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The Benefits of Providing Information to Patients

by
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and
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Abstract

There is growing recognition within the National Health Service (NHS) of the value of providing patients with information about hospital and pre- and post-operative procedures, particularly in response to concerns about quality assurance and consumer satisfaction.

Moreover, there is evidence that the provision of such information pre-operatively to surgical patients can reduce levels of anxiety and depression and significantly affect the course of recovery, facilitating faster convalescence and potentially reducing length of hospital stay, medication use and follow up visits.

This paper critically reviews the available evidence concerning the impact of the provision of information on psychological and clinical outcome for the patient and also the resource consequences for the NHS. It concludes that major issues are still relatively unclear due to the lack of well designed and comprehensive research in this area. It offers an analysis of the results of other studies, and a detailed outline of future research which it would be useful to undertake in order to clarify both the costs and the clinical and economic benefits of the provision of information.

It is concluded that there is evidence to suggest that patients want more detailed information about medical and surgical procedures and that there are psychological and clinical benefits to be gained in terms of reduced levels of anxiety and depression, faster recovery and reduced length of hospital stay. In addition, the paucity of information that is available

regarding the economic impact of providing patient information indicates that it might potentially be cost-effective to the NHS to provide surgical patients with this type of information.

This issue is likely to become increasingly important within the NHS as the emphasis on improving consumer information and satisfaction continues, and if it can indeed be shown not only to improve clinical outcome, but also to be cost-effective, there is likely to be great potential for expansion of such provision in the future.

Introduction

The 1989 White Paper, "Working for Patients", includes amongst its list of proposed reforms of the National Health Service (NHS), the statement that hospitals should offer:

"clear information leaflets about the facilities available and what patients need to know when they come into hospital"

and

"once someone is in hospital, clear and sensitive explanations of what is happening - on practical matters such as where to go and who to see, and on clinical matters, such as the nature of an illness and its proposed treatment" (Department of Health, 1989, para 1.13).

The provision of such information is evidently seen by the government as an important part of their improvements to the hospital service, and part of the effort to acknowledge the importance of consumer satisfaction and quality assurance in the NHS. Indeed, there is growing recognition of the importance of information provision in other sections of the health care system. For example, within the primary care sector, the evaluation of educational materials for use in general practice is increasingly common and such information has been shown to be beneficial to patients and may also result in reductions in referrals (Roland and Dixon, 1989).

However, apart from this new managerial initiative, there are also other reasons why the issue of patient information is likely to be of increasing importance in the future. Firstly, it has been widely reported that patients who are anxious before surgery suffer more post-operative complications and have a slower convalescence than patients who appear better adjusted pre-operatively (Mathews and Ridgeway, 1981). Anxiety and depression are well

known causes of increased heart rate, elevated blood pressure and metabolic changes, such as hyperglycaemia, all of which can affect post-operative metabolism and in turn, recovery from surgery. Impending surgery may serve simply to exacerbate a chronic psychological problem, or it may provoke distress in otherwise well-adjusted patients. In either case, however, the value of more detailed information about hospital and post-operative procedures can exert a significant effect on the course of recovery.

In order to assess whether patients actually do want, and will benefit from more detailed information about medical and surgical procedures, it is necessary to systematically document and evaluate both the costs of providing this information and the clinical and economic benefits.

Before turning to the available literature which has examined the effect of information provision on patient outcome, a number of issues should be clarified. First of all, what is meant by information? It is not sufficient to decide more information should be provided without establishing the aim of such provision. Tuckett and Williams (1984) have described four functions of providing information:

- (1) "Ordering" ideas about diagnosis
- (2) "Persuading" individuals to follow instructions
- (3) "Facilitating" decision making
- (4) "Controlling" individuals for professional utility

Thus topics of information could vary from diagnostic significance, deciding upon a present course of action, future preventive action, and the consequences of treatment. If all this information were to be provided, the manner in which it should be provided would need to be restricted to avoid

excessive production costs. The most cost-effective method is likely to be a written booklet, although some centres have gone to the extent of using audio-visual presentations. A recent comment in *The Lancet* (1989) highlighted this issue and concluded that there is sufficient evidence to indicate that patients prefer written information which can be read and re-read in private and discussed with others.

