Pediatric Psoriasis: What's New:2023

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A New Age in Pediatric Psoriasis

DISCLOSURE

- RESEARCH FUNDING PAID TO MEDICAL SCHOOL:
  - AMGEN - PROMIUS - SYMBIO - ORTHO DERMATOLOGICS - ARCUTIS
  - GSK - MAYNE - LEO - UCB
- ADVISORY BOARD/LECTURES:
  - AMGEN
  - ORTHO
  - MAYNE
  - LEO
  - NOVARTIS
  - UCB

OVERVIEW

- What are the unique risks for the pediatric patient with psoriasis?
- What are the currently available medications for the pediatric patient with psoriasis?
- Why are there so few medications for pediatric patients with psoriasis?

AAD PEDIATRIC PSORIASIS GUIDELINES

Joint American Academy of Dermatology–National Psoriasis Foundation guidelines of care for the management and treatment of psoriasis in pediatric patients

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JAAD January 2020

PEDIATRIC PSORIASIS

- EACH YEAR, ABOUT 20,000 CHILDREN < 10 YEARS OF AGE ARE DIAGNOSED WITH PSORIASIS

PEDIATRIC PSORIASIS

- A CHRONIC, MULTISYSTEM INFLAMMATORY DISEASE THAT AFFECTS 1% OF CHILDREN
- MOST COMMON TIME OF ONSET: ADOLESCENCE
- ONE THIRD OF CASES OF PSORIASIS START IN CHILDHOOD
- MULTIPLE COMORBIDITIES: **PSORIATIC ARTHRITIS** HAS LARGEST EVIDENCE BASE

AAD GUIDELINES: Journal American Academy of Dermatology 2020

COMORBIDITIES IN PEDI PSORIASIS

- **PSORIATIC ARTHRITIS**
- OBESITY
- HYPERLIPIDEMA
- DIABETES MELLITUS
- RHEUMATOID ARTHRITIS
- INFLAMMATORY BOWEL DISEASE

PSORIATIC ARTHRITIS IN PEDI PTS

- PSORIATIC ARTHRITIS IN ALL PTS: 5 TO 40%
- ONSET OF SKIN DISEASE TYPICALLY PRECEDES ONSET OF JOINT DISEASE BY 10 YEARS
- PEAK ONSET BETWEEN AGES 9 AND 12 YEARS
- **UP TO 20 % OF ALL CHILDHOOD ARTHRITIS IS PSORIATIC ARTHRITIS**

PSORIATIC ARTHRITIS IN PEDI PTS

- **UP TO 20 % OF ALL CHILDHOOD ARTHRITIS IS PSORIATIC ARTHRITIS**
- **IF A CHILD HAS PSORIATIC ARTHRITIS, ASSESS FOR UVEITIS**

PEDIATRIC PSORIASIS THERAPY

Only **7 FDA medications approved** for pediatric patients

Biologics:

- Etanercept: ≥ 6 years
- Ustekinumab : ≥ 6 years approved for psoriatic arthritis in children
- Ixekizumab: ≥ 6 years
- Secukinumab: ≥ 6 years (May 2021)

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PEDIATRIC PSORIASIS THERAPY

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Topicals: Roflumilast: PDE 4 inhibitor: **≥12 years**

- - used systemically in COPD in adults

- Calcipotriene Foam 0.005%: **≥ 4 years** scalp and body
- Calcipotriene 0.005% and betamethasone 0.064% **foam** or **ointment**

  ≥12 years: mild to severe plaque psoriasis
- Calcipotriene 0.005% and betamethasone 0.064%

  suspension: scalp and body: **≥ 12 years**

FUTURE PEDIATRIC PSORIASIS THERAPY

- **BIOLOGICS:**
- Brodalumab: anti IL 17: 6 to 17 years of age
- Tildrakizumab: IL 23 inhibitor : 12 to 17 years of age
- **TOPICALS:**
- Halobetasol 0.01%/ tazarotene 0.045% lotion

PEDIATRIC PTS WITH PSORIASIS

- INFANTS

THERAPIES

- EDUCATION
- COAL TAR
- TOPICAL STEROIDS
- MOISTURIZERS

YOUNG CHILDREN

- CONSIDER STREP THROAT
- TAR
- TOPICAL STEROIDS
- TOPICAL CALCINEURIN INHIBITORS (INVERSE PSORIASIS)
- PHOTOTHERAPY

OLDER CHILDREN WITH PSORIASIS

- TOPICAL STEROIDS / OTHER TOPICALS
- PHOTOTHERAPY / LASER
- METHOTREXATE
- CYCLOSPORIN
- RETINOIDS : TOPICAL / ORAL
- BIOLOGICS

VITAMIN D ANALOGUES

- OFTEN USED IN CONJUNCTION WITH TOPICAL STEROIDS
- AAD GUIDELINES
- USE OF UP TO 45 G/ WEEK/ M2
  - NO EFFECT ON SERUM CALCIUM LEVELS
- LOCALIZED IRRITATION OF SKIN

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    suspension: scalp and body: ≥ 12 years


12/01/2004

METHOTREXATE

- USED FOR PSORIASIS SINCE THE 1950'S
- USED SAFELY IN AGES 2 TO 16 FOR ERYTHRODERMIC, PLAQUE, PUSTULAR PSORIASIS AND PSORIATIC ARTHRITIS
- DOSE RANGE: 0.2 TO 0.7 MG/KG/ WEEK
- I STILL GIVE A TEST DOSE AND CHECK CBC IN ONE WEEK

METHOTREXATE

Table XXXVII. Recommendations for pediatric psoriasis and methotrexate therapy

Recommendation No.	Recommendation	Strength of recommendation
18.1	Methotrexate is recommended as an effective systemic therapy for moderate to severe plaque psoriasis and other psoriasis subtypes in children.	B
18.2	Methotrexate is recommended as an effective systemic therapy for pustular psoriasis in children.	B
18.3	Methotrexate weight-based dosing is recommended in younger children, ranging from 0.2 to 0.7 mg/kg/wk (maximum, 25 mg/kg/wk).	B
18.4	Folic acid supplementation daily or 6 times weekly during treatment with methotrexate is recommended.	B
18.5	Routine clinical and laboratory monitoring is recommended before and during treatment with methotrexate.	B

AAD GUIDELINES FOR PEDIATRIC PSORIASIS:SYSTEMIC

Table XXXVI. Suggested monitoring for nonbiologic systemic medications for pediatric psoriasis*

Medication†	Baseline	Follow-up	Miscellaneous	References
Methotrexate Dose range: 0.2-0.7 mg/kg/wk Maximum: 25 mg/wk (see text for details)	CBC with diff, platelets Renal function‡ Liver function If at risk: hepatitis A, B, C, HIV PPD or other TB tests for latent TB screening‡	CBC with diff, platelets (5-7 days after initiating therapy) Renal function‡ LFTs (monthly for the first 3 months, then every 3 to 6 months) Annual TB test if at risk‡	Liver enzymes rise after dose; check labs 4-6 days after the last dose Liver biopsy often avoided/not indicated in pediatric patients but should be individualized to clinical context Avoid in children with liver risk factors Chest radiograph for symptoms	101,133,134
Acitretin Dose range: 0.1-1 mg/kg/d (see text for details)	CBC Fasting lipids Liver function Pregnancy test (if appropriate)	Liver function and fasting lipids after 1 month of treatment and with dose increases, then every 1-3 months Monthly pregnancy test (if appropriate)	Bone imaging based on symptoms and duration of treatment (see text)	101,133,134
Cyclosporine Dose range: 2-5 mg/kg/d (see text for details)	Blood pressure CBC Renal function Liver function Fasting lipids Serum magnesium and potassium uric acid HIV if at risk	Blood pressure once a week for the first month and at follow-up visits as needed. CBC, serum creatinine, BUN, uric acid, potassium, lipids, and magnesium every 2 weeks for the first month and then at least monthly thereafter	Whole-blood cyclosporine trough level if inadequate clinical response or concomitant use of potentially interacting drugs	101,133,134

BUN, Blood urea nitrogen; *CBC*, complete blood count; diff, differential; *LFT*, liver function test; *PPD*, protein derivative test; *TB*, tuberculosis.

