Current ID state of affairs in organized hockey

Measles, Mumps, Rubella

Influenza

Gastroenteritis

Take home points
- Prevention
  - Education
  - Vaccination
- Treatment
Infectious Disease in organized hockey

- How big is this issue?
  - Can derail a season/career

- Data
  - Youth, High School/Juniors
  - Professional

- Seasonal issues
  - Fall/spring
    - Gastroenteritis
  - Winter
    - Influenza
    - Gastroenteritis
    - Viral URI
Mumps – The Basics

Single, stranded RNA virus
- Humans are only natural host
- Clinical features
  - Highly contagious via respiratory droplets, direct contact, fomites
  - Incubation period typically 14-18 days from exposure to symptom onset
  - Viral prodrome (fever, malaise, headache, myalgias) then parotitis
  - Viral shedding (respiratory) precedes the onset of symptoms
    - most contagious few days before the onset of parotitis
  - Parotid swelling found in 95% of symptomatic infections, often bilateral
  - Asymptomatic infections estimated 15-20% cases
  - Symptomatic infections generally worse in adults
- Complications:
  - Epididymoorchitis (38%), meningitis, encephalitis, deafness
    - Manson. Urology 1990
  - Clinical diagnosis, but labs help:
    - elevated serum amylase
    - leukopenia w/ lymphocytosis
    - Positive IgM mumps antibody
    - Significant rise in IgG titers between acute and convalescent specimens
    - Culture or PCR
Mumps continued

- **Treatment**
  - Supportive

- **Prevention**
  - Identify, isolate
  - Aggressive universal precautions

- **Vaccination**
  - 96-99% reduction in cases after intro of vaccine in 1967
  - Resurgence of cases in 1987 amongst unvaccinated/undervaccinated population – led to more strict requirements in grade school & college entrance
  - Several well documented outbreaks 2004-2014 (mostly in vaccinated population)
  - Live, attenuated vaccine (2 doses)
    - Fever (5-15%), rash (5%), LAD, rare ITP
    - Contraindications (immunocompromised state)
  - MMWR CDC surveillance 1995
  - UTD 2015

- 14 players, 5 teams (coast to coast), at least 3 other officials, healthcare workers
- Typical clinical presentation, vaccine history unclear, lab presentation variable
- Contained via:
  - Aggressive isolation
  - Contact/respiratory precautions
  - Vaccination boosters!
Be vigilant for common, and uncommon, bugs
  - Recognize cultural, geographic differences on vaccines, disease prevalence
Make infection precautions part of team culture
Isolate if any index of suspicion
Vaccinate!!
Measles

- Rubeola virus, humans only host
- Infected via eyes, respiratory tract
- 1-3 wk incubation
- Viral prodrome, then ‘cough, coryza, conjunctivitis’, exanthem, Koplik’s spots
- High fever
- Extremely contagious
- Symptomatic care
- Disney outbreak 2014
- Vaccine preventable
  - > 600 cases 2014
  - 2014, 2015 (Disney) outbreaks – mostly unvaccinated CDC 2015
  - MMR highly effective

Rubella (‘German Measles’)

- Rash, fever, lymphadenopathy
- Vaccine preventable
- As with many viral illnesses, unborn fetuses at risk!
Influenza

- **Overview**
  - Viral illness caused by various strains of influenza
  - Seasonal prevalence (fall – spring)
  - NOT ‘a cold’

- **Clinical course**
  - *Abrupt onset* of fever, chills, myalgias, malaise, ST, cough
  - Typically 7-10 illness
  - Extremely contagious
  - Still carries significant morbidity/mortality
    - At risk populations (old, young, immunocompromised, lung disease, chronic illness)

- **Management**
  - Supportive care
  - Antivirals
Influenza: Key Issues

- **Vaccine**
  - CDC/WHO monitor world-wide influenza activity seasonally
    - Use this decide on components for annual flu vaccine
    - Efficacy is variable
  - Give early fall, but can vaccinate until spring
  - Inactivated (shot) vs live attenuated (flumist)
  - Adverse events/complications – exceedingly rare!

- **Treatment/management**
  - If treating, initiate within 48 hrs
    - MODEST response (1 day off duration and possible dec symptom severity)
  - Reserve for high risk
  - Elite/Professional approach?
  - Neuraminidase inhibitor ([zanamivir](https://www.mayoclinic.org/diseases-conditions/influenza/in-depth/zanamivir/art-20046062) or [oseltamivir](https://www.mayoclinic.org/diseases-conditions/influenza/in-depth/oseltamivir/art-20045626))
    - Adamantanes limited utility (resistance and only active against influenza A)
  - Prophylaxis
    - Within 48 hrs, reserve for high risk, duration -10 days

- **Complications**
  - Pneumonia
  - Secondary RTI
  - CNS, myositis, myocarditis
Viral Gastroenteritis

- Overview
  - Rapid onset of diarrheal illness, can be associated with vomiting, nausea, fever, abdominal pain
  - Spread
    - Person-to-person
    - Contaminated food/water
  - Spring/winter
  - Which viruses
    - Norovirus (most common), rotavirus, entero adenovirus, astrovirus
Viral Gastroenteritis continued

- **Presentation**
  - Abrupt onset of vomiting and diarrhea
  - Typically short-lived (12-60 hrs)
  - Vomiting, diarrhea, fever (~50%)

- **Management**
  - Fluids
  - Limit/minimize anti-diarrheals
  - Anti-emetics?
  - Nutrition
  - Pro-biotics, meds

- **Prevention**
  - *Highly contagious*
  - Isolate
  - Contact precautions
  - Common in families with young children
Viral Gastroenteritis continued

- **Differential diagnosis**
  - Acute abdomen (e.g., appendicitis, diverticulitis, splenic rupture)
    - Distinguishing factors
      - Focal pain, tenderness (RLQ, LLQ)
      - More pain
      - Look sick
      - Kehr’s sign
      - Order of symptoms
      - Labs
  - Food poisoning
  - Bacterial gastroenteritis
    - C. difficile
  - Inflammatory Bowel Disease
  - IBS

- **Management**
  - Fluids
  - Limit/minimize anti-diarrheals
  - Anti-emetics?
  - Nutrition
  - Pro-biotics
  - Meds
Summary and Take home points

- **MMR**
  - Maintain high index of suspicion
  - Ages, presentation, demographics
  - Isolate early
  - Encourage vaccination
  - Labs can be unreliable
- **Influenza**
  - Vaccinate!
  - Infectious precautions are effective
  - Classic presentation
  - Treatment is supportive –
    - Meds - good prevention, mediocre treatment
- **Gastroenteritis**
  - Highly contagious
  - Short-lived
  - Supportive care
Viral illnesses can wreak havoc on a team

Institute infectious precautions/prevention as part of team culture
- Attend to nutrition, hydration, sleep/rest/recovery
- Hand washing/sanitizing
- Wiping down equipment
- Not sharing water bottles, towels, etc

Encourage vaccination – individuals, families, staff

Team awareness/understanding/acceptance
- Notify medical staff early
- Isolate aggressively
Thank you