Of equal importance as the need to be precise about the aims and method of information provision, is the selection of relevant outcome measures to assess the benefits of providing information. For example, if benefits are to be assessed by measuring outcome in the short term, dependent variables might include clinical indices such as length of stay in hospital, the nature of post-operative complications, recall by the patient of what has been said to them by staff, and satisfaction with care. If long term outcome measures are more relevant, parameters might include life style modifications, compliance with the medical regime, and the extent of recovery or relapse.

The remainder of this paper is divided into three parts: Part I reviews the evidence from studies that have assessed patient satisfaction with various types of information, and those which have quantified the effect of information on psychological and clinical outcome, concluding with an explanation of the relationship between information provision and outcome. Part II considers studies which evaluated the economic impact of information provision, and Part III provides a direction for future research.

PART I

(1) Patient Satisfaction and Information

Baskerville (1985) reported results using an educational tape for patients attending an outpatient department prior to repair of inguinal hernia. The tape ran for 20 minutes and outlined what a hernia was, how it was repaired, pre and post-operative procedures, and post-operative advice regarding physical exertion. Of 119 patients who answered a questionnaire six weeks post-operatively, 90% found the information adequate and 98% reported that the information had helped to alleviate anxiety about the procedure. However, the cost of producing such a tape was not discussed, neither was this method compared with written information. Furthermore, no control group was included in the study, so it was not possible to ascertain the extent to which the hospital experience itself had contributed to the results.

Sandler et al (1989) produced an information booklet which consisted of a standard discharge letter, prescription and reason for drugs given on discharge, and follow-up details. The booklet was piloted on patients from a general medical ward using a control group of patients who experienced the normal discharge routine. In addition, a top copy of the booklet was sent to the patient's GP for comment. The results indicated that in the study group, significantly more patients knew why they had been admitted, and knew more about the required drugs for treatment, and that the GPs thought the system an improvement over standard discharge practice. However, the study did not give any details regarding improvements in recovery. Since this study was conducted, the research group have reduced the booklet to one side of A4 and will be evaluating the new format.

A different approach to that described above was used by Greenfield et al (1985) who studied 23 patients suffering from peptic ulcers. The aim of the study was to examine the effect of an intervention session on the involvement in decision making, knowledge of ulcer disease, and satisfaction with care. At the start of the study a baseline audiotape was obtained of the doctor-patient encounter, sociodemographic information, health status, and preference for active involvement in medical decision making. The 20 minute intervention consisted of a review of the patient's medical record, a review of the intended treatment, and a behaviour change strategy designed to increase involvement of the patient in making decisions. After this session, the patients went directly to their scheduled appointments. A control group of 22 patients were given only a review of peptic ulcer problems.

The post-intervention session was recorded and patients were followed up 6-8 weeks later. The results showed that the experimental group spoke more and used more controlling utterances during the interaction than the controls, that the control group experienced more role and physical limitations than the study group, and reported more pain. Thus it was concluded that encouraging patients to take more control in the doctor-patient encounter resulted in a greater sense of well-being manifest in more rapid physical recovery.

Whilst the above study might be suitable in the United States, it is unlikely such a study could ever be conducted in the United Kingdom given the present reluctance of medical practitioners to allow patients access to medical records. Furthermore, such an intervention programme relies on additional time for the patient at the hospital, as well as an additional member of staff to conduct the intervention. Such a strategy might be better

undertaken in a general assertiveness training programme where skills are taught across a variety of situations and more likely to be enduring. Greenfield et al gave no indication of the length of time over which the skills they taught persisted. Given the fact that the scheduled consultation took place immediately after the intervention, it could be that the patients didn't actually "learn" anything, rather just repeated some questions provided in the intervention. It would have been interesting to record the follow-up session after 6-8 weeks to establish whether differences in conversational style persisted between the experimental and control groups.

