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  - Use a hardwired Internet connection
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  - https://www.physicaltherapy.com/contact-us
  - https://www.speechpathology.com/contact-us
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  - https://www.audiologyonline.com/contact-us





### HIV/AIDS:

transmission & infection control considerations

A.U. Bankaitis, PhD, FAAA

Clinical Audiologist & Vice President Oaktree Products, Inc. St. Louis, MO

continued

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   Bankaitis, PhD works for a distributor that offers infection control products. Financial disclosures: A.U. Bankaitis,
   PhD received an honorarium for presenting this course.
- Content Disclosure: This learning event does not focus exclusively on any specific product or service.
- Sponsor Disclosure: This course is presented by continued Social Work.

continued

### Learning Outcomes

After this course, participants will be able to:

- identify at least two ways that HIV is transmitted
- differentiate HIV-infection from AIDS based on accepted disease classification systems
- list at least 3 standard precautions related to infection control



# General Objectives



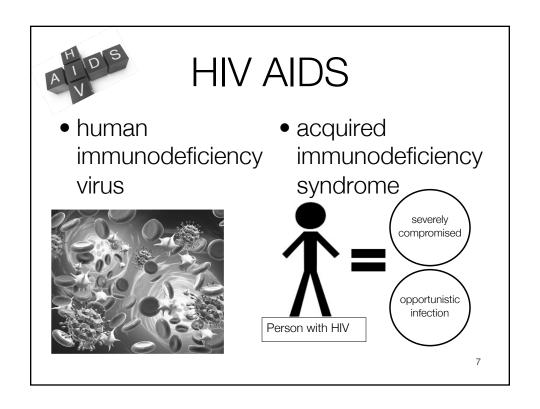
- Overview of HIV/AIDS
- Immune System & HIV
- Infection Control

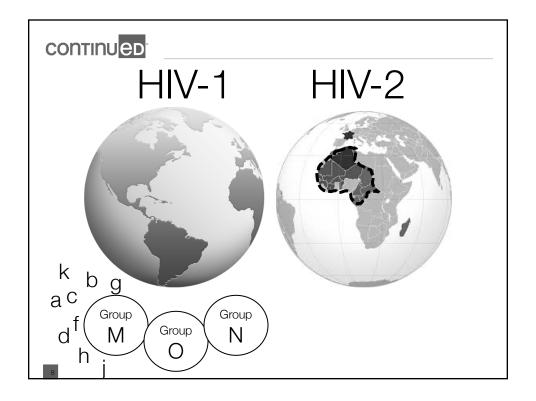
CONTINU ED



- Overview of HIV/AIDS
  - Definitions
  - Historical milestones
  - Global & domestic facts
  - Transmission & prevention









# General Objectives



- Overview of HIV/AIDS
  - Definitions
  - Historical milestones
  - Global & domestic facts
  - Transmission & prevention

continued

1982

### Initial Historical Milestones

MMWR June 5, 1981

5 cases Pneumocystic carinii pneumonia (PCP)

Kaposi's sarcoma

Persitant Generalized Lymphadenopathy (PGL)

Increased demand for PENTAMIDINE

Gay Related Immuno-Deficiency (GRID)

Hemophiliac involvement

 $\underline{\underline{A}}$ cquired  $\underline{\underline{I}}$ mmuno- $\underline{\underline{D}}$ eficiency  $\underline{\underline{S}}$ yndrome (AIDS) coined (July 27, 1982)

International Committee of Viral Taxonomy names virus

Human Immunodeficiency Virus

1986



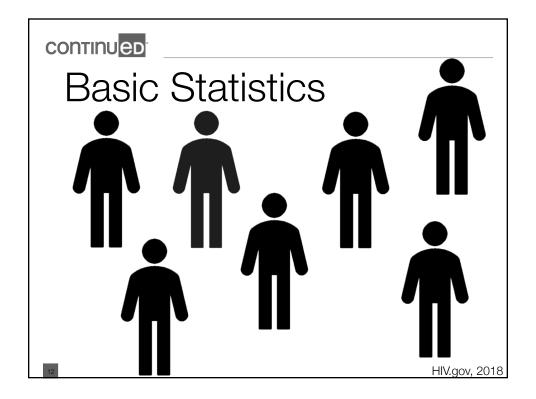
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# **Basic Statistics**

- Worldwide
  - ~40 million living with HIV
  - ~2.3 million newly infected/year
- United States
  - ~1.2 million living with HIV
  - ~40,000 newly infected/year with 14% unaware of status



Joint United Nations Programme on HIV/AIDS (UNAIDS), 2013 HIV.gov, 2018

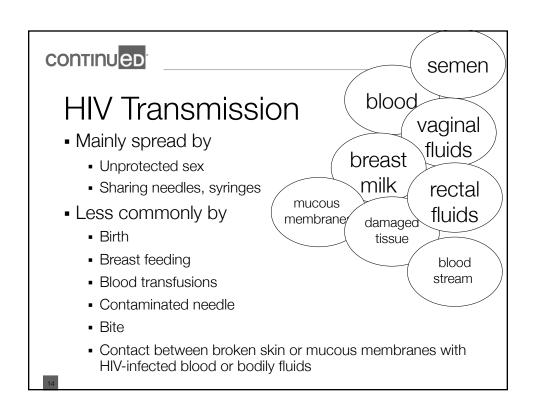




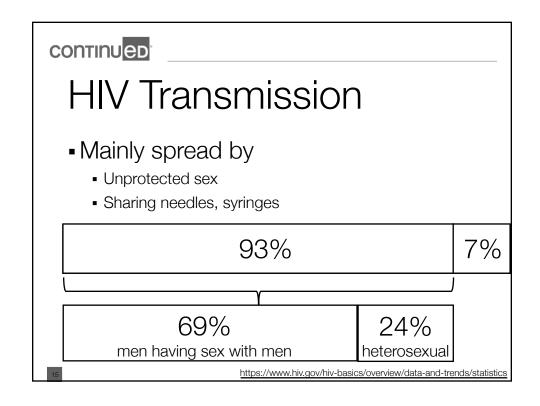
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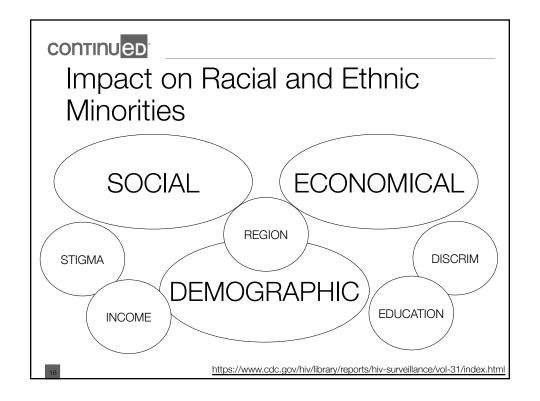


