Ongoing Follow-up of Perinatally HIV-infected Children into Adolescence: The Need for an Integrated Approach

Claude Ann Mellins, Ph.D.

HIV Center for Clinical and Behavioral Studies
New York State Psychiatric Institute & Columbia University
New York, New York, USA

Pediatric HIV
Is Now An Adolescent Epidemic

- **US: nearly 10,000 youth/young adults living with perinatally acquired HIV infection (CDC, 12/2008)**
- **NYC: 2,499 children dx < 13 years who are still living with HIV *(NYCDOH, 2011)***
  - **98% perinatal HIV infection (PHIV+)**
  - **13% < 13 years**
  - **76% = 13-24 years**
  - **11% > 24 years**
- **Global: 3.3 million children < 15 years living with HIV (UNAIDS; 12/2011)**

Adolescence, Risk & Resilience

- <u>Adolescence is a period of challenge</u>: Significant physical, cognitive, emotional and social changes
- "<u>Adolescence is an age of opportunity</u> for children, and a pivotal time for us to build on their development… to help them navigate risks and vulnerabilities, and to set them on the path to fulfilling their potential" *(UNICEF, 2011)*
- Research with PHIV+ youth has prioritized identifying risk, namely poor health and behavioral outcomes
- Understanding risk is helpful in identifying problems for treatment and targeting vulnerable populations for prevention efforts

Adolescence, Risk & Resilience

- **Resilience = children who despite great adversity have successful outcomes**
- **Understanding pathways to resilience has been helpful for defining the components of interventions most likely to promote positive youth development** (Luthar, 2000;2006)
- **As PHIV+ children across the globe reach adolescence and young adulthood → Urgent need for both risk and resilience research to inform efficacy based interventions**

Why Are Youth with Perinatal HIV-Infection at Risk?

- **Globally: vulnerable families, typically affected by poverty, violence, limited health care resources**
- **In some countries, exposure to parental substance abuse and untreated mental illness has decimated families**
- **Disruptions in caregiving for children due to parental substance use, illness, and death**
- **In many countries, youth born with HIV are from disempowered or ethnic minority families who have coped with racism and discrimination, and now must cope with HIV-stigma**

(Boyd-Franklin, 1994; Domek, 2006; Havens & Mellins, 2008; Kapetanovic, 2009; Malee, 2013; Mellins, 1997, 2000, 2003; Ng, 2004; Palmer, 2011; Santamaria, 2012)

Why Are Youth with Perinatal HIV-Infection at Risk (cont.)?

- Experienced multiple environmental and social stressors
- In some countries: genetic and environmental risk for substance abuse and mental health problems
- Experienced an extended period of less than optimal treatment (pre-HAART)→ health and neurocognitive effects
- Aging into developmental stage of
  - Presentation of psychiatric disorder (if at risk)
  - Normative challenges related to experimentation with sexual and substance use behavior
  - Social need to fit in with peers and feel “normal”
  - Increased risk for non-adherence across conditions

HIV CENTER for Clinical and Behavioral Studies
at the New York State Psychiatric Institute and Columbia University

