are categorized as:

- *animal*, if there is potential harm to public health from 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;
- *natural 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;
- *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;
- *radio-nuclear*, 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.



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## Results

### Event detection

From 2001 to 2019, a total of 6,859 public health events were recorded globally in the EMS, of which 4,811 (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 2015 (89%), 2010 (89%), and 2016 (86%). In 2019, the proportion of EMS events that were recorded in these three WHO Regions was 59%.

Since 2015, there has been a gradual overall increase in the number of recorded events observed globally. This could be attributed in part to improved use of EMS and related trainings, and systematic engagement with States Parties to improve national surveillance systems (joint external evaluations, SimEx, NFP workshops, etc.). Globally, in 2019, a total of 483 public health events were detected, recorded in the EMS, and monitored by WHO, of which 108 (22%) occurred in 35 IHR States Parties in the **WHO African Region**, 127 (26%) in 29 IHR States Parties and 2 territories in the **WHO Region of the Americas**, and 59 (12%) in 21 IHR States Parties and 1 overseas department in the **WHO European Region** (see Annex 1 for a list of IHR States Parties in each WHO Region). During 2019, significant public health emergencies occurred in these three WHO Regions, including infectious diseases such as poliomyelitis—which has continued to be a declared public health emergency of international concern (PHEIC)—and Ebola virus disease (EVD) and other hemorrhagic fevers, along with sequelae of civil conflict and natural disasters.

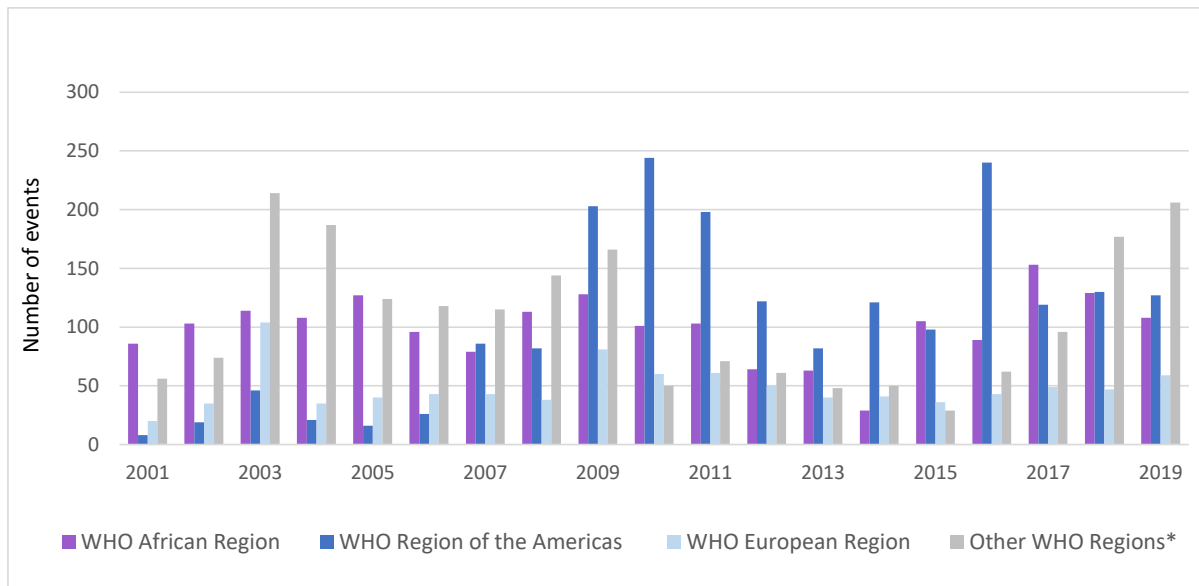
In 2019 compared to 2018, there was a 16% decrease in the number of events recorded in the **WHO African Region**, a 2% decrease in the number of events recorded in the **WHO Region of the Americas**, and a 26% increase in the number of events recorded in the **WHO European Region**; the latter was due to various hazards and aetiologies with no one specific cause accounting for the increase.

In the **WHO Region of the Americas**, on a sub-regional level comparing 2019 to 2018, increases in the number of events were observed in North America (29%) and the Caribbean (20%), while decreases in the number of events were observed in Central America (14%) and South America (10%). *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, particularly through EIOS, used in the Region and by the WHO Headquarters, and by adding one full-time employee (FTE) (for part of the year).



**Figure 1.** Distribution of EMS events (N=6,859) by WHO Region and year, 2001-2019.



\*Other WHO Regions represent the sum of events recorded by the WHO South-East Asia Region,<sup>10</sup> the WHO Eastern Mediterranean Region,<sup>11</sup> and the WHO Western Pacific Region.<sup>12</sup>

## Event designation

This section summarizes the final designation of events recorded in the EMS since 2001, with a particular focus on substantiated events. Between 2001 and 2019, of the 6,859 total events assessed globally in the EMS, 4,580 (67%) were designated as substantiated (Figure 2), 1,123 (16%) as no outbreak, 490 (7%) as discarded, 341 (5%) as unverifiable, 301 (4%) had no designation, and 24 (<1%) as under verification. Of the 4,580 substantiated events between 2001 and 2019, 71% were events recorded in the WHO Regions of Africa, the Americas, and Europe. Of these three WHO Regions, the **WHO African Region** accounts for the majority of substantiated events recorded in the EMS between 2001 and 2019 (1,583/4,580; 25%), followed by the **WHO Region of the Americas** (1,091/4,580; 20%), and the **WHO European Region** (609/4,580; 9%).

In the last five years (2015 to 2019), the proportion of events which were substantiated ranged from 88% to 96% (median: 95%) for the **WHO African Region**<sup>13</sup>; 45% to 63% (median: 59%) for the **WHO Region of the Americas**; and 51% to 91% (median: 63%) for the **WHO European Region**.

<sup>10</sup> <http://www.searo.who.int/en/>

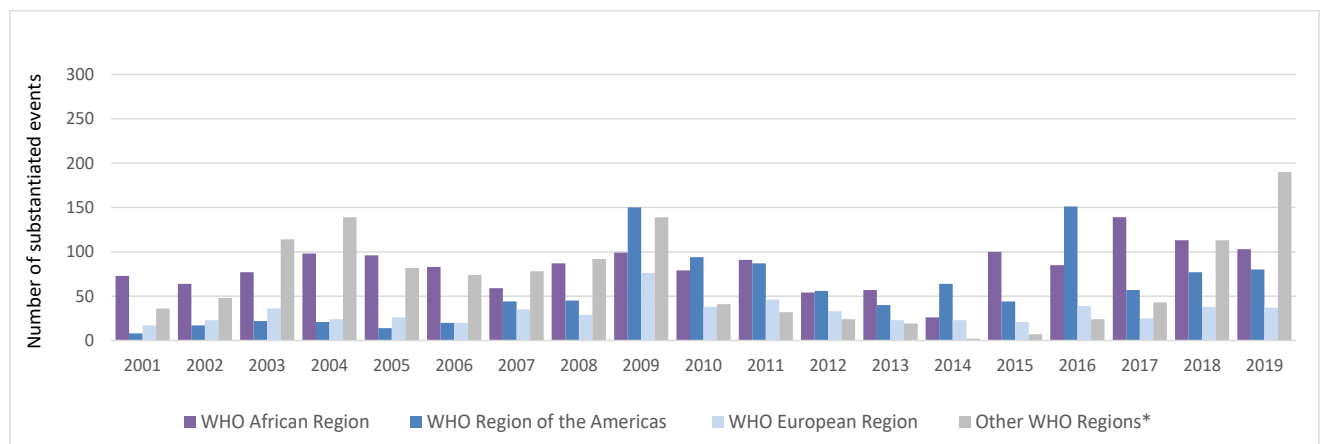
<sup>11</sup> <http://www.emro.who.int/index.html>

<sup>12</sup> <http://www.wpro.who.int/en/>

<sup>13</sup> Notably, the WHO African Region does not systematically enter requests for verification into the EMS; non-substantiated events are less likely to be recorded, leading to a higher proportion of substantiated events.