- Overview of HIV/AIDS
  - Definitions
  - Historical milestones
  - Global & domestic facts
  - Transmission & prevention

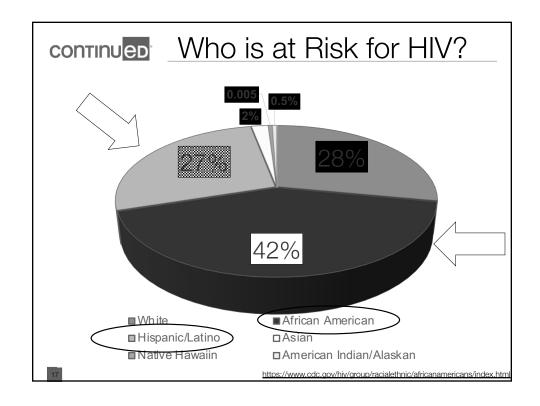


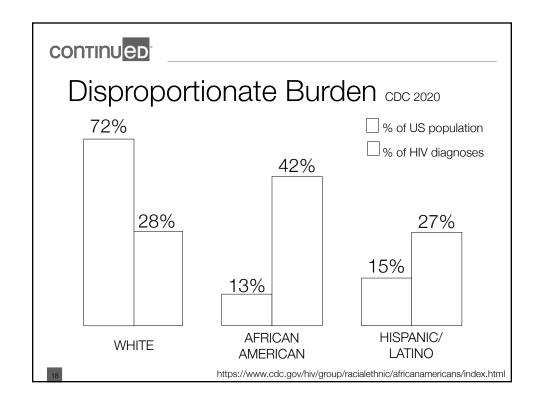




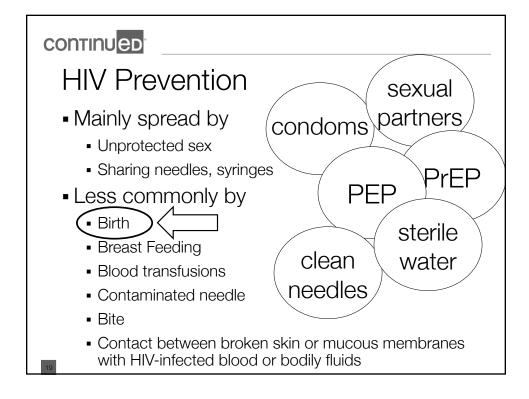












# Pre-exposure prophylaxis

- Taking daily medicine to prevent HIV for people at high risk
  - Taken daily
  - Highly effective for preventing HIV
    - Sex: 99% reduced rate
    - Injection drug use: 75% reduced rate
  - 28 days
  - Effective but not 100%





**PrEP** 

## Post-exposure prophylaxis

 Taking antiretroviral meds after potential exposure



- Within 72 hours
- 1x 2x daily for 28 days
- Effective but not 100%

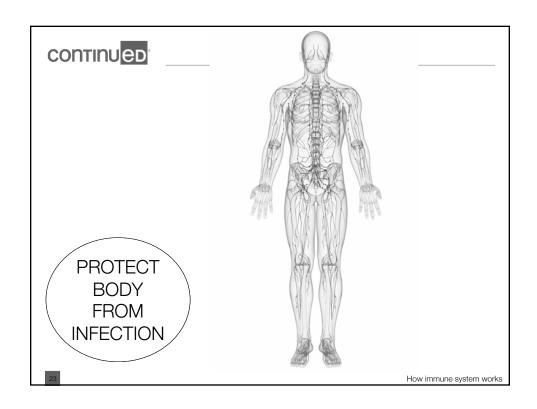
https://www.cdc.gov/hiv/basics/pep.html

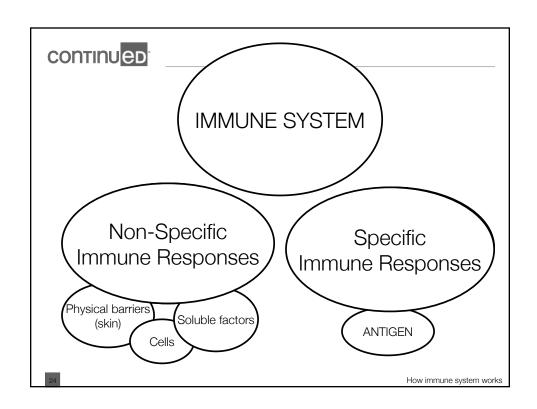
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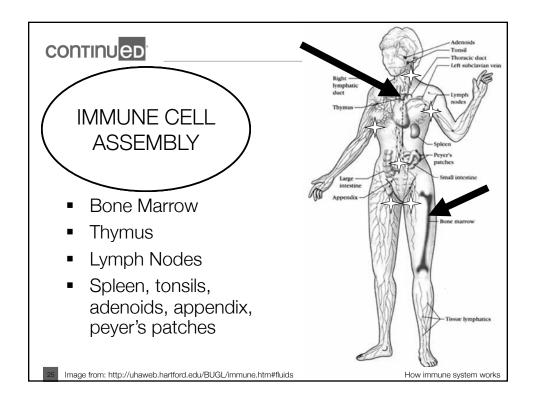
- Immune System & HIV
  - How it works
  - How HIV attacks immune system
  - Disease classification
  - Disease Course
  - Tests to diagnose HIV
  - Antiretroviral drug treatment

