

Understanding Prescriptions

*Tips for physicians, nurses and pharmacists
on how to assess and improve adherence
during key encounters with patients*



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Preface

The “Understanding Prescriptions” project was inspired by the Fall 2009 Call for Proposals from the Interprofessional Health Collaborative of Saskatchewan (IHCS). At the time, I was newly leading a patient safety project with a steering committee including Dr. Dennis Kendel, Registrar of the College of Physicians and Surgeons of Saskatchewan, Dr. Karen Eisler, Executive Director of the Saskatchewan Registered Nurses’ Association, and Ray Joubert, Registrar of the Saskatchewan College of Pharmacists. All were deeply committed to interdisciplinary work, and sought ways to make that commitment manifest.

The steering committee had made medication safety its first priority. To complement these efforts, our initial proposal was a public awareness campaign encouraging patients to ask questions about their prescriptions. We knew that other public awareness campaigns with similar goals had had varying levels of success. What would distinguish our project was working directly with three healthcare professions to support the message at optimal times during the patient’s care. Each year, many Saskatchewan residents take a prescription medicine, and many more have a close family member who does. Every healthcare provider who prescribes, dispenses, or administers a drug has the opportunity to educate the patient or family member about the medication’s purpose and proper use.

As work proceeded, two themes emerged. First, that patients’ understanding and beliefs about their prescription medicines were fundamental to their decisions about how to use (or not use) medication in the service of their own health goals. This was at the heart of good or poor adherence, and poor adherence was very common. Second, that there were already many messages aimed at patients, helping them to communicate with their healthcare providers. For our part, we were three organizations representing the healthcare professionals best positioned to positively influence adherence through our side of that conversation. Findings from the research presented here should help us do so.

This paper offers a range of ideas you may choose to incorporate into your practice when speaking with patients about their medications. Some of it, no doubt, you already do. And of the rest, we hope that you find it interesting and perhaps useful. If this were easy, then poor adherence would not be a problem.

*Valerie Phillips
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Introduction to Adherence

Definition

The World Health Organization (WHO) defines adherence as “the extent to which a person’s behaviour – taking medication, following a diet, and/or executing lifestyle changes – corresponds with agreed recommendations from a health care provider.”¹

Several terms related to this concept are used in the literature, and reflect changes in thinking about the patient’s role and the patient-provider relationship. “First appearing in the medical literature in the 1950’s, the term ‘compliance’ came into popular use following the 1976 publication of the proceedings of the first major academic symposium on the subject. As originally defined, ‘compliance’ was intended to describe the extent to which patients’ behaviors coincide with the health care providers’ medical or health advice.”² Now “the word ‘adherence’ is preferred by many health care providers, because ‘compliance’ suggests that the patient is passively following the doctor’s orders,”³ whereas “‘adherence’ ... ‘implies a more collaborative relationship between patients and clinicians and is more respectful of the role that patients can play in their own treatment decisions.’”⁴ In the U.K. and elsewhere in Europe, the term “concordance” (introduced by the Royal Pharmaceutical Society of Great Britain) is used to convey an active partnership between the patient and the health care professional.⁵

Another use of the word “adherence” is as a more comprehensive term. “Therapeutic adherence is a summary term determined by persistence and compliance of medication intake. Persistence describes the length of time a patient continues taking medication and is measured as the time from treatment initiation to treatment completion or discontinuation. Compliance describes how well a patient is taking his or her medication, that is, to what extent a patient follows a treatment regimen and any associated dosing requirements.”⁶ In this case, “compliance” has a specific meaning that assumes nothing about the patient-provider relationship.

Except when quoting other sources, this paper will use the term “adherence”, both to include persistence and to recognize the patient’s role.

The Cost and Extent of Poor Adherence

“Of all medication-related hospital admissions in the United States, 33 to 69 percent are due to poor medication adherence, with a resultant cost of approximately \$100 billion a year.”⁷ Figures of \$100 billion (or more) per year have been cited by other authors on the topic of adherence.^{8 9 10 11}

According to the WHO, in developed countries, adherence to long-term therapies for chronic diseases averages 50 percent.¹² “Research in the medical and social sciences has demonstrated that across a wide variety of settings and treatment recommendations, roughly half of all medical patients in the United States do not adhere to, or comply with, their physicians’ advice. Close to 40% of patients take prescribed medication incorrectly or not at all.”¹³ “Between 12 percent and 20 percent of patients take other people’s medicines.”¹⁴

¹ World Health Organization (WHO), 3.

² National Council on Patient Information and Education (NCPIE), 10.

³ Osterberg and Blaschke, 487.

⁴ NCPIE, 10.

⁵ NCPIE, 10.

⁶ Reginster, Rabenda and Neuprez, S2-S3.

⁷ Osterberg and Blaschke, 488.

⁸ Schlenk, Dunbar-Jacob and Engberg, 34 – cited as: Lewis.

⁹ Vermeire, Hearnshaw, Van Royen and Denekens, 331.

¹⁰ NCPIE, 7.

¹¹ Hausman, 49.

¹² WHO, 7.

¹³ DiMatteo, Giordani, Lepper and Croghan, 794-795 – cited as reference 4: Epstein and Cluss.

¹⁴ NCPIE, 11 – cited as reference 11: Marinker, Blenkinsopp, Bond et al.

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A 2006 survey commissioned by the National Community Pharmacists Association (NCPA) in the United States found:

- Almost half of those polled (49 percent) said they had forgotten to take a prescribed medicine;
- Nearly one-third (31 percent) had not filled a prescription they were given;
- Nearly three out of 10 (29 percent) had stopped taking a medicine before the supply ran out; and
- Almost one-quarter (24 percent) had taken less than the recommended dosage.¹⁵

“Adherence rates are typically higher among patients with acute conditions, as compared with those with chronic conditions; persistence among patients with chronic conditions is disappointingly low, dropping most dramatically after the first six months of therapy.”¹⁶ “Up to 50% of patients with chronic disease, such as hypertension, depression and asthma discontinue medication, with the rate rising in different therapeutic areas (up to 70% of patients prescribed preventive asthma medication stop treatment).”¹⁷ And “among 17,000 U.S. patients prescribed beta blocker drugs following a heart attack, a major study conducted by Duke University Medical Center reported that only 45 percent regularly took these medications during the first year after leaving the hospital, with the biggest drop in adherence occurring during the initial months after hospital discharge.”¹⁸

For “patients with chronic conditions requiring long-term or lifelong therapy, ... poor medication adherence leads to unnecessary disease progression, disease complications, reduced functional abilities, a lower quality of life, and premature death. Lack of adherence also increases the risk of developing a resistance to needed therapies (e.g., with antibiotic therapy), more intense relapses, and withdrawal (e.g., with thyroid hormone replacement therapy) and rebound effects (e.g., with hypertension and depression therapy) when medication is interrupted.”¹⁹ Now that “the burden of illness in the population has shifted toward chronic diseases, the problem of poor adherence is of major concern to all stakeholders in the health care system.”²⁰

“[P]atient adherence to physicians’ recommendations is *the* key mediator between medical practice and patient outcomes.”²¹ “Across diseases, adherence is the single most important modifiable factor that compromises treatment outcome. The best treatment can be rendered ineffective by poor adherence.”²² As evidence for this, in a meta-analysis of 63 studies involving more than 19,000 patients, “[o]n average, 26% more patients experienced a good outcome by adhering than by not adhering”²³ to their treatment.

Applying Adherence Research

“For more than three decades, researchers ... have sought to understand and improve patient adherence to medication regimens for the treatment of chronic illness, including maintenance of prophylactic or health management regimens.”²⁴ Their findings suggest a number of strategies that healthcare providers can use to improve adherence.

Most academic literature on adherence, especially as it pertains to strategies for improvement, addresses itself to physicians and pharmacists. Patients and their doctors are the subjects of most studies about both the patient-provider relationship and communication about prescription drugs. In part this is because the best time to influence adherence is when a medication is first prescribed, and most prescribers are doctors. In addition, some ways to support adherence (such as simplifying the medication schedule) are largely within the prescriber’s control. However, adherence can also be greatly influenced at the time a drug is dispensed or administered. Physicians, pharmacists and registered nurses can all identify patients who may be non-adherent, speak with patients about their medications, elicit and perhaps

¹⁵ NCPA, 7 – cited as reference 4: National Community Pharmacists Association.

¹⁶ Osterberg and Blaschke, 487.

¹⁷ Reginster, Rabenda and Neuprez, S2.

¹⁸ NCPA, 11 – cited as reference 13: Kramer, Hammill, Anstrom et al.

¹⁹ NCPA, 7-8.

²⁰ WHO, 135.

²¹ Kravitz and Melnikow, 197.

²² WHO, 135.

²³ DiMatteo, Giordani, Lepper and Croghan, 805.

²⁴ Ingersoll and Cohen, 213.

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address patients' concerns, and find ways to make adherence easier (such as by providing written instructions). Therefore, while some sections of this paper focus on a particular provider role, most are intended to be read by anyone.

It should be noted that certain patient groups (e.g. psychiatric patients; patients with cognitive impairments such as memory loss; patients for whom English is a second language; adolescents) may pose particular challenges and require additional approaches that are not presented in this paper. The techniques suggested here, however, can be usefully applied with the majority of patients.

For ease of reference, quick tips are shown in boxes.

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Techniques to Assess Adherence

Identifying Patients who may be Non-Adherent

A physician, nurse practitioner or other authorized healthcare provider who writes a prescription usually intends that the patient follow it. However, given the extent of poor adherence, it is unlikely that any prescriber will see perfect adherence by all patients. Determining which patients are, or will become, non-adherent is difficult.

Many studies show that the ability of physicians to recognize non-adherence is poor.^{25 26 27} “[C]linicians tend to overestimate the extent of their patients’ ability to adhere to a medication regimen and the patient’s actual adherence level. In one study of 10 family physicians who had known many of their patients for more than five years, researchers found that only 10 percent of the physicians’ estimates of adherence with digoxin therapy were accurate when compared with information from a pill count and serum digoxin concentration measurements.”²⁸

Further, “prediction of medication non-compliance by doctors based on patient characteristics, or by researchers using multivariate models, has been shown to be inaccurate.”²⁹ “More than 200 variables have been studied since 1975, but none of them can be considered as consistently predicting compliance: neither socio-economic nor pathology-related factors.”³⁰ “Race, sex, and socioeconomic status have not been consistently associated with levels of adherence.”³¹ “In the U.S., non-adherence affects Americans of all ages, both genders and is just as likely to involve higher-income, well-educated people as those at lower socioeconomic levels.”³²

Making this even more difficult is that patients are unlikely to be forthcoming. The majority of patients wish to please their care provider, and are therefore reluctant to admit when they knowingly do not take their medication as prescribed. Evidence for this includes that “[p]atients commonly improve their medication-taking behavior in the 5 days before and after an appointment with the health care provider, as compared with 30 days after, in a phenomenon known as ‘white-coat adherence’.”³³

²⁵ Osterberg and Blaschke, 487.

²⁶ NCPIE, 15 – cited as reference 29: Dunbar-Jacob, Erlen, Schlenk et al.

²⁷ Vermeire, Hearnshaw, Van Royen and Denekens, 335 – cited as reference 40: Melnikow and Kiefe.

²⁸ NCPIE, 15 – cited as reference 29: Dunbar-Jacob, Erlen, Schlenk et al.

²⁹ Vermeire, Hearnshaw, Van Royen and Denekens, 335 – cited as reference 40: Melnikow and Kiefe.

³⁰ Vermeire, Hearnshaw, Van Royen and Denekens, 332.

³¹ Osterberg and Blaschke, 490.

³² NCPIE, 3.

³³ Osterberg and Blaschke, 489.

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There are, however, several validated predictors of poor adherence. Osterberg and Blaschke list the following:

Table 1: Major Predictors of Poor Adherence to Medication, According to Studies of Predictors³⁴

- Presence of psychological problems, particularly depression
- Presence of cognitive impairment
- Treatment of asymptomatic disease
- Inadequate follow-up or discharge planning
- Side effects of medication
- Patient's lack of belief in benefit of treatment
- Patient's lack of insight into the illness
- Poor provider-patient relationship
- Presence of barriers to care or medications
- Missed appointments
- Complexity of treatment
- Cost of medication, copayment, or both

Some of these are useful in identifying at-risk patients, while others are factors that prescribers can ameliorate to reduce the likelihood of non-adherence.

Where to Start

Initially, adherence need not be addressed with every patient. One form of triage is to focus on treatments most affected by poor adherence. Across the spectrum, “[a] 25% nonadherence rate may be perfectly fine for aspirin therapy for myocardial infarction but absolutely unacceptable for antibiotic treatment of multidrug resistant tuberculosis.”³⁵

Focus on treatments where adherence is most important.

As was mentioned previously, prescribing a new medication offers a unique opportunity to promote adherence. Techniques to do this are described in the section Explaining a New Prescription to Encourage Adherence.

Beginning a new medication is the best time to influence adherence.

For ongoing therapy, a trigger to review adherence can be that a patient is not responding to treatment. Although “[t]he use of a patient's clinical response as a measure is confounded by many factors other than adherence to a medication regimen,”³⁶ “poor adherence should always be considered when a patient's condition is not responding to therapy.”³⁷ This is especially true for patients who do not respond to increments in treatment intensity.³⁸

A patient's poor response to treatment may be due to poor adherence.

³⁴ Osterberg and Blaschke, 491 (Table 2).

³⁵ Kravitz and Melnikow, 198.

³⁶ Osterberg and Blaschke, 488.

³⁷ Osterberg and Blaschke, 490.

³⁸ Haynes, McDonald and Garg, 2880.

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Looking More Closely at Selected Patients

Having identified cases for further review, there is one tool that is especially useful as it offers a direct method by which to determine adherence. “Rates of refilling prescriptions are an accurate measure of overall adherence in a closed pharmacy system (e.g., health maintenance organizations, the Department of Veterans Affairs Health Care System, or countries with universal drug coverage), provided that the refills are measured at several points in time.”³⁹ In Saskatchewan, the Pharmaceutical Information Program (PIP) lists every drug dispensed by a community pharmacy in the province. Consulting the PIP lets prescribers know whether a patient filled a prescription, and if the timing of refills is consistent with the dose and frequency prescribed.

Pharmacists can also check the PIP before dispensing, and may decide to counsel the patient if the refill history suggests that a medication is not being taken as directed. Nurses in settings such as home care may also find the PIP useful.

