Alaska ID ECHO: HCV-HIV-PrEP-STIs

ALASKA NATIVE TRIBAL HEALTH CONSORTIUM

NPAIHB
Indian Leadership for Indian Health

October 11, 2022

This program is supported by a grant from the Northwest Portland Area Indian Health Board and funding is provided from the HHS Secretary's Minority HIV/AIDS Fund.

WELCOME

- The recording of the didactic presentation will be available at, www.anthc.org/ak-id-echo with the presentation slides.
- Questions will be saved until the end of the didactic presentation. Feel free to put your questions in the chat for the Q&A.

Thank you for participating!

ALASKA NATIVE
TRIBAL HEALTH
CONSORTIUM

WELCOME

- Please share in the chat:
  - Name
  - Where your joining from today
  - What would you like to learn during a future ECHO?

ALASKA NATIVE
TRIBAL HEALTH
CONSORTIUM

AK ID ECHO: CONSULTANT TEAM

- Youssef Barbour, MD Hepatologist
- Leah Besh, PA-C HIV/Hepatology Provider
- Terri Bramel, PA-C HIV/STI Provider
- Rod Gordon, R.Ph. AAHIVP Pharmacist
- Jacob Gray, MD Infectious Disease Provider
- Annette Hewitt, ANP Hepatology Provider
- Brian McMahon, MD Hepatologist
- Lisa Rea, RN HIV/STI Case Manager
- Lisa Townshend, ANP Hepatology Provider

ALASKA NATIVE TRIBAL HEALTH CONSORTIUM

Welcome to Alaska Infectious Disease ECHO: HCV, HIV, PrEP, STIs

Approved Provider Statements:

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In support of improving patient care, Alaska Native Medical Center (ANMC) is jointly accredited by the Accreditation Council for Continuing Medical Education (ACCME), the Accreditation Council for Pharmacy Education (ACPE), and the American Nurses Credentialing Center (ANCC), to provide continuing education for the healthcare team.

Contact Hours:

ANMC designates this activity for a maximum of 12 contact hours, including 3 total pharmacotherapeutics contact hours, commensurate with participation.

Financial Disclosures:

Youssef Barbour, MD & Lisa Townshend-Bulson, APRN / faculty for this educational event, are primary investigators in an ANTHC sponsored hepatitis C study funded in part by Gilead Sciences. All of the relevant financial relationships listed have been mitigated.

Requirements for Successful Completion:

To receive CE credit please make sure you have actively engaged in the entire activity, your attendance is recorded by the facilitator, and complete the course evaluation form found here: https://forms.gle/18t4EgvN2WdnM4P77

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ALASKA NATIVE MEDICAL CENTER

Drug Interaction Considerations with Gender Affirming Hormone Therapy

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Integrated Pharmacist

Alaska Native Primary Care Center

Anchorage, AK

Diclosures

I have nothing to disclose

Terminology

- Gender identity: A person's inherent understanding of their own gender
- Transgender person: gender identity is different than sex assigned at birth
- Transgender man: assigned female at birth and identifies as male
- Transgender woman: assigned male at birth and identifies as female
- Cisgender: gender identity is the same as sex assigned at birth
- Other terms: nonbinary, genderqueer, gender-expansive, etc.

Goal of Gender Affirming Hormone Therapy:

Acquisition of secondary sex characteristics aligned with a person's gender identity

https://williamsinstitute.law.ucla.edu/wp-content/uploads/Trans-Pop-Update-Jun-2022.pdf

Table 4. Regional and state-level estimates of those who identify as transgender in the U.S. population by age group (ages 13 and older)

	13-17		18-24		25-64		65+		ALL ADULTS 18+	
STATE	PERCENT	NUMBER	PERCENT	NUMBER	PERCENT	NUMBER	PERCENT	NUMBER	PERCENT	NUMBER
United States	1.43%	300,100	1.31%	398,900	0.45%	766,500	0.32%	171,700	0.52%	1,337,100
WEST	1.62%	81,700	1.14%	82,600	0.51%	209,400	0.30%	36,400	0.54%	328,500
Alaska	1.23%	500	1.51%	1,000	0.65%	2,500	0.34%	300	0.70%	3,900

Health

Alaska State Report

Income and Employment Status

- 18% of respondents in Alaska were unemployed.[2]
- 29% were living in poverty.[3]

- 44% of those who saw a health care provider in the past year reported having at least one negative experience related to being transgender. This included being refused treatment, verbally harassed, or physically or sexually assaulted, or having to teach the provider about transgender people in order to get appropriate care.

THE REPORT OF THE

2015 U.S. TRANSGENDER SURVEY

EXECUTIVE SUMMARY

Approximately 0.6% of population identify as transgender (1 million adults in the US)

Sex Work and Other Underground Economy Work

- Respondents reported high rates of experience in the underground economy, including sex work, drug sales, and other work that is currently criminalized. **One in five (20%) have participated in the underground economy** for income at some point in their lives—including 12% who have done sex work in exchange for income—and 9% did so in the past year, with higher rates among women of color.
- Respondents who interacted with the police either while doing sex work or while the police mistakenly thought they were doing sex work reported high rates of police harassment, abuse, or mistreatment, with **nearly nine out of ten (86%) reporting being harassed, attacked, sexually assaulted, or mistreated in some other way by police**.
- **Those who have done income-based sex work were also more likely to have experienced violence.** More than three-quarters (77%) have experienced intimate partner violence and 72% have been sexually assaulted, a substantially higher rate than the overall sample. Out of those who were working in the underground economy at the time they took the survey, nearly half (41%) were physically attacked in the past year and over one-third (36%) were sexually assaulted during that year.

20% of transgender people participated in underground economy, such as sex work

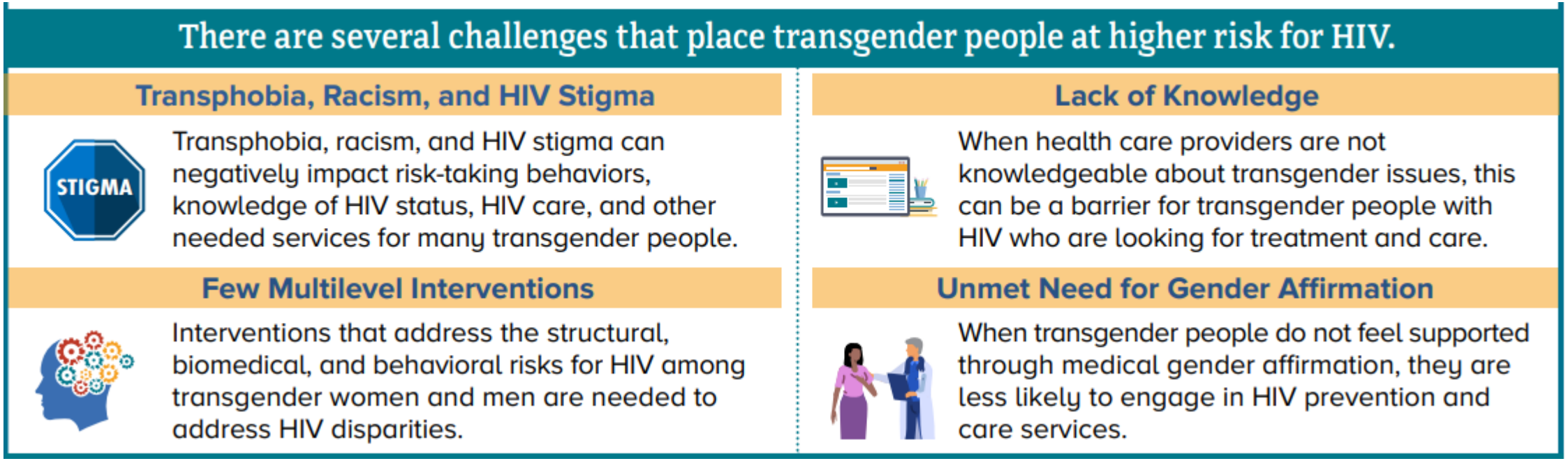
HIV

Transgender people were living with HIV at nearly 5x the rate in the US

- Respondents were **living with HIV (1.4%) at nearly five times the rate in the U.S. population (0.3%).**
- **HIV rates were higher among transgender women (3.4%)**, especially transgender women of color. **Nearly one in five (19%) Black transgender women were living with HIV**, and American Indian (4.6%) and Latina (4.4%) women also reported higher rates.

