10th Edition
Your EFFICIENCY BLUEPRINT to Passing The Pediatric Boards

YOUR SUCCESS BLUEPRINT TO PASSING THE PEDIATRIC BOARDS

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100% Money Back Pass Guarantee • Powerful Mnemonics
Massive Online Community • Board-Focused Content
Efficient Learning So You Can Enjoy Life And Have More Fun!

Written by Ashish Goyal, MD
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PEDIATRICS BOARD REVIEW

Your Certification SYSTEM for Passing the Pediatric Boards

• 100% Money Back Pass Guarantee •
• MASSIVE Online Community •
• Board-Focused, Manageable Content •
• Powerful Mnemonics •

EFFICIENT LEARNING So You Can Enjoy Life & Have More Fun!

Written By Ashish Goyal, MD
Edited By Dr. John Cole (A PBR Alum)

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INTRODUCTION TO THE PBR EXPERIENCE! (Please Read This!!!)

Hi! My name is Ashish Goyal and I’m the author. Since creating PBR, I’ve been fortunate enough help thousands of pediatricians with their board review experience through the “PBR.” I’m a double-boarded physician living on the most isolated landmass in the world, yet my greatest success stories come for pediatricians across the United States.

The cornerstone idea within the PBR Certification System is the idea of having concise and easy-to-understand information offered in hardcopy and digital resources to facilitate multimodal learning. In other words, we give you exactly the information that you need to pass, but we do it in a way that limits your overwhelm, increases your efficiency and provides multiple ways of reviewing the information. After all, multimodal studying has been shown to increase learning.

The results have been humbling. My favorite stories are those from pediatricians who had previously failed 4–7 times before they found the PBR, but then passed by using the PBR Certification System. Those wonderful success stories clearly show that the PBR system is perfect for first-time test-takers, AND we are the leaders in helping repeat test-takers finally pass.

Along with the Core Study Guide and the Q&A book, the digital, audio and video resources help you cement the core material through a multimodal learning experience. Since the content within our various resources is virtually always presented in the same order, your efforts will be streamlined and maximized so that you stay EFFICIENT (and happier).

PBR is great for residents looking to boost their In-Training Exams (ITE), for new pediatricians taking their American Board of Pediatrics (ABP) initial certification exam for the first time, for pediatricians who have failed the initial certification exam, for busy pediatricians studying for their traditional 4-hour ABP Maintenance of Certification (MOC) exam, for pediatricians going through the MOCA-Peds assessment, and for anyone in need of over 200 CME/MOC credits!

PBR is much more than a collection of study resources. It’s a group experience and a system. Our goal is to provide you with ALL of the CONTENT, test-taking TECHNIQUE, GUIDANCE, and COMMUNITY SUPPORT that you need to pass your exam. As many of our alumni have demonstrated, you truly do NOT need any other board review book to pass your exam.

The national first-time pass rate is usually in the 80%–86% range for the (ABP) initial certification exam. By analyzing surveys, PBR’s Money Back First-Time Pass Guarantee requests, and emails, we estimate that PBR’s first-time pass rate for the initial certification exams is at least 98%!

For the ABP MOC recertification exam, we have had multiple years of 100% first-time pass rates for our practicing general pediatricians, and very similar for pediatric subspecialists.

In summary, Team PBR and I are here to provide you with exactly what you need to get board certified, and then remain board certified. We enjoy what we do and hope that if you need anything to help you succeed that you’ll reach out to us for help.

Best,

Ashish & Team PBR
WHY DOES THE PBR CERTIFICATION SYSTEM WORK?

EFFICIENCY THROUGH SYSTEMS AND INNOVATION

Most board review books and courses simply hand you a book and say, “good luck.” That’s how I studied for the USMLE exams, the pediatric board exam (twice) and the Internal Medicine board exam. I was completely isolated! After purchasing thousands of dollars of board materials, I was left to go through the books and video courses with no real guidance, no feedback from my peers, and absolutely no advice from the authors (besides a one-page preface).

Because of how excruciatingly painful that was, I’ve create a community of pediatricians for you to study with and a blueprint of what to study, how to study it and how to do so EFFICIENTLY!

In fact, ALL of the PBR resources are created with your time in mind.

* Will the resource be easy to use?
* Will it provide more value than existing resources AND provide that value in a more streamlined fashion?
* Can we make the resource digital for easy access via smart phones and tablets?
* Will the resource reinforce the core concepts laid out in the PBR and in the Q&A book instead of overwhelming with new concepts?
* Can we make the resource portable (e.g., audio or video?) so that it can be used at times when a physician, or a mom, or a dad, or a gym-enthusiast, would not normally be able to study?

PBR is a system unlike anything you have ever experience before in your medical career. The Core Study Guide is written in easy-to-understand language and provides you with hundreds of time-saving memory aids. The online systems allow for one-click access to hundreds of high-yield images across the web. The Q&A book has some of the highest yield and most board-relevant questions available.

You also have a ready-made study group of hundreds of pediatricians. It’s called the PBR Facebook CREW, and it will help you EFFICIENTLY blow past trouble spots in your studying. Plus, if you see an error in the book, or if you would like to submit an official request for content clarification, you can simply submit the info to me through PBR’s error submission portal (www.pediatricsboardreview.com/error). Your submissions will likely be used to create a PDF response that is made available to ALL PBR members in order to enhance the PBR experience for the entire PBR community.

All of these efficiency-focused systems SAVE YOU OVER 100 HOURS OF TIME and give you flexibility in your life to enjoy your family, your friends, or to reinvest that time into repetition of the PBR material.

A critical component of ANY individualized board review plan is to go through the study material MULTIPLE times. PBR is concise, makes the learning manageable, and will allow you to feel confident on your test day because of well-prepared you are for your exam.
WHAT ARE THE 7+ RESOURCES THAT YOU HAVE ACCESS TO?

The **ALL ACCESS PASS** and the "NO BRAINER" are by far the most popular memberships for anyone taking the initial certification board exam. If you have one of these, please make sure you take advantage of all of these resources!

1. **PBR’S COMMUNITY!** This includes the **MEMBERS-ONLY FACEBOOK CREW**, Ashish Goyal, “Team PBR” and PBR’s summertime webinar content experts. **JOIN THE CREW!** Do not study in isolation! You have a community of pediatricians to support you. MANY members say this is one of the most valuable components of the PBR system. Studying for a board exam can be GRUELING, but having others to lean on for clarification, advice or just some moral support can make all the difference in your studying experience.

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![Facebook post by Reza](image1)

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![Facebook post by Cindi Mondesir](image2)

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![Facebook post by Russell Zwiener](image3)
2. **HARDCOPY PBR CORE STUDY GUIDE**: YOU WILL LEARN TO LOVE YOUR “PBR!” It is at the center of your success blueprint. Carry it everywhere, highlight it, draw pictures, create mnemonics and add notes to help you cement the 2000 MUST-KNOW topics in this book. After your exam, I promise you that you will MISS IT!

3. **HARDCOPY PBR Q&A BOOK**: KNOW this book! It is NOT a random collection of questions. The material should be considered CORE material for you to study over and over again. Carry it around and mark it up! Make sure you review this book as many times as you review the Core Study Guide.
4. **ONLINE VERSIONS OF THE PBR CORE STUDY GUIDE:** All 2000 topics are available in a scrolling PDF style format and in a topic-by-topic, searchable format. Keep this open and use the one-click image links while you study or after each two-hour block of studying. It’s iPhone/smart phone compatible, iPad/tablet compatible and desktop compatible.

5. **ONLINE VERSION OF THE PBR Q&A BOOK:** Have a few minutes while at work? Open the scrolling PDF version of the Q&A book and go through one or two questions.

6. **PBR WEBSITE:** The website has a TREMENDOUS amount of valuable content. Each article was written to help address a need expressed by pediatricians. Read as many of the articles as you can! There is also a TOOLS section where you can find links to discounted pediatric board review question banks.

7. **PBR’s TEST-TAKING STRATEGIES & COACHING COURSES:** Physicians are not taught HOW to take tests. **GOOD pediatricians with sound clinical reasoning WRONGLY believe that** a board exam is a measure of one’s knowledge base, and thus a measure of one’s abilities as a clinician. That is completely false. Exams require mastery of the English language, mastery of pacing, mastery of your emotional state during an exam, and an understanding of the deceptive tactics employed by question-writers to create seemingly possible yet blatantly WRONG answer choices.

The **PBR TEST-TAKING STRATEGIES & COACHING COURSE** (an "add on" resource for PBR members - www.pediatricsboardreview.com/strategies) offers insights into this “board game” so that you stop viewing question as miniature patients, and start viewing them as miniature riddles. Riddles with concrete rules and strategies to help you reach the correct answer quickly (even if you do not have the clinical knowledge to answer it!). Understanding the rules of the game will completely change your outlook on how to prepare for the exam and how to use board review questions for PRACTICE instead of content.

I HIGHLY recommend the PBR Test-Taking Strategies & Coaching Course for anyone who is “at risk.” This includes you if:

- You have failed this exam at least once
- You typically score below the national average on your board exam scores
- You have failed ANY USMLE Step exam
- You were classified as “at risk” during residency based on your in-training exam scores
- You are more than 1 year out of residency

The course helps you understand the techniques and skills associated with answering board-style questions correctly. We’ve helped pediatricians finally pass the boards after failing SIX times, so helping you should be easy.

To get just a taste of how you can increase your board scores immediately, and to learn a few of the rules to the “board game,” click here and read a PBR article I wrote titled, **“3 Strategies To Skyrocket Your Score!”** - www.pediatricsboardreview.com/techniques

Also, visit www.pediatricsboardreview.com/strategy and watch a FREE test-taking strategies session right now.
TEST-TAKING STRATEGY COURSE TESTIMONIALS

(FROM MEMBERS OF OUR ONLINE COURSE AND/OR OUR LIVE COURSE)

Ashish, I did it. I can't thank you enough for creating an amazing system to keep me on track with my studying. And the $2000 for the live weekend test taking course was well worth it. Doing the technique during the test kept me focused and allowed me to eliminate wrong answers. Thank you for all the great advice, sticking to the material, memorize, memorize, memorize then practice practice practice. After 4 failed attempts, it was exhilarating to finally read the words, "we are PLEASED to announce you PASSED!" I will definitely recommend your program.

God Bless

- Dr. Yessenia Castro-Caballero, Board Certified Pediatrician

I found myself stuck many times, failing to pick the best answer even though the correct answer was always between my best 2 options. Everything was more clear when Ashish recommended to always pick the answer that addresses the "most important clinical issue" of the question. I started to use this technique this past week, and my test scores have improved remarkably. Thanks so much!! I am ready for the next webinar!

- Dr. HL, Now A Board Certified Pediatrician

I PASSED finally!!!!!!! So relieved and it’s all because of you!! I would not have done it without the live courses... Thank you Ashish!!! You are the best!!

Frannie
Your devoted PBR fan :)

- Dr. Frances Liu, Board Certified Pediatrician who increased her score by 18 points after failing 3 times

Definitely helped to get a better understanding of the "board game" that Ashish mentions. I'm sure I've fallen prey to those traps in the past.

Also, knowing the types of questions and the algorithm to figuring out how to spend my time answering the questions-- never would have thought about the Hybrid approach to just reading the last line of the vignette for "this/these" questions.

Really didn't know that I shouldn't be spending time reading through the whole vignette... or doing the "top to bottom" approach!

Overall it was great and I really appreciate you taking the time and effort putting this together and making sure that we can succeed our first time around.

Helped immensely with reading/understanding the "English" of the questions - I actually would've gotten one example question wrong in the past had I not used the AaCNI mnemonic

- Dr. Darlene Melk, Board Certified Pediatrician
Ashish, this is Russ Zwiener... *The weight of the world has been lifted! I have PASSED the 2018 ABP certifying exam. I improved my score by 42 points and passed by 35. Tears of joy are wonderful.* No Thank you could ever be sufficient for all the support and guidance over the past couple of years. Thank you again and please let me know if I could ever help with PBR in any way!!

**Board Certified Pediatrician**

**All Access Pass Member**

**Personalized Study Schedule User**

**Live Test Taking Strategies & Deep Study Course Member**

"Deep Dive" call with Ashish

**42-Point Increase**

3 Prior failed attempts

The first time, I didn’t finish... I landed a 166. The next year I joined PBR and went over the book 3 times. I should've taken off two weeks prior, but only managed one. I earned a 179. Heart breaking. But how could I give up when I only needed one point. So this year I **went over the book at least 5 more times. I did the ATL live test-taking strategies training and learned how to process through choosing the most correct answers.** I arranged to have at least 3 hrs of deep work everyday and did a chapter a day plus prep questions from that section. Two mos before the exam I did med study practice blocks of 84 questions timed to practice randomized subjects. **This time I got a 208.** I caught them loading the scores at about 5am EST on 12/4. I woke my husband and we cried together until it was loaded. The tears of relief...really I can't describe it as intensely as we felt it. So much time, work, money, defeat I had felt...finally redeemed. **The sacrifice my family made, finally we could leave purgatory and move on!** I was afraid I had reached my potential...at 179, but had to try to at least grab one more point. Boy did I! Thank you PBR.

**Dr. Samantha**

**Board Certified Pediatrician**

**All Access Pass Member**

**Live Test Taking Strategies & Deep Study Course Member**

**29-Point increase**

2 Prior failed attempts

Ashish and Team. Today is the best day ever. I had to do many things to get here. **You gave me the tools, and my confidence back. The test taking strategies changed my approach to questions. It was clear, consistent and concise.** I approached each question the same way. It took me 10 years to figure out **how to take this test.** The personalized schedule kept me focused and on task. You helped me overcome my biggest challenge in my career. I passed with a 192. I am finally board certified after 10 years and I now have more options available to me. I can keep my family together. **I have conquered my biggest nemesis and it feels great!** You are awesome.

**Dr. Cynthia Mondesir**

**Board Certified Pediatrician**

**All Access Pass Member**

**Live Test Taking Strategies & Deep Study Course Member**

"Deep Dive" call with Ashish

**26-Point Increase**

6 Prior attempts
The time that you spend learning how to use test-taking strategies to increase your scores will be the HIGHEST yield time of your board prep. The overall time investment is as little as 8-16 hours, but the skills you learn will be used on EVERY single question that you come across. Is there a single chapter in this book that can guarantee you the same benefit?

NO!

① Signup For Your FREE Test-Taking Strategy Session Now
www.pediatricsboardreview.com/strategy

② Use the ONLINE Test-Taking Strategies Course
Go through the online course, do independent work, increase your skill, and reach a plateau.
www.pediatricsboardreview.com/strategy

③ Attend the LIVE Test-Taking Strategies & Deep Study Course
Come to the LIVE course, get mentored, maximize your test-taking strategy skills, BREAK THROUGH your plateau, and learn Deep Study techniques to maximize your “book time” too.
www.pediatricsboardreview.com/live-tts
DID YOU KNOW THAT I FAILED THE BOARDS?

I took the ABP initial certification exam the year that I graduated from residency. I used multiple study guides to prepare. Because there was so much information in front of me (print and video), I only got through everything once.

I felt okay going into the exam. I thought, “I’ve been through the MCAT, three USMLE exams and an Internal Medicine board exam. I did fine in residency and I studied really hard for two months. I’m sure I’ll be fine.”

Coming out of that exam room on test-day, I felt nauseous. I realized that I might have just failed my first medical board exam, ever! I was upset with myself for getting so scattered with all of those different study materials, but I was also annoyed because I still couldn’t think of a single resource that I could use as a primary study guide the next time around.

I went home and made notes about how I would study differently if I had failed. What topics would I concentrate on? What topics just don’t seem to be “testable”? What information is a waste of time to study?

When the results came, I estimated that I failed by seven to nine questions. I made key strategy changes based on my previous experience. I studied for hundreds of hours while still working a full-time job. I focused on efficiency, solid mnemonics for memorization and I stopped trying to learn “all of pediatrics.”

You never feel “great” coming out of a board exam, but the following year I felt like I had a fighting chance. My score increased by 160 points, and I estimated a pass by about 37–39 questions! Pretty soon, I even received a letter from the ABP. The American Board of Pediatrics asked ME to write questions for the boards!!!

I was really just happy to pass. Failing the first time had cost me extra time, money and energy that I would have preferred to spend with my loved ones.

Prior to creating the Pediatrics Board Review experience, I was ashamed that I had failed. Now, I’ve taken a horrible experience and I’ve created something that is helping residents and pediatrician across the country. I’ve also realized that failing the boards did not mean that I was a bad pediatrician. Nor did passing by such a wide margin mean that I am a great pediatrician.

I’M JUST AN AVERAGE PERSON WHO DID EXTREMELY WELL ON THE EXAM… AND THEN TOOK MY NOTES AND SYSTEMS AND TURNED THEM INTO THE PBR. No matter who you are, I know that you can pass your exam, too. That’s why the PBR materials come with a 100% money-back first-time pass guarantee.

It’s the most EFFICIENT and well-integrated Certification SYSTEM to help you PASS the pediatric boards. So rest assured that by joining the PBR family, you’re already on the right track to success.

JUST FOLLOW THE EFFICIENCY BLUEPRINT!
THE PBR EFFICIENCY BLUEPRINT

The pediatric initial certification exam has one of the highest failure rates of any medical board exam. I URGE you to follow just a few of my simple but CRITICAL recommendations as you go through your board review experience. **ESPECIALLY #1!**

1. **PLEASE STICK TO ONE PRIMARY STUDY GUIDE - the PBR!** Spreading yourself too thin by reviewing multiple resources is the **BIGGEST MISTAKE** you can make. I've gone through thousands of emails, interviews and surveys. It's clear that this one, single recommendation that will increase your chances of board success more than anything else I can say. This is a **key similarity amongst pediatricians who failed** the boards, but then went on to pass using the PBR system. So please **do not spend your time going through other books, video courses or expensive live board review courses.** Go through the PBR books (Core Study Guide + Q&A Book) and the PBR companion products (videos, MP3s, digital picture atlas, webinars) exclusively and give yourself a seamless, multimodal approach.

2. Approach your PBR material by first simply SEEING all of the PBR content in the Core Study Guide and Q&A Book. Spend about 60–90 seconds per page to simply SEE everything that you will need to learn so that you have an idea about the type of knowledge you’ll need to acquire in order to pass this exam. **This should take you a full day. DO NOT spend time writing notes of any kind during this process.** Do NOT treat the Q&A Book like other questions. This is CORE content.

   **During your first official read through,** leave no stone unturned. Crosscheck anything that confuses you. Create mnemonics, notes and drawings in the margins so that you understand EVERYTHING. Make sure that you will NEVER have to go outside of the PBR for additional knowledge or clarifications again. If you get stuck on a concept, reach **out to your peers on the PBR Facebook CREW** (www.pediatricsboardreview.com/facebook)! If you think you've found an error, notify us through our special error submission link (www.pediatricsboardreview.com/error). **This will help you maintain your PACE and promote EFFICIENCY!** When crosschecking, ONLY go outside of PBR for possible errors or confusion. That’s it! **Do NOT go down the black hole of GOOGLE!**

   **Your second time should be MUCH faster.** Do NOT let your curiosity of non-PBR topics distract you. As you break up your studying time with questions, you WILL want to look up new topics and crosscheck facts between the PBR and PREP®. **DO NOT DO IT!** It's a guaranteed waste of precious time that could be spent on PBR, the HIGHEST YIELD resource that you will have at your disposal to pass the board exam.

   **Your third, fourth and fifth times** through the PBR content should strictly focus on adding more information into your long-term memory through **repetition,** through the use of mnemonics, and through the use of MULTIMODAL studying. Use audio, video, webinars, study buddy sessions, flash cards, etc. Just use something to mix things up because it's been **proven to increase learning!**

   Again, you must resist that urge to look up extraneous information and you must **focus on QUALITY study time.** Ensure that your reading is focused on LEARNING and REMEMBERING the concepts. Do not simply read for the sake of reading, and do not study when you’re exhausted or irritable.

   **Your primary goal is to pass the exam.** As long as you KNOW everything from the Core Study Guide + Q&A Book, **you will have enough information in your brain to easily pass.** However, if you try to learn “all of pediatrics” you will get overwhelmed and probably **fail the exam.** Map out at least **300 hours of studying** for the initial certification exam (I studied 400+ hours.)
3. Use PBR's Q&A book as more CORE material. Also use it to get familiar with very high-yield topics and questions. The format is short and to the point without too much extra information. The questions will help you understand what types of key findings you need to identify on your practice questions and on your exam. Please remember that the Q&A book is considered CORE CONTENT. You need to KNOW IT COLD! Do NOT treat the PBR questions like PREP® questions.

4. Go through at least 1000 practice questions. Don’t go through them all at once (much more on this in the schedule outlines below). As you go through the questions, work on your timing. If you can average about 1 minute and 15 seconds per question, you will be fine for the boards. Do not try to understand why every single incorrect answer is wrong. Just focus on the correct answer, and if your answer is wrong, figure out WHY it’s wrong. Skip explanations about all of the other answer choices.

When evaluating WHY you answered a question wrong, figure out if it was because of a CONTENT problem or if it was due to a TECHNIQUE problem. If you’re not sure, then it’s a TECHNIQUE problem and you must get help – www.pediatricsboardreview.com/strategies.

Did you answer a question incorrectly because of a CONTENT issue? Meaning, you had a knowledge deficiency? If so, was the content in the PBR? If the answer is “yes” then you MUST know that information. If the answer is “no” then do NOT worry about it! Do NOT start looking at Nelson’s, Harriet Lane, Google, etc. It’s a black hole that you must avoid because it will only overwhelm you, and it will keep you from the two main goals of knowing the PBR CONTENT COLD and PRACTICING tons of questions to master your test-taking technique!

Remember, the AAP writes PREP®, the ABP writes the boards. Going through three to four years of PREP® is great, but keep in mind that the resource is great for CME. Any single year of PREP® questions is not designed to be a stand-alone study guide for the ABP. The questions are EXCELLENT for practicing and mastering your test-taking technique, but your highest-yield information will come from the PBR study guides and systems. If you need MORE practice questions, you can get discounted practice questions by visiting www.pediatricsboardreview.com/tools.

Did you answer a question incorrectly because of a TECHNIQUE issue? Did you add extra information and assumptions to the question or the answers that led you to the wrong answer? Did you spend too much time on a question even though it was clear that you didn’t have the knowledge to answer it? Did the question-writer trick you with a distractor? Did the question writer trick you with an English question instead of a clinical question? Did you get anxious or nervous under a timed mock exam? Did you often get stuck between seemingly similar answer choices? Are you still confused about why the answer you chose is wrong?

Make notes about the kinds of issues you’re having and try to figure out solution and strategies to avoid similar pitfalls in the future. If you notice that TECHNIQUES-BASED PROBLEMS creeping in over and over again, you need to seek out help through the PBR Test-Taking Strategies & Coaching course – www.pediatricsboardreview.com/strategies.

5. EXTREMELY Important Test Day Tips: PLAN to be successful. You will find two links below. The first breaks down the number of questions, time per block, etc. The second is a list of excellent PBR articles.

www.pediatricsboardreview.com/examday
www.pediatricsboardreview.com/category/test-day-tips
WE’VE GOT YOU TAKEN CARE OF!

We have a TON of guidance on how you can schedule your study time. Since PBR is of benefit to pediatricians at all different levels, I’ve tailored my recommendations accordingly below.

EVERYONE MUST recognize the difference between clinical practice and what the ABP would want you to do on the exam. The exam is filled with answer choices that sound like they would be great options in practice, but unless you know what “the book” says, you will have to simply roll the dice.

For anyone taking the Initial Certification exam, recognize that the pass rates are DRAMATICALLY LOWER than the USMLE Step Exams. In the 2008–2009 timeframe the pass rate for the USMLE exams was in the 90s while the pass rate for the ABP initial certification exam was in the 70s! Our members’ pass rate for first-time test takers of the ABP exams is estimated to be > 95%! So, stay focused on your PBR!

For anyone taking the pediatric Maintenance of Certification (MOC) exam, you’re in luck! The national pass rate is in the mid-90s for first-time test takers, but the PBR has had multiple years of pass rates that have been 100% for practicing general pediatricians!

* ARE YOU A RESIDENT? Simply familiarizing yourself with everything in the PBR content before you graduate will dramatically increase your chances of passing the boards.

While on subspecialty rotations, READ and KNOW the associated PBR chapter. While on general inpatient or outpatient rotations, focus on the rest of the book, and take just 15 minutes per day to read the QUICK and high-yield topics about your patients. Pace yourself so that you can get through the material at least once per year. That’s it! If you do that, your in-training scores will skyrocket and you will DESTROY the boards.

* ARE YOU TAKING THE INITIAL EXAM FOR THE FIRST TIME? If you have never taken the pediatric boards before and you have never come close to failing a medical board exam (average or above average board scores), visit the following PBR article for a detailed study schedule:

www.pediatricsboardreview.com/Schedule

* HAVE YOU EVER FAILED A MEDICAL BOARD EXAM (OR COME CLOSE)? If you were categorized as being “at risk” of failing based on your in-training exam scores, or if you have ever failed ANY medical board exam, or if you scored below the national average on your USMLE exams, visit the following PBR article for detailed instructions on how you can avoid failing your next attempt at the pediatric boards:

www.pediatricsboardreview.com/Schedule-Failed

* ARE YOU STUDYING FOR THE MOC? If you are taking the pediatric recertification exam then your goal should be to get through the PBR materials at least twice and to do at least 550 practice questions. For a video on how to get 200 FREE ABP questions scroll to the bottom of this article (for board-certified pediatricians only after logging into the ABP website):

www.pediatricsboardreview.com/ABP

* ARE YOU STUDYING FOR MOCA-PEDS? For the “at home,” MOCA-Peds questions, the plan is simple. Use the MOCA-PBR Study Guide & Test Companion. Go through our concise summaries of the most current year’s Learning Objectives in detail one time. It may only take you a single day! Since MOCA-PBR is setup to be an efficient test companion to help you with your open book exam, keep it open as you do your MOCA-Peds questions. Review your MOCA-PBR study guide once per quarter. That’s it!

www.pediatricsboardreview.com/MOCA
**PBR MEMORY AIDS - USING MNEMONICS AND PEGS**

**MNEMONICS:** Mnemonics are memory aids that assist in helping you recall something. They are used throughout this study guide to help you study in a more focused and **EFFICIENT** manner. Not all of them will work for you, but many will. At the time of the exam you WILL use many of the mnemonics in this book to help you answer questions. If you’re lucky, you might even get a smile on your face as you think about me acting like a bit of a fool in some of the videos from the [PBR Online Video Course](www.pediatricsboardreview.com/videos).

**PEGS:** Memory “pegs” are typically used to help you remember a list of items. By having 20 pre-memorized pegs that represent the numbers 1–20, you can easily “peg” items to those numbers. For example, in the PEG system outlined in this guide, a CAT symbolizes the number 9 (since cats are said to have “nine lives”).

So, if you are trying to memorize a grocery list of 10 items and one of those items is a gallon of milk, then the 9th item could be tied to an image, or a story, about a cat. It could be as simple as visualizing a funky looking BLACK CAT that has white legs drinking from an orange bowl of MILK. The white legs and orange bowl are simply thrown in to add color and imagination. Other strategies would include the use of disproportional size, the use of action, or the use of sound. The crazier the image, or story, the better!

Please note that some of the pegs in this guide will be used in the high-yield mnemonics in this book. Please look through them a few times to see if you can get the hang of it. If you can, then you might even be able to start creating some of your OWN fun and interesting mnemonics. If you cannot, it’s okay. Move on since there are only a handful of mnemonics that use one of the pegs listed here. Plus, if I do use a peg, I usually try to remind you of the peg association in the book.

Do you have ideas on how to make the pegs or mnemonics in this book more useful?

Please consider sharing your thoughts in the private, members’ only community called the [PBR Facebook CREW](www.pediatricsboardreview.com/ERROR)! You can also submit them directly to us for consideration through our errors and clarifications portal:
<table>
<thead>
<tr>
<th>#</th>
<th>USE THIS PEG</th>
<th>DESCRIPTIONS AND EXPLANATIONS OF PEGS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>TREE TRUNK</td>
<td>Imagine the number 1 looking like a huge, brown tree trunk with limbs full of green foliage sitting at the top of a lush, green hilltop.</td>
</tr>
<tr>
<td>2</td>
<td>LIGHT SWITCH</td>
<td>A light switch has 2 positions (ON &amp; OFF). Use a switch OR a bulb for “2”.</td>
</tr>
<tr>
<td>3</td>
<td>STOOL</td>
<td>Imagine a dark, cherry wood stool with 3 legs.</td>
</tr>
<tr>
<td>4</td>
<td>CAR</td>
<td>Cars have FOUR doors and FOUR wheels.</td>
</tr>
<tr>
<td>5</td>
<td>GLOVE or HAND</td>
<td>A glove has 5 fingers. Consider making Michael Jackson’s shiny glove your peg for the number FIVE.</td>
</tr>
<tr>
<td>6</td>
<td>GUN</td>
<td>Another name for a gun is a 6-shooter (since guns used to only hold 6 bullets). GUNS also kill people and put them “6 feet under” the ground.</td>
</tr>
<tr>
<td>7</td>
<td>DICE or CARDS</td>
<td>Lucky number 7! Think Vegas, think craps, think gambling with dice or cards!</td>
</tr>
<tr>
<td>8</td>
<td>ICE SKATE</td>
<td>Ice skaters are known for performing a move called the figure 8. Eight also rhymes with skate.</td>
</tr>
<tr>
<td>9</td>
<td>CAT</td>
<td>Ever heard of the phrase, “Cats have nine lives”?</td>
</tr>
<tr>
<td>10</td>
<td>BOWLING BALL or BOWLING PINS</td>
<td>The goal of bowling is to knock down 10 pins.</td>
</tr>
<tr>
<td>11</td>
<td>AMERICAN FOOTBALL or GOAL POST</td>
<td>In American football, a field goal occurs when a football is kicked through two, white, vertical uprights (the goal post). A goal post looks like the number 11.</td>
</tr>
<tr>
<td>12</td>
<td>EGGS</td>
<td>Eggs usually come in a carton that contains a dozen (12) eggs.</td>
</tr>
<tr>
<td>13</td>
<td>HOCKEY MASK</td>
<td>Unlucky number 13 and the unlucky day/movie Friday the 13th. The main character in the movie Friday the 13th is Jason, a hockey-mask-wearing killer.</td>
</tr>
<tr>
<td>14</td>
<td>ROSE or CHOCOLATE HEART</td>
<td>February 14th is Valentine’s Day! So think of a long-stemmed, red ROSE or perhaps a big CHOCOLATE HEART.</td>
</tr>
<tr>
<td>15</td>
<td>PAYCHECK</td>
<td>You get to give the IRS a huge chunk of your PAYCHECK every single year on TAX-DAY! APRIL 15th. Welcome to healthcare. 😊</td>
</tr>
<tr>
<td>16</td>
<td>DRIVER’S LICENSE</td>
<td>Age at which you get a driver’s license. Other pegs to consider include CANDLES, CANDY, or a BIRTHDAY CAKE for “Sweet SIXTEEN.”</td>
</tr>
<tr>
<td>17</td>
<td>MAGAZINE</td>
<td>There is a teen magazine called “SEVENTEEN.”</td>
</tr>
<tr>
<td>18</td>
<td>VOTING BOOTH</td>
<td>Age when you become a legal adult in the U.S. and are allowed to VOTE.</td>
</tr>
<tr>
<td>19</td>
<td>KNIGHTING</td>
<td>Imagine a “KNIGHTING” ceremony (sounds like 19) or a KNIGHT.</td>
</tr>
<tr>
<td>20</td>
<td>CIGARETTES</td>
<td>A pack of CIGARETTES has 20 cigarettes in it.</td>
</tr>
</tbody>
</table>

There are TONS of mnemonics throughout PBR. Many will seem brilliant. Others may not work for you at all. If that happens, please CREATE YOUR OWN. It’s initially intimidating but gets much easier with time.

