

> Statement of Objectives

After reading this lesson you will be able to

1. Describe the impact of nonadherence on individual health outcomes and on health system outcomes.
2. Describe the barriers to medication adherence.
3. Describe the impact of gaps in care on medication adherence.
4. Describe how seamless care can support patient adherence.



SEAMLESS CARE AND PATIENT COMPLIANCE

by Judy Schoen, BScPharm, MBA

The author, expert reviewers and *Pharmacy Practice* magazine have each declared that there is no real or perceived conflict of interest with the sponsor company.

> Instructions

1. After carefully reading this lesson, study each question and select the one answer you believe to be correct. Circle the appropriate letter on the attached reply card.
2. Complete the card and mail, or fax to (416) 764-3937.
3. Your reply card will be marked and you will be advised of your results in a letter from Rogers Publishing.
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INTRODUCTION

SEAMLESS CARE HAS BEEN DEFINED AS desirable continuity of care, delivered to a patient in the health-care system across the spectrum of caregivers and their environment. Pharmacy care is carried on without interruption, so that when one pharmacist ceases to be responsible for a patient's care, another pharmacist or health-care professional accepts responsibility for the patient's care.¹ Seamless care is a critical component of health-care delivery in today's environment.

One of the most significant changes in health care is the shift of services from inpatient to the ambulatory setting. In Canada, for example, the average length of hospital stay decreased from 10.9 days in 1988-89 to 7 days in 1994-95.² Fewer patients are admitted to hospital for treatment. Patients who are admitted, stay for shorter periods. As a result, patients are being discharged back into their communities and longer-term care facilities at a higher level of acuity.

Among the reasons for the decline in acute patient hospital use and shifts to

ambulatory care are improved medical technologies, treatments and new pharmaceuticals. For example, many patients requiring intravenous antibiotics may be treated at home, and anticoagulants are often titrated on an outpatient basis. For patients whose condition is stable, this form of service delivery is a cheaper alternative to hospitalization and allows patients to remain in their own homes.

A major impetus of this shift to decreased hospitalization (both in terms of frequency and length of stay) and increase in ambulatory care is the increased role of medication in the management of disease. Improved understanding of the pathophysiology of both acute and chronic conditions have allowed for the cure or control of acute and chronic conditions without hospitalization or invasive procedures. However, successful outcomes are contingent upon many factors, including the stages of pharmaceutical care which have been defined by one group of investigators as prescribing, dispensing, patient compliance and monitoring.³

This lesson will focus on patient adherence and the role of seamless care in supporting patient adherence.

PATIENT ADHERENCE

ADHERENCE OR COMPLIANCE WITH MEDICAL advice has been defined as "...the extent to which a person's behaviour (in terms of taking medication, following diets, or executing lifestyle changes) coincides with medical or health advice."⁴ Adherence differs from the commonly-used term compliance, in that adherence specifies that the patient agrees with the recommendations. Nonadherence is often classified as intentional or non-intentional. Unintentional nonadherence occurs when the patient wishes to adhere but is prevented in some way (e.g. cannot afford medication). Intentional nonadherence is related to issues of motivation and how patients perceive their medications.⁵ It is estimated that only 50% of patients with chronic diseases in developed countries are adherent.⁴

This is a significant statistic in terms of health outcomes and system costs. As a population, individuals are living longer and are having ample opportunity to develop multiple chronic conditions. A recent review of a cross-section of medicare claims in the elderly in 1999 demonstrates the magnitude of this observation. Out of 1,216,103 cases, 82% had ≥ 1 chronic condition, 65% had ≥ 2 chronic conditions (and represented 95% of expenditures), 43% had ≥ 3 chronic conditions and 24% had ≥ 4

chronic conditions. The investigators found that individuals with ≥ 4 chronic conditions were 99 times more likely to have incurred a hospitalization that could have been prevented with appropriate primary care. The prevalence of chronic conditions is expected to increase, and by 2020 an estimated 157 million Americans (nearly 50% of the population) will have at least 1 chronic disease.⁶ One can expect similar trends in Canada. For example, over 2 million Canadians are estimated to have diabetes with 60,000 new cases each year.⁷ These numbers are expected to rise as the population ages and the rates of obesity rise. Two-thirds of Canadians have at least one modifiable factor for chronic disease. Because many chronic conditions share common modifiable risk factors, Canadians will also be at risk for several major diseases at once. Both the prevalence and cost of chronic-illness care is expected to rise in Canada.⁸