*Some monitoring suggestions are not evidence-based recommendations and are expert consensus. These recommendations may vary based on patient age and specific protocols. Practicing physicians should individualize monitoring protocols according to the clinical context. For all pediatric patients receiving long-term systemic therapy, growth parameters should also be monitored.

†Dosing is based on actual weight.

‡At the discretion of the physician based on the clinical situation/individual risk factors.

JAMA Dermatol. 2020 Feb 5. doi: 10.1001/jamadermatol.2019.4835. [Epub ahead of print]

A Comparison of Psoriasis Severity in Pediatric Patients Treated With Methotrexate vs Biologic Agents.

Bronckers IMGJ[1], Paller AS[2,3], West DP[2,3], Lara-Corrales I[4], Tollefson MM[5], Tom WL[6,7], Hogeling M[8,9], Belazarian L[10], Zachariae C[11], Mahé E[12], Siegfried E[13,14], Blume-Peytavi U[15], Szalai Z[16], Vleugels RA[17], Holland K[18,19], Murphy R[20], Puig L[21], Cordoro KM[22,23], Lambert J[24], Alexopoulos A[25], Mrowietz U[26], Kievit W[27], Seyger MMB[1]; Psoriasis Investigator Group, the Pediatric Dermatology Research Alliance, and the European Working Group on Pediatric Psoriasis.

CONCLUSION: BIOLOGIC RESPONSE BETTER THAN METHOTREXATE

Jama Dermatol 2020 FEB

CYCLOSPORIN

- OFF LABEL IN PEDI PSORIASIS
- FDA APPROVAL FOR PEDI TRANSPLANT – 6 MONTHS
- EFFECTIVE AND TOLERATED FOR PSORIASIS TX IN KIDS AS YOUNG AS 11 MOS
- IN DOSES FROM 1.5 MG TO 5 MG/KG/DAY FOR 6 WEEKS TO 2 YEARS
- OFTEN USED IN COMBINATION WITH TOPICALS

CYCLOSPORIN

- ACTS RAPIDLY
- CLINICAL IMPROVEMENT AS EARLY AS 2 WEEKS; MAY REQUIRE 4 TO 8 WEEKS FOR FULL RESPONSE
- AS KIDS HAVE HIGHER BSA TO WEIGHT RATIOS AND AGE DEPENDENT DIFFERENCES IN IN PHARAMACOKINETICS, MAY REQUIRE HIGHER DOSES THAN ADULTS
- MAY NEED 5 MG /KG/DAY

AAD GUIDELINES FOR PEDIATRIC PSORIASIS:SYSTEMIC

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CYCLOSPORIN

VACCINATIONS :

- MAY BE LESS EFFECTIVE DURING THERAPY
- **LIVE ATTENUATED VACCINES TO BE AVOIDED**

METABOLISM BY P450 SYSTEM:

- ADVISE REGARDING FOOD AND DRUG INTERACTIONS

REVIEW

Management of pediatric plaque psoriasis using biologics

Perla Lansang, MD,[a,b,c] James N. Bergman, MD,[d] Loretta Fiorillo, MD,[e] Marissa Joseph, MD,[b,c] Irene Lara-Corrales, MSc, MD,[c] Danielle Marcoux, MD,[f] Catherine McCuaig, MD,[f] Elena Pope, MSc, MD,[c] Vimal H. Prajapati, MD,[g] Sue Z. J. Li, PhD,[h] and Ian Landells, MD[i]

Toronto, Ontario; Vancouver, British Columbia; Edmonton and Calgary, Alberta; Montreal, Quebec; and St John's, Newfoundland, Canada

Background: Psoriasis is a chronic inflammatory disease with clinical manifestations of the skin that affect adults and children. In adults, biologics have revolutionized the treatment of moderate to severe plaque psoriasis where clear or almost clear is a tangible goal. Research on biologics has recently been extended to children. The introduction of these new therapeutic options has outpaced the limited guidelines in this population.

Objective: To provide a review of current data on biologics, with a proposal for a clinically relevant treatment algorithm on the management of moderate to severe plaque psoriasis in the pediatric population.

Methods: A Canadian panel with expertise in psoriasis, pediatric dermatology, and experience with consensus recommendation processes was selected to review the current landscape of pediatric psoriasis and clinical data on biologics plus identify special considerations for baseline workup and monitoring. Recommendations were reviewed and edited by each expert in an iterative process.

Conclusion: A treatment algorithm for moderate to severe plaque psoriasis in pediatric patients is presented, incorporating approved biologics. Guidance on baseline screening and ongoing monitoring is

JAAD 2019 May

Triggers of Pediatric Psoriasis

- Triggers:

- Group A β hemolytic Streptococcal infection
- (M protein)
- Beta blockers
- Lithium
- Biologics
- Systemic steroids on cessation of therapy

Nail Involvement as a Predictor of Disease Severity in **Paediatric Psoriasis**: Follow-up Data from the Dutch ChildCAPTURE Registry.

Bronckers IMGJ, Bruins FM, van Geel MJ, Groenewoud HMM, Kievit W, van de Kerkhof PCM, Pasch MC, de Jong EMGJ, Seyger MMB.

Acta Derm Venereol. 2019 Feb 1;99(2):152-157. doi: 10.2340/00015555-3036.

PMID: 30206638 Free article. Clinical Trial.

Acta Derm Venereol 2019 Feb 1; 99(2): 152-157

Review > Cutis. 2021 Nov;108(5):292-294. doi: 10.12788/cutis.0386.

Management of Pediatric Nail Psoriasis

Kerasia-Maria Plachouri [1], Francesk Mulita [1], Sophia Georgiou [1]

Affiliations + expand

PMID: 35100538 DOI: 10.12788/cutis.0386

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- **BIOLOGICS:**
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- **TOPICALS:**
- Halobetasol 0.01%/ tazarotene 0.045% lotion

