Systematic Approach to Answering Drug Information Requests

Busy Day Tool Kit Preceptor Instructions

Learner level: IPPE and APPE Students

Estimated time to complete: May take several hours/days and can be done intermittently while completing other assigned projects.

Preceptor Instructions: Provide a new or recent drug information request to your student. Inquire as to whether or not the school has an existing drug information question template. Decide on a final format for writing up the drug information request. Review the completed written drug information question. Arrange a time to review the submission with the student.

Student Instructions: Receive a drug information request. Review the module and see what portions of it will be applicable to your current drug information request. Complete the request using the module portions as applicable. Prepare the response in the format agreed on. Meet with your preceptor to review the completed drug information request.

Systematic Approach to Answering Drug Information Requests

Step 1: Obtain background information

Before you can answer a drug information request, it is imperative to clearly understand the question and the circumstances surrounding the question. When this is done correctly, the literature search has direction and can be specific in terms of which resources to utilize. Complete background information enables an efficient and relevant answer to be provided in a timely fashion. Complete background information also ensures an appropriate and applicable response to the requestor.

The book, *Drug Information: A Guide for Pharmacists,* suggests the following questions and factors to consider when formulating a response to a drug information request:

General questions to consider before formulating a response
- How do you provide the requestor their answer? (i.e., what is their contact information?)
- How does the requestor want the information? (I.e. in person, in email, patient handout, etc.)
- Does the question pertain to a specific patient?
- Why is the question being asked? What is the background of the situation?
- Are the requestor's expectations understood? How soon do they want a response?
- How will the information be used?
- What has been done regarding the situation to date?

Patient Factors to Consider
- o Demographics (e.g., name, age, height, weight, gender, etc.)
- o Diagnosis/Problem list
- o Allergies
- o Organ function
- o Chief complaint
- o History of present illness
- o Past medical history
- o Family history
- o Social history
- o Review of systems
- o Medications, including herbals
- o Physical findings
- o Laboratory results

Disease Factors to Consider
- o Epidemiology
- o Etiology
- o Pathophysiology
- o Clinical findings
- o Diagnosis
- o Treatment
- o Prevention and control
- o Risk factors
- o Complications
- o Prognosis

Medication Factors to Consider
- o Name of medication
- o Availability
- o Physiochemical properties
- o Pharmacology and pharmacodynamics
- o Pharmacokinetics
- o Pharmacogenetics
- o Indications (both labeled and off-label)
- o Uses
- o Adverse effects
- o Contraindications (including allergies)
- o Effects of age, organ system function, disease, pregnancy, etc.
- o Effect on fertility, pregnancy, lactation
- o Drug interactions
- o Available formulations and Administration route
- o Dosage and schedule
- o Monitoring
- o Compatibility and stability

Other Factors to Consider
- o Setting
- o Context
- o Sequence and time frame of events

- o Rationale for the question
- o Events prompting the question
- o Special circumstances
- o Acuity and time constraints
- o Scope of the question
- o Desired detail or depth of response
- o Limitations of available information or resources
- o Completeness, sufficiency, and quality of the information
- o Applicability and generalizability of the information

The book, *Drug Information: A Guide for Pharmacists,* suggests the following questions when obtaining background information:

Specific factors to consider depending on the type of question

Adverse Drug Reaction (ADR)
- o What drug is potentially associated with the ADR?
- o How was the drug given (e.g. dose, route)?
- o How long was the drug given before the reaction occurred?
- o What reaction occurred?
- o What patient information is available?
    - o Age, sex, weight, present disease(s), past allergies or reactions (describe), concurrent food/medication, if teratogenicity, what trimester

Availability
- o How do you spell the drug name (including trade name if applicable)?
- o What is the indication or therapeutic use?
- o Where did you hear about the drug? (e.g. read about it in a journal, saw it on the Internet, etc.)
- o What is the background information? (e.g. informational purposes or patient)
- o Is this a prescription drug, non-prescription drug, or herbal?

Dosing & Administration
- o What patient information available?
    - o age, sex, weight, organ function, concurrent medications
- o What route of administration?
- o What is the disease being treated or indication?
- o Are there other drugs being taken?

Drug Interaction
- o What is the age of the patient?
- o What are the patient's health conditions?
- o What other medications or herbals is the patient taking?
- o What was the most recent drug added?
- o What drugs are involved?
    - o Names, doses, route, length of therapy with each drug
- o Has the interaction actually occurred? If so, what results (what was the reaction, if any)?
- o What is the background of the situation?

Drugs in Pregnancy/Lactation

Pregnancy

- o What trimester is the mother in?
- o What is the dose of the medication?
- o Has she already started taking the medication? How long has she been taking the medication or is expected to continue taking the medication?
- o Is the mother taking any other medications, including OTC and natural/herbal products?
- o Does the mother have any health conditions?

Lactation

- o What is the age of the infant?
- o Was he/she full-term or premature?
- o What health conditions does the infant have? (e.g., cystic fibrosis, muscular dystrophy, etc.)
- o What other medications are the infant and mother receiving?

