Now What? Resolving Challenging Immunization Scenarios

Ronald C. Samuels, MD, MPH
Associate Director
Children’s Hospital Primary Care Center
Disclosures

• I, Ronald Samuels, have been asked to disclose any significant relationships with commercial entities that are either providing financial support for this program or whose products or services are mentioned during my presentations.
  – I have no relationships to disclose

• I will discuss the use of vaccines in a manner not approved by the U.S. Food and Drug Administration.
  – But in accordance with ACIP recommendations and expert opinion.
Today’s Objectives

• Communication Strategies
  – Re-enforcing what you already heard and already know

• Thinking about vaccines

• Challenging Scenarios
One of the most important factors that influence a patient’s decision to be vaccinated is a clear and unequivocal recommendation of the vaccine from the provider.
Tell STORIES not facts

• “I wouldn’t have given my children these vaccines if I didn’t believe in them”

• “I’m telling you the same thing I told my niece, vaccines are the best thing you can do for your children”

• “I made my son get his flu shot already, you should hurry up and get yours as well as have your child get theirs”
Thinking about Vaccines

❖ When looking at vaccine records that include combination vaccines think about each piece separately
❖ EMR’s often do this for you
Thinking about Vaccines (2)

❖ Think about vaccines that the patient has NEVER gotten
❖ Easier to spot the one they’ve gotten and are behind on
Thinking about Vaccines (2)

❖ Think about vaccines that the patient has NEVER gotten
❖ Pretty Easy to spot she’s only had 1 HPV
❖ Could you quickly see she’s never had VZV?
Thinking about Vaccines (3)

❖ Give ALL Shots Due
  ❖ If they’ve missed visits— they’re going to miss visits again
❖ If Patients INSIST on splitting
  ❖ Bring them back FAST (1 week) – NOT next visit
  ❖ DO NOT split live virus vaccines (and then have to wait 4 weeks)
  ❖ Document clearly the PARENTS choice (don’t make it look like you agree)
Cases

- Mostly no right answers
  - some wrong answers…
- When in doubt, discuss with the family
- They’re ALL due for flu vaccine (if over 6 months)
Warm up - Flu vaccine

- 3 adopted children (All shots up to date)
- 7 year old had one dose of LAIV *a few years* ago, and one dose of IIV4 last year
- 8 year old had one dose of IIV3 at one year of age, and will turn 9 in January
- 10 year old has never had a flu shot before

- They all need a flu shot today.
- Who needs to come back in >=4 weeks (28 days) to get a second dose?
Warm up - Flu vaccine

- 7 year old had one dose of LAIV a few years ago, and one dose of IIV3 last year – Two doses prior to this year’s flu season – OK
- 8 year old had one dose of IIV3 at one year of age – Needs TWO shots this year, even if going to turn 9 during the current flu season. Number of shots determined by age when they had FIRST shot (this year)
- 10 year old has never had a flu shot before - >=9 years old – OK
Child is 6 months through 8 years old

Has child received ≥2 total doses\(^a\) of any influenza vaccine before July 1, 2019?

- No
  - Administer 2\(^b\) doses of influenza vaccine, given 4 weeks apart as minimum interval

- Yes
  - Administer 1 dose of influenza vaccine

Child is 9 years through 17 years old

Administer 1 dose of influenza vaccine, regardless of previous vaccination history

\(^a\) See recommendations for influenza vaccination by age group in the 2019-2020 Immunization Schedule for recommended influenza vaccine formulations and schedules. Information is available at https://www.cdc.gov/vaccines/hcp/Immunization-Schedule/2019/index.html

\(^b\) For children <8 years of age, who have not received an influenza vaccine before, 2 doses are recommended in their first season of vaccination.
Warm up 2

- 18 month old patient, presents for routine well child care visit.
- Reviewing immunization records
  - No HIB or IPV given at 4 months of age
  - DTaP, PCV, and rotovirus were all given at 4 months of age
  - All other vaccines are Up To Date and were given on time
- What do you do?
Warm Up 2 (cont)

• **Review original records** (if available)
  – This patient had a DTaP/HIB/IPV (Pentacel) recorded as DTaP
• **Just vaccinate otherwise**
• **“Unusual” missing shots** should make you think about recording errors
  – Shots you commonly give together with only one recorded
Case 1

• 1 year old, newly adopted baby from overseas. Family brings in shot record from overseas. All the shots are there, but the family is worried – they felt the care in the orphanage had been bad and don’t believe the record.

