Review

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Effects of public health emergencies of international concern on disease control: a systematic review

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ABSTRACT

Objectives. To assess the accumulated knowledge of the effects of public health emergencies of international concern on disease control and local health systems, and contribute to a better understanding of their effects on health programs and systems.

Methods. This was a systematic review of published and gray literature (in English, Portuguese, or Spanish). Electronic databases (BVS/LILACS, PubMed, and SciELO) and Google Scholar were searched. Search terms were: COVID-19 OR H1N1 OR Ebola OR Zika OR poliomyelitis AND (outbreaks OR epidemics) AND (public health systems OR public health surveillance).

Results. A total of 3 508 studies were retrieved, of which 31 met the inclusion criteria. The studies addressed the effects of the emergencies on: communicable diseases notification systems; malaria, HIV/AIDS, tuberculosis, poliomyelitis, and malaria surveillance, control, and treatment; microcephaly; dengue; and vaccinations. The populations affected by the emergencies experienced reduced health services, which included fewer health visits, failures in the diagnostic chain, decrease in vaccination, and increased incidence or underreporting of notifiable diseases.

Conclusions. Socioeconomic inequity is a determinant of the effects of public health emergencies of international concern within affected populations. The diversion of resources and attention from health authorities disproportionately affects vulnerable populations and can lead, over time, to a weakening of health systems. The analysis of the effects of public health emergencies is important for the development of new protocols that can better respond to future crises.

Keywords Disease outbreaks; communicable diseases; health care delivery; health systems.

Public health emergencies of international concern (PHEIC) are defined by the World Health Organization (WHO) in the International Health Regulations (IHR) as extraordinary public health events, which constitute a risk of dissemination between different states, and which potentially require a coordinated international response (1). Since the introduction of the new version of the IHR, which was implemented in 2007, six international emergencies have been declared: H1N1, from April 2009 to August 2010; poliovirus, in 2014; Ebola virus, from 2014 to March 2016 and from July 2019 to June 2020; Zika virus, from February to November 2016; and severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), in 2020 (2).

In addition to requiring international coordinated action, PHEIC also have the potential to overwhelm health professionals and health systems in affected countries. As such, PHEIC can have severe syndemic consequences for health care and surveillance, and the control of local endemic diseases (3–6).

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Despite the public health importance of PHEIC, no systematic literature reviews have been done on the effects of such emergencies on disease control and health systems. Therefore, the present study aimed to assess the accumulated knowledge in this field and contribute to a better understanding of the effects of PHEIC on health programs and systems in different contexts in the countries where they occurred.

METHODS

Protocol registration

This was a systematic review registered in the International Prospective Register of Systematic Reviews (PROSPERO), number CRD42021257860 (7). The review followed the guidelines of the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) (8).

Selection and eligibility criteria

In this systematic review, we sought to answer the question: how have PHEIC affected disease surveillance and/or control and health systems in the countries or regions where they occurred?

Criteria for inclusion in this review were: original articles that addressed the effects of active PHEIC on health systems in relation to notifiable diseases; and published in English, Portuguese, or Spanish. No restrictions were put on study design, country, or disease notifiied. For Zika virus, even though the PHEIC was declared because of the association between Zika virus and congenital malformations, studies that either addressed this relationship or the relationship between Zika virus and other diseases were considered for this review.

Selection of studies

Electronic databases were searched on May 27, 2021 for relevant studies. A search was also done on February 18, 2022 to update with new studies. The electronic databases were: Biblioteca Virtual de Saúde (BVS)/Literatura Latino-Americana e do Caribe em Ciências da Saúde (LILACS), PubMed (via MEDLINE), and Scientific Electronic Library Online (SciELO). Google Scholar was also searched to retrieve relevant gray literature. The search terms were: COVID-19 OR H1N1 OR Ebola OR Zika OR poliomyelitis AND (outbreaks OR epidemics) AND (public health systems OR public health surveillance). The descriptors used were based on the Medical Subject Headings (MeSH) and Health Sciences Descriptors (*Descritores em Ciências da Saúde* – DeCS).

