

# Challenging Pediatric Atopic Dermatitis Management Cases

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## Disclosures

- I have no relevant financial disclosures

## Case 1

- 3-year-old girl with a history of severe AD (IGA 4, 90% TBSA) c/b prior hospitalization for cellulitis requiring IV antibiotics
- Pruritus interferes with patient's and parents' sleep
- Failed treatment with mid to high potency topical steroids, calcineurin inhibitor ointment, crisaborole ointment
- Planned to transition to dupilumab 200 mg SC q4 weeks
- First injection given in office; tolerated well
- The next day parents noted dramatic worsening of atopic dermatitis, skin itching, and pain as well as fever and irritability
- Presented to ED 2 days later
  - Erythematous scaly ill-defined plaques across face, trunk, extremities
  - Extensive overlying punched out erosions over most of body
  - Honey colored crust on ears

## Case 1

- Grandmother had 1<sup>st</sup> cold sore 2 weeks prior to injection; cold sore was crusted on day of injection
- Admitted, started on IV acyclovir 30 mg/kg/day divided q8 hrs and IV antibiotics
- HSV1 PCR positive, bacterial culture positive for 3+ MSSA, A. baumannii, and E. faecalis
- Family hesitant to continue dupilumab given rapid onset of eczema herpeticum following injection
- ID consulted to discuss HSV prophylaxis going forward
- Recommended acyclovir 30 mg/kg/dose BID PO for duration of dupilumab therapy + 12 weeks after end of dupilumab for viral suppression
- Extensive discussions held with family regarding risks/benefits of continuing dupilumab and initiating suppressive antiviral therapy

## Audience Poll

Which of the following is true?

1. There is no association between dupilumab and HSV risk
2. There is a slight increased risk of eczema herpeticum in patients on dupilumab
3. Dupilumab should be avoided in patients with a history of eczema herpeticum
4. There is a decreased risk of serious herpesvirus infections in patients on dupilumab
5. The risk of herpesvirus risks in pediatric patients on dupilumab is unknown

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## Dupilumab and HSV risk

- Dupilumab label: increased rates of orolabial and other herpes simplex infections
- 2019 pooled analysis of adult data from 7 RTCs, 2932 patients (1091 placebo):
  - Decreased risk serious herpesvirus infections in dupilumab group (eczema herpeticum, herpes zoster (risk ratio 0.31;  $p < 0.01$ ))
  - Risk of herpesvirus infection slightly higher in dupilumab group but difference is  $<1\%$
  - Increased risk of herpes labialis
- 2022 pooled data from LIBERTY AD ADOL (age 12-17 years) and LIBERTY AD PEDS (age 6–11 years)
  - Rates of herpesvirus infections numerically lower in approved and all dupilumab doses compared with placebo
- LIBERTY AD PRE-SCHOOL
  - No herpesvirus infections reported

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## Dupilumab and HSV risk

- 2021 single institution retrospective review of 200 pediatric patients on dupilumab for mod-severe atopic dermatitis
  - 11 developed HSV infections while on dupilumab
    - 6 localized orofacial HSV, 5 eczema herpeticum
    - 10 had prior HSV infection including 3 eczema herpeticum
    - $>50\%$  had prior hospitalization for AD complication
    - 1 dupilumab discontinuation due to eczema herpeticum
  - Mean time to 1st HSV infection on dupilumab was 5.8 months (range 0.5-26 months)
- Case report of HSV encephalitis in 4 yo w/ well controlled eczema on dupilumab x 1 year

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## Case 2

- 10-year-old boy w/ hx of severe AD (IGA score 4, 70% TBSA) c/b hospitalization, superinfection
- Failed: mid to high potency topical steroids, calcineurin inhibitor ointment, crisaborole ointment, oral cyclosporine
- Prescribed dupilumab 400 mg loading dose, then 200mg SC every 2 weeks
  - Eczema flared while prior auth was pending
  - Presented to ED and started on prednisone taper
- Dupilumab approved
  - Mom hesitant to inject child at home due to her discomfort and patient's needle phobia
  - Presented to pediatrician for 1<sup>st</sup> injection 2/2 distance from derm clinic but unable to assist
- Presented to ED for eczema flare up after prednisone taper
  - Hospitalized and started on IV antibiotics, triamcinolone wet wraps, IV cyclosporine, given dupilumab 400 mg loading dose

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## Audience Poll

Which of the following is true regarding dupilumab in pediatric patients?

