For discussion
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Legislative Council Panel on Health Services

Poison Prevention and Control

Purpose

In the 2005 Policy Address, the Administration has set out to adopt a proactive approach in poison prevention and control. This paper seeks to elaborate on the background of the initiative and how the Administration plans to take it forward.

Poisoning Situation in Hong Kong

2. Poisoning in general refers to any toxin-related injury. A toxin can be a synthetic chemical or a naturally occurring plant, animal or mineral substance. Poisoning is not uncommon in Hong Kong. The causes of poisoning range widely from unintentional causes such as accidental ingestion of detergents by children at home or inhalation of toxic gases at work to intentional causes such as attempted suicide by burning charcoal. Poisoning agents can range from drugs, chemicals, household products to herbal medicines and natural toxins.

3. Since 2001, there are about 400 to 500 Hong Kong people killed and 4000 to 5000 people hospitalized every year due to poisoning. In 2003, poisoning accounted for 557 deaths in Hong Kong, which was 1.5 % of all deaths. A rising trend of mortality due to poisoning has been observed in recent years. There was a six-fold increase in the number of deaths due to poisoning by substances other than drugs, from 52 (0.8 per 100,000 population) in 1997 to 336 (4.9 per 100,000 population) in 2003[(1)]. The relevant statistics can be found at **Annex**.

4. According to the statistics collated from the Accident and Emergency Departments (AEDs) of six key hospitals namely Queen Mary Hospital, Pamela Youde Nethersole Eastern Hospital, Prince of Wales Hospital (PWH), Princess Margaret Hospital (PMH), Tuen Mun Hospital and United Christian Hospital (UCH)[(2)], while at least 66% of the poison cases related to drug poisoning (pharmaceutical product or Chinese medicine), about 30% of the poison cases were unrelated to drug (e.g. household products such as detergents or cleansing agents, insect stings and bites and chemicals such as toxic gases, pesticides or organic solvents, etc). The statistics also revealed that while nearly half of the poison cases were related to suicide, nearly 40% of the other

[(1)] Part of the increase was due to an increasing number of suicidal death due to carbon monoxide poisoning by burning charcoal.
[(2)] The six hospitals receive about half of the A & E cases in Hong Kong. The statistics were collected from July to September 2005.

poison cases were caused by accidental poisoning which is actually preventable.

Current Efforts

5. At the moment, poison prevention and control work is undertaken by DH, HA and the academia covering clinical service, collation of poison information, analytical service and toxicovigilance.

Clinical Service

6. Most patients with acute poisoning seek urgent treatment at AEDs. They will be managed according to the severity and reasons of poisoning. Mild poisoning with no suicidal risk can usually be discharged after treatment and observation. Most moderate to severe cases will require initial stabilization in A&E followed by inpatient supportive care. These patients are admitted into the medical, paediatrics or ICU wards and cared by the respective clinicians.

Poison Information Service

7. Effective collation and dissemination of poison information can greatly facilitate clinicians in providing appropriate and timely treatment to poisoned patients. Provision of such service can be found in PWH where the Drug and Poisons Information Bureau (DPIB) of Chinese University Hong Kong (CUHK) provides expert drug and poison information services for health care professionals across the territory. Since 2000, the UCH has started to provide similar service to public hospitals in the Kowloon East Cluster.

Analytical Toxicological Service

8. At the moment, provision of analytical toxicological service can be found in HA hospitals and Government Laboratory with different focuses and targeted users. The urgent laboratories of HA hospitals with AEDs generally provide a rapid quantitative diagnostic service for some poisonous substances, e.g. salicylate, paracetamol and ethanol. There is a Cluster Toxicology Laboratory (CTL) to support hospitals in each cluster by providing more quantitative and qualitative toxicology services, which usually include a broad spectrum screening service, drug of abuse testing and therapeutic drug monitoring. For more difficult cases, the CTLs are supported by the Toxicology Reference Laboratory (TRL). The TRL, situated in PMH, is set up to provide centralized support for more difficult and rare toxicology needs. The Government Laboratory regularly conducts analysis on samples formally collected for poisonous substances for law enforcement purposes.

