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International Health Regulations: Is India Prepared after 10 Years of Implementation?

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Abstract

The International Health Regulations (IHR) is an international legal instrument applicable to all WHO member countries and came into force in 2007. The objective of the IHR is to prevent international spread of disease by enabling member countries undergo capacity building for early detection, reporting and taking control measures against any public health emergencies of international concern. Although India has attained most of the core capacities as per its obligation towards meeting IHR requirements, it faces challenges in meeting its growing needs for trained epidemiologists of a medical background, entomologists, food analysts and other specialist staff engaged in public health surveillance activities. The development of public health infrastructure for meeting IHR norms should help India develop its surveillance, response and preparedness capacities which would improve outcomes of its public health programs and help contain outbreaks. India should also not be content with meeting basic IHR norms but should strive to attain advanced capabilities permitting it to support its neighbouring countries with limited public health infrastructure in meeting their IHR goals.

Keywords: IHR; Surveillance; India.

Introduction

The International Health Regulations (IHR) is an international legal instrument applicable to all WHO member countries and came into force in 2007 [1].

The principle objective of the IHR is to prevent the international spread of disease through a universal mechanism which enables all countries in detecting, reporting and controlling potential 'public health risks' ranging from localized outbreaks to pandemics. The containment of diseases with pandemic potential is essential for protecting the health of people while preventing economic losses globally due to 'unnecessary interference with international traffic and trade' [2]. The SARS (Severe acute respiratory syndrome) pandemic in 2003 which exposed the global lack of preparedness in preventing the transcontinental transmission of diseases in the age of high volume air travel paved the way for transformation of the IHR for continued relevance in the 21st century [3]. The IHR thereby evolved from a limited notification system for only four diseases (smallpox, yellow fever, cholera and plague) and devoid of any time bound specific mechanisms for collaboration between WHO and member states into a systematic framework for developing a coordinated international response to "all events potentially constituting a public health emergency of international concern (PHEIC)". The landmark provision in the IHR 2005 is the authorization vested with the director general of the WHO to declare and also terminate the state of a PHEIC which mandates member states to strictly adhere to a designated algorithm during all suspected pandemics [1-2]. The states parties are subject to a number of obligations with regard to airports, ports and ground crossings in the event of a PHEIC [4]. Member states were also required to strengthen their core capacities for enabling and mounting effective response to pandemic like

situations. The WHO has identified the following eight core capacities: (1) national legislation, policy, and financing, (2) coordination and national IHR focal point communications, (3) surveillance, (4) response, (5) preparedness, (6) risk communication, (7) human resources, and (8) laboratory [5]. Furthermore, each signatory country also requires to designate a national IHR focal point for “communicating detailed public health information to WHO, including case definitions, laboratory results, number of cases and deaths and conditions affecting the spread of disease” [1].

However, the global experience has shown that most developing nations faltered in the process of developing core capacities for detecting, assessing, reporting and initiating steps for containing PHIECs which compelled the WHO to extend the deadline for meeting IHR core capacities from 2012 to 2016 for 81 state parties [6]. Reasons for failure in meeting core capacities and associated delay have been attributed to lack of resources, inadequate political will, political instability, civil war and terrorism [7-8].

IHR – The Indian Scenario

The IHR are particularly important from the Indian viewpoint since India is not only expected to comply with provisions of the IHR but also strive to take a leadership position in enabling its neighbouring

countries in the South East Asian (SEAR) Region developing core capacities in epidemiology and surveillance activities. This is especially because India due to its unique environment, geography and socio-demography is particularly vulnerable to a variety of emerging and reemerging infections with outbreaks of at least eight organisms reported in the recent past [9]. India shares its borders with 7 developing nations, some of which like Bangladesh and Myanmar are quite porous permitting regular albeit undocumented and unregulated inflow of migrants and animals which can be a source of disease like H5N1 [10]. India is particularly vulnerable because surveillance capacities of some of these neighbouring countries are rather limited. For instance, Bangladesh did not have an operational Japanese encephalitis surveillance program despite being an endemic country for the disease [11]. Pakistan is one of the countries still reporting polio cases [12]. Under such circumstances, it is essential for India to augment its epidemiological and surveillance capacities capable of generating early warning signals in order to reduce its vulnerability against potential PHIECs arising across its borders. Furthermore, it could help India improve means of detecting bioterror activity directed against it and take appropriate response measures to contain such situations should the need arise.

By 2013, India had met most of its goals towards maintaining IHR capacities (Table 1).

Table 1: IHR core capacity implementation status 2015

Core Capacity	Description	Implementation status	Implementation status
		Global average	India
1	National legislation	83% (2015)	100% (2013)
2	Coordination	84% (2015)	100% (2013)
3	Surveillance	88% (2015)	100% (2014)
4	Response	86% (2015)	81% (2013)
5	Preparedness	75% (2015)	90% (2013)
6	Risk communication	82% (2015)	100% (2013)
7	Human resources	65% (2015)	100% (2013)
8	Laboratory	84% (2015)	100% (2013)
	Points of entry	62% (2015)	83% (2013)
	Zoonosis	87% (2015)	100% (2013)
	Chemical	58% (2015)	62% (2013)
	Radionuclear	60% (2015)	100% (2013)
	Food safety	78% (2015)	100% (2013)

Source: http://gamapserver.who.int/gho/interactive_charts/ihr/monitoring/atlas5.html?indicator=i5

We briefly examine some aspects of IHR core capacities where India despite having made significant advances faces current challenges in maintaining their core capacities.

