1995 RHO CHI LECTURE AWARD

Is Something Broken that Requires Fixing?

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As a pharmacology professor who has not been in the vanguard for restructuring pharmacy practice or pharmacy education, I'm reluctant to give you my opinion on where pharmacy practice is going and what practitioners need to do about it. As a pharmacist and a pharmacy educator, I have very great curiosity about Pharmaceutical Care and what that is likely to mean to us as we teeter on the brink of an overhauled health care delivery system or at least an overhauled health care financed system. But like you, I'm waiting to see what the experts are predicting, and to see whether or not their predictions are likely to be any good. I am not a reactionary when it comes to expert predictions about the profession, but I do have a healthy skepticism about those predictions, especially when the experts come from the ranks of pharmacy educators.

I don't come to this forum totally empty-handed, however. As a pharmacy educator and applied pharmacologist whose research and teaching interests straddle the basic and clinical realms, I've enjoyed contact with students and preceptors for over a quarter-century now, and I come to you with what I think is an important question. And it's not a rhetorical question, because I assure you that I don't have the answer to it.

The question is this: What are we, as pharmacy educators, doing wrong and how can we fix it? The question, of course, presumes that we are, in fact, doing something wrong. More specifically, what are we doing wrong so that so many of our graduates, particularly those who are generalists and working in the community, seem to have inferiority complexes when it comes to their knowledge about drugs? Why do so many of them seem to believe that the prescriber is infallible when it comes to drug therapy, even when they worry that a prescription is not in the patient's best interest, or worse, may do more harm than good? Now, I can't even tell you whether or not my premise is true, that is, whether it's a fact that pharmacists tend to feel that their drug IQs are superseded by those of prescribers. I haven't sent out surveys or executed some type of randomized controlled trial to establish that is so with authority. I can only tell you that my conversations with pharmacy students who are interns and with pharmacy practitioners of all ages tend to validate the premise for me. Now, I know, as do you, that there are plenty of pockets of pharmacy practice in which highly specialized pharmacists feel as though they are as capable or even more capable of designing safe and effective treatment regimens as any of the prescribers with whom they work. But few of us would be willing to accept that is a common standard of practice in 1995.

So, I'm here today with a question. And it's one which I think is kind of important. Assuming my premise is correct; the question is,"what are we doing wrong and how can we fix it?" My concern about this issue arises from three absolute convictions: 1) We know that pharmacists are better formally trained in pharmacology (both basic and clinical) than most any prescriber, and **enter** practice with a much more extensive knowledge base about drugs and

medical therapeutics than most any prescriber does; 2) We know that prescribers, as a rule, do a pretty good job, but that it can be imperfect or even dreadful at times, depending upon the prescriber and the circumstances; and 3) more and more people with less and less training about drugs are positioning themselves to get legal authority to prescribe which is likely to make prescribing even more imperfect and occasionally much more dreadful. Before I proceed any further, I want to make it clear that I am unequivocally not here to indict the quality of prescribing or to lay blame of any sort at anyone's feet. Nor am I suggesting that drug mishaps are solely a function of errant prescribing; errant dispensing is apparently far more commonplace than we like to think, and I am deeply concerned that we not lose sight of that as we begin to shift our attention **away**from the delivery of substances and **toward** the delivery of information. As I proceed it may look as though my agenda is to fault the quality of prescribing; but it's most emphatically not, and I think it's important that you understand that. I have great faith in the people who prescribe medication for me when I require it, and I do not have a bone to pick with anyone. If I have a quarrel with anyone, it's with my colleagues in pharmacy education... people like me who at least appear to be failing to instill an appropriate degree of self-confidence in our students. Thus the question, "What are we doing wrong, and how do we fix it?" This is a question, again, which I can't answer, but I hope you will.

For the time being, I just want to return to my three absolute convictions and look at them a little more closely, so that you can see why I'm perplexed about this issue.

