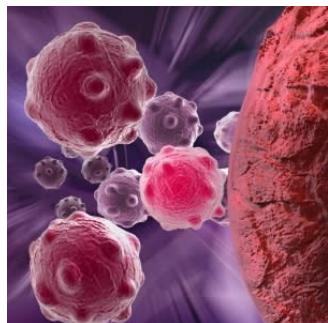

3D Imaging Supports Safer Cancer Treatment



A team of scientists at the University of Michigan (U-M) have developed a precise 3D imaging used to measure radiation during cancer treatment.

When X-rays heat tissues in the body it creates sound waves that can be captured and amplified, allowing clinicians to measure the radiation dose within the body, providing them with new data to guide treatments in real time.

As clinicians cannot be certain where the X-rays are striking inside the body, and how much radiation is being delivered, making predictions for both aspects is problematic. Lack of precision means there is the risk that radiation might kill and damage healthy cells in the surrounding areas.

However, real-time 3D imaging allows clinicians to direct the radiation toward cancerous cells more accurately.

The new ionizing radiation acoustic imaging system can detect the acoustic wave, which is created when the heating causes tissue to expand. The signal then gets amplified and transferred into an ultrasound device for image reconstruction.

Wei Zhang, research investigator and author, said, "In the future, we could use the imaging information to compensate for uncertainties that arise from positioning, organ motion and anatomical variation during radiation therapy. That would allow us to deliver the dose to the cancer tumor with pinpoint accuracy".

U-M's technology can be added to current radiation therapy equipment which means the processes that clinicians are familiar with do not require many changes.

This technology can be used to adapt each radiation treatment, so that we know how much radiation is being delivered to the target, ensuring it delivers the intended and safe dose.

Source:[University of Michigan](#)

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