

## OCCASIONAL NOTES

### DISCREPANCY BETWEEN MEDICAL DECISIONS FOR INDIVIDUAL PATIENTS AND FOR GROUPS

TENSION between health policy and medical practice exists in many situations. For example, regional variations in practice patterns persist despite extensive shared information,<sup>1-3</sup> there are substantial deviations from accepted guidelines daily in the care of patients,<sup>4-7</sup> and disproportionate amounts of care are given to selected individuals.<sup>8-10</sup> These observations indicate that decisions in the clinical arena, which focus on the individual patient, may be at variance with general medical policies, which are based on wider considerations. Our study investigated this discrepancy.

Imagine a patient presenting to a physician with a specific problem. Normally the physician treats each patient as a unique case and selects the treatment that seems best for that person. Over time, however, the physician may encounter many similar patients. Does the physician make a different judgment when a case is viewed as unique rather than as one of a group of comparable cases? There is evidence that people make different choices between financial gambles when they face single rather than repeated situations.<sup>11-13</sup> Furthermore, studies of both economic and medical decisions show that looking at a problem from different perspectives can change the relative weight given to its attributes and lead to different choices.<sup>14-16</sup>

We hypothesized that physicians give more weight to a patient's personal concerns when they consider the patient as an individual and more weight to general criteria of effectiveness when they consider the patient as part of a group. More specifically, we suggested that in viewing a patient as an individual rather than as a member of a group, physicians are more likely to do the following: recommend an additional test with a low cost and a possible benefit, examine a patient directly rather than follow progress by telephone, avoid troubling problems such as discussing organ donation, and recommend a therapy with a high probability of success but the chance of an adverse outcome. In this study we explored these issues to address the question: Do physicians make different judgments in evaluating an individual patient as compared with considering a group of similar patients? Our data suggest that they do, that the discrepancy is recognized by physicians trained in health-services research, and that lay people also make this distinction.

### METHODS

In our first experiment we invited practicing physicians to participate in a study of medical decision making. The questionnaire we used contained clinical scenarios describing problems in patient management about which reasonable physicians could disagree. Each physician was asked to select the most appropriate treatment.

We presented the problems in two versions, each from a different perspective. The individual version concerned the treatment of one patient. The aggregate version concerned the treatment of a group

of comparable patients. In all other respects, the two versions contained the same information. For example, the individual version of one scenario was as follows.

The literature provides little information on the use of the telephone as an instrument of medical care. For example, H.B. is a young woman well known to her family physician and free from any serious illnesses. She contacts her family physician by phone because of 5 days of fever without any localizing symptoms. A tentative diagnosis of viral infection is made, symptomatic measures are prescribed, and she is told to stay "in touch." After about 36 hours she phones back reporting feeling about the same: no better, no worse, no new symptoms. The choice must be made between continuing to follow her a little longer by telephone or else telling her to come in now to be examined. Which management would you select for H.B.?

The aggregate version of this scenario was similar, except that we replaced all references to the individual patient with terms denoting a group of patients.

The literature provides little information on the use of the telephone as an instrument of medical care. For example, consider young women who are well known to their family physicians and free from any serious illnesses. They might contact their respective family physicians by phone because of 5 days of fever without any localizing symptoms. Frequently a tentative diagnosis of viral infection is made, symptomatic measures are prescribed, and they are told to stay "in touch." Suppose that after about 36 hours they phone back reporting feeling about the same: no better, no worse, no new symptoms. The choice must be made between continuing to follow them a little longer by telephone or else telling them to come in now to be examined. Which management strategy would you recommend?

Four groups of doctors participated in this part of the study: house staff in the Department of Medicine at Stanford University Hospital, physicians who were practicing full time in a regional health maintenance organization (HMO), academic physicians affiliated with Stanford's Department of Internal Medicine, and full-time physicians associated with a county medical center. Within each group we randomly assigned physicians to receive either the individual or the aggregate version of the questionnaire. We then compared their responses to the two versions using the Mann-Whitney test.<sup>17</sup>

In our second experiment we presented scenarios analogous to those in experiment 1 and asked participants to compare the two perspectives directly. For this questionnaire we surveyed a group of internists, psychiatrists, and pediatricians who had advanced training in both clinical medicine and health-services research. For each scenario the participants indicated whether they thought that physicians were more likely to recommend a particular action from the individual-patient perspective or the general-policy perspective. We presented, for example, the following scenario: "A 25-year-old man who rides a motorcycle is being seen for routine medical reasons. From which perspective do you think the option of discussing organ donation is more likely to be recommended?"