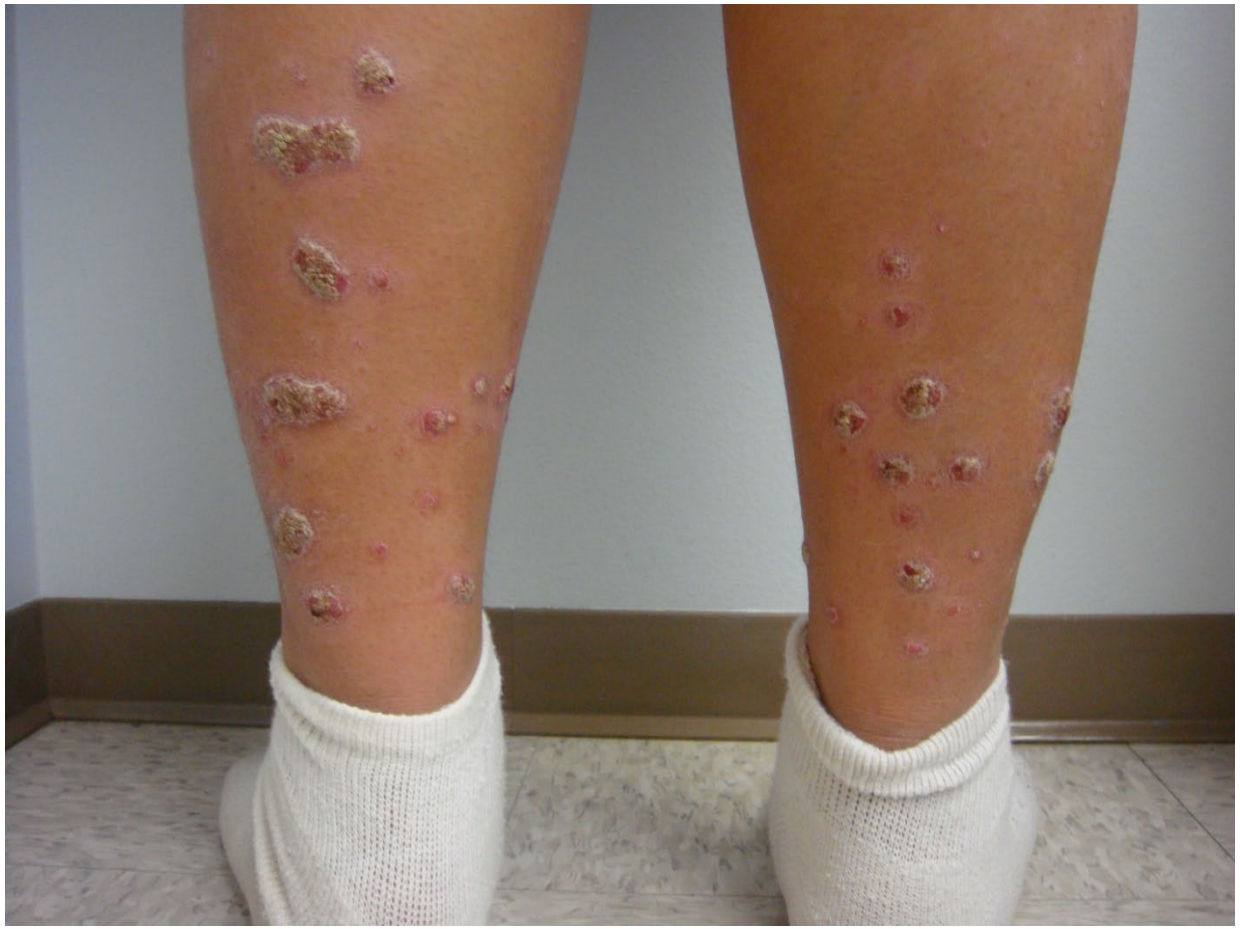
Mimickers of Pediatric Psoriasis

- Mimickers:
- Sodium valproate-induced psoriasiform drug eruption
- Sanitizing hand and diaper wipes containing:
- -Methylchorothiazolinone
- - periorificial or perineal psoriasisform
- distribution

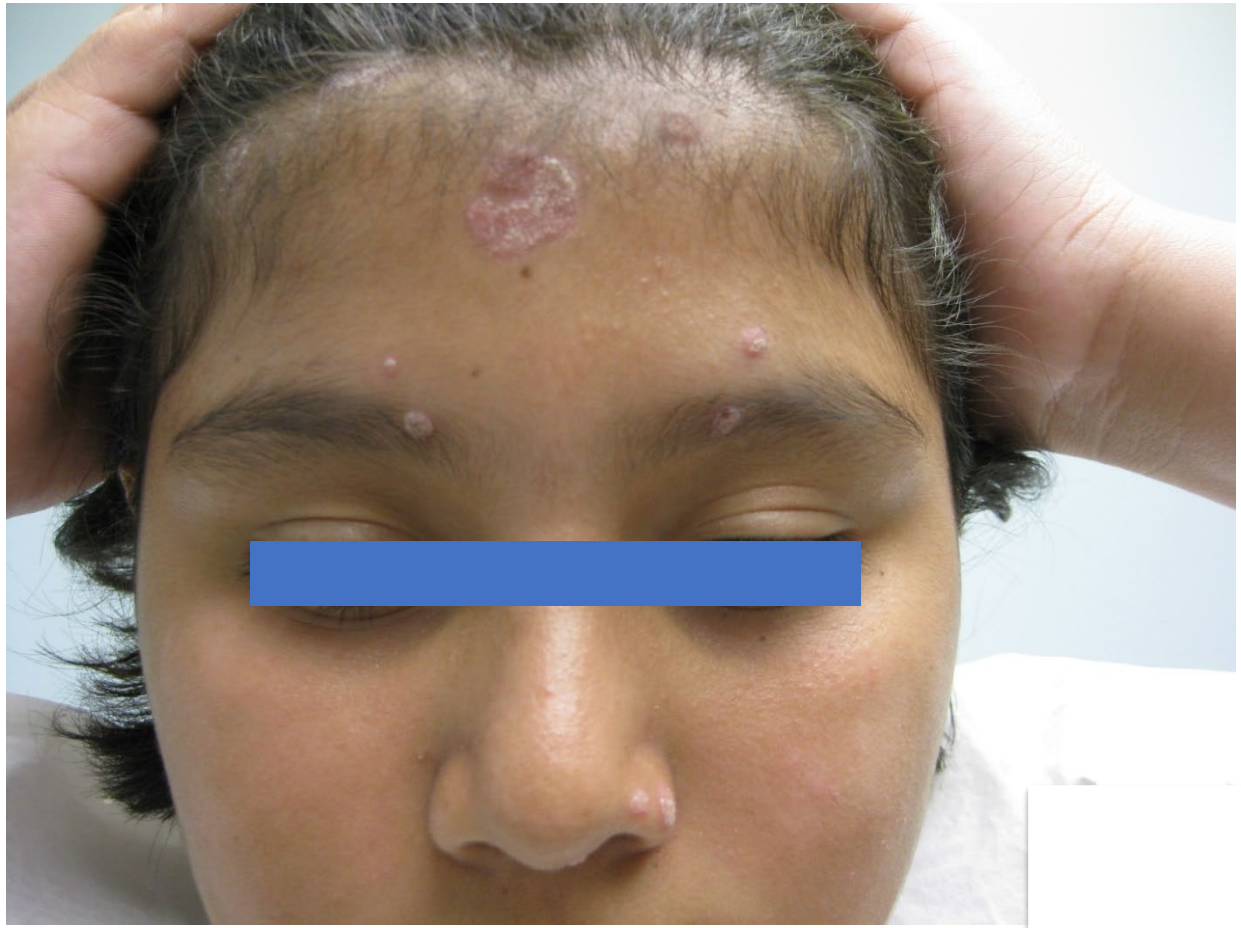
CONCLUSION

- MANY CHILDREN DO SUFFER WITH PSORIASIS
- FEW CURRENT FDA APPROVED MEDICATIONS
- FEWER STUDIES IN CHILDREN THAN ADULTS
- RECENT LITERATURE TO GUIDE THERAPY

