

## Melanoma in Childhood: Changing Our Mind-set

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The incidence of melanoma is increasing in the United States in all segments of the population. Although cutaneous malignancies in childhood typically are perceived as uncommon, the incidence of melanoma in children in the United States increased by 2% annually from 1974 to 2004.<sup>1</sup> Increases were 3.6-fold in children aged 10 to 14 years and 18-fold in those aged 15 to 19 years. Locations of particular concern are the face and trunk in males and the hips and lower extremities in females.<sup>1</sup>

Although some risk factors for melanoma (eg, hair and eye color, family history) cannot be modified, some contributing factors can be avoided. For example, children and teenagers should be encouraged to avoid exposure to UV radiation. In particular, those aged 10 to 13 years often forget the sun education learned in early years and may wish to go tanning or spend more time in the sun without proper protection. Therefore, it behooves us as practitioners to encourage young patients to practice good sun protection habits, such as using sunscreen regularly, wearing protective clothing (eg, hats, sunglasses), avoiding midday sun, and seeking shade when spending time outdoors. It also is essential to educate teenagers about the dangers of indoor tanning. Educational programs that warn patients about the risks for indoor tanning have been successful, as demonstrated by a reduction of melanoma in adolescent females in Iceland after the introduction of educational efforts.<sup>2</sup> Although teenagers often pursue tanning for cosmetic reasons regardless of the known risks, it is vital to inform young patients and their guardians that indoor tanning increases melanoma risk by 75%.<sup>3-5</sup>

A history of cancer in childhood, including leukemia and lymphoma, should prompt chronic surveillance for melanoma, as the patient's risk for melanoma in adulthood increases 2.5-fold, with an average of 21 years' latency from tumor to melanoma. Early initiation of sun protection and frequent chronic skin surveillance are required in this patient population.<sup>6</sup>

### Melanoma Screening in Children

Unfortunately, even if we are careful, melanomas do occur in childhood. One case series of thin melanomas in children suggested that the ABCDE (asymmetry, border irregularity, color variegation, diameter, evolving) criteria for melanoma screening may be helpful in detecting pediatric melanoma.<sup>7</sup> Other reports have presented melanomas of childhood that were primarily atypical in nature.<sup>8-10</sup> Melanomas of childhood do not necessarily arise in a preexisting nevus; they often arise de novo and may present histologically as spitzoid neoplasms, which portends enhanced survival. Clinical features noted in pediatric melanoma may mimic benign entities, particularly pyogenic granulomas and warts.<sup>8-10</sup>

Cordoro et al<sup>8</sup> proposed an alteration of the ABCDE criteria for melanoma screening in children to include amelanotic; bleeding, bump; color uniformity; de novo; and variable diameter to reflect the atypical presentation of melanomas in childhood.

We propose a slightly shorter mnemonic along with the ABCDE criteria called the CUP criteria (color [pink/red], changing; ulceration, upward thickening; pyogenic granuloma-like lesions, pop-up of new lesions) to denote newly arising lesions. The Table shows both criteria.

### Practice Modifications

No matter which criteria are used to enhance screening of pediatric melanoma, the fact remains that melanoma can be difficult to identify in children and therefore requires vigilant surveillance. Implementing new practices can aid in earlier identification of melanoma cases in childhood. One such practice is removal of all new-onset pyogenic granulomas to be sent for histopathologic examination. Although regular full-body examinations would be helpful, they may

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## Screening Criteria for Enhanced Detection of Pediatric Melanoma

Revised ABCDE Criteria <sup>8</sup>	CUP Criteria
A (asymmetry, amelanotic)	Standard ABCDE criteria plus:
B (border irregularity; bleeding, bump)	C (color [pink/red], changing)
C (color variegation, color uniformity)	U (ulceration, upward thickening)
D (de novo, any diameter)	P (pyogenic granuloma-like lesions, pop-up of new lesions)
E (evolution)	

not always be feasible within a dermatology office; therefore, dermatologists also have to rely on educating pediatricians and family practitioners regarding full-body examination and evaluation techniques to screen for melanoma. Finally, continued public education is necessary, particularly for guardians and teenagers who need to be vigilant in watching one's own skin for changes as well as new lesions.

### Comment

The incidence of melanoma in children is on the rise in the United States. Persistent vigilance and education can help identify lesions earlier and prevent further exacerbation of this alarming trend.

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