Health disparities of Transgender People

- Stigma, discrimination, lack of legal protections
- Higher rates of unemployment, being unstably housed
- Transactional sex, sex work
- Mental health, trauma, depression, anxiety, suicide



Graphic from cdc.gov

HIV Prevalence Among Transgender Women in 7 US Cities, 2019-2020*

Racial and ethnic disparities exist among transgender women with HIV.

Among transgender women interviewed, 42% had HIV.

- 62% of Black/African American transgender women had HIV
- 35% of Hispanic/Latina transgender women had HIV
- 17% of White transgender women had HIV

PrEP is highly effective for preventing HIV from sex or injection drug use.

- 92% of transgender women without HIV were aware of PrEP
- 32% of transgender women without HIV used PrEP

* Among people aged 18 and older.

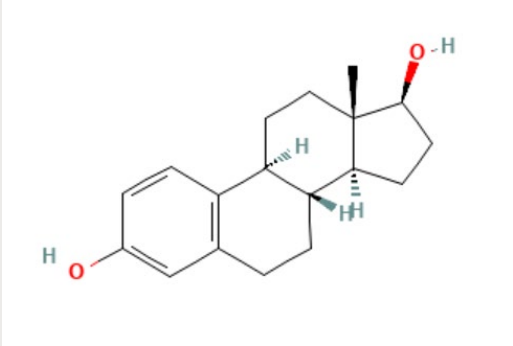
Source: CDC. HIV infection, risk, prevention, and testing behaviors among transgender women–National HIV Behavioral Surveillance–7 U.S. Cities, 2019-2020 . *HIV Surveillance Special Report* 2021.

CDC.gov

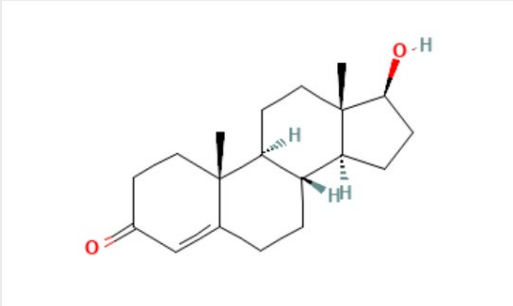
Overview of Gender-Affirming Hormone Therapy (GAHT)

- Feminizing Therapy: Estradiol
- Masculinizing Therapy: Testosterone
- Anti-androgens: spironolactone, cyproterone acetate, finasteride, dutasteride
- GnRH analogues: leuprolide, histrelin, goserelin
- Feminizing Therapy: Progesterone

Sex Steroids

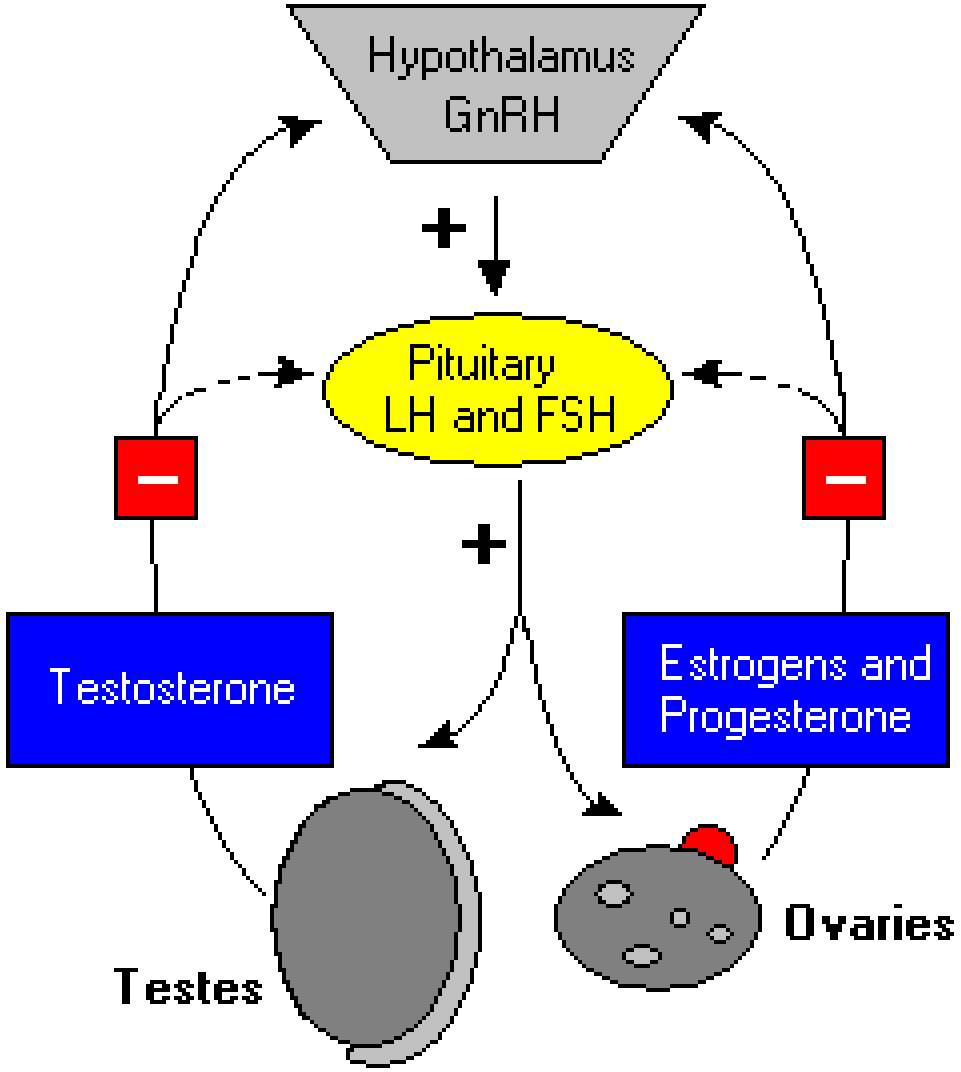


17-β Estradiol



Testosterone

http://www.vivo.colostate.edu/hbooks/pathphys/endocrine/hypopit/lhfsh.html



https://pubchem.ncbi.nlm.nih.gov/compound/Testosterone#section=2D-Structure

https://pubchem.ncbi.nlm.nih.gov/compound/Estradiol#section=2D-Structure

Estrogen: PO, IM, transdermal

Guidelines: WPATH, UCSF, Endocrine Society, Fenway Health, Transline, etc.

