Systematic Approach for Answering a Drug Information Request: The Seven Steps

Note~The outline for answering a drug information request is presented below. Within each step, there are links that provide further explanations and examples. The seven steps are colored red.


Step 1: Secure Demographics of Requestor

- Obtain initial question
- Secure requestor demographics
- Example
- Determine a method for delivery of the response

Step 2: Obtain Background Information

- Request background information
- Determine if the question is patient specific or academic and gather information that further defines the question
- Example

Step 3: Determine and Categorize the Ultimate Question

- Appropriate background information allows the exact question to be determined
- Example
- The requestor's purpose for the information must be understood to effectively use the systematic approach and adequately answer the question
- Restate the request to confirm the question with the caller
- Develop a time line for response
- Categorize the question
- Examples of question classifications
- Example

Step 4: Develop Strategy and Conduct Search

- Develop a search strategy
- **Select and prioritize resources** based on the probability of locating the desired information
- **Conduct a systematic search**
- **Example**

**Step 5: Perform Evaluation, Analysis, and Synthesis**

- Objectively and thoroughly evaluate located information
- **Confirm information with other references** to assure consistency between various resources
- Performing a comprehensive search is an important part of this process to ensure recommendations are based on all of the current evidence available
- Derive an answer by professional judgment after critically analyzing the available information when resources do not provide a direct answer

**Step 6: Formulate and Provide Response**

- **Restate the question** and any pertinent background information
- **Provide the information** and recommendation (if applicable)
- Submit the response to the requestor in a timely fashion to assure quality service and preserve professional respect

**Step 7: Conduct Follow-Up and Documentation**

- Document the question and response, and conduct follow-up
- **Methods of documentation** (examples)
- **Reasons for documentation** (examples)
- Follow-up is the final portion of the process
- **Methods of follow-up**
- **Reasons of follow-up**
- **Example**

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**Step 1: Secure Demographics of Requestor**

Secure requestor demographics

The requestor's "profession" (e.g., physician, pharmacist, nurse, lay person) should indicate educational experience and knowledge base; therefore, the individual receiving the query can use this information to determine the
appropriate mannerism (in terms of educational level) to formulate and deliver the response.

Example

If a patient and a physician inquired about how the new medication Prandin® works (i.e., pharmacology), the depth of the response would differ for each individual. For example, a pharmacist should not inform a lay person that the new medication is the first agent approved in the meglitinide class and is a non-sulfonylurea insulin releasing oral hypoglycemic agent for type 2 diabetes mellitus. This would not be an appropriate response because the lay person would be unfamiliar with this terminology. Similarly, the pharmacist would not communicate to the physician that the new medication "acts by improving the way your body processes sugar." The physician would require a more scientific description of the product.

Determine a method for delivery of the response

Gather information from the requestor that will allow you to reply to the request. Examples of information to gather include the following: the requestor's address, phone number, pager number, and fax number.

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Step 2: Obtain Background Information

Request background information

- Background information aids in clarifying the question and is a critical step in the process
- The question may not be stated concisely or the requestor may not know how to ask the question
- To formulate an acceptable response, both the caller and researcher must have a clear understanding of the ultimate question

Example

For instance, a pharmacist is asked, "what is the dose of amoxicillin (Amoxil®)?" This question could be answered quickly (and potentially inaccurately) by stating that the normal dosage as 500 mg every eight hours. The question also could be answered by gathering background information concerning the origin of the question. A pharmacist would not provide the most commonly dispensed dose of amoxicillin as the dose for all individuals and conditions. The dose of this antibiotic depends upon a number of factors. Determine if the question is in regard to a specific patient or general research in the treatment of a disease state. If the question is patient specific, important information to acquire would include the patient's age, weight, allergies, type of infection, concurrent disease states, other medications, and preferred dosage form (e.g., oral suspension, capsules, or chewable tablets). For example, amoxicillin may not be the best agent to select for the infection. In addition, the dose of amoxicillin can be 500 mg every eight hours
for a severe infection or 2 grams as a single dose one hour prior to dental procedures for bacterial endocarditis prophylaxis. Other issues to consider with the antibiotic are dose adjustment for renal impairment and interactions with concomitant medications.

Step 3: Determine and Categorize the Ultimate Question

Example

Information gathered from the background questions concerning the request for the dose of amoxicillin (Amoxil®) allowed the actual question to be revealed as the dose and frequency of amoxicillin before a dental procedure for bacterial endocarditis prophylaxis in an 18 year old male.

Develop a time line for response

Completely understanding the scope of the "true" question also aids in developing a realistic estimate of the time required to compose a response.

