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)

www.PediatricsBoardReview.com
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 AND repeat test takers.

Along with the Core Study Guide and the Q&A book, the digital, audio and video resources help you cement the core material. Since the content within our resources is extremely similar in the order and manner of presentation, 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, and for busy pediatricians studying for their traditional, 4-hour ABP Maintenance of Certification (MOC) exam. We even have a MOCA-PBR Study Guide & Test Companion for anyone going through MOCA-Peds.

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 2015, only ONE pediatrician failed on his first attempt at the MOC, and he admitted that he barely looked at the PBR resources before walking into the exam.

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** is by far the most popular membership. If you have an All Access Pass membership, 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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**Reza**

Passed on the first attempt. Thanks for all the help from everyone here. If anyone needs help with their exam, I'll be happy to share my experience, study planning, resources, etc.

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**Cindi Mondesir**

I PASSED after 6 attempts, doing more training to regain my eligibility, attending the test taking strategies course, processing questions till my head was going to burst and doing exactly what Ashish Goyal told me to do. Most of all grateful to the people in this group who processed with me when I asked for help.

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**Russell Zwiener**

guys, i am a true testament to this program that Ashish runs. I have always been embarrassed to post anything whatsoever on this page but stayed in touch because of the very encouraging words on here. I have no shame today. I am currently a 4th year fellow in Pediatric Advanced and Therapeutic endoscopy after completing a Pedis Gi fellowship last year. The weight of the world has been overwhelming. I failed this exam 3 times before this year. I made the decision to go all in with PBR (all access, live test taking strategies and even a 2 hour one on one session with Ashish). If this post gives just one person hope to NEVER give up i’ve done my job. I have finally passed the ABP certifying exam!!! I improved my score by 40 points!!! I honestly used to laugh at the people who said they improved by 30 or more points, didn’t think it was possible. Its more than possible with PBR and can't thank Ashish Goyal enough! God is great. Never give up, never give up.
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

I had very little time to prepare for the boards... The core study guide helped me focus on topics that were high yield on the exam. In addition, the strategies taught by Ashish were very helpful and is what I believe helped me PASS. I would highly recommend the PBR for anyone needed to review in a short period of time. It is worth every penny!

- 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 (2018)
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 (2018)
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 (2018)
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!

Signup For Your FREE Test-Taking Strategy Session Now

www.pediatricsboardreview.com/strategy

FULL ONLINE Test-Taking Strategies Course
www.pediatricsboardreview.com/strategy

LIVE Test-Taking Strategies Course
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 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
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](http://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**! You can also submit them directly to us for consideration through our errors and clarifications portal:

[www.pediatricsboardreview.com/ERROR](http://www.pediatricsboardreview.com/ERROR)
## TWENTY PEGS

<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](http://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](http://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 56
Chapter 2: ENDOCRINOLOGY 73
Chapter 3: OB/GYN AND SOME STDs 87
Chapter 4: ALLERGY & IMMUNOLOGY 94
Chapter 5: CARDIOLOGY 113
Chapter 6: DERMATOLOGY 137
Chapter 7: NEONATOLOGY 159
Chapter 8: DEVELOPMENTAL MILESTONES 171
Chapter 9: EMERGENCY MEDICINE & TOXICOLOGY 187
Chapter 10: VITAMIN AND NUTRITIONAL DISORDERS 202
Chapter 11: GASTROENTEROLOGY 210
Chapter 12: PHARMACOLOGY & DRUG PEARLS 226
Chapter 13: OPHTHALMOLOGY 231
Chapter 14: GENETICS & INHERITED DISEASES 234
Chapter 15: HEMATOLOGY & ONCOLOGY 256
Chapter 16: INFECTIOUS DISEASES 277
Chapter 17: VACCINES, IMMUNIZATIONS AND CONTRAINDICATIONS 317
Chapter 18: INBORN ERRORS OF METABOLISM & MISCELLANEOUS METABOLIC DISORDERS 324
Chapter 19: ACID-BASE DISORDERS 339
Chapter 20: FLUIDS & ELECTROLYTES 347
Chapter 21: NEPHROLOGY 354
Chapter 22: STATISTICS 363
Chapter 23: NEUROLOGY 370
Chapter 24: ORTHOPEDICS AND SPORTS MEDICINE 385
Chapter 25: RHEUMATOLOGY 394
Chapter 26: PULMONOLOGY 398
Chapter 27: PSYCHIATRY AND SOME SOCIAL ISSUES 409
Chapter 28: ETHICS IN PEDIATRICS 416
Chapter 29: PATIENT SAFETY AND QUALITY IMPROVEMENT 422
# 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
- 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 ......................................................................................................... 56

- Normal Puberty Timeline .......................................................................................................................... 56
- Normal Puberty Pearls .................................................................................................................................. 56
- Height .......................................................................................................................................................... 57
- Growth Spurts ........................................................................................................................................... 57
- Thelarche, Adrenarche Then Menarche ...................................................................................................... 57
- Age Range of Normal Puberty .................................................................................................................. 57
- Estrogen ..................................................................................................................................................... 58
- Androgens .................................................................................................................................................. 58
- Breast Masses – Fibroadenomas and Fibrocystic Change ....................................................................... 58

- Puberty Gone Haywire ................................................................................................................................. 58
- Precocious Puberty ...................................................................................................................................... 58
- Gonadotropin-Independent Precocious Puberty ....................................................................................... 59
- Precocious Puberty in Girls ........................................................................................................................ 59
- Precocious Puberty in Boys ........................................................................................................................ 59
- Adrenal Androgens ..................................................................................................................................... 59
- Premature Adrenarche ................................................................................................................................. 59
- Congenital Adrenal Hyperplasia (CAH) Intro ............................................................................................... 59
- Tropic ........................................................................................................................................................... 60
- Premature Thelarche .................................................................................................................................... 60
- Premature Adrenarche in Girls .................................................................................................................... 60

- Delayed Puberty ........................................................................................................................................ 61
- Delayed Puberty Definition and Pearls ...................................................................................................... 61
- Primary and Secondary Hypogonadism ....................................................................................................... 61
- Prolactinoma ................................................................................................................................................ 61
- Constitutional Delay of Puberty .................................................................................................................. 61
- Hypogonadotropic Ovarian Failure ............................................................................................................ 62
(DOUBLE TAKE) HUMAN PAPILLOMA VIRUS (HPV) ................................................................. 69
CHLAMYDIA TRACHOMATIS ........................................................................................................ 69
MOTOR VEHICLE ACCIDENTS ..................................................................................................... 69
GUNS ........................................................................................................................................... 69
HOMOSEXUALITY .......................................................................................................................... 70
SELF CONSENT ............................................................................................................................ 70
DRUG SCREENING ......................................................................................................................... 70
EXOGENOUS ANABOLIC STEROIDS .......................................................................................... 70
EATING DISORDERS ....................................................................................................................... 70
ANOREXIA ...................................................................................................................................... 70
BULIMIA ......................................................................................................................................... 71
REFEEDING SYNDROME ............................................................................................................... 71
OVERWEIGHT VERSUS OBESE .................................................................................................... 71
SCROTAL MASS ............................................................................................................................... 71
TESTICULAR CANCER .................................................................................................................... 71
HYDROCELE .................................................................................................................................. 71
SPERMATOCELE ............................................................................................................................ 71
VARICOCELE .................................................................................................................................. 71
INGUINAL HERNIA ........................................................................................................................ 72
TESTICULAR AND PENILE ISSUES .............................................................................................. 72
TESTICULAR PAIN .......................................................................................................................... 72
TESTICULAR TORSION ................................................................................................................... 72
TORSION OF THE APPENDIX TESTES OR EPIDIDYMIS ........................................................... 72
EPIDIDYMIS ................................................................................................................................... 72
ORCHITIS ....................................................................................................................................... 72
Balanitis ......................................................................................................................................... 72
PHIMOSIS ....................................................................................................................................... 72
PENILE EPIDERMAL INCLUSION CYSTS ...................................................................................... 72

Chapter 2: ENDOCRINOLOGY ........................................................................................................ 73
THYROID DISORDERS—KEY TERMINOLOGY .............................................................................. 73
HYPOTHYROIDISM ......................................................................................................................... 73
THYROXINE-BINDING GLOBULIN DEFICIENCY .......................................................................... 73
HYPOTHYROIDISM & CONGENITAL HYPOTHYROIDISM .......................................................... 73
THYROGLOSSAL DUCT CYST ......................................................................................................... 74
THYROID NODULES ......................................................................................................................... 74
HYPERTHYROIDISM ....................................................................................................................... 74
GRAVES DISEASE = HYPERThyroidism ......................................................................................... 74
NEONATAL THYROTOXICOSIS (AKA NEONATAL GRAVES DISEASE) ........................................... 74
CALCIUM AND VITAMIN D RELATED DISORDERS ................................................................... 75
(DOUBLE TAKE) HYPERCALCEMIA .............................................................................................. 75
(DOUBLE TAKE) HYPOCALCEMIA ................................................................................................ 75
VITAMIN D & ITS EVALUATION ..................................................................................................... 77
(DOUBLE TAKE) RICKETS ........................................................................................................... 77
(DOUBLE TAKE) RICKETS OF PREMATURITY (AKA OSTEOOPENIA OF PREMATURITY) .......... 78
(DOUBLE TAKE) LIVER DYSFUNCTION ....................................................................................... 78
ADRENAL DISORDERS .................................................................................................................. 79
NORMAL ADRENAL STEROID SYNTHESIS PATHWAY .............................................................. 79
Chapter 4: ALLERGY & IMMUNOLOGY ........................................................................... 94

HAY FEVER, FOOD ALLERGIES, AND ALLERGIC RASHES .............................................. 94
CHRONIC RHINITIS ........................................................................................................... 94
VASOMOTOR RHINITIS ...................................................................................................... 94
SKIN TESTING .................................................................................................................. 94
IMMUNOTHERAPY ............................................................................................................. 94
RADIOALLERGOSORBENT TESTING (AKA RAST) ............................................................ 94
FOOD ALLERGIES ........................................................................................................... 95
PEANUT ALLERGY ........................................................................................................... 95
FOOD "SENSITIVITIES" ..................................................................................................... 95
(DOUBLE TAKE) ATOPIC DERMATITIS (ECZEMA) ........................................................ 95
URTICARIA (HIVES) .......................................................................................................... 96
CHRONIC URTICARIA (> 6 weeks) .................................................................................... 96
ARTIFICIAL FOOD COLORING .......................................................................................... 96
(DOUBLE TAKE) ANAPHYLAXIS ....................................................................................... 96
FIXED DRUG REACTION .................................................................................................... 97
TRUE MILK PROTEIN ALLERGY ....................................................................................... 97
(DOUBLE TAKE) FOOD PROTEIN INDUCED ENTEROPATHY ......................................... 97
(DOUBLE TAKE) FOOD PROTEIN INDUCED PROCTITIS/COLITIS ................................. 98
(DOUBLE TAKE) FOOD PROTEIN INDUCED ENTEROCOLITIS SYNDROME (FPIES) ...... 98
(DOUBLE TAKE) LACTOSE INTOLERANCE (AKA LACTASE DEFICIENCY) ...................... 98
IMMUNOLOGY .................................................................................................................. 98
EPINEPHRINE PEN .......................................................................................................... 98
TYPES OF HYPERSENSITIVITY REACTIONS .................................................................. 99
(DOUBLE TAKE) ANAPHYLAXIS ...................................................................................... 99
DRUG HYPERSENSITIVITY SYNDROME ...................................................................... 100
ANTICONVULSANT HYPERSENSITIVITY SYNDROME ..................................................... 100
IGE MEDIATED MEDICATION HYPERSENSITIVITY ...................................................... 100
PENICILLIN (PCN) ALLERGY .......................................................................................... 100
SERUM SICKNESS ............................................................................................................ 100
BEE STINGS ....................................................................................................................... 100
POISON IVY, POISON OAK, & POISON SUMAC ............................................................ 100
TYPES OF IMMUNITY ..................................................................................................... 100
CD4 CELL ........................................................................................................................ 101
CD8 CELL ........................................................................................................................ 101
Chapter 5: CARDIOLOGY

EKG FINDINGS......................................................................................................................113