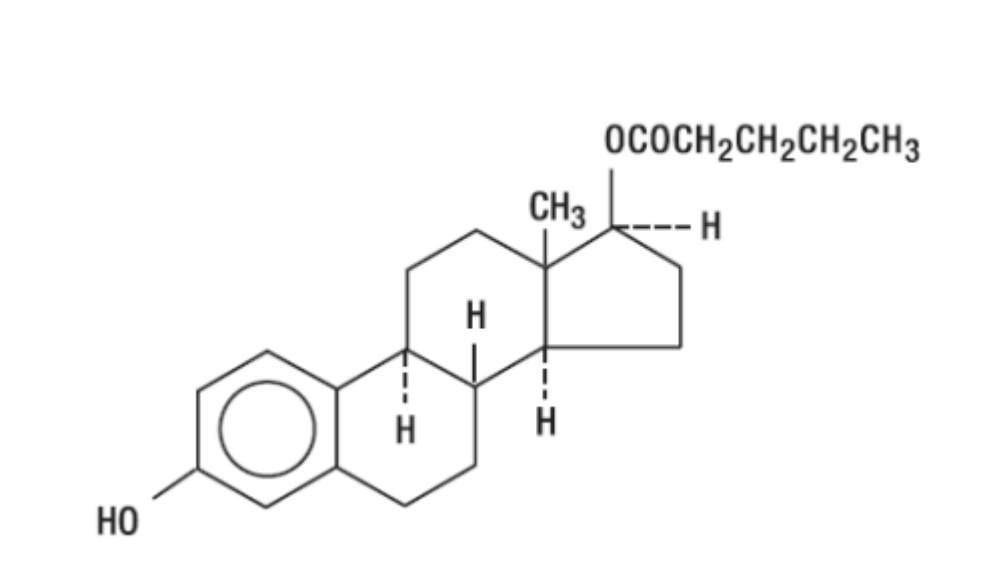
Testosterone: IM/SQ, transdermal, pellets

Table 4. Hormone regimens in transgender and gender diverse adults*

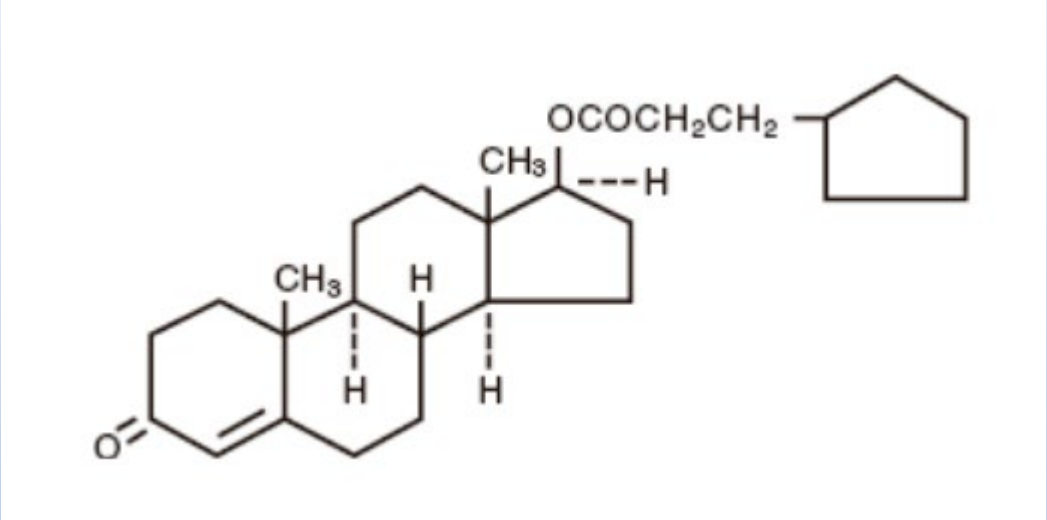
Estrogen-based regimen (Transfeminine)	
Estrogen	
Oral or sublingual	
Estradiol	2.0-6.0 mg/day
Transdermal	
Estradiol transdermal patch	0.025-0.2 mg/day
Estradiol gel various	‡ daily to skin
Parenteral	
Estradiol valerate or cypionate	5-30 mg IM every 2 weeks 2-10 IM every week
Anti-Androgens	
Spironolactone	100–300 mg/day
Cyproterone acetate	10 mg/day**
GnRH agonist	3.75–7.50 mg SQ/IM monthly
GnRH agonist depot formulation	11.25/22.5 mg SQ/IM 3/6 monthly
‡ Amount applied varies to formulation and strength	
Testosterone-Based Regimen (Transmasculine)	
Transgender males	
Testosterone	
Parenteral	
Testosterone enanthate/ cypionate	50–100 IM/SQ weekly or 100–200 IM every 2 weeks
Testosterone undecanoate	1000 mg IM every 12 weeks or 750 mg IM every 10 weeks
Transdermal testosterone	
Testosterone gel	50-100 mg/day
Testosterone transdermal patch	2.5–7.5 mg/day

Sex Steroids

Estradiol valerate



Testosterone cypionate



Prescribing information

Metabolism of sex steroids

Estradiol

- Liver: CYP3A4, CYP1A2, glucuronidation
- Converted reversibly to estrone; estriol (major urinary metabolite)
- Enterohepatic recirculation via sulfate and glucuronide conjugation in the liver, biliary secretion of conjugates into the intestine, and hydrolysis in the gut followed by reabsorption
- PO: extensive first-pass metabolism
- Bind to sex hormone-binding globulin (SHBG) and albumin

Testosterone

- Mainly Liver: hepatic conjugation to glucuronides (glucuronidation)
- Metabolized to 17-ketosteroids
- Major active metabolites
  - Dihydrotestosterone (DHT) via 5α-reductase
  - Estradiol via aromatase
- Bind to sex hormone-binding globulin (SHBG) 40%, unbound (free) 2%, the rest albumin and other proteins

Prescribing information

Drug Interaction Checkers

- Liverpool Drug Interactions
- Lexicomp
- Micromedex
- DHHS HIV Guidelines (clinicalinfo.hiv.gov)

HEP Drug Interactions

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	ELB/GZR	G/P	LED/SOF	RBV	SOF	SOF/VEL	SOF/VEL/VOX
Estradiol	◆	◆	◆	◆	◆	◆	◆
Ethinylestradiol	◆	●	◆	◆	◆	◆	●

- There are no drug-drug interactions expected between common Hepatitis C medications and GAHT: estradiol, progesterone, or testosterone
- Per Lexicomp, no DDIs expected with testosterone or progesterone

***ethinyl estradiol (oral contraceptive) is not recommended for GAHT*

● Do Not Coadminister ■ Potential Interaction ▲ Potential Weak Interaction ◆ No Interaction Expected

Clinicalinfo.HIV.gov: Drug-Drug Interaction Considerations

PI	Effect on PI and/or Concomitant Drug Concentrations	Dosing Recommendations and Clinical Comments
PI/c	↑ estradiol possible	Adjust estradiol dose as needed based on clinical effects and endogenous hormone concentrations.
PI/r	↓ or ↑ estradiol possible	
All PIs	↔ goserelin, leuprolide acetate, and spironolactone expected	No dose adjustment needed.
All PIs	↑ dutasteride possible ↑ finasteride possible	Adjust dutasteride dose as needed based on clinical effects and endogenous hormone concentrations. No dose adjustment needed for finasteride.
All PIs	↑ testosterone possible	Adjust testosterone dose as needed based on clinical effects and endogenous hormone concentrations.

NNRTI	Effect on NNRTI and/or Concomitant Drug Concentrations	Dosing Recommendations and Clinical Comments
DOR, RPV IM, RPV PO	↔ hormonal concentrations expected	No dose adjustment needed.
EFV, ETR, NVP	↓ estradiol possible ↓ cyproterone and progestogens possible ↔ goserelin, leuprolide acetate, and spironolactone expected ↓ dutasteride and finasteride possible	Monitor feminizing effects of estrogen and antiandrogen therapy. Titrate dose as necessary to achieve therapeutic goals.
EFV, ETR, NVP	↓ testosterone possible	Monitor masculinizing effects of testosterone. Titrate testosterone dose as necessary to achieve therapeutic goals.

Clinicalinfo.HIV.gov: Drug-Drug Interaction Considerations

INSTI	Effect on INSTI or Concomitant Drug Concentrations	Dosing Recommendations and Clinical Comments
BIC, CAB (PO and IM), DTG, EVG/c, RAL	↔ goserelin, leuprolide acetate, and spironolactone expected	No dose adjustment needed.
BIC, CAB (PO and IM), DTG, RAL	↔ estrogen expected	No dose adjustment needed.
	↔ testosterone expected	No dose adjustment needed.