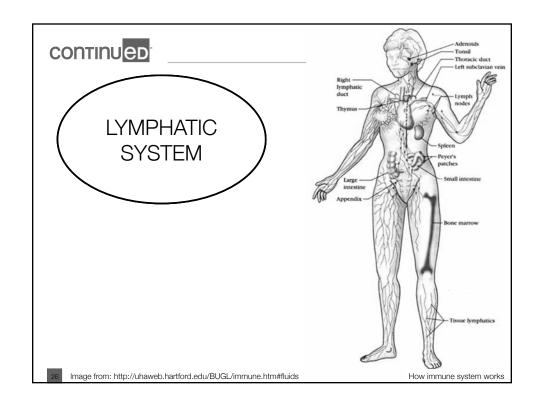




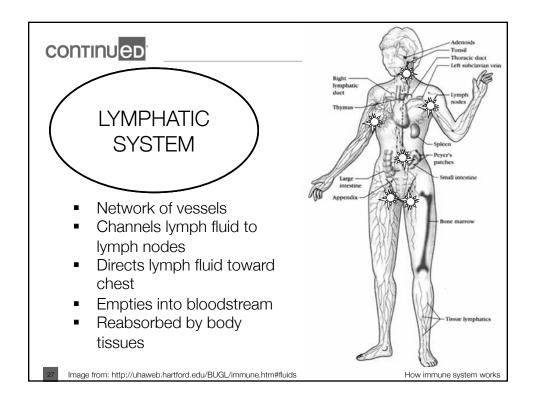


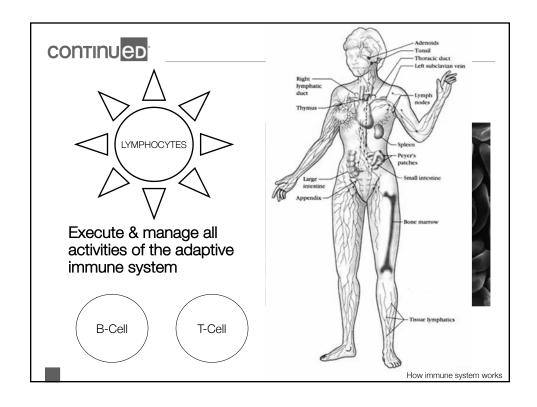




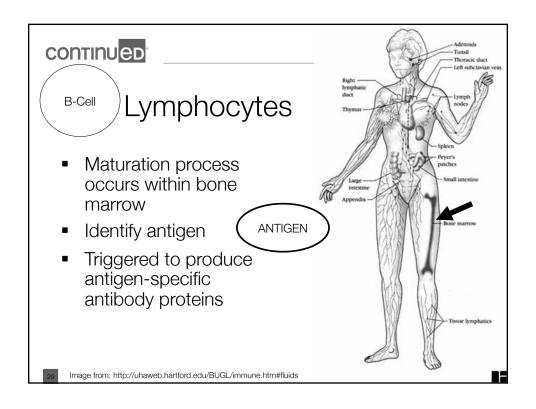


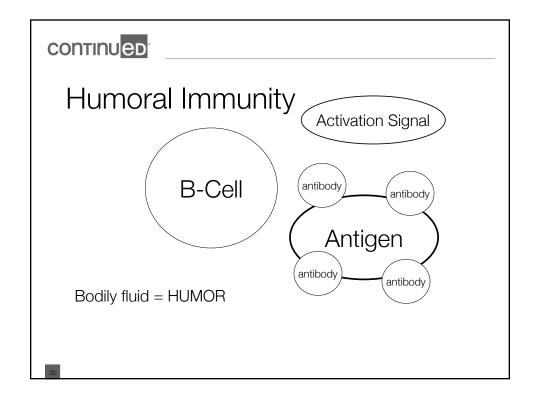




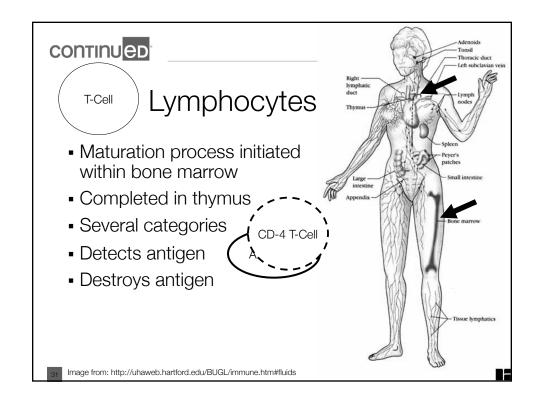


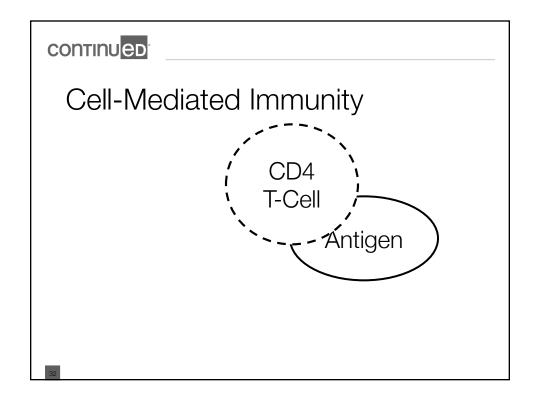




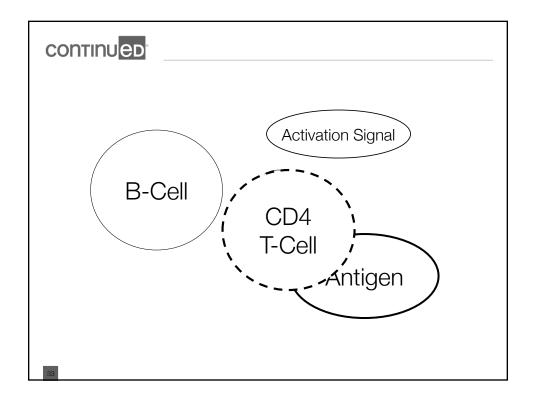


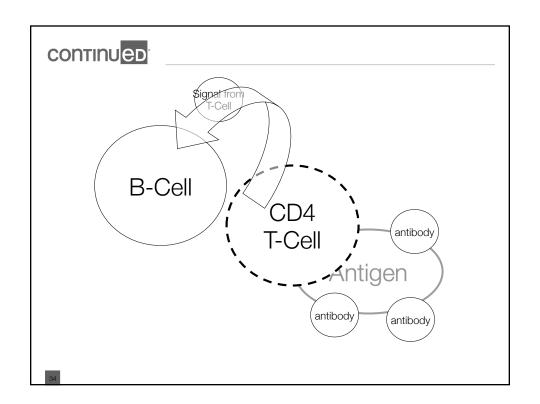














# General Objectives



- Immune System & HIV
  - How it works
  - How HIV attacks immune system
  - Disease classification
  - Disease Course
  - Tests to diagnose HIV
  - Antiretroviral drug treatment

