For information

SARS Expert Committee

Briefing paper for SARS Expert Committee

PURPOSE

This paper gives an overview of the public health system of Hong Kong and the prevention and control of communicable diseases. It also addresses various interface issues with hospitals including information exchange and contact tracing. The public health measures on the prevention and containment of SARS are elaborated.

BACKGROUND

2. DH was established on 1st April 1989 upon the reorganization of the former Medical & Health Department to focus on the development of health services for the promotion of positive health and the prevention of diseases.

3. The work of DH is reflected by its mission statement which reads "The Department of Health is the Government's health adviser and agency to execute health care policies and statutory functions. It safeguards the health of the community through promotive, preventive, curative and rehabilitative services."

4. The development of DH was also guided by the recommendations of the Working Party on Primary Health Care published in 1990. DH has since then introduced and developed a number of disease prevention and health promotion oriented programmes targeting at specific clients such as Student Health Service, Women Health Service and Elderly Health Service.

5. Hong Kong can indeed be proud of our achievements in the health of the community, contributed by many factors and reflected by our health indices, which are on par with the developed countries. Notwithstanding this, we still see the need to keep in pace with the changing health needs of the community brought about by challenges such as changes in trends of diseases, emerging and re-emerging infections, ageing population, globalization as well as advances in medical technology and information technology.

6. As stated in the Consultation Document on Health Care Reform released in December 2000, the Government has a vision to revamp a health care system, which promotes health, provides lifelong holistic care, enhances quality of life and enables human development. The life long investment in health has major focus on three pillars, namely, in health care system delivery, system of quality assurance and health care financing. Against this background, DH considers it opportune to re-examine its core roles in fulfilling its commitments as health authority and health advocate to protect and promote the health of the community.

CORE ROLES OF THE DEPARTMENT OF HEALTH

7. In defining the new roles of DH, reference is made to :

- the roles of health departments in overseas countries;
- epidemiology of communicable and non-communicable diseases, locally and globally;
- expectations of the public; and
- views of the Legislature.

8. Currently, the work or activities of DH under the policy area of health are grouped into five programmes :

Programme (1) Statutory Functions
Programme (2) Disease Prevention
Programme (3) Health Promotion
Programme (4) Curative Care
Programme (5) Rehabilitation

9. Over the years, there is a growing public expectation for DH to strengthen its roles as a regulator to safeguard public health and in health promotion to improve the quality of life of the population. Taking into account public aspiration and overseas practices, it is considered appropriate for DH to adopt a functional approach in this exercise and we have proposed to refine our core roles under 4 areas, namely :

(i) Regulatory
(ii) Advisory
(iii) Health Advocacy and Promotion
(iv) Disease Prevention and Control

Regulatory

10. DH has been exercising its regulatory functions in the following specific areas where it has explicit statutory power or duties :-

- preventing the importation of quarantinable diseases and their spread in Hong Kong;
- ensuring the safety, quality and efficacy of pharmaceutical products;
- promoting/protecting the health of radiation workers and minimizing public exposure to radiation hazard;
- providing secretariat support to registration of health personnel;
- licensing of health care institutions.

11. For other health related areas, the role of DH is more an informant and expert advisor rather than regulator. This is particularly so in matters related to health claims and the safe use of medical devices. There is a clear call for DH to take on a more proactive role in regulation and to take on the functions of a prosecutor. In this regard, DH is studying the regulation of health claims and examining the appropriate regulatory framework for medical devices. These reviews are completed by 2002/03. On the regulation of Chinese medicine, we are developing standards for the regulation of Chinese medicinal herbs. The target is to develop the standards for the commonly used Chinese medicinal herbs by 2007.

12. Meanwhile, as our existing roles in the enforcement of certain ordinances such as the one on undesirable medical advertisements are limited and cases have to be referred to other authorities for investigation and prosecution, we are looking into the feasibility of establishing a prosecution unit within DH with a view to expediting and stepping up law enforcement activities through direct involvement in the investigation and prosecution process.

Advisory

13. Since its inception, DH has been providing health advice in support of the formulation of health policy and the work of other Government bureaux and departments.

14. It is well appreciated that many activities in other sectors will ultimately have an impact on the health of individuals and the community and our role as health adviser can be expanded to support sectors outside the health setting. To facilitate our work in this expanded advisory role, we are establishing a Public

Health Information System (PHIS) and to enhance the capacity of DH in health assessment by 2004. With the development of the PHIS, DH will be able to collate and analyse data from services within and outside the health care sector to generate information and to identify key areas where maximum health impact can be achieved with public health intervention. The PHIS will lay the foundation for DH in taking up the enhanced health advisory role. Our goal is to critically assess the local health status and set priorities for action. We aim to commence preparing regular reports on the health status of the community in two years' time.

Health Advocacy and Promotion

15. Traditionally, the Central Health Education Unit of DH has been playing a key role in health promotion in Hong Kong. It is a resource centre and provides advice to other agencies in health education matters. It has a rich collection of health education resources which are available to the public free of charge. Health education messages are disseminated through various channels including its resource centres, printed materials, electronic media, telephone hotline, the internet, campaigns, as well as the organisation of training activities, exhibitions etc.

