

IMPRISONED BY

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It's the  
body's warning  
signal, but when  
pain won't stop, all of  
life can spiral downward



Carol Armitage stopped short of actually considering suicide. But things had gotten so bad by last summer that she did start to think death would have its compensations. In death she wouldn't have to feel the current of pain that shot from her upper right arm down to her index finger and thumb, over and over, every day. In death she wouldn't have the excruciating sensation of wanting to crawl out of her own skin. She was 50. Her four children were grown and well-launched. Maybe it would be better just to be out of her skin and gone.

She reached this nadir after three years of medical consultations and invasions — a seemingly endless succession of ineffective treatments that is typical of the tortuous course of treatment for many people who suffer from the complex, bewildering symptoms of chronic pain. To treat such patients, the Health System has expanded its clinical resources. One such effort, the Back and Pain Center, is a collaboration of anesthesiologists, pain and addiction specialists, neurologists, and a pain psychologist to solve otherwise intractable problems like Armitage's.

For her, it started with an unaccounted-for ache in the arm. She went to a chiropractor in the small town of Hicksville, Ohio, where she lives with her husband, a teacher. An MRI scan showed two discs in her spine pressing against her spinal cord — possibly the legacy of whiplash she suffered in 1990 when she was knocked over by a wave at Virginia Beach.

A neurosurgeon performed a discectomy and two spinal fusions. The pain got better, then worse. More tests showed arthritis pressing on a nerve. A second operation gave her no relief.

The neurosurgeon tried a series of powerful painkillers, but the pain persisted. Her legs swelled. She developed the maddening syndrome called restless legs, which caused sleeplessness. A new prescription helped at first. Then the symptoms came on not just at night but all day long.

"As my arm got worse, the restless legs got worse," she says. "It was like everything was going haywire."

Next came the opioid Vicodin. It made her legs better, but the dose didn't last long enough to keep the pain at bay. Several times a day, a crawling, crazy sensation would overtake her. She couldn't stand to sit still or be touched.

She went to the Cleveland Clinic for a procedure called a Bier block, in which the affected limb is drained of blood and injected with anesthetic. She was not to take Vicodin that day. It was a four-hour drive to Cleveland. The crawling sensations came on in the car. Then, for several hours, she lay waiting for the procedure, attached to equipment that rendered her unable to move. Yet not to move was agony. Finally the Bier

block was performed. It didn't help.

Every day, Armitage went to work. She supervises the 911 operators in Defiance County, Ohio, an important and stressful job. But her illness made her snappish and remote. She offered to take a leave, but the office needed her too much. She has seven grandchildren, all nearby. But she would have to say no, she couldn't take them for outings or baby-sit; she couldn't manage her symptoms for so long, and she "didn't want to get grouchy and mean."

She began to be treated for depression.

Other opioids were prescribed, and sleep aids. She got nerve-block injections at a pain clinic. Some such facilities are known among doctors as "block shops" or "block mills," the practitioners as "block jocks," some of whom receive their pain management training in as little as a single weekend. Armitage, like many, got no relief from the nerve blocks.

Then, in 2007, she was referred to the Back and Pain Center.

**C**hronic pain — pain that persists long after an acute disease or injury — has been treated at the U-M since the 1980s, when the Health System's first pain clinic opened. Anesthesiologists, because of their expertise with nerve blocks and other direct interventions to stop pain, led the effort. But they soon were flooded with patients who weren't good candidates for nerve blocks — patients with migraine headaches, for example.

At the same time, there was a growing recognition that many people with chronic pain don't have just one problem. They need treatment for the side effects of medications, or for psychological difficulties, or for the consequences of earlier, ineffective treatments, or all of those things. They need a team of doctors with several specialties.

That understanding led to the evolution of a multidisciplinary pain clinic under the leadership of Ronald Wasserman, M.D. Formerly known as the Multidisciplinary Pain Center and the Center for Interventional Pain Medicine, it was



renamed the Back and Pain Center in September to remind referring physicians the clinic handles both chronic pain patients and back patients. (The separate Spine Program, based in the Department of Physical Medicine and Rehabilitation, continues to provide physical and occupational therapy and

Center includes two internists with expertise in dependence, addiction and pain management; two neurologists (one a specialist in headaches and facial pain, the other a specialist in painful neurological conditions and acupuncture); and a pain psychologist. Depending on the complexity of the pain prob-

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orthopaedic surgery.) Members of the center are chiefly involved in clinical care, but some are also expanding knowledge into uncharted areas of pain medicine. Carmen Green, M.D. (Residency 1992), for example, is trying to account for the disproportionate appearance of chronic pain among underserved minority populations.

Along with Wasserman, Green and several other anesthesiologists board-certified in pain medicine, the Back and Pain

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lem, a patient may be evaluated by one or several members of the team, which meets every Tuesday morning to discuss cases and decide what to do. Armitage was referred to the team after her latest treatment — a surgically implanted spinal cord stimulator — failed to do any good. By this point she had undergone virtually every conceivable treatment, yet she felt worse than ever, and very near the end of her ability to keep going.