The results of the above studies suggest that patients will report a certain level of satisfaction when provided with additional information. Thus audio tapes and information booklets which can be taken home are likely to be appreciated by the majority of patients. But are these any more useful than directing the interested patient to a local library? It is clearly not a costless exercise, and it is, therefore, essential to provide more evidence concerning the benefits of information, with particular emphasis on clinical outcome.

(2) Provision of Information in Relation to Clinical Outcome

A second approach to analysing the effectiveness of information is to assess the effect upon clinical outcome by measuring, for example, length of hospital stay, pain, levels of anxiety and depression. This section reviews the available literature which addresses these issues.

A meta-analysis of 102 studies using adult surgical patients (Devine and Cook, 1986) reported that psychoeducational intervention resulted in benefits

of reduced length of stay, fewer post-operative complications, and less medication for pain. Similarly, a meta-analysis undertaken by Hathaway (1986) on 68 studies reported a 20% improvement on post-operative outcome measures such as length of stay, fever, analgesia and pulmonary function when comparing patients receiving post-operative instruction with a control group receiving standard care. One interesting aspect of this report was the breakdown by patients according to pre-operative psychological state. The tendency was for a greater effect size in those patients who showed high levels of fear and anxiety pre-operatively, and a lower effect size for those with low levels of fear and anxiety pre-operatively. Little discussion was given to this except to advise focusing on procedural content in the information given to the low fear/anxiety group, and psychological content in the high fear/anxiety group. Further attention needs to be paid to this issue to establish the extent to which arousal levels interfere with information processing, and what in particular might lead to increased levels of anxiety.

Ridgeway and Mathews (1982) conducted a randomised controlled trial using hysterectomy patients. Eighty patients were allocated to four groups: those who received information about surgery; those trained in a cognitive coping method designed to minimise negative thinking; those who received general ward information; an additional group consisted of patients who did not want any further information to that routinely offered. The results showed that the cognitive coping strategy was the most effective method in promoting recovery with regard levels of pain, use of analgesia, nausea, vomiting and sleep patterns.

One particularly interesting finding from this study was the mismatch between self reported pain and nursing records. The self report measure

indicated no significant differences in reported pain three days post-operatively; however, nursing records revealed that those in the cognitive coping group took significantly fewer oral analgesics and had fewer injections than the other groups. This has implications for the way in which clinical outcome measures are recorded, indicating that reliance on patient assessment only might not be a satisfactory way of measuring outcome.

A study undertaken by Wallace (1984) reported that a group of gynaecological patients receiving a maximally informative booklet (ascertained by an earlier study) were less anxious pre and post-operatively, and were more physically active post-operatively than a group who received a low information booklet and a control group who received routine care alone.

An American study looked at the effects of the provision of three different types of information in relation to presurgical preparation for children undergoing oral surgery or minor plastic surgery involving stays of less than 24 hours (Peterson et al, 1984). Forty-one children (mean age = five years) and their parents were randomly assigned to receive either a narrative ward tour alone, tour plus a modelling session involving the use of a puppet to demonstrate the range of experiences likely to be encountered during the hospital stay or, finally, the tour plus the modelling plus a programme of instruction in coping skills such as muscle relaxation.

A wide range of measurement techniques were used by nurses, parents and observers in order to assess children's response to surgery several hours after surgery. The results showed that the children who received the tour plus modelling or the tour, modelling plus coping skills, were consistently rated as significantly less anxious and more co-operative than the tour only

group, but there were no differences between the groups receiving the tour plus modelling and the tour, modelling plus coping skills. The same pattern of results were apparent on follow-up two weeks later regarding the measures of maladaptive behaviours (e.g. anger, withdrawal from adults) and the levels of anxiety shown by parents. The authors concluded that the tour plus modelling strategy for the provision of information was more satisfactory than the usual practice of providing a tour only, whilst the addition of the coping skills component did not add to the effectiveness of the procedure.

Anderson (1987) examined the role information played in rate of recovery of coronary artery bypass patients. Patients were randomly allocated to one of three groups (20 in each) and interviewed two days prior to surgery. The three groups were: a control group who received routine information; an experimental group who received detailed procedural and sensation information; and a second experimental group who received detailed procedural information plus advice on post-operative exercises. The results indicated that the two experimental groups were significantly less anxious pre and post-operatively compared with the control group, and had less incidence of acute post-operative hypertension. Furthermore, patients in the experimental groups were rated by the nurses as having made a better psychological recovery by the seventh post-operative day compared with the control group.