RISK: Previous Literature on Infants and Children

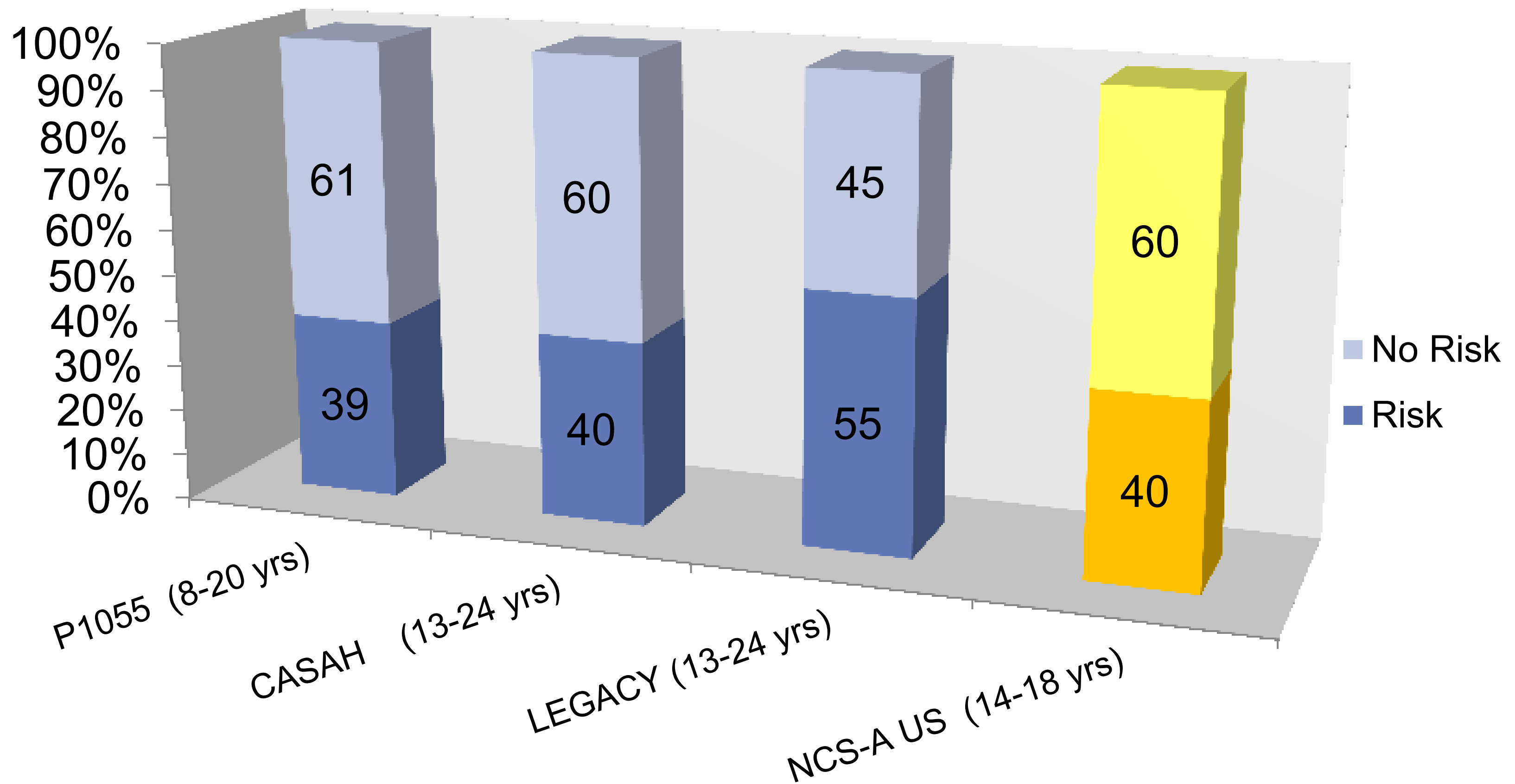
- **Neurodevelopmental and cognitive deficits, including encephalopathy**
  (Boivin, 2010; Brouwers, 1994; Chiroboga, 2005; Drotar, 1999; Nozyce, 2006; Smith, 2006, 2009, 2012; Puthanakit, 2010; Van Rie, 2011; Wolters, 2005)
- **While ART reduces encephalopathy- cognitive problems are still found even with adequate viral control**
  (Chriboga, 2005; Lyon, 2009)
- **High rates of emotional and behavioral problems, particularly anxiety, ADHD, and depression**
  (Havens, 1994; Moss, 1996; Mellins, 2003; Malee, 2011; Sharko, 2006; Lee, 2011)
- **High rates of non-adherence to medication**
  (Rudy, 2010; Usitalo, 2010; Van Dyke, 2002; Williams, 2006; Malee, 2011; Nichols, 2012)

What Happens in Adolescence? Lessons from US Cohort Studies

	Sites	Baseline Age (Follow up Age)	Control Group	Method	Longitudinal
CASAH (NIMH R01-MH069133; PI Mellins)	4 NYC,US	9-16 yrs (13-24 yrs)	Perinatally HIV-exposed, uninfected (PHIV-)	Interview	Yes
PHACS (NIH: U01-HD052104: PI Van Dyke; U01-HD052102: PI Seage)	12 US	7-16 yrs (10-18 yrs)	PHIV-	Interview	Yes
IMPAACT P1055 (NIAID: U01-AI068632; PI: Nachman)	29 US	7-17 yrs (8-20 yrs)	HIV-affected (PHIV- and HIV-)	Interview	Yes
LEGACY (CDC: 2004-N-01211: Dominguez; Bohannon)	22 US	0-24 yrs (13-24 yrs)	None	Chart Review	Yes

HIV CENTER for Clinical and Behavioral Studies
at the New York State Psychiatric Institute and Columbia University