Categorize the question

- A vital step in the systematic approach
- Allows for efficient use of the resources by providing the foundation of a logical progression process
- An all-inclusive resource with data to answer every drug information question does not exist
- References contain specific types of information
- Numerous topic specific resources are available (e.g., drug interactions, infectious disease, internal medicine)
- Classification of a request aids in developing a more effective search strategy
- Selecting the resource with the highest probability of containing the desired information can decrease the time requirement and increase the accuracy of the response
- Otherwise, unnecessary time and energy may be expended on searching references unable to produce the needed facts

Examples of question classifications

- Adverse Drug Reaction/Contraindication
- Availability
- Dose
- Drug compatibility/stability
Example

- In the previous example above, the amoxicillin request pertains to a dose. Therefore, this question would be classified as Dose. The following are examples of references that provide this information: *American Hospital Formulary Service (AHFS), Facts and Comparisons*, and *USP Drug Information (USPDI) for the Health Care Professional*.

- *Drug Interaction Facts* and *Hansten and Horn's Drug Interactions Analysis and Management* are textbooks specific for drug interactions. Therefore, if the inquiry concerned the potential of concomitant administration of warfarin (Coumadin®) and aspirin to increase the International Normalized Ratio (INR), the question would be classified as a Drug Interaction and a logical starting point would be these two references.

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**Step 4: Develop Strategy and Conduct Search**

Select and prioritize resources based on the probability of locating the desired information

- Without prioritization, resources may be used based on ease of access or degree of comfort instead of probable efficiency

Conduct a systematic search

- Be familiar with the three types of information sources in the literature hierarchy
- Begin with the established knowledge located within the tertiary literature (e.g., textbooks) due to the condensed, easy-to-use format of the information presented
- Progress through the secondary literature (e.g., MEDLINE, International Pharmaceutical Abstracts [IPA]) to the primary literature (e.g., controlled clinical trails, letters to the editor)

Example

- Continuing with the dose of amoxicillin prior to dental procedures for bacterial endocarditis prophylaxis, the question was classified as a Dose question. Therefore, references most likely to contain the dose of amoxicillin (e.g., *American Hospital Formulary Service [AHFS], Facts and Comparisons*, and *USP Drug Information [USPDI] for the Health Care Professional*) were consulted first. However, after reviewing these references a discrepancy in the recommended dose was identified in the references. Two of the references reported the amoxicillin dose as 2 grams orally one hour prior to
the dental procedure and the other reference reported the dose as 3 grams one hour prior to the procedure and 1.5 grams 6 hours after the first dose. Due to this discrepancy, internal medicine and infections disease textbooks were consulted; these texts further supported the dose of amoxicillin as 3 grams one hour prior to the procedure and 1.5 grams 6 hours after the first dose. To insure that the most up-to-date information was obtained, a secondary literature search was conducted (e.g., MEDLINE, Iowa Drug Information Service [IDIS], and International Pharmaceutical Abstracts [IPA]) and an article with updated guidelines for bacterial endocarditis prophylaxis was located. The new guidelines recommend amoxicillin 2 grams orally one hour prior to the dental procedure for bacterial endocarditis prophylaxis; a second dose is not required.

- As mentioned previously, if the question is classified as a Drug Interaction, then a logical and efficient search would begin with a text specific for drug interactions (e.g., Hansten and Horn's Drug Interactions Analysis and Management, Drug Interaction Facts and Comparisons). If a text specific for drug interaction is not available, other references likely to contain the desired information (e.g., Drug Facts and Comparisons, American Hospital Formulary Service, Micromedex) should be selected as opposed to references with a decreased probability of containing the information (e.g., Drug Topics Red Book, American Drug Index)

Step 5: Perform Evaluation, Analysis, and Synthesis

Confirm information with other references to assure consistency between various resources

- While authors, editors, and publishers attempt to assure the reliability of the information published, most resources include a disclaimer statement since errors do occur occasionally

Step 6: Formulate and Provide Response

Restate the question and any pertinent background information

- This allows the requestor to be informed of the question and focused on the impending response

Provide the information and recommendation (if applicable)

- In addition, a brief review of the search strategy and references reviewed may be included in the response as a confirmation to the comprehensive search conducted
- Compose the response at the requestor's comprehension level

http://www.samford.edu/schools/pharmacy/dic/eval.htm
Step 7: Conduct Follow-Up and Documentation

Methods of documentation (examples)

- Paper form
- Logbook
- Computer database

Reasons for documentations (examples)

- Justification of pharmacist's professional value to the institution
- Future reference for repetitive drug information requests
- Protective measure against legal liability

Methods of follow-up

- Mail survey
- Phone call
- Written communication

Reasons for follow-up

- Provide the requestor with additional information that supports or changes a prior recommendation
- Obtain feedback concerning the quality of the service

Example

For instance, a prescriber inquires about the relationship between elevated homocysteine levels and coronary heart disease (CHD). Furthermore, the caller requests information concerning prescribing folic acid to decrease homocysteine levels. After following the modified systematic approach, evidence that documented a relationship between elevated homocysteine levels and CHD was located. In addition, preliminary therapeutic trial information supported daily supplementation of folic acid to lower homocysteine levels. A few weeks later, additional information that further established the efficacy of folic acid in lowering homocysteine levels was published. Follow-up should be provided to the prescriber due to the recent information affirming the prior response.

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