

Polypharmacy Project

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N322 Introduction to Pharmacology

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## Polypharmacy Case 2

Background: Amy is an 87-year-old female that lives in an assisted living facility. Part of the living arrangements in the facility is a pharmacy service that delivers their meds in pre-filled medication packages (accu-pacs) every week. These packages are labeled with the date and time of administration. (see example picture attached). Amy is expected to take her medications independently. She has no family nearby to assist her. She is followed by her primary care physician as well as an endocrinologist, whom she currently visits monthly as her diabetes is not well controlled. Amy does not have a driver's license and is experiencing significant difficulty with her vision r/t diabetic retinopathy. Amy does not drink or use illicit drugs. Amy does have a history of smoking cigarettes (26 pack years). She quit 10 years ago, and smoke 1 pack per day for 26 years).

Insurance: Amy has good health insurance that covers the cost of her prescription medications with little co-pay.

Allergies: Sulfa & Pepto-Bismol

Diet: Controlled carbohydrates

Medical diagnosis: Type II Diabetes, diabetic retinopathy, diabetic neuropathy, osteoporosis

Current medications include the following:

Aspirin 81 mg by mouth two times a day

Calcium 500 mg by mouth two times a day

Multivitamin with minerals by mouth one time a day

Docusate Sodium 100 mg by mouth two times a day

Glyburide 10 mg by mouth one time a day

Levemir 15 units SC at HS

Novolog per sliding scale SC AC & HS

Ranibizumab 0.5 mg via intravitreal injection (given at doctor's office) once a month

Gabapentin 300 mg by mouth three times a day

Ibuprofen 400 mg by mouth every six hours as needed



Fritz, T. (2004). Accupac image. Retrieved May 12, 2020 from <http://www.modelhealthcare.com/>

<b>Drug #1</b>	<b>Drug Name (Generic): aspirin</b> <b>Drug Name (Trade): Bayer</b> <b>Drug Class: NSAID</b>
<b>How is the medication taken: (include dose, route, and frequency)</b>	<b>Dose: 81 mg Route: Oral Frequency: BID</b>
<b>Specific Directions not included above:</b>	<b>Drink a full glass of water with each dose, swallow the extended-release capsules (do NOT chew or crush), and take the medication only as prescribed</b>
<b>Does this medication interact with any other medication(s) on this list? (see rubric for further instruction)</b>	<b>Since aspirin and ibuprofen belong to the same drug class, they both have the same potential side effects. Taking them together should be monitored closely due to the potential for gastrointestinal ulcers and bleeds. Taking these medications together also increases the risk of the side effects.</b> <b>Using aspirin together with insulin aspart or glyburide may increase the risk of hypoglycemia so frequent monitoring of your blood sugar should be completed to safely use these medications together (Drugs.com, 2022).</b>
<b>Lifestyle interactions: (Daily tobacco use, alcohol, drugs, etc. )</b>	<b>None</b>
<b>Does any of the client's past medical history contradict the use of this medication?</b>	<b>No</b>
<b>What is the indication for use of this medication based on the client's past medical history? (If unable</b>	<b>The client is taking this medication to reduce the cardiovascular events that she is at risk for due to her uncontrolled diabetes.</b>

<b>to determine an indication based on past medical history, please list potential indications for use of the medication in general)</b>	
<b>What would you teach the client about taking this medication? You must prioritize 2 (see rubric)</b>	<b>1. Drink adequate fluids while taking aspirin</b> <b>2. Do not take the medication on an empty stomach to prevent stomach upset (Jones &amp; Bartlett Learning, LLC., 2021)</b>
<b>How much would medication cost per month if paying out of pocket?</b>	<b>\$3.79 for 60 count- 81mg coated tablets (GoodRx, Inc., 2022)</b>

