

# Immunization Update 2010

Michel Disco, RPh, MBA  
UNM College of Pharmacy

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## Objectives

- Identify new vaccines available
- Summarize various vaccine updates
- Review H1N1 outcomes/data in NM
- Consult with other pharmacists on various vaccine/patient cases
- Prepare emergency kit and evaluate emergency procedures

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## HPV Update

- Cervical cancer in NM
  - 78 new cases and 26 deaths per year
- Percent of specific cancers related to HPV in US
  - Cervical cancer: 99%
  - Anal cancer: 85%
  - Vaginal cancer: 70%
  - Vulvar cancer: 40%
  - Penile cancer: 40%

CDC.gov [Internet]. Rockville, MD: Division of STD Prevention; [updated 2010 Feb 23; cited 2010 June 15]. Available from: <http://www.cdc.gov/std/cancer.html>

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## HPV Update

- Gardasil now approved for use in males
- Gardasil expanded FDA approved indications
  - Cervical, vulvar, and vaginal cancer
  - Cervical, vulvar, and vaginal intraepithelial neoplasias
  - Genital warts

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## HPV Update

- Dosing (minimum interval 24 weeks dose 1 to 3)
  - Cervarix 0,1,6 months (10-25 yrs of age)
  - Gardasil 0,2,6 months (9-26 yrs of age)
    - Both approx. 98% efficacious
- Cervarix titers may appear higher, but cancer endpoints appear similar

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## HPV ADR Update

- 37 cases of death (n=57,323)
  - Systemic Effects (>20%)
    - HA, fever, nausea, dizziness, diarrhea, vomiting, myalgia, GI symptoms, arthralgias, fever
  - Local Effects (>20%)
    - Pain, redness, swelling, HA, Fever, nausea, dizziness
    - Syncope, seizure like activity

Cervarix(package insert), Research Triangle Park, NC: GlaxoSmithKline; 2009.

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### HPV Patient Case I

- 23 y/o female presents to your pharmacy requesting an HPV vaccine. She has PMH of asthma, is currently on Advair, albuterol, prednisone 15mg/day, MVI, and Zenchent. She also has a sulfa allergy.
- What is your recommendation for this patient
  - A. Refer to PCP
  - B. Prescribe & administer Cervarix
  - C. Prescribe & administer Gardasil
  - D. Educate and offer either HPV vaccine

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### HPV Patient Case II

- A 26y/o female presents to your pharmacy requesting her second dose of HPV. She received her first dose when she was 23 and has a PMH of HPV (strain unknown) and DM. She has NKA.
- What is your recommendations?
  - A. Unable to immunize
  - B. Restart the series with Gardasil
  - D. Continue series with Gardasil or Cervarix
  - C. Restart the HPV series with Cervarix

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### HPV Patient Case III

- A 20y/o male presents to the pharmacy & reports his g-friend has just undergone a LEEP procedure, he is interested in the HPV vaccine, what is your recommendation?
  - A. Vaccinate him with Gardasil
  - B. Vaccinate him with Cervarix
  - C. Unable to vaccinate
  - D. Refer to physician

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### H1N1 Update

- DOH ordered 774,870 doses
  - Retail pharmacies ordered 15,550 (2%)
- NMSIIS reporting not required 2009-10 season

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### H1N1 Identifiable Issues

- Hospital surveillance
- Antiviral distribution
- Vaccine distribution
- Personal protective equipment

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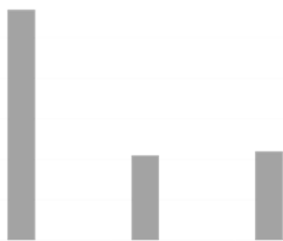
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### H1N1 Death Rates by Ethnicity in NM, 2009



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### H1N1 Hospitalization Rate by Age in NM




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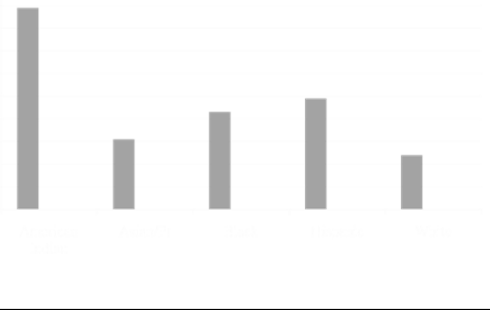
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### H1N1 Hospitalization Rates by Ethnicity in NM