Consult the PIP to know if a prescription was filled and if repeats were dispensed as expected.

Another reason for physicians to consult the PIP is to confirm which medications are being prescribed for their patients by other healthcare providers. “Non-adherence may arise from having multiple health-care providers prescribing medication. This problem may be especially prominent among older adults, who often have multiple chronic disorders treated by different specialists.”⁴⁰

Returning to Osterberg, “missed appointments” is a promising way to identify possibly non-adherent patients because patients who miss or cancel appointments may be relatively easy to find using office records. Haynes et al. also make a connection between patients failing to attend appointments and poor adherence. “Missing appointments is correlated with lower adherence rates to prescribed regimens and is the first signal of dropping out of care entirely, the most severe form of nonadherence, and thus should be followed up by the clinic if ongoing care is clinically indicated.”⁴¹

Identify patients who miss or cancel appointments.

Prescribers should be conscious of the possibility of poor adherence when treating asymptomatic disease, especially if treatments have side effects. Side effects are discussed under Eliciting and Addressing Patients’ Concerns. Complexity of treatment can be used to identify patients at risk of non-adherence. More importantly, opportunities to simplify treatment should be considered. This is discussed in the section Making Adherence Easier.

Consider initiating a discussion about their medications with patients who have:

- asymptomatic conditions,
- treatments with possible side effects, or
- complex treatment regimens.

Cost is discussed as part of Explaining a New Prescription.

Assessing Adherence

In addition to looking for markers of poor adherence (such as missed appointments, lack of response to medication and missed refills), Osterberg suggests to “ask about barriers to adherence without being confrontational.”⁴² Osterberg states: “The simplest and most practical suggestion for physicians is to ask patients nonjudgmentally how often they miss doses. Patients generally want to please their physicians and will often say what they think their doctor wants to hear. It can be reassuring to the patient when the

³⁹ Osterberg and Blaschke, 488.

⁴⁰ Schlenk, Dunbar-Jacob and Engberg, 36.

⁴¹ Haynes, McDonald and Garg, 2882.

⁴² Osterberg and Blaschke, 493 (Table 3). [Note: Table 3 is reproduced as Table 2 in this paper.]

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physician tells them, 'I know it must be difficult to take all your medications regularly. How often do you miss taking them?' This approach makes most patients feel comfortable in telling the truth and facilitates the identification of poor adherence. A patient who admits to poor adherence is generally being candid."⁴³

A systematic review of studies of adherence measures concludes that "asking non-responders about their adherence will detect more than 50% of those with low adherence, with a specificity of 87%. Even when patients indicate that they have not taken all their medications as prescribed, their estimates usually substantially overestimate their actual adherence. Thus, the key validating question is 'Have you missed any pills in the past week?' and any indication of having missed 1 or more pills signals a problem with low adherence."⁴⁴

"I know it must be difficult to take all your medications regularly. How often do you miss taking them?"
or
"Have you missed any pills in the past week?"

Other predictors of poor adherence from Osterberg include "patient's lack of belief in benefit of treatment" and "patient's lack of insight into the illness." Osterberg suggests that patients also be asked "whether they know why they are taking their medications, and what the benefits of taking them are, since these questions can often expose poor adherence to a regimen."⁴⁵

Finally, while "poor provider-patient relationship" is less useful as a screening method, it is an important factor to address. "Compliance seems to be related to the quality, duration and frequency of interaction between the patient and doctor. The doctor's attitude towards the patient and his ability to elicit and respect the patient's concerns, to provide appropriate information and demonstrate empathy are of the utmost importance."⁴⁶ "Two major problems in the doctor-patient relationship are the patient's dissatisfaction with the communication aspect of the consultation and the patients not following advice given to them. Studies of the relationship between communication and outcome have shown that the quality of clinical communication is related to positive health outcomes."⁴⁷

Fortunately, methods shown to improve adherence can often also improve patients' and providers' satisfaction with their communication, and thereby strengthen the patient-provider relationship.

⁴³ Osterberg and Blaschke, 490.

⁴⁴ Haynes, McDonald and Garg, 2880.

⁴⁵ Osterberg and Blaschke, 490.

⁴⁶ Vermeire, Hearnshaw, Van Royen and Denekens, 335.

⁴⁷ Vermeire, Hearnshaw, Van Royen and Denekens, 338.

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Speaking with Patients about their Medications

Although there are more studies of communication between physicians and patients than between either nurses and patients or pharmacists and patients, this section may have relevance for any healthcare professional who has an opportunity to explain medications, and can do so within their scope of practice.

Common Approaches to Communication (and their pitfalls)

In 2001, Health Canada published *Talking Tools I: Better Physician–Patient Communication for Better Patient Outcomes*. This document outlines some problems with physician-patient communication:

- approximately half of patients' concerns about their problems are not elicited by physicians
- in 50% of visits, patient and physician do not agree on the nature of the main presenting problem
- on average, physicians interrupt patients 18 seconds into the patient's description of the problem
- most malpractice suits are due to communication errors, not competency
- patients' most common complaint is lack of information from their physicians.⁴⁸

"[W]hen providers try to change [the] patient's behavior, they mostly employ the ineffective strategy of providing medical information and emphasizing the importance of following the prescribed regimens, without explicitly discussing [the] patient's views on this issue."⁴⁹ "Patients do not often explicitly articulate their aversion against taking medication, but even when they voice their concerns or beliefs these are often not explored by GP's. This may result in misunderstandings between GP's and their patients."⁵⁰ "This misunderstanding is illustrated by the findings of Meyer et al. who demonstrated that, although all patients were told by their GP that hypertension is an asymptomatic condition, patients continued to act upon symptom experience as a reason for taking their medication."⁵¹

"Informational asymmetries might also affect the physician's ability to communicate with their patient. The absence of a shared language makes physicians' instructions difficult for patients to understand. Similarly, lack of a shared vocabulary and limited medical knowledge may limit the ability of patients to ask the right questions, provide an appropriate medical history, or state symptoms in a manner understandable to physicians."⁵²

A 2000 British study (Stevenson et al.) used audio-taped consultations and interviews with patients and physicians to examine communication about medicines. "In the recruitment letter, doctors were asked if they would be prepared to take part in a study about doctor-patient communication. ... This method of recruitment meant that the doctors who responded were likely to have an interest in communication issues. If this group of interested doctors experience communication problems, then it is likely that less interested doctors will also experience problems."⁵³ Twenty (20) doctors and 62 patients were included in the final dataset.⁵⁴ "Prescriptions were issued in 41 of the 62 consultations (66%). The majority (83%, 34/41) of prescriptions issued were either 'new' prescriptions or changes to the doses of existing medicines. ... Although 21 people (34%) left the consultation with no prescription, the centrality of medicines to issues of communication was illustrated by the fact that a discussion of medicines took place in all 62 consultations."⁵⁵

Key findings relate to whether medicines were named, information provided about how to take them, their side effects, and whether doctors knew their patients' beliefs about medicines. This study may not be reflective of a typical physician appointment in Saskatchewan (both because of possible differences in communication style between Canada and the U.K., and because the study was small). However, it is

⁴⁸ Health Canada, 14-15.

⁴⁹ Theunissen, de Ridder, Bensing and Rutten, 247.

⁵⁰ Theunissen, de Ridder, Bensing and Rutten, 257 – cited as reference 49: Britten, Stevenson, Barry et al.

⁵¹ Theunissen, de Ridder, Bensing and Rutten, 257 – cited as reference 29: Meyer, Leventhal and Gutmann.

⁵² Hausman, 52-53.

⁵³ Stevenson, Barry, Britten et al., 831.

⁵⁴ Stevenson, Barry, Britten et al., 831.

⁵⁵ Stevenson, Barry, Britten et al., 832.

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quoted here because it vividly illustrates how easily misunderstandings can occur, and identifies some oversights that can be remedied.

In 12 [35%] of the 34 consultations in which a new medicine was prescribed or the dose was changed, medicines were not named. “A noticeable tendency was that when a new medicine was prescribed, although other medicines were named, the new medicine was referred to according to the purpose for which it was prescribed, for example ‘something to help with this cold’, the class of medicines it belongs to, for example steroids, or its formulation, for example ‘these lozenges’. In some instances, medicines were referred to using oblique terms such as ... ‘something a bit stronger’, ... ‘the new medicine’, or ... ‘the brown one’.”⁵⁶ “If medicines are only referred to using such terms then patients may not feel they have sufficient information upon which to base a decision. This was illustrated by a 19 year old man who consulted about pains in his stomach. He had previously been prescribed cimetidine, a drug that acts to reduce acid production ... He reported that the medicine had helped a bit with indigestion but had not helped the pains in his stomach. His doctor prescribed another medicine in the same therapeutic class, ranitidine. The new medicine was not named nor was it made clear how it differed from the old one. In fact, the medicine was described in the same terms as those used to describe the previously prescribed medicine. The patient believed, based on the fact that cimetidine had proved ineffective, that his pain was not due to excess acid production and so there was no point in taking the newly prescribed medicine. By the time of the follow up interview a week later he had not collected his new medicine. ... The doctor’s failure to provide information and explore the patient’s feelings about being given the new prescription means he is unaware that the patient has no faith in this prescription.”⁵⁷

“References to the dose and dosage regimen of prescribed medicines occurred in 27 of the 34 consultations (79%). In six of the seven cases in which instructions for use were not given, the medicine was also not named. ... One of the doctors pointed to the fact that the information was provided with the medicine when it was dispensed.”⁵⁸

Doctors made reference to side effects in 16 of the 34 consultations. Two doctors “discussed side effects in an attempt to persuade people that a prescription for antibiotics would not be beneficial. ... [In one case,] the doctor did not ask the patient her opinion. During the interview with the researcher the patient expressed a wish to avoid taking antibiotics if possible. This suggests that the doctor’s attempt to persuade her not to use antibiotics was unnecessary.”⁵⁹ Only two people asked directly about potential side effects, while eight patients reported symptoms that they believed to be side effects of previously prescribed medicines. ... Half of these people had changed their medicine regimen to take account of this, but only one had sought medical advice before doing so.”⁶⁰

Stevenson found that “GPs appeared surprised to be asked about patients’ views of medicine and in response tended to rely on guesses and assumptions.”⁶¹ “The problem with this is that it relies on patients feeling comfortable about expressing their views, when to do so may mean rejecting the treatment being offered by the doctor. In our study, nine people told the researcher that they would prefer not to be given a prescription, or that they did not want the same medicine they had been previously prescribed. Of those nine patients, less than half (4/9) told the doctor.”⁶²

Tarn et al. studied physician-patient interactions related to medication counselling in two healthcare systems (Kaiser-Permanente, and University of California – Davis Medical Group) in Sacramento, California. Sixteen (16) family physicians, 18 internists, and 11 cardiologists participated. Office visits were audiotaped and transcribed for 860 participating patients.⁶³ “We defined a newly prescribed medication as a medication never before taken by the patient or a medication given for an acute symptom or condition (i.e., and antibiotic or analgesic). ... Medications that did not meet these criteria were

⁵⁶ Stevenson, Barry, Britten et al., 833.

⁵⁷ Stevenson, Barry, Britten et al., 833.

⁵⁸ Stevenson, Barry, Britten et al., 834.

⁵⁹ Stevenson, Barry, Britten et al., 834.

⁶⁰ Stevenson, Barry, Britten et al., 835.

⁶¹ Stevenson, Barry, Britten et al., 838.

⁶² Stevenson, Barry, Britten et al., 837.

⁶³ Tarn, Heritage, Paterniti et al., 1856.

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excluded, leaving a total of 185 visits in which 243 new medications were prescribed.”⁶⁴ Forty-seven (47) of the 185 patients received more than one prescription, and nine patients received three or more prescriptions.⁶⁵ “New medications included 46 cardiovascular medications; 42 ear, nose, and throat (ENT) preparations; 35 analgesics; 35 antibiotics; 21 dermatologic creams; 21 psychiatric medications; and 11 pulmonary medications.”⁶⁶

Tarn and colleagues created a Medication Communication Index (MCI) to assess the quality of communication. “The MCI is a 5-point index that gives points for physician communication about the following: medication name (1 point), purpose or justification for taking the medication (1 point), duration of use (1 point), adverse effects (1 point), number of tablets or sprays to be taken (0.5 point), and frequency or timing of medication ingestion (0.5 point). For dermatologic medications, a full point was given for discussing the frequency or timing of medication use, since it is difficult to quantify an amount of cream or lotion. Assigning 0.5 point to the number of tablets and frequency of medication use reflects ‘directions’ carrying an equal weight relative to the other MCI components.”⁶⁷

“The mean MCI score was 3.1 on a 5-point scale, indicating that 62% of necessary elements of new medication prescribing education were communicated.”⁶⁸ “Examining the individual components of the MCI, physicians described 97% of the new prescriptions but stated trade or generic names for 74%. Physicians stated the purpose of or justification for taking a medication for 87% of the prescriptions, duration of intake for 34%, the number of tablets or sprays for 55%, frequency or timing of intake for 58%, and adverse effects for 35%.”⁶⁹ In summary, “[p]hysicians conveyed full medication dosing directions for less than 60% of all medications and informed patients about duration of intake and adverse effects or adverse events only approximately one third of the time.”⁷⁰

Results were similar for both PRN and not PRN medications. “[E]ducation about PRN medications is important because patients not educated about the maximum number of tablets to take or about the frequency of dosing may be at risk for medication overdose. Patients also may not realize that use of PRN medications can be stopped in the absence of symptoms.”⁷¹

The authors conclude: “This study provides evidence of suboptimal patient counseling about newly prescribed medications, especially about the duration of medication use and potential adverse effects. Patients not understanding these aspects of their new medications may discontinue taking medications unnecessarily.”⁷²

Another U.S. study (Smith et al.) analysed primary care physicians’ use of verbal compliance-gaining strategies in medical interviews. Strategies were classified into 57 categories along two dimensions: directness and completeness. “Directness refers to the extent to which a physician states a desired action explicitly or implicitly. Direct strategies are often called ‘commands’ and follow the linguistic form ‘Do X’.”⁷³ Indirect strategies require that the patient infer the desired behaviour (e.g. ‘Doing X is not a bad idea’). Completeness “refers to the extent to which a strategy includes a justification (or a reason) for the action. These strategies follow the basic form ‘Do X because ...’.”⁷⁴ Of the 2,067 physician utterances identified by the coders, 1,811 (87%) were determined to be verbal compliance-gaining strategies. Interviews averaged 13.7 minutes in length, and the average number of strategies per interview was 49.⁷⁵ Results were: 14% of the strategies were direct and 84% indirect; 16% were complete and 82%

⁶⁴ Tarn, Heritage, Paterniti et al., 1856.

