Provision of syringes: the cutting edge of harm reduction in prison?

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BMJ 1998;317:270–3

When, in the summer of 1994, a pilot project on prevention of drug use and transmission of HIV was launched in Hindelbank, a Swiss prison for women, not many outsiders paid attention to it. Yet only a few months later, the prison director received repeated calls from television stations, newspapers, and drug experts asking how the project was developing. We describe how this high level of public interest in a small prison (around 85 inmates, 100 entries and releases per year) came about.

Summary points

- Prisons play a pivotal role in the spread of infectious diseases
- Distribution of syringes reduces drug-related harm in the community, but its effect in prisons has not been reported
- Automatic syringe exchange dispensers were installed in a Swiss prison for women in the framework of a pilot project on drug and HIV prevention
- Ongoing evaluation provided some evidence that syringe distribution in prison did not encourage drug consumption, and syringe sharing among inmates virtually disappeared
- Other prisons in Switzerland and Germany are conducting prevention projects that include syringe distribution

Provision of syringes—the cutting edge?

The installation of six automatic dispensers for exchange of syringes attracted special attention. The dispensers are freely accessible but hidden from general view in different wings of the prison (fig 1). Clean injection equipment is dispensed only in exchange for another (used) syringe. The first exchange is by means of a dummy syringe that is given to all inmates when they enter the prison.

To distribute equipment for illegal drug use in the framework of a penitentiary—and to provide inmates, many of whom have been sentenced for drug related crimes, with syringes—seemed paradoxical to many people. Fears abounded that inmates could misuse contaminated syringes as weapons against the prison's staff or that improper disposal of injection equipment would provoke injuries and thus cause infections with bloodborne viruses. There was—and still is—speculation that issuing syringes to drug addicts in prison might encourage drug use.[1]

Development of harm reduction measures in Swiss prisons

Harm reduction is a familiar concept in Swiss prisons. The first measures for reducing drug related harm were introduced after cases of unexplained lymphadenopathy and weight loss were reported in drug misusers in some larger Swiss prisons in 1984 and tests showed HLTV-III antibodies in prisoners in 1985: information leaflets for inmates and staff and condoms for inmates have been available since 1985 in an increasing number of prisons. From 1989, a "hygiene kit" was distributed to prisoners on entry to Regensdorf penitentiary, containing condoms, disinfectant, and instructions on cleaning syringes. Oral methadone maintenance in a special section of the same prison became possible in 1989 and was introduced in 1991 in several remand prisons in Basel, Bern, Geneva, and Zurich. Since 1990, disinfectants have been available in the remand prison in Geneva.[2] But when the introduction of syringe distribution in prisons was broached, the parting of the ways began. The issue became highly controversial despite sound recommendations by both the World Health Organisation and the Council of Europe postulating the principle of equivalence (providing the same health prevention and treatment in prison as is available outside).[3 4]

Progression of harm reduction strategies in prison—good public health policy

The need to apply the principle of equivalence emerged in the mid-80s with the first cases of HIV positivity in prisoners. The prevalence of HIV and AIDS is higher in prison than in the community in many countries, as is the prevalence of viral hepatitis, especially hepatitis C, which is increasingly recognised as a major risk for drug users.[5–8] Drug misusers are overrepresented in the prison population, and prison

presents a particular environment. Because of risk behaviours, such as syringe sharing and unprotected sexual contacts, the prevalence of HIV and hepatitis is higher in drug users.[9–12] Studies of drug use and risk behaviours in prisons reveal worrying statistics,[13] and there is evidence for HIV transmission in prison.[14 15] Prisons play a pivotal role in the spread of HIV and viral hepatitis. Because there is a constant flow in and out of prison, the risks concern the whole community, not just a limited circle of prisoners.[8 16] Implementing harm reduction measures in prison must be considered as an essential part of public health policy.[17]

The Hindelbank project

Syringe distribution in the community has been accepted for some years. In many European cities drug misusers have easy access to sterile injection equipment. Used syringes and needles can be exchanged for clean sets at pharmacies, in "shooting galleries," or anonymously by means of automatic dispensers. Providing drug misusers with sterile injection equipment is an efficient way of reducing the risk of infection.[18–24]

Against this background the health service of Hindelbank prison, faced with a high level of prisoners using and sharing syringes, requested the introduction of syringe distribution in the penitentiary. The Swiss federal office of public health, which had declared the principle of equivalence to be part of its health strategy, supported this request. Initially there was determined resistance by the cantonal authorities. (In Switzerland's decentralised structure each canton is responsible for its prison system.) But staff in the federal office of public health maintained their commitment and worked well with the prison's management. Finally, the political reservations were overcome—less as a result of a political plan than because of the pragmatic and tireless engagement of individuals, and because the project was to be evaluated scientifically. In 1994, the prevention programme—consisting of lectures and group sessions, sociomedical counselling, and distribution of condoms and sterile syringes by exchange dispensers—was implemented in Hindelbank prison.