<b>Drug #2</b>	<b>Drug Name (Generic): Docusate Sodium</b> <b>Drug Name (Trade): Colace</b> <b>Drug Class: Laxatives, stool softener</b>
<b>How is the medication taken: (include dose, route, and frequency)</b>	<b>Dose: 100 mg Route: Oral Frequency: BID</b>
<b>Specific Directions not included above:</b>	<b>Decrease your dose or stop taking this medication if you develop diarrhea. Take this medication by mouth, usually at bedtime with a full glass of water or juice. Inform your doctor if constipation persists or worsens.</b>
<b>Does this medication interact with any other medication(s) on this list? (see rubric for further</b>	<b>No</b>

<b>instruction)</b>	
<b>Lifestyle interactions:</b> <b>(Daily tobacco use, alcohol, drugs, etc. )</b>	<b>None</b>
<b>Does any of the client's past medical history contradict the use of this medication?</b>	<b>No</b>
<b>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)</b>	<b>The patient may be taking this to prevent constipation.</b>
<b>What would you teach the client about taking this medication? You must prioritize 2 (see rubric)</b>	<ol style="list-style-type: none"> <li><b>1. Electrolyte imbalance may occur with excessive use</b></li> <li><b>2. Excessive use may result in dependence (Jones &amp; Bartlett Learning, LLC., 2021)</b></li> </ol>
<b>How much would medication cost per month if paying out of pocket?</b>	<b>60 capsules 100 mg would cost \$4.10 (GoodRx, Inc., 2022)</b>
<b>Drug #3</b>	<b>Drug Name (Generic): Calcium</b>  <b>Drug Name (Trade): Calcitrate</b>  <b>Drug Class: Calcium salt; electrolyte supplement</b>

<b>How is the medication taken: (include dose, route, and frequency)</b>	<b>Dose: 500 mg Route: Oral Frequency: BID</b>
<b>Specific Directions not included above:</b>	<b>May administer with or without food, administration with food may increase absorption. Take 2 hours before or after other medication to minimize GI upset.</b>
<b>Does this medication interact with any other medication(s) on this list? (see rubric for further instruction)</b>	<b>No</b>
<b>Lifestyle interactions: (Daily tobacco use, alcohol, drugs, etc. )</b>	<b>None</b>
<b>Does any of the client's past medical history contradict the use of this medication?</b>	<b>No</b>
<b>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)</b>	<b>The client's indication for use would be due to osteoporosis. This medication is used to treat soft, brittle bones.</b>
<b>What would you teach the client about taking this medication? You must prioritize 2 (see rubric)</b>	<b>1. The body needs Vitamin D to help absorb calcium, which can be from sunlight exposure, from your diet, or from a Vitamin D supplement. The patient should ask her provider if she needs to take a Vitamin D supplement or not.</b>

	<b>2. Taking extra calcium over a long period of time raises the risk of kidney stones in some people. (Jones &amp; Bartlett Learning, LLC., 2021)</b>
<b>How much would medication cost per month if paying out of pocket?</b>	<b>60 tablets of 500 mg would cost \$5.10 for one month (GoodRx, Inc., 2022)</b>
<b>Drug #4</b>	<b>Drug Name (Generic): multivitamin Drug Name (Trade): Centrum Silver Drug Class: dietary supplement</b>
<b>How is the medication taken: (include dose, route, and frequency)</b>	<b>Dose: 1 pill Route: Oral: Frequency: Once daily</b>
<b>Specific Directions not included above:</b>	<b>The patient should not take more than the recommended RDA as it can cause toxicity and build up in the body. There is no proven benefit from mega-dosing on vitamins.</b>
<b>Does this medication interact with any other medication(s) on this list? (see rubric for further instruction)</b>	<b>No</b>
<b>Lifestyle interactions: (Daily tobacco use, alcohol, drugs, etc. )</b>	<b>None</b>
<b>Does any of the client's past medical history contradict the use of this medication?</b>	<b>No</b>