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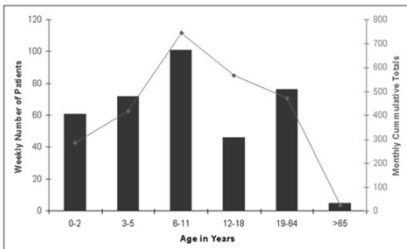
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### TriCore Labs - NM

Age	Week Ending 10/23/2009
0-2	61
3-5	72
6-11	101
12-18	46
19-64	76
>65	5



Red bars represent current week's influenza A  
Green line represents last month's cumulative total  
Click on image to return to previous page

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## Influenza Update

- Recommendations state everyone  $\geq 6$  months should get immunized
- 2009-2010 VAERS received 11,029 ADRs
  - 92.4% were non-serious
  - 7.5% were serious
- Seasonal includes Novel 2009 H1N1
- Fluzone High-Dose available, for  $\geq 65$ y/o
  - No clinical studies showing decrease in influenza

ACIP Makes Universal Flu Vaccination Recommendation, D. Mitchell March 2010

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## Influenza Patient Case I

- Patient presents to the pharmacy requesting the seasonal influenza without H1N1, they have no PMH, and are allergic to codeine and yellow dye.
- What are your recommendations?
  - A. Prescribe and administer influenza vaccine
  - B. Inquire about H1N1 avoidance
  - C. Explore the allergy in greater detail
  - D. Tell patient seasonal only is unavailable

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## Influenza Patient Case II

- A 30y/o pregnant woman presents to the pharmacy in her first trimester requesting a flu shot. What do you do?
  - A. Prescribe and administer TIV
  - B. Refer to her OB-GYN
  - C. Discuss preservatives in vaccine
  - D. Recommend waiting until third trimester

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### Influenza Patient Case III

- A 79y/o man presents to the pharmacy for his flu shot. He reports an ADR of Guillain Barre with the swine vaccine in 1970. What are your recommendations?
  - A. Prescribe and vaccinate with HD vaccine
  - B. Prescribe and vaccinate with regular TIV
  - C. Discuss Guillain Barre risk and alternate options
  - D. Refer to PCP

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### Pneumococcal Update

- Prevnar 7, replaced by **Prevnar 13**
- If child started with Prevnar 7, complete series with Prevnar 13 (children  $\geq$  59 months)
- ADR Update
  - Local (Injection site soreness, erythema, swelling)
  - Systemic (Fever  $>102$  degrees, chills, pain, malaise, n/v)

ACIP Makes Universal Flu Vaccination Recommendation. D. Mitchell March 2010

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### Pneumonia Patient Case I

- You have vaccinated several children using the Prevnar 7 series. Which children do you need to call to recommend a supplemental dose of Prevnar 13?
  - A. All children and their parents
  - B. Children with an underlying medical condition up to 71 months
  - C. Children who previously received PPSV23
  - D. All of the above

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### **Pneumonia Patient Case II**

- A 13y/o boy presents to your pharmacy and he recently had his spleen removed. He has been vaccinated with PPSV23, but has never received the conjugate. What are your recommendations?
  - A. Administer PPSV23 in 5 years
  - B. Administer Prevnar 13 during visit
  - C. Refer to PCP
  - D. Call PCP to confirm

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### **Pneumonia Patient Case III**

- A 64y/o patient to your pharmacy requesting a pneumo vaccine. "My last shot, heck, it's been a few years." What is your recommendation?
  - A. Advise her to wait until after 65y/o
  - B. Review her medication profile first
  - C. Wait until last pneumo. date is confirmed
  - D. Prescribe and administer PPSV 23

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### **Hepatitis A Update**

- Now recommended for parents of international adoptees
- Havrix (GSK, anticipated potential shortage)
  - $\leq 18$  y/o = 0.5 ml IM
  - $\geq 19$  y/o = 1 ml IM
- Vaqta (Merck, taken off market in 2010)
- Twinrix (hep A and B, 0, 1, 6-12 months)
  - Pediatric dose of hep A
  - $\geq 18$  y/o = 1 ml IM

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### Hepatitis A Patient Case I

- A patient presents to your pharmacy needing a hepatitis A shot. Her first shot in the series was over one year ago? She would also like to get a hepatitis B shot today as well.
  - A) Prescribe and administer hep A shot only
  - B) Prescribe and administer Twinrix today
  - C) Prescribe and administer hep A and hep B
  - D) Restart the hep A series and begin hep B series