RIGHT ATRIAL ENLARGEMENT (RAE) ..............................................................................113
LEFT ATRIAL ENLARGEMENT (LAE) .................................................................................113
NEGATIVE T WAVE .............................................................................................................113
PREMATURE ATRIAL COMPLEXES (PACs) .....................................................................113
PREMATURE VENTRICULAR COMPLEXES (PVCs) ............................................................113
PARADOXICAL SPLIT OF S2 ......................................................................................................................... 122
FETAL CIRCULATION ................................................................................................................................. 123
NORMAL CIRCULATION ............................................................................................................................. 123
FETAL CIRCULATION ................................................................................................................................. 123
RIGHT VENTRICLE (RV) ............................................................................................................................ 124
CYANOTIC CONGENITAL HEART DISEASES (CCHD) ........................................................................... 124
PEARL (RE: SHUNTS) ............................................................................................................................... 124
CYANOTIC CONGENITAL HEART DISEASES MNEMONIC ................................................................... 124
CYANOSIS ALGORITHM AND PEARL ...................................................................................................... 124
PROSTAGLANDIN (PGE1) .......................................................................................................................... 124
PATENT DUCTUS ARTERIOSUS (PDA) ...................................................................................................... 124
COARCTATION OF THE AORTA ............................................................................................................... 125
PREDUCTAL & POSTDUCTAL SATURATION .............................................................................................. 125
TRUNCUS ARTERIOSUS (TA) .................................................................................................................... 125
TRANSPOSITION OF THE GREAT ARTERIES (TGA/TOGA) .................................................................... 125
TETRALOGY OF FALLOT (TOF) ................................................................................................................ 126
TOTAL ANOMALOUS PULMONARY VENOUS RETURN (TAPVR) ............................................................. 127
HYPOPLASTIC LEFT HEART ..................................................................................................................... 127
TRICUSPID ATRESIA .................................................................................................................................. 127
PULMONARY ATRESIA (AKA PULMONARY VALVE ATRESIA) .............................................................. 127
PERSISTENT PULMONARY HYPERTENSION = PERSISTENCE OF FETAL CIRCULATION .................. 127
RHEUMATIC FEVER & RHEUMATIC HEART DISEASE ......................................................................... 128
RHEUMATIC FEVER ................................................................................................................................... 128
JONES CRITERIA FOR RHEUMATIC FEVER .............................................................................................. 129
MAJOR JONES CRITERIA FOR ACUTE RHEUMATIC FEVER ................................................................. 129
MINOR JONES CRITERIA FOR ACUTE RHEUMATIC FEVER ................................................................. 129
RHEUMATIC FEVER TREATMENT .......................................................................................................... 130
RHEUMATIC FEVER ASSOCIATIONS ...................................................................................................... 130
KAWASAKI DISEASE, AKA MUCOCUTANEOUS LYMPH NODE SYNDROME ............................................. 130
DIAGNOSTIC CRITERIA FOR KAWASAKI DISEASE ............................................................................. 130
SUPPORTIVE DATA ..................................................................................................................................... 131
COMPLICATIONS OF KAWASAKI DISEASE ............................................................................................. 131
TREATMENT OF KAWASAKI DISEASE ...................................................................................................... 131
ENDOCARDITIS ......................................................................................................................................... 131
ENDOCARDITIS DEFINITION ..................................................................................................................... 131
ACUTE BACTERIAL ENDOCARDITIS .......................................................................................................... 131
SUBACUTE BACTERIAL ENDOCARDITIS ................................................................................................. 131
DIAGNOSING ENDOCARDITIS .................................................................................................................. 132
TREATMENT OF ENDOCARDITIS ............................................................................................................ 132
NATIVE VALVE ENDOCARDITIS .............................................................................................................. 132
PROSTHETIC VALVE ENDOCARDITIS ....................................................................................................... 132
PROPHYLAXIS FOR SUBACUTE BACTERIAL ENDOCARDITIS (SBE) .................................................... 132
MISCELLANEOUS CARDIOLOGY ............................................................................................................... 133
PULSUS PARADOXUS .............................................................................................................................. 133
PERICARDITIS ............................................................................................................................................ 133
PERICARDIAL EFFUSIONS ......................................................................................................................... 133
MYOCARDITIS ........................................................................................................................................... 133
EARLY CONGESTIVE HEART FAILURE .................................................................................................... 134
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

LICHEN SCLerosus

LICHEN STRIATUS

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

GRANULOMA ANNULARE

PITTED KERATOLYSIS

(DOUBLE TAKE) DERMATOMYOSITIS

STEVENS-JOHNSON SYNDROME (SJS) and TOXIC EPIDERMAL NECROLYSIS (TEN)

ERYTHEMA MULTIFORME

(DOUBLE TAKE) NEONATAL LUPUS

RASHES WITH CENTRAL CLEARING (PEARL)

RASHES WITH CENTRAL DARKENING/TARGET LESIONS (PEARL)

URTICARIA/HIVES

SCLERODERMA

DERMOID CYSTS (AKA EPIDERMOID CYSTS)

COMEDONAL ACNE

INFLAMMATORY ACNE

ISOTRETINOIN

(DOUBLE TAKE) APHTHOUS ULCERS
TEETH ISSUES

TOOTH TIMELINE
PEG TEETH
HUTCHINSON TEETH
TETRACYCLINE TEETH STAINING
FLUOROSIS

VASCULAR & PIGMENTED LESIONS

HEMANGIOMAS
PHACES SYNDROME
(DOUBLE TAKE) KASABACH-MERRITT SYNDROME
NEVUS SIMPLEX
PORT WINE STAINS (PWS) (AKA NEVUS FLAMMEUS)
STURGE-WEBER SYNDROME (SWS)

CAPILLARY MALFORMATION ASSOCIATIONS

(DOUBLE TAKE) KLIPPEL-TRENAUNAY SYNDROME
(NAME ALERT) KLIPPEL-FEIL SYNDROME
CONGENITAL MELANOCYTIC NEVUS
MCCUNE-ALBRIGHT SYNDROME (AKA POLYOSTOTIC FIBROUS DYSPLASIA)
TUBEROUS SCLEROSIS
NEUROFIBROMATOSIS I (NF1)
NEUROFIBROMATOSIS 2 (NF2)
INCONTINENTIA PIGMENTI
HYPOHIDROTIC ECTODERMAL DYSPLASIA

INFECTIOUS SKIN CONDITIONS

(DOUBLE TAKE) ECTHYM A GANGRENO SUM
STREPTOCOCCAL INFECTIONS OF THE GROIN
(DOUBLE TAKE) CUTANEOUS CANDIDIASIS, A DIAPER DERMATITIS
BULLOUS IMPETIGO/STAPH SCALDED SKIN SYNDROME (SSSS)
STAPHYLOCOCCUS EPIDERMIDIS
CELLULITIS
TINEA CORPORIS
TINEA VERSICOLOR
PITYRIASIS ROSEA
MOLLUSCUM CONTAGIOSUM
CONDYLOMA LAT A
HERPES SIMPLEX VIRUSES 1 & 2 (HSV 1 & 2)
HERPES SIMPLEX VIRUS ENCEPHALITIS (HSV ENCEPHALITIS)
(DOUBLE TAKE) HERPES SIMPLEX VIRUS GINGIVOSTOMATITIS
(DOUBLE TAKE) ECZEMA HERPETICUM
(DOUBLE TAKE) BLUEBERRY MUFFIN SYNDROME
SCABIES
PEDICULOSIS CAPITIS (AKA HEAD LICE)
PEDI CULOSIS PUBIS (AKA PUBLIC LICE or CRABS)

THE "ERYTHEMA" RASHES

ERYTHEMA NODOSUM
(DOUBLE TAKE) ERYTHEMA CHRONICUM MIGRANS
(DOUBLE TAKE) ERYTHEMA MARGINATUM
(DOUBLE TAKE) ERYTHEMA INFECTIOSUM
Chapter 7: NEONATOLOGY ......................................................... 159

WEIGHT, LENGTH, & HEAD CIRCUMFERENCE ................................................. 159

NEWBORN WEIGHT .................................................................................. 159
PREDICTED GROWTH RULES OF THUMB .............................................. 159
INTRAUTERINE GROWTH RESTRICTION = INTRAUTERINE GROWTH RETARDATION = IUGR ........................................................................ 159
HEAD CIRCUMFERENCE – MACROCEPHALY, HYDROCEPHALY, AND MICROCEPHALY ................................................................. 160

NUTRITION, BREAST MILK, & FORMULA .................................................... 160

NEONATAL POTASSIUM REQUIREMENTS .................................................. 160
NEONATAL SODIUM REQUIREMENTS ....................................................... 160
PROTEIN INTAKE .................................................................................... 160
NEONATAL CALORIC REQUIREMENT ....................................................... 161
EXCLUSIVELY BREASTFED BABIES .......................................................... 161
BREAST MILK .......................................................................................... 161
FORMULA ................................................................................................. 162
IRON SUPPLEMENTATION ....................................................................... 162
WHOLE MILK ............................................................................................ 162

PREMATURE INFANTS ............................................................................ 163
CLASSIFICATION ...................................................................................... 163
ESTIMATING GESTATIONAL AGE BY PHYSICAL EXAM ............................... 163
CALCULATING GESTATIONAL AGE .......................................................... 163
PREMATURE INFANT NUTRITION ................................................................ 163
TOTAL PARENTERAL NUTRITION (TPN) .................................................... 164
RETINOPATHY OF PREMATURITY (ROP) ..................................................... 164
NEONATAL JAUNDICE, HYPERBILIRUBINEMIA, AND HEMOLYTIC DISEASE OF THE NEWBORN  ..........164

NEONATAL JAUNDICE ..............................................................................................................164
HYPERBILIRUBINEMIA .............................................................................................................165
RISK FACTORS FOR DEVELOPING HYPERBILIRUBINEMIA ......................................................165
(DOUBLE TAKE) RHESUS DISEASE (AKA RH DISEASE) ...............................................................165
(DOUBLE TAKE) ABO INCOMPATIBILITY .......................................................................................166
(DOUBLE TAKE) GLUCOSE-6-PHOSPHATE DEHYDROGENASE DEFICIENCY (G6PD DEFICIENCY) ....166

MISCELLANEOUS ..........................................................................................................................166

FULL TERM ..................................................................................................................................166
NEONATE .....................................................................................................................................166
INFANT .........................................................................................................................................166
APNEA .........................................................................................................................................166
SUDDEN INFANT DEATH SYNDROME (SIDS) .............................................................................167
ANURIA ........................................................................................................................................167
ANEMIA ........................................................................................................................................167
APT TEST .....................................................................................................................................167
NEONATAL HYPOGLYCEMIA .........................................................................................................167
SHOCK-LIKE SYMPTOMS .............................................................................................................167
(DOUBLE TAKE) MECONIUM ASPIRATION SYNDROME (MAS) ......................................................167
SEPTIC WORKUP ............................................................................................................................167
CRYING ........................................................................................................................................167
COLIC ..........................................................................................................................................168
SLEEP ..........................................................................................................................................168
SUN SAFETY .................................................................................................................................168
AUTOMOBILE AND CAR SEAT SAFETY .......................................................................................168
VERY LOW BIRTH WEIGHT (VLBW) ..............................................................................................168
PREGNANCY INDUCED HYPERTENSION (PIH) .........................................................................169
NALOXONE ....................................................................................................................................169
FAILURE TO THRIVE (FTT) ........................................................................................................169
ARTHROGYRPLOSIS MULTIPLEX ..................................................................................................169
CEPHALOHematoma ....................................................................................................................169
CAPUT SUCCEEDANEUM .............................................................................................................169
UMBILICAL CORD ........................................................................................................................169
Cord Catheters ................................................................................................................................169
SINGLE UMBILICAL ARTERY .......................................................................................................170
(DOUBLE TAKE) NECROTIZING ENTEROCOLITIS .......................................................................170
HYPOSPADIAS .............................................................................................................................170
UNDESCENDED TESTICLE ...........................................................................................................170

Chapter 8: DEVELOPMENTAL MILESTONES ...........................................................................171

DEVELOPMENTAL MILESTONES THROUGH ADOLESCENCE ..................................................171

DEVELOPMENTAL MILESTONES SCREENING TOOLS .................................................................171
DRAWING SHAPES .....................................................................................................................172

DEVELOPMENTAL MILESTONES CHART, BIRTH TO 2 MONTHS OF AGE .....................................173
DEVELOPMENTAL MILESTONES CHART, 4 MONTHS OF AGE ..................................................174
DEVELOPMENTAL MILESTONES CHART, 6 MONTHS OF AGE ...................................................175
DEVELOPMENTAL MILESTONES CHART, 9 MONTHS OF AGE ...................................................176
DEVELOPMENTAL MILESTONES CHART, 12 MONTHS OF AGE ................................................177
DEVELOPMENTAL MILESTONES CHART, 15 MONTHS OF AGE ................................................178
Chapter 9: EMERGENCY MEDICINE & TOXICOLOGY ........................................ 187