In 2019 alone, of the 500 total events assessed globally in the EMS, 410 (82%) were designated as substantiated, 42 (8%) as no outbreak, 27 (5%) as discarded, 14 (3%) as under verification, and 7 (1%) as unverifiable; all events had a completed designation. Of the 410 substantiated events in 2019, 54% were events recorded in the WHO Regions of Africa, the Americas, and Europe.

**Figure 2.** Distribution of substantiated EMS events (N=4,580) by WHO Region and year, 2001-2019.



\*Other WHO Regions represent the sum of events recorded by the WHO South-East Asia Region,<sup>14</sup> the WHO Eastern Mediterranean Region,<sup>15</sup> and the WHO Western Pacific Region.<sup>16</sup>

Between 2001 and 2019, 1,898 (28%) of the 6,859 events assessed globally in the EMS occurred in the **WHO African Region**. Of these 1,898 events, 1,583 (83%) were designated as substantiated, 131 (7%) as no outbreak, 114 (6%) as unverifiable, 69 (4%) as discarded, and 1 (<1%) as not designated (Figure 3). It is important to note that, in this 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.

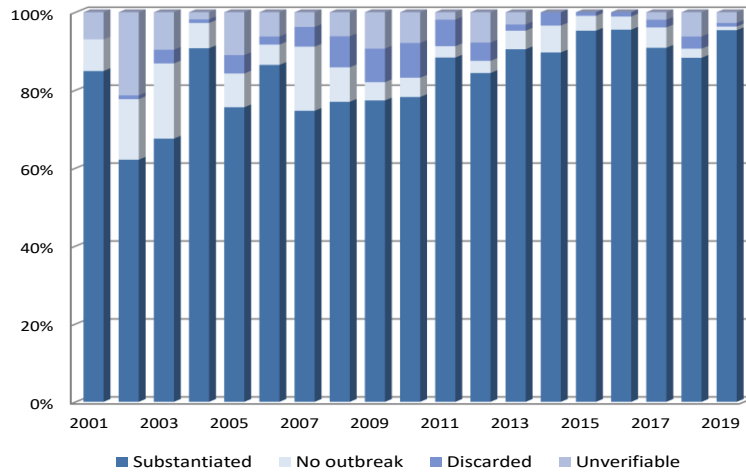
With regards to 2019 data, 108 (22%) of all 500 events assessed globally in the EMS occurred in the WHO African Region. Of those 108 events, 103 (95%) were designated as substantiated, one (1%) as no outbreak, one (1%) as discarded, and 3 (3%) as unverifiable. In 2019, the proportion of substantiated events (95%) increased compared to the previous year (88% in 2018), while the proportions of events designated as discarded, unverifiable, no outbreak, and not designated, decreased.

<sup>14</sup> <http://www.searo.who.int/en/>

<sup>15</sup> <http://www.emro.who.int/index.html>

<sup>16</sup> <http://www.wpro.who.int/en/>

**Figure 3.** Distribution of EMS events in the WHO African Region (N=1,898) by final designation and year, 2001–2019.

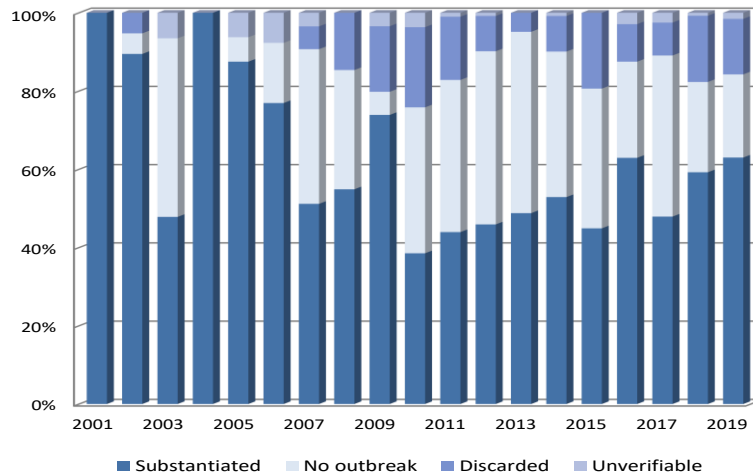


Between 2001 and 2019, 1,988 (29%) of the 6,859 events assessed globally in the EMS occurred in the **WHO Region of the Americas**. Of the 1,988 events, 1,091 (55%) were designated as substantiated, 603 (30%) as no outbreak, 252 (13%) as discarded, and 42 (2%) as unverifiable (Figure 4).

In 2019, 127 (25%) of the 500 events assessed globally in the EMS occurred in the WHO Region of the Americas. Of those 127 events, 80 (63%) were designated as substantiated, 27 (21%) as no outbreak, 18 (14%) as discarded, and 2 (2%) as unverifiable. In 2019, the proportions of substantiated and unverifiable events increased compared to the previous year, while the proportions of events designated as no outbreak and discarded decreased.

In 2019, the proportion of substantiated events increased in each subregion of the Americas except for the South America, which slightly decreased. *The distribution of events by final designation in the subregions of the Americas is presented in Annex 3.*

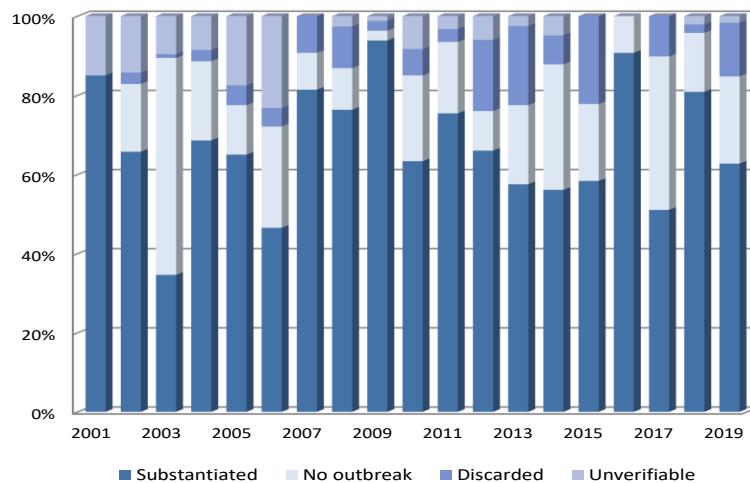
**Figure 4.** Distribution of EMS events in the WHO Region of the Americas (N=1,988) by final designation and year, 2001-2019.



Between 2001 and 2019, 925 (13%) of the 6,859 events assessed globally in the EMS, occurred in the **WHO European Region**. Of these 925 events, 609 (66%) were designated as substantiated, 196 (21%) as no outbreak, 65 (7%) as discarded, and 55 (6%) as unverifiable (Figure 5).