(A) The WHO recommends training in epidemiological skills for ‘compilation, analysis and interpretation of health data and initiation of timely

and appropriate public health action’ which enables the correct application of the decision instrument for notification of PHIEC (core capacity 3 and 7). Since health is a state subject in India, the government of India has planned setting up of NCDC branches in the states through a decentralized process in order to enhance human resources for strengthening

capacity for outbreak investigation, prevention and control of public health emergencies [13]. Existing initiatives include capacity building in epidemiology through regular Field Epidemiology Training Programs both for Indian and WHO sponsored medical graduates from countries in the SEAR region [14]. An Epidemic Intelligence Service (EIS) program run in collaboration with the CDC, Atlanta is in operation since 2012 with the objective of producing highly skilled epidemiologists each year [15]. Nevertheless, these measures are still inadequate since developing timely 'Response' (Core capacity 4) to any suspected outbreak requires the positioning of a Rapid Response Team in every district of the country. Hence, the government of India's Integrated Disease Surveillance Program program mandates a trained epidemiologist to be recruited in each of the 640 districts of the country which is not feasible since the number of formally trained epidemiologists is still low in India [16]. Apart from few formal courses existing for field epidemiology training, career pathways and perceived opportunities as a career epidemiologist are lacking especially for medical graduates [17] while serving in rural and backward areas without clear pathways for career progression hinders epidemiology as a career option. The RRTs should also be accompanied with specialist clinician, pediatrician and microbiologists but data in public domain is lacking to apprise us of the current situation with regards to specialist manpower availability during outbreak investigations and routine surveillance activities.

Nevertheless, certain media reports have suggested acute scarcity of expert professionals in other surveillance activities. The lack of food analysts has caused closing of public health government labs even as the IHR renders evaluation and reporting of certain food borne outbreaks as a necessary obligation of member states [18]. Similarly, although India has a very high burden of vector borne diseases, the study by Pandey et al (2015) found the availability of specialized training in medical entomology to be insufficient in terms of number and intake capacity [19].

Finally, several districts in India are under the grip of left wing insurgency where government functioning is precarious [20]. Most of these districts are developmentally laggard, violence ridden and lacking critical health resources including permanent healthcare facilities and staff.

(B) The WHO has identified Clinical management and infection control as an important aspect of preparedness (Core capacity 5) since high quality clinical care for control of infectious diseases

combined with good hospital infection control measures even in absence of specific treatment or vaccines have proven effectiveness in controlling diseases with potential for international spread including SARS. The WHO therefore recommends member states to upgrade their "hospital surveillance, clinical management, hospital based investigation of un-characterized public health events and the systematic control of infection control measures" [21]. Hand hygiene among healthcare workers (HCW) is the most important measure to avoid the transmission of harmful germs and prevent healthcare associated infections [22]. Several Indian studies have reported poor knowledge and practice of hand hygiene by HCWs which is often due to inadequate training and lack of access to essential hand hygiene facilities [23-24].

(C) Public health laboratories play a critical role in disease surveillance and response by providing etiological confirmation of diagnosis during outbreak investigations and also producing early warning signals during monitoring and surveillance. The WHO hence recommends the 'development of a network of reference and intermediate labs with appropriate biosafety certifications along with a stringent mechanism for timely and safe collection and transport of infectious agents to labs' (core capacity 8). Several initiatives have been undertaken by the government of India in this regard which include strengthening of 50 district public health laboratories under the IDSP and establishing referral labs by upgrading existing labs in microbiology departments of government hospitals [9]. Nevertheless, while significant improvement has been attained in terms of development of laboratory infrastructure, capacity building in the form of trained public health laboratory staff has not garnered the same attention and has lagged behind [25]. Moreover, India still has a long way to go before all diagnostic laboratories are certified or accredited according to international standards, or to national standards adapted from international standards as recommended by the WHO (capability 3 level).

Conclusion

The recent Ebola outbreak and the looming threat of Zika suggest that the IHR could have never been more relevant. The delay in declaring Ebola as a PHIEC and the thousands of deaths which followed in its aftermath providing a grim warning as to the catastrophic consequences of not developing sufficient core capacities for detecting and reporting

PHIECs especially among low income countries [26].

The IHR provides India with unique opportunities for improving the health status of its own population and contribute to betterment of global health but also posits challenges which must be overcome. India has very poor health indices with only 1 doctor per 1800 and just 1 hospital bed per 1000 population [27]. The IHR thus provide India with an additional incentive for health system strengthening and capacity building efforts which also reduce the risk of overstressing limited public health systems and permit their sustainable development. India should also consider commitment of resources to meet IHR requirements in its neighboring countries especially those with which it shares its borders wherever it is feasible by provision of technical expertise, training and material resources like medicines and bed nets. Strengthening of surveillance systems in India would help improve outputs related to several national health programs for control of HIV-AIDS, Vector borne diseases, etc.

The adoption of a “one health” strategy could also help improve human, animal, and environmental health [28]. Promoting vaccination of dogs could help control rabies while reducing antibiotic use in animals could reduce emergence of antimicrobial resistance.

The shortfall of trained epidemiologists in India could be met by promoting inclusion of short field epidemiological training programs within course curriculum of MD Community Medicine programs. Students from allied health fields and science streams should be provides avenues for training in public health disciplines especially entomology and food science.

The government should also promote vaccine development and research in order to reduce dependence on international partners in the event of a pandemic threatening its population.

Ultimately, India can be a valuable partner in improving global security and must strive to be a model state in implementing the IHR at the advanced levels and becoming a key player in safeguarding global health.

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