

Patient Error: A Preliminary Taxonomy

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ABSTRACT

PURPOSE Current research on errors in health care focuses almost exclusively on system and clinician error. It tends to exclude how patients may create errors that influence their health. We aimed to identify the types of errors that patients can contribute and help manage, especially in primary care.

METHODS Eleven nominal group interviews of patients and primary health care professionals were held in Auckland, New Zealand, during late 2007. Group members reported and helped to classify types of potential error by patients. We synthesized the ideas that emerged from the nominal groups into a taxonomy of patient error.

RESULTS Our taxonomy is a 3-level system encompassing 70 potential types of patient error. The first level classifies 8 categories of error into 2 main groups: action errors and mental errors. The action errors, which result in part or whole from patient behavior, are attendance errors, assertion errors, and adherence errors. The mental errors, which are errors in patient thought processes, comprise memory errors, mindfulness errors, misjudgments, and—more distally—knowledge deficits and attitudes not conducive to health.

CONCLUSION The taxonomy is an early attempt to understand and recognize how patients may err and what clinicians should aim to influence so they can help patients act safely. This approach begins to balance perspectives on error but requires further research. There is a need to move beyond seeing patient, clinician, and system errors as separate categories of error. An important next step may be research that attempts to understand how patients, clinicians, and systems interact to cocreate and reduce errors.

Ann Fam Med 2009;7:223-231. DOI: 10.1370/afm.941.

INTRODUCTION

Most literature on medical error focuses on clinician and system error in clinical settings including hospitals^{1,2} and primary care.^{3,4} The medical errors in primary care have been defined as events "in your practice that should not have happened."⁵⁻⁷ This focus emphasizes the health care facilities where clinicians can err. They may err at the front line (active errors) or through system deficiencies outside their direct control (latent errors). Taxonomies of medical error reflect this location-centric approach.⁴⁻¹⁰

Where does the patient fit? Although patients have reported clinical problems in primary care¹¹ and hospitals,¹² the lack of attention to the patient perspective has been criticized.¹³ Moreover, patients and their caregivers "make errors too."^{14(p33)} With some exceptions,¹⁵⁻¹⁹ however, patients' contribution to their own suboptimal health^{20,21} has not usually been conceptualized as error. Almost all the taxonomies of medical error,^{4-6,8,9,22} do not discuss patients' contribution to error, or they acknowledge this contribution peripherally,²³ perhaps because patient error is a sensitive issue. It is easy to confuse human error with blame and to view patients, in particular, as incapable of error because they can be sick and tend to have reduced power in their interactions with clinicians and the health system.

Conflicts of interest: none reported

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Yet we respect—not disrespect—competent patients by acknowledging their capacity, as people, to make choices and err. Furthermore, although patients' contribution to error is unknown, by far the largest group providing health care is patients themselves²⁴; and it is likely "that the number of opportunities to reduce medical errors in different parts of the health system is proportional to the number of patient contacts made there."²⁵ Self-care and primary care characterize most patient contacts²⁴ and probably, therefore, most patient errors.

We have previously explored the concept and context of patient error, including the factors that can predispose patients to err.²⁶ For us, patient errors are primarily patient actions that (1) are not completed as the patient intended (errors of execution) or (2) do not achieve the outcome that the patient intended because the plan was not based on informed and strong patient beliefs (errors of planning). This definition builds on work by Reason.²⁷ Second, these errors may be preceded by potential errors along cognitive dimensions.²⁸

From our perspective, intended nonadherence is not an error if the plan is rational to the patient²⁹ and achieves the outcome that the patient intended. For example, a patient might choose not to access a recommended screening program because it would take time from work and, aware of the cost-benefits of attendance, might deem the cost to be too high.³⁰ Nonadherence in this case is not an error if the intended outcome is not to be screened, and the patient understands the risks and makes the decision freely.

Supported by this conceptualization, our study aimed to address the paucity of empirical work on patient error by beginning the tasks of exploring and classifying the types of error that patients can contribute. Complementing classifications of medical error^{22,28,31} in nursing³² and family practice,⁴⁻¹⁰ we wanted to construct a taxonomy of patient error that could organize patient and professional perspectives on how patients can err and when. We wanted to elicit these perspectives in structured group activities involving patients in a community setting and primary care professionals.

