Risk groups and risk areas

The risk approach to health management usually relates to groups of people. An alternative method is to concentrate on the areas at risk, which may sometimes be more useful in decision-making.

When we speak of inequalities in health we are usually thinking in terms of unequal exposure to disease caused by varying environmental factors—living conditions, housing, drinking-water quality, and habits of hygiene (1). But there is another factor that must be taken into account in attempting to understand inequalities in health and that is access to care or, more precisely, the effectiveness with which the health system is used (2, 3). The one approach in no way precludes the other: inequality in immunization coverage, for example, is both a reflection of inequality in access to preventive care and one of the factors causing inequality in exposure to vaccine-preventable diseases.

In the industrial countries as well as in the developing countries, epidemiological studies have long tended to favour a risk approach in terms of exposure to disease. For example, differences in dietary practice or in the salinity of water may affect arterial hypertension, while differences in land occupancy or use may have a bearing on onchocerciasis. Only recently, however, have scientists begun to consider the investigation of access to care. We have found only 16 published papers on the subject in Africa compared with the hundreds of articles on environmental factors. Perhaps this difference in interest can be explained by the difficulty of constructing descriptive models for access to care owing to the wide range of factors involved: physical distance, financial possibilities, the sociocultural characteristics of the population, the history of the health system, local theories of disease, and social perceptions of health care facilities (4).

We are concerned here with access to care and therefore have to address the following questions. What kind of information should epidemiologists provide to decision-makers in this respect? What are the relevant data they must extract from a survey on access to care for the purposes of public health decisions? In short, what sort of information do decision-makers need if they are to improve access to care?

The concept of risk can be understood in at least two ways, depending on whether our analysis is mainly focused on the population or on the area, i.e., on groups or areas at risk. The two approaches are merely different presentations of identical data, one in the form of tables and the other in the form of maps. The aim of this article is to...
show that, although they provide complementary information, there are differences in their usefulness in public health.

The survey and its results

The study was carried out in Pikine, the main suburban area of Dakar, which has a population of 600,000, half of whom live in housing to which they are legally entitled (people evicted from the capital’s shanty towns who have been given building plots by the State) while the other half are illegally housed (people who have bought their land from its previous “owners” in breach of the law stipulating public ownership of the land in Senegal). This population varies in geographical and ethnic origin, level of income and education, and length of residence in the city, but is nevertheless mostly drawn from the poorer classes, where there are still certain socioeconomic hierarchical distinctions. The primary health care system consists of 26 public health posts and centres and four dispensaries run by religious orders. The private health care system comprises six doctors’ surgeries and ten pharmacies.

The survey method will be presented briefly and has been described in greater detail elsewhere (5). A sample of 500 mothers with at least one child under the age of five in the Pikine conurbation was established. The women were asked about their use of services. In each case some 15 independent variables were checked including the mother’s age and marital status, the socioeconomic status of the household, the mother’s level of education, and a number of items relating to their experience of life in the city, their degree of integration into the urban environment, and their links with their villages of origin, as shown in the box. In addition five dependent variables were elucidated: the places of consultation on the occasions of the mother’s latest illness and of the child’s latest illness (illustrating curative care), the place of antenatal consultation during the most recent pregnancy, the immunization status of the child (illustrating preventive care), and the place of delivery in childbirth. Here we shall deal only with immunization (6).

So far as the immunization status of the child is concerned, the mother’s socioeconomic status and level of education, and length of time she has lived in an urban environment are factors of protection, whereas her attachment to her original
village is a risk factor; neither her age nor her marital status nor her ethnic group appears to have any impact on immunization. These variables are, of course, interrelated: the people with the highest socioeconomic status are also those with the highest level of education and who have lived longest in the city. The figures have therefore been adjusted, using multivariate analysis, after which it appears that the only factors that correlate with immunization coverage are socioeconomic status and level of education.

When the results are mapped by geographical area, taking account of administrative divisions based on legal or illegal residence, age of the housing estate, and traditional structure, several facts come to light. In the first place, the illegally occupied areas almost exactly coincide with the high-risk areas, and the legally occupied areas with the low-risk areas. Secondly, the more prosperous areas coincide with high immunization coverage and the poorer areas with low immunization coverage. The area effect is considerably reduced when the socioeconomic level is taken into account: if adjustments are made on the level of poverty, the fact of living in an illegally occupied area appears to have less impact on immunization coverage. In other words, the spatial distribution of risk is essentially, although not entirely, the expression of its social distribution.

Use of data

We are not concerned here with the results as such but with what can be done with them and what use can be made of them by those with responsibility for public health. We have two ways of presenting risk.

In the first place, there are the groups at risk (i.e., the groups assumed to have a higher risk of having children who are not immunized), which comprise women who have not been to school, women whose husbands have no salaried employment, women who have no living room, women who came to Dakar after the age of 10, and women who returned to their villages during the past five years. In a more general way, the women at risk are the poorest, those with the least education, and those least accustomed to urban life. Secondly, there are risk areas, where the proportion of unvaccinated children is highest, regardless of the social heterogeneity of these districts. Decision-makers will not use these two risk approaches in the same way.

The knowledge that women who have no living room or who returned to their village during the past five years are "at risk" may be of general interest to decision-makers as background information but it is scarcely usable, for how can these women be identified? In practice, nurses or community health workers could be asked to identify the women "at risk" by means of a few simple questions on such factors as age, ethnic group, and place of birth; in the present study, only the latter was associated with immunization coverage, but the checking of the children's vaccination records would be more useful at the individual level.

On the other hand, the knowledge that certain areas have the lowest immunization coverage could influence public health decisions. Immunization teams could be sent as a priority to these areas. But this type of presentation does not reflect social realities since the area described as a "risk area" is a heterogeneous and artificial combination of widely varying sociocultural conditions and health behaviour. Nor does it reflect spatial realities because the map shows administrative divisions, which are often arbitrary and do not coincide accurately with
the divisions that would be established if a proper mapping process were carried out. Thus, neither sociologists nor geographers would find it very relevant.

Finally, we should like to attempt to demonstrate here that these two approaches are not only complementary but also irreducible. Presentation by groups at risk provides social information but makes only a minor contribution to the determination of health policy. Conversely, presentation by areas at risk is a better aid to decision-making but has the drawback of oversimplifying the situation. In other words, the greater the level of sociological exactitude, the greater the complexity and the greater the difficulty of deciding what should be done. But a simpler presentation, which is often necessary when decisions have to be taken, is likely to detract from the accuracy with which social realities are represented.

It may be said generally that there is no neutral way in which we can present the results of a survey. Depending on the option we wish to advocate, we shall inevitably stress one finding rather than another. For although decision-making is based on scientific work, it is not a science (7) and truth will not necessarily mean the same thing to decision-makers and to scientists (8).

References


