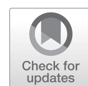

Chapter 9
Pediatric Dermatology Practical Approaches and Prescribing Tips

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General Pediatric Dermatology Prescribing Tips

- Children develop at very different rates depending on both nature and nurture, including at what age they can take pills instead of liquid suspensions! Always ask to confirm for children 8 years and up, even for teens, whether a liquid suspension or pill is preferred.
- Remember to inform families when meds must be taken with food and what types of food/drink to avoid or select (e.g. give griseofulvin with fat-containing foods, generic isotretinoin with fatty food, doxycycline generally better-tolerated with food and does NOT have to be 2–3 h before/after eating as is recommended for tetracycline).

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- Once or twice a day dosing is MUCH easier than TID or QID for parents/caregivers. Usually letters are required for daycare or school nurses/staff to administer meds when the child is not at home.
- Children often split time at two or more homes (divorced parents, grandparents providing daytime care). Ask whether two tubes/bottles of a prescription are needed, especially if it is critical that doses are not missed.
- Always try to have proof you require oral therapy, e.g. KOH or culture for griseofulvin for tinea capitis, and make sure the parent/patient is clearly counseled on the most common and the most concerning risks/benefits/expectations of medications. Remember that patients do experience life-threatening drug reactions from oral antimicrobials prescribed for extremely benign conditions like acne and pityrosporum versicolor.
- Head off noncompliance due to anxiety about black box warnings, e.g. for calcineurin inhibitors pimecrolimus and tacrolimus, by counseling parents/guardians about the safety record that has now been established for these topicals, even in patients under 2 years of age, at the time you first prescribe.
- Suspensions are listed as mg/5 ml by convention and because 5 ml = 1 teaspoon. Make sure families know this is a specific amount to be administered with a syringe, not just any teaspoon! It is safest to prescribe in terms of milliliters, not teaspoons.
  - Try to prescribe amounts that are easy to administer. For example, calculate based on weight, then round to an easy volume to measure. CHECK YOUR MATH (e.g. by calculating in the other direction) and make it easier for the pharmacist to confirm your calculation by showing your calculation or at least by providing the patient's weight somewhere in the prescription. Ex: hydroxyzine for a 30 lbs child
    - 30 lb. ÷2.2 lb/kg = 13.6 kg
    - Hydroxyzine 2 mg/kg/day × 13.6 kg = 27.2 mg/day divided TID = 9 mg/dose for TID dosing
    - OR for evening/bedtime dosing just for itch causing sleep disturbance, approx. 0.6 mg/kg/dose × 1 = 8 mg/dose

- Hydroxyzine comes as 10 mg/5 ml suspension (2 mg/ml) so 8 mg/dose ÷ 2 mg/ml = 4 ml/dose.
- In note to pharmacist and your clinic note show your math:
  - "4 ml/dose = 8 mg/dose = 0.6 mg/kg/dose for 13.6 kg child"

Antifungals

Antifungal Prescribing Tips (Table 9.1)

- Griseofulvin has a long safety and usage history, and since it is so affordable, it is easiest to prescribe for all insurance carriers. Note that in the early days of treatment a patient may develop an id-like reaction to fungal antigen on the head/face that is not a drug reaction; of course, do stop the medication if significant rash generalizes or if there are other signs of a serious drug reaction.
- Sensitivity testing for griseofulvin is often not available or difficult to obtain. Resistance to griseofulvin is not common, so consider inappropriate dosing (e.g. not taken with fat-containing foods), reinfection or the need for longer therapy before you worry about resistance (especially if family members are not treated at the same time with antifungal shampoo). Kerion sometimes requires months of therapy, especially if you treated with oral prednisone for severe inflammation. Resistance is most likely if a patient has been treated for several months and signs of infection are worsening and you obtain proof of active infection, as opposed to an inflammatory disorder such as seborrheic dermatitis.
- Itraconazole should be the last choice based on safety profiles.
- Not all parents will want to put their child on oral antifungal therapy for one or two infected nails. Sometimes a trial of topical antifungal cream and excellent tinea foot care practices, including cutting down infected nail as often as possible, can lead to resolution of partial onychomycosis.