MENTAL STATUS CHANGES ........................................................................... 187
PUPILS ............................................................................................................. 187
MIOSIS ............................................................................................................. 187
MYDRIASIS ...................................................................................................... 187
NYSTAGMUS .................................................................................................. 187
DIAPHORESIS ................................................................................................. 187
TOXIDROMES ................................................................................................. 188
OSMOLAR AND ANION GAPS ...................................................................... 188
SYRUP OF IPECAC .......................................................................................... 188
CHARCOAL ...................................................................................................... 188
GASTRIC LAVAGE ......................................................................................... 189
ACETAMINOPHEN INGESTION ...................................................................... 189
ALCOHOL (ETHANOL) ................................................................................... 189
METHANOL INGESTION ............................................................................... 189
ETHYLENE GLYCOL INGESTION ............................................................... 190
ISOPROPYL ALCOHOL .................................................................................. 190
STIMULANTS .................................................................................................. 190
AMPHETAMINES ............................................................................................ 190
COCAINE ....................................................................................................... 191
HALLUCINOGENS ............................................................................................ 191
PHENCYCLIDINE (PCP) .................................................................................. 191
LYSERGAMIDE (LSD) .................................................................................... 191
SEDATIVE HYPNOTICS .................................................................................. 191
BENZODIAZEPINES ....................................................................................... 191
BARBITURATES ............................................................................................... 191
OPIOIDS .......................................................................................................... 191
MARIJUANA (MJ) ............................................................................................. 191
NICOTINE/TOBACCO/SMOKING ................................................................. 192
DEXTROMETHOPHAN .................................................................................... 192
ANTIHISTAMINES ............................................................................................ 192
HYDROCARBON INGESTION ........................................................................ 192
HYDROCARBON INHALATION ..................................................................... 192
URINE DRUG SCREENING ............................................................................ 192
DRUGS OF ABUSE AND ASSOCIATED SYMPTOMS (TABLE) .................... 193
CHOLINERGICS ............................................................................................... 194
ANTICHOLINERGICS ...................................................................................... 194
TRICYCLIC ANTIDEPRESSANT (TCA) TOXICITY ...................................... 194
SALICYLATES ................................................................................................. 194
IBUPROFEN OVERDOSE .............................................................................................................................. 195
IRON OVERDOSE ......................................................................................................................................... 195
(DOUBLE TAKE) LEAD TOXICITY ............................................................................................................... 195
CLONIDINE & PHENOThIAZINES OVERDOSE ......................................................................................... 196
CALCIUM CHANNEL BLOCKER OVERDOSE .............................................................................................. 196
DIGOXIN TOXICITY ....................................................................................................................................... 196
THEOPHYLLINE ............................................................................................................................................. 196
CARBON MONOXIDE (CO) ......................................................................................................................... 196
METHEMOGLOBINEMIA ............................................................................................................................. 197
ACID OR BASE INGESTION ....................................................................................................................... 197
FOREIGN BODY INGESTION ...................................................................................................................... 197
(DOUBLE TAKE) RABIES VIRUS ............................................................................................................... 198
BROWN RECLUSE SPIDER ......................................................................................................................... 198
BLACK WIDOW ........................................................................................................................................... 198
COMMON BITES .......................................................................................................................................... 198
BURN TREATMENT ........................................................................................................................................ 198
NEAR DROWNING ....................................................................................................................................... 199
POOL SAFETY ............................................................................................................................................... 199
HYPOTHERMIA ............................................................................................................................................... 200
HEAD INJURY ................................................................................................................................................ 200
GLASGOW COMA SCORE ............................................................................................................................ 200
POST-CONCUSSION TREATMENT (2013 AAN GUIDELINES) .................................................................. 200
ENDOTRACHEAL TUBES AND VENTILATION ............................................................................................ 201
IMPAIRED PERFUSION/HYPOVOLEMIA ................................................................................................... 201
CARDIOPULMONARY RESUSCITATION (CPR) ......................................................................................... 201

Chapter 10: VITAMIN AND NUTRITIONAL DISORDERS ............................................................................. 202
FAT-SOLUBLE VITAMINS .............................................................................................................................. 202
VITAMIN A (AKA RETINOL) ....................................................................................................................... 202
VITAMIN K DEFICIENCY (AKA PHYTONADIONE DEFICIENCY) ................................................................. 203
VITAMIN E DEFICIENCY (AKA TOCOPHEROL DEFICIENCY) ................................................................... 203
VITAMIN D (ERGOCALCIFEROL, CHOLECALCIFEROL) EXCESS .............................................................. 203
VITAMIN D DEFICIENCY ............................................................................................................................ 204
(DOUBLE TAKE) RICKETS ....................................................................................................................... 204
(DOUBLE TAKE) RICKETS OF PREMATURITY (AKA OSTEOPENIA OF PREMATURITY) .................. 205
(DOUBLE TAKE) LIVER DYSFUNCTION ................................................................................................... 205
WATER-SOLUBLE NUTRIENTS .................................................................................................................... 205
THIAMINE (B1) DEFICIENCY ...................................................................................................................... 205
RIBOFLAVIN (B2) DEFICIENCY .................................................................................................................. 205
NIACIN (B3) DEFICIENCY .......................................................................................................................... 206
PYRIDOXINE (B6) DEFICIENCY ................................................................................................................ 206
(DOUBLE TAKE) BIOTIN/BIOTINIDASE (B7) DEFICIENCY .................................................................... 206
(DOUBLE TAKE) FOLATE (B9) DEFICIENCY ............................................................................................ 206
(DOUBLE TAKE) B12 DEFICIENCY (AKA CYANOCOBALAMIN DEFICIENCY) ...................................... 207
VITAMIN C DEFICIENCY AND EXCESS .................................................................................................... 207
(DOUBLE TAKE) ZINC DEFICIENCY ......................................................................................................... 207
(DOUBLE TAKE) ACRODERMATITIS ENTEROPATHICA ........................................................................... 208
COPPER DEFICIENCY ............................................................................................................................... 208
(DOUBLE TAKE) STRICT VEGETARIANS AND VEGANS ......................................................................... 208
NUTRITIONAL DEFICIENCIES ........................................................................................................... 208
ENERGY REQUIREMENTS IN CHILDREN .......................................................................................... 208
KWASHIORKOR ............................................................................................................................... 208
MARASMUS ..................................................................................................................................... 208
(DOUBLE TAKE) ESSENTIAL FATTY ACID DEFICIENCIES .......................................................... 209

Chapter 11: GASTROENTEROLOGY ................................................................................................. 210

LIVER DISEASE ............................................................................................................................... 210
CONGENITAL HEPATIC FIBROSIS .................................................................................................. 210
HEPATOMEGALY ............................................................................................................................. 210
GALLBLADDER HYDROPS ................................................................................................................ 210
HEPATOBLASTOMA ........................................................................................................................ 210
PRIMARY SCLerosING CHOLANGITIS (PSC) ................................................................................ 210
HEPATOBILARY IMINODIACETIC ACID SCAN (AKA HIDA SCAN or CHOLESCINTIGRAPHY) .... 210
TRANSAMINITIS ............................................................................................................................ 211
ALKALINE PHOSPHATASE ............................................................................................................ 211
BILIARY OBSTRUCTION .................................................................................................................. 211

CAUSES OF JAUNDICE ................................................................................................................... 211
CHOLESTASIS .................................................................................................................................. 211
BILIARY ATRESIA ............................................................................................................................ 211
CHOLEDOTAL CYSTS ...................................................................................................................... 211
PROGRESSIVE FAMILIAL INTRAHEPATIC CHOLESTASIS (PFIC) .................................................. 212
ALAGILLE SYNDROME (AKA ARTERIOHEPATIC DYSPLASIA) .................................................... 212
IDIOPATHIC NEONATAL HEPATITIS ............................................................................................ 212
VIRAL HEPATITIS ........................................................................................................................... 212
GILBERT'S SYNDROME (AKA GILBERT'S SYNDROME) ............................................................... 213
CRIGLER-NAJAR SYNDROME ........................................................................................................ 213
Dubin-Johnson Syndrome ............................................................................................................. 214
Reye's Syndrome (AKA REYES SYNDROME) ................................................................................. 214
(DOUBLE TAKE) WILSON'S DISEASE ......................................................................................... 214
CHOLECYSTITIS ............................................................................................................................. 215
CHOLELITHIASIS ............................................................................................................................ 215
ICTERUS .......................................................................................................................................... 215

CAUSES OF ABDOMINAL DISCOMFORT & PAIN ........................................................................ 215
CLASSIC FUNCTIONAL ABDOMINAL PAIN OF CHILDHOOD ...................................................... 215
CONSTIPATION .................................................................................................................................. 215
FECAL OVERFLOW ENOCRESIS ..................................................................................................... 215
HELICOBACTER PYLORI .................................................................................................................. 216
NSAID-INDUCED DYSEPSIA, ULCERS, AND EROATIVE GASTRITIS .............................................. 216
EROATIVE GASTRITIS AKA EROATIVE GASTROPATHY ............................................................ 216
NON-EROATIVE GASTRITIS ........................................................................................................... 216
NON-ULCER DYSEPSIA .................................................................................................................. 216
ZOLLINGER-ELLISON SYNDROME ............................................................................................... 216
INFANTILE GASTROESOPHAGEAL REFLUX (GERD) ..................................................................... 216
(DOUBLE TAKE) IRRITABLE BOWEL SYNDROME (IBS) ................................................................. 217
INFLAMMATORY BOWEL DISEASE (IBD) – CROHN'S AND ULCERATIVE COLITIS .................. 217
APPENDICITIS .................................................................................................................................. 217
PANCREATITIS .................................................................................................................................. 218
INTUSSUSCEPTION ......................................................................................................................... 218
MISCELLANEOUS GI CONDITIONS & TERMINOLOGY

MEDICATION PEAK ................................................................................. 218
MEDICATION TROUGH ........................................................................... 218
MISCELLANEOUS DRUGS ..................................................................... 218
MISOPROSTOL ...................................................................................... 218

Chapter 12: PHARMACOLOGY & DRUG PEARLS .................................. 226

MEDICATION PEAK ................................................................................. 226
MEDICATION TROUGH ........................................................................... 226
MISCELLANEOUS DRUGS ..................................................................... 226
MISOPROSTOL ...................................................................................... 226
Chapter 14: GENETICS & INHERITED DISEASES ........................................234

AUTOSOMAL DOMINANT DISORDERS ...........................................234
  AUTOSOMAL DOMINANT DISORDERS ..................................234
  AUTOSOMAL DOMINANT MNEMONIC ......................................234
  WAARDENBURG SYNDROME ................................................236
  APERT SYNDROME (AKA APERT'S OR APERTS SYNDROME) ......236
  NAIL PATELLA SYNDROME ...............................................237
  NOONAN SYNDROME (AKA NOONAN'S SYNDROME) ................237
  ACHONDROPLASIA (AKA DWARFISM) ...................................237
  PEUTZ-JEGHERS SYNDROME (AKA HEREDITARY INTESTINAL POLYPOSIS) .........................................................238
  GARDNER SYNDROME (AKA GARDNER'S SYNDROME) ..........238
  (DOUBLE TAKE) RETINOBLASTOMA ...................................238
  OTHER AUTOSOMAL DOMINANT DISORDERS .........................238

AUTOSOMAL RECESSIVE DISORDERS .........................................239
  AUTOSOMAL RECESSIVE (AR) DISORDERS PEARLS ..................239
  AUTOSOMAL RECESSIVE MNEMONIC ....................................239
  JOHANSON-BLIZZARD SYNDROME .......................................240

X-LINKED DISORDERS ................................................................240

FAMILIAL HYPOPHOSPHATEMIC RICKETS ..................................240
AICARDI SYNDROME .............................................................240
(DOUBLE TAKE) ALPORT SYNDROME (AKA ALPORT'S SYNDROME) 240

X-LINKED RECESSIVE DISORDERS ...........................................241
  PEARLS .............................................................................241
  (DOUBLE TAKE) CHRONIC GRANULOMATOUS DISEASE (CGD) = SERRATIA .........................................................241
  (DOUBLE TAKE) DUCHENNE MUSCULAR DYSTROPHY .........242
  (DOUBLE TAKE) GLUCOSE-6-PHOSPHATE DEHYDROGENASE DEFICIENCY (6PD DEFICIENCY) ..........242
  (DOUBLE TAKE) HEMOPHILIA A AND HEMOPHILIA B (AKA FACTOR VIII AND FACTOR IX DEFICIENCY) ..242
  HUNTER SYNDROME ........................................................243
  NEPHROGENIC DIABETES INSIPIDUS ..................................243
  ORNITHINE TRANSCARBAMYLASE ......................................243
  ANDROGEN INSENSITIVITY SYNDROME (AKA TESTICULAR FEMINIZATION) ............................................243
  (DOUBLE TAKE) WISKOTT-ALDRICH SYNDROME .................243

TRISOMY DISORDERS ...............................................................244
  DOWN SYNDROME (AKA DOWN'S SYNDROME) ......................244
  TRISOMY 18 (AKA EDWARDS SYNDROME) ............................245
  TRISOMY 13 (AKA PATAU SYNDROME) .................................246

MISCELLANEOUS GENETIC FINDINGS & DISORDERS ...................246
  TERMINOLOGY ..................................................................246
  CLEFT DISORDERS ................................................................246
  WILLIAMS SYNDROME (AKA incorrectly as WILLIAM'S SYNDROME) ............................................247
  HOLT ORAM SYNDROME ...................................................247
  CRI-DU-CHAT SYNDROME (AKA 5p-, 5p minus or 5p DELETION SYNDROME) ...........................................247
  CROUZON SYNDROME (AKA CRANIOFACIAL DYSTOSIS) ........248

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**Chapter 15: HEMATOLOGY & ONCOLOGY**

