

Polypharmacy Project

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N322 Introduction to Pharmacology

Lakeview College of Nursing

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Polypharmacy Case 9

Patient: Kathryn is a 58-year-old female that lives alone in a third story apartment. She has no family in the area for support. She recently lost her job.

Social history: Recently has lost her job and insurance. Smokes a pack of cigarettes per day but is trying to quit.

Medical history: Diabetes type 1, Diabetic neuropathy, hypertension, hyperlipidemia, depression, insomnia & gastroesophageal reflux disease

Allergies: Codeine & Latex Wt 175 Pounds Ht 5 ft. 9 in

Medications:

Novolin R 10 units with each meal (TID) SUBQ

Novolog sliding scale SUBQ PRN

Gabapentin 400 mg TID PO

Aspirin 81 mg by mouth once a day

Benicar HCT 20mg/25mg PO Daily

Lexapro 20 mg by mouth once daily

Ambien CR 12.5 mg as needed at bedtime

Protonix 40 mg Daily PO

Conjugated g-estrogens (premarin) 0.625 mg daily PO

Atorvastatin 20mg PO Daily

Drug #1 Drug Class: Hormones	Drug Name (Generic): Insulin (regular) Drug Name (Trade): Novolin R
How is the medication taken: (include dose, route, and frequency)	10 units (TID) SUBQ
Specific Directions not included above:	Take with each meal
Does this medication interact with any other medication(s) on this list? (see rubric for further instruction)	<ul style="list-style-type: none"> • Aspirin may increase the risk of hypoglycemia, or low blood sugar. Aspirin may also induce symptoms of hypoglycemia include headache, dizziness, drowsiness, nervousness, confusion, tremor, nausea, hunger, weakness, perspiration, palpitation, and rapid heartbeat. • Conjugated estrogens may interfere with blood glucose control and reduce the effectiveness of insulin regular and other diabetic medications. Monitor your blood sugar levels closely. • Benicar HCT may increase your risk of hypoglycemia. Monitor for symptoms of hypoglycemia including hunger, headache, dizziness, drowsiness, nervousness, confusion, tremor, nausea, weakness, perspiration, palpitation, and rapid

	heartbeat.
Lifestyle interactions: (Daily tobacco use, alcohol, drugs, etc.)	Alcohol may affect blood glucose levels in patients with diabetes. Both hypoglycemia and hyperglycemia may occur, depending on how much and how often you drink.
Does any of the client's past medical history contradict the use of this medication?	No medical history contradicts the use of this medication history.
What is the indication for use of this medication based on the client's past medical history? (If unable to determine an indication based on past medical history, please list potential indications for use of the medication in general)	Patient has a medical history of diabetes type 1.
What would you teach the client about taking this medication?	<ul style="list-style-type: none"> • Learn correct injection technique. • Follow all directions on your prescription label and read all medication guides or instruction sheets. Use the medicine exactly as directed. • Inject insulin into the abdomen rather than a near muscle • Avoid OTC medications unless approved by physician. • Avoid drinking

- **Do not use if the medicine looks cloudy, has changed colors, or has particles in it.**
- **Avoid medication errors by always checking the medicine label before injecting your insulin.**
- **Use a different place each time you give an injection. Do not inject into the same place two times in a row.**
- **Regular insulin side effects include low blood sugar, swelling in your hands or feet, weight gain; or thickening or hollowing of the skin where you injected the medicine.**
- **After using regular insulin, you should eat a meal within 30 minutes.**
- **Never share a syringe with another person, even if the needle has been changed. Sharing syringes can allow infections or disease to pass from one person to another.**
- **Keep this medicine in its original container protected from heat and light. Do not freeze insulin or store it near the cooling element in a refrigerator. Throw away**

	<p>any insulin that has been frozen.</p> <ul style="list-style-type: none"> • Refrigerate and use until expiration date or Store at room temperature and use within the number of days shown in your instructions for use. • Store opened, in use regular insulin at room temperature and uses within the number of days shown in your instructions (usually 30 days).
<p>How much would medication cost per month if paying out of pocket?</p>	<p>\$24.88</p>

