PRACTICE OBSERVED

Practice Research

Study of children not immunised for measles

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Abstract

The results of a survey of the 165 children born in 1980 in a population served by a health centre showed that 42 were not immunised against measles. The reasons for non-immunisation included 18 refusals (usually on the grounds of incorrect contraindications) and 19 defaulters (where the children were not brought for immunisation). Twenty of the children had contracted measles by March 1984. Among the 19 defaulters 12 had been registered with the health centre since age six months or under. Their average number of consultations a year was four. None of the 42 children had Department of Health and Social Security recommended contraindications to measles immunisation.

Introduction

Measles is still a major cause of morbidity in childhood, and an effective and safe vaccine is available against measles.¹ Measles immunisation (national uptake rate 56%) has not been as successful as primary immunisation against diphtheria, tetanus, and polio (uptake rate 84%).² Complicated primary immunisation against pertussis is worse (uptake rate 52%).³ Where the law requires that children are immunised before they start school a reduction of measles infection has been achieved, and eventual eradication seems possible.⁴

This study sought to determine why 42 children in a general practice who had been born in 1980 had not had measles immunisation.

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Methods

This survey was carried out between March and June 1984. The family practitioner services computer provided a list of 174 children who were registered at this health centre who had birthdays in 1980. The health centre has one partnership of six doctors. The practice population is approximately 12 800.

The three health authorities in Bristol operate a Joint Community Child Health Service Computer, which schedules childhood immunisation. The JCHS computer provided a list of 165 children (recorded as patients of this health centre) who had birthdays in 1980. The JCHS list differs from the family practitioner services list of patients owing to administrative differences in the two files. The JCHS computer provided the list of 44 children who were recorded as "not immunised against measles"; 42 of these 44 children were registered with the family practitioner services computer.

The clinical records (general and community child health service) of the children who were believed "not immunised against measles" were examined in March 1984. Details of immunisation, measles infection, and attendance were noted. One child's measles immunisation had not been recorded on the JCHS computer. The parents of the children were sent a simple questionnaire about measles immunisation. The questions were:

- (1) Has your child had the measles immunisation injection? If yes, when?
- (2) Has your child had measles illness? If yes, when?
- (3) If your child did not have the measles injection at 13 months of age is there a reason?

Forty-three questionnaires were sent, 23 replies were received. One child had been immunised by its parent, a general practitioner. All those parents who did not return the questionnaire were visited and the remaining 20 questionnaires completed.

Results

Forty-two children had not been immunised against measles. Forty of these were registered with the family practitioner computer, and 27 had been registered with the health centre doctors before age six months. Reasons for not immunising children against measles are shown in table 1. Twenty of these unimmunised children had measles illness by March 1984. Other agencies could not be blamed for the non-immunisation of the 27 children who were registered with health centre doctors before age six months. Table 1 gives the reasons for not immunising these 27 children. The clinical

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records of the 12 children who had not attended for measles immunisation showed that nine had completed a primary course of diphtheria/tetanus/polio or diphtheria/tetanus/pertussis/polio, six had had measles illness, and the average number of recorded consultations with the general practitioner for each child by March 1984 was sixteen (range 4-29).

TABLE 1—Reasons for not immunising children against measles: all immunised children

Reason	No.
Total unimmunised	42
Children excluded	4
Refused advised immunisation by health centre doctor	4
Allergies in child or family	4
Family history of convulsions	4
Confusion with pertussis immunisation	2
Measles illness in less than 12 months of age	2
Other illnesses in other strong contraindications	2
By general practitioner (not immunisation)	2
By health centre doctor (children's parents thought that immunisation had been given by health centre; no record of immunisation in file found at the time)	2
Total defaulters (not definite)	19
DNIS recommended contraindications	19

TABLE 2—Children registered with health centre doctors before six months old

Reason	No.
Total unimmunised	27
Children excluded	4
Allergies in child or family	4
Family history of convulsions	4
Confusion with pertussis immunisation	2
Measles illness in less than 12 months of age	2
Other illnesses in other strong contraindications	2
By general practitioner (not immunisation)	2
By health centre doctor (children's parents thought that immunisation had been given by health centre; no record of immunisation in file found at the time)	2
Total defaulters (not definite)	11
DNIS recommended contraindications	11