TABLE 9.1 Antifungal prescribing tips

Generic	Brand	Total Daily Dose	Oral Suspension Formulation	Oral tab/cap Formulation	Prescriber tips & Examples
Griseofulvin-Microsize	Grifulvin-V	20–25[a] mg/kg/day QD or divided BID Max 1 gram/day	25 mg/ml	250 or 500 mg	6–8 weeks for tinea capitis, longer for M. canis or kerion. Take with fat-containing foods (a meal or pudding, not juice). Not treatment of choice for onychomycosis. Superior to terbinafine for M canis tinea capitis [1].
Griseofulvin-Ultramicrosize	Gris-PEG	15–20 mg/kg/day[a] QD or divided BID Max 750 mg/day	NA	125 or 250 mg	6–8 weeks for tinea capitis, longer for M. canis or kerion.
Fluconozole	Diflucan	6 mg/kg/day QD	10 mg/ml 40 mg/ml	50,100,200 mg	Alternative to griseofulvin: 6 mg/kg/day × 6 weeks for tinea capitis [2]. 12–16 weeks for fingernail onychomycosis, 18–26 weeks for toenails onychomycosis.

Itraconozole	Sporonox	5 mg/kg/day divided BID	10 mg/ml	100 mg	Better to give on empty stomach. Solubilized by hydroxypropyl-β-cyclodextrin (400 mg/mL) which causes diarrhea & caused pancreatic adenocarcinoma in rats but not mice[b]. Consider monthly pulsing 1 week × 3 months for onychomycosis [3]. 5 mg/kg/d daily × 1 week or weekly dosing. OR For weight 10–15 kg: 100 mg every other day 16–20 kg: 100 mg QD 21–40 kg: 100 mg BID >40 kg, 200 mg BID [3].
Terbinafine	Lamisil	<20 kg: 62.5 mg 21–40 kg: 125 mg >40 kg: 250 mg QD	N/A	250 mg	Lamisil granules DISCONTINUED. 250 mg tabs can be cut. 6 weeks for fingernails, 12 weeks for toenails.

[a]2003 Red Book: Report of the Committee on Infectious Diseases, 26th edition. American Academy of Pediatrics, 2003. Note this is higher than listed by UpToDate or FDA, and paediatricians have often already tried the lower published dosing before referral. Dosing is otherwise as per FDA prescribing info
[b]FDA prescribing info

- Sample calculation for griseofulvin
  - Ex: griseofulvin for a 20 kg child
    - Griseofulvin microsize comes as 125 mg/5 ml (25 mg/ml) which makes dosing easy if you use 25 mg/kg because the milliliters/day = kg of the child.
    - 25 mg × 20 kg = 500 mg/day divided by 25 mg/ml = 20 ml/day
    - Divide 20 ml/day into two 10 ml doses (eg with breakfast and dinner)
    - In note to pharmacist and your clinic note show your math:
      - "20 ml/day = 500 mg/day = 25 mg/kg/day for 20 kg child"

Antivirals

Antiviral Prescribing Tips (Table 9.2)

- Doses provided aim to reduce the number of daily doses required. There are many options for dosing acyclovir that are not listed, since the range of therapeutic effect is broad and it is a relatively safe medication.
- Suppressive dosing for herpes simplex is indicated if a patient not only has 5 or more episodes per year, but also if he/she experiences erythema multiforme or Stevens-Johnson episodes due to HSV, even after the second episode in a few months.
- Herpes gladiatorum is a common problem that may require suppressive dosing throughout wrestling season and beyond if the patient participates in wrestling camps off-season.

Table 9.2 Antiviral prescribing tips

Generic	Brand	Total Daily Dose (oral, for immunocompetent only)	Oral Suspension Formulation	Oral tab/cap Formulation	Prescriber tips & Examples
Acyclovir	Zovirax	**HSV:2-11 yrs (first episode)** 40-80 mg/kg/day div q6–8h × 5–10 days Max 1000 mg/day **HSV: ≥12 yrs (first episode)** 1200 mg/day PO div Q8hrs × 7–10 days **HSV:≥12 yrs(recurrence)** 1600 mg/day PO div Q12hrs × 5 days OR 2400 mg/day PO div q8h × 2 days **Suppression 2-11yo** 30 mg/kg/day PO div q8h × 6–12 mos Max 1000 mg/day **Suppression:≥12 yrs** 800 mg/day PO div q12h 6–12 mos **VZV (2yo and up):** 80 mg/kg/day PO divided q6h for 5 days VZV Max: 3200 mg/day	40 mg/ml	200,400,800 mg	Note: there are other dosing options for 5×/day which is harder for patient to comply with. American Academy of Pediatrics does not recommend oral antiviral therapy for healthy children <12yo with varicella. Supportive therapy is sufficient.
valacyclovir	Valtrex	Herpes labialis: 2000 mg q12hr × 1 day Suppression: 500–1000 mg/day	NA	500, 1000 mg	