Click here to read PBR’s article on mnemonics: [www.pbrlinks.com/MNEMONICS](http://www.pbrlinks.com/MNEMONICS)
GETTING THE MOST OUT OF THE PBR FORMAT

* **GRAY HIGHLIGHTING**: In the PBR hardcopy resources, gray highlighting is used over a word, phrase or chapter title to feature content that you **MUST KNOW**! These are very high-yield topics and are likely to be seen on the exam as an answer choice. PBR’s online books may have this content in red text or yellow highlighting.

* **DOUBLE TAKE**: You will **LOVE THIS**! A “DOUBLE TAKE” alert accompanies topics that are in the book multiple times. Medicine ties together. Ordinarily, that results in flipping back and forth between chapters. Double Take is a PBR-specific system used to **increase efficiency** by reducing the flipping back and forth between related (or similar) topics. Most of these topics tend to be very high-yield.

* **NAME ALERTS**: Many disease names sound very similar (e.g., Condyloma Lata versus Condyloma Acuminata, or Shwachman-Diamond Syndrome versus Diamond-Blackfan Anemia). NAME ALERTS serve as reminders to look for these subtle differences.

* **ABBREVIATIONS**: Some disorders are discussed using their abbreviations while others are discussed with their proper names. When searching for a topic online you should do a search for both. If you encounter an unfamiliar acronym, try this tool: www.AcronymFinder.com

* **MNEMONICS**: If you’re much smarter than me, you don’t need these. If you have an average memory, like me, you MUST learn to take advantage of memory aids. They can dramatically **increase your efficiency** as you journey to retain thousands of bits of information. The PBR mnemonics may or may not work for you, but many of them should serve as excellent examples of the various types of memory aids you can begin to create. As a tip, always use as much action, color, exaggeration and “crazy” as possible.

* **PEARLS**: These are bits of information that help tie key concepts together for you. Members **LOVE THEM**! Here’s a PEARL for you. 😊 There are only a finite number of ways that the ABP can test you on a disease process. Some PEARLS will show you how information could be presented on the exam.

**PBR ERRORS**

Are there errors in the PBR? Of course there are! But I also update the PBR every year with new recommendations and guidelines. I’m able to do this because of YOUR support. If you notice ANY error in the PBR materials (e.g., incorrect spelling, grammar, incomplete sentence, contradictory information, etc.), **PLEASE visit the following link to submit the error**:

www.pediatricsboardreview.com/ERROR

Please **DO NOT email individual errors** or clarification requests to me. It’s WAY too overwhelming. If you have MULTIPLE possible errors, send us a Word document. I LOVE the members who do that!!

Also, because it’s impossible for me to respond to every submission individually, I frequently release **PBR CONTENT & CLARIFICATION GUIDES** to active PBR members (FREE). **Please note that THIS IS NOT A GUARANTEED SERVICE, but it is something I have done every single year**. Your submissions drive this process and allow me to providing you with updated pediatric knowledge year after year.
PBR TOPIC CLARIFICATION OR CONFUSION

If you are struggling with a concept, get help from the members only PBR Facebook CREW! It's EXTREMELY active (especially starting around June or July of every year). If you find a concept explained poorly and think the PBR needs a revision, feel free to use the error portal to bring it to my attention:

www.pediatricsboardreview.com/ERROR

PBR IMAGE LINKS

The image links in the PBR lead to PHENOMENAL images throughout the World Wide Web! BUT, these images are located on NON-PBR websites. Some websites go out of business. When this happens, we simply need to replace the image. Typically, no more than 3% of the links within PBR are “bad.” We have an awesome system that allows us to change the link on our end but we need your help when a link “dies.” Simply submit any “bad link” through the portal below and we'll take care of it!

www.pediatricsboardreview.com/BADLINK

PBR & AVSAR – THE NON-PROFIT CONNECTION

WHAT IS AVSAR? I started a non-profit organization, named AVSAR Inc., at the age of 27 to help support existing non-profit organizations that were already doing great work in slum areas.

After medical school, I spent one year volunteering in the slums of Mumbai. The need for help was profound and conditions were shocking. Six-year-old children worked as child laborers, using their small, agile fingers to make beautifully detailed handiwork. Others spent their days looking for recyclables in garbage dumps.

I bonded with these children. I then created a non-profit organization under the U.S. IRS, called AVSAR. We recruited volunteers from around the world (college students, dentists, doctors, MBA students) to “help where the help was needed.” My personal success stories included the creation of an efficient Western-style clinic for child laborers and the establishment of an adolescent sex-education curriculum.

AVSAR helped thousands of people, but the core volunteer program was shut down in my last year of residency due to lack of funding and my 80-hour workweeks. Even so, the projects and systems created by volunteers live on and continue to help thousands more every year.

In order to re-launch AVSAR, we needed funding. Through Pediatrics Board Review (a private company) I donated over $50,000 to AVSAR before ever paying myself a penny.

It’s because of my passion for helping people that I created AVSAR, and the passion drives me to help pediatricians through the PBR EXPERIENCE.

I hope that you’re able to use the many resources within the PBR Certification System and the PBR community to EFFICIENTLY study and pass your exam. I very much look forward to being a part of your success. Now let’s get started!
PRODUCT REGISTRATION

As mentioned on the PBR site, our first-time pass guarantee applies to anyone taking an ABP initial or recertification exam for the first time. “Money Back” requests may be made within 30 days of the score release date. The original PBR purchase must have been made at least 45 days prior to the exam. Submission of the product registration form is required for the money back pass guarantee and the form must be submitted within 90 days of your purchase and before you take the exam. For complete details, please visit:

www.pediatricsboardreview.com/guarantee

Visit the following link to register your product(s):

www.pediatricsboardreview.com/register

If you made an official purchase that was initiated through the PBR website but resulted in your purchase being processed through Lulu.com, Amazon.com, or another authorized distributor of PBR resources, please contact us through www.pediatricsboardreview.com/contact so that you can send us a copy of your receipt.
CHAPTER LIST

INTRODUCTION TO THE PBR EXPERIENCE! (Please Read This!!) 3
CHAPTER LIST 20
Chapter 1: ADOLESCENT MEDICINE 57
Chapter 2: ENDOCRINOLOGY 74
Chapter 3: OB/GYN AND SOME STDs 88
Chapter 4: ALLERGY & IMMUNOLOGY 96
Chapter 5: CARDIOLOGY 116
Chapter 6: DERMATOLOGY 141
Chapter 7: NEONATOLOGY 163
Chapter 8: DEVELOPMENTAL MILESTONES 175
Chapter 9: EMERGENCY MEDICINE & TOXICOLOGY 191
Chapter 10: VITAMIN AND NUTRITIONAL DISORDERS 206
Chapter 11: GASTROENTEROLOGY 214
Chapter 12: PHARMACOLOGY & DRUG PEARLS 230
Chapter 13: OPHTHALMOLOGY 235
Chapter 14: GENETICS & INHERITED DISEASES 238
Chapter 15: HEMATOLOGY & ONCOLOGY 260
Chapter 16: INFECTIOUS DISEASES 281
Chapter 17: VACCINES, IMMUNIZATIONS AND CONTRAINDICATIONS 321
Chapter 18: INBORN ERRORS OF METABOLISM & MISCELLANEOUS METABOLIC DISORDERS 328
Chapter 19: ACID-BASE DISORDERS 343
Chapter 20: FLUIDS & ELECTROLYTES 351
Chapter 21: NEPHROLOGY 358
Chapter 22: STATISTICS 367
Chapter 23: NEUROLOGY 374
Chapter 24: ORTHOPEDICS AND SPORTS MEDICINE 389
Chapter 25: RHEUMATOLOGY 398
Chapter 26: PULMONOLOGY 402
Chapter 27: PSYCHIATRY AND SOME SOCIAL ISSUES 413
Chapter 28: ETHICS IN PEDIATRICS 420
Chapter 29: PATIENT SAFETY AND QUALITY IMPROVEMENT 426
Chapter 30: PEDIATRIC LAB VALUES 430
Chapter 31: PEDIATRIC VITAL SIGNS 432
Index 435
# Detailed Table of Contents

## Introduction to the PBR Experience! (Please Read This!!) .......................................................... 3

- Why Does the PBR Certification System Work? .............................................................................. 4
- What Are the 7+ Resources That You Have Access To? ................................................................. 5
- Did You Know That I Failed the Boards? ............................................................................................ 11
- The PBR Efficiency Blueprint ............................................................................................................ 12
- Study Schedule: Resident? First-Time? Failed? MOC? MOCA? We've Got You Taken Care Of! ........ 14
- PBR Memory Aids - Using Mnemonics and PEGs ............................................................................. 15
- Getting the Most Out of the PBR Format .......................................................................................... 17
- PBR Errors ........................................................................................................................................ 17
- PBR Topic Clarification or Confusion .................................................................................................. 18
- PBR Image Links .................................................................................................................................. 18
- PBR & AVSAR - The Non-Profit Connection ....................................................................................... 18
- Product Registration ............................................................................................................................ 19

## Chapter List ....................................................................................................................................... 20

### Chapter 1: Adolescent Medicine .................................................................................................... 57

- Puberty ............................................................................................................................................... 57
  - Normal Puberty Timeline .................................................................................................................. 57
  - Normal Puberty Pearls ...................................................................................................................... 58
  - Height ............................................................................................................................................... 58
  - Growth Spurts ................................................................................................................................... 58
  - Thelarche, Adrenarche Then Menarche ............................................................................................ 58
  - Age Range of Normal Puberty .......................................................................................................... 58
  - Estrogen .......................................................................................................................................... 59
  - Androgens ........................................................................................................................................ 59
  - Breast Masses – Fibroadenomas and Fibrocystic Change ............................................................... 59
- Puberty Gone Haywire ......................................................................................................................... 59
  - Precocious Puberty .......................................................................................................................... 59
  - Gonadotropin-Independent Precocious Puberty ............................................................................ 60
  - Precocious Puberty in Girls .......................................................................................................... 60
  - Precocious Puberty in Boys ........................................................................................................... 60
  - Adrenal Androgens ......................................................................................................................... 60
  - Premature Adrenarche .................................................................................................................... 60
  - Congenital Adrenal Hyperplasia (CAH) Intro .................................................................................. 61
  - Tropic .............................................................................................................................................. 61
  - Premature Thelarche ....................................................................................................................... 61
  - Premature Adrenarche in Girls ....................................................................................................... 61
- Delayed Puberty ................................................................................................................................. 62
  - Delayed Puberty Definition and Pearls ........................................................................................... 62
  - Primary and Secondary Hypogonadism ......................................................................................... 62
  - Prolactinoma ................................................................................................................................... 62
  - Constitutional Delay of Puberty ....................................................................................................... 62
GRAVES DISEASE = HYPERthyroidism

TESTICULAR CANCER
HYDROCELE
SPERMATOCELE
VARICOCELE
INGUINAL HERNIA

TESTICULAR AND PENILE ISSUES
TESTICULAR PAIN
TESTICULAR TORSION
TORSION OF THE APPENDIX TESTES OR EPIDIDYMIS
EPIDIDYMIS
ORCHITIS
BALANITIS
PHIMOSIS
PENILE EPIDERMAL INCLUSION CYSTS

Chapter 2: ENDOCRINOLOGY
THYROID DISORDERS—KEY TERMINOLOGY
HYPOTHYROIDISM
THYROXINE-BINDING GLOBULIN DEFICIENCY
HYPOTHYROIDISM & CONGENITAL HYPOTHYROIDISM
THYROGLOSSAL DUCT CYST
THYROID NODULES
HYPERTHYROIDISM
GRAVES DISEASE = HYPERthyroidism
NEONATAL THYROTOXICOSIS (AKA NEONATAL GRAVES DISEASE)
CALCIUM AND VITAMIN D RELATED DISORDERS
(DOUBLE TAKE) HYPERCALCEMIA
(DOUBLE TAKE) HYPOCALCEMIA
VITAMIN D & ITS EVALUATION
(DOUBLE TAKE) RICKETS
(DOUBLE TAKE) RICKETS OF PREMATURITY (AKA OSTEOPENIA OF PREMATURITY)
(DOUBLE TAKE) LIVER DYSFUNCTION
ADRENAL DISORDERS
NORMAL ADRENAL STEROID SYNTHESIS PATHWAY
CUSHINGS SYNDROME (AKA CUSHING'S SYNDROME) ................................................................. 80
ADDISON DISEASE (AKA ADDISON'S DISEASE) ................................................................ 80
CONGENITAL ADRENAL HYPERPLASIA (CAH) ..................................................................... 81
21-HYDROXYLASE DEFICIENCY ........................................................................................... 82
11-HYDROXYLASE DEFICIENCY ........................................................................................... 82
17-HYDROXYLASE DEFICIENCY ........................................................................................... 82
PANHYPOPITUITARISM ........................................................................................................... 83

AMBIGUOUS GENITALIA & DISORDERS OF SEX DEVELOPMENT (DSD) ................................. 83
AMBIGUOUS GENITALIA ........................................................................................................ 83
MICROPRENIS ........................................................................................................................ 83
ANDROGEN INSensitivity SYNDROME (AKA TESTICULAR FEMINIZATION) ...................... 84
MULLERIAN INHIBITOR HORMONE DEFICIENCY (AKA MIH RECEPTOR DEFECT) ............... 84
MALE PSEUdOHERMaphRODISM ......................................................................................... 84
TRUE HERMaphRODISM ........................................................................................................ 84
(DOUBLE TAKE) TURNER SYNDROME (AKA TURNERS) ...................................................... 84
(DOUBLE TAKE) KLINEFELTER SYNDROME (AKA KLINEFELTER'S) .................................... 85

DIABETES MELLITUS .............................................................................................................. 85
HONEYMOON PERIOD .......................................................................................................... 85
HEMOglobIN A1C .................................................................................................................. 85
SOMOGYI EFFECT & DAWN PHENOMENA ...................................................................... 85
HYPOglyCEmIA ..................................................................................................................... 86
DIABETIC KETOACIDOSIS (DKA) AND HYPERsMOLAR HYPERGLYcEMIC STATE (HHS) ....... 86
(DOUBLE TAKE) PSEUDOHYPONATREMIA ...................................................................... 87
ACANTHOSIS NIGRICANS .................................................................................................... 87
METABOLIC SYNDROME ...................................................................................................... 87

Chapter 3: OB/GYN AND SOME STDs ...................................................................................... 88

OBSTETRICS ............................................................................................................................ 88
ORAL CONTRACEPTIVE PILLS (OCPs) ............................................................................. 88
CONCEPTION ......................................................................................................................... 88
PRENATAL CARE (PNC) ........................................................................................................ 88
(DOUBLE TAKE) GROUP B BETA HEMOLYTIC STREPTOCOCCUS (GBS) ......................... 88
GESTATIONAL DIABETES MELLITUS ..................................................................................... 88
SERUM ALPHA-FETOPROTEIN (AFP) SCREEN .................................................................... 88
CHORIONIC VILLUS SAMPLING .......................................................................................... 88
AMNIoCENTESIS .................................................................................................................... 89
MATERNAL SERUM TRIPLE SCREEN AND QUADRUPLE SCREEN .................................. 89
FIRST TRIMESTER SCREENING OPTIONS FOR DOWNS SYNDROME ............................... 89
NON-STRESS TEST .............................................................................................................. 89
BIOPHYSICAL PROFILE (BPP) .............................................................................................. 89
STRESS TEST (AKA CONTRACTION STRESS TEST) .......................................................... 89
FOLIC ACID .......................................................................................................................... 90
LUNG MATURITY ................................................................................................................ 90
MONOZOYGOTIC TWINS .................................................................................................... 90
DIZYGOTIC TWINS .............................................................................................................. 90

GYNECOLOGY & SOME STDs ............................................................................................. 91
PARENTAL CONSENT .......................................................................................................... 91
(DOUBLE TAKE) CHLAMYDIA TRACHOMATIS ................................................................ 91
NEISSERIA GONORRHEA ..................................................................................................... 91
<table>
<thead>
<tr>
<th>Condition</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>NONGONOCOCAL URETHRITIS</td>
<td>92</td>
</tr>
<tr>
<td>PELVIC INFLAMMATORY DISEASE (PID)</td>
<td>92</td>
</tr>
<tr>
<td>FITZ-HUGH CURTIS SYNDROME (AKA PERI-HEPATITIS)</td>
<td>92</td>
</tr>
<tr>
<td>DOUBLE TAKE SYPHILIS</td>
<td>92</td>
</tr>
<tr>
<td>BACTERIAL VAGINOSIS (AKA GARDNERELLA)</td>
<td>93</td>
</tr>
<tr>
<td>DOUBLE TAKE TRICHOMONAS VAGINALIS</td>
<td>93</td>
</tr>
<tr>
<td>DOUBLE TAKE HERPES SIMPLEX VIRUS (HSV)</td>
<td>93</td>
</tr>
<tr>
<td>VAGINAL FOREIGN BODY</td>
<td>94</td>
</tr>
<tr>
<td>ULCERS VERSUS DISCHARGE</td>
<td>94</td>
</tr>
<tr>
<td>VAGINAL DISCHARGE AT BIRTH</td>
<td>94</td>
</tr>
<tr>
<td>LABIAL ADHESIONS (PENILE ADHESIONS for boys)</td>
<td>94</td>
</tr>
<tr>
<td>BARTHOLIN GLAND CYSTS</td>
<td>94</td>
</tr>
<tr>
<td>SEXUAL ABUSE IN GIRLS</td>
<td>94</td>
</tr>
<tr>
<td><strong>Chapter 4: ALLERGY &amp; IMMUNOLOGY</strong></td>
<td>96</td>
</tr>
<tr>
<td>HAY FEVER, FOOD ALLERGIES, AND ALLERGIC RASHES</td>
<td>96</td>
</tr>
<tr>
<td>HAY FEVER/ALLERGIC RHINITIS</td>
<td>96</td>
</tr>
<tr>
<td>CHRONIC RHINITIS</td>
<td>96</td>
</tr>
<tr>
<td>VASOMOTOR RHINITIS</td>
<td>96</td>
</tr>
<tr>
<td>SKIN TESTING</td>
<td>96</td>
</tr>
<tr>
<td>IMMUNOTHERAPY</td>
<td>96</td>
</tr>
<tr>
<td>RADIOALLERGOSORBENT TESTING (AKA RAST)</td>
<td>96</td>
</tr>
<tr>
<td>FOOD ALLERGIES</td>
<td>97</td>
</tr>
<tr>
<td>PEANUT ALLERGY</td>
<td>97</td>
</tr>
<tr>
<td>FOOD “SENSITIVITIES”</td>
<td>97</td>
</tr>
<tr>
<td>(DOUBLE TAKE) ATOPIC DERMATITIS (ECZEMA)</td>
<td>97</td>
</tr>
<tr>
<td>URTICARIA (HIVES)</td>
<td>98</td>
</tr>
<tr>
<td>CHRONIC URTICARIA (&gt; 6 weeks)</td>
<td>98</td>
</tr>
<tr>
<td>(DOUBLE TAKE) C1 ESTERASE DEFICIENCY (HEREDITARY ANGIOEDEMA)</td>
<td>98</td>
</tr>
<tr>
<td>ARTIFICIAL FOOD COLORING</td>
<td>98</td>
</tr>
<tr>
<td>(DOUBLE TAKE) ANAPHYLAXIS</td>
<td>98</td>
</tr>
<tr>
<td>FIXED DRUG REACTION</td>
<td>99</td>
</tr>
<tr>
<td>TRUE MILK PROTEIN ALLERGY</td>
<td>99</td>
</tr>
<tr>
<td>(DOUBLE TAKE) FOOD PROTEIN INDUCED ENTEROPATH</td>
<td>99</td>
</tr>
<tr>
<td>(DOUBLE TAKE) FOOD PROTEIN INDUCED PROCTITIS/COLITIS</td>
<td>100</td>
</tr>
<tr>
<td>(DOUBLE TAKE) FOOD PROTEIN INDUCED ENTEROCOLITIS SYNDROME (FPIES)</td>
<td>100</td>
</tr>
<tr>
<td>(DOUBLE TAKE) LACTOSE INTOLERANCE (AKA LACTASE DEFICIENCY)</td>
<td>100</td>
</tr>
<tr>
<td>IMMUNOLOGY</td>
<td>101</td>
</tr>
<tr>
<td>EPINEPHRINE PEN</td>
<td>101</td>
</tr>
<tr>
<td>TYPES OF HYPERSENSITIVITY REACTIONS</td>
<td>101</td>
</tr>
<tr>
<td>(DOUBLE TAKE) ANAPHYLAXIS</td>
<td>101</td>
</tr>
<tr>
<td>DRUG HYPERSENSITIVITY SYNDROME</td>
<td>102</td>
</tr>
<tr>
<td>ANTICONVULSANT HYPERSENSITIVITY SYNDROME</td>
<td>102</td>
</tr>
<tr>
<td>IGE MEDIATED MEDICATION HYPERSENSITIVITY</td>
<td>102</td>
</tr>
<tr>
<td>PENICILLIN (PCN) ALLERGY</td>
<td>102</td>
</tr>
</tbody>
</table>
SERUM SICKNESS ................................................................................................................. 102
BEE STINGS ............................................................................................................................ 103
POISON IVY, POISON OAK, & POISON SUMAC ....................................................................... 103
TYPES OF IMMUNITY ............................................................................................................... 103
CD4 CELL ................................................................................................................................ 103
CD8 CELL ................................................................................................................................ 103
NEUTROPENIA .......................................................................................................................... 103
PEARLS/MNEMONICS FOR BRUTON’S, SCID, AND HYPER-IGM .................................................... 105
PNEUMOCYSTIS CARINII PNEUMONIA (PCP) ........................................................................... 105
PEDIATRIC LYMPHOCYTE COUNTS ............................................................................................ 105
T-CELL DEFICIENCIES AND COMBINED T-CELL/B-CELL DEFICIENCIES .................................... 105
SEVERE COMBINED IMMUNEDEFICIENCY (SCID) .................................................................. 106
MNEMONICS & PEARL FOR SCID AND WISKOTT-ALDRICH ...................................................... 106
(DOUBLE TAKE) WISKOTT-ALDRICH SYNDROME .................................................................. 107
22Q11.2 DELETION SYNDROME = DIGEORGE SYNDROME OR DIGEORGE LOCUS ......................... 107
(DOUBLE TAKE) ATAXIA TELANGIECTASIA .............................................................................. 108
COMMON VARIABLE IMMUNE DEFICIENCY (CVID) .................................................................. 108
HYPER IGM SYNDROME ............................................................................................................ 108
B-CELL DEFICIENCIES .............................................................................................................. 109
PEARLS: .................................................................................................................................... 109
AGAMMAGLOBULINEMIA (AKA X-LINKED AGAMMAGLOBULINEMIA, AKA BRUTON’S AGAMMAGLOBULINEMIA) ........................................................................................................ 110
TRANSIENT HYPOGAMMAGLOBULINEMIA OF INFANCY .......................................................... 110
IGA DEFICIENCY ....................................................................................................................... 110
HYPER-IGE SYNDROME ........................................................................................................... 110
COMPLEMENT DEFICIENCIES ................................................................................................... 111
GENERAL PEARLS .................................................................................................................... 111
C1–4 COMPLEMENT DEFICIENCY ............................................................................................ 111
C5–9 COMPLEMENT DEFICIENCY ............................................................................................ 111
(DOUBLE TAKE) C1 ESTERASE DEFICIENCY (HEREDITARY ANGIOEDEMA) ................................. 111
CONDITIONS WITH LOW COMPLEMENT LEVEL ........................................................................ 111
NEUTROPHIL DISORDERS/PHAGOCYTIC ISSUES ...................................................................... 112
NEUTROPENIA DEFINITIONS .................................................................................................... 112
CHRONIC BENIGN NEUTROPENIA .......................................................................................... 112
TRANSIENT NEUTROPENIA ...................................................................................................... 112
CYCLIC NEUTROPENIA ............................................................................................................. 112
SEVERE CONGENITAL NEUTROPENIA (AKA KOSTMANN SYNDROME) ......................................... 112
(DOUBLE TAKE) CHRONIC GRANULOMATOUS DISEASE (CGD) = SERRATIA ............................... 113
LEUKOCYTE ADHESION DEFICIENCY (AKA LEUKOCYTE ADHESION DEFECT) ......................... 113
CHEDIAC-HIGASHI SYNDROME .................................................................................................. 113
(DOUBLE TAKE) SHWACHMAN-DIAMOND SYNDROME ............................................................. 114
(DOUBLE TAKE) DIAMOND-BLACKFAN ANEMIA ....................................................................... 114
IMMUNOLOGY TESTS, A RECAP .............................................................................................. 115
SKIN TESTING ........................................................................................................................... 115
TITERS ........................................................................................................................................ 115

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Chapter 5: CARDIOLOGY

EKG FINDINGS

RIGHT ATRIAL ENLARGEMENT (RAE) ........................................... 116
LEFT ATRIAL ENLARGEMENT (LAE) ........................................... 116
NEGATIVE T WAVE .................................................................. 116
PREMATURE ATRIAL COMPLEXES (PACs) ................................. 116
PREMATURE VENTRICULAR COMPLEXES (PVCs) ......................... 116
EKG CHANGES DUE TO ELECTROLYTE DISTURBANCES ............... 116
NORMAL HEART RATES ......................................................... 117
SINOATRIAL NODE (SA NODE), ATRIOVENTRICULAR NODE (AV NODE) and VENTRICULAR INTRINSIC RATES ......................................................... 117
ARRHYTHMIAS ...................................................................... 117
BRUGADA SYNDROME ............................................................ 117
SUPRAVENTRICULAR TACHYCARDIA (SVT) ................................. 118

WOLFF-PARKINSON-WHITE SYNDROME (WPW) AND AV REENTRANT TACHYCARDIA (AVRT) .... 118

AV NODE REENTRANT TACHYCARDIA (AVNRT) .......................... 119
ADENOSINE AND VAGAL MANEUVERS ..................................... 119
ATRIAL TACHYCARDIAS ......................................................... 119
ATRIAL FIBRILLATION & ATRIAL FLUTTER ................................ 119
VENTRICULAR TACHYCARDIA (VT OR VTACH) ........................... 119
PROLONGED QT ....................................................................... 120
HEART BLOCKS (AV BLOCKS OR AVB) ..................................... 120
FIRST DEGREE AV BLOCK ........................................................ 120
SECOND DEGREE AV BLOCK ................................................... 120
THIRD DEGREE AV BLOCK = COMPLETE HEART BLOCK ........... 120
BUNDLE BRANCH BLOCKS ...................................................... 121
SEPTAL DEFECTS .................................................................. 121
CARDIAC SHUNT PEARLS & MNEMONICS ................................. 121
ATRIAL SEPTAL DEFECTS (ASD) ................................................ 121
VENTRICULAR SEPTAL DEFECTS (VSDS) ................................. 121
AV CANAL DEFECT .................................................................. 122
AV CANAL DEFECT & VSD ....................................................... 122
MURMURS & SPLITS .............................................................. 122
PATHOLOGIC MURMURS ......................................................... 122
MURMUR TERMINOLOGY ........................................................ 122
PULMONARY STENOSIS (PS) ..................................................... 123
MITRAL STENOSIS (MS) ............................................................ 123
TRICUSPID STENOSIS (TS) ....................................................... 123
AORTIC STENOSIS (AS) ............................................................ 123
MITRAL REGURGITATION (MR) .................................................. 123
MITRAL VALVE PROLAPSE (MVP) ............................................. 123
AORTIC REGURGITATION/INSUFFICIENCY (AR OR AI) ............... 123
RIGHT UPPER STERNAL BORDER (RUSB) MURMURS .................. 124
LEFT UPPER STERNAL BORDER (LUSB) MURMURS ................. 124
DIAGNOSING ENDOCARDITIS
TREATMENT OF ENDOCARDITIS
NATIVE VALVE ENDOCARDITIS
PROSTHETIC VALVE ENDOCARDITIS
PROPHYLAXIS FOR SUBACUTE BACTERIAL ENDOCARDITIS (SBE)
MISCELLANEOUS CARDIOLOGY
PULSUS PARADOXUS
PERICARDITIS
PERICARDIAL EFFUSIONS
MYOCARDITIS
EARLY CONGESTIVE HEART FAILURE
HYPERTROPHIC CARDIOMYOPATHY = HYPERTROPHIC OBSTRUCTIVE CARDIOMYOPATHY (HCM, HOCM)
CARDIOMEGALY AND HYPERTROPHY
CHEST PAIN
SVC SYNDROME
MEDIANALLY DISPLACED PMI
PEDIATRIC BLOOD PRESSURE GUIDELINES
CHOLESTEROL SCREENING = HYPERLIPIDEMIA SCREENING
FAMILIAL HYPERCHOLESTEROLEMIA

