HIV Facts, Prevention and Care

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EXPLORE
HEALTHCARE SUMMIT

Learning Objectives

- Be informed of facts surrounding HIV in the US and Oklahoma
- Identify symptoms related to HIV infection
- Understand the screening indications and diagnostic algorithm of HIV
- Be able to summarize treatment options and clinical care in HIV
- List indications for pre-exposure prophylaxis (PrEP) to HIV
- Describe efficacy data in various populations at risk for HIV
- Construct an appropriate PrEP plan for a patient
- Identify appropriate follow up for a PrEP patient

HIV

HIV in the US – National Statistics
HIV in Oklahoma – State Statistics
Clinical Presentation and Care in HIV

HIV in the US – National Statistics

HIV in the US – National Statistics

- Approximately 1.2 million people in the U.S. have HIV
- In 2022, an estimated 31,800 people acquired HIV in the U.S.
- Disproportionate impacts:
  - Gay
  - Bisexual
  - Men who have sex with men (MSM)

1.2 Million

Approximately how many people are living with HIV in the US *(diagnosed & undiagnosed)*

13%

People with HIV who do not know they have it

5

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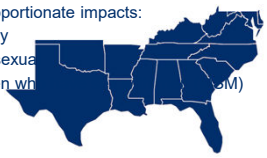

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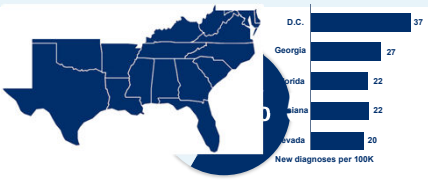
HIV in the US – National Statistics

From 2018 to 2022, new HIV infections decreased 12%

About 56% of persons aged 13 to 34 accounted for new infections



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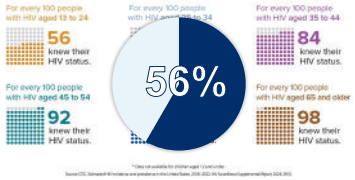

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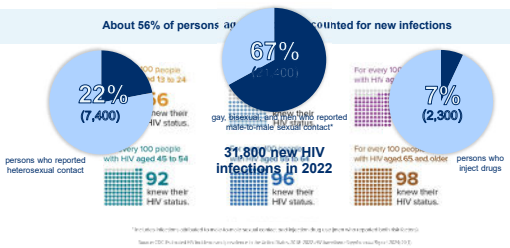

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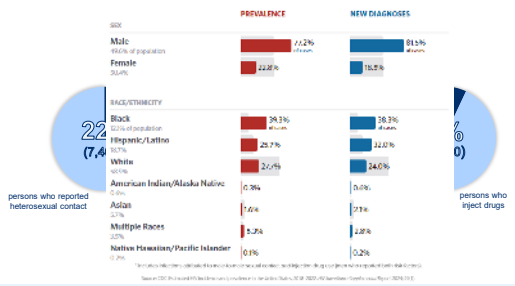
HIV in the US – National Statistics



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HIV in Oklahoma – State Statistics

HIV in Oklahoma – State Statistics

- Approximately 7,264 people are living with HIV in Oklahoma in 2022
- In 2022, an estimated 394 people acquired HIV in Oklahoma
- Disproportionate impact in rural Oklahoma

7,264
Approximately how many people are diagnosed with HIV in Oklahoma

17%
People with HIV who do not know they have it

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HIV in Oklahoma – State Statistics

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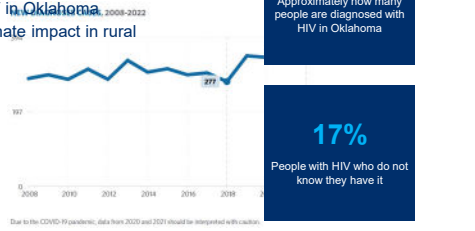
7,264

Approximately how many people are diagnosed with HIV in Oklahoma

17%

People with HIV who do not know they have it



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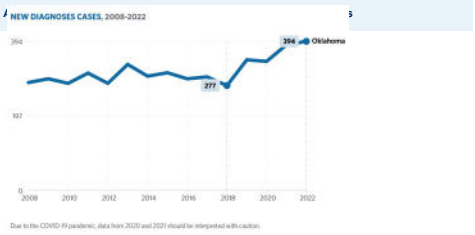
HIV in Oklahoma – State Statistics

