AETC AIDS Education & Training Center Program Southeast

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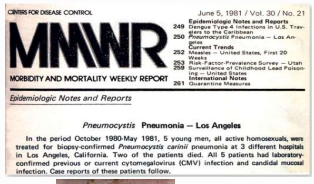

CENTERS FOR DISEASE CONTROL

June 5, 1981 / Vol. 30 / No. 21

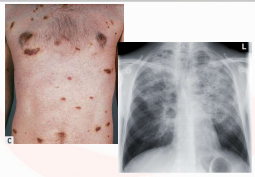
MMWR

MORBIDITY AND MORTALITY WEEKLY REPORT

Epidemiologic Notes and Reports

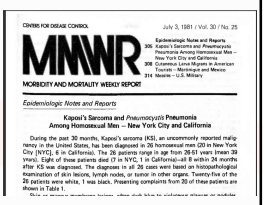
Pneumocystis **Pneumonia — Los Angeles**

In the period October 1980-May 1981, 5 young men, all active homosexuals, were treated for biopsy-confirmed *Pneumocystis carinii* pneumonia at 3 different hospitals in Los Angeles, California. Two of the patients died. All 5 patients had laboratory-confirmed previous or current cytomegalovirus (CMV) infection and candidal mucosal infection. Case reports of these patients follow.



1981 first cases of AIDS

Pneumocystis pneumonia and Kaposi's sarcoma reported in 26 men in NYC and California


CENTERS FOR DISEASE CONTROL

July 3, 1981 / Vol. 30 / No. 25

MMWR

MORBIDITY AND MORTALITY WEEKLY REPORT

Epidemiologic Notes and Reports

Kaposi's Sarcoma and *Pneumocystis* Pneumonia Among Homosexual Men — New York City and California

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2025- HCV, HBV & HIV Prevalence -USA

US Population: 335 million

- **HIV:**
  - Estimated prevalence in the US : 1.2 million
    - **About 1/350 Americans have HIV**
    - Much higher in young males – about 1/150
  - About 32,000 new infections/year
- **Chronic HBV**
  - Estimated prevalence 880,000 -2.4.million
    - 4000 – 20,000 new infections per year
- **HCV:**
  - Estimated prevalence in the US : 2.4 million
    - About 50,000 new infections/year

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Question

- Which one of the following best describes the (CDC) recommendations for HIV testing in the United States?
  - 1. Routine HIV testing is recommended in all healthcare settings, but only for persons aged 19 to 39
  - 2. Routine HIV testing is recommended in all healthcare settings for persons aged 13 to 64
  - 3. Routine HIV testing is recommended in all health care settings but only for foreign born immigrants
  - 4. Routine HIV testing is recommended for persons aged 20 to 60 years old in emergency healthcare settings

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Answer

- Which one of the following best describes the (CDC) recommendations for HIV testing in the United States?
  - 1. Routine HIV testing is recommended in all healthcare settings, but only for persons aged 19 to 39
  - 2. Routine HIV testing is recommended in all healthcare settings for persons aged 13 to 64
  - 3. Routine HIV testing is recommended in all health care settings but only for foreign born immigrants
  - 4. Routine HIV testing is recommended for persons aged 20 to 60 years old in emergency healthcare settings

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United States Preventive Services Task Force recommendations

GRADE A for HIV

Recommendation Summary

Population	Recommendation	Grade
Pregnant persons	The USPSTF recommends that clinicians screen for HIV infection in all pregnant persons, including those who present in labor or at delivery whose HIV status is unknown.	A
Adolescents and adults aged 15 to 65 years	The USPSTF recommends that clinicians screen for HIV infection in adolescents and adults aged 15 to 65 years. Younger adolescents and older adults who are at increased risk of infection should also be screened. See the Clinical Considerations section for more information about assessment of risk, screening intervals, and rescreening in pregnancy.	A

GRADE B for BREAST CANCER SCREEING

Recommendation Summary

Population	Recommendation	Grade
Women aged 50 to 74 years	The USPSTF recommends biennial screening mammography for women aged 50 to 74 years.	B
Women aged 40 to 49 years	The decision to start screening mammography in women prior to age 50 years should be an individual one. Women who place a higher value on the potential benefit than the potential harms may choose to begin biennial screening between the ages of 40 and 49 years.	C

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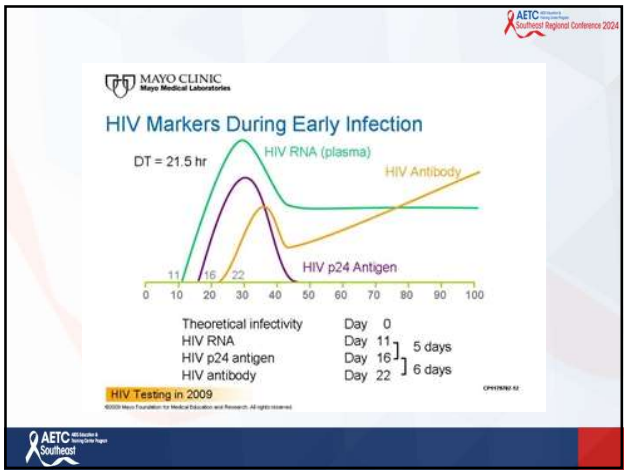

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HIV and opportunistic infections

- The most important factor is the degree of immunosuppression in the host.
- Patients with CD4 cell counts >500/microL
  - benign and malignant brain tumors and metastases
- Patients with CD4 cell 200 - 500/microL
  - HIV-associated cognitive and motor disorders are common, but usually do not present with focal lesions.
- Patients with CD4 cell < 200/microL
  - CNS mass lesions
  - Opportunistic infections
  - AIDS-associated tumors

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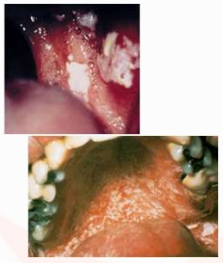
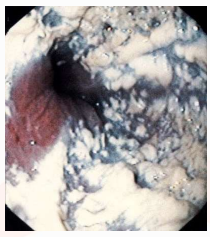
Oral Candidiasis



Candida Esophagitis



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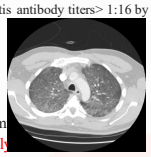
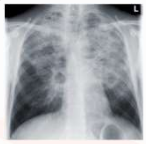
PCP (Pneumocystis jirovecii pneumonia)

- PCP is a SUBACUTE pneumonia caused by *Pneumocystis jirovecii,* now classified a fungus
- In one study 83% of infants had Pneumocystis antibody titers> 1:16 by 7 months
- Risk factors
  - CD4 < 200
  - Not on prophylaxis
  - High Viral load
  - Previous PCP
- S/S: Dyspnea, dry cough, chest discom
- A normal CT chest makes PCP unlikel
- Treatment : Bactrim is best but there are alternatives





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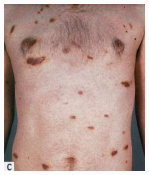
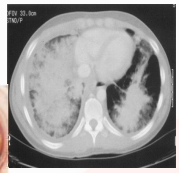
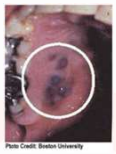
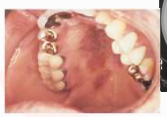


Presentation of Kaposi's sarcoma
Caused by Human Herpes virus 8
Almost 5% of us are HHV-8 positive