In 2019, 59 (12%) of the 500 events assessed globally in the EMS occurred in the WHO European Region. Of those, 37 (63%) were designated as substantiated, 13 (22%) as no outbreak, 8 (14%) as discarded, and one (2%) as unverifiable. In 2019, the proportions of discarded events and events designated as no outbreak increased compared with the previous year, partly due to enhanced EBS and further communication with NFPs (which warrants logging them into EMS), thus decreasing the proportion of events designated as substantiated.

**Figure 5.** Distribution of EMS events in the WHO European Region (N=925) by final designation and year, 2001-2019.



### Initial source of event information

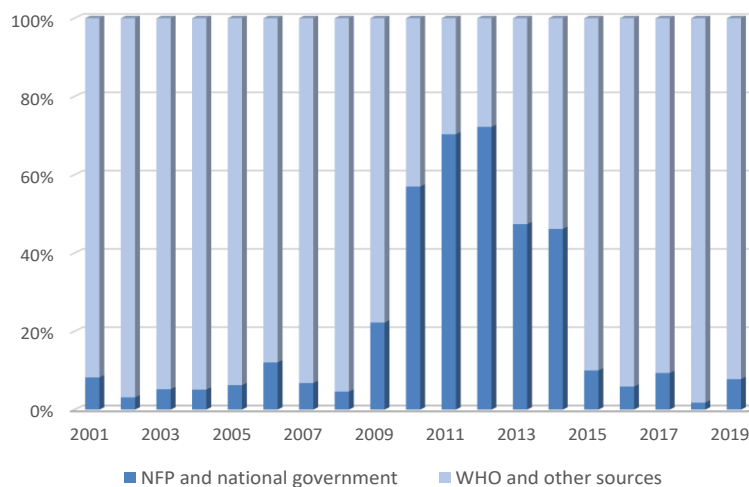
This section summarizes the initial source of information for events designated as substantiated in the EMS since 2001. Certain considerations should be taken into account when interpreting the following data: a) the International Health Regulations (2005) entered into force in 2007, after which NFPs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

Between 2001 and 2019, in the **WHO African Region**, 1,583 substantiated events were recorded in the EMS. Of these, 288 (18%) were listed as directly reported by NFPs and national governments, while 1,295 (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 6).

In 2019, of the 103 substantiated events recorded in the WHO African Region, 8 events (8%) had the NFPs and national governments listed as the initial source of information, and 95 (92%) 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 the WHO African Region, although an increase was observed in the proportion of records with NFPs and national governments designated as the information source after 2008, this proportion significantly decreased in 2015 and remained low through 2019. However, this trend might reflect changes in event reporting and recording procedures rather than changes in NFP participation.

**Figure 6.** Distribution of substantiated EMS events in the WHO African Region (N=1,583) by source of initial information and year, 2001-2019.



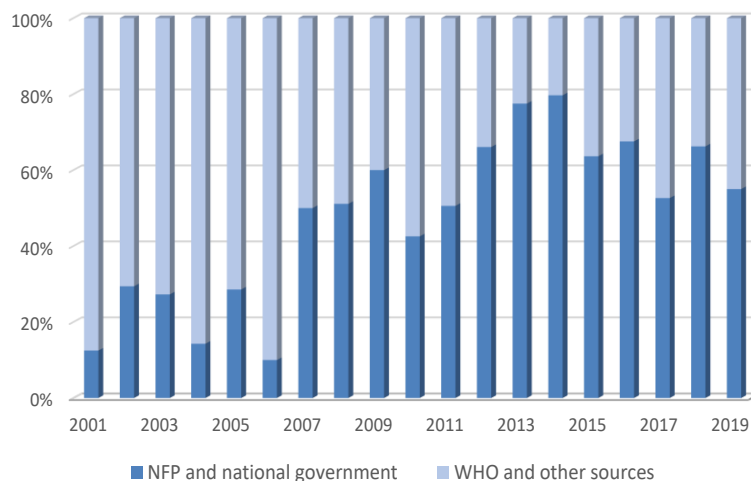
Between 2001 and 2019, in the **WHO Region of the Americas**, 1,091 substantiated events were recorded in the EMS. Of these, 614 events (56%) were reported by NFPs and national governments, while the remaining 477 events (44%) were detected through routine epidemic intelligence (including indicator and event-based surveillance) conducted by the Regional and Country Offices within the Region (Figure 7).

In 2019, in the WHO Region of the Americas, of the 80 substantiated events, 44 (55%) had NFPs and national governments listed as the initial source of information, while the remaining 36 events (45%) had WHO or other sources listed. During this year, requests for verification were sent to NFPs to verify information and obtain further details for 47 events. Of these, NFP responses were received within less than 24 hours for 20 (43%) events, between 24 and 48 hours for 3 (6%) events, and more than 48 hours for 22 (47%) events; no response was received for 2 events (4%). In 2019, the overall response rate for verification requests received within 24 hours increased compared to the previous three years (43% in 2019 compared to 39% in 2018, 34% in 2017, 28% in 2016) but was less than that in 2015 (52%).

In the WHO Region of the Americas, an increasing trend in NFPs and national governments as the initial source of substantiated events has been observed from 2007 to 2014, after which there was a gradual decrease. In 2019, there was a slight decrease observed compared to 2018.

Regarding subregions in the Americas, the proportion of substantiated events reported by NFPs or national governments as the initial source of information decreased in 2019 compared to 2018 for all subregions except for Central America, which increased from 64% to 80% (*see Annex 4*).

**Figure 7.** Distribution of substantiated EMS events in the WHO Region of the Americas (N=1,091) by source of initial information and year, 2001-2019.

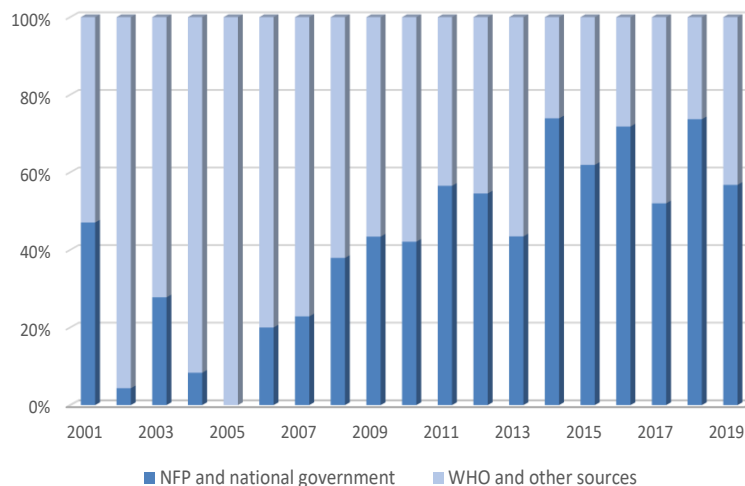


Between 2001 and 2019, in the **WHO European Region**, 609 substantiated events were recorded in the EMS. Of these, 267 (44%) were reported by NFPs and national governments via direct communication or through the European Commission Early Warning and Response System (EWRS), while 342 (56%) were detected through routine epidemic intelligence (including indicator and event-based surveillance) conducted by the Regional and Country Office levels within the Region (Figure 8).