<table>
<thead>
<tr>
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</tr>
<tr>
<td>261</td>
</tr>
</tbody>
</table>
NEWBORN ANEMIA ........................................................................................................................................ 261
RBC MCV .................................................................................................................................................... 261
POLYCYTHEMIA ........................................................................................................................................... 262
PRBC TRANSFUSIONS .................................................................................................................................. 262
NORMOCYTIC ANEMIA .................................................................................................................................. 262
PHYSIOLOGIC ANEMIA ................................................................................................................................. 262
HEMOLYTIC ANEMIAS ................................................................................................................................. 262
COOMBS TEST PEARLS .............................................................................................................................. 262
(DOUBLE TAKE) RHESUS DISEASE (AKA RH DISEASE) ........................................................................ 263
(DOUBLE TAKE) ABO INCOMPATIBILITY ................................................................................................... 263
(DOUBLE TAKE) GLUCOSE-6-PHOSPHATE DEHYDROGENASE DEFICIENCY (AKA G6PD DEFICIENCY) ...... 263
PYRUVATE KINASE DEFICIENCY ............................................................................................................. 263
HEREDITARY SPHEROCYTOSIS .................................................................................................................... 264
(DOUBLE TAKE) ERYTHEMA INFECTIONOUS ............................................................................................ 264
PAROXYSMAL NOCTURNAL HEMOGLOBINURIA (PNH) .............................................................................. 264
SICKLE CELL ANEMIA ................................................................................................................................... 264
TRANSIENT ERYTHROBLASTOPENIA OF CHILDHOOD ............................................................................. 266
ACUTE BLOOD LOSS ANEMIA ..................................................................................................................... 266
(DOUBLE TAKE) ANEMIA OF CHRONIC DISEASE .................................................................................... 266
END STAGE RENAL DISEASE (AKA ESRD or RENAL FAILURE) ............................................................... 266
PEARLY REMINDERS .................................................................................................................................... 266
MICROCYTIC ANEMIA .................................................................................................................................. 266
MICROCYTIC ANEMIA DEFINITION ........................................................................................................... 266
IRON DEFICIENCY ANEMIA .......................................................................................................................... 266
(DOUBLE TAKE) ANEMIA OF CHRONIC DISEASE .................................................................................... 267
THALASSEMIAS ........................................................................................................................................... 267
ALPHA THALASSEMAIA ............................................................................................................................... 267
BETA THALASSEMAIA ................................................................................................................................. 267
(DOUBLE TAKE) LEAD TOXICITY ............................................................................................................... 267
LAB REVIEWS – FERRITIN, TIBC, RDW, & TRANSFERRIN SATURATION .................................................... 269
MACROCYTIC ANEMIA .................................................................................................................................. 269
MACROCYTIC ANEMIAS (AKA MEGALOBLASTIC ANEMIA) ........................................................................ 269
(DOUBLE TAKE) FOLATE (B9) DEFICIENCY ............................................................................................... 269
(DOUBLE TAKE) B12 DEFICIENCY (AKA CYANOCOBALAMIN DEFICIENCY) ............................................ 269
(DOUBLE TAKE) FANCONI ANEMIA ........................................................................................................... 270
(DOUBLE TAKE) FANCONI SYNDROME ..................................................................................................... 270
(DOUBLE TAKE) DIAMOND-BLACKFAN ANEMIA ....................................................................................... 271
(DOUBLE TAKE) SHWACHMAN-DIAMOND SYNDROME ............................................................................ 271
APLASTIC ANEMIA PEARLS ....................................................................................................................... 272
PLATELET DISORDERS ............................................................................................................................... 272
(DOUBLE TAKE) CELL LIFE SPANS ........................................................................................................... 272
THROMBOCYTOPENIA .................................................................................................................................. 272
MATERNAL IMMUNE (OR IDIOPATHIC) THROMBOCYTOPENIC PURPURA ............................................. 272
NEONATAL ALLOIMMUNE THROMBOCYTOPENIA (NAIT) ........................................................................ 272
NEONATAL SEPSIS-INDUCED THROMBOCYTOPENIA ............................................................................. 272
THROMBOCYTOPENIA AND ABSENT RADIUS (AKA TAR SYNDROME) ................................................ 273
IMMUNE THROMBOCYTOPENIA PURPURA (AKA ITP, AKA IDIOPATHIC THROMBOCYTOPENIA PURPURA) ........................................................................................................................................... 273
Chapter 16: INFECTIOUS DISEASES ......................................................................................................................... 277

ANTIBIOTICS – A BRIEF REVIEW .......................................................................................................................... 277

ANTIBIOTIC AGE PEARLS ....................................................................................................................................... 277

PENICILLIN .............................................................................................................................................................. 277

CLINDAMYCIN ........................................................................................................................................................ 277

VANCOMYCIN, LINEZOLID, AND AMPICILLIN ........................................................................................................ 277

CEPHALOSPORINS ................................................................................................................................................ 278

MACROLIDES ......................................................................................................................................................... 278

CARBAPENEMS .................................................................................................................................................... 278

ALBENDAZOLE & PYRANTEL PAMOATE ................................................................................................................ 278

METRONIDAZOLE ................................................................................................................................................ 278

GRAM-POSITIVE ORGANISMS ............................................................................................................................ 279

ENTEROCOCCUS FAECALIS ..................................................................................................................................... 279

LISTERIA MONOCYTOGENES ............................................................................................................................... 279

CLOSTRIDIUM TETANI (AKA TETANUS) .................................................................................................................. 279

CLOSTRIDIUM BOTULINUM .................................................................................................................................... 279

CORYNEBACTERIUM DIPHTHERIAE ....................................................................................................................... 279

STREPTOCOCCAL INFECTIONS ............................................................................................................................. 280

STREPTOCOCCUS (AKA STREP) .......................................................................................................................... 280

ALPHA HEMOLYTIC STREPTOCOCCUS (VIRIDANS AND PNEUMONIAE) .............................................................. 280

BETA HEMOLYTIC STREPTOCOCCUS (AGALACTIAE AND PYOGENES) ................................................................ 280

STREPTOCOCCAL PHARYNGITIS (AKA STREP PHARYNGITIS or STREP THROAT) .................................................. 280

POST STREPTOCOCCAL GLOMERULONEPHRITIS (PSGN, AKA POST INFECTIONOUS GLOMERULONEPHRITIS) ................................................................................................................................. 281

PERITONSILLAR ABSCESS .................................................................................................................................... 281

RETROPHARYNGEAL ABSCESSESS ........................................................................................................................ 281

SCARLET FEVER .................................................................................................................................................... 282

OCCULT BACTEREMIA ........................................................................................................................................... 282

PNEUMONIA ............................................................................................................................................................ 282

GROUP B STREPTOCOCCAL SEPSIS (GBS SEPSIS) ............................................................................................... 282

GBS SCREENING AND PROPHYLAXIS MADE EASY! ............................................................................................ 282

STAPHYLOCOCCUS AUREUS & EPIDERMIDIS ........................................................................................................ 283

STAPHYLOCOCCUS AND STREPTOCOCCUS COMPARISON CHART ......................................................................... 284
<table>
<thead>
<tr>
<th>Category</th>
<th>Organisms</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>GRAM-NEGATIVE ORGANISMS</strong></td>
<td>RICKETTSIA RICKETTSII and ROCKY MOUNTAIN SPOTTED FEVER (RMSF)</td>
</tr>
<tr>
<td></td>
<td>ENTEROCOCCUS</td>
</tr>
<tr>
<td></td>
<td>(DOUBLE TAKE) BARTONELLA HENSELAE</td>
</tr>
<tr>
<td></td>
<td>CITROBACTER FREUNDII</td>
</tr>
<tr>
<td></td>
<td>(DOUBLE TAKE) CHLAMYDIA TRACHOMATIS</td>
</tr>
<tr>
<td></td>
<td>CHLAMYDIA PNEUMONIAE</td>
</tr>
<tr>
<td></td>
<td>CHLAMYDIA PSITTACI</td>
</tr>
<tr>
<td></td>
<td>MYCOPLASM PNEUMONIAE</td>
</tr>
<tr>
<td></td>
<td>HAEMOPHILUS INFLUENZAE (AKA H. FLU)</td>
</tr>
<tr>
<td></td>
<td>BORDETELLA PERTUSSIS (AKA WHOOPING COUGH)</td>
</tr>
<tr>
<td></td>
<td>PSEUDOMONAS</td>
</tr>
<tr>
<td><strong>FUNGAL &amp; ATYPICAL BACTERIA</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>CRYPTOCOCCUS</td>
</tr>
<tr>
<td></td>
<td>BLASTOMYCOSIS</td>
</tr>
<tr>
<td></td>
<td>COCCIDIOIDOMYCOSIS</td>
</tr>
<tr>
<td></td>
<td>HISTOPLASMOSIS</td>
</tr>
<tr>
<td></td>
<td>(DOUBLE TAKE) ASPERGILLUS</td>
</tr>
<tr>
<td></td>
<td>(DOUBLE TAKE) MYCOBACTERIUM TUBERCULOSIS (AKA MTB or TB)</td>
</tr>
<tr>
<td><strong>VIRUSES</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>COXSACKIE VIRUS &amp; ENTEROVIRUS</td>
</tr>
<tr>
<td></td>
<td>ADENOVIRUS</td>
</tr>
<tr>
<td></td>
<td>ARBOVIRUS ENCEPHALITIS</td>
</tr>
<tr>
<td></td>
<td>RESPIRATORY SYNCYTIAL VIRUS (RSV)</td>
</tr>
<tr>
<td></td>
<td>EPSTEIN-BARR VIRUS (EBV)</td>
</tr>
<tr>
<td></td>
<td>HUMAN HERPES VIRUS 6 (AKA HHV-6)</td>
</tr>
<tr>
<td></td>
<td>(DOUBLE TAKE) HERPES SIMPLEX VIRUS (HSV)</td>
</tr>
<tr>
<td></td>
<td>(DOUBLE TAKE) VARICELLA ZOSTER VIRUS (CHICKEN POX)</td>
</tr>
<tr>
<td></td>
<td>HUMAN IMMUNODEFICIENCY VIRUS (HIV)</td>
</tr>
<tr>
<td></td>
<td>(DOUBLE TAKE) RABIES VIRUS</td>
</tr>
<tr>
<td></td>
<td>MEASLES (AKA RUBEOLA)</td>
</tr>
<tr>
<td></td>
<td>(DOUBLE TAKE) RUBELLA VIRUS (AKA GERMAN MEASLES)</td>
</tr>
<tr>
<td></td>
<td>MUMPS VIRUS</td>
</tr>
<tr>
<td></td>
<td>ZIKA VIRUS</td>
</tr>
<tr>
<td></td>
<td>SARS (SEVERE ACUTE RESPIRATORY SYNDROME)</td>
</tr>
<tr>
<td><strong>PARASITES/PROTOZOA</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(DOUBLE TAKE) ERYTHEMA CHRONICUM MIGRANS</td>
</tr>
<tr>
<td></td>
<td>LEPTOSPIROSIS</td>
</tr>
<tr>
<td></td>
<td>ENTAMOEBA HISTOLYTICA (AKA AMEBIASIS)</td>
</tr>
<tr>
<td></td>
<td>(DOUBLE TAKE) TRICHEROMONAS VAGINALIS</td>
</tr>
<tr>
<td></td>
<td>BABESIOSIS</td>
</tr>
<tr>
<td></td>
<td>CRYPTOSPORIDIUM</td>
</tr>
<tr>
<td></td>
<td>MALARIA</td>
</tr>
<tr>
<td></td>
<td>TRYPANOSOMA CRUZI</td>
</tr>
<tr>
<td></td>
<td>TRYPANOSOMA BRUCEI</td>
</tr>
<tr>
<td><strong>WORMS</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>ENTEROBUS (AKA PINWORMS)</td>
</tr>
<tr>
<td></td>
<td>(DOUBLE TAKE) ASCARIS LUMBRICOIDES</td>
</tr>
</tbody>
</table>
SCHISTOSOMIASIS (SCHISTOSOMA) .................................................................................................................. 299
TAENIA SOLIUM ................................................................................................................................................. 299
TAENIA SAGINATA ............................................................................................................................................... 299
(DOUBLE TAKE) TOXOCARA CANIS ................................................................................................................ 299
HOOKWORM ......................................................................................................................................................... 299
CUTANEOUS LARVA MIGRANS ......................................................................................................................... 300
TRICHURIS ......................................................................................................................................................... 300
FILARIASIS ......................................................................................................................................................... 300
STRONGYLOIDES .............................................................................................................................................. 300
DIPHYLLOBOTHRIUM LATUM ............................................................................................................................ 300

INFECTION SYNDROMES ................................................................................................................................. 300
GROUND GLASS PNEUMONIA .......................................................................................................................... 300
ADOLESCENT + PNEUMONIA + LOW GRADE FEVER ..................................................................................... 301
SPONTANEOUS BACTERIAL PERITONITIS (SBP) .............................................................................................. 301
SECONDARY PERITONITIS .................................................................................................................................. 301
TOXIC SHOCK SYNDROME (TSS) ..................................................................................................................... 301
DENTAL ABSCESS .............................................................................................................................................. 301
NEONATAL FEVER ............................................................................................................................................ 301
NEONATAL BACTEREMIA .................................................................................................................................. 301
SINUSITIS .............................................................................................................................................................. 302
PAROTIDITIS (AKA PAROTITIS) ......................................................................................................................... 302
MASTOIDITIS ....................................................................................................................................................... 302
OTITIS EXTERNA (AKA SWIMMER’S EAR) ....................................................................................................... 302
ACUTE AND RECURRENT OTITIS MEDIA .......................................................................................................... 303
CHOLESTEATOMA .............................................................................................................................................. 303
CHRONIC OTORRHEA AND RECURRING OTORRHEA ................................................................................... 303
MENINGITIS, BACTERIAL AND VIRAL .............................................................................................................. 303
TORCH INFECTIONS ......................................................................................................................................... 304
TOXOPLASMA GONDII ..................................................................................................................................... 304
(DOUBLE TAKE) VARICELLA ZOSTER VIRUS (CHICKEN POX) ......................................................................... 304
(DOUBLE TAKE) SYPHILIS ............................................................................................................................... 305
(DOUBLE TAKE) RUBELLA VIRUS (AKA GERMAN MEASLES) ......................................................................... 305
CYTOMEGALOVIRUS (CMV) ............................................................................................................................. 306
(DOUBLE TAKE) BLUEBERRY MUFFIN SYNDROME ...................................................................................... 306

ACUTE WATERY DIARRHEA ............................................................................................................................ 306
ROTAVIRUS ......................................................................................................................................................... 307
ADENOVIRUS ..................................................................................................................................................... 307
NORWALK VIRUS ............................................................................................................................................ 307
ESCHERICHIA COLI (E. coli) ............................................................................................................................... 307
SHIGELLA INFECTIONS .................................................................................................................................. 307
SALMONELLA .................................................................................................................................................... 308
CAMPYLOBACTER JEJUNI ................................................................................................................................... 308
STAPHYLOCOCCUS AUREUS AND BACILLUS CEREUS .................................................................................. 308
YERSINIA ENTEROCOLITICA .......................................................................................................................... 308
CLOSTRIDIUM PERFRINGENS .......................................................................................................................... 309
CLOSTRIDIUM DIFFICILE (C. DIFFICILE or C. DIFF) ..................................................................................... 309
PEARLY DIARRHEA REVIEW ............................................................................................................................ 309
Chapter 17: VACCINES, IMMUNIZATIONS AND CONTRAINDICATIONS

Pertinent CDC links
Steroids and immunizations
Prematurity and vaccinations
Live vaccines
Measles, mumps, rubella (MMR) and varicella (VZV) pearls
Rotavirus vaccine
Influenza vaccination
Hepatitis A vaccine
Hepatitis B vaccine
Human papilloma virus vaccine (HPV)
Meningococcal vaccine (aka Meningococcus vaccine)
Chapter 19: ACID-BASE DISORDERS

A GUIDE TO CALCULATIONS AND SHORTCUTS FOR ACID BASE DISORDERS

THE ULTIMATE ABG CALCULATOR BIBLE!