Antihistamines

Antihistamine Prescribing Tips (Table 9.3)

- Although atopic dermatitis itch is not mediated primarily through histamine pathways, if a patient has true allergies, antihistamine therapy can be helpful to limit or prevent dermatitis flares.
- Some patients have a paradoxical hyperactivity reaction to Benadryl and hydroxyzine. If a parent reports that their child is not sedated at all, consider this paradoxical reaction or the possibility that he/she needs a higher dose. Higher doses of hydroxyzine are needed for a central anxiolytic effect.
- It is often helpful to administer a nonsedating antihistamine in the morning and a sedating antihistamine at night.
- Warn the family about excessive sedation with first-generation antihistamines (diphenhydramine, hydroxyzine) that prevents alertness at school. First-time administration can be tested on a Friday or Saturday night just in case. Excessive drowsiness can be addressed by giving the medication a bit earlier in the evening or by reducing the dose. The longer a patient has been on the same daily dose, the more likely it is that dose escalation will be required.
- Patients can still experience fatigue or sleepiness with second-generation antihistamines. Different second-generation antihistamines have differing therapeutic effectiveness and sedation, so try exchanging one for another depending on patient experience.
- For patients with many food allergies, or give before bedtime that day in order to accurately monitor for anaphylaxis symptoms.

Table 9.3 Antihistamine prescribing tips

Generic	Brand	Total Daily Dose	Oral Suspension Formulation	Oral tab/cap Formulation	Prescriber tips & Examples
Cetirizine	Zyrtec	>6mo<2yr = 2.5mg 2–5 yr = 2.5–5 mg >6 yr = 5–10 mg QD (but higher doses are often required for chronic therapy)	1 mg/ml	5 mg or 10 mg tab/chewable	Can Rx cetirizine in AM for nonsedating Tx and a sedating antihistamine for itch disturbing sleep.
Fexofenadine	Allegra	30 mg QD or BID	6 mg/ml	30 tab/ODT, 60, 180 mg tab	

(continued)

TABLE 9.3 (continued)

Generic	Brand	Total Daily Dose	Oral Suspension Formulation	Oral tab/cap Formulation	Prescriber tips & Examples
Diphenydramine	Benadryl	5 mg/kg/day divided q6-8h Max 300 mg/day Or 2 mg/kg/dose for anaphylaxis	2.5 mg/ml	25 mg, 50 mg Chewable 12.5 mg tab	1.25 mg/kg/dose QHS for itch disturbing sleep or up to QID. Some children have a paradoxical hyperactivity reaction, so consider giving for first time under adult observation (eg nap time) so the family is not awake all night. Generally not needed or recommended off-label for infants, but over 6mos of age can trial 1 mg/kg at bedtime (max 6.25 mg initial dose)[a] for severe atopic dermatitis flare disturbing sleep (generally not needed if topical care is adequate, best for concomitant allergen exposure flaring the eczema under allergist advice). Cream formulations irritate eczematous skin and are not as effective as oral administration and other skin care strategies.

Hydroxyzine	Atarax	2 mg/kg/day divided TID or QID OR 0.6 mg/kg per dose QID	2 mg/ml	10 mg or 25 mg	Can trial 0.6 mg/kg QHS for itch disturbing sleep (sometimes higher doses required but start low in case of severe drowsiness, especially on school nights). Sedative effect tends to wear off after a few days, so if used for atopic dermatitis flares disturbing sleep, use in beginning of flare therapy. Has a CNS anxiolytic effect especially at higher doses. May have a paradoxical hyperactivity reaction, although mainly seen with diphenhydramine. Additionally has bronchodilator activity and analgesic effects.
Loratidine	Claritin	2–5 yr = 5 mg >= 6 yr = 10 mg QD	1 mg/ml	10 mg tab/ODT	
Cyproheptadine	Periactin	0.25 mg/kg/day, then 2 mg/kg/day divided bid/tid, Max 12 mg/day	0.4 mg/ml	4 mg	

(continued)

TABLE 9.3 (continued)

