Epidemiology of Vaccine-Preventable Disease in Florida

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Outline

Vaccine-Preventable Disease (VPDs) in Florida:
  • Statewide and national incidence
  • Pertussis
  • Varicella
  • Mumps
  • Other VPDs

Immunizations

Resources - VPD Report

Questions and Answers
Incidence of VPDs

- Comparison of Florida’s 2015 incidence rates (per 100,000) for vaccine-preventable diseases to the national 2015 incidence rates
- Higher incidence rate for varicella in Florida
Pertussis National Trends

• Large decrease in pertussis incidence following introduction of whole-cell vaccine
  • 150 cases per 100,000 population in 1940-1945
  • 1 case per 100,000 population in 1980-1990
• Gradual increase in incidence since the 1980s
  • Increase in vaccinated cases
• Naturally cyclic with peaks every 3-5 years

https://www.cdc.gov/pertussis/surv-reporting.html
Reported Pertussis Cases by Year

- Overall decrease in reported cases since 2014
- Thus far 2018 consistent with activity levels seen in 2017

*Through March 31, 2018*
• Activity levels in 2017 below five-year average
• Similar trend in 2018 thus far
• In general, activity highest during summer months
Prophylaxis of Close Contacts

- One case of pertussis impacts more than just the initial patient
- Prophylaxis of close contacts is important for limiting transmission, especially to those at increased risk of disease
- An average of 3 individuals per case were recommended antibiotics based on exposure

355 cases in 2017
1,294 close contacts in 2017

= 50 individuals
Pertussis Age-Specific Incidence Rates

- In 2017 the highest age-specific incidence rate was infants less than one year old at 39.1 cases per 100,000 population.
- Infants experience the greatest burden of pertussis infections and severity of disease.
• Overall 44% of 355 cases not up-to-date (UTD) on pertussis vaccinations
• More than half of those 4 to 5 months old and 18 months to 5 years old not UTD
Pertussis Incidence Rates by County

- Cases reported in all regions
- 35 of 67 counties had at least one case
- Outbreaks reported in central and northeast regions
Pertussis Outbreaks

• 5 outbreaks in 2017
  • Largest was 7 cases
  • All occurred in schools

• No outbreaks thus far in 2018
Varicella National Trends

- Not all states report varicella cases to CDC
- Routine childhood vaccination introduced 1996
  - 90% decline in varicella incidence
- Second dose introduced in 2006
  - 85% decline in varicella incidence from 2005/2006 to 2013/2014

https://www.cdc.gov/mmwr/volumes/65/wr/mm6534a4.htm
Reported Varicella Cases by Year

- Steady decrease in reported cases from 2010 to 2014
- Thus far 2018 activity levels below levels in 2017

*Through March 31, 2018
Reported Varicella Cases by Month

- 2017 activity below five-year average except during outbreaks in February, July, November, and December
- In general, activity highest during spring and fall
Varicella Age-Specific Incidence Rates

- In 2017 the highest age-specific incidence rate was infants less than one year old at 24.9 cases per 100,000 population.
- Infants less than one year old are too young to receive varicella vaccination.
Varicella Cases by Vaccination Status, 2017

- Overall 38% of 643 cases not UTD on varicella vaccinations
- Majority of children 15 months to 11 years old UTD
- 40% of cases in adults
  - Never vaccinated as children (vaccine not recommended at the time)
- Vaccinated and partially vaccinated usually have less severe disease
Varicella Incidence Rates by County

- Cases reported in all regions
- 53 of 67 counties had at least one case
- Most of the counties with the highest incidence rates had outbreaks
Varicella Outbreaks

- 5 outbreaks in 2017
  - Largest was 5 cases
  - 60% occurred in correctional facilities

- 3 outbreaks thus far in 2018
  - Two in correctional facilities
  - One large outbreak in a school with 19 cases
Mumps National Trends

- 99% decrease in mumps cases since 1967 vaccination program
- Hundred to a few thousand cases since 1989 two-dose vaccination program
- Increase in cases in recent years
  - Largely driven by outbreaks

https://www.cdc.gov/mumps/outbreaks.html
Reported Mumps Cases by Year

- Reported cases have remained relatively low from 2010-2016
- Cases haven’t reached 2017 levels since the 1990s
- Activity continues to remain high in 2018
- Parotitis can be caused by many other viruses not routinely tested for in clinical or public health practice
  - May account for some probable cases

*Through March 31, 2018*
Reported Mumps Cases by Month

- Reported cases in 2017 far above the previous five-year average
- Activity peaked in August and December when several outbreak-associated cases were reported
In 2017 the highest age-specific incidence rate was among adolescents age 12-18 years old at 0.98 cases per 100,000 population.

No cases of mumps reported in infants and young children up to five years old in 2017.