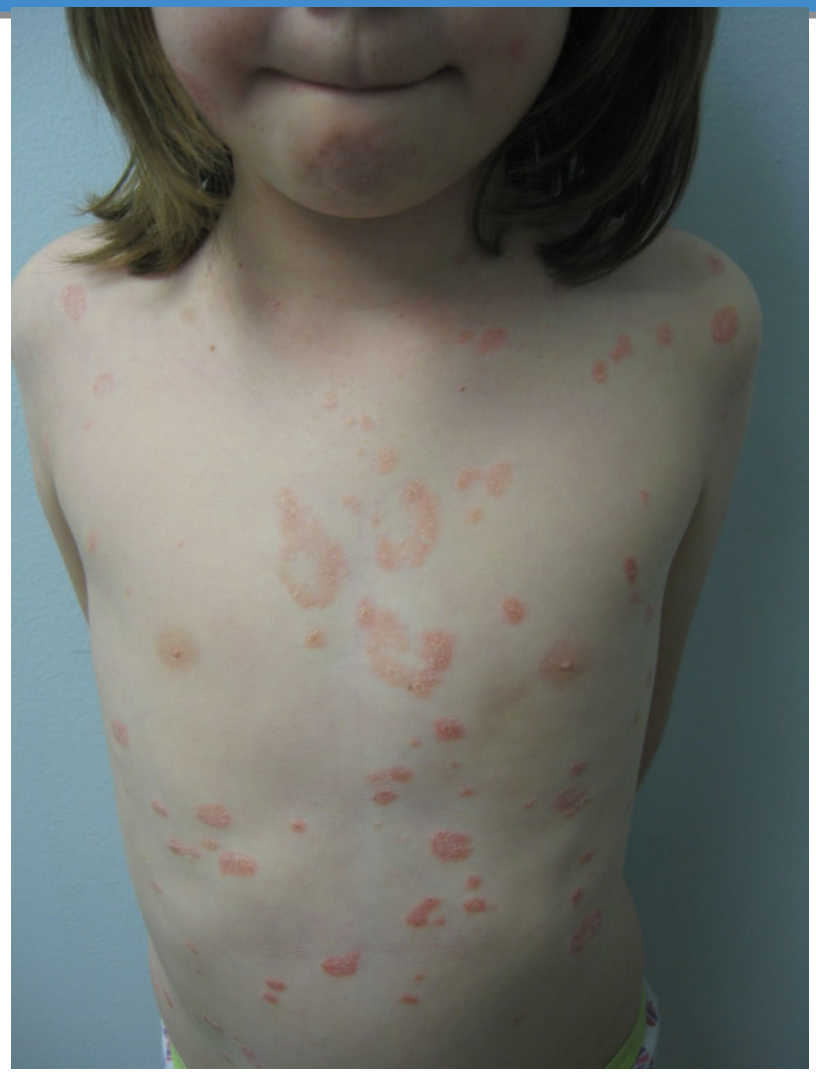
PEDIATRIC PSORIASIS



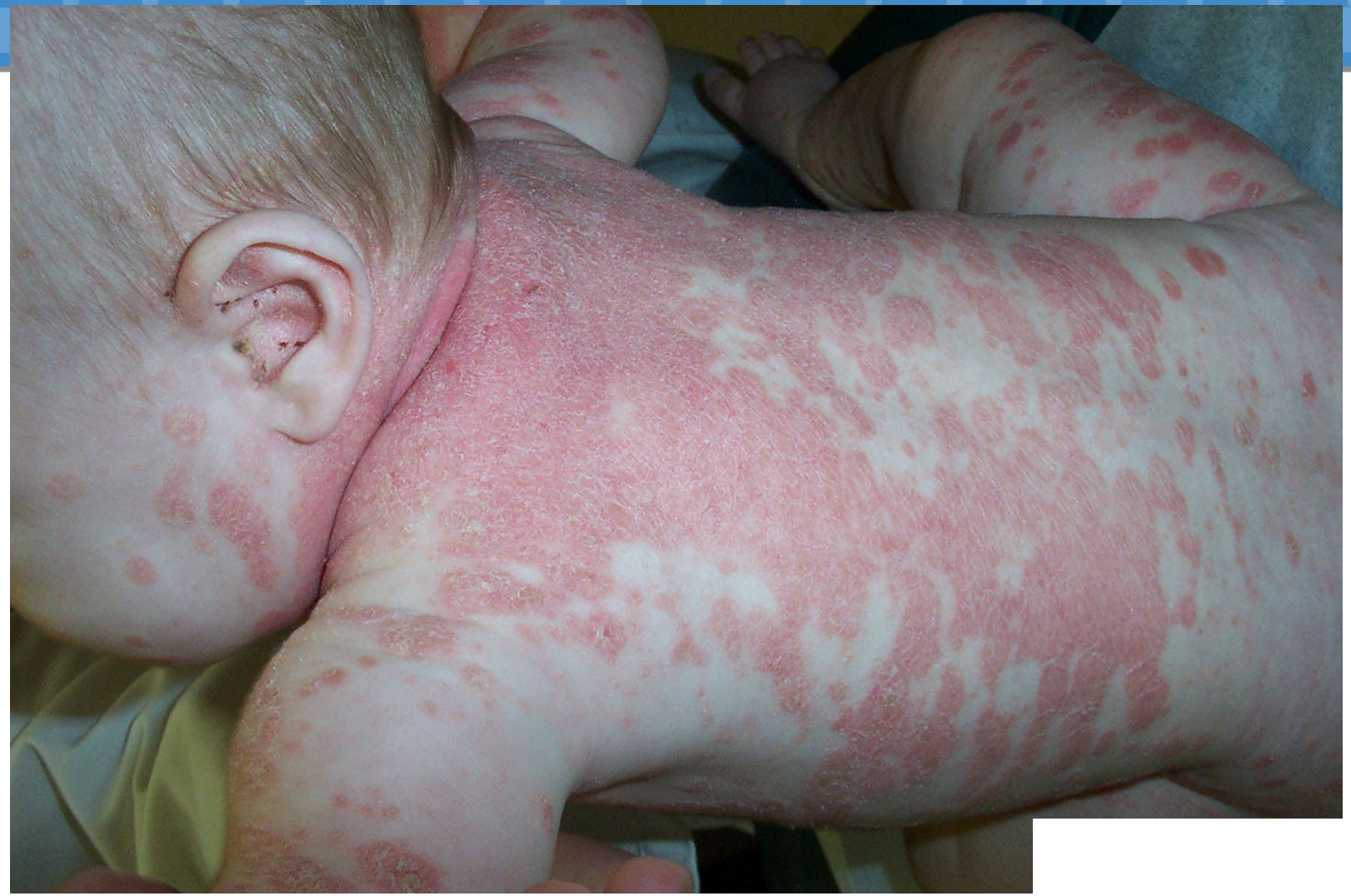
CASE 1: PEDIATRIC PSORIASIS

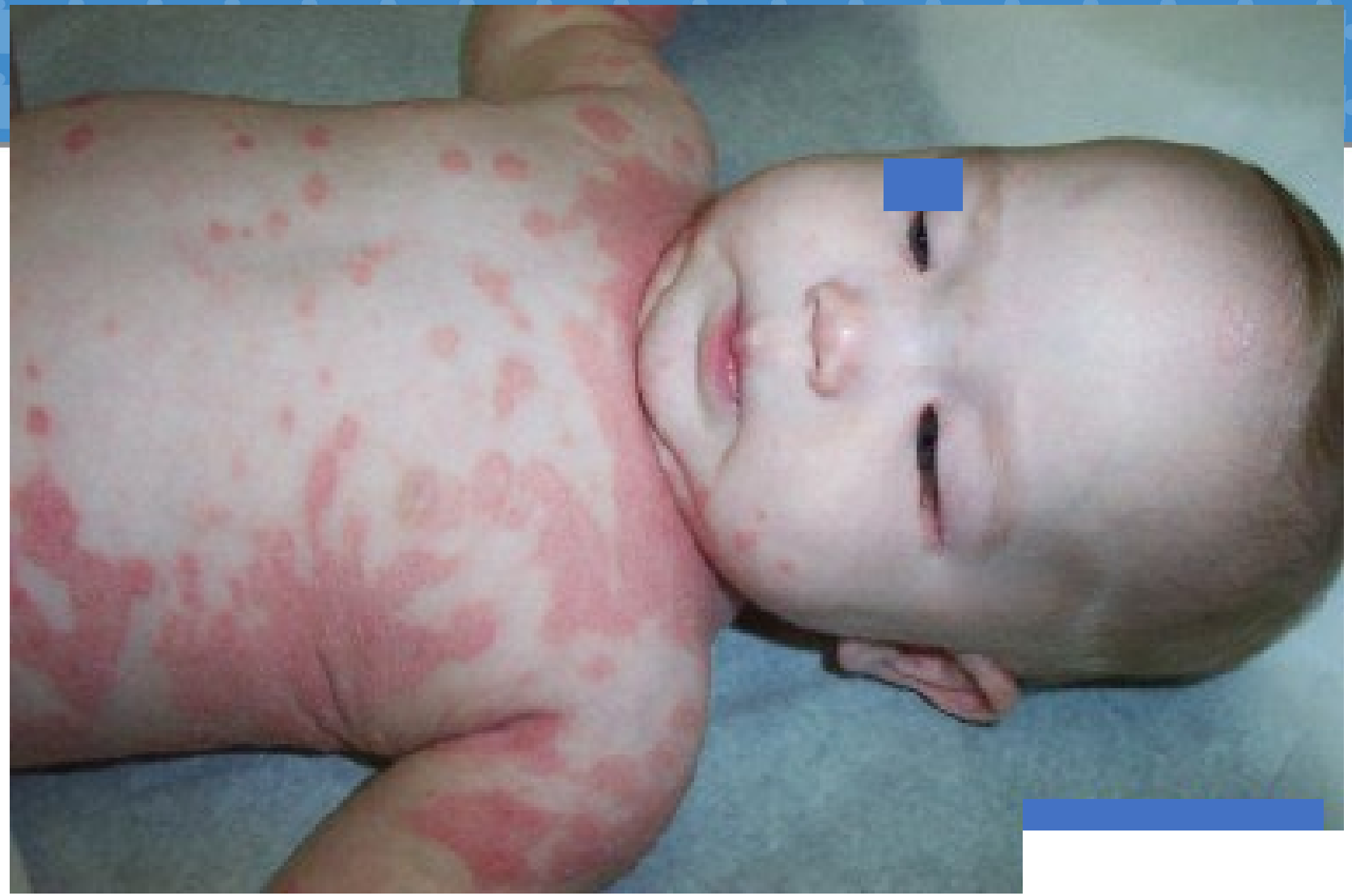


