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Notification of animal disease information to the OIE

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Introduction

Veterinary Services and Public Health Authorities are responsible for controlling diseases of animals and people, respectively, and both are responsible for zoonotic diseases. To achieve this, clear knowledge about the source of the disease is required. Surveillance and monitoring systems are the basis for Veterinary Authorities being able to prevent, control or eradicate animal diseases at the national level. The timely and systematic collection of data and dissemination of information allow different stakeholders to undertake a range of actions and interventions to improve animal health. The exchange of information at the national level allows immediate action in the field which ensures the safety of international trade in animals and animal products.

In this context, the notification of animal diseases is essential to rapidly alert authorities to disease outbreaks and facilitate their response so that further outbreaks can be prevented. Only two international organisations have a global legal framework that allows them to request, collect and release global animal or human health information: the World Organisation for Animal Health (OIE) since 1924 and the World Health Organization (WHO) since 1951 [1].

The purpose of notifying animal diseases to the OIE is the worldwide sharing of scientific information on the global disease situation in order to protect animals and preserve our future through safe international trade. Notification as defined by the OIE means the procedure by which a Veterinary Authority informs the OIE, and the OIE subsequently informs the Veterinary Authorities of other Member Countries, of the occurrence of an outbreak of disease or infection, in accordance with OIE international standards, recommendations and guidelines.

This article briefly summarises the origins of the OIE, its legally binding mechanisms and systems for disease reporting, the evolution of the dissemination of information through the OIE's notification systems and, finally, the benefits of disease notification.

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Origins of the World Organisation for Animal Health (OIE)

The spread of rinderpest through Europe in 1920, from a shipment of infected zebu cattle that came originally from India and were destined for Brazil, transiting through the Belgian port of Antwerp, alerted a group of countries to the need to organise themselves to notify the health status of their animals and animal products before import and export. The resurgence of rinderpest in Europe, where it had previously been eradicated, highlighted the need for international collaboration to control major infectious animal diseases. Concern over the resulting spread of rinderpest led to an international conference of Chief Veterinary Officers in Paris, France, in May 1921. This eventually led to the creation in 1924 of the *Office International des Epizooties* (OIE), founded by 28 Member Countries, under the terms of an 'International Agreement' signed on 25 January 1924.

By the beginning of 1927, the International Agreement had already been ratified by 24 Member Countries and the International Committee of the OIE held its first General Session on 8 March of that year.

The International Committee decided to publish the first *Bulletin* to communicate information on animal diseases and statistics on animal health status worldwide provided by Member Countries [2, 3]. The exchange of information on animal diseases between countries was one of the prime reasons for creating the OIE, with the ultimate aim of ensuring transparency of the animal health situation across the globe.

In May 2003, the Office became the World Organisation for Animal Health but kept its historic acronym, 'OIE'. The OIE is the intergovernmental organisation responsible for improving animal health worldwide. In 1998, it was recognised as a reference organisation by the World Trade Organization (WTO) [4].

Legal basis for notification to the OIE

Within the framework of the OIE's first historic mission ('ensuring transparency in the global animal disease situation'), each Member Country undertakes to report the animal diseases, including those transmissible to humans, that it detects on its territory, as stated in Articles 4 and 5 of the OIE Organic Statutes [5]. These statutes set out the objectives of the OIE in providing information about diseases to its Members. They also define the role and responsibilities of Member Countries, identified the original list of diseases to be notified, and specify how and when the OIE disseminates information to its Members regarding the presence and distribution of diseases. This applies to both naturally occurring and deliberately caused disease events. The OIE shares this information with other countries, which can then take any necessary preventive action. Information is sent out immediately or periodically.

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Immediate communication is reserved for exceptional events, as defined by Chapter 1.1., Article 1.1.3., of both the *Terrestrial Animal Health Code* (the *Terrestrial Code*) and the *Aquatic Animal Health Code* (the *Aquatic Code*), while periodic communication is sent concerning the more stable absence, presence or evolution of OIE-listed diseases via six-monthly reports [6, 7].