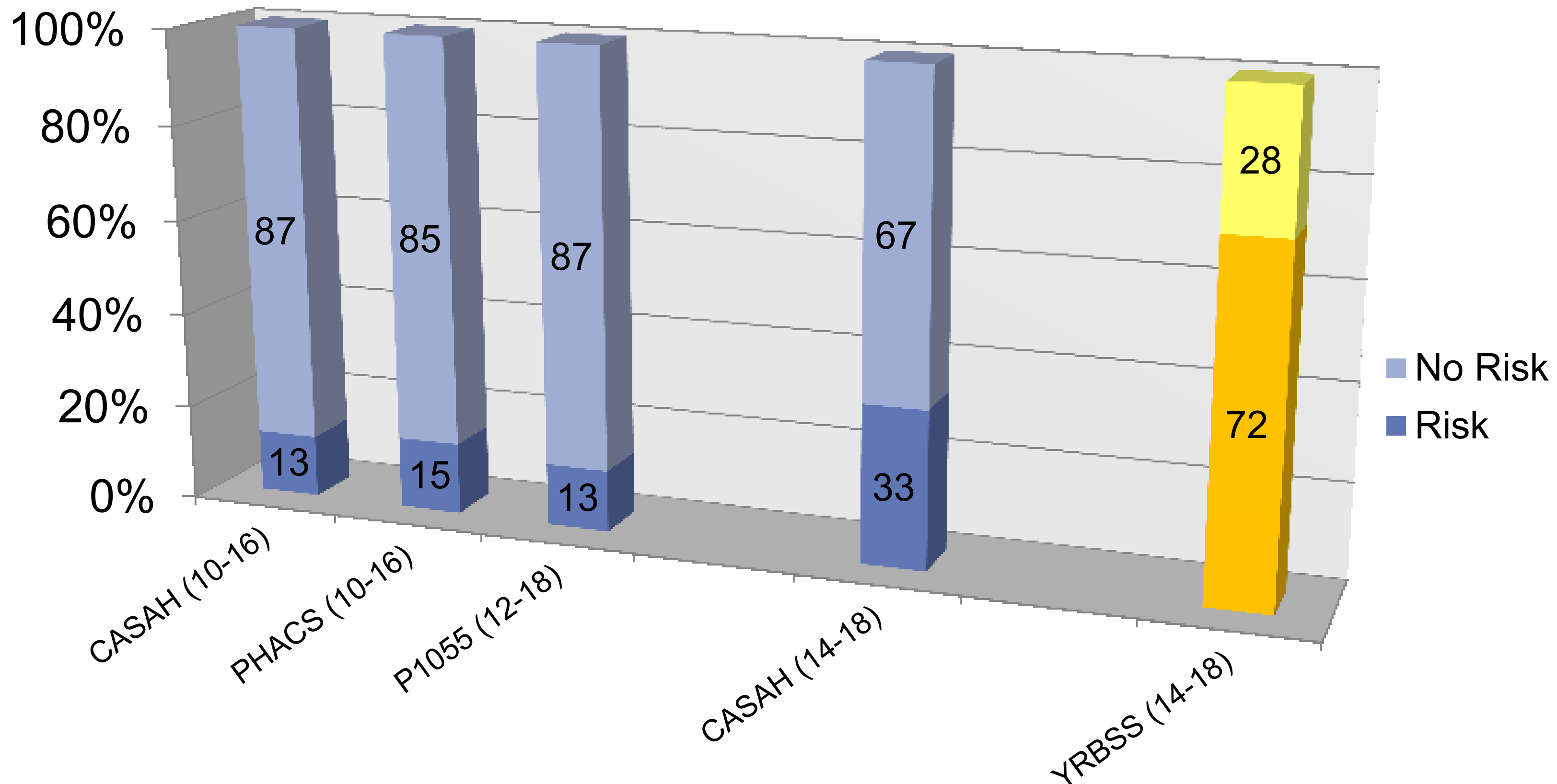
PHIV+ Youth: Current Psychiatric Disorder



P1055 (Gadow, 2012); **CASAH** (Mellins, 2009, 2011); **LEGACY** (Kapetanovic, 2011); **General Population** (NCS-A, Kessler, 2012; n-10,148)

HIV CENTER for Clinical and Behavioral Studies
at the New York State Psychiatric Institute and Columbia University