My first conviction is that pharmacists are better formally trained in general drug knowledge as well as in the use of drugs than most any prescriber. I hope it doesn't take a great leap of faith to accept that. After all, the overwhelming majority of the professional pharmacy curriculum is geared toward the study of drugs: drug chemistry, basic pharmacology, clinical pharmacology, drug formulation, biopharmaceutics, pharmacokinetics, drug information, and drug therapy. Formal training in these areas typically occupies the better part of two years--two solid years--of training in the B.S. curriculum. This doesn't include the additional experiential training occurring in clerkships and externships. In contrast, the formal training in related topics is typically truncated to either one semester or two quarter courses in medical school. This is not a matter of educational one-upmanship. It simply reflects a structural and important and a necessary difference in the curricula for training doctors vs. pharmacists. Don't we all require that our physicians be diagnostic whizzes first? Aren't we all more anxious that our physicians be able to tell us what's wrong with us than we are about fixing the problem once it's discovered? Don't we pretty much assume that once the problem is known, that it will be fixed? Now, is there enough pharmacology taught within the medical curriculum? That's a matter of debate. I can tell you that there have been a flurry of papers in the clinical pharmacology journals of the U.S. and of Europe during the past few years that focus on the need to add more clinical pharmacology training in the medical school curriculum, and that propose educational strategies for injecting more clinical pharmacology into the medical school curriculum. So even medical educators may not agree on how much formal training about drugs is enough for medical students. On the other hand, one may not be convinced that even Pharmacy students receive enough training about drugs, either, but they clearly receive lots more formal training than medical students.

My second conviction is that prescribers basically do a pretty good job of prescribing, but that it can be imperfect, and even dreadful. Let me amplify on this point. Prescribers can select from approximately 8,000 drug products, with twenty or so new molecular entities approved by the FDA each year. It is not difficult to understand how the occasional prescriber may have a

knowledge deficit pertaining to indication, dose, frequency, duration of treatment, route of administration or the pharmacokinetic parameters for one or more of those 8,000 plus products. How often do prescribing errors occur, and what is their significance? The answers to these questions are somewhat elusive. Some suggest that most prescribing errors are relatively inconsequential, though acknowledging that some such errors can cause great morbidity or even mortality (1). Others take a dimmer view, suggesting that 20% of physician orders can result in serious incidents, and that this percentage of serious iatrogenic adverse outcome is roughly three times higher than the percentage of serious adverse outcomes from all other causes of medication errors (2). The types of problems that are engendered by inappropriate prescribing may include toxicity or adverse effects, poor level of therapeutic control, and drug allergy, and in the community setting it appears that toxicity and inadequate therapeutic control each account for about one-third of the adverse outcomes accompanying inappropriate prescribing; allergic reactions account for about 10% of the adverse outcomes (3).

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My third conviction is that more people with less formal training in pharmacology and pharmacokinetics are beginning to position themselves to gain prescribing privileges. My attention was first drawn to this phenomenon a few years ago when Time Magazine printed a piece entitled, Unlocking the Pill Bottles (see slide; Fig 2) (Time, Dec 17, 1990, pp 95). This article gave an accounting of a battle between the American Psychological Association and the AMA regarding the right of psychologists to prescribe psychoactive medication. Interestingly, the AMA's position was that "...only full medical school training could prepare psychologists to prescribe drugs safely." The APA's position was that doctors basically don't use their scientific training when prescribing drugs, but instead rely upon readily available manuals such as the PDR. The logical inference, therefore is that basically anyone can use the PDR as a sourcebook to prescribe, and that one needn't be trained in pharmacology or the sciences which are pre-requisite for pharmacology. This is not only dangerous ground to be treading, it is especially so when one considers the extreme harm that powerful psychotropic drugs can cause such as Tardive Dyskinesias, cardiac arrhythmias, autonomic nervous system disorders, endocrine dysfunction, and countless CNS problems. My own bias is that too many of these powerful psychotropic drugs are prescribed inappropriately by general medical practitioners rather than psychiatrists. Putting

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In Ohio it is now possible for nurse practitioners to prescribe a limited number of drugs in a pilot program. In our neighboring state, Michigan, Physicians Assistants now have prescribing authority. Their total training program is a two year program. It's probably just a matter of time before PAs will also acquire prescribing rights in Ohio. The response in the pharmacy community varies from wishing to oppose putting prescribing rights in the hands of less well trained less qualified health care workers, to weighing-in to get the right to prescribe themselves, to leaving hands off the entire issue largely because pharmacists don't want to be encumbered by the additional responsibilities and liabilities that would attend the right for pharmacists, themselves, to prescribe. Incidentally, increasing responsibilities and liabilities are no doubt part and parcel of an environment in which pharmacists will be undertaking Pharmaceutical Care. I would really like to know what pharmacists are thinking and saying about those increased liabilities.

