Surveillance of Antimicrobial Resistance - A Global Perspective

Surveillance is an essential tool for containment of antimicrobial resistance. Information on resistance is needed at local, national and international levels to guide decision-making and responses. Local information should be used in clinical management and to update treatment guidelines, educate prescribers, and guide infection control policies. At national level, information is required to guide policy, update lists of essential drugs and national guidelines for treatment, and evaluate the effect of intervention strategies. We believe that there is an added value to gathering surveillance data internationally for sharing of information on the emergence of resistance in key pathogens, analysis of the impact of resistance and policies for control, stimulating dialogue and engaging policy makers, developing advocacy and educational programmes and stimulating research. International surveillance of antimicrobial resistance depends on strong national surveillance systems.

Surveillance of antimicrobial resistance requires laboratory facilities organised in a network within which data on patterns of resistance can be shared for analysis and interpretation. The information generated should guide public health actions. Because of uncertainty about the correlation between *in-vitro* tests and *in-vivo* results in some infections (notably, respiratory tract infections), linking resistance surveillance to monitoring of clinical outcomes is important to evaluate the true impact of resistance on morbidity and mortality. In addition, since it is widely accepted that misuse of antimicrobials is the key factor influencing the emergence of resistance, systems for monitoring antimicrobial usage need to be established.

In many developing countries and in countries whose economies are in transition, laboratory facilities and information networks will require significant strengthening before reliable surveillance of resistance is a reality. National lists of essential drugs and treatment guidelines can be kept relevant only if they are updated on the basis of resistance surveillance information. The adoption of a resolution on antimicrobial resistance in the 1998 World Health Assembly underlines the need for urgent action.

Many countries are currently grappling with the challenges. There is no internationally agreed consensus on standards for surveillance of antimicrobial resistance (for example, priority pathogens, surveillance methodologies, minimum data sets, data analysis and interpretation, data sharing and exchange). As an international organization with a mandate in this area, WHO is working with its partners to:

- Achieve international consensus for standards for surveillance of antimicrobial resistance to provide a clear vision of the minumum standards that should be in place, and create an environment for sharing of experiences internationally;
- Strengthen national surveillance systems through assistance to Member States in training and education, and quality assurance;
- Create a repository of information about resistance in key pathogens worldwide which will be a valuable resource for prescribers to guide empiric treatment of imported infections, and could provide an official mechanism for international alert when new phenotypes are identified.

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