16. The Health Care Reform Consultation Document proposes, among other things, that DH should enhance its work in health promotion and adopt the role of an advocate for health, working in concert with the Health & Welfare Bureau, seeking political commitment, policy and systems support and social acceptance for different health goals and programmes.

17. Health promotion is a process of enabling people to increase control (over the determinants of health), and to improve their health. It not only embraces actions directed at strengthening the skills and capabilities of individuals, but also action directed towards changing social, environmental and economic conditions so as to alleviate their impact on public and individual health. Community participation is essential to sustain health promotion action.

18. Health advocacy is a combination of actions designed to gain political commitment, policy support, social acceptance and systems support for a particular health goal or programme. Such action may be taken by and/or on behalf of individuals and groups to create living conditions which are conducive to health and the achievement of healthy lifestyles.

19. To prepare for the expanded role in health advocacy and promotion, a study of Community, Organizational and Workforce Capacity in Health Promotion

and Education was conducted in September 2000 which proposed steps for DH to enhance its health promotion capability and effectiveness. Training in health promotion for 40 staff commenced in 2001 to equip them with necessary skills in health promotion across various health services within the Department. The CHEU has been reorganized to strengthen its leadership role in health advocacy and promotion. The new functions are :-

- Develop, monitor and review a strategy for promoting health in Hong Kong
- Coordinate and strengthen cohesiveness of health promotion actions across the community
- Build, collect and disseminate evidence of good practices in health promotion
- Develop and enhance workforce capacity
- Communicate and campaign for health improvement
- Involve the community in all aspects of health promotion

Disease Prevention and Control

20. Hong Kong has a well-established and effective system for surveillance of infectious diseases. Under the Quarantine and Prevention of Disease Ordinance (Cap. 141), doctors are required to notify DH of cases of specified diseases. DH has also put in place a sentinel surveillance system on influenza-like illness, hand, foot and mouth disease, acute conjunctivitis, acute diarrhoeal disease and antibiotics resistances through a network of general out-patient clinics and private practitioners.

21. The Public Health Pathology Service provides laboratory services for the surveillance and diagnosis of infectious diseases. With the completion of the Public Health Laboratory Centre in end 2001, pathology services at different locations has been centralized and enhanced to support disease prevention and control programmes. State-of-the-art techniques are introduced to support the control of tuberculosis, sexually transmitted diseases, anti-microbiol resistance study and disease surveillance and epidemiological studies.

22. Apart from communicable diseases, DH also collaborates with other sectors in the prevention and control of non-communicable diseases, many of has been closely related to life styles. A number of new initiatives such as Adolescent Health, Parenting, Men's Health and Cervical Cancer Screening have been implemented as reported at the LegCo Health Panel meeting in February 2002.

On disease surveillance, at present, our statistics on non-communicable diseases are mainly confined to mortality data and public hospital/clinics attendances. Our goal is to establish a surveillance system to include the top five diseases which pose the greatest burden to the community.

23. We shall also continue to strengthen our network with the World Health Organization and other health authorities in meeting the challenges brought about by globalization, emerging and re-emerging infections and advances in technology.

PREVENTION AND CONTROL OF INFECTIOUS DISEASES

24. Concerning the prevention and control of infectious diseases, major public health responsibilities of the DH include the following five major areas, in addition to the free immunisation programme for childhood and elderly, as well as the curative services for tuberculosis and sexually transmitted infections :

I. Surveillance of infectious diseases
- -- Statutory notification
- -- Sentinel surveillance
- -- Laboratory surveillance
- -- Hospital discharges due to influenza/pneumonia
- -- HIV surveillance
- -- Voluntary reporting
- -- Animal and vector surveillance systems

II. Case investigations and control measures

III. Emergency preparedness and contingency planning

IV. Public education and risk communication

V. Coordination and collaboration with the Mainland and overseas health authorities

25. The organization of various DH services and units in the prevention and control of communicable diseases is depicted in Annex 1. To effectively execute the above public health functions, DH solicit the support from the different disciplines, government departments, Hospital Authority, academic sector and sectors of the community including health professionals, the academics and the public. This ensures different expertise is coordinated to meet any communicable

disease challenges, gauge the public expectations and prioritise research and development. The leading advisory committees or working groups are listed at Annex 2.

I. Surveillance of infectious diseases

26. DH operates 39 surveillance systems related to different communicable diseases (Annex 3). They fall under the following main categories:

Statutory notifications

27. Doctors are required by law to notify 28 notifiable infectious diseases under the Quarantine and Prevention of Infectious Diseases Ordinance (Cap 141).

Sentinel surveillance

28. This system uses sentinel doctors at defined sites to monitor disease trends. DH has a sentinel surveillance network of hospitals, clinics and laboratories in the public and private sectors to monitor the weekly trend of influenza like illness (ILI), hand-foot-and-mouth disease (HFMD), antibiotics resistance, acute conjunctivitis and acute diarrhea in the community.

Laboratory surveillance

29. The PHLC of DH monitors the trends of many infectious diseases, including bacteria, viruses, and parasites. It also conducts serological surveillance to monitor population immunity against many infections such as measles, rubella, polio, etc.