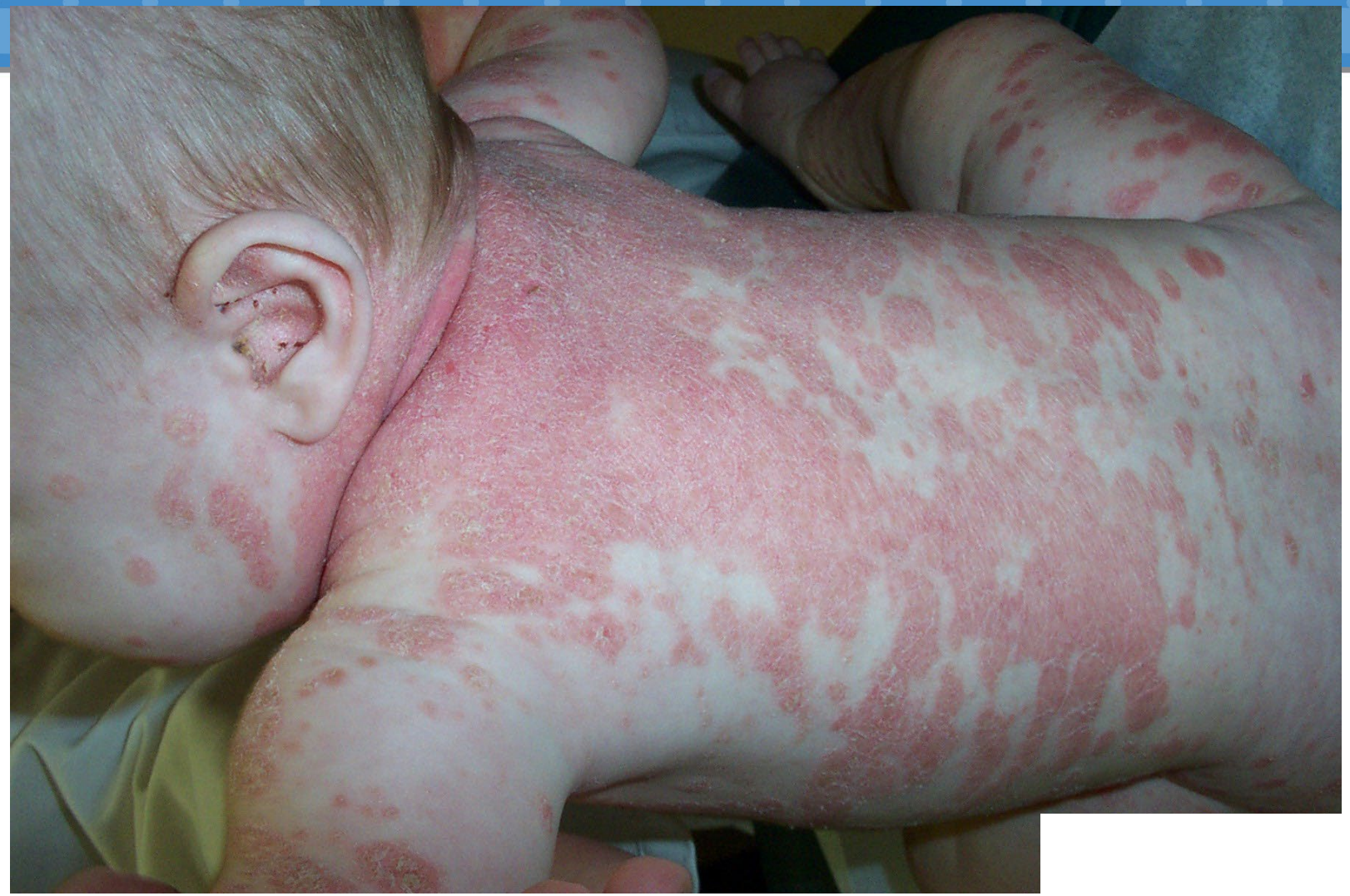
CASE 2: PEDIATRIC PSORIASIS



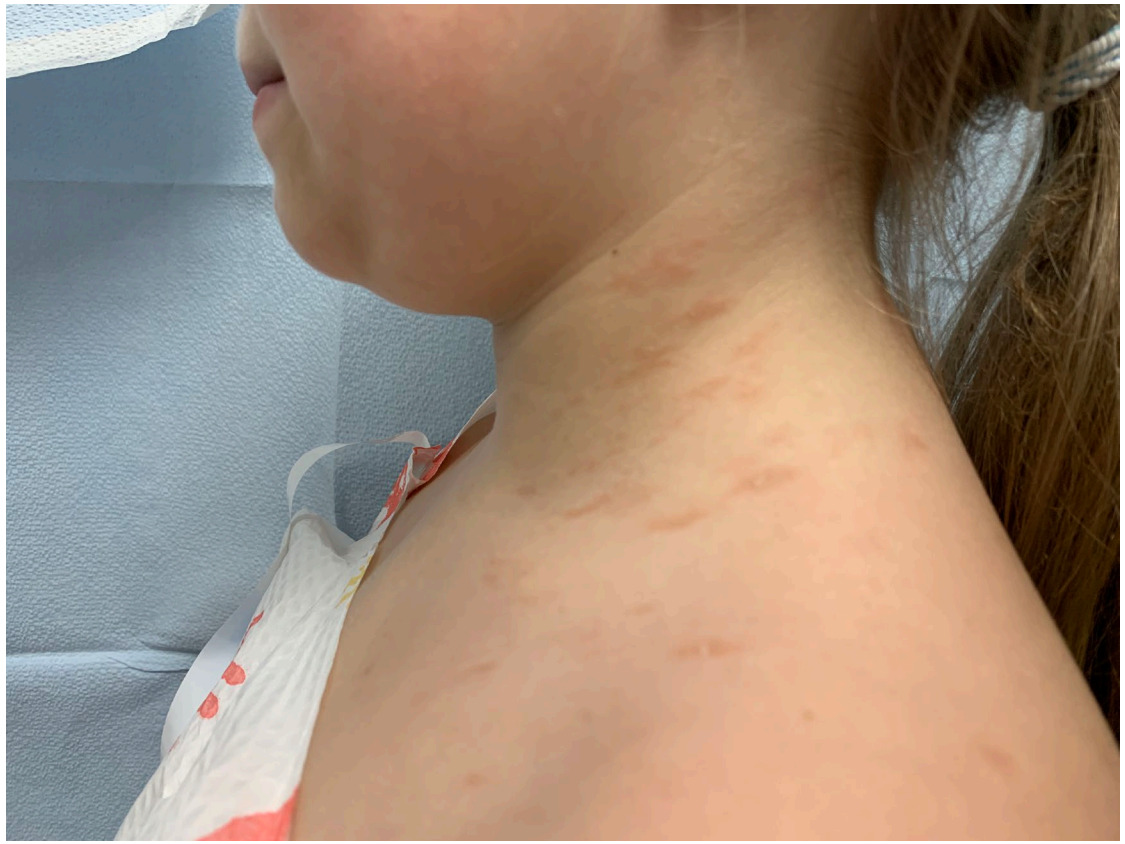
CASE 3: PEDIATRIC PSORIASIS

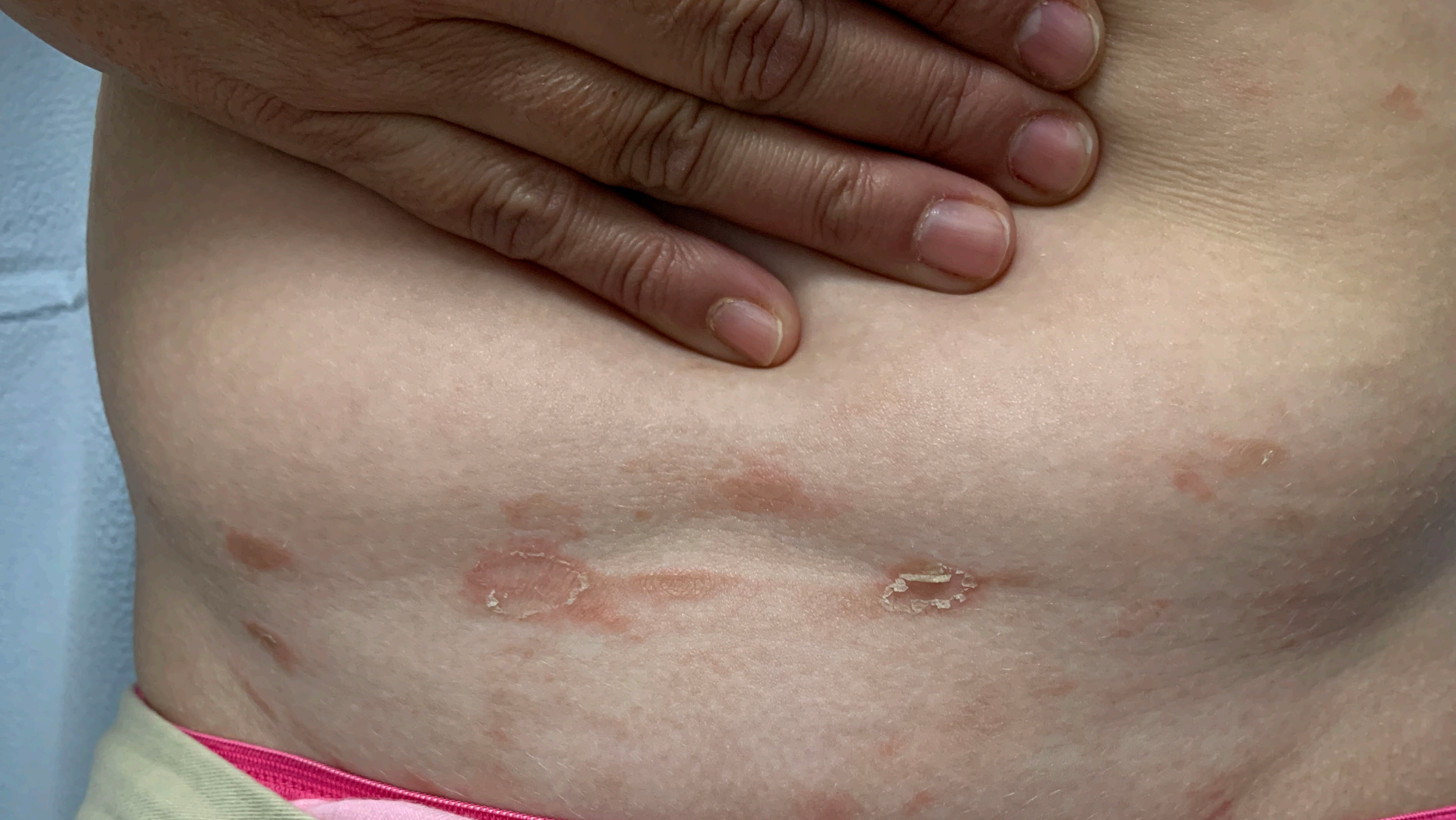






CASE 4: PEDIATRIC PSORIASIS





Questions

- Compared to White patients, which ethnoracial group is less likely to present with inverse psoriasis?