Toxicovigilance

9. Toxicovigilance refers to surveillance of poisoning situation in the community and the environment to help capture an overall picture of toxic risks in Hong Kong. Effective toxicovigilance is important for enhancement of poison prevention work, as it assists the public health authorities in providing the public with timely and up-to-date information in relation to poisoning. DH has been playing a key role in this regard through regulatory control of pharmaceutical products and Chinese medicine (for instance in respect of the level of heavy metal), reporting of adverse drug reaction incidents, and investigations of Chinese medicine and heavy metal poisonings. There is currently also a notification and alert system in operation in the HA, mainly to capture Chinese Medicine-related adverse incidents and cases of heavy metal poisoning.

Room for Improvement

10. Despite the efforts made by different parties on various fronts of poison prevention and control as mentioned above, the various government departments and agencies function rather independently, and there is a lack of coordination. Exchange of experience is limited. There is a need to establish a stronger link among these services so that more synergy can be developed, which will in turn achieve a stronger impact of our overall poison prevention and control efforts.

11. The Administration also sees room for enhancement in respect of individual initiatives mentioned above. For instance, the territory-wide poison information service for health care professionals can benefit from service expansion. Clinical and outcome data of poisoned patients seeking medical assistance are not routinely and comprehensively collected for analysis, and there is therefore a lack of a comprehensive database on poisons in Hong Kong. A systematic alert and notification system is also absent. Besides, there is a need to enhance the capacity of the TRL to tackle surge capacity for major incidents. The general lack of expertise in toxicology among, and relevant training opportunities for, our health care professionals also needs to be addressed.

Aim and Objective of the New Initiative

12. Many poisoning cases are preventable. By developing a comprehensive and effective poisoning surveillance, notification, alert and treatment system, we can improve on our control in respect of hospitalizations and mortality caused by poisoning. This will also have a positive impact on the general health condition of the community.

Approach and Strategies

13. It is noted that many developed jurisdictions have developed a system for

poison prevention and control, which is often built upon a network of poison control centres (PCCs). A PCC is typically a specialized unit that advises on, or assists in, the prevention, diagnosis and management of poisoning. Making reference to the World Health Organisation model of PCC, DH aims to work out a permanent infrastructure for the prevention and control of poisoning, with the ultimate aim of enhancing the services in a coordinated and collaborative manner. The key components are poison treatment service, poison information as well as analytical toxicology services, training, and toxicovigilance.

14. To take the initiative forward, a Working Group on Toxicology Service Development was set up and started discussion in 2005. Chaired by the Deputy Director of Health, the Working Group comprises key players from DH, HA, the academia and other government departments. The Working Group will coordinate the implementation of activities to strengthen the prevention and control of poisoning, and to advise on the development of permanent infrastructure and services for this purpose. Implementation of some of the new initiatives already started in 2005.

Building up a multi-disciplinary clinical specialist team

15. Poisoning is a multi-disciplinary issue. It involves emergency physicians, physicians, intensivists, paediatricians etc. Cross-disciplinary training and exposure are fundamental to providing a competent information and consultation service as well as to ensuring prompt response and management of poison incidents. To this end, HA is considering building up a clinical team of different disciplines charged with the responsibilities to treat, train, and provide poison information, and to build a career structure for continuity of service. The clinical team should also interface with DH in providing information for toxicovigilance and implementing appropriate public health measures when required.

Improvement of Poison Information Service

16. Most poisoned patients seek treatment at AEDs. Some patients need gut or surface decontamination. Antidotes may be required in specific cases. The availability of updated local toxicological information to the A&E doctors is therefore essential to ensure optimal care of these patients, to improve the outcome, and to avoid unnecessary hospital admission. To this end, the Hong Kong Poison Information Centre (HKPIC) was set up in July 2005. Jointly established by HA and CUHK, HKPIC provides poison information service to all health care professionals in Hong Kong. Urgent consultations are answered by its duty medical staff. Operating seven days a week, HKPIC comprises two teams, one at UCH and the other at PWH. A database has also been set up for collecting information obtained from phone consultations and their clinical outcomes for analysis and sharing with DH for surveillance purpose. HKPIC also started producing and disseminating to frontline clinical staff monographs on locally important toxins.