Discussion

The results of this survey confirm that there is confusion about the contraindications to measles immunisation. It has been reported "that the most frequent reason for not accepting measles vaccination is advice against vaccine by a member of the health profession."⁵ In this study common reasons that parents gave for not accepting measles immunisation were "family history of convulsions" and "confusion with pertussis immunisation"—that is, its contraindications and possible risks. Only four of the 18 who refused immunisation thought that they had been advised to do so by the health

profession directly. The recent advice from the DHSS helps to explain the present confusion. Apart from the rare child who has a definite history of severe reaction to allergic factors in the vaccine—for example, polymyxin, neomycin, hen's eggs—perhaps the only contraindication to using the live measles vaccine is an immunocompromised patient. A history of convulsions, allergies, reaction to whooping cough, or other immunisations, or measles infection under the age of two years are not contraindications to measles immunisation. None of the children in this study had a DHSS recommended contraindication. Some parents may not wish their child to be immunised for other reasons but blame their decision on an incorrect contraindication. Such reasons may become clearer as the recommended contraindications are understood.

Not all parents (including parents) are good at organising all parts of their lives, and the immunisation service should be more accessible to these people. The survey showed that although children had failed to attend the health centre for immunisation, they had attended on other occasions. Often there are other unrecorded attendances, such as accompanying other siblings, during which it should be possible to immunise these children.

During the survey comments made by some parents suggested that they regarded measles as a trivial illness. In a more specifically worded questionnaire this might emerge as an important reason for not attending for measles immunisation. Because mortality and serious morbidity are relatively rare among a health centre's population the attitude that measles is a trivial illness may persist. If the parents are their unimmunised child has got a high chance of contracting measles (20 of the 42 children in this survey) and that measles is an avoidable illness then immunisation uptake rates may improve.

I thank the computer department at the Joint Community Child Health Service and family practitioner services (who provided the lists of children), the health centre staff, and all who answered the questionnaires.

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100 YEARS AGO

At the meeting of the Odontological Society of Great Britain, held on the 1st instant, Dr. St. George Elliott exhibited three very curious and interesting specimens of Japanese artificial teeth. The Japanese, he said, were the only nation outside the limits of Western civilisation who understood the fitting of artificial teeth. They had derived most of their scientific and technical knowledge from the Chinese, but in this matter they were in advance of their teachers, for the Chinese had no idea of fitting an artificial denture. They could, indeed, carve a row of accusers, and fasten them to the teeth on each side, but these productions were only intended for ornament, not for use, whilst those of Japanese manufacture were thoroughly efficient. Thus a Japanese physician who came to Dr. Elliott for a set of teeth, remarked that, though the foreign teeth were more natural in appearance, those of home manufacture were quite as good from a practical point of view, and, in proof of this, he took up a piece of hard "rock-candy," and crunched it between his

false teeth. These dentures were made on wooden bases, the front teeth were made from quartz-pebbles ground down, but the process of manufacture was performed by copper-nails, which occupied the place of the molars. It was an interesting fact, also, that the fitting of dentures by means of suction had been known to the Japanese for at least two hundred years. The base-plates were carved by hand, the process being as follows: An impression of the mouth was taken in wax, and from this a model was made, also in wax. The model was then covered all over with red pigment, and the plate, after being roughly shaped, was placed on the model thus coloured. The red pigment on the under surface of the plate was then carefully cut away, until at last it fitted the model exactly. It was then dried in the mouth in the same way, the gums being covered with the pigment, and any inaccuracy readily detected. Dr. Elliott stated that use of these dentures had been in use for fifteen years. (*British Medical Journal* 1885; 2: 89.)

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Nicotine chewing gum in general practice: effect of follow up appointments

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Abstract

Two hundred smokers who were judged by their general practitioner to be motivated to stop smoking were allocated to one of two groups. All were offered an initial appointment at which they were advised to stop smoking and offered nicotine gum. One group then received no further appointments. The other was offered four further appointments over three months. Both groups were followed up at six and 12 months. At one year follow up 15.5% overall had stopped smoking, 14% in the low and 17% in the high contact group. This is better than most results so far reported for nicotine chewing gum in general practice, suggesting that general practitioners can use it to good effect. We compare this result with others achieved in general practice.