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### Hepatitis B Update

- Engerix (GSK)
  - $\leq 19$  y/o = 0.5 ml
  - $\geq 20$  y/o = 1 ml
- Recombivax (Merck, on backorder until 2011)
  - Adult dose, acceptable for 11-15 y/o in two dose series, separated by at least 4 months

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### Hepatitis B Patient Case I

- You give a patient recombivax 40mcg injection and realized, this was the dose for your dialysis patients, what do you do FIRST?
  - A) Panic and tell the patient they are gonna die
  - B) Call the manufacturer for ADE data
  - C) Call the patient's PCP
  - D) Admit your mistake to the patient only after your supervisor has given instructions

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### **Meningococcal Update**

- Revaccinate high risk patients every 5 years and if vaccinated  $\geq 7$  y/o
- Menactra (MCV4)
  - 2-55 y/o
- Menomune (MPSV)
  - Approved  $>55$  y/o
- Menveo (MCV4)
  - Approved 11-55 y/o

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### **Meningococcal Patient Case I**

- 66 y/o female presents to the pharmacy with a h/o Guillain Barre and wants to get a meningococcal booster, what are your recommendations?
  - A. Prescribe and administer MCV4
  - B. Explain vaccine is not necessary
  - C. Prescribe and administer MPSV
  - D. Refer to PCP

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### **Meningococcal Patient Case II**

- A college student is asking about his meningococcal booster, is it necessary?
  - A. Herd immunity yeilds it is no longer necessary for college students
  - B. Yes, prescribe and administer MCV4
  - C. Refer to PCP
  - D. Vaccinate if patient can afford it

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### **Meningococcal Patient Case III**

- You mistakenly gave a patient just the diluent without adding it to the Menveo powder. What do you do?
  - A. There is vaccine present in the diluent and no need to revaccinate
  - B. Call the patient back to repeat dose
  - C. Wait 4 weeks and revaccinate
  - D. Call your lawyer

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### **MMR/MMRV Update**

- MMRV again available
- MMR and MMRV yields immunogenicity of >91% after just one immunization
- MMR + V preferred between 12-15 months
  - Increased risk of febrile seizures between 12-23 months (up to 2 weeks after vaccination)
  - Preferred between 4-6 y/o

Use of Combination Measles, Mumps, Rubella and Varicella Vaccine, CDC, May 2010

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### **MMR ADR Update**

- Local
  - Injection site soreness, erythema
- Systemic
  - Fever
  - Irritability
  - Measles or varicella-like rash
  - URI
  - Diarrhea

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## Shingles Update

- Live attenuated vaccine
- Prevention of herpes zoster (shingles) in patients greater than age 60
- Single subcutaneous injection (0.65ml)



From MICROMEDEX [http://www.thomsonhc.com/hcs/dlibarian/ND\\_THCS/ND\\_PR/Main/CS/DB/46/ DUPLICATIONSHELDSYNC/6D1000ND\\_PG/PR/ND\\_BHCS/SBK/2/ND\\_P/Main/P/Action/dfs\\_common.RetrieveDocument/Common/Doc/4923312/ContentSetId/100/SearchTerm/zostavax/SearchOption/BeginWith](http://www.thomsonhc.com/hcs/dlibarian/ND_THCS/ND_PR/Main/CS/DB/46/ DUPLICATIONSHELDSYNC/6D1000ND_PG/PR/ND_BHCS/SBK/2/ND_P/Main/P/Action/dfs_common.RetrieveDocument/Common/Doc/4923312/ContentSetId/100/SearchTerm/zostavax/SearchOption/BeginWith). Accessed on 6/10/10

From Medline Plus. <http://www.nlm.nih.gov/medlineplus/ency/imagepages/19687.htm>. Accessed on 6/10/10

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## Shingles Update

- Efficacy 50%
- Concurrent Pneumovax 23 administration discouraged
  - Studies found increased immunogenicity when separated by at least four weeks
    - Contradicts general recommendations of IZ spacing
- ADR (most common)
  - Headache & rash

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## Shingles w/ Pneumovax

- Double blind controlled trial (n=473 adults)
- Received Pneumovax 23 and Shingles concurrently (n=237) or Pneumovax 23 alone and Shingles alone 4 weeks later (n=236)
- 4 weeks post-vaccine, zoster antibodies significantly lower in concomitant vaccination group