From 2018 to 2022, new HIV infections increased by 42%



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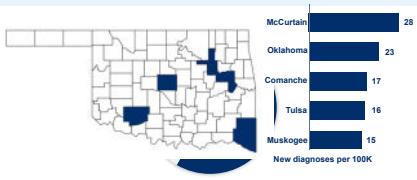
HIV in Oklahoma – State Statistics

Estimated infections in 2022 disproportionally affected specific areas

About 57% of persons aged 13 to 34 accounted for new infections



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HIV in Oklahoma – State Statistics

Estimated infections in 2022 disproportionally affected specific areas

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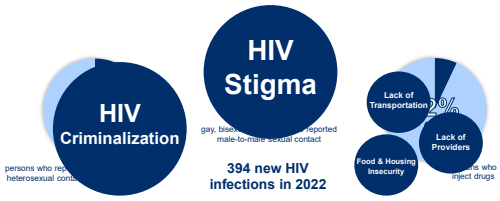
HIV in Oklahoma – State Statistics

Estimated infections in 2022 disproportionally affected specific areas



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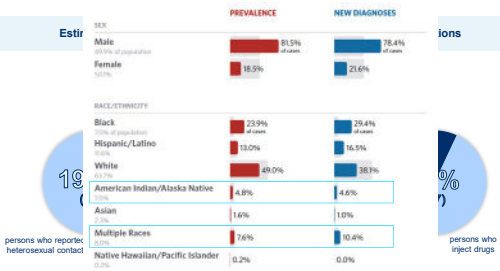
HIV in Oklahoma – State Statistics



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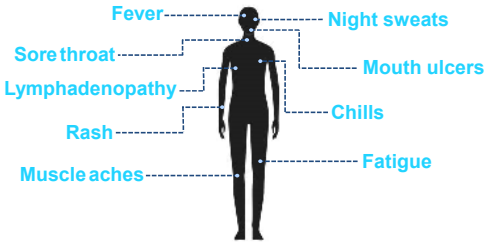
Clinical Care in HIV

Clinical Care in HIV

Symptoms of Acute HIV Infection



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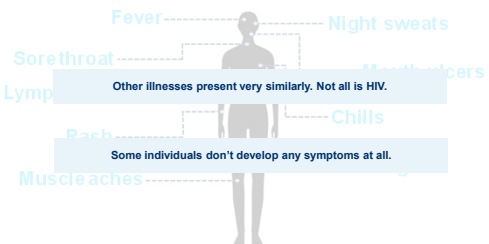
Clinical Care in HIV

Symptoms of Acute HIV Infection



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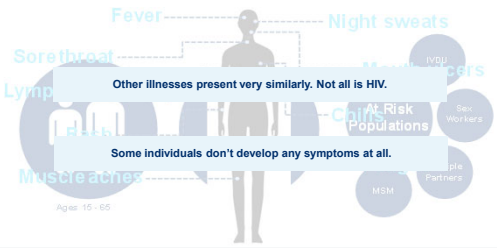
Clinical Care in HIV

Symptoms of Acute HIV Infection



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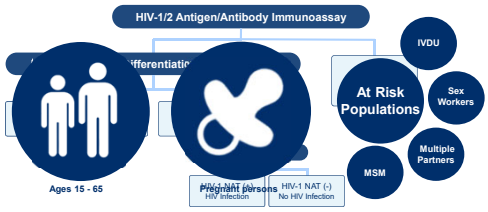
Clinical Care in HIV

Who to Screen



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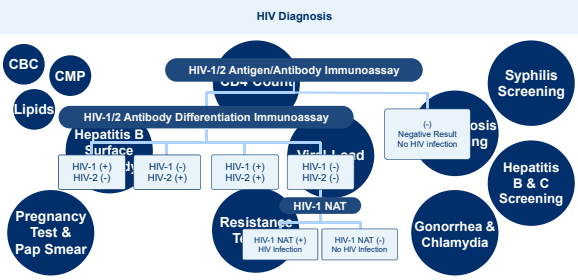
Clinical Care in HIV

HIV Diagnosis



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Clinical Care in HIV

Initial Tests After Diagnosis

CBC
CMP
Lipids
CD4
Hepatitis B Surface Antibody
Pregnancy Test & Pap Smear

- The maior indicator of immune function and best
- Assesses urgency and/or need for opportunistic infec… prophylaxis
- Mo… cy of therapy
  - B…
  - Years … eve… months
  - Years 3+:
    - CD4 <300: … 3-6 months
    - CD4 300-500 … months
    - … optional

