



## Competent Healthcare for LGBTQ+ Youth

Uri Belkind, MD, MS, FAAP, AAHIVS

Associate Medical Director, Adolescent Medicine  
Clinical Director, Health Outreach to Teens (HOTT)  
Callen-Lorde Community Health Center

ubelkind@callen-lorde.org

**CALLEN-LORDE**

## OBJECTIVES

Recognize the importance of acquiring the necessary skills to treat LGBT youth respectfully and effectively

Review common health disparities experienced by LGBT youth

Understand specific health risk factors, health concerns, and overall management of LGBTQ youth

**CALLEN-LORDE**

## WHY THIS TALK MATTERS

- Both youth and the LGBTQ community are marginalized → increased health and mental health risks.
- Clinicians and allied health professionals rarely receive training specific to LGBTQ youth.
- Providing LGBTQ youth-competent health and mental health care is an attainable skill.

## MORE THAN A MILLION REASONS!

•Of 16M+ students in 9-12<sup>th</sup> grades

- L/G 384K
- B 1.3M
- N/S 672K

- Same sex partners 256K
- Both sex partners 848K



## SEXUAL MINORITY YOUTH

**CALLEN-LORDE**

**CALLEN-LORDE**

## YOU HAVE LGBT PATIENTS

•Of ~400,000 HS students in NJ\*

- L/G 11,600 (2.9%)
  - B 30,800 (7.7%)
  - N/S 20,000 (5%)
- 15.6%**



Estimated prevalence of **asthma** among HS students in NJ (2013)

**25.9%**

Asthma rates NJ 2013



## LEADING HEALTH CONCERNS FOR LGBTQ+ YOUTH

\*Approximate numbers based on data from NY, PA, DE

**CALLEN-LORDE**

**CALLEN-LORDE**

### HEALTH CONCERNS FOR YOUTH

- Safety/Social Issues
- Mental Health
- Reproductive health



While these are the principal health concerns for both LGBT and straight youth, some important differences exist

CALLLEN-LORDE

### SAFETY/SOCIAL CONCERNS FOR LGBT YOUTH

- LGBT youth are discriminated against and victimized because of their sexual minority status
- Discrimination affects youth at every level of basic need:
  - Safety → Physical, verbal violence
  - Shelter, Money/Job → Homelessness, job discrimination
  - Professional/Financial achievement → School absenteeism/drop out, "transgender tax"
  - Intimacy/Family → Anti-LGBT laws: marriage, adoption, bathrooms
- Institutionalized and personally-mediated homo/transphobia → Internalized homo/transphobia

CALLLEN-LORDE

### SAFETY/SOCIAL CONCERNS FOR YOUTH

- Institutionalized and individually-mediated discrimination:
  - Fear for safety
  - Victimization
  - School absenteeism, higher drop-out rates
  - IPV
  - Homelessness
- Internalized homo/transphobia
  - Shame
  - Depression
  - Isolation
  - Stress
  - Anxiety
  - Low self-esteem



• Unhealthy/harmful behaviors

### SAFETY



	LGB	Not Sure	Straight
Carried weapon	16.2%	17.4%	15.6%
Carried gun	3.7%	7.9%	4.8%
Carried weapon @ School	5.9%	4.9%	3.4%
Threatened/injured by weapon @ School	9.4%	11.1%	5.4%
Physical fight	27.9%	19.8%	23.2%

CALLLEN-LORDE

CALLLEN-LORDE

### VICTIMIZATION/SCHOOL ABSTENTEEISM



	LGB	Not Sure	Straight
Missed school because felt unsafe	9.9%	10%	6.1%
Bullied at school	33%	24.3%	17.1%
Cyberbullied	27.1%	22%	13.3%
Graduated in 4 years*	68%	-	78%

### INTIMATE PARTNER VIOLENCE



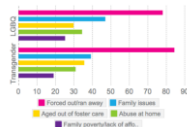
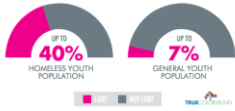
	LGB	Not Sure	Straight
Forced to have sexual intercourse	21.9%	13.1%	5.4%
Physical dating violence	17.2%	14.1%	6.4%
Sexual dating violence	15.8%	14.1%	5.5%