In 2019, in the WHO European Region, of the 37 substantiated events, 21 (57%) had NFPs, and national governments indicated as the initial source of information, while the remaining 16 events (43%) had WHO or other sources listed. During 2019, 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 shown.

In the WHO European Region, an overall increasing trend in NFPs and national governments as the initial source of substantiated events has been observed since 2007, also due to regular 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. In 2019, there was a relative decrease observed in the NFP notifications as primary source compared to 2018, partly due to enhanced EBS and well-functioning EC EWRS system for EU/EEA countries (interchangeable with direct IHR notifications).

**Figure 8.** Distribution of substantiated EMS events in the WHO European Region (N=609) by source of initial information and year, 2001-2019.



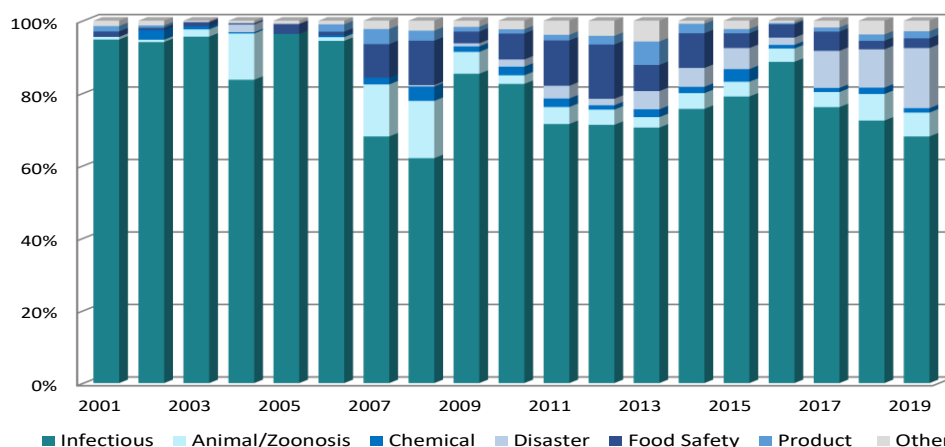


## Hazard type

This section summarizes the hazard type<sup>17</sup> for events designated as substantiated in the EMS since 2001. While the IHR (2005) uses an all-hazards approach, infectious diseases have represented the vast majority of hazards among substantiated events reported globally and specifically across the WHO Regions of Africa, the Americas, and Europe, since 2001 (Figure 9). However, between 2017-2019, an increasing proportion of substantiated events have been non-infectious, particularly disaster-related.

Between 2001 and 2019, the 4,580 substantiated events were classified based on their aetiology as follows: infectious diseases (N=3,663; 80%), animal/zoonosis (N=259; 6%), food safety (N=228; 5%), disaster (N=188; 4%), other causes (N=99; 2%), product (N=72; 2%), and chemical (N=71; 2%).

**Figure 9.** Distribution of substantiated EMS events for all WHO Regions (N=4,580) by hazard type and year, 2001 to 2019.

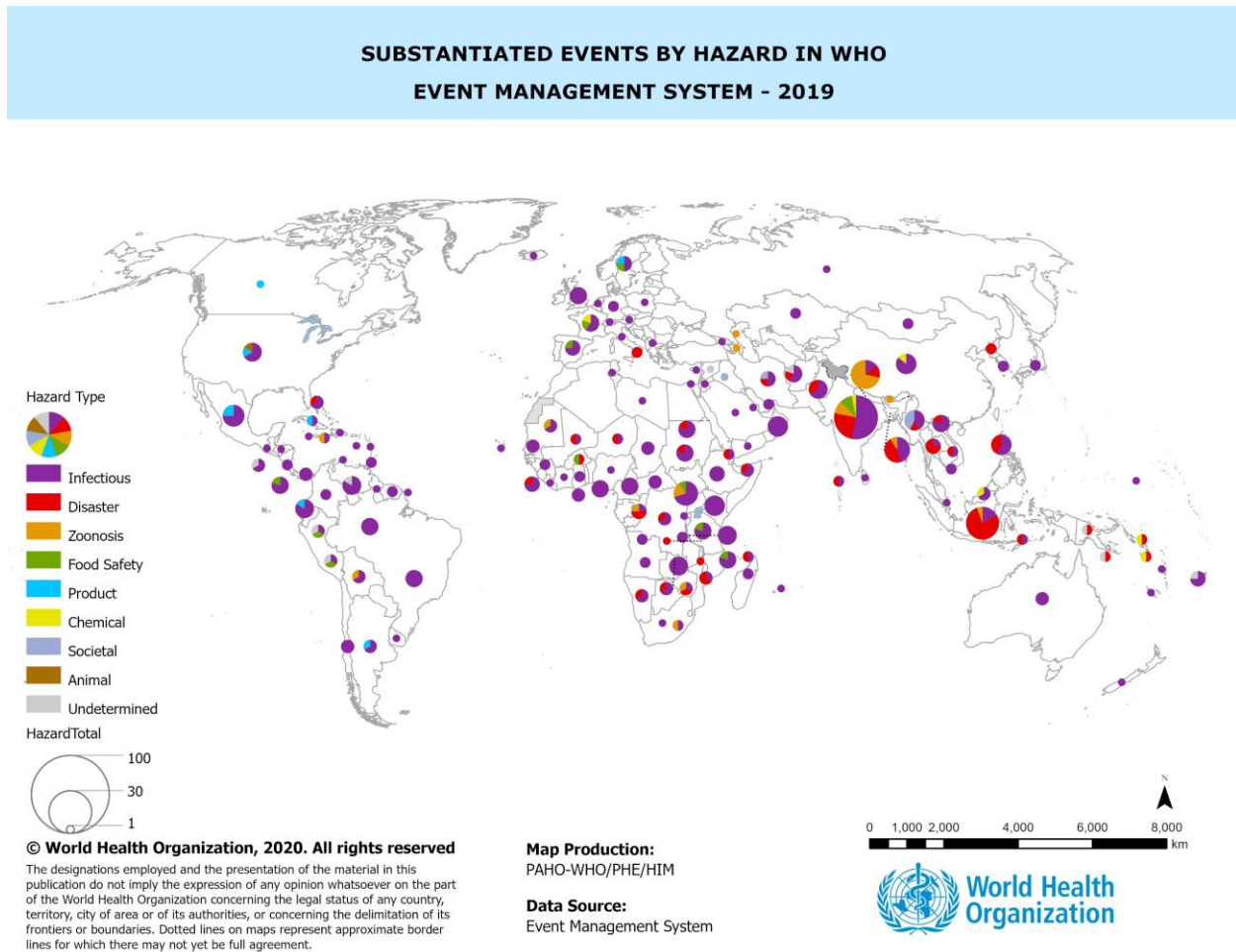


In 2019, the 410 substantiated events were classified based on their aetiology as follows: infectious (N=279; 68%), disaster (N=68; 17%), animal/zoonosis (N=27; 7%), other causes (N=12; 3%), food safety (N=11; 3%), product (N=8; 2%), and chemical (N=5; 1%).

Map 1 depicts events that were substantiated during 2019 by hazard type for all WHO Regions. 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>17</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.