⁶⁵ Tarn, Heritage, Paterniti et al., 1857.

⁶⁶ Tarn, Heritage, Paterniti et al., 1857.

⁶⁷ Tarn, Heritage, Paterniti et al., 1857.

⁶⁸ Tarn, Heritage, Paterniti et al., 1858.

⁶⁹ Tarn, Heritage, Paterniti et al., 1857-1858.

⁷⁰ Tarn, Heritage, Paterniti et al., 1859.

⁷¹ Tarn, Heritage, Paterniti et al., 1860.

⁷² Tarn, Heritage, Paterniti et al., 1861.

⁷³ Smith, DeVellis, Kalet et al., 63.

⁷⁴ Smith, DeVellis, Kalet et al., 63.

⁷⁵ Smith, DeVellis, Kalet et al., 65.

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incomplete.⁷⁶ “Research has shown that language is often indirect, people prefer using indirect language and indirectness appears to be ‘normal’ and expected given enduring cultural norms about saving face, social distance, and politeness. ... [However,] indirectness may result in patient confusion about regimens. Clearly if patients do not understand that they are supposed to follow some recommendation or do not understand the details of the recommendation itself, adherence will be a problem.”⁷⁷ But directness needs to be used with caution. Another study that examined patients’ perceptions of the types of strategies physicians used found that “patients reported physicians as using more verbally unaggressive than aggressive styles and that aggressiveness was negatively correlated with patient satisfaction.”⁷⁸ It may therefore be more effective to focus on increasing the number of complete (rather than direct) strategies, in other words, explaining the reason for any action the patient is being asked to take.

Understanding the Patient’s Perspective

“One of the most striking reasons for the lack of progress in compliance research is the absence of a crucial factor: the patient’s perspective.”⁷⁹

Without this, patient behaviour may be quite puzzling. In an extreme example, “[r]esearchers have found that even the potential for serious harm may not be enough to motivate patients to take their medicines appropriately.”⁸⁰ “In one study, only 42 percent of glaucoma patients met minimal criteria for adherence after having been told they would go blind if they did not comply. Among patients who already had gone blind in one eye, adherence rates rose only to 58 percent.”⁸¹ Another study of renal transplant patients facing organ rejection or even death from poor adherence with immunosuppressant therapy found that 18 percent of patients were not taking their medicine as prescribed.”⁸²

Most “[p]atients define compliance in terms of apparent good health and seek treatment approaches that are manageable, tolerable and, in their view, effective. Although compliance may be a priority for health professionals, for the person, especially with a chronic health problem, concerns such as controlling symptoms, preventing medical crises, maintaining financial comfort or enjoying a quality lifestyle may take precedence. Patients do not view all recommended treatments as necessary for their best interests.”⁸³

Patients “carry out a personal cost-benefit analysis, weighing the costs and risks of each treatment against the benefits as they perceive them. Patient perceptions and the personal and social circumstances within which they live are shown to be crucial to their decision-making. Thus, an apparently irrational act of non-adherence (from the physician’s point of view) may be a very rational action when seen from a patient’s point of view.”⁸⁴

“Perceived properties of medicines and patients’ general preference for taking or not taking medication are important themes. Patients have many fears and powerful negative images of medicines.”⁸⁵ “[M]any patients with chronic illnesses are ambivalent about medication and experiment with dose titration and drug-free intervals. Given that patients are circumspect about taking drugs, such behaviour will be even more marked when the benefits are less clear and not immediate – as with drugs for controlling blood pressure and lowering cholesterol.”⁸⁶

⁷⁶ Smith, DeVellis, Kalet et al., 66.

⁷⁷ Smith, DeVellis, Kalet et al., 63.

⁷⁸ Smith, DeVellis, Kalet et al., 63.

⁷⁹ Vermeire, Hearnshaw, Van Royen and Denekens, 333.

⁸⁰ NCPIE, 11.

⁸¹ NCPIE, 11 – cited as reference 17: Cramer.

⁸² NCPIE, 11 – cited as reference 18: Rovelli, Palmeri, Vossler et al.

⁸³ Vermeire, Hearnshaw, Van Royen and Denekens, 338.

⁸⁴ Ockene, Hayman, Pasternak et al., 632.

⁸⁵ Vermeire, Hearnshaw, Van Royen and Denekens, 339.

⁸⁶ Elwyn, Edwards and Britten, 865.

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It has been shown that “[i]ncreased consumer engagement leads to increased compliance, cooperation and commitment to health.”⁸⁷ Yet, “[w]hile providers are frustrated with patients who are not activated or compliant with treatment plans, many are also uncomfortable with highly activated patients who may be overly aggressive.”⁸⁸

In a 2003 article in the *British Medical Journal (BMJ)* titled “‘Doing Prescribing’: how doctors can be more effective”, Elwyn et al. state that “training in communication skills has largely concentrated on history taking and diagnosis. Less attention has been paid to decision making tasks, and recent research shows that patients are rarely involved in these processes. Doctors may initiate a discussion about treatment, but then they dominate the discussion. They do not always name the drug they prescribe and may not describe how new drugs differ in mechanism or purpose from those previously prescribed to a patient. They do not usually check patients’ understanding of a treatment or explore their concerns about a drug, and when they do encourage patients to ask questions the patients seldom do so. Evidence shows that they do this in about half of their consultations. They discuss the benefits of treatment more than the harms, precautions, or risks, even though patients see these topics as essential. Even in formal assessment conditions, where general practitioners are awarded marks for sharing management options with patients, videos show that they fail to do so. This failure to explore patients’ beliefs and hopes about medicines and to inform them of the pros and cons of treatment options leaves much room for misunderstanding, for unaddressed concerns, and for ambivalence about the drugs prescribed to them.”⁸⁹

Shared Decision Making

“Shared decision making is a strategy for engaging patients through two-way communication and information exchange between health care providers and patients. In this way, the combination of medical evidence and patients’ preferences are more likely to support treatment decisions that lead to the health outcomes that patients value.”⁹⁰ “It is used primarily in cases where there are several treatment alternatives with no single ‘best’ option.”⁹¹ In Saskatchewan, shared decision making is now being explored largely in the context of elective surgery, however, this model also has applicability to prescribing medication. For example, the treatment of hypertension offers a large number of options with varying regimens, side effects, and costs. Apart from their medical condition, patients may differ in what is important to them. One patient may be deeply disturbed by a drug that affects his clarity of thought, while another may be accepting of this side effect as long as he experiences good pain control. A patient who pays the full price of a drug out-of-pocket may care more about its cost than a patient insured by her employer. Another description of shared decision making puts it this way: “the physician has been expert on diagnosis and treatment; the patient has not been a competing expert on those things but has been an expert on his life.”⁹² Yet “[f]aced with a person who worries about becoming addicted to nonaddictive drugs or a person who insists on antibiotics for a diagnosed viral infection or a person who refuses to have his or her child immunized against polio ... the physician’s job is to be a partner in the conversation yes, but not, disingenuously to be an equal partner. The physician’s job is to be a persuasive expert. Expertise is no small matter: medical *information* can be shared in an office visit; medical *knowledge* and the ability to reason medically cannot be.”⁹³

“Doctors and patients both have knowledge that is relevant for the consultation. Doctors have technical knowledge about possible solutions to medical problems. Patients have, through experience, immersion in their culture and past discussion, ideas about what is happening to them. They also have preferences which encompass a range of issues such as beliefs in the necessity or otherwise for a prescription and the extent and type of side effects they would be willing to tolerate.”⁹⁴ “Not all patients will want to take

⁸⁷ Arnold, 5.

⁸⁸ Arnold, 2.

⁸⁹ Elwyn, Edwards and Britten, 865.

⁹⁰ Chow, Teare and Basky, 4.

⁹¹ Chow, Teare and Basky, 5.

⁹² Segal, 87-88.

⁹³ Segal, 88.

⁹⁴ Stevenson, Barry, Britten et al., 830.

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control of their medical care, but it is still important that their concerns, desires and values are incorporated into decisions about their care.”⁹⁵

“[W]hether and how to use medicines are among the most common and important decisions in which patients can participate. ... [P]rescribing requires competence in reaching an understanding with the patient about the nature of the problem, the likely causes and consequences, and the benefits and risks of the proposed treatment.”⁹⁶

In a recent article in the *Journal of the American Medical Association (JAMA)* titled “The Patient Who Falls”, Tinetti and Kumar discuss the trade-offs between the benefits and risks of medications. “The presence of multiple health conditions necessitates a consideration of trade-offs between benefits and risks of medications, particularly when the treatment of one condition may worsen another. Antihypertensive, anticoagulant, and antidepressant medications commonly pose such trade-offs for patients at risk for falling. Few data currently exist to guide decision-making for these trade-offs. The clinician must consider which condition presents the greatest threat to the outcome priority of greatest importance to the patient.”⁹⁷

⁹⁵ Stevenson, Barry, Britten et al., 830.

⁹⁶ Stevenson, Barry, Britten et al., 830.

⁹⁷ Tinetti and Kumar, 264.

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Effective Communication Strategies

“For patients to be informed, is it sufficient for doctors to outline the options and share information? Critics would say that the key outcome is not the giving of information, or even information exchange, but the achievement of understanding by the patient.”⁹⁸

Explaining a New Prescription to Encourage Adherence

The U.S. Agency for Healthcare Research and Quality (AHRQ) recommends that “patients receiving new prescriptions should understand basic information about the medication, such as what the medication is called, what it is for, how to take it, what side effects to look for and what to do if they occur, how long to take the medicine, and any food or activities to avoid while taking the medication.”⁹⁹ “Despite time constraints during office visits, essential information can be efficiently provided when new medications are prescribed.”¹⁰⁰

Some impediments to adherence are worth considering before writing a prescription. Osterberg (Table 1, page 5) includes the cost of medication, copayment or both as a predictor of poor adherence. Although this may be more common in the United States than in Saskatchewan, in cases where cost will be a factor, prescribers may be able to mitigate this problem. In their study of the epidemiology of prescriptions abandoned at the pharmacy, Shrank et al. found that “[y]oung adults aged 18 to 34 years were most likely to abandon prescriptions [and that] new users of medication had more than 2.74 times greater probability of abandonment than prevalent users.”¹⁰¹ However, “[c]opayments charged to patients were the strongest predictors of abandonment, suggesting that patients experience ‘sticker-shock’ at the pharmacy and choose not to fill those prescriptions. Improved physician awareness of patient cost-sharing requirements, and communication about those costs with patients before arrival at the pharmacy, may reduce abandonment rates. However, physicians are often unaware of their patients’ out-of-pocket costs at the time of prescribing.”¹⁰²

Saskatchewan residents who have no additional coverage (either through government support programs or private insurance) pay the full cost of their prescriptions until the deductible is reached. Receiving a prescription for the cheapest drug in a therapeutic class may be very important to such patients.

In addition, many drug benefit plans only cover drugs on the provincial formulary. Prescribers may wish to consult the Saskatchewan Formulary, which is available as a paper document¹⁰³ or online. The Online Formulary¹⁰⁴ database can be searched by drug brand name, generic name, or DIN.

Consult the Saskatchewan Formulary to determine if a drug is eligible for coverage. The Online Formulary is accessible at <http://formulary.drugplan.health.gov.sk.ca/>.

The “RxFiles Drug Comparison Charts”¹⁰⁵ are an authoritative source for decision support to select the most appropriate option when prescribing a new drug. Some of this information may be useful in discussing options with patients. For many drugs, the comparison charts also give their cost per day relative to other similar medications.

Consult the RxFiles Drug Comparison Charts.

⁹⁸ Elwyn, Edwards and Britten, 866.

⁹⁹ Tarn, Mattimore and Wenger, 404.

¹⁰⁰ Tarn, Mattimore and Wenger, 409.

¹⁰¹ Shrank, Choudhry, Fischer et al., 637.

¹⁰² Shrank, Choudhry, Fischer et al., 637-638.

¹⁰³ Saskatchewan Ministry of Health, *Formulary*.

¹⁰⁴ Saskatchewan Ministry of Health, “Online Formulary” website.

¹⁰⁵ RxFiles Academic Detailing Program.

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Stevenson found that when physicians wrote a new or modified prescription, they did not state the name of the drug in 35% of cases. Similarly, Tarn observed that physicians stated the trade or generic name of the drug for only 74% of new prescriptions (i.e. the medication was not named 26% of the time).

Essential as it is to use the medication name, “[i]t is also important which medication name is used by the physician. Brand names are often easier to pronounce, making them enticing to use so patients can understand them. However, there are a number of reasons to use generic medication names, even for medications that are available only in branded form. The patient will hear generic medication names in a variety of settings (e.g., hospital, rehabilitation facility) and thus patients are less likely to be confused about whether they are receiving their usual medication if they are used to this medication name. Furthermore, this may be the name on the medication bottle if generic substitution is performed. Additionally, the generic name often confers information about medication type and can lead to better understanding when changes are made within class or a medication becomes available in generic form. If within a medical group all the clinicians use generic names for medications, there may be less confusion when patients see physicians other than their regular practitioner.”¹⁰⁶

Provide the generic name of the medication, as well as the brand name (if applicable).

For a new medication, patients may require the name of the drug to be repeated, and may still not have an idea of its spelling. Writing the name may save time.

Allow the patient to watch you write the medication name(s) on the prescription.

“One study demonstrated that 12% of older patients did not fill a prescription because they did not think they needed the drug they were prescribed. A clear explanation about why a medication is prescribed or about what the medication is supposed to do might increase the chances of the patient using it.”¹⁰⁷ Osterberg (Table 1, page 5) lists “patient’s lack of belief in benefit of treatment” and “patient’s lack of insight into the illness” as major predictors of poor adherence. Explaining the purpose of the medication is fundamental to addressing these contributing factors. A basic explanation may be sufficient, but can be taken one step further by discussing the therapeutic goal. For example, while it is important to tell the patient that the purpose of a particular drug is to control blood pressure, discussing the therapeutic goal of reducing blood pressure to 130/85 may be more meaningful to the patient in some cases.

