



Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

Elsevier hereby grants permission to make all its COVID-19-related research that is available on the COVID-19 resource centre - including this research content - immediately available in PubMed Central and other publicly funded repositories, such as the WHO COVID database with rights for unrestricted research re-use and analyses in any form or by any means with acknowledgement of the original source. These permissions are granted for free by Elsevier for as long as the COVID-19 resource centre remains active.



## Special Issue

## Enhancing legal preparedness for the prevention and control of infectious diseases: Experience from severe acute respiratory syndrome in Hong Kong

S.M.Y. Choi\*, P.Y. Lam

Department of Health, Hong Kong

## ARTICLE INFO

*Article history:*

Received 8 October 2008

Received in revised form

7 January 2009

Accepted 14 January 2009

Available online 5 March 2009

*Keywords:*

Legal preparedness

Infectious diseases

SARS

Hong Kong

Legislation

## SUMMARY

The use of legislation as a health protection tool forms an important and distinct aspect in the arena of public health. A review of Hong Kong's infectious disease legislation was conducted with a view to updating the legal framework for the prevention of infectious diseases, in order to strengthen the capacity of law to support strategy in the control of infectious diseases. This article shares Hong Kong's experience in reforming its public health legislation to: (1) update terminology and re-organize provisions in accordance with modern public health disease control principles and control mechanisms for disease; (2) enhance responsiveness for better preparedness and flexibility in handling emergent infections; (3) ensure appropriate checks and balances to coercive powers; and (4) introduce emergency powers for the handling of public health emergencies.

© 2009 The Royal Society for Public Health. Published by Elsevier Ltd. All rights reserved.

## Introduction

Public health law consists of the legal powers and duties of the state to assure the conditions for people to be healthy, and the limits on that power to constrain the individual autonomy, privacy, liberty and proprietary interests for the protection or promotion of community health.<sup>1</sup> Infectious disease law is a branch of public health law. The use of legislation as a health protection tool forms an important and distinct aspect in the arena of public health.

In the wake of the series of anthrax attacks occurring in the USA after 11 September 2001 and the outbreak of severe acute respiratory syndrome (SARS) in 2003, the global community started a process to strengthen public health infrastructures. As part of their legal preparedness in response to bioterrorism or naturally occurring disease outbreaks, many Western countries have conducted exercises to review and update their infectious disease laws. In the East, both China and Macao Special Administrative Region reformed their infectious disease legislation in 2004. Singapore updated its infectious disease legislation in early 2008.

The situation in Hong Kong is no exception to that in the rest of the world. After the SARS outbreak in 2003, a SARS Expert Committee was commissioned by the Chief Executive of Hong Kong

Special Administrative Region to conduct a review of the capacity of the Hong Kong healthcare system to better prepare for any future outbreak. During the outbreak of SARS in 2003, the Quarantine and Prevention of Disease Ordinance<sup>2</sup> (QPDO) of the laws of Hong Kong was the legal tool that provided the legal framework for the prevention and control of infectious diseases of public health importance in Hong Kong. As part of the review, the legislative framework for the prevention and control of infectious diseases was examined. The Committee concluded that the legislation had not kept pace with modern developments, such as the increase in international travel, and recommended that the adequacy of the legislation should be reviewed.<sup>3</sup>

On the advice of the SARS Expert Committee, a comprehensive review of Hong Kong's infectious disease legislation was conducted with a view to updating the legal framework for the prevention of infectious diseases. This article shares Hong Kong's experience in reforming its public health legislation, leading to the passing of the Prevention and Control of Disease Ordinance<sup>4</sup> in order to strengthen the capacity of law to support strategy in the control of infectious diseases.

## History of the Hong Kong QPDO

The QPDO was first enacted in 1936 as part of a major re-organization of the infrastructure of medical and sanitary services and the related legislative framework. Before the enactment of the

\* Corresponding author. 21/F, Wu Chung House, 213 Queen's Road East, Wanchai, Hong Kong. Tel.: +852 2961 8897; Fax: +852 2573 9213.

E-mail address: [smychoi@dh.gov.hk](mailto:smychoi@dh.gov.hk) (S.M.Y. Choi).