\*Yau, 2015 – Toronto, ON

CALLLEN-LORDE

CALLLEN-LORDE

## HOMELESSNESS



True Colors Fund

CalLEN-LORDE

## CIGARETTE/DRUG USE



	LGB	Not Sure	Straight
Ever smoked	41.8%	27.5%	28.2%
Smokes >10 cig/day	5.7%	39.6%	8.1%
Current ETOH	37.4%	21.5%	29.7%
ETOH >5 drinks	17.2%	10.8%	13.2%
Ever used MJ	50.4%	28.8%	35.2%
Current MJ user	30.6%	18.9%	19.1%
Hallucinogenic drugs	11.9%	12%	5.7%
Cocaine	8%	10.4%	4.2%
Ecstasy	8.8%	8.1%	3.3%
Methamphetamines	6.1%	7.6%	1.8%

CalLEN-LORDE

## MENTAL HEALTH CONCERNS FOR LGBT YOUTH:

### RISK FACTORS

- Universal risk factors (same for all youth)
  - Family conflict
  - Child maltreatment
  - Substance use and abuse
- LGBT-specific risk factors
  - Lack of institutional support
    - Non-discrimination/anti-bullying laws/rules
  - Community context
    - Areas with higher LGBT-motivated assault hate crimes
  - Biased-based victimization vs. general harassment
  - Parent rejection/repudiation

Russell, 2016

CalLEN-LORDE

## MENTAL HEALTH CONCERNS FOR LGBT YOUTH:

### PREVALENCE

- Major depression → 18% vs 8.2%
- PTSD → 11.3% vs 3.9%
- Suicidal behaviors → 31% vs 4.1%
- Eating disorders/disordered eating
- Sexual minority males → higher suicide attempts
- Sexual minority females → higher substance use problems
- Bisexual and questioning youth at greater risk

Russell, 2016

CalLEN-LORDE

## MENTAL HEALTH CONCERNS FOR LGBT YOUTH:



### PREVALENCE

	LGB	Not Sure	Straight
Felt sad/hopeless	63%	46.4%	27.5%
Serious SI	47.7%	31.8%	13.3%
Suicide Plan	38%	25.6%	10.4%
Suicide attempt	23%	14.3%	5.4%
SA required Tx	7.5%	5.6%	1.7%

## REPRODUCTIVE HEALTH CONCERNS FOR LGBT YOUTH

- HIV/AIDS
- Sexually transmitted infections
- Unplanned pregnancies
- Limited access to fertility preservation options

CalLEN-LORDE

CalLEN-LORDE

## REPRODUCTIVE HEALTH CONCERNS FOR LGBT YOUTH

	LGB	Not Sure	Straight
Ever had sex	48.4%	28.4%	39.1%
Sex before age 13	6.1%	4.1%	3%
No condom at last intercourse	60.1%	55.9%	43.9%



CALLLEN-LORDE

## HIV

- 1:4 new HIV infections → 13-24yo
- Young MSM → 1:5 new HIV infections
- Black youth → 57% HIV infections in youth
- 20-24yo group → highest # of HIV diagnosis
- High prevalence in transgender women (22-28% overall, 56% AA TW)
- Lesbians and men of transgender experience not usually considered at high-risk

CALLLEN-LORDE

## INCREASED HIV RISK FOR TRANSGENDER WOMEN

- Risk of HIV significantly higher for transwomen, specially racial minorities
- Greater financial need
  - High unemployment + lack of hormone/surgery coverage
  - High rate of homelessness
- Often not included in STI/HIV campaigns
- HIV prevention is a low priority
  - Safety, survival, emotional/gender validation
- Less likely to achieve viral load suppression
- Less likely to access preventive services like PrEP

CALLLEN-LORDE

## HIV and transgender men

- ~15% of all transgender people LWHIV
- Only 60% achieved sustained viral load suppression

### At HOTT

- 342 transmasculine patients ≤24yrs (42% Queer, 30% Straight, 19% gay)
- 19 (5.5%) started PrEP, 10 (2.9%) were prescribed nPEP
- 300 (80%) were screened for STIs, 12 (3.5%) had anal or genital GC/CT
- 1 seroconversion

CALLLEN-LORDE

## SEXUALLY TRANSMITTED INFECTIONS

- MSM of all ages have greater risk of certain STIs
  - Gonorrhoea
    - ~38% of cases in STD clinics
    - higher Abx resistance
  - Syphilis
    - ~70% of cases of P&S in men
  - Anogenital warts

Sexually Transmitted Disease Surveillance 2016

CALLLEN-LORDE

## UNPLANNED PREGNANCIES

- By identity:
  - Lesbian/bisexual 23% vs. Heterosexual 13%
- By sexual behaviors:
  - M/F sexual partners 20% vs. Male only partners 14%