• Do you feel better/ worse when you notice ALL the shots are given on the first day of a month
Case 1

- Choices
  - Revaccinate
  - Trust Records
  - Spot check titers (and what do you do if only some of the titers are positive)
    - Titers not available/reliable for all vaccines
- Some “good” orphanages always vaccinate beginning of the month – but “bad” orphanages this would be a worry
  - Higher risk if ALL shots given by orphanage (as opposed to some given in community)
Case 1

- CDC now has recommendations for many special situations
  - [https://www.cdc.gov/vaccines/hcp/acip-recs/general-recs/special-situations.html#outside](https://www.cdc.gov/vaccines/hcp/acip-recs/general-recs/special-situations.html#outside)
- Vaccination of Preterm Infants
- Vaccination and Breastfeeding
- Vaccination During Pregnancy
- Vaccinating Persons at Increased Risk of Bleeding
- More…
Case 1b

- The adopted baby’s shot records are beautifully written out – but you’ve got no idea what they mean since they’re in another language
- What are your options at this point?
Options

• Have family get it translated
• Use facility translators if available
• PINK BOOK
• Immunize.org
## Quick Chart of Vaccine-Preventable Disease Terms in Multiple Languages

<table>
<thead>
<tr>
<th>Eastern European Languages</th>
<th>English</th>
<th>Bosnian</th>
<th>Croatian</th>
<th>Norwegian</th>
<th>Portuguese</th>
<th>Russian</th>
<th>Serbian</th>
<th>Slovak</th>
<th>Ukrainian</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute flaccid paralysis</td>
<td>Polio</td>
<td>Polio</td>
<td>Paralitica</td>
<td>Polio</td>
<td>Polio</td>
<td>Polio</td>
<td>Polio</td>
<td>Polio</td>
<td>Polio</td>
</tr>
<tr>
<td>Otitis media</td>
<td>Otitis media</td>
<td>Otitis media</td>
<td>Otitis media</td>
<td>Otitis media</td>
<td>Otitis media</td>
<td>Otitis media</td>
<td>Otitis media</td>
<td>Otitis media</td>
<td>Otitis media</td>
</tr>
<tr>
<td>Bacterial meningitis</td>
<td>Meningitis bacterialis</td>
<td>Meningitis bacterialis</td>
<td>Meningitis bacterialis</td>
<td>Meningitis bacterialis</td>
<td>Meningitis bacterialis</td>
<td>Meningitis bacterialis</td>
<td>Meningitis bacterialis</td>
<td>Meningitis bacterialis</td>
<td>Meningitis bacterialis</td>
</tr>
<tr>
<td>Chickenpox</td>
<td>Varicella</td>
<td>Varicella</td>
<td>Varicella</td>
<td>Varicella</td>
<td>Varicella</td>
<td>Varicella</td>
<td>Varicella</td>
<td>Varicella</td>
<td>Varicella</td>
</tr>
<tr>
<td>Influenza</td>
<td>Influenza</td>
<td>Influenza</td>
<td>Influenza</td>
<td>Influenza</td>
<td>Influenza</td>
<td>Influenza</td>
<td>Influenza</td>
<td>Influenza</td>
<td>Influenza</td>
</tr>
<tr>
<td>Measles</td>
<td>Masleniča</td>
<td>Masleniča</td>
<td>Masleniča</td>
<td>Masleniča</td>
<td>Masleniča</td>
<td>Masleniča</td>
<td>Masleniča</td>
<td>Masleniča</td>
<td>Masleniča</td>
</tr>
<tr>
<td>Poliomyelitis</td>
<td>Paralitica</td>
<td>Paralitica</td>
<td>Paralitica</td>
<td>Paralitica</td>
<td>Paralitica</td>
<td>Paralitica</td>
<td>Paralitica</td>
<td>Paralitica</td>
<td>Paralitica</td>
</tr>
<tr>
<td>Pneumococcal pneumonia</td>
<td>Pneumococcal pneumonia</td>
<td>Pneumococcal pneumonia</td>
<td>Pneumococcal pneumonia</td>
<td>Pneumococcal pneumonia</td>
<td>Pneumococcal pneumonia</td>
<td>Pneumococcal pneumonia</td>
<td>Pneumococcal pneumonia</td>
<td>Pneumococcal pneumonia</td>
<td>Pneumococcal pneumonia</td>
</tr>
</tbody>
</table>