<p><b>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)</b></p>	<p><b>Multivitamins with minerals are taken by patients in order to prevent vitamin deficiencies and other metabolic disorders (Vallerand et al., 2017). This is especially useful for the elderly who may not have the most efficient absorption of vitamins and minerals due to aging.</b></p>
<p><b>What would you teach the client about taking this medication? You must prioritize 2 (see rubric)</b></p>	<ol style="list-style-type: none"> <li><b>1. Advise and teach patient that they should comply with their physician in terms of diet recommendations. Teach the patient that having a well-balanced diet is the best way to have a complete dietary intake of vitamins and minerals.</b></li> <li><b>2. Patients who are taking multivitamins on their own should stick to the Recommended Daily Allowance (RDA) in order to prevent toxicity (Vallerand et al., 2017)</b></li> </ol>
<p><b>How much would medication cost per month if paying out of pocket?</b></p>	<p><b>\$4 for 120 count tablets – If the client is taking one vitamin a day per month, she would pay about \$1 per month for the vitamins. (GoodRx, Inc., 2022)</b></p>
<p><b>Drug # 5</b></p>	<p><b>Drug Name (Generic): Glyburide</b></p> <p><b>Drug Name (Trade): DiaBeta</b></p> <p><b>Drug Class: Sulfonylureas</b></p>
<p><b>How is the medication taken: (include dose, route,</b></p>	<p><b>Dose: 10 mg Route: by mouth Frequency: one time a day</b></p>

<b>and frequency)</b>	
<b>Specific Directions not included above:</b>	<b>The medication should be given before the first meal of the day. Prior to administration, the patient must check her blood sugar.</b>
<b>Does this medication interact with any other medication(s) on this list? (see rubric for further instruction)</b>	<b>Glyburide can interact with insulin detemir and insulin aspart because they all three are antidiabetic agents. If all three are used in combination, it increases the risk for hypoglycemia to occur. (Drugs.com, 2022).</b>
<b>Lifestyle interactions: (Daily tobacco use, alcohol, drugs, etc. )</b>	<b>None</b>
<b>Does any of the client's past medical history contradict the use of this medication?</b>	<b>No</b>
<b>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)</b>	<b>The patient is diabetic, which makes this drug appropriate for her treatment. One of the indications for the use of glyburide is for controlling blood glucose levels for people who are Type 2 Diabetic.</b>
<b>What would you teach the client about taking this medication? You must prioritize 2 (see rubric)</b>	<b>1. The patient must monitor her blood glucose closely, as symptoms and signs of</b>

	<p>hypoglycemia may not be easy to notice in the elderly.</p> <p>2. The patient must be urged to notify the nurse or the provider for signs of hypoglycemia while on glyburide. Some signs that she should be watching for are; headache, nausea, diaphoresis, feelings of anxiety, any confusion and/or dizziness. She must also carry some type of simple sugars like candy (Jones &amp; Bartlett Learning, 2021).</p>
How much would medication cost per month if paying out of pocket?	\$10 for 60 tablets – 5mg each tablet (GoodRx, Inc., 2022)
<b>Drug # 6</b>	<p><b>Drug Name (Generic): insulin detemir</b></p> <p><b>Drug Name (Trade): Levemir</b></p> <p><b>Drug Class: Antidiabetics, insulins</b></p>
How is the medication taken: (include dose, route, and frequency)	Dose: 15 units Route: SC Frequency: HS
Specific Directions not included above:	Before injecting each dose, clean the injection site with rubbing alcohol. Change where you inject each time to lessen the risk of damage to the skin. This medication may be injected in the stomach, thigh, or back of the upper arm. Do not rub the area after injection. This insulin should not be mixed with any other insulin.
Does this medication interact with any other medication(s) on this list? (see rubric for further	Insulin detemir can interact with glyburide and insulin aspart because they all three are antidiabetic agents. If all three are used in combination it increases the risk for hypoglycemia to occur. (Drugs.com, 2022).