So, here's my case. Pharmacists are better trained in the pharmacological sciences, both breadth and depth, than prescribers. Prescribing is already an imperfect endeavor with real opportunity to cause harm either through ineffective prescribing or from prescribing drugs with a higher risk for adversity than for benefit. It is likely that more people who are less well qualified than those now prescribing will make inroads in their battles seeking legal authority to prescribe. Why, then, do I hear such things as.."Well, he's the physician, he knows more about it than I do?"

Here's what can happen when that attitude plays itself out. Let me give you a couple of examples. One was described in Hospital Pharmacy and recounted by Vitillo and Lesar in The Annals of Pharmacotherapy (2). In this sad case an oncologist (as opposed to a generalist) prescribed 10 mg of vincristine i.v. The pharmacist dutifully inquired as to whether or not the oncologist really intended this. The oncologist gave the inexperienced pharmacist a dressing down after which the prescription was dispensed as written and the patient died. The oncologist , of course, really wanted 10 mg of vinblastine, you see. What's especially perplexing about this case is that the pharmacist made the effort to communicate, in fact, communicated with the prescriber. But in the end, the pharmacist couldn't accept that the oncologist was really mistaken. At least that's my third-hand take on the scenario.

What about the pharmacist who received a prescription for a pregnant woman for 1.25 mg of digoxin daily. The prescribing cardiologist was offended that anyone would question the prescription even though 1) it had been prescribed for an unlabeled use (albeit unknown to the pharmacist)--for *in-utero* treatment of atrial fibrillation of the fetus; 2) not a single randomized, controlled trial had been performed to document the drug's safety or effectiveness for in utero treatment; 3) the handful of case reports on such treatment revealed that the digoxin might be effective when used with verapamil and that in some patients the atrial fibrillation was resolved, but that the patients died, presumably from digitalis intoxication, and 4) the prescribed dose was nearly two times higher than the highest dose recommended for in utero treatment with digoxin. The outcome of this story was as follows: The mother suffered no adverse experience apart from nausea; the baby was brought to term; the mother was advised not to return to the pharmacy that inquired about the prescription, and at least one of the pharmacists at the pharmacy, again a relatively inexperienced one, simply lamented that the cardiologist just probably knew a lot more than they (the pharmacists). You be the judge about that.

It's that attitude that bothers me down to my marrow. Prescribing is imperfect. As the Psychologists pointed out (though emphatically for the wrong reason), some prescribers do, in

fact, rely on manuals such as the PDR. On the other hand, pharmacists are exceptionally well trained. I'm talking about pharmacists with the B.S. degree. And people less well-trained in general than most of today's prescribers, and specifically less well-trained about drugs, will soon be prescribing increasingly. Are pharmacists to defer to their prescribing skills, too? What will it take to give pharmacists the confidence to intervene to prevent the prescription of contraindicated drugs to the elderly, to limit the use of antibiotics in the community, and to decline from dispensing an apparent overdose for an unapproved use in the absence of some reasonable literature citation or a signed consent form from a patient? My view is that we pharmacy educators are responsible for this absence of confidence that constrains so many practicioners from doing so.

As I said up front, I don't have the answer. Perhaps too few others share my perception, and the problem is only one of my own imagining. But if it is as I perceive it to be, then I also think its rooted in how we teach rather than in what we teach. I would also guess that the problem is not limited to basic, clinical, or the more social sciences of pharmacy education, but that it's rooted in the teaching of them all.

And one suggestion that I feel most comfortable in making is that we not spend any less time in teaching how to communicate with clients; but we should spend more time in teaching how to communicate with prescribers. Because, when it comes to drug knowledge, pharmacists needn't wear sack-cloth for anyone.

I entreat you, especially those of you in practice, to give us guidance in helping pharmacists to understand how highly qualified they are to assure the safety and effectiveness of the work of prescribers.