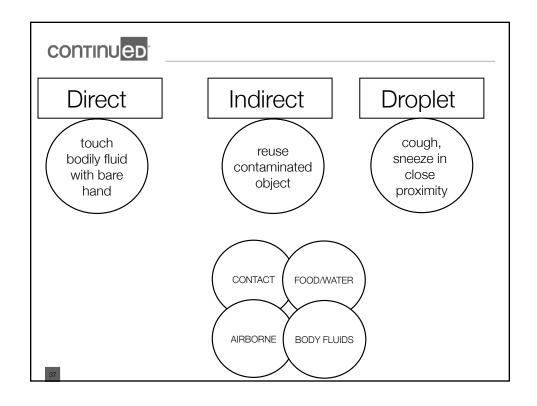
Opportunistic Infections

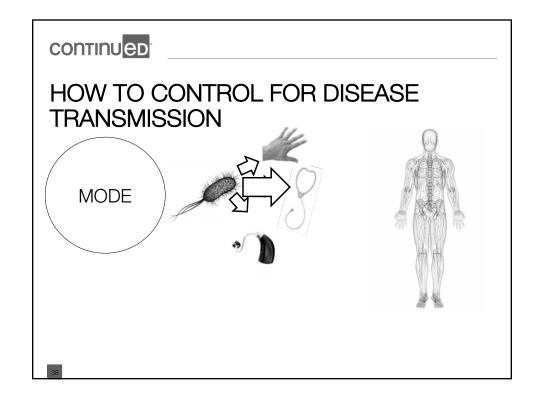
B-Cell

Common place microorganisms
Occur more often
More severe degrees

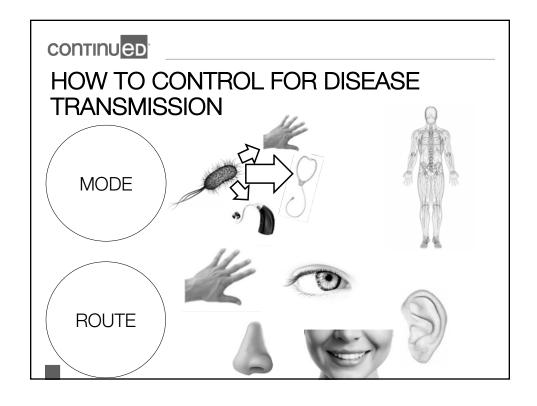
HIV









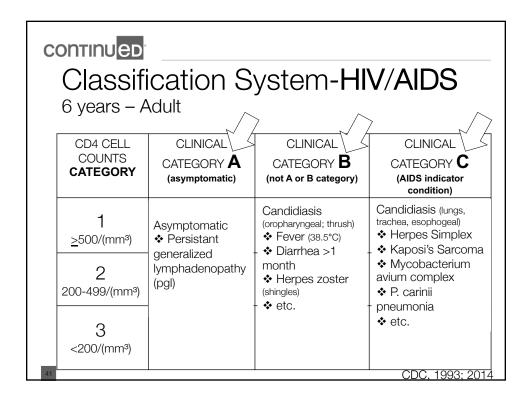


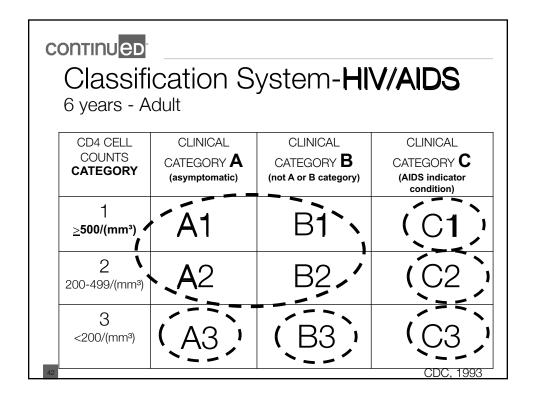
### CONTINU ED



- ■Immune System & HIV
  - How it works
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# Classification System-HIV/AIDS Children

- Maternal HIV antibodies cross placenta
- Falsely HIV+ 9 to 18 months
- CD4+ t-cell count higher in infants

Immune category	<12 <b>mths</b>	1-5 yrs	<u>&gt;</u> 6 yrs	
1	>1500µL	>1000 <sub>µL</sub>	>500µL	
2	750-1499µL	500-999 <sub>µL</sub>	200-499 <sub>µL</sub>	
3	<750µL	<500µL	<200 <sub>µ</sub> L	

Classification System-HIV/AIDS  N = NO SIGNS/SYMPTOMS Children  A = MILD  B = MODERATE Absolute CD4+ T-cell Category						
C = SE		- Essential SE Fooi Galogoly				
		'N	Α	В	C'	
	1	N1	A1	B1	C1	
Clinical Category	2	N2	A2	B2	C2	
	3	N3	A3	В3	C3	
CDC, 1994						



# General Objectives

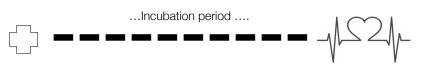


- ■Immune System & HIV
  - How it works
  - How HIV attacks immune system
  - Disease classification
  - Disease Course
  - Tests to diagnose HIV
  - Antiretroviral drug treatment

### continued

### Course of Disease

- Initially, flu-like symptoms
- Incubation period 10 or more years
- Associated with peripheral & central nervous system symptoms that manifest as communication disorders