**Map 1.** Global geographic distribution of substantiated EMS events by hazard type, 2019.

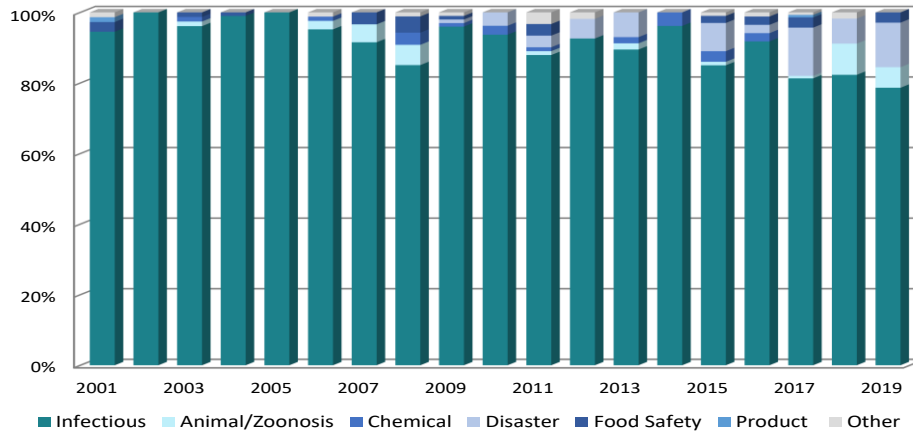


Between 2001 and 2019, the 1,583 substantiated events reported in the **WHO African Region** were classified based on their aetiology as follows: infectious (N=1,432; 90%), disaster (N=64; 4%), animal/zoonosis (N=31; 2%), food safety (N=25; 2%), chemical (N=16; 1%), other causes (N=13; 1%), and product (N=2; <1%) (Figure 10).

In 2019 in the WHO African Region, among the 103 substantiated events, 81 (79%) were classified as infectious, 13 (13%) as disaster, 6 (6%) as animal/zoonosis, and 3 (3%) as food safety. No events were classified by the remaining hazard types.

In the WHO African Region, the second most common hazard type among substantiated events was disasters for the 2001-2019 period as well as for 2019 alone.

**Figure 10.** Distribution of substantiated EMS events in the WHO African Region (N=1,583) by hazard type and year, 2001–2019.

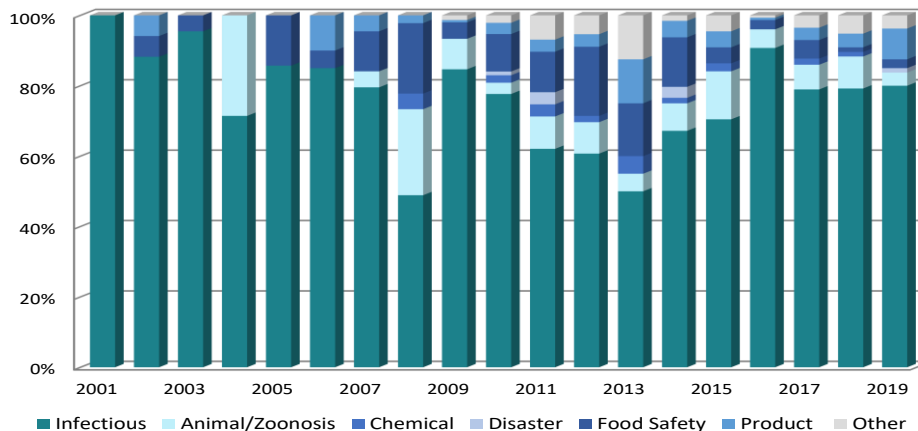


Between 2001 and 2019, the 1,091 substantiated events reported in the **WHO Region of the Americas** were classified as follows: infectious (N=834; 76%), food safety (N=84; 8%), animal/zoonosis (N=83; 8%), product (N=38; 3%), other causes (N=31; 3%), chemical (N=14; 1%), and disaster (N=7; 1%) (Figure 11).

In 2019 in the WHO Region of the Americas, among the 80 substantiated events, 64 (80%) were classified as infectious, 7 (9%) as product, 3 (4%) as animal/zoonosis, 3 (4%) as other causes, 2 (3%) as food safety, and one (1%) as disaster. There were no chemical events recorded in 2019.

In the WHO Region of the Americas, the second most common hazard types among substantiated events during 2001-2019 were food safety and animal/zoonosis (each 8%), while in 2019 alone, it was product.

**Figure 11.** Distribution of substantiated EMS events in the WHO Region of the Americas (N=1,091) by hazard type and year, 2001–2019.

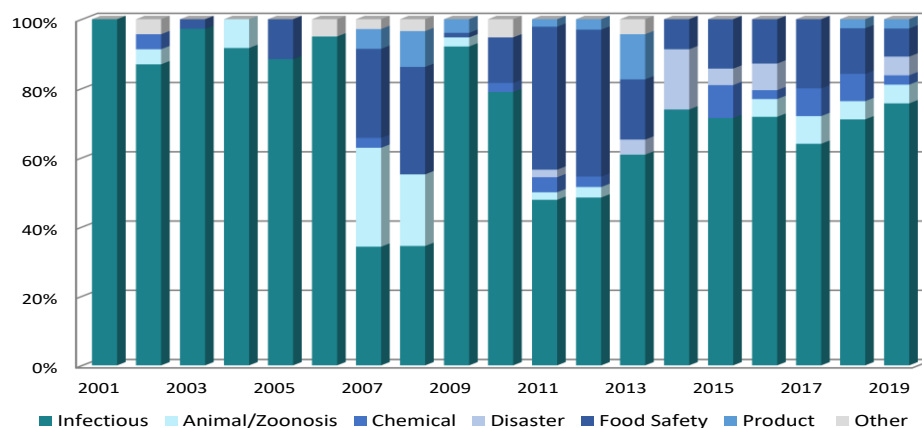


Between 2001 and 2019, the 609 substantiated events reported in the **WHO European Region** were classified as follows: infectious (N=441; 72%), food safety (N=88; 14%), animal/zoonosis (N=31; 5%), chemical (N=15; 2%), product (N=15; 2%), disaster (N=12; 2%), and other causes (N=7; 1%) (Figure 12).

In 2019 in the WHO European Region, of the 37 substantiated events, 28 (76%) were classified as infectious, 3 (8%) as food safety, 2 (5%) as animal/zoonosis, 2 (5%) as disaster, one (3%) as chemical, and one (3%) as product.

In the WHO European Region, the second most common hazard type among substantiated events, both during 2001-2019 and during 2019 alone, was food safety, which is partly due to well-established partnerships (e.g., INFOSAN, ECDC EPIS-FWD, EC RASFF).

**Figure 12.** Distribution of substantiated EMS events in the WHO European Region (N=609) by hazard type and year, 2001–2019.



Among the 173 substantiated events of infectious origin reported within these three WHO Regions in 2019, measles, dengue, cholera, and vaccine-associated acute paralytic poliomyelitis were the most prevalent, accounting for 39% of these events. Within these WHO Regions, the two most common infectious diseases were cholera (16/81; 20%) and measles (12/81; 15%) in the **WHO African Region**; measles (8/64; 11%) and dengue (7/64; 13%) in the **WHO Region of the Americas**; and dengue (4/28; 14%) and measles (3/28; 11%), including a multi-country graded emergency G2, in the **WHO European Region**.

