

## Fishing and history taking

*From the net to the line*

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Learning the skills of focused assessment can be challenging for medical students and residents. Sackett described 4 main strategies for diagnostic work in clinical practice: pattern recognition, algorithm, “complete history,” and hypothetico-deductive.<sup>1</sup> An analogy between history taking and fishing is an original way of helping learners with these skills.

During medical school, students learn anatomy, physiology, and pathology, then link how these correlate with diseases in various systems. In preclerkship, medical students learn in terms of disease: a myocardial infarction occurs because atherosclerosis leads to coronary artery occlusion; it manifests as chest pain. When beginning clerkship, students meet patients who present with symptoms. For example, chest pain—which, in fact, could be caused by a myocardial infarction—could also be caused by many other conditions (costochondritis, pericarditis, peptic ulcer disease, etc).

One of the biggest challenges for students is to think in terms of symptoms, which requires the skillful art of performing a focused assessment. This is where fishing is introduced.

### Thrill of the catch

There are 2 different ways of fishing: net and line. Spreading a net will likely catch many fish of various species, but it will also bring seaweed and trivia. Culling is time-consuming and the desired type of fish might not be found. With line-fishing, however, there is an assumption that the fisherman has at least a general idea of the species he might find in a particular area of water and can choose a specific lure. During clinical training, one role of the teaching physician is to help students learn how to line-fish. Here is a way to use the fishing analogy in teaching:

**Assess the waters.** The first minute with the patient is meant to be used to elicit and understand the chief complaint. Novice students might use the well-known OPQRST mnemonic (onset, provocation, quality, radiation, severity, and time) to assess the characteristics of the patient’s symptom. After the first minute, students should take “time-outs” to think about what “fish species” they might find (ie, the differential diagnoses for the specific chief complaints). If learners skip this part, they will likely spread the net, resulting in a huge but heteroclit catch.

**Choose the lure.** With this initial differential, students are able to choose the “lures” they will use (ie, specific questions to rule the diseases in the differential diagnoses in or out).

Below is an example in which Student A uses the “net” approach and Student B the “line” approach to interview a 59-year-old man with a noncontributory past medical history presenting at a walk-in clinic with a cough.

### Student A

Student A’s net-spreading approach to interviewing the patient looks like this:

Do you have any history of heart disease, pulmonary disease, or other serious medical conditions? Did your parents have any specific medical conditions?

Do you smoke? drink alcohol? or use street drugs?

Any allergies? medications? or complementary medicine?

When did the cough start? Any specific triggers at the onset? provoking or alleviating factors?

Are you experiencing fever, chills, or weight loss?

Do you have a runny nose? congestion? ear pain? or sore throat?

Any sputum? shortness of breath? thoracic pain? or wheezing?

Have you been recently immobilized? Do you have calf pain?

Do you ever experience chest pain with exertion? palpitations? or shortness of breath?

How many pillows do you use at night? Do you ever need to sit up at night to catch your breath?

Any nausea or vomiting? abdominal pain? or problems with your bowel movements?

Do you have any urinary symptoms?

Any history of headaches? seizures? loss of consciousness? or localized tingling or weakness?

Do you have muscle or joint pains?

How is your mood?

### Student B

After eliciting the chief complaint, this student asks focused questions (based on the OPQRST mnemonic)

to determine that the 59-year-old man has a 2-month history of cough for which he cannot identify any trigger. The cough improves during the day but is worse at night, making it difficult to sleep. He has never smoked. It takes the student about 1 minute to complete this portion of the interview.

**Assessment.** The most likely differential for chronic cough is asthma, chronic sinusitis, and gastroesophageal reflux disease. This assessment is done more or less consciously after the first minute of interview.

### **Lures (to rule in or rule out hypothesis)**

**Asthma:** Any past medical history of asthma or bronchial hyperreactivity? Have you ever used inhalers in the past? Do you experience any wheezing or shortness of breath? Do you notice an increase in coughing with exercise or cold weather? Any new environmental factors, such as new pets, smoke exposure, seasonal allergies, carpets, moulds, etc?

**Sinusitis:** Any past medical history of sinusitis or recent upper respiratory tract infection? Do you have nasal congestion, rhinorrhea, headache, fever, or post-nasal drip?

**Gastroesophageal reflux disease:** Do you ever experience a bitter taste in your mouth? Any retrosternal or stomach burning in the past months? If so, is it worse after a spicy meal? alcohol? coffee? mint? or chocolate? Do you usually eat before going to bed? Do you ever use an extra pillow to help relieve the symptoms at night? Is your cough worse after meals?

**Red flags:** Any fevers, night sweats, or weight loss? Any hemoptysis?

**Other important history findings:** Do you have any known allergies? Do you use any medications or complementary therapies?

### **Reeling it in**

Student A was a novice interviewer using a “complete history” generic approach, which can be applied to most chief complaints. But with growing clinical knowledge and experience, learners will identify prototypical patient models early in the interview (pattern recognition strategies); then they will rule in or rule out diagnoses using the hypothetico-deductive model. This is referred to by Baerheim as a 2-phase structure: First, there is the abductive phase, where 1 or more possible diagnoses are inferred. Second, there is the deductive phase, where assumptions are tested.<sup>2</sup> This approach was used by Student B, an advanced learner.

Student B already had in mind the most common diagnoses for chronic cough, so he could focus his questions and be more specific. Both students can eventually come up with the same diagnosis; however, the chance to bring in some “artifacts” is more likely for Student A, and his task will be more time-consuming compared

with Student B’s more efficient process. The latter might also be more confident with his diagnosis in the end.

Fishing with nets is a starting point for novice learners but is inefficient and can yield poor results. Fishing with lines and lures can be more successful but requires experience and intuition. Teaching physicians have the important task of helping learners gain enough experience to go from the net to the line. ❁

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### **Competing interests**

None declared

### **References**

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