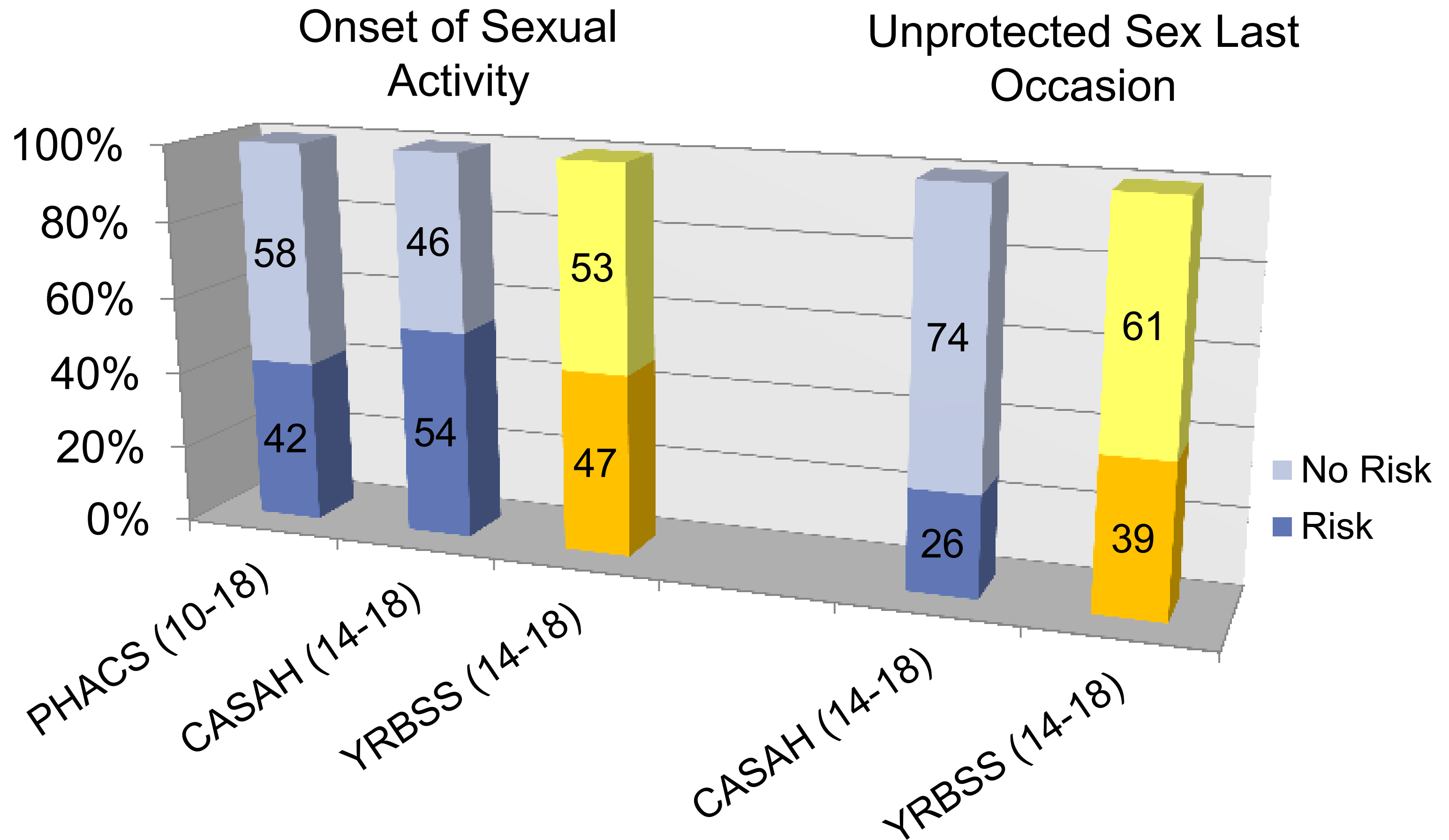
PHIV+ Youth: Substance Use



P1055 (Williams, 2010); **CASAH** (Elkington, 2009); **PHACS** (Mellins, 2011); **General Population** (2009 Youth Risk Behavior Systems Survey; **YRBSS; n-15,425**)

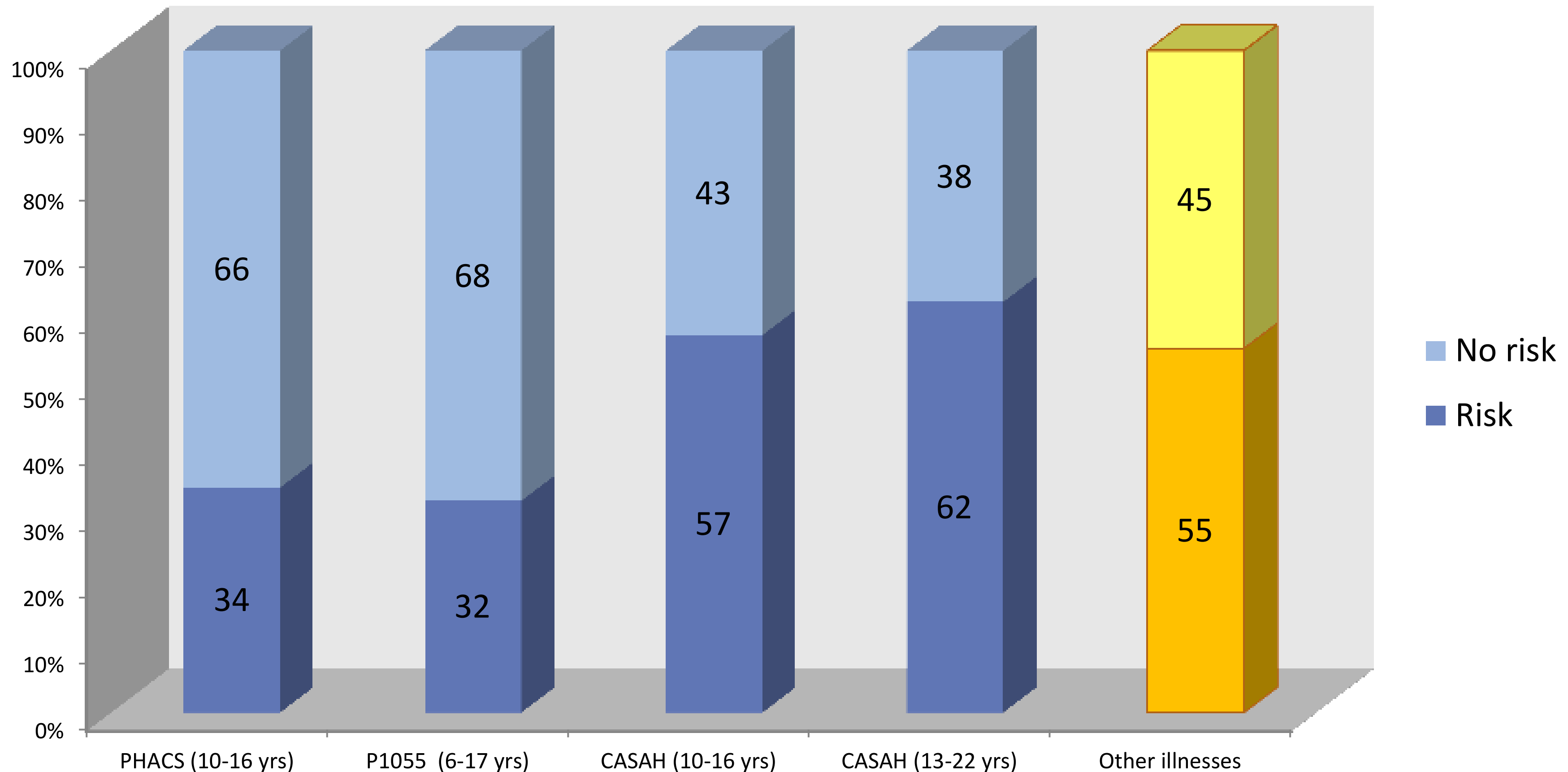
HIV CENTER for Clinical and Behavioral Studies at the New York State Psychiatric Institute and Columbia University