In our third experiment, we asked undergraduate students at Stanford to consider a hypothetical medical case that could be understood without technical knowledge. As in the first experiment, half the students were presented with the individual version, and half the aggregate version. Participants in all three experiments received the questionnaires, completed them at their leisure, and then returned them anonymously.

### RESULTS

#### Experiment 1

In the first experiment, 59 house officers returned completed questionnaires, as did 94 university-affiliated physicians, 75 HMO physicians, and 128 physicians associated with the county hospital. The overall rate of response was 78 percent. As expected, the two groups that had received the different versions of the

questionnaire were similar in age, sex, experience, and rate of response. The four issues we have raised are discussed below.

#### *Blood Test*

To explore the first issue, we asked the physicians to consider the scenario of a college student presenting with fatigue, insomnia, and difficulty in concentrating. In addition to the usual evaluation we described an extra blood test that might detect a rare, treatable condition but that entailed a \$20 cost, which the student would have to pay out of pocket. The physicians chose to perform the test more frequently when given the individual version, which referred to one patient, than when given the aggregate version, which referred to a group of patients (30 vs. 17 percent;  $P<0.005$ ). The difference was evident among the house staff (26 vs. 4 percent;  $P<0.05$ ), the HMO physicians (28 vs. 7 percent;  $P<0.10$ ), the academic physicians (40 vs. 19 percent;  $P<0.01$ ), and doctors at the county hospital (43 vs. 22 percent;  $P<0.05$ ).

#### *Telephone Medicine*

To explore the second, we asked the physicians to consider the scenario of an otherwise healthy young woman who calls her family doctor because of a persistent mild fever. The physicians recommended following by telephone, rather than asking the patient to come in for an examination, more frequently in the aggregate version than in the individual version (13 vs. 9 percent;  $P<0.005$ ). The difference was evident among the academic physicians (15 vs. 6 percent;  $P<0.01$ ) and the doctors at the county hospital (12 vs. 2 percent;  $P<0.05$ ), but not among the HMO physicians (14 vs. 24 percent;  $P$  not significant). The house staff were not presented with this scenario.

#### **Experiment 2**

In contrast with the physicians in experiment 1, who each evaluated only one version of a problem, the physicians in experiment 2 compared the aggregate and the individual perspectives directly. A total of 89 completed questionnaires were returned, representing a rate of response of 77 percent. The results confirmed the findings of our first experiment. In the case of the college student with fatigue, 81 percent of the respondents ( $P<0.005$ ) thought that the additional test would be recommended more frequently if considered from the individual rather than the aggregate perspective. In the case of the young woman with a fever, 87 percent of the respondents ( $P<0.005$ ) thought that the option of following by telephone would be selected more frequently from the group perspective.

#### *Organ Donation*

To explore the third issue, we also presented the health-service researchers with the scenario of a healthy motorcycle rider who was being seen for a minor medical problem. When asked about discussing organ donation, 93 percent of the respondents

( $P<0.005$ ) thought that it would be recommended more frequently from the aggregate perspective.

#### *Adverse Outcomes*

To explore the fourth issue, we presented the health-service researchers with a scenario of a woman with a blood condition. We described a medication, which could be added to her therapy, that sometimes improves longevity but sometimes makes things worse. The medication offered an 85 percent chance of adding two years to her life and a 15 percent chance of shortening it by two years. In this case, 59 percent of the respondents ( $P<0.10$ ) thought that the medication would be recommended more frequently from the individual perspective.

#### **Experiment 3**

This experiment tested whether the difference between the perspectives was also evident in the judgments of lay people. A total of 327 students were presented with the adverse-outcomes scenario, selected because it involved no technical knowledge of medicine. As in the first experiment, each student received either the individual or the aggregate version. In accordance with our previous finding, the medication was recommended more frequently by those given the individual version than by those given the aggregate version (62 vs. 42 percent;  $P<0.005$ ).

#### **DISCUSSION**

Our results indicate that physicians make different decisions when evaluating an individual patient than when considering a group of comparable patients (experiment 1). This discrepancy is recognized as a professional norm (experiment 2) and is also found in the judgments of lay people (experiment 3). We explored four issues that highlight the discrepancy. From the individual as compared with the aggregate perspective, physicians are more likely to order an additional test, expend time directly assessing a patient, avoid raising some troubling issues, and recommend a therapy with a high probability of success but the chance of an adverse outcome.