<p>Drug #2</p> <p>Drug Class: hormones</p>	<p>Drug Name (Generic): Insulin Aspart</p> <p>Drug Name (Trade): Novolog</p>
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How is the medication taken: (include dose, route, and frequency)	sliding scale SUBQ PRN
Specific Directions not included above:	No specific directions listed
Does this medication interact with any other medication(s) on this list? (see rubric for further instruction)	<ul style="list-style-type: none"> • Aspirin may increase the risk of hypoglycemia, or low blood sugar. Aspirin may also induce symptoms of hypoglycemia include headache, dizziness, drowsiness, nervousness, confusion, tremor, nausea, hunger, weakness, perspiration, palpitation, and rapid heartbeat. • Using Lexapro with insulin may increase the risk of hypoglycemia. Monitor for hypoglycemia. • Using Conjugated estrogens may interfere with blood glucose control and reduce the effectiveness of insulin aspart. • Benicar HCT may increase your risk of hypoglycemia. Monitor for symptoms of hypoglycemia including hunger, headache, dizziness, drowsiness, nervousness, confusion, tremor, nausea, weakness, perspiration, palpitation, and rapid heartbeat. •
Lifestyle interactions:	Alcohol may affect blood glucose levels in patients with diabetes. Both hypoglycemia

(Daily tobacco use, alcohol, drugs, etc.)	and hyperglycemia may occur, depending on how much and how often you drink.
Does any of the client's past medical history contradict the use of this medication?	No medical history contradicts the use of this medication history.
What is the indication for use of this medication based on the client's past medical history? (If unable to determine an indication based on past medical history, please list potential indications for use of the medication in general)	Patient has a medical history of diabetes type 1.
What would you teach the client about taking this medication?	<ul style="list-style-type: none">• Novolog is a fast-acting insulin client should eat 5-10 minutes after using.• Common side effects include low blood sugar, weight gain, low potassium, swelling in hands and feet, skin rash, itching, redness, or swelling, thickening or hollowing of the skin where medication was injected.• Learn correct injection technique.• Follow all directions on your prescription label and read all medication guides or instruction sheets. Use the medicine exactly as directed.

- **Inject insulin into the abdomen rather than a near muscle**
- **Avoid OTC medications unless approved by physician.**
- **Avoid drinking**
- **Do not use if the medicine looks cloudy, has changed colors, or has particles in it.**
- **Avoid medication errors by always checking the medicine label before injecting your insulin.**
- **Use a different place each time you give an injection. Do not inject into the same place two times in a row.**
- **Never share a syringe with another person, even if the needle has been changed. Sharing syringes can allow infections or disease to pass from one person to another.**
- **Keep this medicine in its original container protected from heat and light. Do not freeze insulin or store it near the cooling element in a refrigerator. Throw away any insulin that has been frozen.**
- **Refrigerate and use until expiration date or Store at room temperature and use**

	within the number of days shown in your instructions for use.
How much would medication cost per month if paying out of pocket?	\$343.57

Drug #3	Drug Name (Generic): Gabapentin
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Drug Class: central nervous system agent.	Drug Name (Trade): Neurontin
How is the medication taken: (include dose, route, and frequency)	400 mg TID PO
Specific Directions not included above:	No specific directions included
Does this medication interact with any other medication(s) on this list? (see rubric for further instruction)	<ul style="list-style-type: none"> • Lexapro with gabapentin may cause an increased risk for hyponatremia. • Using gabapentin and Ambien together may increase side effects such as dizziness, drowsiness, confusion, and difficulty concentrating. Some people, especially the elderly, may also experience impairment in thinking, judgment, and motor coordination.
Lifestyle interactions: (Daily tobacco use, alcohol, drugs, etc.)	Alcohol may potentiate some of the pharmacologic effects of CNS-active agents. Use in combination may result in additive central nervous system depression and/or impairment of judgment, thinking, and psychomotor skills.
Does any of the client's past medical history contradict the use of this medication?	Gabapentin can cause suicidal thoughts or behavior changes. The client does have depression; therefore, this would be something to monitor.