Explain the purpose of the medication.

Discuss the therapeutic goal as specifically as possible (e.g. to reduce blood pressure to 130/85).

Write the indication on the prescription (if there are privacy concerns, first ask the patient).

Patients may not always understand how a new prescription affects their existing medication regimen. Patients on multiple medications need to know if the new prescription is in addition to, or replaces, a drug they already take. This is also true of a change in strength, especially if the pills look different.

Tell the patient if this is in addition to their existing regimen, or replaces a drug they should stop taking (ensure that the patient understands which drug).

Patients cannot follow a medication regimen they do not understand. Tarn et al. quote a conversation pertaining to a prescription for an antibiotic:

Dr: Let me give you a, a short course of some antibiotics for the yellow stuff cause I think you’ve got an infection sittin’ on top of all this. Give you the 6-pill variety. Short and sweet.

Pt: OK. So you only have to take 6 pills?

Dr: Yup, only once a day. Five days, you’re done. (Ensuing unrelated conversation).¹⁰⁸

¹⁰⁶ Tarn, Mattimore and Wenger, 406.

¹⁰⁷ Tarn, Mattimore and Wenger, 407 – cited as reference 30: Safran, Neuman, Schoen et al.

¹⁰⁸ Tarn, Mattimore and Wenger, 407.

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“Although the patient attempted to clarify the number of pills prescribed, he did not ask any further questions. If 6 pills are being prescribed over 5 days, what happens with the extra pill? The antibiotic prescribed is likely azithromycin. Patients take 2 pills at the same time on the first day, and then 1 pill on each of the following 4 days. However, these directions were not clearly stated, and there was no more medication-related conversation during the visit.”¹⁰⁹ With respect to refills, if these “do not correspond with follow-up schedules, medication dosing and continuity can be confusing for patients.”¹¹⁰ Where applicable, patients should be told how long to take a medication and when it should be stopped.

Provide directions for use, including the duration where relevant. Write Sig. instructions.

Eliciting and Addressing Patients' Concerns

When patients ask questions, these are most often about medication supply or quantity.¹¹¹ However, concerns that are most likely to affect adherence are about the purpose, effectiveness and side effects of the medicine. “[F]actors contributing to non-compliance include patients’ unresolved concerns, including the diagnosis, absence of symptoms, time between taking the drug and its effect, and the fear of adverse effects. The most salient influences on compliance are patients’ beliefs about medications and about medicine in general. Their own knowledge, ideas and experiences, as well as those of family members and friends, have been shown to correlate with compliance.”¹¹² “Research shows that patients are more likely to benefit from their prescribed medications when they understand and accept the diagnosis, agree with the treatment proposed, [and] have had their concerns about the medicines specifically and seriously addressed.”¹¹³

Tarn provides the following example of a physician eliciting and addressing a patient’s concerns. A 75 year old man with diabetes has consulted his internist complaining about symptoms he experienced after starting a new diabetes medication a few months previously.

“The doctor responded by suggesting switching to a new medication:

Dr: I think we could stop the Tolinase and just see what happens. However –

Pt: That was for blood sugar and it really helped the blood sugar.

Dr: Well, we have other medicines for blood sugar that are very effective.

Pt: Sure.

Dr: So why don’t we just stop the Tolinase, switch you to an alternative medicine for the sugar and see if it helps.

When the physician proposed stopping the patient’s current diabetic medication, the patient expressed some reluctance by stating that the medication worked really well to control his blood sugar. The physician picked up on this, and allayed the patient’s fears by reassuring him about the efficacy of the new medication. She also gave clear instructions about stopping the current medication and replacing it with a new one, and emphasized that the purpose of the new medication was to help the patient’s blood sugar. She subsequently repeated the instructions for stopping the old medication:

Dr: OK, let’s have you stop the Tolinase.

Pt: Can we go to something else?

Dr: Yeah, Glucophage.

¹⁰⁹ Tarn, Mattimore and Wenger, 407.

¹¹⁰ Tarn, Mattimore and Wenger, 405.

¹¹¹ Tarn, Mattimore and Wenger, 405 – cited as reference 28: Sleath, Roter, Chewning and Svarstad.

¹¹² Vermeire, Hearnshaw, Van Royen and Denekens, 335.

¹¹³ Segal, 84.

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... After some intervening conversation, the physician revisits the topic of the new medication:

Dr: We need to get you set up for a blood sugar test after you're on this medicine awhile to make sure it's doing the job.
Pt: OK, to see if it's doing any good.
Dr: Yeah.
Pt: When I take my readings every morning and afternoon that will tell me something.
Dr: You'll get a good idea.

In this case, perhaps due to the patient's anxiety about controlling his blood sugar, the physician details a plan to see whether the medication is working, and as she is wrapping up the visit, reiterates general instructions about the medication regimen:

Dr: So you're going to stop your Tolinase, switch over to this medicine.
Pt: OK.
Dr: This one is very nice medicine.
Pt: No such thing.
Dr: OK.
Pt: Have a good day.
Dr: Bye-bye.

This physician relied on repeating her instructions with the aim of ensuring patient understanding. Unfortunately, the need for repetition may be a signal that the conversation is not going well. Much better would be to listen to the patient's comments and try for a real dialogue such as the following theoretical conversation:

Dr: I heard you say that there was 'no such thing as a nice medicine.' Tell me about that.
Pt: Well it's just that I'm really worried about having side effects and you haven't told me yet what I should look out for.
Dr: So you'd like a more thorough understanding of potential side effects.
Pt: Yeah.
Dr: OK. I'm thinking of starting you on metformin. Have you heard of that medicine?
Pt: I think so. My cousin was taking it and she said it was bad for your kidneys.
Dr: Anything else?
Pt: Not that I know of.
Dr: Well, good. With diabetes, we always have to watch out for your kidneys. So I'm glad you're aware of that. Metformin in large doses can be hazardous, but I don't plan on that sort of dose. And we will check blood tests every few months to make sure everything is OK. I think you'll be fine. And I think your blood sugars might be a whole lot better controlled and that will protect your kidneys.
Pt: OK, Doc. Let's try it."¹¹⁴

"The model we recommend has been called 'an educational sandwich,' and consists of 3 steps: Ask, Tell, Ask. The physician can ask what the patient knows, what the patient is concerned about, and what the patient has heard from other sources. Then, usually a brief explanation can be followed by again asking, 'Any other thoughts?' 'Any other questions?' 'Now that we've talked a bit about it, what are your concerns?'"¹¹⁵

"Good physician-patient communication about new medications is important to ensure patient understanding about what a medication is called, why it is needed, how it should be taken and for how long, and what potential medication side effects might occur. A good place to start is by asking what the patient already knows or fears. Since patients do not readily ask questions about their medication regimens, even when they do not understand the conversation, every effort should be made to convey this information in an unambiguous manner. Some sort of check-back system is needed to learn exactly

¹¹⁴ Tarn, Mattimore and Wenger, 405-406.

¹¹⁵ Tarn, Mattimore and Wenger, 406 – cited as reference 29: Keller and Carroll.

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what the patient heard and thought he understood from the doctor. After explaining about the prescription, the clinician can say: 'I don't always explain this as clearly as I would like, so tell me what you heard and then I can clarify anything I've left out.'¹¹⁶

Ask – *“Are you familiar with this medication?”*

Tell

Ask – *“I don't always explain this as clearly as I would like, so tell me what you heard and then I can clarify anything I've left out.”*

“In the outpatient setting, the primary opportunities for providing ... information to the patient occur in discussions when the prescriber writes the prescription and when the patient fills the prescription at the pharmacy. Visiting nurses in the home setting also have an opportunity for such dialogue with patients. During these discussions, research has found that relaying the most important information first, repeating key points, and having patients restate key instructions increase patient understanding.”¹¹⁷

As was noted previously, adherence is closely associated with patients' engagement in their own care. “Patients who participate in their medical care are generally more adherent, more satisfied, and enjoy better health-related quality of life than those who do not.”¹¹⁸

Martin et al. set out “to identify specific physician behaviors that are most closely related to patients' impression that their doctors facilitate their involvement in care.”¹¹⁹ Their sample consisted of 128 patients with Type 2 diabetes mellitus whom they recruited from the general medicine clinic at a teaching hospital in California.¹²⁰ Using audiotapes of physician-patient interactions, the researchers counted instances of physicians': (1) solicitations of patient opinion, (2) open-ended questions, (3) closed-ended questions, (4) responses to patient questions, (5) positive interruptions, which encourage the patient to elaborate along the same line of thought, (6) neutral interruptions, which do not hinder the patient's flow of speech, (7) negative interruptions, which serve to dominate or redirect the flow of conversation, and (8) offering alternatives or choices to the patient.¹²¹ Physicians most frequently used closed-ended questions (e.g. 'And were you able to cut down to one piece of toast in the morning?'). Neutral interruptions occurred next most often, followed by open-ended questions (e.g. 'So, tell me how you dealt with that.'). Open-ended questions were asked at one-third the rate of closed-ended questions, and at half the rate of neutral interruptions.¹²² The remaining five categories were much less common. “Of these 8 predictors, asking open-ended questions was most closely associated with greater patient perceptions that their doctor facilitated their participation.”¹²³ The next most important was being responsive to patients' questions.¹²⁴ Interestingly, the study also found that “patients did not necessarily perceive that their involvement was being facilitated when their physician played a passive role and allowed them to take charge. ... It might also be that offering more alternatives made people feel that their doctor was shifting too much responsibility to them. This is consistent with research showing that, even when patients want to have some input regarding their care, they do not want to maintain full responsibility for treatment decisions.”¹²⁵

Ask open-ended questions, such as *“Tell me about that.”* or *“How did you deal with that?”*

Answer patients' questions.

¹¹⁶ Tarn, Mattimore and Wenger, 408.

¹¹⁷ NCPIE, 20 – cited as reference 62: Feldman and DeTullio.

¹¹⁸ Martin, Jahng, Golin and DiMatteo, 159.

¹¹⁹ Martin, Jahng, Golin and DiMatteo, 160.

¹²⁰ Martin, Jahng, Golin and DiMatteo, 160.

¹²¹ Martin, Jahng, Golin and DiMatteo, 160.

¹²² Martin, Jahng, Golin and DiMatteo, 161.

¹²³ Martin, Jahng, Golin and DiMatteo, 161.

¹²⁴ Martin, Jahng, Golin and DiMatteo, 162.

¹²⁵ Martin, Jahng, Golin and DiMatteo, 162.

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Saskatchewan Drug Information Services (SDIS) at the University of Saskatchewan responds to drug information requests from both healthcare professionals and consumers. The service provides information about “adverse reactions/side effects, compounding problems, contraindications/precautions, drug availability (new, investigational, special access), drug compatibility/stability, drug dosages/administration, drug identification (Canadian, foreign), drug use in pregnancy and lactation, drugs of choice, pharmacology and therapeutic indications.”¹²⁶

Advise patients that they can contact Saskatchewan Drug Information Services (SDIS) if they think of other questions when they get home. Questions can be asked by telephone at 1-800-665-DRUG (3784), or using an online request form (<http://druginfo.usask.ca>).

Remind patients that they can also call their pharmacist.

“[C]oncern about medication side effects remains a powerful barrier to patient adherence. In a 2005 survey of 2,507 adults conducted by Harris Interactive, nearly half of the respondents (45 percent) reported not taking their medicines due to concerns about side effects. Conversely, when medications such as antidepressants and corticosteroids are slow to produce intended effects, patients may believe the medication is not working and discontinue use.”¹²⁷ “Side effects have also been examined as a reason for medication non-adherence in older adults. Ferguson et al. found that 57% (37 of 65) of adults age 65 or older self-reported discontinuing their medication on their own. The majority of these (92%) cited side effects as the reason.”¹²⁸ “Among adults age 65 or older whose hospital admission was related to non-adherence, the most common cause was medication side effects (35%).”¹²⁹ “It has been found that patients reduce their drug intake to diminish the risk of side-effects or to discover the lowest drug dosage effective for them.”¹³⁰ “[D]ata show that providing patients with information about possible adverse effects does not appear to decrease adherence.”¹³¹

Let the patient know how long it may take to respond to treatment, and what else to expect.

Discuss common side effects. How important is each of these to the patient?

Explain whether side effects are usually transient or longer lasting, and how to manage them.

“Because 22% to 62% of patients experience adverse effects from antihypertensive drugs in the initial period of use, effective physician-patient communication and therapeutic management of these problems is critical. Approximately 15% to 25% of patients will not spontaneously report adverse effects to their physicians, and, among those who do, physicians act in only 63% of cases.”¹³² In a study of the influence of physicians’ management and communication ability on patients’ persistence with antihypertensive medication, Tamblyn et al. found that “[r]egardless of the class of antihypertensive treatment, early therapy change significantly reduced the risk of nonpersistence by 55%. ... [P]hysicians with higher overall scores in knowledge and decision making were more likely to make therapy changes in the first 2 weeks, and physicians with higher scores in communication were more likely to have their patients come in for follow-up visits in the first 2 months.”¹³³

“One of the most significant determinants of persistence was treatment change – specifically, the modification of the dosage or drug before the end of the first prescription. ... We found that more knowledgeable physicians were more likely to make treatment changes, either because they followed up their patients more effectively or their patients were more motivated to report problems. ... Patients expect physicians to explain the rationale and benefits of hypertension treatment and adverse effects. More knowledgeable physicians may be more likely to provide relevant information to patients and to monitor and intervene for side effects. It is also possible that physicians with better clinical decision-making ability

¹²⁶ College of Pharmacy and Nutrition, University of Saskatchewan.

¹²⁷ NCPIE, 13 – cited as reference 38: Tabor and Lopez.

¹²⁸ Schlenk, Dunbar-Jacob and Engberg, 36 – cited as: Ferguson, Ziedins, West et al.

¹²⁹ Schlenk, Dunbar-Jacob and Engberg, 36 – cited as: Col, Fanale and Kronholm.

¹³⁰ Vermeire, Hearnshaw, Van Royen and Denekens, 336.

¹³¹ NCPIE, 20 – cited as reference 63: McDonald, Garg and Haynes.

¹³² Tamblyn, Abrahamowicz, Dauphinee et al., 1065.

¹³³ Tamblyn, Abrahamowicz, Dauphinee et al., 1068.

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incorporate patient and family preferences into the treatment decision-making process – aspects of treatment decision making that have been shown to improve persistence.¹³⁴

Monitor side effects and intervene early.

