

Preventing tetanus in adults in general practice

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SUMMARY. Tetanus statistics in England and Wales are quoted to show the desirability of widening the population to whom tetanus immunisation is offered. The inclusion of a health educationalist in the general-practitioner team to achieve this is advocated. Methods of obtaining an increased acceptance of immunisation by waiting-room education alone, by waiting-room education with general-practitioner involvement, and by general-practitioner involvement alone were explored and are discussed.

Introduction

Some facts are generally agreed about active immunisation against tetanus:

- (1) The vast majority of the population up to the age of 18 have received tetanus toxoid prophylaxis as a routine measure in infancy (*British Medical Journal*, 1971; Herts Area Health Authority, 1974).
- (2) Patients attending accident and emergency departments with a wound have been routinely started on a course of tetanus toxoid since 1960 (White *et al.* 1973).
- (3) The armed forces have immunised staff against tetanus except for the years 1945–49 in the British Army and 1945–58 in the Royal Navy, when immunisation was not always standard practice.
- (4) Some factories have immunised their employees against tetanus routinely.
- (5) Before 1964 toxoid absorbed on to an aluminium adjuvant, with its longer lasting protection, was not available, so that the degree of immunity of those immunised in the Forces before that date is now doubtful. Thus those immunised before 1964 may now have falling antibody titres.
- (6) Booster doses should be administered every ten years at least to maintain immunity.
- (7) At present there are no arrangements for organising booster doses for those aged 18 and over (White *et al.*, 1969).

First question

The first question that arises is whether this has been a justifiable measure, in view of the cost of material, time spent by professionals with patients, and the incidence of general (0.3 per cent) and local (2.6 per cent) reactions reported (White *et al.*, 1973).

The answer to this question depends on the mortality and morbidity rates and the degree of potential suffering prevented so far.

The reported number of fatal cases in England and Wales were as follows:

- | | |
|---------|--|
| 1950–59 | an average of 45 fatal cases a year (Ministry of Health, 1961) |
| 1960–69 | an average of 28 fatal cases a year (Department of Health and Social Security, 1970) |
| 1970 | nine reported deaths (Registrar General, 1972) |

The mortality rate of the disease in England and Wales before the introduction of treatment with antitetanus serum prepared from horses was about 80 per cent (Brain, 1947). With further advances in treatment the mortality rate is estimated between 12–50 per cent (Conybeare, 1959; Dunnett, 1971), though tetanus clinics available in some regions expect a rate below 30 per cent (Ablett, 1967).

These estimates give an annual case occurrence of:

1950–59	between	90	and	670
1960–69	„	56	„	235
1970	„	18	„	70

This is evidence that the impact of the procedure has been considerable so far and it appears definitely desirable to continue the campaign at least in its present limited extent.

Second question

The second question is whether the campaign should be extended. The first dose is not enough to give protection, and immunity develops only after the second dose of toxoid given six weeks after injury. As also the incubation period for tetanus is 3–30 days, the disease being more severe the shorter the incubation period, the injection given to casualties on presentation is irrelevant to the wound with which they are presenting. It would obviously be desirable for patients attending accident departments to have their toxoid before rather than after injury.

The deaths for 1970, affected as they are by immunisation in infancy since 1956, were as follows (Registrar General, 1972):

<i>Patients aged</i>	<i>Number of deaths</i>
0–20 years	2
20–40 years	0
40–60 years	1
60–80 years	5
80–100 years	1

The hump on number of deaths now appears over the age of 60 and this impression is similar to that based on the figures of 1949–69 by the Public Health Laboratory Service (*British Medical Journal*, 1971). Possibly the 20–60 age group have the best chance of survival with treatment.

Willis (1972) has written “ the tragedy of tetanus is not its dreadful symptoms, nor high mortality, but the fact that it could have been eradicated within the past 25 years by a rigorous programme of immunisation with tetanus toxoid ”. He quotes Hungary where compulsory immunisation, started in 1953, produced a reduction in the tetanus morbidity rate of 80 per cent and he considers the case for universal active immunisation of the population overwhelming.

It therefore appears logical to extend routine immunisation to the whole population.

General practitioners working in the National Health Service receive a fee for routine immunisation against tetanus in any age group on an item-of-service basis. Many practices have a practice nurse or attached district nurse available to administer the toxoid and ancillary staff to complete the necessary forms; thus there is both a reasonable financial incentive and reasonable facilities for arranging immunisation in many British general practices.