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1995 Rho Chi Lecture Awards - BF CAPS

Is Something Broken that Requires Fixing?

Thank you Dr. Roche and Dr. Black. My thanks also to the Executive Council. A special thanks goes to Dean Norman F. Billups for his nomination of me.

One has few opportunities to publicly thank important people in their lives, and I don't wish to squander this one. I want to acknowledge my loving family. They have had to put up with me for all these years, and now I'm bound to be even more difficult...at least until my fifteen minutes of fame have expired. I also want to acknowledge the excellent faculty at Ohio State University College of Pharmacy from whom I took both my B.S. and Ph.D. training. There is no question in my mind that the recognition which I receive here today really belongs to them.

I can't really imagine what has brought me here to this podium other than some quirk of fate. I am deeply honored to be the 30th recipient of the Rho Chi Lecture Award, and I marvel that I have been placed in the company of my twenty-nine predecessors for they are all giants in the modern history of pharmacy and the pharmaceutical sciences. And I can easily think of many other giants who have not, as yet, been named recipients of this prestigious honor. I wish that I, too, were a giant, but I'm just a working stiff who loves his job. There is no equation named after me, nor is there likely to be one. I have written no textbook in the field. And Lord knows that my name is not one likely to be dropped in circles of pharmaceutical scientists, though the names of my predecessors are very well known. I have been privileged to learn the pharmaceutical sciences from some of the very best scientists and educators, to practice pharmacy, and to teach pharmacy students at the undergraduate and graduate level. Along the way it has been my good fortune to have come into to contact frequently with gifted colleagues and gifted students.

So I come before you today with extreme gratitude, an abiding commitment to applied

pharmacology and to pharmacy, but not as a real expert in much of anything. I love researching drug-drug interactions, and have been faithful to that interest and the research paths that interest has taken me ever since I was a pharmacy student. But Dr. Roche asked that I try to develop a lecture that is interesting and inspiring, and I think I have the least chance of meeting either of those objectives at this forum if I speak about my own research. .

As a pharmacology professor who has not been in the vanguard for restructuring pharmacy practice or pharmacy education, I'm reluctant to give you my opinion on where pharmacy practice is going and what practitioners need to do about it. As a pharmacist and a pharmacy educator, I have very great curiosity about Pharmaceutical Care and what that is likely to mean to us as we teeter on the brink of an overhauled health care delivery system or at least an overhauled health care financed system. But like you, I'm waiting to see what the experts are predicting, and to see whether or not their predictions are likely to be any good. I am not a reactionary when it comes to expert predictions about the profession, but I do have a healthy skepticism about those predictions, especially when the experts come from the ranks of pharmacy educators.

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1995 RHO CHI LECTURE AWARD

Is Something Broken that Requires Fixing?

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Kenneth A. Bachmann, Ph.D., F.C.P.,
The University of Toledo, Toledo, Ohio

(A lecture presented at the Rho Chi Meeting in March, 1995)

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3

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Is Something Broken that Requires Fixing?

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As a pharmacology professor who has not been in the vanguard for restructuring pharmacy practice or pharmacy education, I'm reluctant to give you my opinion on where pharmacy practice is going and what practitioners need to do about it. As a pharmacist and a pharmacy educator, I have very great curiosity about Pharmaceutical Care and what that is likely to mean to us as we teeter on the brink of an overhauled health care delivery system or at least an overhauled health care financed system. But like you, I'm waiting to see what the experts are predicting, and to see whether or not their predictions are likely to be any good. I am not a reactionary when it comes to expert predictions about the profession, but I do have a healthy skepticism about those predictions, especially when the experts come from the ranks of pharmacy educators.

I don't come to this forum totally empty-handed, however. As a pharmacy educator and applied pharmacologist whose research and teaching interests straddle the basic and clinical realms, I've enjoyed contact with students and preceptors for over a quarter-century now, and I come to you with what I think is an important question. And it's not a rhetorical question, because I assure you that I don't have the answer to it.

