# Travel Infectious Disease

Craig Young MD
Milwaukee Brewers
Medical College of Wisconsin

# Disclosures

- None relevant

# Goals

- Prevention
- When to isolate
- Key points of selected infection diseases
  - Diarrhea
  - TB
  - Childhood viral exanthems
  - Caribbean basin mosquito-borne disease

# Prevention

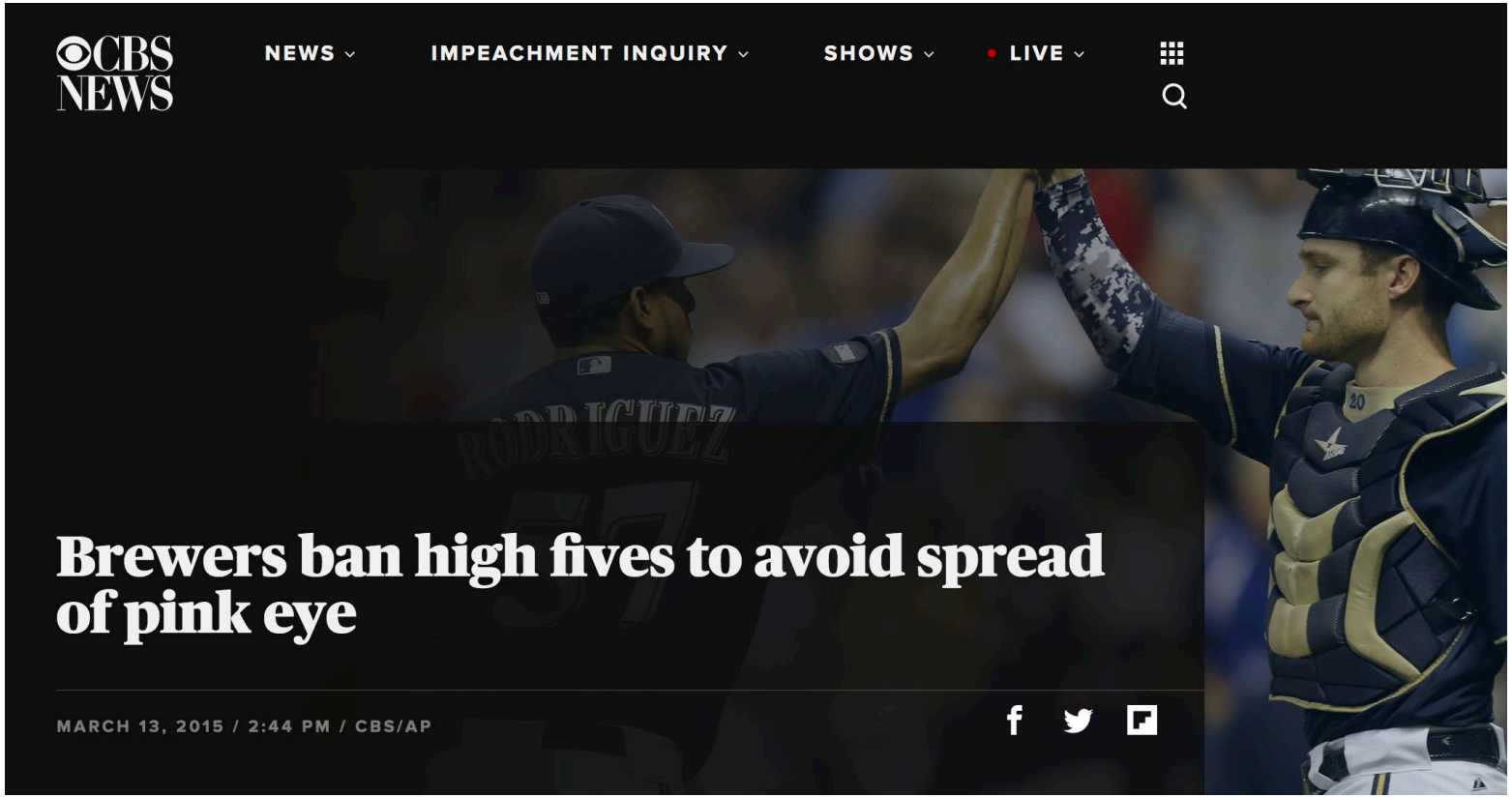
- Vaccines
- Hygiene
- Infection control

