Practice Research

Possible method of identifying spotter practices in a health board in Northern Ireland

WILLIAM W M McCONNELL, VINOD K TOHANI

Abstract

We examined the notification of infectious diseases, including measles, by general practitioners over 18 months, which included a measles epidemic in the area covered by the Southern Health and Social Services Board in Northern Ireland. Of the 156 general practitioners who provided services in the area, 27 (17·3%) had a pattern of notification which might render them acceptable as "spotter" practices, a system which at present does not exist in Northern Ireland, although it is used in the rest of the United Kingdom. In future we hope to be able to; (i) predict impending epidemics of infectious disease; (ii) mobilise Health Service resources to minimise the effects of such epidemics; (iii) monitor the effects of improving the level of uptake of measles vaccine.

Introduction

The Southern Health and Social Services Board covers a mainly rural area in Northern Ireland with a population of 267 000 and the average list size for general practitioners is 1730. It includes three towns with populations over 20 000 and three with populations of 10 000-15 000. There are 55 186 children under 10 years of age (21·% of the population) in the area, which is subdivided into three geographical units of management: Armagh/Dungannon—90 500 people; Craigavon/Banbridge—101 900 people; Newry/Mourne—74 400 people.

There are 156 general practitioners in the area from 72 practices, ranging from singlehanded practitioners to one group of six partners. There are 14 health centres with groups of practices or single practices. Some doctors and some group practices provide services from their own premises or homes. There are 11 training practices in the area, six in Armagh/Dungannon, two in Craigavon/Banbridge, and three in Newry/Mourne.

Coinciding with a national epidemic, an epidemic of measles occurred in the geographical area covered by the board. Reports from the school health service, from clinical medical officers and health visitors, indicated that large numbers of children were absent from primary schools with measles. The notifications of this disease from general practitioners, although showing a rise, did not correlate with the timing and size of the epidemic as indicated by the reports from the schools. We therefore decided to examine the patterns of notification of infectious disease over 18 months before and during this epidemic: from 1 January 1982 until 30 June 1983. Table I gives the number of cases of measles notified each year over the past 10 years and shows that the 18 months was a representative "non-epidemic" and "epidemic" period.

Southern Health and Social Services Board, 20 Seagoe Industrial Area, Portadown, Co Armagh, Northern Ireland
WILLIAM W M McCONNELL, MB, MPCH, community physician
VINOD K TOHANI, MSC, MB, registrar in community medicine

Correspondence to: Dr McConnell.

TABLE I—*Number of cases of measles reported to the board*

Year	No of cases
1974	285
1975	1550
1976	64
1977	1311
1978	226
1979	1209
1980	175
1981	1179
1982	120
January-June 1983	1021

Methods

All notifications made by general practitioners in accordance with the Infectious Disease (Notification) Act 1889, amended in accordance with the Public Health Act (NI) 1967, were examined for the period 1 January 1982 to 30 June 1983. The practitioners were examined by geographical units. They were then given practice and partner codes in the units. A list of the doctors who were trainers was obtained. The number of notifications for each general practitioner for all notifiable diseases was then examined separately for the periods 1 January 1982 to 31 December 1982 and 1 January 1983 to 30 June 1983.

Of the 156 practitioners, only 27 were in single handed practice, their list sizes ranging from over 750 to 3750 with 24 having list sizes over 1750. The list sizes of group practices ranged from 2250 to over 8000. By first considering notification levels for all notifiable diseases we thought that any bias due to age differences between practices should be minimised. This identified practices that made no notifications. For those who had notified cases, it identified whether the number of notifications was less than 10 for all diseases during the 18 months (table II).

We thought, however, that the number of notifications was not a sufficient guide to good practice of notification, as many notifications might have been sent in only twice a year. Such a method of notification might be useful for indicating the level of disease that had occurred during any given period but would not be useful for warning of impending epidemics and thus not to be of use for prevention and intervention.