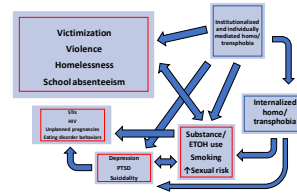
Lindley, 2015 CALLLEN-LORDE

## ACCESS TO FERTILITY PRESERVATION

- Transgender youth are less likely to pursue fertility preservation than adults
  - Cost
  - Invasiveness of procedures
  - Reluctance to delay initiating hormone therapy

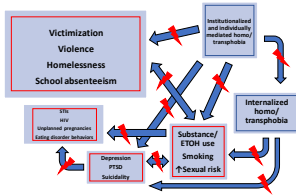
Chen, 2017 CALLEN-LORDE

## BRINGING IT ALL TOGETHER



CALLEN-LORDE

## BRINGING IT ALL TOGETHER



CALLEN-LORDE



## BEST PRACTICES IN PRIMARY CARE FOR LGBT YOUTH

CALLEN-LORDE



## STEP 1: FROM THE FRONT DOOR TO THE EXAM ROOM

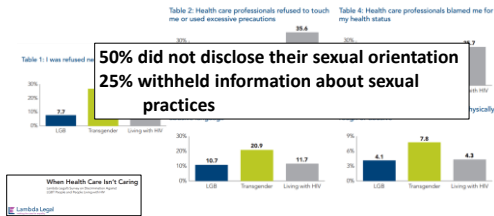
CALLEN-LORDE

## ELIMINATING BARRIERS

- Culturally competent care can be effective in mitigating effects of homo/transphobia and improve overall health and mental health outcomes
- Barriers to care must be recognized and minimized
  - Discrimination in the health care system
  - Provider gaps → Lack of knowledge/training for treating youth/LGBT
  - Youth-specific barriers
    - Fear of disclosure/lack of confidentiality
    - Sense of invincibility/inevitability

CALLEN-LORDE

## ENDING DISCRIMINATION IN THE HEALTH SYSTEM



Lambda Legal (2010)

CALLLEN-LORDE

## ENDING PROVIDER GAPS

- **Provider gaps:**
  - Age, sexual orientation
  - Privilege and power dynamics
  - Knowledge of confidentiality laws and minor rights
  - Discomfort and lack of perceived self-efficacy

MOST OF THESE GAPS CAN BE OVERCOME WITH SKILLS TRAINING!

CALLLEN-LORDE

## OBTAINING RELIABLE INFORMATION

- **Ensuring confidentiality**
- **Creating safe and welcoming spaces**
  - Staff training
  - Physical spaces

CALLLEN-LORDE

## CONSENT AND CONFIDENTIALITY FOR MINORS

- **Minors** → person younger than 18years, denied certain rights, afforded certain protections
- **Informed consent** → the act of agreeing to a proposed treatment, must understand:
  - Condition
  - Nature and purpose of proposed and alternative treatments
  - Predictable risks and benefits of the proposed and alternative treatments
- **Confidentiality** → information about treatment cannot be disclosed or released without the permission of the person who consented to care

CALLLEN-LORDE

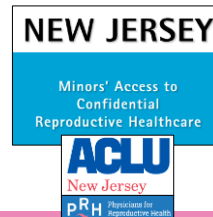
## MINORS' RIGHTS TO CONFIDENTIAL CARE

- **In NYS\* all minors can consent (and as such have a right to confidentiality) to:**
  - Reproductive health care: family planning, emergency contraception, abortion, pregnancy/prenatal care, care during labor and delivery, counseling and testing of STIs and HIV, treatment of STIs and HIV, **prevention of STIs and HIV**
  - Certain mental health services
  - Certain alcohol and drug abuse services
  - Sexual assault treatment
- **Emancipated minors who can consent for their entire care**
  - Pregnant or parenting
  - Married
  - Serving in the armed forces
  - Declared emancipated by the court

NYCLU (2009)

CALLLEN-LORDE

## MINORS' RIGHTS TO CONFIDENTIAL CARE



<https://www.aclu-nj.org/files/9413/1540/4576/2008minorsrights.pdf>

PRH/ACLU-NJ (2008)

CALLLEN-LORDE

## CONFIDENTIALITY: EXPERT CONSENSUS

Professional organizations support confidential adolescent health care.