After exclusion of duplicate articles using Zotero software, the remaining studies were assessed by three independent researchers, first by title and abstract and then by full text. The researchers met to discuss disagreements and another researcher was consulted when a consensus could not be reached.

Assessment of the methodological quality

The studies included in this review were ecological, cross-sectional, and cohort studies, and case reports. Their methodological rigor was assessed using the critical appraisal checklist tool of the Joanna Briggs Institute (9). Ecological studies were not evaluated for rigor as no relevant tools were available. Each criterion was classified as "yes", "no", "uncertain", or "not applicable". Studies with one to three "yeses" were considered to have a high risk of bias, four to six "yeses", a moderate risk of bias, and seven to 11, a low risk of bias (10).

RESULTS

Included studies

Of 3 508 studies screened, 31 met the selection and eligibility criteria (Figure 1).

Of these 31 studies (Table 1 and Table 2), 17 (54.8%) were on the first emergence of Ebola virus in 2014, 10 (32.3%) were in Zika virus, three (9.7%) on SARS-CoV-2, and one (3.2%) on H1N1. No studies that matched the inclusion criteria were found for poliovirus. As regards study design, 15 (48.4%) were cross-sectional studies, 12 (38.7%) were ecological studies, three (9.7%) were retrospective cohort studies, and one (3.2%) was a case report.

Ebola virus

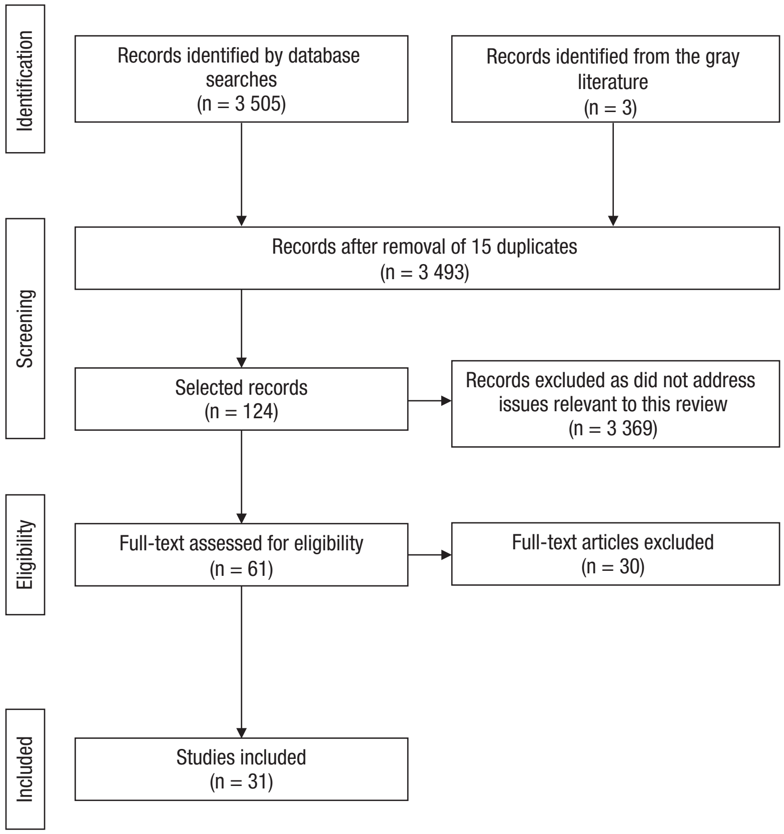
Malaria. During the Ebola virus outbreak in Sierra Leone, there was an increase in malaria self-medication, but not in malaria mortality rates (18). However, in the northern province, discrepancies were seen in mortality notification between regional and national databases, with 66% fewer deaths reported in the national data base. For measles, an opposite trend was seen, with an 80% increase in reported cases of measles in children younger than 5 years (17). Furthermore, consultations for malaria declined by 27% during the Ebola virus outbreak and, in the north, the percentage of patients receiving malaria treatment fell from 75% to 34% (15). In the south-east of Sierra Leone, similar trends were observed, with a significant reduction in health care being sought for children (11).