QPDO, provisions relevant to prevention and control of infectious diseases were spread across two ordinances, namely the Public Health Ordinance 1887 (later amended and renamed the Public Health and Buildings Ordinance 1903) and the Merchant Shipping Ordinance 1899.

The Public Health Ordinance 1887 regulated the manufacturing and sale of food and drugs, and provided for the abatement of nuisances, the proper construction and sanitary maintenance of buildings, and measures for control of infectious diseases. In relation to measures for control of infectious diseases, this 1887 legislation provided for compulsory reporting of cases of smallpox, and compulsory vaccination, cleansing and disinfection of infected premises. The law also provided a mechanism for the Government to proclaim a state of epidemic and to make bye-laws for the mitigation of such epidemic. The Merchant Shipping Ordinance 1899 provided for quarantine regulations concerning vessels and seaports of Hong Kong. Infectious diseases covered by the Merchant Shipping Ordinance 1899 only included the quarantinable diseases defined in the previous World Health Organization's (WHO) International Health Regulations (IHR), namely cholera, smallpox, plague, typhus fever and yellow fever.

The purpose of the enactment of the first QPDO in 1936 was to consolidate those provisions empowering measures for the prevention of spread of infectious diseases contained in the Public Health and Buildings Ordinance 1903 with the border control measures against quarantinable diseases contained in the Merchant Shipping Ordinance 1899.<sup>5</sup> The enactment also recognized the requirements of the International Sanitary Convention 1926.<sup>6</sup> In 1951, the International Sanitary Regulations, renamed the IHR, were adopted by Member States of the WHO to prevent the international spread of quarantinable infectious diseases and to impose requirements for the notification of cases of these diseases. The QPDO was subsequently amended to reflect the requirements of later revisions of the IHR.

Despite these legislative revisions, the amendments did not seek to make major changes, nor has there been any subsequent restructuring of the QPDO. As such, the QPDO, to a large extent, closely resembled the original version, consisting of provisions taken from two century-old ordinances.

### **Deficiencies of the QPDO: the experience of SARS**

The antiquity of law does not in itself give rise to the inadequacy of its provisions. However, the QPDO consisted of the consolidation of old laws and subsequent piecemeal amendments. Without a review with reference to developing international practices and the evidence base, the QPDO had become outmoded and was not in conformity with contemporary legal standards.

The outbreak of SARS in 2003 was a major public health threat. The epidemic highlighted the fact that the marked increase in intensity and speed of international traffic has resulted in rapid international spread of disease. Although many of the powers necessary for the control of SARS were already provided by the QPDO, the epidemic uncovered some deficiencies in the legislation. The key deficiencies are grouped under the following four areas for the purpose of discussion.

#### *Inability to keep pace with emerging infection and public health principles*

In 2003, an outbreak of SARS occurred in Hong Kong affecting 1755 individuals, with a high case-fatality rate of 17.0%. Globally, 8096 probable cases from 28 countries or areas have been recorded since 2003.<sup>7</sup> This emerging infection had the ability to transmit directly from person to person through contact with infected respiratory

secretion. It is worth noting that, among the last few cases reported towards the end of 2003 and early 2004, all were confirmed to be laboratory-acquired cases or secondary cases of an index case who acquired the infection from a laboratory environment.

As SARS is a disease that transmits from person to person, contact tracing proved to be one of the most effective public health measures for prompt control of spread of the disease. During the SARS outbreak, contacts were placed under medical surveillance or quarantine. Perhaps for historical reasons, medical surveillance was defined in the QPDO as a substitute for isolation. Medical surveillance took place on the conditional release of a person from isolation, subject to the signing of a bond by that person to submit to surveillance. However, the QPDO did not provide separate specific powers of isolation or quarantine of persons. Rather, it provided for the removal and detention of cases, contacts or carriers of infectious diseases to a place appointed by public health doctors, without reference to separation of the ill or the exposed from the healthy, which is the key element of both isolation and quarantine.