Surveillance of hospital discharges due to influenza/pneumonia

30. The DH has been receiving weekly statistics of HA hospital discharges due to influenza and pneumonia. Since February 2003, private hospitals are also required to submit the same weekly statistics as HA hospitals. At the same time, surveillance for severe community acquired pneumonia (SCAP) was initiated which requires hospitals to provide individual case details of community acquired pneumonia that need intensive care. The DH conducts investigations on each case of SCAP, including source tracking and contact tracing.

HIV surveillance

31. HIV surveillance program collects data regularly through voluntary reporting, sero-prevalence monitoring of selected groups and unlinked anonymous screening. All personal information is kept confidential.

Voluntary reporting

32. Doctors are constantly reminded to report to DH infectious diseases and unusual pattern of illness that, though not notifiable by law, may affect the population's health in a significant way. Examples include anthrax, hantavirus infection, CJD, and Japanese encephalitis. Sexually transmitted infections (STI) are not statutorily notifiable. The statistics on STI mainly come from voluntary reporting and consultations at out-patient clinics.

Vector and animal surveillance

33. These include vector surveillance (e.g. mosquito survey by ovitrap index) under the Food and Environmental Hygiene Department, poultry surveillance in farms and wholesale markets under the Agriculture, Fisheries and Conservation Department and others. Such surveillance systems supplement the existing public health surveillance systems by instituting close monitoring of the reservoirs of infectious diseases or their vectors for transmission to provide early signs of warning for public health intervention. Regular meetings are held to exchange surveillance data on human diseases, animal diseases, and vector-borne diseases.

Dissemination of surveillance data

34. Surveillance data on infectious diseases are disseminated through DH's website, and the Public Health and Epidemiology Bulletin which is distributed to all registered medical practitioners.

II. Case investigations and control measures

35. Case investigations are initiated by the DH's Regional Offices within 24 hours of receiving a case notification of infectious diseases. We have developed disease investigation protocols (Annex 4) to serve as guidelines and reference materials for management of communicable disease outbreaks. Activities include active case finding, contact tracing and protection via chemoprophylaxis or vaccination, source tracking and elimination (e.g., depopulation of chickens in

avian influenza outbreak), medical surveillance and isolation (e.g. home confinement of close/household contacts), vector control, and appropriate epidemiological studies and environmental surveys.

III. Emergency preparedness and contingency planning

36. The DH has formulated contingency plans to deal with potential public health crisis that causes human catastrophes, under the coordination of advisory, interdepartmental or inter-bureaux committees. Examples include bioterrorism attacks, pandemic influenza outbreak, dengue fever outbreak and so forth. Contingent outbreak response is initiated once cases are detected through the various surveillance systems.

IV. Public education and risk communication

37. Besides disseminating infectious disease related statistics and information regularly through the internet and health education telephone hotline, the DH issues health warnings prior to anticipated peaks of communicable diseases and organizes health talks to the public and community organizations. Patients, their contacts or collaterals also receive health counselling service from medical/nursing staff of the Department during case investigation and contact tracing. For outbreak of infectious diseases with public health importance, the information will be disseminated for information of the public, medical profession, interested parties both local and overseas through various channels e.g. media, press releases and conferences.

38. We put much emphasis on promoting travel health among the Tourism Industry and tourists. The DH organises talks and seminars to the tour group coordinators and disseminates travel health messages. The Port Health Office (PHO) enforces relevant provisions of the Cap.141 and the International Health Regulations at the seaport, airport and borders of Hong Kong so as to prevent the introduction of quarantinable diseases, namely cholera, plague and yellow fever, into the territory. PHO provides consultation in the Travel Health Centres to assess travel health risks and give risk-reduction advice; with provision of travel-related vaccinations (including yellow fever vaccination), anti-malarial and other preventive medications, travel health kit, and information leaflets. The DH travel health website contains travel health advice on a range of common diseases.

V. Collaboration with the Mainland and International Health Authorities

39. Hong Kong maintains contacts with the Mainland Ministry of Health on exchange of infectious diseases and other issues of public health significance. We also have exchange of infectious diseases data concerning cholera, malaria, hepatitis and AIDS with some South China cities like Shenzhen, Zhuhai, Hainan and Macao SAR.

40. DH exchanges epidemiological data regularly with WHO, e.g., polio, rabies, influenza. We contribute data to WHO's FluNet which publishes influenza surveillance data worldwide. In the recent SARS outbreak, we notified the WHO immediately once it was recognized at the Prince of Wales Hospital. We actively seek technical assistance from the WHO whenever needed. We also take part in the international networks of epidemiology, laboratory and clinical management on SARS under the coordination of WHO. Similarly, we have established a good communication network with other national health authorities such as the CDC of USA and Health Canada on the exchange of infectious disease information.

INTERFACE ISSUES WITH HOSPITALS

41. The DH interfaces with public and private hospitals on several fronts. First, the Director of Health is a member of the HA Board of Directors, and she is the licensing authority of private hospitals, to which the DH makes regular inspections. Second, in the primary health care setting, the DH interfaces with HA in providing comprehensive care to clients. Besides referral of clients, shared care programs have been developed between the two parties. Examples of DH services interfacing with HA in this regard include Family Health Service, Student Health Service, and Elderly Health Service. Third, professionals from DH and HA are mutually represented in different expert committees in their organizations. Last but not least, hospitals are a main source of notifications to DH for diseases and conditions of public health importance affecting the community, such as infectious diseases, heavy metal poisoning, etc.