Evaluation was conducted parallel to the prevention programme by an independent external group of experts. The principal instrument of the evaluation was structured personal interviews with inmates. Four interview campaigns were carried out: just before the prevention programme was launched and three, six, and 12 months afterwards. Interviews were offered in German, English, Spanish, and French (instruments were developed for this study). A total of 161 inmates were asked for an interview and 137 (85%) participated at least once. The evaluation data were supplemented by results of analysis of voluntary blood samples and by data from the prison files, collected after informed consent was received from the inmates concerned.

Results

Response in regard to the feasibility of syringe distribution in prison was entirely positive. Fears turned out to be unjustified. A total of 5335 syringes were distributed within the first year (0.2 per inmate per day) without operational or security problems.

In Hindelbank prison, syringe dispensers are freely accessible but hidden from general view

There is some evidence that drug consumption in the prison did not rise. Comparison of interviews at the beginning of the project with the two intermediate measurements showed no systematic differences in the proportion of inmates using heroin or cocaine in prison, and at the end of the one year project the proportion of users among the interviewed inmates had decreased ($\chi^2 = 3.5$, $P < 0.1$; table 1). All inmates who said they were using heroin or cocaine in prison said they had previously consumed these substances regularly (three times or more per week for at least one year).

The sharing of used syringes among inmates virtually disappeared. At the beginning of the project, eight of 19 intravenous drug users said they had shared syringes with other people in the past month spent in prison, two of them with more than one person. After three months five (of 18) and at six months two (of 11) users reported sharing syringes. At the end of the project only one women, who had been imprisoned just before the interview, reported syringe sharing in prison (table 1).

The study confirmed the gloomy picture of continuing drug misuse in prison, as well as a high prevalence of bloodborne virus infections on entry. Most of the drug misusers found access to illegal drugs after being imprisoned: 53 of the 137 women interviewed (39%) reported heroin or cocaine intake the month before incarceration, and 85% (45/137) continued taking these substances in prison (table 2), most (37/45) by intravenous injection. Drug intake was related to duration of imprisonment (table 2). Serological testing on entry to the study showed high prevalences of HIV and hepatitis infection, comparable with international findings[13 25–30]: of 94 inmates

Table 1 Use of heroin or cocaine and syringe sharing in Hindelbank prison, Switzerland. Values are numbers (percentages) of interviewed prisoners

	Time of interview after launch of the project (months)			
Variable	**0 (n=65)**	**3 (n=49)**	**6 (n=33)**	**12 (n=57)**
Drug use	25 (38)	24 (49)	12 (36)	13 (23)
Intravenous drug use	19 (29)	18 (37)	11 (33)	9 (16)
Sharing syringe	8 (8)	5 (10)	2 (6)	1 (2)

Table 2 Relation of duration of imprisonment to consumption of heroin or cocaine, Hindlebank prison

Consumption of heroin or cocaine	No	Yes
Ever regularly (n=62)	62 (100)	0
During month before incarceration (n=62)	11 (18)	51 (82)
While incarcerated:		
Interview <1 month after incarceration (n=24)	17 (71)	7 (29)
Interview 1-5 months after incarceration (n=17)	5 (29)	12 (71)
Interview >5 months after incarceration (n=21)	2 (10)	19 (90)

who voluntarily underwent blood analysis on arrival, six were HIV positive. Almost half the women (45/94) were positive for hepatitis B virus (five of them were positive for hepatitis B virus IgM) and over a third (35/94) were positive for hepatitis C. Follow up tests just before release (n=51) showed that no women had become infected with HIV or viral hepatitis.

As syringe provision for prisoners was known to be controversial, special attention was paid to giving clear information about the project's background and results. Reports summarising the main outcomes were produced in German, French, and English and handed out to inmates and staff.[31] The results were presented and discussed by evaluators and prison authorities at a media conference. Response of the media (local radio and television stations, newspapers, and magazines) was considerable, and reports were highly objective. An evaluation of the public response to the Hindelbank project was planned. To enable deeper debate among scientists, prison authorities, and politicians from different countries, an international conference on harm reduction in prison was held in February 1996.[32] These measures replaced some speculations with facts and supported development and implementation of similar projects in other prisons.