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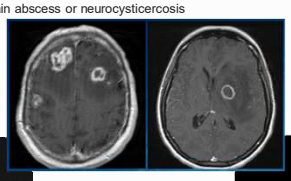
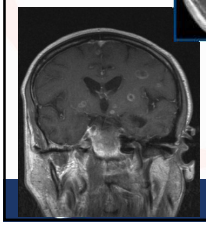
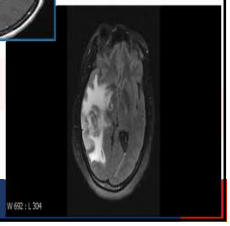
Differential for brain masses or ring enhancing lesions in an AIDS patient:

1. Cryptococcus
2. Cerebral toxoplasmosis
   Usually a reactivation infection that was previously acquired from cat litter, uncooked meats
3. Lymphoma
4. Less likely TB or Brain abscess or neurocysticercosis







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IAS USA Guidelines on Antiretoviral therapy (ART) initiation

- Initiation of ART is recommended **as soon as possible after diagnosis**
- HIV is easier to treat than Diabetes, COPD or CHF
  - (And HIV is one of the only conditions where the federal and state governments pay for : provider visits, labs, vaccines, medications etc. for all unfunded patients)
- Most patients will be **only on 1 tablet once daily**
- Effective ART reduces transmission to uninfected partners to **"0"**
  - **Undetectable= Untransmissible**

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There are even Long acting Injectable Options for HIV Rx

- Cabenuva- injectable ART can be given IM every 2 months
- To be administered only by Health Care Professionals
  - Important to coordinate efforts between clinical systems, pharmacies, patients
- Lenacapavir
  - Can be given every 6 months for treatment experienced patients

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- People living with HIV who have an **undetectable viral load** and continue taking medication as prescribed have **zero risk** of transmitting HIV to their sexual partner(s)

- People living with HIV who have **HIV-1 RNA <1000 copies/mL** and are taking medication as prescribed have **negligible risk** of transmitting HIV to their sexual partner(s)


Antiretroviral Therapy for the Prevention of HIV-1 Transmission

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HIV PrEP Options

- Daily oral PrEP with the fixed-dose combination :
  - TDF + FTC (Truvada) or Descovy

- Injectable PrEP
  - CAB IM 600mg every 2 months
- On-Demand or Event-Driven PrEP
  ("2-1-1") Peri-coital TDF/FTC

Recommendation Summary

Population	Recommendation	Grade
Adolescents and adults at increased risk of HIV	The USPSTF recommends that clinicians prescribe preexposure prophylaxis using effective antiretroviral therapy to persons who are at increased risk of HIV acquisition to decrease the risk of acquiring HIV. See the Practice Considerations section for more information about identification of persons at increased risk and about effective antiretroviral therapy.	A

USPSTF Recommendations	
Skin Cancer Screening	Grade I
Colorectal cancer screening	Grade A, B, C
Prostate Cancer Screening	Grade C, D
Lung Cancer Screening	Grade B

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Twice yearly Lenacapravir for PrEP

Not yet approved in the US but will be soon

- Injectable HIV-1 capsid inhibitor
- Given every 6 months
- Efficacy 99.9%
- In all patient populations
- *Science Magazine* named lenacapravir its 2024 "Breakthrough of the Year.
- Will likely get FDA approved by Mid 2025

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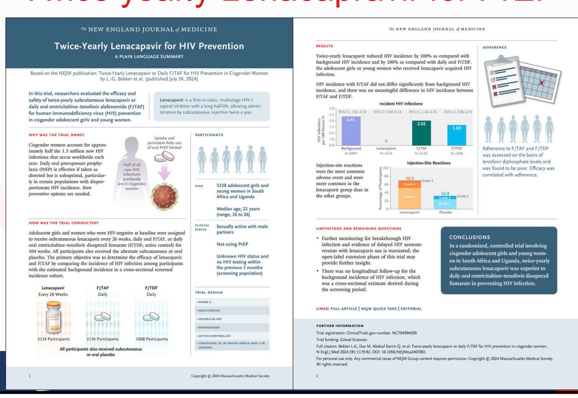
Twice yearly Lenacapravir for PrEP



The NEW ENGLAND JOURNAL of MEDICINE

Twice-Yearly Lenacapavir for HIV Prevention

A PLAIN LANGUAGE SUMMARY

Based on the NEJM publication: Twice-Yearly Lenacapavir or Daily F/TAF for HIV Prevention in Cisgender Women by L.-G. Bekker et al. (published July 24, 2024)

In this trial, researchers evaluated the efficacy and safety of twice-yearly subcutaneous lenacapavir or daily oral emtricitabine–tenofovir alafenamide (F/TAF) for human immunodeficiency virus (HIV) prevention in cisgender adolescent girls and young women.

Lenacapavir is a first-in-class, multistage HIV-1 capsid inhibitor with a long half-life, allowing administration by subcutaneous injection twice a year.

WHY WAS THE TRIAL DONE?

Cisgender women account for approximately half the 1.3 million new HIV infections that occur worldwide each year. Daily oral preexposure prophylaxis (PrEP) is effective if taken as directed but is suboptimal, particularly in certain populations with disproportionate HIV incidence. New preventive options are needed.

HOW WAS THE TRIAL CONDUCTED?

Adolescent girls and women who were HIV-negative at baseline were assigned to receive subcutaneous lenacapavir every 26 weeks, daily oral F/TAF, or daily oral emtricitabine–tenofovir disoproxil fumarate (F/TDF; active control) for 104 weeks. All participants also received the alternate subcutaneous or oral placebo. The primary objective was to determine the efficacy of lenacapavir and F/TAF by comparing the incidence of HIV infection among participants with the estimated background incidence in a cross-sectional screened incidence cohort.

PARTICIPANTS

WHO: 5338 adolescent girls and young women in South Africa and Uganda

Median age, 21 years (range, 16 to 26)

CLINICAL STATUS: Sexually active with male partners

Not using PrEP

Unknown HIV status and no HIV testing within the previous 3 months (screening population)

TRIAL DESIGN

- PHASE 3
- MULTICENTER
- DOUBLE-BLIND
- RANDOMIZED
- ACTIVE-CONTROLLED
- LOCATIONS: 25 IN SOUTH AFRICA AND 3 IN UGANDA

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The NEW ENGLAND JOURNAL of MEDICINE

RESULTS

Twice-yearly lenacapavir reduced HIV incidence by 100% as compared with background HIV incidence and by 100% as compared with daily oral F/TDF. No adolescent girls or young women who received lenacapavir acquired HIV infection.

HIV incidence with F/TAF did not differ significantly from background HIV incidence, and there was no meaningful difference in HIV incidence between F/TAF and F/TDF.

Injection-site reactions were the most common adverse event and were more common in the lenacapavir group than in the other groups.

ADHERENCE

Adherence to F/TAF and F/TDF was assessed on the basis of tenofovir diphosphate levels and was found to be poor. Efficacy was correlated with adherence.

LIMITATIONS AND REMAINING QUESTIONS

- Further monitoring for breakthrough HIV infection and evidence of delayed HIV seroconversion with lenacapavir use is warranted; the open-label extension phase of this trial may provide further insight.
- There was no longitudinal follow-up for the background incidence of HIV infection, which was a cross-sectional estimate derived during the screening period.

CONCLUSIONS

In a randomized, controlled trial involving cisgender adolescent girls and young women in South Africa and Uganda, twice-yearly subcutaneous lenacapavir was superior to daily oral emtricitabine–tenofovir disoproxil fumarate in preventing HIV infection.