ABG FUNDAMENTALS AND TERMINOLOGY

ABG & CHEMISTRY NUMBERS – THE BASICS

ABG RULES FOR A RESPIRATORY ACIDOSIS OR RESPIRATORY ALKALOSIS

ABG RULES FOR A METABOLIC ACIDOSIS

ABG & CHEMISTRY PEARLS

ABG & CHEMISTRY SHORTCUTS

ACID-BASE DISORDERS & PEARLS

ACIDOSIS

ANION GAP

ANION GAP METABOLIC ACIDOSIS

NON-ANION GAP METABOLIC ACIDOSIS

RENAL TUBULAR ACIDOSIS (RTA)

RENAL TUBULAR ACIDOSIS TYPE I (RTA I, AKA CLASSIC DISTAL RTA)

RENAL TUBULAR ACIDOSIS TYPE II (RTA II, AKA PROXIMAL RTA)

RENAL TUBULAR ACIDOSIS TYPE IV (RTA IV)

METABOLIC ALKALOSIS

RESPIRATORY ACIDOSIS

RESPIRATORY ALKALOSIS
# Chapter 20: FLUIDS & ELECTROLYTES

- **MAINTENANCE IV FLUIDS (MIVF) AND DEHYDRATION** ................................................. 347  
- **DEHYDRATION** .............................................................................................................. 347
- **GASTROENTERITIS** .......................................................................................................... 348
- **HEAT STROKE** .................................................................................................................. 348
- **HEAT EXHAUSTION** ......................................................................................................... 348

**ELECTROLYTES** ................................................................................................................... 348

- **(DOUBLE TAKE) HYPERCALCEMIA** ............................................................................. 348
- **(DOUBLE TAKE) HYPOCALCEMIA** ............................................................................. 349
- **HYPOKALEMIA** .............................................................................................................. 350
- **HYPERKALEMIA** ............................................................................................................. 350
- **HYponatreMIA** ................................................................................................................. 351
- **HYPERNATREMA** ............................................................................................................ 353
- **DIABETES INSIPIDUS (DI)** ............................................................................................. 353

# Chapter 21: NEPHROLOGY

**THE URINALYSIS** ........................................................................................................... 354

- **MICROSCOPIC HEMATURIA** ......................................................................................... 354
- **PROTEINURIA** ............................................................................................................... 354
- **WBC CASTS** .................................................................................................................... 355
- **RBC CASTS** ..................................................................................................................... 355
- **URINARY CRYSTAL IDENTIFICATION** ........................................................................ 355

**UROLOGY, OBSTRUCTIONS, AND MASSES** ...................................................................... 355

- **URETEROPELVIC JUNCTION OBSTRUCTION (UPJ OBSTRUCTION)** ............................... 355
- **VESICOURETERAL REFLUX (VUR)** ............................................................................... 356
- **POSTERIOR URETHRAL VALVES (PUV)** ...................................................................... 356
- **NARROW FEMALE URETHRA** ....................................................................................... 356
- **ABDOMINAL MASS AT BIRTH** ....................................................................................... 356
- **MULTICYSTIC DYSPLASTIC KIDNEY (MCDK)** ............................................................... 357
- **URETEROCELE** ............................................................................................................... 357

**INFECTIONS** .................................................................................................................... 357

- **URINARY TRACT INFECTION (UTI or PYELONEPHRITIS)** ........................................... 357
- **(DOUBLE TAKE) POST STREPTOCOCCAL GLOMERULONEPHRITIS (PSGN, AKA POST INFECTIOUS GLOMERULONEPHRITIS)** ................................................................. 357
- **(DOUBLE TAKE) HEMOLYTIC UREMIC SYNDROME (HUS) AND THROMBOTIC THROMBOCYTOPENIC PURPURA (TTP)** ................................................................. 358

**INTRINSIC RENAL DISEASE** ............................................................................................ 359

- **RENAI FAILURE** ............................................................................................................ 359
- **OLIGURIA** ....................................................................................................................... 359
- **RENAL VASCULAR DISEASE** ......................................................................................... 359
- **GLOMERULONEPHRITIS** ............................................................................................... 359
- **I GA NEPHROPATHY** ...................................................................................................... 359
- **(DOUBLE TAKE) POST STREPTOCOCCAL GLOMERULONEPHRITIS (PSGN, AKA POST INFECTIOUS GLOMERULONEPHRITIS)** ............................................................... 360
- **MEMBRANOPROLIFERATIVE GLOMERULONEPHRITIS (MPGN)** .................................. 360
- **RAPIDLY PROGRESSIVE GLOMERULONEPHRITIS (RPGN)** ......................................... 360
- **NEPHROTIC SYNDROME** ............................................................................................... 360
- **MEDULLARY SPONGE DISEASE** .................................................................................... 361
Chapter 22: STATISTICS

STATISTICS OVERVIEW ........................................................................................................... 363
CALCULATIONS OVERVIEW ..................................................................................................... 363
STATISTICS TERMINOLOGY RELATED TO DIAGNOSTIC TESTS ........................................... 363
Sensitivity = TP/(TP+FN) ......................................................................................................... 364
Specificity = TN/(TN+FP) ........................................................................................................ 364
Likelihood Ratio = Sensitivity/(1–Specificity) .......................................................................... 364
Positive Predictive Value = TP/(TP+FP) .................................................................................. 365
Negative Predictive Value = TN/(TN+FN) ............................................................................... 365
Null Hypothesis ....................................................................................................................... 365
P Value ..................................................................................................................................... 365
Significant Results ................................................................................................................... 365
Type I Error ............................................................................................................................. 365
Type II Error ............................................................................................................................ 365
Prevalence .................................................................................................................................. 365
Incidence .................................................................................................................................... 366
Sample Size ............................................................................................................................. 366
Number Needed to Treat (NNT) ............................................................................................... 366
Relative Risk ............................................................................................................................. 366
Odds Ratio ................................................................................................................................. 366
Validity Hierarchy ...................................................................................................................... 366
Systematic Review and Meta-Analysis .................................................................................... 366
Randomized Controlled Trials ................................................................................................. 366
Cohort Studies .......................................................................................................................... 367
Case-Control Studies ............................................................................................................... 368
Cross-Sectional Studies ........................................................................................................... 369
Case Studies .............................................................................................................................. 369

Chapter 23: NEUROLOGY

Neurologic Tests, Paralyses & Palsies .................................................................................... 370
Somatosensory Evoked Potentials (SEP) ................................................................................ 370
Nerve Conduction Velocities .................................................................................................. 370
Electromyogram (EMG) ........................................................................................................... 370
Magnetic Resonance Imaging (MRI) ........................................................................................ 370
Computer Tomography Scan (CT Scan) .................................................................................. 370
Spinal Ultrasound .................................................................................................................... 370
ERB’s Palsy and Klumpke Palsy ............................................................................................... 370
Horner Syndrome (aka Horner’s) ......................................................................................... 371
Spastic Cerebral Palsy (CP) .................................................................................................... 371
Athetoid Cerebral Palsy ........................................................................................................... 371
Weakness and Paralysis Pearl ................................................................................................. 371
Guillain-Barre Syndrome (GBS, aka Acute Inflammatory Demyelinating Polyneuropathy or AIDP) ......................................................................................................................... 371
(Double Take) Tick Paralysis ................................................................................................... 372
(Double Take) Todd Paralysis (aka Todd’s Paralysis) ............................................................... 372
Transverse Myelitis .................................................................................................................. 372
<table>
<thead>
<tr>
<th>Topic</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Epidural Abscess of the Spine</td>
<td>372</td>
</tr>
<tr>
<td>Myasthenia Gravis (MG)</td>
<td>373</td>
</tr>
<tr>
<td>(Double Take) Clostridium Botulinum</td>
<td>373</td>
</tr>
<tr>
<td>(Double Take) Corynebacterium Diphtheriae</td>
<td>373</td>
</tr>
<tr>
<td>Increased Intracranial Pressure and Headaches</td>
<td>374</td>
</tr>
<tr>
<td>Lumbar Puncture</td>
<td>374</td>
</tr>
<tr>
<td>Dandy Walker Malformation</td>
<td>374</td>
</tr>
<tr>
<td>(Double Take) Pseudotumor Cerebri (aka Idiopathic Intracranial Hypertension or Benign Intracranial Hypertension)</td>
<td>375</td>
</tr>
<tr>
<td>Tension Headaches</td>
<td>375</td>
</tr>
<tr>
<td>Migraine Headaches</td>
<td>375</td>
</tr>
<tr>
<td>Ominous Headaches</td>
<td>375</td>
</tr>
<tr>
<td>Movement Disorders</td>
<td>376</td>
</tr>
<tr>
<td>(Double Take) Dystonic Reactions</td>
<td>376</td>
</tr>
<tr>
<td>Tics</td>
<td>376</td>
</tr>
<tr>
<td>Tourette Syndrome (aka Tourette's Syndrome)</td>
<td>376</td>
</tr>
<tr>
<td>Stereotypy</td>
<td>376</td>
</tr>
<tr>
<td>Chorea</td>
<td>376</td>
</tr>
<tr>
<td>Sydenham Chorea (aka Sydenham's Chorea)</td>
<td>376</td>
</tr>
<tr>
<td>Huntington Disease (aka Huntington's Disease)</td>
<td>377</td>
</tr>
<tr>
<td>Dystrophies</td>
<td>377</td>
</tr>
<tr>
<td>Spinal Muscular Atrophy Type I (aka Werdni-Hoffmann Disease)</td>
<td>377</td>
</tr>
<tr>
<td>(Double Take) Duchenne Muscular Dystrophy</td>
<td>377</td>
</tr>
<tr>
<td>Myotonic Dystrophy</td>
<td>377</td>
</tr>
<tr>
<td>Sensory Neuropathies</td>
<td>378</td>
</tr>
<tr>
<td>Seizures</td>
<td>378</td>
</tr>
<tr>
<td>First-Time Seizure</td>
<td>378</td>
</tr>
<tr>
<td>Epilepsy and Seizure Precautions and Education</td>
<td>378</td>
</tr>
<tr>
<td>Emergency Room Pediatric Seizure Management</td>
<td>378</td>
</tr>
<tr>
<td>Seizure Terminology</td>
<td>378</td>
</tr>
<tr>
<td>Simple Partial Seizures</td>
<td>379</td>
</tr>
<tr>
<td>Complex Partial Seizures</td>
<td>379</td>
</tr>
<tr>
<td>Benign Childhood Epilepsy with Centrotemporal Spikes (aka BECTS, BCECTS, Benign Epilepsy of Childhood, Benign Rolandic Epilepsy)</td>
<td>379</td>
</tr>
<tr>
<td>Juvenile Myoclonic Epilepsy</td>
<td>379</td>
</tr>
<tr>
<td>Absence Seizures</td>
<td>379</td>
</tr>
<tr>
<td>Tonic-Clonic Seizure</td>
<td>380</td>
</tr>
<tr>
<td>Neonatal Seizures</td>
<td>380</td>
</tr>
<tr>
<td>Infantile Spasms</td>
<td>380</td>
</tr>
<tr>
<td>Febrile Seizure</td>
<td>380</td>
</tr>
<tr>
<td>Breakthrough Seizure</td>
<td>380</td>
</tr>
<tr>
<td>Status Epilepticus</td>
<td>380</td>
</tr>
<tr>
<td>(Double Take) Todd Paralysis (aka Todd's Paralysis)</td>
<td>381</td>
</tr>
<tr>
<td>Ataxia and Related Conditions</td>
<td>381</td>
</tr>
<tr>
<td>Acute Cerebellar Ataxia</td>
<td>381</td>
</tr>
<tr>
<td>(Double Take) Ataxia Telangiectasia</td>
<td>381</td>
</tr>
<tr>
<td>Friedreich Ataxia (aka Friedreich's Ataxia)</td>
<td>382</td>
</tr>
</tbody>
</table>
BENIGN POSITIONAL VERTIGO (BPV) ........................................................................................................................................ 382
PERILYMPHATIC FISTULA .................................................................................................................................................... 382
MISCELLANEOUS NEUROLOGIC CONDITIONS AND FINDINGS ................................................................................................. 382
JAW CLonus AND BILATERAL ANKLE CLonus .......................................................................................................................... 382
UPPER MOTOR NEURON DISEASE ................................................................................................................................................ 382
LOWER MOTOR NEURON DISEASE .............................................................................................................................................. 382
HEAD TRAUMA ........................................................................................................................................................................ 382
NEUROCARDIOGENIC SYNCOPE .................................................................................................................................................. 382
CEREBROVASCULAR ACCIDENT (AKA CVA or STROKE) ............................................................................................................ 382
MENTAL RETARDATION ............................................................................................................................................................. 383
EPIDURAL HEMATOMA ............................................................................................................................................................... 383
SUBDURAL HEMATOMA (SDH) ..................................................................................................................................................... 383
SUBARACHNOID HEMORRHAGE ................................................................................................................................................. 383
MENINGITIS PEARLS .................................................................................................................................................................. 383
SPINA BIFIDA ............................................................................................................................................................................. 384
CHIARI MALFORMATION (ARNOLD-CHIARI MALFORMATION) .................................................................................................. 384