General practice being the current centre for basic medical care in this country and being entirely competent to carry out the procedure, it seemed appropriate to embark on immunisation in a practice as a whole.

Gaining acceptance by patients

The problem to be faced was gaining the acceptance of the patients in the practice of the idea, and organising them to have the injections.

Initially posters recommending tetanus immunisation were placed among the other posters in the waiting room, and health visitors advised that we were willing to carry out the procedure. This produced no visible result.

The idea of the time involved in persuading patients to accept the idea and giving the injection in the consulting room appeared so disruptive to consulting routine, that it was at that time discarded. All new patients registering were given a questionnaire including questions as to whether they had been immunised against tetanus, and whether if they had not, they would accept immunisation, but this was only getting at a very small proportion of the practice and also met a poor response.

At that stage, therefore, consultation started between the general practitioner and the health education officer who was called on for advice.

From the health education officer's point of view there were three major considerations:

(1) Was an anti-tetanus campaign a priority?

From national figures the project did not emerge as a priority. However, in 1964 to 1969, 93,663 (Herts, Area Health Authority) under-16-year olds were immunised in Hertfordshire so the Health Service was already committed and the proposed project in the general practice would help complete the operation.

(2) Was the time involved likely to be justified in terms of success achieved?

The time involved was unlikely to be great. What had been lacking was a carefully thought-out plan and a well-timed drive to improve patients' motivations.

(3) Was any useful secondary gain likely to emerge?

The secondary gain predicted included continued liaison with the general practitioner and the opportunity to demonstrate the effectiveness of health education, with the rare opportunity of carrying out a health education project which allowed for direct numerical measurement of the degree of success or failure.

Aims

The health education officer's aims were:

- (1) To compare the effectiveness of involving the patients in "finding out" about tetanus, with the effectiveness of presenting them with an explicit poster.
- (2) To motivate patients in the waiting room to ask for an appointment for tetanus immunisation.
- (3) To find out how much patients could be potentiated in the waiting room before a suggestion from the general practitioner.

Methods

To achieve these aims it was decided to use the following methods:

Method (1) Waiting room education only. To find out how far the patient in the waiting room could be motivated to make an appointment to obtain immunisation by the practice nurse.

Method (2) Waiting room education plus general practitioner. To find out how far patients could be potentiated in the waiting room to suggestion by the general practitioner in the consulting room.

Later, as will be seen, in the light of our experience we introduced: *Method 3 General practitioner only*. To find out how much the general practitioner could motivate the patients to accept immunisation in the consulting room without previous motivation.

With this degree of planning, the project was then started with *Method (1) Waiting room education only*. The whole of the waiting room was placed at the disposal of the health education officer. The materials used in the exercise were:

- A display of photographs,
- Printed sheets referring to the photographs,
- A tape recorded message made by the general practitioner.

The display. All notices were removed from the walls, and replaced with a display of mounted photographs (figure 1).