## Information Dissemination

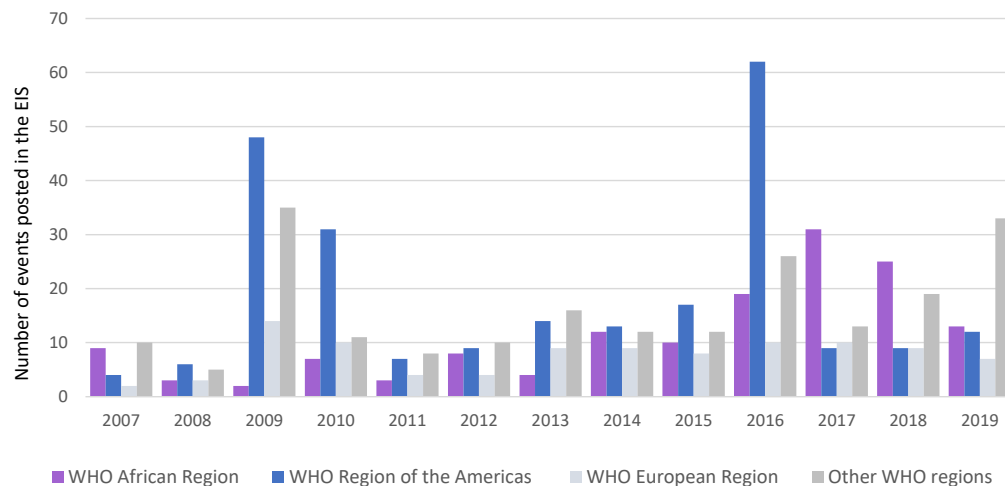
Under the provisions of the IHR, WHO is mandated to share independent and authoritative information on a potential PHEIC with States Parties, stakeholders, and the general public, in order to prepare for and prevent the occurrence of similar events. In order to fulfil this mandate to alert and inform 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.

In 2019, there were a total of 119 DON publications and 65 EIS postings pertaining to new events for all WHO Regions; the number of DON publications increased by 31% compared to 2018. During 2019, there was one DON related to the global measles situation. Overall, 83 (70%) of the 119 DON postings and 32 (49%) of the 65 EIS postings pertained to events occurring in or related to the three WHO Regions included in this report.

The distribution of new events published in the EIS by WHO Region and year since 2007 (N=696) is presented in Figure 13.

**Figure 13.** Distribution of events published in the WHO Event Information Site for National IHR Focal Points (EIS) (N=696) by WHO Region and year, 2007–2019.



In 2019, the **WHO African Region** contributed to 13 (20%) new EIS postings and DON publications (N=67; 56%). The number of EIS postings in 2019 is about half of that in 2018, including fewer cholera events, while the number of DON publications was similar to that in 2018. There were also 2 EIS announcements regarding the epidemiological situation of circulation vaccine-derived poliovirus type 2 (cVDPV2) specifically within the Region published in 2019. The majority of the 67 DONs published in 2019 were related to the EVD outbreak in North Kivu, South Kivu, and Ituri provinces in the Democratic Republic of the Congo. In addition to EIS and DON postings, other information products related to events occurring in this Region were disseminated to the international community, including 52 external situation reports on the EVD outbreaks in the Democratic Republic

of the Congo<sup>18</sup> and 52 editions of a regional weekly bulletin on outbreaks and other emergencies, which was launched in March 2017<sup>19</sup>.

The **WHO Region of the Americas** contributed to 12 (18%) new EIS postings and 7 (6%) DON publications in 2019; these numbers were similar in 2018. There were also 4 EIS announcements regarding the epidemiological situation for measles, dengue, and Mayaro fever specifically within the Region published in 2019. Additionally, 13 reports on events occurring in the Region were shared directly with NFPs by email and 30 Epidemiological Alerts and Updates were disseminated via the regional website, notably of which 9 were related to measles and 6 each were related to diphtheria and dengue<sup>20</sup>.

The **WHO European Region** contributed to 7 (11%) new EIS postings and 8 (7%) DON publications in 2019. The number of EIS postings was similar to that in 2018, while the number of DON publications doubled. Additionally, there were 4 EIS announcements published in 2019 for the WHO European Region, as well as a number of regional featured stories published on the official WHO Europe's website (e.g., measles, West Nile).

## Discussion and conclusion

The results from this report indicate that the WHO Regions of Africa, the Americas, and Europe, remain prone to infectious and non-infectious disease hazards alike. It is therefore critical for the WHO Regional Offices to intensify their support to States Parties in improving national capacities to rapidly detect and respond to multiple public health events.

Retrospective analysis from the past 18 years shows that the WHO Regions of Africa, the Americas, and Europe, have historically accounted for the majority of events globally recorded in the EMS annually, though in recent years, the proportion has been decreasing at the expense of other Regions. In 2019, these three WHO Regions accounted for slightly more than half (59%) of events recorded in EMS. While there may indeed be more events being detected in these WHO Regions, there are likely other contributing factors to explain this high proportion such as the protocols for recording such events in the EMS that vary between WHO Regions. The use of the EMS online platform has been instrumental for the efficient management of data related to public health events that may pose a threat to global health security. 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. However, this report has identified differences in EMS data entry protocols between the WHO Regions, thereby indicating a need for the standardization and harmonization of these protocols. Training of relevant staff in Regional and Country offices has been instrumental to properly documenting key public health events in the three Regions. Two online trainings were developed and implemented in 2019 on iLearn: they are

<sup>18</sup> <https://www.afro.who.int/health-topics/ebola-virus-disease>

<sup>19</sup> <https://www.afro.who.int/health-topics/disease-outbreaks/outbreaks-and-other-emergencies-updates>

<sup>20</sup> PAHO/WHO Epidemiological Alerts and Updates available at: <https://www.paho.org/en/epidemiological-alerts-and-updates>



mandatory for all WHO users who need to use EMS (Introduction to Event Management System; and Data procedures in Event Management System).

Overall, between 2001-2019, two-thirds of the 6,859 events detected and recorded globally in EMS were substantiated following a thorough WHO assessment and verification by NFPs and/or other relevant authorities (e.g., food safety), as applicable, and in 2019, this proportion was even higher (82%). In 2019, among the three WHO Regions in this report, the WHO European Region was the only WHO Region to experience a decrease in the proportion of substantiated events compared to the previous year, coupled with an increase in the proportion of discarded events. Meanwhile, the designations remained relatively similar to the previous year in the WHO African Region and in the WHO Region of the Americas.

Following the implementation of the IHR in 2007, there was 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 three WHO Regions. In the WHO Region of the Americas, this increasing trend plateaued in 2014, after which a slight decrease has been observed. In the WHO African Region, the increasing trend plateaued in 2012, after which there was a significant drop in the proportion of events for which NFPs and national governments were identified as the initial source of information. The sharp decrease observed in the WHO African Region is likely linked to changes in EMS data recording protocols based on existing reporting channels, according to which reports from NFPs are not directly received by the WHO Regional Office, which performs the EMS data entry, but rather by the WHO Country Office, resulting in NFPs not routinely identified as the initial source of information. In the WHO European Region, a plateau has been observed since 2014.