CD4 Count
Viral Load
Resistance Testing
Syphilis Screening
Tuberculosis Screening
Hepatitis B & C Screening
Gonorrhea & Chlamydia

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Clinical Care in HIV

HIV RNA Quantitative

- Goal: viral suppression or undetectable viral load
  - <20-75 copies/mL depending on assay
- Monitors response to therapy
  - Baseline
  - Recheck in 2-4 weeks from initiation
  - Every 4-8 weeks until <200 copies/mL (suppression)
  - Every 3-4 months with continued suppression
  - Every 6 months with suppression for 2+ years
- Isolated “blips” can occur
  - Transient, not thought to predict failure

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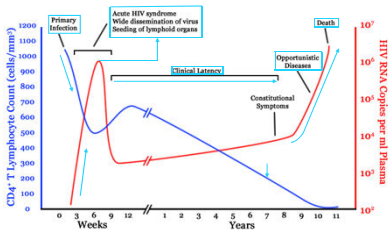
Clinical Care in HIV

HIV RNA Quantitative



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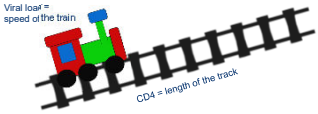
Clinical Care in HIV

HIV RNA Quantitative



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Clinical Care in HIV

Resistance Testing

- Shows mutations in the virus
  - Before initiation
  - With virologic failure

GenoSure® MG	GenoSure® Integrase
Genotypic resistance NRTI, NNRTI, PI	Genotypic resistance Integrase inhibitors only
GenoSure PRIme®	**GenoSure Archive®**
Genotypic resistance All 4 classes	Genotypic resistance All 4 classes Lower viral loads (<500)

PhenoSense®
Phenotypic resistance Treatment experienced

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Clinical Care in HIV

Resistance Testing

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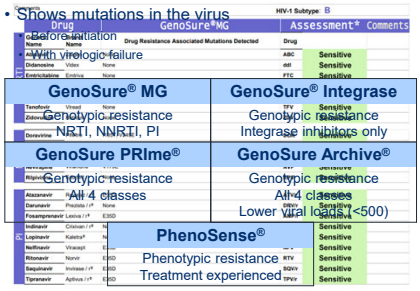

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PhenoSense®
Phenotypic resistance Treatment experienced

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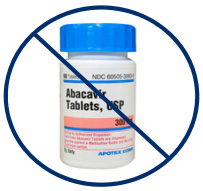
Clinical Care in HIV

HLA-B*5701 Screening

- HLA-B*5701-positive patients have increased risk of having a hypersensitive reaction to abacavir
- Abacavir should be recorded as an allergy if positive



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Clinical Care in HIV

HLA-B*5701 Screening

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- Abacavir should be recorded as an allergy if positive

When to Start Therapy

be started on ART regardless of CD4 count

ose to postpone ART

tart treatment

ide effects of treatm

c or psychosocial fa

oose to defer ART

to treatment

ors

ed factors

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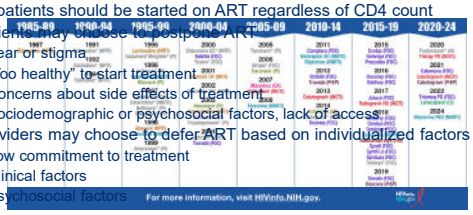
Clinical Care in HIV

When to Start Therapy

- All patients should be started on ART regardless of CD4 count
- Patients may choose to postpone ART
  - Fear or stigma
  - "Too healthy" to start treatment
  - Concerns about side effects of treatment
  - Sociodemographic or psychosocial factors, lack of access
- Providers may choose to defer ART based on individualized factors
  - Low commitment to treatment
  - Clinical factors
  - Psychosocial factors



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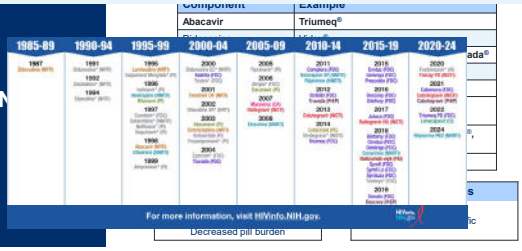
Clinical Care in HIV