Finally, when speaking with patients in person, body language is an important non-verbal communication tool.¹³⁵ In one example provided by a patient, her physician's response to the patient's question sounded abrupt because the physician's hand remained on the doorknob of the examining room.

Maintain an open and 'listening' posture. Give the patient your undivided attention.

¹³⁴ Tamblyn, Abrahamowicz, Dauphinee et al., 1070.

¹³⁵ Health Canada, 49.

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Making Adherence Easier

Strategies for Improving Adherence

Communication is also an essential component of many strategies for improving adherence. Osterberg (Table 2) builds on this in suggesting ways to help patients follow a medication regimen: “emphasize the value of the regimen and the effect of adherence”; “listen to the patient, and customize the regimen in accordance with the patient’s wishes”; “elicit patient’s feelings about his or her ability to follow the regimen, and if necessary, design supports to promote adherence”; “provide simple, clear instructions and simplify the regimen as much as possible”.

Table 2: Strategies for Improving Adherence to a Medication Regimen¹³⁶

<ul style="list-style-type: none">• Identify poor adherence<ul style="list-style-type: none">○ Look for markers of nonadherence: missed appointments (“no-shows”), lack of response to medication, missed refills○ Ask about barriers to adherence without being confrontational• Emphasize the value of the regimen and the effect of adherence• Elicit patient’s feelings about his or her ability to follow the regimen, and if necessary, design supports to promote adherence• Provide simple, clear instructions and simplify the regimen as much as possible• Encourage the use of a medication-taking system• Listen to the patient, and customize the regimen in accordance with the patient’s wishes• Obtain the help from family members, friends, and community services when needed• Reinforce desirable behavior and results when appropriate• Consider more “forgiving” medications when adherence appears unlikely†<ul style="list-style-type: none">○ Medications with long half-lives○ Extended-release medications○ Transdermal medications

Information in this table was adapted from Osterberg and Rudd.

† Forgiving medications are drugs whose efficacy will not be affected by delayed or missed doses.

“For many patients, one of the biggest stumbling blocks to taking their medicines is the complexity of the regimen. Studies find that patients on once-daily regimens are much more likely to comply than patients who are required to take their medicine(s) multiple times each day.”¹³⁷ A study that used electronic monitors to assess non-adherence to antihypertensive medications found that “[f]or patients taking twice-daily medication (mean age, 59 years), non-adherence was significantly worse compared to participants taking once-daily medication (mean age, 55 years).”¹³⁸ “Adherence also decreases when patients are asked to master a specific technique in order to take their medication, such as using devices to test blood levels as part of a treatment protocol, using inhalers, or self-administering injections.”¹³⁹ “Simplifying instructions to the patient and medication schedules is essential, and minimizing the total number of daily doses has been found to be more important in promoting adherence than minimizing the total number of medications.”¹⁴⁰ To ensure that patients feel capable of following the regimen, ask them how they plan to incorporate the prescribed medication into their daily routine.¹⁴¹

Registered nurses also have a role. “As part of their assessment of older adults, nurses should obtain patients’ prescriptions from all health-care providers. The number of prescribed medications and doses should be reviewed with prescribing health-care providers, and nurses should collaborate with them to

¹³⁶ Osterberg and Blaschke, 493 (Table 3).

¹³⁷ NCPIE, 13.

¹³⁸ Schlenk, Dunbar-Jacob and Engberg, 35.

¹³⁹ NCPIE, 13.

¹⁴⁰ Osterberg and Blaschke, 492.

¹⁴¹ Tarn, Mattimore and Wenger, 409.

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make medication regimens clear and simple to remember. This assessment process may reduce polypharmacy and identify alternative drugs with once-daily rather than multiple-daily dosing regimens.”¹⁴²

Simplify the patient’s entire medication schedule as much as possible.

Ask patients how they plan to incorporate the prescribed medication into their daily routine.

Haynes also offers ways to increase adherence with both short- and long-term treatments (Table 3).

Table 3: Increasing Adherence with Short- and Long-Term Treatments

Increasing adherence with short-term treatments¹⁴³

- Counseling about the importance of adherence
- Written instructions about taking medicines
- Reminder packaging (e.g., calendar packs, dosettes)

Increasing adherence with long-term treatments¹⁴⁴

- Combinations of
 - Instruction and instructional materials
 - Simplifying the regimen (e.g., less frequent dosing, controlled release dosage forms)
 - Counseling about the regimen
 - Support group sessions
 - Reminders (manual and computer) for medications and appointments
 - Cuing medications to daily events
 - Reinforcement and rewards (e.g., explicitly acknowledging the patient’s efforts to adhere)
 - Self-monitoring with regular physician review and reinforcement
 - Involving family members and significant others

Haynes has many similarities to Osterberg, although Osterberg puts more emphasis on speaking with patients, and Haynes on written materials and other reminders. In a home care setting, “nurses can suggest various strategies to remedy adherence problems ... such as daily drug reminder charts and pill boxes.”¹⁴⁵

Encourage the use of memory aids such as daily drug reminder charts and pill boxes.

Both authors list social supports, such as involving family, friends, significant others, and the community. Some of this is practical, such as obtaining help from community services. However, social supports are also extremely important for motivation. “Social factors, such as a positive attitude by others in the community, improve compliance.”¹⁴⁶ Haynes also lists “support group sessions”, which may be available for some health conditions.

Involve the patients’ family members, friends and significant others.

Written Information

“[A] common reason why patients don’t take their medicines is simply forgetfulness.”¹⁴⁷ “In fact, a study found that 60 percent or more of patients being followed could not correctly report what their physicians told them about medication use 10 to 80 minutes after receiving the information.”¹⁴⁸ According to

¹⁴² Schlenk, Dunbar-Jacob and Engberg, 40.

¹⁴³ Haynes, McDonald and Garg, 2881 (Box 2).

¹⁴⁴ Haynes, McDonald and Garg, 2881 (Box 3).

¹⁴⁵ Schlenk, Dunbar-Jacob and Engberg, 41.

¹⁴⁶ Vermeire, Hearnshaw, Van Royen and Denekens, 335.

¹⁴⁷ NCPiE, 14 – cited as reference 39: Cramer and Spilker.

¹⁴⁸ NCPiE, 14 – cited as reference 40: Gottlieb.

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Osterberg, “forgetting” was the most common reason patients gave for not taking their medications: “In responses to a questionnaire, typical reasons cited by patients for not taking their medications included forgetfulness (30 percent), other priorities (16 percent), decision to omit doses (11 percent), lack of information (9 percent), and emotional factors (7 percent); 27 percent of the respondents did not provide a reason for poor adherence to a regimen.”¹⁴⁹

Neupert and McDonald-Miszczak investigated younger and older adults’ delayed recall of spoken instructions about a medication. The researchers wrote a script explaining the use of a fictitious medication, Mosemidide, “commonly used to treat a variety of intestinal conditions.”¹⁵⁰ “The medication instructions included (a) the name of the medication, (b) the common uses of the medication, (c) how to use the medication, (d) what to do if a dose is missed, (e) what to do before taking any new medication, and (f) possible side effects of the medication. ... This information was presented via audiotape and was recorded by a male medical doctor at an average rate of 137 words per minute with no significant pauses. Speech at normal conversation rates is 140 words per minute, so our task represented a close approximation of presentation rates in a real-life setting.”¹⁵¹

One hundred and five (105) younger adults and 58 older adults participated in the study.¹⁵² Participants completed a number of cognitive tests (including processing speed and working memory), answered questions about their level of education and physical health, and listened to the audiotape about Mosemidide. They were also asked to rate their level of difficulty in remembering doctors’ instructions. Approximately 24 hours later, each participant was telephoned and given an unexpected cued recall test. Overall, younger adults recalled 42% of the information, and older adults recalled 38%. “Younger adults were more likely to recall the name of the medication and its common uses compared to older adults who were more likely to recall what to do before taking a new medication. ... [S]tructured recall scores were poor overall. ... Participants’ poor recall of the ‘how to use’ information is particularly troubling because it is crucial to successful adherence.”¹⁵³ Further, “both younger and older adults’ expectations for recalling important medication information [were] not closely in-line with their actual ability to do so.”¹⁵⁴ The authors conclude: “We strongly suspect that such inaccurate judgements lower patients’ motivation to encode and remember medication information. If patients inaccurately assess the difficulty of remembering, then we suspect they are less likely to employ useful strategies.”¹⁵⁵ “[H]ealth care professionals can encourage realistic expectations in their patients by openly discussing and even stressing the complexity of medication instructions and the difficulty of delayed recall.”¹⁵⁶ The younger adults in Neupert’s study were undergraduates at Western Washington University, and the older adults were people living in the community. Results may be worse for sick people, who usually perform more poorly on cognitive tasks.¹⁵⁷

In addition to memory, “[a]nother significant barrier is the inability to understand and act on instructions for taking the medication.”¹⁵⁸ Patients with low literacy may have more difficulty not only recalling information but putting it into practice. “A 2006 study, published in the *Annals of Internal Medicine* found that low-literacy patients have difficulty understanding basic information regarding medication dosage. While over 70 percent of the respondents correctly stated instructions about taking two pills twice a day, only one-third (34.7 percent) could demonstrate the correct number of pills to be taken daily.”¹⁵⁹

Providing written material or inviting patients (or family members) to write things down is an obvious way both to improve recall and enhance understanding. “There are distinct advantages to written communication over [spoken] communication. Written communication has the advantage of visual cues.

¹⁴⁹ Osterberg and Blaschke, 490.

¹⁵⁰ Neupert and McDonald-Miszczak, 442 (Appendix A).

¹⁵¹ Neupert and McDonald-Miszczak, 431.

¹⁵² Neupert and McDonald-Miszczak, 430.

¹⁵³ Neupert and McDonald-Miszczak, 437.

¹⁵⁴ Neupert and McDonald-Miszczak, 437.

¹⁵⁵ Neupert and McDonald-Miszczak, 437-438.

¹⁵⁶ Neupert and McDonald-Miszczak, 439.

¹⁵⁷ Neupert and McDonald-Miszczak, 439.

¹⁵⁸ NCPIE, 14.

¹⁵⁹ NCPIE, 14 – cited as reference 44: Davis, Wolf, Bass et al.

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Also the reader has control over the pace of absorbing the information [and] can reread the information any number of times.”¹⁶⁰

Canada’s Research-Based Pharmaceutical Companies (Rx&D), in partnership with the Canadian Medical Association (CMA) and the Canadian Pharmacists Association (CPhA), has produced a downloadable medication record book¹⁶¹ (available at <https://www.canadapharma.org/en/publications/knowledge/default.aspx>). The accompanying booklet, “Knowledge is the best medicine” suggests what patients need to know to use medicines safely.

Invite patients to write down information (e.g. medication instructions; their blood pressure reading, if this is what you are monitoring).

Offer paper and a pen.

“Morrow et al. stated that medication instructions should mention actions in the order in which they are performed, because instructions are easier to follow when they are in the proper order and do not require reordering by the patient. Also, medication instructions should clearly signal information that is important.”¹⁶² Other research has found that “[c]omprehension and recall of medication information was facilitated significantly when drug-taking instructions were explicit and organized in lists rather than paragraphs.”¹⁶³ “Patients who received a medication schedule ... made fewer medication errors based on pill counts than those without a medication schedule.”¹⁶⁴

Many healthcare professionals may have occasion to prepare written instructions for patients.

When preparing written instructions:

- use lists rather than paragraphs;
- list actions in the order they are performed;
- draw attention to what is most important.

Unfortunately, some readily available written material is not as useful as it might be. Dellande and Taylor examined the effectiveness of pamphlets about weight loss, dialysis and prenatal care, all of which aimed to influence reader behaviour. The main shortcoming of these materials was that they lacked information on the consequences of non-compliance.¹⁶⁵

Winterstein et al. conducted an evaluation of consumer medication information dispensed in retail pharmacies in the U.S. “[R]etail pharmacies are key sources of written consumer medication information (CMI) through leaflets dispensed with prescription drugs.”¹⁶⁶ A national panel of eight experts (including physicians, clinical pharmacists, drug information specialists and pharmacy educators) examined 40 CMI leaflets for two widely-used medications: lisinopril and metformin.¹⁶⁷

“Most leaflets for lisinopril and metformin included generic names and indications for use. Brand names and physical descriptions of the medication were each provided in less than half of the CMI leaflets. The possibility of off-label use was mentioned on 84% of leaflets for lisinopril but on only 25% for metformin. ... Ten percent of leaflets did not mention allergic reactions to angiotensin-converting enzyme inhibitors as a contraindication for use. For metformin, appropriate listing of contraindications ranged from 40% for radiographic contrast agents to 89% for known hypersensitivity or allergic reaction. Usual dosing information was included in slightly more than one-third of leaflets for both medications, and actual personal dosing instructions were appended to the leaflet for 60% of leaflets for both medications.

¹⁶⁰ Dellande and Taylor, 35 – cited as: Purtilo and Haddad.

¹⁶¹ Canada’s Research-Based Pharmaceutical Companies (Rx&D).

¹⁶² Neupert and McDonald-Miszczak, 429 – cited as: Morrow, Leirer and Sheikh.

¹⁶³ Schlenk, Dunbar-Jacob and Engberg, 37.

¹⁶⁴ Schlenk, Dunbar-Jacob and Engberg, 38.

¹⁶⁵ Dellande and Taylor, 48.

¹⁶⁶ Winterstein, Linden, Lee et al., 1317.

¹⁶⁷ Winterstein, Linden, Lee et al., 1318-1319.

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Although slightly more than 70% of leaflets mentioned that monitoring was needed, detail on monitoring parameters or their frequency was rarely mentioned.¹⁶⁸

“Less than one-third of the leaflets used a font size of 10 points or larger (range, 5-12 points). Only 15% of leaflets for either medication met the criterion for space between lines of at least 2.2 mm, and only 7% used bullets when listing key points. Boldfaced text was rarely used for emphasis (6%). ... Most common for providing emphasis was the use of all caps, which increases reading difficulty.¹⁶⁹ The authors conclude: “Considering the sheer volume of information in addition to the formatting of CMI, it is not surprising if consumers treat CMI as they would manuals provided with electronic equipment: they defer to the ‘quick start’ and hope that they never need to consult the remainder.”¹⁷⁰ Materials distributed by Saskatchewan pharmacies are not entirely without these shortcomings.