PHIV+ Youth: Sexual Risk



PHACS (Tassiopoulos, 2011; Mellins, 2011); **CASAH** (Bauermeister, 2009); **General Population** (2012 Youth Risk Behavior System Survey; **YRBSS**)

PHIV+ Youth: Non-Adherence in the Past Month



PHACS (Mellins, 2011; Usitalo, 2009); **CASAH** (Marhefka, 2009); **P1055** (personal communication, Kacanek, 2013); **Other illnesses** (Bender, 2000; Johnson, 2002)

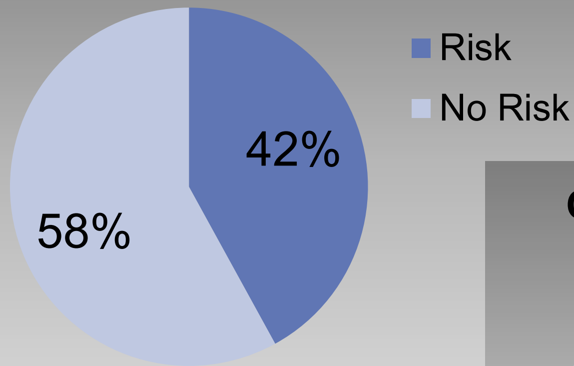
HIV CENTER for Clinical and Behavioral Studies at the New York State Psychiatric Institute and Columbia University

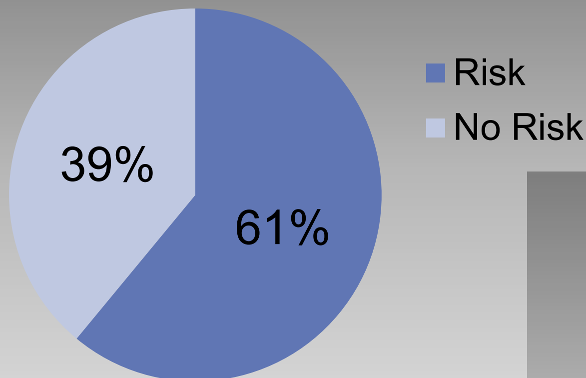
International Studies

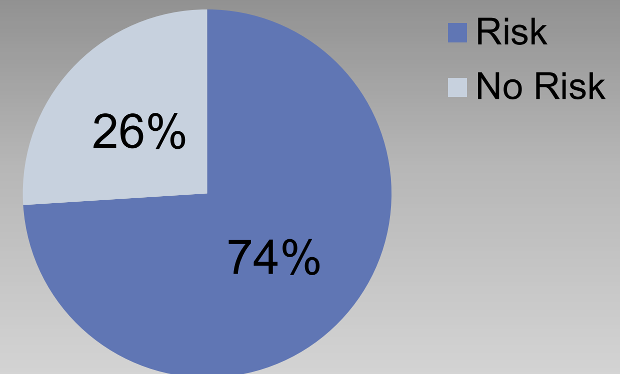
- **Difficult to present comparable data:** : fewer studies, particularly on adolescents and young adults, different age ranges, diverse measures and study variables
- **Mental health problems:**
  - **48%** (Italy [CBCL]; Bomba, 2010)
  - **30%** (Zambia [SDQ]; Menon, 2007)
  - **28%** (Thailand [CDI]; Lee, 2011)
- **Sexual Behavior**
  - **33%** sexually active (15-19 yrs); **53%** of whom currently did not use condoms (Uganda: Birungi, 2009)
- **Substance Use**
  - **19%- 24%** alcohol (10-18 yrs) (Thailand/Malaysia: Prasitsuebsai, 2012; Lee, 2009)
- **ART Non-adherence**
  - **50% - 58%** (0-15 yrs) (Togo: Polisset, 2009; Kenya: Vreeman, 2010: Rwanda: Kikuchi, 2012)