NRTI

Timeline of Therapies



Component	Example
Abacavir	Triumeq®

Decreased pill burden

Bold = commonly used

Clinical Care in HIV

NRTI

Treatment Regimen Component

Component	Example
Abacavir	**Triumeq®**
Didanosine	Videx®
Emtricitabine	**Biktarvy®, Descovy®, Odefsey®, Truvada®**
Lamivudine	**Delstrigo®, Dovato®, Triumeq®**
Stavudine	Zerit®
Tenofovir alafenamide	**Biktarvy®, Descovy®, Genvoya®, Odefsey®, Symtuza®,** Vemlidy®
Tenofovir disoproxil	Atripla®, Complera®, Stribild®, **Truvada®,** Viread®
Zidovudine	Combivir®, Trizivir®

Tenofovir di … **r alafenamide**

Increased … bone toxicity … Decreased

Advantages	Disadvantages
Good tolerability Few drug interactions Decreased pill burden	Medication-specific

Bold = commonly used

Clinical Care in HIV

NRTI

Treatment Regimen Component

	Abacavir	Zidovudine
	Hypersensitivity reaction Rash Possible increased MACE risk	Headache GI intolerance Bone marrow suppression
Tenofovir disoproxil	**Once-daily dosing** **High virologic efficacy** Renal impairment (TDF > TAF) Osteopenia/osteoporosis **Active against HBV**	**Tenofovir alafenamide**
Emtricitabine	**Potential for renal and bone toxicity**	
	Dizziness Headache GI intolerance	Peripheral neuropathy Possible increased MACE risk Pancreatitis Possible portal hypertension

Bold = commonly used

Clinical Care in HIV

NRTI

Treatment Regimen Component

All NRTIs
Lactic acidosis
Hepatic steatosis
Lipodystrophy
Peripheral neuropathy

Abacavir
Hypersensitivity reaction
Possible increased MACE risk

Zidovudine
Headache
GI intolerance
Lipoatrophy
Bone marrow suppression

Tenofovir
Renal impairment (TDF > TAF)
Osteopenia/osteoporosis
Headache
GI intolerance

Stavudine
Peripheral neuropathy
Lipoatrophy
Pancreatitis

Didanosine
GI intolerance
Peripheral neuropathy
Possible increased MACE risk
Pancreatitis
Possible portal hypertension

Emtricitabine
Dizziness
Headache
GI intolerance

Advantages
Long half-lives
Less dyslipidemia, insulin resistance
PIs and integrase inhibitors preserved for later use

Disadvantages
Low genetic barrier to resistance
Increased risk of transmitted resistance
Cross-resistance amongst NRTIs

Bold = commonly used

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Clinical Care in HIV

NNRTI

Treatment Regimen Component

Component	Example
Doravirine	**Delstrigo®, Pifeltro®**
Efavirenz	Atripla®, Sustiva®
Etravirine	Intelence®
Nevirapine	Viramune®
Rilpivirine	**Cabenuva®, Odefsey®**

All NNRTIs
Rash (SJS)
Hepatotoxicity
Drug-drug interactions

Efavirenz
Neuropsychiatric
Teratogenic
Dyslipidemia

Rilpivirine
Depression
Virologic failure with high VL or low CD4

Nevirapine
Increased rash risk
Hepatotoxicity

Advantages
Long half-lives
Less dyslipidemia, insulin resistance
PIs and integrase inhibitors preserved for later use

Disadvantages
Low genetic barrier to resistance
Increased risk of transmitted resistance
Cross-resistance amongst NNRTIs

Bold = commonly used

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Clinical Care in HIV

NNRTI

Adverse Drug Reactions

Component	Example
Atazanavir	Reyataz®
Darunavir	**Prezista®**
Fosamprenavir	Lexiva®
Nelfinavir	Viracept®
Ritonavir	Norvir®
Saquinavir	Invirase®
Tipranavir	Aptivus®

All NNRTIs
Rash (SJS)
Hepatotoxicity
Drug-drug interactions

Doravirine
Nausea
Fatigue
Headache

Efavirenz
Neuropsychiatric
Teratogenic
Dyslipidemia

Rilpivirine
Depression
Virologic failure with high VL or low CD4

Nevirapine
Increased rash risk
Hepatotoxicity

Advantages
Lower rates of side effects

Disadvantages
Require pharmacokinetic booster

Bold = commonly used

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Clinical Care in HIV

Protease Inhibitor

Treatment Regimen Component

Component	Example
Atazanavir	Reyataz®
Darunavir	**Prezista®**
Fosamprenavir	Lexiva®, Telzir®
Lopinavir	Kaletra®
Nelfinavir	Viracept®
Ritonavir	Kaletra®, Norvir®
Saquinavir	Invirase®
Tipranavir	Aptivus®