POLL OPEN

# Does your team routinely vaccinate players?

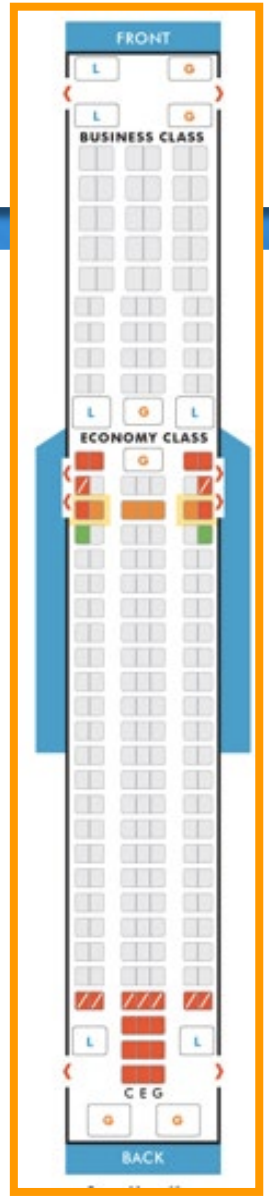
# Standard precautions

- Covering mouth
- Washing hands
- Limited contact



# Special control precautions

- VZV isolation until all lesions are dry & crusted (~5d after rash onset)
- Measles isolation for 4 days after developing rash
- TB respiratory isolation until negative sputum smear & no coughing



# British Olympic Team Experience 2012

- Dr Paul Dijkstra, MBBCh, MPhil Sports Medicine, FFSEM

## 5th Clinical Sport and Exercise Medicine Conference

**"International Advanced Team Medical Care Course and a Lifestyle Intervention for Chronic Disease Introductory Course"**

**Third Announcement**

**Wednesday 24 to Friday 26 October 2012**

**Hosted by:**
**Clinical Sport and Exercise Medicine Research group, UCT/MRC Research Unit for Exercise Science and Sports Medicine, Department of Human Biology, Faculty of Health Sciences, University of Cape Town, South Africa**

**In conjunction with the:**
**South African Sports Medicine Association (SASMA)**
**American College of Sports Medicine (ACSM)**
**International Olympic Committee (IOC) Medical Research Centres**
**FIFA Medical Centres of Excellence in South Africa**
**Biokinetics Association of South Africa (BASA)**
and Others

**Venue:**
**Vineyard Hotel, Cape Town, South Africa**

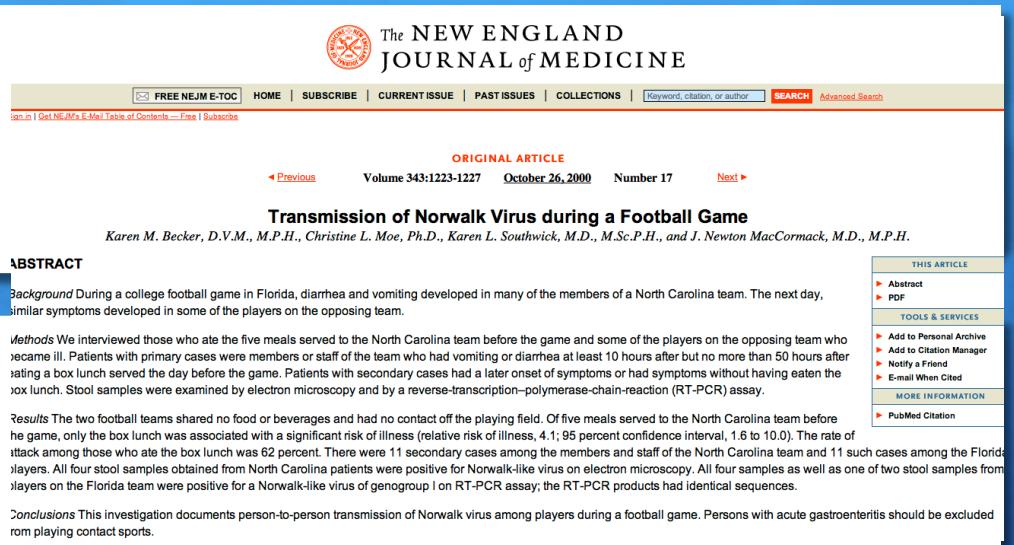
**Congress Coordinator: Deborah McTeer of Onscreen Conferences**
Registration forms and further programme details will be available in May/June 2012. For any enquiries please contact Ms Deborah McTeer at
**Email:**conference@onscreenav.co.za **Phone:** +27 83 457 1975 http://www.clinicalsportsmedicine.co.za/