In 2019, the proportion of requests for verification for which a response (i.e. provision of information allowing an informed risk assessment)<sup>21</sup> was received within 24 hours, was low in the WHO Region of the Americas (43%) compared to the WHO European Region where the response rate was above 88%. In the WHO African Region, this data was not systematically recorded in the EMS and therefore could not be analysed. Timely information sharing is crucial for the international community to prepare for, respond to, and prevent further spread of public health threats. 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. Despite this, almost half (47%) of requests for verification sent to NFPs by the WHO Regional Office in the Americas were responded to after 48 hours. This highlights the need to better understand and address the barriers faced by NFPs in regards to timely verification.

Between 2001 and 2019, infectious disease was the most common hazard type for EMS events 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 2019, the proportion of infectious disease-related hazards globally was the lowest observed since

<sup>21</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.”



2008, due to an increased proportion of non-infectious hazards, notably disaster-related hazards. By Region, in 2019, the most common non-infectious hazard types were disaster-related in the WHO African Region; product-related in the WHO Region of the Americas; and food safety-related in the WHO European Region.

A wide range of infectious disease events occurred across the three WHO Regions in 2019, with measles, dengue, cholera, and vaccine-derived poliovirus accounting for over one-third of substantiated events of infectious origin reported in these Regions. During this period, cholera and measles were the most prevalent events in the WHO African Region; measles and dengue in the WHO Region of the Americas; and dengue and measles in the WHO European Region. Dengue and measles were the only infectious disease events reported across all three WHO Regions in 2019.

Several information products related to new, ongoing, and updated events were disseminated to the international community in 2019. 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. 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 total, two EVD-specific information products (external situation reports and DONs) were produced and disseminated on a weekly basis since the beginning of the first EVD outbreak. Furthermore, from the time of their official declaration, these EVD outbreaks have been documented in every edition of the Weekly Update on Outbreaks and Other Emergencies. For the multi-country graded emergency for measles in the European Region, regular situation reports and country profiles have been jointly produced with Vaccine-Preventable Diseases and Immunizations Program colleagues throughout 2019. Same than for EMS, training of EIS users at WHO and NFP levels is key to properly documenting and communicating about public health events. Four micro learning videos / trainings were developed and implemented in 2019 and are available on the EIS platform. More training materials are currently under development and will be available soon for Member States and WHO users.

Overall, this report highlights the importance to continuously strengthen WHO engagement and collaboration with States Parties in order to achieve their full commitment and contribution in all aspects of the IHR implementation, particularly those related to detection, verification, assessment, and reporting of events. This will require dedicated human resources, close collaboration with partners and other stakeholders, transparent information sharing amongst States Parties, and sustained funding. There is a critical need to develop IHR compliance and enforcement mechanisms at the global level.

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## Annexes

### *Annex 1. List of States Parties 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, 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, Swaziland, Togo, Uganda, United Republic of Tanzania, Zambia, Zimbabwe

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

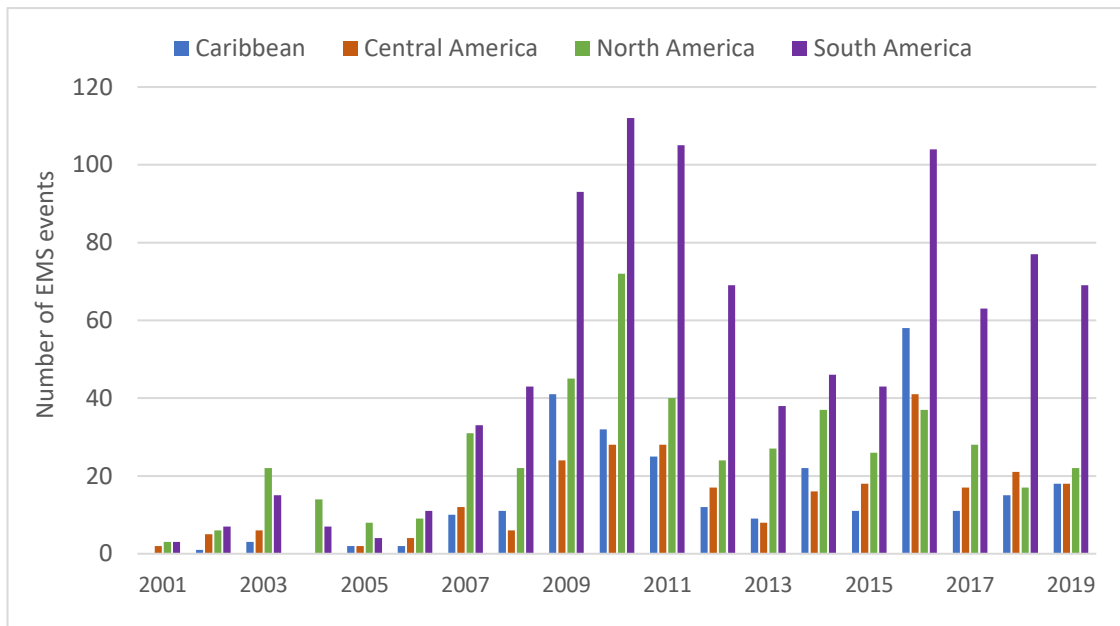
Antigua and Barbuda, Argentina, the Bahamas, Barbados, Belize, Bolivia, Brazil, Canada, Chile, Colombia, Costa Rica, Cuba, Dominica, the Dominican Republic, Ecuador, El Salvador, Grenada, Guatemala, Guyana, Haiti, Honduras, Jamaica, Mexico, Nicaragua, Panama, Paraguay, Peru, Saint Kitts and Nevis, Saint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

The **WHO European Region** consists of the following 55 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, Norway, Poland, Portugal, Republic of Moldova, Romania, Russian Federation, San Marino, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Tajikistan, The former Yugoslav Republic of Macedonia, Turkey, Turkmenistan, Ukraine, United Kingdom, Uzbekistan

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

**Figure 1.** Distribution of EMS events in the WHO Region of the Americas (N=1,988) by subregion and year, 2001-2019.



*\*Caribbean:* 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, Monsterrat, 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

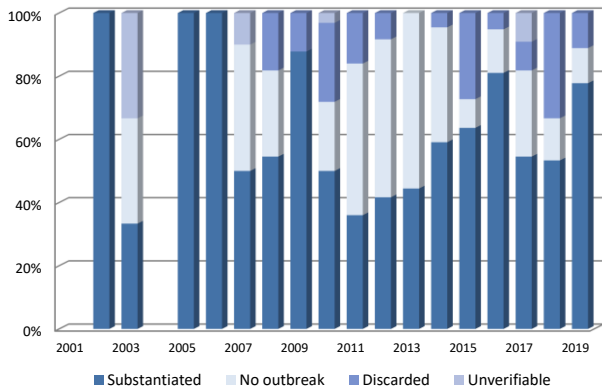
*\*Central America:* Belize, Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua, and Panama

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

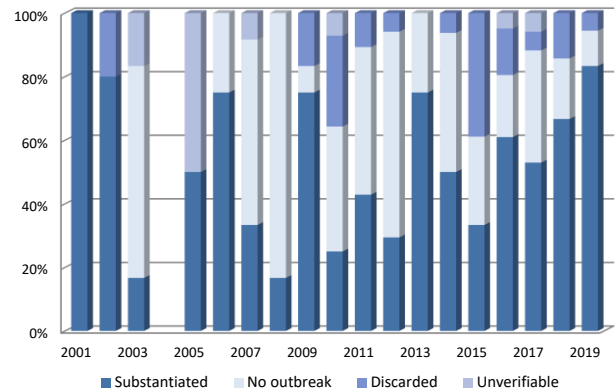
*\*South America:* Argentina, Bolivia, Brazil, Chile, Colombia, Ecuador, Falkland Islands (Malvinas), French Guiana, Guyana, Paraguay, Peru, Suriname, Uruguay, and Venezuela