All PIs
Dyslipidemia
Lipodystrophy
Hepatotoxicity
GI intolerance
Drug-drug interactions

Darunavir
Rash
Possible increase MACE risk

Fosamprenavir
Rash
Possible increase MACE risk

Atazanavir
Hyperbilirubinemia
PR prolongation

Nelfinavir
Diarrhea

Lopinavir/Ritonavir
Insulin resistance/diabetes
Possible increased MACE risk
PR and QT prolongation

Saquinavir
PR and QT prolongation

Indinavir
Insulin resistance/diabetes
Nephrolithiasis

Tipranavir
Rash
Require pharmacokinetic booster

Advantages
Lower rates of side effects

Disadvantages

Bold = commonly used

Clinical Care in HIV

Protease Inhibitor

Adverse Drug Reactions

Component	Example
Cabotegravir	Cabenuva®
Bictegravir	Biktarvy®
Dolutegravir	Dovato®, Tivicay®, Triumeq®
Elvitegravir	Genvoya®
Raltegravir	Isentress®

All PIs
Dyslipidemia
Lipodystrophy
Hepatotoxicity
GI intolerance
Drug-drug interactions

Darunavir
Rash

Fosamprenavir
Rash
Possible increase MACE risk

Atazanavir
Hyperbilirubinemia
PR prolongation
Nephro-, cholelithiasis

Nelfinavir
Diarrhea

Lopinavir/Ritonavir
Insulin resistance/diabetes
Possible increased MACE risk
PR and QT prolongation

Saquinavir
PR and QT prolongation

Indinavir
Insulin resistance/diabetes
Nephrolithiasis

Tipranavir
Rash

Advantages
High virologic response
Lower rates of side effects
Fewer drug-drug interactions

Disadvantages
Many drug-drug interactions with elvitegravir

Bold = commonly used

Clinical Care in HIV

Integrase Inhibitor

Treatment Regimen Component

Component	Example
Cabotegravir	Cabenuva®
Bictegravir	Biktarvy®
Dolutegravir	Dovato®, Tivicay®, Triumeq®
Elvitegravir	Genvoya®
Raltegravir	Isentress®

Bictegravir
Headache

Dolutegravir
Headache

Elvitegravir
CK elevation
Myopathy, rhabdomyolysis
Rash

Elvitegravir/cobicistat
Diarrhea

Advantages
High virologic response
Lower rates of side effects
Fewer drug-drug interactions

Disadvantages
Lower genetic barrier to resistance
Many drug-drug interactions with elvitegravir

Bold = commonly used

Clinical Care in HIV

Integrase Inhibitor

Adverse Drug Reactions

Bictegravir	Raltegravir
Headache	Headache
Diarrhea	Diarrhea
Fostemasvir	**Maraviroc**
Gp120 attachment inhibitor	CCR5 antagonist
	CK elevation
Dolutegravir	Myopathy, rhabdomyolysis
Headache	Rash
Insomnia	**Elvitegravir/cobicistat**
Rash	Nausea
	Diarrhea

Bold = commonly used

Clinical Care in HIV

Additional Medications

Treatment Drug Component

Ibalizumab-uiyk	**Enfuvirtide**
CD4 post-attachment inhibitor	Fusion inhibitor
Fostemasvir	**Maraviroc**
Gp120 attachment inhibitor	CCR5 antagonist
Lenacapavir	
Capsid inhibitor	

Two-drug regimen

→ Integrase inhibitor + NRTI (dolutegravir + lamivudine)

vidualize the regimen choice

Clinical Care in HIV

Single-tablet Regimens

Choosing a Regimen

Two-drug regimen

→ Integrase inhibitor + NRTI (dolutegravir + lamivudine)