METHODS

Nominal Group Technique

The nominal group technique was used to collect our data. This technique is a highly structured application of small-group discussion methods. It engages a nominal group—a group in name only—in generating anonymous ideas that participants share with each other. We used the nominal group technique to help all group members stay focused on and complete the tasks of exploring the types of errors that patients can

make.³³ The perspectives of all participants carry equal weight, the approach is transparent, and it facilitates both immediate feedback to the research team and social interaction as stimuli to idea generation.³⁴

Sampling

We purposively selected 11 homogenous nominal groups to enhance variation in the ability of our sample to represent patient error from different perspectives. To emphasize patient perspectives, we wanted 8 of the groups to be patient groups. The other 3 groups comprised the types of primary care professionals whom patients commonly visit.

Two community-based organizations recruited the groups of patients with known or presumed characteristics, mostly from a suburban community of low socioeconomic status. We drew on our professional networks to recruit the professional groups.

To be eligible for selection, each group participant needed to be able to speak conversational English; have used, or provided, formal health care during the previous 5 years; be a member of the group sampled (eg, the women's group); be independent of other participants in the same group; have reported that he or she could contribute usefully to our study on the basis of knowledge and experience; and be willing and able to give written, informed consent to participate. Interested persons were recruited, or not, after we assessed that person's suitability for participation. Group meetings with the patients were held in community settings. The meetings with health professionals were held at the university. This study received ethics approval from the Northern Region Ethics Committee of New Zealand.

Data Gathering

All the meetings were conducted in English, audio recorded and co-facilitated by 2 authors (S.B., L.K.) in late 2007. One facilitator managed the group process; the other observed how the group interacted and gave administrative and technical support. After all the participants had read the information sheet and given written consent to take part in the project, the facilitators introduced themselves. They explained the purpose of the project, including the opportunity to improve patient safety by identifying without blame the types of errors that patients can contribute. They described how the meetings would be conducted to achieve the study aim while protecting participants' rights, such as to be treated with respect by everyone present. Participants then introduced themselves.

The question posed to each group was, "What mistakes can patients make?" Mistakes were not distinguished from errors for our participants. Also, the concepts of "patient" and "mistake" were not explicitly

defined for or by the participants. The facilitator, however, offered examples of patient mistakes, such as forgetting to attend for an appointment. How participants then conceptualized mistakes was revealed by the types of mistakes they identified. They were told they could draw on their own mistakes or mistakes they knew others had made. They could also imagine the mistakes that patients can make.

To answer our question, participants first engaged in the silent, independent, and anonymous generation of ideas in writing. On individual 9×11-inch sheets of paper, they each wrote these ideas, 1 per sheet, in as few words as possible in large text. Round-robin recording of these ideas followed. Participants were each encouraged to give a facilitator 1 completed sheet, which was affixed to the wall during each round and read aloud. Participants used ideas from other participants to write down further thoughts. If someone else offered the same idea a participant had written down but not yet contributed, that participant did not need to share it. If an idea were even slightly different, however, the participant was encouraged to offer it to the group. Participants could pass on any given round and return on a later round. Group discussion followed when it was necessary to make clear the meaning of the idea and the reason for including it. Any member could clarify or explain ideas so as to protect the anonymity of the individuals who contributed them. These processes continued until all the ideas had been collected. When an idea was repeated, it was possible to remove the duplicate. Next, categorization took place as participants worked together to put ideas into common groupings. We explained that we intended to combine the results from all the nominal groups, report back to the community, and make a written summary of the results available to them at that time. The meetings lasted approximately 2 hours.