**Annex 3. Distribution of EMS events in the WHO Region of the Americas by subregion<sup>22</sup>, final designation, and year, 2001-2019**

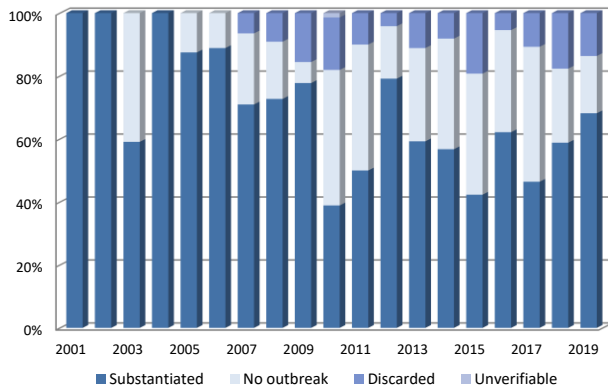
**Figure 1.** Distribution of events in the EMS by final designation and year in the Caribbean, 2001-2019, N=283



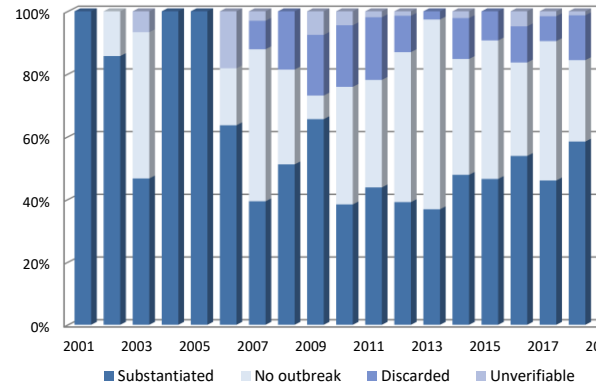
**Figure 2.** Distribution of events in the EMS by final designation and year in Central America, 2001-2019, N=273



**Figure 3.** Distribution of events in the EMS by final designation and year in North America, 2001-2019, N=490



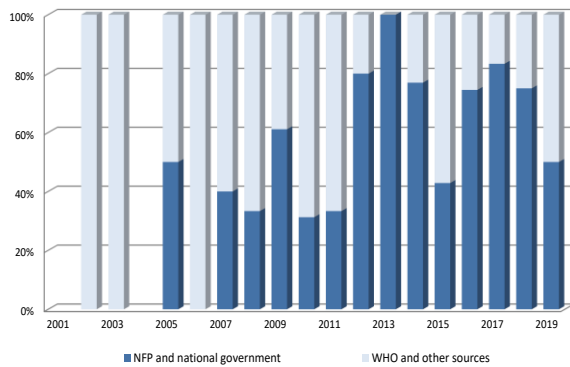
**Figure 4.** Distribution of events in the EMS by final designation and year in South America, 2001-2019, N=942



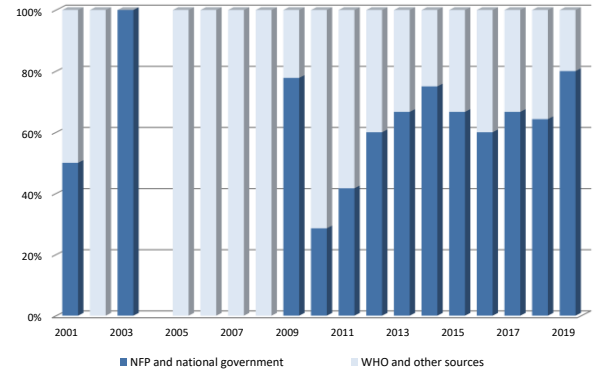
<sup>22</sup> Annex 2 provides a list of the countries and territories included in the data for each subregion

**Annex 4. Distribution of substantiated EMS events in the WHO Region of the Americas by subregion<sup>23</sup>, initial source of information, and year, 2001-2019**

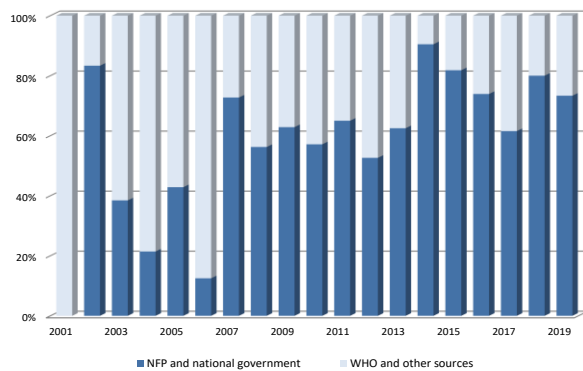
**Figure 1.** Distribution of events substantiated in the EMS by source of information and year in the Caribbean, 2001-2019, N=182



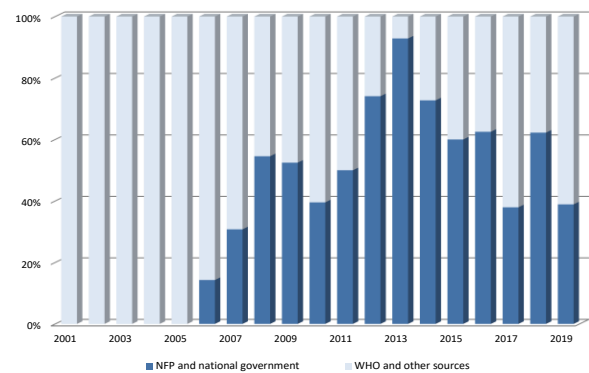
**Figure 2.** Distribution of events substantiated in the EMS by source of information and year in Central America, 2001-2019, N=141



**Figure 3.** Distribution of events substantiated in the EMS by source of information and year in North America, 2001-2019, N=300



**Figure 4.** Distribution of events substantiated in the EMS by source of information and year in South America, 2001-2019, N=468



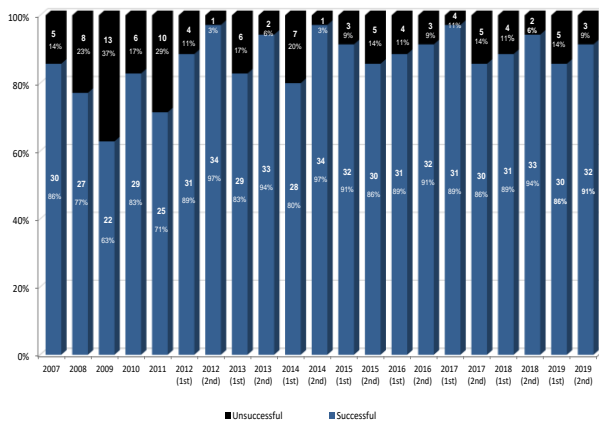
<sup>23</sup> Annex 2 provides a list of the countries and territories included in the data of each subregion

## Annex 5. 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 2019, 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. 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 in the Americas for 2007 to 2019 (bi-annual tests have been conducted since 2012).

**Email communication test results from 2007-2019, WHO Region of the Americas.**



**Phone communication test results from 2007-2019, WHO Region of the Americas.**