¹⁶⁸ Winterstein, Linden, Lee et al., 1320.

¹⁶⁹ Winterstein, Linden, Lee et al., 1320.

¹⁷⁰ Winterstein, Linden, Lee et al., 1322.

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Assessing and Improving Adherence When Dispensing Medication

“Because pharmacists have direct and frequent contact both with prescribers and patients, research suggests that community-based pharmacists can play a unique role in promoting medication adherence.”¹⁷¹

The Canadian Pharmacists Association’s “Blueprint for Pharmacy” offers a vision for pharmacy: “Optimal drug therapy outcomes for Canadians through patient-centred care”¹⁷² where pharmacists “manage drug therapy in collaboration with patients, caregivers and other healthcare providers; identify medication use issues, take responsibility for drug therapy decision and monitor outcomes; ... [and] empower patients in decision-making about their health, and play a prominent role in health promotion, disease prevention and chronic disease management.”¹⁷³

To better understand impediments to patient-centred care, a 2005 Swedish study (Ramström et al.) examined differences in beliefs between patients and pharmaceutical specialists regarding medications. “Pharmaceutical specialists include prescriptionists who have had 3 years of higher education and pharmacists who have had 5 years of higher education.”¹⁷⁴ “One of the concordance tasks is to elicit the patient’s views on the possibility of adherence to medication. The personnel at the pharmacies may serve a particularly important role in the process since they are often the last health care professional with whom the patient has contact before making decisions about medicine taking.”¹⁷⁵

Questionnaires completed by 141 patients and 136 pharmaceutical specialists were used in the analysis.¹⁷⁶ Respondents were asked how strongly they agreed with 11 statements about overuse, harm and benefit of medicines. The greatest difference in views between patients and pharmaceutical specialists was to the statement: “People who take medicines should stop their treatment for a while every now and again.” Twenty-nine percent (29%) of patients agreed or strongly agreed with this statement, compared with 4% of pharmaceutical specialists. Forty-one percent (41%) of patients were uncertain, and only 30% disagreed or strongly disagreed (compared with 22% and 74% for pharmaceutical specialists). Conversely, patients were less likely to agree with the statement: “In most cases the benefits of medicines outweigh the risks.” Only 74% of patients agreed/strongly agreed, compared with 92% of pharmaceutical specialists.¹⁷⁷

“The differences in beliefs mean that the pharmaceutical specialists cannot take for granted that the patients share their views about medicines. ... [H]ealth care professionals need to ask questions, e.g., concerning the patient’s attitudes about medicines, to avoid inaccurate assumptions and guesses. The health care professionals need to engage with the patients’ experiences and use of drugs since the individuals’ attitudes or set of beliefs are considered to predispose the patients to behave in a certain way.”¹⁷⁸ “The pharmaceutical specialists should elicit the patient’s concerns about the prescribed medications, e.g., about side effects.”¹⁷⁹ “We think that interventions focus[ed] on the pharmaceutical specialists’ communication skills as well as on more active listening are needed to facilitate the development of concordance in practice.”¹⁸⁰

When dispensing a new prescription or speaking with patients (especially those who, according to the PIP, have not been picking up refills as frequently as expected), pharmacists may find useful some of the same communication tools suggested for prescribers: Ask, Tell, Ask; asking open-ended questions; and answering patients’ questions.

¹⁷¹ NCPIE, 15.

¹⁷² Task Force on a Blueprint for Pharmacy, 4.

¹⁷³ Task Force on a Blueprint for Pharmacy, 4.

¹⁷⁴ Ramström, Afandi, Elofsson and Petersson, 245.

¹⁷⁵ Ramström, Afandi, Elofsson and Petersson, 245.

¹⁷⁶ Ramström, Afandi, Elofsson and Petersson, 246.

¹⁷⁷ Ramström, Afandi, Elofsson and Petersson, 247.

¹⁷⁸ Ramström, Afandi, Elofsson and Petersson, 248.

¹⁷⁹ Ramström, Afandi, Elofsson and Petersson, 248.

¹⁸⁰ Ramström, Afandi, Elofsson and Petersson, 248.

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Ask – “Are you familiar with this medication?”
“Do you have any concerns about this [or any] medication?”

Tell – usually a brief explanation, followed by...

Ask – “Any other thoughts?” “Any other questions?”
“Now that we have talked a bit about it, what are your concerns?” or
“If I am not clear, tell me what you heard and then I can clarify anything I’ve left out.”

Ask open-ended questions, such as “Tell me how you dealt with that.”

Answer patients’ questions.

In addition to educating patients about a new prescription, Saskatchewan’s Trial Prescription Program (TPP) allows pharmacists to dispense a smaller quantity (a 7- or 10-day supply) of some medications to determine if the prescribed drug is effective and/or tolerated by that patient. The prescription must be a new medication for the client, written for a one-month (34 day) duration or longer.¹⁸¹ Currently, eligible medications include those in Drug Plan Formulary classes 24:00 (Cardiovascular Drugs), 28:00 (Central Nervous System Agents), misoprostol (a gastrointestinal agent) and pentoxifylline (a hemorrheologic agent).¹⁸² With a trial prescription the patient benefits because drug-related problems are reduced through increased monitoring and follow-up, and he or she does not need to purchase the entire prescription before establishing its therapeutic value or the acceptability of any side effects. Less medication is wasted.

Offer clients a trial prescription if appropriate.

The U.S. Federal Study of Adherence to Medications in the Elderly (FAME) showcased the role of pharmacists in achieving lasting improvements in adherence, and clinically meaningful reductions in blood pressure (BP) and low-density lipoprotein cholesterol (LDL-C). FAME “was a multiphase single-center [Walter Reed Army Medical Center in Washington D.C.] study of the efficacy of a comprehensive pharmacy care program, which included patient education and an adherence aid (medications custom-packaged in blister packs) to improve medication adherence among military health care beneficiaries aged 65 years or older who were prescribed at least 4 chronic medications per day.”¹⁸³ Eligible patients lived independently, either in the Armed Forces Retirement Home or elsewhere in the community.¹⁸⁴

“The FAME study consisted of 3 phases (run-in phase, phase 1 [prospective, observational study], and phase 2 [randomized controlled trial]), with a follow-up period of 14 months.”¹⁸⁵ “After a 2-month run-in phase (measurement of baseline adherence, BP, and LDL-C), patients entered [the] intervention phase.”¹⁸⁶ Phase 1 (3-8 months) was a comprehensive pharmacy care program consisting of three elements: “individualized medication education (using standardized scripts), medications dispensed using an adherence aid (blister packs), and regular follow-up with clinical pharmacists every two months. Individualized educational interventions were performed to teach participants their drug names, indications, strengths, adverse effects, and usage instructions during each visit. The initial visit was scheduled for 1 hour. Subsequent visits (including adherence assessments, education as needed, and prescription refills) were scheduled for 30 minutes.”¹⁸⁷ “Study personnel did not adjust medications or their dosages.”¹⁸⁸ In phase 2 (6 months), patients were randomized in a 1:1 ratio to either continue with pharmacy care or return to usual care.

As stated earlier in this paper, patients with chronic asymptomatic health conditions typically have sharp declines in their adherence within a few months of beginning treatment. The FAME study achieved an

¹⁸¹ Saskatchewan Ministry of Health, “Trial Prescription Program (TPP)”.

¹⁸² Saskatchewan Ministry of Health, *Formulary*, 284 (Appendix F).

¹⁸³ Lee, Grace and Taylor, 2563-2564.

¹⁸⁴ Lee, Grace and Taylor, 2564.

¹⁸⁵ Lee, Grace and Taylor, 2564.

¹⁸⁶ Lee, Grace and Taylor, 2563.

¹⁸⁷ Lee, Grace and Taylor, 2564-2565.

¹⁸⁸ Lee, Grace and Taylor, 2565.

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increase in medication adherence from 61% to 96%.¹⁸⁹ The proportion of patients who took more than 80% of prescribed doses for all of their medications [80% is a threshold commonly used to define good adherence] increased from 5.0% to 98.7%.¹⁹⁰ The “initial marked increase in medication adherence did not persist in the group randomized to resume ‘usual care’ for 6 months, although there was a modest increase over baseline adherence levels.”¹⁹¹

“In general, multicomponent interventions, including cognitive and behavioral characteristics, are believed to be most effective. These recommendations are relevant to the study design of FAME, which included the provision of external cognitive supports involving education strategies (patient education and counseling) and a behavioral component focused on the mechanics of medication delivery (blister packs).”¹⁹²

Offer compliance packaging (such as blister packs) to patients with complex regimens.

In another study where “pharmacists provided adherence counseling to patients with high blood cholesterol, medication adherence improved from a national average of 40 percent to 90 percent.”¹⁹³

These were specialized interventions showing great potential for patient education by pharmacists. However, it is easy to underestimate the importance of providing clear spoken and written instructions for retail customers every day. One illustration is provided in the Institute for Safe Medication Practices (ISMP) “Medication Safety Alert!” bulletin. This example shows how even simple written directions can be misinterpreted. “A 67-year-old male arrived at a hospital emergency department (ED) with hypotension, tachycardia, gray vision, and lightheadedness. The patient’s EKG showed abnormal sinus rhythm resembling atrial fibrillation. He was admitted for observation and his cardiologist was consulted. The initial plan was to start this patient on digoxin and increase his metoprolol dose. During a medication reconciliation meeting with the pharmacist, the patient described taking FLOMAX (tamsulosin) 0.4 mg capsule with meals, three times a day. On the day of his admission, he said he’d only taken his ‘breakfast dose’ before coming to the ED. He said he’d started Flomax 2 weeks before and had taken one capsule three times a day the entire time, noting that the medication bottle said ‘take daily after a meal.’ The patient admitted that he had assumed that these directions meant to take the medication after every meal. A decision was made to stop the Flomax and to not treat the patient with digoxin or increase his metoprolol dose. The patient returned to normal sinus rhythm, blood pressure, and heart rate by the next morning. The product label mentions that this medication should be taken once daily after a specific meal and repeated each day after the same meal. For example, ‘Take one capsule by mouth once daily after lunch.’ The patient should have received better education when picking up his prescription to ensure he understood how to properly use this medication. Vague directions on labels can lead to the incorrect assumption even by well-educated, competent patients.”¹⁹⁴

Ensure that written instructions are unambiguous and contain all the important information.

Go over written instructions with the patient to confirm understanding.

¹⁸⁹ Lee, Grace and Taylor, 2569.

¹⁹⁰ Lee, Grace and Taylor, 2569.

¹⁹¹ Lee, Grace and Taylor, 2570.

¹⁹² Lee, Grace and Taylor, 2569.

¹⁹³ NCPIE, 23 – cited as reference 69: Blum, McKenney and Cziraky.

¹⁹⁴ The Institute for Safe Medication Practices (ISMP), “Ambiguous directions, wrong assumption by patient”, 1-2.

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“[T]he American Society of Consultant Pharmacists states that patients need to know:

What condition the medicine was prescribed to treat.

What the medicine is, why it is needed and how it works in the body.

Why the medicine was selected.

The dosage schedule and related instructions about how to take the medicine (before eating, with food, etc.).

Whether the medicine will work safely with other medicines being taken (both prescription and nonprescription medicines).

What to do if doses are missed or delayed.

The common adverse effects that may occur and what to do about them.

How to monitor whether the medicine is having its intended effect (are lab tests or blood work necessary; if so, how often).

Serious adverse effects to look out for and what to do if they occur.

What action to take when the prescription is about to run out.”¹⁹⁵

Lack of time is an impediment to all health care professionals in providing adequate counselling to their patients. In community pharmacy, lack of privacy to discuss a patient’s concerns is an additional challenge.

¹⁹⁵ NCPIC, 20.

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Assessing and Improving Adherence in Hospitalized Patients

“Accurate medication histories at the time of hospital admission are an important element of medication safety. First, they may uncover reasons for a patient’s illness, such as adverse drug events or nonadherence to drug therapy. Second, medication history errors may result in interrupted or inappropriate drug therapy during and following the hospital stay.”¹⁹⁶

Patient transition points (such as admission to hospital, transfer from ICU to a regular ward, discharge home, or transfer/discharge to long-term care) are especially vulnerable to medication and other errors. Medication reconciliation (MedRec) is a process designed to prevent medication errors at these critical times. “The aim is to eliminate undocumented intentional discrepancies and unintentional discrepancies by reconciling all medications, at all interfaces of care. ... Medication Reconciliation is a formal process of: (1) obtaining a complete and accurate list of each patient’s current home medications (including name, dosage, frequency and route); (2) using that list when writing admission, transfer and/or discharge medication orders; and (3) comparing the list against the patient’s admission, transfer, and/or discharge orders, identifying and bringing any discrepancies to the attention of the prescriber and, if appropriate, making changes to the orders. Any resulting changes in orders are documented.”¹⁹⁷

In Saskatchewan, the first step described above (also referred to as getting a “best possible medication history”, or BPMH), begins with accessing the PIP, followed by speaking with the patient or family to confirm how the patient is actually taking these medications. Although not the main intent of medication reconciliation, this allows the nurse, pharmacist or physician to identify adherence problems.

Use medication reconciliation as an opportunity to identify poor adherence in patients admitted from the community.

Patient-provider communication is also an issue in hospital. “Hospital surveys indicate lack of patient awareness of diagnoses and treatments, yet physicians report they effectively communicate with patients. ... Although physicians believe they fully explain discharge instructions and patients understand them, patients often report they do not know, on discharge, why they are taking medications, for how long they should take them, or when they should resume normal activity.”¹⁹⁸ This prompted Olson and Windish to study communication discrepancies between physicians and hospitalized patients.

Eighty-nine (89) patients at a not-for-profit community teaching hospital in Connecticut were surveyed using two well-validated Likert-style instruments: the Picker Patient Experience Questionnaire and the Consumer Assessment of Healthcare Providers and Systems Hospital Survey (HCAHPS). Forty-three (43) physicians participated in the survey.¹⁹⁹

“Only 51 (57%) patients could correctly state their diagnosis, with 38 (43%) not knowing or incorrectly stating their reason for admission. This compares with 69 (77%) physicians who thought their patients understood their diagnosis at least somewhat well. ... Sixty patients (67%) reported receiving a new medication in the hospital that they had not previously taken. Of those patients, 15 (25%) stated that their physicians never told them they were receiving a new medication. ... Regarding medication adverse effects, 90% of patients reported never being told of adverse effects for new medications, compared with 19% of physicians who stated they never discuss adverse effects of medications with patients. ... Half of patients reported having anxieties or fears while in the hospital. Of those who had anxiety or fear, 25 (54%) stated physicians never discussed these fears with them.”²⁰⁰

Conversely, “[c]ompared with physicians, a greater number of patients believed information delivered by their physician was completely comprehensible. Fifty-two patients (58%) believed physicians always gave explanations in a way they could understand, whereas only a few physicians, 9 (21%), thought they

¹⁹⁶ Tam, Knowles, Cornish et al., 510.