LINKS: FULL ARTICLE | NEJM QUICK TAKE | EDITORIAL

FURTHER INFORMATION

Trial registration: ClinicalTrials.gov number, NCT04994509

Trial funding: Gilead Sciences

Full citation: Bekker L-G, Das M, Abdool Karim Q, et al. Twice-yearly lenacapavir or daily F/TAF for HIV prevention in cisgender women. N Engl J Med 2024;391:1179-92. DOI: 10.1056/NEJMoa2407001

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DOXY PEP efficacy in MSM & other populations

- **200 mg Doxy within 72 hours of sex**
  - MSM and on HIV PrEP with recurrent STIs
  - Randomized to placebo vs Doxy PEP
  - Significant reduction in new syphilis and chlamydia cases

	Molina et al DoxyVAC	Luetkemeyer et al (DoxyPEP)	French IPERGAY study
STI overall (Doxy vs Control)	38% vs 70%	11% vs 32%	
Syphilis	4% vs 13%	0.4% vs 2.7%	73% reduction
Chlamydia	9% vs 29%	1% vs 12%	70% reduction
GC	29% vs 34%	9% vs 20%	No difference

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Doxy PEP to reduce STIs

- Doxycycline PEP within 72 hours of sex is an evidence based approach to reduce bacterial STIs
  - Among MSM and others at high risk of STIs
  - Shared decision making
  - Bacterial STI testing at baseline and every 3–6 months thereafter.
- Unanswered questions
  - Cisgender women?
  - Screening Intervals?
  - How do you treat breakthrough infections?
  - Emerging staphylococcal resistance to doxycycline?

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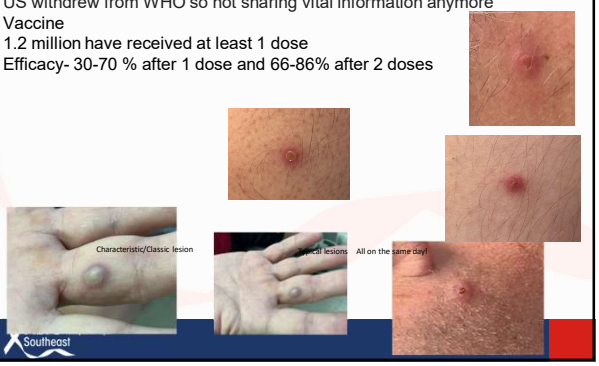
Mpox:
35,000 cases in US alone
Clade 2b
DRC- Clade 1 strain (Much more deadly)
US withdrew from WHO so not sharing vital information anymore
Vaccine
1.2 million have received at least 1 dose
Efficacy- 30-70 % after 1 dose and 66-86% after 2 doses



Southeast

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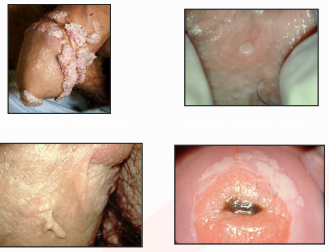
Clinical Manifestations of Genital Warts



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HPV Vaccine

- 10 year data show robust long-term benefit of HPV vaccination
- 1300 boys and girls
  - Swabbed monthly for 10 years
  - No cases of vaccine targeted HPV disease in either boys or girls
    - Restrepo et al; Pediatrics; 2023

23

HPV vaccine- low uptake in US

- CDC recommends:
  - Children be vaccinated at 11 or 12 years of age
    - But can start as early as 9 years
  - HPV vaccine coverage in **2023- only 61.6%**

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Sinusitis

- Most common indication for antibiotics in the outpatients
- Antibiotic therapy is often unnecessary
  - Almost 3.7 million antibiotic courses/year in the US
  - One study estimated 27/1000 prescriptions were appropriate
- Infectious Diseases Society of America recommends 5 - 7 days of Rx for an uncomplicated infection
  - *Anthony W. Chow, Clinical Infectious Diseases, Volume 54, Issue 8, 15 April 2012*
- In 2016
  - 70% of antibiotics prescribed for adults were for ≥10 days
  - 36% of prescriptions were for guideline discordant agents

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Bacteriology of ABRS

- Bacteriology of ABRS
  - Most common bacterial species from the maxillary sinuses
    - *S pneumoniae (20-40%), H influenzae (20-30%)*, and *Moraxella catarrhalis (2-10%), staph aureus(< 10%)*
  - **β-lactamase producing *H influenzae***
    - Prevalence of 27% - 43%
    - So would not be expected to respond to amoxicillin unless clavulanate was added
  - **Penicillin-resistant *S pneumoniae*** varies geographically
    - Highest in the Southeast (about 25%)
    - Lowest in the Northwest (about 9%).

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This guideline developed by the American Academy of ENT and affirmed by the American Academy of Family Physicians in 2020

- Acute bacterial rhinosinusitis should be distinguished from viral infections
- **High-dose amoxicillin (or Amoxicillin with clavulanate) is preferred** to cover penicillin non-susceptible (PNS) *Streptococcus pneumoniae*.
- Penicillin-allergic patients : either doxycycline or a respiratory fluoroquinolone
- Macrolides and trimethoprim-sulfamethoxazole NOT recommended
  - High prevalence of macrolide-resistant *S pneumoniae* in the US (>40%)
  - High resistance to TMP/SMX(*S pneumoniae* (50%), *H influenzae* (27%)
- **Duration**
  - Systematic review of 12 RCTs with radiologically confirmed ABRS found no difference in clinical success : for 3 - 7 days vs 6 to 10-days
    - *https://www.aafp.org/family-physician/patient-care/clinical-recommendations/all-clinical-recommendations/adult-sinusitis.html*
    - *Rosenfeld RM, et al. Otolaryngology–Head and Neck Surgery. 2015;152(2_suppl):S1-S39.*

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Amox vs Amox/Clavulanic acid

Table 7. Factors That Would Prompt Clinicians to Consider Prescribing Amoxicillin-Clavulanate Instead of Amoxicillin Alone for Initial Management of Acute Bacterial Rhinosinusitis (ABRS).

Factor	Comment
Situations in which bacterial resistance is likely	Antibiotic use in the past month
	Close contact with treated individuals, health care providers, or a health care environment
	Failure of prior antibiotic therapy
	Breakthrough infection despite prophylaxis
	Close contact with a child in a daycare facility
	Smoker or smoker in the family
	High prevalence of resistant bacteria in community
Presence of moderate to severe infection	Moderate to severe symptoms of ABRS
	Protracted symptoms of ABRS
	Frontal or sphenoidal sinusitis
	History of recurrent ABRS
Presence of comorbidity or extremes of life	Comorbid conditions, including diabetes and chronic cardiac, hepatic, or renal disease
	Immunocompromised patient
	Age older than 65 years

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Vaccinations

- PCV21 for pneumococcal vaccination (September 2024)
- At present:
  - PCV20 alone or PCV15 followed by pneumococcal polysaccharide vaccine 23 (PPSV23) have been the preferred options.
- PCV21 contains 11 serotypes that are common causes of invasive pneumococcal disease in adults that are absent from PCV20
- In 2024 ACIP suggests PCV21 for most adults with indications for pneumococcal vaccination
  - Except for individuals at increased risk for serotype 4 infection (eg, residents of Navajo nation or individuals residing in the Western US or Canada who have substance use disorder or experience homelessness)

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CAPVAXINE (PCV21)