Signs of Resilience

Absence of Behavioral Health Risks (no psychiatric disorder, unprotected sex, substance use; non-adherence)



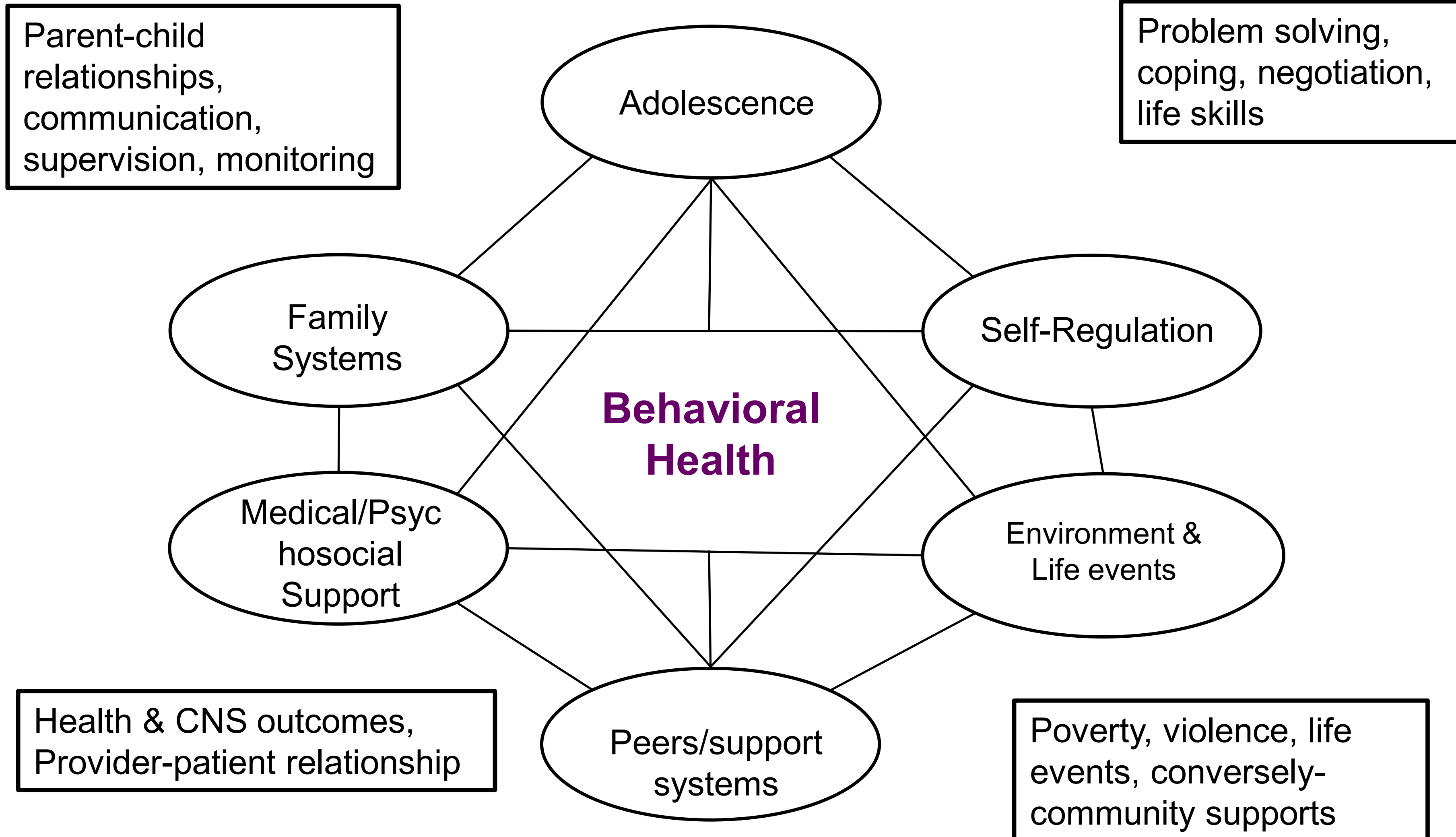




PHACS and CASAH (Mellins, 2011, 2013); **LEGACY** (Kapetanovic, 2011)

HIV CENTER for Clinical and Behavioral Studies at the New York State Psychiatric Institute and Columbia University