TABLE II—*Number of notifications of all diseases over 18 months*

Total No (%) of practitioners	No (%) of practitioners with no notification	No (%) of practitioners with low notification (< 10)	Other
156 (100)	83 (53·2)	38 (24·4)	35 (22·4)

A second analysis was then made of how regularly the practitioners notified their cases. Table III gives the results of this analysis for one unit, which showed that a further six practices had an unsatisfactory pattern of notification. Because of the possibility that practices that had an acceptable pattern of notification in terms of overall numbers and regularity of notification might have been notifying after an unacceptable delay, we analysed the delay between diagnosis and notification (table IV). We also analysed the notifications made by doctors in training practices (table V).

Results

Analysis I—The first analysis (table II) showed that just over half of the practitioners had not notified a single case of any infectious disease during the 18 months. In all, three quarters of the practitioners had unacceptably low levels of notification.

Analysis II—Examining the regularity of notification (table III) showed a fair correlation between those practices which notified high numbers of cases and those which notified regularly. Of 35 practitioners, six were excluded because they notified infrequently rather than regularly.

Analysis III—Table IV shows that those practices which notified high numbers of cases also notified with no undue delay except in one instance, of practitioner C (I), where longer delay was apparent despite the fact that the numbers and regularity would otherwise have indicated an apparently acceptable pattern of notification.

Analysis IV—Only two of the 11 trainers had satisfactory notification patterns (table V). Although numbers for two others seemed reasonable initially, the notifications had been made in large batches, reports had not been made regularly, and long delays between diagnosis and reporting were apparent. The percentage of trainers with a satisfactory pattern of notification was therefore not appreciably different from all other practitioners (18·2%, as compared with 17·3%). Using all of the criteria mentioned above practices were designated as "spotter" practices (table VI). The results of these analyses indicate that to designate spotter practices the overall number of notifications is a reasonable guide, providing that regularity of notification and delay is monitored occasionally.

TABLE III—*Monthly notifications by eight selected general practitioners in Craigavon and Banbridge*

Month	Practitioners (practice)							
	D (I)	G (II)	I (I)	J (IV)	K (I)	U (I)	V (I)	X (II)
1982								
January	3	1	0	8	11	1	1	0
February	2	1	0	2	9	2	3	0
March	4	1	0	9	6	0	5	0
April	4	0	0	3	4	0	1	1
May	12	2	0	7	2	0	0	0
June	3	0	10	1	4	1	0	0
July	3	0	0	2	2	0	0	0
August	3	0	0	4	2	0	0	0
September	2	0	0	3	8	0	0	0
October	4	1	0	3	4	0	0	2
November	2	2	0	0	1	2	2	2
December	0	0	0	5	4	0	0	0
1983								
January	2	0	0	2	5	0	0	0
February	5	2	0	0	2	0	0	0
March	1	2	0	8	1	0	0	0
April	12	2	0	15	11	4	0	3
May	29	15	7	36	18	9	35	3
June	47	30	9	40	32	12	4	4

TABLE IV—*Delay between diagnosis and notification of infectious diseases in Newry and Mourne* (January 1982-June 1983)*

Practitioner (practice)	No of notifications	Mean No of days' (SD) delay in seeing and notifying
C (I)	120	21·0 (23·0)
D (III)	27	1·5 (1·1)
H (III)	19	6·5 (5·1)
(I)	14	2·4 (1·4)
I (II)	2	
(III)	15	3·7 (3·6)
K (I)	46	2·4 (1·7)
M (I)	16	4·9 (2·1)
Q (I)	25	3·4 (2·1)
R (I)	45	6·2 (4·9)
(II)	37	9·5 (6·1)
T (I)	33	2·4 (2·4)

*Excluding one practice.