Introduction

Nicotine chewing gum has been shown to be effective when given with extensive instructions, monitoring of progress, and support in specialised smokers' clinics.¹ Smokers' clinics, however, fulfil a limited role in helping heavy, dependent smokers to stop, and few exist. An aid to stop smoking for use by general practitioners might reach far more smokers. Since the effectiveness of general practitioners' advice in persuading people to stop smoking was first shown studies have been published in which general practitioners' advice to stop smoking was supplemented by the offer of nicotine chewing gum.²⁻⁴ The results of these studies suggest that nicotine gum can be effective in this setting with some smokers. Russell *et al.* showed a success rate at one year of 8.8% as a result of advice plus nicotine gum compared with 4.1% from advice only.⁵ Furthermore, among those who used more than one box of gum (roughly two weeks' supply) the success rate was 24%. Jamrozik *et al.* achieved a success rate of 9.9% at six months from advice plus nicotine gum in selected smokers.⁶

Overall success rates, however, are far lower in general practice than in specialised smokers' clinics. This is probably partly because of the different samples studied; general practitioners' patients usually being less rigorously selected. It may also be due to the more intensive support offered in clinics. Fagerstrom investigated the effect of general practitioners offering additional follow up after giving advice to stop smoking, with and without nicotine gum (in a 2 x 2 design).⁷ Although additional follow up improved the success rate (from 22% to 27% at one year in the group receiving gum) it did not do so significantly. The purpose of this study was to see if increased support to the smoker through the offer of five follow up appointments over three months improved the effectiveness of simple advice, both groups being offered nicotine gum.

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Methods

Sixteen general practitioners from the Isle of Wight who were known to or practised near AM were contacted by a letter asking if they would be interested in participating in the trial. Eleven doctors from six practices agreed. They were familiar with nicotine chewing gum but had had no special training in its use.

The general practitioners were asked to include in the study patients who smoked 15 or more cigarettes a day, who (prompted or unprompted) expressed a desire to stop smoking, and who, when told about nicotine chewing gum, were agreeable to using it. They were asked to exclude patients with any terminal or preterminal cancer or with psychiatric disorders that might contraindicate smoking withdrawal, patients with dentures who had already had difficulty chewing nicotine gum, pregnant women, and patients who were likely to move from the island in the following year. The names of patients who met the inclusion criteria were given to AM, who sent the patient a postcard, which said: "I am interested in making a sincere attempt to stop smoking with the help of my doctor and nicotine chewing gum. I understand you will suggest an appointment with my doctor." In an accompanying letter patients were asked to put their name and address on the postcard, indicating whether they would prefer a morning or evening appointment with their doctor, and return the postcard to AM in the stamped addressed envelope provided. Those who returned the postcard were sent a questionnaire and an appointment was made for them to see their general practitioner.

From November 1982 to September 1983, 234 smokers were contacted (nearly two per general practitioner a month). Two hundred returned their postcards and attended a first appointment with their general practitioner, thus being recruited to the study. Their mean daily cigarette consumption was 22 (range 15-40), mean age 41 years (range 17-73), and 44% were men. The proportions in social classes I-II, III non-manual, III manual, IV, and V were 29%, 15%, 26%, 12%, and 2% respectively, with missing data from 21.5%. Only 12% had a smoking related disease. None of these variables differed appreciably between the groups.

Patients were assigned randomly to the two groups on receipt of their postcard. The only contraindication placed on allocation was that married couples were assigned to the same group (eight in the low and seven in the high contact groups).

INTERVENTION PROCEDURES

Low contact group.—The general practitioner sent a pack form with the smoker's name that explained the purpose of nicotine gum, correct chewing procedure, advised us to use at least three packs, and asked the general practitioner to record any smoking related disease. The patient was given two boxes of gum (free of charge), an explanatory leaflet, repeat prescriptions for up to 12 months, and instructions to get further supplies from the receptionist. They were given no further appointments. If they contacted the general practitioner during the following three months and smoking was mentioned that was recorded.

High contact group.—The general practitioner sent five white forms. The first contained the same instructions as the pack form but also asked the general practitioner to explain that the patient would be asked to attend four follow up appointments over two, four, and 12 weeks later. The remaining forms were for these appointments and contained questions about attempts to stop smoking, difficulties encountered, experience with the gum, and side effects. Each form reminded the general practitioner to make the next follow up appointment. If the patient had not stopped smoking within a month the first appointment was not made.

FOLLOW UP AND DEFINITION OF SUCCESS

At the first appointment all patients were warned to expect long term follow up. Those in the high contact group were reminded of this at their 12 week appointment. After six months patients in the high contact group who

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had claimed abstinence at three months and all patients in the advice only group were sent a questionnaire asking about current smoking habits and gum use. It stated that if they were not smoking they would be followed up again in six months. If the questionnaire was not returned a second visit was made. If that was not returned AM phoned or visited the patient. Non-contacts were classified as smokers. Patients who claimed abstinence at six months were sent a further questionnaire at one year and the same procedures followed. All those who claimed abstinence at one year and for the preceding six months were visited by AM. They were asked without warning to provide a sample for measurement of expired air carbon monoxide. Concentrations greater than 10 ppm above ambient air level were classified as due to smoking.⁸ Differences in proportions were tested using the χ^2 test.