Analysis

We used a general inductive approach³⁵ to combine and categorize the lists of potential errors reported by each nominal group and group discussion to help clarify and express items during the meetings. The primary author (S.B.) first imported the lists into QSR NVivo, a software program for managing and supporting the analysis of qualitative data (NVivo, version 1.2, QSR International Pty Ltd, Doncaster, Victoria, Australia). He closely read the lists sev-

eral times to become familiar with their content and core meanings, coded the individual errors that patients could make, and categorized the errors on the basis of emergent themes that were consistent with the study aim. The categorization was made transparent by constructing levels to clarify how the final categories emerged through abstraction of the specific errors suggested by study participants; the same usage of levels also characterizes some other taxonomies of medical error in primary care⁵⁻⁷ and may assist the replication, validation, and further development of our work. Relations between the categories were identified to reveal the temporal sequence of the category system. The other team members scrutinized and amended the taxonomy, as did participants from our nominal groups when we fed back results to them at 2 meetings during early 2008. We compared the types of errors suggested by patients and health professionals, respectively, but our primary focus was on pooling the errors suggested by all the groups.

RESULTS

Table 1 describes the age and sex composition of our sample of 8 patient groups and 3 professional groups. The number of participants in these 11 groups ranged from 5 to 9, and averaged 7. The total number of participants was 83, including 64 patients. The patient group was disproportionately female (72%) and approximately three-fifths of the participants in both the patient and professional groups were aged 20 to 54 years.

From the perspective of this sample, analysis of the self-report data yielded a taxonomy of errors that patients can make (Table 2). The taxonomy is a 3-level

Table 1. Number and Age Distribution of Participants in Nominal Groups

Group	No.	Female No.	Age <20 y No.	Age 20-54 y No.	Age ≥55 y No.
Patient groups					
1. English as a second language	9	7	0	5	4
2. High health literacy	5	5	0	5	0
3. Independent elders	8	4	0	2	6
4. Informal caregivers	8	8	0	7	1
5. Men	9	0	0	5	4
6. Māori	8	8	1	5	2
7. Teenagers	8	5	8	0	0
8. Women	9	9	0	7	2
Total	64	46	9	36	19
Professional groups					
9. Family physicians	5	1	0	4	1
10. Practice nurses	7	7	0	4	3
11. Pharmacists	7	2	0	4	3
Total	19	10	0	12	7

Table 2. Taxonomy of Patient Error

Level 1	Level 2	Level 3	Examples ^a		
			Type of Error	Participant Comment	
Action errors					
1. Attendance errors	1.1 Underattendance	1.1.1 Nonattendance	Refusal of visits	"If it runs through the family we seek no help" (group 2)	
		1.1.2 Insufficient attendance	Less frequent attendance than recommended	"(Not) following your gut instinct and not seeking a second opinion" (group 8)	
	1.2 Untimely attendance	1.2.1 Early attendance	Attendance for self-limiting conditions	"Hypochondriacal behavior" (group 5)	
		1.2.2 Late attendance	Deferral of visit	"Delay in visiting the doctor when you know you're sick" (group 2)	
	1.3 Overattendance	1.3.1 Frequent attendance	More frequent attendance than required	"Overattendance (eg, because the doctor is cute)" (group 2)	
	1.4 Misattendance	1.4.1 Inappropriate type of visit	Demand for a home visit by a patient who could have safely come to the clinic	Irregularity (group 2)	
			Frequently changing providers	"Consulting multiple doctors" (group 9)	
		1.4.2 No usual provider chosen	Use of unqualified complementary sources	Taking advice from marginal sources: "over the fence, nonqualified practitioners, TV adverts" (group 9)	
			Refusal to be examined by a student doctor	"Refusing to be checked by the doctor" (group 1)	
		1.4.3 Use of unqualified sources	No interpreter	"Not coming in with an interpreter (friend/relative) when their communication in English is suboptimal" (group 9)	
			Child	"Not telling doctor what their real concerns are" (group 9)	
	2. Assertion errors	2.1 Taciturnity	2.1.1 Nondisclosure of relevant information	Not updating contact information	"Not telling the doctor all your symptoms" (group 7)
			2.1.2 Nonquestioning	Not asking for clarification of confusing information	"Not questioning professionals if instructions are unclear or they do not understand" (group 10)
		2.2 Verbosity	2.2.1 Excessive talk	Not giving the clinician sufficient time to meet concerns	"Telling doctor what I want but not giving much time for him to tell me what he would like" (group 3)
			2.3 Extraneous talk	2.3.1 Irrelevant talk	Trying too hard to recall details
		2.4 Erroneous talk	2.4.1 Inaccurate talk	Contradicting medical advice to family or friends	"Inaccurate/false responses" (group 2)
		2.5 Inarticulateness	2.5.1 Inability to express thoughts clearly	Limited language skills; translation errors.	Inability to describe your sickness" (group 7)
			2.6 Disrespect	2.6.1 Lack of caring	Lack of regard for interests of clinician
2.6.2 Discourtesy		Cell phone on during visits		"Not notifying if late or, need to miss, appointments" (group 10)	
2.6.3 Abusiveness		Violent patient		"Being drunk and abusive" (group 6)	
2.7 Artfulness		2.7.1 Dishonesty	Distortion of information given	"Lying about symptoms to jump queue" (group 4)	
			Benefits of sick role	"Pretending to be ill to take the day off school" (group 7)	
		2.7.3 Manipulation of system	False claims for compensation	"Seeks to manipulate the outflow of information from the medical record" (group 9)	
3. Adherence errors	3.1 Collection errors	3.1.1 Prescriptions not redeemed	Prescribed medications not collected from pharmacies	"Only getting medications they can afford for now" (group 10)	
	3.2 Storage errors	3.2.1 Storage errors	Storage of medications past expiration date	"Accumulating discontinued medications" (group 9)	
		3.3 Self-administration	3.3.1 No treatment	Failure to take recommended treatment	"Running out of medications" (group 10)
	3.3.2 Wrong treatment		Taking discontinued treatment	"Using old medication" (group 6)	
	3.3.3 Dosage errors		Excessive dosage	"Doubling up treatment if going away" (group 3)	

