Health managers, especially in developing countries, need timely and accurate information on which to base their decisions. Yet many of the traditional epidemiological and statistical methods are not very well suited to an environment with extremely limited financial resources and with few people skilled in data collection and analysis.

For this reason, there is great interest in adapting traditional methods to conditions existing in countries, and in finding suitable alternatives to traditional methods. Since many of these new and adapted methods emphasize speed of execution, they have become known as methods of “rapid assessment”. Rapid assessment refers to a broad collection of epidemiological, statistical and anthropological techniques which aim to provide accurate information quickly, at a low cost, in a simple format. There is special emphasis on providing information that can be useful at the local level.

It is easy to see why rapid assessment methods would be appealing to programme managers, who need information to monitor and improve the performance of the health-care system and the health of the population. However, rapid assessment methods should not be used indiscriminately; nor should they be considered as “quick and dirty” techniques to be carried out in a sloppy manner. Rapid assessments, appropriately used and carefully carried out, can result in accurate appraisals of the situation in a relatively short time. It goes without saying that no matter what methods are chosen for rapid assessment, it is important that the assessments be carefully executed. This is true in any study, but it is even more important for rapid assessments, since they are rarely subject to rigorous scientific review before being acted upon.

Because rapid assessment methods are relatively new in their application to health assessment, and because many of them sacrifice some statistical precision for the sake of speed and simplicity, it is important to understand the strengths and weaknesses of each method, in order to provide accurate information for policy decisions. Many of the methods proposed for rapid assessment are not yet on a firm scientific footing, and need to be further developed and evaluated. Considerable methodological work is still necessary if these techniques are to provide a sound basis for programme planning, monitoring and evaluation.

In view of the increasing interest in rapid assessment techniques, both within WHO (many WHO programmes have been actively involved in developing and using these techniques) and in Member States, there was a strongly-felt need to examine the existing methodologies of rapid assessment and to underline the uses and limitations of each method, with a view to encouraging the development of those methods which appear to be the most promising. Therefore in November 1980, WHO’s Division of Epidemiological Surveillance and Health Situation and Trend Assessment organized an informal consultation on rapid epidemiological and statistical methods of health assessment, involving WHO staff members interacting with experts in the field of rapid assessment methodologies. Background papers for this consultation were prepared by WHO staff members, as well as outside experts. A selection of these papers is presented in this issue of the World Health Statistics Quarterly.

The background papers for this consultation emphasized a number of themes common to many of the methods: (i) the need to clearly spell out the strengths and limitations of each method so that it is used only when appropriate; (ii) the need for further work in developing and validating new methods; (iii) the importance of presenting results to decision makers in a clear and understandable manner; and (iv) the importance of high standards of execution, so that the results can be effectively used by decision makers.

Literature on methodological aspects of rapid assessment is scarce and widely scattered, a notable exception being a 1989 supplement to the International Journal of Epidemiology entitled “Rapid epidemiologic assessment: the evolution of a new discipline” (1). During the consultation, participants repeatedly recommended that WHO intensify its dissemination of information on appropriate rapid assessment methodologies. For this reason, the current issue of the Quarterly is dedicated to epidemiological and statistical methods of rapid health assessment. The emphasis is on methodology — both theoretical and practical aspects. In one instance, there are complementary articles on the same rapid assessment technique: one dealing with methodology, the other with practical considerations. Articles emphasize the strengths and limitations of each method, as well as further work that needs to be done, or is being done, on validation, simplification, and further development of the methods.

**Topics**

Articles in this issue address two main topics. First a number of articles are concerned with sampling methods that reduce the time and resources required to collect and analyse data from individuals.

They deal in particular with extending the survey sampling technique used by the Expanded Programme on Immunization (EPI) to other areas, with applying lot quality assurance sampling, and with the application of case-control methodology to rapid health assessment.

---

*Statistician, Division of Epidemiological Surveillance and Health Situation and Trend Assessment, World Health Organization, Geneva.*
The second set of articles deals with the collection, organization and analysis of data at the community level (or at a higher level of aggregation). This includes methods of gathering data at the community level such as focus-group interviews, or using key informants, as well as methods of organizing, analysing and presenting community-level data such as geographical information systems.

The special problems of carrying out rapid assessment in emergency situations are addressed in the final article.

**Sampling methods for rapid health assessment**

EPI developed a rapid method for cluster sampling that is well suited to settings in which sampling frames are not readily available. Instead of developing a sampling frame for each cluster, and then choosing the sample randomly (as is usually done in traditional cluster sampling), the EPI method requires that one house be chosen at random and that subsequent houses be chosen according to fixed easy-to-follow rules. This method is used widely for sampling children of a particular age group to determine the proportion who have been vaccinated (2). Because of its success, this methodology has been extended to other situations. Two of the articles address the appropriateness of extending the EPI methodology for broader use.