In Guinea, the number of children attending health services also dropped significantly (12, 16). The number of medical consultations decreased as did the number of patients being treated with oral and injectable antimalarial drugs. This affected the frequency of incorrect treatment of negative cases, which decreased from 27% to 19% in the affected areas (16).

In Liberia, access to medical care was hampered, both nationally (14) and in the capital, Monrovia (13). Nationally, only 53% (213/401) of patients who sought medical care for malaria received any care (14).

Vaccination. In Guinea, there was a significant decrease in administration of the following vaccines: yellow fever, measles, tuberculosis, the pentavalent vaccine, and poliomyelitis during the Ebola virus outbreak (20). Four and ten health centers, respectively, had stock-out problems in the pre-Ebola virus and Ebola virus periods. Vaccine administration declined universally during the outbreak period, with vaccination against tuberculosis (bacillus Calmette–Guérin vaccine) completely stopping. After the Ebola virus outbreak, no vaccine shortages occurred, but overall vaccine administration did not recover to pre-Ebola virus outbreak levels (19). Furthermore, interruption of stool collection for the diagnosis of poliomyelitis was reported between October 2014 and March 2015 and six cases of circulating vaccine-derived poliovirus type 2 were recorded (21).

FIGURE 1. Flowchart of selected studies



Note: Data bases searched were: Biblioteca Virtual de Saúde (BVS)/Literatura Latino-Americana e do Caribe em Ciências da Saúde (LILACS); PubMed (via MEDLINE); and Scientific Electronic Library Online (SciELO). Google Scholar was searched for gray literature.
Source: Prepared by authors based on the PRISMA flow diagram (8).

In Sierra Leone during the Ebola virus outbreak, coverage of the measles vaccine and third dose of the pentavalent vaccine decreased (23). In Moyamba district, the average number of children who received all recommended childhood vaccines before the age of 1 year fell by about 50% between the early and late months of 2014 (11). In the prefecture of Lola, suspected measles cases began to appear in January 2015 and reached a peak in April of the same year (22).

HIV/AIDS. In Sierra Leone, HIV testing decreased but antiretroviral treatment increased unexpectedly (24). Considering data from the 34th Military Hospital in Freetown, which did not suffer structural impacts during the Ebola virus outbreak (for example, stockouts or lack of staff), 83.3% of patients with HIV infection went without treatment for at least 1 day and the risk of missing appointments increased significantly. This situation continued after the end of the Ebola virus outbreak (26).

In Guinea, the areas affected by the Ebola virus outbreak saw a significant reduction in the number of pregnant women with HIV infection receiving prenatal care. Furthermore, although the number of pregnant woman with HIV infection did not change, the number of women and children who received antiretroviral treatment to prevent vertical transmission decreased (25).

Tuberculosis. In Guinea, clinical and bacteriological diagnosis of all forms of tuberculosis fell significantly by 40% corresponding with a sharp drop in notification of cases of tuberculosis in 2014 (27). Despite the negative impact of the Ebola virus outbreak on diagnosis and case reporting, the treatment success rate in patients with tuberculosis remained stable at above 80%, with a slight increase after the epidemic (27).

ZIKA virus

Neuropathies and congenital malformations. For the Zika virus outbreak associated with microcephaly, there was an epidemic increase in microcephaly in Brazil and, given lag times, areas with Zika virus clusters became areas of microcephaly clusters over time (32, 34). The largest increase in cases of microcephaly was in the north-east of the country, which went from 2.0 cases to 49.9 cases per 10 000 newborns in November 2015 (32). During the outbreak, the excess number of hospitalizations for encephalitis, myelitis, and encephalomyelitis in the region reached about 570 (28).

In Colombia, a record number of microcephaly cases per epidemiological week occurred during the Zika virus epidemic (29, 30). Nationally, it was estimated that between 10 173.16 and 10 860.57 disability-adjusted life years (DALYs) were lost due to microcephaly caused by Zika-virus (31).