Concomitant Drug	NRTI	Effect on NRTI and/or Concomitant Drug Concentrations	Dosing Recommendations and Clinical Comments
Hormonal Therapies			
17-β-estradiol	FTC	FTC AUC ↓ 14% to 24%	No dose adjustment needed.
	TDF	TFV AUC ↓ 12% to 27%	No dose adjustment needed.
Other hormones used for contraception, gender affirming therapy, or menopausal replacement therapy	All NRTIs	No change expected.	No dose adjustment needed.

?

HIV Drug Interactions

UNIVERSITY OF LIVERPOOL

- Potential interactions expected: Protease inhibitors, pharmacokinetic enhancers, NNRTIs
- No Drug-Drug Interactions expected: INSTIs, NRTIs, rilpivirine, doravirine

	EFV	ETR	NVP	ATV/c	ATV/c	ATV/r	DRV/r	EVG/c/FTC/TAF	EVG/c/FTC/TDF	LPV	RTV
Estradiol	■	■	■	■	■	■	■	■	■	■	■
Progesterone (HRT)	■	■	■	■	■	■	■	■	■	■	■
Testosterone	■	■	■	■	■	■	■	■	■	■	■

	RPV	DOR	BIC/FTC/TAF	CAB (oral)	CAB LA, PrEP	CAB/RPV (LA)	DTG	DTG/RPV	RAL
Estradiol	◆	◆	◆	◆	◆	◆	◆	◆	◆
Progesterone (HRT)	◆	◆	◆	◆	◆	◆	◆	◆	◆
Testosterone	◆	◆	◆	◆	◆	◆	◆	◆	◆

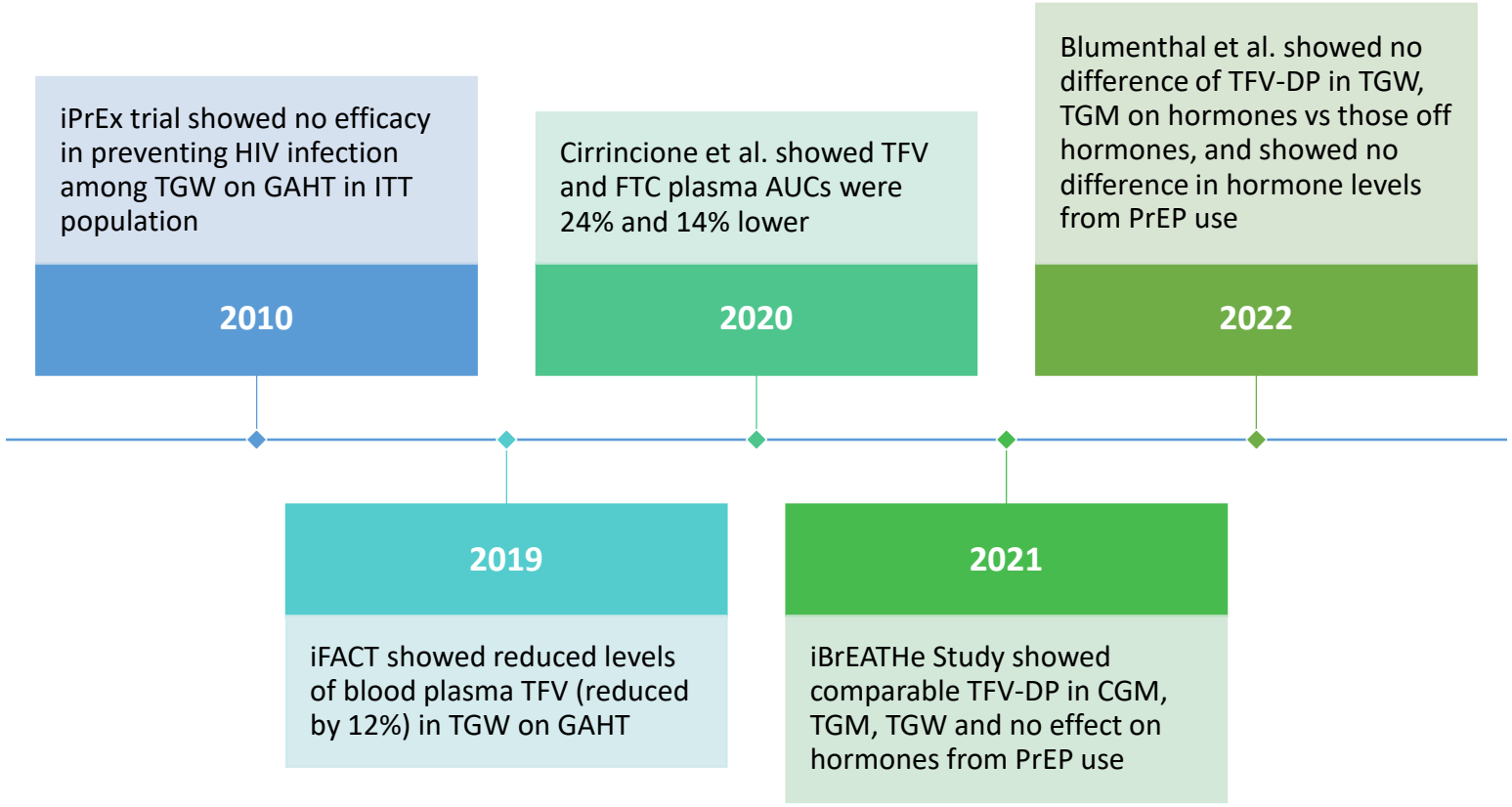
	3TC	ABC	DTG/ABC/3TC	FTC/TAF	FTC/TAF (PrEP)	FTC/TDF	TDF
Estradiol	◆	◆	◆	◆	◆	◆	◆
Progesterone (HRT)	◆	◆	◆	◆	◆	◆	◆
Testosterone	◆	◆	◆	◆	◆	◆	◆

HIV Drug Interactions

UNIVERSITY OF LIVERPOOL

Interacting HIV Drug	Mechanism of Interaction	Effect on Hormone	Affected Hormone	Management
• PI/ritonavir • PI/cobicistat	• CYP3A4 inhibition	↑	• Testosterone	• Dose adjustment of hormone may be required • Progesterone: Unknown clinical significance with respect to risk of VTE, stroke, MI. Advise lowest effective dose
• PI/cobicistat	• CYP3A4 inhibition	↑	• Estradiol	• Unknown clinical significance with respect to risk of VTE, stroke, MI. Advise lowest effective dose
• PI/ritonavir	• CYP1A2 and glucuronidation induction • CYP3A4 inhibition	↓ or ↑	• Estradiol	• Monitor for both increased estrogen toxicity as well as decreased hormone efficacy
• Efavirenz • Etravirine • Nevirapine	• CYP3A4 induction	↓	• Estradiol • Testosterone	• Monitor for signs of hormone deficiency

HIV PrEP Drug Interactions with GAHT



TDF/FTC for HIV PrEP and GAHT

Study	n =	Duration	Effect on PrEP	Effect on Hormone
Blumenthal 2022: Bidirectional effects of hormone therapy and PrEP in trans individuals	91 TGW, 60 TGM	12 weeks	No difference in TFV-DP in TGW or TGM taking hormones vs those not taking hormones	No significant difference in estradiol or testosterone. No changes in satisfaction with physical effects of hormones.
Grant 2021: Sex Hormone Tx and TFV-DP Conc. in Dried Blood Spots: Interactions Between ARVs And TG Hormones Study – iBrEATHe	24 TGW, 24 TGM	4 weeks	No difference in TFV-DP concentrations in dried blood spots after 4 weeks of DOT, among CGM, TGM, and TGW	No effect on serum hormones from PrEP use
Cattani 2021: No impact of TDF/FTC on estradiol among TGW on PrEP – PrEParadas substudy	24 TGW	?	---Not studied---	No effect on hormones in presence of absence of PrEP
Cirrincione 2020: Plasma and intracellular PK of TDF/FTC in TGW receiving FHT	15 TGW	14 days	Plasma TFV and FTC AUCs decreased by 24% and 14% compared to CG controls	---Not studied---
Hiransuthikul 2019: DDIs between feminizing hormone therapy and PrEP among TGW: iFACT study	20 TGW	12 weeks of PrEP	Blood plasma TFV decreased by 12% in presence of Feminizing Hormone Therapy	Blood plasma estradiol was not significantly affected by PrEP.