Table 2 continues

^a Groups are numbered according to Table 1.

Table 2. Taxonomy of Patient Error (continued)

Level 1	Level 2	Level 3	Examples ^a	
			Type of Error	Participant Comment
Action errors (continued)				
		3.3.4 Timing errors	Taking medication at incorrect times	"Taking medication in wrong order" (group 11)
		3.3.5 Duration errors	Treatment duration is shorter than recommended	"Stopping too soon" (group 11)
		3.3.6 Hazardous interactions	Interactions of over-the-counter and prescribed treatments	"Mixing pills and alcohol" (group 6)
	3.4 Other delivery errors	3.4.1 Sharing of medication	Sharing medication with family or friends	"Sharing resources with relatives, eg, 'rescue' asthma inhalers" (group 10)
Mental errors: proximate determinants				
4. Memory errors	4.1 Memory lapses	4.1.1 Forgetfulness	Forgetting to take medication	"Forgetting to collect the medication" (group 11)
		4.1.2 Misremembering information	Misremembering when to attend for care	"Turn up at wrong time" (group 1)
5. Mindfulness errors	5.1 Inattention	5.1.1 Failure to notice	Not perceiving	"Not listening to what the doctor says" (group 8)
		5.1.2 Recognize incorrectly	Misreading of symptoms	"Over-reacting to children's symptoms" (group 4)
	5.2 Overattentiveness	5.2.1 Hypervigilance	Overattentiveness to variations in normal function	"Hyperchondriacal behavior" (group 5)
6. Misjudgments	6.1 Assessment errors	6.1.1 Failure to check	Failure to check on laboratory results	"Not checking pills from chemist" (group 3)
		6.1.2 Failure to monitor	Failure to monitor weight	"Not monitoring blood glucose as recommended" (group 10)
		6.1.3 Failure to record	Failure to keep a patient diary when requested	"Not recording symptoms when asked, or bringing record back as asked" (group 9)
		6.1.4 Wrong assessment	Misreading of instructions	"Stopping medication just because you feel better" (group 1)
	6.2 Unrealistic expectations	6.2.1 Overexpectation of others	Immediate cure	"Expecting the doctor to read their mind" (group 9)
		6.2.2 Overexpectation of self	Self-diagnosis	"Using the Internet for self-diagnosis and self-treatment" (group 10)
		6.2.3 Underexpectation of others	Expected inability of clinician to help	"Having no faith in doctors" (group 8)
		6.2.4 Underexpectation of self	Expected inability of self to cope or share responsibilities	"Inability to cope with new presentations" (group 11)
Memory errors: background determinants				
7. Knowledge deficits	7.1 Knowledge errors	7.1.1 Low literacy	Poor language skills	"Inability to read and understand instructions" (group 1)
		7.1.2 Low health literacy	Not knowing the name of medications	"Confusion over brand, shape, color and name (especially when these change)" (group 11)
		7.1.3 Low numeracy	Inability to budget	"Not budgeting and not having an emergency fund for medical care" (group 8)
	7.2 Comprehension errors	7.2.1 Lack of understanding	Failure to understand instructions	"Not understanding instructions (eg, recasts, equipment)" (group 10)
	7.3 Logic errors	7.3.1 Reasoning errors	Considering that a medication imparts absolute protection	"Assuming that must be OK because feeling good" (group 2)
8. Attitudes not conducive to health	8.1 Selfishness	8.3.1 Excessive pride	Reluctance to ask for, or accept help	"Reluctance to ask for help (eg, credit) because of pride" (group 8)
		8.3.2 Dishonesty	Lying	"Lying about symptoms to jump queue" (group 4)
		8.3.3 Self-pity	Feeling a victim	"Feeling self-pity; becoming a victim" (group 1)
		8.3.4 Hedonism	Willingness to drink alcohol inappropriately	"Taking medicines for recreational use (eg, too much insulin to get a high)" (group 11)