Initial

infection

Onset of progressive symptoms



### Stages of HIV infection

### acute

- Earliest stage
- 2-4 weeks post infection
- Flu-like symptoms (fever, headache, rash)
- HIV multiplies rapidly
- High levels in blood
- Increased risk of transmission

## CONTINUED Stages of HIV infection

### chronic

- Asymptomatic HIV infection
- HIV continues to multiply
- Without ART
  - ~10 years
- With ART
  - several decades
  - Essentially no risk of transmission



## CONTINUED Stages of HIV infection

- Final stage
- Can't fight off IO
- CD4 count < 200 cells/mm<sup>3</sup>
- Developed certain OI
- High viral load
- Able to transmit very easily
- Without ART, ~3 years

**AIDS** 

HIV/AIDS & Related Disorders

■ Damages cell tissue
■ Releases toxins
■ △ cell metabolism

■ Opportunistic infections
■ Ototoxicity



# INDIRECT

### Opportunistic infections

- Herpes simplex virus (HSV-1)
  - Sores on lips and mouth
- Salmonella
  - Bacterial infection affecting intestines
- Candidiasis (thrush)
  - Fungal infection of mouth, trachea, lungs
- Toxoplasmosis
  - Parasitic infection that affects the brain

https://www.hiv.gov/hiv-basics/staying-in-hiv-care/other-related-health-issues/opportunistic-infections

#### continued



### Opportunistic infections

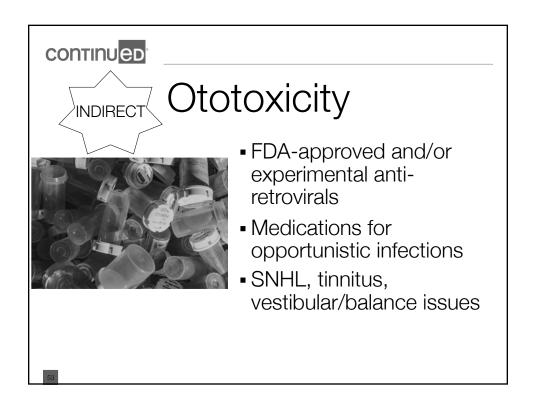
Complete list:

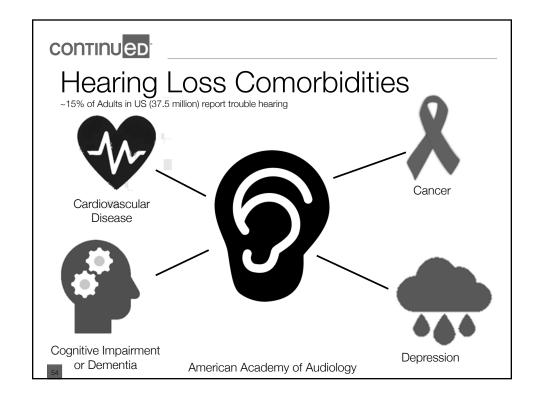
https://www.cdc.gov/hiv/basics/livingwithhiv/opportunisticinfections.html

- Pneumonia
- Cancer
- Infections of the brain
- Diarrheal disease

CDC, 2020



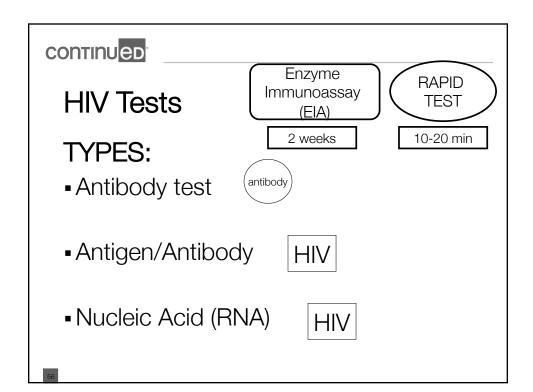








- Immune System & HIV
  - How it works
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  - Disease classification
  - Disease Course
  - Tests to diagnose HIV
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#### What HIV Results Mean

- Negative Test Result
  - Seroconversion takes 2 weeks 6 months
  - Retest in 3 months
- Positive Test Result ☐ ☐
  - Confirmatory test (Western Blot test)
  - Postexposure Prophylaxis Regimen

continued

### HIV Testing – Legal Issues

- For patients in all health-care settings
  - Routine <u>voluntary</u> HIV screening after patient notified testing will be performed unless patient declines (optout screening)
  - Separate written consent <u>not</u> required
  - Persons at high risk screened at least annually
  - Prevention counseling should <u>not</u> be required with HIV diagnostic testing or as part of screening









CDC (2006)

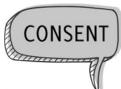


### For pregnant women

- Routine panel of prenatal screening tests
- <u>Voluntary</u> HIV screening after patient notified testing will be performed unless patient declines (opt-out screening)
- Separate written consent <u>not</u> required
- <u>Repeat screening in 3<sup>rd</sup> trimester</u> recommended in certain jurisdictions with elevated HIV rates amongst pregnant women









continued



- Immune System & HIV
  - How it works
  - How HIV attacks immune system
  - Disease classification
  - Disease Course
  - Tests to diagnose HIV
  - Antiretroviral drug treatment



#### continued<sup>®</sup>

# Antiretroviral Drugs for treatment of HIV & AIDS

- Integrase Inhibitors
  - Stop action of enzyme HIV uses to infect cell
- Reverse transcriptase inhibitors
  - Interrupt HIV life-cycle as it tries to copy itself





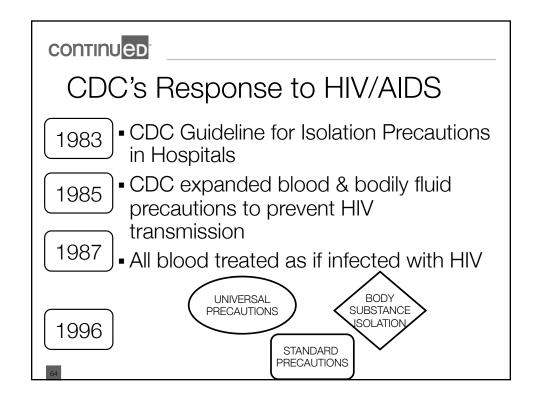
### continued



- Infection control
  - Standard Precautions
  - Key COVID-19 precautions
  - Practical application in work environments