Chapter 6: DERMATOLOGY
GENERAL DERMATOLOGY
CONTACT DERMATITIS, A DIAPER RASH
DOUBLE TAKE CUTANEOUS CANDIDIASIS, A DIAPER DERMATITIS
DOUBLE TAKE ATOPIC DERMATITIS (ECZEMA)
NUMMULAR ECZEMA
DOUBLE TAKE ECZEMA HERPETICUM
SEBORRHEIC DERMATITIS (AKA CRADLE CAP)
PSORIASIS
GUTTATE PSORIASIS
DOUBLE TAKE LANGERHANS CELL HISTIOCYTOSIS (LCH) = HISTIOCYTOSIS X
RASHES THAT SPARE THE INGUINAL FOLDS
PRURITIC RASHES
KERATOSIS PILARIS
ЛИЧЕНИ СКЛЕРОЗОЗ
ЛИЧЕН СТРИАТУС
ALLERGIC CONTACT DERMATITIS, A TYPE IV HYPERSENSITIVITY SKIN RASH
DOUBLE TAKE BIOTIN/BIOTINIDASE DEFICIENCY
PAPULAR URTICARIA
VITILIGO

(NAME ALERT) ICHTHYOSIS VULGARIS
(NAME ALERT) LAMELLAR ICHTHYOSIS (AKA COLLODION BABY)
(NAME ALERT) HARLEQUIN ICHTHYOSIS
PYODERMA GANGRENOsum
DOUBLE TAKE ECTHYMA GANGRENOsum
<table>
<thead>
<tr>
<th>Condition</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Granuloma Annulare</td>
<td>145</td>
</tr>
<tr>
<td>Pitted Keratolysis</td>
<td>145</td>
</tr>
<tr>
<td>(Double Take) Dermatomyositis</td>
<td>145</td>
</tr>
<tr>
<td>Stevens-Johnson Syndrome (SJS) and Toxic Epidermal Necrolysis (TEN)</td>
<td>145</td>
</tr>
<tr>
<td>Erythema Multiforme</td>
<td>145</td>
</tr>
<tr>
<td>(Double Take) Neonatal Lupus</td>
<td>146</td>
</tr>
<tr>
<td>Rashes with Central Clearing (Pearl)</td>
<td>146</td>
</tr>
<tr>
<td>Rashes with Central Darkening/Target Lesions (PEARL)</td>
<td>146</td>
</tr>
<tr>
<td>Urticaria/Hives</td>
<td>146</td>
</tr>
<tr>
<td>Scleroderma</td>
<td>146</td>
</tr>
<tr>
<td>Dermoid cysts (aka Epidermoid cysts)</td>
<td>147</td>
</tr>
<tr>
<td>Comedonal Acne</td>
<td>147</td>
</tr>
<tr>
<td>Inflammatory Acne</td>
<td>147</td>
</tr>
<tr>
<td>Isotretinoin</td>
<td>147</td>
</tr>
<tr>
<td>(Double Take) Aphthous Ulcers</td>
<td>147</td>
</tr>
<tr>
<td><strong>Teeth Issues</strong></td>
<td>148</td>
</tr>
<tr>
<td>Tooth Timeline</td>
<td>148</td>
</tr>
<tr>
<td>Peg Teeth</td>
<td>148</td>
</tr>
<tr>
<td>Hutchinson Teeth</td>
<td>148</td>
</tr>
<tr>
<td>Tetracycline Teeth Staining</td>
<td>148</td>
</tr>
<tr>
<td>Fluorosis</td>
<td>148</td>
</tr>
<tr>
<td><strong>Vascular &amp; Pigmented Lesions</strong></td>
<td>148</td>
</tr>
<tr>
<td>Hemangiomas</td>
<td>148</td>
</tr>
<tr>
<td>(Double Take) PHACES Syndrome</td>
<td>149</td>
</tr>
<tr>
<td>(Double Take) Kasabach-Merritt Syndrome</td>
<td>149</td>
</tr>
<tr>
<td>Nevus Simplex</td>
<td>149</td>
</tr>
<tr>
<td>Port Wine Stains (PWS) (aka Nevus Flammeus)</td>
<td>149</td>
</tr>
<tr>
<td>Sturge-Weber Syndrome (SWS)</td>
<td>150</td>
</tr>
<tr>
<td><strong>Capillary Malformation Associations</strong></td>
<td>150</td>
</tr>
<tr>
<td>(Double Take) Klippel-Trenaunay Syndrome</td>
<td>150</td>
</tr>
<tr>
<td>(NAME ALERT) Klippel-Feil Syndrome</td>
<td>150</td>
</tr>
<tr>
<td>Congenital Melanocytic Nevus</td>
<td>151</td>
</tr>
<tr>
<td>McCune-Albright Syndrome (aka Polyostotic Fibrous Dysplasia)</td>
<td>151</td>
</tr>
<tr>
<td>Tuberous Sclerosis</td>
<td>151</td>
</tr>
<tr>
<td>Neurofibromatosis 1 (NF1)</td>
<td>151</td>
</tr>
<tr>
<td>Neurofibromatosis 2 (NF2)</td>
<td>152</td>
</tr>
<tr>
<td>Incontinentia Pigmenti</td>
<td>152</td>
</tr>
<tr>
<td>Hypohidrotic Ectodermal Dysplasia</td>
<td>152</td>
</tr>
<tr>
<td><strong>Infectious Skin Conditions</strong></td>
<td>153</td>
</tr>
<tr>
<td>(Double Take) Ecthyma Gangrenosum</td>
<td>153</td>
</tr>
<tr>
<td>Streptococcal Infections of the Groin</td>
<td>153</td>
</tr>
<tr>
<td>(Double Take) Cutaneous Candidiasis, a Diaper Dermatitis</td>
<td>153</td>
</tr>
<tr>
<td>Bullous Impetigo/Staph Scalded Skin Syndrome (SSSS)</td>
<td>153</td>
</tr>
<tr>
<td>Staphylococcus Epidermidis</td>
<td>154</td>
</tr>
<tr>
<td>Cellulitis</td>
<td>154</td>
</tr>
</tbody>
</table>
TINEA CORPORIS.................................................................................................................. 154
TINEA VERSICOLOR.............................................................................................................. 154
PITRIIASIS ROSEA................................................................................................................ 154
MOLLUSCUM CONTAGIOSUM............................................................................................... 154
**DOUBLE TAKE** HUMAN PAPILLOMA VIRUS (HPV)...................................................... 154

**CONDYLOMA LATUM** ........................................................................................................ 155
HERPES SIMPLEX VIRUSES 1 & 2 (HSV 1 & 2).................................................................... 155
**DOUBLE TAKE** HERPES SIMPLEX VIRUS ENCEPHALITIS (HSV ENCEPHALITIS) ....... 156
**DOUBLE TAKE** HERPES SIMPLEX VIRUS GINGIVOSTOMATITIS..................................... 156
**DOUBLE TAKE** ECZEMA HERPETICUM............................................................................ 156
**DOUBLE TAKE** BLUEBERRY MUFFIN SYNDROME......................................................... 156
SCABIES............................................................................................................................... 156
**DOUBLE TAKE** PEDICULOSIS CAPITIS (AKA HEAD LICE)........................................... 157
**DOUBLE TAKE** PEDICULOSIS PUBIS (AKA PUBLIC LICE or CRABS)......................... 157

**THE "ERYTHEMA" RASHES** .......................................................................................... 157
ERYTHEMA NODOSUM ........................................................................................................ 157
**DOUBLE TAKE** ERYTHEMA CHRONICUM MIGRANS.................................................... 157
**DOUBLE TAKE** ERYTHEMA MARGINATUM..................................................................... 158
**DOUBLE TAKE** ERYTHEMA INFEETIOSUM .................................................................... 158
ERYTHEMA TOUCICUM NEONATORUM................................................................................. 158
ERYTHEMA MULTIFORME..................................................................................................... 158

**THE NEWBORN RASHES** ............................................................................................ 159
MILIARIA RUBRA................................................................................................................. 159
MILLA ...................................................................................................................................... 159
SEBACEOUS HYPERPLASIA.................................................................................................. 159
ERYTHEMA TOUCICUM NEONATORUM................................................................................. 159
TRANSIENT NEONATAL PUSTULAR MELANOSIS............................................................. 159
NEONATAL ACNE (AKA NEONATAL CEPHALIC PUSTULOSIS)........................................... 160
INFANTILE ACNE ................................................................................................................. 160
LIVEDO RETICULARIS (AKA CUTIS MARMORATA)............................................................... 160

**ALOPECIA & HAIR FINDINGS** ...................................................................................... 160
ALOPECIA AREATA ............................................................................................................. 160
ALOPECIA TOTALIS............................................................................................................. 160
ALOPECIA UNIVERSALIS..................................................................................................... 160
**DOUBLE TAKE** ZINC DEFICIENCY ................................................................................. 160
**DOUBLE TAKE** ACRODERMATITIS ENTEROPATHICA................................................ 161
**DOUBLE TAKE** BIOTIN/BIOTINIDASE DEFICIENCY.................................................... 161
TELOGEN EFFLUVIUM .......................................................................................................... 161
TINEA CAPITIS (AKA RINGWORM)..................................................................................... 161
TRICHTOTILLOMANIA ........................................................................................................... 162
**DOUBLE TAKE** ESSENTIAL FATTY ACID DEFICIENCIES............................................ 162
APLASIA CUTIS CONGENITA ............................................................................................... 162

**Chapter 7: NEONATOLOGY** .......................................................................................... 163

WEIGHT, LENGTH, & HEAD CIRCUMFERENCE ................................................................. 163
NEWBORN WEIGHT............................................................................................................. 163
PREDICTED GROWTH RULES OF THUMB........................................................................ 163
INTRAUTERINE GROWTH RESTRICTION = INTRAUTERINE GROWTH RETARDATION = IUGR 163
HEAD CIRCUMFERENCE – MACROCEPHALY, HYDROCEPHALY, AND MICROCEPHALY ........................................ 164
NUTRITION, BREAST MILK, & FORMULA .................................................................................................. 164
NEONATAL POTASSIUM REQUIREMENTS ................................................................................................. 164
NEONATAL SODIUM REQUIREMENTS ....................................................................................................... 164
PROTEIN INTAKE ..................................................................................................................................... 164
NEONATAL CALORIC REQUIREMENT ......................................................................................................... 165
EXCLUSIVELY BREASTFED BABIES ......................................................................................................... 165
BREAST MILK ............................................................................................................................................. 165
FORMULA .................................................................................................................................................. 166
IRON SUPPLEMENTATION ......................................................................................................................... 166
WHOLE MILK ............................................................................................................................................. 166
PREMATURE INFANTS ............................................................................................................................... 167
CLASSIFICATION ....................................................................................................................................... 167
ESTIMATING GESTATIONAL AGE BY PHYSICAL EXAM ........................................................................... 167
CALCULATING GESTATIONAL AGE ......................................................................................................... 167
PREMATURE INFANT NUTRITION .............................................................................................................. 167
TOTAL PARENTERAL NUTRITION (TPN) ................................................................................................. 167
RETINOPATHY OF PREMATURITY (ROP) ................................................................................................. 168
NEONATAL JAUNDICE, HYPERBILIRUBINEMIA, AND HEMOLYTIC DISEASE OF THE NEWBORN .. 168
NEONATAL JAUNDICE ................................................................................................................................. 168
HYPERBILIRUBINEMIA ............................................................................................................................... 169
RISK FACTORS FOR DEVELOPING HYPERBILIRUBINEMIA .................................................................. 169
(DOUBLE TAKE) RHESUS DISEASE (AKA RH DISEASE) .......................................................................... 169
(DOUBLE TAKE) ABO INCOMPATIBILITY .................................................................................................. 170
(DOUBLE TAKE) GLUCOSE-6-PHOSPHATE DEHYDROGENASE DEFICIENCY (G6PD DEFICIENCY) 170
MISCELLANEOUS ....................................................................................................................................... 170
FULL TERM ................................................................................................................................................ 170
NEONATE ................................................................................................................................................. 170
INFANT ...................................................................................................................................................... 170
APNEA ....................................................................................................................................................... 170
SUDDEN INFANT DEATH SYNDROME (SIDS) ......................................................................................... 171
ANURIA ...................................................................................................................................................... 171
ANEMIA ..................................................................................................................................................... 171
APT TEST ............................................................................................................................................... 171
NEONATAL HYPOGLYCEMIA ..................................................................................................................... 171
SHOCK-LIKE SYMPTOMS ......................................................................................................................... 171
(DOUBLE TAKE) MECONIUM ASPIRATION SYNDROME (MAS) ............................................................. 171
SEPTIC WORKUP ..................................................................................................................................... 171
CRYING .................................................................................................................................................... 171
COLIC ....................................................................................................................................................... 172
SLEEP ....................................................................................................................................................... 172
SUN SAFETY ........................................................................................................................................... 172
AUTOMOBILE AND CAR SEAT SAFETY .................................................................................................. 172
VERY LOW BIRTH WEIGHT (VLBW) ........................................................................................................ 172
PREGNANCY INDUCED HYPERTENSION (PIH) ..................................................................................... 173
NALOXONE .............................................................................................................................................. 173
FAILURE TO THRIVE (FTT) ..................................................................................................................... 173
Chapter 8: DEVELOPMENTAL MILESTONES ................................................................. 175
DEVELOPMENTAL MILESTONES THROUGH ADOLESCENCE........................................ 175
DEVELOPMENTAL MILESTONES SCREENING TOOLS .................................................. 175
DRAWING SHAPES ........................................................................................................ 176
DEVELOPMENTAL MILESTONES CHART, BIRTH TO 2 MONTHS OF AGE ......................... 177
DEVELOPMENTAL MILESTONES CHART, 4 MONTHS OF AGE ........................................ 178
DEVELOPMENTAL MILESTONES CHART, 6 MONTHS OF AGE ........................................ 179
DEVELOPMENTAL MILESTONES CHART, 9 MONTHS OF AGE ........................................ 180
DEVELOPMENTAL MILESTONES CHART, 12 MONTHS OF AGE ....................................... 181
DEVELOPMENTAL MILESTONES CHART, 15 MONTHS OF AGE ........................................ 182
DEVELOPMENTAL MILESTONES CHART, 18 MONTHS OF AGE ....................................... 183
DEVELOPMENTAL MILESTONES CHART, 2-YEAR-OLD .................................................. 184
DEVELOPMENTAL MILESTONES CHART, 3-YEAR-OLD .................................................. 185
DEVELOPMENTAL MILESTONES CHART, 4-YEAR-OLD .................................................. 186
DEVELOPMENTAL MILESTONES CHART, 5-YEAR-OLD .................................................. 187
DEVELOPMENTAL MILESTONES CHART, 6-YEAR-OLD .................................................. 188
COGNITION ..................................................................................................................... 189
COGNITIVE REASONING VERSUS CONCRETE THINKING ........................................... 189
Hearing Screening (Audiometry) ....................................................................................... 190

Chapter 9: EMERGENCY MEDICINE & TOXICOLOGY .................................................. 191
MENTAL STATUS CHANGES ......................................................................................... 191
PUPILS ............................................................................................................................ 191
MIOSIS ............................................................................................................................. 191
MYDRIASIS ..................................................................................................................... 191
NYSTAGMUS ................................................................................................................ 191
DIAPHORESIS ............................................................................................................... 191
TOXIDROMES ............................................................................................................. 192
OSMOLAR AND ANION GAPS .................................................................................... 192
SYRUP OF IPECAC ...................................................................................................... 192
CHARCOAL .................................................................................................................... 192
GASTRIC LAVAGE ...................................................................................................... 193
ACETAMINOPHEN INGESTION ............................................................................... 193
ALCOHOL (ETHANOL) ............................................................................................... 193
METHANOL INGESTION ............................................................................................ 193
ETHYLENE GLYCOL INGESTION .......................................................................... 194
ISOPROPYL ALCOHOL .............................................................................................. 194
STIMULANTS ............................................................................................................... 194
AMPHETAMINES ....................................................................................................... 194
COCAINE ..................................................................................................................... 195
Chapter 10: VITAMIN AND NUTRITIONAL DISORDERS

HALLUCINOGENS

PHENCYCLIDINE (PCP)

LYSERGAMIDE (LSD)

SEDATIVE HYPNOTICS

BENZODIAZEPINES

BARBITURATES

OPIOIDS

MARIJUANA (MJ)

NICOTINE/TOBACCO/SMOKING

DEXTROMETHOPHAN

ANTIHISTAMINES

HYDROCARBON INGESTION

HYDROCARBON INHALATION

SEROTONIN SYNDROME

URINE DRUG SCREENING

DRUGS OF ABUSE AND ASSOCIATED SYMPTOMS (TABLE)

CHOLINERGICS

ANTICHOLINERGICS

TRICYCLIC ANTIDEPRESSANT (TCA) TOXICITY

SALICYLATES

IBUPROFEN OVERDOSE

IRON OVERDOSE

(DOUBLE TAKE) LEAD TOXICITY

CLONIDINE & PHENOTHIAZINES OVERDOSE

CALCIUM CHANNEL BLOCKER OVERDOSE

DIGOXIN TOXICITY

THEOPHYLLINE

CARBON MONOXIDE (CO)

METHEMOGLOBINEMIA

ACID OR BASE INGESTION

FOREIGN BODY INGESTION

(DOUBLE TAKE) RABIES VIRUS

BROWN RECLUSE SPIDER

BLACK WIDOW

COMMON BITES

BURN TREATMENT

NEAR DROWNING

POOL SAFETY

HYPOTHERMIA

HEAD INJURY

GLASGOW COMA SCORE

POST-CONCUSSION TREATMENT (2013 AAN GUIDELINES)

ENDOTRACHEAL TUBES AND VENTILATION

IMPAIRED PERFUSION/HYPOVOLEMIA

CARDIOPULMONARY RESUSCITATION (CPR)

FAT-SOLUBLE VITAMINS

VITAMIN A (AKA RETINOL)

VITAMIN K DEFICIENCY (AKA PHYTONADIONE DEFICIENCY)
CAUSES OF JAUNDICE

VITAMIN E DEFICIENCY (AKA TOCOPHEROL DEFICIENCY) .................................................. 207
VITAMIN D (ERGOCALCIFEROL, CHOLECALCIFEROL) EXCESS ........................................ 207
VITAMIN D DEFICIENCY ...................................................................................................... 208
(DOUBLE TAKE) RICKETS ................................................................................................. 208
(DOUBLE TAKE) RICKETS OF PREMATURITY (AKA OSTEOPENIA OF PREMATURITY) .... 209
(DOUBLE TAKE) LIVER DYSFUNCTION ............................................................................... 209
WATER-SOLUBLE NUTRIENTS ......................................................................................... 209
THIAMINE (B1) DEFICIENCY ............................................................................................ 209
RIBOFLAVIN (B2) DEFICIENCY .......................................................................................... 209
NIACIN (B3) DEFICIENCY .................................................................................................. 210
PYRIDOXINE (B6) DEFICIENCY ......................................................................................... 210
(DOUBLE TAKE) BIOTIN/BIOTINIDASE (B7) DEFICIENCY .............................................. 210
(DOUBLE TAKE) FOLATE (B9) DEFICIENCY .................................................................... 210
(DOUBLE TAKE) B12 DEFICIENCY (AKA CYANOCOBALAMIN DEFICIENCY) .................. 211
VITAMIN C DEFICIENCY AND EXCESS .......................................................................... 211
(DOUBLE TAKE) ZINC DEFICIENCY ................................................................................. 211
(DOUBLE TAKE) ACRODERMATITIS ENTEROPATHICA .................................................. 212
COPPER DEFICIENCY ...................................................................................................... 212
(DOUBLE TAKE) STRICT VEGETARIANS AND VEGETANS ............................................. 212
NUTRITIONAL DEFICIENCIES ......................................................................................... 212
ENERGY REQUIREMENTS IN CHILDREN ........................................................................ 212
KWASHIORKOR .................................................................................................................. 212
MARASMUS ........................................................................................................................ 213
(DOUBLE TAKE) ESSENTIAL FATTY ACID DEFICIENCIES ............................................ 213

Chapter 11: GASTROENTEROLOGY .................................................................................. 214

LIVER DISEASE ................................................................................................................ 214
CONGENITAL HEPATIC FIBROSIS .................................................................................... 214
HEPATOMEGALY ............................................................................................................... 214
GALLBLADDER HYDROPS .................................................................................................. 214
HEPATOBLASTOMA .......................................................................................................... 214
PRIMARY SCLEROSING CHolangITIS (PSC) .................................................................... 214
HEPATOBILIARY IMINODIACETIC ACID SCAN (AKA HIDA SCAN or CHOLESCINTIGRAPHY) .......................................................................................................................... 214
TRANSAMINITIS ................................................................................................................. 215
ALKALINE PHOSPHATASE .............................................................................................. 215
BILIARY OBSTRUCTION .................................................................................................... 215

CAUSES OF JAUNDICE .................................................................................................... 215
CHOLESTASIS ..................................................................................................................... 215
BILIARY ATRESIA .............................................................................................................. 215
CHOLEDODCHAL CYSTS .................................................................................................... 215
PROGRESSIVE FAMILIAL INTRAHEPATIC CHOLESTASIS (PFIC) ................................. 216
LAGILLE SYNDROME (AKA ARTERIOHEPATIC DYSPLASIA) ............................................. 216
IDIOPATHIC NEONATAL HEPATITIS ................................................................................. 216
VIRAL HEPATITIS .............................................................................................................. 216
GILBERT'S SYNDROME (AKA GILBERTS SYNDROME) .................................................. 217
CRICLER-NAJJAR SYNDROME ....................................................................................... 217
DUBIN JOHNSON SYNDROME ......................................................................................... 218
REYES'S SYNDROME (AKA REYES SYNDROME) .............................................................. 218
(DOUBLE TAKE) WILSON'S DISEASE ............................................................................ 218
GASTROESOPHAGEAL REFLUX DISEASE (GERD) ........................................................................................................219
LACTOSE INTOLERANCE (AKA LACTASE DEFICIENCY) ..........................................................................................219
INTUSSUSCEPTION ...........................................................................................................................................219
PANCREATITIS ......................................................................................................................................................219
CONSTIPATION .......................................................................................................................................................219
HELCOBACTER PYLORI ........................................................................................................................................219
NSAID-INDUCED DYSEPSIA, ULCERS, AND EROSIIVE GASTRITIS .................................................................220
EROSIVE GASTRITIS AKA EROSIIVE GASTROPATHY .........................................................................................220
NON-EROSIVE GASTRITIS ...................................................................................................................................220
NON-ULCER DYSEPSIA .......................................................................................................................................220
ZOLLLINGER-ELLISON SYNDROME ..................................................................................................................220
INFANTILE GASTROESOPHAGEAL REFLUX (GERD) .........................................................................................220
(DOUBLE TAKE) IRRITABLE BOWEL SYNDROME (IBS) ...................................................................................221
INFLAMMATORY BOWEL DISEASE (IBD) – CROHN'S AND ULCERATIVE COLITIS .......................................221
APPENDCITIS ........................................................................................................................................................221
INTUSSUSCEPTION ...........................................................................................................................................222
(DOUBLE TAKE) GIARDIA ..................................................................................................................................222
ABDOMINAL PAIN PEARL ..................................................................................................................................222
CAUSES OF DIARRHEA ..........................................................................................................................................222
CHRONIC NONSPECIFIC DIARRHEA ....................................................................................................................222
(DOUBLE TAKE) LACTOSE INTOLERANCE (AKA LACTASE DEFICIENCY) .....................................................222
BACTERIAL OVERGROWTH .................................................................................................................................223
CELIAC DISEASE (AKA CELIAC SPRUE) ...........................................................................................................223
INFECTIONOUS DIARRHEAL ILLNESSES ........................................................................................................223
CAUSES OF CONSTIPATION ................................................................................................................................223
FUNCTIONAL CONSTIPATION ............................................................................................................................223
(DOUBLE TAKE) IRRITABLE BOWEL SYNDROME (IBS) ...................................................................................223
CONGENITAL HYPOTHYROIDISM ......................................................................................................................224
CYSTIC FIBROSIS (CF) .......................................................................................................................................224
HIRSCHSPRUNG DISEASE ..................................................................................................................................224
MECONIUM ILEUS ................................................................................................................................................224
CAUSES OF VOMITING ..........................................................................................................................................224
GASTROESOPHAGEAL REFLUX DISEASE (GERD) ..........................................................................................224
PYLORIC STENOSIS ..............................................................................................................................................224
ANTRAL WEB .....................................................................................................................................................225
ESOPHAGEAL WEB ............................................................................................................................................225
ACHALASIA ..........................................................................................................................................................225
VOLVULUS ...........................................................................................................................................................225
ANNULAR PANCREAS .......................................................................................................................................226
CYCLIC VOMITING .............................................................................................................................................226
RUMINATION .......................................................................................................................................................226
BILIOUS EMESIS IN A NEWBORN ..................................................................................................................226
DOUBLE BUBBLE ..............................................................................................................................................226
VOMITING PEARLS ............................................................................................................................................227
GI BLEEDING ............................................................................................................................................. 227
GI BLEEDING PEARL .................................................................................................................................. 227
LOWER GI BLEEDING (LGIB) ...................................................................................................................... 227
PAINLESS RECTAL BLEEDING .................................................................................................................. 227
MECKEL’S DIVERTICULUM (AKA MECKELS) ................................................................................................ 228
FAMILIAL ADENOMATOUS POLYPOSIS (FAP) ............................................................................................ 228
MISCELLANEOUS GI CONDITIONS & TERMINOLOGY ............................................................................... 228
OMPHALOCELE ........................................................................................................................................... 228
GASTROSCHISIS ......................................................................................................................................... 228
NASOGASTRIC TUBE FEEDINGS (NG TUBE FEEDINGS) ................................................................................. 228
ESOPHAGEAL PERFORATION .................................................................................................................... 228
IMPERFORATE ANUS (AKA ANAL ATRESIA) ............................................................................................ 229
PERSISTENT CLOACA ............................................................................................................................... 229
RECTAL PROLAPSE ..................................................................................................................................... 229
TYPHLITIS (AKA NEUTROPENIC ENTEROCOLITIS) ..................................................................................... 229

Chapter 12: PHARMACOLOGY & DRUG PEARLS ..................................................................................... 230
MEDICATION PEAK ....................................................................................................................................... 230
MEDICATION TROUGH .................................................................................................................................. 230
MISCELLANEOUS DRUGS ............................................................................................................................ 230
MISOPROSTOL .............................................................................................................................................. 230
SUCRALFATE (ALUMINUM HYDROXIDE COMPLEX) .................................................................................... 230
MAGNESIUM SULFATE ............................................................................................................................... 230
TERBUTALINE ............................................................................................................................................... 230
ACE INHIBITORS .......................................................................................................................................... 230
DIAZEPAM .................................................................................................................................................... 230
METOCLOPRAMIDE & PROMETHAZINE ..................................................................................................... 231
BLEOMYCIN ................................................................................................................................................ 231
VINCRISTINE AND VINBLASTINE .............................................................................................................. 231
DOXORUBICIN AND DAUNOMYCIN ........................................................................................................... 231
CYCLOPHOSPHAMIDE ............................................................................................................................... 231
ASPARAGINASE .......................................................................................................................................... 231
METHOTREXATE (AKA MTX) .................................................................................................................... 231
MALIGNANT HYPERThERMIA ..................................................................................................................... 231
HEPATIC INDUCERS .................................................................................................................................... 232
HEPATIC INHIBITORS .................................................................................................................................. 232
ALTERNATIVE MEDICATIONS .................................................................................................................... 232
INTRAUTERINE DRUG EXPOSURES ........................................................................................................... 232
COCAINE EXPOSURE ................................................................................................................................. 232
HEROIN EXPOSURE .................................................................................................................................... 233
METHADONE EXPOSURE .......................................................................................................................... 233
LITHIUM EXPOSURE ................................................................................................................................. 233
(DOUBLE TAKE) MAGNESIUM SULFATE INFUSION ................................................................................. 233
WARFARIN EXPOSURE ............................................................................................................................... 233
ANTI-SEIZURE MEDICATION EXPOSURE .................................................................................................... 233
PHENYTIN EXPOSURE ............................................................................................................................... 233
VALPROIC ACID EXPOSURE ...................................................................................................................... 234
CARBAMAZEPINE EXPOSURE .................................................................................................................... 234
ETHANOL EXPOSURE ................................................................................................................................. 234
Chapter 13: OPHTHALMOLOGY

- VITAMIN A (AKA RETINOL) EXPOSURE
- ISOTRETINOIN EXPOSURE

235

- HORDEOLUM (AKA STYE)
- CHALAZION
- CORNEAL ABRASIONS
- HYPHEMA
- PAPILLEDEMA
- PAPILLITIS
- CATARACTS
- MYOPIA
- HYPEROPIA
- VISION SCREENING
- VISUAL ACUITY BY AGE
- VISION SYMMETRY
- STRABISMUS
- PSEUDOSTRABISMUS
- AMBYLOPIA
- ESOTROPIA
- EXOTROPIA
- NYSTAGMUS
- COLOR VISION
- CORNEAL LIGHT REFLEX TEST

Chapter 14: GENETICS & INHERITED DISEASES

- AUTOSOMAL DOMINANT DISORDERS
- AUTOSOMAL DOMINANT DISORDERS
- AUTOSOMAL DOMINANT MNEMONIC
- WAARDBURG SYNDROME

238

- APERT SYNDROME (AKA APERT'S OR APERTS SYNDROME)
- NAIL PATELLA SYNDROME
- NOONAN SYNDROME (AKA NOONAN'S SYNDROME)
- ACJONDOPLASIA (AKA DWARFISM)
- PEUTZ-JEGHERS SYNDROME (AKA HEREDITARY INTESTINAL POLYPOSIS)
- GARDNER SYNDROME (AKA GARDNER'S SYNDROME)
- (DOUBLE TAKE) RETINOBLASTOMA
- OTHER AUTOSOMAL DOMINANT DISORDERS

240

- AUTOSOMAL RECESSIVE DISORDERS
- AUTOSOMAL RECESSIVE (AR) DISORDERS PEARLS
- AUTOSOMAL RECESSIVE MNEMONIC
- JOHANSON-BLIZZARD SYNDROME

