



DON'T BE A **GAMBLER** WITH YOUR VACCINES!

You've got to know how to store 'em, know how to hold 'em

Storing Vaccines

Why it's important to store vaccines correctly

How to properly store vaccines

What to do when something goes wrong

Transporting vaccines

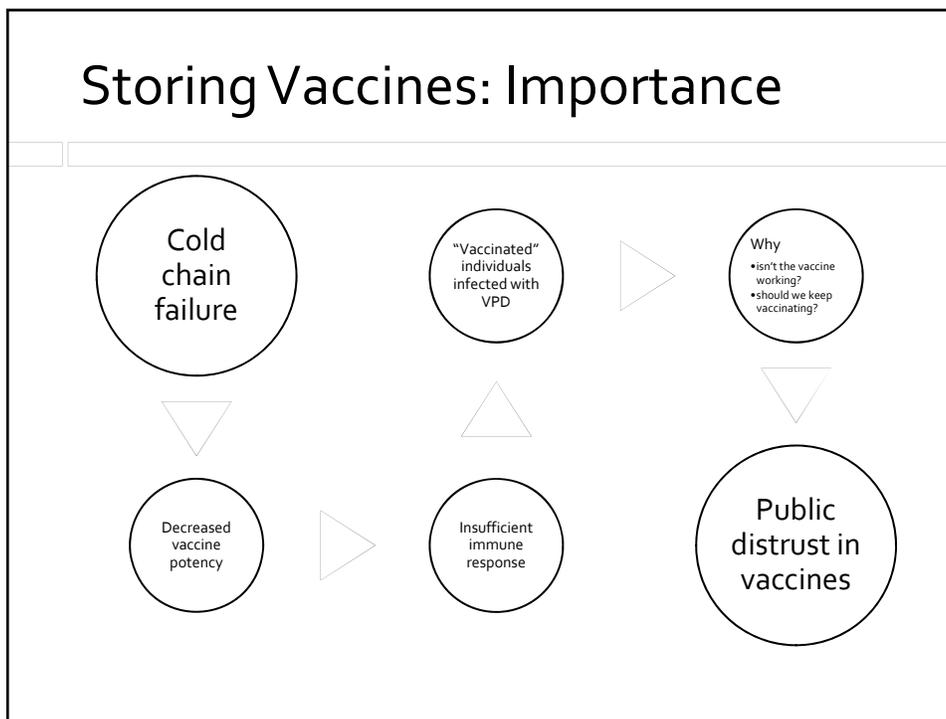
Storing Vaccines: Importance

- Vaccine quality is the shared responsibility of all parties, from the time it is manufactured until its administration
- Cold chain failures have a large impact, both financially and clinically
- It is better to **NOT VACCINATE** than to administer a dose of damaged vaccine

Storing Vaccines: Importance

Vaccine	Private (per dose)	State-supplied (per dose)	Total Cost (1 box each)
Recombivax (hepatitis B)	23.20	10.50	337.00
Pentacel	80.43	52.55	1329.80
Kinrix	48.00	34.25	822.50
Rotateq	72.34	59.76	1321.00
PCV13	120.95	97.21	2181.60
MMR	52.07	18.99	710.60
Havrix (hepatitis A)	14.25	28.74	429.90
Gardasil (HPV4)	130.27	95.75	2260.20
Menactra (MCV4)	109.66	82.12	1917.80
For a single refrigerator failure...			\$11,310.40

Storing Vaccines: Importance



Storing Vaccines: Importance

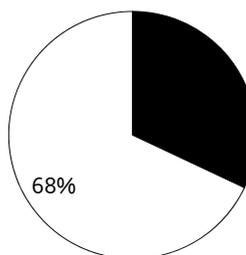
- Think selfishly!
 - If you are careless about storing your vaccines, think of other providers who may be the same way.
 - Now imagine that your grandchild, child or immunocompromised family member is going to be vaccinated by this provider. Do you feel good about this?
- You share responsibility in making sure that the vaccines you give are safe and effective.
- You are vaccinating someone's loved one!