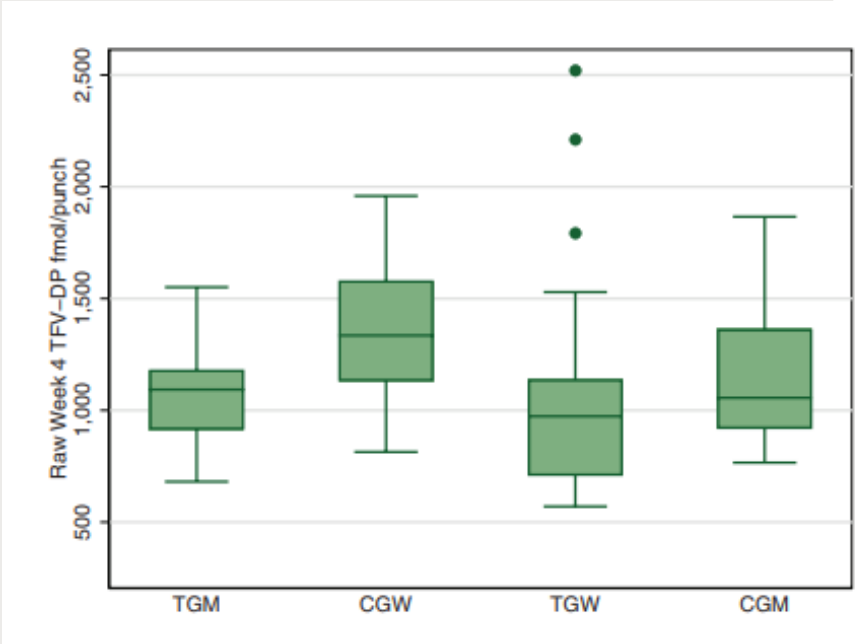
Blumenthal 2022

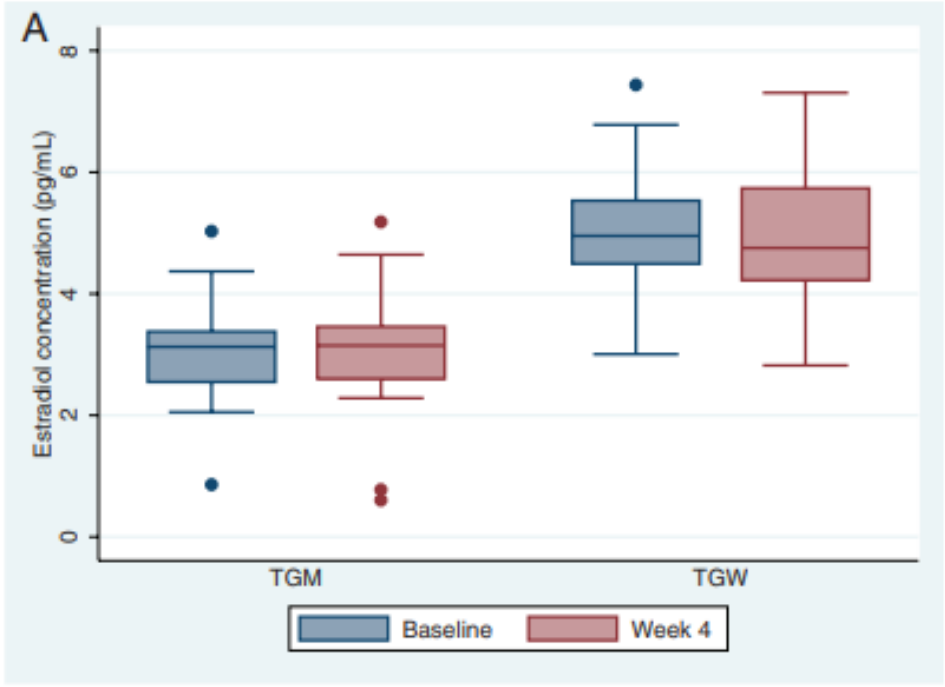
- Presented at CROI 2022
- 172 Transgender people
- UC San Diego
- TDF/FTC PrEP
- 3 months
- iTAB (individualized texting for adherence building)
- Parallel two-arm RCT
- TFV-DP measured in DBS

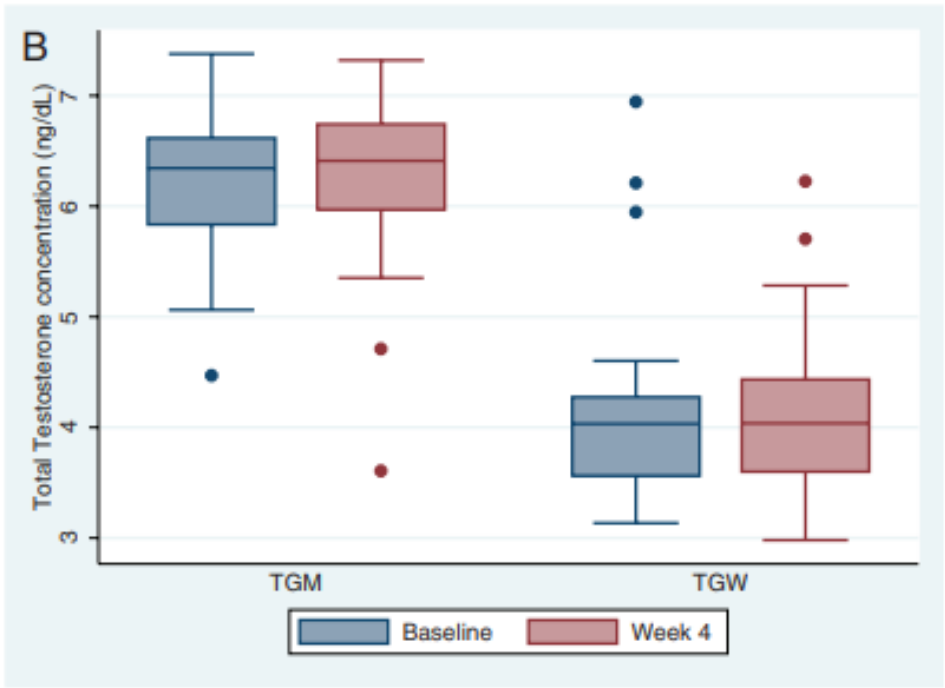
Abstract Summary:
- After 12 weeks of daily reported PrEP use by transgender individuals, those taking or not taking hormone therapy had similar TFV-DP levels in dried blood spots.
- TDF/FTC PrEP did not affect serum estradiol concentrations.
- TGM taking TDF/FTC had marginally lower serum testosterone concentrations, but the impact of TDF/FTC was judged unlikely to be clinically meaningful.
- People taking PrEP perceived no PrEP impact on hormone therapy.

iBrEATHe 2021

- 47 TG people completed study
- Directly observed therapy
- TFV-DP measured in DBS
- TG people from San Francisco
- Achieved high levels of protection







What about TAF/FTC, testosterone, and cabotegravir?