In the Dominican Republic, a similar pattern was observed, with a peak of Zika virus cases before the peak in microcephaly cases (33).

TABLE 1. Characteristics of the studies included in the systematic review

Authors, year (reference)	Study period	Study region	Study design	PHEIC	Affected disease(s)
Elston et al., 2016 (11)	2015	Sierra Leone	Cross-sectional	Ebola virus	Malaria and others (unspecified)
Kolie et al., 2018 (12)	2013–2016	Guinea	Cross-sectional	Ebola virus	Malaria
McLean et al., 2018 (13)	2014	Liberia	Cross-sectional	Ebola virus	Malaria, cold/influenza, typhoid, Ebola virus disease, cholera
McQuilkin et al., 2017 (14)	2015	Liberia	Cross-sectional	Ebola virus	Malaria and others (unspecified)
Moses et al., 2017 (15)	2013–2016	Sierra Leone	Cross-sectional	Ebola virus	Malaria
Plucinski et al., 2015 (16)	2013–2014	Guinea	Cross-sectional	Ebola virus	Malaria and others (unspecified)
Sesay et al., 2017 (17)	2014–2015	Sierra Leone	Cross-sectional	Ebola virus	Malaria, acute respiratory infections, watery diarrhea, measles
Vygen et al., 2016 (18)	2014–2015	Sierra Leone	Cross-sectional	Ebola virus	Malaria and others (unspecified)
Camara et al., 2017 (19)	2013–2016	Guinea	Ecological	Ebola virus	Tuberculosis, poliomyelitis, diphtheria, pertussis, tetanus, hepatitis B, measles, yellow fever, *Haemophilus influenzae* B infection
Delamou et al., 2017 (20)	2013–2016	Guinea	Retrospective cohort	Ebola virus	Poliomyelitis, diseases covered by the pentavalent vaccine[b], yellow fever, measles, tuberculosis
Fernandez-Garcia et al., 2018 (21)	2014–2015	Guinea	Case study	Ebola virus	Poliomyelitis
Suk et al., 2016 (22)	2015	Sierra Leone	Cross-sectional	Ebola virus	Measles
Sun et al., 2017 (23)	2014–2015	Sierra Leone	Cross-sectional	Ebola virus	Measles, diseases covered by the pentavalent vaccination[b]
Gamanga et al., 2017 (24)	2013–2015	Sierra Leone	Cross-sectional	Ebola virus	HIV/AIDS
Leno et al., 2018 (25)	2013–2014	Guinea	Cross-sectional	Ebola virus	HIV/AIDS
Nagel et al., 2019 (26)	2013–2015	Sierra Leone	Retrospective cohort	Ebola virus	HIV/AIDS
Magassouba et al., 2020 (27)	2011–2018	Guinea	Cross-sectional	Ebola virus	Tuberculosis
Barcellos et al., 2016 (28)	2008–2016	Brazil	Ecological	Zika virus[a]	Neuropathies
Mendivelso et al. 2019 (29)	2015–2017	Colombia	Ecological	Zika virus[a]	Microcephaly
Hurtado-Villa et al., 2017 (30)	2012–2016	Colombia	Retrospective cohort	Zika virus[a]	Microcephaly
Mora-Salamanca et al., 2020 (31)	2015–2016	Colombia	Ecological	Zika virus[a]	Microcephaly
Oliveira et al., 2017 (32)	2015–2016	Brazil	Ecological	Zika virus[a]	Microcephaly
Pimentel et al., 2021 (33)	2016–2017	Dominican Republic	Cross-sectional	Zika virus[a]	Microcephaly
Vissoci et al., 2018 (34)	2016	Brazil	Ecological	Zika virus[a]	Microcephaly
Morgan et al., 2021 (35)	2007–2017	Colombia	Ecological	Zika virus[a]	Dengue and chikungunya
Mugabe et al., 2021 (36)	2004–2019	Latin America	Ecological	Zika virus[a]	Dengue
Oliveira et al., 2020 (37)	2015–2017	Brazil	Ecological	Zika virus[a]	Dengue and chikungunya
Benschop et al., 2021 (38)	2021	European Union	Cross-sectional	SARS-CoV-2	Poliomyelitis
Zomahoun et al., 2021 (39)	2019–2020	World	Ecological	SARS-CoV-2	Poliomyelitis
Buonsenso et al., 2021 (40)	2018–2020	Sierra Leone	Ecological	SARS-CoV-2	Malaria
Cox et al., 2009 (41)	2004–2009	European Union	Ecological	H1N1	Reported on the early warning and response system for communicable diseases