42. In the reporting of infectious disease cases, clinicians in both public and private hospitals report to the Regional Offices of DH mostly by phone or fax. They are familiar with the Regional Offices' contact numbers since these have been constantly promulgated by DH. On some occasions, the notification may come from a hospital laboratory. Upon receiving a notification, the Regional Office initiates investigations within 24 hours. During after-office hours, the hospital can notify the DH's Medical Control Officer to initiate action. Often the Regional

Office sends medical staff to the hospital to collect detailed clinical information and interview the case. Good communication is maintained with hospital clinicians. When a symptomatic contact is detected during contact tracing who requires hospitalization, the DH will liaise with hospital (usually Princess Margaret Hospital) to refer the patient. Nosocomial outbreaks such as MRSA are normally dealt with by Infection Control Teams in the hospital. The DH also has an Infection Control Committee to oversee infection control practices in DH's clinics.

43. In the surveillance of infectious diseases, the PHLC provides diagnostic microbiological services for some HA hospitals, especially in the field of virologic diagnosis. The PHLC collaborates with hospitals to maintain laboratory surveillance for influenza, enterovirus, salmonella, and other pathogens. The PHLC also serves as the reference laboratory in Hong Kong for some infections like influenza and malaria, receiving specimens from the hospitals.

44. In contact tracing, the Regional Offices of DH obtains contact histories and their contact numbers from the patient, the relatives or friends, and the hospital clinician if necessary. The Regional Offices then follow up the contacts and take appropriate control measures, including medical surveillance, giving chemoprophylaxis or vaccination, and making referrals to hospital as required. In some cases, inspections are made to patient's home or places visited to carry out disfinection and environmental sampling.

45. The above system has worked well for many years during the past, and enabled DH to exercise prompt control measures to prevent infectious diseases from spreading in the community. For example, Hong Kong has one of the most sensitive surveillance system for influenza, and has successfully detected novel human influenza strains A(H5N1) in 1997 and A(H9N2) in 1999.

46. However, during the recent SARS outbreak, this system showed a number of deficiencies. First, in the absence of a laboratory diagnostic test during the early phase of the outbreak, the imprecise case definition of SARS has led to some degree of over-diagnosis and under-diagnosis on the part of clinicians. Over-diagnosis led to considerable abortive work and diversion of valuable resources. Under-diagnosis resulted in true cases being missed and increased the chance of disease spread.

47. Second, the speed and volume of cases with which the SARS outbreak hit Hong Kong exposed weaknesses in the disease reporting system, which was based on paper faxes. Each day the DH received faxes of SARS cases line listings with

only very basic information, and a lot of time was spent getting more information and cross-checking cases with the public and private hospitals. At one time experienced public health physicians were stationed in hospitals with large number of SARS cases to collect information for timely contact tracing.

48. Third, when hospital wards were closed to visitors, face-to-face interviews with the SARS patients were not possible and most information gathering was done on the phone which was less effective.

49. Finally, SARS put tremendous strain on our capacity to do contact tracing and enforcing isolation measures. More than 25,000 persons were put on contact tracing during the course of the outbreak. A lot of extra manpower who may not be experienced in disease investigation and control had to be mobilized from other service units to cope with the workload.

PUBLIC HEALTH MEASURES IMPLEMENTED TO PREVENT AND CONTAIN SARS EPIDEMIC

50. In response to media reports of an outbreak of atypical pneumonia in Guangdong, the Department of Health (DH) took a leading role in the formulation, coordination, implementation and monitoring of preventive and control measures in relation to 'atypical pneumonia'which was later called SARS. A number of public health measures were developed by DH as the SARS outbreak unfolded.

I Enhanced surveillance

51. Surveillance of SARS is central to its containment because it affects the speed and completeness of control measures that are carried out. Since February 2003, a surveillance system was set up through liaison with the Hospital Authority (HA) on severe community acquired pneumonia (SCAP). The DH also received input from public and private hospitals to monitor the trend of admissions due to pneumonia.

52. A new surveillance structure specifically for SARS was established in collaboration with our partners. First, a SARS Command Post was set up in DH to centralize information flow in relation to SARS, oversee and coordinate efforts in case investigation, outbreak detection and contact tracing. Second, a real-time surveillance program for SARS reporting and contract tracing (eSARS) was launched in mid-April. This system extracted data from the Clinical Management System of public hospitals to provide a pointer for epidemiological investigation

and contact tracing. It provided real time access to the list of SARS patients on line with preliminary clinical information, and enabled timely tracking of contacts. Third, DH made use of the "MIIDSS" system developed by the Hong Kong Police Force. This system is powerful in matching and validating the different versions of Chinese names, addresses and other details of SARS cases; and it helped to link events, places and people to detect case clusters and generate leads for prompt investigation (e.g., clusters in a certain housing estate, cases seeing a certain general medical practitioner). Fourth, the DH developed a centralized case and contact information system, the "SARS-CCIS", to assist Regional Offices to analyze clusters of SARS cases. This provided a central database for all cases and contacts for tracking and analysis, and supplied quick and accurate information to facilitate other government departments in their collaborative action to contain SARS.