1. Dupilumab is indicated for mod-severe AD age 2 years and older
2. Dupilumab is dosed every 2 weeks in younger patients
3. Dupilumab injections can be administered during sleep in needle-phobic patients
4. For optimal pain control, apply ice to the skin directly for 15 min prior to injection
5. Avoid live vaccines in patients on dupilumab

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# Dupilumab dosing

AGE/WEIGHT	DOSAGE
6 months to 5 years 5-14 kg	200 mg q4 wk
6 months to 5 years 15-29 kg	300 mg q4 wk
6 to 17 years 15-29 kg	600 mg day 1, then 300 mg q4 wk
6 to 17 years 30-59 kg	400 mg day 1, then 200 mg q2 wk
6 to 17 years >60 kg	600 mg day 1, then 300 mg q2 wk





## Dupilumab considerations in children

- Inquire re needle-phobia and feasibility of injections
  - Benefit is no blood draws unlike immunosuppressants
  - Ask parent how child tolerates vaccines/blood draws
  - Multidisciplinary approach with psychology team for needle phobia
- Set realistic expectations
  - Dupilumab is viscous and takes time to inject
  - Not feasible to bring child into office for every injection
    - Exception for some toddlers with active plan for home transition
- Protocol for injection teaching
  - 1<sup>st</sup> injection done in office by RN while providing education
  - If 2 syringes – RN injects 1<sup>st</sup>, parent/guardian administers 2<sup>nd</sup>



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## Dupilumab Dos and Don'ts in children

- |  |  |
|--|--|
| <ul style="list-style-type: none"><li>• Dos<ul style="list-style-type: none"><li>• Prescribe syringe &gt; pen as it offers more control</li><li>• Inject dupilumab at room temperature</li><li>• Use iPad/iPhone for distraction</li><li>• Consider topical LMX<ul style="list-style-type: none"><li>• Wait time may worsen anxiety</li></ul></li><li>• Pre-cool skin</li><li>• Use Buzzy Bee (~\$50) to reduce pain sensation</li></ul></li></ul> | <ul style="list-style-type: none"><li>• Don'ts<ul style="list-style-type: none"><li>• Force the child to be injected</li><li>• Inject while child is sleeping</li><li>• Apply ice directly to skin</li></ul></li></ul> |
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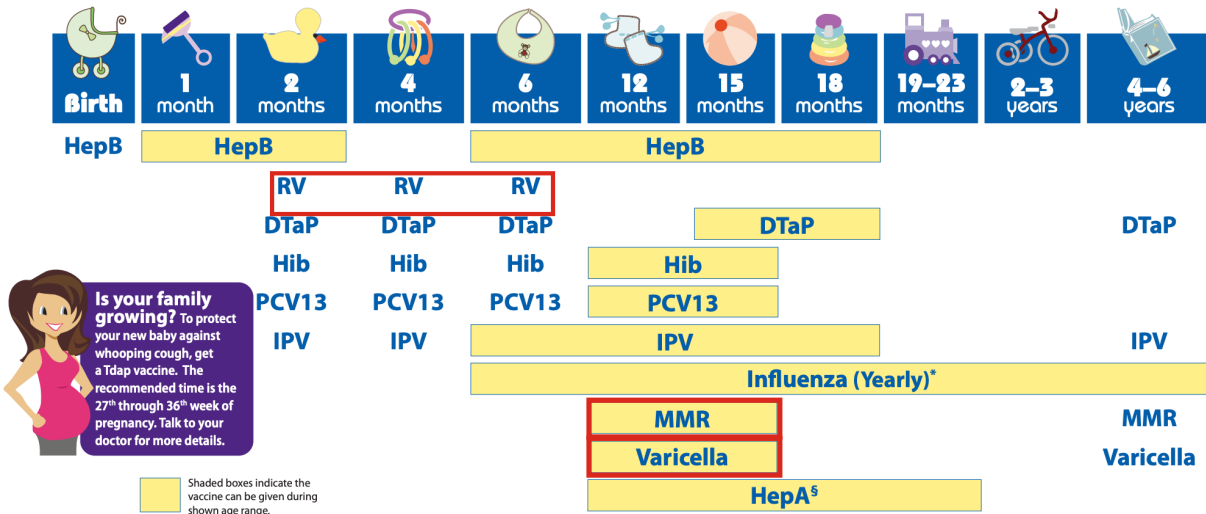




## Dupilumab and live vaccinations

- Package insert:
  - Consider completing all age-appropriate vaccinations as recommended by current immunization guidelines prior to initiating treatment with dupilumab
  - Avoid use of live vaccines in patients treated with dupilumab
- Many questions remain
  - Does dupilumab affect vaccine safety and efficacy?
  - What is the optimal interval between vaccinations and dupilumab injection?

## 2022 Recommended Immunizations for Children from Birth Through 6 Years Old



<https://www.cdc.gov/vaccines/parents/downloads/parent-ver-sch-0-6yrs.pdf>

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# Thank You!

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