The study showed that syringe distribution in the prison was feasible and that the intervention was successful, as well as confirming the ongoing need for effective prevention measures. As a result, the programme including syringe distribution has been instituted in Hindelbank prison.

Conclusion and outlook

Our findings are linked to specific conditions. Hindelbank prison is relatively small, and it is a prison for women. The study covered a small population. Furthermore, the structures of health systems and prison systems vary from country to country. Nevertheless, a lesson can be learned from the Swiss experience: in these circumstances syringe distribution can not only minimise harm related to drug intake but also reduce drug taking. Based on this, further experience should be gained in other settings. The role of prisons in the spread of infectious diseases must be taken into account when decisions about undertaking such projects are made.

Some harm reduction measures have been implemented in other Swiss prisons as a result of the Hindelbank project. Since 1995, the medical service of the Geneva remand prison has been authorised to exchange drug users' syringes on request. In 1995, a feasibility study including prescription of heroin for controlled intravenous injection was started in Oberschöngrün prison, Solothurn canton, in the framework of the Swiss trial on heroin prescription.[1] In a prison in Basel, methadone prescription for controlled intravenous application was made available in 1996,[33] and a syringe dispenser was installed in the prison in Realta, Grisons canton, in February 1997. In Germany, provision of syringes and scientific evaluation are in operation (Hamburg[34]; Vechta and Groß-Hespe[35]), and comparable projects are in preparation in several other countries.

Replacing speculations concerning syringe distribution in prison by an evidence based health policy may facilitate reconsideration of harm reduction strategies in prison. However, these decisions are political, and it remains to be seen whether politicians are prepared to apply public health criteria to an environment for which the overriding philosophies are security, punishment, and social control.

Funding: The evaluation study was funded by the Swiss Federal Office of Public Health.

Conflict of interest: None.

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(Accepted 5 May 1998)

Getting research findings into practice

Barriers and bridges to evidence based clinical practice

Brian Haynes, Andrew Haines

Clinicians and healthcare planners who want to improve the quality and efficiency of healthcare services will find help in research evidence. This evidence is increasingly accessible through information services that combine high quality evidence with information technology. However, there are several barriers to the successful application of research evidence to health care. We discuss both the prospects for harnessing evidence to improve health care and the problems that readers—clinicians, planners, and patients—will need to overcome to enjoy the benefits of research (box).

The aim of evidence based health care is to provide the means by which current best evidence from research can be judiciously and conscientiously applied in the prevention, detection, and care of health disorders.[1] This aim is decidedly ambitious given how slowly important new treatments are disseminated into practice[2–4] and how resistant practitioners are to withdrawing established treatments from practice even once their utility has been disproved.[5]

The barriers to the dissemination and timely application of research findings in the making of decisions about health care are complex and have been little studied. They include many factors beyond the control of the practitioner and patient (such as being in the wrong place when illness occurs) as well as factors that might be modified to advantage (such as doing the wrong thing at the right time). Rather than attempting

Summary points

The aim of evidence based practice is to integrate current best evidence from research with clinical policy and practice

Practitioners have difficulty finding, assessing, interpreting, and applying current best evidence

New evidence based services (such as electronic databases, systematic reviews, and journals that summarise evidence) make accessing current best evidence feasible and easy in clinical settings

Progress is slow in creating evidence based clinical policy and in ensuring that evidence and policy are applied at the right time

Problems in implementing evidence based medicine and possible solutions

Problem	Solution
• The size and complexity of the research	Use services that abstract and synthesise information
• Difficulties in developing evidence based clinical policy	Produce guidelines for how to develop evidence based clinical guidelines
• Difficulties in applying evidence in practice because of the following factors:	
Poor access to best evidence and guidelines	Use information systems that integrate evidence and guidelines with patient care
Organisational barriers	Develop facilities and incentives to encourage effective care and better disease management systems
Ineffectual continuing education programmes	Improve effectiveness of educational and quality improvement programmes for practitioners
Low patient adherence to treatments	Develop more effective strategies to encourage patients to follow healthcare advice

This is the fourth in a series of eight articles analysing the gap between research and practice