243

- X-LINKED DISORDERS

244

- X-LINKED DOMINANT DISORDERS
- FAMILIAL HYPOPHOSPHATHEMIC RICKETS
- AICARDI SYNDROME
- (DOUBLE TAKE) ALPORT SYNDROME (AKA ALPORT'S SYNDROME)
- FRAGILE X SYNDROME

244
X-LINKED RECESSIVE DISORDERS

PEARLS

(DOUBLE TAKE) CHRONIC GRANULOMATOUS DISEASE (CGD) = SERRATIA

(DOUBLE TAKE) DUCHENNE MUSCULAR DYSTROPHY

(DOUBLE TAKE) GLUCOSE-6-PHOSPHATE DEHYDROGENASE DEFICIENCY (G6PD DEFICIENCY)

(DOUBLE TAKE) HEMOPHILIA A AND HEMOPHILIA B (AKA FACTOR VIII AND FACTOR IX DEFICIENCY)

HUNTER SYNDROME

NEPHROGENIC DIABETES INSIPIDUS

ORNITHINE TRANSCARbamylase

ANDROGEN INSENSITIVITY SYNDROME (AKA TESTICULAR FEMINIZATION)

(DOUBLE TAKE) WISKOTT-ALDRICH SYNDROME

TRISOMY DISORDERS

DOWN SYNDROME (AKA DOWN’S SYNDROME)

TRISOMY 18 (AKA EDWARDS SYNDROME)

TRISOMY 13 (AKA PATAU SYNDROME)

MISCELLANEOUS GENETIC FINDINGS & DISORDERS

TERMINOLOGY

CLEFT DISORDERS

WILLIAMS SYNDROME (AKA incorrectly as WILLIAM’S SYNDROME)

HOLT ORAM SYNDROME

CRI-DU-CAT SYNDROME (AKA 5p-, 5p minus or 5p DELETION SYNDROME)

CROUZON SYNDROME (AKA CRANIOFACIAL DYSOSTOSIS)

ANGELMAN SYNDROME (AKA ANGELMAN’S SYNDROME)

PRADER-WILLI SYNDROME (AKA PRADER WILLI SYNDROME)

LAURENCE MOON BIEDEL SYNDROME

BECKWITH-WIEDEMANN SYNDROME

(DOUBLE TAKE) KLIPPEL-TRENAUNAY SYNDROME

PROTEUS SYNDROME

PIERRE-ROBIN SYNDROME (AKA PIERRE-ROBIN SEQUENCE)

CHARGE SYNDROME

COCKayne SYNDROME

AUTISM SPECTRUM DISORDER

RETT SYNDROME (AKA RETT’S SYNDROME)

(DOUBLE TAKE) KLINFEELTER SYNDROME (AKA KLINEFELTER’S)

(DOUBLE TAKE) MARFAN SYNDROME (AKA MARFANS SYNDROME)

EHlers-Danlos Syndrome

(DOUBLE TAKE) HOMOCYSTINURIA

(DOUBLE TAKE) TURNER SYNDROME (AKA TURNERS)

RUSSELL-SILVER SYNDROME (AKA SILVER RUSSELL SYNDROME)

POTTER’S SYNDROME

(DOUBLE TAKE) PRUNE BELLY SYNDROME

GENETIC TESTING

MISCELLANEOUS ABNORMALITIES OF FINGERS AND TOES
Chapter 15: HEMATOLOGY & ONCOLOGY

PEDIATRIC LEUKEMIAS

ACUTE LYMPHOBLASTIC LEUKEMIA (ALL) (AKA ACUTE LYMPHOBLASTIC LEUKEMIA) .............................................. 260
ACUTE MYELOID LEUKEMIA (AML)......................................................................................................................... 260
CHRONIC MYELOGENOUS LEUKEMIA (CML) & CHRONIC LYMPHOBLASTIC LEUKEMIA (CLL).......................... 260

PEDIATRIC LYMPHOMAS .............................................................................................................................................. 261
(DOUBLE TAKE) HODGKIN’S LYMPHOMA .................................................................................................................. 261
NON-HODGKIN LYMPHOMA (NHL) .......................................................................................................................... 261

BONE TUMORS .......................................................................................................................................................... 262

LONG BONE TUMORS ................................................................................................................................................. 262
OSTEOGENIC SARCOMA & EWING’S SARCOMA (AKA EWING SARCOMA) ................................................................. 262
OSTEOCHONDROMA ...................................................................................................................................................... 262
OSTEOID OSTEOMA ...................................................................................................................................................... 262

OTHER MALIGNANCIES, TUMORS, & SYNDROMES ................................................................................................. 263

WILMS TUMOR .......................................................................................................................................................... 263

(DOUBLE TAKE) RETINOBLASTOMA .......................................................................................................................... 263
NEUROBLASTOMA ....................................................................................................................................................... 263
BRAIN TUMORS ........................................................................................................................................................... 264
(DOUBLE TAKE) LANGERHANS CELL HISTIOCYTOSIS (LCH) = HISTIOCYTOSIS X ................................................. 264
RABDOMYOSARCOMA .................................................................................................................................................. 264
TUMOR LYSIS SYNDROME .......................................................................................................................................... 264
CORD COMPRESSION .................................................................................................................................................. 264
ANTERIOR MEDIASTINAL MASS ..................................................................................................................................... 264

RBC BASICS & SOME HEMOGLOBIN FACTS .............................................................................................................. 265

(DOUBLE TAKE) CELL LIFE SPANS ............................................................................................................................... 265
FETAL & ADULT HEMOGLOBIN STRUCTURE ............................................................................................................... 265
NEWBORN ANEMIA ..................................................................................................................................................... 265
RBC MCV ...................................................................................................................................................................... 265
POLycYTHERMIA ............................................................................................................................................................. 266
PRBC TRANSFUSIONS .................................................................................................................................................. 266

NORMOCYTIC ANEMIA .................................................................................................................................................. 266

PHYSIOLOGIC ANEMIA .................................................................................................................................................. 266
HEMOlytic ANEMIAS ...................................................................................................................................................... 266
COOMBS TEST PEARLS .................................................................................................................................................. 266

(DOUBLE TAKE) RHESUS DISEASE (AKA RH DISEASE) .......................................................................................... 267

(DOUBLE TAKE) ABO INCOMPATIBILITY ................................................................................................................... 267

(DOUBLE TAKE) GLUCOSE-6-PHOSPHATE DEHYDROGENASE DEFICIENCY (AKA G6PD DEFICIENCY) ...... 267
PYRUVATE KINASE DEFICIENCY .................................................................................................................................. 267
HEREDITARY SPHEROCYTOSIS ..................................................................................................................................... 268

(DOUBLE TAKE) ERYTHEMA INFEKTIOUSUM .................................................................................................................. 268
PAROXYSMAL NOCTURNAL HEMOGLOBINURIA (PNH) .............................................................................................. 268
SICKLE CELL ANEMIA ................................................................................................................................................... 268
TRANSIENT ERYTHROBLASTOPENIA OF CHILDHOOD ............................................................................................ 270
ACUTE BLOOD LOSS ANEMIA ....................................................................................................................................... 270

(DOUBLE TAKE) ANEMIA OF CHRONIC DISEASE ....................................................................................................... 270
END STAGE RENAL DISEASE (AKA ESRD or RENAL FAILURE) .................................................................................. 270
PEARLY REMINDERS ..................................................................................................................................................... 270
MICROCYTIC ANEMIA ................................................................. 270

MICROCYTIC ANEMIA DEFINITION .............................................. 270
IRON DEFICIENCY ANEMIA ......................................................... 270
(DOUBLE TAKE) ANEMIA OF CHRONIC DISEASE ....................... 270
THALASSEMIAS ........................................................................... 271
ALPHA THALASSEMIA ................................................................. 271
BETA THALASSEMA ................................................................. 271
(DOUBLE TAKE) LEAD TOXICITY ................................................ 272
LAB REVIEWS – FERRITIN, TIBC, RDW, & TRANSFERRIN SATURATION ................................................................. 273

MACROCYTIC ANEMIA ................................................................ 273
MACROCYTIC ANEMIAS (AKA MEGALOBLASTIC ANEMIA) ........... 273
(DOUBLE TAKE) FOLATE (B9) DEFICIENCY .................................. 273
(DOUBLE TAKE) B12 DEFICIENCY (AKA CYANOCOBALAMIN DEFICIENCY) ................................................................. 273

(DOUBLE TAKE) FANCONI ANEMIA ............................................. 274

(DOUBLE TAKE) FANCONI SYNDROME ......................................... 274

(DOUBLE TAKE) DIAMOND-BLACKFAN ANEMIA ......................... 275

(DOUBLE TAKE) SHWACHMAN-DIAMOND SYNDROME .................. 275

APLASTIC ANEMIA PEARLS ................................................................ 276

PLATELET DISORDERS .................................................................. 276

(DOUBLE TAKE) CELL LIFE SPANS ............................................... 276
THROMBOCYTOPENIA .................................................................. 276
MATERNAL IMMUNE (OR IDIOPATHIC) THROMBOCYTOPENIC PURPURA ................................................................. 276
NEONATAL ALLOIMMUNE THROMBOCYTOPENIA (NAIT) .................. 276
NEONATAL SEPSIS-INDUCED THROMBOCYTOPENIA .................. 276
THROMBOCYTOPENIA AND ABSENT RADIUS (AKA TAR SYNDROME) ................................................................. 277
IMMUNE THROMBOCYTOPENIA PURPURA (AKA ITP, AKA IDIOPATHIC THROMBOCYTOPENIA PURPURA) ......... 277

(DOUBLE TAKE) HEMOLYTIC UREMIC SYNDROME (HUS) AND THROMBOTIC THROMBOCYTOPENIC PURPURA (TTP) ............... 277

(DOUBLE TAKE) WISKOTT-ALDRICH SYNDROME ......................... 278
(DOUBLE TAKE) KASABACH-MERRITT SYNDROME ....................... 278
GLANZMANN THROMBASTHENIA .................................................. 279
BERNARD-SOULIER SYNDROME .................................................... 279

COAGULOPATHY ......................................................................... 279

VITAMIN K DEPENDENT FACTORS ............................................. 279
COAGULATION CASCADE ............................................................. 279
VITAMIN K DEFICIENCY ................................................................ 279

(DOUBLE TAKE) HEMOPHILIA A AND HEMOPHILIA B (AKA FACTOR VIII AND FACTOR IX DEFICIENCY) ............................... 279
BLEEDING CIRCUMCISION ............................................................ 279
VON WILLEBRAND DISEASE (AKA VON WILLEBRAND FACTOR DEFICIENCY) ................................................................. 280
DISSEMINATED INTRAVASCULAR COAGULATION (DIC) .................... 280
Chapter 16: INFECTIOUS DISEASES

ANTIBIOTICS – A BRIEF REVIEW

ANTIBIOTIC AGE PEARLS

PENICILLIN

CLINDAMYCIN

VANCOMYCIN, LINEZOLID, AND AMPICILLIN

CEPHALOSPORINS

MACROLIDES

CARBAPENEMS

ALBENDAZOLE & PYRANTEL PAMOATE

METRONIDAZOLE

GRAM-POSITIVE ORGANISMS

ENTEROCoccus FAECAlIS

LISTeria MONOCytOGENES

CLOSTRIDIum TETANI (AKA TETANUS)

(DOUBLE TAKE) CLOSTRIDIum BOTULINUM

(DOUBLE TAKE) CORYNEbACTERIUM DIPHTHERIAlE

STREPTOCOCCAL INFECTIONS

STREPTOCoccus (AKA STREP)

ALPHA HEMOLYTIC STREPTOCOCCUS (VIRIDANS AND PNEUMONIAE)

BETA HEMOLYTIC STREPTOCOCCUS (AGALACTIAE AND PYOGENES)

STREPTOCOCCAL PHARYNGITIS (AKA STREP PHARYNGITIS or STREP THROAT)

(DOUBLE TAKE) POSTSTREPTOCOCCAL GLOMERULONEPHRITIS (PSGN, AKA POST INFECTIOUS GLOMERULONEPHRITIS)

PERITONSILLAR ABSCESS

RETROPHARYNGEAL ABSCESS

SCARLET FEVER

OCCULT BACTEREMIA

PNEUMONIA

GROUp B STREPTOCOCCAL SEPSIS (GBS SEPSIS)

GBS SCREENING AND PROPHYLAXIS MADE EASY!

STAPHYLOCOCCUS AUREUS & EPIDERMIDIS

STAPHYLOCOCCUS AND STREPTOCOCCUS COMPARISON CHART

GRAM-NEGATIVE ORGANISMS

RICKETTSIA RICKETTSII and ROCKY MOUNTAIN SPOTTED FEVER (RMSF)

ENTEROBACTER

(DOUBLE TAKE) BARTONELLA HENSELAlE

CITROBACTER FREUNDII

(DOUBLE TAKE) CHLAMYDIA TRACHOMATIS

CHLAMYDIA PNEUMONIAE

CHLAMYDIA PSITTACI

MYCOPLASMA PNEUMONIAE

HAEMOPHILUS INFLUENZAE (AKA H. FLU)

BORDETELLA PERTUSSIS (AKA WHOOPING COUGH)

PSEUDOMONAS

(DOUBLE TAKE) ERYTHEMA CHRONICUM MIGRANS

LEPTOSPIROSIS
### Fungal & Atypical Bacteria
- Cryptococcus .......................................................... 292
- Blastomycosis .......................................................... 293
- Coccioidiomycosis .................................................... 293
- Histoplasmosis ....................................................... 293
- (Double Take) Aspergillus ........................................ 294
- Mycobacterium Tuberculosis (aka MTB or TB) ............. 294

### Viruses
- Coxsackie Virus & Enterovirus .................................. 295
- Adenovirus .................................................................. 296
- Arbovirus Encephalitis .............................................. 296
- Respiratory Syncytial Virus (RSV) ............................... 296
- Epstein-Barr Virus (EBV) .......................................... 296
- Human Herpes Virus 6 (aka HHV-6) ............................ 297
- (Double Take) Herpes Simplex Virus (HSV) ................. 297
- (Double Take) Varicella Zoster Virus (Chicken Pox) .... 297
- Human Immunodeficiency Virus (HIV) ......................... 298
- (Double Take) Rabies Virus ...................................... 298
- Measles (aka Rubella) .............................................. 299
- (Double Take) Rubella Virus (aka German Measles) .... 299
- Mumps Virus ........................................................... 300
- Zika Virus .................................................................. 300
- SARS (Severe Acute Respiratory Syndrome) .................. 300

### Parasites/protozoa
- Entamoeba Histolytica (aka Amebiasis) ....................... 301
- (Double Take) Trichomonas Vaginalis ....................... 301
- Babesiosis .............................................................. 301
- Cryptosporidium ...................................................... 301
- Malaria ..................................................................... 301
- Trypanosoma Cruzi .................................................. 302
- Trypanosoma Brucei ................................................ 302

### Worms
- Enterobius (aka Pinworms) ....................................... 302
- (Double Take) Ascaris Lumbricoidea ......................... 302
- Schistosomiasis (Schistosoma) ................................. 303
- Taenia Solium .......................................................... 303
- Taenia Saginata ....................................................... 303
- (Double Take) Toxocara Canis ................................ 303
- Hookworm .............................................................. 303
- Cutaneous Larva Migrans ......................................... 304
- Trichuris .................................................................. 304
- Filariasis ................................................................... 304
- Strongyloides .......................................................... 304
- Diphyllolothrium Latum ............................................ 304

### Infectious “Syndromes”
- Ground Glass Pneumonia .......................................... 304
- Adolescent + Pneumonia + Low Grade Fever .............. 305
- Spontaneous Bacterial Peritonitis (SBP) ...................... 305
SECONDARY PERITONITIS
TOXIC SHOCK SYNDROME (TSS)
DENTAL ABSCESSES
NEONATAL FEVER
NEONATAL BACTEREMIA
SINUSITIS
PAROTIDITIS (AKA PAROTITIS)
MASTOIDITIS
OTITIS EXTERNA (AKA SWIMMER’S EAR)
ACUTE AND RECURRENT OTITIS MEDIA
CHOLESTEATOMA
CHRONIC OTORRHEA AND RECURRING OTORRHEA
MENINGITIS, BACTERIAL AND VIRAL
TORCH INFECTIONS
TOXOPLASMA GONDII
(DOUBLE TAKE) VARICELLA ZOSTER VIRUS (CHICKEN POX)
(DOUBLE TAKE) SYPHILIS
(DOUBLE TAKE) RUBELLA VIRUS (AKA GERMAN MEASLES)
CYTOMEGALOVIRUS (CMV)
(DOUBLE TAKE) BLUEBERRY MUFFIN SYNDROME
ACUTE WATERY DIARRHEA
ROTAVIRUS
ADENOVIRUS
NORWALK VIRUS
ESCHERICHIA COLI (E. coli)
SHIGELLA INFECTIONS
SALMONELLA
CAMPYLOBACTER JEJUNI
STAPHYLOCOCCUS AUREUS AND BACILLUS CEREUS
YERSINIA ENTEROCOLITICA
CLOSTRIDIUM PERFRINGENS
CLOSTRIDIODES DIFFICILE (C. DIFFICILE or C. DIFF)
PEARLY DIARRHEA REVIEW
CHRONIC DIARRHEA
(DOUBLE TAKE) GIARDIA
CHRONIC NONSPECIFIC DIARRHEA (AKA TODDLER’S DIARRHEA)
(DOUBLE TAKE) FOOD PROTEIN INDUCED ENTEROPATHY
(DOUBLE TAKE) FOOD PROTEIN INDUCED PROCTITIS/COLITIS
(DOUBLE TAKE) FOOD PROTEIN INDUCED ENTEROCOLITIS SYNDROME (FPIES)
(DOUBLE TAKE) LACTOSE INTOLERANCE (AKA LACTASE DEFICIENCY)
INTESTINAL LYMPHANGIETASIA
FAT AND CARBOHYDRATE MALABSORPTION
ACUTE LYMPHADENOPATHY (< 3 WEEKS) IN THE HEAD AND NECK AREA
STAPHYLOCOCCUS AUREUS AND STREPTOCOCCUS PYOGENES (AKA GAS or STREP PYOGENES)
Chapter 17: VACCINES, IMMUNIZATIONS AND CONTRAINDICATIONS 

PERTINENT CDC LINKS .................................................................................. 321
STEROIDS AND IMMUNIZATIONS ................................................................. 321
PREMATURITY AND VACCINATIONS ............................................................. 321
LIVE VACCINES .............................................................................................. 321
MEASLES, MUMPS, RUBELLA (MMR) AND VARICELLA (VZV) PEARLS ... 322
ROTAVIRUS VACCINE .................................................................................... 322
INFLUENZA VACCINATION .......................................................................... 322
HEPATITIS A VACCINE .................................................................................. 323
HEPATITIS B VACCINE .................................................................................. 323
HUMAN PAPILLOMA VIRUS VACCINE (HPV) ................................................ 323
MENINGOCOCCAL VACCINE (AKA MENINGOCOCUS VACCINE) .............. 323
PREGNANCY AND IMMUNIZATION ............................................................. 324
POSTEXPOSURE PROPHYLAXIS ................................................................... 324
TETANUS BOOSTER ...................................................................................... 325
VACCINE SCHEDULE REMINDERS ............................................................. 325
CATCH-UP IMMUNIZATION SCHEDULE PEARLS ....................................... 325
VACCINE CONTRAINDICATIONS ............................................................... 326
CHICKEN OR EGG ALLERGY ........................................................................ 326
DTaP CONTRAINDICATIONS ........................................................................ 326
GELATIN ALLERGY ....................................................................................... 327
NEOMYCIN, POLYMYXIN, AND STREPTOMYCIN ALLERGIES ................ 327
ANAPHYLAXIS MANAGEMENT ..................................................................... 327
Chapter 18: INBORN ERRORS OF METABOLISM & MISCELLANEOUS METABOLIC DISORDERS .... 328

INBORN ERRORS OF METABOLISM (IEM) PEARLS ................................................................. 329
  INBORN ERRORS OF METABOLISM (PEARLS) ................................................................. 329
  ORGANIC ACIDEMIAS (PEARLS) ......................................................................................... 329
  UREA CYCLE DEFECTS (PEARLS) ......................................................................................... 329
  FATTY ACID METABOLISM DISORDERS (PEARLS) ............................................................ 329
  STORAGE DISEASES (PEARLS) ............................................................................................ 329
  MITOCHONDRIAL DISORDERS (PEARLS) ......................................................................... 329
  AMINO ACIDOPATHIES (PEARLS) ....................................................................................... 329
  GALACTOSEMIA (PEARLS) .................................................................................................. 330
  HYPERGLYCNEMIA (PEARLS) .............................................................................................. 330
  NEWBORN SCREEN (NBS) .................................................................................................... 330
  AMMONIA LEVEL ................................................................................................................ 330
  INHERITANCE PATTERN ...................................................................................................... 330

ORGANIC ACIDEMIAS ........................................................................................................... 330
  ORGANIC ACIDEMIAS OVERVIEW .................................................................................. 330
  ISOVALERIC ACIDEMIA ...................................................................................................... 331
  GLUTARIC ACIDEMIA ......................................................................................................... 331
  METHYLMALONIC ACIDEMIA & PROPIONIC ACIDEMIA ..................................................... 331

UREA CYCLE DEFECTS ........................................................................................................... 332
  UREA CYCLE SUMMARY .................................................................................................... 332
  UREA CYCLE DEFECTS INCLUDE ...................................................................................... 332
  ORNITHINE TRANSCARBAMYLASE DEFICIENCY .............................................................. 333
  CITRULLINEMIA .................................................................................................................. 333
  ARGININOSUCCINIC ACIDURIA ........................................................................................ 333
  UREA CYCLE LAB SUMMARY (TABLE) ............................................................................ 333

MITOCHONDRIAL DISORDERS ............................................................................................... 333

FATTY ACID OXIDATION DISORDERS .................................................................................. 333

GLYCOGEN STORAGE DISEASES ......................................................................................... 334
  GSD I (AKA VON GIERKE’S DISEASE) .............................................................................. 334
  GSD II (AKA POMPE or POMPE’S DISEASE) ................................................................... 334

AMINOACIDOPATHIES .......................................................................................................... 335
  PHENYLKETONURIA (PKU) ............................................................................................... 335
  ALKAPTONURIA (AKA LALCAPTONURIA) ....................................................................... 335
  MAPLE SYRUP URINE DISEASE (MSUD AKA BRANCHED-CHAIN KETOACIDURIA) .... 335
  (DOUB TAKI) HOMOCYSTINURIA .................................................................................... 336
  TYROSINEMIA (TYPE I) .................................................................................................... 336

CARBOHYDRATE METABOLISM DISORDERS .................................................................... 336
  DISORDERS OF CARBOHYDRATE METABOLISM .......................................................... 336
  GALACTOSEMIA (AKA GALACTOSE-1-PHOSPHATE URIDYLTRANSFERASE DEFICIENCY or GALT DEFICIENCY) ......................................................................................... 336
  HEREDITARY FRUCTOSE INTOLERANCE .......................................................................... 337

LYSOSOMAL STORAGE DISEASES ......................................................................................... 337
  MUCOPOLYSACCHARIDOSES (MPS) ............................................................................... 337
SPHINGOLIPIDOSES .................................................................................................................. 338
TAY-SACHS DISEASE .................................................................................................................. 338
GAUCHER DISEASE (AKA GAUCHER’S DISEASE) ................................................................. 338
FABRY DISEASE (AKA FABRY’S DISEASE) ............................................................................. 338
NIEMANN-PICK DISEASE .......................................................................................................... 339
MISCELLANEOUS DISORDERS AND PEARLS ..................................................................... 339
HYPOGLYCEMIA DIFFERENTIAL .......................................................................................... 339
INFANT OF A DIABETIC MOTHER (IDM) .................................................................................. 339
PURINE AND PYRIMIDINE DISORDERS .................................................................................. 340
(DOUBLE TAKE) WILSON’S DISEASE ..................................................................................... 340
MENKES KINKY HAIR SYNDROME (AKA MENKES SYNDROME) ......................................... 341
SMITH-LEMLI-OPITZ SYNDROME ......................................................................................... 341
CHERRY RED SPOT DIFFERENTIAL ....................................................................................... 341
GENERAL IEM PEARLS & RECAPS ...................................................................................... 341

Chapter 19: ACID-BASE DISORDERS ....................................................................................... 343
A GUIDE TO CALCULATIONS AND SHORTCUTS FOR ACID BASE DISORDERS .............. 343
THE ULTIMATE ABG CALCULATOR BIBLE! ........................................................................... 343
ABG FUNDAMENTALS AND TERMINOLOGY ......................................................................... 343
ABG & CHEMISTRY NUMBERS – THE BASICS ..................................................................... 343
ABG RULES FOR A RESPIRATORY ACIDOSIS OR RESPIRATORY ALKALOSIS .................. 344
ABG RULES FOR A METABOLIC ACIDOSIS ........................................................................ 345
ABG & CHEMISTRY PEARLS .................................................................................................. 346
ABG & CHEMISTRY SHORTCUTS ............................................................................................ 346
ACID-BASE DISORDERS & PEARLS ...................................................................................... 347
ACIDOSIS ................................................................................................................................. 347
ANION GAP ............................................................................................................................. 347
ANION GAP METABOLIC ACIDOSIS .................................................................................... 347
NON-ANION GAP METABOLIC ACIDOSIS .......................................................................... 347
RENAL TUBULAR ACIDOSIS (RTA) ....................................................................................... 348
RENAL TUBULAR ACIDOSIS TYPE I (RTA I, AKA CLASSIC DISTAL RTA) ........................... 348
RENAL TUBULAR ACIDOSIS TYPE II (RTA II, AKA PROXIMAL RTA) ............................... 348
RENAL TUBULAR ACIDOSIS TYPE IV (RTA IV) ................................................................... 349
METABOLIC ALKALOSIS ........................................................................................................ 349
RESPIRATORY ACIDOSIS ....................................................................................................... 350
RESPIRATORY ALKALOSIS ..................................................................................................... 350

Chapter 20: FLUIDS & ELECTROLYTES ................................................................................... 351
MAINTENANCE IV FLUIDS (MIVF) AND DEHYDRATION ....................................................... 351
MAINTENANCE IV FLUIDS (MIVF) .......................................................................................... 351
DEHYDRATION ........................................................................................................................ 351
GASTROENTERITIS ................................................................................................................... 352
HEAT STROKE .......................................................................................................................... 352
HEAT EXHAUSTION ................................................................................................................ 352
ELECTROLYTES ...................................................................................................................... 352
(DOUBLE TAKE) HYPERCALCEMIA ....................................................................................... 352
(DOUBLE TAKE) HYPOCALCEMIA ......................................................................................... 353
HYPOKALEMIA ....................................................................................................................... 354
HYPERKALEMIA ..................................................................................................................... 354
Chapter 23: NEUROLOGY

NEUROLOGIC TESTS, PARALYSES & PALSIES

SOMATOSENSORY EVOKED POTENTIALS (SEP)

NERVE CONDUCTION VELOCITIES

ELECTROMYOGRAM (EMG)

MAGNETIC RESONANCE IMAGING (MRI)

COMPUTER TOMOGRAPHY SCAN (CT SCAN)

SPINAL ULTRASOUND

ERB’S Palsy AND KLUMPKE Palsy

HORNER SYNDROME (AKA HORNER’S)

SPASTIC CEREBRAL PALSY (CP)

ATHETOID CEREBRAL PALSY

WEAKNESS AND PARALYSIS PEARL

GUILLAIN-BARRE SYNDROME (GBS, AKA ACUTE INFLAMMATORY DEMYELINATING POLYNEUROPATHY or AIDP)

(DOUBLE TAKE) TICK PARALYSIS

(DOUBLE TAKE) TODD PARALYSIS (AKA TODD’S PARALYSIS)

TRANSVERSE MYELITIS

EPIDURAL ABSCESS OF THE SPINE

MYASTHENIA GRAVIS (MG)

(DOUBLE TAKE) CLOSTRIDIUM BOTULINUM

(DOUBLE TAKE) CORYNEBACTERIUM DIPHTHERIAE

INCREASED INTRACRANIAL PRESSURE AND HEADACHES

INCREASED INTRACRANIAL PRESSURE (ICP)

LUMBAR PUNCTURE

DANDY WALKER MALFORMATION
(DOUBLE TAKE) PSEUDOTUMOR CEREBRI (AKA IDIOPATHIC INTRACRANIAL HYPERTENSION or BENIGN INTRACRANIAL HYPERTENSION) ................................................................. 379
TENSION HEADACHES ................................................................................................. 379
MIGRAINE HEADACHES ............................................................................................... 379
OMINOUS HEADACHES ............................................................................................... 379

MOVEMENT DISORDERS ............................................................................................. 380
(DOUBLE TAKE) DYSTONIC REACTIONS .................................................................. 380
TICS .............................................................................................................................. 380
TOURETTE SYNDROME (AKA TOURETTE’S SYNDROME) ............................................ 380
STEREOTYPY .............................................................................................................. 380
CHOREA ...................................................................................................................... 380
SYDENHAM CHOREA (AKA SYDENHAM’S CHOREA) .............................................. 380
HUNTINGTON DISEASE (AKA HUNTINGTON’S DISEASE) ........................................ 381

DYSTROPHIES ............................................................................................................. 381
SPINAL MUSCULAR ATROPHY TYPE I (AKA WERDNIG-HOFFMANN DISEASE) .......... 381
(DOUBLE TAKE) DUCHENNE MUSCULAR DYSTROPHY ......................................... 381
MYOTONIC DYSTROPHY ............................................................................................. 381

SENSORY NEUROPATHIES ......................................................................................... 382
SEIZURES ..................................................................................................................... 382
FIRST-TIME SEIZURE ................................................................................................. 382
EPILEPSY AND SEIZURE PRECAUTIONS AND EDUCATION .................................... 382
EMERGENCY ROOM PEDIATRIC SEIZURE MANAGEMENT ........................................ 382
SEIZURE TERMINOLOGY ............................................................................................. 382
SIMPLE PARTIAL SEIZURES ....................................................................................... 383
COMPLEX PARTIAL SEIZURES ................................................................................... 383
BENIGN CHILDHOOD EPILEPSY WITH CENTROTEMPORAL SPIKES (AKA BECETS, BCECTS, BENIGN EPILEPSY OF CHILDHOOD, BENIGN ROLANDIC EPILEPSY) ........................................... 383
JUVENILE MYOCLONIC EPILEPSY ............................................................................. 383
ABSENCE SEIZURES .................................................................................................. 383
TONIC-CLONIC SEIZURE .......................................................................................... 384
NEONATAL SEIZURES ............................................................................................... 384
INFANTILE SPASMS .................................................................................................. 384
FEVERSE SEIZURE .................................................................................................... 384
BREAKTHROUGH SEIZURE ....................................................................................... 384
STATUS EPILEPTICUS ............................................................................................... 384
(DOUBLE TAKE) TODD PARALYSIS (AKA TODD’S PARALYSIS) ............................... 385