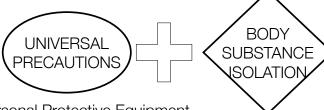








### Standard Precautions



- Personal Protective Equipment
- Hand hygiene
- Cleaning and Disinfecting
- Waste Removal
- Safe infection practice
- Cough Etiquette

continued

### Infection Control

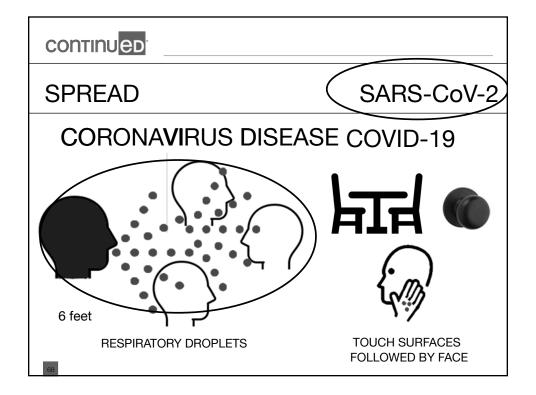
'....conscious management of the clinical environment for purposes of minimizing or eliminating the potential spread of disease'

Bankaitis & Kemp, 2003, 2004

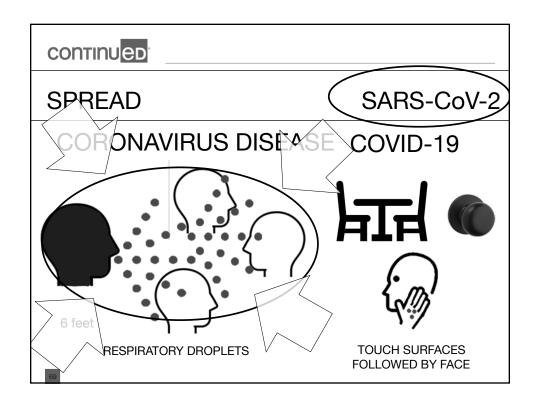




- Infection control
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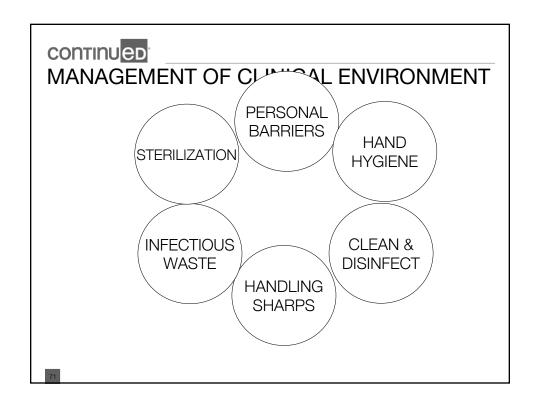


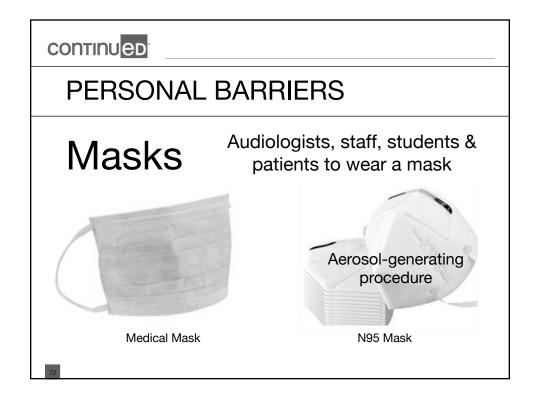




# COVID-19 & HIV • ~50% HIV+ in US > 50 years of age • Effective treatment = equal risk









# HAND HYGIENE

# Hand Sanitizers

60% ethanol 70% isopropanol



continued

# HAND HYGIENE

# When

- Often
- Patient appointment
- Before
- During as needed (including glove removal)
- After
- After coughing/sneezing, blowing nose
- Before eating
- Before touching face



continued
-----------

# **DISINFECT**

# **DEFINITION**

Kill germs

EPA-Registered Hospital Grade

## **QUALIFIED DISINFECTANTS FOR COVID-19**

The U.S. Environmental Protection Agency (EPA) released an expanded list of EPA-registered disinfectant products qualified for use against COVID-19. While these products have not been specifically tested against COVID-19, they are expected to be effective because these products have been tested and proven effective on either a harder-to-kill virus or against another similar human coronavirus.<sup>1</sup>

The products listed below represent disinfectant products from the EPA's expanded list offered by Oaktree Products.

Item number	Clickable Product Link	Qualification
00708	Audiologist's Choice Ultrasonic	List N (EPA Reg. No. 1839-94)
13-1100	CaviWipes (canister)	Kills SARS-CoV-2
30824	Clorox Hydrogen Peroxide (wipes)	List N (EPA Reg. No. 67619-25)
30825	Clorox Hydrogen Peroxide (wipes)	List N (EPA Reg. No. 67619-25)
30828	Clorox Hydrogen Peroxide (24 oz spray)	List N (EPA Reg. No. 67619-25)
C-24	Cavicide Disinfectant (24oz spray)	List N (EPA Reg. No. 46781-6)
C-64	Cavicide Disinfectant (1 gallon)	List N (EPA Reg. No. 46781-6)
H59200	Sani-Cloth AF3 Alcohol-Free (singles)	List N (EPA Reg. No. 9480-9)
35910	SaniZide Pro 1 (32 oz spray)	List N (EPA Reg. No. 88494-3
HO4082	Super Sani-Cloth (singles)	List N (EPA Reg. No. 9480-4)
P13872	Sani-Cloth AF3 Alcohol-Free (canister)	List N (EPA Reg. No. 9480-9)
P25372	Sani-Cloth Prime (wipes)	List N (EPA Reg. No. 9480-12)
Q55172	Super Sani-Cloth (wipes)	List N (EPA Reg. No. 9480-4)