<b>instruction)</b>	
<b>Lifestyle interactions:</b> <b>(Daily tobacco use, alcohol, drugs, etc. )</b>	<b>None</b>
<b>Does any of the client's past medical history contradict the use of this medication?</b>	<b>No</b>
<b>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)</b>	<b>Type II Diabetes</b>
<b>What would you teach the client about taking this medication? You must prioritize 2 (see rubric)</b>	<ol style="list-style-type: none"> <li><b>1. Do not use this medication when you have low blood sugar.</b></li> <li><b>2. You may experience blurred vision, dizziness, or drowsiness due to extremely low or high blood sugar. (Jones &amp; Bartlett Learning, LLC., 2021)</b></li> </ol>
<b>How much would medication cost per month if paying out of pocket?</b>	<b>Levemir 1 vial 10 mL of 100 units/mL costs about \$311. If the client is administering 15 units every night for 30 days, she would use about half the vial so the monthly cost would be around \$155. (GoodRx, Inc., 2022)</b>
<b>Drug # 7</b>	<b>Drug Name (Generic): insulin aspart</b>  <b>Drug Name (Trade): Novolog</b>  <b>Drug Class: rapid-acting insulin, antidiabetic</b>

<b>How is the medication taken: (include dose, route, and frequency)</b>	<b>Dose: per sliding scale Route: SC (SubQ) Frequency: AC (before meals) &amp; HS (at bedtime)</b>
<b>Specific Directions not included above:</b>	<b>Before injecting each dose, clean the injection site with rubbing alcohol. This medication may be injected in the stomach, thigh, or back of the upper arm. Do not rub the area after injection.</b>
<b>Does this medication interact with any other medication(s) on this list? (see rubric for further instruction)</b>	<b>Using aspirin together with insulin aspart or glyburide may increase the risk of hypoglycemia so frequent monitoring of your blood sugar should be completed to safely use these medications together. Insulin aspart can interact with insulin detemir and glyburide because they all three are antidiabetic agents. If all three are used in combination, it increases the risk for hypoglycemia to occur. (Drugs.com, 2022).</b>
<b>Lifestyle interactions:  (Daily tobacco use, alcohol, drugs, etc. )</b>	<b>None</b>
<b>Does any of the client's past medical history contradict the use of this medication?</b>	<b>No</b>
<b>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)</b>	<b>Type II Diabetes</b>

<b>What would you teach the client about taking this medication? You must prioritize 2 (see rubric)</b>	<b>1. Rotate injection sites</b> <b>2. Eat a meal within 5-10 minutes of administration (Jones &amp; Bartlett Learning, LLC., 2021)</b>
<b>How much would medication cost per month if paying out of pocket?</b>	<b>\$113 for 2 vials – 10mL (about 1,000 units in each vial) (GoodRx, Inc., 2022)</b>
<b>Drug # 8</b>	<b>Drug Name (Generic): Ranibizumab</b> <b>Drug Name (Trade): Lucentis</b> <b>Drug Class: Vascular endothelial growth factor A (VEGF-A) antagonist</b>
<b>How is the medication taken: (include dose, route, and frequency)</b>	<b>Dose: 0.5mg Route: intravitreal injection (given at doctor's office) Frequency: once a month</b>
<b>Specific Directions not included above:</b>	<b>Inform the provider of any treatment that is similar to ranibizumab. The patient must come into the physician's clinic because this is an eye injection. (Cerner Multum, Inc. 2022)</b>
<b>Does this medication interact with any other medication(s) on this list? (see rubric for further instruction)</b>	<b>No</b>
<b>Lifestyle interactions:</b>	<b>None</b>

