

5 tips for communicating health statistics to patients

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The following may be helpful for communicating quantitative information about medications.



Pharmacists routinely communicate quantitative information when educating patients about medications. This may include drug doses, schedules, potential risks and benefits, and laboratory values. Effectively communicating information that is statistical or quantitative in nature is a core pharmacy practice skill that should lead to improved patient knowledge, adherence and health outcomes associated with medication use. It can be very challenging, however, especially when an estimated six in 10 Canadian adults have low levels of health literacy.(1) Furthermore, low health literacy is associated with poor health outcomes, including poor anticoagulation control, asthma-related hospitalizations and diabetes.(1,2)

The following five tips may be helpful for communicating quantitative information about medications.

#1

Be cautious about using descriptive terms only

Given that there is an inconsistency in how people will translate words to numbers, it is important to be cautious in using only descriptive terms to describe the frequency (e.g., very common, common, uncommon, rare, very rare) or severity (mild, moderate, severe) of medication effects.(3,4) A patient's perception of such terms will be variable—often differing by several orders of magnitude.(5) Using quantitative information may help patients understand what is meant by these terms; however, using numbers does not solve all ambiguity as patients often underestimate common risks and overestimate rare risks even when provided with simple probabilities.

2

Use absolute risk differences

Given that relative formats inflate the apparent magnitude of effect; pharmacists should never use relative measures (i.e., relative risk reduction) on their own.(6,7) Indeed, a difference of 1% to 2%, when expressed as a 100% relative increase, seems to convey a larger treatment effect than a 1% absolute increase. Using absolute risk differences is critical when discussing rare drug effects. For example, the risk of venous thromboembolism is approximately 5 per 10,000 per year for women of reproductive age who do not use oral contraceptives, compared to 10 per 10,000 per year for oral contraceptive users.(8,9) This can be expressed as a doubling or 100% increase in risk...or a 0.05% absolute increase.

Discussing relative and absolute differences also applies when discussing benefits. A shingles prevention study evaluated the risk of shingles in patients randomized to a varicella zoster vaccine versus placebo over a three-year period.(10) They found a significant difference, whereby the risk of shingles was 3.3% for patients in the placebo group and 1.6% for those in the vaccine group; this corresponds to a 51% relative risk reduction...or a 1.7% absolute risk reduction. Cutting one's risk in half sounds impressive compared to an absolute risk reduction of less than 2%. If, however, the goal is to persuade people towards a certain health behaviour (e.g., smoking cessation) then relative risk reduction may be more appropriate. If relative risk reduction is used, the baseline risk should be discussed using an easy to understand ratio.(11)

#3

Use simple ratios with consistent denominators

Express risks as either a per cent or a ratio using a consistent, easy to understand, denominator (i.e., 10, 100, 1000); studies suggest that other formats (e.g., number needed to treat) are more difficult to understand.(4,12,13) For example, use 20 out of 1000 and 5 out of 1000 compared to 1 in 50 and 1 in 200. When different denominators are used, the ratio with the larger denominator may be incorrectly interpreted as being a larger risk—1 in 200 may thought to be a bigger risk than 1 in 50 due to 200 being a larger number.(4) Importantly, when patients are presented with percentages (e.g., a 30% to 50% chance of a certain side effect), they may mistake this to mean that they will experience the side effect for 30%–50% of the time while using the medication, as opposed to the correct understanding that 30%–50% of people who use the medication will experience the side effect.

#4

Offer positive and negative outcomes

Do not discuss the risks of potential adverse events without also providing perspectives on positive outcomes.(4) For example, if the chance of experiencing a side effect is 2%, also presenting the fact that there is a 98% chance of remaining free of the side effect may be psychologically appealing to a patient.

#5

Use visual aids whenever possible

Graphical aids (e.g., icon arrays, bar charts, pie charts, risk tables, ladders, scales) are useful for conveying complex quantitative information. Graphical design features will affect the perception of risk and it is particularly important that both the numerator and denominator are expressed on the graph.(7) Icon arrays, sometimes called pictographs, consist of a matrix of images to represent an at-risk population. They are particularly effective for conveying quantitative medical data and have been built into many available treatment decision aids.(14–17)

Ready-made visual aids embedded into treatment decision aids are available from the Mayo Clinic Shared Decision Making National Resource Center (shareddecisions.mayoclinic.org) and the Ottawa Hospital Research Institute (decisionaid.ohri.ca). Those interested in creating their own icon arrays may access open source code available from the University of Michigan (www.iconarray.com).

Discussion

It can be challenging to express health statistics in an easily comprehensible manner. Pharmacists must be able to tailor their communication style and format for each patient and clinical encounter. Many additional techniques are available to enhance communication of health statistics, such as making communication interactive, reinforcing key concepts via repetition, and confirming comprehension, among others. This article focuses on five practical tips pharmacists can use to help patients acquire factual knowledge about their medications and health states. Communicating using quantitative information on its own will not be sufficient to help patients make decisions and change behaviour related to their medication therapies, primarily due to variations in emotional responses.(18) It is critical to provide contextualization around potential reasons for and consequences of using medications.(19) The five tips presented in this article are not absolute in nature, but aim to help with the productive use of health statistics when discussing drug therapy issues with patients and ultimately help them use their medications successfully.

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