

### Robot-assisted minimally invasive surgery

Children's Memorial Hospital now provides minimally invasive surgical services using the da Vinci® robot-assisted surgical system. For children, the da Vinci system is particularly well-suited for complex intra-abdominal procedures and reconstructive urological surgery. Robot-assisted minimally invasive surgery may be offered to treat urinary tract obstruction, urinary reflux (vesicoureteral reflux), urinary and bowel incontinence from neurological conditions, and complex kidney stones. Urology surgeons use the da Vinci system for infants as young as 6 months.

Patient benefits include less pain, lower risk of infection, less scarring, shorter hospital stay and quicker recovery, compared to open surgery. Children usually are back to all their normal activities within a week.

The da Vinci system allows the surgeon to operate with 3 interactive robotic arms while sitting in a nearby console. The system translates the surgeon's hand movements to the robotic instruments that can move in a tiny surgical area with more precision and greater range of motion than the human wrist. One of the robot's arms holds a camera that is lowered through a small incision and lets the surgeon see inside the body in high definition 3D images. The system provides up to 10 times magnification, allowing the surgeon to see small structures even more clearly than in open surgery.

Some of the leading experts in using the da Vinci system for pediatric urology are at Children's Memorial. Bruce Lindgren, MD, performed the first da Vinci-assisted laparoscopic pediatric urological procedure in the greater Chicago area in March 2006. In 2009, Lindgren and Jennifer Hagerty, DO, also a urologist at Children's Memorial, published the first report of pediatric robot-assisted minimally invasive surgery for removing a bladder diverticulum (*Urology* 2009;73:299-301).

### Role of non-coding RNA in mental disorders

For the first time, a non-coding RNA (ncRNA) called Evt2 was found to be important for gene regulation and the development of interneurons that produce GABA, the major inhibitory neurotransmitter in the brain. The absence or reduction of GABA is implicated in different psychiatric disorders such as schizophrenia, Tourette syndrome, epilepsy, and Rett syndrome.

These findings were published in the August 2009 issue of *Nature Neuroscience* by Jhumku Kohtz, PhD, researcher in the Developmental Biology Program at Children's Memorial Research Center, with her laboratory team and colleagues at Northwestern University's Feinberg School of Medicine. Kohtz also is the director of Research Technologies at the research center and an associate professor of pediatrics at the Feinberg School.

"Most cellular RNAs are non-coding, and have been thought to be non-functional," says Kohtz. "It has become clear that ncRNAs play important roles in a variety of cellular processes. By showing that loss of a single ncRNA can affect neuronal development with long-lasting effects through adulthood, our data raise the possibility that mental disorders may be determined by subtly altering gene expression in the developing brain."

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### Image Gently: Campaign to reduce radiation doses in children

Children's Memorial has joined a nationwide initiative of the Alliance for Radiation Safety in Pediatric Imaging called the Image Gently campaign. The goal is to increase awareness that children should receive lower doses of radiation than adults during imaging studies.

CT settings for children can be reduced substantially while maintaining diagnostic image quality. When adult CT settings are used, children receive a higher dose of radiation than they need, increasing their risk for a radiation-related cancer unnecessarily.

The Image Gently campaign is promoting these scanning strategies as optimal for children:

- Use CT imaging only when there is a clear medical benefit
- Use the lowest amount of radiation for adequate imaging based on child's size
- Image only the smallest necessary region of the body
- Avoid multiple scans, since 1 scan (single phase) is often enough
- Consider other diagnostic studies, such as ultrasound or MRI, when possible

More resources for physicians and families are available on the Image Gently website: [www.imagegently.org](http://www.imagegently.org).