

# Researchers advocate national strategic approach to therapeutic cancer vaccines

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Vaccines that save lives by preventing disease have been around for centuries. Now, new vaccines that treat cancer are being developed, but how they will be combined with existing treatments is not clear.

Researchers at the University of Michigan Health System recommend that a national strategy be developed for bringing therapeutic cancer vaccines to patient care, so that cancers with less effective treatment options are priority targets.

"Vaccines that prevent disease have profoundly changed the lives of billions of people around the world," says Matthew M. Davis, M.D., MAPP, associate professor of pediatrics and internal medicine at the University of Michigan Medical School. "A national strategy for therapeutic cancer vaccines would help emphasize development and regulatory approval for vaccines targeting cancers that currently do not have other good therapeutic options."

Davis and co-author Elias J. Dayoub, a student at the U-M Medical School, published a commentary in the June 8 theme issue on cancer of the [Journal of the American Medical Association](#).

When germs such as viruses or bacteria enter the body, the [human immune system](#) recognizes those germs as something abnormal and attacks them. Preventive vaccines use this natural response to prime the body's immune system so it can respond to bacteria such as pertussis (the cause of [whooping cough](#)) or viruses such as polio and measles.

With [cancer cells](#), however, it is hard for the immune system to detect the "invaders," since they are the human body's own cells gone bad. Therapeutic cancer vaccines can enable the [immune system](#) to recognize undetected harmful cells and generate a response to fight back.

Lung cancer, pancreatic cancer and types of leukemia's all have lower [survival rates](#) than many other cancers because they respond poorly to currently available chemotherapy, radiation and surgery.

More than 200,000 Americans died from these cancers in 2010—more deaths than from breast, prostate and colon cancer combined. Davis suggests that therapeutic vaccines can be used to improve the survival rates of patients with leukemia, lung cancer and pancreatic cancer and also for less common tumors that have similarly poor survival rates.

In 2010, the first cancer therapeutic [vaccine](#) was approved for specific forms of prostate cancer. Davis calls it "a major milestone for the entire class of therapeutic cancer vaccines in the United States."

Current research suggests it may be easier for scientists to develop specific vaccines, but Davis emphasizes that what is scientifically easiest may not necessarily benefit the broadest and largest groups of patients.

"While pharmaceutical research and development clearly can lead to exciting advances in care, it may take a strategic plan to help channel creative energy and effort into certain products that maximize benefit for the greatest number of patients over the shortest time frame," says Davis.

A strategic plan could include targeted funding for research and clinical trials that test specific vaccine candidates, explains Davis.

With currently available treatments, two out of every three people in the

United States who are diagnosed with cancer survive for at least five years, according to the National Cancer Institute. Complications from these treatments can reduce patients' quality of life, though. Vaccines may potentially offer fewer side effects.

"While it is too early to claim success for therapeutic cancer vaccines, they offer patients and families facing [cancer](#) a new ray of hope," concludes Davis.

Provided by University of Michigan

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