Storing Vaccines: Have a Plan

- Have a vaccine management plan. This must include:
 - Primary & backup coordinator
 - Proper storage & handling guidelines
 - Vaccine shipping (receiving, transport)
 - Emergency plan
 - Vaccine ordering
 - Inventory control (stock rotation)
 - Vaccine wastage

ND Providers, 2011 VFC Site Visits (n=129)

- Did not have written procedures
- Had written procedures



Storing Vaccines: Have a Plan

- No wonder so many providers don't have a vaccine management plan. That looks like a lot of work! Who has time to do all that?!
- vaccine shipping (receiving, transport)
- Emergency plan
- Vaccine ordering
- Inventory control (stock rotation)
- Vaccine wastage

ND Providers, 2011 VFC Site Visits (n=129)

- Did not have written procedures



Storing Vaccines: Proper Units

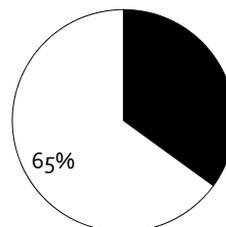
- Use appropriate storage units
- Dorm-style fridges are not acceptable for vaccine storage
 - Can be used for short-term storage
 - Must have policy in place for vaccine to be returned to proper storage unit at the end of the clinic day
 - Must maintain appropriate temperatures
 - Temperatures must be checked twice daily (beginning and end of the day)

Storing Vaccines: Thermometers

- Every unit storing state-supplied vaccine must have a certified calibrated thermometer
- Place thermometer appropriately
 - In middle of unit with vaccine supply
 - Keep away from walls or cool air vents

ND Providers, 2011 VFC Site Visits (n=129)

- Did not use a certified thermometer in at least one unit
- Used certified thermometer in all units

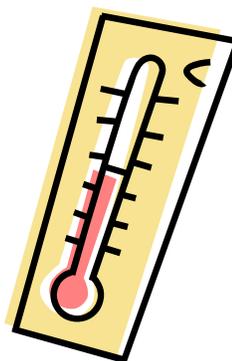


Storing Vaccines: Thermometers

- NDDoH no longer supplies certified calibrated thermometers. Providers have two options:
 - Recalibrate state-supplied thermometers
 - Purchase thermometers that are calibrated to NIST (National Institute of Standards and Technology) standards
- Providers must retain certificate of calibration
- Most manufacturers recommend recalibration every one to two years

Storing Vaccines: Thermometers

- Continuous tracking thermometers are recommended when possible
- November 14, 2011 memo provides a courtesy list of suppliers and manufacturers that supply thermometers that meet VFC program requirements

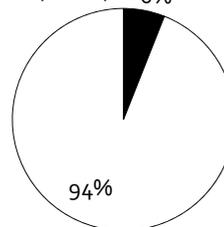


Storing Vaccines: Recording Temps

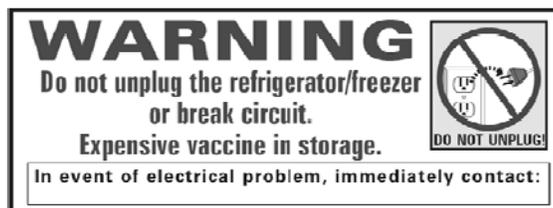
- Temperatures must be checked and documented at least twice daily (beginning and end of clinic day)
 - Continuous monitoring?
- Logs must be kept on hand for 3 years

ND Providers, 2011 VFC Site Visits (n=129)

- Did not record temperatures at least twice per day
- Recorded temperatures at least twice per day 6%



