

*The Dakota Diabetes Coalition is proud to offer a regular column on diabetes and related concerns every other Friday.*



Dr. Johnson is a family practice doctor in Grand Forks with a special interest in diabetes -- and a special knack for writing. As a member of the Dakota Diabetes Coalition, he has generously made himself available to answer questions through our listserv. If you have comments, or questions for Dr. Johnson to address in future columns, please contact [gailhand@yahoo.com](mailto:gailhand@yahoo.com)

Visit the Coalition's website!  
<http://www.ndhealth.gov/diabetescoalition/>

**Numbers, numbers everywhere!**

## **Decoding Diabetes Info and Studies**

**Q. What am I supposed to say when patients share diabetes news that they have torn from the newspaper or found on the internet? They always expect an informed opinion.**

I hear you! As health care professionals, we are often asked by patients, local reporters, or other health care providers to comment on studies, often hailed as a "breakthrough" or "controversial."

Trouble is, these studies that may -- or may not -- have any real clinical implications. For example, last spring, much controversy surrounded the diabetes medication rosiglitazone (Avandia). Let's look over a few general principles on how to interpret diabetes studies.

When discussing health information or studies with patients, ask about **the source of information**. It's important to encourage patients to seek out information using the power of the internet, but using general search engines such as Google or Yahoo have no good filter.

In other words, patients are likely to get information that is not **peer-reviewed**. That means that the information was not evaluated independently by professionals knowledgeable in the field. When a study is published in a medical journal, such as the New England Journal of

Medicine or the Journal of the American Medical Association, these articles and studies are reviewed by several experts in the field prior to publication.

This may be a process of weeks or months, and often the reviewers are 'blinded' to the authors of the study, which also reduces bias. Still, peer-review is not fraud-proof, as we've learned from recent scandals. This week more stories came to light of drug companies secretly paying doctors to paste their names on studies ghost-written by the company selling the drug. These studies have appeared in respectable, professional, peer-reviewed journals.

The type of study performed is also important to know. A **meta-analysis is a review and compilation of data** from many different preceding studies. It has the advantage of covering large amounts of data, and usually large numbers of patients. Disadvantages are that the different studies covered in the review likely have different methods of data collection, different criteria for patient inclusion in the study, and depend on the disease state or technologies and treatments available when the study was published.

A meta-analysis can be a very useful publication to review large amounts of data for conditions that affect large numbers of people, such as cancer or diabetes. They may not be as effective to note more subtle changes in larger populations.

## Looking back

Case-control studies select individuals with the disease (cases) and individuals who are not known to have the disease (controls) and then compare the two groups by the proportion exposed and unexposed to factors of interest. **Case-control studies also are called retrospective studies** because one starts with the health outcomes and then looks back in time to assess whatever factors are being studied. The most difficult factor in these studies is selecting control groups.

## Looking ahead

**Cohort studies** identify groups with specific risk factors and follow them forward in time to measure disease development. This is how the risk between smoking and diabetes was established in the Nurses Health Study. One can't say that smoking caused diabetes in this large group, but the nurses in the study who smoked had a greater risk of developing type 2 diabetes over time.

**Double blind, placebo control trials** probably are the strongest statistically, but can be difficult to do. They are very good, and commonly used for evaluating medication effects, such as hypoglycemia rates between specific insulins, the effect of cholesterol medications on lowering cholesterol, etc. The studies have different groups and are followed forward through time. Some groups will receive a specific medication or treatment at a specific dose and/or for a specific time period, and a control or placebo group, which receives no treatment, is used for comparison.

**Double blind** refers to the fact that neither the administrators of the drug/treatment or the subjects know what drug or placebo they receive. This is done to eliminate any bias. Generally, the larger the groups, the more powerful the conclusions. A trial with a few thousand patients would likely be more statistically meaningful than a study that had a few hundred people.

Certain ethical issues can arise with this type of study. For example, enrolling pregnant women or children in these types of studies can prove problematic. Sometimes, double blind placebo controlled studies must be stopped early as the differences between the drug and non-drug group become too large.

In other words, the group receiving the drug is getting so much more benefit that it's not ethical to continue with placebos. An example of this would be the CARDS trial, a study which looked at atorvastatin to reduce cardiovascular events in diabetes patients. Other studies might be stopped early if there is clearly no benefit to treatment, or if an unexpected side effect or unexpected outcome arises.

**Absolute risk reduction and relative risk reduction** are important concepts as well, and can be used as outcome markers in any study. If the risk of having a heart attack is two out of 100 in patients taking drug 'X' vs. four out of 100 not taking it, the absolute risk reduction would be 2% (4% minus 2%). But the relative risk reduction is 50%, since 2 is half of 4. **Both measures are useful**, but a note of caution. When you compare different studies, be aware they may be using these differing calculations.

These differences can make big headlines when not reported within the context of the study. For example, a few years ago, a study was reported by the media that showed a "41% greater incidence of stroke in women taking hormones." That was correct, but the absolute number was 8 more strokes per 10,000 women a year. The context in this case was very

important, especially when trying to determine how to treat an individual patient.

Occasionally, an adverse drug effect will become apparent only after the drug is already on the market, and this wasn't detected in the original studies for the drug. Troglitazone (Rezulin). This drug to treat type 2 diabetes was associated with liver damage once it had been prescribed to millions of patients. However, this was so rare, that it wasn't detected in the thousands of people who participated in the original trials for the drug.

So, what are we left with when patients bring us information from the internet or mass media? Well, there are a few basic principles to keep in mind:

When a study is reported in the media, it's worthwhile for us to **track down the original reference**. To the media's credit, they often state the source, sometimes even the name of the journal. In the internet age, finding the original source isn't difficult.

If you don't have a lot of experience reading journal studies, you'll get better as you read more. At first, focus on the study's summary, called an **abstract** and its **conclusions**. Often, graphs and charts highlight major points.

Don't be afraid to ask a local expert. **Be aware of ongoing work** in your field. For example, in diabetes, the American Diabetes Association website has a research update is very user friendly. You can search for information or sign up for an e-newsletter that highlights diabetes research. See <http://www.diabetes.org/diabetes-research/other-diabetes-research-resources.jsp>

Point patients in the right direction, towards medically oriented websites, such as the ADA or [mayoclinic.com](http://mayoclinic.com). Using general internet search engines such as Google or Yahoo to find quality medical information is all but useless.

Studies that are done by reputable organizations such as **a medical society, a federal or state agency, a medical or nursing school and published in a peer-reviewed journal** can usually be counted on to be quality data.

So, bottom line: If a patient brings something to you from the media that you are not familiar with, it's always better to say "I'll find out," rather than "I don't know."

Then, go out and do it!

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**Walk and Splash for Camp Sioux**, Grand Forks Alerus Center/CanadInn on Saturday, April 26<sup>th</sup>, Contact: Janelle Olson, Altru Diabetes Center: [jlolson@altru.org](mailto:jlolson@altru.org) or Marilyn Chandler, Altru Diabetes Center: [mchandler@altru.org](mailto:mchandler@altru.org)

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[Decoding Diabetes Studies, Dr. Johnson's Column #20, April 18, 2008](#)  
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