What is the indication for use of this medication based on the clients past medical history? (If unable to determine an indication based on past medical history, please list potential indications for use of the medication in general)	This client indication for use based on their PMH is diabetic neuropathy.
What would you teach the client about taking this medication?	<ul style="list-style-type: none">• Notify physician immediately if any of the following occur: increased seizure frequency, visual changes, unusual bruising or bleeding.• Do not drive or engage in other potentially hazardous activities until response to drug is known.• Do not abruptly discontinue use of drug; do not take drug within 2 h of an antacid.• Take with food.• Avoid drinking alcohol while taking gabapentin
How much would medication cost per month if paying out of pocket?	\$49.71

Drug #4	Drug Name (Generic): Aspirin
Drug Class: non-steroidal anti-inflammatory	Drug Name (Trade): Acetylsalicylic

drug (NSAID)	
How is the medication taken: (include dose, route, and frequency)	81 mg by mouth once a day
Specific Directions not included above:	No specific directions included
Does this medication interact with any other medication(s) on this list? (see rubric for further instruction)	<ul style="list-style-type: none"> • When taking Novolin R and Novolog, Aspirin may increase the risk of hypoglycemia Aspirin may also induce symptoms of hypoglycemia include headache, dizziness, drowsiness, nervousness, confusion, tremor, nausea, hunger, weakness, perspiration, palpitation, and rapid heartbeat. • Using Lexapro with aspirin may increase the risk of bleeding. This is more common in elderly or if you have kidney or liver disease. • Using Benicar HCT and Aspirin may reduce the effects of Benicar HCT in lowering blood pressure. These medications can also affect kidney function. • Protonix and aspirin taken together may decrease the oral bioavailability of aspirin.
Lifestyle interactions:	Avoid drinking alcohol while you are taking aspirin. Heavy drinking can increase your risk of stomach bleeding.

(Daily tobacco use, alcohol, drugs, etc.)	
Does any of the client's past medical history contradict the use of this medication?	There is no PMH that contradicts with the use of this medication
What is the indication for use of this medication based on the client's past medical history? (If unable to determine an indication based on past medical history, please list potential indications for use of the medication in general)	<ul style="list-style-type: none"> • Take aspirin exactly as directed on the label, or as prescribed by your doctor. Do not use in larger or smaller amounts or for longer than recommended. • Always follow directions on the medicine label about giving aspirin to a child. • Take with food if aspirin upsets your stomach. • You must chew the chewable tablet before you swallow it. • Do not crush, chew, break, or open an enteric-coated or delayed/extended-release pill. Swallow the pill whole. • If you need surgery, tell the surgeon ahead of time that you are using this medicine. You may need to stop using it for a short time. • Do not use aspirin if you smell a strong vinegar odor in the bottle. The medicine may no longer be effective. • Common side effect of aspirin includes upset stomach, heartburn, drowsiness, and mild headache.
What would you teach the client about taking this	Indication is unclear however this medication is commonly used for low to moderate

medication?	pain relief and reduces blood clots.
How much would medication cost per month if paying out of pocket?	\$1.13

Drug #5	Drug Name (Generic): Benicar HCT
Drug Class: angiotensin II receptor antagonist	Drug Name (Trade): Olmesartan Medoxomil