The question is this: What are we, as pharmacy educators, doing wrong and how can we fix it? The question, of course, presumes that we are, in fact, doing something wrong. More specifically, what are we doing wrong so that so many of our graduates, particularly those who are generalists and working in the community, seem to have inferiority complexes when it comes to their knowledge about drugs? Why do so many of them seem to believe that the prescriber is infallible when it comes to drug therapy, even when they worry that a prescription is not in the patient's best interest, or worse, may do more harm than good? Now, I can't even tell you whether or not my premise is true, that is, whether it's a fact that pharmacists tend to feel that their drug IQs are superseded by those of prescribers. I haven't sent out surveys or executed some type of randomized controlled trial to establish that is so with authority. I can only tell you that my conversations with pharmacy students who are interns and with pharmacy practitioners of all ages tend to validate the premise for me. Now, I know, as do you, that there are plenty of pockets of pharmacy practice in which highly specialized pharmacists feel as though they are as capable or even more capable of designing safe and effective treatment regimens as any of the prescribers

with whom they work. But few of us would be willing to accept that is a common standard of practice in 1995.

So, I'm here today with a question. And it's one which I think is kind of important. Assuming my premise is correct; the question is,"what are we doing wrong and how can we fix it?" My concern about this issue arises from three absolute convictions: 1) We know that pharmacists are better formally trained in pharmacology (both basic and clinical) than most any prescriber, and **enter** practice with a much more extensive knowledge base about drugs and medical therapeutics than most any prescriber does; 2) We know that prescribers, as a rule, do a pretty good job, but that it can be imperfect or even dreadful at times, depending upon the prescriber and the circumstances; and 3) more and more people with less and less training about drugs are positioning themselves to get legal authority to prescribe which is likely to make prescribing even more imperfect and occasionally much more dreadful. Before I proceed any further, I want to make it clear that I am unequivocally not here to indict the quality of prescribing or to lay blame of any sort at anyone's feet. Nor am I suggesting that drug mishaps are solely a function of errant prescribing; errant dispensing is apparently far more commonplace than we like to think, and I am deeply concerned that we not lose sight of that as we begin to shift our attention **away** from the delivery of substances and **toward** the delivery of information. As I proceed it may look as though my agenda is to fault the quality of prescribing; but it's most emphatically not, and I think it's important that you understand that. I have great faith in the people who prescribe medication for me when I require it, and I do not have a bone to pick with anyone. If I have a quarrel with anyone, it's with my colleagues in pharmacy education... people like me who at least appear to be failing to instill an appropriate degree of self-confidence in our students. Thus the question, "What are we doing wrong, and how do we fix it?" This is a question, again, which I can't answer, but I hope you will.

For the time being, I just want to return to my three absolute convictions and look at them a little more closely, so that you can see why I'm perplexed about this issue.

My first conviction is that pharmacists are better formally trained in general drug knowledge as

well as in the use of drugs than most any prescriber. I hope it doesn't take a great leap of faith to accept that. After all, the overwhelming majority of the professional pharmacy curriculum is geared toward the study of drugs: drug chemistry, basic pharmacology, clinical pharmacology, drug formulation, biopharmaceutics, pharmacokinetics, drug information, and drug therapy. Formal training in these areas typically occupies the better part of two years--two solid years--of training in the B.S. curriculum. This doesn't include the additional experiential training occurring in clerkships and externships. In contrast, the formal training in related topics is typically truncated to either one semester or two quarter courses in medical school. This is not a matter of educational one-upmanship. It simply reflects a structural and important and a necessary difference in the curricula for training doctors vs. pharmacists. Don't we all require that our physicians be diagnostic whizzes first? Aren't we all more anxious that our physicians be able to tell us what's wrong with us than we are about fixing the problem once it's discovered? Don't we pretty much assume that once the problem is known, that it will be fixed? Now, is there enough pharmacology taught within the medical curriculum? That's a matter of debate. I can tell you that there have been a flurry of papers in the clinical pharmacology journals of the U.S. and of Europe during the past few years that focus on the need to add more clinical pharmacology training in the medical school curriculum, and that propose educational strategies for injecting more clinical pharmacology into the medical school curriculum. So even medical educators may not agree on how much formal training about drugs is enough for medical students. On the other hand, one may not be convinced that even Pharmacy students receive enough training about drugs, either, but they clearly receive lots more formal training than medical students.