Generic	Brand	Total Daily Dose	Oral Suspension Formulation	Oral tab/cap Formulation	Prescriber tips & Examples
Doxepin		Variable, QHS to TID	10 mg/ml	10, 25, 50 mg	Literature supports starting at 10 mg/day for adults with pruritus unresponsive to other Rx. There is very little data on use of doxepin for dermatologic conditions [4] in children and it seems to be highly sedating. Due to increased risk of suicidality in children/adolescents started on antidepressants, strongly recommend administration by or with pediatric psychiatry especially if you consider this medication for depression in your patient related to or concomitant with chronic itch or atopic dermatitis. As stated elsewhere, if the eczema is well-controlled by topical or other means, oral doxepin should not be necessary. Doxepin cream is not recommended in children due to systemic absorption leading to toxicity, as well as the irritant/allergen concerns about creams in general.

[a] PDR.net

Antibiotics

Antibiotic Prescribing Tips (Table 9.4)

- Diarrhea or other GI upset is a very common side effect and the most common reason parents self-discontinue treatment other than lack of palatability and refusal to take the medication. You can almost always have them administer the medication with breakfast and dinner (or pudding vs apple sauce for bad taste, though this does not always work).
- If you are not treating an acute bacterial infection, you often can prescribe a BID regimen (with breakfast and dinner); compliance is much higher.

TABLE 9.4 Antibiotic prescribing tips

Generic	Brand	Total Daily Dose	Oral Suspension Formulation	Oral tab/cap Formulation	Prescriber tips & Examples
Cephalexin	Keflex	25–50 mg/kg/day divided BID, TID or QID Max 4gm/day	25 mg/ml 50 mg/ml	250, 500 mg	BID is much easier for family because midday dosing requires school nurse.
Cefadroxil	Duricef	30 mg/kg/day QD or divided BID Max 2 g/day	25 mg/ml 50 mg/ml 10 mg/ml	500 mg	
Dicloxacillin	Dynapen	**Infants, Children, and Adolescents weighing <40 kg:**[a] 12.5–25 mg/kg/day PO q6h for mild to moderate infections, 25–50 mg/kg/day PO q6h for severe infections. Maximum dose: 500 mg/dose **Adolescents and Children weighing >= 40 kg:**[a] 125–250 mg PO q6 hours for mild to moderate infections. 250–500 mg PO q6 hours for severe infections. Adolescents Max 4 g/day PO	NA	250, 500 mg	On empty stomach.

Doxycycline	Oracea, Monodox, Doryx etc	2 mg/kg/day divided BID Adult dosing if >45 kg Max 100 mg/dose	5 mg/ml	20, 50, 75, 100 mg	Lower doses often given QD or 100 mg if difficult to remember or tolerate an AM dose. Not recommended for children younger than 8yo EXCEPT when treating Rocky Mountain Spotted Fever this is still drug of choice.
Erythromycin	EES	30–50 mg/kg/day divided BID, TID or QID 60–100 mg/kg/day for severe infections Max 2 gm/day	40 mg/ml 80 mg/ml	200 mg chew 400 mg	Give with food; has a prokinetic effect & can cause GI upset. An alternative to doxycycline for younger children with perioral dermatitis.
Clarithromycin	Biaxin	7.5–15 mg/kg/day divided BID Max 1000 mg/day	25 mg/ml 50 mg/ml	250, 500 mg	

(continued)

Table 9.4 (continued)

Generic	Brand	Total Daily Dose	Oral Suspension Formulation	Oral tab/cap Formulation	Prescriber tips & Examples
Azithromycin	Zithromax	5–10 mg/kg/day QD Max 500 mg/day	20 mg/ml 40 mg/ml	250 mg, 500 mg	Can trial 10 mg/kg/day when erythromycin and doxycycline are contraindicated or not tolerated.
Cefuroxime	Ceftin	30 mg/kg/day divided BID 100 mg/kg/day divided BID for severe infections Max 1 gm/day	25 mg/ml 50 mg/ml	125,250, or 500 mg	

Additional dosing info from FDA prescribing info and/or Antibiotic Dosing for Children: Draft expert Recommendations for the 2017 Essential Medicines List for Children (EMLc)

[a]PDR.net

Miscellaneous Prescribing Tips (Table 9.5)

- For oral steroid tapers for acute inflammatory conditions, start with BID dosing and then go to qAM dosing as the taper progresses.
- Cimetidine for warts and molluscum seems to work better for younger children. Try calculating 30–40 mg/kg/day and dividing into BID doses. Continue therapy for 1–2 months before stopping, unless you are concerned about side effects.
- Most people prescribe 1 mg/day folate on the days not giving methotrexate dose, but some give folate every day, and others 7 mg folate just the day after methotrexate.
- Methotrexate has a long history of safe and effective use in children for severe dermatoses; however, because it can take 3–6 months to see an effect with methotrexate, many people use an oral steroid or cyclosporine as a bridge to longterm therapy with methotrexate.