Shingles Prescribing Information. Merck. <http://www.zostavax.com/#important-safety-information>. Accessed 6/10/10

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### Shingles Patient Case I

- A 61 y/o presents to your pharmacy requesting a shingles vaccine. The patient reports a case of shingles, but has never had chickenpox.
  - A. Prescribe and administer shingles vaccine
  - B. Prescribe and administer chickenpox vaccine
  - C. Unable to vaccinate
  - D. Educate patient and let them choose

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### Shingles Patient Case II

- A 59 y/o requests shingles vaccine. The patient had DM and has had shingles twice in the past 20 years. What are your next steps?
  - A. Request prescription from PCP and vaccinate
  - B. Prescribe and administer shingles vaccine
  - C. Prescribe and administer chickenpox vaccine
  - D. Unable to vaccinate, refer to PCP

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### Shingles Patient Case III

- A 65 y/o patient requests a shingles vaccine? The patient is allergic to erythromycin, sulfa, and codeine. They have a scheduled rotator cuff surgery next week. What are your next steps?
  - A. Call surgeons office to be sure it is acceptable
  - B. Administer and prescribe shingles vaccine
  - C. Wait until 4 weeks after surgery is complete
  - D. Explore allergies in greater detail

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## Rotavirus Update



- FDA confirmed that Rotarix & Rotateq contained extraneous virus, PCV 1 & 2
  - Rotarix (GSK, resume use)
    - 2 dose series given between 6 and 24 weeks to prevent gastroenteritis
    - Administer as 1 ml oral reconstituted suspension
  - Rotateq (Merck, continue using)
    - 3 dose series given between 6 and 32 weeks of age to prevent gastroenteritis
    - Administered as 2 ml oral from a squeeze tube

Rotarix [package insert], Research Triangle Park, NC: GlaxoSmithKline; April 2008.  
Rotateq [package insert], Whitehouse Station, NJ: Merck & Co Inc; September 2007.




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## Rotavirus Update

- June 2010, contraindicated for infants diagnosed with severe combined immunodeficiency
- Interchangeability of the vaccines
  - If the previous dose form is unavailable/unknown
    - Total of 3 doses of rotavirus vaccine should be administered
    - All doses should be completed by age 8 months

Centers for Disease Control and Prevention. Prevention of Rotavirus Gastroenteritis Among Infants and Children. *MMWR*. 2009;58(RR-2):1-24

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## New VIS Publication Dates

- |                             |                             |
|-----------------------------|-----------------------------|
| ■ DTap/DT...05/17/07        | ■ Td/Tdap...11/18/08        |
| ■ Hepatitis A...03/21/06    | ■ Hepatitis B...07/18/07    |
| ■ HPV (Gardasil)...03/30/10 | ■ HPV (Cervarix)...03/30/10 |
| ■ Hib...12/16/98            | ■ Meningococcal...01/28/08  |
| ■ Influenza.... 8/10/10     | ■ MMRV...05/21/10           |
| ■ MMR...03/13/08            | ■ PPSV...10/06/09           |
| ■ PCV...04/16/10            | ■ Shingles...10/06/09       |
| ■ Varicella...03/13/08      | ■ Polio...01/01/00          |
| ■ Typhoid...05/19/04        |                             |

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## Emergency ?!?!??

- **Post-vaccination**
  - Immediate
  - Later - ADR
- **Needle stick Injury**

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## E-Kit Review

- BP Cuff
- CPR Reference Card
- Diphenhydramine IM
  - Diphenhydramine dosing
    - Supplies to administer
- Epinephrine
  - Epipen dosing (adult and Jr.) or ampules 1:1000
    - Supplies to administer

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## Emergency Procedures

- Policy and Procedures
  - Immunize.org (IAC website)
- Dosing schedule readily available
  
- Always have 2 people available when administering vaccines

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## Needle Stick Policy

- Develop
- Know
  - How to “capture” donor
  - Work with provider

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## Emergency Case

- A patient passes out after you give him a flu shot, his mother is screaming “Help, Help.”  
What do you do?
  - a) Prepare to give CPR, barrier ready
  - b) Administer Epi-pen, just to be safe
  - c) Take the patient’s BP
  - d) call 911

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## Questions???

- Thank you
- [mdisco@salud.unm.edu](mailto:mdisco@salud.unm.edu)
- 505-272-1508

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