Chapter 24: ORTHOPEDICS AND SPORTS MEDICINE .................................................................................................................. 385

EPIPHYSIS, PHYSIS, AND METAPHYSIS .................................................................................................................................. 385
SALTER HARRIS FRACTURES ......................................................................................................................................................... 385
TORUS FRACTURE (AKA BUCKLE FRACTURE) ........................................................................................................................... 386
GREENSTICK FRACTURE ............................................................................................................................................................ 386
DISTAL HUMERAL FRACTURES ................................................................................................................................................... 386
DISLOCATED SHOULDER ............................................................................................................................................................ 386
OSTEOGENESIS IMPERFECTA ....................................................................................................................................................... 386
VALGUS DEFORMITY ................................................................................................................................................................... 386
VARUS ....................................................................................................................................................................................... 386
GENU VARUM (AKA BOWED LEGS) ............................................................................................................................................. 387
RICKETS ................................................................................................................................................................................... 387
BLOUNT DISEASE ..................................................................................................................................................................... 387
INTOEING .................................................................................................................................................................................. 387
CLUB FOOT (AKA TALIPES EQUINOVARUS or EQUINOVARUS DEFORMITY) ................................................................................. 388
PES CAVUS ................................................................................................................................................................................ 388
PES PLANUS .............................................................................................................................................................................. 388
SLIPPED CAPITAL FEMORAL EPiphYSIS (SCFE) .......................................................................................................................... 388
LEGG-CALVE-PERTHES DISEASE ............................................................................................................................................... 388
OSGOOD SCHLATTER DISEASE ................................................................................................................................................ 389
OSTEOCHONDritis DISSECANS .................................................................................................................................................. 389
SCOLIOSIS .................................................................................................................................................................................. 389
SPONDYLOLYSIS ........................................................................................................................................................................ 389
SPONDYLOLISTHESIS ................................................................................................................................................................ 390
SUBLUXED RADIAL HEAD (AKA NURSEMAID’S ELBOW) ............................................................................................................. 390
DEVELOPMENTAL DYSPLASIA OF THE HIP (DDH) .................................................................................................................... 390
TOXIC SYNOVITIS (AKA TRANSIENT SYNOVITIS OF THE HIP) ................................................................................................ 391
SEPTIC ARTHRITIS ................................................................................................................................................................... 391
OSTEOMYELITIS .......................................................................................................................................................................... 391
STRAINS .................................................................................................................................................................................... 391
SPRAINS .................................................................................................................................................................................... 391
ROTATOR CUFF TEARS ............................................................................................................................................................ 392
ANTERIOR CRUCIATE LIGAMENT TEAR (ACL TEAR) ................................................................................................................ 392

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Chapter 27: PSYCHIATRY AND SOME SOCIAL ISSUES ......................................................... 409

ATTENTION DEFICIT DISORDER (AKA ADD, ADHD, and ATTENTION DEFICIT HYPERACTIVE DISORDER) .......................................................... 409

LEARNING DISABILITIES ............................................................................................... 409

SCHOOL PHOBIA ........................................................................................................ 409

DEATH RESPONSE IN CHILDREN .................................................................................. 409

DEPRESSION .................................................................................................................. 410

DIVORCE ....................................................................................................................... 410

PARENTAL ADJUSTMENT TO A CHILD WITH MALFORMATIONS ................................ 410

CHRONICALLY ILL FAMILY MEMBER ......................................................................... 410

CONVERSION DISORDER ............................................................................................ 410

SOMATIZATION ............................................................................................................. 410
Chapter 28: ETHICS IN PEDIATRICS

MAIN PRINCIPLES AND TERMS

AUTONOMY

BENEFICENCE

CONSENT

PERMISSION

RELIGIOUS, CULTURAL, AND PERSONAL OBJECTIONS

ASSENT

TRUTHFULNESS

CONFIDENTIALITY

PHYSIOLOGIC FUTILITY

QUALITATIVE FUTILITY

SPECIFIC ISSUES

IMPAIRED NEUROLOGIC STATES

DO NOT RESUSCITATE (DNR; DNAR) ORDERS

EUTHANASIA AND PHYSICIAN ASSISTED SUICIDE

OTHER ISSUES
Chapter 6: DERMATOLOGY

GENERAL DERMATOLOGY

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/LICHENSCLEROSUS1

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 GANCRENOSUM

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

**STEVEN-S-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 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 saclike 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.

IMAGE: www.pbrlinks.com/EPIDERMOIDCYSTS1
IMAGE: www.pbrlinks.com/EPIDERMOIDCYSTS2
IMAGE: 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.

IMAGE: www.pbrlinks.com/APHTHOUSULCERS1
IMAGE: 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

**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). This can be associated with STROKES.
* Arterial cerebrovascular anomaly
* 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 COAGULO**PATHY (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.

  ↓↓ASSABACH = low platelets, risk of bleeding and death

**NEVUS SIMPLEX**

A nevus simplex is a Salmon 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:** Hemi hypertrophy 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 Crippling disorder in which they have one HUGE leg that prevents them from getting around.

**NAME ALERT:** KLIPEL-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).

**IMAGE:** [www.pbrlinks.com/KLIPPELFEL1](http://www.pbrlinks.com/KLIPPELFEL1) (View images and move on!)

### 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.

**IMAGE:** [www.pbrlinks.com/MCCUNE1](http://www.pbrlinks.com/MCCUNE1)

**MNEMONIC:** Call it MACULE Albright Syndrome from now on.

### 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](http://www.pbrlinks.com/TUBERSCLERO1)
  - **IMAGE:** [www.pbrlinks.com/TUBERSCLERO2](http://www.pbrlinks.com/TUBERSCLERO2)
* **SHAGREEN PATCH** (hypERpigmented plaque that can be rough/thick and papular)
  - **IMAGE:** [www.pbrlinks.com/TUBERSCLERO3](http://www.pbrlinks.com/TUBERSCLERO3)
  - **IMAGE:** [www.pbrlinks.com/TUBERSCLERO4](http://www.pbrlinks.com/TUBERSCLERO4)
* **ANGIOFIBROMAS (AKA ADENOMA SEBAEUM or SEBACEOUS HYPERPLASIA)**
  - **PEARL:** Often misdiagnosed as acne. LOOK FOR SPARING OF THE FOREHEAD.
  - **IMAGE:** [www.pbrlinks.com/TUBERSCLERO5](http://www.pbrlinks.com/TUBERSCLERO5)
* **PERIVENTRICULAR OR CORTICAL TUBERS:** Usually associated with INFANTILE SPASMS or seizures
* **CARDIAC RHABDOMYOMAS:** Look for a kid with arrhythmias!
* **RENAI ANGIOMYOLIPOMA**

**MANAGEMENT** OF TUBEROUS SCLEROSIS: Most of the management has to do with seizures/infantile spasms and cardiac arrhythmias.

* **MNEMONIC:** Imagine a TUBULAR bazooka shooting out WHITE LEAVES. The leaves have DANCING (seizing) tics on them!
* **MNEMONIC:** ASH is typically GRAY/WHITE/HYPOPIGMENTED, whereas a “PATCH of GREEN” is typically DARKER/HYPERPIGMENTED.
* **MNEMONIC:** ASHES come from burned WOOD. A Woods lamp is needed to see them.
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

**INFECTIOUS 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 Cefazolin 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.

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).

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.

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.

MNEMONIC:
molluscUMbilicated Papules
OX

(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 = VVarts/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/ECZEMAHerpE1
IMAGE: www.pbrlinks.com/ECZEMAHerpE2
IMAGE: www.pbrlinks.com/ECZEMAHerpE3

(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 sufla 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, confer 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)

**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 non-toxic 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!

* **IMAGE:** www.pbrlinks.com/ZINC1  
* **IMAGE:** www.pbrlinks.com/ZINC2  
* **IMAGE:** www.pbrlinks.com/ZINC3  
* **IMAGE:** www.pbrlinks.com/ZINC4

* **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.
    
    o **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

**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 EFFLUVIUM**

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  
* **IMAGE:** 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 GRISEO-FULVIN. You do not need any baseline labs.

* **IMAGE:** www.pbrlinks.com/TINEACAPITIS1  
* **IMAGE:** www.pbrlinks.com/TINEACAPITIS2
TRICHOTILLOMANIA
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
I really hope that you've enjoyed this free chapter. The links are active to show you how valuable an online learning experience can be. My sincere recommendation is that you purchase a PBR bundled product that includes both the online AND the hardcopy versions of the PBR materials so that you can mark things up, make notes, but also be EFFICIENT!

Now... how about a handful of free questions?

Scroll to the next page to get a sample of the PBR Questions & Answers.
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
WHERE ARE THE ANSWERS?
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Best,
- Ashish

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A Few [CRITICAL] Reminders

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Again, CONGRATS on getting through the book! Now let’s do it again!!!

Ashish & Team PBR
Index

1
11-hydroxylase deficiency, 80, 81
17-hydroxylase deficiency, 81

2
2,3-diphosphoglycerol, 263
21-hydroxylase deficiency, 80, 81
22Q11.2 deletion syndrome, 104