The extent of sub-optimal use of prescribed medication is illustrated in a study by Stewart and Pearson.⁹ The study investigated the use of prescribed medications in high-risk patients recently discharged from acute hospital care. At one week post-discharge, a home visit was performed by a nurse and pharmacist to assess compliance and medication-related knowledge. In almost 50% of the home visits, the pharmacist could not even identify all of the original medications from hospital discharge. The main reason was due to the mixing of discharge meds

with pre-admission medications and/or those prescribed subsequent to discharge. Based on a pill count, 46% of patients were considered non-compliant. The majority of patients were considered to have inadequate medication-related knowledge based on a structured medication questionnaire. There were also self-reports of non-compliance, hoarding and altering doses.

IMPACT OF NONADHERENCE

CLOSE TO 40% OF PATIENTS TAKE PRESCRIBED medication incorrectly or not at all.¹⁰ The major consequence of poor adherence (to both medication and nonmedication regimens) is less favourable health outcomes, such as disease exacerbations. A meta-analysis of 63 adherence studies found that on average, 26% more patients experienced a good outcome when adhering to prescribed treatments compared to those patients not adhering to their regimens. This suggests that adherence may be as important to outcomes as many well established medical interventions.¹⁰ (e.g. angioplasty and adherence to warfarin and ASA.)

This has been demonstrated in many disease states. Suboptimal adherence in diabetes decreases glycemic control increasing the risk for complications such as retinopathy, nephropathy and cardiovascular disease. A recent study found strong associations between decreased antidiabetic medication adherence and increased health-care utilization.¹¹

In the treatment of hypertension,

FACULTY SEAMLESS CARE AND PATIENT COMPLIANCE

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All lessons are reviewed by pharmacists for accuracy, currency and relevance to current pharmacy practice.

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studies have demonstrated a 50% reduction in stroke related events and a 30% reduction in cardiovascular events in older adults when the systolic blood pressure is reduced by 8 to 9 mm Hg.¹² Given data that suggest that adherence to anti-hypertensive therapies is generally less than 50% after 1 year and decreases with time, the impact is too large to ignore.¹³

In the treatment of dyslipidemias, aggressive lipid modification has been shown to decrease mortality and morbidity.¹⁴ The survival benefits of statins usually begin after 1 to 2 years of treatment and a recent analysis has shown that adherence to therapy was only 40.1% for patients with acute coronary syndrome, 36.1% for patients with chronic coronary heart disease and 25.4% for patients using statins for primary prevention.¹⁵

Nonadherence also taxes the health-care system in terms of acute care resources. McDonnell et al reviewed hospital admissions resulting from adverse drug reactions (ADRs). During an 11-month period, 437 cases of ADRs were identified; 158 admissions were directly attributable to the ADR; and 96 out of 158 cases were deemed preventable, based on the defined preventability criteria. The 96 admissions were associated with 595 days of care (with severe episodes averaging 9.83 days and moderate episodes averaging 5.05 days.) Three factors contributing to preventable adverse drug events (ADEs) were inadequate monitoring, inappropriate dosing and noncompliance. This study concluded that multidisciplinary strategies among physicians, pharmacists and other health-care professionals focusing on communication and education should be targeted both in the community and prior to discharge.¹⁶

The proportion of hospitalizations among older adults attributable to non-adherence has been reported to be as high as 11%.¹⁷ Coombs et al estimated that the financial burden of excess hospital, nursing home and ambulatory treatment costs associated with medication nonadherence in Canada may exceed \$3.5 billion.¹⁸

It is clear that nonadherence is costly to the patient in terms of morbidity and mortality and to the health-care system as a whole.