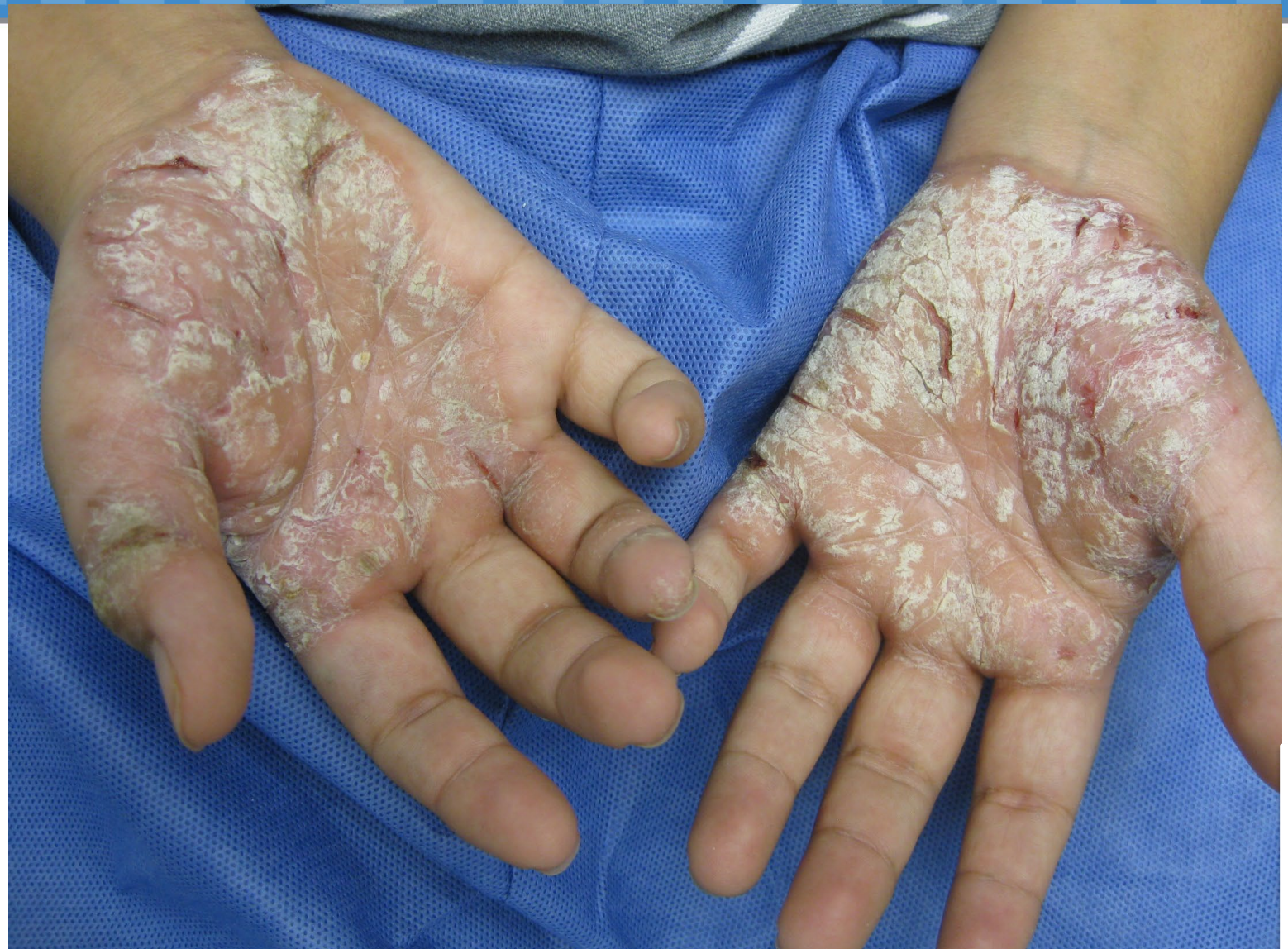
A) Asian

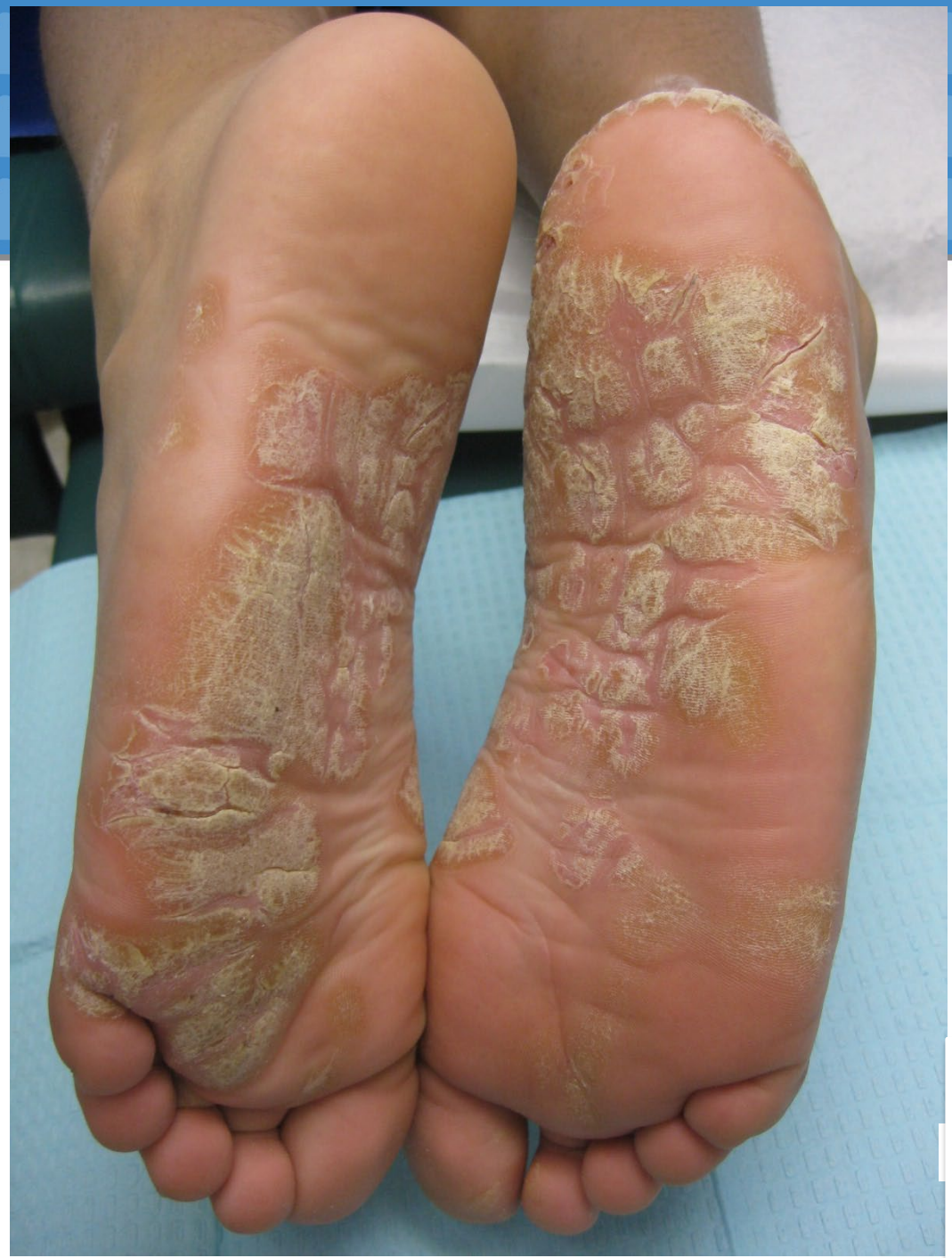
B) Black

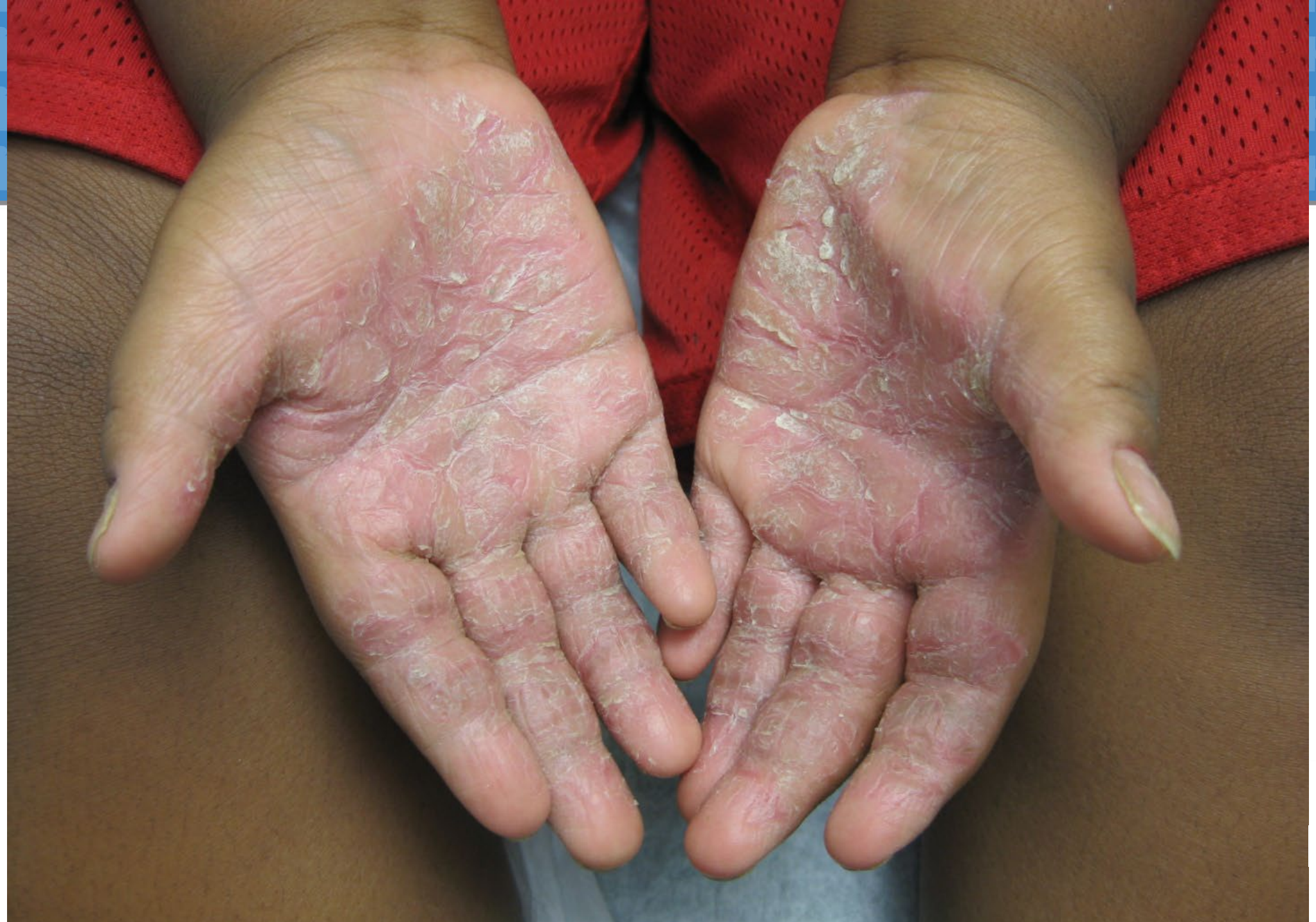
C) Hispanic

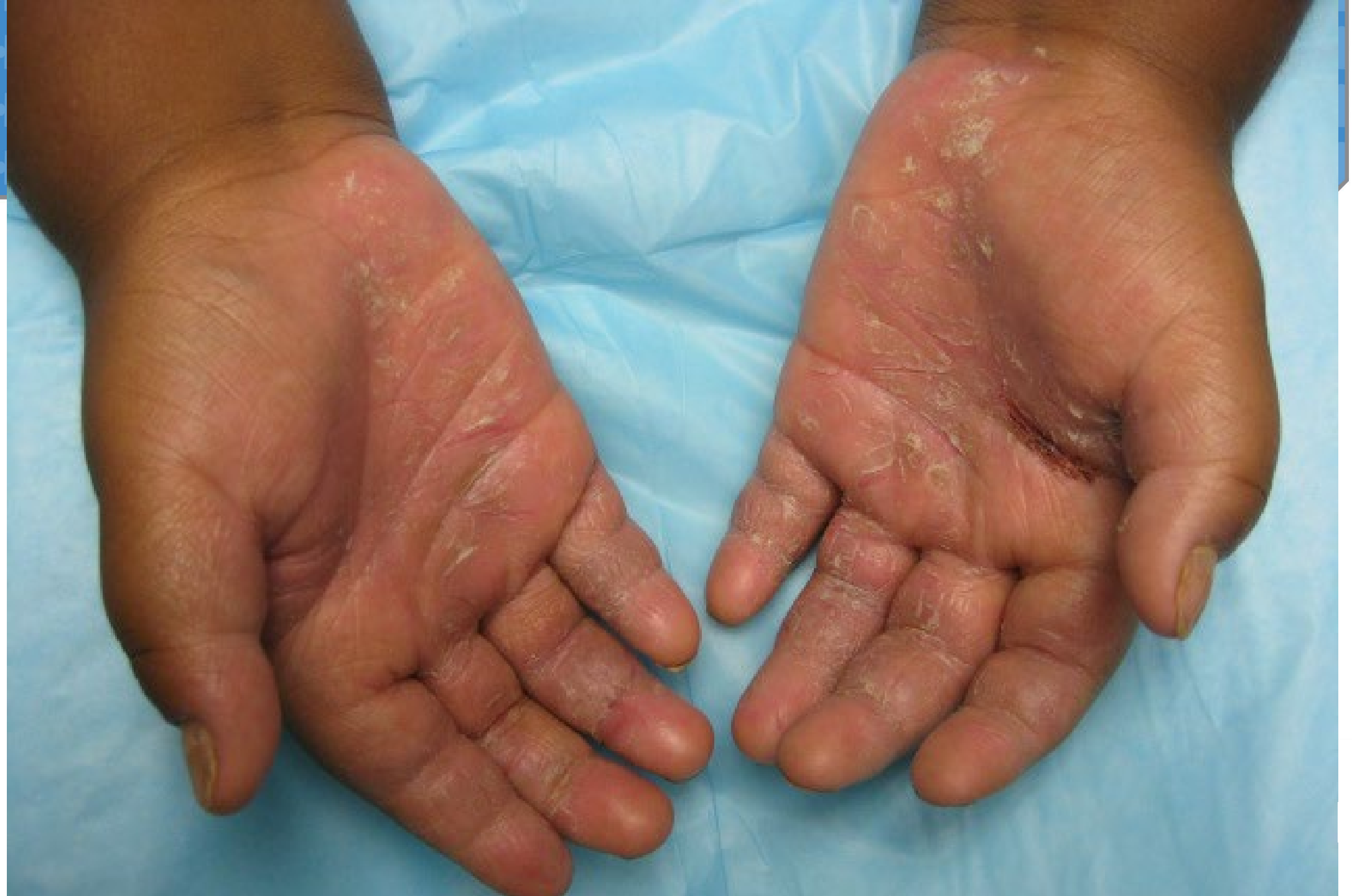
Nicholas MN et al. *Cutis*. 2020;106(2S):7-E10

CASE 5: PEDIATRIC PSORIASIS









Questions

- If a child has psoriatic arthritis, what needs to be assessed (in addition to joints)?

A) Mineralization of teeth

B) Eye assessment for uveitis

C) Eye assessment for conjunctivitis

D) Eye assessment for keratitis

True or False:

- Do children with psoriasis sometimes require higher mg per kg of cyclosporin than adults?

Which of the following drugs may cause a psoriasisform dermatitis?

- A. Lithium
- B. Infliximab
- C. Dupixent
- D. Sodium valproate

Questions

- Compared to White patients, which ethnoracial group has been reported to have lower frequencies of PsA?

A) Asian

B) Black

C) Hispanic

Kerr GS et al. *Clin Rheumatol*. 2015;34:1753-1759