TDF/FTC and testosterone

- Blumenthal 2022 study
  - Similar TFV-DP concentrations in TGM on or off hormones
  - Serum testosterone concentrations were not affected by PrEP use

TAF/FTC and GAHT

- Not expected to interact with GAHT pathways
  - Estradiol metabolized by CYP3A4, CYP1A2, glucuronidation
  - Testosterone metabolized by CYP3A4
  - Need more data

Cabotegravir (CAB-LA):

- Indicated for all populations for HIV PrEP
- However, soft tissue fillers may be an issue for administration (IM ventrogluteal or dorsogluteal only)
- HPTN 083: GAHT in TGW did not appear to affect CAB concentrations. TGW on CAB-LA had lower incidence of HIV compared to TDF/FTC (Grinsztejn et al. IAS 2022)

Grinsztejn et al. IAS 2022: HPTN 083 TGW and CAB-LA

PrEP and Transgender People: Other considerations

Event-driven or 2-1-1 PrEP is not currently recommended for TGW

TAF/FTC not indicated for those at risk through receptive vaginal sex

People with soft tissue fillers in gluteal region may not be ideal candidates for cabotegravir injection

Case: 38 yo transgender woman

- History of Hep C (treated with Harvoni x 8 weeks years ago; SVR12 achieved)
- Today's labs
  - AST/ALT 264/452
  - HCV RNA 640,902
- Gender-affirming hormone therapy regimen
  - Estradiol 2 mg PO BID
  - Spironolactone 150 mg PO BID

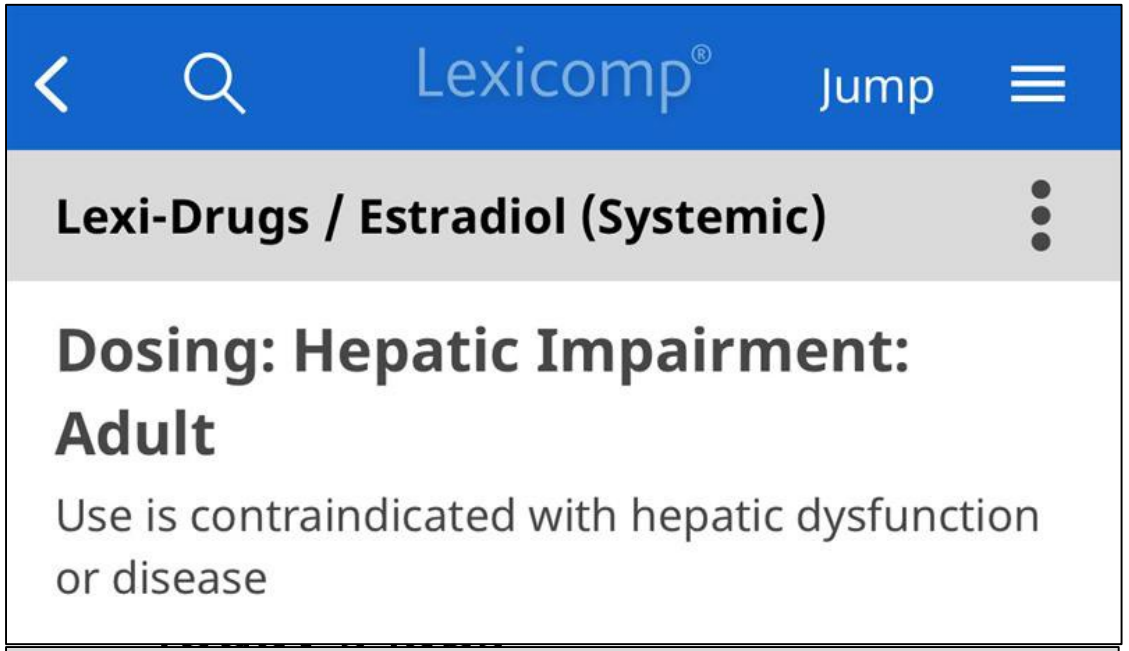
<u>Question 1:</u>

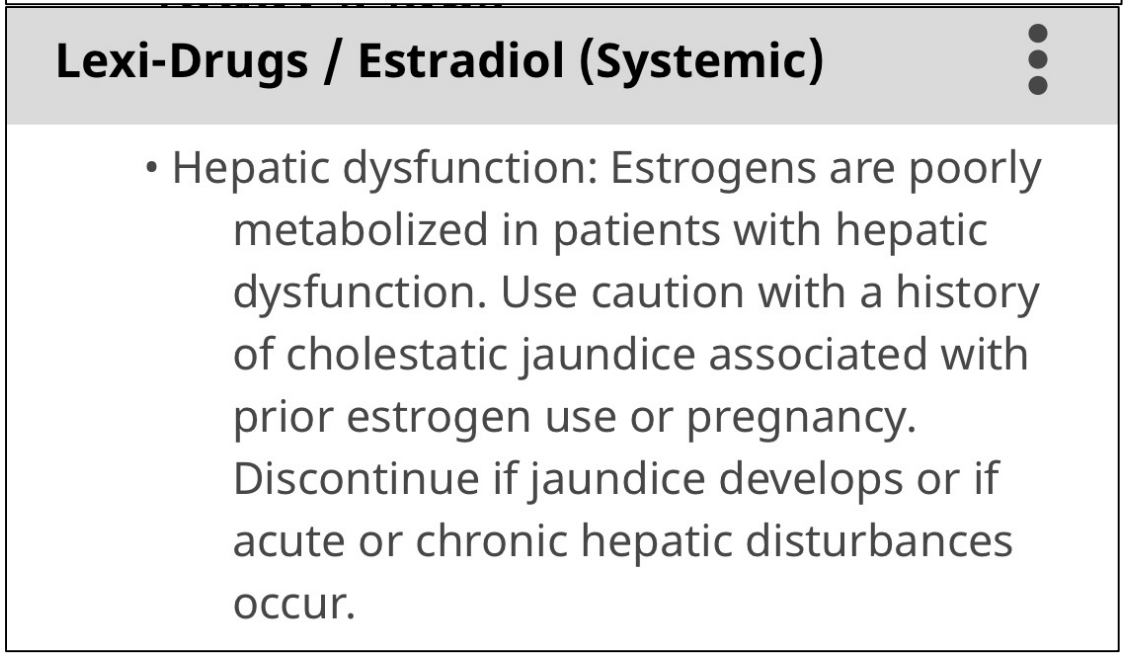
Given her liver status, PCP asks you what do you recommend we do with her GAHT regimen?