A
ABO incompatibility, 165, 166
abscess
brain, 285, 302
dental, 301
epidural, 372
liver, 297
peritonsillar, 281
retropharyngeal, 281
tuboovarian, 91
abuse
caregiver-fabricated illness, 413
health care provider role, 413
neglect, 412
physical abuse, 412
psychological abuse, 412
sexual abuse and assault, 412
acanthosis nigricans, 86
ACE inhibitors, 226
acetaminophen toxicity, 189
acetazolamide, 344
acetone odor, 190
achalasia, 221
achondroplasia, 237
acid or base ingestion, 197
acid-base disorders, 339
acidemia
glutaric, 327
isovaleric, 327
methylmalonic, 327
acidity, organic, 326
acidosis
metabolic (and ABG), 341
renal tubular, 344
respiratory, 340, 346
aciduria
argininosuccinic, 329
acne, 143
neonatal and infantile, 156
acrodermatitis enteropathica, 157
acromioclavicular joint separation, 392
ACTH stimulation, 80
Addison disease, 79
adenoma sebaceum, 147
adenosine, 115
adenosine deaminase (ADA) deficiency, 336
adenovirus, 290, 307, 318
ADHD, 409
adhesion
labial and penile, 93
leukocyte, 110
adrenal crisis, 80
adrenal disorders, 79
adrenal gland layers, 80
adrenal insufficiency; see also Addison disease, 80
adrenal steroid synthesis pathway, 79
adrenarche
premature, 58, 59, 60
agammaglobulinemia
Bruton, 106, 403
Aicardi syndrome, 240
Aldridge syndrome, 212
aldendazole, 278
albinism, 110, 236
aldosterone deficiency, 350
alkalosis
metabolic, 345
respiratory, 340, 346
alkaptonuria, 331
allergy
egg, 322
food, 95
milk protein, 97
nickel, 139
peanut, 95
pollen, 94
ragweed, 94
alopecia, 156
Alpers syndrome, 239
alpha-1-antitrypsin deficiency, 406
alpha-fetoprotein screening, 87
Alport syndrome, 240
amyloid, 233
amebiasis, 297
amenorrhea, 65
aminocitopathies, 325, 331
aminomietasis, 87, 88
amphetamines, 190
ANA, 394, 395
anabolic steroids, 70
anaphylaxis, 96
androgen insensitivity syndrome, 83
androgens
adrenal, 59
anemia
aplastic, 111, 272
blood loss, 266
chronic disease, 266
Diamond-Blackfan, 111, 255
Fanconi, 270
hemolytic, 262
iron deficiency, 266
mechaloblastic, 207, 269
microcytic, 266
newborn, 261
normocytic, 262, 359
physiologic, 262
sickle cell, 264
aneurysm, 383
Angelman syndrome, 249
angioedema, hereditary, 108
angiofibromas, 147
angiomoyolipoma, renal, 147
anion gap, 188, 343
aniridia, 259
ankle sprains, 391
anosmia, 62
anterior cruciate ligament tear (ACL tear), 392
antibiotics, review, 277
antibodies
antiendomysial, 219
anti-Saccharomyces, 217
antibody titers
immune deficiency testing, 106
anticholinergic toxicity, 194
anticonvulsant hypersensitivity syndrome, 100
antifreeze, 190
antiseizure medications, prenatal exposure, 229
anuria, newborn, 167
anus
imperforate, 170, 225, 254
aortic regurgitation, 121, 253
aortic stenosis, 120
APC mutation, 224
Apert syndrome, 236
aplasia cutis congenita, 158
apnea, neonatal, 166
appendicitis, 217
arborivirus, 291
arthrytis, 114
arterial blood gas analysis, 339
arthritis
in rheumatic fever, 129
juvenile immune (JIA), 394
septic, 391, 394
arthritis, reactive, 396
arthrocentesis, 394
arthrogryposis, 169
Ascaris lumbricoides, 298
Aschoff bodies, 130
Asherman syndrome, 66
Ashkenazi Jews, 217
asparaginase, 227
aspergillosis, allergic bronchopulmonary, 289
Aspergillus, 289
asphyxia, 350
aspiration
gastroesophageal, 406
assent (in ethics), 417
asthma, 401
differential diagnosis, 403
ataxia
acute cerebellar, 381
Friedreich, 382
ataxia telangiectasia, 105, 381, 403
telecstatic, 407
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atlantoaxial instability, 244, 245
atresia
choanal, 401
duodenal, 222
pulmonary, 127
tricuspid, 127
atrial fibrillation and flutter, 116
atrial septal defects, 118
atrioventricular node, 114
atrioventricular nodal block
atrioventricular, 114, 117
left bundle branch, 117
Mobitz, 117
right bundle branch, 114, 117
Wenckebach, 117
Blunt disease, 387
blue dot sign, 72
blueberry muffin syndrome, 152, 306
Bordetella pertussis, 287
Borreia burgdorferi, 153
botulism, 279
bounding pulse, 122
bowed legs, 237, 387
brain death, 419
brain tumors, 260
breastfeeding and breast milk, 161
breath-holding spells, 410
bronzchietasis, 398, 407
bronchiolitis, 291
bronchopulmonary dysplasia, 408
brucellosis, 313
Brugada syndrome, 114
bruits
carotid, 122
cranial, 122
Brushfield spots, 244
Bruton agammaglobulinemia, 106, 403
bullimia, 71
burns, 198
C
C1 esterase deficiency, 108
calcifications
intracerebral, 304, 306
calcinosus cutis, 141, 396
calciaphylaxis, 141
Calcium and vitamin D related
disorders, 75
calcium channel blocker
overdose, 196
calcium-creatinine ratio, 354
Campylobacter jejuni, 216, 308, 309
C-ANCA, 397
cancer
testicular, 71
candidiasis
cutaneous, 149
capillary malformation, 146
caput, 169
car seats, 168
carbapenems, 278
carbohydrate metabolism
disorders, 332
carbon monoxide, 196
carboxyhemoglobin, 196
cardiomyopathy, 237
hypertrophic, 134
cardioversion, 115
carotene, 215
case-control studies, 366, 368
casts
urinary, 355
cat scratch disease, 312
cataracts, 232, 238
celiac disease, 219
cellulitis, 150
orbital, 302
ccephalohematoma, 169
ccephalosporins, 278
cerebral palsy, 371
cerebrovascular accident, 382
ceruloplasmin, 336
CH50, 107, 112
Chagas disease, 298
chalazion, 231
charcoal (for poisonings), 188
Charcot-Marie-Tooth (CMT)
disease, 378
CHARGE syndrome, 251
Chediak-Higashi syndrome, 110
chandeleion
iron, 195
lead, 195
chemotaxis, 107
cherry red spot, 337
chest pain, 134
chest x-ray findings (pearls), 407
Chiari malformation, 384
chicken pox, 292
child abuse, 411
sexual, 93
Chlamydia pneumoniae, 286, 315
Chlamydia psitacci, 286
Chlamydia trachomatis, 90, 313
choanal atresia, 236, 401
cholangitis, 215
cholangitis, primary sclerosing, 210
cholecalciferol, 203
cholecytis, 215
choledochal cyst, 211
cholelithiasis, 215
cholescintigraphy, 210
cholestasis, 211
progressive familial intrahepatic
(PFIC), 212
cholesteatoma, 303
cholinergics, 194
chorea, 376
Sydenham, 129, 376
choreiform movement, 376
chorionic villus sampling, 87
chorioretinitis, 304, 306
chronic granulomatous disease
(CGD), 109, 241
Chvostek sign, 75
circulation, fetal, 123
cirrhosis, 213
Citrobacter, 285
Duchenne muscular dystrophy, 141
duct
Susten's, 295
ductus arteriosus, 122, 124
patent, 124
dwarfism, 237, 254
dyskiniesia, ciliary, 135
dysmenorrhea, 67
dysostosis, craniofacial, 248
dystonic reactions, 196, 376
dystrophy
muscular, 370
myotonic, 377

E
eating disorders, 70
Ebstein Barr virus, 257
echyma gangrenosum, 141, 149
ectodermal dysplasia, hypohidrotic, 144, 149
eczema, 95, 137
nummular, 137
eczema herpeticum, 137, 152
edema
cephal cerebral, 199
EDTA, 195
Edwards syndrome, 245
effusion
pericardial, 133
egg shaped heart, 125
Ehlers-Danlos syndrome, 64, 253
Eisenmenger syndrome, 118
electrocardiogram
and electrolytes, 113
elephantiasis, 300
elfin facies, 247
emesis, bilious in newborn, 222
EMG, 370
ephyma, congenital lobar, 400
encapsulated organisms
mnemonic, 106
encephalitis
herpes simplex virus, 92, 152
encephalopathy
mitochondrial, 329
encopresis, 215, 414
endocarditis, 90, 131
acute bacterial, 131
prophylaxis, 132
subacute bacterial, 131
treatment, 132
endotracheal tubes, 201
Entamoeba, 278
Entamoeba histolytica, 297
Entebacter, 285
Enterobius, 278, 298
Enterococcus faecalis, 279
enterocolitis
necrotizing, 170, 225, 279
enteropathy
food protein induced, 97, 310
enuresis, 414
epididymitis, 72
epiglottitis, 287, 316, 400
epinephrine pens, 98
Epstein-Barr virus, 291
Erb's palsy, 370
erisacalferol, 203
erythema chronicum migrans, 153
erythema infectiosum, 154, 264
erythema marginatum, 129
erythema migrans, 153
erythema multiforme, 141
erythema nodosum, 153, 217, 308
erythema toxicum neonatorum, 155
erythroblastopenia, transient, 266
erythroblastosisis fetalis, 165
erythropoietin, 359
Escherichia coli, 307
esophagitis, 216, 220
esotropia, 233
essential fatty acid deficiency, 209
ethanol, 189
ethylene glycol, 76, 190
euthanization, 420
Ewing sarcoma, 258
Ewing sarcoma, 258
exoptropia, 118

F
Fabry disease, 334
failure to thrive, 169
familial hypocalciuric hypercalcaemia, 348
Fanconi anemia, 270
Fanconi syndrome, 270
fasciitis
necrotizing, 284
fatty acid metabolism disorders, 325
fava beans, 166
femoral anteversion, 387
trinit, 269
fetal alcohol syndrome, 230
fever
neonatal, 301
rheumatic. See rheumatic fever
chorea, 376
scapula, 282
yellow, 318
Fe2+ CaB12, 157
fibrillation
atrial, 115, 116
fibroadenomas, 58
fibrocytic change, 58
filariasis, 300
fingernail, 255
fissure
anal, 223
horizontal, 408
fistula
perilymphatic, 382
Fitz-Hugh-Curtis syndrome, 91
fixed drug reaction, 97
flail chest, 407
FLATPiG, 353
FLATPiG mnemonic, 63
FluMist, 318
fluorescein, 231
fluoride supplementation, 414
fluoroquinolones, 277
fluorosis, 144
folate deficiency, 206, 269
folic acid
prenatal, 89
fomepizole, 190
foramen ovale, 127
foreskin, 72
fractional excretion of sodium, 359
fracture, torus, 386, 412
fractures, 385
fragile X syndrome, 248
Francisella tularensis, 312
fremitus, 405
frenulum, 414
Friedreich ataxia, 382, 388
fructose intolerance, 333
functional abdominal pain of childhood, 215
fungemia, 287
futility, ethical, 418
futility, ethical, 419
fuzzy cab mnemonic, 157

G
G6PD deficiency, 166
galactosemia, 326, 332
gallstone, 215
gamma-glutamyl transpeptidase, 211
Gardner syndrome, 238
Gardnerella, 278
Gardnerella vaginalis, 92
gasoline, 192
gastritis, 216
gastroenteritis, 290
gastrophy
erosive, 216
gastrochisis, 224
Gaucher disease, 334
genitalia
ambiguous, 82
genu varum, 387
GERD. See reflux,
gastroesophageal
gestational age
estimating, 163
GGT (gamma-glutamyl transpeptidase), 210, 211, 406
Giardia lamblia, 218, 278
Gilbert’s syndrome, 213
gingivostomatitis, 92, 151, 152, 292
ginkgo drug interactions, 228
ginseng drug interactions, 228
Gitelman syndrome, 346
gland
adrenal, 80
Glanzmann thrombasthenia, 275
Glasgow coma score, 200
glaucoma
heat exhaustion and stroke, 348
heart disease, cyanotic, 124
hearing, 186
head trauma, 382
head lice, 153
head injury, 200
head circumference, 160
hay fever
Hashimoto's thyroiditis
Hartnup disease
Harlequin ichthyosis, 140
haptoglobin
hair collar sign, 158
Haemophilus influenzae,
Guillain-Barre syndrome, 371
guns, 69

H
Haemophilus influenzae, 287
hair collar sign, 158
haptoglobin, 262
Harlequin ichthyosis, 140
Hartnup disease, 206
Hashimoto's thyroiditis, 73
hay fever, 94
HBIG, 319, 320
head circumference, 160
head injury, 200
head lice, 153
head trauma, 382
headaches, 375
hearing, 186
heart disease, cyanotic, 124
heart failure
congestive, in first week, 134
heat exhaustion and stroke, 348
Heinz bodies, 166
Helicobacter pylori, 216
heliotrope rash, 141
heliotropic rash, 396
hemangiomas, 144
hematoma
cerebrohematoma, 169
epidural, 383
subdural, 383
subperiosteal, 169
hematuria
microscopic, 354
hemihypertrophy, 146
hemoglobin
A1C, 84
fetal, 128, 167, 223
hemoglobin H disease, 267
hemoglobin variants, 261
hemoglobinuria
paroxysmal nocturnal, 264
hemoglobinuria, paroxysmal
nocturnal, 264
hemolytic uremic syndrome, 273, 358
hemophilia, 242
hemorrhage
subarachnoid, 383
hemosiderin, 262
hemosiderosis, 268
Henoch Schonlein purpura, 396
hepatic inhibitor, 228
hepatitis A, 213
hepatitis A vaccine, 319
hepatitis B, 213
hepatitis B vaccine, 319
hepatitis C, 213
hepatitis C virus, 213
hepatocellular carcinoma, 212
hepatoblastoma, 213
hepatitis B, 213
hepatitis A vaccine, 319
hepatitis B, 213
hepatitis C, 213
hepatoblastoma, 210
hermaphroditism, 83
hernia
diaphragmatic, 400
inguinal, 72
umbilical, 220
heroin exposure, prenatal, 229
herpangina, 290
Herpes simplex virus, 92, 151, 292
herpes simplex virus encephalitis,
152, 292
heterochromia, 236
hiccups, 326, 338
HIDA scan, 210
hip dysplasia, developmental, 390
Hirschsprung disease, 220
Histoplasmosis, 288
HIV, 293
hives, 96, 142
HLA B27, 217
Hodgkin's lymphoma, 314
Holt Oram syndrome, 247
homocystinuria, 64, 253, 332
homosexuality, 70
hookworm, 299
hordeolum, 231
Horner syndrome, 371
horseshoe kidney
Turner syndrome, 84
Howell-Jolly bodies, 265
HRIG, 198
human herpes virus 6, 291
human immunodeficiency virus
(HIV), 293
human papilloma virus (HPV), 69,
Huntington disease, 377
Hurler and Hunter syndromes, 333
Hutchinson teeth, 91, 144, 305
hydrocarbon ingestion, 192
hydrocarbon inhalation, 192
hydrocele, 71
hydrocephalus, 160
hydrogen breath test, 219, 311
hydras parents, 142, 154, 264,
267, 395
hydrad, gallbladder, 210
hygroma, cystic, 253
hyperammonemia, 214, 326
hyperbilirubinemia. See jaundice
hypercalcaemia, 75
familial hypocalciuric, 75
hypercalcuria, 354
hypercapnia, 405
hypercholesterolemia, familial,
136
hypercortisolism, 79
hyperglycemia
rebound, 85
hyperglycinemia, 326
hyper-IgE syndrome, 107
hyperkalemia, 350
hyperlipidemia, 136
hypermobility, 252
Marfan syndrome, 64
hypermobility, joint, 392
hypernatremia, 353
hyperopia, 232
hyperoxia test, 401
hypersensitivity reactions, types,
99
hypertension, 135
persistent pulmonary, 127
hyperthermia, malignant, 227
hyperthyroidism, 74
hypertrophy
biventricular, 118
septal, 134
ventricular, 118
hyperviscosity, 262
hypophosphatemia, 231
hypocalcemia, 75
hypogammaglobulinemia
transient of infancy, 107
hypoglycemia
diabetes mellitus, 85
hypoglycemia
differential diagnosis, 335
neonatal, 167
hypogonadism, 253
hypohidrosis, 149
"
hypokalemia, 350
hyponatremia, 351
hypoparathyroidism, 204
hypoplastic left heart, 127
hypospadias, 170, 250, 254
hypothrombinemia, 265
hypothermia, 200
hypothyroidism, 73
  acquired, 73
  congenital, 73
hypovolemia, 201
hypersrrhythmia, 380