Table 2 continues

^a Groups are numbered according to Table 1.

Table 2. Taxonomy of Patient Error (continued)

Level 1	Level 2	Level 3	Examples ^a	
			Type of Error	Participant Comment
Memory errors: background determinants (continued)				
	8.2 Self-neglect	8.2.1 Excessive selflessness	Carriage of other people's burdens	"Putting other people's needs first" (group 2)
		8.2.2 Lack of self-regard	Shyness at visits	"Forget to love oneself; putting other people before yourself" (group 4)
		8.2.3 Carelessness	Carelessness	"Losing instructions" (group 2)
		8.2.4 Embarrassment	Shame	"Not taking medications because you think your friends might mock you" (group 7)
	8.3 Carelessness	8.4.1 Inattention	Distractedness or absent-mindedness	"Patient distracted—not engaging in the consultation" (group 10)
		8.4.2 Thoughtlessness regarding others	Sharing food and drink while infectious	"Not staying home when feeling sick (so spreading influenza)" (group 8)
		8.4.3 Excessive risk taking	"She'll be OK" attitude	"Taking risks with your health when sick" (group 5)
		8.4.4 Apathy	Laziness in getting medication	"Noncollection of medicines because of sloth" (group 11)
		8.4.5 Unreliability	Inconsistency in passing on messages	"Inconsistent with medication" (group 3)
	8.5 Distrust	8.5.1 Disbelief	Suspicion of health professionals	"Not believing the doctor" (group 2)
		8.5.2 Fearfulness	Fear of needles	"Staying with an unhelpful doctor because of familiarity and fear of change" (group 1)
		8.5.3 Uncooperativeness	Unwillingness to negotiate	"Refusing to be checked by the doctor" (group 1)
	8.6 Anger	8.5.4 Pessimism	Feeling of helplessness	"Giving up hope" (group 1)
		8.6.1 Impatience	Impatience while waiting for care	"Not having patience while waiting" (group 6)
		8.6.2 Intolerance	Prejudice against doctors with non-English speaking backgrounds	"Stressing out on things that you have forgotten to do" (group 4)
	8.7 Other priorities	8.7.1 Cultural priorities	Mourning takes priority over medication adherence	"Tangi [funeral] disrupts medical/health needs" (group 3)

^a Groups are numbered according to Table 1.

system encompassing 70 errors in 8 broad categories that reduce to 2 domains: (1) action errors and (2) mental errors. Patient action errors are errors resulting, in part or whole, from patient behavior. Patient mental errors are errors in patient thought processes.