The discrepancy between the aggregate and individual perspectives demonstrated in these experiments cannot be attributed to differences in either medical information or economic incentives; hence it is difficult to explain on normative grounds.<sup>18,19</sup> Our results are consistent with the notion that physicians give more weight to the personal concerns of patients when considering them as individuals and more weight to general criteria of effectiveness when considering them as a group. For example, the responses to our adverse-outcomes scenario suggest that small probabilities are taken less seriously when deciding about just one case. Such differences in giving weight to various aspects of a problem may help to explain why general principles, which reflect a group perspective, are not always followed in clinical practice, which proceeds on a case-by-case basis. As a consequence, the discrepancy between the aggregate and

individual perspectives may create tension between health policy makers and medical practitioners even when the pertinent facts are accepted by both.

Several characteristics of medical decision making may amplify the discrepancy between perspectives. Schelling has discussed the distinction between statistical lives and identified lives, emphasizing the higher value society places on the life of an identified person.<sup>20</sup> Fuchs has suggested a "technologic imperative" in doctor-patient relationships that reflects physicians' desires to do everything they have been trained to do in treating individual patients.<sup>21</sup> Evans has addressed the physician's conflict between being a perfect agent for the patient and being the protector of society.<sup>22</sup> Financial incentives, of course, may also contribute to the tension between policy and practice.<sup>23,24</sup>

Although the discrepancy between the aggregate and individual perspectives calls for resolution, we do not suggest discarding either perspective. The individual perspective emphasizes the particular concerns of the patient and is more in accord with the personal nature of the doctor-patient relationship. The aggregate perspective acknowledges the fact that over time doctors will treat many similar patients. Physicians and policy makers may wish to examine problems from both perspectives to ensure that treatment decisions are appropriate whether applied to one or to many patients. An awareness of the two perspectives may enhance clinical judgment and enrich health policy.

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## BOOK REVIEWS

### GENETICS: HUMAN ASPECTS

Second edition. By Arthur P. Mange and Elaine Johnsen Mange. 591 pp., illustrated. Sunderland, Mass., Sinauer, 1990. \$38.95.

Unlike many books reviewed here, this work is not intended primarily for physicians. Instead, it is designed for graduate or advanced undergraduate students in genetics and is a carefully constructed textbook structured for a term course in this field. Each chapter is designed to be a discrete study unit with internally coherent material, a succinct summary, and homework problems. The book is well written, adequately referenced, and reasonably current. It would be an excellent textbook for an undergraduate or graduate curriculum. Because its organization is lecture oriented and it presents human genetic diseases primarily as exemplars of genetic principles rather than as the focus of each chapter, it would be difficult to use this book for reference in a medical school curriculum.

This book is not designed for reference, however. It is intended to provide a larger picture of human genetics, and it thus provides us with intriguing glimpses of the future. It is interesting to note the emphasis placed on various aspects of human genetics, the experiments deemed sufficiently important to be taught to students and the experiments omitted. It is intriguing to see the gradual transformation of contemporary research into classic experiments and the canonization of our contemporaries as pioneers in the development of genetics. The authors' decisions in these matters are important, because this type of textbook determines how our work is perceived by the students who will be our successors. The genetics and molecular biology of color vision is presented immediately after Mendel's laws, alkaptonuria, and sex determination. Brachydactyly remains the paradigm for analyzing autosomal dominant inheritance, and cystic fibrosis the paradigm for analyzing autosomal recessive inheritance. Immunogenetics and blood-group antigens are relegated to later chapters. I was amused to find one of my most interesting and complex cases presented as a homework problem for undergraduates! These examples reflect a mixture of genetic experiments important from either a pathological or historical point of view. They are not the choices one would make for a historical survey or a state-of-the-art review article.

The authors' intent in this book is not simply to review the course of scientific progress. Rather, their purpose is to cull the seeds that will germinate during their students' careers and to provide sufficient substance for their development. This book is constructed to match the interest and sophistication of advanced undergraduate students and is somewhat different from books intended for physicians. It is unusual to see science described in colloquialisms such as a "hunch" or an "amazing feat" or as coming "to the rescue" of persons with disease. It is sobering to be reminded of the fact that the number of human chromosomes was initially reported to be 48 (not 46) and that this mistake was perpetuated in the literature for several years. It is troubling that the authors felt it necessary to