PHEIC, public health emergency of international concern; SARS-CoV-2, severe acute respiratory syndrome coronavirus 2.
[a] Associated with congenital malformations.
[b] Diphtheria, tetanus, pertussis, hepatitis B virus, and meningitis caused by *Haemophilus influenzae* B.
Source: Prepared by authors based on published data.

Other arboviruses. Data from the Pan American Health Organization (PAHO) indicate that in Latin America, where dengue cases have been increasing in the past few years, an unusual and significant decline in dengue was seen in several countries by 2016, with a general decline in 2017 and 2018, and a resurgence in 2019. This represents the highest historical peak in several countries, which could indicate a short-lived (12 to 36 months) cross-immunity against dengue as a result of the Zika virus outbreak (36).

In Brazil, Zika virus affected the series of confirmed and discarded dengue cases and vice versa, suggesting that some discarded and confirmed dengue cases could in fact have been cases of Zika virus infection, and indicating the occurrence of cross-diagnosis and co-infections (37). Similarly, the dengue-endemic area of Cúcuta, Colombia, recorded a drop in dengue notifications during the 2016 Zika virus outbreak (35).

TABLE 2. Summary of the effects of public health emergencies of international concern on the surveillance and control of notifiable diseases

Public health emergency	Studies	Notifiable event	Country	Main effects
Ebola virus	Elston et al., 2016 (11); Kolie et al., 2018 (12); McLean et al., 2018 (13); McQuilkin et al., 2017 (14); Moses et al., 2017 (15); Plucinski et al., 2015 (16); Sesay et al., 2017 (17); Vygen et al., 2016 (18)	Malaria	Guinea, Sierra Leone and Liberia	Decrease in medical care, treatment and case reporting; increase in self-medication
	Camara et al., 2017 (19); Delamou et al., 2017 (20); Fernandez-Garcia et al., 2018 (21); Suk et al., 2016 (22); Sun et al., 2017 (23)	Vaccination	Guinea and Sierra Leone	Decreased reach of vaccination campaigns; lack of vaccine stocks; increase in measles cases; and notification of vaccine-resistant variants
	Gamanga et al., 2017 (24); Leno et al., 2018 (25); Nagel et al., 2019 (26)	HIV/AIDS	Guinea and Sierra Leone	Decrease in HIV testing, treatment, prenatal care and case reporting; increase in vertical transmission
	Magassouba et al., 2020 (27)	Tuberculosis	Guinea	Decrease in the diagnosis and notification of tuberculosis cases; increase in successful treatment of tuberculosis cases
Zika virus associated with congenital malformations	Barcellos et al., 2016 (28); Mendivelso et al. 2019 (29); Hurtado-Villa et al., 2017 (30); Mora-Salamanca et al., 2020 (31); Oliveira et al., 2017 (32); Pimentel et al., 2021 (33); Vissoci et al., 2018 (34)	Neuropathies and congenital malformations	Brazil, Colombia, and the Dominican Republic	Significant increase in neuropathy cases
	Morgan et al., 2021 (35); Mugabe et al., 2021 (36); Oliveira et al., 2020 (37)	Dengue and chikungunya	Latin American countries	Change in the temporal dynamics of dengue, where increasing confirmations of either dengue or COVID-19 led to a series of discards of the other disease
H1N1	Cox et al., 2009 (41)	Notifiable diseases	Countries of the European Union	Decrease in notification of non-pandemic, but communicable events
SARS-CoV-2	Benschop et al., 2021 (38); Zomahoun et al., 2021 (39)	Poliomyelitis	World	Decrease in sample collection and testing, with consequent decrease in total notifications; detection of enteroviruses
	Buonsenso et al., 2021 (40)	Malaria	Sierra Leone	Decrease in notifications during lockdown

SARS-CoV-2, severe acute respiratory syndromes coronavirus 2.
Source: Prepared by authors based on published data.