a) Continue GAHT

b) Hold estradiol

c) Change estradiol oral to transdermal or injection





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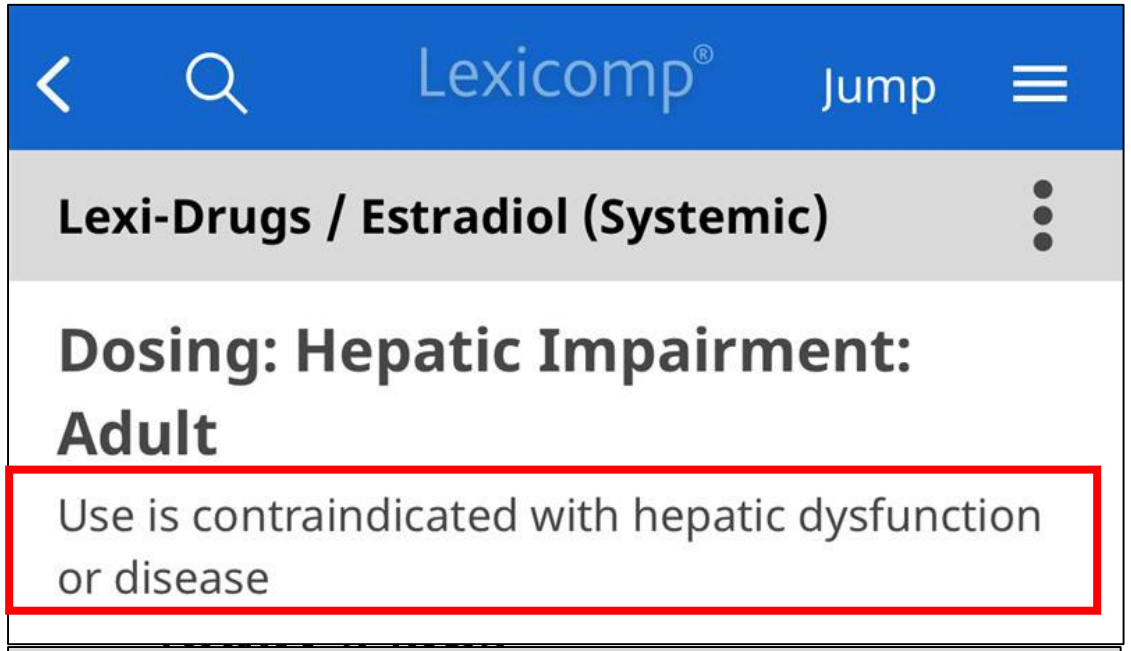
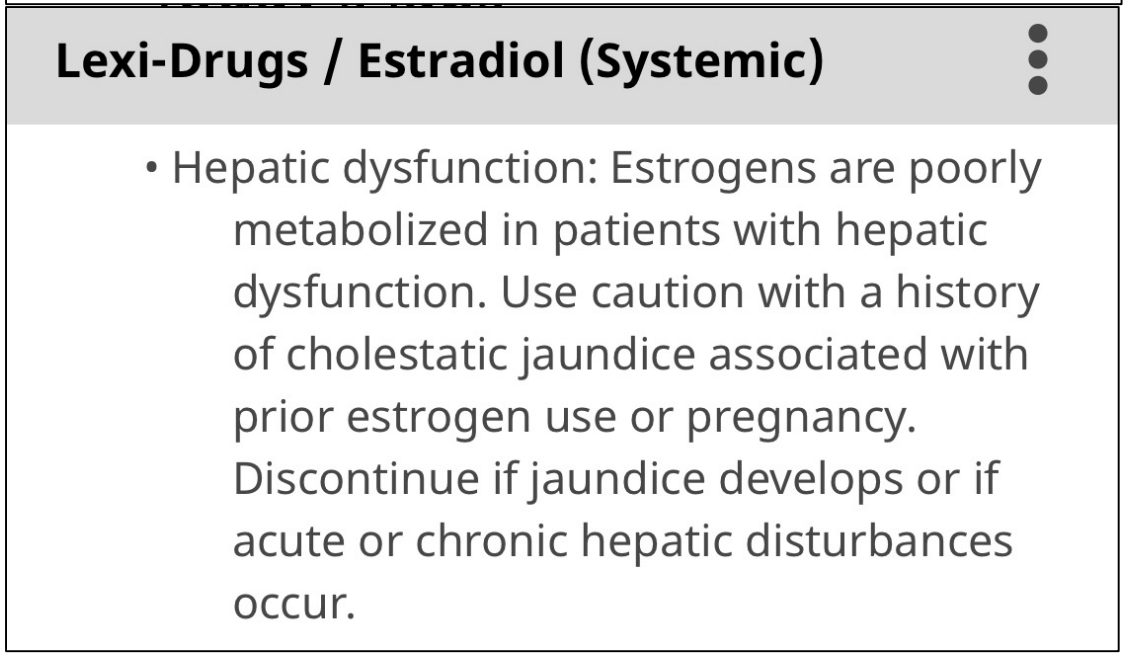
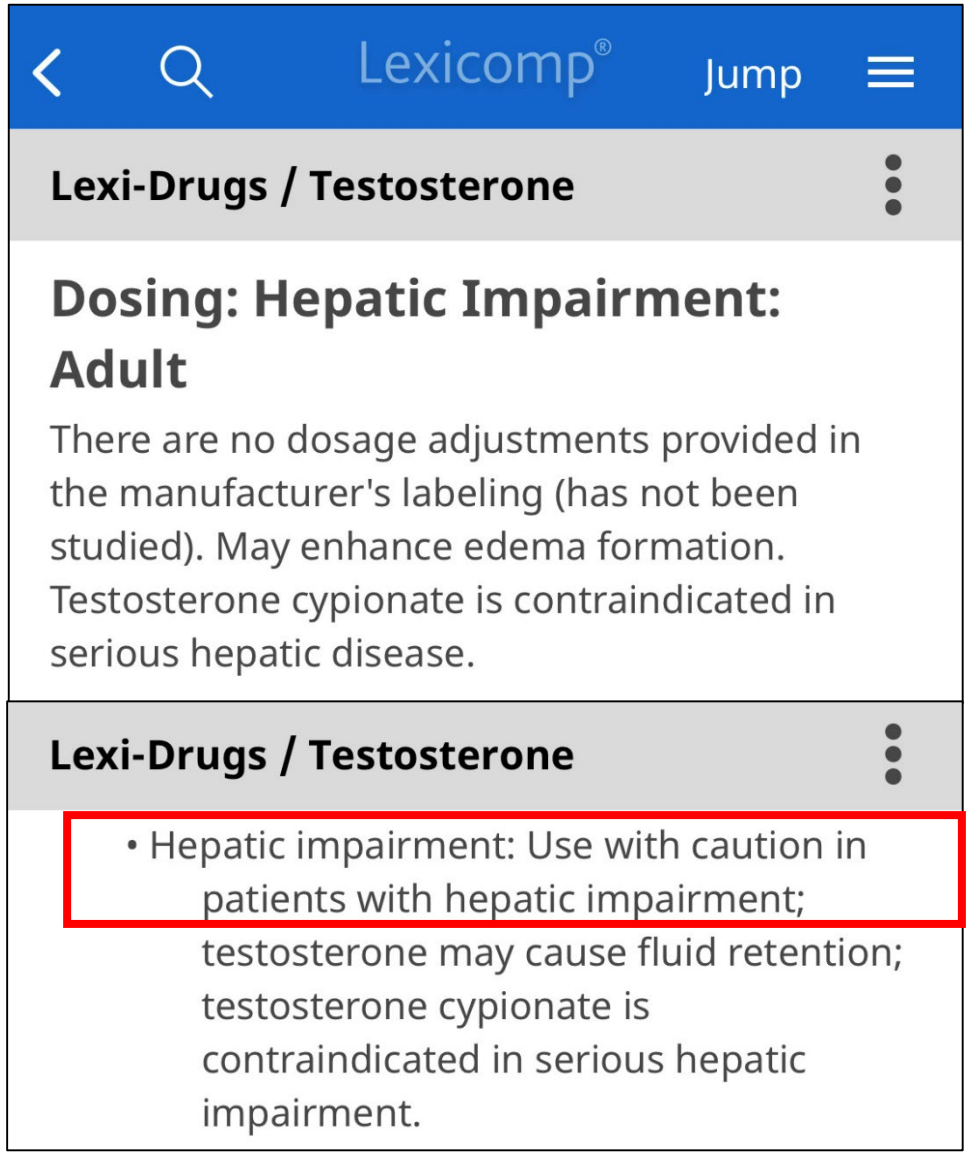

Lexicomp®
Jump
Lexi-Drugs / Estradiol (Systemic)
Dosing: Hepatic Impairment: Adult
Use is contraindicated with hepatic dysfunction or disease


Lexi-Drugs / Estradiol (Systemic)
• Hepatic dysfunction: Estrogens are poorly metabolized in patients with hepatic dysfunction. Use caution with a history of cholestatic jaundice associated with prior estrogen use or pregnancy. Discontinue if jaundice develops or if acute or chronic hepatic disturbances occur.