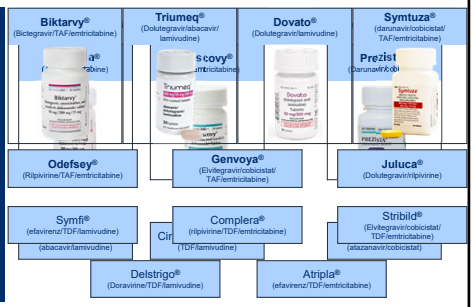
Biktarvy®	Triumeq®	Dovato®	Symtuza®
Odefsey® (Rilpivirine/TAF/emtricitabine)	Genvoya® (Elvitegravir/cobicistat/ TAF/emtricitabine)	Juluca® (Dolutegravir/rilpivirine)	
Symfi® (efavirenz/3TC/lamivudine)	Complera® (rilpivirine/TDF/emtricitabine)	Stribild® (Elvitegravir/cobicistat/ TDF/emtricitabine)	
Delstrigo® (Doravirine/TDF/lamivudine)	Atripla® (efavirenz/TDF/emtricitabine)		

vidualize the regimen choice

Bold = commonly used

Clinical Care in HIV

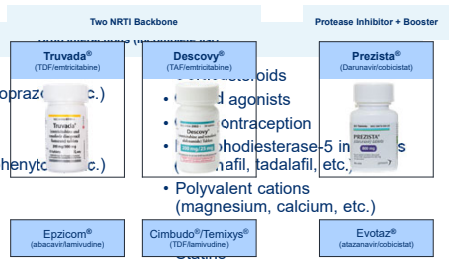
Single-tablet Regimens



Bold = commonly used

Clinical Care in HIV

Combination Regimens



- Polyvalent cations (magnesium, calcium, etc.)

Bold = commonly used

Clinical Care in HIV

Drug Interactions (incomplete list)

- Acid suppressants (omeprazole, pantoprazole, etc.)
- Antiarrhythmics
- Anticoagulants
- Anticonvulsants (phenytoin, etc.)
- Antiplatelets
- Antipsychotics
- Benzodiazepines
- Corticosteroids
- Opioid agonists
- Oral contraception
- Phosphodiesterase-5 inhibitors (sildenafil, tadalafil, etc.)
- Polyvalent cations (magnesium, calcium, etc.)
- Rifampin
- Statins

HIV Drug Interactions
https://clinicalinfo.hiv.gov/en/guidelines/hiv-clinical-guidelines-adult-and-adolescent-arv
HIV/HCV
UpToDate®
https://www.uptodate.com/drug-interactions/

Clinical Care in HIV

Drug Interactions (incomplete list)

- Definition: inability to achieve or maintain viral suppression
- Carefully assess cause of virologic failure
  - Evaluat… HIV Drug Interactions …tions, social barriers, food… …urity
  - Resistance testing should occur while the person is on therapy … HIV/HCV MEDICATION GUIDE … f discontinuation
- Develop new regimen with two, preferably three, fully active agents
- Goal is to s… …e virus
  - Alternativ… …ize toxicity, preserve CD4 … UpToDate®
  - progressi…
- Can initiate salvage therapy with fostemsavir, ibalizumab or enroll in clinical trial

Clinical Care in HIV

Virologic Failure

- Definition: inability to achieve or maintain viral suppression
- Carefully assess cause of virologic failure
  - Evaluate nonadherence, drug interactions, social barriers, food requirements/insecurity
  - Resistance testing should occur while the person is on therapy or within 4 weeks of discontinuation
- Develop new regimen with two, preferably three, fully active agents
- Goal is to suppress the virus
  - Alternative goal: minimize toxicity, preserve CD4 counts, delay clinical progression
- Can initiate salvage therapy with fostemsavir, ibalizumab or enroll in clinical trial

CD4 Count

≤200 copies/mL	≤100 copies/mL	≤50 copies/mL
	+ PJP prophylaxis	+ PJP prophylaxis + Toxoplasmosis prophylaxis
Pneumocystis jirovecii pneumonia (PJP)	**Toxoplasmosis** *	**Mycobacterium avium complex (MAC)**
Preferred: sulfamethoxazole/trimethoprim (Bactrim)	**Preferred:** sulfamethoxazole/trimethoprim (Bactrim)	**Preferred:** ART initiation
Alternative: dapsone	**Alternative:** dapsone + pyrimethamine + leucovorin	**Alternative:** azithromycin 1200 mg/week

Summary

- Screening is underutilized but vital
- Resistance testing *must* be obtained prior to or at ART initiation
- Single-tablet regiments are always preferred if able to be utilized
- Individualize treatment
- ***Always check for drug interactions***