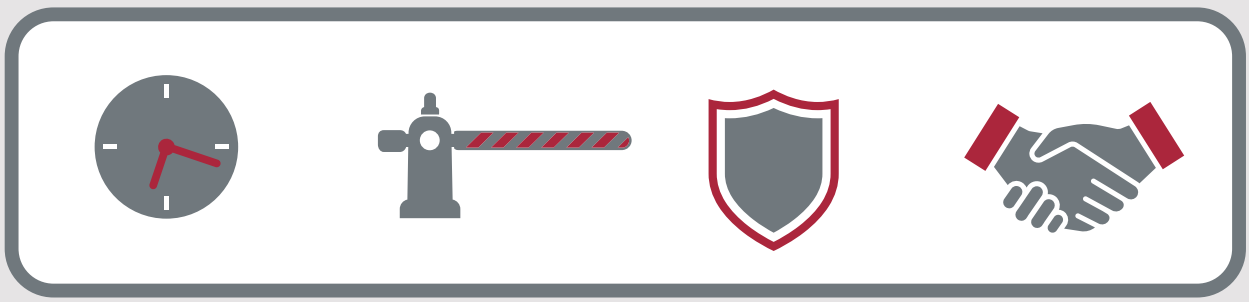
These international standards should be used by Veterinary Authorities to deliver uniform disease notification. The OIE has developed detailed guidance to provide clear data interpretations to support consistent reporting, thereby minimising misinterpretations which could lead to unjustified animal health barriers to trade.

The WTO Agreement on the Application of Sanitary and Phytosanitary Measures ('SPS Agreement') recognises the OIE's standards, recommendations and guidelines as the international reference for global trade. This Agreement creates an obligation for all WTO Members to harmonise their national legislative frameworks with the OIE standards, and provides additional legal support through international law for the OIE's disease notification system. In meeting their obligations to ensure the transparency of their animal disease situation to the OIE, Members comply with the related provisions of the SPS Agreement [4, 8].

Disease reporting

In accordance with the criteria for listing a terrestrial or aquatic animal disease (these criteria are now found in Chapter 1.2. of both the *Terrestrial Code* and the *Aquatic Code*), the OIE has established a list of the animal infectious diseases that pose the greatest threat to animal health, public health and/or agricultural or aquaculture economies. The objective of the OIE List is to support Member Countries by providing the information that they need to take appropriate action to prevent the transboundary spread of important animal diseases, including zoonoses.

The OIE list is regularly reviewed by experts and updates are approved at the annual General Session of the World Assembly of Delegates of the OIE before formal adoption by their governments. The list contains nearly 120 animal diseases, infections and infestations, which are listed in Chapter 1.3. of both the *Terrestrial Code*



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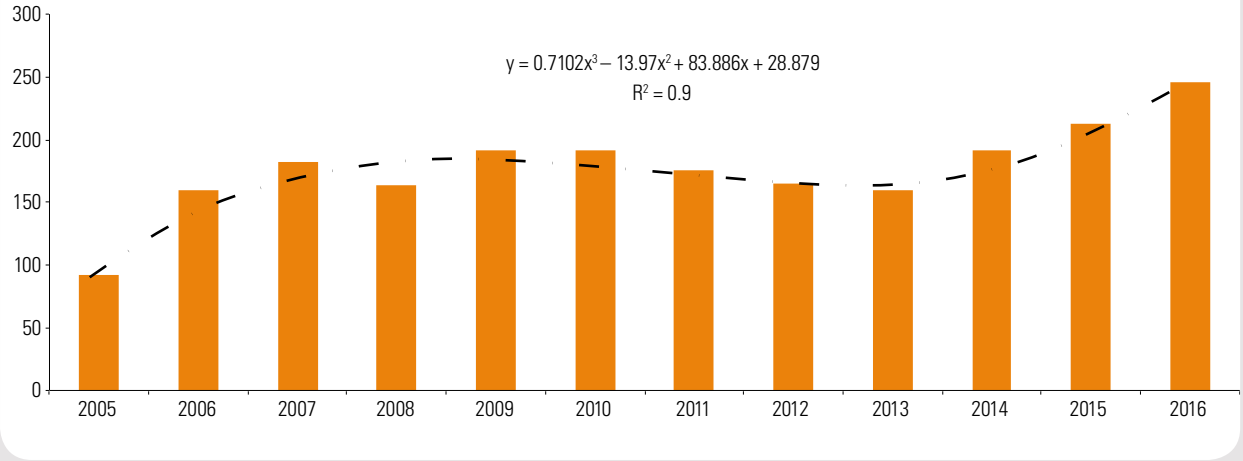

Fig. 1

Number of immediate notifications submitted to the OIE by year since 2005 up to 2016

and the *Aquatic Code*. When modifications are made to the OIE list and adopted by the World Assembly of Delegates, the new list comes into force on 1 January of the following year [6, 7]. In addition to these diseases, OIE Member Countries also have a legal obligation to notify events involving 'emerging diseases'. After an immediate notification, the OIE requests Member Countries to send weekly follow-up reports to provide further information on the evolution of the event, until such time as the disease has been eradicated, the situation has become sufficiently stable or, in the case of emerging diseases, sufficient scientific information is available to determine whether it meets the criteria for listing [6, 7].