ACOG '88	SAM '92	AMA '92	AAFP '89	AAP '89
-------------	------------	------------	-------------	------------

CALLLEN-LORDE

## CONFIDENTIALITY: DOES IT HELP OR HURT?

- Adolescents receiving care in a family planning clinic were asked how they would react if parental notification were required:
  - 11% would delay HIV or STI testing and treatment
  - 59% would stop accessing all services
  - 1% would stop having sex
- Specific concerns for LGBT+ youth:
  - Being "outed"
  - Homelessness, family rejection, violence

CALLLEN-LORDE

## SAFE SPACES: YOUTH-FRIENDLY, LGBT-FRIENDLY

- **First impressions are important:**
  - Patients will assess for affirmation
- **Assess and change current clinical environment**
  - Clinic brochures and posters, health education materials
  - Unisex or all-gender bathrooms
- **Intake forms inclusive of multiple gender identities and sexualities**
  - Establishes a non-judgmental attitude
- **Advertise the cultural competency of your practice or clinic**
  - Create and post non-discrimination, diversity policies, and confidentiality policy around clinic

CALLLEN-LORDE

## SAFE SPACES PROMOTE DISCLOSURE

Table 1. Perceived Barriers and Recommendations to Improve Disclosure of Sexual Orientation

Reasons for not disclosing*	Percentage
I don't think it's important	46
Health hasn't asked me	38
My parents are always in the room	30
I'm scared my doctor will tell my parents	14
I don't know how to bring it up	11
I'm embarrassed	6
I think my doctor would disapprove	6
Suggestions to make disclosure more comfortable†	
Just ask me	54
Use inclusive language in the room	35
Use LGBT resources in waiting room	27
Post a non-discrimination sign	17
Assure the health team isn't in my chart	17
Assure the health team won't tell my parents	25

Meckler, 2006

## CREATING SAFE SPACES



CALLLEN-LORDE

CALLLEN-LORDE




CALLLEN-LORDE



CALLLEN-LORDE

## THE PSYCHOSOCIAL HISTORY:

### A WAY INTO OUR PATIENTS' HEADS

- Youth, and LGBT youth, are for the most part healthy
- The medical provider's goal should be to:
  - Identify risk factors
  - Screen for early stages of disease
  - Prevent negative long-term outcomes
- The ROS and PE might not always provide important findings, sometimes vague symptoms are a clue to something else
- "How can I help you today?" → 

CALLLEN-LORDE

## HEEADSSSS\*

- H:** Home → **homelessness, abuse, lack of acceptance**
- E:** Education/Employment → **absenteeism, drop-outs, discrimination**
- E:** Exercise/Eating → **disordered eating behaviors**
- A:** Activities
- D:** Drugs → **problematic substance use/abuse**
- S:** Suicidality/Depression
- S:** Sexuality → **gender dysphoria, coming out concerns, sexual behaviors**
- S:** Safety → **victimization, IPV**
- S:** Strengths

\*This is a good time to remind your patient that conversations are confidential

CALLLEN-LORDE

## IMPORTANCE OF ASKING THE RIGHT QUESTIONS

Table 1. Perceived Barriers and Recommendations to Improve Disclosure of Sexual Orientation

	Percentage
Reasons for not disclosing*	
▶ I don't think it's important	48
▶ He/she hasn't asked me	33
▶ My parents are always in the room	30
▶ I'm scared my doctor will tell my parents	14
▶ I don't know how to bring it up	11
▶ I'm embarrassed	6
▶ I think my doctor would disapprove	6
Suggestions to make disclosure more comfortable†	
▶ Just ask me	64
▶ Talk to me without my parents in the room	25
▶ Put LGBT materials in waiting/exam rooms	21
▶ Post a nondiscrimination sign	17
▶ Assure me he/she won't write it in my chart	17
▶ Assure me he/she won't tell my parents	25

CALLLEN-LORDE

## ASKING ABOUT GENDER AND SEXUAL BEHAVIOR

Some patients are going to be offended that you don't assume heterosexuality or that they are cis-gender; similarly, other patients will be relieved that you don't.

- "Do you consider yourself male, female, transgender or another gender?"

OR

- "What gender do you consider yourself?"
- "What gender pronouns do you use/go by?"
- "My pronouns are *he/him*, what are yours?"