(3) Explanatory Mechanisms and Individual Differences

From the available literature, it can be postulated that the provision of preparatory information promotes recovery by reducing anxiety through a reduction in feelings of uncertainty, thus providing an increase in the sense of personal control. It is not surprising that levels of anxiety are high

pre-operatively given the stressful situation of being hospitalised. Neither is it surprising that patients with a high level of neuroticism (strongly associated with anxiety) have been shown to have delayed recovery compared with others (Mathews and Ridgeway, 1981). The stressfulness of being hospitalised may be significantly reduced if individuals know what to expect on admission, following treatment, and upon discharge. Increasing knowledge levels can give individuals more confidence in dealing with any queries they may have and, perhaps more importantly, provide a sense of control over their illness and recovery. However, at the same time, the possibility that an increase in knowledge might cause more distress must not be ignored. For example, Hogbin and Fallowfield (1989) found that 21% of newly diagnosed cancer patients (n=46) were upset listening to a tape recording of the "bad news" consultation with their surgeon (they had agreed to the session being recorded and to listen to the tape at home). Unfortunately, no information was provided which might indicate what factors differentiated patients upset by such information from those not upset, nor what was upsetting about the recording. This study reinforces the view that the method of providing information is important. Tape recordings are also limited in that they rely on patients having access to the necessary equipment; there are no such limitations with written information.

Whilst there are many psychological variables which might discriminate those who would benefit from additional information from those who would not (pre-operative levels of anxiety, coping style), there is one construct, emotional control, which has been shown to be of importance both in the aetiology of cancer (Greer and Morris, 1975) and in response to stress (Roger and Jamieson). Both these groups have developed emotional control questionnaires (Watson and Greer, 1983; Roger and Nesshoever, 1987). Research

using the Roger and Neshoever questionnaire is of particular interest in the context of this report as one of the subscales measures the extent to which individuals rehearse events. Results from studies using this questionnaire have indicated that individuals who rehearse events exhibit prolonged heart rate recovery (Roger and Jamieson, 1988) and elevations in urinary cortisol levels (Roger, 1988). Given the uncertainty and fear associated with the need for surgery, it is logical to suppose that patients will mentally rehearse stressful aspects of the situation. It could be argued that rehearsal is a situation specific component of anxiety (or that anxiety is a consequence of mentally rehearsing stressful events), and could explain the mixed results associated with global measures of anxiety which may not be sufficiently discrete (Mathews and Ridgeway, 1981). Thus providing preparatory information and methods of dealing with repetitive negative thoughts (through cognitive coping strategies) would both reduce uncertainty and encourage a more positive approach to the hospital experience. The physiological consequences of this would be manifest in less anxiety pre and postoperatively, fewer post-operative complications and an earlier return to pre-operative levels of activity.

PART II

(1) Methodological Issues in the Assessment of the Cost Implications of Information Provision

A full economic appraisal of the effects of information provision to surgical patients would aim to identify, measure and value the full range of costs and benefits associated with the provision of information.

The costs of producing such information will include the production costs of the information itself and also any costs incurred to administer the information. The production costs might include the personnel and printing costs of a leaflet for example, or the production costs of a video or audio tape. The costs of actually delivering the information to the patient are likely to be minimal if the information is contained in a leaflet, but may be much higher if, for instance, it involves face-to-face communication in a question and answer session.

The measurement and valuation of some of the benefits of information provision may be relatively straightforward as they will relate to the use of hospital resources. For example, if earlier discharge from hospital was achieved as a result of the faster convalescence of the informed patient, then reduced length of stay could be measured easily and valued by using hospital cost information.

However, some methodological problems arise even here, and the results of early studies should be interpreted with caution. For example, most studies use the average cost per inpatient day to evaluate the financial savings from reduced length of stay, but the majority of medical costs will be generated during the first few days. Towards the end of the stay, patients are likely to consume only 'hotel' services such as food and basic nursing care. This may not be reflected in costs averaged over the whole stay, and some attempt should be made to separate costs systematically related to length of stay from those which are not (Drummond, 1980).