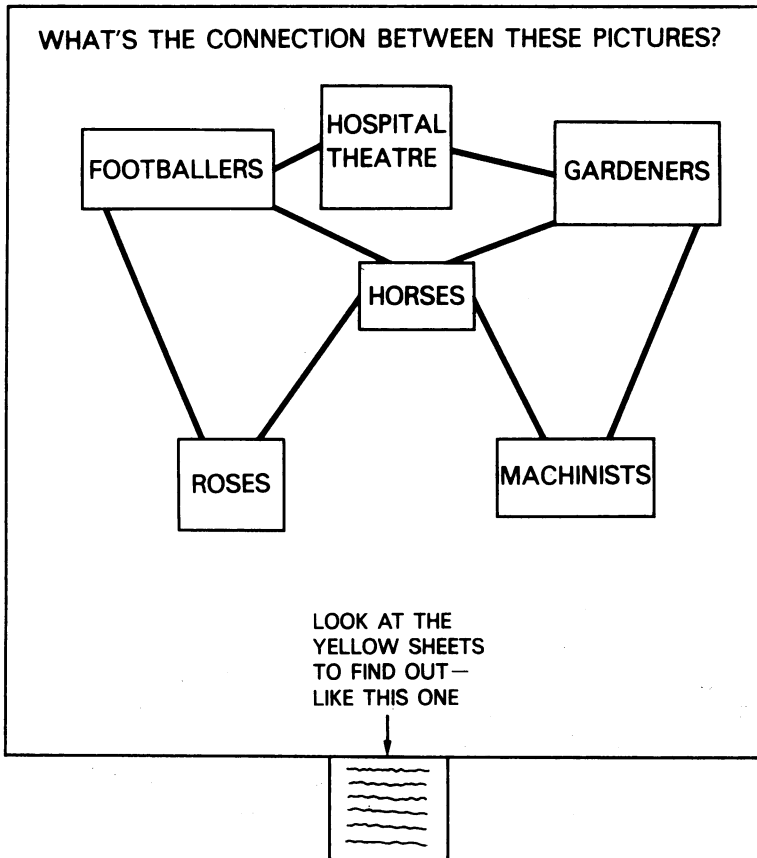


Figure 1
Printed sheets for the waiting room

The sheets. The sheets providing the answer to the question posed by the display were scattered around the waiting room in easy reach of all the seats. The “ answer ” sheets contained the following information:

WHAT'S THE CONNECTION BETWEEN THE PICTURES?

Answer.....TETANUS
.....and here's why.....

Footballers (and other sportsmen or women), *gardeners*, and *machine operatives* as well as workers in the building trade and agriculture, are all at a greater risk of contracting tetanus, although **EVERYONE** is liable to some risk.

Roses, have thorns which can prick the skin; and even this has been known to lead to tetanus, although it is more likely to occur after a cut on a rusty nail or dirty wire.

The tetanus germ needs only a tiny opening in the skin to be able to get into the body.

The *operating theatre* is where the luckier tetanus victims end up—the victims with average luck, die.

TETANUS CAN KILL

The *horse* was the original source of anti-tetanus serum. Serum removed from a horse infected by tetanus when injected into humans gave protection against the disease. Nowadays, however, a method which does not require horse serum, and which gives longer lasting protection is used.

“WHAT’S ALL THIS GOT TO DO WITH YOU?”

Your doctors think that it is worth while protecting *all* their patients against tetanus—it must be important because they immunise all children under the age of 15 automatically.

Remember, if you cut yourself and go to the hospital for a tetanus injection, you are only protected against tetanus for the future and not for *that* cut. You will also have to take the trouble to go to the hospital for the other two injections. Three injections are needed in all for lasting protection.

IF YOU CARE AS MUCH FOR YOUR HEALTH AS YOUR DOCTOR DOES, MAKE AN APPOINTMENT FOR AN ANTI-TETANUS INJECTION—*NOW*.

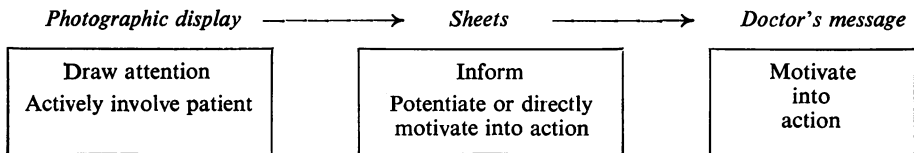
ASK THE RECEPTIONIST WHILST YOU ARE WAITING TO SEE THE DOCTOR.”

The tape recorded message

The tape recorded message was installed into the existing intercom. system in the surgery. It lasted about 30 seconds and was interspersed with light music on an eight-minute continuous loop cassette. Light music was normally played in the surgery, but could be over-ridden by the individual doctors in the practice when ‘calling’ patients. This option was, of course, retained.

The content of the message stated that tetanus was still a dangerous disease, and that the doctor would be pleased to give his patients free immunisation. At the end of the message the doctor emphatically asked his patients to make an appointment with the receptionist on leaving the surgery.

The plan is illustrated below:



We realised that this sequence of events would not necessarily occur. But we hoped that the patient would be drawn to the photographic display looking for the answer sheet, and it was unlikely that the link between the photographs would be realised by listening to the taped message alone.

Observations of the patients’ actions from the receptionists’ desk showed that the vast majority of the patients picked up an answer sheet after obviously looking at the display.

This method was used for two weeks. During this time, no direct mention of tetanus was made by the general practitioner to any of his patients unless the patient first mentioned it.