**Conference Organizing Committee**
**Chairs:** Prof Martin Schwellnus, Dr Jon Patricios – Johannesburg

# British Olympic Team


# Diarrhea

- Traveler's diarrhea
- Infectious diarrhea
  - 54 players, coaches & medical personal from a college
  - Traced to Norwalk virus from turkey in locker room lunch.
  - Players ended up playing in uniforms soiled with vomitus & feces
  - The next day the opposing team starting getting ill (total 11 players). (Becker 2000)



The NEW ENGLAND JOURNAL of MEDICINE

FREE NEJM E-TOC | HOME | SUBSCRIBE | CURRENT ISSUE | PAST ISSUES | COLLECTIONS | Keyword, citation, or author | SEARCH | Advanced Search

ORIGINAL ARTICLE

◂ Previous Volume 343:1223-1227 October 26, 2000 Number 17 Next ▸

**Transmission of Norwalk Virus during a Football Game**

*Karen M. Becker, D.V.M., M.P.H., Christine L. Moe, Ph.D., Karen L. Southwick, M.D., M.Sc.P.H., and J. Newton MacCormack, M.D., M.P.H.*

**ABSTRACT**

*Background* During a college football game in Florida, diarrhea and vomiting developed in many of the members of a North Carolina team. The next day, similar symptoms developed in some of the players on the opposing team.

*Methods* We interviewed those who ate the five meals served to the North Carolina team before the game and some of the players on the opposing team who became ill. Patients with primary cases were members or staff of the team who had vomiting or diarrhea at least 10 hours after but no more than 50 hours after eating a box lunch served the day before the game. Patients with secondary cases had a later onset of symptoms or had symptoms without having eaten the box lunch. Stool samples were examined by electron microscopy and by a reverse-transcription–polymerase-chain-reaction (RT-PCR) assay.

*Results* The two football teams shared no food or beverages and had no contact off the playing field. Of five meals served to the North Carolina team before the game, only the box lunch was associated with a significant risk of illness (relative risk of illness, 4.1; 95 percent confidence interval, 1.6 to 10.0). The rate of attack among those who ate the box lunch was 62 percent. There were 11 secondary cases among the members and staff of the North Carolina team and 11 such cases among the Florida players. All four stool samples obtained from North Carolina patients were positive for Norwalk-like virus on electron microscopy. All four samples as well as one of two stool samples from players on the Florida team were positive for a Norwalk-like virus of genogroup I on RT-PCR assay; the RT-PCR products had identical sequences.

*Conclusions* This investigation documents person-to-person transmission of Norwalk virus among players during a football game. Persons with acute gastroenteritis should be excluded from playing contact sports.