ATAXIA AND RELATED CONDITIONS ...................................................................... 385
ACUTE CEREBELLAR ATAXIA .................................................................................... 385
(DOUBLE TAKE) ATAXIA TELANGIECTASIA ............................................................... 385
FRIEDREICH ATAXIA (AKA FRIEDREICH’S ATAXIA) .................................................. 386
BENIGN POSITIONAL VERTIGO (BPV) ....................................................................... 386
PERILYMPHATIC FISTULA .......................................................................................... 386

MISCELLANEOUS NEUROLOGIC CONDITIONS AND FINDINGS ............................. 386
JAW CLONUS AND BILATERAL ANKLE CLONUS ....................................................... 386
UPPER MOTOR NEURON DISEASE ............................................................................ 386
LOWER MOTOR NEURON DISEASE ......................................................................... 386
HEAD TRAUMA .......................................................................................................... 386
NEUROCARDIOGENIC SYNCOPE .............................................................................. 386

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Chapter 25: RHEUMATOLOGY .................................................. 398

ARTHRITIC CONDITIONS ........................................................................................................... 398

ARThROCENTESIS (jOINT ASPIRATION) PEARLS ................................................................. 398

JUVENILE IDIOPATHIC ARTHRITIS (JRA, JIA) ................................................................. 398

SYSTEMIC LUPUS ERYTHEMATOSUS (SLE) ................................................................. 399

(DOUBLE TAKE) NEONATAL LUPUS ................................................................................ 399

DRUG INDUCED LUPUS ........................................................................................................ 400

JUVENILE ANKYLOSING SPONDYLISITIS ......................................................................... 400

REACTIVE ARTHRITIS (AKA JUVENILE REITER SYNDROME) ....................................... 400

BEHCET SYNDROME (AKA BEHÇET’S DISEASE, BEHÇET SYNDROME, ETC.) .......... 400

NON-ARTHRITIC CONDITIONS ............................................................................................ 400

(DOUBLE TAKE) DERMATOMYOSITIS .............................................................................. 400

HENOCH SCHONLEIN PURPURA (HSP) .......................................................................... 400

SARCoidOSIS ........................................................................................................................ 401

SJOGREN SYNDROME (AKA SJÖGREN’S SYNDROME) .................................................. 401

RAYNAUD’S PHENOMENON (AKA RAYNAUDS) ................................................................. 401

WEGENER’S GRANULOMATOSIS ....................................................................................... 401

Chapter 26: PULMONOLOGY ................................................................................................. 402

CYSTIC FIBROSIS AND NASAL POLYPS ............................................................................. 402

CYSTIC FIBROSIS (CF) .......................................................................................................... 402

STRIDOR .................................................................................................................................. 403

INSPIRATORY STRIDOR ......................................................................................................... 403

EXPIRATORY STRIDOR .......................................................................................................... 403

BIPHASIC STRIDOR .............................................................................................................. 404

CONGENITAL PULMONARY DISEASE ............................................................................... 404

CONGENITAL DIAPHRAGMATIC HERNIA .............................................................................. 404

CONGENITAL PULMONARY MALFORMATIONS ................................................................ 404

PERSISTENT PULMONARY HYPERTENSION .................................................................. 405

CHOANAL ATRESIA .............................................................................................................. 405

ASTHMA ................................................................................................................................. 405

EXERCISE-INDUCED ASTHMA ............................................................................................. 405

PEDIATRIC ASTHMA CLASSIFICATION .......................................................................... 405

RHINOVIRUS ......................................................................................................................... 406

RESPIRATORY SyncYTIAL VIRUS (RSV) .......................................................................... 406

DUST MITES .......................................................................................................................... 406

BETA BLOCKERS AND ASPIRIN ......................................................................................... 406

ADULT ASTHMA ................................................................................................................... 407

ASTHMA DIFFERENTIAL ...................................................................................................... 407

PNEUMONIA .......................................................................................................................... 407

RECURRENT PNEUMONIA .................................................................................................... 407

ATAXIA TELANGIECTASIA .................................................................................................... 407

BRUton’S X-LINKED AGAMMAGLOBULINEMIA ................................................................... 407

SEVERE COMBINED IMMUNODEFICIENCY (SCID) ............................................................. 407

HYPER-IGM SYNDROME (AKA HYPER IGM SYNDROME) ............................................. 407

HYPER-IGE SYNDROME (AKA HYPER IGE SYNDROME) ................................................... 407

COMMON VARIABLE IMMUNE DEFICIENCY (CVID) ........................................................ 408

(DOUBLE TAKE) ASPERGILLUS .......................................................................................... 408
CRYPTOGRAPHIC ORGANIZING PNEUMONIA (Formerly known as BRONCHIOLITIS OBLITERANS WITH ORGANIZING PNEUMONIA, or BOOP) ................................................................. 408
INTRAPULMONARY SEQUESTRATION ........................................................................ 408
MIGRATING PNEUMONIAS .......................................................................................... 408
(DOUBLE TAKE) TOXOCARA CANIS ........................................................................ 408
(DOUBLE TAKE) ASCARIS LUMBRICOIDES ............................................................. 409
MISCELLANEOUS PULMONARY DEFINITIONS AND CONDITIONS ......................... 409
VOCAL FREMITUS ...................................................................................................... 409
COR PULMONALE ...................................................................................................... 409
TACHYNEA .................................................................................................................. 409
HYPERCAPNIA (AKA HYPERCAPNEA) ..................................................................... 409
BRIEF RESOLVED UNEXPLAINED EVENT (BRUE) ............................................. 410
ALPHA-1-ANTITRYPSIN DEFICIENCY ...................................................................... 410
RESPIRATORY DISTRESS SYNDROME (RDS) .......................................................... 410
NASAL FOREIGN BODY .............................................................................................. 410
FOREIGN BODY ASPIRATION .................................................................................. 410
VOCAL CORD NODULES ............................................................................................ 411
CHRONIC COUGH ..................................................................................................... 411
PNEUMOATHORAX ..................................................................................................... 411
FLAIL CHEST .............................................................................................................. 411
BRONCHIECTASIS ...................................................................................................... 411
HIGH-YIELD CHEST X-RAY FINDINGS AND PEARLS .............................................. 411
PULMONARY VASCULAR CONGESTION .................................................................. 411
PATCHY AREAS OF DIFFUSE ATELECTASIS ............................................................ 411
FLUID IN HORIZONTAL FISSURE ........................................................................... 412
UNDERINFLATED CHEST X-RAY ............................................................................. 412
DIFFUSE OPACITIES WITH CYSTIC AREAS ............................................................. 412

Chapter 27: PSYCHIATRY AND SOME SOCIAL ISSUES ............................................. 413
ATTENTION DEFICIT DISORDER (AKA ADD, ADHD, and ATTENTION DEFICIT HYPERACTIVE DISORDER) ................................................................................ 413
LEARNING DISABILITIES .......................................................................................... 413
SCHOOL PHOBIA ...................................................................................................... 413
DEATH RESPONSE IN CHILDREN ............................................................................ 413
DEPRESSION ............................................................................................................. 414
DIVORCE .................................................................................................................... 414
PARENTAL ADJUSTMENT TO A CHILD WITH MALFORMATIONS ......................... 414
CHRONICALLY ILL FAMILY MEMBER ..................................................................... 414
CONVERSION DISORDER ........................................................................................ 414
SOMATIZATION ........................................................................................................ 414
PSYCHOSOMATIC ..................................................................................................... 414
BREATH-HOLDING SPELLS ....................................................................................... 414
NIGHT TERRORS ......................................................................................................... 415
NIGHTMARES ............................................................................................................. 415
CHILD DISCIPLINE .................................................................................................. 415
THUMB SUCKING .................................................................................................... 415
IMPACT OF MEDIA ON CHILDREN ........................................................................ 415
CHILD ABUSE ........................................................................................................... 416
PHYSICAL ABUSE .................................................................................................... 416
Chapter 28: ETHICS IN PEDIATRICS .......................................................... 420

MAIN PRINCIPLES AND TERMS .......................................................... 420

AUTONOMY .......................................................................................... 420
BENEFICENCE ...................................................................................... 420
CONSENT .............................................................................................. 421
PERMISSION ......................................................................................... 421
RELIGIOUS, CULTURAL, AND PERSONAL OBJECTIONS ......................... 421
ASSENT ................................................................................................. 421
TRUTHFULNESS .................................................................................... 422
CONFIDENTIALITY ................................................................................. 422
PHYSIOLOGIC FUTILITY ........................................................................ 422
QUALITATIVE FUTILITY ....................................................................... 423
SPECIFIC ISSUES .................................................................................. 423

IMPAIRED NEUROLOGIC STATES ......................................................... 423
DO NOT RESUSCITATE (DNR; DNAR) ORDERS ........................................ 424
EUTHANASIA AND PHYSICIAN ASSISTED SUICIDE ................................. 424
OTHER ISSUES ...................................................................................... 424

Chapter 29: PATIENT SAFETY AND QUALITY IMPROVEMENT ................. 426

SYSTEMS APPROACH ........................................................................ 426
TEAM APPROACH ............................................................................... 426
CULTURE OF TRANSPRARENCY .......................................................... 426
NON-PUNITIVE APPROACH ................................................................. 427
LEARNING FROM ERRORS ................................................................... 427

QUALITY IMPROVEMENT ..................................................................... 427
DATA DRIVEN APPROACH .................................................................. 427
MEDICAL ERROR ................................................................................. 428
PREVENTABLE ADVERSE EVENT ......................................................... 428
NON-PREVENTABLE ADVERSE EVENT .................................................................................................................. 428
NEAR MISS (AKA CLOSE CALL) ............................................................................................................................ 428
SENTINEL EVENT .................................................................................................................................................. 428
PSYCHOLOGY OF CHANGE ...................................................................................................................................... 428
CYCLE OF CONTINUOUS IMPROVEMENT ........................................................................................................... 429

Chapter 30: PEDIATRIC LAB VALUES .................................................................................................................. 430
COMPLETE BLOOD COUNT (CBC) .......................................................................................................................... 430
COAGULATION STUDIES ........................................................................................................................................ 430
NORMAL PEDIATRIC ELECTROLYTE VALUES ...................................................................................................... 430
ALKALINE PHOSPHATASE ..................................................................................................................................... 431
GAMMA-GLUTAMYL TRANSPEPTIDASE (GGT) .................................................................................................... 431
DIRECT BILIRUBIN (AKA CONJUGATED BILIRUBIN) ............................................................................................. 431

Chapter 31: PEDIATRIC VITAL SIGNS .................................................................................................................. 432
PEDIATRIC RESPIRATORY RATES .......................................................................................................................... 432
PEDIATRIC HEART RATE OR PULSE ..................................................................................................................... 432
PEDIATRIC BLOOD PRESSURE ............................................................................................................................. 432

Index ........................................................................................................................................................................ 435
CONTACT DERMATITIS, A DIAPER RASH

Contact dermatitis is a diaper rash that spares the inguinal folds. Treat with more frequent diaper changes and a topical barrier, such as zinc oxide.

(DOUBLE TAKE) CUTANEOUS CANDIDIASIS, A DIAPER DERMATITIS

Cutaneous candidiasis, a diaper dermatitis, can occur secondary to a contact dermatitis or recent antibiotic use. It presents as a beefy red rash with papular satellite lesions. This rash goes into the inguinal folds. Use a KOH prep to confirm diagnosis, and treat with a topical antifungal, such as nystatin or clotrimazole.

IMAGE (includes satellite lesions): www.pbrlinks.com/CUTASCAN1

(DOUBLE TAKE) ATOPIC DERMATITIS (ECZEMA)

In babies, atopic dermatitis (eczema) SPARES the diaper folds/flexural surfaces (but not in older kids). It is PRURITIC and LICHENIFIED. Food allergies CAN exacerbate eczema. The contribution of early food ingestion to the development of atopic dermatitis is controversial. Eggs, fish, milk, peanut, soy, wheat and strawberries are the foods thought to possibly contribute, but delaying their introduction doesn’t help. Positive skin and RAST tests for foods are not predictive, either. Treatment options include emollients and topical steroids. Avoid use of steroids in areas where the skin is thin. Use the lowest potency steroids that work. Watch for superinfection if the eczema is not improving with appropriate therapy.

IMAGE: www.pbrlinks.com/ECZEMA1

NUMMULAR ECZEMA

Nummular eczema refers to coin-shaped eczematous lesions usually on the extensor surfaces of extremities. Lesions are uniform, without any central clearing. Lesions may ooze, crust, or have a scaling pattern. Treat with steroids.

IMAGE: www.pbrlinks.com/NUMMULAR1

MNEMONIC: Imagine that you are standing with your arms in abduction, and you are balancing silver COINS that are UNIFORM in color (without central clearing) on the BACK of both of your arms (extensor surface).

(DOUBLE TAKE) ECZEMA HERPETICUM

Eczema herpeticum is a potentially life-threatening disseminated herpes (HSV) infection occurring at sites of skin damage, including sites of eczema. Look for HSV Vesicles + Crusted Lesions. Even if a description is not given of a vesicular rash, have a high index of suspicion for a rash “not improving with steroids and/or antibiotics.” Diagnose with HSV PCR or a viral culture, but do not delay treatment. A Tzanck smear can support the diagnosis. Treat by STOPPING topical steroids and/or immunosuppressants and starting Acyclovir.

IMAGE: www.pbrlinks.com/ECZEMAHERPE1
IMAGE: www.pbrlinks.com/ECZEMAHERPE2
IMAGE: www.pbrlinks.com/ECZEMAHERPE3
SEBORRHEIC DERMATITIS (AKA CRADLE CAP)
Seborrheic dermatitis (AKA cradle cap), is a NONpruritic, inflammatory, flaky rash with white to yellow scales that usually forms in oily areas (e.g., scalp). It is often seen in the first two months of life. After that, it’s not very common until adolescence. You may treat with topical antifungal agents or mild steroids. The skin may be left with hypopigmented areas, especially in the folds. If asked to name the hypopigmented areas, choose PITYRIASIS ALBA.

IMAGE: www.pbrlinks.com/SEBORRHEIC1

PSORIASIS
Psoriasis is a very well-defined, red, flaky rash covered with silver-white patches. It can also be described as thick and scaly (like seborrheic dermatitis). It sometimes results in punctate bleeding when scales are removed (this is called the Auspitz sign). It can occasionally be limited to the diaper area, in which case it goes into the inguinal folds.

GUTTATE PSORIASIS
The “guttate” in guttate psoriasis means “drop like” and describes the shape of these discrete psoriatic lesions. This can be preceded by a Group A Strep (pyogenes) infection.

IMAGE: www.pbrlinks.com/GUTTATE1

(DOUBLE TAKE) LANGERHANS CELL HISTIOCYTOSIS (LCH) = HISTIOCYTOSIS X
Langerhans Cell Histiocytosis (LCH), AKA Histiocytosis X, is a PAPULAR rash that is sometimes associated with petechiae. The rash is located in the folds (inguinal folds, supra-pubic folds, perianal area). It can resemble eczema, but the petechiae or PAPULES should guide you towards this diagnosis. LCH is a type of cancer. You may be shown a lytic bone lesion (possibly of the skull). Diagnose by skin biopsy. LCH can also be associated with DIABETES INSIPIDUS. Treat by removing the lesion and giving steroids, ± chemotherapy.

PEARLS: Do not confuse this with Wiskott-Aldrich (WiXotT-Aldrich, X-linked, low IgM, high IgA, TIE = Thrombocytopenia, small platelets, Infections, and Eczema). Also, if they describe an eczema or seborrheic dermatitis type of rash in a patient with high urine output, LCH is your diagnosis.

IMAGE: www.pbrlinks.com/LANGERHANSCELL1
IMAGE: www.pbrlinks.com/LANGERHANSCELL2
IMAGE: www.pbrlinks.com/LANGERHANSCELL3

RASHES THAT SPARE THE INGUINAL FOLDS
Eczema and Contact Dermatitis should be high on your differential for rashes that spare the inguinal folds.

PRURITIC RASHES
Consider atopic dermatitis/eczema, HSV, scabies, tinea, or Varicella (VZV) in your differential of any pruritic rashes.

KERATOSIS PILARIS
Keratosis pilaris forms due to an overgrowth of the horny skin. It can look similar to eczema and may have a mild erythematous background. No treatment is needed.

IMAGE: www.pbrlinks.com/KERATOSIS1
IMAGE: www.pbrlinks.com/KERATOSIS2
IMAGE: www.pbrlinks.com/KERATOSIS3
LICHEN SCLEROSUS
Lichen sclerosus is a chronic, inflammatory, dry, white, and somewhat scaly rash that is usually found in the genital area. There is no thickening or sclerosis. There are usually no symptoms, although a small percentage of patients have pruritis. Look for a picture of labia with a rash.

IMAGE: www.pbrlinks.com/LICHSENSCLEROSUS1

LICHEN STRIATUS
Lichen striatus is a rash that looks like eczema, but is linear or papular and can follow the Lines of Blaschko.

IMAGE: www.pbrlinks.com/LICHENSTRIATUS1
IMAGE: www.pbrlinks.com/LICHENSTRIATUS2
IMAGE: www.pbrlinks.com/LICHENSTRIATUS3
IMAGE: www.pbrlinks.com/LICHENSTRIATUS4

ALLERGIC CONTACT DERMATITIS, A TYPE IV HYPERSENSITIVITY SKIN RASH
Allergic contact dermatitis is a Type IV hypersensitivity skin rash that requires a prior exposure, and tends to be pruritic. See if the location of the rash is in an area where a nickel-containing belt buckle, earring, necklace, or other jewelry could have been. A rash may present even after years of wearing the irritant. The rash from nickel exposure is more erythematous and can become lichenified. The classic example of Type IV reactions is the rash of poison ivy, or other “leaves of 3” (including poison oak and poison sumac). Regarding a contact dermatitis from these plants, it will not spread once the affected area is washed with soap and water. The fluid from within the vesicles cannot spread the rash. This reaction is a Type IV Cell Mediated Hypersensitivity Reaction, and is called a Rhus reaction (from the old genus name of poison ivy, Rhus radicans). The rash is vesicular and may be in a linear configuration (where the leaves rubbed across the skin).

* PEARL: First exposure may take 1 week to develop the rash as helper T cells proliferate and “remember” the agent. After that, the rash may develop within hours of exposure. “No wonder I had to go through the 2-step PPD before starting as an attending!”

* PEARL: REMINDERS: A PPD and the skin testing of Candida, Mumps, and Tetanus are all Type IV reactions.

* MNEMONICS:
  - “LEAVES OF THREE, LET THEM BE!”
  - Type IV reaction: I + V = the Roman numeral IV = 4, and the 4th letter in the alphabet is D = DELAYED. I + V also should you remind you of poison IVy.

* IMAGE: www.pbrlinks.com/ALLERGICCONTACT1
* IMAGE: www.pbrlinks.com/ALLERGICCONTACT2

(DOUBLE TAKE) BIOTIN/BIOTINIDASE DEFICIENCY
Biotin and biotinidase deficiencies may present with a RASH + ALOPECIA + NEUROLOGIC SIGNS (ataxia, coma, etc.). Patients may also have lactic acidosis. Treat with biotin.

MNEMONIC: Imagine the TIN MAN from The Wizard of Oz walking with an ATAXIC gait as he SCRATCHES his arm. Notice that he has NO HAIR!
PAPULAR URTICARIA

Papular urticaria is a rash due to hypersensitivities to the insect bites of bedbugs, fleas, and mosquitoes that results in edema, erythema, and pruritis. It presents in **RECURRENT CROPS**. It tends to come and go, wax and wane every few weeks or months. Some lesions may be umbilicated. Treat by removing the offending agent (fleas, lice, bedbugs, or outside insects).

**PEARL**: You may not be given the history of a specific insect or exposure.

**MNEMONIC**: “CROPular Urticaria.” Where do you find insects? In CROPS, of course!

**IMAGE**: www.pbrlinks.com/PAPULAR1

VITILIGO

Vitiligo results in depigmented macules. Look for a “salt and pepper” type of pattern of re-pigmentation. It is often associated with **HALO NEVI**.

**IMAGE**: www.pbrlinks.com/VITILIGO1

(NAME ALERT) ICHTHYOSIS VULGARIS

Ichthyosis vulgaris is a rash that resembles **FISH SCALES**. It is often seen in atopic dermatitis patients. You may attempt treatment with ammonium lactate or alpha-hydroxy-acid containing agents. The name alert is for lamellar ichthyosis and harlequin ichthyosis.

**IMAGE**: www.pbrlinks.com/ICHTHYOSIS1

(NAME ALERT) LAMELLAR ICHTHYOSIS (AKA COLLODION BABY)

Lamellar ichthyosis (AKA colloidion baby) is noted at the time of birth in newborns. A thin, transparent film is noted on the body. Eyelashes are missing. Eyelids seem everted (ectropion). The name alert is for harlequin ichthyosis and ichthyosis vulgaris.

**IMAGE**: www.pbrlinks.com/LAMELLAR1
**IMAGE**: www.pbrlinks.com/LAMELLAR2
**IMAGE**: www.pbrlinks.com/LAMELLAR3

(NAME ALERT) HARLEQUIN ICHTHYOSIS

Harlequin ichthyosis presents with a newborn that looks much more abnormal than lamellar ichthyosis. The covering is hard (“armor-like”) and horny. Movement is restricted. Prognosis is poor comparatively. The name alert is for lamellar ichthyosis and ichthyosis vulgaris.

**IMAGE**: www.pbrlinks.com/HARLEQUIN1

PYODERMA GANGRENOSUM

The etiology of pyoderma gangrenosum is unknown, but it is known to be associated with other systemic diseases such as Crohn’s. Lesions are described as deep, bluish, necrotic, and boggy-looking ulcers.

**IMAGE**: www.pbrlinks.com/PYODERMA1
**IMAGE**: www.pbrlinks.com/PYODERMA2
(DOUBLE TAKE) ECTHYMA GANGRENOSUM
Ecthyma gangrenosum is usually a sign of a *Pseudomonas* infection and possibly sepsis in an immunocompromised patient, especially leukemia! Look for a neutropenic patient with black, necrotic, ulcerative lesions with surrounding erythema and edema. These lesions are often located in the groin/diaper area.

**IMAGE:** www.pbrlinks.com/ECTHYMA1

GRANULOMA ANNULARE
Granuloma annulare is a chronic skin condition with an annular (circular) lesion. It may be slightly pruritic. There are no scales.

**PEARL:** This looks kind of like ringworm, but there is **NO SCALING**! Keep this in mind any time you see tinea as an answer choice.

**IMAGE:** www.pbrlinks.com/GRANULOMA1

PITTED KERATOLYSIS
Pitted keratolysis is a condition in which there is pitted skin in areas of pressure. There will probably be a history of strong foot odor.

**IMAGE:** www.pbrlinks.com/PKERATOLYSIS1

(DOUBLE TAKE) DERMATOMYOSITIS
Dermatomyositis results in a heliotropic, violaceous rash in malar area. Gottron’s Papules (erythematous, shiny, pruritic papules over the metacarpals) may be present. Patients will have proximal weakness and possible telangiectasias near the nail folds. Diagnose with a **MUSCLE BIOPSY**. The **CK LEVEL WILL BE HIGH**. These patients can also get calcinosis cutis.

**PEARL/REMINDER:** Duchenne Muscular Dystrophy also has elevated CK levels.

**IMAGE:** www.pbrlinks.com/DERMATOMYOSITIS1
**IMAGE:** www.pbrlinks.com/DERMATOMYOSITIS2
**IMAGE:** (calcinosis cutis) www.pbrlinks.com/DERMATOMYOSITIS3

STEVENS-JOHNSON SYNDROME (SJS) and TOXIC EPIDERMAL NECROLYSIS (TEN)
The terminology for Stevens-Johnson Syndrome (SJS) and Toxic Epidermal Necrolysis (TEN) varies. Many now view these disorders on a spectrum. SJS and TEN are the same, but TEN is the diagnosis if > 30% of body surface area is involved. Look for bullae or erosions followed by hemorrhagic crusting. There may be severe blistering with the Nikolsky sign when pressure is applied. It is a full thickness rash similar to a burn. Skin lesions may look like a BULLSEYE or TARGET lesion, with the center described as DARK, DUSKY, or VIOLACEOUS. The target CAN be a blister or vesicle. At least two mucous membranes must be involved (most commonly the lips and eyes). If the eyes are involved, this is an ocular emergency!

**MEDICATION ASSOCIATIONS:** Aromatic seizure medications, penicillins, NSAIDS, and *sulfa* drugs. The rash usually occurs within 2 months of starting the medication.

ERYTHEMA MULTIFORME
Erythema multiforme is also a confusing topic. It may now also be considered on the SJS/TEN spectrum, especially if mucous membranes are involved. Distinguishing erythema multiforme minor from erythema multiforme major is also confusing, so the terminology is not likely to be tested.
Both minor and major have tiny target lesions (probably dusky in the middle). Sometimes you have to use your imagination to envision the target. It may just look a little darker on the inside of the lesion than the outside. Lesions usually start on the hand and/or feet and THEN progress to the trunk. There will be 0–1 mucous membranes involved (if more, it will likely be called SJS or TEN). IF you are tested on the terminology, pick minor if the patient is not toxic. Possible etiologies include HSV, Mycoplasma, and Syphilis.

**IMAGE:** www.pbrlinks.com/ERYTHEMULTI1
**IMAGE:** www.pbrlinks.com/ERYTHEMULTI2
**IMAGE:** www.pbrlinks.com/ERYTHEMULTI3
**IMAGE:** www.pbrlinks.com/ERYTHEMULTI4

**MNEMONIC:** Imagine Stevens and Johnson as two very arrogant hunters. They went TARGET shooting one day in an area that said, “Beware of BULLS.” They learned their lesson the hard way when a BULL came out of nowhere and did some target practice of his own.

**(DOUBLE TAKE) NEONATAL LUPUS**

The baby does NOT have lupus. Neonatal lupus occurs in children of mothers with SLE due to fetal exposure to maternal SLE-related antibodies. It is rare. Findings may include increased LFTs, petechiae, rash, scaling, thrombocytopenia, third degree AV heart block with bradycardia, or hydrops fetalis (fluid accumulation in two or more fetal compartments usually due to heart failure). Diagnose by sending maternal Anti-Ro or anti-La antibodies (AKA anti-SS-A or SS-B).

**IMAGE:** www.pbrlinks.com/NEONATALLUPUS1

**RASHES WITH CENTRAL CLEARING (PEARL)**

Hives/urticaria, Rheumatic Fever (“jonEs” = E. Marginatum = MARGINs progress to give central clearing), Tinea (raised border/ringworm)

**RASHES WITH CENTRAL DARKENING/TARGET LESIONS (PEARL)**

SJS/TEN (“target shooting, bull”), Brown recluse spider bite (see Emergency Medicine), Lyme Disease/Borrelia/Erythema Migrans

**URTICARIA/HIVES**

Urticaria (hives) is a pruritic rash due to an allergic exposure. Pink center with a more erythematous border. Giving histamine blockers (both H1 & H2) may be helpful.

**IMAGE:** www.pbrlinks.com/URTICARIA1
**IMAGE:** www.pbrlinks.com/URTICARIA2

**SCLERODERMA**

Scleroderma patients have thickened skin with an ivory or waxy, appearance. Affects girls more frequently. The limited form is more common than the systemic form in children (located at one site only). Lesions may initially be painful and tender. Skin is often hard and may have a linear appearance. Treat with topical lubricants for limited cases. May have to use steroids or other immunosuppressives in more severe cases.

**IMAGE:** www.pbrlinks.com/SCLERODERMA1
**IMAGE:** www.pbrlinks.com/SCLERODERMA2
DERMOID CYSTS (AKA EPIDERMOID CYSTS)

Dermoid cysts (AKA epidermoid cysts) are sac-like growths present at birth. They are like teratomas in that they can contain hair and teeth. They are often associated with tufts or sinuses. They grow slowly and can get infected, so most of them should be REMOVED. Especially those in sensitive areas, including the face or nasal area.

IMAGES: www.pbrlinks.com/EPIDERMOIDCYSTS1
         www.pbrlinks.com/EPIDERMOIDCYSTS2
         www.pbrlinks.com/EPIDERMOIDCYSTS3

COMEDONAL ACNE

Think of comedonal acne as an OBSTRUCTIVE process that creates white heads and black heads. Treat with a RETINOID keratinolytic agent. You may also prescribe benzoyl peroxide.

PEARL: An answer with topical retinoic acid + benzoyl peroxide twice daily is probably WRONG. Benzoyl peroxide inactivates traditional retinoids (tretinoin), so one should be used at night, and the other in the morning (or at least with some time in between). Newer retinoids, like adapalene and tazarotene, are more stable and may be used at the same time.

INFLAMMATORY ACNE

Inflammatory acne is differentiated from comedonal acne by its RED BASE.

* Minor cases: If the acne is localized with small lesions, use a TOPICAL antimicrobial agent, such as Benzoyl peroxide, Clindamycin or Erythromycin. Retinoic acid topicals are also included in most regimens.

* Severe cases: If large, nodular, or in multiple areas, use ORAL antibiotics. First line is Tetracycline, Doxycycline, or Erythromycin. Minocycline is a second line agent. These antibiotics provide a bactericidal and an anti-inflammatory effect. You may also try oral contraceptive pills (OCPs) in females for their anti-androgen effects. If all else fails, use ISOTRETINOIN.

ISOTRETINOIN

Isotretinoin is a miracle drug that fights sebum production and bacteria, while also decreasing inflammation and comedonal acne. But it is TERATOGENIC, so obtain TWO negative pregnancy tests before starting the medications. Also, patients must use TWO forms of birth control starting one month before starting the medication and until one month after. In addition, they should have monthly pregnancy tests.