Storing Vaccines: Do Not Disconnect



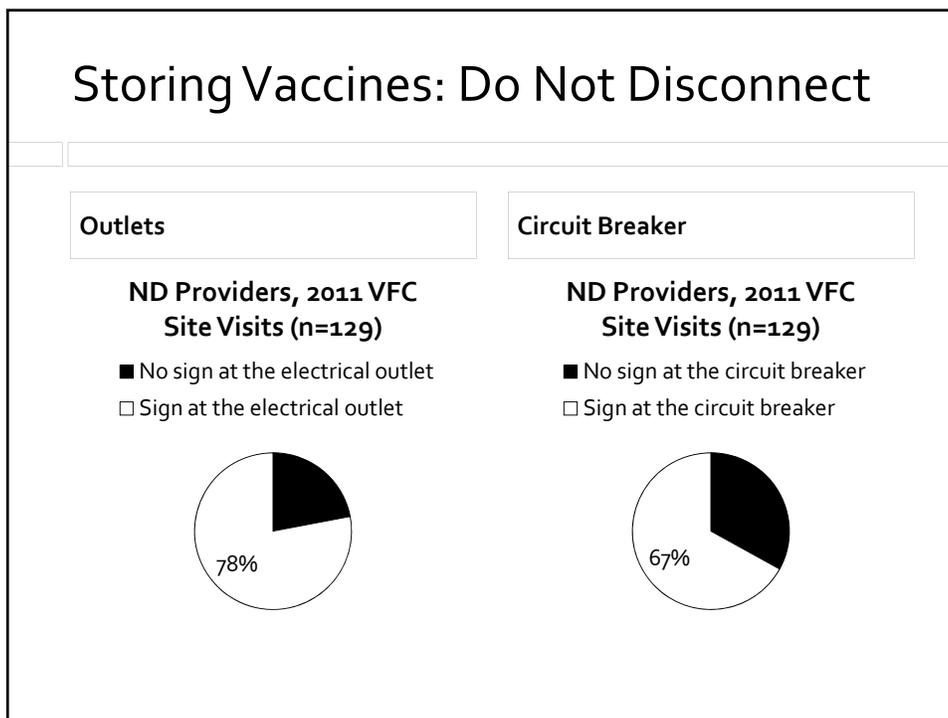
- These warning signs must be placed on the **outlets and circuit breakers** that supply power to the vaccine storage unit
- A sign must be placed even if the outlet is located behind the refrigerator, freezer or other structure!

Storing Vaccines: Do Not Disconnect

Dumb. Why would you put a sign behind the refrigerator where no one can see it?

Excellent question!
Who usually does the unplugging of a refrigerator or freezer? It's not you, the nurses, it's electrical or maintenance workers. If I'm the guy (or gal) who's crawling around behind a refrigerator to do my work, you can bet that I'm not checking the front of the fridge to make sure it's okay to unplug.

- These warning signs and circuit breaker signs are not visible to the person unplugging the vaccine storage refrigerator.
- A sign must be placed in a visible location behind the refrigerator.

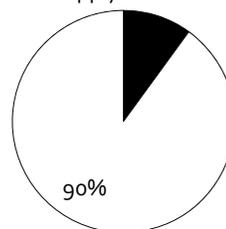


Storing Vaccines: Stock Rotation

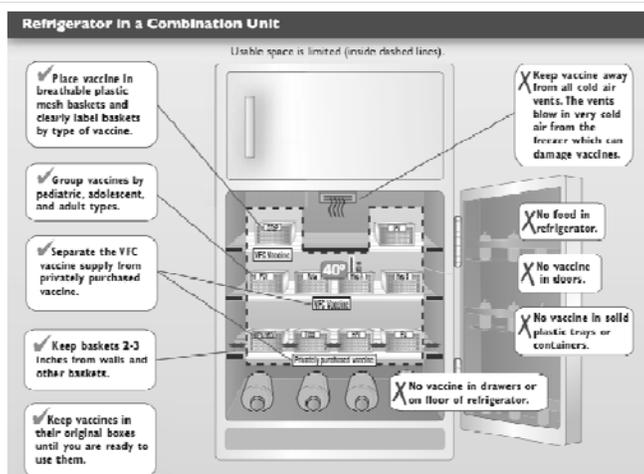
- Always use short-dated vaccine first
 - Contact NDDoH or nearby provider to transfer vaccine that is approaching its expiration date
- **Remove** expired or wasted vaccine from storage unit

ND Providers, 2011 VFC Site Visits (n=129)