¹⁹⁷ Safer Healthcare Now! (SHN), 5.

¹⁹⁸ Olson and Windish, 1302.

¹⁹⁹ Olson and Windish, 1303-1304.

²⁰⁰ Olson and Windish, 1304.

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always did so.²⁰¹ “[And as] a group, patients believed they were adequately involved in decisions made about their care and treatment; 61 patients (69%) stated that they did not want to become more involved in their care. Physicians differed in their opinion, such that only 1 physician (2%) believed patients did not want to become more involved.”²⁰²

Yet if so many patients are unsure or mistaken about their diagnosis and new medications, they may benefit from more information. This teaching role could be played by nurses and pharmacists as well as by physicians.

In its medication administration guidelines for registered nurses, the Saskatchewan Registered Nurses’ Association defines the role of the registered nurse (RN) in administering medications: “Competent medication administration requires the ability to assess the appropriateness of the medication for a particular client. Evaluation of the appropriateness of a medication requires knowledge of the actions, interactions, side effects (including allergic reactions), usual dose, route and approved use, basic pharmacokinetics of the drug and the client’s response to it. Competent medication administration also includes preparing the medication according to directions, monitoring the client while administering the medication, appropriately intervening as necessary, evaluating the outcome of the medication on the client’s health status and documenting the process. Assessment and evaluation of the appropriateness of the medication is done in collaboration with the client.”²⁰³ “It is necessary to talk to clients or caregivers to ascertain that they understand the use of the medication and any special precautions or observations that might be indicated.”²⁰⁴ The SRNA’s guidelines support shared decision making and patient-centred care: “The relationship between a registered nurse and client is based on the recognition that clients are able to make decisions about their own life and are partners in the decision-making process. The extent a client participates is determined by the client’s health status, willingness and expectations.”²⁰⁵

In a newsletter for patients published by the Institute for Safe Medication Practices Canada (ISMP Canada), patients going into hospital are advised: “Be familiar with the names of your medications, how you take them and why you take them. Confirm that the medication you are receiving is meant for you. If the medication you are being given does not seem to be correct, ask questions or raise your concerns. You should expect to have your questions answered and your concerns addressed.”²⁰⁶ This is consistent with the SRNA’s guidelines: “Clients are a resource in the reduction of medication errors. Clients should be supported to question why they are receiving a medication, verify that they are receiving the appropriate medication, dose and route, and alert the health professional involved in prescribing, dispensing or administering a medication to potential problems such as past drug-drug interactions or allergies.”²⁰⁷ Registered nurses educate clients about their medications, advocate for their needs, and support them to be co-managers of their care.²⁰⁸ Patients may have questions not just about medications newly prescribed in hospital, but about continuing medications that may look different than those they take at home.

State the name of any drug being administered. Explain its purpose.

If asked, explain any differences between the patient’s hospital and home medications.

Two studies have found that inpatient self-medication programs before hospital discharge improved older adults’ adherence. In both, the intervention consisted of medication instructions from a nurse or pharmacist, with patients assuming increasing responsibility for taking their own medications, under nursing supervision, during their hospitalization. The control groups had medications administered by nurses as usual. After hospital discharge (10 days in one study; one month in the other) patients who participated in the self-medication program had significantly better medication adherence based on pill

²⁰¹ Olson and Windish, 1304.

²⁰² Olson and Windish, 1304.

²⁰³ Saskatchewan Registered Nurses’ Association (SRNA), 4.

²⁰⁴ SRNA, 7.

²⁰⁵ SRNA, 8.

²⁰⁶ Institute for Safe Medication Practices Canada (ISMP Canada), 1.

²⁰⁷ SRNA, 15.

²⁰⁸ SRNA, 15.

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counts than the control group.^{209 210} “In acute and community care, one of the major roles of the registered nurse is to teach clients to safely administer their own medications and to help them understand the expected positive outcomes and potential adverse effects.”²¹¹

Prepare patients for discharge by giving them as much independence as possible in taking their own medications.

Planning for discharge is also an excellent opportunity to reconcile a patient’s hospital and home medications, and to simplify the regimen if possible. A 2001 study found that “taking a greater number of medications after hospitalization was significantly associated with underadherence among adults age 65 or older.”²¹²

²⁰⁹ Schlenk, Dunbar-Jacob and Engberg, 38 – cited as: Lowe, Raynor, Courtney et al.

²¹⁰ Schlenk, Dunbar-Jacob and Engberg, 38 – cited as: Pereles, Romonko, Murzyn et al.

²¹¹ SRNA, 4.

²¹² Schlenk, Dunbar-Jacob and Engberg, 36.

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A Multidisciplinary Approach to Improving Adherence

“[W]hat is ultimately needed is a multidisciplinary approach to adherence management whereby the patient and all members of the health care team work together to cure the patient’s illness, provide symptom relief, or arrest the disease process. This approach is intended to convey a respect for the goals of both the patient and the health professional, and envisions patients and clinicians engaging in a productive discussion about medication regimens.”²¹³

The U.S. National Council on Patient Information and Education (NCPPIE) is promoting a new model – the Medicine Education Team, “a model of open communication and shared responsibilities in which physicians and other prescribers, nurses, pharmacists and other providers communicate with patients at every ‘teachable medicine moment,’ making communication a two-way street, listening to the patients as well as talking to them about their medicine use.”²¹⁴ “Looking to the future, this approach has potential to improve adherence rates significantly by changing the interaction between patients and clinicians and by engaging all parties throughout the continuum of care.”²¹⁵

One example of a successful multidisciplinary initiative was a prospective, cluster-randomized, controlled clinical trial of pharmacist-physician comanagement of hypertension. One hundred seventy-nine (179) patients with uncontrolled hypertension from 5 primary care clinics in Iowa City, Iowa were randomized to receive pharmacist-physician collaborative management of hypertension (intervention) or usual care (control) for a 9-month period.²¹⁶

“For patients in the intervention group, clinical pharmacists reviewed patient data obtained by the research nurse and then interviewed the patient. During the interview, the pharmacists evaluated (1) patient factors that might impede achieving the goal BP and (2) the patients’ current treatment strategies compared with clinical guidelines. The pharmacists then discussed treatment recommendations with the patients’ physicians. The physicians could choose to accept or reject the pharmacists’ recommendations, at their discretion.”²¹⁷

Pharmacists recommended 267 changes in drug therapy for the 101 intervention patients. Most recommendations involved adding a new antihypertensive medication (46.4%) or up-titrating the dose of an existing medication (33.3%). Physicians accepted and implemented 95.9% of the 267 pharmacist recommendations.²¹⁸ “Since typical physician visits are short and may not provide adequate time to address multiple issues, the collaborative management with pharmacists allowed specific time to focus on improving medication regimens to meet BP goals. The rate of acceptance of the pharmacist recommendations (95.9%) indicates a relatively high level of satisfaction with the pharmacist-physician comanagement model on the part of physicians in the clinics randomized to the intervention.”²¹⁹

In Saskatchewan, Laubscher et al. asked family physicians their views about the role of community pharmacists in improving adherence by patients with chronic diseases, and how physicians and pharmacists might collaborate to increase adherence.²²⁰ Questionnaires were mailed to 747 family physicians or general practitioners working in family practice or primary care clinics across the province.²²¹ “Almost all respondents (276 of 284 [97.2%]) believed that community pharmacists had a role in promoting adherence to chronic medications, with more than half (167 of 275 [60.7%]) indicating that pharmacists and physicians should take equal responsibility in addressing this issue.”²²² However, “[o]nly 25.9% (70 of 270) of physicians stated that they communicated with pharmacists at least weekly regarding medication adherence issues. Most of these respondents (37 of 70 [52.9%]) were from rural

²¹³ NCPPIE, 23.

²¹⁴ NCPPIE, 24.

²¹⁵ NCPPIE, 4.

²¹⁶ Weber, Ernst, Sezate et al., 1634.

²¹⁷ Weber, Ernst, Sezate et al., 1635.

²¹⁸ Weber, Ernst, Sezate et al., 1636.

²¹⁹ Weber, Ernst, Sezate et al., 1636.

²²⁰ Laubscher, Evans, Blackburn et al., e69.

²²¹ Laubscher, Evans, Blackburn et al., e71.

²²² Laubscher, Evans, Blackburn et al., e71-e72.

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practices. Among physicians who practised in urban centres, only 16.9% regularly communicated with pharmacists regarding medication adherence.²²³

With regard to what form the collaboration between physicians and pharmacists might take, “[m]ost physicians (96.5%) reported that they would like pharmacists to notify them if a patient was not regularly refilling his or her chronic medications; and 205 of 275 (74.5%) physicians would typically prefer to be contacted by facsimile. [In addition, m]ost physicians (82.8%) were supportive of documenting the clinical reason for a medication on the prescription container label, so that the patient knows what the drug is for. ... The willingness of physicians to provide more information (i.e., clinical indications or therapy concerns) on prescriptions in order to assist pharmacists in targeting adherence issues was mixed. Many physicians commented that the suggested collaborative activities would require more time and effort, and must be recognized and compensated by health care funding agencies.”²²⁴

²²³ Laubscher, Evans, Blackburn et al., e72.

²²⁴ Laubscher, Evans, Blackburn et al., e72-e73.

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Epilogue

A 2000 study of adherence to prescription medications among medical professionals provides some context. Among 435 respondents (a convenience sample of physicians and registered nurses), 301 had one or more medications prescribed within two years of the survey. The authors hypothesized that “[m]edical professionals may be a particularly adherent group because they are educated regarding medication usage, should be motivated to take prescribed medications to effect resolution of illness, have access to medical care, and usually have the financial resources to pay for needed care.”²²⁵

The goal of the study was to gain insight regarding a possible upper bound for medication adherence, but the reasons given for non-adherence also proved interesting. “The reported adherence for all prescriptions was 79%.”²²⁶ However, in identifying study limitations, the authors state: “If anything, the adherence rates reported by medical professionals may be overestimated. Haynes et al. reported that when pill counts of unused medication were used to measure adherence, self-reporting overestimated adherence by 17%.”²²⁷

“Health care professionals reported ‘forgetting’ and/or being ‘too busy’ as the most common reasons for missing medications. These reasons for nonadherence were cited with regard to 69 (17%) of the 412 acute illnesses and 25 (13%) of the 198 chronic illnesses. Twenty-two medications (15 for acute and 7 for chronic illnesses) were not taken because of intolerance, and 12 medications (9 for acute and 3 for chronic conditions) were not taken because the individuals reported that they ‘felt better’.”²²⁸ “The argument can be made that nonadherence among medical practitioners might have occurred because they chose to stop prescribed medications when they believed they had reached the therapeutic outcome. However, this was reported as a reason for missed medication only 15 times and was not a major factor for nonadherence.”²²⁹

²²⁵ Corda, Burke and Horowitz, 585.

²²⁶ Corda, Burke and Horowitz, 586.

²²⁷ Corda, Burke and Horowitz, 588.

²²⁸ Corda, Burke and Horowitz, 586-587.

²²⁹ Corda, Burke and Horowitz, 588.

Understanding Prescriptions

References

- Arnold SB, *Issue Brief – Improving Quality Health Care: The Role of Consumer Engagement* (Robert Wood Johnson Foundation, October 2007). [<http://www.rwjf.org/pr/product.jsp?id=23071> – accessed April 8, 2010]
- Blum BL, McKenney JM and Cziraky MJ, “Pharmaceutical care services and results in Project ImPACT: Hyperlipidemia,” *Journal of the American Pharmacists Association* 40, no. 2 (2000): 157-165.
- Britten N, Stevenson FA, Barry CA, Barber N and Bradley CP, “Misunderstandings in prescribing decisions in general practice: Qualitative study,” *British Medical Journal* 320, no. 7233 (February 19, 2000): 484-488.
- Canada’s Research-Based Pharmaceutical Companies (Rx&D), *Knowledge is the best medicine: Medication Record Book* (Ottawa, ON: Canada’s Research-Based Pharmaceutical Companies (Rx&D)).
- Canada’s Research-Based Pharmaceutical Companies (Rx&D), *Knowledge is the best medicine: What you need to know about your medicines* (Ottawa, ON: Canada’s Research-Based Pharmaceutical Companies (Rx&D)).
- Chow S, Teare G and Basky G, *Shared decision making: Helping the system and patients make quality health care decisions* (Saskatoon, SK: Health Quality Council, September 2009).
- Col N, Fanale JE and Kronholm P, “The role of medication noncompliance and adverse drug reactions in hospitalizations of the elderly,” *Archives of Internal Medicine* 150, no. 4 (April 1990): 841-845.
- College of Pharmacy and Nutrition, University of Saskatchewan, “Saskatchewan Drug Information Services (SDIS) – Drug Information Requests” webpage (SDIS >> Consumer >> Drug Info Requests). [<http://druginfo.usask.ca>]
- Corda RS, Burke HB and Horowitz HW, “Adherence to prescription medications among medical professionals,” *Southern Medical Journal* 93, no. 6 (June 2000): 585-589.
- Cramer JA, “Overview of methods to measure and enhance patient compliance”, in: Cramer JA and Spilker B, eds., *Patient Compliance in Medical Practice and Clinical Trials* (New York, NY: Raven Press, 1991): 3-10.
- Cramer JA and Spilker B, eds., *Patient Compliance in Medical Practice and Clinical Trials* (New York, NY: Raven Press, 1991): 387-392.
- Davis TC, Wolf MS, Bass III PF, Thompson JA, Tilson HH, Neuberger M and Parker RM, “Literacy and misunderstanding prescription drug labels,” *Annals of Internal Medicine* 145, no. 12 (December 19, 2006): 887-894, W246.
- Dellande S and Taylor GA, “The role of written provider communication in external client participation,” *Health Marketing Quarterly* 21, no. 4 (2004): 31-50.
- DiMatteo MR, Giordani PJ, Lepper HS and Croghan TW, “Patient adherence and medical treatment outcomes: A meta-analysis,” *Medical Care* 40, no. 9 (September 2002): 794-811.
- Dunbar-Jacob J, Erlen JA, Schlenk EA, Ryan CM, Sereika SM and Doswell WM, “Adherence in chronic disease,” *Annual Review Of Nursing Research* 18 (2000): 48-90.
- Elwyn G, Edwards A and Britten N, “‘Doing prescribing’: How doctors can be more effective,” *British Medical Journal* 327, no. 7419 (October 11, 2003): 864-867.