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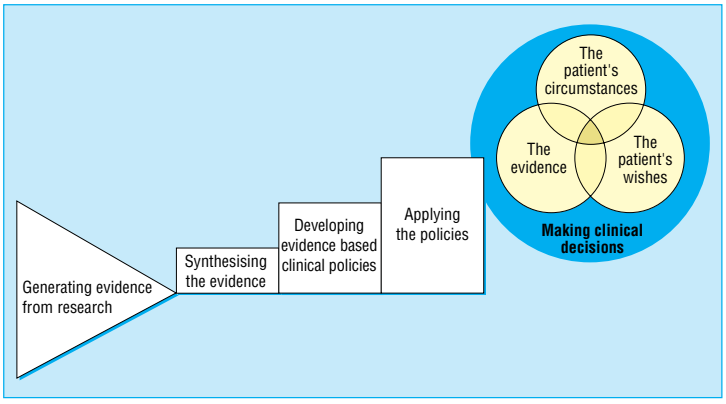
Series editors: Andrew Haines and Anna Donald

BMJ 1998;317:273–6



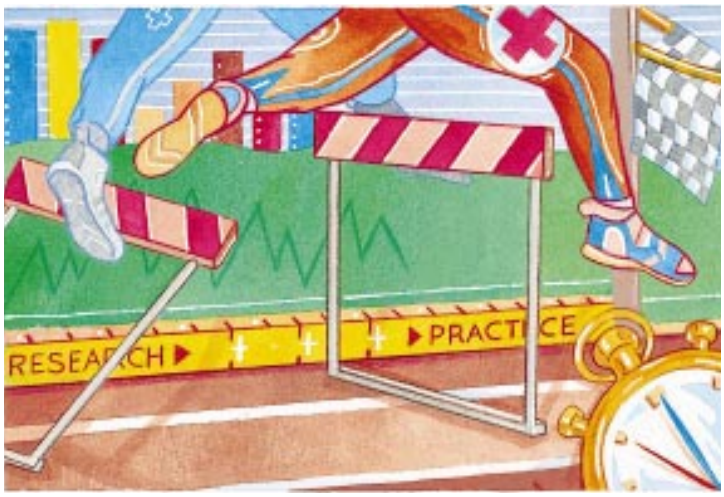
The path from the generation of evidence to the application of evidence

to dissect all these barriers, we present a simple model of the path (figure) along which evidence might travel to assist practitioners in making timely healthcare decisions. We will consider some barriers along this path and some bridges that are being constructed over the barriers.

Generating research evidence

The path begins with biomedical research: the shape of the wedge symbolises the process of testing innovations in health care and eliminating those that lack merit (figure). The broad edge of the wedge represents the initial testing of innovations, which usually occurs in laboratories; many new products and processes are discarded early in the testing process. Products or processes with merit then undergo field trials; these initial studies aim to assess toxicity and to estimate efficacy. Many innovations fail, but a few merit more definitive testing in large controlled trials with important clinical endpoints. It is only when studies are successful that serious efforts at dissemination and application are warranted. Increasingly, behavioural interventions, surgical procedures, and alternative approaches to the organisation and delivery of care are being subjected to similarly rigorous evaluation.

The biomedical and applied research enterprise represented by the wedge is vigorous, with an annual investment of over $55bn (£34.4bn) worldwide.[6] The amount of money spent on research provides hope



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that healthcare services can be improved despite cutbacks in spending that are occurring in many countries. Unfortunately, many loose connections exist between research efforts and clinical practice, not the least of which is that preliminary studies far outnumber definitive ones, and all compete in the medical literature for the attention of readers.[7]

Steps from research to practice

The boxes to the right of the wedge (figure) represent the three steps that are needed to harness research evidence for healthcare practice. These steps include synthesising the evidence; developing clinical policy from the evidence; and applying the policy at the right place, in the right way, and at the right time. All three steps must be negotiated to form a valid connection between evidence and practice.

Synthesising the evidence

Most results from research appear first in peer reviewed journals, but the small number of clinically important studies are spread thinly through a vast number of publications; readers are bound to be overwhelmed. Models for critically appraising evidence have been developed and disseminated,[8] but applying these is time consuming. The newest bridges that can be used to overcome this barrier include abstracting services that critically appraise studies in which the results are ready to be applied to clinical settings; these appraisals are then summarised in a journal.[9 10] Many more of these new types of journals are being developed so that eventually most clinical specialties will have their own. More importantly, the Cochrane Collaboration has pledged to summarise all randomised controlled trials of healthcare interventions, and *The Cochrane Library* is now a robust resource.[11]

Along with these new services, advances in information technology can provide quick and often inexpensive access to high quality research evidence at the patient's bedside, in the clinician's office, or at the clinician's home.[8 12] Computerised decision support systems are maturing and allowing research findings to be taken one step further by fitting the evidence into patient specific reminders and aids to decision making embedded in clinical information systems.[13] These innovations are making the practice of evidence based health care much more feasible.