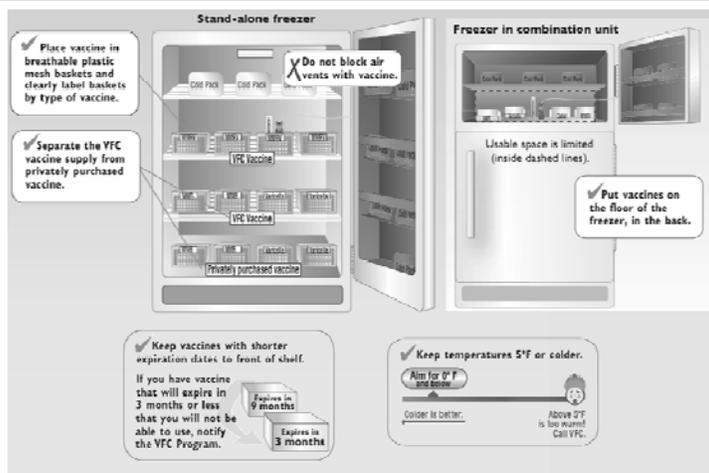
- Had wasted or expired vaccine in vaccine supply
- Did not have wasted vaccine in vaccine supply



Storing Vaccines: Here's How



Storing Vaccines: Here's How



Storing Vaccines: Here's How

□ Store state-supplied and privately purchased vaccine separately

- NDDoH is now supplying VFC stickers to enrolled providers
- Use separate shelves, color coding, different refrigerators/freezers, etc.



Storing Vaccines: Here's How

Store vaccine correctly

- Never store vaccines:
 - In vegetable bins
 - On the refrigerator floor
 - Next to the walls
 - In the door of the unit
 - On the top shelf (underneath the cold air outlet from the freezer)
- Always store vaccines:
 - In their original packaging
 - In such a way that air can circulate

Remind staff to close unit doors tightly every time

- Check the seals on the doors on a regular basis
 - If there is any indication the seal may be cracked or not sealing properly, have it replaced
 - The cost of replacing a seal is much less than replacing doses of wasted vaccine!

Storing Vaccines: Here's How

Do not discard vaccines prematurely

- Multi-dose vials of vaccine contain preservative and can be used until the expiration date on the vial
 - Exceptions: visible contamination, MPSV and yellow fever
- What does Joint Commission say?
 - "The Joint Commission is applying this approach to all vaccines (whether a part of the CDC or state immunization programs or purchased by healthcare facilities) with the understanding that the vaccines are stored and handled appropriately (correct temperature is maintained, frequency of temperature checks, etc). Following the guidelines provided in the package insert is very important to ensure integrity of the vaccine."

Do not store food and drinks in the vaccine storage unit

- Why not?
 - Frequent opening of the refrigerator or freezer door to retrieve food or drink items can adversely affect the internal temperature of the unit and damage vaccines

Here's How

You've told us this before, but I need my Diet Coke to get me through the day. I put it in the fridge right away in the morning, when I open the fridge to check the vaccines, and then I only open the fridge once more, to take it out after lunch. Please?

Do not store food and drinks in the vaccine storage unit

1. Why are you opening the fridge to check the vaccines? Do they party throughout the night?

2. Those two extra openings could result in the fridge not closing tightly and vaccine wastage. Is your Diet Coke worth that?

3. Even if you said yes, the answer is still no. Your Diet Coke must be stored elsewhere.

MPSV and y...

What does Joint Commission

- ▣ "The Joint Commission approach to all vaccine part of the CDC or state programs or purchased facilities) with the under the vaccines are stored appropriately (correct temperature maintained, frequency of checks, etc). Following the provided in the package insert is important to ensure integrity of the vaccine."

Storing Vaccines: Something's Wrong

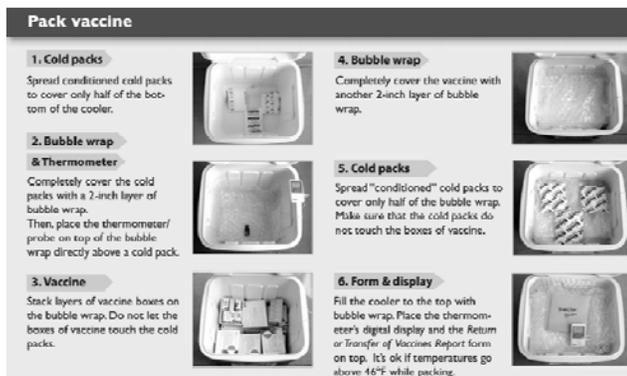
- ▣ Always act immediately when temps are out of range!
 - ▣ Notify primary vaccine coordinator
 - ▣ Reposition thermometer probe in central location of storage unit
 - ▣ Recheck temps in ½ to 1 hour
 - ▣ Add additional water bottles/ice packs to unit
 - ▣ Adjust storage unit thermostats
 - ▣ Check door seals
 - ▣ Relocate vaccine, if necessary