How is the medication taken: (include dose, route, and frequency)	20mg/25mg PO Daily
Specific Directions not included above:	No specific directions included
Does this medication interact with any other medication(s) on this list? (see rubric for further instruction)	<ul style="list-style-type: none">• Benicar HCT may increase your risk of hypoglycemia when taking Novolog and Novolin R. Monitor for symptoms of hypoglycemia including hunger, headache, dizziness, drowsiness, nervousness, confusion, tremor, nausea, weakness, perspiration, palpitation, and rapid heartbeat.• Using Ambien and Benicar HCT together may have an additive effect in lowering your blood pressure. You may experience headache, dizziness, lightheadedness, fainting, and/or changes in pulse or heart rate• Using Benicar HCT and Lexapro may occasionally cause hyponatremia.• Protonix and Benicar HCT taken together can sometimes cause hypomagnesemia. This can lead to irregular heart rhythm, palpitations, muscle spasm, tremor, and seizures.• Using Benicar HCT and Aspirin may reduce the effects of Benicar HCT in lowering

	blood pressure. These medications can also affect kidney function.
Lifestyle interactions: (Daily tobacco use, alcohol, drugs, etc.)	Drinking alcohol can further lower your blood pressure and may cause side effect
Does any of the client's past medical history contradict the use of this medication?	If you have diabetes, do not use Benicar HCT together with any medication that contains aliskiren
What is the indication for use of this medication based on the client's past medical history? (If unable to determine an indication based on past medical history, please list potential indications for use of the medication in general)	Treatment of hypertension.
What would you teach the client about taking this medication?	<ul style="list-style-type: none"> • Discontinue drug and notify physician if you experience swelling of the face, tongue, or throat, or if you believe you are pregnant. • Notify physician of symptoms of hypotension • Common side effects include nausea, dizziness, cold symptoms, and high uric

	acid in your blood.
How much would medication cost per month if paying out of pocket?	\$199.87

Drug #6 Drug Class: central nervous system agent	Drug Name (Generic): Escitalopram Drug Name (Trade): Lexapro
How is the medication taken: (include dose, route,	20 mg by mouth once daily

and frequency)	
Specific Directions not included above:	No specific directions included
Does this medication interact with any other medication(s) on this list? (see rubric for further instruction)	<ul style="list-style-type: none"> • Lexapro with gabapentin may cause an increased risk for hyponatremia. • Using Lexapro with insulin may increase the risk of hypoglycemia. Monitor for hypoglycemia. • Using Ambien and Lexapro together may increase side effects such as dizziness, drowsiness, confusion, and difficulty concentrating. Some people, especially the elderly, may also experience impairment in thinking, judgment, and motor coordination. • Using Benicar HCT and Lexapro may occasionally cause hyponatremia. • Using Lexapro with aspirin may increase the risk of bleeding. This is more common in elderly or if you have kidney or liver disease.
Lifestyle interactions: (Daily tobacco use, alcohol, drugs, etc.)	Alcohol may potentiate some of the pharmacologic effects of CNS-active agents. Use in combination may result in additive central nervous system depression and/or impairment of judgment, thinking, and psychomotor skills.
Does any of the client's past medical history contradict the use of this medication?	No PMH contradicts the use of this medication.

What is the indication for use of this medication based on the client's past medical history? (If unable to determine an indication based on past medical history, please list potential indications for use of the medication in general)	Based on clients PMH this medication is used to treat depression.
What would you teach the client about taking this medication?	<ul style="list-style-type: none">• Do not engage in hazardous activities until reaction to this drug is known.• Avoid using alcohol while taking escitalopram.• Inform physician of commonly used OTC drugs as there is potential for drug interactions.• Report distressing adverse effects including any changes in sexual functioning or response.• Periodic ophthalmology exams are advised with long-term treatment.
How much would medication cost per month if paying out of pocket?	\$68.19

Drug #7	Drug Name (Generic): Zolpidem
Drug Class: sedative-hypnotics	Drug Name (Trade): Ambien CR
How is the medication taken: (include dose, route, and frequency)	12.5 mg as needed at bedtime
Specific Directions not included above:	Make sure you have 7-8 hours available to sleep after taking this medication.