My second conviction is that prescribers basically do a pretty good job of prescribing, but that it can be imperfect, and even dreadful. Let me amplify on this point. Prescribers can select from approximately 8,000 drug products, with twenty or so new molecular entities approved by the FDA each year. It is not difficult to understand how the occasional prescriber may have a knowledge deficit pertaining to indication, dose, frequency, duration of treatment, route of administration or the pharmacokinetic parameters for one or more of those 8,000 plus products. How often do prescribing errors occur, and what is their significance? The answers to these questions are somewhat elusive. Some suggest that most prescribing errors are relatively

inconsequential, though acknowledging that some such errors can cause great morbidity or even mortality (1). Others take a dimmer view, suggesting that 20% of physician orders can result in serious incidents, and that this percentage of serious iatrogenic adverse outcome is roughly three times higher than the percentage of serious adverse outcomes from all other causes of medication errors (2). The types of problems that are engendered by inappropriate prescribing may include toxicity or adverse effects, poor level of therapeutic control, and drug allergy, and in the community setting it appears that toxicity and inadequate therapeutic control each account for about one-third of the adverse outcomes accompanying inappropriate prescribing; allergic reactions account for about 10% of the adverse outcomes (3).

And who could now suggest that prescribing of medication to the elderly is completely satisfactory? The slide you are now looking at (Fig 1) is taken from Time Magazine (August 8, 1994), and the article therein was based on the report of Willcox et al in the July, 1994 issue of JAMA (4). Those authors, using specific criteria to define suboptimal or inappropriate prescribing for the elderly, determined that very nearly one-fourth of the elderly receiving prescription medications receive at least one inappropriate prescription. Their information was compiled from 6171 elderly people interviewed four times at 4-monthly intervals. The list of drugs which they presented in their JAMA paper represented drugs which, in the view of experts, are contraindicated in the elderly (see Table 1).And in their report about inappropriate prescribing to the elderly, as editorialized in that same issue, by Dr. Jerry Gurwitz (5), himself a Merck Fellow in Geriatric Clinical Pharmacology, Willcox and colleagues may have simply uncovered the tip of the iceberg vis-a-vis prescribing problems for the elderly. This problem was also acknowledged three years ago by Lindley et al in their paper published in Age and Ageing (6). Neither of these reports of adverse outcomes--to be sure, there have been many more than just these--even considered adverse events associated with drug-drug interactions in the elderly who on average use from 5-12 drugs daily (7).

My third conviction is that more people with less formal training in pharmacology and pharmacokinetics are beginning to position themselves to gain prescribing privileges. My attention was first drawn to this phenomenon a few years ago when Time Magazine printed a piece entitled,

Unlocking the Pill Bottles (see slide; Fig 2) (Time, Dec 17, 1990, pp 95). This article gave an accounting of a battle between the American Psychological Association and the AMA regarding the right of psychologists to prescribe psychoactive medication. Interestingly, the AMA's position was that "...only full medical school training could prepare psychologists to prescribe drugs safely." The APA's position was that doctors basically don't use their scientific training when prescribing drugs, but instead rely upon readily available manuals such as the PDR. The logical inference, therefore is that basically anyone can use the PDR as a sourcebook to prescribe, and that one needn't be trained in pharmacology or the sciences which are pre-requisite for pharmacology. This is not only dangerous ground to be treading, it is especially so when one considers the extreme harm that powerful psychotropic drugs can cause such as Tardive Dyskinesias, cardiac arrhythmias, autonomic nervous system disorders, endocrine dysfunction, and countless CNS problems. My own bias is that too many of these powerful psychotropic drugs are prescribed inappropriately by general medical practitioners rather than psychiatrists. Putting them in the hands of psychologists? Well you be the judge.

In Ohio it is now possible for nurse practitioners to prescribe a limited number of drugs in a pilot program. In our neighboring state, Michigan, Physicians Assistants now have prescribing authority. Their total training program is a two year program. It's probably just a matter of time before PAs will also acquire prescribing rights in Ohio. The response in the pharmacy community varies from wishing to oppose putting prescribing rights in the hands of less well trained less qualified health care workers, to weighing-in to get the right to prescribe themselves, to leaving hands off the entire issue largely because pharmacists don't want to be encumbered by the additional responsibilities and liabilities that would attend the right for pharmacists, themselves, to prescribe. Incidentally, increasing responsibilities and liabilities are no doubt part and parcel of an environment in which pharmacists will be undertaking Pharmaceutical Care. I would really like to know what pharmacists are thinking and saying about those increased liabilities.