Storing Vaccines: Something's Wrong

- Out-of-range temperature: *what do I do?*
 - Vaccine manufacturers should be contacted first to determine vaccine viability
 - Do NOT assume that vaccine is not viable
 - Do NOT discard any vaccine until the NDDoH has been notified
- All actions must be recorded and submitted monthly with temperature logs
- **Even one out-of-range temperature, especially on the cold side, may result in the need for revaccination!**

Storing Vaccines: Transport

- California Department of Health Immunization Branch has developed guidance: www.eziz.org



Storing Vaccines: Transport

- **The CDC and Merck do NOT recommend transporting frozen vaccines**
- The use of dry ice is no longer recommended
- If transport is necessary:
 - Use a portable freezer capable of maintaining temperatures between -58°F and 5°F (-50°C and -15°C)
OR
 - Transport at refrigerator temperature for up to 72 continuous hours prior to reconstitution (follow steps outlined in Winter 2012 Newsletter)

Storing Vaccines: Vaccine Disposal

- Once state-supplied vaccine has expired or is wasted (i.e., due to a storage unit failure) it must be reported to NDDoH
 - Use Non-viable Vaccine Return and Wastage form or
 - Report electronically:
www.ndhealth.gov/Immunize/Providers/Wastage.aspx
- Return within 6 months of expiration date
- No need to refrigerate or freeze shipment

Storing Vaccines: Vaccine Disposal

Return to McKesson

- Spoiled or expired product in its original vial or manufacturer pre-filled syringe
- Unused manufacturer pre-filled syringes with an NDC printed on them

NEVER Return to McKesson

- Used syringes, with or without needles
- Broken vials
- Wasted products such as a syringe that was drawn up but not used
- Any multidose vial from which doses have been withdrawn
- Non-vaccine product (IG, HBIG, PPD, diluent)
- Privately-purchased vaccine

Handling & Administering Vaccines

Rights of Administration

Administration errors

Handling & Administering Vaccines

- Right patient
 - Name
 - Correct spelling
 - Another name?
 - Date of birth
 - Other recent immunizations
 - AFB, out-of-state
 - NDIS record



Handling & Administering Vaccines

- Right medication
 - Right vaccine + right diluent
 - Diluents are **not** interchangeable
 - When a wrong diluent is used to reconstitute a vaccine, the dose must be considered invalid and repeated
 - Check your vials three times
 - Label the syringes
 - Never attempt to make your own combination vaccine!

Handling & Administering Vaccines

Why label the syringes?
That seems like a lot of busy work.

- When the doctor says
- Check your work
- Label the syringes
- Never administer a vaccine!

If you are giving one patient one vaccine, don't bother labeling the syringe.

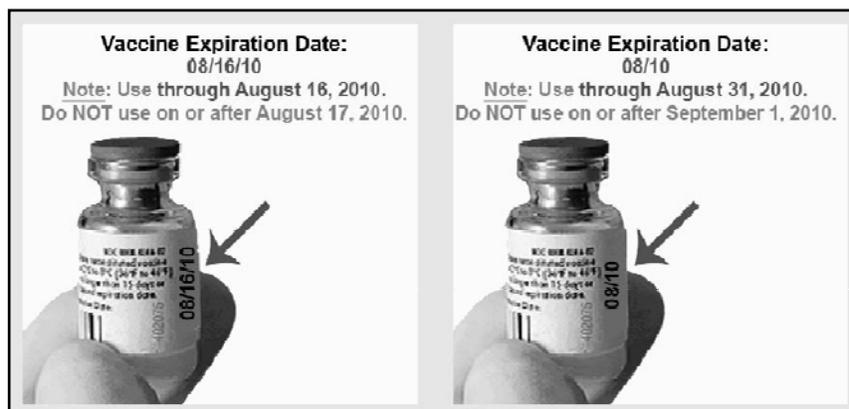
If you're planning on giving more than one vaccine: imagine you have all five vaccines drawn up, walk into the room and the parent says, "actually, I just remembered that he got a flu shot last week."