CALLLEN-LORDE



## TAKING A SEXUAL HISTORY

**Some questions to ask everyone:**

- Have you ever been or are you in a relationship?
  - How old is your partner(s)? How would you describe the relationship?
- Have you ever had sex? Are your partners AMAB, AFAB, or both?
- If you have not had sex yet, what are your plans about sex in the future?
- Has anyone ever touched you in a way that made you feel uncomfortable?
- Do you talk with your parents or other adults about sex and sexual issues?

CALLLEN-LORDE

## ASKING ABOUT GENDER AND SEXUAL BEHAVIORS

- If the patient is sexually active include the following questions:
    - Have you had oral sex? (gone down on anyone)
    - Have you had anal sex?
    - What pink parts touch/are touched by other people?
  - For MSM and MTF with M: **"Do you top, bottom or both?"**
  - For opposite-sex partnering: Ask about penile-vaginal sex, ask about anal sex!
  - For WSW and FTM with F: **"Do you share sex toys?"**
- May need to use different wording for transgender patient: "What wording do you use to describe your genitalia? I am asking so I can use the correct term when asking questions."**

CALLLEN-LORDE

## RISKS AND PROTECTIVE PRACTICES

- Do you (or your partner) use anything to prevent getting an STI?
  - How often- always, most of the time, sometimes, or never?
  - By site
- Have you ever been told that you had an STI?
- Have you ever traded sex for money, drugs, a place to stay, or other things you need?
- If at risk for pregnancy:
  - Do you (or your partner) use anything to prevent getting pregnant?
  - Have you (or your partner) ever been pregnant? What happened with that pregnancy?

CALLLEN-LORDE

## KNOWING YOUR PATIENT IS SEXUALLY ACTIVE IS NOT ENOUGH

The screenshot shows a digital form with two main sections: 'What kind of sex do you have?' and 'Who are your sexual partners?'. Each section contains several rows of radio button options. For example, under 'What kind of sex do you have?', there are options for 'anal-receptive', 'anal-insertive', 'vaginal-receptive', 'vaginal-insertive', 'oral-receptive', 'oral-insertive', and 'oral-anal', each with 'yes', 'no', 'male assigned at birth', and 'female assigned at birth' sub-options. The 'Who are your sexual partners?' section has similar options for 'both', 'male assigned at birth', and 'female assigned at birth'. At the bottom of the form, there are buttons for 'Clear for Add', 'Save', 'Print', 'Close', and a right arrow.

CALLLEN-LORDE



## STEP 3: FROM KNOWLEDGE TO HIGH-QUALITY CARE

CALLLEN-LORDE

## GUIDELINES FOR A/YA HEALTH CARE

- **General adolescent**
  - [Guidelines for Adolescent Preventive Services \(GAPS\)](#), [Bright Futures](#)
  - Annual visits, mostly focus on HEADS-type questions
    - Physical exams of breasts and genitalia may be traumatic for some patients
    - Importance of anal exam especially for those who have receptive anal sex
  - [ACIP/ CDC vaccine guidelines](#)
  - [USPSTF/ CDC STI testing guidelines](#)
- **NY State specific**
  - HIV testing at least once must be offered to patients 13-64 yo regardless of risk, no separate consent required

CALLLEN-LORDE

### GUIDELINES—MSM (AND TG WOMEN WHO HAVE SEX WITH MEN)

- HIV serology, if status unknown or if patient or sex partner(s) has had more than one sexual partner since most recent HIV test
- Syphilis serology to establish whether persons with reactive tests have untreated or partially treated syphilis.
- Urine, rectal, and pharyngeal GC/CT screen as appropriate yearly, more often if needed
- Testing for Hepatitis B → Hep A/B vaccines
- HPV, Meningitis vaccines
- Anal exam
- PEP/PrEP screen

CALLLEN-LORDE

### GUIDELINES –WSW (AND TG MEN WHO HAVE SEX WITH WOMEN)

- At increased risk of bacterial vaginosis, but do not need routine testing
- At risk for trichomoniasis, HPV, HSV-1
- Ask about penetrative sex with fingers or shared toys
- Should still offer screening for GC/C, HIV, syphilis, pap smear at 21 years
- HPV vaccination
- Encourage barrier methods (dental dam, condoms with sex toys/ male partners), partner testing
- Ask about behaviors that could lead to unplanned pregnancies
  - Remember than many women who identify as lesbians also have sex with men
  - Testosterone is not an effective contraceptive method
- PrEP for transmen who have sex with men