- Large market, now indicated for all adults > 50
- Predisposing medical conditions:
  - Alcohol use disorder
  - Chronic heart disease
  - Chronic lung disease
  - Chronic liver disease
  - Diabetes mellitus
  - Sickle cell disease or other hemoglobinopathies
  - Current cigarette smoking
- Increased risk of meningitis:
  - Cerebrospinal fluid leak
  - Cochlear implant
- Immunocompromising conditions and other conditions associated with altered immunocompetenceΔ:
  - Congenital or acquired immunodeficiency
  - Generalized active malignancy
  - Human immunodeficiency virus infection
  - Iatrogenic immunosuppression
  - Hodgkin disease
  - Leukemia
  - Lymphoma
  - Multiple myeloma
  - Solid organ transplant
  - Chronic kidney disease and nephrotic syndrome
  - Functional or anatomic asplenia
  - Functional or anatomic asplenia
  - History of invasive pneumococcal disease

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New Meningitis vaccine FDA approved on Feb 14,2025

- Invasive meningococcal disease is an uncommon but serious illness
  - Can lead to death for up to 1 in 6 of
  - Easily misdiagnosed, with early symptoms often mistaken for influenza
  - 20% of survivors may experience long-term consequences such as brain damage, amputations, hearing loss and nervous system problems.
- Five major serogroups of *Neisseria meningitidis* (A, B, C, W and Y)
- MenB is the leading cause of IMD in adloscents
  - Less than 13% receive the recommended two-dose vaccination series
  - 32% receive at least one dose.
- Previously covered by Bexsero (meningococcal group B vaccine) and Menveo (meningococcal [groups A, C, Y and W-135]
- FDA approved a new 5-in-1 meningococcal vaccine (Penmenvy, GSK) for people from 10 through 25 years of age.
  - The vaccine targets MenABCWY,

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Main Bacterial Pathogens causing Bacterial Meningitis

- *Streptococcus pneumoniae*
- Group B *Streptococcus*
- *Neisseria meningitidis*
- *Haemophilus influenzae*
- *Listeria monocytogenes*
- *Escherichia coli*
  - *Mycobacterium tuberculosis*

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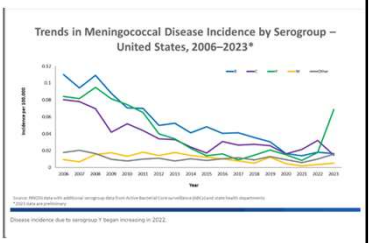
- U.S. cases of meningococcal disease have increased sharply since 2021 and now exceed pre-pandemic levels.
- In 2023, **438** confirmed and probable cases were reported. *Neisseria meningitidis* serogrou p Y drives much of this recent increase.
- In 2024, reports of meningococcal disease in travelers who had been in the Kingdom of Saudi Arabia
- **People disproportionately affected** by the increase include:
  - People between 30 - 60 years
  - Black or African American people
  - Adults with HIV



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Meningococcal meningitis

- Humans are the only host.
- Affects mostly children and young adults
  - Mortality- 10-13%
- Epidemics caused by serogroups A and C
  - In the US mainly Serogroups B, C, Y
- Predisposition
  - Deficiencies of terminal complement components (C5-C9), Properdin, Factor H
  - HIV
  - Receiving Eculizumab, ravulizumab
  - For PNH or aHUS or MG or NMOSD
  - Recent data suggest that meningococcal vaccines likely provide incomplete protection against invasive meningococcal disease in patients receiving eculizumab.

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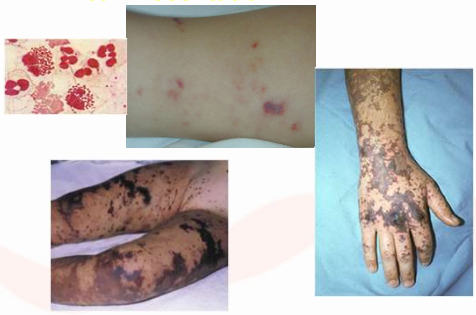
Clinical Presentation



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Hepatitis Screening

- **Hepatitis A Virus**
  - Screen with hepatitis A antibody (IgG or Total, NOT IgM)
  - To evaluate for evidence of prior HAV infection or immunity.
- **Hepatitis B Virus**
  - Hepatitis B surface antigen (HBsAg)- to look for chronic HBV
  - Hepatitis B surface antibody (HBsAb)- immunity or clearance
  - Hepatitis B core antibody (anti-HBc total, **NOT IgM**)
- **Hepatitis C Virus**
  - HCV antibody
    - If Positive then reflex to HCV Quantitative PCR (Viral Load)
  - Repeat annual testing or more frequent test is recommended for those who have ongoing risk of HCV acquisition.

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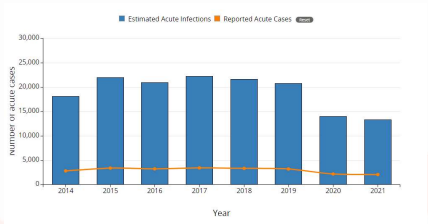
Hepatitis B



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New Screening recommendations

JAMA | US Preventive Services Task Force | RECOMMENDATION STATEMENT

Screening for Hepatitis B Virus Infection in Adolescents and Adults
US Preventive Services Task Force Recommendation Statement

US Preventive Services Task Force

- Estimated 862 000 persons in the US with chronic hepatitis B virus
- Screen all persons :
  - Persons born in regions with a prevalence of HBV infection > 2%
    - countries in Africa and Asia, the Pacific Islands, and parts of South America account for up to 95% of newly reported chronic infections
  - Dialysis
  - All Pregnant women
  - Persistent Transaminitis
  - Starting immunosuppressive therapy
- Other high-prevalence populations
  - Persons who inject drugs
  - Men who have sex with men
  - HIV, HCV
  - Needle-sharing contacts and household contacts of persons with chronic HBV infection.
- Up to 60% of HBV-infected persons are unaware of their infection
- Remain asymptomatic until onset of cirrhosis

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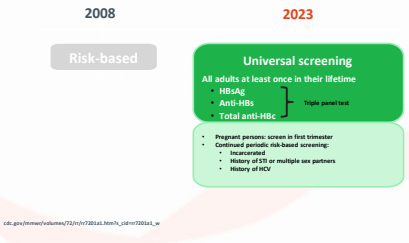
CDC: Updated Screening Recommendations



cdc.gov/mmwr/volumes/72/rr/rr7201a1.htm?s_cid=rr7201a1_w

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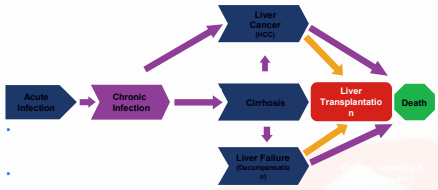
Hepatitis B Disease Progression



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Monthy 1st and 3rd Wednesday and 4th Wednesday
12:00pm-1:00pm EST 12:00pm-1:00pm CST
11:00am-12:00pm CST 01:00pmpm-2:00pm EST
09:00am-10:00am PST 10:00am-11:00am PST

South East Viral Hepatitis Interactive Case Conference

All providers are welcome to join this free CME accredited Case conference to get patient specific recommendations

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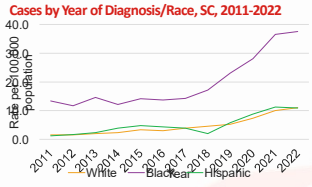
Primary and Secondary Syphilis - Rate of Reported Cases by Year of Diagnosis/Race, SC, 2011-2022



Nationwide:
17% increase in all cases
31% increase in congenital syphilis

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Natural history of syphilis

- 2/3rd of untreated patients clear spontaneously
- 15-30 % of untreated patients will develop some late manifestation
  - Majority is cardiovascular
- Unpredictable progression to late disease
  - More likely in men vs women (2X)
  - Blacks more likely to develop cardiovascular syphilis
  - Whites more likely to develop neurosyphilis