Immediately after completing these two weeks, we started *Method (2) Waiting room education plus general practitioner*. The display and answer sheets remained in the waiting room, but the tape recording was removed because of difficulties of disturbance to the group.

The general practitioner kept tetanus vaccine available in the consulting room with the appropriate forms and turned to ask all patients the unelaborated question “Would you like a tetanus injection while you are here?” In practice the number offered was considerably reduced because:

- (1) Patients being under 18,
- (2) The degree of illness of the patient made the suggestion inappropriate, e.g. bronchitis, otitis media,
- (3) The character of illness of the patient made suggestion inappropriate, e.g. lady presenting with lump in breast and consequent anxiety,
- (4) The general practitioner fell so far behind with appointments schedule despite gapped appointments that he felt he must work on without making the offer.

There were, however, many appropriate patients and relatives accompanying patients to whom it could be offered, especially mothers with children already immunised, where the father had received immunisation elsewhere.

Those who agreed received the injection there and then, and were given a record card supplied by a drug firm with the injection recorded, and told to make appointments for subsequent injections with the practice nurse. A claim form also had the name written in by the doctor, to be completed later by office staff.

The results were:

Method 1

Number of patients hearing tape in waiting room during ten days	350
Number of patients asking for immunisation	10
Percentage immunised of those attending	2.8%

Method 2

Number of patients seen by general practitioner	100
Number of patients offered immunisation	13
Number of patients immunised	12
Percentage of those attending immunised	12%
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Percentage immunised of those offered	92.4%
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At this point a review took place.

First, it was queried how much significance the word tetanus had to the patient compared with the older word lockjaw. To clarify this, 50 questionnaires coloured green were submitted to consecutive patients attending the appointment desk on one day and 53 questionnaires coloured yellow the following day.

The yellow questionnaire stated:

“ PLEASE WRITE DOWN YOUR AGE, SEX AND JOB, AND ANSWER THE QUESTION BELOW

AGE: _____

SEX: _____

JOB: _____(or your last job if out of work)

LOCKJAW IS ANOTHER NAME FOR:

RABIES	
POLIO	
JAUNDICE	
TETANUS	
CLEFT PALATE	

PLACE A TICK IN THE CORRECT BOX

THANK YOU ”

The green sheets were identical except for a reversal of the positions of the words 'lockjaw' and 'tetanus'.

The results were:

102 of 103 completed questionnaires could be used. Sexes were 57 per cent men to 43 per cent women, with 38 per cent in the 36-45 age group, being the largest percentage. The largest occupational group was the clerical/supervisory (25 per cent). Sixty-five per cent linked tetanus and lockjaw, with age and sex having no bearing on the response. The highest percentage of correct responses was in the skilled group (83 per cent), the lowest percentage in the semi-skilled and unskilled group (56 per cent).

The direction of the question made no difference, so that "Tetanus is another name for . . .?" gave 68 per cent correct, and "Lockjaw is another name for . . .?" gave 61 per cent correct. The conclusion was that whichever term was used we could expect about two thirds of the patients to know that they were synonymous, and age, sex or occupation did not affect the response significantly.

After a year and overcoming the initial fear of the time it might take, it was decided to see the result if the general practitioner offered tetanus injections in the consulting room without any previous preparation of the patient; the following results were obtained:

Method 3 General practitioner alone

Number of patients seen over survey	56
Number of patients offered immunisation	12
Number of patients immunised	11
Percentage of patients immunised	19.6%
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Percentage immunised of those offered	91.3%
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Average time taken between suggestions and agreement to immunisation per patient	18.5 seconds
Average time taken to fill syringe and mark card, and explain to patient about arrangement for next appointment	3½ minutes

As will be seen this involved an extra 44 minutes of consulting time in a period of seeing 56 patients, which is far from negligible. The number immunised would certainly have been greater but for the problem of falling too far behind the appointed schedule.

It would save the practitioner's time if he could direct the patient accepting immediately to the nurse, but the nurse's time is also valuable and she was not available in this practice throughout the consulting hours, so that a return appointment would be required with the inevitable default rate and the additional time involved for appointment staff.

DISCUSSION

Exhortations to general practitioners to appreciate the benefits of the team approach are everyday occurrences, though the potential membership of a team has not been fully explored. Wise practitioners have always used all local skills available. Health education as a specialist subject is a relatively new development in the National Health Service and many general practitioners may be unaware of the health education officer in their district or the benefits to be obtained by including him in their team approach.