SARS-CoV-2

During the COVID-19 pandemic, sampling, testing, and reporting of poliomyelitis cases by the Global Polio Laboratory Network fell (39).

The European Union, which has regularly reported enterovirus outbreaks since 2010, initially experienced a drop in enterovirus D68 notifications at the beginning of the COVID-19 outbreak and then an above-average increase later in the pandemic, precipitated by the widespread relaxation of COVID-19 mitigation measures (38).

A similar trend was observed with malaria cases in children younger than 5 years in Sierra Leone. During the lockdown in April 2020, malaria case notifications dropped significantly, and then rose again with the relaxation of distancing measures (40).

H1N1

Only one article was found on H1N1, based on the European Union early warning and response system. The article reported an historic low in the reporting of non-pandemic events during the increase in H1N1 cases in 2009 (41).

Risk of bias assessment

In the quality analysis, two cross-sectional studies had a considerable risk of bias (22, 27), while nine had a moderate risk of bias (11–15, 17, 18, 24, 33), and three a low risk (16, 23, 25). Of the cohort studies, two were classified as low risk of bias (20, 26) and one as moderate risk (30). The case study had a moderate risk of bias (21).

DISCUSSION

PHEIC are extraordinary events and a considerable challenge for health services (1). To the best of our knowledge, no other literature reviews have comprehensively assessed the effect of PHEIC on the surveillance and control of notifiable diseases. Their importance comes not only from the possible direct increase in mortality and morbidity in different countries, but also from their secondary impact on local endemic diseases. Several factors influence the performance of health systems and service coverage during PHEIC (3–5, 25).

Some health professionals who experienced the Ebola virus outbreak in West Africa in 2014, including in places that were little or not affected by the outbreak, provided explanations for the decrease in health assistance coverage, such as the behavior of the population and dissemination of information. The most common explanations were: patients' fear of contracting Ebola virus disease during the journey to health facilities or within the facilities; distrust of the behavior of health professionals; fear of being sent to Ebola virus disease treatment centers; and the stigma that a positive diagnosis would bring (3, 5, 11, 13, 14, 16, 25).

Other explanations were the limited access to medical care due to the closure of health facilities, denial of care by health professionals, and financial difficulties, given the dependence on out-of-pocket payments for access to health care in sub-Saharan Africa (13, 14). Among the factors linked to the closing of health facilities was the high mortality in health professionals, which could explain the denial of care, and the low stocks of equipment, medications, and vaccines (4, 5, 19, 25).

Even when services were maintained, sensationalist news played a key role in coverage failure. For example, some women refused HIV testing because of possible Ebola transmission through needles and blood, which increased the number of deliveries that occurred at home and decreased prenatal care. This situation probably increased the HIV viral load of these women, contributing to an increase in mother-to-child transmission, a worsening of their health status, and an increase in HIV transmission to new individuals (11, 20, 25).

Such factors were not exclusive to Ebola virus. During the Zika virus epidemic (associated with neuropathies and congenital malformations), other arboviruses were affected. The negative impacts were: misdiagnosis caused by similar symptoms; co-infections; and difficulty in accessing reliable tests. This situation called into question the capacity and reliability of the testing and diagnostic system (35, 37). A positive impact of the Zika virus was a possible cross-immunity which led to a decrease in the incidence of dengue immediately after the Zika virus outbreak in some countries (36).

Furthermore, during the COVID-19 pandemic, testing and diagnosis of poliomyelitis decreased and proper malaria care could not be maintained because of logistic and organizational problems and overload of health systems (38–40).