76

# DISINFECT

What

- Touch surfaces
- Splash surfaces

How

- Read instructions
- Clean
- Apply
- Dwell Time

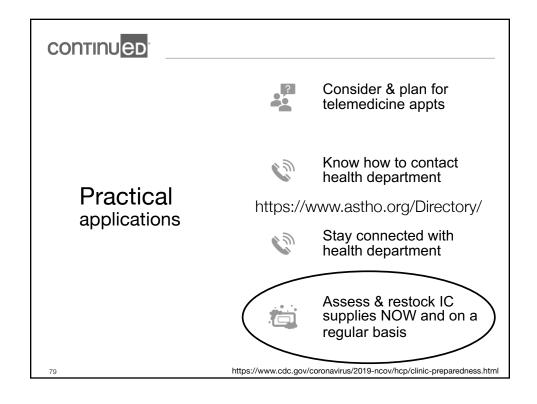
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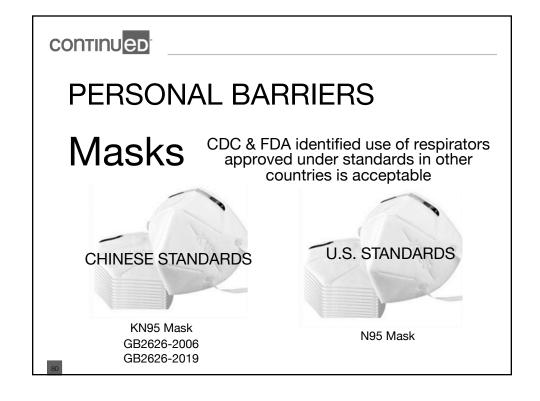
# General Objectives



- Infection control
  - Standard Precautions
  - Key COVID-19 precautions
  - Practical application in work environments

continued<sup>®</sup>







continued<sup>®</sup>

# PERSONAL BARRIERS

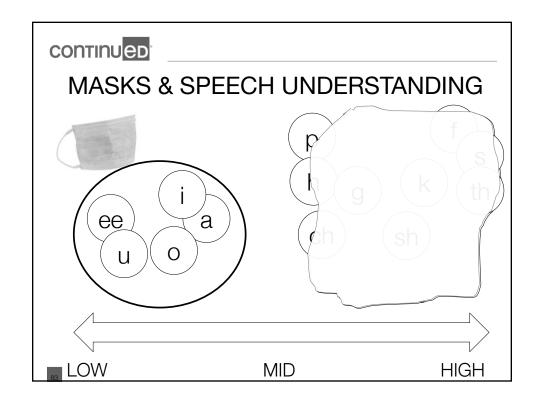
# Masks

- Extended
  - Wear same mask with multiple patients
  - Put on and keep on
  - Once remove it, dispose
  - Tie-on, N95/KN95

- Reuse
  - Wear same mask with multiple patients
  - Put on and take off
  - Continue to reuse until need to dispose
  - Ear or head loop mask











# PERSONAL BARRIERS

# **Face Shields**

- Face Shields
  - Option per CDC
  - Extends below chin
  - Extends sides of face
  - No mask required



https://www.cdc.gov/coronavirus/2019-ncov/hcp/ppe-strategy/face-masks.html

ClearMask<sup>TM</sup> Disposable, anti-fog

Smile Mask (Reusable Cloth)





# HAND HYGIENE

# **Hand Sanitizers**

60% ethanol 70% isopropanol

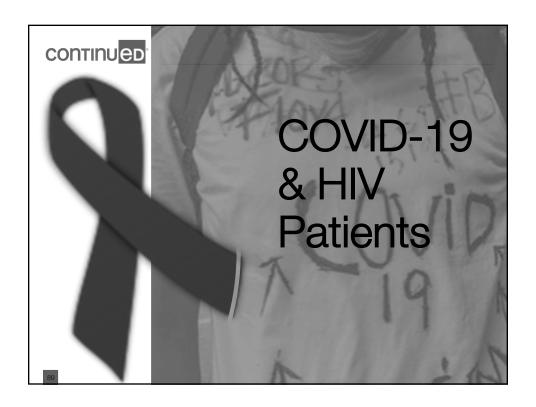


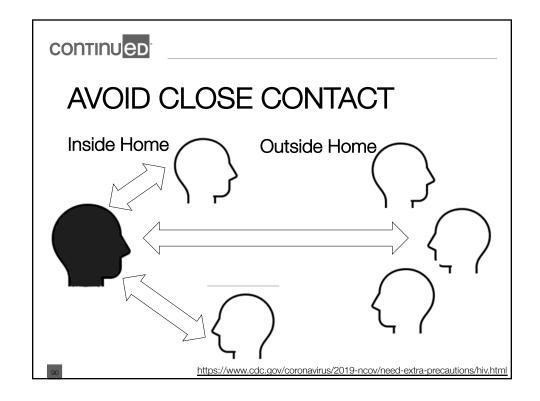
# Soap & Water

Plain Anti-microbial











### MASK UP



- Cover mouth
- Cover nose
- Wear mask even if you do not feel sick
- Wear mask in public & around people who do not live in households
- NOT substitute for social distancing

https://www.cdc.gov/coronavirus/2019-ncov/need-extra-precautions/hiv.html

### continued<sup>®</sup>

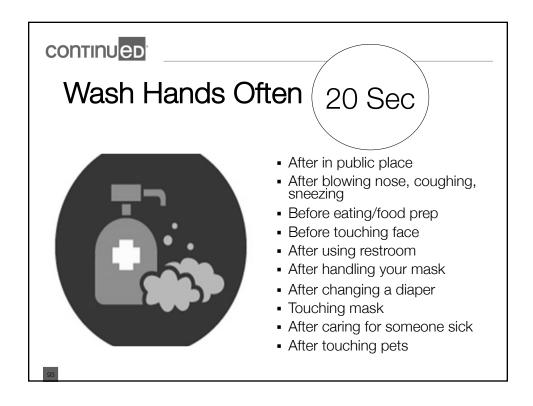
## WASH HANDS OFTEN

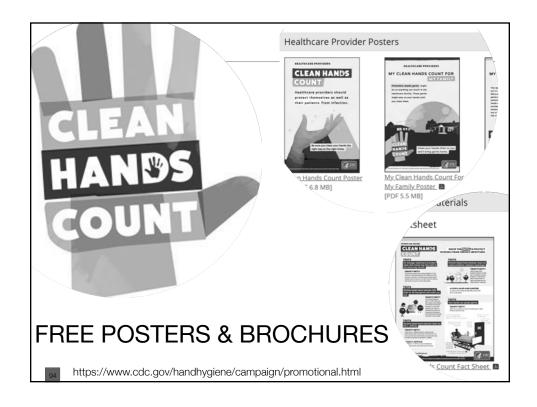
- Soap and water for at least 20 seconds
  - After being in public place
  - After blowing nose, coughing, sneezing
  - Before eating/food prep
  - Before touching face
  - After using restroom
  - After handling your mask
  - After changing a diaper
  - Touching mask
  - After caring for someone sick
  - After touching animals/pets