II Enhanced laboratory diagnosis

53. The Government Virus Unit (GVU) in the Public Health Laboratory Center under DH has been providing laboratory service for many HA hospitals, including RT-PCR and serological diagnosis on SARS patients. The GVU was part of WHO's international network of SARS laboratories and it provided valuable data on SARS virus survival and excretion for better understanding of its behavior. It also coordinates clinical specimen collection from various centers to facilitate testing in collaboration with the WHO.

III Contact tracing

54. Contact tracing is imperative in the control of SARS, as it ensures that ill contacts of cases are detected early and promptly isolated in hospital to prevent spread in the community. The DH adopts the WHO definition for close contact of SARS. In addition, social contacts are defined as persons who have had contact with a person with SARS but do not fit the definition of close contacts.

55. For each SARS case, DH Regional Office staff collected detailed information on the patient's contacts by interviewing (face-to-face or by phone) the patients and their relatives. Since 14 April 2003 when the Wanchai Control Centre started operation with its MIIDSS system, contact information was obtained by interviewing patients through telephone in that central location. The Regional Offices then conducted detailed contact tracing based on the information.

56. While contact tracing has been successful on most accounts, some patients were uncooperative and refused to disclose information of contact history such as family members, other contacts, home address and workplace, etc. It was also difficult to retrieve contact history from patients who were intubated or unconscious.

IV Designated Medical Centers (DMC)

57. Four DMCs, one in each region, started operation on 31 March 2003. They were initially established to perform medical monitoring for close and symptomatic social contacts of SARS patients aiming at early detection of SARS and treatment so as to reduce the risk of secondary spread. Close contacts of SARS patients were required to stay home for ten days after last contact with the patient except for daily attendance at the DMCs. Sick leave was granted for them.

58. Attendants to DMCs were required to undergo a temperature check. Depending on the presence of significant symptoms (fever, cough, shortness of breath), a chest x-ray examination might be performed on the spot. Persons with positive chest x-ray findings were referred for hospital treatment. The DMCs have successfully picked up some SARS cases in their early stages of disease.

59. With the implementation of home confinement on 10 April, the target clients of DMCs were mainly close contacts of confirmed and suspected SARS patients (other than home confinees) and symptomatic social contacts.

V Home Confinement Scheme

60. As local and international data accumulated, household contacts of SARS patients were found to have a higher chance of developing SARS. With effect from 10 April 2003, household contacts of confirmed SARS patients were required to undergo home confinement. There was initial concern that mandatory home confinement would drive infected people underground and facilitate the spread of the disease. Fortunately, society was willing to accept some sacrifice of personal freedoms and compliance to the Scheme has been good. The measure was further extended to the household contacts of suspected SARS patients from 25 April onwards, as clinical experience showed some suspected patients turned out to become probable cases.

61. Home confinees were required to stay at home for a maximum of ten days or holiday camps if they so wish. They were not allowed to leave home without the permission of the Health Officer in exceptional circumstances. Visiting health teams manned by nurses visited the confinees regularly for medical monitoring. The Police conducted spot checks to ensure compliance. Non-compliant confinees will be removed to holiday camps upon repeated warning.

62. Confinees who develop symptoms were either referred to DMCs for screening or directly to hospitals for further management.

VI Multi-disciplinary Response Team

63. The Amoy Gardens SARS outbreak highlighted the importance of multi-disciplinary expertise in the investigation of SARS outbreaks in relation to buildings. A Multi-disciplinary Response Team (MDRT) was thus formed for this special purpose. Led by DH, the MDRT comprised professional experts from relevant government departments, such as Housing Department, Buildings Department, Food and Environmental Hygiene Department, Hong Kong Police Force, Environmental Protection Department, Electrical and Mechanical Services Department. The MDRT combined expertise in epidemiology, engineering, building structures, plumbing and sewage systems, ventilation and air circulation, disinfection, pest control, etc. Besides conducting investigations, the MDRT also supervised control measures such as disinfection of buildings and affected case flats. Information about "SARS affected buildings" was also disseminated for public knowledge at DH's web site.

VII Border control, health declarations and temperature screening

64. To prevent the spread of the disease through international travel, the DH has implemented numerous measures at all border control points. These included requiring all incoming passengers to complete a health declaration form, and all arriving passengers at the airport, ports and land border points to have their temperature checked. Temperature screening arrangements also applied to departing and transit passengers at the airport, as well as passengers departing from Hung Hom, China Ferry Terminal and Macau Ferry Terminal. Since 14 April 2003, people having close contact with a SARS patient are barred from leaving Hong Kong during the quarantine period. Commencing 14 June, outbound passengers traveling by air are also required to complete a health declaration form when they check in with airlines.