BARRIERS TO ADHERENCE

THE DECISION TO ADHERE AND THE ACTION OF adhering to medical regimens is a complex process and is contingent upon many factors. The correlation between factors such as socio-demographic variables and health status is tenuous at best. It has been suggested that the main contributing factors to noncompliance involve the patient's health beliefs, the nature of communication between the patient and health-care professionals and various psychological factors.¹⁹

Patients cite many reasons for non-compliance. They include

- Adverse effects
- Forgetfulness
- Asymptomatic: patient thinks drug is not needed, feels well without medication
- Prescription ran out, drug not available
- Drug is ineffective
- Taking too many drugs
- Unclear about proper administration
- Difficulty swallowing
- Problems opening containers²⁰

Many attempts have been made to identify variables that may impact patient adherence. A summary of the literature examining drug- and prescriber-related variables found that the following may have an impact on adherence.

- Increasing number of drugs
- Regimen complexity
- Longer duration of treatment
- Type of drug
- Self-administration
- Problems opening containers
- Increasing number of prescribing physicians
- Increasing number of pharmacies
- Poor patient-provider relationship or communication²⁰

An important component of patient adherence is positive patient-provider relationships or communication. With increasing numbers of physicians and pharmacies, care can easily become fragmented. This is especially important

when patients move between care settings. Significant gaps in the communication of discharge information from hospital into community have been demonstrated numerous times.²¹⁻²³

CONTRIBUTION OF FRAGMENTED SYSTEMS TO PATIENT NONADHERENCE

AS DISCUSSED EARLIER, PATIENTS MOVE along the continuum of care with greater speed and frequency. Patients are often admitted to hospital where changes to medication regimens are made by health-care providers that will not follow the patient in the community setting.

This is demonstrated in a study that followed chronically-ill patients from one general practice who were referred to hospital over a 15-month period. One hundred and thirty patients had a total of 420 long-term medications pre-admission. Out of those, 28% were cancelled at admission, 6% replaced by other drugs and 18.3% to a different manufacturer. At discharge, there were a total of 496 drugs. In the community, 329 were continued, 21% were replaced by other drugs (~50% of which were generic drugs) and 13% were cancelled. The family physician only received detailed information about drug changes in 5/130 patients.²¹

A Canadian study further highlights the issue of ineffective information transfer when patients are discharged from hospital. In a retrospective review of 135 charts, only 106 contained a discharge summary. Out of these charts, 28.8% were missing discharge medication information. Although 94/106 charts showed evidence that the information had been forwarded to the family physician, 40.4% were not received by the family physician.²²

Community-based health-care providers require timely and complete information to provide proper follow-up care post-discharge. Moore's group reviewed the prevalence of medical errors related to discontinuity of care and its association with adverse outcomes.²³ They defined a "medical error" as failure of a planned action to be completed as intended. Medication continuity errors were defined as when a dis-

charge medication was documented in the hospital chart but not in the medication list of the first post-discharge visit to the primary-care provider. Of the 86 patients studied, 49% had experienced 1 or more medical errors related to discontinuity of care from inpatient to outpatient setting. 42% of patients had at least 1 medication continuity error.

Medical errors in this study were termed by the investigators as “continuity of information” errors in that relevant information concerning intended discharge plans were not adequately transmitted from the hospital-based provider to the outpatient provider.

The prevalence of medication continuity errors in this study is similar to the percentage of patients found nonadherent to their intended discharge medication regimens by other investigators.^{24,25} Therefore, the primary-care physicians in this study may be accurately documenting what the patient is currently taking while being unaware that the current regimen is a significant departure from the intended discharge regimen. In these situations, the primary-care physician is unable to ensure that discharge medications are carried out according to the plan that was created in hospital due to lack of information from the hospital and due to inaccurate or lack of information from the patient.