<b>(Daily tobacco use, alcohol, drugs, etc. )</b>	
<b>Does any of the client's past medical history contradict the use of this medication?</b>	<b>No</b>
<b>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)</b>	<b>Diabetic retinopathy</b>
<b>What would you teach the client about taking this medication? You must prioritize 2 (see rubric)</b>	<ol style="list-style-type: none"> <li><b>1. Instruct the patient to look out for signs of endophthalmitis. Some things to watch out for are redness in eye, change in vision, pain and/or photosensitivity.</b></li> <li><b>2. Tell the client to disclose any information that includes any therapy or treatment that involves intravitreal injections or drug therapies that may interact with ranibizumab.</b></li> </ol> <p><b>(Jones &amp; Bartlett Learning, LLC., 2021)</b></p>
<b>How much would medication cost per month if paying out of pocket?</b>	<b>\$2,000 per injection (1 per month) (GoodRx, Inc., 2022)</b>
<b>Drug # 9</b>	<b>Drug Name (Generic): gabapentin</b>  <b>Drug Name (Trade): Neurontin</b>

	<b>Drug Class: Anticonvulsant</b>
<b>How is the medication taken: (include dose, route, and frequency)</b>	<b>Dose: 300mg Route: Oral Frequency: TID</b>
<b>Specific Directions not included above:</b>	<b>Swallow the capsule or tablet whole and do not crush, chew, break, or open it</b>
<b>Does this medication interact with any other medication(s) on this list? (see rubric for further instruction)</b>	<b>No</b>
<b>Lifestyle interactions: (Daily tobacco use, alcohol, drugs, etc. )</b>	<b>None</b>
<b>Does any of the client's past medical history contradict the use of this medication?</b>	<b>No</b>
<b>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)</b>	<b>Diabetic neuropathy</b>
<b>What would you teach the client about taking this</b>	<b>1. Report to your provider if you experience any side effects such as worsening</b>

medication? You must prioritize 2 (see rubric)	depression or suicidal thoughts 2. Try you best to take the medication at the same times every day (Jones & Bartlett Learning, LLC., 2021)
How much would medication cost per month if paying out of pocket?	\$8.24 for a bottle containing 30- 300mg capsules (GoodRx, Inc., 2022)
<b>Drug # 10</b>	<b>Drug Name (Generic): ibuprofen</b> <b>Drug Name (Trade): Advil</b> <b>Drug Class: NSAID</b>
How is the medication taken: (include dose, route, and frequency)	Dose: 400 mg Route: by mouth Frequency: every six hours PRN
Specific Directions not included above:	Follow the instructions on the package or the prescription label, including the correct dosage
Does this medication interact with any other medication(s) on this list? (see rubric for further instruction)	Since aspirin and ibuprofen belong to the same drug class, they both have the same potential side effects. Taking them together should be monitored closely due to the potential for gastrointestinal ulcers and bleeds. Taking these medications together also increases the risk of the side effects. (Drugs.com, 2022).
Lifestyle interactions:  (Daily tobacco use, alcohol, drugs, etc. )	None

<b>Does any of the client’s past medical history contradict the use of this medication?</b>	<b>Uncontrolled Type II Diabetes – could cause kidney damage</b>
<b>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)</b>	<b>Relieve pain and inflammation associated with diabetic neuropathy</b>
<b>What would you teach the client about taking this medication? You must prioritize 2 (see rubric)</b>	<ol style="list-style-type: none"> <li><b>1. Take the medication with food or milk to prevent stomach upset</b></li> <li><b>2. Notify your physician if you experience nausea, vomiting, an increased need to urinate, swelling of feet/hands, shortness of breath, or lower back pain as these may be signs of kidney damage (Jones &amp; Bartlett Learning, LLC., 2021)</b></li> </ol>
<b>How much would medication cost per month if paying out of pocket?</b>	<b>\$8.56 for a bottle containing 100- 200mg caplets (GoodRx, Inc., 2022)</b>

**Is there anything about this medication regimen scenario that might indicate a potential difficulty in maintaining compliance with the orders as listed?**

It is important for the client to make sure she goes to her monthly appointments to receive her Ranibizumab injection. If the client does not go to the doctor when the injection is due, she will miss the dose resulting in noncompliance. She must check her blood sugar

before each meal and at bedtime before administering insulin aspart because the amount to administer is based on a sliding scale, therefore she will need to know her blood sugar to administer the appropriate amount of insulin. Also having to take gabapentin TID could be difficult to keep in compliance because it is the only medication, she must take that often.