As mentioned, the QPDO constitutes a merger of provisions from two old laws together with updating in accordance with the requirements of the International Sanitary Convention and later versions of the IHR. Due to the piecemeal approach to development of the QPDO, it is not surprising that its structure was inconsistent with recognized processes for control of spread of infectious disease, which encompass the four logical steps of prevention, surveillance, investigation and control.

The legal powers to support these steps were scattered randomly through the legislation, making the law difficult to understand for both the public and public health doctors. The definitions and use of terms provided in the legislation were not in line with recognized public health convention. In the eyes of the public, the law poorly articulated the purpose and content of public health measures. In the eyes of public health doctors, the law was confusing regarding which public health measure was covered by which provision of law, and when a power could be exercised. This confusion jeopardized the function of law to communicate health policy, and was not conducive to the use of legal powers to control disease by public health doctors. The efficiency of law as a public health tool for disease control was thus affected.

The occurrence of laboratory-related cases of SARS indicated that the handling of dangerous pathogens in laboratories was an emerging public health issue. Ensuring laboratory safety was the main concern for these cases, and the WHO published a post-outbreak biosafety guideline for handling SARS Co-V and culture. However, no measure was prescribed under the QPDO for detection of incidents of leakage of dangerous pathogens or its management. This gap further signified that the QPDO was unable to keep pace with new threats of infectious disease.

#### *Inadequate responsiveness*

In order to prevent the spread of SARS from Hong Kong, border control measures were implemented, despite the fact that clear evidence on the effectiveness of such measures was not yet available. On the question of border control measures, the QPDO followed the requirements of earlier versions of the IHR, and hence most of the provisions of the QPDO were only applicable to the quarantinable diseases. A considerable portion of the legislation was devoted to disease-specific powers for each of the quarantinable diseases. Medical examinations and surveillance of travellers were only provided for cholera and plague for passengers of incoming vessels and aircraft. Health declarations were applicable to travellers entering Hong Kong by air or sea, but without application to the busy land border.

As legal powers were disease specific, the Government was unable to use legal powers to support border control measures for new diseases such as SARS. In addition, as the provisions relevant to border control measures, including in relation to health declarations, were contained in the principal ordinance rather than in regulations, any amendment was required to undergo a process of positive vetting by the legislature; a process which would normally take months to complete. These features of the QPDO hampered the response to the prevention and control of SARS, and led to the necessity for urgent amendments to the subsidiary legislation in the midst of the SARS outbreak. Amendments were needed to authorize medical examination of travellers for the purpose of prevention of cross-border spread of the disease; as a result, health declarations at the land border needed to be conducted administratively.

#### *Insufficient checks and balances*

The Hong Kong Legislative Council scrutinizes proposals for legislative amendments in Hong Kong. As part of the administration's response to the recommendations of the SARS Expert Committee, the issue of review of the QPDO was discussed in the Legislative Council in 2004. Legislative Council members expressed serious concern that the QPDO was antiquated and therefore inadequate to deal with new and serious infections such as SARS. Members also supported the proposal that international best practice, as stipulated in the IHR, should be followed, and urged the administration to reform the QPDO expeditiously.<sup>8,9</sup>

Nevertheless, it was also the responsibility of the Legislative Council to scrutinize law to ensure that coercive power vested in the Government was not unfettered. In the process of amendment of the QPDO during the outbreak of SARS in 2003, Legislative Council members were critical of two key issues of the bill. Firstly, the proposed powers, which were potentially applicable to all infectious diseases, were too generic. It was decided that the new provisions should only be applicable to SARS. Secondly, it was determined that there should be a limit (sunset clause) on the effective period of the provisions.<sup>10</sup> This limit recognized the important legal principle that any coercive power should be the least restrictive necessary in terms of scope and duration.

In the definition of public health law proposed by Gostin, referred to at the beginning of this article, there are two arms to public health law: law confers power to the state or government, and at the same time, law limits such power to constrain individual liberty. It follows that in the creation of a new power, appropriate checks and balances should be provided, particularly in relation to legal powers that intrude into people's liberty, privacy and proprietary interests.

