



衛生防護中心
Centre for Health Protection

Scientific Committee on Infection Control

**Recommendations on Prevalence Survey of
Healthcare-associated Infections
and Antimicrobial Use in Hospitals**

Background

Healthcare-associated infections (HAI) cause extra sufferings to patients and health care costs to the community. Efforts to address HAI should be targeted to areas with most potential for prevention and control.¹

2. Prevalence surveys are a relatively rapid and cost-effective way to estimate the magnitude and burden of HAIs.² Prevalence survey on HAIs and antimicrobial use (AU) can give us a general picture on the size of problem, and repeated surveys enables monitoring the trend of HAIs and AU.³⁻¹²

3. While incidence surveillance approach can yield more detailed information, prevalence data can be used to inform infection control planning and highlight areas for focused incidence surveillance on high-risk patient groups, units, infection sites¹ or particular strains of healthcare associated pathogens.¹³

Prevalence survey in Hong Kong

4. In Hong Kong, the first Hospital Authority (HA) wide prevalence survey of infections was conducted in 2007. A total of 20,001 patients were surveyed, of which 632 (3.9%) patients had HAIs^{15, 16}. The prevalence of AU was 26.6%. The most commonly used antimicrobials were Augmentin (9.44%), Cefuroxime (3.17%) and Levofloxacin (2.20%).



5. The second HA wide prevalence survey was conducted in 2010. A total of 20,355 patients were surveyed, the prevalence of HAIs were 3.1%¹⁶. Prevalence of AU was 30.3%. Similar as in the first survey, the most commonly used antimicrobials were Augmentin (11.83%), Cefuroxime (2.65%) and Levofloxacin (2.35%).

6. The Scientific Committee on Infection Control discussed various practical issues in relation to the conduct of prevalence survey of HAIs and AU in local hospitals, and the following recommendations were made.

Recommendations

7. Taking into account the overseas and local experiences in HAI and AU prevalence surveys^{3-7, 12, 15-19}, a protocol with standardized methodology and the following standard practices are recommended.

(a) Team composition

- (i) The team should have infection control officers (ICO), microbiologists and infection control nurses (ICN).
- (ii) Participation of link-nurse, ward staff, attending physicians, pharmacists and academic partners may be helpful.

(b) Case Definition

- (i) Surveillance definition should be documented in the protocol

(c) Population

- (i) Preferably include all in-patients of concern, subject to the availability of resources.

(d) Questionnaire

- (i) A standardized questionnaire containing minimum data fields is recommended. Electronic platform in Clinical Management System (CMS) facilitates data capturing and sharing.

- (e) Pre-survey training
 - (i) Training should be conducted to facilitate members of the survey team to understand surveillance definitions, methodology and protocol.
- (f) Data collection
 - (i) Trained staff (preferably ICN) should be responsible for data collection.
 - (ii) Ward staff or link nurse can help in provision of information e.g. demographic data, existing illness.
 - (iii) ICO / Microbiologists should also participate actively in case review especially when the diagnosis is uncertain.
 - (iv) Laboratory and other investigations within the time frame of the survey should be included as necessary.
- (g) Data validation
 - (i) Data collected should be both reliable (consistent) and valid (accurate).
 - (ii) Internal and external validations are needed to assess the validity and reliability of the data.²⁰
- (h) Prevalence Rates Calculation
 - (i) Prevalence rate and its 95% confidence interval should be calculated using the right numerators and denominators. Some of the important formulae for rate are listed in the appendix.
- (i) Frequency and timing
 - (i) Repeat the survey at regular interval (eg. every 5 years) is useful to review the trend of infection.^{3,13}
 - (ii) Point prevalence survey should better be conducted in one single day if possible for each individual hospital.
- (j) Comparison
 - (i) Individual hospital can monitor their trend by repeating survey at

- regular intervals
- (ii) A central organization may co-ordinate different hospital to obtain aggregated local figures.
 - (iii) Direct comparisons of prevalence between hospitals should not be made without taking case mix and other variables into considerations.³

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Appendix

Calculation of some important prevalence

Overall Prevalence of Healthcare Associated infection (HAI) rate =
Number of patients with HAI / Total number of patients in the sample population

Prevalence of infections by hospital =
Number of patients in the specific hospital
/ Total number of patients in the specific hospital

Prevalence of infections by specialty =
Number of patients in a specific specialty with infection
/ Total number of patients in a specific specialty

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