Pain Doesn’t Belong on a Scale of Zero to 10

Doctors today have a fuller understanding of pain but are learning only now how to better measure and treat its many forms.

July 22, 2024 By Elisabeth Rosenthal and KFF Health News

Over the past two years, a simple but baffling request has preceded most of my encounters with medical professionals: “Rate your pain on a scale of zero to 10.”

I trained as a physician and have asked patients the very same question thousands of times, so I think hard about how to quantify the sum of the sore hips, the prickly thighs, and the numbing, itchy pain near my left shoulder blade. I pause and then, mostly arbitrarily, choose a number. “Three or four?” I venture, knowing the real answer is long, complicated, and not measurable in this one-dimensional way.

Pain is a squirrely thing. It’s sometimes burning, sometimes drilling, sometimes a deep-in-the-muscles clenching ache. Mine can depend on my mood or how much attention I afford it and can recede nearly entirely if I’m engrossed in a film or a task. Pain can also be disabling enough to cancel vacations, or so overwhelming that it leads people to opioid addiction. Even 10+ pain can be bearable when it’s endured for good reason, like giving birth to a child. But what’s the purpose of the pains I have now, the lingering effects of a head injury?

The concept of reducing these shades of pain to a single number dates to the 1970s. But the zero-to-10 scale is ubiquitous today because of what was called a “pain revolution” in the ’90s, when intense new attention to addressing pain — primarily with opioids — was framed as progress. Doctors today have a fuller understanding of treating pain, as well as the terrible consequences of prescribing opioids so readily. What they are learning only now is how to better measure pain and treat its many forms.

About 30 years ago, physicians who championed the use of opioids gave robust new life to what had been a niche specialty: pain management. They started pushing the idea that pain should be measured at every appointment as a “fifth vital sign.” The American Pain Society went as far as copyrighting the phrase. But unlike the other vital signs — blood pressure, temperature, heart rate, and breathing rate — pain had no objective scale. How to measure the unmeasurable?

The society encouraged doctors and nurses to use the zero-to-10 rating system. Around that time,

the FDA approved OxyContin, a slow-release opioid painkiller made by Purdue Pharma. The drugmaker itself encouraged doctors to routinely record and treat pain, and aggressively marketed opioids as an obvious solution.

To be fair, in an era when pain was too often ignored or undertreated, the zero-to-10 rating system could be regarded as an advance. Morphine pumps were not available for those cancer patients I saw in the ’80s, even those in agonizing pain from cancer in their bones; doctors regarded pain as an inevitable part of disease.

In the emergency room where I practiced in the early ’90s, prescribing even a few opioid pills was a hassle: It required asking the head nurse to unlock a special prescription pad and making a copy for the state agency that tracked prescribing patterns. Regulators (rightly) worried that handing out narcotics would lead to addiction. As a result, some patients in need of relief likely went without.

After pain doctors and opioid manufacturers campaigned for broader use of opioids — claiming that newer forms were not addictive, or much less so than previous incarnations — prescribing the drugs became far easier and were promoted for all kinds of pain, whether from knee arthritis or back problems.

As a young doctor joining the “pain revolution,” I probably asked patients thousands of times to rate their pain on a scale of zero to 10 and wrote many scripts each week for pain medication, as monitoring “the fifth vital sign” quickly became routine in the medical system. In time, a zero-to-10 pain measurement became a necessary box to fill in electronic medical records.

The Joint Commission on the Accreditation of Healthcare Organizations made regularly assessing pain a prerequisite for medical centers receiving federal health care dollars. Medical groups added treatment of pain to their list of patient rights, and satisfaction with pain treatment became a component of post-visit patient surveys. (A poor showing could mean lower reimbursement from some insurers.)

But this approach to pain management had clear drawbacks. Studies accumulated showing that measuring patients’ pain didn’t result in better pain control. Doctors showed little interest in or didn’t know how to respond to the recorded answer. And patients’ satisfaction with their doctors’ discussion of pain didn’t necessarily mean they got adequate treatment. At the same time, the drugs were fueling the growing opioid epidemic. Research showed that an estimated 3% to 19% of people who received a prescription for pain medication from a doctor developed an addiction.

Doctors who wanted to treat pain had few other options, though. “We had a good sense that these drugs weren’t the only way to manage pain,” Linda Porter, director of the National Institutes of Health’s Office of Pain Policy and Planning, told me. “But we didn’t have a good understanding of the complexity or alternatives.”

The enthusiasm for narcotics left many varietals of pain underexplored and undertreated for years. Only in 2018, a year when nearly 50,000 Americans died of an overdose, did Congress start funding a program — the Early Phase Pain Investigation Clinical Network, or EPPIC-Net — designed to explore types of pain and find better solutions. The network connects specialists at 12 academic specialized clinical centers and is meant to jump-start new research in the field and find bespoke solutions for different kinds of pain.

A zero-to-10 scale may make sense in certain situations, such as when a nurse uses it to adjust a medication dose for a patient hospitalized after surgery or an accident. And researchers and pain specialists have tried to create better rating tools — dozens, in fact, none of which was adequate to capture pain's complexity, a European panel of experts concluded. The Veterans Health Administration, for instance, created one that had supplemental questions and visual prompts: A rating of 5 correlated with a frown and a pain level that "interrupts some activities." The survey took much longer to administer and produced results that were no better than the zero-to-10 system.

By the 2010s, many medical organizations, including the American Medical Association and the American Academy of Family Physicians, were rejecting not just the zero-to-10 scale but the entire notion that pain could be meaningfully self-reported numerically by a patient.

In the years that opioids had dominated pain remedies, a few drugs — such as gabapentin and pregabalin for neuropathy, and lidocaine patches and creams for musculoskeletal aches — had become available.

"There was a growing awareness of the incredible complexity of pain — that you would have to find the right drugs for the right patients," Rebecca Hommer, EPPIC-Net's interim director, told me.

Researchers are now looking for biomarkers associated with different kinds of pain so that drug studies can use more objective measures to assess the medications' effect. A better understanding of the neural pathways and neurotransmitters that create different types of pain could also help researchers design drugs to interrupt and tame them.

Any treatments that come out of this research are unlikely to be blockbusters like opioids; by design, they will be useful to fewer people. That also makes them less appealing prospects to drug companies. So EPPIC-Net is helping small drug companies, academics, and even individual doctors design and conduct early-stage trials to test the safety and efficacy of promising pain-taming molecules. That information will be handed over to drug manufacturers for late-stage trials, all with the aim of getting new drugs approved by the FDA more quickly.

The first EPPIC-Net trials are just getting underway. Finding better treatments will be no easy task, because the nervous system is a largely unexplored universe of molecules, cells, and electronic connections that interact in countless ways. The 2021 Nobel Prize in Physiology or Medicine went to scientists who discovered the mechanisms that allow us to feel the most basic sensations: cold and hot. In comparison, pain is a hydra. A simple number might feel definitive. But it's not helping anyone make the pain go away.

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