TABLE V—*Notification of measles by training practices (January 1982-June 1983)*

Trainer	Notifications	
	1982	January to June 1983
Armagh Dungannon		
F (V)	0	0
G (I)	5	0
H (I)	2	1
K (II)	0	0
T (I)	0	1
T (III)	1	0
Craigavon Banbridge		
*F (I)	0	30
O (I)	7	9
Newry Mourne		
J (II)	1	1
*M (I)	6	10
*R (II)	7	30

*Trainers with satisfactory notification patterns.
†Excluded as this was one batch of notifications that covered a long period of time.

TABLE VI—*Final designation of practitioners as acceptable as spotter practices*

Total No (%) of practitioners	No (%) not acceptable		No (%) acceptable
	No notifications	Other criteria	
156 (100)	83 (53·2)	46 (29·5)	27 (17·3)

Discussion

The first step in the control of an infectious disease is identifying and notifying it rapidly. This provides information on the incidence of the disease in the community and alerts the Health Service to start appropriate control measures. Distributing compiled information may encourage doctors to make greater efforts to prevent epidemics of infectious diseases, which should be the first step in attempting their elimination. It is clear from the results of our findings that notification does not show the true extent of the incidence of infectious diseases in our area. This might be corrected either by comprehensive notification from all practitioners or by certain practices providing notification, from which trends may be derived. Given that the former is difficult to achieve, we have attempted to identify practices that could become spotter practices and thus will, with experience, allow us to predict epidemics. By alerting general practitioners and community health doctors and nurses when the notifications of certain diseases rise appreciably we would hope to suggest preventive measures to minimise and eventually abort epidemics. By continuously monitoring the notifications from all practitioners we would hope to include others who may be encouraged to change their attitude towards notification, which would improve contact tracing for infectious diseases.

This work was started because of a serious epidemic of measles in the area covered by the southern board. In the United Kingdom one child in every 5000 notified as having measles dies[1]; four in 1000 notified cases have complications of the central nervous system[1]; an incidence of encephalitis of 1·2 in 1000 has also been shown[2] and it is thought that this has not changed.[1 3] In our area four children had severe encephalitis,

106 needed to go to hospital, and roughly 5000 cases were treated in the community. Thus in terms of the use of the resources of the Health Service measles is a serious disease.

The World Health Organisation has noted that "Experience to date indicates that measles elimination is technically feasible and that successful strategies will include at least three elements: (*i*) achievement and maintenance of high immunisation levels (certainly in excess of 90%); (*ii*) effective surveillance; (*iii*) aggressive response to cases."[4] The results of our study indicate that effective surveillance by notification needs to be improved. In an epidemic the general practitioner has a primary responsibility to treat the individual, and notifying the case may be low on his list of priorities. If, however, we are to prevent cases of measles and epidemics from arising in the first place notification is essential.

Conclusions and recommendations

Despite the fact that a fine of £100 may be imposed for failure to notify cases of 27 different notifiable diseases under the Public Health Act (NI) 1967, this has never been enforced and overall patterns of notification remain poor. The fee of 25p is little incentive in days when a first class stamp costs 16p. This fee has not changed since 1968.

Ways of improving notification might be as follows:

(1) Improve the awareness of the practitioners in the area of the value and need for better notification, possibly by circulating this paper.

(2) Improve awareness among community physicians of the need to monitor information about infectious disease closely to apply preventive measures more effectively.

(3) Encourage training practices to provide a better example in notification patterns.

(4) Consider an addressed envelope or internal mail system, or both, to help practitioners notify disease at no cost.

(5) Publish a monthly bulletin of infectious disease occurrence in geographical sectors in the area. Feedback of information is essential if people are to be encouraged to provide information in the first place.

(6) Consider raising the fee for notification from 25p, which might improve response.

If notification is not improved designating spotter practices by the method we suggest might be an alternative to giving some guidance on the incidence of disease and need for preventive measures.

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(*Accepted 12 December 1983*)

Need for primary health care: an objective indicator

ALEX SCOTT-SAMUEL

Abstract

The allocation of resources for primary health care should be based on the community's needs and not only on the workload of general practitioners. I therefore present an objective indicator that may be used to assess the need for primary health care.