Lexicomp®
Jump
Lexi-Drugs / Testosterone
Dosing: Hepatic Impairment: Adult
There are no dosage adjustments provided in the manufacturer's labeling (has not been studied). May enhance edema formation. Testosterone cypionate is contraindicated in serious hepatic disease.
Lexi-Drugs / Testosterone
• Hepatic impairment: Use with caution in patients with hepatic impairment; testosterone may cause fluid retention; testosterone cypionate is contraindicated in serious hepatic impairment.

UCSF Transgender Guidelines: Hepatitis C

- "Chronic Hepatitis C is not a contraindication to hormone therapy. Both estrogen and testosterone undergo hepatic metabolism, and routine monitoring of hepatic function has been recommended. However, neither hormone has been associated with hepatic injury or abnormal liver function tests. Monitoring of liver function in patients with chronic hepatitis C infection should proceed as routinely recommended by disease stage and risk factors for progression dictate.
- Non-oral forms of hormone therapy avoid first pass through liver metabolism and may be preferred for patients with liver disease, though there is no specific evidence to support this recommendation.
- No published data is available on clinical outcomes among transgender individuals with chronic viral hepatitis taking hormone therapy."

https://transcare.ucsf.edu/guidelines/hepatitis-c

Case: 38 yo transgender woman

- History of Hep C (treated with Harvoni x 8 weeks years ago; SVR12 achieved)
- Today's labs
  - AST/ALT 264/452
  - HCV RNA 640,902
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Given her liver status, PCP asks you what do you recommend we do with her GAHT regimen?

a) Continue GAHT

b) Hold estradiol

c) Change estradiol oral to transdermal or injection

Case: 38 yo TGW

- History of Hep C (treated with Harvoni x 8 weeks years ago; SVR12 achieved)
- Recent labs
  - AST/ALT 264/452
  - HCV RNA 640,902
- Gender-affirming hormone therapy regimen
  - Estradiol 2 mg PO BID
  - Spironolactone 150 mg PO BID

Question 2:

Liver clinic recommends Hep C treatment. Patient worries it will interact with her GAHT. What do you tell her?

a) G/P is contraindicated with estradiol, so we will avoid it
b) Recommend switch to transdermal estradiol to avoid interaction with Hep C treatment
c) No drug interaction is expected between Hep C medications and estradiol

Case: 38 yo TGW

- History of Hep C (treated with Harvoni x 8 weeks years ago; SVR12 achieved)
- Recent labs
  - AST/ALT 264/452
  - HCV RNA 640,902
- Gender-affirming hormone therapy regimen
  - Estradiol 2 mg PO BID
  - Spironolactone 150 mg PO BID

Question 2:

Liver clinic recommends Hep C treatment. Patient worries it will interact with her GAHT. What do you tell her?

a) G/P is contraindicated with estradiol, so we will avoid it

b) Recommend switch to transdermal estradiol to avoid interaction with Hep C treatment

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Case: 38 yo transgender woman

- Gender-affirming hormone therapy regimen
  - Estradiol 10 mg IM weekly
  - Spironolactone 150 mg PO BID
- She has recently broken up with boyfriend
- She is interested in HIV PrEP options that will not interact with her GAHT

<u>Question 3:</u>

Which of the following options for HIV PrEP has *insufficient* data to safely recommend for her?

a) TDF/FTC daily

b) TDF/FTC on-demand (2-1-1)

c) TAF/FTC daily

d) CAB-LA

Case: 38 yo transgender woman

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Case: 38 yo transgender woman

- Gender-affirming hormone therapy regimen
  - Estradiol 10 mg IM weekly
  - Spironolactone 150 mg PO BID
- New diagnosis of HIV
  - Before starting treatment, CO wants reassurance that the HIV regimen will not interact with her GAHT

<u>Question 4:</u>

Which of the following options has the least likelihood of affecting her GAHT?

a) BIC/TAF/FTC
b) EVG/c/TAF/FTC
c) DRV/r plus TAF/FTC
d) EFV/TDF/3TC

Case: 38 yo transgender woman

- Gender-affirming hormone therapy regimen
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Question 6:

What is the expected effect of each of the following drugs on estradiol?

a) EVG/c/TAF/FTC

b) DRV/r plus TAF/FTC

c) EFV/TDF/3TC

Interacting HIV Drug	Mechanism of Interaction	Effect on Hormone	Affected Hormone
• PI/cobicistat	• CYP3A4 inhibition	↑	• Estradiol
• PI/ritonavir	• CYP1A2 and glucuronidation induction • CYP3A4 inhibition	↓ or ↑	• Estradiol
• Efavirenz • Etravirine • Nevirapine	• CYP3A4 induction	↓	• Estradiol • Testosterone

Question 6:

What is the expected effect of each of the following drugs on estradiol?

a) EVG/c/TAF/FTC
   - ↑ estradiol

b) DRV/r plus TAF/FTC

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Drug Interaction checkers

- Liverpool Drug Interactions
- Lexicomp
- Micromedex
- DHHS HIV Guidelines (clinicalinfo.hiv.gov)

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15. University of Liverpool HEP Drug Interactions. https://www.hep-druginteractions.org/checker Accessed October 2022

1. What is the main difference with estradiol for GAHT vs ethinyl estradiol for birth control and why is estradiol not contraindicated with Mavyret and ethinyl estradiol is?

2. Are there any foods or supplements that persons undergoing gender affirming hormone therapy should avoid?

Academy of Nutrition and Dietetics

Nutrition guidance for transgender/gender diverse people:

https://sites.google.com/slu.edu/transgendernutrition/home

Questions?

ALASKA NATIVE
TRIBAL HEALTH
CONSORTIUM

AK ID ECHO DIDACTIC TOPICS FOR 2022

- November 8: STI EPI Update
- December 13: HIV Update

Email topic ideas to akidecho@anthc.org

Visit www.anthc.org/ak-id-echo to view previous sessions

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TRIBAL HEALTH
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ADDITIONAL LEARNING OPPORTUNITIES

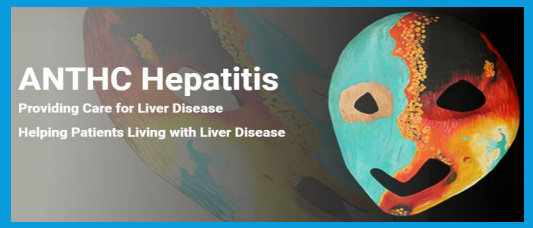
Alaska Liver Disease ECHO

- Third Thursday of every month from 12:00-1:00 PM
- October 20: Screening for Alcohol Use Disorder
- November 20: Medication Assisted Treatment
- December 15: HCC Surveillance – Are We Doing Enough?
- www.anthc.org/project-echo/alaska-liver-disease-echo

LiverConnect

- Second Tuesday of every month 8:00-9:00 AM
- October 11: Fatty Liver: Alcoholic vs Nonalcoholic
- November 8: HIV Update
- December 13: HCC Roundtable

www.anthc.org/hep/liverconnect



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ADDITIONAL LEARNING OPPORTUNITIES

Addiction Medicine ECHO

- October 27: Substance Use Disorder Policy in Alaska
- November 10: Recent ADA Changes
- December 8: Changes in ASAM Assessment
- www.anthc.org/project-echo/addiction-medicine-echo

Indian Country ECHO Programs

- Harm Reduction, Infectious Disease, and more!

  www.indiancountryecho.org/teleecho-programs

ALASKA NATIVE TRIBAL HEALTH CONSORTIUM

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ANTHC Early Intervention Services/HIV Program: 907-729-2907

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Indian Leadership for Indian Health

Thank you!

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