To facilitate the process of notification, the OIE has developed the *World Animal Health* Information System (WAHIS) [9], a secure computer system accessible via the Internet that enables Member Countries to enter, store and view data on animal diseases, including zoonoses, in the OIE's three official languages (English, French and Spanish). Access to this secure system is only available to authorised users, namely the Delegates of the national Veterinary Services of OIE Member Countries and their authorised representatives. All information collected through WAHIS is verified and validated before its dissemination to Member Countries and to the public.

Since the launch of WAHIS in 2005 (as of 2016), Member Countries have sent the OIE around 2,300 immediate notifications relating to OIE-listed or emerging diseases (Fig. 1). The number of immediate notifications has significantly increased in the last 12 years, reaching a peak in 2016 (246 immediate notifications submitted), as Member Countries have been made more aware of their reporting obligations. Infection with influenza A viruses of high pathogenicity is by far the most frequently reported disease, followed by foot and mouth disease.

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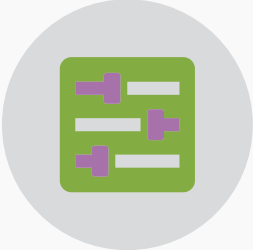
By collecting animal disease data, the notification process builds up a wealth of scientific information that contributes to the development of appropriate animal health management measures and international animal health standards. Data collected through WAHIS are used by the OIE experts to identify priority areas for



future research studies in animals and for the collection of further data to aid in developing more effective prevention and control methods for OIE-listed and emerging diseases.

Evolution of 93 years' experience in disease data collection and sharing

The evolution of disease reporting and the distribution of animal disease information can be analysed from a range of perspectives. Four areas are analysed in this article:

a) The evolution of Member *Country participation*
b) OIE-Listed diseases
c) The quality of information gathered
d) The dissemination of information.

By deciding to join the OIE, a Member Country agrees to fulfil its international commitment to notify the OIE of disease events and its animal health situation, as laid down in the Organic Statutes and in Chapter 1.1. of the *Terrestrial Code* and the *Aquatic Code* [6, 7]. As mentioned above, in 1924, 28 Member Countries founded the OIE. This number has progressively increased across the years and with it the quantity of information collected by the OIE. In 2017, the 85th General Session of the World Assembly of OIE Delegates welcomed the 181st Member Country to join the OIE, Curacao [10]. In view of the importance of WAHIS for international trade, an additional 22 non-Members also submit information on a voluntary basis so, all together, 203 countries and territories are currently submitting information to the OIE.

In terms of animal diseases, in 1924 the founder Members agreed to notify the animal health situation in their countries with regard to nine diseases . The information collected by the OIE on these diseases was published in the first OIE *Bulletin* of 1927 [2]. It was not until May 1964 that the list was reviewed and the 'A' and 'B' Lists of notifiable diseases were created, with a total of 56 diseases (53 terrestrial animal diseases and three aquatic diseases). List A comprised 16 diseases subject to compulsory notification, to be reported monthly or fortnightly to the OIE, and List B cited 40 diseases that were

reportable annually to the OIE [11]. During the 72nd General Session in May 2004, it was decided that all 108 diseases previously contained in Lists A and B should be combined into a single list, 'the OIE List'. Since 1 January 2017, 116 OIE-listed diseases (88 terrestrial and 28 aquatic animal diseases) are now being reported through WAHIS [6, 7].

For the OIE, it is very important to ensure that the information collected and shared with its Members is of the highest quality. Since the first OIE *Bulletin*, Members have exchanged information not only on the nine diseases listed at that time, but also on many other diseases

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[2]. Moreover, in 2001 the OIE initiated a process with Members to confirm or refute any circulating unofficial information that may be of interest to other Members [12]. In accordance with its mandate to report the international animal health situation transparently, the OIE introduced and has continued to develop an active search for non-official information and rumours relating to animal and public health. This activity increases the sensitivity of information collected by the OIE, which is particularly important in an early-warning system designed to detect exceptional epidemiological events. In addition, the OIE trains Focal Points in disease notification to improve the quality of the information provided. Between 2005 and 2016, 40 regional and global WAHIS training courses have been run (with an average of 25 participants), involving 98% of the OIE's Member Countries. However, the submission rate for countries submitting the six-monthly reports on aquatic animal diseases is much lower than that for terrestrial diseases (an average of 70% versus 95%, respectively). The same situation can be observed in the number of immediate notifications provided between 2005 and 2017 (172 aquatic diseases reported, as against 2,113 terrestrial). Thus, there is still plenty of room for improvement when it comes to reporting aquatic diseases.