THIS ARTICLE
- Abstract
- PDF

TOOLS & SERVICES
- Add to Personal Archive
- Add to Citation Manager
- Notify a Friend
- E-mail When Cited

MORE INFORMATION
- PubMed Citation

# Viral syndromes

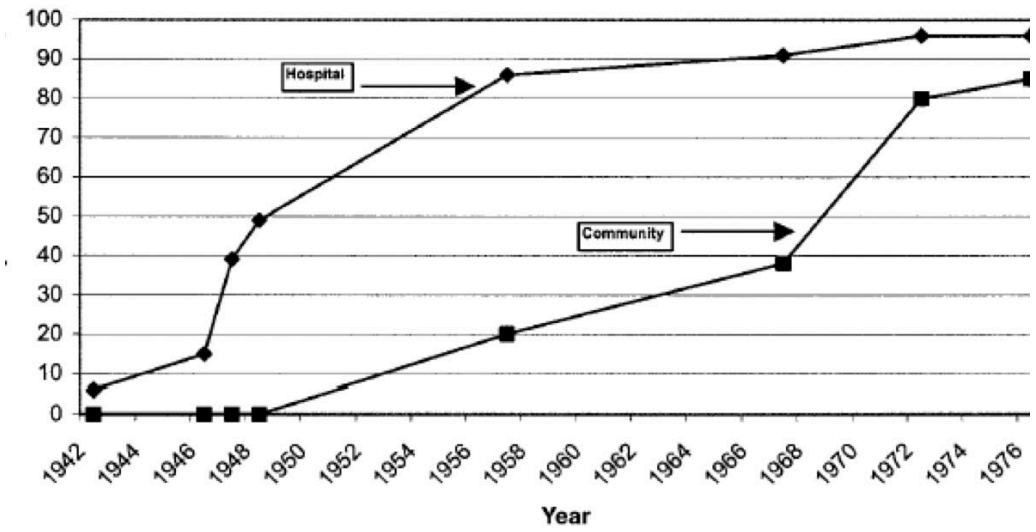
Avoid antibiotics for viral syndromes

## 2003 St Louis Rams cluster

- 5 (of 58 players)
- 3 players missed total 17 playing days
- All required I&D
- 60% recurrence rate
- All same strain
- Average player 2.6 antibx rx prev yr (compared to 0.5 for matched controls)
- SA found in whirlpool, taping gel & 42% of players & staff nasal swabs

(Kazakova 2005)

## History of SA antibiotic resistance



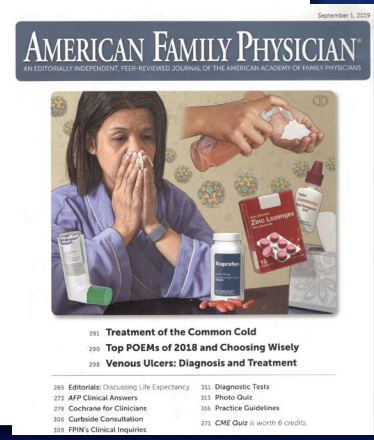
# Treatment of common cold

## Effective treatments of symptoms

+ Antihistamine + Decongestant
+ Acetaminophen, NSAIDs
+ Intranasal ipratropium
+ Intranasal oxymetazoline < 3d
+ Zinc