PrEP

Indications & Options
Prescribing PrEP
Continued Care & Follow Up

Indications & Options

Indications & Options

Currently Available Medications

PrEP: Pre-exposure prophylaxis

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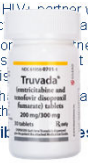
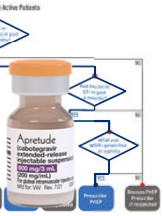
Indications & Options

Currently Available Medications

- Sexually active in the last 6 months participating in anal and/or vaginal sex
  - With HIV+ partner with unknown or detectable viral load
  - One or more partners of unknown HIV status and doesn't utilize condoms consistently
  - Has had a bacterial STI in the last six months
- Prescribed if requested

PrEP: Pre-exposure prophylaxis





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Indications & Options

Indications

- Ever injected drugs
  - Injection use in the last six months
  - Shared equipment
- Prescribe if requested

- Sexually active in the last 6 months participating in anal and/or vaginal sex
  - With HIV+ partner with unknown or detectable viral load
  - One or more partners of unknown HIV status and doesn't utilize condoms consistently
  - Has had a bacterial STI in the last six months
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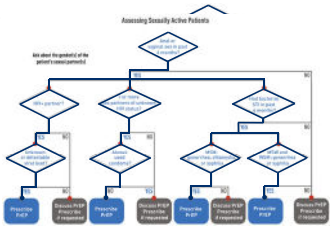

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Indications & Options

Indications

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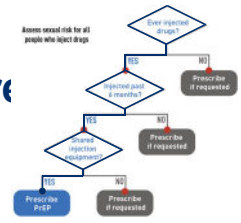
Prescribe if re



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Indications & Options

Truvada®
(tenofovir disoproxil-emtricitabine)

- Single-tablet regimen taken once daily by mouth
- Population: biologic males, biologic females, those that use injection drugs (male and female sex)
- 2-1-1 dosing for MSM
  - Two tablets, 2-24 hours prior to sex
  - One tablet, 24 hours after
  - One tablet, 48 hours after last sexual encounter
- Weight of at least 35 kg or 77 lb
- TDF: creatinine clearance ≥60 mL/min

Indications

Pr cribe if requested

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Indications & Options

Truvada®
(tenofovir disoproxil-emtricitabine)

- Single-tablet regimen taken once daily by mouth
- Population: biologic males, biologic females, those that use injection drugs (male and female sex)
- Has not been studied in biologic females/vaginal tissue
- 2-1-1 dosing for MSM
  - Two tablets, 2-24 hours prior to sex
  - One tablet, 24 hours after
  - One tablet, 48 hours after last sexual encounter
- Weight of at least 35 kg or 77 lb
- TDF: creatinine clearance ≥60 mL/min
- TAF: creatinine clearance ≥30 mL/min

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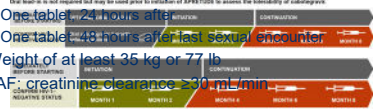
Indications & Options

Descovy®
(tenofovir alafenamide-emtricitabine)

- Single-tablet regimen taken once daily by mouth
- Population: biologic male
- 2-1-1 dosing for MSM
  - Two tablets, 2-24 hours prior to sex
  - One tablet, 24 hours after
  - One tablet, 48 hours after last sexual encounter
- Weight of at least 35 kg or 77 lb
- TAF: creatinine clearance ≥30 mL/min

- Single-tablet option for PrEP currently available
- Oral lead-in available option for first 28 days to assess tolerability
- Has not been studied in biologic females/vaginal tissue
- Monthly injection for two months
- Every other month injection thereafter



- Weight of at least 35 kg or 77 lb
- Population: biologic male and biologic female

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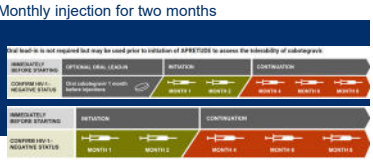
Indications & Options

Apretude®
(cabotegravir)

- Only injectable option for PrEP currently available
  - Oral lead in: available option for first 28 days to assess tolerability
  - Monthly injection for two months



- Weight of at least 35 kg or 77 lb
- Population: biologic male and biologic female

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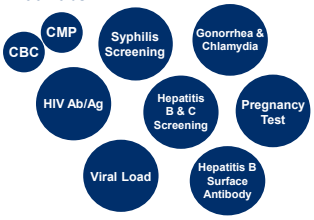
Prescribing PrEP

Prescribing PrEP

Initial Evaluation and Appointment

Initial labs:



Initial documentation:

- No signs of symptoms of active HIV infection and negative HIV testing
- Renal function
- HBV immune status
- No contraindicated medication use

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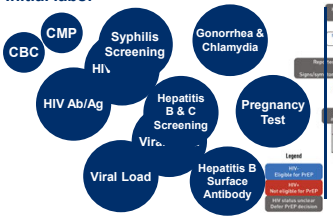
Prescribing PrEP

Initial Evaluation and Appointment

Initial labs:



Initial documentation:

- No signs of symptoms of active HIV infection and negative HIV testing
- Renal function
- HBV immune status
- No contraindicated medication use

Continued Care & Follow Up

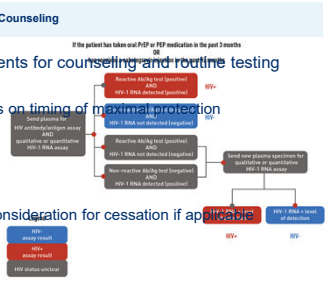
Continued Care & Follow Up

Counseling

- Continue with routine appointments for counseling and routine testing
- Counseling points:
  - PrEP adherence – no consensus on timing of maximal protection
    - Blood: 20 days
    - Cervicovaginal tissue: 20 days
    - Rectal tissue: 7 days
  - Safe sex practices
  - Reassess HIV exposures and consideration for cessation if applicable

Continued Care & Follow Up

- Every 3 months:
  - Counseling points:
    - PrEP adherence – no consensus on timing of maximal protection
    - Screen STIs and treat as appropriate
      - Rectal: 20 days
      - Cervicovaginal tissue: 20 days
      - Rectal tissue: 7 days
    - Safe sex practices
    - Consider anal Pap in MSM
  - Obtain HIV Ab/Ag and viral load
  - Screen STIs and treat as appropriate
  - Hepatitis B & C screening
  - Fasting lipid panel
  - Reassess HIV exposures and consideration for cessation if applicable
- Annually:
  - Continue with routine appointments for counseling and routine testing



Summary

- Consider PrEP and discuss with patients
- ***Prescribe if requested by the patient***
- Educate, counsel, and check in often

Resources

- https://www.hiv.gov/hiv-basics/overview/data-and-trends/statistics?
- Fast Facts: HIV in the US by Age | HIV | CDC
- Understanding the Current HIV Epidemic in the United States – AIDSVu
- https://www.cdc.gov/hiv/data-research/facts-stats/index.html?
- HIV Prevention: Oklahoma
- Oklahoma Among Seven States With Highest Rural HIV Burden
- US Public Health Service. Pre-exposure Prophylaxis for the Prevention of HIV infections in the United States-2014
- Machalek DA et al. Anal Human papillomavirus infection and associated neoplastic lesions in men who have sex with men: a systematic review and meta-analysis. Lancet Oncol 2012; 13:487-500
- Centers for Disease Control and Prevention (CDC). 2015, Nov 27. Vital Signs: Estimated Percentages and Numbers of Adults with Indications for Preexposure Prophylaxis to Prevent HIV
- Acquisition — United States, 2015. Morbidity and Mortality Weekly Report (MMWR).
- CDC. Diagnoses of HIV infection, by race/ethnicity and selected characteristics, 2019. HIV Surveillance Supplemental Report. 2019;32.
- Gildead. State of the HIV Epidemic: Substantial Progress and the Challenges that Remain.
- https://www.gileadhiv.com/landscape/state-of-epidemic/?utm_id=lw_sa_15442187166_12773951006 2&utm_medium=cpc&utm_term=hiv+cases+by+state&gclid=CjwKCAiAxJSPBhAoEiwAeO_8P
- 6DFHXC2e-6dJHkFKva_FKC6t6nCzZoqlk6nLQlW5Qctl36wnJpuwhoCmCkQAvD_BwE&gclsrc=aw.ds+
- AIDSVu. Deeper Look: PrEP. https://aidsvu.org/resources/deeper-look-prep/
- AIDSVu. Local Data: Oklahoma. https://aidsvu.org/local-data/united-states/south/oklahoma/
- Hardy, W. David (Ed) et al. (2021) Fundamentals if HIV Medicine. Oxford University Press.
- How Do I Prescribe PrEP? | Prevention | Clinicians | HIV | CDC
- https://clinicalinfo.hiv.gov/en/guidelines