The article by Bennett et al. describes a cluster-sampling approach for health surveys that retains as far as possible the simplicity of the EPI strategy. The article indicates how the effects of clustering can be taken into account for the estimation of means, rates and proportions and their associated standard errors, an aspect which is often forgotten or ignored during rapid assessment. In short, this article presents the scientific considerations which should be taken into account when using this method.

The second article on the EPI cluster-sampling technique investigates its usefulness in estimating relative risk (Harris & Lemenesh). Computer simulations had indicated that the EPI method of cluster sampling introduces relatively fewer errors for estimating the proportions of children vaccinated (3). This article describes a simulation technique that was used to create artificial populations with characteristics typical of areas of Africa in terms of factors believed to be important determinants of the risk of HIV infection. The computer program selected samples in two ways: according to simple random sampling techniques and according to EPI sampling techniques. Estimated relative risks of HIV infection from both sets of samples were compared to the values from the underlying population. Only small differences were found between methods, indicating that the EPI method could be used to estimate the relative risk of HIV infection. There are two aspects of this article worth highlighting. Firstly, the simulation-model technique which is described in some detail is important in itself, because it allows for experimentation with different methods of sampling under many different circumstances. Secondly, the result of the validation is important since it paves the way for a new utilization of the EPI technique—namely the evaluation of relative risk. A general conclusion that can be drawn from the two articles on EPI methodologies is that the method can be used in a wider context than just vaccination coverage. Further work in modifying and validating the EPI methodology for other applications would seem promising.

Two articles address the techniques of lot quality assurance sampling. This technique, although first developed for industry, has recently been applied to health assessment. It has the potential advantage of requiring a relatively small sample; however, the sampling technique required is somewhat more complicated than simple random sampling or cluster sampling. One article outlines the basics of lot quality assurance sampling (LOAS) (Lemeshow & Taber), and the second article (Lanata & Black) presents an example of the application of this sampling methodology in a field setting, indicating the type of operational difficulties to be expected when carrying out lot quality assurance sampling. The article by Lanata & Black describes its use in monitoring and evaluating health programmes, and suggests that it is a useful method for allowing programme managers to pinpoint weaknesses in the health system and to allocate scarce resources where they are most needed.

The general conclusion drawn from the articles and from the discussions at the consultation indicate that because it requires small sample sizes, LOAS would be a worthwhile cost-effective method for rapid assessment in a number of situations.

However, the method has a number of limitations. It is based on a hypothesis—testing strategy rather than an estimation strategy. Due to small sample sizes, LOAS cannot be used for estimating point prevalence for small areas. It can only pinpoint areas which fall above or below a certain target. In addition, the sample design for LOAS is particularly for double sampling is relatively complicated and requires considerable expertise to obtain the optimal sample sizes. In addition, LOAS may not necessarily be rapid, as it requires a sampling frame for each lot. If the sampling frame is difficult or expensive to obtain, LOAS will probably not be a rapid approach unless the same design is used periodically for monitoring purposes (in which case the repeated sampling of the lot makes the initial investment in developing a sampling frame worthwhile). In short, it seems that the small sample sizes required by LOAS make it an attractive, cost-effective method for use in a number of specific situations. But it is not necessarily cost-effective in all circumstances. More work is needed in testing LOAS in order to further develop useful applications of this method.

The case-control methodology provides another potential method of sampling for rapid assessment (by choosing appropriate samples of cases and controls). It differs greatly from the other techniques discussed in this issue, as the case-control method involves a retrospective study. Case-control methodology began as a means of identifying the risk factors of chronic diseases as an alternative to carrying out large-scale prospective studies. The article by Baltazar discusses the use of case-control methodology for rapid assessments, with particular reference to water and sanitation interventions in the
level questionnaires is described in the article by Lengeler et al. The method involves using existing administrative systems (such as the school system or the political party system) to distribute simple, self-administered questionnaires aimed at soliciting the perceptions of key informants about diseases which are common and important in their community. Results from the questionnaires were then validated by epidemiological information, and it was found that the responses from schoolteachers on the prevalence of schistosomiasis in the community were adequate to pinpoint villages with high levels of the disease. There are two aspects to the article worth highlighting. The first is the use of existing administrative systems to distribute the questionnaires. This greatly facilitates the logistics of carrying out the study, and could encourage wider participation than if ordinary mail were used. The second aspect is that the questionnaire focused on local perceptions and priorities. Basing decisions about disease control on local perceptions and priorities is important, since control measures will be more likely to succeed if they deal with a problem considered important by the local residents themselves.