<p>Does this medication interact with any other medication(s) on this list? (see rubric for further instruction)</p>	<ul style="list-style-type: none">• Using Ambien and Lexapro together may increase side effects such as dizziness, drowsiness, confusion, and difficulty concentrating. Some people, especially the elderly, may also experience impairment in thinking, judgment, and motor coordination.• Using Ambien and Benicar HCT together may have an additive effect in lowering your blood pressure. You may experience headache, dizziness, lightheadedness, fainting, and/or changes in pulse or heart rate• Using gabapentin and Ambien together may increase side effects such as dizziness, drowsiness, confusion, and difficulty concentrating. Some people, especially the elderly, may also experience impairment in thinking, judgment, and motor coordination.
<p>Lifestyle interactions: (Daily tobacco use, alcohol, drugs, etc.)</p>	<p>Alcohol may potentiate some of the pharmacologic effects of zolpidem. Use in combination may result in additive central nervous system depression and/or</p>

	impairment of judgment, thinking, and psychomotor skills.
Does any of the client's past medical history contradict the use of this medication?	The client's history of depression may contradict the use of this medication.
What is the indication for use of this medication based on the client's past medical history? (If unable to determine an indication based on past medical history, please list potential indications for use of the medication in general)	Indication for use of this medication is insomnia.
What would you teach the client about taking this medication?	<ul style="list-style-type: none"> • Ambien may impair thinking or reactions. You may still feel sleepy in the morning after taking the medication especially if you take the extended-release tablets or if you are a woman • never take Ambien in large amounts or for longer than prescribed. • do not take ambient if you consume alcohol during the day or just before bed. ambient may be habit forming therefore misuse can cause addiction overdose or death. • never take this medication if you do not have a full 7 to 8 hours to sleep before

	<p>being active again</p> <ul style="list-style-type: none"> • Do not crush chew or break Ambien tablets so all of the pill hold. • Store at room temperature away from moisture in heat.
How much would medication cost per month if paying out of pocket?	\$53.37

Drug #8	Drug Name (Generic): Pantoprazole
Drug Class: proton pump inhibitor	Drug Name (Trade): Protonix
How is the medication taken: (include dose, route, and frequency)	40 mg Daily PO
Specific Directions not included above:	<p>If taking with food take 30 minutes before meal.</p> <p>Do not crush.</p>
Does this medication interact with any other	<ul style="list-style-type: none"> • Protonix and atorvastatin together may increase the blood levels and effects of

<p>medication(s) on this list? (see rubric for further instruction)</p>	<p>atorvastatin. This can increase the risk of liver damage and in some cases breakdown of skeletal muscle.</p> <ul style="list-style-type: none"> • Protonix and Benicar HCT taken together can sometimes cause hypomagnesemia. This can lead to irregular heart rhythm, palpitations, muscle spasm, tremor, and seizures. • Protonix and aspirin taken together may decrease the oral bioavailability of aspirin.
<p>Lifestyle interactions: (Daily tobacco use, alcohol, drugs, etc.)</p>	<p>No lifestyle interactions indicated.</p>
<p>Does any of the client's past medical history contradict the use of this medication?</p>	<p>No PMH contradicts the use of this medication.</p>
<p>What is the indication for use of this medication based on the client's past medical history? (If unable to determine an indication based on past medical history, please list potential indications for use of the medication in general)</p>	<p>The indication for use of this medicine is gastroesophageal reflux disease.</p>
<p>What would you teach the client about taking this</p>	<ul style="list-style-type: none"> • use the lowest dose for the shortest amount of time needed to treat your condition

medication?	<ul style="list-style-type: none">• you can take protonix with or without food however should be taken 30 minutes before a meal.• do not crush chew or break tablets while the tablet whole.• use the medication for the full prescribed length of time even if your symptoms quickly improve.• Cortana is may also affect a drug screening urine test and you may have false results.• store the medication at room temperature away from moisture heat and light.
How much would medication cost per month if paying out of pocket?	\$68.98

Drug #9	Drug Name (Generic): conjugated g-estrogens
Drug Class: Hormones	Drug Name (Trade): Premarin
How is the medication taken: (include dose, route, and frequency)	0.625 mg daily PO
Specific Directions not included above:	Do not take with grapefruit juice
Does this medication interact with any other medication(s) on this list? (see rubric for further instruction)	<ul style="list-style-type: none">• Using Conjugated estrogens may interfere with blood glucose control and reduce the effectiveness of insulin aspart.
Lifestyle interactions:	no wife no lifestyle interactions indicated.