VIII Public communication and education

65. To educate the public about SARS which is a new disease, the DH published and updated a wide range of information about SARS, all of which is available at DH's website www.info.gov.hk/dh. Such information included fact sheets about SARS, guidelines for different sectors and settings in the prevention and control of SARS, bulletins and press releases on the latest SARS situation in Hong Kong and elsewhere. Besides, the DH conducted many health educational campaigns through multiple channels including the mass media, videos, publications, health talks, etc. Daily press conferences were held by senior DH officials to brief the public and answer their enquiries.

66. Telephone hotlines were set up since March 2003 to answer enquiries from members of the public both locally and overseas on SARS related issues including travel information, health advice on personal and environmental hygiene, concerns over close or social contacts with SARS patients, list of affected buildings, etc.

IX Infection control guidance to hospitals and elderly homes

67. The DH worked closely with HA to contain SARS outbreaks in hospitals and prevent them from spilling over into the community. DH provided epidemiological assessment and analysis of the outbreak, the likely source and route of transmission, and advised on infection control measures and cohorting practices. One important function was the medical surveillance and follow up of close contacts of the hospitals cases including discharged patients and visitors.

68. Concerning elderly homes, which represent a vulnerable target of SARS outbreaks due to frequent visits to hospitals, the Elderly Health Services (EHS) of DH issued a special set of guideline on SARS to all homes in March, and health education on SARS was enhanced. A special briefing session on infection control measures and stress management was conducted for elderly home operators in mid-April to address infection-control related issues. Close liaison is kept between DH, HA and SWD in the prevention and control measures and in providing assistance and guidance to the Residential Care Homes for the Elderly. When a SARS case involving an elderly home arises, DH, who is notified of all SARS cases, will alert the home and initiate follow-up action. Medical surveillance and special health advice on infection control would be provided by EHS with on-site visits, detailed advice and on-going support and monitor during the medical surveillance period. A special data system was set up for the collection, updating, analysis and monitor of the situation, and sharing of information with HA and

SWD. Protocols were designed to ensure effective and efficient information flow and good working relationship within DH, and with HA and SWD.

69. Since early April, the support of SWD has been enlisted to provide resource relief to homes faced with resource difficulty, especially regarding protective gear. Social workers also completed a specially designed questionnaire and checklist to ascertain how well each home is practising infection control, and assess the need for EHS to enhance health education and advice.

70. As hospitalisation was a major risk of SARS infection for elderly home residents, inter-department collaboration among DH, SWD and HA has been initiated to help prevent hospital discharges who may be harbouring the disease from spreading it to others in the homes. Firstly, HA would ensure adequate "step down" isolation of hospital contacts of SARS patients for 10 days before discharge. Elderly homes are also advised to isolate all recently discharged elders for 10 days in accordance with the DH guideline. For those homes with difficulty with isolation, the medical social workers would work out alternative placements in consultation with the relatives.

X Collaboration with the Mainland, WHO and other overseas health authorities

71. Since March 2003, the DH has invited WHO consultants to station at DH for liaison and conduct epidemiological studies. An environmental health team came during April-May 2003 to conduct joint investigations of the Amoy Gardens outbreak. DH shared data with the WHO and other countries to better understand epidemiological parameters of SARS.

72. The DH has also fostered closer ties with the Guangdong and Mainland authorities in the control of SARS. On April 17, a delegation of medical professionals held meetings with Guangdong counterparts in Guandzhou to exchange views and information on clinical treatment as well as measures on prevention and control. To enhance closer collaboration, a regular tripartite meeting of Guangdong-Hong Kong-Macao Expert Group on Prevention and Treatment of Infectious Disease was set up. The first meeting held on May 29 and 30 in Hong Kong agreed on the following areas of collaboration:

- to provide early warning on outbreaks of communicable diseases
- to expand the list of notifiable infectious diseases including AIDS, dengue fever, influenza, tuberculosis, cholera and malaria in the

exchange of statistics
- to further enhance co-operation on scientific research and set up mutual visit.

XI SARS Task Force

73. All the public health measures above require substantial administrative, logistics, and communications support to ensure their smooth running. A SARS Task Force was set up in DH since end of March 2003 to provide such support to many large-scale operations (e.g., Amoy Gardens Block E isolation and evacuation, home confinement, border control measures). It also collects and monitors a large amount of workload statistics required by senior government.

FUTURE CHALLENGES

74. Although SARS has been brought under control, it is not the time for complacent. There are still many unknowns about the disease. The emerging and re-emerging infectious diseases will pose a continuous challenge for the physicians and public health workers. They should be dealt with by the concerted efforts of physicians, public health professionals and various authorities at both the community and international levels. While different infections call on different control measures, a high degree of vigilance, an effective infectious disease surveillance system, an efficient communication network, well-equipped laboratories, availability of epidemiological and microbiological expertise, a set of effective emergency and response contingency plans, and close international liaison are all crucial to the effective prevention and control of such emerging and re-emerging infections, regardless of the type and nature of the disease. The increasing globalisation and travel means that what happens in one place could have ripple effect to other places of the world.

Lessons learned

75. The SARS epidemic gives us a good opportunity to review the weaknesses and strengths of our public health system. On the local and regional scale, it is of utmost importance that at the outset, to have political commitment at the highest level to build the capacity of our communicable disease surveillance and response. The effectiveness of our central coordination in this SARS challenge is crucial for gearing up the effort of all disciplines and sectors.