Results

Only 15% of the low contact group contacted the general practitioner again within three months of the initial appointment; none more than twice. In contrast, 69% of the high contact group attended all five appointments, and 84% attended three or more. Thus the experimental manipulation was largely successful.

Only seven people, all in the low contact group, could not be contacted at follow up, all being classified as failures. The table shows an overall success rate of 15.5% with a non-significant difference between the groups. Of those claiming abstinence at one year and for the preceding six months, two of 16 (12.5%) in the low and six of 23 (26%) in the high contact group (21% overall) had carbon monoxide concentrations that indicated smoking. One person in

Abstinence rates for smoking (%) at six and 12 months

	Low contact (n = 100)	High contact (n = 180)
Six months claimed	28	39
One year claimed	14	21
Success rate	14	17

Notes: None of the between group differences was significant. The "Two" in the table is defined as the two people who were not contacted at follow up. Among the 17% who are included who said that they were not smoking, 12% were not contacted at follow up, 10% were not contacted at follow up, 10% were not contacted at follow up, 10% were not contacted at follow up.

the high contact group claimed abstinence at six and 12 months but admitted smoking for one month during that period. Thus with non-smoking prevalence at one year as the dependent variable the success rates would be 14% and 18%.

Of the 160 who provided data, 31% overall used the gum for less than a month, 32% for one to three months, and 37% for more than three months. The proportions from the two treatment groups were: low contact group (n = 100) 30%, 37%, and 30% respectively; and high contact group (n = 180) 30%, 29%, and 41% respectively. In the high contact group only, from whom more data were available, the success rates for those who used gum for less than a month, one to three months, and more than three months were 10%, 17%, and 22% respectively.

Discussion

Although there was no non-intervention control in this study, the overall abstinence rate of 15.5% seems encouraging and compares favourably with the 8.8% of Russell *et al.* and 9.9% (at 6 months) of Jamrozik *et al.*⁵ The difference with the former is perhaps not surprising since their study included all smokers, irrespective of

motivation to stop. The difference with the latter might be due to selection, their study being a questionnaire study. Although this is consistent with general practitioners' advice in a previous study, Fagerstrom's result is better, even though his higher contact condition was apparently less intensive than ours, being comprised of a telephone call at one month, three appointments and continued questions about attempts to stop smoking, difficulties encountered, experience with the gum, and side effects. Each form reminded the general practitioner to make the next follow up appointment. If the patient had not stopped smoking within a month the first appointment was not made.

Our results do not show that increasing the number of follow up appointments improves outcomes. Although this is consistent with Fagerstrom's result, the interpretation of both is complicated by the small samples used (for practical reasons). Thus both studies had only a small chance of detecting anything other than large effects, whereas, as we know, are difficult to achieve in general practice.⁹ The same applies to the results of Jamrozik *et al.* Our results are thus consistent with the existence of no effect or of a small one which, as Fowler *et al.* have acknowledged, would be worth detecting if it could be applied to a large number of smokers.¹⁰

Perhaps it is time to change tack and examine more closely what we mean by support. The evidence from smokers' clinics suggests that support is important, so perhaps the offer of follow up appointments does not in itself constitute support. Perhaps what happens in those appointments is important and counselling smokers effectively requires specific skills. If this were true it would raise an important new problem of how best to impart these skills. We think that this idea merits consideration.¹¹

The smokers in this study were recruited during a visit to their general practitioner in which either they or the general practitioner raised the subject of smoking. They were then asked if they would like to try to stop and were introduced to the possible use of nicotine gum. It is most likely that this is the way smokers are persuaded to try to stop by their general practitioner, so that our results probably reflect what might be achieved now. We think that a success rate of 15.5% is encouraging.

We thank all the general practitioners and their receptionists who took part in the study; Martin Jarvis and John Marshall for comments on a draft; and Elizabeth Hall of Lundbeck Limited, who provided stationary, equipment, Nicorette, and basic expenses. We thank Jacqui Sumson, Melanie Stephens, and Sheila Edwards for clerical help.

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(Accepted 28 February 1985)