CALLLEN-LORDE

### SCREENING AND DIAGNOSIS

### KNOWLEDGE OF SEXUAL BEHAVIORS GUIDES CLINICAL CARE

- Pharyngeal GC/CT: 7.3% and 2.3%
- Rectal GC/CT: 5.4% and 8.9%
- Urine-only screening would miss:
  - ~70% of extra-genital GC infections
  - ~60-85% of extra-genital CT infections

Spatial of infection	No. (%) of subjects	
	Chlamydia (n = 402)	Gonorrhea (n = 276)
Rectal only	142 (35.3)	121 (43.8)
Urethral only	117 (29.1)	67 (24.3)
Pharyngeal only	30 (7.5)	20 (7.3)
Rectal and urethral	21 (5.2)	20 (7.3)
Rectal and pharyngeal	16 (4.0)	20 (7.3)
Urethral and pharyngeal	2 (0.5)	30 (10.9)
All 3 sites	2 (0.5)	20 (7.3)

Urine-only would have missed: 63.6% 69.6%

At HOTT

- Only 10% of diagnosed bacterial STIs were from urine samples

CALLLEN-LORDE

Kent, 2005

CALLLEN-LORDE

### EXTRA-GENITAL STI TESTING



CALLLEN-LORDE

### TREATMENT

CALLLEN-LORDE

## TREATMENTS MINORS CAN CONSENT TO

- STI treatment → CT, GC, TV, syphilis, HSV, genital warts...



- HIV treatment\*

- Prenatal care and abortion services

### Mental health

- Minors can consent for outpatient treatment, including medications
- Minors ≥16yo can consent for inpatient treatment

- Alcohol and substance abuse services

\*In NYS

CALLEN-LORDE

## TREATMENTS THAT REQUIRE PARENTAL CONSENT

- Hormone therapy for gender dysphoria

- GnRH analogues → Younger patients starting at SMR 2
- Masculinizing hormone therapy → IM/SQ/topical testosterone
- Feminizing hormone therapy → IM/topical/PO estradiol, antiandrogens

CALLEN-LORDE

## TRANSGENDER HEALTH SERVICES

### • COMPREHENSIVE:

- Evaluation of gender dysphoria
- Evaluation for other comorbidities
- Hormone therapy
- Case management (support with name and gender marker changes, community resources: housing, education, legal resources, insurance)
- Surgical referrals

### • SUPPORTIVE:

- Help patients access hormone therapy through community partners
- Hormone injections
- Self-injection teaching
- Referrals for other resources

CALLEN-LORDE

## PREVENTION (The next frontier?)

CALLEN-LORDE

## CONTRACEPTION

- Safe options for FTM patients

- Progestin-only pill
- DMPA
- Progesterone dermal implant
- IUD/LNG-IUS
- Emergency contraception

CALLEN-LORDE

## IMMUNIZATIONS

- Minors can consent to HPV vaccine\*



- Recommended up to age 26y for females, 21y for males, 26y for MSM
- Other immunizations:
  - Flu vaccine, yearly
  - Meningococcal
  - Tdap
  - Hepatitis A
  - Hepatitis B
  - Pneumococcal (for persons LWHIV)

\*In NYS

CALLEN-LORDE

## HIV PREVENTION SERVICES

- **Non-occupational PEP**
  - ≤72 hours after exposure for 28 days
  - TDF/FTC + raltegravir or dolutegravir
  - Elvitegravir/cobistat/TDF/FTC
  - 28 days
- **PREP**
  - Never an emergency! (think of PEP!)
  - TDF/FTC
  - **Adults only**

Approval Date	Title
April 12, 2017	Expansion of Offer Consent for HIV Treatment Access and Prevention

**PrEP for Adolescents:**  
 Successes, Challenges & Opportunities



## CONCLUSION

- **Quality health care for LGBT+ youth is no different than the care provided to their heterosexual counterparts or to adults but services need to be tailored to be effective.**
- **It is a team effort.**
- **It requires knowledge of adolescent psychosocial development as well as knowledge of the experiences of this community.**
- **It is predicated on effective communication and open dialogue.**
- **It provides an opportunity for mutual learning.**
- **It can impact a patient's interaction with the health care system for their entire life.**

Do not take this endeavor lightly!



**QUESTIONS???**

**Uri Belkind, MD, MS, FAAP, AAHIVS**  
 Associate Medical Director, Adolescent Medicine  
 Clinical Director, Health Outreach to Teens (HOTT)  
 Callen-Lorde Community Health Center

[ubelkind@callen-lorde.org](mailto:ubelkind@callen-lorde.org)

**CALLEN-LORDE**