In the 1920s, disease information was reported and disseminated to OIE Members by telegram. During the 49th General Session, the World Assembly resolved to publish *World Animal Health* (1981–2013), an annual publication in paper format, which presented a synthesis of animal health information from OIE Members, as well as non-OIE Member Countries. It was not until 1996 that the first electronic platform, 'Handistatus II' [13], was available, which published information on a monthly basis for former List A diseases, and on an annual basis for former List A and List B diseases. With the adoption of the single list, WAHIS was created in 2005. WAHIS is a single reference source of validated official data, with over 4,500 pages viewed each day. In 2016, the number of recorded visitors reached more than 80,000 per month, showing considerable and growing public interest in WAHIS data. To facilitate the dissemination of disease alerts (immediate notifications), a distribution list was created in 2002 and in 2017 this list counts more than 15,000 subscribers, each receiving daily notifications. In 2014, the publication *World Animal Health* was replaced by an electronic public version [14]. To increase the ease and speed with which the information can be accessed, the OIE launched the *WAHIS Alerts* application for smartphones in 2015. This enables immediate notifications and follow-up reports to be sent directly to mobile phones or tablets.

The changing environment of disease evolution, added to the availability of new technologies in both data processing and communication, has changed the way in which society behaves as well as how it expects to receive animal health data. In addition, Member Countries have requested the ability to be able to undertake customised data mining in large volumes and, at the same time, share WAHIS data with regional and national databases. In order to achieve these goals, the Sixth Strategic Plan of

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the OIE, which covers the period from 2016 to 2020 [15], foresees the development of a new platform, **WAHIS+**.

Benefits of animal disease notification

A transparent Veterinary Service, which undertakes prompt and accurate disease notification, builds credibility and trust between trading partners, which is one of the crucial elements for fair and safe trade in animals and animal products.

Timely reporting enables early warning and preparedness and, if data are accurate, limited resources can then be redirected accordingly. However, the quality of information and the timely notification of any disease depend on the professionals who are responsible for communicating to the OIE. Notification and publication of animal health and zoonosis data by the OIE also encourages and strengthens partnerships between veterinarians and other health professionals who contribute to these reports, for the benefit of the Member Countries involved.

Animal health data also provide the basis for determining regional, national, and international animal health priorities. Policy-makers, regional and international organisations and donors use observed disease trends to prioritise and allocate resources for animal health programmes. Examples of such priority programmes include the global eradication strategies for rinderpest, foot and mouth disease and peste des petits ruminants. The increased incidence of zoonotic avian influenza (H5N1), starting in 2003 and reaching its peak in 2006, saw the call for an increased resource allocation at the international level to fight against this disease [16].

Early notification of some diseases, in combination with relevant genomic data, has provided information on the source of disease outbreaks, allowing a better explanation of the dynamics involved in the transmission of diseases at the population level. Disease traceability has therefore been enhanced by the notification of high-quality epidemiological and genomic data.

Notification is used not only to determine how well a country is fulfilling its obligation of transparency, but also to monitor the progress of its disease programmes and its ability to maintain its disease-free status. When a Member submits an application to the OIE for endorsement of a national control programme; official recognition of its disease status, or the disease status of a zone, for the six specified OIE-listed diseases; or a self-declaration of its status for a specified disease; one of the prerequisites for acceptance is that Member's notification of its animal disease situation to the OIE.

Notification of animal diseases allows the OIE to identify critical areas for the provision of technical support to Members who request assistance with animal disease control and eradication operations, including zoonoses. This technical support includes regional capacity-building programmes, vaccine banks, the PVS Pathway programme,

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WAHIS training workshops and other seminars. Achieving and maintaining an official disease-free status and determining the absence of disease, as demonstrated through regular disease reporting, demonstrate the quality of the Veterinary Services involved and enhance a country's credibility in the international community. Access to regional and international markets is also made easier, with a resulting increase in the economic potential of the country's livestock sector and improvement to food security and livelihoods.