The Department of Health and Social Security were speedy in giving advice to area health authorities in March 1974, but it has been pointed out "Clinicians and all other health service staff have to be convinced that health education can be effective in the prevention of disease" (*British Medical Journal*, 1975). In many projects the general practitioner is either insufficiently motivated to take part with conviction, because

the views of the subject are still controversial, or the benefits are too difficult to measure within his own practice for him to tolerate the disturbance and additional work involved.

The general practitioner's training has in any case in the past been biased towards treating disease. Some improvement has been created by many general practitioners having had an appetising taste of education as a discipline from their initiation as trainers, and some may feel now more able to meet the health educationalist on common ground. The problems of differently trained professions working to a common end has received much publicity but, if the problems can be identified and overcome, there are hopes of benefits from a realistic and co-operative programme.

In this example we had a project which was measurable and, having reviewed it we thought of uncontroversial benefit. We thought it was therefore ideal to work on it together.

We first considered which patients would be found in the waiting room. Surveys have reported directly, or implied indirectly, that the percentage of the total practice attending during a 12 month period is between 46 and 70 per cent (Kessel and Shepherd, 1965, Morrell *et al.*, 1970 and Backett *et al.*, 1954), appreciating that some patients may not attend for several years at a time. We hoped by the wording of the doctor's taped message in the first method to get patients to get patients to make appointments for their relatives, such as wives for husbands and elder relatives in their homes, thus involving many not present themselves in the waiting room. This point could have been stressed more in the hand-out.

We considered the merits of the three methods used as all produced an improvement on the random poster and mentioning the matter to the attached health visitors. For the first method to have a sizeable effect in the immunisation rate it would have to be a continuing project. It is doubtful whether the disruption involved would be tolerated if all members of the group practice were not entirely convinced of the benefits of the project. What was not used properly or fully tested were the persuasive powers of the receptionists and it would be wise in any further project to enlist their active support.

We thought originally that potentiation in the waiting room was required to gain patient-acceptance of any offer made by the practitioner without intolerably long explanations. However, when the practitioner gained enough courage to try, on this particular subject, it was found the explanation time was negligible, though with other subjects a different result might have been found, and waiting room potentiations have been extremely valuable in time saving.

Although negligible time was needed to gain acceptance in both the second and third methods and the results appear identical, the results are not truly comparable. In the second method the patients are *educated* into acceptance, whereas in the third method they are *directed* into acceptance. This difference not only has ethical implications (education being preferred), but might also affect a difference in the 'return rate' for second and third injections which we have not yet checked.

While time taken to gain acceptance was negligible in both the second and third methods, the general practitioner himself administered the injection and this impeded the whole operation. In consequence the second and third methods became unacceptable as long-term projects.

The project was carried out during the normal schedule of a five-doctor group practice and suffered the limitations imposed by the routine schedules and consideration of non-participating members of the group. Without such limitations it would have been of interest, basing the operation on "the waiting room education", "waiting room plus general practitioner" and "general practitioner only" to have varied the

waiting room or consulting room approaches in a number of different ways. For instance, it would have been sounder for the health education to aim at specific at-risk groups on separate occasions.

It did show the general practitioner had greater potential for preventive medicine than he may imagine, from the way patients were prepared to accept a directive from him, but time was the limiting factor.

The health education officer demonstrated methods to obtain information on which to make plans and methods that could be used to good purpose in using the general practitioner's waiting room as a venue for health education. Some results could be produced without involving the general practitioner at all.

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RETROSPECTIVE EVALUATION OF ROLE OF A COMMUNITY HOSPITAL

Three years after a general-practitioner community (cottage) hospital was closed the cases of the last 100 patients admitted to it were studied to see how they might have been dealt with today with no community hospital available and also to assess the effect of closing the hospital on general practice in the locality. It is thought that 73 out of the 100 patients would have had to have been admitted to a district general hospital and six to a geriatric hospital: 21 could have been treated at home, but not by choice. The reasons for the admission of the 79 patients who would otherwise have had to be admitted elsewhere were clinical or nursing in 65 cases and social in 14. Occupancy of a community hospital bed seemed justified in each case. The author is in no doubt that he was able to practise better medicine when the community hospital was available.

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