TABLE 9.5 Miscellaneous prescribing tips

Generic	Brand	Total Daily Dose	Oral Suspension Formulation	Oral tab/cap Formulation	Prescriber tips & Examples
Isotretinoin	Claravis Amnesteem Myorisan Zenatane Absorica (others)	Variable, usually QD or BID Usually max dose is 1 mg/kg/day	NA	10,20,30,40	Take with high fat meal. Risk of paradoxical acne fulminans-like reaction is higher in severe teen acne, or reportedly if macrocomedones. Start with prednisone × 2 weeks with 40 mg/day or higher, or low dose isotretinoin eg 10 mg/day and ramp up slowly.
Prednisone		Variable	1 mg/ml syrup; Conc soln: 25 mg (5 mg/ml; 30% alcohol)	1,2.5,5,10,20,50 mg	More physiologic to give in AM but for severe inflammation and higher doses divide BID.

Prednisolone	Prelone/ Orapred	Variable	3 mg/ml	5 mg	More physiologic to give in AM but for severe inflammation and higher doses divide BID. Orapred reportedly tastes better.
	Pediapred		1 mg/ml		
Timolol	Timoptic	Variable (as few drops per day as possible), usually BID	0.5% regular vs gel-forming solution, currently available only as ophthalmic drops	NA	Topical therapy can buy time until comfortable with propranolol based on infant size, other health concerns, or possibility that propranolol is not needed. Systemic levels and side effects reported, especially for larger doses and deeper hemangiomas. The copay of gel-forming solution can be very high, so warn families or just use regular timolol maleate.

(continued)

TABLE 9.5 (continued)

Generic	Brand	Total Daily Dose	Oral Suspension Formulation	Oral tab/cap Formulation	Prescriber tips & Examples
Propranolol	Inderal Hemangeol	1–3 mg/kg/day	4 mg/ml generic, 4.28 mg/ml Hemangeol	Infantile hemangioma patients needing oral treatment are never old enough for pills	Usually BID although sometimes TID. MUST BE FEEDING q8h or more. Advise to skip doses even for days for reduced/poor PO intake or wheezing, to decrease risk of systemic side effects.
Cimetidine	Tagamet	20–40 mg/kg/day divided BID Max:1600 mg or 2400 mg for ≥12yo	60 mg/ml	100,200,300,400, or 800 mg	Most often used 30–40 mg/kg/day for recalcitrant warts in younger children who are not good candidates for cryotherapy or injections; when it works well it can have an obvious effect within 1–2 months.
Mycophenolate mofetil	Cellcept	30–50 mg/kg/day divided BID Max:2000 mg	200 mg/ml	250, 500 mg	

Cyclosporine	Neoral Sandimmune	3-5 mg/kg/day divided BID (up to 6 mg/kg/day by some) [5]	100 mg/ml	25,100 mg	Common first-line for severe atopic dermatitis inadequately controlled with topical approach alone due to most rapid onset of noticeable effect, i.e. within 2–4 weeks (except for dupilumab – see below). Consider full dosing × 2–6 months (some use up to 7 mg/kg/day) until good control of atopic dermatitis, taper by 1 mg/kg/day each month until back on only topicals or supplemental weekend maintenance dosing [6].

(continued)

Table 9.5 (continued)

Generic	Brand	Total Daily Dose	Oral Suspension Formulation	Oral tab/cap Formulation	Prescriber tips & Examples
Methotrexate		0.3–0.5 mg/kg/week [5] or 5–15 mg/m^2/week Max 25 mg/week		2.5 mg	Once weekly. Always give with folic acid (prescribers differ whether to give on the methotrexate day). Onset takes 6–8 weeks. Better for longer-term therapy than cyclosporine or if cyclosporine is not tolerated or contraindicated.
Etanercept	Enbrel	0.8 mg/kg SC Max: 50 mg/week			Once weekly.
Dupilumab	Dupixent	< 60 kg: 400 mg SQ loading dose, then 200 mg SQ every other week ≥60 kg: 600 mg SQ loading dose, then 200 mg SQ every other week	NA	NA	Approved March 2019 for 12yo and up. Noticeable improvement in itch reported by patients within days of loading dose. Main barrier to use is pediatric fear of needles and cost/insurance coverage.