Creating evidence based clinical policies

To be both evidence based and clinically useful, clinical policy must balance the strengths and limitations of all relevant research evidence with the practical realities of the healthcare and clinical settings.[14] This is a problematic step because of limitations in both the evidence that is available and in policy making. Clinical practice guidelines developed by national groups may help individual practitioners but the expertise, will, resources, and effort required to ensure that they are scientifically sound as well as clinically helpful are in short supply, as witnessed by the conflicting guidelines issued by various professional bodies.[15] National healthcare policies are often moulded by a range of non-evidence based factors including historical, cultural, and ideological influences. Moreover, when national guidelines or healthcare policies encourage

clinicians to perform procedures that are not evidence based, the unnecessary work acts as a barrier to the implementation of other well founded knowledge.

"Guidelines for guidelines" have been developed that will help if followed.[16] Evidence and guidelines must be understood by practitioners if they are to be applied well; understanding new material is a slow process that is not aided by traditional continuing education offerings.[17] Additionally, local and individual circumstances of clinical practice often affect the delivery of care, and national guidelines must be tailored to local circumstances by local practitioners; this tailoring of guidelines to local circumstances is a process that is only just beginning to occur.[18] Evidence can be used by individual practitioners to make policies, but few practitioners have the time and skill to derive policies from research evidence. The difficulties in developing sound policies are perhaps the greatest barriers to the implementation of research findings. Clinicians are in the best position to be able to balance research evidence with clinical circumstances, and must think and act as part of the team planning for change if progress is to be made.

Applying evidence based policy in practice

The next step in getting from research to practice is to apply evidence based policy at the right time, in the right place, and in the right way. Again, there are barriers at the local and individual levels. For example, for thrombolysis for acute myocardial infarction to be delivered within the brief time in which it is effective, the patient must recognise the symptoms, get to the hospital (avoiding a potentially delaying call to the family physician), and be seen right away by a health professional who recognises the problem and initiates treatment. For many people in many places this is still not happening.[19 20]

In some cases, particularly for surgery and other skilled procedures such as invasive diagnostic testing, a lack of training may constitute a barrier to implementing research findings. The complexity of guidelines may also thwart their application.[21] Organisational barriers to change must also be dealt with, for example, by ensuring that general practitioners have access to echocardiography to diagnose heart failure before starting treatment with angiotensin converting enzyme inhibitors.[22] Changes in the organisation of care (including in disease management), improvements in continuing education, interventions to improve quality among practitioners,[17] and improvements in computerised decision support systems,[13] are beginning to make inroads into the last steps that connect research evidence with practice. Unfortunately, these may all be undermined by limitations in the resources available for health services. Additionally, inappropriate economic measures may be used to evaluate healthcare programmes[23] though cost effective interventions may require considerable initial investment and have delayed benefits (this is especially true in the implementation of preventive procedures).

Making clinical decisions

Once the evidence has been delivered to the practitioner and the practitioner has recalled the evidence correctly and at the right place and time, there are still steps to be taken. Firstly, the practitioner must define each patient's unique circumstances; this includes determining what is wrong with the patient and assessing how it is affecting the patient. For example, the cost effectiveness of lowering cholesterol concentrations with statins is highly dependent on the patient's own risk of adverse outcomes.[24] Secondly, the practitioner must then ask if the patient has any other problems that might influence the decision of which treatment is likely to be safe and effective. For example, carotid endarterectomy is highly effective for symptomatic carotid stenosis[25] but patients must be physically fit enough to have surgery. Evaluating the patient's clinical circumstances requires clinical expertise, without which no amount of research evidence will suffice.