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

It is important for the client to pay attention to the instructions on the back of the packet to ensure that she is taking it to them at the correct time. The client can set an alarm to remind her that it is time to take the medication that is due at that time. Having a calendar with each medication listed could also be beneficial.

**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)**

One of the things that might be concerning about this client scenario is the fact that she does not have anyone else to help her with keeping track of the medication regimen. Many older adults suffer from impaired memory, and so it would be crucial to make sure that the patient has a routine to prevent overdosing or underdosing on her medications. I think that emphasizing to the patient that taking the medications at the same time every day may be very helpful in making sure she takes her medications properly.

The patient also has diabetic retinopathy, which may likely mean that she also has poor vision. I would suggest to the patient to put tags on the medication bottles or on her pill boxes so that she knows what medication she is taking. This is also an issue I would

raise to the provider. I think it may be helpful if a case manager was appointed to the patient to check on her regularly to help with her overall wellness.

I would also ask the provider about the interaction between aspirin and ibuprofen. Since taking those two medications together may result in gastrointestinal bleeds or ulcers, it would be appropriate to think of other options that may work better for the patient. For example, if the ibuprofen is taken mostly for pain, prescribing the patient with acetaminophen instead may be better.

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

The total cost for all 10 medications would be around \$2,309 per month.

**Reflective Statement of Experience:**

Working on this project gave me great, educational insight to the challenges that many patients face when taking and buying their medications. Many patients trust their doctors and healthcare team to order and administer medications properly, so they don't give a second thought to what they are taking. Therefore, it is crucial for nurses to educate the patient on potential interactions and adverse effects that the patient should keep an eye out for to prevent any complications, such as in our scenario with aspirin and ibuprofen. The nurse should always feel comfortable enough to ask the doctor questions, especially regarding medications and the patient. Ensuring that the patient is taking medications safely and accurately promotes patient safety and good overall health.

Another potential issue that I learned while doing this project is that many people are at risk for not taking their medications due to high costs. In our scenario, our patient had good health insurance that covered the cost of her prescriptions with little co-pay costs. This helped her tremendously with the monthly cost of her medication, including a \$2,000.00 monthly injection. Without having that insurance, Amy might not have been able to afford the injection and her condition could have worsened very rapidly. Unfortunately, there are many people that don't have good insurance and suffer through their illnesses with no progress and no treatment due to high costs. This is something that nurses must advocate for and exhaust all possible resources for, for the patient. Nurses must ensure that all measures are being taken to help patients receive their medicine to promote the best possible outcome.

### References

Cerner Multum, Inc. (2022). *Ranibizumab ophthalmic uses, Side Effects & Warnings*. Drugs.com.

<https://www.drugs.com/mtm/ranibizumab-ophthalmic.html>

Drugs.com. (2022). *Drug interactions checker - for drugs, Food & Alcohol*. Drugs.com.

[https://www.drugs.com/drug\\_interactions.html](https://www.drugs.com/drug_interactions.html)

GoodRx, Inc. (2022). *Prescription prices, Coupons & pharmacy information*. GoodRx. <https://www.goodrx.com/>

Jones & Bartlett Learning, LLC. (2021). *Nurse's Drug Handbook* (20<sup>th</sup> ed). Jones & Bartlett Learning, LLC.

WebMD LLC. (2022). *Drugs & diseases*. Medscape Drugs & Diseases - Comprehensive peer-reviewed medical condition, surgery, and clinical procedure articles with symptoms, diagnosis, staging, treatment, drugs and medications, prognosis, follow-up, and pictures. <https://reference.medscape.com/>

Vallerand, A. H., Deglin, J. H., & Sanoski, C. A. (2017). *Davis's drug guide for Nurses*. F.A. Davis Company.