PEARL: Acne can begin as early as 8 years of age. If the boards present a 7-year-old child with what looks like acne, CONSIDER ANOTHER DIAGNOSIS! Consider exogenous steroid use, precocious puberty, and TUBEROUS SCLEROSIS.

(DOUBLE TAKE) APHTHOUS ULCERS

Aphthous ulcers are painful lesions found within the oral mucosa (buccal mucosa, lips, and tongue) with a grayish-white base and a rim of erythema. These can occur in isolation or in association with Behcet’s or Shwachman-Diamond syndrome.

IMAGES: www.pbrlinks.com/APHTHOUSULCERS1
         www.pbrlinks.com/APHTHOUSULCERS2
TEETH ISSUES

TOOTH TIMELINE
Tooth appearance follows a timeline. All anterior teeth are present (eight of them) by about 12 months. Primary teeth are present by about age 2. Some children do not have teeth by 1 year of age, so reassurance is okay. For ABP questions, they will be more focused on abnormal-looking teeth.

PEG TEETH
Peg teeth refers to teeth that are smaller than usual. Sometimes they are tapered and look like fangs. This usually affects the lateral incisors and is associated with INCONTINENTIA PIGMENTI and HYPOHIDROTIC ECTODERMAL DYSPLASIA.

IMAGE: www.pbrlinks.com/PEGTEETH1
IMAGE: www.pbrlinks.com/PEGTEETH2

HUTCHINSON TEETH
Hutchinson teeth are found in CONGENITAL SYPHILIS. These children have teeth that are smaller and more widely spaced. They also have notches on the biting surfaces.

IMAGE: www.pbrlinks.com/HUTCHTEETH1
IMAGE: www.pbrlinks.com/HUTCHTEETH2

TETRACYCLINE TEETH STAINING
If tetracycline is used at a young age, teeth can end up having yellow, brown, or blue band-like stains. Avoid tetracycline until patients are at least 8 years of age.

IMAGE: www.pbrlinks.com/TETRATEETH1

FLUOROSIS
Fluorosis is the mottled discoloration of teeth due to excess fluorine use during tooth development (up to age 4).

IMAGE: www.pbrlinks.com/FLUOROSIS1

VASCULAR & PIGMENTED LESIONS

PEARL/MNEMONIC: HEMANGIOMAS are different from VASCULAR MALFORMATIONS (e.g., Port Wine Stains/capillary malformations). VASCULAR MALFORMATIONS tend to have much more associated morbidity. You might say that VMs are Very Morbid in comparison.

IMAGE: (slideshow on birthmarks) www.pbrlinks.com/VM1

HEMANGIOMAS
Hemangiomas are an abnormal build-up of blood vessels. They eventually self-involute but are dangerous during PROLIFERATION PHASE. They are otherwise benign. They usually look red, but can appear blue if deep (CAVERNOUS HEMANGIOMAS). Proliferation is greatest during the first 6 months, and lesions are largest around 1 year of age. Lesions start to involute around 2 years of age and disappear by 5–10 years of age. If in a benign area, they can be left alone. If in a more sensitive area (near the eyes, ears, nose, throat, or spine), they may require medical treatment with propranolol (first line drug). Second line therapies include systemic steroids, pulsed dye laser therapy and surgery.
**COMPLICATIONS:** If located in the beard area, look for airway issues. If near the eye, it’s okay as long as there is no problem with VISION. Those near the ears, nose, and lips can be troublesome if they ulcerate. If in the lumbosacral area, there is concern for spinal dysraphism (incomplete fusion of a raphe, especially the neural folds/tube). High output congestive heart failure (CHF) can occur due to large, or multiple hemangiomas.

**IMAGE:** www.pbrlinks.com/HEMANGIOMAS1  
**IMAGE:** www.pbrlinks.com/HEMANGIOMAS2

**(DOUBLE TAKE) PHACES SYNDROME**

A diagnosis of PHACES syndrome requires a large hemangioma in the face/neck area PLUS one of the following defects:

* Posterior fossa malformation (DANDY WALKER)
* Hemangioma. Often in the distribution of the Facial Nerve. Look for a large *segmental* hemangioma on the FACE. Segmental refers to what looks like a nerve distribution (segmented by normal skin in between).
* Arterial cerebrovascular anomaly: Including STROKES
* Cardiac anomalies: Especially COARCTATION OF THE AORTA
* Eye anomalies: MICROPHTHALMIA, STRABISMUS
* Sternal defect

**IMAGE:** www.pbrlinks.com/PHACES1

**(DOUBLE TAKE) KASABACH-MERRITT SYNDROME**

In Kasabach-Merritt syndrome, there are large, congenital vascular tumors. They are not true hemangiomas but can cause a severe CONSUMPTIVE COAGULOPATHY (in the form of thrombocytopenia and the consumption of coagulation factors) and death. It is most common in infants.

**IMAGE:** www.pbrlinks.com/KASABACH1  
**IMAGE:** www.pbrlinks.com/KASABACH2

**PEARL:** Look at the above images closely. Make sure you look closely at images so that you do not get this vascular tumor confused with hemihypertrophy.

**MNEMONIC:**

- >---< is used by many of us when recording CBC results.

\[
\text{ASSABACH} = \text{low platelets, risk of bleeding and death}
\]

**NEVUS SIMPLEX**

A nevus simplex is a Salmond colored lesion often called a Stork bite or Salmon patch. They blanch on pressure and tend to be on the midline or symmetrical (e.g. on both eyelids). These fade with time and are benign. Do not get this term confused with Nevus FLAMMEUS (AKA PORT WINE STAIN).

**PEARL:** These BLANCH with pressure.

**IMAGE:** www.pbrlinks.com/NevusSimplex1  
**IMAGE:** www.pbrlinks.com/NevusSimplex2

**PORT WINE STAINS (PWS) (AKA NEVUS FLAMMEUS)**

Port Wine Stains (PWS), AKA nevus flammeus, are CAPILLARY malformations. They tend to be unilateral and segmental, not crossing the midline. They start as pink/flat lesions that become dark red-purple. They then progress to being thick/raised in adulthood. These PWSs are Present at birth and are PERMANENT.
They are benign if noted in isolation. If noted on the face, they can be associated with glaucoma (increased intraocular pressure that can present as a red eye).

**IMAGE:** www.pbrlinks.com/PORTWINE1  
**IMAGE:** www.pbrlinks.com/PORTWINE2

**PEARL:** They grow in proportion to the child and tend to occur in a segmental distribution respecting the midline.

**MNEMONIC:** Glaucoma is a concern if a PWS is noted in the facial area. Is that why Mikhail Gorbachev wore glasses? Because he has that big FLAME on his head?

**STURGE-WEBER SYNDROME (SWS)**

The Sturge-Weber Syndrome (SWS) includes the following findings: Port Wine Stain (PWS or NEVUS FLAMMEUS) + EYE/TRIGEMINAL NERVE DISTRIBUTION + INTRACRANIAL VASCULAR MALFORMATION (look for with MRI) +/- glaucoma +/- Seizures +/- cognitive deficits.

**MNEMONICS:** “pWS = sWS”... Ever heard of a basketball player named Chris WEBBER? Think WEBBER = Sports = ESPN (I know it's a stretch).

* EYE - glaucoma  
* SWS  
* PWS  
* NEUROLOGIC issues: Developmental delay, Seizures

**CAPILLARY MALFORMATION ASSOCIATIONS**

**(DOUBLE TAKE) KLIPPEL-TRENAUNAY SYNDROME**

Klippel-Trenaunay syndrome is associated with AV fistulae, causing skeletal or limb OVERGROWTH (hemihypertrophy). Patients with Klippel-Trenaunay have Port Wine Stains and overgrowth of tissue, bones, and soft tissue. Look for unilateral limb overgrowth and CHF.

* **IMAGE:** www.pbrlinks.com/KLIPPELTRENAUNAY1

* **(DOUBLE TAKE) PEARL:** Hemihypertrophy images on the pediatric exam should very quickly clue you in to a few disorders. Highest on your differential should be Beckwith-Wiedemann Syndrome, then Klippel-Trenaunay, then Russell-Silver Syndrome, and then possibly Proteus Syndrome.

* **MNEMONIC:** From now on, say CRIPPLE-T. Think of these patients as having a CRIPLING disorder in which they have one HUGE leg that prevents them from getting around.

* **NAME ALERT:** KLIPPEL-FEIL SYNDROME. This is a completely different disorder. Look for a Torticollis-like photograph (due to fused cervical vertebrae).

* **IMAGE:** www.pbrlinks.com/KLIPPELTRENAUNAY2

**(NAME ALERT) KLIPPEL-FEIL SYNDROME**

Klippel-Feil Syndrome results in a torticollis-like appearance and results from fused cervical vertebrae. Patients will likely have a short, webbed neck, limited range of motion at the neck, and possibly other anomalies. Etiology is unknown. The “Name Alert” is because this is a completely different disorder from Klippel-Trenaunay Syndrome (limb overgrowth due to AV fistulae).
CONGENITAL MELANOCYTIC NEVUS

Congenital melanocytic nevi are commonly referred to as moles. They may present at birth or within the first few months of life. They are generally benign but carry an increased risk of MELANOMA if there are multiple moles (more than three) or if they are > 20 cm. They are associated with spinal dysraphisms and Dandy Walker Syndrome (fossa abnormality).

MCCUNE-ALBRIGHT SYNDROME (AKA POLYOSTOTIC FIBROUS DYSPLASIA)

McCune-Albright syndrome (AKA Polyostotic Fibrous Dysplasia) findings include IRREGULAR café-au-lait MACULES (either > 3 cm or multiple), PRECOCIOUS PUBERTY, BONE PROBLEMS (fractures, cranial deformities), and possibly other endocrine issues (hyperthyroidism). It can cause fractures of long bones and bowing of arms.

MCCUNE-ALBRIGHT SYNDROME:

* MACULES
  * Greater than 3 cm or multiple
  * Precocious puberty
  * Bone problems (fractures, cranial deformities)
  * Possibly other endocrine issues

TUBEROUS SCLEROSIS

Tuberous sclerosis is AUTOSOMAL DOMINANT. Look for at least 2 of the following features:

* ASH LEAF SPOTS: These are hypopigmented lesions, which can be seen with a Woods Lamp. You need at least 3 on the body to help make the diagnosis.
  * IMAGE: www.pbrlinks.com/TUBERSCLERO1
  * IMAGE: www.pbrlinks.com/TUBERSCLERO2
* SHAGREEN PATCH (hypertigmented plaque that can be rough/thick and papular)
  * IMAGE: www.pbrlinks.com/TUBERSCLERO3
  * IMAGE: www.pbrlinks.com/TUBERSCLERO4
* ANGIOFIBROMAS (AKA ADENOMA SEBACEUM or SEBACEOUS HYPERPLASIA)
  * PEAKL: Often misdiagnosed as acne. LOOK FOR SPARING OF THE FOREHEAD.
  * IMAGE: www.pbrlinks.com/TUBERSCLERO5
* PERIVENTRICULAR OR CORTICAL TUBERS: Usually associated with INFANTILE SPASMS or seizures
* CARDIAC Rhabdomyomas: Look for a kid with arrhythmias!

NEUROFIBROMATOSIS I (NF1)

Neurofibromatosis I (NF1) is an AUTOSOMAL DOMINANT disorder involving the SKIN, BONES, and NERVOUS SYSTEM. Diagnose with at least 2 of the following:
* First-degree relative has the disease
* Neurofibromas
* Lisch Nodules in the iris (they look like mini neurofibromas)
  * IMAGE: www.pbrlinks.com/NF1
* Optic nerve gliomas. This is the neurologic component.

* 6 REGULAR café-au-lait macules. As they get older, the SIZE DOES MATTER. If prepubertal, these are > 5 mm, if postpubertal, > 15 mm. Ten years of age is a good cutoff. These macules can be present at birth. Children can have an increase in the size and number as they age. Therefore, it is very important that they have regular follow-up, especially if there is a family history of the disorder. As a side note, children can also get pheochromocytomas or renal artery stenosis, so the BP should be monitored regularly.

* Scoliosis or bony abnormalities
* Axillary or inguinal freckling

* MNEMONIC: (FOR NF-1) SKIN + “ORTHO” + NEURO issues = S.O.N. This is NF ONE, SON (or daughter)!!!

NEUROFIBROMATOSIS 2 (NF2)

(Low-yield topic). Neurofibromatosis 2 (NF2) findings include nonmalignant tumors of the nervous system, especially acoustic nerve tumors (AKA neuromas or schwannomas). These can cause tinnitus or even hearing loss. Patients can also have eye tumors, cataracts, retinal problems, spinal cord tumors, and meningiomas. Look for a family history.

PEARL: Tuberous Sclerosis and Neurofibromatosis are both AUTOSOMAL DOMINANT, BUT they both have a HIGH RATE OF NEW MUTATIONS. Do not exclude these from your differential if they mention that the patient’s parents do not have the disorder.

INCONTINENTIA PIGMENTI

Incontinentia pigmenti is a severe X-linked DOMINANT disease that results in DEATH for all MALES. If presented with this as an answer choice, make sure the ABP vignette refers to a FEMALE patient. There are four stages of this disorder: Inflammatory vesicular phase, followed by a verrucous phase, followed by the hyperpigmentation phase noted along the lines of Blaschko, and finally a phase in which the hyperpigmentation disappears. This can leave atrophy or hypopigmentation behind.

SYSTEMIC ASSOCIATIONS: DELAYED DENTITION, mental retardation, paralysis, PEG teeth, and seizures.

IMAGE: www.pbrlinks.com/INCONTINENTIA1
IMAGE: www.pbrlinks.com/INCONTINENTIA2
IMAGE: www.pbrlinks.com/INCONTINENTIA3
IMAGE: www.pbrlinks.com/INCONTINENTIA4

MNEMONIC: As WOMEN age, they tend to have more “INCONTINENTs.” Incontinentia = Female patient. Imagine a WOMAN on the ground having a SEIZURE. She becomes INCONTINENT of urine, which streams down her PEG legs and creates black-and-white LINEAR SKIN LESIONS. PEG refers to PEG TEETH.

HYPOHIDROTIC ECTODERMAL DYSPLASIA

Hypohidrotic ectodermal dysplasia is a condition related to INCONTINENTIA PIGMENTI, but this can occur in boys. It is associated with HYPOHIDROSIS, decreased sweating, which can lead to hyperthermia;
HYPOTRICHOSIS, sparse hair, so no eyebrows/lashes; DELAYED TOOTH ERUPTION; and DEFORMED/PEG TEETH.

IMAGE: www.pbrlinks.com/HED1
IMAGE: www.pbrlinks.com/HED2

INFECTIONOUS SKIN CONDITIONS

(DOUBLE TAKE) ECTHYMA GANGRENOsum

Ecthyma gangrenosum is usually a sign of a PSEUDOMONAS infection and possibly sepsis in an immunocompromised patient, especially LEUKEMIA! Look for a neutropenic patient with black, necrotic, ulcerative lesions with surrounding erythema and edema. These lesions are often located in the groin/diaper area.

IMAGE: www.pbrlinks.com/ECTHYMA1

STREPTOCOCCAL INFECTIONS OF THE GROIN

Streptococcal infections of the groin or perineum are associated with pain with stooling, pruritis, redness, and possibly a fissure. Unlike zinc deficiency, there is no desquamation. If vaginal or vulvovaginitis, look for a history of vaginal discharge. Diagnose by culturing the area. Treat with amoxicillin, penicillin (PCN), or a first generation cephalosporin. Risk factors include abuse and previous instrumentation. Look for a history of recent antibiotics in case the discharge is due to Candida.

(DOUBLE TAKE) CUTANEOUS CANDIDIASIS, A DIAPER DERMATITIS

Cutaneous candidiasis, a diaper dermatitis, can occur secondary to a contact dermatitis or recent antibiotic use. It presents as a beefy red rash with papular satellite lesions. This rash goes into the inguinal folds. Use a KOH prep to confirm diagnosis, and treat with a topical antifungal, such as nystatin or clotrimazole.

IMAGE (includes satellite lesions): www.pbrlinks.com/CUTASCAN1

BULLOUS IMPETIGO/STAPH SCALDED SKIN SYNDROME (SSSS)

Bullous impetigo, or Staph Scalded Skin Syndrome (SSSS), is a spectrum of the same disease.

* IMPETIGO: Look for honey-colored crusting lesions and bullae. Non-bullous impetigo will look similar but without vesicle/bullae (more oozing/crusting).
  - IMAGE: www.pbrlinks.com/SSSS1
  - IMAGE: www.pbrlinks.com/SSSS2
  - IMAGE: www.pbrlinks.com/SSSS3

* SSSS: A very painful and red rash in which large, thin blisters are the result of an exotoxin. There is “sheet-like” skin loss/separation. This looks very superficial compared to impetigo. Obtain a BIOPSY to prove that it is SSSS and NOT Stevens-Johnson Syndrome (SJS) or Toxic Epidermal Necrolysis (TEN), both of which have deeper/dermal involvement.
  - IMAGE: www.pbrlinks.com/SSSS2
  - PEARL: Lesions are NOT in the eyes or mouth but may be around the eyes and mouth (as opposed to SJS/TEN, which may be IN the eyes and mouth).
STAPHYLOCOCCUS EPIDERMIDIS
Staphylococcus epidermis is the most likely answer if you are presented with a premature baby that has a skin infection.

CELLULITIS
Cellulitis is defined as a well-demarcated area of erythema, edema, and induration secondary to an infection. It may be associated with bullae. For treatment, start with a 1st generation cephalosporin such as Cefazolin or Cephalexin as your first line agent.

TINEA CORPORIS
In tinea corporis, a thin, circular lesion with THIN SCALES, a RAISED border, and central clearing is noted. The ring of the "ringworm" looks like a worm.

IMAGE: www.pbrlinks.com/TCORPORIS1
IMAGE: www.pbrlinks.com/TCORPORIS2

TINEA VERSICOLOR
Tinea versicolor results in hypopigmented OR hyperpigmented macules. It's caused by MALASSEZIA FURFUR. Lesions may fluoresce under Woods lamp. Treat with selenium or zinc anti-dandruff shampoo, or with oral fluconazole, ketoconazole, but NOT griseofulvin (use that for T. capitis).

IMAGE: www.pbrlinks.com/TVERSICOLOR1
IMAGE: www.pbrlinks.com/TVERSICOLOR2
IMAGE: www.pbrlinks.com/TVERSICOLOR3

PITYRIASIS ROSEA
Pityriasis rosea presents as oval, parallel lesions with THICK scales. Look for a herald patch (first lesion). It is associated with winter and spring. Lesions are often in a “Christmas tree pattern.” Treat with light exposure.

IMAGE: www.pbrlinks.com/PITYRIASIS1
PEARL: Unlike secondary syphilis, there are no lesions on the palms/soles.

MOLLUSCUM CONTAGIOSUM
Molluscum contagiosum results in flesh-colored, pearly papules that are dome-shaped and umbilicated. It is caused by the POX virus. NO treatment is needed, but sometimes you may use cryotherapy or topical cantharidin, podophyllotoxin, imiquimod, or potassium hydroxide.

IMAGE: www.pbrlinks.com/MOLLUSCUM1

MNEMONIC:

molluscUMbilicated Papules

X

(DOUBLE TAKE) HUMAN PAPILLOMA VIRUS (HPV)
Human papilloma virus (HPV) causes VERRUCA VULGARIS (warts). They can be on the hands, knees, and feet, and in the anogenital region. If genital, the condition is referred to as CONDYLOMA ACUMINATA. Genital human papilloma virus is considered to be an STD. In fact, HPV is considered the most prevalent STD of all. Only a small percentage of patients carrying HPV develop warts. More than 90% of infections are
from HPV 6 or HPV 11, which are NOT likely to induce cervical cancer. The risk of cervical cancer is increased depending on the subtype (16 and 18 are most commonly associated with cervical cancer). Anogenital warts can be due to maternal-fetal transmission and may not present until 3 years after birth! BUT if you note anogenital warts AFTER 3 years of age, think SEXUAL ABUSE. Lesions are NOT tender but easily bleed with minimal trauma. Treat with self-applied topical podofilox or imiquimod. Treatment with cryotherapy or podophyllin is done by a physician.

PEARL: Cervical cytology (Pap test) is not recommended until 21 years of age for an average-risk asymptomatic woman.

IMAGE: www.pbrlinks.com/HPV1 (Acuminata)
IMAGE: www.pbrlinks.com/HPV2

MNEMONIC: Don’t get confused with molluscum. hpV = VWarts/Warts = Verruca Vulgaris = Venereal VVarts/Warts. “VVarts on your hands or knees? It’s probably from those darn V’s!”

MNEMONIC: The HPV 16 & HPV 18 strains are the two you should remember (associated with the highest risk of cervical cancer): Imagine an adolescent couple. Their birthdays are on the same day, 7/1 (Zodiac of CANCER). The boy is turning 18, and he’s excited to finally VOTE. His girlfriend is turning 16, and she’s excited because she’ll finally get her DRIVER’S LICENSE now that she’s celebrating her SWEET SIXTEENTH. As they go to blow out the BIRTHDAY CAKE candles, you notice that she has VVarts on her lips! It turns out he also has VVarts, but his are Venereal (anogenital).

NAME ALERT: An “A” in Acuminata looks like a flipped “V,” which may help you remember that a diagnosis of Condyloma Acuminata represents an hpV infection. The “L” in Condyloma Lata should remind you that you are dealing with syphilis.

CONDYLOMA LATA

Condyloma lata is found in secondary syphilis = White-gray, coalescing papules. These appear much more FLAT than Condyloma Acuminata.

IMAGE: www.pbrlinks.com/CONDYLOMA1

NAME ALERT: An “A” in Acuminata looks like a flipped “V,” which may help you remember that a diagnosis of Condyloma Acuminata represents an hpV infection. The “L” in Condyloma Lata should remind you that you are dealing with syphilis.

HERPES SIMPLEX VIRUSES 1 & 2 (HSV 1 & 2)

Herpes simplex viruses 1 and 2 are similar. HSV-2 is usually an STD usually affecting the genitals, while HSV-1 most commonly affects the mouth (gingivostomatitis) but can appear in other sites as well.

Initial infections are often asymptomatic but can be relatively severe with very painful lesions, fever, and lymphadenopathy. Look for multiple painful ulcers or vesicles on the labia or penis (HSV-2) or in and around the mouth (HSV-1). The vesicles are CLUSTERED on an ERYTHEMATOUS BASE. Lesions can also be ULCERATIVE. Diagnose by obtaining HSV PCR or a viral culture. The Tzanck smear is not specific for HSV. Treat with ORAL Acyclovir x 7 days (not topical). Treat babies with IV Acyclovir.

HSV becomes latent after the primary infection and can reactivate later. Recurrent infections tend to be less severe and of shorter duration than primary ones. Pain often precedes the appearance of lesions. Patients DO shed virus during secondary infections.

IMAGE: www.pbrlinks.com/HSVII1
**PEARL**: HSV-1 can be associated with a very painful infection called a HERPETIC WHITLOW (typically of a thumb or finger).

**IMAGE**: www.pbrlinks.com/HSVII2

### HERPES SIMPLEX VIRUS ENCEPHALITIS (HSV ENCEPHALITIS)

A question about herpes simplex virus encephalitis (HSV encephalitis) would likely mention fever, seizures, and possibly a CT finding in the **temporal lobe**. Treatment is STAT IV acyclovir, **followed by a lumbar puncture** to obtain fluid for PCR testing. An EEG might show PLEDs (periodic lateralizing epileptiform discharges).

**DOUBLE TAKE** HERPES SIMPLEX VIRUS GINGIVOSTOMATITIS

Herpes simplex virus gingivostomatitis presents with oral and perioral/vermillion border lesions/vesicles. Gingiva is friable and malodorous. There is associated lymphadenopathy. Usually caused by HSV-1. Can treat with oral acyclovir, but there is limited data supporting this in children. Treat immunocompromised hosts with IV acyclovir.

**IMAGE**: www.pbrlinks.com/HSVSTOMATITIS1

### (DOUBLE TAKE) ECZEMA HERPETICUM

Eczema herpeticum is a potentially life-threatening disseminated herpes (HSV) infection occurring at sites of skin damage, including sites of eczema. Look for HSV Vesicles + Crusted Lesions. Even if a description is not given of a vesicular rash, have a high index of suspicion for a rash **“not improving with steroids and/or antibiotics.”** Diagnose with HSV PCR or a viral culture, but do not delay treatment. A Tzanck smear can support the diagnosis. Treat by **STOPPING** topical steroids and/or immunosuppressants and starting Acyclovir.

**IMAGE**: www.pbrlinks.com/ECZEMAHERP1
**IMAGE**: www.pbrlinks.com/ECZEMAHERP2
**IMAGE**: www.pbrlinks.com/ECZEMAHERP3

### (DOUBLE TAKE) BLUEBERRY MUFFIN SYNDROME

Blueberry muffin syndrome represents extramedullary hematopoiesis. This can be seen in congenital viral infections such as Rubella, Coxsackie, Cytomegalovirus (CMV), Herpes Simplex Virus (HSV), and Parvovirus. It can also be associated with congenital Toxoplasmosis (a protozoa).

**IMAGE**: www.pbrlinks.com/BLUEBERRY1
**IMAGE**: www.pbrlinks.com/BLUEBERRY2

### SCABIES

Scabies presents as linear, papular, erythematous, pruritic, vesicular, and crusting lesions most often seen in areas with CREASES (wrist, groin, webbing of fingers). You may see burrows. Treat with permethrin overnight from head to toe for the entire family. Re-treat if the patient is still having symptoms after 14 days and LIVE MITES are found, because the persisting pruritis can be from residual inflammation. Try topical steroids or antihistamines for that interim.

**PEARL**: Unlike papular urticaria, lesions are not in crops.

**IMAGE**: www.pbrlinks.com/SCABIES1
PEDICULOSIS CAPITIS (AKA HEAD LICE)

Pediculosis capitis (AKA head lice) results in nits/ova of the lice at the hair shafts, especially in the occipital area. Treat with permethrin. The patient will have more symptoms at night when lice tend to be more active. Itching is from the bites. Unlike scabies, repeat permethrin again in 7–10 days because eggs can hatch up to 10 days later.

PEARL: If an African American child is pictured, it is NOT lice.

IMAGE: www.pbrlinks.com/HEADLICE1

PEDICULOSIS PUBIS (AKA PUBIC LICE or CRABS)

Pediculosis pubis (AKA pubic lice or crabs) is an infection in the groin that results in red, crusted suprapubic macules and possibly bluish-gray dots. There is a STRONG ASSOCIATION with sexual abuse in children.

IMAGE: www.pbrlinks.com/CRABS1

THE “ERYTHEMA” RASHES

ERYTHEMA NODOSUM

For erythema nodosum, look for PAINFUL, shiny, red to bluish skin lesions in a patient with a history of a chronic disease or on certain medications. Associations include Crohn’s Disease, Ulcerative Colitis, Drugs (oral contraceptives and sulfa drugs), Infections (Yersinia, EBV, Tuberculosis, fungal infections), and Sarcoidosis.

MNEMONIC: For this shiny skin finding, use CUDIS (kind of like CUTIS, which means skin) to help you remember the following associations: Crohn’s, UC, Drugs, Infections, and Sarcoidosis.

IMAGE: www.pbrlinks.com/ERYTHEMA-N1
IMAGE: www.pbrlinks.com/ERYTHEMA-N2
IMAGE: www.pbrlinks.com/ERYTHEMA-N3

(DOUBLE TAKE) ERYTHEMA CHRONICUM MIGRANS

Erythema chronicum migrans (AKA erythema migrans) is caused by BORRELIA BURGDORFERI, the spirochete that causes LYME DISEASE. Look for a large, flat lesion (> 5 cm) that is annular and has a red border. It is located at the tick bite site in about 75% of patients. The classic description is a “bulls eye” lesion. The rash shows up 1–2 weeks after the bite. Titers may still be negative during this period. Borrelia is transmitted via the Ixodes deer tick. If the patient has an acute arthritis, disseminated erythema migrans, a palsy (BELL’S PALSY), or neuropathy, then treat with ORAL medication (doxycycline if >8 years old, or penicillin or amoxicillin if < 8 years old). If the patient has CARDITIS, neuritis (encephalitis/meningitis), or RECURRENT arthritis, treat with INTRAVENOUS medication (PCN or ceftriaxone). Arthritis is usually located at the large joints (especially the knees). Diagnosing using labs is often difficult. Obtain Lyme antibody titers. If these are positive, confirm with a Western blot. Lyme Disease is often a clinical diagnosis (for example, if you see erythema migrans, TREAT).

* IMAGE: (BULLSEYE LESION) www.pbrlinks.com/ERYTHEMA-C1
* IMAGE: (BELL’S PALSY) www.pbrlinks.com/ERYTHEMA-C2

* SIDE NOTES
  - BELL’S PALSY: Unilateral facial nerve paralysis (CN VII). It is often idiopathic.
  - The Jarisch-Herxheimer reaction results in fever, chills, hypotension, headache, myalgia, and exacerbation of skin lesions during antibiotic treatment of a bacterial disease (typically spirochetes).
This is due to large quantities of toxins released into the body. It is classically associated with syphilis but can also occur with Lyme disease. It may only last a few hours.

**MNEMONICS:**

- From now on, think/say borreLIYME. “Don’t ever throw a borreLIYME to MY GRANny!” Or, “Don’t ever borre-LIE to MY GRANny.” borreLIYME = Borrelia. MY GRANny = Migrans.
- Imagine that BULL’S EYES are made of two bright neon-green LIMES! This should remind you of the classic description.
- Imagine squeezing LYME into a CAN = Carditis, Arthritis, and Neuritis.

**(DOUBLE TAKE) ERYTHEMA MARGINATUM**

- Erythema marginatum is a transient, erythematous, macular and light colored. It is described as being “SERPENTiginous” (snakelike) and the MARGINs are noted progress as the center clears. It is part of the Jones criteria for Rheumatic Fever.
- **IMAGE:** [www.pbrlinks.com/ERYTHEMA1](http://www.pbrlinks.com/ERYTHEMA1)

**MNEMONIC:** The E in Erythema is part of the E in jonEs, and the name MARGINatum should remind you to look for an interesting description of the rash’s MARGINs. Erythema MARGINatum.