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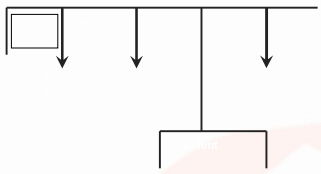
Time Line
Untreated Syphilis



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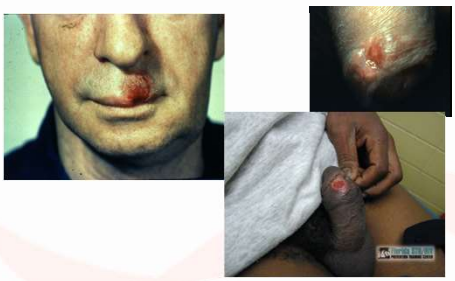
Primary Syphilis Chancre



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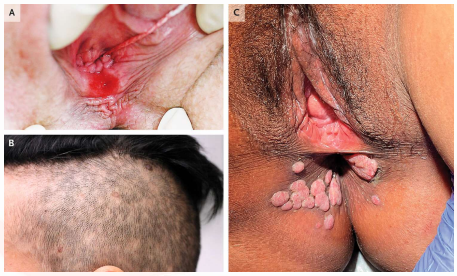
Primary and secondary syphilis



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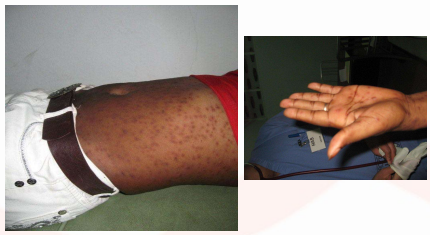
Rash of Secondary Syphilis



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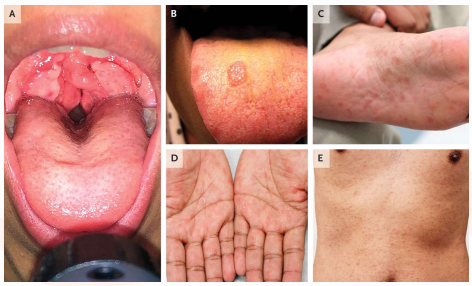
Secondary syphilis



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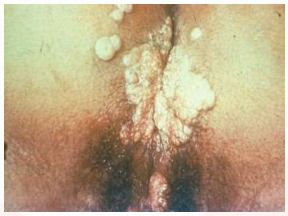
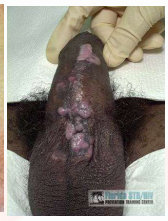
Secondary Syphilis - Condylomata lata

Clinical Manifestations





Source: CDC/ NCHSTP/ Division of STD Prevention, STD Clinical Slides

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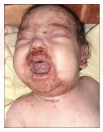
Congenital Syphilis

- The number of infants born with syphilis in the US has increased steadily over the past decade
- From 334 in 2012 to 3761 in 2022
  - 38% of pregnant women who gave birth to infants with syphilis received no prenatal care
  - 37% either did not receive any testing or weren't tested early enough.
- **Altogether, about 90% of cases of congenital syphilis were preventable**



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Updated ACOG Recommendation-2024

- April 2024
- Screen all pregnant individuals serologically for syphilis
  - **First** prenatal care visit
  - **Universal rescreening** during the third trimester
  - **Universal rescreening** at birth,
- NOT risk-based approach to testing.

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Gonorrhea in 2021

- **Counties with the highest gonorrhea rates in the country(per 100,000 residents)**
  - 1.Hinds County, MS: 2,253.2
  - 2. St. Louis City, MO: 2,122.6
  - **3. Richland County, SC: 1,939.4**
- **The 10 States With the Highest STD Rates (per 100,000 residents)**
  - 1.Mississippi: 1,291.4
  - 2.Louisiana: 1,058.0
  - **3. South Carolina: 999.8**

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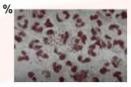
Diagnosis- Gonorrhea

- **NAAT (PCR)**
  - Most commonly used test
  - Endocervical swabs, vaginal swabs, urethral swab, urine, rectum, pharynx
- Culture
  - Only available at Public Health Labs
    - used to do susceptibility testing
- Gram Smear
  - Positive smear diagnostic in men (**>99%** specificity)
  - In women sensitivity of gram stain is **50 %**



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Uncomplicated GC treatment

- Ceftriaxone 500 mg IM X 1

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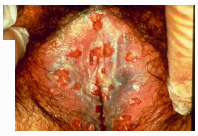
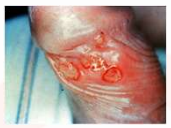
Genital ulcer-Does it hurt?

- Painful
  - Chancroid- very rare in the US
  - Genital herpes simplex
- Painless
  - Syphilis
  - Lymphogranuloma venereum- very rare in the US
  - Granuloma inguinale- very rare in the US





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Genital Herpes: Clinical Manifestations

- Primary
  - inguinal node tenderness/enlargement
  - vesicular, ulcerated lesions
  - headaches, malaise and fever
- Recurrent Herpes
  - > 90% of patients with HSV-2 will have recurrence
  - progressively less severe over time

Risk of transmission to neonate is 30-50% among women who acquire genital HSV in 3rd Trimester

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Diagnosis & Treatment of Genital herpes

- Diagnosis
  - HSV NAAT(PCR) assays are the most sensitive tests
    - Sensitivity 91-100%
    - Specificity close to 100%
  - Very little role for serology in HSV
- Treatment
  - First episode
    - **Valacyclovir** 1 gm PO BID X 7-10 days OR
    - **Acyclovir** 400 mg orally 3 times/day for 7–10 days
      OR
      Famciclovir 250 mg orally 3 times/day for 7–10 days

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Infectious Diseases update Part 3

Divya Ahuja

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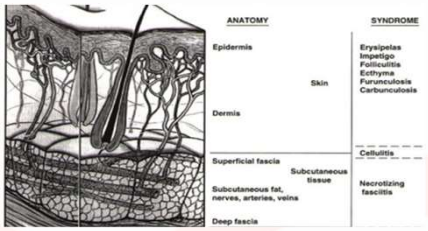
Skin and Soft Tissue infections



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Judging the severity

- Severity classes to help guide treatment:
  1) Afebrile and healthy, other than cellulitis
     Treat with 5-7 days of oral antibiotics
  2) Febrile and ill appearing, no unstable comorbidities
     Oral probably OK but monitor for worsening
  3) Toxic appearance, or at least one unstable comorbidity, or a limb-threatening infection
     Admit for IV antibiotics
  4) Sepsis syndrome or life-threatening infection (e.g., necrotizing fasciitis)
     Urgent surgical debridement and antibiotics

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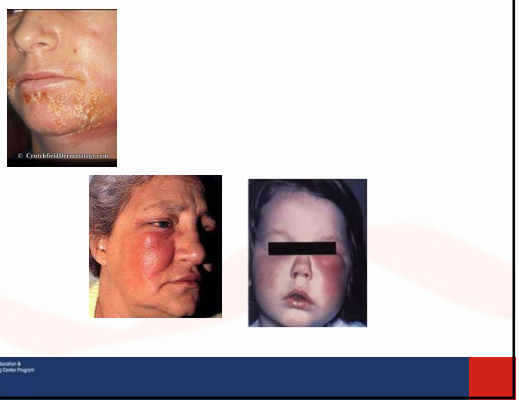