A recent study reviewed the level of adherence with new medications for chronic conditions. When interviewed 10 days after being prescribed the new medication, 30% of 226 patients were not adhering to treatment as prescribed. Approximately half of the nonadherence was intentional in that the patient had concerns with the medication. The study concluded that neither pharmacists nor physicians provided patients with the information patients required. The investigators speculated that patients would benefit from a medication review to deal with their concerns within days of receiving a new prescription. Since many patients are initiated on new medications during a hospital stay, seamless care

TABLE 1 Adherence strategies and their effectiveness¹¹

Adherence strategies	Median effectiveness in the literature
Adherence aides	6%
Refill and follow-up reminders	6%
Dosage regimen simplification	15%
Education	22%
Comprehensive management	25%

would support this recommendation.⁵

The consequences of fragmented systems are evident. Forster's group demonstrated that patients are at high risk of adverse events, in particular, adverse drug events in the 2-week period following discharge from acute care.²⁶ Deficiencies in the delivery of care which contributed to occurrence of adverse drug events include

- inadequate patient education
- poor communication between patient and physician
- poor communication between hospital and community physician
- inadequate monitoring of patient's illness and treatment after discharge
- no emergency contact number given to patient
- patient problems getting meds prescribed immediately
- inadequate home service
- delayed follow-up care
- premature hospital discharge

One could speculate that some of these deficiencies would contribute to a patient's nonadherence post-discharge.

Winterstein's meta-analysis further demonstrated the impact of these deficiencies on patient outcomes. The median incidence of drug-related hospital admissions was 4%, but the incidence jumped dramatically to 14% when only drug-related readmissions were considered. The authors attributed the difference to deficiencies in the transition from hospital to community practice.²⁷

Wolff's study of multiple chronic conditions concluded that in terms of medical treatment, poor coordination of clinical services may predispose persons with multiple conditions to errors of both omission and commission, such as adverse drug-

drug interactions. Contraindicated medical care may be especially problematic in the elderly population, as seniors are at greater risk for having multiple chronic conditions and may be more susceptible to complications of treatment as a result of physical frailty, complicated drug regimens and poor coordination of care.⁶

IMPACT OF SEAMLESS CARE ON PATIENT ADHERENCE

MANY STRATEGIES HAVE BEEN DOCUMENTED to improve adherence with varying degrees of success (See Table 1). Strategies such as dosing schedules and compliance packs focus on patient barriers such as memory, dexterity and vision problems. Pharmacist interventions improve patient medication compliance and health outcomes. However, an isolated intervention is not generally effective in persistently improving compliance and there is no strategy that is clearly superior.²⁸ However, comprehensive management which utilizes multiple strategies does appear to be slightly more effective. This is not surprising considering the stages of change model in relationship to medication adherence. The 5 phases of change are pre-contemplation, contemplation, preparation, action and maintenance.²⁰ This model suggests that there are different approaches to improve compliance based on the particular stage of change the patient is in (See Table 2). It is obvious that evolution through the phases of change occurs over a period of time and as a patient moves between care settings, it is important that health-care providers apply strategies that are appropriate for the phase of change.

It is clear that seamless care would

TABLE 2 Stages of Change²⁰

Stage	Patient characteristics	Pharmacist strategies
Pre-contemplation	<ul style="list-style-type: none"> • Unaware of health problems • Minimizes health problems • Avoids thinking about health problems 	<ul style="list-style-type: none"> • Educate on risks versus benefits • Educate on positive outcomes related to change
Contemplation	<ul style="list-style-type: none"> • Some awareness of health risks • Some awareness of need to change behaviours • Ambivalent 	<ul style="list-style-type: none"> • Identify barriers • Address patient concerns • Clarify misconceptions • Identify support systems
Preparation	<ul style="list-style-type: none"> • Concerned about health • Sees benefit of changing behaviour • Intending to take action 	<ul style="list-style-type: none"> • Develop care plan • Develop realistic goals • Develop timeline for change • Provide positive reinforcement
Action	<ul style="list-style-type: none"> • Changes behaviour to achieve a goal 	<ul style="list-style-type: none"> • Review change expectations • Review technical information • Reset or refine goals • Provide positive reinforcement
Maintenance	<ul style="list-style-type: none"> • Continues with behaviour to maintain health 	<ul style="list-style-type: none"> • Provide encouragement and support • Develop contingency plan for relapse

support a patient through the phases of change as information is passed from one health-care provider to another and that health-care providers accept responsibility for the patient's care. The continuous care will support the patient and remove some of the barriers identified to enhance patient adherence.

