

Invasive melanoma may be more likely in children than adults

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A Johns Hopkins Children's Center study of young people with melanoma, a deadly form of skin cancer, has found that some children have a higher risk of invasive disease than adults.

The study, published online Oct. 5 in the journal *Cancer*, is believed to be the first to compare disease spread in [children](#) and adults, and the results suggest some profound biological differences between childhood and adult [melanoma](#), the researchers say.

The Johns Hopkins team analyzed five years of medical records tracking 717 children and 1,368 young adults (ages 20 through 24) diagnosed with melanoma. They compared tests results from lymph node biopsies based on [tumor size](#), tumor appearance and age. The researchers found that children with melanoma were, overall, more likely than adults with the disease to have metastases in the [lymph nodes](#) surrounding the tumor, known as sentinel lymph nodes. [Sentinel lymph node biopsy](#) -- the standard way to gauge spread of the disease and determine treatment -- involves removal of one or two nodes closest to the tumor. Current guidelines, based on adults with melanoma, call for node removal in all patients with irritated or bleeding melanomas or those thick enough -- 1 millimeter (roughly 0.04 inches) or more -- to suggest that [cancer cells](#) have penetrated the skin deeply and may have broken away from their original site.

Cancer cells were found in the sentinel lymph nodes of 25 percent of children and 14 percent of adults who had biopsies. Tumor thickness was the strongest predictor of lymph node metastases in both groups, the researchers found, but children with tumors ranging between 1.01 and 2 millimeters emerged as a particularly high-risk group. They were nearly six times as likely as young adults with same-thickness tumors to have cancer cells in nearby lymph nodes. Children under 10 years of age were more likely to have

metastases beyond the immediate tumor site, or distant metastases, and greater tumor thickness compared with older children and with young adults, the researchers found. Patients with bleeding tumors or those with open sores were more likely to have metastases regardless of age, the study found.

Survival rates did not differ significantly by age among those with metastatic melanoma.

Researchers say the discrepancy in metastatic disease likely stems from underlying biological differences between pediatric and adult melanomas.

"Our finding is a powerful reminder that there's much about pediatric melanoma that we don't understand and that, just as is the case with other diseases, children are not small adults, but differ markedly in their response to disease," says senior investigator John Strouse, M.D., Ph.D., a pediatric hematologist and oncologist at the Johns Hopkins Children's Center.

The National Cancer Institute predicts more than 70,000 new diagnoses of melanoma and nearly 8,800 deaths in the United States in 2011 alone. Because melanoma remains relatively rare in children -- less than 4 percent of cases occur in pediatric patients -- both diagnosis and treatment can be dangerously delayed in this group, experts say.

Studies, however, have shown growing incidence of melanoma and non-melanoma [skin cancer](#) in children and young [adults](#), experts say, and unprotected sun exposure, indoor tanning and repeated sun burns, especially during childhood, are some of the main drivers behind this trend.

"I advise parents to use sun screen religiously on infants and children during outdoor activities year round," says Bernard Cohen, M.D., director of

pediatric dermatology at Johns Hopkins Children's Center. Cohen was not part of the current study.

Teens are another high-risk group, Cohen says, and pediatricians and parents should discuss with them the dangers of indoor tanning.

Provided by Johns Hopkins Medical Institutions

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