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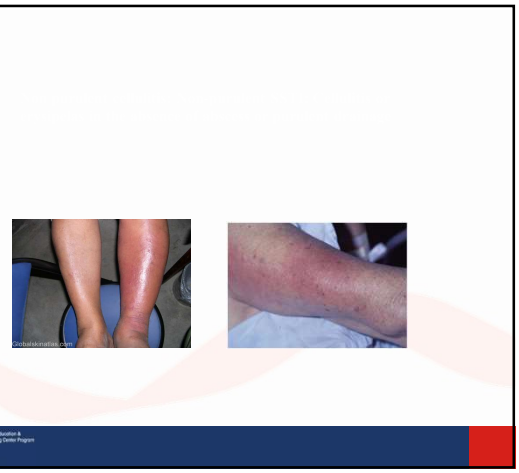

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Purulent Cellulitis/Abscess
Cellulitis associated with purulent drainage or exudate
Empiric Rx for CA-MRSA is recommended
Empiric Rx for β-hemolytic strep unlikely needed
Duration of therapy: 5-10 days

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Oral options

- Minocycline 100 mg every 12 h
- Trimethoprim and sulfamethoxazole 160/800 or 320/1600 every 12 h
- Doxycycline 100 mg every 12 h
- Clindamycin 300–450 mg every 8 h (high resistance rate)
- Linezolid 600 mg every 12 h
- Tedizolid 200 mg every 24 h
- Delafloxacin

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Linezolid

- **Linezolid**
  - Excellent gram positive coverage
  - MRSA, MSSA, Cutibacterium
    - Superior to vancomycin in MRSA pneumonia
    - Minimal dose adjustments in renal insufficiency
    - ~100% bioavailable
- **Linezolid**: in Necrotizing infections; *Dorazio et al Open forum ID*
  - 274 patients
  - Compared Vanc + clinda (30 day mortality 8%) to linezolid (6.45%)

  Adverse effects

  serotonin syndrome, blood dyscrasias
    - Therapeutic drug monitoring can minimize toxicity by adjusting dose

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Intravenous options:

- Clindamycin 600–900 mg every 8 h
- Trimethoprim and sulfamethoxazole 320/1600 every 12 h
- Vancomycin
- Tigecycline (causes nausea)
- Linezolid 600 mg every 12 h
- Daptomycin 6 mg/kg every 24 h
- Ceftaroline 600 mg every 12 h
- Dalbavancin 1000 mg once followed by 500 mg after 1 week or 1500 mg one dose
- Tedizolid 200 mg every 24 h
- Telavancin 10 mg/kg every 24 h

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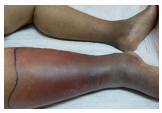
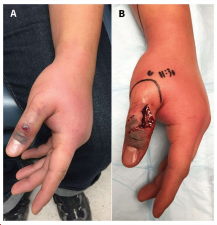
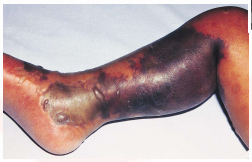
Necrotizing fasciitis







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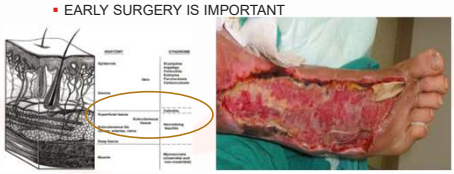
Clues to necrotizing fasciitis

- High Index of suspicion needed to diagnose NF
  - Recognize pain out of proportion to the skin manifestations
  - NF often has rapid progression of infection
    - extension can progress over the course of hours
    - Bullous lesions should make you think of NF
  - In one study, NF was initially misdiagnosed in 71.4%
  - EARLY SURGERY IS IMPORTANT



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Treatment of Necrotizing fasciitis

- Key concepts :
  - Early diagnosis and differentiation
  - Prompt empiric antibacterial coverage
    - IV Daptomycin + Meropenem or Zosyn + either Linezolid or Clindamycin
  - Adequate source control
  - Identification of infection-causing pathogens and adjustment of antimicrobial coverage.

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Diabetic foot ulcer

- One of the highest amputation rates in the country
  - North Columbia's 29203 (Richland county)

    https://www.thestate.com/news/state/south-carolina/article258302413.html#storylink=cpy

    Approximately 10/ 10,000 residents in 29203 received a lower limb amputation due to damage from diabetes between 2016 and 2020.

    That topped the amputation rates of ZIP codes in Charleston; Atlanta; Montgomery, Alabama; and Jackson

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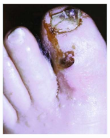
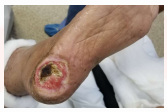
Diabetic foot and Osteomyelitis

- Risk factors
  - Poor vascular flow, chronic ulceration, neuropathy, hyperglycemia
  - Management:
    - Do not swab the base of the ulcer- you may grow meaningless pathogensand won't know what to do with it
    - If there is pus then do send cultures
    - Debridement, antibiotics, restoring vascular flow, glycemic control
    - Interdisciplinary approach(IM, ID, Foot ortho, Vascular)
    - Duration of antibiotics depends on extent of debridement but is usually anywhere between 2-6 weeks





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HPAI(Highly pathogenic Human Influenza) H5N1 clade 2.3.4.4b

- The virus was first found in birds in 1996
- Has spread to nearly 100 countries
  - HPAI virus circulation is enzootic in Europe,

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HPAI H5N1 clade 2.3.4.4b

- H5N1 outbreak
  - (Clade 2.3.4.4b)
- Widespread outbreak in dairy cows(GT B3.13) and poultry(GT D1.1)
- Now 67 human cases in 10 states
- Public Health Risk low
- 1/27/25- H5N9 and H5N1 in California Duck farm
- Commercial tests would produce positive results for influenza A
- Susceptible to available antivirals
- Vaccine:
  - Stockpiled vaccine expected to be active
  - Biomedical Advanced Research and Development Authority (BARDA)
  - Gave $176 million to Moderna to develop an mRNA pandemic influenza vaccine

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US human cases

- 46 cases (NEJM Garg et al) H5N1
  - 20 exposed to infected poultry
  - 25 exposed to dairy cows
  - Median age 34 years
- Mild symptoms
  - No deaths or hospitalizations
  - Conjunctivitis and GI common
- **Critical illness in H5N1 infected humans**
- 13 year old Canadian, asthma, conjunctivitis
  - 24 days on Vent, ECMO, CRRT, multiple antivirals
- Older man in Louisiana
  - Non-commercial backyard chicken flock
  - First human death in US Jan 2025

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Recommendations for H5N1

- Collaboration with veterinary medicine, PH, occupational
- Subtype Influenza A (Prisma lab has started to do this)
- Good History : contact with dairy, backyard animals, poultry, etc.
- PPE if history is suggestive
- Tamiflu for longer period
- Consider combination therapy but limited data
- Vaccinate dairy workers and poultry workers

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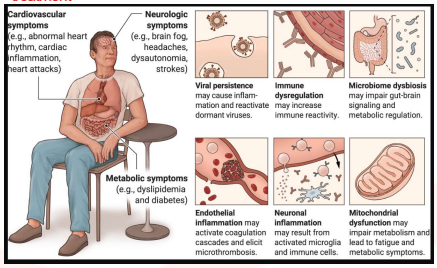
Long COVID- still poorly understood with little evidence based treatment



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Topical Antifungals -

- Driving resistance upwards
- 6.5 million scripts in the US
  - Not including OTC
- >50% are written by 10% of providers
- Derm> Podiatry> Primary care
- Clotrimazole/betamethasone – 1 million scripts
- Effinaconazole(>$1K)- 17 K scripts
- Reeducate providers and patients

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- What is the most common bacterial infection worldwide?