Handling & Administering Vaccines

- Right time
 - Right age
 - Right interval
 - 4-day grace period
 - Except between doses of live vaccines
 - Before expiration date

Age minimum	Vaccine
6 weeks	Hib, DTaP, IPV, rotavirus, PCV
6 months	Influenza
12 months	MMR, varicella, hepatitis A
4 years	Final doses of DTaP & IPV
60 years	Shingles
65 years	PPSV23
Age maximum	Vaccine
14 weeks, 6 days	First dose of rotavirus
8 months, 0 days	Any dose of rotavirus
4 years, 364 days	Pentacel
6 years, 364 days	Pediarix

Handling & Administering Vaccines



Handling & Administering Vaccines

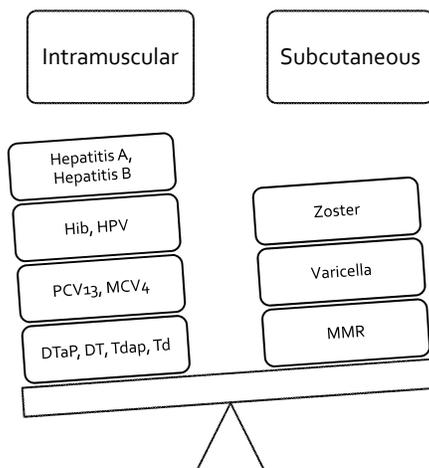
- Right dosage
 - Split or partial doses are not valid
 - If, in your clinical judgment, a significant amount of vaccine was not administered, the dose should be repeated immediately
 - Exceptions:
 - LAIV, if a person sneezes after administration
 - Rotavirus, if the patient spits up, regurgitates or vomits after administration

Handling & Administering Vaccines

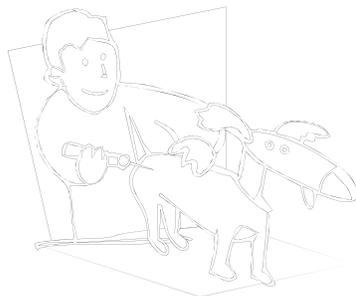
Right route

Who's missing?

IPV and PPSV₂₃ may be given either IM or SC



Handling & Administering Vaccines



- Right route
 - Vaccines that are not given by the correct route do not need to be repeated
 - Exceptions: hepatitis B and rabies vaccines that are not given IM must be repeated

Handling & Administering Vaccines

- Right documentation
 - North Dakota law states that all childhood immunizations must be entered into the North Dakota Immunization Information System (NDIIS) within 4 weeks of administration
 - **VFC eligibility**
 - State-supplied versus private supply

Handling & Administering Vaccines

- Right documentation
 - Recording lot numbers
 - Rotarix and Menveo are packaged using three different lot numbers
 - Outer carton: A41**CB**200A
 - Oral applicator/diluent: A41**DB**200A
 - Vial: A41**FB**200A
 - Always use the lot number from the outer carton!

Handling & Administering Vaccines

We have been using the lot number on the vial, since we only store the vial in the refrigerator.

numbers

- Outer
- Oral
- Vial: A
- Always u

nt lot

AHA! Caught you.
Remember that vaccine should always be stored in its original packaging. If you are storing the vaccine properly, you have immediate access to the outer carton when administering Rotarix.

Handling & Administering Vaccines

- Right documentation
 - It's federal law:
 - Date the vaccine was administered
 - Vaccine manufacturer
 - Vaccine lot number
 - Name, address and title of person administering the vaccine
 - Edition date of the VIS
 - Date the VIS was provided

Handling & Administering Vaccines

What's wrong with this picture?

DTaP or Tdap?

Routes?

VIS dates?

Manufacturers?

State/private?

Admin site?

Who is THardy and what business does she have giving vaccines?