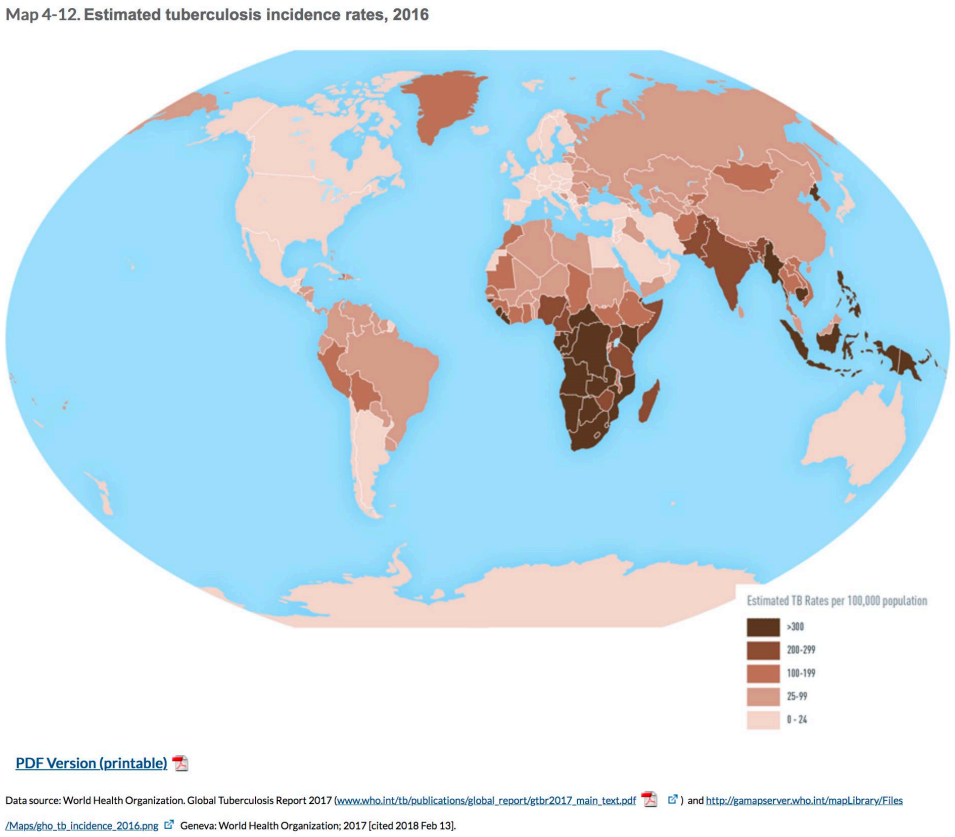
## Ineffective treatments of symptoms

+ Antihistamine monotherapy
+ Antitussives & expectorants
+ Codeine
+ Echinacea
+ Intranasal corticosteroids
+ Vitamins C, D & E



# Tuberculosis

- Symptoms of active TB:
  - Common symptoms: cough (especially bloody) > 3 weeks, chest pain
  - Other symptoms: weakness, fatigue, weight loss, anorexia, fever, chills, night sweats
- Diagnosis:
  - Exposure: blood & skin tests
  - Activity: CXR & sputum tests
- Respiratory isolation & anti-TB meds for active TB




CDC website

POLL OPEN

# Does your team routinely screen for TB?

# "Childhood" diseases

- Measles
- Mumps
- Chickenpox
- Hand, foot & mouth disease

- Respiratory isolation: measles & chickenpox
- Vaccines prevent: measles, mumps, chickenpox

**US measles cases hit 1,234 as Brooklyn outbreak called over**

Filed Under: **Measles**
Stephanie Soucheray | News Reporter | CIDRAP News | Sep 03, 2019

Hattiesburg American HOME NEWS SPORTS OBITUARIES ARCHIVES USA TODAY MORE

**6 PRCC baseball players get mumps**

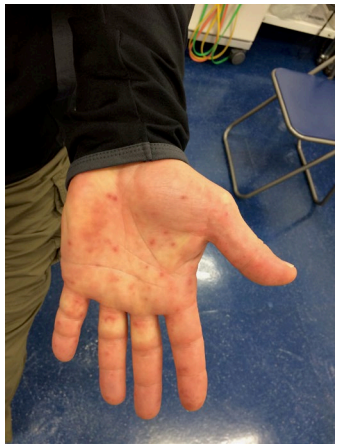
Ellen Ciurczak, American Staff Writer Published 10:08 a.m. CT April 21, 2017 | Updated 6:31 p.m. CT April 21, 2017