**(DOUBLE TAKE) ERYTHEMA INFECTIOSUM**

Erythema infectiosum IS an INFECTIOUS rash!!! It is caused by Parvovirus B19. It is also called Fifth Disease. Look for erythematous facial flushing of the cheeks (sometimes described as “slapped cheeks” appearance). The extremities will have diffuse macular (or morbilliform) erythema (especially on the extensor surfaces) referred to as “lacy” or “reticular.” Diagnose with IgM titers. (There is no culture or rapid antigen available.)

**PEARLS:** The rash occurs AFTER the slapped cheeks rash (often a week later). Patients may also have knee or ankle pain. Parvovirus B19 infection can result in APLASTIC CRISIS. Intrauterine exposure can result in hydrops fetalis.

**MNEMONIC:** infectio5uM = FIFTH disease = “Fiver fingers.” Imagine a cheek being SLAPPED with FIVE fingers covered by a white LACY glove with a red M on the back of it (extensor surface). M = IgM titers.

**MNEMONIC:** ParVoVirus B19: From now on, say/think “parVoVirus V19.” V = Roman numeral 5!

**ERYTHEMA TOXICUM NEONATORUM**

See in next section (Newborn Rashes).

**ERYTHEMA MULTIFORME**

See the Stevens-Johnson syndrome section for more information on erythema multiforme. Look for target lesions.
THE NEWBORN RASHES

MILIARIA RUBRA

Look for very superficial vesicles that are easily ruptured in a case of miliaria rubra. This occurs due to obstruction of sweat glands and is also called “prickly heat rash.”

IMAGE: www.pbrlinks.com/MILIARIA1

MNEMONIC: Miliaria sounds like malaria, which is usually found in hot countries where you sweat!

MILIA

Milia are small, pearly inclusion cysts that look like little white heads. There’s NO associated erythema. If milia are on the nose, they can be very easy to confuse with SEBACEOUS HYPERPLASIA.

IMAGE: www.pbrlinks.com/MILIA1
IMAGE: www.pbrlinks.com/MILIA2

SEBACEOUS HYPERPLASIA

In sebaceous hyperplasia, pinpoint white-yellow papules appear on the nose and central face. There is NO associated erythema. It results due to maternal androgen exposure and is benign.

IMAGE: www.pbrlinks.com/SEBACEOUSHYPERPLASIA1
IMAGE: www.pbrlinks.com/SEBACEOUSHYPERPLASIA2

ERYTHEMA TOXICUM NEONATORUM

Erythema toxicum neonatorum is seen in up to 50% of newborns and consists of erythematous macules with raised central lesions (papules or vesicles). This is usually seen at birth or by DOL 2. It is a benign rash with an unknown etiology. It usually disappears by DOL 7. Diagnose by noting eosinophils on microscopy.

IMAGE: www.pbrlinks.com/ERYTHEMA-T1

MNEMONIC: Although the name “TOXICum” suggests otherwise, this is a NON-toxic rash resulting in nontoxic looking babies.

MNEMONIC: This is an Early, Erythematous, “Eosinophilled” rash called Erythema toxEEEcum.

TRANSIENT NEONATAL PUSTULAR MELANOSIS

Transient neonatal pustular melanosis is more common in African-American kids. This is a benign rash with NO associated erythema. It starts in utero and is PRESENT AT BIRTH. It resolves within a few days but can leave hyperpigmented macules for a while. Diagnose by examining contents and looking for PMNs on Tzanck smear.

IMAGE: www.pbrlinks.com/TRANSIENT1
IMAGE: www.pbrlinks.com/TRANSIENT2

MNEMONICS: Transient neonatal PUStular melanosis should remind you of the PMNs on the Tzanck smear in the PUS-like contents of these PUStules. MELANosis should make you think about dark-skinned individuals (AA kids) and the dark macules that can be left behind.
NEONATAL ACNE (AKA NEONATAL CEPHALIC PUSTULOSIS)

Neonatal acne (AKA Neonatal Cephalic Pustulosis) occurs within the first month of life and resolves by 4 months of age. Look for inflammatory pustules on the cheeks and forehead without comedones. This is a benign rash that requires no treatment.

**IMAGE:** www.pbrlinks.com/NCP1

**MNEMONIC:** NEONATal = FIRST MONTH OF LIFE!

INFANTILE ACNE

Infantile acne looks like typical pubertal acne, but it is found in babies. Onset is usually around 2–3 months of age, and it is due to androgenic stimulation. There can be COMEDONES (whiteheads and blackheads). The rash can resolve in a few weeks or it can take up to a year to resolve.

**MNEMONIC:** INFANTile = Infants. Don't choose this if the baby is 4 weeks old.

**IMAGE:** www.pbrlinks.com/INFANTILE1

LIVEDO RETICULARIS (AKA CUTIS MARMORATA)

Livedo reticularis (AKA cutis marmorata) presents as a mottled, reticulate patterned rash and may be described as a lacy rash. It is benign and resolves by 1 month.

**IMAGE:** www.pbrlinks.com/LIVEDO1
**IMAGE:** www.pbrlinks.com/LIVEDO2

**PEARL:** If the baby is healthy and without any concerning symptoms, choose this. If not, consider sepsis in your differential.

**ALOPECIA & HAIR FINDINGS**

ALOPECIA AREATA

In alopecia areata, there are round/well-circumscribed area(s) of alopecia. Alopecia can be on the scalp or in other areas. Hairs at the periphery of the areas are short, pluckable, and may resemble an exclamation point!

**IMAGE:** www.pbrlinks.com/ALOPECIA-A1
**IMAGE:** www.pbrlinks.com/ALOPECIA-A2
**IMAGE:** www.pbrlinks.com/ALOPECIA-A3

ALOPECIA TOTALIS

Alopecia totalis is the loss of all hair on the HEAD.

**IMAGE:** www.pbrlinks.com/ALOPECIA-T1

ALOPECIA UNIVERSALIS

Alopecia universalis is the loss of all hair on the entire BODY. There is usually a SYSTEMIC etiology such as hypothyroidism, a nutritional deficiency, or even lupus (SLE).

(DOUBLE TAKE) ZINC DEFICIENCY

Breastfeeding helps with zinc absorption. If a child begins having medical problems once weaned from breast milk, consider zinc deficiency in your differential. Zinc deficiency causes a SCALY and EXTREMELY ERYTHEMATOUS dermatitis in the perioral and perianal area (around the natural orifices) that can
DESQUAMATE. The rash is sometimes described as erosive and eczematous. It can also be associated with ALOPECIA and poor taste.

* **MNEMONIC:** Poor taste, huh? Have you ever had Zinc lozenges? They are disgusting! It’s probably a good thing that you have hypogeusia when you are eating Zinc lozenges!

**PEARLS:**

- CROHN’S DISEASE: If a Crohn’s patient is suffering from diarrhea, they may have zinc deficiency since Zn is lost in the stool.
- (DOUBLE TAKE) STRICT VEGETARIANS AND VEGANS may be susceptible to multiple nutritional deficiencies, including deficiencies in IRON, ZINC, CALCIUM, and VITAMIN B12. Vegans avoid all animal-derived products (including milk and eggs). B12 deficiency can result in megaloblastic anemia, vitiligo, peripheral neuropathy, and even regression of milestones.
  - **MNEMONIC:** Did you know giraffes are vegetarian? Imagine a giraffe standing in Times Square reaching its long neck into the sunroof of a FUZZY CAB that has green, grass-like seats and fuzzy floor mats. FUZZY CAB = FeZi CaB12!

(DOUBLE TAKE) ACRODERMATITIS ENTEROPATHICA

Acrodermatitis enteropathica is an inherited condition (autosomal recessive) in which there is a zinc transport defect. It can result in alopecia, diarrhea, failure to thrive (FTT), and the rash of zinc deficiency.

**IMAGE:** [www.pbrlinks.com/ACRODERMATITIS1](http://www.pbrlinks.com/ACRODERMATITIS1)

(DOUBLE TAKE) BIOTIN/BIOTINIDASE DEFICIENCY

Biotin and biotinidase deficiencies may present with a RASH + ALOPECIA + NEUROLOGIC SIGNS (ataxia, coma, etc.). Patients may also have lactic acidosis. Treat with biotin.

**MNEMONIC:** Imagine the TIN MAN from *The Wizard of Oz* walking with an ATAXIC gait as he SCRATCHES his arm. Notice that he has NO HAIR!

TELOGEN EFFLUVIIUM

Telogen effluvium is a form of acute hair shedding that occurs diffusely. Instead of patches, you see “thinning” of the hair. The hair that is shed can be recognized by a small bulb of keratin on the root end. It was too young to shed. This is often related to a psychological or medical stressor. Treat with REASSURANCE because the hair will grow back.

**IMAGE:** [www.pbrlinks.com/TELOGEN1](http://www.pbrlinks.com/TELOGEN1)
**IMAGE:** [www.pbrlinks.com/TELOGEN2](http://www.pbrlinks.com/TELOGEN2)

TINEA CAPITIS (AKA RINGWORM)

Tinea capitis (ringworm) results in broken hair that looks like “black dot alopecia.” There is often inflammation, and this condition can be associated with a kerion (a raised spongy lesion). Treat with GRISEOFULVIN. You do not need any baseline labs.

**IMAGE:** [www.pbrlinks.com/TINEACAPITIS1](http://www.pbrlinks.com/TINEACAPITIS1)
**IMAGE:** [www.pbrlinks.com/TINEACAPITIS2](http://www.pbrlinks.com/TINEACAPITIS2)
TRICHTILLOMANIA

Trichotillomania is a body-focused repetitive behavior in which patients pull out their hair. (This may be on a location other than the scalp.) Look for loss of hair in an irregular pattern (not a nice circle). Also, the irregularly shaped patches will contain incomplete hair loss in which you will see hair of differing lengths.

**IMAGE:** www.pbrlinks.com/TRICHOTILLOMANIA1
**IMAGE:** www.pbrlinks.com/TRICHOTILLOMANIA2

**DOUBLE TAKE) ESSENTIAL FATTY ACID DEFICIENCIES**

Essential fatty acids include LINOLEIC ACID and alpha-linolenic acid. Deficiency results in alopecia, a scaly dermatitis, and thrombocytopenia. Treat with IV lipids.

**MNEMONIC:** Imagine a fish whose red SCALES are shaped like HAIRY PLATELETS. As the fish struggles to find food, it becomes SKINNIER and skinnier (malnourished) and the hairy platelets begin to fall off. What's left is a SKINNY (fat-free), BALD, and THROMBOCYTOPENIC fish!

**APLASIA CUTIS CONGENITA**

In aplasia cutis congenita, there is a congenital absence of the skin in an area. It is usually in a single location (most often the scalp) but can be in multiple areas. After the lesion heals and scars, a BALD SPOT is left behind. Aplasia cutis can be associated with underlying spinal dysraphisms and underlying skull defects.

**IMAGE:** www.pbrlinks.com/APLASIACUTIS1
**IMAGE:** www.pbrlinks.com/APLASIACUTIS2

**PEARLS:** Look for the HAIR COLLAR SIGN. This is a hairless area with a collar of dense hair at the edges. If given a picture of a scalp with the hair collar sign, get an MRI.

**IMAGE:** www.pbrlinks.com/APLASIACUTIS3
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QUESTIONS

1. A premature baby needs:
   a. More sodium than a full-term neonate. Sodium supplementation should be started immediately.
   b. More sodium than a full-term neonate. Sodium supplementation can be started after 24 hours.
   c. Less sodium than a full-term baby.
   d. The same amount of sodium as a full-term baby.

2. A preemie is born at 33 weeks in a taxi. In the ER, the baby is noted to have a temperature of 35 degrees Celsius. The child should be placed:
   a. In a bassinette.
   b. In an incubator at 40 degrees Celsius.
   c. Under a radiant warmer at maximum temperature.
   d. Under a radiant warmer at preferred skin temperature.

3. An LGA baby is noted to have a firm, freely mobile, erythematous and nodular mass with distinct borders at the upper cheek on DOL 13. This is likely:
   a. Fat necrosis of the newborn.
   b. A lipoma
   c. A sarcoma
   d. Related to child abuse.

4. Which abnormality is common in the recipient of a packed red blood cell (PRBC) transfusion and also in the recipient twin of a twin-to-twin transfusion?
   a. Hyponatremia
   b. Hypokalemia
   c. Hypocalcemia
   d. Hypophosphatemia

5. A child is born by a normal vaginal delivery. About 8 hours later he is noted to be tachypneic and pale. Labs show that he is anemic. The RBC morphology is normal under microscopy. What is the likely etiology of these finding?
   a. Chronic intrauterine blood loss.
   b. Acute blood loss at birth.
   c. Congenital heart disease.
   d. Congenital syphilis
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Best,
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Ashish & Team PBR
Index

1
11-hydroxylase deficiency, 81, 82
17-hydroxylase deficiency, 82

2
2,3-diphosphoglycerol, 267
21-hydroxylase deficiency, 81, 82
22Q11.2 deletion syndrome, 107

A
ABO incompatibility, 169, 170
abscess
brain, 289, 306
dental, 305
epidural, 376
liver, 301
peritonsillar, 285
retropharyngeal, 285
tubovarian, 92
abuse
caregiver-fabricated illness, 417
health care provider role, 417
neglect, 417
physical abuse, 416
psychological abuse, 416
sexual abuse and assault, 416
acanthosis nigricans, 87
ACE inhibitors, 230
acetaminophen toxicity, 193
acetazolamide, 348
acetone odor, 194
achalasia, 225
achondroplasia, 241
acid or base ingestion, 201
acid-base disorders, 343
acedia
 glutaric, 331
 isovaleric, 331
 methylmalonic, 331
acidaemias, organic, 330
acidosis
 metabolic (and ABG), 345
 renal tubular, 348
 respiratory, 344, 350
aciduria
 argininosuccinic, 333
acne, 147
 neonatal and infantile, 160
acrodermatitis enteropathica, 161
acromioclavicular joint separation, 397
ACTH stimulation, 81
Addison disease, 80
adenoma sebaceum, 151
adenosine, 118
adenosine deaminase (ADA) deficiency, 340
adenovirus, 296, 311, 322
ADHD, 413
adhesion
 labial and penile, 94
leukocyte, 113
adrenal crisis, 81
adrenal disorders, 80
adrenal gland layers, 81
adrenal insufficiency; see also Addision disease, 81
adenoleral, 282
adenosterol synthesis pathway, 80
adrenarche
 premature, 59, 60, 61
agammaglobulinemia
 Bruton, 110, 407
Aicardi syndrome, 244
Alagille syndrome, 216
albendazole, 282
albinism, 113, 240
aldosterone deficiency, 354
alkalosis
 metabolic, 349
 respiratory, 344, 350
alkaptonuria, 335
allergy
 egg, 326
 food, 97
 milk protein, 99
 nickel, 143
 peanut, 97
 pollen, 96
 ragweed, 96
 alopecia, 160
 Alpers syndrome, 243
 alpha-1-antitrypsin deficiency, 410
 alpha-fetoprotein screening, 88
 Alport syndrome, 244
 ambiyopia, 237
 amebiasis, 301
 amenorrhoea, 66
 aminoacidopathies, 329, 335
 amniocentesis, 88, 89
 amphetamines, 194
 ANA, 398, 399
 anabolic steroids, 71
 anaphylaxis, 98
 androgen insensitivity syndrome, 84
 androgens
 adrenal, 60
 anemia
 aplastic, 114, 276
 blood loss, 270
 chronic disease, 270
 Diamond-Blackfan, 114, 259
 Fanconi, 274
 hemolytic, 266
 iron deficiency, 270
 megaloblastic, 211, 273, 274
 microcytic, 270
 newborn, 265
 normocytic, 266, 363
 physiologic, 266
 sickle cell, 288
 aneuropsy, 397

Angelman syndrome, 253
angioedema, hereditary, 98, 111
angiofibromas, 151
angiomoylippoma, renal, 151
anion gap, 192, 347
aniridia, 263
ankle sprains, 396
anosmia, 63
anterior cruciate ligament tear (ACL tear), 396
antibiotics, review, 281
antibodies
 anti-endomysial, 223
 anti-Saccharomyces, 221
antibody tilters
 immune deficiency testing, 109
anticholinergic toxicity, 198
anticonvulsant hypersensitivity syndrome, 102
antifreeze, 194
antisiezure medications, prenatal exposure, 233
anuria, newborn, 171
anus
 imperforate, 174, 229, 258
aortic regurtillation, 124, 257
aortic stenosis, 123
APC mutation, 228
Apert syndrome, 240
aplasia cutis congenita, 162
apnea, neonatal, 170
appendicitis, 221
arbovirus, 296
arrhythmias, 117
arterial blood gas analysis, 343
arthritis
 in rheumatic fever, 132
 juvenile immune (JIA), 398
 septic, 395, 398
 arthritis, reactive, 400
 arthrocentesis, 398
 arthrogryposis, 173
Ascaris lumbricoides, 302
Aschoff bodies, 133
Asherman syndrome, 67
Ashkenazi Jews, 221
asparaginase, 231
aspergillosis, allergic bronchopulmonary, 294
Aspergillus, 294
asphyxia, 384
aspiration
 foreign body, 410
 assent (in ethics), 421
asthma, 405
differential diagnosis, 407
ataxia
 acute cerebellar, 385
Friedreich, 386
ataxia telangiectasia, 108, 385, 407
atelectasis, 411

Copyright Pediatrics Board Review Inc. 2011 – 2020
All Rights Reserved. Do Not Copy Without Written Permission.
atlantoaxial instability, 248, 250
atraxia
choanal, 405
duodenal, 226
pulmonary, 130
tricuspid, 130
atrial fibrillation and flutter, 119
atrial septal defects, 121
atrioventricular node, 117
atriophy
muscular, 381
tropine, 205
attention deficit and hyperactivity disorder, 413
audiometry, 190
Auer rods, 260
Auspitz sign, 142
autonomy, 68
autonomy (in ethics), 420
autonomy, 68
autonomous recessive disorders, 243
AV canal defect, 122
AVSAR, 18

B
babesiosis, 301
Babinski reflex, 386
Bacillus cereus, 312
bacteremia
neonatal, 305
occult, 286
bag of water heart appearance, 137
balanitis, 73
barbiturates, 195
Bartonella henselae, 289, 316
Bartter syndrome, 350
B-cell deficiencies, 109
Beckwith-Wiedemann syndrome, 254
BECTS (BCECTS). See seizures:benign Rolandic
bee stings, 103
Behcet syndrome, 400
Bell's palsy
in Lyme disease, 157
beneficence (in ethics), 420
benzoyl peroxide, 147
beriberi, 209
Bernard-Soulier syndrome, 279
beta thalassemia, 271
biophysical profile, 89
biotin, 331
biotin/biotinidase deficiency, 143
Biotin/Biotinidase Deficiency, 210
bites
insect, 144
stork, 149
tick, 157, 289
Blaschko
lines of, 143, 152
Blastomycoses, 293
bleeding
GI, 227
menometrorrhagia, 68
menorrhagia, 68
rectal, 227
bleomycin, 231
block
atrioventricular, 117, 120
left bundle branch, 121
Mobitz, 120
right bundle branch, 117, 121
Wenckebach, 120
Blount disease, 391
blue dot sign, 73
blueberry muffin syndrome, 156, 310
Bordetella pertussis, 291
Borreia burgdorferi, 157
botulism, 283
bounding pulse, 125
bowed legs, 241, 391
brain death, 423
brain tumors, 264
breastfeeding and breast milk, 165
breath-holding spells, 414
bronchiectasis, 402, 411
broncholithitis, 296
bronchopulmonary dysplasia, 412
brucellosis, 317
Brugada syndrome, 117
bruits
carotid, 125
cranial, 125
Brushfield spots, 249
Bruton agammaglobulinemia, 110, 407
bullimia, 72
burns, 202
C
C1 esterase deficiency, 98, 111
calcifications
intracerebral, 308, 310
calcinosus cutis, 145, 400
calciaphaxis, 145
Calcium and vitamin D related disorders, 76
calcium channel blocker
overdose, 200
calcium-creatinine ratio, 358
Campylobacter jejuni, 220, 312, 313
C-ANCA, 401
cancer
testicular, 72
candidiasis
cutaneous, 153
capillary malformation, 150
caput, 173
car seats, 172
carbenemems, 282
carbohydrate metabolism disorders, 336
carbon monoxide, 200
carboxyhemoglobin, 200
cardiomyopathy, 241
hypertrophic, 137
cardiomyopathy, 118, 119
carotene, 219
case-control studies, 370, 372
casts
urinary, 359
cat scratch disease, 316
cataracts, 236, 242
celiac disease, 223
cellulitis, 154
orbital, 306
cephalohematoma, 173
celphalosporins, 282
cerebral palsy, 375
cerebrovascular accident, 386
ceruloplasmin, 340
CH50, 111, 115
Chagas disease, 302
chalazion, 235
charcoal (for poisonings), 192
Charcot-Marie-Tooth (CMT) disease, 382
CHARGE syndrome, 255
Chediak-Higashi syndrome, 113
chelation
iron, 199
lead, 199
chemotaxis, 110
cherry red spot, 341
chest pain, 138
chest x-ray findings (pearls), 411
Chiari malformation, 388
chicken pox, 297
child abuse, 416
sexual, 94
Chlamydia pneumoniae, 290, 319
Chlamydia psittaci, 290
Chlamydia trachomatis, 91, 290, 317
choanal atresia, 240, 405
cholangitis, 219
cholangitis, primary sclerosing, 214
cholcalciferol, 207
cholecytisitis, 219
choledochal cyst, 215
choledithiasis, 219
cholescintigraphy, 214
cholestasis, 215
progressive familial intrahepatic (PFIC), 216
cholesteatoma, 307
cholinergics, 198
chorea, 380
hypogammaglobulinemia   transient of infancy, 110
hypoglycemia   diabetes mellitus, 86
hypoglycemia   neonatal, 171
hypoglycemia   differential diagnosis, 339
hypogonadism, 258
hypohidrosis, 152
hypokalemia, 354
hyponatremia, 269
hypothermia, 204
hypothyroidism, 74
acquired, 74
congenital, 74
hypovolemia, 205
hypersarrhythmia, 384

I
I-cell disease, 338
ichthyosis, 144
icterus, 219
idiopathic neonatal hepatitis, 216
idiopathic thrombocytopenia (ITP), 277
IgA deficiency, 110
IgA nephropathy, 363
immunizations. See vaccine
immunoglobulin   thyroid stimulating, 75
immunotherapy   for allergy, 96
impetigo, 153
imprinting, 253
incidence (statistics), 370
incontinentia pigmenti, 148, 152
India ink, 292
inducers   hepatic, 232
infant of diabetic mother, 339
infantile spasms, 384
inflammatory bowel disease, 221
influenza vaccine, 322
ingestion   acid or base, 201
foreign body, 201
sharp object, 201
inhalant abuse, 196
inhalants, 69
Inhibin, 89
inhibitor   hepatic, 232
intoing, 391
intracranial pressure, increased, 378
intussusception, 222
iodine, 75
ippec, 192
IPV, 322, 325
iron
overdose, 199
iron indices, 273
ferritin, 270
TIBC, 199, 270, 271
transferrin, 270, 271
iron supplementation   infants, 166
iron-deficiency, 199
irritable bowel syndrome, 221, 223
isopropyl alcohol, 194
isotretinoin, 147
isotretinoin, prenatal exposure, 234
isovaleric acidemia, 331
Ixodes deer tick, 157, 301

J
Janeway lesions, 135
Jarisch-Herxheimer reaction, 157
jaundice   breast milk, 168
causes, 215
hepatocellular, 215
jaundice, neonatal, 168
ABO incompatibility, 170
phototherapy, 169
risk factors, 169
jet phenomenon, 225
Jimson weed, 198
Johanson-Blizzard syndrome, 244
joint hypermobility, 396
Jones criteria, 132
K
Kallmann syndrome, 63
panhypopituitarism, 83
kaplan meier curve, 370
Kartagener syndrome, 138
Kasabach-Merritt syndrome, 149
Kawasaki disease, 134
Kayser-Fleischer ring, 218, 340
keratolysis, pitted, 145
keratosis pilaris, 142
kerosene, 196
ketoacidosis, diabetic, 86
kidney stones   calcium oxalate, 77
Kleihauer-Betke test, 169
Klinefelter syndrome, 65, 85
Klippel-Feil syndrome, 150
Klumpke palsy, 374
Koebner phenomenon, 399
Koplik spots, 299
Korsakovsyndrome, 209
Kussmaul’s sign, 137
kwashiorcor, 212

L
lab values, 430
lactase deficiency, 100
lactose intolerance, 100, 222
Langerhans cell histiocytosis, 142
larva migrans   cutaneous, 304
visceral, 303, 408
laryngomalacia, 403
laryngospasm, 76
Laurence-Moon-Biedl syndrome, 174, 254
lavage, gastric, 193, 201, 227
laxatives, 219
lead toxicity, 199, 272
learning disabilities, 413
lecithin-sphingomyelin (L/S) ratio, 90
Legg-Calve-Perthes disease, 393
lens   subluxation, 65
leptospirosis, 292
Lesch-Nyhan syndrome, 340
leukemia   acute lymphoblastic, 260
acute lymphocytic, 260
acute myeloid, 260
chronic myelogenous, 260
leukocoria, 242
leukocyte adhesion deficiency, 113

LH
FSH ratio, 68
lice, head and pubic, 157
lichen sclerosus, 143
lichen striatus, 143
likelihood ratio (statistics), 368
linezold, 281
Lisch nodules, 152
Listeria monocytogenes, 283
lithium, 233
lithium exposure, prenatal, 233
livedo reticularis, 160
Loffler syndrome, 303
lower GI bleeding, 227
Lund & Browder chart, 203
lung maturity, prenatal assessment, 90
lupus   drug induced, 400
neonatal, 146, 399
systemic, 399
Lymphe disease, 157
lymphadenopathy   acute, 315
chronic cervical, 316, 317
generalized, 92
hilar, 401
non-tender, 317
preauricular, 316
lymphangectasia, 315
lymphogranuloma venereum, 317
lymphoma   Burkitt, 261
lyosomal storage diseases, 337

M
macrocephaly, 164
macrolides, 282
macroorchidism, 245
magnesium sulfate, 230
maintenance IV fluids, 351
malabsorption, 315
<table>
<thead>
<tr>
<th>Term</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>osteochondritis dissecans</td>
<td>393</td>
</tr>
<tr>
<td>osteochondroma</td>
<td>262</td>
</tr>
<tr>
<td>osteochondrosis</td>
<td>393</td>
</tr>
<tr>
<td>osteogenesis imperfecta</td>
<td>391</td>
</tr>
<tr>
<td>osteoma</td>
<td>262</td>
</tr>
<tr>
<td>osteomyelitis</td>
<td>395</td>
</tr>
<tr>
<td>osteopenia</td>
<td>211</td>
</tr>
<tr>
<td>osteopenia of prematurity</td>
<td>79</td>
</tr>
<tr>
<td>osteoporosis</td>
<td>69</td>
</tr>
<tr>
<td>osteosarcoma</td>
<td>242, 262</td>
</tr>
<tr>
<td>otitis externa</td>
<td>306</td>
</tr>
<tr>
<td>otitis media</td>
<td>307</td>
</tr>
<tr>
<td>otorhea, chronic</td>
<td>307</td>
</tr>
<tr>
<td>ovarian failure</td>
<td>63</td>
</tr>
<tr>
<td>oxygen saturation, pre- and post-ductal</td>
<td>128</td>
</tr>
</tbody>
</table>