76. Globally, the leading role of the WHO on the coordination of global

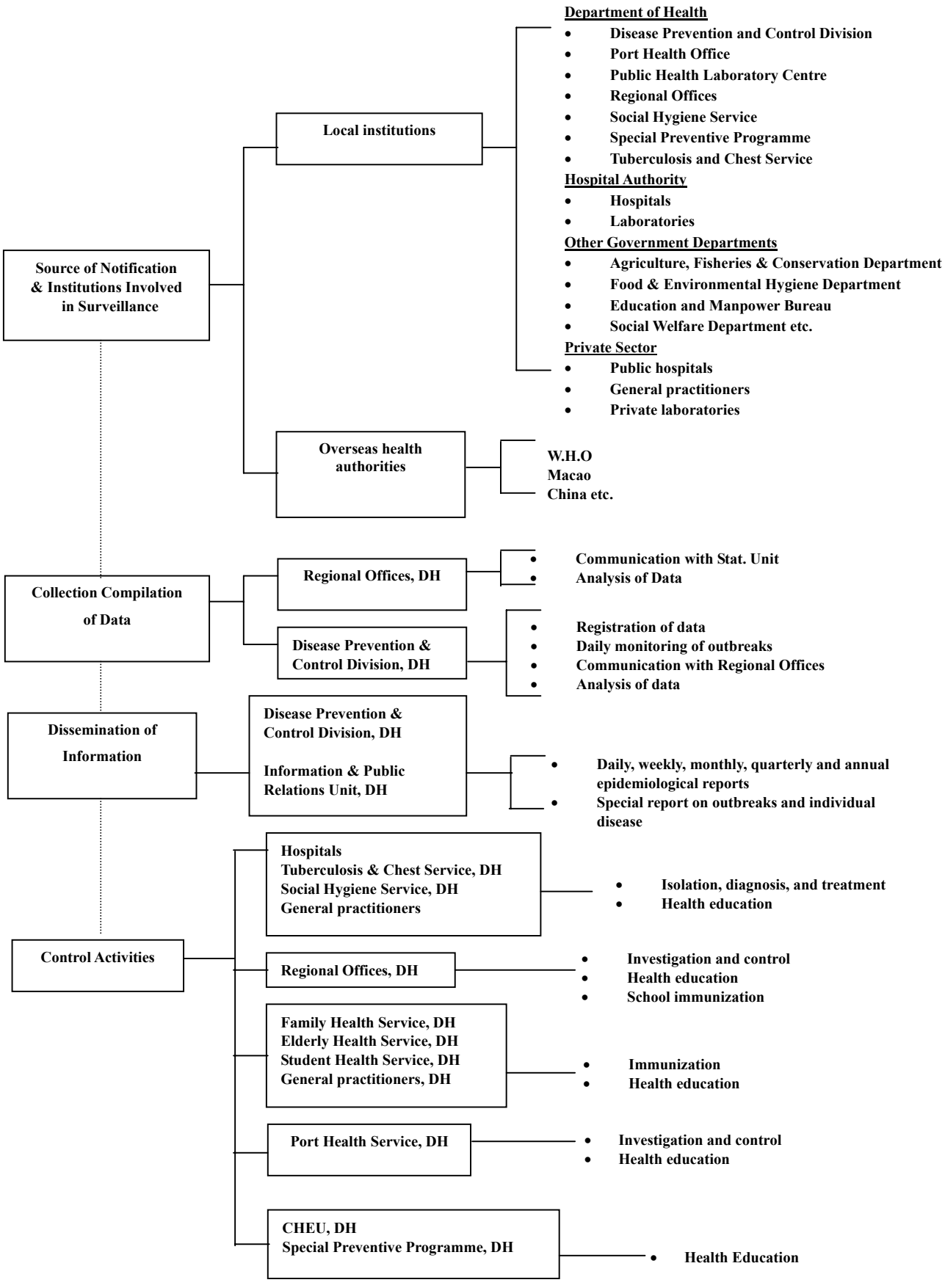
response on epidemiology, laboratory diagnosis, clinical management and research led to breakthroughs on many fronts that contributes to the containment of SARS. It is important that WHO to continue providing support, assisting its member states to build up capacity, revising and updating the International Health Regulation, as well as the case definition of SARS.

77. This SARS epidemic also serves as a best example of the importance of international solidarity and collaboration in combating a global public health threat. We should capitalize on this model of best practice and apply it on future, new emerging diseases or public health disasters. Of course, the importance of development of rapid diagnostic test is also underlined.

78. A transparent and effective communication network is a determining factor in a globalised world for timely collaborative work be carried out in fighting new emerging public health threats. We should continue to improve our public health infrastructure, with the support of advances in medical and information technology.