Introduction

The recent paper by Jarman describing a method for identifying "underprivileged areas," as defined by "the potential workload for general practitioners implicit in the social conditions of the population"[1] has been criticised[2] on both general and detailed methodological grounds. One criticism concerned the appropriateness of basing the scoring system for identifying areas of need on the subjective views of general practitioners. I present here an objective indicator of need for primary health care that may be applied in the same way as Jarman's system to provide "extra support"[1] to primary health care services.

Criticisms of the employment of raw subjective general practitioner data (as in Jarman's study) will not necessarily be satisfied by the prior validation of these data against general practitioner activity statistics, since spurious variation in the latter may occur as a result of the different use made by communities of hospital services for primary health care.[2] In any case the allocation of resources should be based on the community's needs rather than on the workload they generate; this is acknowledged in the employment of mortality data in the health service resource allocation formula of the Department of Health and Social Security.

An objective measure of an area's need for primary health care, which is available for the total adult population of working age, is the proportion of this population not in employment due to permanent sickness, as recorded in the national census. An index of need has been produced, based on this measure and incorporating census indicators which explain substantial proportions of the variance in permanent sickness between local government districts.

Liverpool Health Authority, Stanley Hall, Edmund Street, Liverpool L3 8NG
ALEX SCOTT-SAMUEL, MB, MPCM, specialist in community medicine

Methods and results

A study of census indicators for Mersey Regional Health Authority[4] found 10 indicators that explained independently 25% or more (range 25·3 to 71·4%) of the variance in permanent sickness rates (as defined above) between the local government districts of Merseyside and Cheshire. In preference to employing the permanent sickness measure alone Jarman's concept of a measure of the health need implicit in social conditions was realised by producing a composite measure that incorporated permanent sickness rates and these 10 variables (see appendix). Using 1981 census data, scores on this measure for the 33 electoral wards in Liverpool were calculated and compared with those of Jarman.

The methods used in producing Jarman's measure have been published elsewhere.[3] Identical methods were employed in producing the alternative measure (weighting the variables according to their correlation with permanent sickness) and the scores for the Liverpool wards (D Irving, personal communication) were rendered comparable with Jarman's scores by applying the ratio of the standard deviations of the two data sets.

The range of ward scores on the two measures was from − 38·3 to + 31·8 (arbitrary) units. Deprivation scores of individual wards varied substantially according to which measure was used. The mean difference between the two scores for each ward was 14·0 units; the maximum difference between the two scores for a single ward was 43·4 units. In 19 of the 33 wards the "general practitioner deprivation score" on Jarman's measure was higher than the "objective" score.

Comments

Substantial differences in scoring result when electoral wards in Liverpool are characterised according, on the one hand, to factors based on the views of general practitioners concerning workload and, on the other, to factors based on the presence of chronic sickness in adults and related social conditions. Clearly, if any such system is to be used to allocate scarce health resources its development must be subject to the closest possible scrutiny by all relevant interests.

References

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Appendix

The 11 census variables used in the composite measure were as follows (variables were expressed as rates using the appropriate denominators):

Persons aged over 15 with permanent sickness.
Persons aged over 15 with temporary sickness.
Households overcrowded.
Households severely overcrowded.
Households owner occupied.
Households rented from local authority.
Households with no car.
Men aged 16-64 out of employment.
Women aged 16-59 out of employment.
Private households with three or more dependent children.
Households with one person aged over 15, with one or more children ("one parent families").

(*Accepted 8 December 1983*)

Diary of Urban Marks: 1880-1949

I carried out my contract at the works by starting a surgery at 30 Port Tennant Road. I had one room as a waiting room and one as a consulting room. This I had to fit up in the usual way with furniture and drugs and install a telephone. For the rooms I paid 10 shillings a week. I did all the work on a Sunbeam bicycle which Brice himself had paid for before the system for payment of services rendered. At that time Brice lived at Landore in the house which Brynymor Evans, when he left the workhouse as medical officer, took over together with the practice at Landore. Brice took over the practice at St Thomas from the executors of Dr E B Evans, the father of Alban Evans, who later became otologist to the hospital.

