Eponymy: Make that Hippocrates–Janin–Neumann–Reis–Bluthe– … –Behçet's disease

It is better to achieve immortality through not dying than through your work, to paraphrase filmmaker Woody Allen. Unfortunately, physical immortality is not an option for approximately 100% of humans (give or take zero people). Having your name live on, therefore, is your best shot at remaining relevant past your biological expiration date.

If you are a doctor or scientist, you might earn immorality through an eponym. Perhaps, like German psychiatrist Dr. Alois Alzheimer, someone will name a disease after you. Maybe, like American surgeon Dr. Henry Jay Heimlich, someone will name a lifesaving intervention after you. Or perhaps your name will be linked to some other condition, therapy, gene, theory or scientific principle.

But what's best for an individual's legacy may not be what's best for science or medicine. In recent years, many have called for researchers to abandon eponyms and use more descriptive titles in their place. Yet ridding the language of science of eponyms will be difficult, if for no other reason than sheer volume. A quick glance at an online repository (www.whonamedit.com) reveals 13 pages of medical eponyms — and that's only those beginning with the letter A.

Besides honouring a pioneer in a particular field, why name a scientific discovery after a person anyway?

"It's chiefly done in an attempt to create a short-hand reference," says Dr. Alexander Woywodt, a consultant nephrologist and associate dean of undergraduate education at Lancashire Teaching Hospitals in Preston, United Kingdom.

And though many doctors, including Woywodt, suggest that the golden age of eponyms is behind us, others believe they're still valuable.

"I think there remains an important role for eponyms, even today," Dr. Robert Fox, staff neurologist and medical director of the Mellen Center for Multiple Sclerosis Treatment and Research (Cleveland Clinic) in Ohio, writes in an email.

An eponym provides a useful "handle" for a disease during its initial description, suggests Fox, and it's "easier to convey to patients in a fashion that they can latch onto." Eponyms can also be useful to describe a clinical disorder that can result from multiple gene mutations (such as Charcot–Marie–Tooth disease) or to describe multiple conditions that arise from a single genetic abnormality (such as Prader–Willi syndrome and Angelman syndrome, both caused by deletions in the same chromosome region).

Eponyms provide flexibility because "we typically do not know the pathophysiology or genetic basis of a disorder initially, and even when we do learn it, there can be different mechanisms (both physiologically and genetically) that lead to the same common phenotype," writes Fox.

For as long as the Heimlich maneuver is featured in books, magazines, pamphlets or anywhere else, Dr. Henry Jay Heimlich's legacy is secure.

It is also important to remember, notes Fox, that avoiding eponyms doesn't necessarily result in names that are more descriptive of medical conditions. Long names have a tendency to become known primarily by their abbreviations or acronyms. For example, progressive multifocal leukoencephalopathy, a disorder that damages white matter in the brain, turns into PML. More well-known examples include acquired immune deficiency syndrome (AIDS) and severe acute respiratory syndrome (SARS). Memorizing a bunch of acronyms is not the same as understanding the epidemiology of various diseases.

The list of problems associated with eponyms, however, runs a tad longer than the list of advantages. For one, a person's name can tell you nothing about the nature of a medical condition. Actually, a name can be misleading. Charcot–Marie–Tooth disease, for instance, has nothing to do with teeth. It's a genetic nerve disorder, discovered in part by British neurologist Dr.

Seeking a serious language for science

The use of eponyms in science may appear harmless enough on the surface. What's so bad, after all, about honouring researchers by attaching their names to important discoveries? Well, plenty of things, it turns out.

Eponyms aren't descriptive. Many aren't universal. They sometimes honour one person when many contributed to a discovery. They can be ambiguous and cumbersome. They can vary in spelling and grammatical structure.

But perhaps these are just the minor problems. Could the widespread use of eponyms in science actually be responsible for something much worse than inconsistent nomenclature? Are eponyms actually stifling scientific progress? Indeed they are, says Pascal Wallisch, who teaches and conducts research in neuroscience at New York University in New York City. Science needs a precise language that reflects the relationships between the underlying principles that govern nature, suggests Wallisch, and naming scientific discoveries after people in no way furthers our understanding of the physical world.

"From my perspective, it's a lazy thing to do," says Wallisch. "It really obstructs science."

A structured language with names tied to the laws of science would facilitate better understanding of the world, just as structure in naming streets facilitates better navigation in a city, Wallisch has suggested (pensees.pascallisch.net/?p=686). Laying out the borough of Manhattan in New York City in a grid would provide little benefit, for instance, if the names of streets had no relationship to their orientation and order. If you are heading north from 34th Street, you know 35th Street and 36th Street lay ahead, even if you are unfamiliar with the area.

That would not be the case if those streets were instead named Smith Street, Jones Street and Williams Street. Then you would have to memorize the street names or consult a map. Either way, you would merely be retrieving information (stored in memory or externally) rather than forming information (by thinking of logical relationships).

"But while we are not at liberty to design the structure of reality itself (at this point in time, at least), we are at liberty to name the uncovered principles in whichever way we please," wrote Wallisch.

Unfortunately, says Wallisch, many scientists have chosen to name those principles using eponyms, which have accumulated like "barnacles" during science's incredibly successful run over the past two centuries. And this has hindered communication between scientists in different fields. If researchers studying the brain of a particular animal have a nomenclature bloated with eponyms, for example, it might be difficult for them to discuss shared concepts with brain researchers studying a different animal — and who may have an entirely different set of pioneers to immortalize with eponyms.

A more precise language of science would promote a better understanding of nature, just as structured naming of streets promotes better navigation in cities.