So, here's my case. Pharmacists are better trained in the pharmacological sciences, both breadth and depth, than prescribers. Prescribing is already an imperfect endeavor with real opportunity to cause harm either through ineffective prescribing or from prescribing drugs with a higher risk

for adversity than for benefit. It is likely that more people who are less well qualified than those now prescribing will make inroads in their battles seeking legal authority to prescribe. Why, then, do I hear such things as.."Well, he's the physician, he knows more about it than I do?"

Here's what can happen when that attitude plays itself out.
Let me give you a couple of examples. One was described in Hospital Pharmacy and recounted by Vitillo and Lesar in The Annals of Pharmacotherapy (2). In this sad case an oncologist (as opposed to a generalist) prescribed 10 mg of vincristine i.v. The pharmacist dutifully inquired as to whether or not the oncologist really intended this. The oncologist gave the inexperienced pharmacist a dressing down after which the prescription was dispensed as written and the patient died. The oncologist , of course, really wanted 10 mg of vinblastine, you see. What's especially perplexing about this case is that the pharmacist made the effort to communicate, in fact, communicated with the prescriber. But in the end, the pharmacist couldn't accept that the oncologist was really mistaken. At least that's my third-hand take on the scenario.

What about the pharmacist who received a prescription for a pregnant woman for 1.25 mg of digoxin daily. The prescribing cardiologist was offended that anyone would question the prescription even though 1) it had been prescribed for an unlabeled use (albeit unknown to the pharmacist)--for *in-utero* treatment of atrial fibrillation of the fetus; 2) not a single randomized, controlled trial had been performed to document the drug's safety or effectiveness for in utero treatment; 3) the handful of case reports on such treatment revealed that the digoxin might be effective when used with verapamil and that in some patients the atrial fibrillation was resolved, but that the patients died, presumably from digitalis intoxication, and 4) the prescribed dose was nearly two times higher than the highest dose recommended for in utero treatment with digoxin. The outcome of this story was as follows: The mother suffered no adverse experience apart from nausea; the baby was brought to term; the mother was advised not to return to the pharmacy that inquired about the prescription, and at least one of the pharmacists at the pharmacy, again a relatively inexperienced one, simply lamented that the cardiologist just probably knew a lot more than they (the pharmacists). You be the judge about that.

It's that attitude that bothers me down to my marrow. Prescribing is imperfect. As the Psychologists pointed out (though emphatically for the wrong reason), some prescribers do, in fact, rely on manuals such as the PDR. On the other hand, pharmacists are exceptionally well trained. I'm talking about pharmacists with the B.S. degree. And people less well-trained in general than most of today's prescribers, and specifically less well-trained about drugs, will soon be prescribing increasingly. Are pharmacists to defer to their prescribing skills, too? What will it take to give pharmacists the confidence to intervene to prevent the prescription of contraindicated drugs to the elderly, to limit the use of antibiotics in the community, and to decline from dispensing an apparent overdose for an unapproved use in the absence of some reasonable literature citation or a signed consent form from a patient? My view is that we pharmacy educators are responsible for this absence of confidence that constrains so many practicioners from doing so.

As I said up front, I don't have the answer. Perhaps too few others share my perception, and the problem is only one of my own imagining. But if it is as I perceive it to be, then I also think its rooted in how we teach rather than in what we teach. I would also guess that the problem is not limited to basic, clinical, or the more social sciences of pharmacy education, but that it's rooted in the teaching of them all.

And one suggestion that I feel most comfortable in making is that we not spend any less time in teaching how to communicate with clients; but we should spend more time in teaching how to communicate with prescribers. Because, when it comes to drug knowledge, pharmacists needn't wear sack-cloth for anyone.

I entreat you, especially those of you in practice, to give us guidance in helping pharmacists to understand how highly qualified they are to assure the safety and effectiveness of the work of prescribers.

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