**P**

<table>
<thead>
<tr>
<th>Term</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>P450 inhibitors</td>
<td>232</td>
</tr>
<tr>
<td>p-ANCA</td>
<td>214</td>
</tr>
<tr>
<td>pancreas</td>
<td>214</td>
</tr>
<tr>
<td>annular</td>
<td>226</td>
</tr>
<tr>
<td>pancreatitis</td>
<td>222</td>
</tr>
<tr>
<td>pancytopenia</td>
<td>276</td>
</tr>
<tr>
<td>panhypopituitarism</td>
<td>83</td>
</tr>
<tr>
<td>papilledema</td>
<td>235</td>
</tr>
<tr>
<td>papillitis</td>
<td>235</td>
</tr>
<tr>
<td>paramyxovirus</td>
<td>296</td>
</tr>
<tr>
<td>Parkland formula</td>
<td>203</td>
</tr>
<tr>
<td>parotitis</td>
<td>306</td>
</tr>
<tr>
<td>paroxysmal nocturnal hemoglobinuria</td>
<td>268</td>
</tr>
<tr>
<td>parvovirus B19</td>
<td>158, 268</td>
</tr>
<tr>
<td>Patau syndrome</td>
<td>248, 250</td>
</tr>
<tr>
<td>patent ductus arteriosus</td>
<td>127</td>
</tr>
<tr>
<td>peak and trough levels</td>
<td>230</td>
</tr>
<tr>
<td>pear-shaped head</td>
<td>240</td>
</tr>
<tr>
<td>pediculosis</td>
<td>94, 157</td>
</tr>
<tr>
<td>pellagra</td>
<td>210</td>
</tr>
<tr>
<td>pelvic inflammatory disease (PID)</td>
<td>91, 92, 290</td>
</tr>
<tr>
<td>pencicillin</td>
<td>281</td>
</tr>
<tr>
<td>pencicillin allergy</td>
<td>102</td>
</tr>
<tr>
<td>peptic ulcer disease</td>
<td>220</td>
</tr>
<tr>
<td>perforated palate</td>
<td>92</td>
</tr>
<tr>
<td>perforation, esophageal</td>
<td>228, 257</td>
</tr>
<tr>
<td>pericardial effusion</td>
<td>137</td>
</tr>
<tr>
<td>pericarditis</td>
<td>133, 136</td>
</tr>
<tr>
<td>in rheumatic fever</td>
<td>132</td>
</tr>
<tr>
<td>peri-hepatitis</td>
<td>92</td>
</tr>
<tr>
<td>peritonitis</td>
<td>214</td>
</tr>
<tr>
<td>secondary</td>
<td>305</td>
</tr>
<tr>
<td>spontaneous bacterial</td>
<td>305</td>
</tr>
<tr>
<td>permethrin</td>
<td>157</td>
</tr>
<tr>
<td>persistence of fetal circulation</td>
<td>130</td>
</tr>
<tr>
<td>persistent vegetative state</td>
<td>423</td>
</tr>
<tr>
<td>pertussis</td>
<td>291</td>
</tr>
<tr>
<td>pes cavus</td>
<td>392</td>
</tr>
<tr>
<td>pes planus</td>
<td>392</td>
</tr>
<tr>
<td>pesticides, toxicity</td>
<td>198</td>
</tr>
<tr>
<td>Peutz-Jeghers syndrome</td>
<td>242</td>
</tr>
<tr>
<td>PHACES</td>
<td>149</td>
</tr>
<tr>
<td>pharmacokinetics</td>
<td>230</td>
</tr>
<tr>
<td>phenacyclidine</td>
<td>195</td>
</tr>
<tr>
<td>phenylalanine</td>
<td>335</td>
</tr>
<tr>
<td>phenylketonuria</td>
<td>335</td>
</tr>
<tr>
<td>pheochromocytoma</td>
<td>139</td>
</tr>
<tr>
<td>Philadelphia chromosome</td>
<td>260</td>
</tr>
<tr>
<td>phimosis</td>
<td>73</td>
</tr>
<tr>
<td>phosphatidylglycerol</td>
<td>90</td>
</tr>
<tr>
<td>phototherapy</td>
<td>209</td>
</tr>
<tr>
<td>phototherapy guidelines</td>
<td>169</td>
</tr>
<tr>
<td>physician assisted suicide</td>
<td>424</td>
</tr>
<tr>
<td>phytanadione</td>
<td>207</td>
</tr>
<tr>
<td>Pierre-Robin syndrome</td>
<td>255</td>
</tr>
<tr>
<td>pilocarpine</td>
<td>198</td>
</tr>
<tr>
<td>pinworms</td>
<td>282, 302</td>
</tr>
<tr>
<td>pityriasis alba</td>
<td>142</td>
</tr>
<tr>
<td>pityriasis rosea</td>
<td>154</td>
</tr>
<tr>
<td>plague</td>
<td>317</td>
</tr>
<tr>
<td>Plan B</td>
<td>69</td>
</tr>
<tr>
<td>Plan-Do-Study-Act model</td>
<td>429</td>
</tr>
<tr>
<td>platelet disorders</td>
<td>276</td>
</tr>
<tr>
<td>pneumococcus</td>
<td>284, 325</td>
</tr>
<tr>
<td>Pneumocystis jarveci (carinii)</td>
<td>105, 304</td>
</tr>
<tr>
<td>pneumonia</td>
<td>407</td>
</tr>
<tr>
<td>adolescents</td>
<td>305</td>
</tr>
<tr>
<td>ground glass</td>
<td>304</td>
</tr>
<tr>
<td>pneumothorax, spontaneous</td>
<td>411</td>
</tr>
<tr>
<td>poison ivy</td>
<td>103</td>
</tr>
<tr>
<td>polio</td>
<td>322</td>
</tr>
<tr>
<td>poliodystrophy</td>
<td>243</td>
</tr>
<tr>
<td>polycythemia, 133, 398</td>
<td></td>
</tr>
<tr>
<td>polycystic ovarian syndrome</td>
<td>68</td>
</tr>
<tr>
<td>polycythemia</td>
<td>266</td>
</tr>
<tr>
<td>polyacytlyl</td>
<td>397</td>
</tr>
<tr>
<td>polydipsia, psychogenic</td>
<td>356</td>
</tr>
<tr>
<td>polyhydramnios</td>
<td>225, 226</td>
</tr>
<tr>
<td>polyp</td>
<td>227</td>
</tr>
<tr>
<td>juvenile</td>
<td>227</td>
</tr>
<tr>
<td>nasal</td>
<td>138, 402</td>
</tr>
<tr>
<td>polyposis</td>
<td>242</td>
</tr>
<tr>
<td>familial adenomatous</td>
<td>228</td>
</tr>
<tr>
<td>polyuria</td>
<td>76</td>
</tr>
<tr>
<td>Pompe’s Disease</td>
<td>334</td>
</tr>
<tr>
<td>porphyria</td>
<td>242</td>
</tr>
<tr>
<td>port wine stain</td>
<td>149</td>
</tr>
<tr>
<td>posterior urethral valves</td>
<td>360</td>
</tr>
<tr>
<td>postexposure prophylaxis</td>
<td>324</td>
</tr>
<tr>
<td>Potter syndrome</td>
<td>258</td>
</tr>
<tr>
<td>PR interval</td>
<td>116</td>
</tr>
<tr>
<td>Prader-Willi syndrome</td>
<td>253</td>
</tr>
<tr>
<td>predictive value</td>
<td>367</td>
</tr>
<tr>
<td>negative</td>
<td>367</td>
</tr>
<tr>
<td>positive</td>
<td>367</td>
</tr>
<tr>
<td>predictive value (statistics)</td>
<td>369</td>
</tr>
<tr>
<td>preeclampsia</td>
<td>230, 233</td>
</tr>
<tr>
<td>premature atrial complexes</td>
<td>116</td>
</tr>
<tr>
<td>premature ventricular complexes</td>
<td>116</td>
</tr>
<tr>
<td>premenstrual syndrome</td>
<td>68</td>
</tr>
<tr>
<td>prenatal care</td>
<td>88</td>
</tr>
<tr>
<td>pressure equalization (PE) tubes</td>
<td>307</td>
</tr>
<tr>
<td>prevalence (statistics)</td>
<td>369</td>
</tr>
<tr>
<td>protein induced,</td>
<td>100, 314</td>
</tr>
<tr>
<td>progressive familial intrahepatic cholestasis</td>
<td>216</td>
</tr>
<tr>
<td>prolactinoma</td>
<td>62, 67</td>
</tr>
<tr>
<td>prolapse rectal</td>
<td>229</td>
</tr>
<tr>
<td>prolonged QT interval</td>
<td>120</td>
</tr>
<tr>
<td>prolonged QT syndrome, familial</td>
<td>120</td>
</tr>
<tr>
<td>propionic acidemia</td>
<td>331</td>
</tr>
<tr>
<td>prostaglandin (PGE1)</td>
<td>127</td>
</tr>
<tr>
<td>protein creatinine ratio</td>
<td>358</td>
</tr>
<tr>
<td>proteinuria, 358</td>
<td></td>
</tr>
<tr>
<td>prune belly syndrome</td>
<td>259, 360</td>
</tr>
<tr>
<td>pseudoappendicitis</td>
<td>312</td>
</tr>
<tr>
<td>pseudohermaphrodisism</td>
<td>84</td>
</tr>
<tr>
<td>pseudohyponatremia</td>
<td>87, 356</td>
</tr>
<tr>
<td>pseudohypoparathyroidism</td>
<td>208</td>
</tr>
<tr>
<td>Pseudomonas</td>
<td>291</td>
</tr>
<tr>
<td>pseudostrabismus</td>
<td>236</td>
</tr>
<tr>
<td>pseudotumor cerebri</td>
<td>206</td>
</tr>
<tr>
<td>psoriasis</td>
<td>142</td>
</tr>
<tr>
<td>PTSD</td>
<td>69</td>
</tr>
<tr>
<td>pubarche</td>
<td>58, 59</td>
</tr>
<tr>
<td>puberty age range</td>
<td>58</td>
</tr>
<tr>
<td>delayed</td>
<td>62</td>
</tr>
<tr>
<td>precocious</td>
<td>59, 151</td>
</tr>
<tr>
<td>pulmonary artery</td>
<td>241</td>
</tr>
<tr>
<td>pulmonary atresia</td>
<td>130</td>
</tr>
<tr>
<td>pulmonary hypoplasia</td>
<td>258</td>
</tr>
<tr>
<td>pulmonary malformation</td>
<td>408</td>
</tr>
<tr>
<td>pulmonary malformation, congenital</td>
<td>404</td>
</tr>
<tr>
<td>pulmonary stenosis</td>
<td>123</td>
</tr>
<tr>
<td>pulsat paradoxus</td>
<td>136</td>
</tr>
<tr>
<td>purine and pyrimidine disorders</td>
<td>340</td>
</tr>
<tr>
<td>pyrura</td>
<td>276</td>
</tr>
<tr>
<td>thrombocytopenic, maternal</td>
<td>276</td>
</tr>
<tr>
<td>pylonephritis</td>
<td>361</td>
</tr>
<tr>
<td>pyloric stenosis</td>
<td>224</td>
</tr>
<tr>
<td>pyoderma gangrenosum</td>
<td>144, 221</td>
</tr>
<tr>
<td>pyridoxine (vitamin B6) deficiency</td>
<td>210</td>
</tr>
<tr>
<td>pyruvate kinase deficiency</td>
<td>267</td>
</tr>
</tbody>
</table>

**Q**

<table>
<thead>
<tr>
<th>Term</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>QT interval</td>
<td>120</td>
</tr>
<tr>
<td>prolonged</td>
<td>120</td>
</tr>
<tr>
<td>quality improvement</td>
<td>427</td>
</tr>
<tr>
<td>Quantifiton</td>
<td>294</td>
</tr>
<tr>
<td>quinolones</td>
<td>281</td>
</tr>
</tbody>
</table>

**R**

<table>
<thead>
<tr>
<th>Term</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>rabies</td>
<td>202</td>
</tr>
<tr>
<td>radial head, subluxed</td>
<td>394</td>
</tr>
<tr>
<td>radial hypoplasia</td>
<td>174, 229, 258</td>
</tr>
<tr>
<td>radiculopathy</td>
<td>394</td>
</tr>
<tr>
<td>ranula</td>
<td>75</td>
</tr>
<tr>
<td>rape</td>
<td>69</td>
</tr>
<tr>
<td>rashes</td>
<td>307</td>
</tr>
</tbody>
</table>
pruritic, 142
rashes, newborn, 159
Rashkind procedure, 128
RAST, 96, 97, 141
Raynaud’s phenomenon, 401
RDW, 273
Rebuck skin window, 113
rectal prolapse, 229, 304
red cell distribution width (RDW), 273
refeeding syndrome, 72
reflux, gastroesophageal, 220, 224
regurgitation
aortic, 124
mitral, 123
renal artery stenosis, 363
renal failure, 363
renal tubular acidosis, 348
renovascular disease, 363
respiratory distress syndrome (RDS), 410
respiratory syncitial virus (RSV), 296
retinal artery occlusion, 341
retinitis pigmentosa, 243
retinoblastoma, 242
retinol, 206
retinol exposure, prenatal, 234
retinopathy of prematurity, 168
Rett syndrome, 256
Rhey’s syndrome, 218
Rh disease, 169
rhagadomyolysis, 77, 354
rhagadomyomas, cardiac, 151
rhagadomyosarcoma, 264
rheumatic fever, 131
rheumatoid arthritis, 398
rheumatoid factor, 398
rheumatoid nodules, 398
rhinitis
allergic, 96
chronic, 96
rhinovirus, 406
Rhogam, 169
for ITP, 277
Rhus reaction, 143
riboflavin deficiency, 209
rickets, 78
familial hypophosphatemic, 78
of prematurity, 79
Rickettsia rickettsii, 289
ringworm, 146, 154, 161
rocker-bottom feet, 250
Rocky Mountain spotted fever, 289
Rolandic epilepsy, 383
roseola, 297
rotator cuff tears, 396
rotavirus, 311
rotavirus vaccine, 322
rubella, 299
rule of 9s, 203
Rumack-Matthew nomogram, 193
ruminating, 226
Russell-Silver syndrome, 258
S
salicylates, toxicity, 198
salmon patch birthmark, 149
Salmonella, 312
Salmonella typhi, 313
salt wasting, cerebral, 356
Saltzer-Harris fracture
classification, 389
Sanfilippo syndrome, 338
sarcoïdosis, 401
sarcoma
osteogenic, 242, 262
SARS, 300
SBE prophylaxis. See
endocarditis, prophylaxis
scabies, 156
scarlet fever, 286
Schistosoma, 303
school phobias, 413
scleroderma, 146
scoliosis, 393
screening
prenatal
amiocentesis, 89
screening
audiometry (hearing), 190
lips, 139
newborn metabolic, 330
prenatal
alpha-fetoprotein, 88
biophysical profile, 89
chorionic villus sampling, 88
non-stress test, 89
Tay-Sach disease, 338
triple and quadruple screens, 89
vision, 236
scrotal mass, 72
scurvy, 211
sebaceous hyperplasia, 151, 159
seizure(s)
absence, 383
benign Rolandic, 383
complex partial, 383
febrile, 384
first time, 382
infantile spasms, 384
management, 382
neonatal, 384
simple partial, 383
tonic-clonic, 384
sensitivity (statistics), 368
sepsis
Group B streptococcal, 286
septal defect
atrial, 121
ventricular, 121
septal defects, atrioventricular, 121
septic arthritis, 395
sequestration
intrapulmonary, 408
pulmonary, 404
splenic, 268
serotonin, 196
serum sickness, 102
severe acute respiratory
syndrome, 300
severe combined
immunodeficiency (SCID), 106
Shagreen patch, 151
Shigella, 317
shock, 205
short stature, 63
shoulder dislocation, 390
shunts, cardiac, 127
Shwachman Diamond syndrome, 114
SIADH, 80, 356
sickle cell anemia, 268
Silver Russell syndrome, 258
Silver Russell Syndrome, 174
sinusitis, 308
Sjogren syndrome, 401
skin testing
allergen, 96
skull fracture, 204, 416
slapped cheeks appearance, 158
sleep
infants, 172
slipped capital femoral epiphysis, 392
small for gestational age, 234
smallpox, 298
Smith-Lemli-Opitz syndrome, 341
smoking, 69, 196, 369
snowman shape heart (TGA), 130
sodium
fractional excretion, 363
somatization, 414
somatosensory evoked potentials, 374
Somogyi phenomenon, 85
spasm
carpopedal, 76, 353
specificity (statistics), 368
spectrin, 268
spells
breath-holding, 414, 415
spermatocele, 72
spheronctosis
hereditary, 268
sphingolipidoses, 338
sphingomyelin, 90
sphingomyelinase, 339
spider
black widow, 202
spider, brown recluse, 202
spina bifida, 388
spirometry, 406
splenectomy patients, 318
spondylitis, juvenile ankylosing, 400
spondylarthropathy, 400
spondyloarthritis, 394
spondyloysis, 394
sporotrichosis, 317
sprains, 396
Copyright Pediatrics Board Review Inc. 2011 – 2020
All Rights Reserved. Do Not Copy Without Written Permission.
sprue, 223
St. John’s wort drug interactions, 232
staghorn calculi, 359
staphylococcal scalded skin syndrome (SSSS), 153
Staphylococcus aureus, 287
Staphylococcus epidermidis, 287
statistics calculations overview, 367
stature
tall, 65
steatorrhea, 315
stem cell donation, 424
stenosis
aortic, 123
mitral, 123
pulmonary, 123
renal artery, 363
supravalvular, 252
tricuspid, 123
stereotypy, 380
sternocleidomastoid, 397
Stevens-Johnson syndrome, 145, 146
compared with impetigo, 153
stippling
basophilic, 199, 272
storage diseases, 329
stork leg deformity, 382
strabismus, 236
strawberry tongue, 134
streptococcal pharyngitis, 284
streptococcal skin infections
groin and perineum, 153
Streptococcus agalactiae, 284
Streptococcus pneumoniae, 284
Streptococcus viridans, 284
Streptococcus, Group A, 285, 361
Streptozyme, 132
stress test, 89
stridor, 403
stroke, 386
Strongyloides, 304
Sturge-Weber syndrome, 150
stuttering, 413
sty, 235
subglottic stenosis, 404
subluxation
lens, 65
sucralfate, 230
sudden infant death syndrome, 171
suicide
guns, 70
physician assisted, 424
sun safety, infants, 172
superior vena cava (SVC) syndrome, 138, 264
supravalvular stenosis, 252
surfactant, 410
swimmer's ear, 306
Sydenham chorea, 132
sympathomimetics, 191
syncope, 123, 129, 386
syndactyly, 240, 250, 259, 341
synovitis, toxic, 395
syphilis
condyloma lata, 155
systemic lupus, 399
T
tachycardia
reentrant, 118, 119
supraventricular, 118
ventricular, 116, 119
Taenia saginata, 303
Taenia solium, 303
talipes equinovarus, 392
tall stature, 65
tampon, 305
Tanner stages, 57
tapeworm, 303
target lesions
in erythema multiforme, 146
Tay-Sach disease, 338
T-cell deficiencies, 105
Tc5, 324, 325
technetium, 227, 228
teeth
peg-shaped, 93, 309
supernumerary, 242
television, 415
tolgen effluvium, 161
terbutaline, 230
testicular feminization. See androgen insensitivity syndrome
testicular pain, 73
testicular torsion, 73
testis
undescended, 174, 259
tetanus wound prophylaxis, 325
tetany, 76
tetralogy of Fallot, 129
Alagille syndrome, 216
prenatal drug exposure, 233, 234
Tetralogy of Fallot spells, 129
thalassemias, 271
thelarche, 58
premature, 61
theophylline toxicity, 200
thiamine deficiency, 209
thrombocytopenia, 276
alloimmune, neonatal, 276
thrombocytopenia and absent radius (TAR) syndrome, 277
thumb sucking, 415
thymoma, 377
thyroid disorders, 74
thyroid nodules, 75
thyroiditis, 74
thyrotoxicosis, 74
neonatal, 76
thyroxine-binding globulin deficiency, 74
tick paralysis, 376
tick-borne diseases, 289, 316
ticks, 376
tics, 380
tinea capitis, 161
tinea corporis, 154
tinea versicolor, 154
tobacco, 69, 196
tocolysis, 230, 233
tocopherol, 207
Toddlar paralysis, 385
tongue tie, 418
tooth timeline, 148
TORCH infections, 308
Torsades de Pointes, 120
torsion
testicular, 73
tibial, 391
torticollis
in Klippel-Feil syndrome, 150
torticollis, congenital, 397
labor fracture, 390
total anomalous pulmonary venous return, 130
total iron binding capacity (TIBC), 273
total parenteral nutrition (TPN), 168
Tourette syndrome, 380
toxic epidermal necrolysis, 145
toxic shock syndrome (TSS), 305
toxic synovitis, 395
toxicity
acetaminophen, 193
amphetamines, 194
anticholinergic, 198
barbiturates, 195
calcium channel blocker, 200
cholinergics, 198
clonidine, 200
cocaine, 195
digoxin, 119, 200
ethanol, 193
iron, 199
isopropyl alcohol, 194
lead, 199, 272
methanol, 193
opioid, 195
pesticide, 198
phenycyclidine, 195
phenothiazine, 200
salicylates, 198
theophylline, 200
tricyclic antidepressants, 198
toxicodromes, 192
Toxocara canis, 303, 408
Toxoplasma gondii, 308
tracheitis, 320
tracheomalacia, 404
transaminases, 217
transferrin, 273
transfusion, PRBC, 266
Transgender, 419
cisgender, 419
gender, 419
gender expression, 419

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<table>
<thead>
<tr>
<th>Term</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>gender identity</td>
<td>419</td>
</tr>
<tr>
<td>gender variant/nonconforming</td>
<td>419</td>
</tr>
<tr>
<td>genderqueer</td>
<td>419</td>
</tr>
<tr>
<td>sex</td>
<td>419</td>
</tr>
<tr>
<td>sexual orientation</td>
<td>419</td>
</tr>
<tr>
<td>transsexual</td>
<td>419</td>
</tr>
<tr>
<td>transient neonatal pustular melanosis</td>
<td>159</td>
</tr>
<tr>
<td>transillumination</td>
<td>72</td>
</tr>
<tr>
<td>translocation</td>
<td></td>
</tr>
<tr>
<td>Down syndrome</td>
<td>248</td>
</tr>
<tr>
<td>t(21q;21q)</td>
<td>249</td>
</tr>
<tr>
<td>t(4;11)</td>
<td>260</td>
</tr>
<tr>
<td>t(8;14)</td>
<td>261</td>
</tr>
<tr>
<td>t(9;22)</td>
<td>260</td>
</tr>
<tr>
<td>transposition of the great arteries</td>
<td>128</td>
</tr>
<tr>
<td>transverse myelitis</td>
<td>376</td>
</tr>
<tr>
<td>trauma</td>
<td></td>
</tr>
<tr>
<td>head</td>
<td>386</td>
</tr>
<tr>
<td>retinoin</td>
<td>147</td>
</tr>
<tr>
<td>Trichomonas vaginalis</td>
<td>93</td>
</tr>
<tr>
<td>trichotillomania</td>
<td>162</td>
</tr>
<tr>
<td>Trichuris</td>
<td>229</td>
</tr>
<tr>
<td>tricuspid regurgitation</td>
<td>130</td>
</tr>
<tr>
<td>tricuspid stenosis</td>
<td>123</td>
</tr>
<tr>
<td>tripalangeal thumbs</td>
<td>114</td>
</tr>
<tr>
<td>triple-jointed thumb</td>
<td>252</td>
</tr>
<tr>
<td>trismus</td>
<td>285</td>
</tr>
<tr>
<td>trismy</td>
<td></td>
</tr>
<tr>
<td>VSDs, 121</td>
<td></td>
</tr>
<tr>
<td>trisomy 13, 250</td>
<td>250</td>
</tr>
<tr>
<td>trisomy 18, 250</td>
<td>248</td>
</tr>
<tr>
<td>trisomy disorders</td>
<td>248</td>
</tr>
<tr>
<td>Trousseau's sign</td>
<td>76</td>
</tr>
<tr>
<td>truncus arteriosus</td>
<td>128</td>
</tr>
<tr>
<td>Trypanosoma bruciæ</td>
<td>302</td>
</tr>
<tr>
<td>Trypanosoma cruzi</td>
<td>302</td>
</tr>
<tr>
<td>tryptophan</td>
<td>210</td>
</tr>
<tr>
<td>tsetse fly</td>
<td>302</td>
</tr>
<tr>
<td>tuberous sclerosis</td>
<td>151, 243</td>
</tr>
<tr>
<td>tularemia</td>
<td>316</td>
</tr>
<tr>
<td>tumor lysis syndrome</td>
<td>264</td>
</tr>
<tr>
<td>Turner syndrome</td>
<td>257</td>
</tr>
<tr>
<td>twins, 90</td>
<td></td>
</tr>
<tr>
<td>type I and II errors (statistics)</td>
<td>369</td>
</tr>
<tr>
<td>typhilitis</td>
<td>174, 229</td>
</tr>
<tr>
<td>typhoid</td>
<td>312</td>
</tr>
<tr>
<td>tyrosinemia</td>
<td>336</td>
</tr>
<tr>
<td>Tzanck stain</td>
<td>93, 141, 155, 297</td>
</tr>
<tr>
<td>ulcer</td>
<td></td>
</tr>
<tr>
<td>aphthous</td>
<td>147, 319</td>
</tr>
<tr>
<td>ulcerative colitis</td>
<td>221</td>
</tr>
<tr>
<td>umbilical artery</td>
<td></td>
</tr>
<tr>
<td>single</td>
<td>229</td>
</tr>
<tr>
<td>umbilical artery, single</td>
<td>174</td>
</tr>
<tr>
<td>umbilical cord</td>
<td>173</td>
</tr>
<tr>
<td>urea cycle defects</td>
<td>329, 332</td>
</tr>
<tr>
<td>ureterocele</td>
<td>361</td>
</tr>
<tr>
<td>ureteropelvic junction obstruction</td>
<td>359</td>
</tr>
<tr>
<td>urethritis</td>
<td></td>
</tr>
<tr>
<td>nongonococcal</td>
<td>92</td>
</tr>
<tr>
<td>urinary crystals</td>
<td>359</td>
</tr>
<tr>
<td>urticaria</td>
<td>98, 146</td>
</tr>
<tr>
<td>papular</td>
<td>144</td>
</tr>
<tr>
<td>uveitis</td>
<td>398</td>
</tr>
<tr>
<td>V vaccine</td>
<td></td>
</tr>
<tr>
<td>contraindications</td>
<td>326</td>
</tr>
<tr>
<td>DTaP, DT, TDaP</td>
<td>325</td>
</tr>
<tr>
<td>hepatitis A</td>
<td>323</td>
</tr>
<tr>
<td>hepatitis B</td>
<td>323</td>
</tr>
<tr>
<td>influenza</td>
<td>322</td>
</tr>
<tr>
<td>MMR, 322</td>
<td></td>
</tr>
<tr>
<td>rotavirus</td>
<td>322</td>
</tr>
<tr>
<td>schedule</td>
<td>325</td>
</tr>
<tr>
<td>vaccines</td>
<td></td>
</tr>
<tr>
<td>yellow fever</td>
<td>321</td>
</tr>
<tr>
<td>vaccines</td>
<td></td>
</tr>
<tr>
<td>adenovirus</td>
<td>321</td>
</tr>
<tr>
<td>live</td>
<td>321</td>
</tr>
<tr>
<td>vagal maneuvers</td>
<td>118</td>
</tr>
<tr>
<td>vaginosis, bacterial</td>
<td>93</td>
</tr>
<tr>
<td>valgus deformity</td>
<td>391</td>
</tr>
<tr>
<td>validity hierarchy</td>
<td>370</td>
</tr>
<tr>
<td>Valley fever</td>
<td>293</td>
</tr>
<tr>
<td>vancomycin</td>
<td>281</td>
</tr>
<tr>
<td>vanillylmandelic acid</td>
<td>139</td>
</tr>
<tr>
<td>varicella zoster virus</td>
<td>297</td>
</tr>
<tr>
<td>varicoceal</td>
<td>72</td>
</tr>
<tr>
<td>variola</td>
<td>298</td>
</tr>
<tr>
<td>varus deformity</td>
<td>391</td>
</tr>
<tr>
<td>vasomotor rhinitis</td>
<td>96</td>
</tr>
<tr>
<td>VATER/VACTERL</td>
<td>174</td>
</tr>
<tr>
<td>vegan diet</td>
<td>161, 212</td>
</tr>
<tr>
<td>vegetarians</td>
<td>161, 212</td>
</tr>
<tr>
<td>ventricular septal defects</td>
<td>121</td>
</tr>
<tr>
<td>vertigo, benign positional</td>
<td>386</td>
</tr>
<tr>
<td>vescicoureteral reflux</td>
<td>360</td>
</tr>
<tr>
<td>vincristine</td>
<td>231</td>
</tr>
<tr>
<td>viral hepatitis</td>
<td>216</td>
</tr>
<tr>
<td>vital signs</td>
<td>432</td>
</tr>
<tr>
<td>Vitamin B12 deficiency</td>
<td>211, 273</td>
</tr>
<tr>
<td>vitamin C deficiency</td>
<td>211</td>
</tr>
<tr>
<td>vitamin D</td>
<td>78</td>
</tr>
<tr>
<td>vitamin D deficiency</td>
<td>208</td>
</tr>
<tr>
<td>vitamin D excess</td>
<td>207</td>
</tr>
<tr>
<td>vitamin E deficiency</td>
<td>207</td>
</tr>
<tr>
<td>vitamin K deficiency</td>
<td>207</td>
</tr>
<tr>
<td>vitamins</td>
<td></td>
</tr>
<tr>
<td>fat-soluble</td>
<td>206</td>
</tr>
<tr>
<td>water-soluble</td>
<td>209</td>
</tr>
<tr>
<td>vitiligo</td>
<td>144</td>
</tr>
<tr>
<td>VLBW, 172</td>
<td></td>
</tr>
<tr>
<td>vocal cord nodules</td>
<td>411</td>
</tr>
<tr>
<td>volvulus</td>
<td>225, 227</td>
</tr>
<tr>
<td>vomiting</td>
<td></td>
</tr>
<tr>
<td>newborn</td>
<td>226</td>
</tr>
<tr>
<td>vomiting, causes</td>
<td>224</td>
</tr>
<tr>
<td>Von Gierke's disease</td>
<td>334</td>
</tr>
<tr>
<td>von Willebrand disease</td>
<td>280</td>
</tr>
<tr>
<td>VZIG, 297, 308</td>
<td></td>
</tr>
<tr>
<td>W</td>
<td></td>
</tr>
<tr>
<td>Waardenburg syndrome</td>
<td>240</td>
</tr>
<tr>
<td>warfarin exposure, prenatal</td>
<td>233</td>
</tr>
<tr>
<td>warts</td>
<td></td>
</tr>
<tr>
<td>anogenital exposure</td>
<td>233</td>
</tr>
<tr>
<td>water intoxication</td>
<td>356</td>
</tr>
<tr>
<td>web, antral and esophageal</td>
<td>225</td>
</tr>
<tr>
<td>Wegener granulomatosis</td>
<td>401</td>
</tr>
<tr>
<td>weight and weight gain, newborn</td>
<td>163</td>
</tr>
<tr>
<td>Wernding-Hoffman disease</td>
<td>381</td>
</tr>
<tr>
<td>whipworm</td>
<td>304</td>
</tr>
<tr>
<td>whitlow</td>
<td>93</td>
</tr>
<tr>
<td>Williams syndrome</td>
<td>251</td>
</tr>
<tr>
<td>Wilms tumor</td>
<td>263</td>
</tr>
<tr>
<td>Wilson disease</td>
<td>218, 340</td>
</tr>
<tr>
<td>Wiskott-Aldrich syndrome</td>
<td>107</td>
</tr>
<tr>
<td>Wolff-Parkinson-White syndrome</td>
<td>118</td>
</tr>
<tr>
<td>Woods lamp</td>
<td>151</td>
</tr>
<tr>
<td>ethylene glycol in urine</td>
<td>194</td>
</tr>
<tr>
<td>X</td>
<td></td>
</tr>
<tr>
<td>X-linked disorders</td>
<td>244</td>
</tr>
<tr>
<td>XXY (Klinefelter syndrome)</td>
<td>65</td>
</tr>
<tr>
<td>Y</td>
<td></td>
</tr>
<tr>
<td>Yersinia enterocolitica</td>
<td>312</td>
</tr>
<tr>
<td>Yersinia pestis</td>
<td>317</td>
</tr>
<tr>
<td>Z</td>
<td></td>
</tr>
<tr>
<td>Zika Virus</td>
<td>300</td>
</tr>
<tr>
<td>zinc deficiency</td>
<td>153, 160, 161, 211</td>
</tr>
<tr>
<td>Zollinger-Ellison syndrome</td>
<td>220</td>
</tr>
</tbody>
</table>
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