I
I-cell disease, 334
ichthyosis, 140
icterus, 215
idiopathic neonatal hepatitis, 212
idiopathic thrombocytopenia (ITP), 273
IgA deficiency, 107
IgA nephropathy, 359
immunizations. See vaccine immunoglobulin
  thyroid stimulating, 74
immunotherapy
  for allergy, 94
impetigo, 149
imprinting, 249
incidence (statistics), 366
incontinentia pigmenti, 144, 148
India ink, 287
inducers
  hepatic, 228
infant of diabetic mother, 335
infantile spasms, 380
inflammatory bowel disease, 217
influenza vaccine, 318
ingestion
  acid or base, 197
  foreign body, 197
  sharp object, 197
inhalant abuse, 192
inhalants, 68
Inhibin, 88
inhibitor
  hepatic, 228
intoxing, 387
intracranial pressure, increased, 374
intussusception, 218
iodine, 74
Ipecac, 188
IPV, 318, 321
iron
  overdose, 195
iron indices, 269
  ferritin, 266
  TIBC, 195, 266, 267
  transferrin, 266, 267
iron supplementation
  infants, 162
  iron-deficiency, 195
irritable bowel syndrome, 217, 219
isopropyl alcohol, 190
isotretinoin, 143
isotretinoin, prenatal exposure, 230
isovaleric acidemia, 327
Ixodes deer tick, 153, 297
J
Janeway lesions, 131
Jarisch-Herxheimer reaction, 153
jaundice
  breast milk, 164
  causes, 211
  hepatocellular, 211
jaundice, neonatal, 164
  ABO incompatibility, 166
  phototherapy, 165
  risk factors, 165
jet phenomenon, 221
Jimson weed, 194
Johanson-Blizzard syndrome, 240
  joint hypermobility, 392
Jones criteria, 129
K
Kallmann syndrome, 62
  panhypopituitarism, 82
Kartagener syndrome, 135
Kasabach-Merritt syndrome, 145
Kawasaki disease, 130
Kayser-Fleischer ring, 214, 336
keratolysis, pitted, 141
keratosis pilaris, 138
keratosis, 192
ketoadiposis, diabetic, 85
kidney stones
  calcium oxalate, 76
Klebner-Betke test, 165
Klinefelter syndrome, 64, 84
Klippel-Feil syndrome, 146
Klumpke palsy, 370
Koebner phenomenon, 395
Koplik spots, 293
Korsakoff syndrome, 205
Kussmaul’s sign, 133
kwashiorkor, 208
L
lab values, 426
lactase deficiency, 98
lactose intolerance, 98, 218
Langerhans cell histiocytosis, 138
larva migrans
  cutaneous, 300
  visceral, 299, 404
laryngomalacia, 399
laryngosomus, 75
Laurence-Moon-Biedl syndrome, 170, 250
lavage, gastric, 189, 197, 223
laxatives, 215
lead toxicity, 195, 268
learning disabilities, 409
lecithin-sphingomyelin (L/S) ratio, 89
Legg-Calve-Perthes disease, 388
len
  subluxation, 64
leptospirosis, 296
Lesch-Nyhan syndrome, 336
leukemia
  acute lymphocytic, 256
  acute myeloid, 256
  chronic myelogenous, 256
leukocoria, 238
leukocyte adhesion deficiency, 110
LH
  FSH ratio, 67
lice, head and pubic, 153
lichen sclerosus, 139
lichen striatus, 139
likelihood ratio (statistics), 364
linezolid, 277
Lisch nodules, 148
Listeria monocytogenes, 279
lithium, 229
lithium exposure, prenatal, 229
livedo reticularis, 156
Loffler syndrome, 298
lower GI bleeding, 223
Lund & Browder chart, 199
lung maturity, prenatal
  assessment, 89
lupus
  drug induced, 396
  neonatal, 142, 395
systemic, 395
Lyme disease, 153
lymphadenopathy
  acute, 311
  chronic cervical, 312, 313
  generalized, 91
hilar, 397
non-tender, 313
preauricular, 312
lymphangiectasia, 311
lymphgranuloma venereum, 90, 313
lymphoma
  Burkitt, 257
lysosomal storage diseases, 333
M
macrocephaly, 160
macrolides, 278
macroorchidism, 248
magnesium sulfate, 226
maintenance IV fluids, 347
malabsorption, 311
malaria, 297
malaria, 221, 222, 223
Maltese Cross, 297
mammography, 58
MANNTRA mnemonic
  panhypopituitarism, 82
marijuana, 68, 191
mastoiditis, 302
osteosarcoma, 238, 258
otitis externa, 302
otitis media, 303
otorrhea, chronic, 303
ovarian failure, 62
oxygen saturation, pre- and post-
ductal, 125

P
P450 inhibitors, 228
p-ANCA, 210
pancreas
annular, 222
pancreatitis, 218
panceytopenia, 272
panhypopituitarism, 82
papilledema, 231
papillitis, 231
Parkland formula, 199
parotitis, 302
paraoxysmal nocturnal
hemoglobinuria, 264
parvovirus B19, 154, 264
Patau syndrome, 244, 246
patent ductus arteriosus, 124
Pavlik harness, 390
peak and trough levels, 226
pear-shaped head, 236
pediculosis, 93, 153
pellagra, 206
pelvic inflammatory disease (PID),
90, 91
penicillin, 277
penicillin allergy, 100
peptic ulcer disease, 216
perforated palate, 91
perforation, esophageal, 224, 253
pericardial effusion, 133
pericarditis, 129, 133
in rheumatic fever, 129
perihepatitis, 91
peritonitis
secondary, 301
spontaneous bacterial, 301
permethrin, 153
persistence of fetal circulation,
127
persistent vegetative state, 419
pertussis, 287
pes cavus, 388
pes planus, 388
pesticides, toxicity, 194
Peutz-Jeghers syndrome, 238
PHACES, 145
pharmacokinetics, 226
phencyclidine, 191
phenylalanine, 331
phenylketonuria, 331
pheochromocytoma, 136
Philadelphia chromosome, 256
phimosis, 72
phosphatidylglycerol, 89
phototherapy
riboflavin deficiency, 205
phototherapy guidelines, 165
physician assisted suicide, 420
phytonadione, 203
Pierre-Robin syndrome, 251
pilocarpine, 194
pinworms, 278, 298
pityriasis alba, 138
pityriasis rosea, 150
plague, 313
Plan B, 88
Plan-Do-Study-Act model, 425
platelet disorders, 272
pneumococcus, 280, 321
Pneumocystis jiroveci (carinii),
102, 300
pneumonia, 403
adolescents, 301
ground glass, 300
pneumothorax, spontaneous, 407
poison ivy, 100
polio, 318
poliodystrophy, 239
polycystic ovarian syndrome, 67
polycythemia, 262
polydactyly, 393
polydipsia, psychogenic, 352
polyhydramnios, 221, 222
poly
juvenile, 223
nasal, 135, 398
polyposis, 238
familial adenomatous, 224
polymyositis
hypercalcemia, 75
Pompe’s Disease, 330
porphyria, 238
port wine stain, 145
posterior urethral valves, 356
postexposure prophylaxis, 320
Potter syndrome, 254
PR interval, 113
Prader-Willi syndrome, 249
predictive value
negative, 363
positive, 363
predictive value (statistics), 365
preeclampsia, 226, 229
premature atrial complexes, 113
premature ventricular complexes,
113
premenstrual syndrome, 67
prenatal care, 87
pressure equalization (PE) tubes,
303
prevalence (statistics), 365
proctitis, food protein induced, 98,
310
progressive familial intrahepatic
cholestasis (PFIC), 212
prolactinoma, 61, 66
prolapse
rectal, 225
prolonged QT interval, 116
pneumonia, 308
premature rupture of membranes,
229
presbyopia, 400
pressure, 393
pruritic, 138
primary biliary cirrhosis, 220
priapism, 147
pseudohypoparathyroidism, 102
pseudohyponatremia, 352
pseudohypoparathyroidism, 83
pseudohypoparathyroidism, 204
Pseudomonas, 287
pseudostrabismus, 232
psUEDOTUMOR CEREBRI, 202
psoriasis, 138
PTSD, 68
puberpy
age range, 57
delayed, 61
precocious, 58, 147
pulmonary artery, 237
pulmonary atresia, 127
pulmonary hypoplasia, 254
pulmonary malformation, 404
pulmonary malformation,
congenital, 400
pulmonary stenosis, 120
pulsus paradoxus, 133
purine and pyrimidine disorders,
366
purpura
thrombocytopenic, maternal,
272
pyelonephritis, 357
pyloric stenosis, 221
pyoderma gangrenosum, 140, 217
pyridoxine (vitamin B6) deficiency,
206
pyruvate kinase deficiency, 263
Q
QT interval
prolonged, 116
quality improvement, 423
Quantiferon, 289
quinolones, 277
R
rabies, 198
radial head, subluxed, 390
radial hypoplasia, 170, 225, 254
radiculopathy, 389
ranula, 74
rape, 68
rashes
pruritic, 138
rashes, newborn, 155
Rashkind procedure, 125
RAST, 94, 95, 137
Raynaud’s phenomenon, 397
RDW, 269
Rebuck skin window, 110
rectal prolapse, 225, 300
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trauma  
   head, 382  
tretinoin, 143  
Trichomonas vaginalis, 92  
trichotillomania, 158  
Trichurus, 225, 300  
tricuspid regurgitation, 127  
tricuspid stenosis, 120  
trihalangeal thumbs, 111  
triple-jointed thumb, 247  
trismus, 281  
trisomy  
   VSDs, 118  
trisomy 13, 246  
trisomy 18, 245  
trisomy 21, 244  
trisomy disorders, 244  
Trousseau’s sign, 75  
truncus arteriosus, 125  
Trypanosoma brucei, 298  
Trypanosoma cruzi, 298  
tryptophan, 206  
tube  
rous sclerosis, 147, 239  
tularemia, 312  
tumor lysis syndrome, 260  
Turner syndrome, 83, 253  
twins, 89  
typhlitis, 170, 225  
typhoid, 308  
tyrosinemia, 332  
Tzanck stain, 92, 137, 151, 292  
U  
   ulcer  
   aphthous, 143, 315  
   ulcerative colitis, 217  
umbilical artery  
   single, 225  
   umbilical artery, single, 170  
umbilical cord, 169  
urea cycle defects, 325, 328  
ureterocolic, 357  
ureteropelvic junction obstruction, 355  
urethritis  
   nongonococcal, 91  
   urinary crystals, 355  
utricaria, 96, 142  
papular, 140  
uveitis, 394  
V  
vaccine  
   contraindications, 322  
DTaP, DT, TdaP, 321  
hepatitis A, 319  
hepatitis B, 319  
influenza, 318  
MMR, 318  
rotavirus, 318  
schedule, 321  
vaccines  
   yellow fever, 317  
vaccines  
   adenovirus, 317  
   live, 317  
vagal maneuvers, 115  
vaginositis, bacterial, 92  
valgus deformity, 386  
validity hierarchy, 366  
Valley fever, 288  
vancomycin, 277  
vanillylmandelic acid, 136  
varicella zoster virus, 292  
varicocele, 71  
varola, 292  
varus deformity, 386  
vasomotor rhinitis, 94  
VATER/VACTERL, 170  
vegan diet, 216, 207  
vegetarians, 157, 208  
ventricular septal defects, 118  
vertigo, benign positional, 382  
vesicoureteral reflux, 356  
vincristine, 227  
viral hepatitis, 212  
vital signs, 428  
vitamin B12 deficiency, 207, 269  
vitamin C deficiency, 207  
vitamin D, 77  
vitamin D deficiency, 204  
vitamin D excess, 203  
vitamin E deficiency, 203  
vitamin K deficiency, 203  
vitamins  
   fat-soluble, 202  
water-soluble, 205  
VZIG, 292, 304  
W  
   Waardenburg syndrome, 236  
   warfarin exposure, prenatal, 229  
   warts  
   anogenital, 69, 151  
   water intoxication, 352  
   web, antral and esophageal, 221  
   Wegener granulomatosis, 397  
   weight and weight gain, newborn, 159  
   Wernding-Hoffman disease, 377  
   whipworm, 300  
   whitlow, 92  
   Williams syndrome, 247  
   Wilms tumor, 259  
   Wilson disease, 214, 336  
   Wolff-Parkinson-White syndrome, 115  
   Woods lamp, 147  
   ethylene glycol in urine, 190  
X  
   X-linked disorders, 240  
   XXY (Klinefelter syndrome), 64  
Y  
   Yersinia enterocolitica, 308  
   Yersinia pestis, 313  
Z  
   Zika Virus, 295  
   zinc deficiency, 149, 156, 157, 207  
   Zollinger-Ellison syndrome, 216
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