**Note:** This chart provides a simplified overview of vaccine-preventable diseases in multiple Eastern European languages. For precise medical and scientific use, consult comprehensive medical references.
Case 2

• 9 month old comes into the clinic. The mom tells you they are traveling to Haiti next month and will be staying with relatives for 3 weeks. What shot(s) do you need to give
Travel

- cdc.gov/travel
- Figure out quickly if needs yellow fever and send to travel clinic
- Don’t forget malaria prophylaxis!
- Don’t forget MMR down to 6 months (and Hep A as well)
  - But don’t give MMR if might need YF
Reminder re travel

• MMR recommendations
  – TWO doses prior to travel if possible
  – Immunize >= 6 months (doesn’t count toward routine vaccines if <12 months)
  – Careful planning if YF or other live virus immunization being considered as well

• Hep A recommendations
  – Pre-exposure prophylaxis for travel for >=6 month olds (but like MMR doesn’t count if <12 months old)
Case 2 (cont)

- CDC web site recommends
  - MMR (but won’t count toward routine)
  - Hep A (but won’t count toward routine)
  - Typhoid (but too young – so gets extra lecture from me on safe drinking water)
  - Malaria - beyond scope today
  - Travel visits often need POST –travel care as well (especially TB screening)
How about travel clinics?

• If might need Yellow Fever Vaccine has to be done through certified Yellow Fever Location
  – And don’t do other live virus vaccines!
  – We also send patients needing JEV and other rare vaccines to travel clinic

• Why not all patients?
  – Often don’t come in soon enough
  – Insurance may not cover
  – Family may feel they don’t need those services
Travel Vaccines

- Travel vaccines are easy – CDC tells you what’s needed
- Travel vaccines are hard – there’s often judgement needed
- There’s more to travel safety then vaccines
  - Car seats
  - Water safety
  - Etc…
Case 3

- 12 month old new patient brought into clinic by new foster mom. Been in her care now for four weeks, but she doesn’t have any vaccine records.
- What do you do?
Case 3 (Cont)

• Vaccination is a TEAM sport.
  – 12 month old is certainly due for MMR/VZV
  – Nurse can do a registry lookup of MIIS (and now that we can download those records into our EMR she’s probably done it already!)
  – My administrative staff can try and track down old records from other sites (especially for older children)
    • Many practices respond better if parents call
  – Again for older children – we often ask families to get school records of immunizations
Case 4

- 15 month old comes into your office for routine visit and vaccines. Dad comments, the week after the 12 month visit (when you gave MMR and VZV) she was hospitalized for Kawasaki’s Disease.
- How do you need to change your future vaccine recommendations?
More on Immunoglobulins and Live virus vaccines

- Live virus vaccines need to replicate in vivo to stimulate the immune system
  - 2nd one given <4 weeks may not do so
- Avoid giving live virus vaccines <4 weeks apart (if not given together)
  - THIS INCLUDES NASAL FLU! (but not rotovirus/typhoid)
- IG’s given AFTER live virus vaccine may interfere with replication as well
  - Repeat MMR or VZV given <2 weeks before IG’s
<table>
<thead>
<tr>
<th>Product/Indication</th>
<th>Dose (mg IgG/kg) and route(^{(a)})</th>
<th>Recommended interval before measles- or varicella-containing vaccine(^{(b)}) administration (months)</th>
</tr>
</thead>
<tbody>
<tr>
<td>IGIV</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Replacement therapy for immune deficiencies(^{(c)})</td>
<td>300-400 mg/kg IV(^{(a)})</td>
<td>8</td>
</tr>
<tr>
<td>Immune thrombocytopenic purpura treatment</td>
<td>400 mg/kg IV</td>
<td>8</td>
</tr>
<tr>
<td>Postexposure varicella prophylaxis</td>
<td>400 mg/kg IV</td>
<td>8</td>
</tr>
<tr>
<td>Postexposure measles prophylaxis for immunocompromised contacts</td>
<td>400 mg/kg IV</td>
<td>8</td>
</tr>
<tr>
<td>Immune thrombocytopenic purpura treatment</td>
<td>100 mg/kg IV</td>
<td>10</td>
</tr>
<tr>
<td>Kawasaki disease</td>
<td>2 g/kg IV</td>
<td>11</td>
</tr>
</tbody>
</table>

https://www.cdc.gov/vaccines/hcp/acip-recs/general-recs/timing.html#t-05
Case 4 (cont)