Understanding Prescriptions

- Epstein LH and Cluss PA, "A behavioral medicine perspective on adherence to long-term medical regimens," *Journal of Consulting and Clinical Psychology* 50, no. 6 (December 1982): 950-971.
- Feldman JA and DeTullio PL, "Medication noncompliance: An issue to consider in the drug selection process," *Arizona Pharmacist* (July/August 1994): 12-17.
- Ferguson RP, Ziedins E, West Z, Richardson JP and Michocki R, "Elderly drug choice survey," *Journal of Geriatric Drug Therapy* 11 (1996): 61-70.
- Gottlieb H, "Medication nonadherence: Finding solutions to a costly medical problem," *Drug Benefit Trends* 12, no. 6 (2000): 57-62.
- Hausman A, "Taking your medicine: Relational steps to improving patient compliance," *Health Marketing Quarterly* 19, no. 2 (2001): 49-71.
- Haynes RB, McDonald HP and Garg AX, "Helping patients follow prescribed treatment: Clinical applications," *Journal of the American Medical Association* 288, no. 22 (December 11, 2002): 2880-2883.
- Health Canada, *Better Physician-Patient Communication for Better Patient Outcomes* [Talking Tools I – An Interactive Presentation for Practising Physicians] (Ottawa, ON: Health Canada, 2001).
- Ingersoll KS and Cohen J, "The impact of medication regimen factors on adherence to chronic treatment: A review of the literature," *Journal of Behavioral Medicine* 31, no. 3 (June 2008): 213-224.
- The Institute for Safe Medication Practices (ISMP), "Ambiguous directions, wrong assumption by patient," *ISMP Medication Safety Alert!* 15, no. 19 (September 23, 2010): 1-2.
- The Institute for Safe Medication Practices (ISMP), "Learn to read your prescription," *Safe Medicine* 3, no. 3 (May/June 2005 – Special Edition): 1-2.
- Institute for Safe Medication Practices Canada (ISMP Canada), "Let people know who you are – Patient identification," *SafeMedicationUse Newsletter* 1, no. 3 (May 13, 2010): 1.
[<http://www.SafeMedicationUse.ca>]
- Keller VF and Carroll JG, "A new model for physician-patient communication," *Patient Education and Counseling* 23, no. 2 (June 1994): 131-140.
- Kramer JM, Hammill B, Anstrom KJ, Fetterolf D, Snyder R, Charde JP, Hoffman BS, Allen LaPointe N and Peterson E, "National evaluation of adherence to beta-blocker therapy for 1 year after acute myocardial infarction in patients with commercial health insurance," *American Heart Journal* 152, no. 3 (September 2006): 454.e1-e8.
- Kravitz RL and Melnikow J, "Medical adherence research: Time for a change in direction?," *Medical Care* 42, no. 3 (March 2004): 197-199.
- Kripalani S, Yao X and Haynes RB, "Interventions to enhance medication adherence in chronic medical conditions: A systematic review," *Archives of Internal Medicine* 167, no. 6 (March 26, 2007): 540-550.
- Laubscher T, Evans C, Blackburn D, Taylor J and McKay S, "Collaboration between family physicians and community pharmacists to enhance adherence to chronic medications: Opinions of Saskatchewan family physicians," *Canadian Family Physician* 55, no. 12 (December 2009): e69-e75.
- Lee JK, Grace KA and Taylor AJ, "Effect of a pharmacy care program on medication adherence and persistence, blood pressure, and low-density lipoprotein cholesterol: A randomized controlled trial," *Journal of the American Medical Association* 296, no. 21 (December 6, 2006): 2563-2571.

Understanding Prescriptions

- Lewis A, "Non-compliance: A \$100 billion problem," *Remington Report* 5, no. 4 (1997): 14-15.
- Lowe CJ, Raynor DK, Courtney EA, Purvis J and Teale C, "Effects of self medication programme on knowledge of drugs and compliance with treatment in elderly patients," *British Medical Journal* 310, no. 6989 (May 13, 1995): 1229-1231.
- Makoul G, Arntson P and Schofield T, "Health promotion in primary care: Physician-patient communication and decision making about prescription medications," *Social Science & Medicine* 41, no. 9 (November 1995): 1241-1254.
- Marinker M, Blenkinsopp A, Bond C et al., *From Compliance to Concordance: Achieving Shared Goals in Medicine Taking* (London, UK: Royal Pharmaceutical Society of Great Britain, 1997).
- Martin LR, Jahng KH, Golin CE and DiMatteo MR, "Physician facilitation of patient involvement in care: Correspondence between patient and observer reports," *Behavioral Medicine* 28, no. 4 (Winter 2003): 159-164.
- McDonald HP, Garg AX and Haynes RB, "Interventions to enhance patient adherence to medication prescriptions: Scientific review," *Journal of the American Medical Association* 288, no. 22 (December 11, 2002): 2868-2879.
- Melnikow J and Kiefe C, "Patient compliance and medical research: Issues in methodology," *Journal Of General Internal Medicine* 9, no. 2 (February 1994): 96-105.
- Meyer D, Leventhal H and Gutmann M, "Common sense models of illness: The example of hypertension," *Health Psychology: Official Journal of the Division of Health Psychology, American Psychological Association* 4, no. 2 (1985): 115-135.
- Morrow D, Leirer V and Sheikh J, "Adherence and medication instructions: Review and recommendations," *Journal of the American Geriatrics Society* 36, no. 12 (December 1988): 1147-1160.
- National Community Pharmacists Association, "Take as directed: A prescription not followed" [research conducted by The Polling Company™] (National Community Pharmacists Association, December 15, 2006).
- National Council on Patient Information and Education (NCPPIE), *Enhancing Prescription Medicine Adherence: A National Action Plan* (Rockville, MD: NCPPIE, 2007).
- Neupert SD and McDonald-Miszczak L, "Younger and older adults' delayed recall of medication instructions: The role of cognitive and metacognitive predictors," *Aging, Neuropsychology and Cognition* 11, no. 4 (December 2004): 428-442.
- Ockene IS, Hayman LL, Pasternak RC, Schron E and Dunbar-Jacob J, "Task Force #4 – Adherence issues and behavior changes: Achieving a long-term solution," *Journal of The American College of Cardiology* 40, no. 4 (August 21, 2002): 630-640.
- Olson DP and Windish DM, "Communication discrepancies between physicians and hospitalized patients," *Archives of Internal Medicine* 170, no. 15 (August 9/23, 2010): 1302-1307.
- Osterberg L and Blaschke T, "Adherence to medication," *New England Journal of Medicine* 353, no. 5 (August 4, 2005): 487-497.
- Pereles L, Romonko L, Murzyn T, Hogan D, Silvius J, Stokes E, Long S and Fung T, "Evaluation of a self-medication program," *Journal of The American Geriatrics Society* 44, no. 2 (February 1996): 161-165.

Understanding Prescriptions

- Purtilo R and Haddad AM, *Health Professional and Patient Interaction*, Fifth Edition (Philadelphia, PA: W.B. Saunders Company, 1996).
- Ramström H., Afandi S, Elofsson K and Petersson S, "Differences in beliefs between patients and pharmaceutical specialists regarding medications," *Patient Education and Counseling* 62, no. 2 (August 2006): 244-249.
- Reginster JY, Rabenda V and Neuprez A, "Adherence, patient preference and dosing frequency: Understanding the relationship," *Bone* 38, no. 4, supplement 1 (April 2006), S2-S6.
- Rogers PG and Bullman WR, "Prescription medicine compliance: A review of baseline knowledge – A Report of the National Council on Patient Information and Education," *Journal of Pharmacoepidemiology* 3, no. 2 (1995) [*Advancing Prescription Medicine Compliance: New Paradigms, New Practices*]: 3-36.
- Rovelli M, Palmeri D, Vossler E, Bartus S, Hull D and Schweizer R, "Noncompliance in organ transplant recipients," *Transplantation Proceedings* 21, no. 1, pt 1 (February 1989): 833-834.
- RxFiles Academic Detailing Program, *RxFiles Drug Comparison Charts*, 8th Edition (Saskatoon, SK: Saskatoon Health Region (SHR), 2010).
[<http://www.rxfiles.ca/rxfiles/modules/druginfindex/druginfo.aspx>]
- Safer Healthcare Now! (SHN), *Getting Started Kit: Medication Reconciliation Prevention of Adverse Drug Events – How-to Guide* (Edmonton, AB: Safer Healthcare Now!, May 2007).
- Safran DG, Neuman P, Schoen C, Kitchman MS, Wilson IB, Cooper B, Li A, Chang H and Rogers WH, "Prescription drug coverage and seniors: Findings from a 2003 national survey," *Health Affairs* 24 (January-June 2005 Supplement Web Exclusive): W5-152-W5-166.
- Saskatchewan Ministry of Health, *Formulary*, Sixtieth Edition (April 2010 – March 2011) (Regina, SK: Saskatchewan Ministry of Health, 2010).
[<http://formulary.drugplan.health.gov.sk.ca/publications/Formularyv60.pdf>]
- Saskatchewan Ministry of Health, "Online Formulary" webpage.
[<http://formulary.drugplan.health.gov.sk.ca/>]
- Saskatchewan Ministry of Health, "Trial Prescription Program (TPP)" [Drug Plan and Extended Benefits Branch Pharmacy Reference Manual (DPEBB Phcy Ref Man) Section III-B-15] (Regina, SK: Saskatchewan Ministry of Health, July 2007).
- Saskatchewan Registered Nurses' Association (SRNA), *Medication Administration: Guidelines for Registered Nurses* (Regina, SK: Saskatchewan Registered Nurses' Association (SRNA), 2007).
- Schlenk EA, Dunbar-Jacob J and Engberg S, "Medication non-adherence among older adults: A review of strategies and interventions for improvement," *Journal of Gerontological Nursing* 30, no. 7 (July 2004): 33-43.
- Segal JZ, "'Compliance' to 'concordance': A critical view," *Journal of Medical Humanities* 28, no. 2 (Summer 2007): 81-96.
- Shrank WH, Choudhry NK, Fischer MA, Avorn J, Powell M, Schneeweiss S, Liberman JN, Dollear T, Brennan TA and Brookhart MA, "The epidemiology of prescriptions abandoned at the pharmacy," *Annals of Internal Medicine* 153, no. 10 (November 16, 2010): 633-640.

Understanding Prescriptions

- Sleath B, Roter D, Chewning B and Svarstad B, "Asking questions about medication: Analysis of physician-patient interactions and physician perceptions," *Medical Care* 37, no. 11 (November 1999): 1169-1173.
- Smith VA, DeVellis BM, Kalet A, Roberts JC and DeVellis RF, "Encouraging patient adherence: Primary care physicians' use of verbal compliance-gaining strategies in medical interviews," *Patient Education and Counseling* 57, no. 1 (April 2005): 62-76.
- Stevenson FA, Barry CA, Britten N, Barber N and Bradley CP, "Doctor-patient communication about drugs: The evidence for shared decision making," *Social Science & Medicine* 50, no. 6 (March 2000): 829-840.
- Tabor PA and Lopez DA, "Comply with us: Improving medication adherence," *Journal of Pharmacy Practice* 17, no. 3 (2004): 167-181.
- Tam VC, Knowles SR, Cornish PL, Fine N, Marchesano R and Etchells EE, "Frequency, type and clinical importance of medication history errors at admission to hospital: A systematic review," *Canadian Medical Association Journal* 173, no. 5 (August 30, 2005): 510-515.
- Tamblyn R, Abrahamowicz M, Dauphinee D, Wenghofer E, Jacques A, Klass D, Smee S, Equale T, Winslade N, Girard N, Bartman I, Buckeridge DL and Hanley JA, "Influence of physicians' management and communication ability on patients' persistence with antihypertensive medication," *Archives of Internal Medicine* 170, no. 12 (June 28, 2010): 1064-1072.
- Tarn DM, Heritage J, Paterniti DA, Hays RD, Kravitz RL and Wenger NS, "Physician communication when prescribing new medications," *Archives of Internal Medicine* 166, no. 17 (September 25, 2006): 1855-1862.
- Tarn DM, Mattimore TJ and Wenger NS, "Physician-patient communication about new medications," *Journal of Clinical Outcomes Management* 14, no. 7 (July 2007): 404-410.
- Task Force on a Blueprint for Pharmacy, *Blueprint for Pharmacy: The Vision for Pharmacy* (Ottawa, ON: Canadian Pharmacists Association (CPhA), 2008).
- Theunissen NCM, de Ridder DTD, Bensing JM and Rutten GEHM, "Manipulation of patient-provider interaction: Discussing illness representations or action plans concerning adherence," *Patient Education and Counseling* 51, no. 3 (November 2003): 247-258.
- Tinetti ME and Kumar C, "The patient who falls: 'It's always a trade-off'," *Journal of the American Medical Association* 303, no. 3 (January 20, 2010): 258-266.
- Vermeire E, Hearnshaw H, Van Royen P and Denekens J, "Patient adherence to treatment: Three decades of research. A comprehensive review," *Journal of Clinical Pharmacy and Therapeutics* 26, no. 5 (October 2001): 331-342.
- Weber CA, Ernst ME, Sezate GS, Zheng S and Carter BL, "Pharmacist-physician comanagement of hypertension and reduction in 24-hour ambulatory blood pressures," *Archives of Internal Medicine* 170, no. 18 (October 11, 2010): 1634-1639.
- Winterstein AG, Linden S, Lee AE, Fernandez EM and Kimberlin CL, "Evaluation of consumer medication information dispensed in retail pharmacies," *Archives of Internal Medicine* 170, no. 15 (August 9/23, 2010): 1317-1324.
- World Health Organization (WHO), *Adherence to Long-Term Therapies: Evidence for Action* (Geneva, Switzerland: WHO, 2003).