69% of cases reported in 2017 were in adults age 19 and older.
Overall 23% of 74 cases not UTD on mumps vaccinations.
Mumps Incidence Rates by County

• Cases reported primarily in central and south Florida
• 18 of 67 counties had at least one case
• Counties with highest incidence had outbreaks
Mumps Outbreaks

- 5 outbreaks in 2017
  - Largest was 10 cases in a middle school involving students, teachers, and parents
    - Implemented campaign for 3rd dose of MMR vaccine
  - 50% occurred in schools
- No outbreaks thus far in 2018
Hepatitis A National Trends

- Incidence has declined 95% since vaccine became available in 1995
- Recent upward trend can be attributed to outbreaks

https://www.cdc.gov/hepatitis/hav/havfaq.htm#general
Hepatitis A in Florida

- Unexplained increase in 2017
- Recent geographic clusters among injection drug users
- Most cases have never received hepatitis A vaccine
  - Vaccination is recommended for all children and all adults who want to be protected in addition to those with risk factors

*Through April 30, 2018*
Acute Hepatitis B National Trends

• Overall incidence has declined since the 1990s
  • Largest decline among children, coincident with increased vaccination
• Increase in recent years likely due to increasing injection drug use

https://www.cdc.gov/hepatitis/hbv/hbvfaq.htm#overview
Acute Hepatitis B in Florida

- Steady increase in cases since 2011
  - Enhanced surveillance project on hepatitis in young adults
  - Changes in risk behaviors
  - Updated laboratory reporting guidance
- Common risk factors include non-injection and injection drug use and incarceration
- Most cases never vaccinated

*Through April 30, 2018*
Hepatitis B in Pregnant Women

- Case levels have remained relatively stable in recent years.
- Of infants born to positive women in 2016, 67% received full hepatitis B series within one year.
- Few cases of perinatal hepatitis B.
  - About one case per year since 2010.

*Through April 30, 2018*
Select VPDs by Report Year

- Fewer than 10 cases of measles, tetanus, and *Haemophilus influenzae* type B seen per year
- No cases thus far in 2018

*Through March 31, 2018*
Measles Outbreaks

• 1 cluster in 2016:
  • 4 cases
  • Vaccinated traveler exposed unvaccinated child in public location
    • Further spread to family members
  • No further spread in community despite multiple potential exposures at medical facilities

• No outbreaks in 2017 or thus far in 2018
  • Cases from 2017 linked to outbreaks in other states
Select VPDs by Report Year

- Meningococcal disease cases have fluctuated since 2010 but have remained below 50 cases per year since 2014.
- Streptococcus pneumoniae cases have decreased since 2010 and have remained below 100 cases since 2015.

*Through March 31, 2018
Meningococcal Disease

Prior to 2017 the most frequently identified serogroup was W
  • Largely driven by south Florida
  • Serogroup B is most frequent nationally

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<th>Meningococcal Disease</th>
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*Through March 31, 2018
FLSHOTS

• Florida’s online immunization registry
• Private providers opt in
  • Not population based
• Any provider can register!
  • Secure
  • View trends for your practice
  • Reminders to keep patients on track
• Resource for VPD case investigations
  • Linked to reportable disease surveillance system

http://www.flshotsusers.com/
State Immunization Surveys

- Assessment of County Health Department Clinic Immunization Coverage Levels
- Survey of Immunization Levels in Two-Year-Old Children
- Childcare Facilities and Head Start Immunization Assessment
- Kindergarten and Seventh Grade Immunization Status Report
Religious Exemption Prevalence in Children Age 4-18 by County

- Religious exemptions required to be entered into FLSHOTS
- Overall state prevalence is about 2.7%, an increase from 2.3% in March 2017
- Children with a RE are at increased risk of VPDs

Map current as of March 31, 2018
It's a New Day in Public Health.
The Florida Department of Health works to protect, promote & improve the health of a people through integrated county & community efforts.

Vaccine Preventable Disease Surveillance

- Surveillance summaries of high-volume and actively circulating VPDs
  - Varicella
  - Pertussis
  - Mumps
- Updated monthly
- Posted online at www.flhealth.gov/vpd
- Sign up for the email distribution list!

Vaccine-Preventable Disease Surveillance Report

Pertussis
- Pertussis activity decreased from last month and is consistent with trends seen in previous years and among age groups.
- There were 18 cases and no outbreaks reported in March.
- Incidence remains highest among infants less than one year old. Infants less than two months old are too young to receive vaccinations against pertussis, which is why vaccination of other age groups is so important to help prevent infection within highly vulnerable groups.

Sign up for the monthly VPD Report!

Name
*Email
I am:
Health care profes
* Denotes required field
Subscribe
We Need Your Help!

- Consider VPDs in your differential diagnoses
- Report cases of VPDs (and others) to your local county health department
- Encourage patients to keep up-to-date on immunizations
- Record immunizations for your patients in FL-SHOTS
- Sign up to receive the VPD Surveillance Report!

www.flhealth.gov/diseasereporting
Questions?

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