Department of Health
June 2003

Annex 1 : The organization of Epidemiological Services in Hong Kong



Annex 2. EXPERT, ADVISORY OR WORKING GROUPS ON PREVENTION AND CONTROL OF INFECTIOUS DISEASES

- Advisory Committee on Immunization
- Committee for the Certification of Wild Poliovirus Eradication
- Expert Working Group on Avian Influenza
- Hong Kong Advisory Council on AIDS
- Interdepartmental Collaboration on Rabies
- Interdepartmental Committee on Control and Prevention of Food Safety Incidents
- Interdepartmental Coordinating Committee on the Control of Cholera
- Interdepartmental Coordinating Committee on Dengue Fever
- Interdepartmental Working Group on Enterovirus Infection
- Interdepartmental Working Group on Pest Prevention and Control
- Review Group on Communicable Diseases Surveillance
- Scientific Committee on AIDS
- Scientific Working Group on Viral Hepatitis Prevention
- Task Group on Health-related Issues of Drinking Water Supply

Annex 3. Surveillance systems on communicable diseases in DH

DPCD, TB & Chest Service, Regional Offices, SHS, SPP and PHLC are the main services in DH actively involved in the surveillance of infectious diseases. A total of 39 infectious disease surveillance systems (listed below) have been maintained by these services. The surveillance activities embrace notification/reporting of infectious diseases, prevalence of disease and risk factors of the diseases.

1. HIV/AIDS reporting (HIV)
2. Unlinked anonymous screening for HIV (HIV)
3. HIV clinic surveillance (HIV)
4. HIV risk behaviours surveillance (HIV Risk Behaviours)
5. Public service HIV antenatal testing (HIV)
6. Blood donors serology (HIV, HBV, HCV, Syphilis)
7. Antenatal screening (excluding syphilis) (HIV, HBsAg, Rubella Antibody)
8. Social Hygiene clinic surveillance (STI Risk Behaviours)
9. Social Hygiene workload reports (Syphilis, Gonorhea, NGU, Genital Wart, Herpes, Ped Pubis, Trichomonas, Genital Ulcer)
10. Community survey on STI pattern (STI, HIV/AIDS)
11. Positive detection of selected STI (Syphilis, Trichomonas, Chlamydia)
12. Notification of TB (TB)
13. X-Ray screening for TB (TB)
14. Tuberculin skin test screening (TB)
15. BCG vaccination coverage in neonates (TB)

16. TB mortality (TB)

17. DOTS outcome (TB)

18. TB drug resistance (TB)

19. TB and HIV co-infection registry (TB, HIV)

20. Report of occupationally acquired infections (Anthrax, Glanders, Leptospira, Brucella, TB, Viral Hepatitis, Strep Suis, Avian Chlamydiasis, Legionnaires)

21. Immunity screening for selected viruses (MMR, Polio, HAV, HBV, Chickenpox, Influenza)

22. Positive laboratory testing results (HIV, Hepatitis Viruses, Influenza, Others)

23. Sentinel surveillance of selected infections (ILI, Conjunctivitis, Acute Diarrheal Diseases)

24. Sentinel surveillance of selected infections (HFM)

25. Sentinel surveillance of antibiotic resistance (Selected Bacterial Infections)

26. Outbreak reports of selected infections (ILI, HFM, Acute Conj, Acute Diarrheal Ds, Head Lice, Norwalk-like Viruses, Parvoviruss, Scabies, URI)

27. Summary discharge data from 12 hospitals (Influenza, HFM)

28. Voluntary reporting of selected infections (CJD, vCJD, EV71, E Coli O157:H7, Con Rubella, Hanta, H Meningitis, J Encephalitis, Spotted Fever)

29. Positive detection of malaria (Malaria)

30. Anti-rabies prophylaxis (Rabies)

31. Laboratory (hospital/PHL) surveillance of salm (Salmonella)

32. Acute Flaccid Paralysis Surveillance (AFP)

33. Notification of infections other than TB (Notifiable Diseases)

34. Death from notifiable diseases (Notifiable Diseases excluding TB)

35. Immunization coverage in infants (Vaccine Preventable Infections)

36. Immunization coverage in children (Vaccine Preventable Infections)

37. Food Poisoning Organisms surveillance (B cereus, Campylobacter, CI Perfringens, E Coli O157:H7, Listeria, S Aureus, V Cholerae, V Parahaemolyticus)

38. Water surveillance (Vibrio Cholerae)

39. Fish tank E Coli testing (E Coli)

Annex 4 Protocols on the following diseases are available:

1. Amoebic Dysentery
2. Bacillary Dysentery
3. Chickenpox
4. Cholera
5. Creutzfeldt-Jakob disease (CJD)
6. Dengue Fever
7. Diphtheria
8. E. coli O157 H7 Infection
9. EV71
10. Food Poisoning
11. Haemophilus Meningitis
12. Influenza
13. Japanese Encephalitis
14. Legionnaires' Disease
15. Leptospirosis
16. Malaria
17. Measles
18. Meningococcal Infections
19. Mumps

20. Norwalk-like Viruses Infection
21. Parvovirus Infection
22. Pertussis
23. Plague
24. Poliomyelitis
25. Rabies
26. Relapsing Fever
27. Rubella
28. Scarlet Fever
29. Tetanus
30. Typhoid Fever and Paratyphoid Fever
31. Typhus - Urban, Epidemic, Scrub
32. Viral Hepatitis A
33. Viral Hepatitis B
34. Viral Hepatitis (C, D and G)
35. Viral Hepatitis E
36. Yellow Fever