Topical Corticosteroid Prescribing Tips

- The choice of a topical steroid should take into account that children have thinner skin and a higher surface area to volume ratio than adults. Sometimes you will use this to your advantage, because you can avoid systemic steroids while targeting the affected organ since skin is on the outside.
- Higher potency steroids and shorter follow-up plans work better for itchy rashes and pediatric patients (arguably all patients), despite the above concerns about thinner skin and surface area to volume ratios.
- Try to limit prescribed steroids to 1–2 different potencies, and educate the patient/family clearly on effective vs safe usage. Many clinicians prescribe a lower potency steroid for face and folds, a stronger one for the body, and then further increase potency during atopic dermatitis flares. Over just a few months a family can acquire a collection of 3–5 different topical steroids this way, then not know which ones to use for the next flare. They may wait for an urgent clinic appointment, but even if that visit is just a day or two later the child has scratched so much that the flare is even worse; it only takes a few minutes to go from clear skin to red, bleeding skin during an acute flare.
- You must get comfortable with the amounts needed to accomplish the treatment course you intend. Restrict the number of refills as appropriate but do not over-restrict the amount you intend to be used for the next month. The number of grams you prescribe is assumed by insurance to be a monthly supply, and the patient/guardian will not be able to get a refill until 26 days later.
- Knowing how many grams or tubes of topical steroid a family has used will help you gauge how compliant vs steroid-phobic the patient/family is. Ask how many tubes and how much of a current tube/jar is left to help you understand whether the steroid is being overused vs underused.

- Contact allergy to topical steroids do occur, but when your prescribed regimen has failed first rule out other factors including insufficient potency, parental steroid phobia causing inadequate adherence to your prescribed regimen, inadequate barrier compensation teaching and compliance, contact allergens and irritants in skin care products, and behavioral factors like continued scratching. Even crusted excoriations can be itchy in an atopic patient. Never, ever just blame the patient for scratching; teach behavioral replacement strategies.

Topical Timolol Prescribing Tips

- Topical timolol should only be considered if the size and thickness of the infantile hemangioma (IH) is small enough and thin enough (eg ideally 2 mm thick or less). Topical therapy will not adequately treat most thick and/or rapidly-proliferating and deep IH.
- If you need several drops a day to cover the lesion or if there is ulceration, risk of systemic absorption increases and you should consider oral propranolol. If you are knowingly using topical timolol in larger amounts because parents/guardians insist on avoiding oral propranolol, you must still counsel regarding same side effects as oral propranolol.
- A trial of topical therapy is reasonable for many young infants, but the larger the IH at time of presentation, the more rapidly you think the IH is growing, the younger the infant in general, and the more critical the location of the IH, the shorter your follow-up time should be so that you do not miss a window to convert to oral propranolol.

Oral Propranolol Prescribing Tips

- Most prescribers are comfortable initiating propranolol in an outpatient setting. There must be a plan for monitoring

the patient's vitals for a couple of hours after the first dose administration. This can be in an outpatient clinic (eg periodically check the patient who is mostly in the waiting area) or an outpatient infusion center. If the patient is very young, low weight, or has other comorbitidies, propranolol should be started as an inpatient.

- Hemangeol official dosing recommendations: Start with 0.15 mL/kg (0.6 mg/kg)BID, taken at least 9 h apart. After 1 week, increase the daily dose to 0.3 mL/kg (1.1 mg/kg) twice daily.
- Because of the risk of hypoglycemia, advise parents/guardians to give a feeding just before propranolol is given, to ensure that the patient is taking good PO. If PO decreases or stops due to illness, propranolol should be held even if it is for several days. It can be restarted at the usual dose (no tapering or ramping up).
- Most prescribers adjust the dose monthly to maintain the same dose by weight for several months, since infants grow and gain weight quickly over the first year of life.
- While most patients do very well on 2 mg/kg/day, some patients with aggressive IH might do better on 3 mg/kg/day. Parents/guardians should be counseled on signs that the 2 mg/kg/day dose is inadequate (obvious growth of the IH despite taking and tolerating the medication, ulceration starting/progressing/not healing).
- The clinical course of IH is modified by propranolol, so the typical expectations for clinical behavior no longer apply (several months of a growth or growth then plateau phase, and several years of involution). Deep IH tend to rebound in growth if propranolol is stopped too soon, often even at one year of life. For this reason, infants with larger deep IH should be kept on propranolol for over a year.
- The weight-based dosing can be tapered by patient growth toward the end of propranolol therapy. For example, after 9 months (except for a large, deep IH), you might stop adjusting the dose for weight. Toward the end of therapy the dose can be tapered more rapidly.