Seamless care enhances direct patient/care-provider interaction which has been shown to improve patient compliance.²⁰ For example, pharmacist-led information sessions prior to discharge have been found to be effective. Comprehensive counselling with a nurse in conjunction with a medication review and recommendations for modifications of regimen by a geriatric cardiologist demonstrated a 15% improvement in adherence. It has been noted that the beneficial effects of interventions arising from direct patient/care-provider contact may decline over time, suggesting that successful interventions should include an ongoing component.²⁰

PROVIDING SEAMLESS CARE

AS STATED EARLIER AND WORTH REPEATING, seamless care has been defined as the desirable continuity of care delivered to a

patient in the health-care system across the spectrum of care givers and their environment.¹ It is a patient-oriented process that ensures a health-care professional accepts responsibility for that patient's care as the patient moves between care settings.

To support seamless care, pertinent patient information must be transferred or shared in an effective and efficient manner. A structured transmittal of information will improve care, and assist in preventing, identifying and resolving drug-related problems (DRPs) including nonadherence to medication regimens. Ideally, information transfer should be bi-directional. Numerous modalities have been used (fax, electronic transfer, discharge summary, medication list, phone calls, etc.).

Maintaining patient confidentiality is a priority. The best practice is to obtain written consent whenever possible. If the pharmacist can only obtain verbal consent, it is imperative that the conversation is documented on the patient's chart or profile.

Information that should be conveyed from hospital pharmacist to community pharmacist includes²⁹

- diagnosis
- relevant lab values

- discharge medications
- changes in drug therapy
- allergies
- pharmacist notes - relevant drug-related - outstanding DRPs, compliance issues, requirement for further education, etc.

The transfer of information into hospital from community is a little more problematic as community pharmacists are not necessarily aware that their patient has been admitted to hospital. Access to pharmacy databases such as Pharmanet in British Columbia is certainly helpful. However, information related to pertinent issues such as use of alternative medications or DRPs is not readily available. Some pharmacists have encouraged their patients to carry a medication record that can be shared with various health-care providers.

All pharmacists across the continuum have a role to play in providing seamless care and facilitating patient adherence.

David U from the Institute of Safe Medication Practices Canada (ISMP Canada) has outlined a number of recommendations for both hospital and community pharmacists about providing seamless care.³⁰

Hospital Pharmacists

- If possible, prioritize patient groups for the purpose of the pre-admission medication history interview, in which the pharmacist has an opportunity to identify and discuss all medications the patient is taking, including over-the-counter (OTC) drugs and herbal remedies. Special patient groups such as cardiovascular, geriatric and oncology patients should be given high priority.
- Encourage patients and their families to bring all current medications, including prescription drugs, OTC drugs and herbal remedies to the hospital on admission for identification purposes.
- Perform hospital discharge counselling for all critical care and cardiovascular patients. In addition, all discharge medications should be clearly outlined in a special discharge form for the patient, the patient's family physician and community pharmacist. The form should

also include information about monitoring any lab values, such as international normalized ratio or blood levels of high-risk drugs including anti-epileptic and mental-health drugs (see reference #29 for examples of forms that have been used in Canada). Steps should be taken to ensure the form is received by community-based care providers.

- Note the contact information, such as the name of the attending physician and hospital pharmacist, for the patient's community pharmacist for the key issues identified as part of seamless care.
- Educate patients about the potential risks associated with miscommunication among various health-care providers. Encourage them to bring their discharge summary to the pharmacy where their prescription is to be filled and have it available as an additional check for the retail pharmacist.
- Encourage patients to have all their prescriptions filled at the same community pharmacy. Remind them to inform their regular pharmacy if prescriptions are filled somewhere else.

