



Nurse's Notes

Health news compiled by the Parish Health Ministry
of Immaculate Conception/St. Joseph Parish, New Lebanon, NY

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Major types of medical imaging

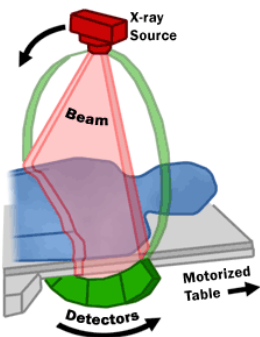
– (from the FDA website, “Medical imaging refers to several different technologies that are used to view the human body in order to diagnose, monitor, or treat medical conditions. Each type of technology gives different information about the area of the body being studied or treated, related to possible disease, injury, or the effectiveness of medical treatment. Medical imaging refers to several different technologies that are used to view the human body in order to diagnose, monitor, or treat medical conditions. Each type of technology gives different information about the area of the body being studied or treated, related to possible disease, injury, or the effectiveness of medical treatment.”)

In this issue

- Medical imaging, CT scan
- Antibiotic overuse
- How drugs can affect driving

Computed Tomography (CT) Description- Computed tomography (CT), sometimes called "computerized tomography" or "computed axial tomography" (CAT), is a noninvasive medical examination or procedure that uses [specialized X-ray](#) equipment to produce cross-sectional images of the body. Each cross-sectional image represents a “slice” of the person being imaged, like the slices in a loaf of bread. These cross-sectional images are used for a variety of diagnostic and therapeutic purposes. CT scans can be performed on every region of the body for a variety of reasons (e.g., diagnostic, treatment planning, interventional, or screening). Most CT scans are performed as outpatient procedures.

How a CT system works:



- A motorized table moves the patient through a circular opening in the CT imaging system.
- While the patient is inside the opening, an X-ray source and a detector assembly within the system rotate around the patient. A single rotation typically takes a second or less. During rotation the X-ray source produces a narrow, fan-shaped beam of X-rays that passes through a section of the patient's body.
- Detectors in rows opposite the X-ray source register the X-rays that pass through the patient's body as a snapshot in the process of creating an image. Many different "snapshots" (at many angles through the patient) are collected during one complete rotation.
- For each rotation of the X-ray source and detector assembly, the image data are sent to a computer to reconstruct all of the individual "snapshots" into one or multiple cross-sectional images (slices) of the internal organs and tissues.

CT images of internal organs, bones, soft tissue, and blood vessels provide greater clarity and more details than conventional X-ray images, such as a chest X-Ray (see Figures 3 and 4).

Uses- CT is a valuable medical tool that can help a physician:

- Diagnose disease, trauma or abnormality
- Plan and guide interventional or therapeutic procedure
- Monitor the effectiveness of therapy (e.g., cancer treatment)



Fig. 3 CT scan of abdomen

Benefits/Risks-When used appropriately, the benefits of a CT scan far exceed the risks. CT scans can provide detailed information to diagnose, plan treatment for, and evaluate many conditions in adults and children. Additionally, the detailed images provided by CT scans may eliminate the need for exploratory surgery.

Concerns about CT scans include the risks from exposure to ionizing radiation and possible reactions to the intravenous contrast agent, or dye, which may be used to improve visualization. The exposure to ionizing radiation may cause a small increase in a person's lifetime risk of developing cancer. Exposure to ionizing radiation is of particular concern in pediatric patients because the cancer risk per unit dose of ionizing radiation is higher for younger patients than adults, and younger patients have a longer lifetime for the effects of radiation exposure to manifest as cancer.

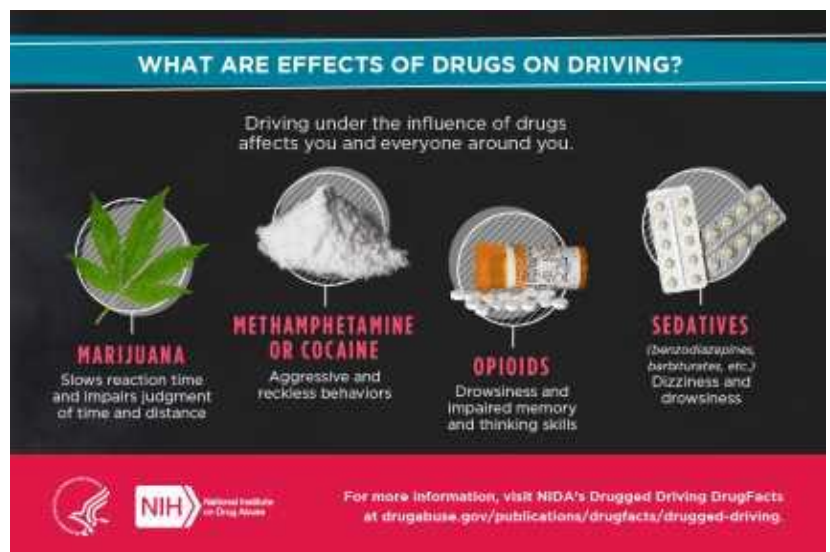
However, in children and adults, the risk from a medically necessary imaging exam is quite small when compared to the benefit of accurate diagnosis or intervention. It is especially important to make sure that CT scans in children are performed with appropriate exposure factors, as use of exposure settings designed for adults can result in a larger radiation dose than necessary to produce a useful image for a pediatric patient.

Additional information on benefits and risks of X-ray imaging, including CT are found on the [Medical X-Ray Imaging web page](#). (taken from <https://www.fda.gov/radiation-emitting-products/medical-x-ray-imaging/computed-tomography-ct>)

Patient Demand Drives Unnecessary Antibiotic Prescribing-Perceived patient demand for antibiotics motivates clinicians to prescribe them even when they are unnecessary to treat the conditions of the medical visit, according to a new AHRQ-funded study published in *Family Practice*. The study, based on interviews with 25 clinicians from nine practices across three states, identified perceived patient demand as the most common reason for prescribing unnecessary antibiotics, such as to treat a viral instead of a bacterial infection. Other reasons included fear of missing an infection and being uncertain of a diagnosis, though these reasons often occurred alongside perceived patient demand. Access the [abstract and article](#). (taken from AHRQ Nov. 12, 2019)

People have told me I shouldn't use drugs and drive, but I feel fine when driving. Can I trust my judgment on driving?

The most responsible thing you can do is stop driving while using drugs. This can be inconvenient, but it will show loved ones you are serious about getting better. Specific drugs act differently on the brain, but all illicit drugs and many prescription drugs impair skills necessary for the safe operation of a vehicle. These include motor skills, balance and coordination, perception, attention, reaction time, and judgment. Even small amounts of some drugs can have measurable effects on driving ability. Drugs also impact your ability to tell if you are impaired, so you should not trust your own judgment on driving until you receive an evaluation and treatment. For more, see our [DrugFacts on drugged driving](#).



If you drive for a living or need to use a vehicle in the course of your workday, you should be aware of your employer's tools and responsibilities related to drug testing. There is a [Drug-Free Workplace Helpline](#) at 800-967-5752.(taken from <https://www.drugabuse.gov/publications/step-by-step-guides-to-finding-treatment-drug-use-disorders/if-you-have-problem-drugs-adults/how-to-recognize-substance-use-disorder>)

Have a safe and happy holiday season.