MLB ROYALS INJURIES

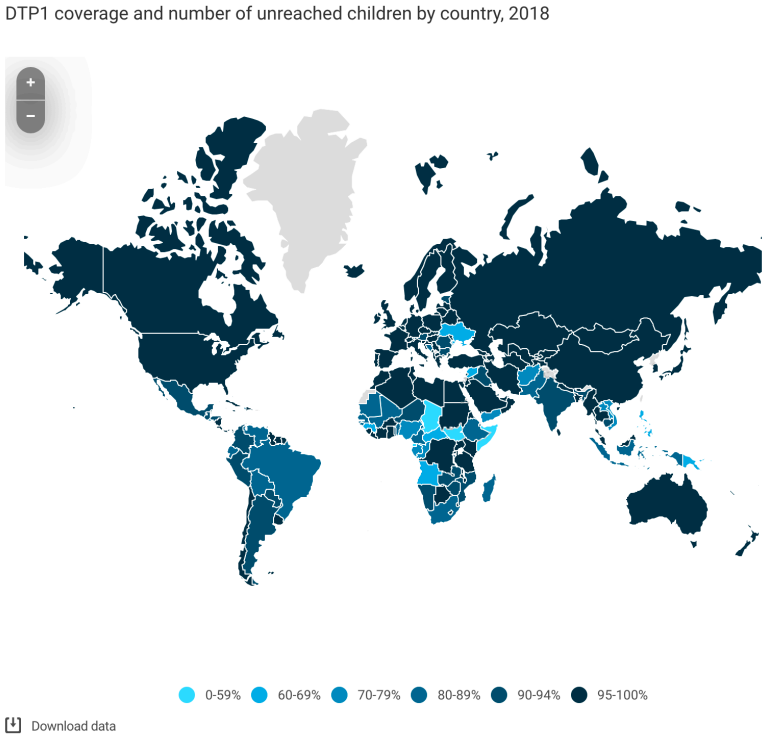
**The Royals have the chicken pox. Here's what we know**

