

# Passion for premature babies leads to groundbreaking research

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Terrie E. Inder, MD, PhD (left), professor of pediatrics, of radiology and of neurology, and Molly Swanson, a registered nurse, tend to Collin Hauck in the Neonatal Intensive Care Unit at St. Louis Children's Hospital. “Thanks to her work, we can more reliably discuss prognosis with families during the neonatal period and plan for the required follow-up of the baby,” says F. Sessions Cole, MD, the Park J. White, MD, Professor and vice chair of pediatrics. Credit: Robert Boston

Terrie E. Inder, MD, PhD, learned the meaning of hard work at a young age. She and her siblings often helped out on their grandfather’s New Zealand farm, tossing freshly dug potatoes into sacks they carried on their backs.

That work ethic, as well as the importance of family, has stayed with Inder, professor of pediatrics, of radiology and of neurology at

Washington University School of Medicine, and fuels her passion for determining the impact of premature birth on [brain injury](#) and development in the Neonatal [Intensive Care Unit](#) at St. Louis Children's Hospital.

Inder uses imaging studies on brains of premature, at-risk infants to help predict developmental outcomes, particularly the risk of severe cognitive delays, psychomotor delays, cerebral palsy or hearing or visual impairments.

Using sophisticated analysis of [magnetic resonance imaging](#) (MRI) scans, Inder's team can define the abnormalities in the brains of preterm infants born at 30 weeks gestation or less and assist in guiding families about the risk for future disability. The outcomes of the MRI scans also can inform the physicians about the impact of treatment in the [neonatal intensive care](#) unit on [brain development](#).

F. Sessions Cole III, MD, the Park J. White, MD, Professor and vice chair of pediatrics, says Inder is an international leader in the use of MRI to understand patterns of brain injury in newborn infants.

“Thanks to her work, we can more reliably discuss prognosis with families during the [neonatal period](#) and plan for the required follow-up of the baby,” Cole says. “Besides being one of the two or three world leaders in neonatal brain imaging, she is also a charismatic teacher and clinician.”

## **The path to pediatrics**

Inder started medical school at the University of Otago in Dunedin, New Zealand, at age 16, intending to be a general practitioner.

“I wanted to look after the grandparents and the babies,” she says. “But

in medical school, I realized I wanted a challenge and wanted to solve things.”

When her pediatrics professor offered her an internship year in pediatrics, she was interested but wasn't convinced it was right for her.

“He gave me what I still regard as one of the best pieces of advice I've ever gotten,” she says. “He said, ‘Just do it. If you love doing it, keep doing it. If you find that you don't love it anymore, stop doing it.’”

Inder also is passionate about research, but that came about serendipitously.

Married at age 20, Inder had completed her third year of pediatrics studies when she learned she was expecting her first child, Gabrielle. Because there were no part-time training or clinical positions, a mentor suggested she apply for a research fellowship. She completed two years of part-time research that became the basis for a doctorate.

Two years later, Inder had moved to Christchurch, New Zealand, to finish a neonatal fellowship and again worked part-time after she had her son, Fergus. That's when her interest in the newborn brain sparked. She used a textbook written by Joseph Volpe, MD, now neurologist-in-chief at Children's Hospital Boston and a trainee of the late Philip Dodge, MD, one of the founders of pediatric neurology and former head of pediatrics at WUSTL. She e-mailed Volpe asking about training opportunities in pediatric neurology and ultimately accepted a three-year fellowship at Children's Hospital Boston.

In Boston, she met Petra Huppi, MD, now at the University of Geneva, who had started researching MRI images of premature babies' brains but was leaving and looking for someone to take over.

“I seemed like the perfect person,” Inder says. “I would work 11 p.m.-2 a.m. taking babies to the MRI scanner. We made some interesting observations that led to some landmark publications.”

At the end of her fellowship, Inder returned to New Zealand after having her third child, Eliza. She began her first independent study of imaging premature babies’ brains, which was followed a few years later with a second group of infants in Melbourne, Australia.

## Moving on

While she was doing what she loved in Melbourne, working a difficult clinical schedule and caring for three young children on her own after her marriage ended prompted her to look for other opportunities. She chose Washington University School of Medicine over several other prestigious U.S. academic medical centers.

“The one thing that really sold me on Washington University was this feeling of intellectual generosity,” she says. “There are so many talented people in this environment that bring different skill sets together, and the combination is so much bigger and better.”

Since her arrival in 2005, Inder has imaged the brains of more than 150 premature babies to study how the brain may be damaged. In research published in the *New England Journal of Medicine*, she found that the MRI scans were able to determine abnormalities in the white and gray matter of the brains of [preterm infants](#) born at 30 weeks or less that assisted in the prediction of motor and cognitive disabilities by age 2. Inder also has worked since 2008 to establish federal funding for a new research center for children with developmental disabilities, establishing critical core services for more than 50 researchers.

In full-term infants, Inder’s team is studying therapeutic cooling by

reducing the baby's body temperature for three days. The team has found at least a 25 percent reduction in the risk of death or disability for babies who may have had poor oxygen supply around birth.

Working with very premature babies brings the risk of losing them, despite her best efforts.

"It's a tremendous privilege to be part of a family's life at such a terrible time," she says. "The family won't remember the names of the drugs the babies were treated with, but they will remember if you sit down and spend time listening to what they are worried about and try to allay their fears. These relationships are the truly meaningful part of what I do."

Not only is Inder meeting her goals at WUSTL, she also met her husband, Jeffrey J. Neil, MD, PhD, the Allen P. and Josephine B. Green Professor of Neurology and professor of pediatrics, of radiology and of neurobiology. Married in September 2008, their family includes five children and three pets.

"We have a full life, but I couldn't imagine it any other way," she says.

Inder's close friend, Nancy Fox, calls Inder a "hero" to all who know her.

"In our minds, she sets the American standard for medical care: improving services and outreach, engaging in life-changing research, working tirelessly on highly competitive grants and making a hero's difference in the lives of 'her babies' and their families," Fox says. "No detail is too small nor dream too great for her."

It is all part of Inder's nature.

"The glue that's stuck me together is that I care about everything around me - I care about my children, about Jeff, my work, my patients - and

that's so rewarding," she says. "It's not the awards or honors that I would want to be remembered for or defined by, but it's more this capacity, this honor, this privilege to be able to care for other people."

Provided by Washington University School of Medicine in St. Louis

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