Strengthening of Analytical toxicology service

17. An accurate laboratory diagnosis is essential for clinical management, surveillance and toxicovigilance, and it is also the foundation of building local database and communicating experience for training and education. It is therefore important to strengthen the capacity of the TRL of HA in terms of its manpower and its network with the CTLs. Noting that simplicity and timeliness in reporting by using an integrated reporting form for all kinds of poisoning/adverse events to a single point of contact is pivotal for an efficient and effective surveillance system, the TRL is reviewing the current mechanism in public hospitals for reporting significant poisoning cases to relevant authorities. The TRL will develop new methods to detect and diagnose the most frequently encountered and important toxins, including herbal toxins and drugs of adulteration. A notification and alert system on major poisoning incidents among DH, AEDs, hospital laboratories and other clinical departments is also under planning.

Enhancement of Toxicovigilance

18. A Surveillance Unit under DH was set up to capture the overall poisoning situation in Hong Kong. Poisoning information gathered through the enhanced Poison Information Service and the Analytical Toxicology Service as mentioned above will be channeled to the Surveillance Unit for analysis and monitoring purposes. The Unit, comprising expertise in the field of epidemiology and pharmacy, will collect data on poisoning and analyse trends on the type and severity of poisoning, including novel poisons. The information so generated will provide an overall picture of the risk of poisoning in Hong Kong for toxicovigilance purpose.

19. Since July 2005, DH has also started collecting data from poisoned patients seeking medical assistance at AEDs of six public hospitals. By collating the information derived and keeping track of novel poisonous substances and the epidemiology of new forms of poisoning, an overall picture of the toxic risks in Hong Kong can be obtained. This will assist DH in recommending and implementing measures to reduce or eliminate such risks.

20. Public health education is an essential part of toxicovigilance. Poisoning information needs to be disseminated to the public from time to time to enhance public awareness about common toxic agents, so that they can take appropriate personal preventive actions. In this connection, publications such as pamphlets or fact sheets and websites on ‘poisoning’ will be prepared for the public. An online quarterly publication “Poisoning Comm” is published targetting at health care professionals.

Provision of Toxicological training

21. Poisoning remains a common problem in daily health care practice. As such, it is useful for frontline health care workers to have appropriate training and continuing

education in clinical toxicology. In this connection, training sessions on the clinical and public health aspects of poisoning are being planned for health care professionals in the public and private sectors. The training serves to raise their awareness on poisoning, improve their knowledge in clinical toxicology and enhance their capacity in tackling major toxicological incidents. The following are some examples:

- Conferences, courses, symposiums and workshops (some of them involve participation of overseas toxicology experts[(3)])
- Open lectures, seminars, tutorials, case conferences, clinical toxicology meetings
- Attachment programmes to HKPIC for doctors

Way forward

22. The Working Group on Toxicology Service Development is working actively to follow up on the above-mentioned initiatives. It is expected that the work on the prevention and control of poisoning will increase gradually in terms of size and complexity. To evaluate the performance of the various services and to guide future development of our strategy, the Working Group has formulated a number of performance indicators. The Working Group also aims to work out a proposal on the establishment of a permanent structure for prevention and control poisoning in Hong Kong in mid-2006. The permanent infrastructure will better integrate the relevant clinical and public health services involved in the prevention and control of poisoning.

Advice Sought

23. Members are invited to comment on the content of this paper.

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[(3)] The Hong Kong Clinical Toxicology Courses and Symposium, jointly organized by the HKPIC, Hong Kong College of Emergency Medicine, TRL and the New York City Poison Control Centre, USA, was held in February 2006.

Annex

Number of deaths due to poisoning (1994-2003)

Year	Poisoning by drugs (rate per 100000 population)	Poisoning by other substances (rate per 100000 population)
1994	156 (2.6)	49 (0.8)
1995	165 (2.7)	60 (1.0)
1996	196 (3.0)	73 (1.1)
1997	291 (4.5)	52 (0.8)
1998	275 (4.2)	89 (1.4)
1999	248 (3.8)	158 (2.4)
2000	224 (3.4)	183 (2.7)
2001	209 (3.1)	286 (4.3)
2002	220 (3.2)	292 (4.3)
2003	221 (3.2)	336 (4.9)