Gene Mitchell, M.D., was the first to examine her. He told the team the chief source of her arm pain was probably damage done to her spinal cord during one of her surgeries. The team recommended she see Herbert Malinoff (M.D. 1978, Fellowships 1983 and 1989), who would assess her complicated regimen of medications. But first she would meet with Ross Halpern, Ph.D., the team's pain psychologist.

In intractable cases of chronic pain, old-school doctors used to suggest the problem was “all in the patient's head.” In fact, psychological factors often do play a role in pain. But that doesn't mean the pain is imagined. Halpern's task is to discern the role of mind and emotion in a patient's pain, and whether he can intervene to help.

In some, Halpern discovers that a past trauma is sustaining the pain — perhaps the unresolved death of a parent, or sexual abuse as a child. Others feel so isolated by their pain

that a skilled counselor can do good simply by listening. Many keep their muscles tensed against the possibility that a certain movement will enflame the pain; for them, relaxation techniques can help. Still others need help with a cycle of pain, sleeplessness and anxiety.

“I've heard this a thousand times when a patient gets referred to me: ‘You mean it's in my head?’” Halpern says. “What I say is: ‘Pain's stressful.’ They say: ‘Oh my god, it stresses every area of my life.’ And I say, ‘Well, I'm here to help you deal with that stress.’”

After consultation with Halpern, Armitage reported to Malinoff's office on October 23.

“She seemed miserable,” he recalls. “She had a very flattened affect. She looked sad.”

Malinoff had examined Armitage's file at length. Now he asked a series of questions, searching for patterns in the tangled

skein of her illness and treatments. Trained originally in internal medicine and medical oncology, Malinoff had gone on for certification in pain management and addiction medicine. Few physicians in the U.S. are as well prepared to make diagnoses in complex pain cases.

He detected that Armitage had become physically dependent on her prescribed opioids but not addicted to them. Dependence is purely physiological. Addiction is neurological and behavioral; the addict loses control of his actions, pursuing the addictive substance no matter what the consequences.

## The treatment, in one sense, was simple: to take her off the painkillers that were prompting her brain to amplify the pain.

Armitage did have one addiction, Malinoff noted — to the nicotine in her cigarettes, and that wasn't irrelevant to her pain. Nicotine stimulates an area of the brain right next to the area that processes pain; smokers' pain scores routinely exceed the pain scores of non-smokers. But that wasn't Armitage's main problem.

Assessing her medications, Malinoff developed a strong suspicion.

"When you start taking pain medications," he says, "the brain doesn't like it. The ability to perceive pain is extremely important for survival. Pain keeps you from danger." So the brain, exposed to painkillers over time, amplifies the pain to warn its owner of danger. The greater the dose and the longer the exposure, the more the brain will turn up the pain. It's a state called hyperalgesia, which means hypersensitivity to pain.

"It goes above and beyond tolerance," Malinoff says. "I see patients who are taking enough pain medication to kill me and two other people. That's literal. They have tremendous tolerance, and they're still having pain. That's hyperalgesia."

Malinoff concluded Armitage was suffering from a low but significant level of hyperalgesia. The treatment, in one sense, was simple: to take her off the painkillers that were prompting her brain to amplify the pain. But this, he told her, raised another specter — not only that some level of pain would remain, but that she would suffer opioid withdrawal. In many cases, this meant nausea, chills, pain, cramps, diarrhea — symptoms much like a severe case of influenza.

Armitage had all too strong an inkling of what this would be like. She just hadn't known what to call it. As Malinoff now explained, her nightmarish creepy-crawly sensations were

the dawning symptoms of withdrawal. She had been going through them several times each day, whenever her opioids were wearing off.

There was a possible solution, Malinoff says — a little-known drug called buprenorphine (Suboxone). Developed as a painkiller in the 1980s, it has been more effective as a treatment for opioid dependence — a "new trick for an old dog," Malinoff says. It's a low-dose opioid that allows the patient to avoid withdrawal, yet also shed dependence on the opioid itself. And it delivers some pain relief.

Malinoff discussed the case with his colleagues and with Armitage. She and her husband returned to Malinoff's office in mid-November. She couldn't take the opioid that morning, so she arrived in Ann Arbor desperately uncomfortable. After the first dose of buprenorphine, she would have to spend several hours under observation.

Malinoff told her the drug might induce temporary symptoms of withdrawal. She took it under her tongue.

"It wasn't like you see on TV with heroin addicts," she says. "I just got really anxious and hot. But almost immediately that uneasy, can't-stand-to-be-touched feeling went away."

She waited for the feeling to come back. The observation period ended, and she went out to take care of paperwork. She and her husband walked down the corridor toward their car, waiting for the agony to return.

"I just can't believe this," she said to him. "That it was this quick after everything I've been through."

They got in the car and began to drive, still waiting. They got home.

"I still expected it to come back," she says. "But it never did."

Several weeks afterward, her right arm still hurts, but "it's no worse than anybody else who's 50 years old who has aches and pains." She continues to take buprenorphine, but if she has to go without it for a while, she's okay. For reasons that aren't yet clear, she still struggles with sleep disruptions. The center's doctors will be working on that next — and trying to help her quit smoking.

"If I could sleep," she says, "I could actually say at times that I feel good, which I have not been able to say for years. I'm still really tired. But if we can get that fixed, then everything's right with the world."