



Central California Pediatrics

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Specialty information for physicians who treat children and expectant mothers.



Imaging and Radiation: Addressing concerns about pediatric radiation exposure

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Many patients and physicians have concerns about the risks associated with the use of ionizing radiation in medical imaging, specifically the theoretical risk of increased cancer incidence following radiation exposure. These concerns are often heightened in pediatrics, due to the relatively increased susceptibility of children to these negative effects.

In addressing concerns with patients and their parents, it is important to first be clear that there is no conclusive evidence that exposure to radiation in the setting of diagnostic imaging causes cancer¹. The prevailing consensus among radiation safety experts is that there is a very small increase in lifetime cancer risk associated with low levels of radiation exposure. However, this theoretical increase in lifetime cancer risk is dwarfed by the baseline risk of cancer in the population. According to the Image Gently Campaign (a multi-specialty consortium dedicated to reducing radiation exposure in pediatric imaging):

"The overall risk of a cancer death over a person's lifetime is estimated to be 20-25%...The estimated increased risk of cancer over a person's lifetime from a single CT scan is controversial but has been estimated to be a fraction of this risk (0.03-0.05%)...This [indicates] that the [incremental] risk of developing cancer related to a single CT scan is very small, if a risk at all."²

Further perspective can be gained by relating amounts of radiation exposure from medical imaging studies to radiation exposure from natural background sources (cosmic rays, terrestrial radiation, etc.). At sea level, the average natural background radiation exposure is approximately 3 millisieverts (mSv). In comparison, a CT of the abdomen and pelvis performed with low-dose technique is around 2-5 mSv, or approximately one year of background exposure.

An average pediatric 2-view chest x-ray is 0.02 mSv or approximately two days' worth of background exposure.

A final key point to emphasize is that the benefits gained from an appropriately indicated imaging procedure far outweigh any theoretical risks of increased cancer incidence later in life. Concerns regarding radiation exposure should never dissuade physicians from requesting a CT or other imaging examination when such a study is clinically indicated.

At Valley Children's Hospital, we use a number of dose reduction techniques for CT, radiography, fluoroscopy and nuclear medicine to ensure that we minimize radiation exposure while maintaining adequate image quality. Additionally, we monitor our radiation dose data and compare it to national standards. When appropriate, we work with referring physicians to substitute other modalities, such as ultrasound or MRI, to avoid any radiation exposure all together.

Additional useful online resources for parents and physicians can be found at radiologyinfo.org and imagegently.org.

Footnotes:

1. American Association of Physicists in Medicine. AAPM Position Statement on Radiation Risks from Medical Imaging Procedures. April 2018. <https://www.aapm.org/org/policies/details.asp?type=PP&id=439>. Accessed June 19, 2019.
2. Image Gently. What Parents Should Know About CT Scans for Children. <http://dev.baytechdata.com/imagegently/download/what-parents-should-know-about-ct-scans-and-what-parents-should-know-about-ct-scans-and-their-child-brochure.pdf>. Accessed June 24, 2019.



Children's Advocacy

Tim Curley

Director, Community and Government Relations
Valley Children's Healthcare

State Budget

On June 27, Governor Newsom signed into law the budget agreement for the state fiscal year that began July 1. The new budget includes funding for several programs important to child and maternal health, including:

- A one-time allocation to support pediatric physician residency training through the California Office of Statewide Health Planning and Development
- Continuation of the supplemental Medi-Cal physician payments pursuant to Proposition 56
- Enhanced allocation for the state Department of Public Health's Home Visitation Program and Black Infant Health Program
- Funding to reimburse pediatricians for conducting adverse childhood screenings
- A one-time allocation for asthma prevention services and environmental remediation services for Medi-Cal beneficiaries, including children

The final budget agreement is comprised of more than 25 separate pieces of legislation that we are still sorting through, so stay tuned for further state budget updates.

State Legislation

While the list of bills profiled in the past few issues of *Central California Pediatrics* articles continue to move forward through the legislative process, we are watching Assembly Bill 1606. This would provide funding to support a medical school in the Central Valley by establishing an endowment that would be funded by readjusting how individuals report and claim tax deductions for gambling losses.

Federal

There are several issues that we are monitoring at the federal level that could impact healthcare, including a number of bills seeking to reign in prescription drug prices, an ongoing case in federal court challenging the constitutionality of the Affordable Care Act and a Trump administration proposal to change how federal poverty levels are determined that would restrict eligibility for federal safety net programs, including Medicaid.

For questions or more information on these and other issues, feel free to contact Tim Curley at 559-353-8610 or TCurley@valleychildrens.org

Medical Staff News

The following pediatric specialists recently joined Valley Children's:

Maternal-Fetal Medicine

Unzila Nayeri, MD

Primary Care

Irene Murema, MD

June Issue Clarification:

In the June *Central California Pediatrics* publication, the recommendation for referral after age 3 only applies to umbilical and epigastric hernias. We still recommend prompt referral for inguinal hernias or concern for undescended testicles.