In other words, a language that depends on labels with no inherent meaning promotes ignorance of the relationships between scientific principles and ideas, thereby pushing scientists into smaller and smaller specialties. It also allows researchers to rename an old idea with a fresh eponym and claim it as a new discovery.

"Eponyms are a way of sweeping these things under a rug," says Wallisch. "This is a fundamental problem and there is no good solution."

Indeed, though he advocates for a "serious language of science," Wallisch acknowledges that creating this new language will be no small task. Still, it is important for all scientists to start taking the labels they use more seriously, says Wallisch, no matter how pathetic the initial attempt at creating a more precise and uniform language might be.

"We can't have, in a thousand years, a long list of concepts that are not related to each other," says Wallisch. "My point is, why don't we get ahead of this? Why not try to change things deliberately? Otherwise, you have a long list of isolated things that are inherently meaningless." — Roger Collier, *CMAJ*

Howard Henry Tooth, that primarily affects the legs, arms, feet and hands.

The condition is also a good example of a cumbersome eponym with multiple names. Of course, there are others far less friendly to the ear, including Abderhalden–Kaufmann–Lignac syndrome (a childhood renal disorder) and Rumpel–Konchalevskii–Leede phenomenon (a test for capillary fragility).

There are eponyms with two names that are sometimes flipped in order (Creutzfeldt–Jakob disease, also known as Jakob–Creutzfeldt disease), and eponyms with variant spellings (Bechterew's disease, also known as Bekhterew's disease), and eponyms that change with geography and/or language (Morbus Horton in Germany becomes maladie de Horton in France), and eponyms that are used for more than one condition (de Quervain's disease is an inflammation of thumb tendons; it is also a thyroid disorder), and eponyms named after patients (Lou Gehrig disease), and eponyms named after places (Lyme disease) and eponyms named after circumstances (Legionnaire's disease). Then there are ambitious gents such as Austrian pathologist Dr. Hans Chiari, whose name found its way into multiple eponyms (Arnold–Chiari malformation and Budd–Chiari syndrome).

In short, it can get rather confusing.

Inconsistency and ambiguity in scientific nomenclature is no laughing matter, some researchers have suggested (*BMC Med Res Methodol* 2009; 9:18). They noted that several eponyms vary in grammatical structure, arbitrarily used in either nonpossessive form (Down syndrome, Alzheimer disease, Parkinson disease) or possessive form (Down's syndrome, Alzheimer's disease, Parkinson's disease). And this, they concluded, is unacceptable: "Appropriate and uniform use of nomenclature of a clinical disorder is vital for its identification, classification, and retrieval of information from a public database."

Another problem with eponyms is that they perpetuate the myth of the lone scientist who conjures up a new discovery without any help. This simply isn't how science typically works. "The usual scenario is that several people work on a discovery at several points in time and each contributes," says Woywodt.

How, then, is the decision made to immortalize just one person (in most cases) with an eponym?

"Often, it's just luck," says Woywodt. "It could be that the person was the only one to publish in English."

A prime example of this, Woywodt noted in an essay arguing for the abandonment of eponyms, is Behçet disease (*BMJ* 2007;335:424). The condition, which causes eye inflammation and mouth and genital ulcers, is named after Turkish dermatologist Dr. Hulushi Behçet. It turns out, though, that he had a little help.

"To acknowledge everyone who discovered facets of the disorder, we would have to name it Hippocrates–Janin–Neumann–Reis–Bluthe–Gilbert–Planner–Remenovsky–Weve–Shigeta–Pils–Grütz–Carol–Ruys–Samek–Fischer–Walter–Roman–Kumer–Adamantiades–Dascalopoulos–Matras–Whitwell–Nishimura–Blobner–Weekers–Reginster–Knapp–Behçet's disease," wrote Woywodt.

Even if you are fortunate enough to be the original discoverer of something of scientific value, odds are someone else will later claim credit for it, suggested University of Chicago statistics professor Stephen Stigler in his tongue-in-cheek paper "Stigler's Law of Eponymy" (*Trans N Y Acad Sci* 1980;39:147-57). In its simplest form, wrote Stigler, the law states: "No scientific discovery is named after its original discoverer." Since he wasn't the first to make this observation, Stigler noted, his self-coined eponym is itself an example of Stigler's Law.

Some eponyms become tainted when the nefarious history of its namesake is uncovered. Reiter's syndrome, to cite the most famous example, refers to a form of arthritis. Its use declined quite a bit after it was discovered that German physician Dr. Hans Reiter, after whom it's named, was a member of the Third Reich and conducted medical experiments on concentration camp prisoners.

In the modern era, there appears to be a growing reluctance in the science community to reward individuals, even those with sterling reputations, with eponyms for making important discoveries. In 1981, American immunologist Dr. Michael Gottlieb identified a condition that did not become Gottlieb's disease but rather was called acquired immune deficiency syndrome. More recently, in 2003, Italian physician Dr. Carlo Urbani identified a deadly and contagious disease that soon claimed his own life, and it's named severe acute respiratory syndrome, not Urbani syndrome.

But even if few new eponyms arise, the thousands upon thousands that already exist will permeate scientific literature for years to come, and expunging them may not be worth the effort, Dr. Judith Whitworth, director of the John Curtin School of Medical Research, Australian National University, in Canberra, Australia, has suggested (*BMJ* 2007;335:425).

"They are heard on the street as well as in the ward. They are in textbooks, in the mass media, on the web, palm pilots, and in the World Health Organization's latest revision of the international classification of diseases. They are so widely used and recognised that their eradication, even if it were desirable, would take a purge of monumental proportion and effort," wrote Whitworth. "Why bother? Eponyms bring colour to medicine, they provide a convenient short hand for the profession and the community alike, and they embed medical traditions and culture in our history." — Roger Collier, *CMAJ*

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