Evidence based approach in addressing information needs

How to respond to medical information requests?

- Evidence based medicine
  - Use of current best evidence in clinical decision making
  - Combination of the strongest external evidence and clinical expertise

Involves different steps to ensure that questions are handled consistently regardless of the clinician, question, and the context

- Evidence based medicine involves 5 steps:

1. Forming specific clinical questions
2. Searching and retrieving best evidence
3. Critically appraising the evidence for strength, validity, usefulness and importance
4. Summarizing and applying the results to clinical practice
5. Evaluating performance and follow up for improvement

- There are 2 types of studies
  - Descriptive
    - Simply recording information from observing patients
  - Explanatory
    - Using group comparisons as the basis for determining whether an exposure/treatment might cause or affect a condition or outcome

Table 1.1 A modified systematic approach for addressing medication-related questions

Step 1	Obtain requester demographics
Step 2	Obtain pertinent background information
Step 3	Classify the ultimate question
Step 4	Systematic search for information
Step 5	Evaluate, analyze, and synthesize information found
Step 6	Provide response
Step 7	Follow-up and document

Step 1: Obtain requester demographics

- What is the level of understanding?
- Healthcare provider vs public
- Ask further questions to assess the knowledge with the topic

- Providing information that meets the needs of the requester

Step 2: Obtain patient background information

- Ask thoughtful pertinent questions
- Why the question arose and how the requester will use the information?
  - A patient involved?
  - General question?
- Were any other resources used?
- Determine the real question?
- Restate the question incorporating background information

If an information request pertains to a specific patient, the following patient-specific background information might be required in order to formulate an appropriate response:

- age
- gender
- weight
- relevant laboratory data (to assess renal and hepatic function, appropriateness of any drug levels obtained, etc.)
- specific medical diagnosis
- relevant past medical history, family and social history
- medications (current or recent, nonprescription, prescription, natural products)
- allergies.

Example

- A dentists contacts a pharmacists asking if carvedilol is associated with gingival hyperplasia.
- The pharmacist is busy and pauses for a moment to look up carvedilol in a tertiary resource does not see gingival hyperplasia listed as ADR and provides this information to the dentist.
- The dentist accepts the response.
- Is there a problem here?

Step 3: Classify the ultimate question

- ADR?
- Therapeutic use?
- PK?
- Dosing?
- Drug interaction
- Product identification
- Availability

- Important for identifying the resource
- Anticipate additional questions

Step 4: Systematic search for information

- Most searches begin with tertiary resources
  - Use at least 2 tertiary resources
  - Check the date
- Secondary resources might be needed

Step 5: Evaluate, analyze and synthesize information found

- The currency of the resource
- The experience of the authors?
- Reference citations?
- Bias? Errors?

Step 6: Provide response

- In a timely manner
- Appropriate level for the requester
- Agreed format (verbal, written)
- Appropriate communication skills

Step 7: Follow up and document

- Documentation, the responses, references
- Follow up (new information)

Question

- You are asked this question by a clinician
- What is the risk of taking lisinopril during pregnancy?
- What additional background questions should be asked to clarify this question?

Question

- A physician has a patient taking insulin.
- He wants to know the incidence of hypersensetivity reaction to insulin.
- What additional questions would you ask this physician to clarify the information need further?

Question

- What is the molecular weight of fosamprenavir calcium?

- A research question for an *in vitro* study of fosamprenavir pharmacologic effects.

Accepting responsibility and Eliminating barriers

- The responsibility extends beyond providing simple answers to a question

- The responsibility to assist in resolving therapeutic dilemmas or manage patients' medication regimen for the entire therapeutic outcome

Accepting responsibility and Eliminating barriers

- Barriers:
  - False perception of questions
  - Absence of sufficient background information

Question

- Antibiotic dose?

- Age, sex, condition being treated, end-organ function, weight, body composition, concomitant diseases, drug interactions, site of infection, spectrum of antimicrobial activity, resistance

Case study

Initial question:

- Can you tell me the recommended dose of azithromycin for gastroparesis?

Requester

- Internal medicine physician managing a patient with diabetic gastroparesis.
- A nurse informed the internal medicine team of a nationwide shortage of erythromycin.
- The physician would like to know if azithromycin is an alternative to erythromycin and what would be the appropriate dose?

Patient factors

- CD
- 53 year old female
- Abdominal pain, persistent nausea, occasional vomiting, decreased appetite, flatulence (for the past 2 months)
- Metoclopramide 10 mg PO 10 minutes after meals

PMH

- Type II diabetes X 13 years
- Peripheral neuropathy X 5 years
- Diabetic gastroparesis X 2 years
- Hypertension X 8 years

Social history

- Negative for ethanol
- Negative for tobacco or illicit drugs

Current medications and supplements

- Insulin Glargine 15 units SC at bedtime
- Insulin Lispro 5 units SC 15 minutes before each meal
- Lisinopril 10 mg PO daily
- Hydrochlorothiazide 50 mg daily
- Metoclopramide 10 mg PO 10 minutes after meals
- Atorvastatin 40 mg PO QPM
- Acetaminophen 1000 mg PO Q6H PRN
- Centrum women daily multivitamin
- Fish oil supplements

Allergies and intolerances

- Morphine
- Lab results
- T 98F, BP 151/84 mmHg, P 91 BPM, RR 18/min O2 sat 93%
- SCr 1.3 mg/dl, BUN 22 mmol/dl
- WBC 5.4 X 10^9 per L
- Glucose 88 mg/dl, A1C 9.4% (3 months ago)
- LDL 126 mg/dl, HDL 44 mg/dl, TG 155 mg/dl

Question

- Do any of the following antibiotics cause teeth discoloration?
  - Amoxicillin
  - Sulfamethaxazole-trimethoprim
  - nitrofurantoin

Background information

Requester: a urology nurse practitioner caring for a patient with vesicoureteral reflux.

- Patient receiving ½ tsp sulfamethoxazole-trimethoprim for 8 months
- 2 teeth darkening?

Patient information

AB

- 10 month old male with vesicoureteral reflux

PMH

- N/A

Social history

- N/A
- Current medications
- Trimothprim/sulfamethaxazole 40-200 mg/5ml QDX 8 months (stopped)
- Liquid multivitamin supplement
- Breast-fed

Drug Information: A Guide for Pharmacists, 6e > Formulating an Effective Response: A Structured Approach

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TABLE 2–4.
DESIRED CHARACTERISTICS OF A RESPONSE

Timely
Current
Accurate
Complete
Concise
Supported by the best available evidence
Well-referenced
Clear and logical
Objective and balanced
Free of bias or flaws
Applicable and appropriate for specific circumstances
Answers important related questions
Addresses specific management of patients or situations