Also, and increasingly, the patient's preferences, values, and rights are entering into the process of deciding on appropriate management. Thus, patients who are averse to immediate risk or cost may decline surgical procedures, such as endarterectomy, that offer longer term benefits even if they are physically fit to have surgery. Research evidence must be integrated with the patient's clinical circumstances and wishes to derive a meaningful decision about management, a process that no cookbook can describe. Indeed, everyone is still ignorant about the art of clinical practice. Although there is some evidence that exploring patients' experiences of illness may lead to improvements in their outcomes,[26] more research is needed into how to improve communication between clinicians and patients if we are to enhance progress in achieving evidence based health care. Additionally, there is a growing body of information available to patients that is both scientifically sound and intelligible, and many consumer and patient groups have made such material widely available.[27] Interactive media are being used (but not widely) to provide information to assist patients in making decisions about options for diagnosis and treatment.[28]

Finally, patients must follow the prescribed treatment plan; increasingly they are doing this independently because of the availability of effective treatments that allow ambulatory, self administered care, and also because of cutbacks in health services that necessitate more self care. We can help patients continue their care, but we are not so successful in helping them to follow our prescriptions closely, which dissipates much of the benefit of treatment.[29]

Conclusion

Successfully bridging the barriers between research evidence and clinical decision making will not ensure that patients receive optimal treatment; there are many other factors that might prevail, for example, the underfunding of health services and the maldistribution of resources. Nevertheless, incorporating current best evidence into clinical decision making promises to decrease the traditional delay between the generation of evidence and its application, and to increase the proportion of patients to whom current best treatment is offered. Quick access to accurate summaries of the best evidence is rapidly improving. The means for creating evidence based clinical policy and applying this policy judiciously and conscientiously are under

development with help from health services research and information research.

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The articles in this series are adapted from *Getting Research Findings into Practice*, edited by Andrew Haines and Anna Donald and published by the BMJ Publishing Group

A memorable patient

Mountain power

Mark's cystic fibrosis was not diagnosed until he was 9 years old. When I first knew him, five years later, he already had advanced lung disease and was small for his age. Mark hated being small. He saw himself as "the little lad with the cough," a description he had once inadvertently overheard. Nevertheless, at this time, he had ambitions for his future and was extremely articulate about them, as indeed he was about everything.

After sitting his GCSEs at 16, Mark was longing for the sixth form. Sadly, he never made it. Instead he spent his last two and a half years mainly at home during which time he had to face all his aspirations, one by one, going out through the window as he became progressively more ill, chair bound, and eventually oxygen dependent. Despite this, Mark came to cope with a sort of growing inner peace.

There were many factors responsible for Mark's remarkable degree of acceptance. Among them were his innate personality and the support of his parents. But they were convinced, and I agree with them, that an experience he had in his last term at school made a profoundly important contribution. This was a weekend spent with a group of his school mates at an organised retreat. A topic for discussion with an essay to write were a part of it. The topic, ironically, was "What are my reasons for wanting to go on living."

I will never forget Mark's first outpatient attendance after that weekend. He looked just as wan and ill as ever but there was a radiance about him I had never seen before. I asked him what had happened. He told me that he had had this wonderful weekend which had "restored his confidence in himself." The only incident of the weekend he recounted at the time was of an outing on the last afternoon to climb a mountain.

Now, there was no way that Mark could climb a mountain; that was crystal clear to everyone, but it seemed that there was no way that these young people would allow him not to climb the mountain. So they carried him up. One by one, one after another, they put him on their shoulders and carried him up until, on reaching the top, Mark was higher than anyone else.

This taught Mark a lot of things. In particular, in relating to people, his age and illness did not matter. Also, that if he could accept help, not easy at 16, it paid dividends. In fact, for the remainder of his life that mountain experience became symbolic for us both in facing and overcoming setbacks.

But that was not all. It was only after Mark's death that his parents found the notebook from that weekend. In it was his essay on why he wanted to go on living. In this he described how he wanted to become an independent person, not just "the little lad with the cough." At the back of the notebook every child who was there had written a personal tribute to Mark about his courage and his personality. These sincere and undoubtedly unexpected tributes must have done much to restore Mark's battered self image and, as he put it, his "confidence in himself."

Mark, so articulate and so anxious to talk, gave me an invaluable insight into what it meant for a bright, achieving youngster to face a progressively disabling illness and untimely death. His was the voice which spoke for all children, similarly placed, who were unable or reluctant to talk about themselves.

Olive McKendrick, *retired paediatrician, Liverpool*

We welcome articles up to 600 words on topics such as *A memorable patient, A paper that changed my practice, My most unfortunate mistake,* or any other piece conveying instruction, pathos, or humour. If possible the article should be supplied on a disk. Permission is needed from the patient or a relative if an identifiable patient is referred to. We also welcome contributions for "Endpieces," consisting of quotations of up to 80 words (but most are considerably shorter) from any source, ancient or modern, which have appealed to the reader.