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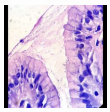
H Pylori- The bacterium



- ***Helicobacter pylori***: spiral-shaped bacterium
  - Common, usually lifelong, infection
  - Most common bacterial infection worldwide.
  - Everyone infected develops coexisting gastritis
  - Accounts for > 90% of duodenal ulcers and up to 80% of gastric ulcers.

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The Discovery

- Australian doctors Barry Marshall and Robin Warren took biopsies from patients with stomach ulcers
  - Cultured the organisms in the lab 1982.
  - They were met with skepticism and criticism.
    - Scientists doubted a bacteria could survive the gastric pH< 2
- Marshall drank the organisms from a patients biopsy.
  - He vomited for days and felt generally unwell.
  - After 10 days, his endoscopy confirmed the bacteria

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Prevalence

- Worldwide
  - One study suggests 4.4 billion/8 billion are infected
    - > 50% of the world's population

Developed Countries:

- US: estimated 30% of total population infected
  - Of those, ~1% per year develop duodenal ulcer
  - ~1/3 eventually have peptic ulcer disease(PUD)
- 70% gastric ulcer cases colonized with *H. pylori*

Developing Countries:

- Hyperendemic
  - 10% acquisition rate/ year for children 2 - 8 years

- Hooi JKY, *Gastroenterology* 2017;153:420–429.

81

Human carcinogen

- *H. pylori* has been classified as a type I Human carcinogen by the International Agency for Research for Cancer (IARC).
- Causes > 90% of all gastric cancers worldwide
  - Immigrants who grew up in regions of the world with a high incidence of *H. pylori* are at increased risk for gastric cancer.

- *Parsonnet J, N Engl J Med 1991;325:1127-1131.*

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Who to test for H pylori

Groups to test and treat for *H. pylori* infection[A]:
• Peptic ulcer disease: prior history or active disease
• Marginal zone B-cell lymphoma, MALT type
• Uninvestigated dyspepsia in patients who are under the age of 60 years
- In high-risk populations for gastric cancer, test and treat at age 45-50 years
• Functional dyspepsia
• Adult household members of individuals who have a positive non-serological test for *H. pylori*
• Patients taking long-term NSAIDs or starting long-term treatment with low-dose aspirin
• Patients with unexplained iron deficiency anemia
• Patients with idiopathic (autoimmune) thrombocytopenic purpura
• Primary and secondary prevention of gastric adenocarcinoma
- Current or history of gastric premalignant conditions (GPMC)[B]
- Current or history of early gastric cancer resection
- Current or prior history of gastric adenocarcinoma
- Patients with gastric adenomas or hyperplastic polyps[C]
- Persons with a first degree relative with gastric cancer[D]
- Individuals at increased risk for gastric cancer including certain non-White racial/ethnic groups, immigrants from high gastric cancer incidence regions[E]

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Diagnosis

- Invasive
  - EGD
  - Rapid urease test on the sample
- Non invasive
  - Stool antigen test
    - Sensitivity and specificity > 92%
    - Lower cost
  - Urea breath test.
    - Involve the ingestion of either ^{14}C-labeled or ^{13}C-labeled urea
    - Sensitivity and specificity typically exceeding 95%
  - Serology- low specificity for active infection
- PPIs interfere with the detection of bacteria and must be discontinued before any testing is performed.
  - discontinue PPIs and antibiotic agents for 30 days
  - H_2-receptor blockers do not need to be restricted

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Who should be treated

- 2024 the American College of Gastroenterology guidelines:
  - All *H. pylori* infections regardless of symptomatic or pathologic burden, followed by eradication testing.
  - *Chey WD, Am J Gastroenterol 2024*

85

Macrolide based treatment not recommended anymore

Treatment of *H. pylori* Infection in North America

	Treatment Naïve	*Treatment-Experienced (Salvage)*		*Penicillin Allergy*
Regimen		Empiric	Proven antibiotic sensitivity	
Optimized Bismuth Quadruple	☑☑☑	☑☑	☑☑	☑☑☑ *
Rifabutin Triple	☑☑	☑☑	☑☑	
Vonoprazan Dual	☑☑	?	?	
Vonoprazan Triple			☑☑	
Levofloxacin Triple			☑☑	

☑☑☑ Recommended ☑☑ Suggested ? May be considered when other treatments are not options

* When Bismuth Quadruple Therapy not an option, consider referral for formal penicillin allergy testing and/or desensitization

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Infectious Diseases update Part 4

Divya Ahuja

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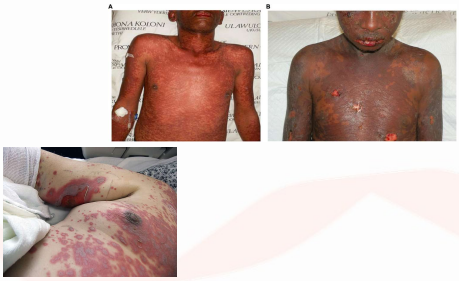
- Serious Drug Rashes



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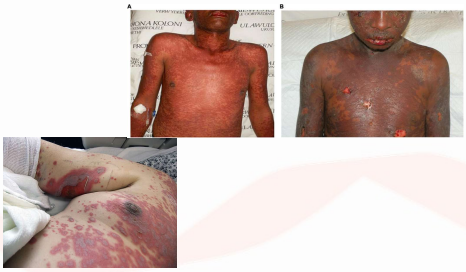
- Steven Johnsons' syndrome/Toxic epidermal necrolysis



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SC Newborn Screening Panel

In South Carolina:
- **36 of 38** recommended **core disorders** are currently screened.

Conditions on the SC NBS Panel

Hormone and Endocrine Disorders:
- Congenital Hypothyroidism (CH)
- Congenital Adrenal Hyperplasia (CAH)
- Biotinidase Deficiency

Other disorders:
- Severe Combined Immunodeficiency (SCID)
- Critical Congenital Heart Disease (CCHD)
- Infant Hearing Loss (HL)

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Conditions on the SC NBS Panel

Genetic Disorders:

- Cystic Fibrosis (CF)
- Sickle Cell Disease (SCD)
- Hemoglobin SC Disease
- Sickle Beta Thalassemia
- Variant Hemoglobin Disorders and Traits
- Spinal Muscular Atrophy, type I (SMA)

Conditions on the SC NBS Panel

Metabolic Disorders:

- Disorders of Amino Acid Metabolism
- Disorders of Fatty Acid Oxidation Metabolism
- Disorders of Carbohydrate Metabolism
  - Ex. Galactosemia
- Disorders of Organic Acid Metabolism
- Select Lysosomal Storage Disorders
  - Ex. Pompe Disease & Mucopolysaccharidosis type I (MPS I)

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NAFLD- AASLD guidelines

- Prevalence in US- >30%
  - < 5% aware of their condition
- Diagnosis: presence of hepatic steatosis in > 5% hepatocytes
- Screen:
  - Prediabetes or diabetes
  - Obesity
  - 2 cardiometabolic risk factors
  - Abnormal AST/ALT
- Non-invasive testing:
  - FIB-4 (> 1.3), VCTE ELF score (combine 2 of these)
- Rx:
  - Dietary modification
    - (5% weight loss associated with 30% RR in intrahepatic Triglyceride content)
  - Physical activity
  - Initiate Pioglitazone and/or GLP1Ras (Newsome et al, NEJM 2021;SQ semaglutide in NASH)
  - Bariatric surgery if BMI > 35