Models of Risk and Resilience



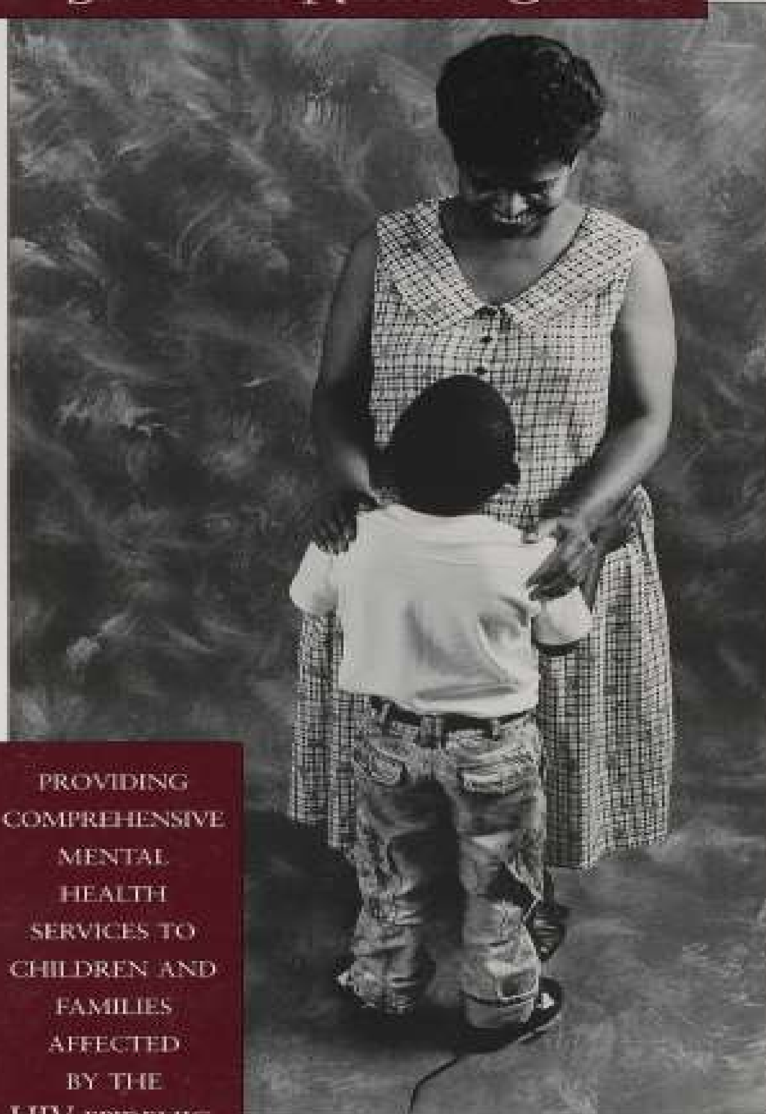
What does this mean for interventions?

- **THERE IS NOT 1 MAGIC PILL,** Nor one factor that makes people 1) take pills, 2) delay sex, 3) use condoms, 4) not use drugs

Interventions

- **The National Institutes of Health (2006) noted that effective behavioral interventions**
  - Intervene at multiple system levels
  - Simultaneously target multiple risk factors
  - Integrate behavioral interventions into the environment

- **Many service programs across the globe are attempting to do this.**
- **Unfortunately few have been systematically evaluated, few evidence-based interventions**



- **In high resource countries- model of Psychosocial Services for HIV-affected Families**
- **One stop shopping**
  - Adults & children treated in the same site
  - Mental health services by professional staff integrated with medical services
  - Multidisciplinary services delivered in a coordinated manner
  - Expensive and may be difficult to scale up

Evidence Based Interventions

- Two examples of evidence-based interventions that target multiple systems, multiple outcomes, and can be delivered by lay staff and are being evaluated in large scale trials in Africa

  - CHAMP+/VUKA
  - SUUBI+ Adherence

CHAMP:

Collaborative HIV/AIDS Mental Health and Prevention project (NIMH: Mckay, 2000; Bhana, 2010)

- **CHAMP:** Family-based mental health and HIV prevention program for uninfected older children and and early adolescents
- Developed and tested in large scale trials in the US, with successful adaptations and RCTs in South Africa and Trinidad
- **Goal: promote RESILIENCE by**
  - Strengthening the adult protective shield by improving parent-child relationships and communication and parent supervision skills and family support
  - Strengthening youth skills in problem solving, coping & negotiation of risky situations to reduce sexual and drug use behavior
  - Promoting youth mental health
- Multiple families come together for 10 sessions, led by lay staff
- Curriculum and materials tailored to the specific context through collaborative work with community stakeholders

CHAMP+ and VUKA

(NIMH, NICHD, NINR; Victor Daitz Foundation, WALDO Foundation, Columbia University's MTCT plus/ICAP program)