*We have learned you can NOT get chicken pox from chickens.*

By Max Rieper | Sep 2, 2015, 10:00am EDT



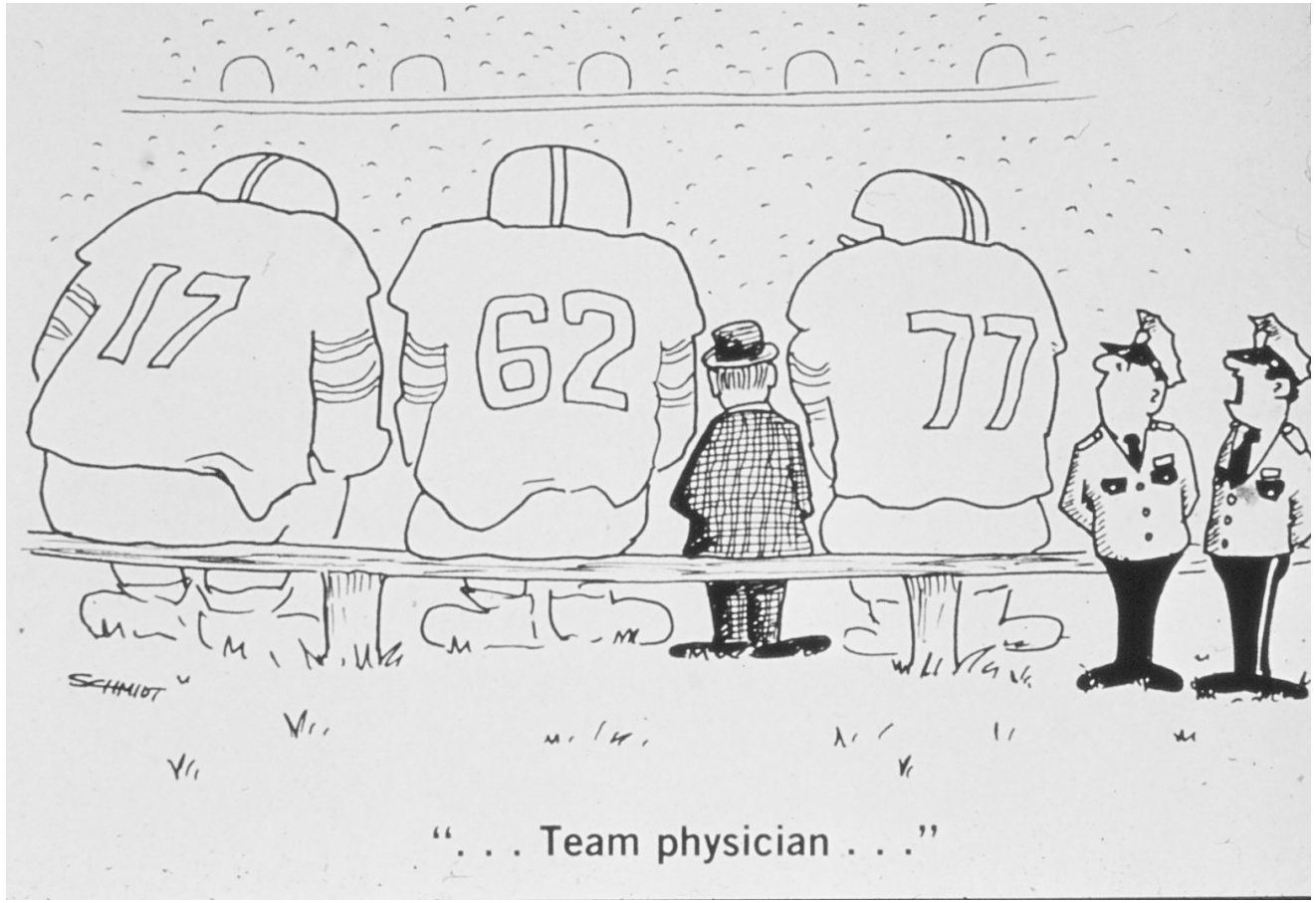
# Immunization




| 2018 Vaccination Rates | | | | | | | |
|---|---|---|---|---|---|---|---|
| | Measles 1 | Measles 2 | DTP | Rubella | Hep B 1 | Hep B 3 | BCG |
| US | 92 | 94 | 94 | 92 | 66 | 91 | na |
| DR | 95 | 31 | 94 | 95 | 65 | 92 | 99 |
| Mexico | 97 | 99 | 88 | 97 | 98 | 55 | 96 |
| Venezuela | 74 | 39 | 60 | 74 | 55 | 60 | 92 |

https://data.unicef.org/indicator-profile/

# Sexually transmitted infection (STI)



# Caribbean sea region mosquito-borne diseases

- Dengue fever
- Chikungunya
- Malaria

# Dengue fever: key facts

- 1 in 4 infected with dengue will get sick.
- Symptoms can be mild or severe.
  - Typically fever plus: nausea, vomiting, rash, aches & pains for 2-7d
- Severe dengue can be life-threatening within a few hours
  - Begins 1-2d after fever resolves
    - Stomach or belly pain, tenderness
    - Vomiting (at least 3 times in 24 hours)
    - Bleeding from the nose or gums
    - Vomiting blood, or blood in the stool
    - Feeling tired, restless, or irritable
- No specific treatments

# Chikungunya: key facts

- The most common symptoms are fever & joint pain.
- Other symptoms headache, muscle pain, joint swelling, or rash.
- Most patients feel better within a week.
  - In some joint pain may persist for months.
  - Can be severe & disabling.
- No specific treatments

# Malaria

- Common initial symptoms: fever, chills, sweats, headaches, muscle pains, nausea & vomiting
- More suspicious symptoms: confusion, coma, neurologic focal signs, severe anemia, respiratory difficulties
- Key is id on blood smear
- Treatment is with matched anti-malarial

# Summary

- Prevention is key: hygiene & vaccination
  - Mosquito protection in Caribbean, Central America & South America
- Respiratory isolation for measles, chicken pox and TB
- Supportive care, not antibiotics for viral illness