Identification

Foreign

- o Ask the name of the product and obtain spelling. Try to verify if it is a generic or brand name.
- o Dosage form, if known (e.g., tablet, injectable, etc.)
- o Where is the description coming from (e.g., a published article, the internet, a letter from a relative, off the exact product labeling, a prescription bottle, etc. – may indicate the likelihood of a typo)?
- o What is the country of origin? (determines where you will look)
- o What does the caller think it is (specific name, prescription, nonprescription, herbal, supplement)?

Tablet/Capsule

- o What dosage form is the product?
- o If letters, are they capitals or lower case? Repeat specific letters that may be misheard (e.g., state "Is that "F" as in Frank, "C" as in Charlie?)
- o Are some characters separated by a score in the tablet or on one half of a capsule?
- o Is it a 9 or a 6?
- o Approximate size of product (bigger than aspirin is okay description).
- o Where was it found and why does the requestor need identified? (e.g., poisoning, mixed up meds in bottle, found on floor)

Pharmaceutics

- o What is the drug dosage and route of administration?
- o What patient information is available?
    - o Age, sex, weight, organ function, concurrent medications

Physical Stability/Compatibility

- o How are the drugs to be administered? (eg. Y-site, syringe, etc…)
- o What is the concentration of all drugs in question?
- o What solution will be used (if applicable)?
- o What physical conditions exist?
    - o Temperature, light, diluents, storage duration
    - o IV bag/syringe

Therapeutic Use
- o What effect is desired (cure, prophylaxis)?
- o Previous medications and doses used?
- o Patient status?
    - o Age, weight, sex, concurrent medication, disease states, organ function
- o Where did they hear about this?

Step 2: Categorize the request

Classification Categories

Adverse Drug Reactions
- o Side effects
- o Allergic reactions
- o Idiosyncratic reactions

Availability
- o U.S. marketed
- o University of Kansas Hospital Formulary
- o Investigational drugs

Dosage/Administration
- o Adult, pediatric or geriatric dosing
- o Route of administration

Drug Interactions
- o Drug-drug
- o Drug-food
- o Drug-lab
- o Drug-allergy

Drugs in Pregnancy / Lactation
- o Excretion in breast milk
- o Teratogenicity
- o Placental transfer

General Information
- o Pharmacology
- o Monograph information
- o Disease state information

Identification
- o Domestic product
- o Ingredients
- o Gluten content
- o Generic or brand name
- o Tablet identification
- o Foreign product

Pharmaceutics
- o "Recipes"
- o Sterile products
- o Suspension formulations
- o Extemporaneous formulations

Pharmacoeconomics
- o Cost comparisons
- o AWP pricing

Pharmacokinetics
- o Half-life
- o Serum levels
- o Dialysis effects
- o Bioavailability/onset

Physical Stability / Compatibility
- o Intravenous admixtures compatibility/stability
- o Non-admixture stability data

Therapeutic Use
- o Drug of choice
- o Approved use
- o Non-approved use

Toxicology
- o General information
- o Management
- o Sequelae

Step 3: Search the literature

In order to maximize your search efficiency and accuracy, it is necessary to develop a search strategy and before developing a search strategy, it is necessary that we have the same understandings for different terms.

Search Terms
Always search under the **generic drug name** and not the trade name (Generic names are universal; trade names are specific to counties. Also, cannot assume sources will cross reference.).

Medical Literature
- Primary Literature: Original articles published in journals
    - Serve as the foundation of medical literature
    - Quality of information varies and primary literature must be read critically
    - Journals can be published weekly, biweekly, monthly, quarterly, or annually
    - Example: Journal of the American Medical Association (JAMA)

- Secondary Literature: Sources are used to access the primary literature
    - Considered as a bibliographical indexing system
    - Sources are typically not useful without access to primary literature
    - Advantage over primary literature is efficiency in locating articles of specific interest
    - Different systems have different posting guidelines and lag time ranges from 3 weeks to a year
    - Example: PubMed

- Tertiary Literature: Reference textbooks
    - Condensation and summarization of the information found in primary literature
    - Most efficient source of information, but not the most current
    - Lag time of 3-5 years
    - Quality of the information varies, depending on author's ability to evaluate primary literature and document it
    - Examples: American Hospital Formulary Service (AHFS), Harrison's Principles of Internal Medicine, Drug Information Handbook

Search Strategy
Tertiary ----> Secondary ----> Primary

- Review general references first. (Remember: information is only as current as the publication date)
- Consult secondary sources if an adequate answer cannot be obtained from the general references alone or a more thorough (or current) response is required,
    - Start with the most current index and work backwards, which should provide reference citations to the primary literature
- Retrieve the original articles indexed and using evaluative skills, select pertinent articles

Step 4: Evaluate the literature in regards to reliability of information

Step 5: Formulate a response pertinent to the request (in-person, phone, fax, email)

Follow-up with the requestor

References

Calis KA, Sheehan AH. Chapter 2: Formulating effective responses and recommendations: A Structured Approach. In: Malone PM, Kier KL, Stanovich JE. *Drug Information: A Guide for Pharmacists*. 4th ed. New York, NY: McGraw-Hill Medical; 2012: 39-43.

Kirkwood C. Appendix 2-2. Sample questions for obtaining background information from requestors. In: Malone PM, Kier KL, Stanovich JE. *Drug Information: A Guide for Pharmacists*. 4th ed. New York, NY: McGraw-Hill Medical; 2012: 39-43.