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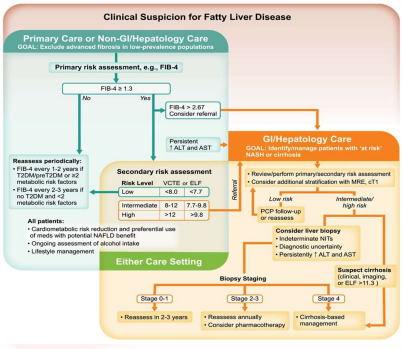

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Case

- 32 year male, lives in a wooded area outside Spartanburg area
- Presents in August with malaise, fever, myalgia X 3 days
- Febrile, looks sick, no rash, slightly altered
- Labs :
  - WBC: 2.1, Hb: 14, Plt 124, Creat-0.9, ALT-75
  - CXR, Urine -normal

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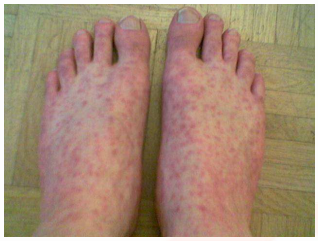

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RMSF

- Lab findings
  - Thrombocytopenia
  - Mild transaminitis
  - Mild leukocytosis with increased immature neutrophils
  - Hyponatremia
- Case fatality-5-10%

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Treatment in suspected ricketsial infections

- With the appropriate clinical picture, thrombocytopenia, leukopenia and transaminitis, doxycycline should be started ASAP

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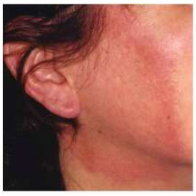
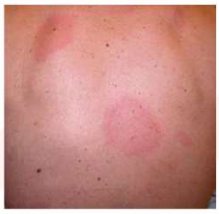
Erythema Chronicum Migrans(ECM)





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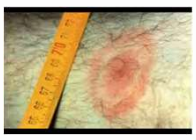
Early Lyme Disease



- Incubation. 3-30 days
- Localized disease:
  - Erythema migrans (EM)- 80%
  - myalgia, arthralgia, H/A, lymphadenopathy, <10% fever
  - Serologic tests insensitive at this stage
- 20-60% develop disseminated disease in weeks to months

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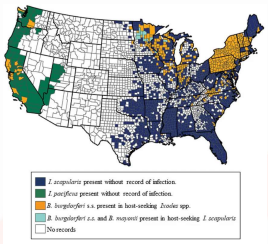
Indications for Prophylaxis

- Attached tick identified appropriately
- Estimated to be attached > 36 hours
- Prophylaxis begun within 72 hours of removal
- Local rates of infection of ticks are higher than 20%



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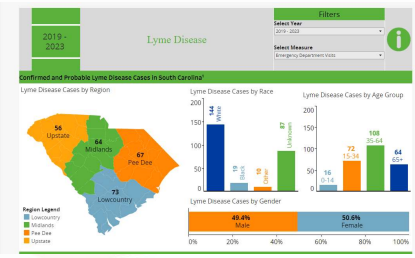
- Lyme is very very rare in SC
- Most cases are "probable" and not indiginous



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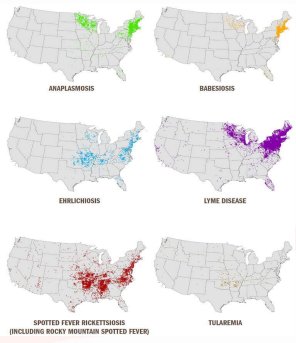

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Question

What are the current CDC and US Preventive Services Task Force (USPSTF) recommendations for Hepatitis C screening in adults?

A. Screen all adults aged 18 to 79 years at least once
B. Screen only individuals with a history of intravenous drug use
C. Screen individuals over 60 years of age with risk factors
D. Screen only those who present with elevated liver enzymes

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US Preventive Services Task Force: Screening Recommendation for Hepatitis C

The USPSTF recommends screening **adults 18 to 79 years of age** for HCV infection	**Grade B***

*USPSTF determined with moderate certainty that HCV screening in adults aged 18 to 79 years has substantial net benefit. Physicians should offer or provide this service.

>1/175 Americans have Chronic HCV (2 million /340 million)

*https://www.uspreventiveservicestaskforce.org/uspstf/recommendation/hepatitis-c-screening.

Slide credit: clinicaloptions.com

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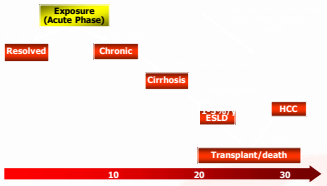
Natural History of Hepatitis C Infection



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Treatment of Chronic HCV

- Treatment is recommended for ALL pts with chronic HCV
  - Exception: life expectancy likely to be < 6 months
- Goal of Treatment is - **Sustained Virological Response**
  - **SVR-** equal to cure/eradication

  SVR is defined as
  - *Undetectable HCV viral Load at least ≥12 weeks after treatment completion*
- SVR is associated with
  - >70% reduction in the risk of Hepatocellular carcinoma
  - 90% decrease in liver-related mortality & liver transplantation

  Van der Meer AJ, et al. JAMA. 2012;308(24):2584-2593
- Current Directly acting antivirals have SVR > 98%
  - 1-3 tablets, once a day, for 8-12 weeks

RECOMMENDED REGIMENS*	
Glecaprevir (300 mg) / pibrentasvir (120 mg) taken with food for a duration of 8 weeks	**Sofosbuvir (400 mg) / velpatasvir (100 mg)** for a duration of 12 weeks

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Simplified Treatment algorithms

- For patients with and without Cirrhosis
- Very straightforward
  - Requires minimal testing prior to starting Rx
  - Almost no or minimal testing while on treatment
    - Except more frequent blood glucose monitoring in diabetics and monitoring of INR if on warfarin
- LFT and HCV Viral load (SVR labs) 3 months after finishing Rx to look for cure

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HCV GUIDELINE SIMPLIFIED RECOMMENDATIONS

Recommended Regimens*

- Glecaprevir (300 mg) / pibrentasvir (120 mg) to be taken with food for a duration of 8 weeks
- Sofosbuvir (400 mg) / velpatasvir (100 mg) for a duration of 12 weeks

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HCV- vertical transmission (Mother to child)

- **V**ertical transmission; CID March 2023
  - 1749 children in Multiple countries(UK, France…)
  - Overall VT
  - **7.2%** in HIV negative mothers;
  - 12% in HIV positive mothers
- Estimated 25% infections in utero
  - High spontaneous clearance rate in infants -66% by 5 years

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South Carolina and HCV elimination

- SC was doing superbly well!- In the top 3 in the country in 2017 in access to care for patients with Chronic HCV
  - Medicaid (Fee for Service had retained control over HCV treatment and in spite of a huge cost had loosened restrictions for all stages of HCV
- In 2020, Medicaid allowed the Managed Care Organizations to manage their own HCV
  - Then SC was ranked number 48
- Recently many positive developments at SCDHHS(Medicaid)
  - Including moving towards a uniform drug formulary : Fee for Service & the MCOs

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Monthly 1st and 3rd Wednesday and 4th Wednesday
10:00am-11:00am EST 12:00pm-1:00pm CST
09:00am-10:00am PST 10:00am-11:00am EST
09:00am-10:00am PST 10:00am-11:00am PST

South East Viral Hepatitis Interactive Case Conference

All providers are welcome to join this free CME accredited conference where they get patient specific recommendations
Currently we have providers logging in from SC, NC, TN, LA, FL, AL and other states

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