- MMR and VZV you gave (appropriately) at 12 months of age “do not count” and should be repeated
- Should wait until 11 months after last dose of IVIG (for most KD disease treatment)
Case 5

• A previously unvaccinated 15 month old presents to your office with a known exposure to measles through daycare
• What do you do?
Case 5 (cont)

• If you haven’t already heard from DPH about what to do CALL THEM!
  - 1-617-983-6800

• You’d probably talk to ID service as well, especially if there are additional risk factors that need to be assessed

• 2013 MMWR Prevention of Measles…
  - https://www.cdc.gov/mmwr/preview/mmwrhtml/rr6204a1.htm

• Talk to Experts
  - MMR for most exposures
  - IG for some
Case 6

- Parent of a 7 month old comes into your office asking for MMR. They are traveling to visit relatives next week in Brooklyn, NY and they’re very worried about the ongoing Measles outbreak there (Yes, and thank goodness, community transmission was declared over in early Sept)
Case 6 (cont)

- The question is always “how high is the risk” (vs the benefit)
  - Are the relatives part of the community involved in the outbreak?
  - What is the geographic proximity?
  - Avoiding exposure ALWAYS better (if you’re not exposed YOU CANNOT get the disease)
- How long before they travel
- How long will they be there
  - Takes 10-14 days before provides optimal protection
Case 7

• 7 year old patient comes in to see you for the first time in a long while. He recently completed treatment for Leukemia, including a Bone Marrow Transplant. Mom says that her oncologist told her to talk to you about vaccines.
• What vaccines does this child need?
Vaccines and Cancer

- **While on chemo**, no live vaccine
- **Flu Vaccine** (injectable) should be given to children over 6 mo of age (if not on intensive chemotherapy or receiving anti-B-cell antibodies)
  - Our oncologists usually do this themselves (at DFCI)
Vaccines and Bone Marrow Transplant

- Flu (inactivated) should be given annually
  - If over 6 mo of age
  - Starting 6 mo after BMT, (4 mo during local outbreak)
  - 2 doses if between 6 mo to 8 yrs old
- No live vaccines if active Graft vs Host Disease (GVHD) or ongoing chemotherapy
- Always confirm with oncologist if any questions
Vaccines After BMT

- 3 doses of PCV 3-6 mo after BMT, with 12 mo booster with either 1 dose of PPS23 if no cGVHD, or 1 dose of PCV if cGVHD, etc…
- 2 MMR and 2 VZV if seronegative for measles, no ongoing immunosuppression, no GVHD and 8-12 mo after last IVIG
- Special Section on this for you at CDC!
  - https://www.cdc.gov/vaccines/hcp/acip-recs/general-recs/immunocompetence.html
Case 8

- 6 month old new to your practice has a scattering of shots (2 DTaPs, 1 IPV, 1 HIB, 1 PCV, 1 Hep B, 1 rotovirus)
- Family has Dr. Sears book and wants to follow his schedule
- How do you respond?
Case 8 (cont)

• You may choose to work with family or suggest they go elsewhere
• Do NOT spend a lot of time arguing
  – Explore briefly the "why" and explain briefly the "why not" – but then move on
• DO NOT agree with family
  – "I understand your point of view, but do not agree with it, if that’s what you want I’m happy to work with you on how to best care for your child"
Summary

• Give all vaccines due
• Think about each portion of combination vaccines separately
• Odd vaccine schedules should make you look more closely
• Look closely for MISSING vaccines
• Working WITH families DOES NOT mean agreeing with families
Summary (cont)

• Don’t forget about interference between live virus vaccines (or IG)
• High Risk Children may need additional vaccines (exposures/illness or travel)
  – Check travel web sites frequently for recommendations (they change!)
For More Information

- Massachusetts Department of Public Health Immunization Program
  - 1-617-983-6800
  - Website http://www.mass.gov/dph
- CDC/NIP
  - 1-800-232-2522
  - Website http://www.cdc.gov/vaccines
- www.immunize.org
- https://www.chop.edu/centers-programs/vaccine-education-center
- Kroger AT, et.al. Best Practices Guidance of the Advisory Committee on Immunization Practices (ACIP)
  https://www.cdc.gov/vaccines/hcp/acip-recs/general-recs/downloads/general-recs.pdf