A second difficulty with the use of average costs is that shorter length of stay does not necessarily enable the hospital to escape all elements of

costs; for example, power, heat, light and some other staff costs will still be incurred. This problem can be addressed by attempting to identify marginal rather than average costs. This can have important implications for the accuracy of the estimates of cost savings, as shown in an early study of the economic impact of day case surgery for hernias and haemorrhoids (Russell et al, 1977). The authors showed that the savings to the NHS arising from the reduced length of stay could vary by as much as 25% depending upon whether the available published hospital costs were used to calculate savings, or whether it was assumed that the reductions would be sufficient to allow the closure of a ward or to avoid the construction of a new ward in the future. It is only in these circumstances that all the capital and staff costs could potentially be saved.

However, despite the obvious attraction in focusing on reductions in length of stay as an easily measured and valued resource saving, it is important to exercise some caution when using this as an indicator of clinical outcome. It is possible that length of stay for minor surgery has already been reduced to a minimum in recent years and, therefore, it may not be possible to reduce it further even for those patients who have faster recovery as a result of information provision.

Reduced use of medication could also be monitored in the hospital setting and valued as a benefit. Similarly, if the informed patient requires less outpatient visits for follow up then the averted costs of visits could be valued as part of the financial benefits of providing the information.

However, apart from the cost savings occurring in the hospital sector, it is also important, for a full economic evaluation, to consider the wider

health care system. For instance, if a patient experiences less post-operative complications or faster wound healing as a result of the information provided, then it is possible that this will translate to fewer visits to the GP on discharge and fewer follow-up visits required from the district nurse. The hospital sector will not, of course, reap the financial benefits arising in the community, but nevertheless it is a benefit which accrues to the NHS as a whole. Additionally, the patients themselves will experience financial benefits if fewer outpatient visits reduce travelling costs and time lost from employment.

In summary, it is evident that there is a wide distribution of potential financial benefits across the health care system, with other financial benefits accruing to the informed patients themselves.

(2) Evidence from the Literature

Unfortunately, little economic analysis has been undertaken in this area despite the potential for important resource savings to be made, and where studies have been reported, they have originated in the United States rather than the United Kingdom.

The cost of producing information has rarely been addressed, but as previously outlined, this could be substantial for certain types of provision. The study undertaken by Peterson et al (1984) into paediatric surgery aimed to take into account the cost-effectiveness of the provision of the three hierarchical components of the information strategy they adopted, although they did not assess any potential financial benefits, but concentrated on clinical and psychological outcomes. Instead it was assumed that the addition

of the modelling option would raise costs, and similarly that the coping skills session would raise them even further. Whilst this seems a reasonable assumption to make, it would have been useful if some estimates of actual costs had been made. The authors stated that their research provides a "... relatively clear-cut answer" (page 451) to the issue of cost-effectiveness, but unfortunately this is not really the case. Whilst the most expensive option performed no better than the middle cost option and thus is evidently not a good choice, the choice between the cheapest and the middle option is not as obvious. The tour plus modelling certainly seemed to produce a better outcome, and if it had also been as cheap as the tour only, the choice would be simple. However, as it was more expensive than the tour only, there is a trade-off between extra cost and extra benefits. Without having actual cost data, it is not clear how much extra cost is incurred in order to achieve the additional benefits and, therefore, the relative cost-effectiveness of these two options is also unclear.

An editorial in *Hospitals* (1985) reviewed 50 studies and concluded that patient education was an important area for achieving savings due to the subsequent reduction in length of hospital stay. The author reported that the personnel time required in the provision of information cost, on average, \$23.40 per patient, whilst a net overall saving of \$191 was made due to average reduction in length of stay of 1.07 days.

Devine and Cook (1986) found that half the studies reviewed in their meta-analysis mentioned cost-relevant items such as reduced length of stay and complications, and the average cost of psychoeducational intervention was estimated at less than \$20 per hospitalisation (excluding the direct costs of producing the information leaflet).