<input checked="" type="checkbox"/>	Vaccine(s) to be given	Route ¹	VIS date ²	Manufacturer ³	Lot number	S/P ⁴	Admin. site ⁵	Person admin. ⁶
<input checked="" type="checkbox"/>	DTaP	IM	3/14/2012	GSK SP	635586			
	DTaP-HepB-IPV (Pediarix [®])	IM		GSK				
	DTaP-IPV/Hib (Pentacel [®])	IM		SP				
	DTaP-IPV (Kinrix [®])	IM		GSK				
	Hepatitis A	IM		GSK MSD				
	Hepatitis B	IM		GSK MSD				
	Hep A-Hep B (Twinrix [®])	IM		GSK				
	Hib (<i>H. influenzae</i> type B)	IM		GSK MSD SP				
<input checked="" type="checkbox"/>	HPV	IM	3/14/2012	GSK MSD	07796			
	Influenza	ID/IM/IN						
	IPV	IM/SQ		SP				
	MMR	SQ		MSD				
	MMRV	SQ		MSD				
<input checked="" type="checkbox"/>	Meningococcal Conjugate	IM	3/14/2012	NOV SP	04088AA			
	Pneumococcal Conjugate	IM		PFZ				
	Pneumococcal Polysaccharide	IM/SQ		MSD				
	Rotavirus	PO		GSK MSD				
	Td	IM		MBL SP				
	Tdap	IM		GSK SP				
	Shingles	SQ		MSD				
	Varicella	SQ		MSD				

Exemption or contraindication⁷: _____ Date of exemption or contraindication: _____

Signature and title of person administering vaccine: THardy Date vaccine administered: 3/14/2012

Handling & Administering Vaccines

This is more like it!

It was Tdap!

Routes? ✓

VIS dates? ✓

Manufacturers? ✓

State/private? ✓

Admin site? ✓

Who gave the vaccine? ✓

<input checked="" type="checkbox"/>	Vaccine(s) to be given	Route ¹	VIS date ²	Manufacturer ³	Lot number	S/P ⁴	Admin. site ⁵	Person admin. ⁶
	DTaP	IM		GSK SP				
	DTaP-HepB-IPV (Pediarix [®])	IM		GSK				
	DTaP-IPV/Hib (Pentacel [®])	IM		SP				
	DTaP-IPV (Kinrix [®])	IM		GSK				
	Hepatitis A	IM		GSK MSD				
	Hepatitis B	IM		GSK MSD				
	Hep A-Hep B (Twinrix [®])	IM		GSK				
	Hib (<i>H. influenzae</i> type B)	IM		GSK MSD SP				
<input checked="" type="checkbox"/>	HPV	IM	3/14/12	GSK MSD	07796	S	LA	TH
	Influenza	ID/IM/IN						
	IPV	IM/SQ		SP				
	MMR	SQ		MSD				
	MMRV	SQ		MSD				
<input checked="" type="checkbox"/>	Meningococcal Conjugate	IM	10/11/11	NOV SP	04088AA	P	LA	TH
	Pneumococcal Conjugate	IM		PFZ				
	Pneumococcal Polysaccharide	IM/SQ		MSD				
	Rotavirus	PO		GSK MSD				
	Td	IM		MBL SP				
<input checked="" type="checkbox"/>	Tdap	IM	1/24/12	GSK SP	C35586	P	RA	TH
	Shingles	SQ		MSD				
	Varicella	SQ		MSD				

Exemption or contraindication⁷: _____ Date of exemption or contraindication: _____

Signature and title of person administering vaccine: Tatia Hardy, RN Date vaccine administered: 3/14/2012

Questions

Type your question into either of the chat windows at your right.

After the presentation, questions may be sent to:

Tatia Hardy

tahardy@nd.gov

Molly Sander

msander@nd.gov

Abbi Pierce

apierce@nd.gov

Mary Woinarowicz

mary.woinarowicz@nd.gov



This presentation will be posted to our website:

www.ndhealth.gov/immunize

Evaluation and Post-test

- Evaluation
 - Following today's presentation, please complete the brief survey
 - We use your feedback to improve future Lunch & Learn sessions!
- Post-test
 - Nurses interested in continuing education credit, visit www.ndhealth.gov/immunize/posttest/
 - Successfully complete the five-question post-test to receive your certificate
 - **Credit for this session is only available until March 21, 2012**