#### *Lack of emergency powers*

The QPDO contained no emergency powers. The Emergency Preparedness Plan for Influenza Pandemic in Hong Kong and the SARS Contingency Plan are the most recent and most important contingency plans developed by the Centre for Health Protection of the Hong Kong Government. Measures to manage a public health emergency as provided in these plans were matched against provisions under the QPDO to assess the adequacy of the QPDO to deal with a public health emergency.

It was found that while the QPDO might allow for some limited public health emergency measures, it lacked provisions to enable the following measures as recommended in the emergency plans:

- surveillance (the power to access information collected by healthcare facilities);

- investigative power (the power to release contact information);
- disease control (the power to order closure of public places); and
- maintenance of essential healthcare service (the power to acquire healthcare facilities, drugs, vaccines, personal protective equipment etc.).

Analysis of the QPDO with reference to contingency measures in the SARS and influenza pandemic plans assisted in identifying gaps that called for consideration for inclusion in the legislation.

#### **Closing the gaps in the prevention and control of disease ordinance**

To address the deficiencies of the QPDO, it was considered necessary to update the terminology and re-organize provisions in accordance with modern public health disease control principles and control mechanisms for disease, to enhance responsiveness for better preparedness and flexibility in handling emergent infections, to ensure appropriate checks and balances to coercive powers, and to introduce emergency powers for the handling of public health emergencies. The amendment exercise also took into account the requirement to comply with the revised IHR (2005).

#### *Updating terminology and re-organization of the QPDO*

In the amendment exercise, interpretations of terms were amended where appropriate to reflect current usage. The term 'medical surveillance' was redefined to mean regular medical monitoring and observation with a view to ascertaining the health status of a person. In the new legislation, public health doctors are empowered to subject a person suspected to be a contact or infected with an infectious disease to medical surveillance. Should medical examinations or tests be required for the purposes of surveillance, the law requires that those examinations and tests should not be more intrusive or invasive than required to ascertain the state of the person's health.

Power to order quarantine and isolation of persons are clarified in accordance with accepted public health principles. It is made clear in the amended legislation that the power of quarantine is applicable to persons who are contacts (i.e. persons who have been or who are likely to have been exposed to the risk of contracting an infection), while isolation is applicable to persons who are infected with the disease.

The QPDO provisions were re-arranged to follow, as far as possible, the four logical steps for control of spread of infectious diseases: prevention, surveillance, investigation and control.

In order to enable compliance with the requirements of the IHR (2005), control measures governing inbound and outbound travellers across the boundaries of Hong Kong were also strengthened. Provisions relevant to travellers and border control measures were grouped under separate parts of the new law.

Through the above amendments, the law has markedly improved the ability of the public health authority to communicate with the public and healthcare professions on issues of responsibility under the law, and to communicate with public health doctors on their duties and powers with respect to prevention and control of infectious diseases.

#### *Enhancing responsiveness*

To enhance legal responsiveness, a major structural reform of the QPDO was undertaken. Unlike the old QPDO, the new principal ordinance only contains fundamental and enabling provisions, such as those providing powers of arrest, seizure and forfeiture, as well as the power to make subsidiary legislation. The principal

ordinance serves the key function of defining the scope of the subsidiary legislation, providing a framework within which the legislature is willing to empower decision making by the Government. Provisions that are operational in nature are included in new subsidiary legislation.

Under this new structure, the new subsidiary legislation will provide a holistic plan of measures for the prevention, surveillance and control of cross-boundary spread of disease, as well as for spread of disease within the boundaries of Hong Kong. Moreover, a new section of the legislation addressing control of laboratory handling of dangerous infectious agents was introduced. In line with the IHR 2005, the concepts of quarantinable diseases and quarantinable-disease-specific legal powers were removed. The applicability of the subsidiary legislation is defined by schedules of infectious diseases and dangerous infectious agents.

This major restructuring of the law will allow more flexible and speedy amendment procedures where they become necessary. Subsidiary legislation is subjected to a process of negative rather than positive vetting by the legislature. This will assist in expediting any amendment process, thereby improving legal responsiveness to emerging infections. The schedules of infectious diseases and infectious agents are to be amended by order of the Director of Health; a process that will take only hours to complete. When a new infection of public health importance emerges, the Government will be able to acquire a full range of disease control powers simply by adding the emergent infection to the list in the schedules.