Understanding these factors is essential for local authorities, as this allows for better crisis management, avoidance or reduction of secondary losses, and possibly a reduction in the direct impact of the emergency itself. For example, the health authorities of Sierra Leone managed to avoid discontinuation of the malaria programs during the COVID-19 pandemic. As a result, only a brief decrease in care occurred during the lockdown, and services soon returned to normal (40). WHO made available tools to assess the capacity of health facilities to maintain essential health services during the COVID-19 pandemic (42). Authorities in the Americas made appeals for the maintenance of programs on the control and surveillance of infectious diseases, such as dengue (43), Chagas disease (44), malaria (45), and leishmaniasis (46).

Our results indicate how the weakening of surveillance and control programs during PHEIC can be harmful to the population, sometimes with the indirect effects on other diseases being greater than those directly caused by the emergency.

This review has some limitations and hence the findings should be considered with caution. The increase in notifications in certain emergencies is a possible consequence of a growing of awareness of the disease, leading the population and medical teams to seek a diagnosis. As already mentioned, during the increase in Zika virus infections, some cross-reaction of the dengue and Zika virus tests may have occurred. In addition, the growing concern about the consequences of Zika virus infection in pregnant women led to an increase in the proportion of tests being performed specifically in this group (37). Furthermore, Zika virus notification in Brazil only became compulsory in February 2016. This resulted in biased records of incidence rates in 2015, which could mask the association of Zika virus infection with congenital cases of microcephaly or other diseases (34, 47).

Similarly, the early stages of COVID-19 can easily be confused with dengue, and vice versa, and hence co-infections, cross-reactions, and misdiagnoses in the official prevalence data for both diseases cannot be ruled out. Shared symptoms (such as fever, joint pain, and difficulty breathing) and laboratory parameters (such as lymphopenia, leukopenia, thrombocytopenia, and elevated transaminases) could be confounding factors for diagnosis (48).

In addition, even official data could be biased, since most of the diseases are neglected diseases. These diseases mainly affect poor regions of Africa, Asia, and Latin America, and tend to be neglected in terms of resources and medicines available, although greater attention and resources are being given to the "big three diseases" (HIV/AIDS, malaria, and tuberculosis). Thus, it is necessary to consider the possibility that health authorities, especially global authorities, may be unaware of the burden that affects vulnerable populations during outbreaks of PHEIC (49, 50). For example, there was a considerable discrepancy between malaria death notifications in regional and national databases in Sierra Leone during the Ebola outbreak (17).

Poliomyelitis and measles are considered by some to be neglected diseases, as they mostly affect the same vulnerable populations and share social and structural characteristics (49, 50). The neglected character of poliomyelitis, which is considered to have been eradicated in the Americas, Europe, and South-east Asia through immunizations, may be one of the reasons we found no studies on poliomyelitis for our review.

COVID-19 (2020) and Ebola virus disease (2019) are recent emergencies which may also explain the small number of studies we found, and Ebola virus may have been overlooked because of its overlap with COVID-19. In addition, our search may not have captured all relevant studies, especially in the gray literature.

Conclusions

Factors associated with the effects of PHEIC on notifiable disease surveillance and control programs go beyond health systems and expose socioeconomic inequity as a determinant within affected populations. Despite the undeniable need to control PHEIC as they arise, the diversion of resources and attention from health authorities mainly affects already vulnerable populations. Over time, this can lead to a weakening of health systems, causing the population to lose years of healthy life, and requiring costly future investments. The analysis of these effects is important for the development of new protocols that can better respond to future crises.

Author contributions. GRA, JMTB, and DSB contributed to the study conception and design, data interpretation, and

writing. GRA, PASVC, and IRA did the literature research. GRA and PASVC extracted the data and assessed the quality of the studies. All authors contributed to the critical review of the manuscript and approved the final version.

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Conflicts of interest. None declared.