https://www.cdc.gov/coronavirus/2019ncov/need-extra-precautions/hiv.html



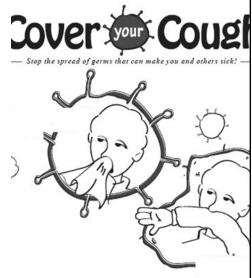






# COVER COUGHS & SNEEZES

- Always cover mouth and nose
  - tissue
  - inside of elbow
- Immediately wash hands
  - Soap & water
  - Hand sanitizer



Free download https://www.cdc.gov/coronavirus/2019-ncov/downloads/Appendix2-cover-cough.pdf

95

# continued

# **CLEAN & DISINFECT**

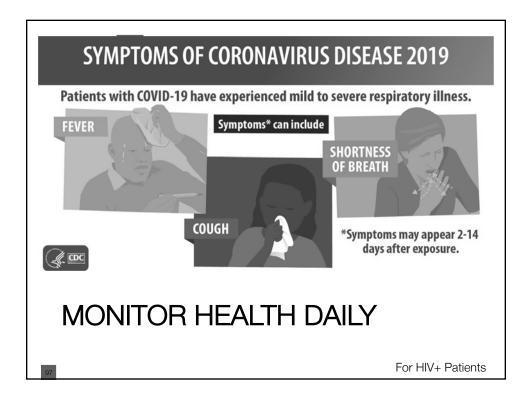
- Touch surfaces
  - Tables
  - Doorknobs
  - Countertops
- EPA-registered household disinfectants

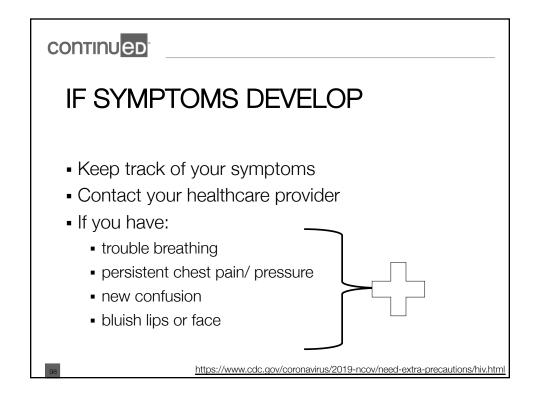


Disinfectant

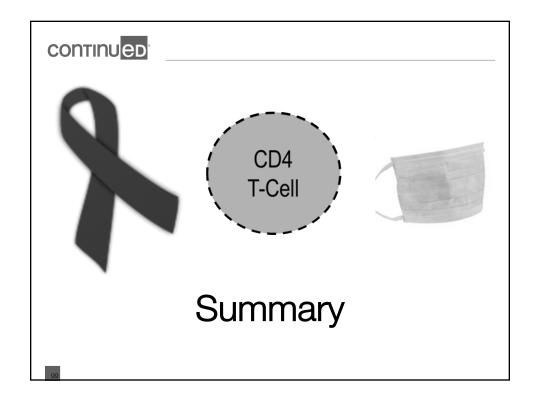
https://www.cdc.gov/coronavirus/2019-ncov/need-extra-precautions/hiv.html

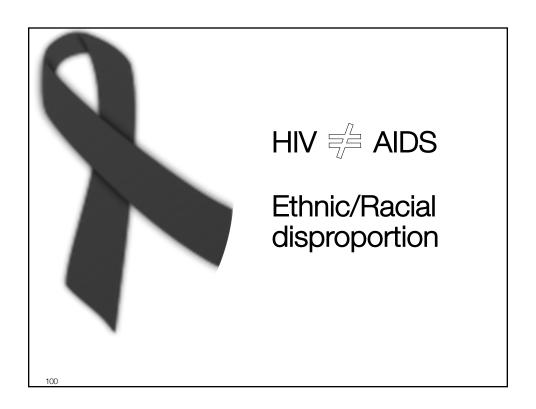




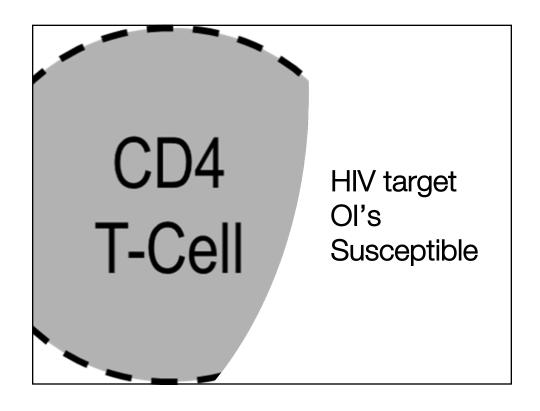


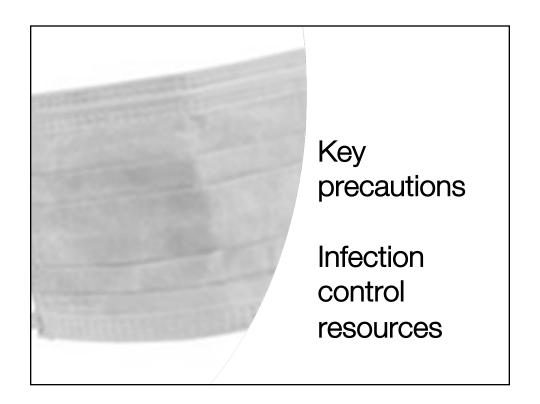
















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