#### *Ensure appropriate checks and balances*

Inevitably, any enhancement in responsiveness will result in giving the Government and government public health agencies greater discretion in exercise of their legal powers. Therefore, it is pivotal to include appropriate checks and balances so that the exercise of discretionary powers is not unfettered. In accordance with revisions to infectious disease legislation conducted in other countries, it was recommended that while a full range of legal powers for disease control should be provided, the exercise of any such power should follow the principle of 'least restrictive alternative'. The legislation should clearly articulate when the use of each power is appropriate.<sup>11–13</sup> Similar principles had been expressed by the Legislative Council during the debate on the amendments to the QPDO during the SARS outbreak.

In updating the QPDO, appropriate checks and balances have been introduced to bring the law into line with this public health law standard. Medical surveillance, examinations and tests must not be more intrusive and invasive than is necessary to ascertain a person's health condition. When and how the power of quarantine or isolation can be exercised is now clearly spelled out in the law. A new power has been introduced to require authorization from a magistrate for a warrant to enter residential premises for investigation of a case or suspected case of infectious disease. A further protection against abuse of powers is that any exercise of power under public health legislation or any exercise of discretionary power will be subject to judicial review.

#### *Public health emergency*

In considering whether emergency powers for disease control should be introduced, the experience of overseas countries was taken into account. Opinions of Hong Kong public health doctors responsible for an emergency response were sought, particularly in the light of their experience of the SARS outbreak.

Experience elsewhere suggested that legal powers to acquire information for heightened surveillance, powers of closure of public places to achieve better social distancing in outbreak control,

and powers to acquire property and a healthcare work force to maintain essential healthcare services were common features of legislation for public health emergencies. On the other hand, compulsory release of contact history was not a consistent feature of legislation in other states.

It appears that, in general, public health emergency powers focus mainly on control and management of property and information, rather than on individuals. Compulsory release of contact history raised concerns about intrusion into bodily integrity and privacy. In addition, the possible 'side effect' of driving people underground in response to exercise of coercive powers was considered. Consultation with public health physicians in Hong Kong revealed similar views.

Legal powers in relation to control and management of property intrude into property rights rather than into people's bodily integrity and privacy. The experience of the SARS outbreak in Hong Kong highlighted circumstances in which shortages of hospital beds, facilities and services for large-scale quarantine, as well as shortages of personal protective equipment, might occur. As indicated by overseas practices and by the experience of SARS, consideration was given to include this group of emergency powers in the new public health legislation.

Analysis of overseas legal practice revealed that the typical application of an emergency statutory power was more restricted than application of other provisions. In particular, emergency powers were generally time limited (to times of emergency) and could only be invoked upon a declaration made by a leader of the country or region. In relation to emergency powers where people's property rights were forfeited (such as in acquisition of facilities, personnel and drugs), a compensation mechanism was expressively included.

In view of the foregoing analysis, to enhance the legal preparedness for any major disease outbreak in Hong Kong, the decision was made to introduce an emergency power into public health legislation to enable response to a public health emergency within the shortest time frame. However, as such a power is not expected to be required in ordinary circumstances, and will only be exercised in very exceptional circumstances, the new legislation has provided for the Chief Executive of Hong Kong to make public emergency regulations only when an occasion of public health emergency (as evident by the occurrence or imminent threat of disease or epidemic) exists. The scope of the emergency regulations would include a legal power for the purpose of combating and controlling the particular public health emergency situation. In particular, it may empower the Government to access and to disclose information to the public relating to the state of the public health emergency for the purpose of protecting public health, provide for the requisition of private property (e.g. vaccines, medicine, personal protective gear, vehicles, vessels, etc.) and healthcare workers, provide for closure of places for public gathering, and provide other necessary powers with regard to the nature and circumstance of the public health emergency.

The provision of emergency powers is contained in the revised public health legislation and is to be exercised within the framework of that legislation. Hong Kong has chosen not to amend its Emergency Regulations Ordinance,<sup>14</sup> as some states have done.<sup>15</sup> This illustrated the Government's intention for a holistic approach to deal with anticipated public health emergencies caused by the spread of infectious diseases in the same legislation.