# References


- AAP. 2018 Redbook.
- Becker KM,  Moe CL, Southwick KL, MacCormack JN. Transmission of Norwalk virus during a football game, NEJM 2000; 343:1223-1227
- CDC. Parasites – Malaria. https://www.cdc.gov/parasites/malaria/index.html. Accessed 11/7/19
- CDC. Chikungunya. https://www.cdc.gov/chikungunya/index.html. Accessed 11/7/19
- CDC. Dengue. https://www.cdc.gov/dengue/index.html. Accessed 11/7/19
- CDC. Tuberculosis. https://www.cdc.gov/tb/default.htm. Accessed 11/19/19

# References


- DeGeorge KC. Ring DJ, Dalrymple SN. Treatment of the Common Cold. Am Fam Physician. Sep 2019; 100(5):281-289.
- Saguil A, Kane SF, Lauters R, Mercado MG. Hand-Foot-Mouth Disease: Rapid Evidence Review. Am Fam Physician. Oct 2019; 100(7):408-414.
- UNICEF. Immunization database. July 2019. https://data.unicef.org/indicator-profile/ accessed 11/29/19
- Young CC, Esala. Travel Considerations for the Athlete and Sports Medical Team. In Netter's Sports Medicine 2ed. Madden CC, Putukian M, Young CC, McCarty EC (Eds). Philadelphia: Saunders. 2018. pp 165-169.

# Varicella Zoster Virus (chickenpox & zoster)

| | Herpesvirus |
|---|---|
| Symptoms | Mild fever |
| Rash | Generalized pruritic, vesicular (250-500 lesions) rash |
| Transmission | Airborne, direct contact, respiratory secretions |
| Contagiousness | High, but preventable with vaccine |
| Contagious period | 2d before rash until crusting of all lesions |
| Incubation | 10-21d after contact (usually 12-14d) |
| Duration of replication | 72° |

# Rubella (German measles)

| | Rubivirus |
|---|---|
| Symptoms | Usually subclinical; lymphadenopathy & slight fever |
| Rash | Starts on face becomes generalized erythematous maculopapular in 24° |
| Transmission | Direct or droplet contact from nasopharyngeal secretions |
| Contagiousness | High, but preventable with vaccine |
| Contagious period | 2-3d before to 7 days after onset of rash |
| Incubation | 14 to 23d (usually 16-18) |
| Duration of replication | Up to 1 year (or more)! |

# Parvovirus B19 (erythema infectiosum, 5th disease)

| | |
|---|---|
| Symptoms | Mild systemic symptoms including fever, malaise, myalgia & headache 7-10d before rash |
| Rash | Facial intense red "slapped cheek) + symmetric maculopapular, lacy pruritic rash starting on trunk moves to extremities |
| Transmission | Respiratory secretions, blood |
| Contagiousness | High |
| Contagious period | Just before onset of rash to just after onset of rash |
| Incubation | 4-21d (usually 4-14d) |
| Duration of replication | |

# Measles

| | Morbillivirus |
|---|---|
| Symptoms | Rash followed by fever, cough, coryza, conjunctivitis, Koplik spots on oral mucosa* in 2-3 d |
| Rash | Erythematous maculopapular rash |
| Transmission | Droplet > airborne |
| Contagiousness | High, but preventable with vaccine |
| Contagious period | 5d before to 4d after onset of rash |
| Incubation | 8-12 d |
| Duration of replication | |

# Hand, foot & mouth disease

## Coxsackievirus A16, enterovirus 71 > coxsackievirus A6

| | Enterovirus |
|---|---|
| Symptoms | Mild fever, anorexia, malaise & sore mouth. 1-2d later enanthem (4-8 mm on tongue & buccal mucosa) followed by rash |
| Rash | Hands > feet >> buttocks (these do not vesiculate); resolves in 7-10d |
| Transmission | Fecal-oral, oral-oral, respiratory droplet |
| Contagiousness | High in household; Mild general (hand washing key); no need to isolate |
| Contagious period | 1st week |
| Incubation | 3-6d |
| Duration of replication | in stool up to 4-8 wks |

# BCG vaccination