Community pharmacists

- When receiving patient's discharge prescriptions, check to determine if there are discrepancies between the existing patient medication profile and the discharge medication list (new drugs and new dosages). If necessary, contact the hospital pharmacist for clarification.
- Ask the patient, or his or her representative, if a discharge summary was issued by the hospital and compare with the discharge prescription(s) and the patient's pharmacy medication profile, with a view to spotting contraindications, ambiguities, omissions, and other sources of confusion such as differences in brand or generic name, or differences in nomenclature between discharge summary and the pharmacy-generated label.
- If samples are provided to patients by their family physicians, ensure that labels with patient-specific directions and indications are attached to the sample container.

- Encourage software design companies to build features that enhance seamless care such as recording changes and comments or notes in the ongoing medication profile systems.
- Ensure that any communication with the patient's primary-care provider occurs directly with the physician rather than through a third-party such as the receptionist.
- Provide a handy card for your patients outlining all medications including OTC drugs and herbal remedies. The information will be useful in case of emergency and on admission to hospital

CONCLUSIONS

MEDICATION ADHERENCE IS CRITICAL TO attaining the positive outcomes with the prescribed regimens. Multiple factors contribute to nonadherence, both intentional and unintentional. The provision of seamless care with a focus on the direct relationship between the patient and health-care provider can mitigate nonadherence and have a positive impact on patient outcomes.

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QUESTIONS

1. Which example of patient behaviour represents intentional nonadherence?

- Ignoring pharmacist's advice to avoid alcohol with current medication.
- Reducing dose to make the prescription last longer due to financial constraints.
- Taking daily diuretic with supper when spouse is at home to open child-proof medication vial.
- Cutting SR tablets in half due to swallowing difficulties.
- Taking doses based on memory since patient cannot see the small print on the label.

2. Which statement is TRUE?

- Patients with ≥ 2 chronic conditions are 75 times more likely to experience a hospitalization.
- Adherence to antihypertensive therapy decreases to less than 50% after 1 year.
- Discharge medication information is communicated to community-care providers more often than not.
- Adherence to new prescriptions is less than 30%.
- None of the above.

3. Which of the following is the most effective in improving compliance?

- Refill reminders
- Education
- Comprehensive management
- Dosage regimen simplification
- Blister packaging

Mr. Smith is a relatively sedentary 51-year-old gentleman who was recently admitted to hospital with chest pain. He has been a smoker for 25 years and

is slightly overweight. He is at high risk for coronary heart disease. At discharge, he comments to the pharmacist that everyone is over-reacting and that he has just had a very stressful month at work and was feeling anxious due to some upcoming projects.

4. Which stage of change is this patient most likely experiencing?

- Precontemplation
- Contemplation
- Preparation
- Action
- Maintenance

5. What is an appropriate strategy to utilize with Mr. Smith?

- Review target LDL levels.
- Discuss stress management techniques.
- Review and discuss the risk factors for ischemic heart disease.
- Recommend a personal trainer.
- Refer to dietitian for weight-loss program.

6. Mr. Smith is being discharged home. He has agreed to have his seamless-care information sent to the community pharmacist. What information would be useful to communicate to the community pharmacist?

- Discharge medication list
- Potential drug-related problems
- Diagnosis
- Lipid profile
- All of the above

7. The community pharmacist has received the follow-up information.

What should be done with that information?

- Compare community medication profile to discharge medication list.
- Make note of diagnosis in patient profile.
- Immediately forward information to Mr. Smith's insurance company.
- a and b
- b and c

8. What strategies can the pharmacist utilize to support the patient?

- Follow-up phone call within 2 weeks
- Blister-pack medications
- Review medications
- a and c
- a and b

9. Two months later, Mr. Smith comes into the community pharmacy to ask the pharmacist about nicotine patches and indicates that he would like to quit smoking. At what stage of the change model would Mr. Smith most likely be in?