This methodology is still in the validation stage. It seems to be working well for pinpointing areas with high levels of schistosomiasis. It would be interesting to test it for other diseases with easily recognizable symptoms where information on prevalence is lacking at the central level.

Geographical information systems (GIS) can be used to organize, analyse and present data at the community level. Geographical information systems run the gamut from very sophisticated, well-developed systems requiring substantial inputs in terms of data and expensive equipment, to simple systems run on microcomputers, using economical, user-friendly software. The article by Schollen11 gives an overview of the types of geographical information systems currently in use, and their applicability to health research. The conclusion to be drawn from this article is that “the application of GIS is making significant contributions in facilitating the availability, integration and presentation of information”. A large-scale GIS cannot be considered as a rapid assessment method in itself, and much of its potential lies in its ability to integrate large amounts of data, and to provide epidemiological insights which cannot be obtained easily by other means. However, some aspects of GIS are worth highlighting in the context of rapid assessment. Firstly, once the initial investment of setting up the GIS has been made, information can be retrieved rapidly; this can be very useful for allowing the health sector to respond quickly, especially in the case of environmental accidents. Secondly, the facility of a small-scale GIS to present data in map form can be tapped during a rapid assessment. The fact that the maps are easy to produce and understand makes them attractive tools, providing structure and organization to the data.

It is clear from the consultation and from the article by Guha-Sapir12 that rapid assessment is particularly important for resource management during emergency situations. Information is needed quickly; errors are costly in terms of both health and resources. At present, however, methods of rapid assessment in emergency situations are grossly inadequate. More work is needed to establish frameworks for which essential information becomes

---

9 The use of focus groups in social and behavioural research: some methodological issues, page 143.
10 The value of questionnaires aimed at key informants, and distributed through an existing administrative system, for rapid and cost-effective health assessment, page 150.
11 The benefits of the application of geographical information systems in public and environmental health, page 150.
available in time. In order to do this we need to systematically expand our knowledge about the health outcomes of exposure to disaster. For example, we need to know more about differential risks among population subgroups, about indicators of vulnerability, and early warning signs of disasters with slow onset (such as famine or epidemics) to name but a few. Other areas for further methodological work include the design and implementation of sentinel surveillance systems, and simple information systems for baseline data.

In short, effective disaster management is seriously impeded by the lack of timely, reliable information. Rapid assessment techniques play a crucial role in the needs estimation process. Further work is required in order to understand the impact of disasters in more detail, so that in turn the key information required to estimate needs more accurately can be better formulated.

Conclusions

The following general conclusions can be drawn from discussion in the consultation and the background papers.

1. Rapid assessment appraisals are here to stay they are not a passing fancy. Many programmes in WHO, and many national and international organizations as well as government ministries involved in health planning and appraisal, are using rapid assessment approaches; many others would like to use them. In such a situation it becomes very important for health statisticians to ensure that the rapid assessment methods being used have a sound scientific basis, in order to enable policy makers to make decisions based on valid information.

2. Several of the most useful rapid assessment methods involve extensions or modifications of traditional statistical techniques. For example, the EPI method of cluster sampling modified the traditional methods of cluster sampling to make sample surveys easier to conduct in developing country settings where accurate sampling frames are difficult to obtain. LGAS, a traditional method used in industry for quality control, is now being modified and applied to monitoring health programme performance. Case-control studies, traditionally used to study rare diseases, are now being adapted to evaluate interventions. More work is required on the possibility of extending traditional methods to meet the information needs of health management in developing countries.

3. Several of the rapid assessment methods being used are not yet on a firm scientific footing. For example, the use of questionnaires aimed at key informants to obtain information about local priorities has produced promising results but is still in the validation process. It needs to be tested in various settings before it can be used with confidence as a tool for health management.

4. The qualitative rapid assessment methods, such as focus-group discussions, can complement quantitative methods by adding depth and insight, but it may be dangerous to use them as a stand-alone method for policy makers.

5. The most appropriate rapid assessment technique to use in a particular situation is partly dependent on the amount of time available to analysts and programme managers when making their decisions. In emergencies, for example, the time constraint is extremely severe, and special methods are required to deal with those situations.

6. High standards and scientific objectivity are critical for any assessment process. The need for rapid results is not an acceptable excuse for quick and dirty work.

Finally, rapid assessments have the potential for providing programme managers with necessary information. Many methods are still in relatively early stages of development. There is great scope for developing and testing methodologies. The process of testing and validating these methods is crucial, in order that they can confidently take their place alongside the traditional methods of health assessment.


REFERENCES — RÉFÉRENCES

