

Evidence says less may be more when it comes to radiation

October 29 2013, by Stacey Burling

Patients enduring the excruciating pain of cancer that has spread to the bones are often given multiple doses of radiation.

There is strong evidence, however, that one dose controls pain as effectively as 10 or more. In addition, one treatment is cheaper and far more convenient for [patients](#) who already have plenty on their minds.

Yet a new study by University of Pennsylvania researchers has found that only 3.3 percent of Medicare patients receiving [radiation](#) for prostate [cancer](#) that had metastasized to the bone received a "single-fraction" treatment.

While 10 fractions, or treatments, was long considered the standard, more than half the 3,050 patients whose records were reviewed received more than 10 fractions.

About 250,000 patients a year suffer from cancer bone pain, said Justin Bekelman, a radiation oncologist at Penn Medicine's Abramson Cancer Center, who led the study. Typically, their cancers cannot be cured. Radiation only reduces the pain. It does not extend life.

Bekelman said the study illustrates how difficult it is to change medical practice, especially when payment systems reward [doctors](#) for sticking to the status quo.

Doctors are paid more when they give more treatments. According to the

study, published last week in the *Journal of the American Medical Association*, Medicare pays an average of \$1,873 for a single treatment compared with \$4,967 for a group of treatments.

"It's profoundly difficult to change practice," Bekelman said. While he said most doctors are simply doing what they have always done, he conceded that it might take more than publicity about newer evidence to change their behavior.

"Pretty clearly, practice change might only materialize if payment reform incentivizes high-quality care," he said. "In this case, it's not incentivizing high-quality care. In fact, it's the opposite."

Ezekiel Emanuel, chair of Penn's department of medical ethics and health policy, and senior author of the study, called that "a perfect example of misalignment" between goals and financial incentives. Insurers should begin paying doctors the same amount for one [radiation treatment](#) as for a series, he said.

Single-fraction patients are given a relatively larger dose in one treatment. In multiple-fraction radiation, patients get smaller doses, usually on consecutive work days. That means that patients, often older and not feeling well, must come repeatedly to the treatment center.

Bekelman said a large clinical trial in 2005 concluded that the two regimens provide equal pain control with similar side effects. Some say patients are more likely to require a second round of treatment with single-fraction therapy, but Bekelman said evidence was mounting that the two forms of treatment are equal, even when it comes to retreatment.

The American Society for Radiation Oncology (ASTRO) 2011 guidelines favored a single treatment, he said. ASTRO and the American Academy of Hospice and Palliative Medicine include multiple-fraction

radiation in lists of potentially unnecessary treatments doctors and patients should discuss.

Penn analyzed data from 2006 through 2009. That was after research supporting shorter courses emerged, but before ASTRO's guidelines. Bekelman said he and Emanuel were examining more recent data from private insurers and finding that still, less than 5 percent of patients get single-fraction treatment.

Bekelman became interested in the issue several years ago after treating a man who came to the hospital in terrible pain on New Year's Eve. Bekelman prescribed multiple radiation treatments. As he got to know the man and his family better, Bekelman realized how difficult the many trips to the hospital had been for them.

"It became so clear to me," he said, "that we could have done better for him."

Bekelman was aware of the study that had found that short and long regimens were equal, but he had not thought much through the implications.

"Ten treatments are not wrong," he said. "It's just that a single treatment is just as effective."

While his study focused on [prostate cancer](#) patients, Bekelman said single treatments are also recommended for patients with other cancers that spread to bones, such as breast or lung. Doctors still should use multiple treatments for some metastases, especially those in the spine.

Bekelman, who uses single-fraction treatment whenever possible, said 50 percent to 80 percent of patients should be candidates.

Radiation oncologists at Fox Chase Cancer Center and Thomas Jefferson University said researchers at their institutions were involved in earlier work on this topic and they already use single-fraction in half or more of patients they treat for bone [pain](#).

"We didn't need this study to tell us about the standard of care," said Adam Dicker, chair of the department of [radiation oncology](#) at Jefferson.

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