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Efectos de las emergencias de salud pública de importancia internacional en el control de enfermedades: revisión sistemática

RESUMEN

Objetivos. Evaluar el conocimiento acumulado acerca de los efectos de las emergencias de salud pública de importancia internacional en el control de enfermedades y en los sistemas de salud locales, y contribuir a una mejor comprensión de estos efectos en los programas y sistemas de salud.

Métodos. Se hizo una revisión sistemática de bibliografía gris y publicada (en español, inglés o portugués) para la que se realizaron búsquedas en bases de datos electrónicas (BVS/LILACS, PubMed y SciELO) y en Google Scholar. Los términos de búsqueda fueron: COVID-19 OR H1N1 OR Ebola OR Zika OR poliomyelitis AND (Outbreaks OR epidemics) AND (public health systems OR public health surveillance).

Resultados. Se encontraron 3 508 estudios, de los cuales 31 cumplieron los criterios de inclusión. En los estudios se abordaban los efectos de las emergencias en: los sistemas de notificación de enfermedades transmisibles; la vigilancia, el control y el tratamiento de la malaria, el VIH/sida, la tuberculosis y la poliomielitis; la microcefalia; el dengue; y las vacunas. Las poblaciones afectadas por las emergencias experimentaron una reducción de los servicios de salud, incluida una reducción de las consultas de salud, errores en la cadena de diagnóstico, una disminución de la vacunación y el aumento de la incidencia o subnotificación de enfermedades de notificación obligatoria.

Conclusiones. La inequidad socioeconómica es un determinante de los efectos de las emergencias de salud pública de importancia internacional en los grupos poblacionales afectados. El desvío de recursos y atención de las autoridades de salud afecta desproporcionadamente a los grupos vulnerables y puede suponer, con el tiempo, un debilitamiento de los sistemas de salud. El análisis de los efectos de las emergencias de salud pública es crucial para la elaboración de nuevos protocolos que puedan mejorar la respuesta ante futuras crisis.

Palabras clave Brotes de enfermedades; enfermedades transmisibles; atención a la salud; sistemas de salud.

Efeitos das emergências de saúde pública de importância internacional no controle de doenças: revisão sistemática

RESUMO

Objetivos. Avaliar o conhecimento acumulado sobre os efeitos das emergências de saúde pública de importância internacional no controle de doenças e nos sistemas de saúde locais e contribuir para uma melhor compreensão desses efeitos sobre os programas e sistemas de saúde.

Métodos. Trata-se de uma revisão sistemática da literatura branca e cinzenta (em inglês, português ou espanhol) realizada por meio de pesquisas nos bancos de dados eletrônicos BVS/LILACS, PubMed e SciELO e no Google Scholar. Foram utilizados os seguintes termos de busca: COVID-19 OR H1N1 OR Ebola OR Zika OR poliomyelitis AND (outbreaks OR epidemics) AND (public health systems OR public health surveillance).

Resultados. Foi identificado um total de 3 508 estudos, dos quais 31 preencheram os critérios de inclusão. Os estudos abordavam os efeitos das emergências sobre: sistemas de notificação de doenças transmissíveis; vigilância, controle e tratamento de HIV/AIDS, tuberculose, poliomielite e malária; microcefalia; dengue; e vacinações. As populações afetadas pelas emergências enfrentaram uma redução nos serviços de saúde, como menos consultas médicas, problemas na cadeia de diagnóstico, diminuição da vacinação e maior incidência ou subnotificação de doenças de notificação compulsória.

Conclusões. A desigualdade socioeconômica é um fator determinante dos efeitos das emergências de saúde pública de importância internacional nas populações afetadas. O desvio dos recursos e da atenção das autoridades sanitárias afeta desproporcionalmente as populações vulneráveis e pode levar, com o passar do tempo, a um enfraquecimento dos sistemas de saúde. A análise dos efeitos das emergências de saúde pública é importante para a elaboração de novos protocolos que possam enfrentar melhor futuras crises.

Palavras-chave Surtos de doenças; doenças transmissíveis; atenção à saúde; sistemas de saúde.