The mental errors logically precede the action errors in the chain of patient safety events. We distinguish between the mental errors that are most proximate to the action error and background mental errors. The table makes clear the level-2 and level-3 errors from which we derived the 8 level-1 categories. Examples are given of each of the level-3 errors with which we began our analysis, using both our own words and participants' words. This audit trail supports the transparency and trustworthiness of the analysis.

Action Errors

The taxonomy reports 3 sets of action errors that patients can make: attendance errors, assertion errors, and adherence errors. Attendance errors are errors in the number, timing, and type of visits. These errors

include underattendance in the forms of nonattendance and insufficient attendance. Patients may also err through attendance that is excessive or untimely (early or late) in the appearance of the problem or the time of arrival for visits. Misattendance can result from inappropriate (eg, irregular) visits; not visiting a usual or qualified provider; refusals to receive care, eg, from a student doctor; and an inappropriate escort, such as a child, or no escort when required.

Assertion errors are patient errors in communicating with and relating to providers. These errors include the amount, content, and method of patient communication. Patients may err by saying too little or too much during interactions. What they talk about may be inaccurate or unhelpful to the provider. Patients might not convey the message they intend if they communicate unclearly, with disrespect, or artfully. Forms of artfulness include dishonesty, pretence of sickness, and manipulating the system, as when patients aim "to manipulate the outflow of information from the medical record." Patients and health care

professionals alike reported patient errors of attendance and assertion.

Adherence errors are patient errors over time in abiding by the regimen of treatment, especially medication. They pertain to errors in patients' collection, storage, and self-administration of treatments. The last errors take diverse forms, including unintended non-adherence; adherence to the wrong treatment; errors relating to the timing, dosage, duration, and interactions of treatments, such as "mixing pills and alcohol"; and other delivery errors, such as "sharing resources with relatives, eg, 'rescue' asthma inhalers." Our pharmacist group particularly emphasized the patient errors characterizing medication adherence.

Mental Errors

The mental errors most proximate to action errors are memory errors, mindfulness errors, and misjudgments. Patient memory errors include forgetfulness and misrecall of information. Mindfulness errors are errors of perception associated with the amount and nature of patients' attentiveness. These errors can include inattention through failure to notice or incorrect recognition, and overattentiveness as through "hypochondriacal behavior." Misjudgments include such errors of assessment as a failure to check, monitor, or record when asked; a wrong judgment as, for example, "stopping medication just because you feel better"; and unrealistic expectations by patients who expect too much or too little of themselves or others. Patients and professionals each acknowledged these types of errors, although the patients more than the professionals referred to mindfulness errors.

Two more distal sets of mental errors are identified: knowledge deficits and patient attitudes not conducive to health. The former errors comprise knowledge errors, such as low literacy; comprehension errors; and errors of logic, such as "assuming that [I] must be OK because [I'm] feeling good." The attitudinal errors include selfishness through excessive pride, dishonesty, self-pity, and hedonism, as with "taking medicines for recreational use"; self-neglect, as through excessive selflessness and lack of self-regard; carelessness through inattention, thoughtlessness, excessive risk taking, apathy, and lack of reliability; distrust owing to disbelief, fearfulness, and uncooperativeness; anger in the face of impatience and intolerance; and a sacrificing of health needs to other priorities. The patient groups, much more often than the professional groups, perceived all these attitudes as potential mistakes.

DISCUSSION

Our study complements taxonomies of medical error by reporting the first taxonomy of errors that patients

can make, alone or with others. Our taxonomy is an exploratory and descriptive framework of the chain of patient mental events that can contribute to 3 categories of errant actions by patients: namely, attendance errors, assertion errors, and adherence errors. Eleven groups of patients and health professionals contributed to the development of the taxonomy, the content of which is relevant to primary care.