#### **Conclusion**

In the face of the challenge of emerging infections, the international community has actively strengthened its legal preparedness for public health emergencies. The recent occurrence of SARS in

Hong Kong indicated that infectious disease legislation is necessary to facilitate response to public health threats in a timely manner.

With regard to the deficiencies of the QPDO, a major reform of the QPDO and its subsidiary legislation has been conducted, leading to the passing of the new Prevention and Control of Disease Ordinance<sup>4</sup> and regulations. The legislation commenced operation in July 2008. The effectiveness of application of this legislation as a public health tool has yet to be assessed. Nevertheless, the Prevention and Control of Disease Ordinance has brought the Hong Kong legal framework for prevention and control of infectious diseases up to date. The author is confident that this legislation will enhance Hong Kong's capacity to respond to emerging diseases, both in ordinary times and during public health emergencies.

#### Ethical approval

None sought.

#### Funding

None declared.

#### Competing interests

None declared.

## References

1. Gostin LO. *Public health law: power, duty, restraint*. Berkeley and Los Angeles: University of California Press; 2000.
2. Cap 141. The laws of Hong Kong [Repealed 14 Jul 2008].
3. SARS in Hong Kong: from experience to action. Report of the SARS Expert Committee. Available from: [http://www.sars-expertcom.gov.hk/english/reports/reports/reports\\_fullrpt.html](http://www.sars-expertcom.gov.hk/english/reports/reports/reports_fullrpt.html); 2004.
4. Cap 599. Available from: [http://www.legislation.gov.hk/blis\\_export.nsf/home.htm](http://www.legislation.gov.hk/blis_export.nsf/home.htm) [Last accessed 19/02/09].
5. Hong Kong Legislative Council. Hansard. 24 January 1935. pp. 15–22. Available from: <http://www.legco.gov.hk/1935/h350124.pdf>.
6. Hong Kong Legislative Council. Hansard. 16 January 1936. pp. 16–8. Available from: <http://www.legco.gov.hk/1936/h360116.pdf>.
7. World Health Organization. Available from: [http://www.who.int/csr/sars/country/table2004\\_04\\_21/en/index.html](http://www.who.int/csr/sars/country/table2004_04_21/en/index.html) [accessed August 2008].
8. Subcommittee to monitor the implementation of the recommendations of the SARS Expert Committee and the Hospital Authority Review Panel on the SARS Outbreak, Hong Kong. Minutes of meeting on 15 December 2003. Available from: [http://www.legco.gov.hk/yr03-04/english/panels/hs/hs\\_sars/minutes/sa031215.pdf](http://www.legco.gov.hk/yr03-04/english/panels/hs/hs_sars/minutes/sa031215.pdf).
9. Subcommittee to monitor the implementation of the recommendations of the SARS Expert Committee and the Hospital Authority Review Panel on the SARS Outbreak, Hong Kong. Minutes of meeting on 6 April 2004. Available from: [http://www.legco.gov.hk/yr03-04/english/panels/hs/hs\\_sars/minutes/sa040406.pdf](http://www.legco.gov.hk/yr03-04/english/panels/hs/hs_sars/minutes/sa040406.pdf).
10. House Committee of the Legislative Council, Hong Kong. Minutes of 22nd meeting held in the Legislative Council Chamber on 25 April 2003. Available from: <http://www.legco.gov.hk/yr02-03/english/hc/minutes/hc030425.pdf>.
11. Gostin LO, Burris S, Lazzarini Z, Maguire K. Improving state law to prevent and treat infectious disease. *Milbank Memorial Fund*; 1998.
12. Monaghan S. *The state of communicable disease law*. London: The Nuffield Trust; 2002.
13. Ministry of Health, New Zealand. Public health legislation – promoting public health, preventing ill health and managing communicable diseases. 2002.
14. Cap 241. Available from: [http://www.legislation.gov.hk/blis\\_export.nsf/home.htm](http://www.legislation.gov.hk/blis_export.nsf/home.htm) [Last accessed 19/02/08].
15. Martin R. The role of law in pandemic influenza preparedness in Europe. *Public Health*; 2009.