(Daily tobacco use, alcohol, drugs, etc.)	
Does any of the client's past medical history contradict the use of this medication?	This medication should be used with caution for people with hypertension and diabetes.
What is the indication for use of this medication based on the client's past medical history? (If unable to determine an indication based on past medical history, please list potential indications for use of the medication in general)	There is no indication of use for this medication however given the clients age it is most likely given for treatment of menopause symptoms.
What would you teach the client about taking this medication?	<ul style="list-style-type: none"> • Be aware of importance of taking drug exactly as prescribed. • Store at room temperature away from western heat.
How much would medication cost per month if paying out of pocket?	\$228.75

Drug #10	Drug Name (Generic): Lipitor
Drug Class: HMG-CoA reductase inhibitors	Drug Name (Trade): Atorvastatin
How is the medication taken: (include dose, route, and frequency)	20mg PO Daily
Specific Directions not included above:	Do not take with grapefruit juice
Does this medication interact with any other medication(s) on this list? (see rubric for further instruction)	<ul style="list-style-type: none"> • Protonix and atorvastatin together may increase the blood levels and effects of atorvastatin. This can increase the risk of liver damage and in some cases breakdown of skeletal muscle.
Lifestyle interactions: (Daily tobacco use, alcohol, drugs, etc.)	<ul style="list-style-type: none"> • Avoid eating foods that are high in fat or cholesterol. • Do not drink more than two alcohol beverages daily.

Does any of the client's past medical history contradict the use of this medication?	use with caution with diabetes. Make sure your prescriber is aware that you are a diabetic.
What is the indication for use of this medication based on the client's past medical history? (If unable to determine an indication based on past medical history, please list potential indications for use of the medication in general)	The indication for use of this medication is hyperlipidemia.
What would you teach the client about taking this medication?	<ul style="list-style-type: none">• take as prescribed by the doctor.• follow all directions on your prescription label and read all medication guides or instruction sheets.• Lipitor can be taken with or without food however should be taken at the same time each day.• do not break Lipitor tablets before taking and less doctor ordered.• it may take up to two weeks before your cholesterol levels improve infrequent blood tests may be needed.• Lipitor is only one part of a treatment program and you should also be dieting, exercising and controlling your weight.

How much would medication cost per month if paying out of pocket?	\$69.17
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Is there anything about this medication regimen scenario that might indicate a potential difficulty in maintaining compliance with the orders as listed?

The medication regimen scenario might be hard to maintain due to the loss of insurance and a job. The client might not have money put aside and could have a hard time buying her medications. The client also lives on her own and has no support this could lead to missing dosages.

Is there anything about this medication regimen scenario that might assist the client in maintaining the medication regimen as ordered?

The client should get a good Rx membership which could lower her monthly cost of medications. She can also get a pill organizer and organize her pills. This will help ensure that she takes all her medication since there is no one around to remind her to take her medication.

What suggestions might you make to the prescriber and/or client (or questions you might ask the prescriber) to help this client scenario? (think about decreasing the potential for interaction(s) through medication reduction, other potential medications, diet changes, lifestyle changes, etc)

I will first ask the prescriber if we have tried six months of diet and exercise before prescribing Atorvastatin. I think it is important that the client does try and change their lifestyle before prescribing them medication. I would then make sure the prescriber know that a lot of the drugs do interact with each other but also that Aspirin affects a lot of these interactions.

What would the patients monthly out of pocket expense for all 10 medications? (Total Cost for all 10 meds)?

1,107.7 dollars is what it would cost for this medication regimen monthly.

Reflective Statement of Experience: This experience was very helpful and really helped me understand each drug. The process was a little lengthy and I would suggest assigning a part each week instead of having it all due at once. I wish we could

do this more often because it really helped me learn each drug and know more about them. It also helps you apply a situation to medications. Overall, I enjoyed this assignment.

References

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