Conclusion

Animal disease notification has evolved since the creation of the OIE. Notification through WAHIS under the OIE international standards is a way of providing early warning to OIE Members for the timely identification of disease outbreaks and to coordinate responses to prevent further spread. The observed increase in the number of disease notifications over the years creates a wealth of scientific data and information that benefits both the Organisation and its Members in developing standards and providing temporal and geographic disease trends for risk analysis, which, in turn, influence policy decisions, resource allocations and the provision of technical assistance to Members.

Transparency in the notification of animal diseases demonstrates the quality of a country's disease reporting, leads to trust, builds the credibility of Veterinary Services, and facilitates market access for safe trade in animals and animal products. For all these reasons and more, the OIE will continue to improve and strengthen the notification of animal diseases as demanded by its Members.

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WAHIS portal:
www.oie.int/en/animal-health-in-the-world/wahis-portal-animal-health-data/

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References

1. Vallat B., Thiermann A., Jebara Ben K. & Dehove A. (2013). – Notification of animal and human diseases: The global legal basis. *In*: Coordinating surveillance policies in animal health and food safety 'from farm to fork' (S.A. Slorach, ed.). *Rev. Sci. Tech. Off. Int. Epiz.*, **32** (2), 331–335.
2. Office International des Epizooties (OIE) (OIE) (1927). – OIE 1st Bulletin of the Office International des Epizooties (July 1927–June 1928) Ed. OIE, Paris.
3. World Organisation for Animal Health (OIE) (2011). – A brief history of rinderpest. *In* Bulletin 2011–2. Available at: www.oie.int/fileadmin/Home/eng/Publications_%26_Documentation/docs/pdf/bulletin/Bull_2011-2-ENG.pdf (accessed 10 June 2017).
4. World Trade Organization (WTO) (1998). – The WTO and the World Organisation for Animal Health (OIE). Available at: www.wto.org/english/thewto_e/coher_e/wto_oie_e.htm (accessed 11 June 2017).
5. Office International des Epizooties (OIE) (1924). – Appendix to the International Agreement. Organic statutes of the Office International des Epizooties. Available at: www.oie.int/about-us/key-texts/basic-texts/organic-statutes/ (accessed 11 May 2017).
6. World Organisation for Animal Health (OIE) (2016). – Terrestrial Animal Health Code (2016). Available at: www.oie.int/en/international-standard-setting/terrestrial-code/access-online/ (accessed 10 June 2017).
7. World Organisation for Animal Health (OIE) (2016). – Aquatic Animal Health Code (2016). Available at: www.oie.int/en/international-standard-setting/aquatic-code/access-online/ (accessed 10 June 2017).
8. World Trade Organization (WTO) (1994). – The WTO Agreement on the Application of Sanitary and Phytosanitary Measures (SPS Agreement). Available at: www.wto.org/english/tratop_e/sps_e/spsagr_e.htm (accessed 8 May 2017).
9. World Organisation for Animal Health (OIE) (2017). – World Animal Health Information System (WAHIS). Available at: www.oie.int/wahis_2/public/wahid.php/Wahidhome/Home/indexcontent/newlang/en (accessed 11 May 2017).
10. World Organisation for Animal Health (OIE) (2017). – Our Members: The 181 OIE Members. Available at: www.oie.int/en/about-us/our-members/member-countries/ (accessed 11 June 2017).
11. World Organisation for Animal Health (OIE) (1964). – Report of the Director on the Scientific and Technical Activities from May 1963 to May 1964. Dr R. Vittoz, 1570—1604.
12. World Organisation for Animal Health (OIE) (2002). – Final Report 70th General Session, Paris, 26-31 May, 152 pp.
13. World Organisation for Animal Health (OIE) (2017). – Handistatus II. Available at: web.oie.int/hs2/report.asp?lang=en (accessed 11 May 2017).
14. World Organisation for Animal Health (OIE) (2017). – World Animal Health. Available at: www.oie.int/en/animal-health-in-the-world/the-world-animal-health-information-system/world-animal-health/ (accessed 11 May 2017).
15. World Organisation for Animal Health (OIE) (2016). – The Sixth Strategic Plan (2016-2020). Available at: www.oie.int/en/about-us/director-general-office/strategic-plan/ (accessed 10 May 2017).
16. World Organisation for Animal Health (OIE) (2007). – OIE/FAO/WHO Urge more determined action against H5N1. Available at: www.oie.int/en/for-the-media/press-releases/detail/article/oiefaowho-urge-more-determined-action-against-h5n1-1/ (accessed 14 May 2017).