Compared with the taxonomies of medical error in family practice, which reflect staff observation^{4,7} and incidents harming patients,⁸ our taxonomy emphasizes human errors (patient errors) more than health system and technical errors in the delivery of care. This taxonomy suggests how patients can contribute to the medical errors that patients have previously attributed to breakdowns in the clinician-patient relationship and in access to clinicians.¹¹ In doing so, it identifies how variations in patient adherence may be errors.^{36,37} As noted above, however, whether nonadherence is an error in a given situation depends on the intentions of the patient. Our taxonomy also discerns potential errors in events that others have conceptualized as causes of suboptimal health, such as memory lapses²⁰ and low health literacy.²¹ Our patient groups were more willing than our groups of health care professionals to consider as potential mistakes the patient attitudes that are not conducive to health.

Strengths

This study moves beyond a location-centric discourse on clinician and system error in medical settings to one that respects the capacity of patients—as people, consumers, and coproducers of care—to contribute to and avoid error. It also gives a voice on error to patients as well as health professionals. Calls to listen to and take account of the patient perspective have been poorly heeded by previous taxonomies of medical error. This oversight is unfortunate because patients have a valid perspective on error,¹³ and in this study, as in a hospital-based study,³⁸ patients defined medical errors more broadly than have clinicians characterized clinical definitions of medical error.

Limitations

Our taxonomy elucidates only the errors to which patients can contribute. The extent to which these potential errors mirror actual errors is unknown. The categories of patient errors also overlap. For example, "leaving an illness too long [before seeing the doctor]" could reflect inattention, misjudgments, lack of knowledge, carelessness, or self-neglect.

It was beyond the scope of our framework to incorporate conditions extrinsic to patients. These conditions are not necessarily errors or events that patients

control. Indeed, it is debatable whether mental factors in errors are errors in themselves or merely conditions potentially conducive to error. Our taxonomy reports what our participants construe as errors because our study question gave them the scope to define mistakes in their own way, which framed what they told us. The taxonomy also risks confusing error with blame. For example, forgetfulness as a result of cognitive impairment may impose no moral responsibility but may be an error because it deviates from correctness. It is paternalistic to suggest that patients necessarily are, or are not, morally responsible for their errors.

Sampling only 1 local community afforded a more narrow perspective than might have been obtained by accessing different communities. Although we included a group with high health literacy, we did not access the experiences and insights of affluent patients in an advantaged community where patient errors could be distinctively different. Nor did we include patients who might have avoided our meetings, such as very shy patients. We also did not access the perspective of clinicians in secondary and tertiary health care, although 1 participant held a senior position in integrated health care.

Implications

Our taxonomy is an early attempt to understand and recognize how patients may err and what it is that clinicians should aim to influence to help patients act safely. It is a preliminary classification that highlights and supports the need for further research to use a range of methods to elaborate and continue to discern the types of errors that patients can influence. It takes a first step in respecting that patients can help to define what error is, make mistakes, and respond to opportunities for safe patient actions, such as safe attendance, safe assertion of thoughts, and safe adherence to treatments. Other taxonomies of patient error could be developed in other health care settings.

Our study also shows how patients, clinicians, and systems can cocreate errors. For example, many potential errors, such as refusal of clinical investigations, originate in the process of patient-clinician interaction, which is itself conditioned by structures in the health system. There is a need, therefore, to move beyond seeing patient, clinician, and system errors as separate categories of error, since they are interdependent rather than mutually exclusive. An important next step may be research that attempts to describe and understand how the complex interactions of patients, clinicians, and systems can create and reduce errors. Doing so would support an inclusive and integrated analysis of, and approach to managing, patient safety events, which crosscut people, settings, and systems.

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Submitted April 16, 2008; submitted, revised August 5, 2008; accepted August 15, 2008.

Key words: Safety; classification; patients; primary health care

Funding support: This research was funded by the Research Committee of the University of Auckland, Auckland, New Zealand.

Acknowledgments: We thank the University of Auckland Research Committee for funding this research, and the reviewers and editors for their helpful suggestions. We are grateful to the Glen Innes community for embracing this project in the spirit of community-campus collaboration.

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