This small amount of evidence from the literature does not provide a conclusive answer to the economic issues arising in this area. However, the findings regarding clinical outcomes in terms of reduced length of stay and use of medication suggest that the financial consequences of information provision might be significant and thus further investigation of the economic issues is warranted.

PART III

(1) Conclusion

In summary, the above studies indicate some clinical benefit can be gained by providing additional information to that routinely given. Generally speaking, evaluation studies have been undertaken on surgical patients where outcome measures are more readily available. However, with the exception of two studies undertaken in the United States, there is little information concerning the relative costs and benefits to both the hospital and the patient of providing such information. Furthermore, the majority of studies have reported between groups comparisons thus obscuring individual responses. Whilst Wallace (1984) referred to this in her study, she did not report within subject results. Thus there is merit in undertaking a study in the United Kingdom which looks at between group and within subject comparisons and takes account of the costs of providing information for patients.

(2) Suggestions for Future Research

In view of the lack of reliable and comprehensive evidence concerning the psychological, clinical and economic impact of the provision of information for surgical patients, and also in light of the Government's emphasis on improving hospital services by ensuring that patients are well informed about all aspects of the care they receive whilst in hospital, we are proposing to undertake a study to:

- (1) Determine the extent to which written information facilitates recovery from surgery.
- (2) Determine the extent to which individual differences act as moderating variables in the relationship between the provision of information and recovery from surgery.
- (3) Provide an analysis of the relative costs and benefits of providing written information.

We propose using a randomised controlled study of a homogenous group of patients such as those undergoing hysterectomy, or repair of abdominal hernia. This will avoid differences on outcome measures which might be attributable to sex differences (e.g. levels of pain) and/or operation differences (e.g. type of incision, length of stay).

The following information will be collected to establish the extent to which individual differences influence outcome:

- (a) Basic sociodemographic information
- (b) A measure of anxiety and depression using a reliable and valid measure such as the Hospital Anxiety and Depression Scale (Zigmond and Snaith, 1983)
- (c) A measure of rehearsal using Roger and Nesshoever's Emotional Control Scale (1987)
- (d) Some questions to assess the extent to which individuals feel in control of their health, and over the recovery process.

Outcome measures will include:

- (a) Post-operative pain, nausea, vomiting, sleep patterns
- (b) The incidence of post-operative complications
- (c) Return to pre-operative levels of physical activity
- (d) Levels of anxiety and depression
- (e) A measure of control.

In view of the apparent preference patients have for written information, a leaflet is likely to be a fairly cheap and satisfactory method of providing information. Such a leaflet will include:

- (a) Procedural information (what will happen to the patient upon admission and during treatment)
- (b) Sensation information (expected discomfort post-operatively)
- (c) Post-operative advice once discharged from hospital

Baseline measures will be taken at an early stage once the patient has been notified about the need for surgery. Following the provision of the

information to the experimental group, further assessment will be made pre-operatively and then at suitable intervals post-operatively (both on the ward and in the outpatient department).

The economic appraisal will contain an analysis of the following:

- (a) The cost of producing the leaflets, including the personnel and printing costs.
- (b) The valuation of the financial consequences of any of the clinical outcomes in both the hospital and community sectors. This will include length of hospital stay, use of medication, numbers of outpatient, GP or district nursing visits.
- (c) Although more difficult to collect, data regarding reductions in travel costs or time lost from employment would also be useful. However, the costs of collecting such information will be weighed against the likely significance of the results.

Apart from improving quality assurance, the literature indicates that written information will lead to a faster return to normal physical activities by patients after surgery. Less post-operative care and support would be needed both in hospital and in the community. Thus providing written information pre-operatively to patients should be very cost effective to the NHS. However, to ensure cost-effectiveness in the long term, it is recommended that a co-ordinated approach to the provision of information be adopted. For example, a leaflet for use by general surgical patients could be produced centrally by the Department of Health and issued to Regional Health Authorities who could then tailor it to meet local needs. This would avoid a plethora of leaflets being produced for the same group of patients.

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