- Precontemplation
- Contemplation
- Preparation
- Action
- Maintenance

10. What can the pharmacist do to support the patient at this stage?

- Discuss the risk of coronary artery disease in relationship to smoking.
- Assist in developing a smoke cessation program.
- Review other modifiable risk factors for coronary artery disease.
- a and c
- b and c

11. Which statement is TRUE?

- a) Patient/health-care provider relationships minimally affect the decision to adhere to prescribed regimens.
- b) Patient's health beliefs have a strong impact on adherence.
- c) Socio-demographic factors are closely correlated with adherence.
- d) Compliance aids significantly improve medication adherence.
- e) Primary care providers are always aware of discharge treatment plans and goals of treatment.

12. A medication continuity error has been defined as

- a) when a patient does not have his or her prescriptions filled.
- b) when discharge medications do not appear on the patient's chart at the first visit to the family physician post-discharge.
- c) when only 50% of medications have been taken according to the treatment plan.
- d) when patients continue with the same regimen as prior to hospital admission.
- e) when patients stop taking their discharge medications until their first doctor's appointment post-discharge.

13. Which strategies could be utilized to improve adherence to new medications?

- a) Preprinted medication schedule
- b) Free samples
- c) Follow-up within 2 weeks by physician and pharmacist
- d) Using an extended-release product
- e) Compliance packaging

14. Patients have cited the following as reasons for noncompliance.

- a) Adverse effects
- b) Difficulty swallowing
- c) Ineffective medication
- d) None of the above
- e) All of the above

Mrs. Wong is a 60-year-old lady with long-standing Type 2 diabetes. During her hospital stay, her oral hypoglycemics were changed. She was also started on pravastatin. She was discharged from hospital with minimal notification due to the need to admit several emergency-room patients. She speaks little English and lives alone in a senior's apartment. Her son, who is also a regular customer, has accompanied her to your community pharmacy with prescriptions and a discharge note.

15. Which factors would increase the likelihood of an adverse drug event post-discharge?

- a) Inadequate patient education
- b) Patient problems getting meds prescribed immediately
- c) Adequate discharge planning
- d) Discharge note faxed to family physician
- e) Home-care assessment arranged for next morning

16. What actions should you take with the information received?

- a) Review discharge prescriptions against current medication profile.
- b) Assume prehospital medications not listed in the discharge note are to be continued.
- c) Determine if Mrs. Wong is using any over-the-counter or complementary medications that may interact with her new regimen.
- d) a and c
- e) b and c

17. What strategies could be put into place to support compliance?

- a) Medication schedule
- b) Refill reminders
- c) Assist with blood glucose monitoring
- d) Comprehensive pharmaceutical management
- e) Free delivery of medications

Two months later, Mrs. Wong's son is in the pharmacy picking up a prescription for himself. He mentions that his mother was admitted to hospital yesterday. You suggest to the son that the hospital could contact the community pharmacy for a current medication profile. While reviewing the profile, you notice that Mrs. Wong obtained a 30-day supply of her new hypoglycemic the day of her previous discharge and has not obtained any additional supplies.

18. What further information should the pharmacist attempt to obtain from her son?

- a) If new prescriptions were obtained from another community pharmacy.
- b) If Mrs. Wong was directed to stop medication by her physician.
- c) Any adverse effects to prescribed medications.
- d) Any cognitive barriers to compliance.
- e) All of the above.

19. What actions should NOT be taken to provide seamless care for Mrs. Wong?

- a) Provide refills of all medications so they are available when Mrs. Wong returns home.
- b) Provide son with community-based medication profile.
- c) Encourage son to take all medications to hospital.
- d) Contact hospital pharmacist to review drug-related problems.
- e) Compile and forward a list of herbal products that Mrs. Wong recently purchased.

20. What post-discharge strategies should the pharmacist consider, based on Mrs. Wong's previous history?

- a) Child-proof containers
- b) Compliance aides
- c) Phone follow-up
- d) Written medication information
- e) Provide as many medications as possible in liquid format.



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