Isotretinoin Prescribing Tips

- Adolescents who have larger, painful lesions and who develop scarring are candidates for isotretinoin even if they have not tried many other oral therapies. The younger a patient is when they present with acne scars, the sooner you should consider isotretinoin because there is a high chance the inflammation and scarring will continue and even worsen for several years otherwise. These younger patients with severe inflammatory acne and scarring are at high risk for negative psychosocial and mental health outcomes.
- Some providers use a standard ramp-up schedule: 0.5 mg/kg/day for the first month, then 1 mg/kg/day for subsequent months if there are no side effects or laboratory concerns.
- Another way to dose isotretinoin is to be attentive to clinical response and side effects such as xerosis and retinoid dermatitis, which can occur in some patients during the winter on as low as 20 mg/day. Many patients do extremely well and feel well continuing their whole course on 20 mg or 40 mg/day; the only down-side is the course may take longer to achieve 120–150 mg/kg cumulative goal dosing. However, not all patients need to reach this amount and some patients need more; hence, best management is individualized to patient response and the severity of their acne when they start therapy.
- Isotretinoin is lipophilic and much more bioavailable when taken with fatty food. Absorica reduces need to take with fatty food but some still recommend that it be taken with some fat. Others promote BID dosing as more effective, but most patients will be more compliant with once daily dosing with dinner (usually the largest meal of the day) because many patients skip breakfast and it is difficult to remember to take medication to school/work for a lunchtime dose.
- The American Academy of Dermatology guidelines for laboratory monitoring are currently to limit exhaustive testing and just check AST, ALT and triglycerides. Also go

by patient history, review of systems and polypharmacy (if any). If lab abnormalities are going to occur, it is usually seen in the first month or so of therapy, so check labs before and after a dose increase, but coasting on the same dose for several months does not require monthly lab testing except for pregnancy testing in females of child-bearing potential *as long as the patient continues to feel well and has started no other medications.*

- Counsel the patient regarding common transient worsening of inflammatory acne vs a severe paradoxical acne fulminans-like reaction to isotretinoin (aka pseudo-acne fulminans lacking systemic findings such as fever) so that he/she presents promptly for evaluation and possible prednisone therapy. Consider starting male teens who are 14 or 15 yo with severe acne and any patient with macrocomedones on a preventive 2-week short taper of prednisone and at least 40 mg/day of isotretinoin.
- Never assume an underage patient will not succumb to peer pressure to drink alcohol at a party. Patients should be taught that the kind of party binge-drinking done by teens and college-age patients is the worst for the liver, and being on isotretinoin magnifies the risk. Teach the "red cup trick": walking around a party with a plastic party cup containing soda or water might be enough to stave off peer pressure to drink. No one has to know there is no alcohol in the cup, and one does not necessarily even need to lie that there is.
- Many teens and college students are very active athletes. Isotretinoin increases the natural risk of exertional rhabdomyolysis. Patients need not be discouraged from participating in sports, but they should be counseled to be mindful about sudden increases in physical effort, to always hydrate well with water, and to inform an MD for unusual muscle swelling or weakness.
- Brand-name Accutane has not been on the market since 2006. Prescribers can acknowledge that patients call it Accutane, but why continue to promote this name? There are several generics, some of which have also been discontinued. It's safest to call it isotretinoin.

Prescribing Tips for Medicaid and Other Forms of Free Care

- Brand-name medications and more elegant formulations tend to cost more and are difficult to obtain on Medicaid/free care. For example, timolol gel-forming solution may not be covered but timolol regular ophthalmic solution can be prescribed for infantile hemangiomas. Some medications, such as isotretinoin, are expensive as generics, so prior authorizations may be required regardless.

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