Now Brice had outbreaks of inebriety and one day his wife telephoned me to go to Landore. Brice and I had become friendly while I was at the hospital where he used to visit a good deal when sober. Brice came from near Leicester and there was consequently a kind of bond between us. I went to Landore and found Brice in a pitiful state and was told he had been drunk for days. Mrs Brice asked me to carry on the practice, which I did for six weeks while Brice was recovering. I did not charge anything for my services and so Brice presented me with the machine mentioned above. As its cost was 15 guineas, Brice certainly appreciated what I had done. The bicycle was very useful. I used to push it up Mount Pleasant and free wheel down. When I obtained the appointment at Baldwin's I had to cycle for miles both night and day. The furnacemen would fetch me out for the most trivial illness in the middle of the night even as far away as Jersey Marine, a distance of five miles from Trinity Place. To get to Jersey Marine in those days I had to go to the works and then walk along the railway line as there was no road. One night at 2 am I was rung up from Jersey Marine to go to a baby in a fit. Of course it took me over an hour to get there and by that time the baby had ceased to trouble anybody and had gone, I hope, to a better land. The father actually brought a complaint before the committee of workmen who had been constituted to carry out the medical fund. The meeting was held as usual in the chapel and I was asked to attend. The meeting opened with prayer and I certainly prayed for the death of one or two I could see in the audience. But nothing happened, although it is said that prayer is powerful. The complaint was made that if I had been on the scene sooner that the baby would have been alive at that moment. I had to point out that I could not fly to Jersey Marine since aeroplanes were only toys at that time. I had gone as quickly as I could and on comparing the times at which I had received the message and my appearance at the man's house it was appreciated that I could have done no more nor less. Then I appealed to their religious instincts and told them that no doctor could save any soul if a Higher Power chose to intervene. This carried the day and I kept my position as works' doctor despite the fact that a certain section was against me. But Whittingham stood by me all the time and so long as he did so I knew I was safe. These complaints were numerous and frequent and I was constantly fighting them. I only narrate the one above to show how trivial every one of them was. The harder I worked the more complaints I got.

ONE HUNDRED YEARS AGO The *Indian Medical Gazette* reports that on January 16th, Dr. Koch, accompanied by Dr. Fischer and Dr. Gaffky, attended the *conversazione* of the Calcutta Medical Society, and Dr. Fischer gave a demonstration of the methods employed by the German Cholera Commission. The culture-material used consisted of gelatine, meat-juice, and peptone. Water was examined by shaking a small quantity up with some of this prepared gelatine liquefied by heat; the mixture was then poured on to a sterilised glass plate and covered from the air. Separate spots appeared on the glass plate, due to the growth of micro-organisms; each spot was a separate colony, the germs having been distributed throughout the gelatine by the shaking. To the naked eye these spots or colonies differed among themselves. The unfiltered water of the Hooghly, and the filtered water supplied in the hydrants, produced results by this method differing very widely in degree; the hundredth part of a drop of water from the Hooghly produced a greater variety and number of colonies than ten drops of the hydrant-water. In examining excreta, a small quantity was added to the liquefied gelatine in a tube, shaken, and poured out on a plate. Many different colonies grew and could be examined by the microscope, or used for inoculating fresh tubes so as to obtain pure cultivations. The stools of cholera, dysentery, diarrhoea, had thus been examined. One particular bacillus had been found regularly in the wall of the intestines and in their contents, in cases of cholera, but not in any one of the numerous other diseases examined. This bacillus, when growing in a colony on gelatine, was of a white colour in mass, and caused liquefaction of the gelatine. (*British Medical Journal* 1884;i:574.)