- **CHAMP+ (for PHIV+ youth):** focus on promotion of ART adherence and mental health, and reduction of sexual and drug risk behavior
- **Clinic-based**, **multiple-family groups, facilitated by lay staff**
- **10 session curriculum**
  1) loss and bereavement, 2) ART adherence, 3) youth identity, 4) disclosure and coping, 5) adolescent development, 6) negotiating sexual possibility situations and peer pressure, 7) family communication, supervision, involvement, 8) stigma 9) **Social** support
- **Successful pilot RCTs in US, South Africa, Argentina** (Bhana, 2013; Mellins, 2012; McKay, 2013); **Pilot work in Thailand**
- **Current large-scale RCT in South Africa (VUKA)- Cartoon-based curriculum**

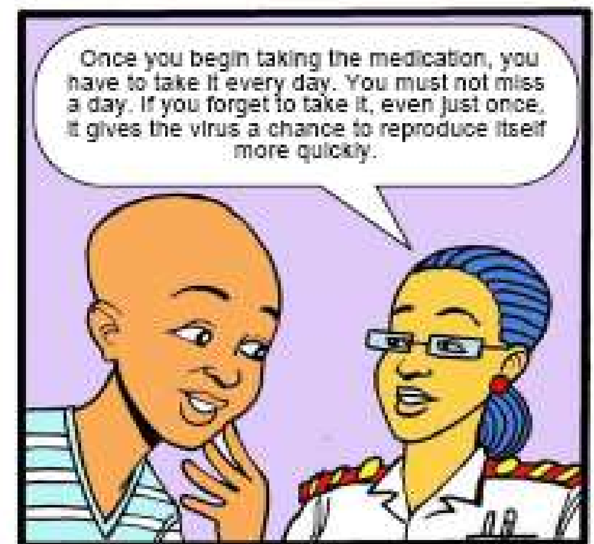
The Vuka Family

MA' MAFUTHA BAB' VUKA GOGO MUZI NONHLANHLA & NHLANHLA SINDI

HIV CENTER for Clinical and Behavioral Studies
at the New York State Psychiatric Institute and Columbia University

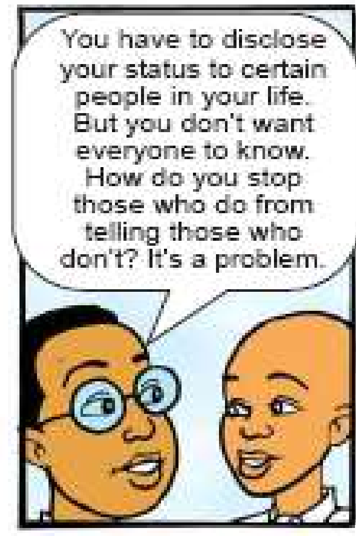
Surviving Loss and Bereavement

Adherence



HIV CENTER for Clinical and Behavioral Studies
at the New York State Psychiatric Institute and Columbia University

Disclosure



Youth Identity

SUUBI
Economic empowerment of adolescents in Sub-Saharan Africa (PI Ssewamala)

- **Designed for:** HIV- orphans and vulnerable children
- **Goal**: improve health & mental health, reduce sexual risk behavior
- **Method:** improve capacity for economic stability of child, family and community
- Working with local banks & families to teach savings and loans, and teach youth vocational skills
- Significant impact on health and behavior

1. SEED Pilot Study (The Friedman Family Foundation; CU; CSD); **2. SUUBI (Hope) Project** (NIMH); **3. SUUBI-Maka Project (**NIMH); **4. Bridges to the Future – R01 (Uganda)** (NICHD)

SUUBI+ Adherence
(NICHD; PI Ssewamala; co-I Mellins, McKay)

- RCT with PHIV+ youth (10-16 yrs)
- 32 clinics in 3 Districts of Uganda randomized to intervention vs Standard of Care
- Goal: to improve ART treatment adherence, while reducing risk behaviors and improving mental health and economic stability
  1. Family-based asset-building
  2. Clinic support using VUKA HIV treatment adherence materials

Conclusions

- **Risk:** Studies indicate high rates of mental health and adherence problems, & challenges related to normative experimentation with sex & substance use
  - Need for interventions that target multiple behavioral health outcomes (none to date have been fully tested)
- **Resilience:** Data also suggest relatively high rates of resilience, but few studies have used a resilience framework in PHIV+ youth
- **Paradigm shift:** Need to understand population specific pathways to resilience, and the modifiable protective factors to help support those who are most vulnerable
- **Go where the epidemic is:**
  - Conduct cross-cultural studies
  - Develop evidence-based interventions that are effective, acceptable, accessible, affordable and scalable

CHALLANGE

…… is not whether we can afford to invest in opportunities for PHIV+ children and adolescents

but how we can possibly afford not to.

Adapted from Nicholas D. Kristoff- 1/31/2013
NY Times Op-Ed

It Takes A Village

- **Funders**:
  - NIH/NIMH/NICHD/NINR; Victor Daitz Foundation; Waldo Foundation; Columbia University's MTCT-plus initiative/ICAP, Treat Asia
- **Patients and Research Participants who taught us**

It Takes A Village: Collaborators

CASAH

Elaine Abrams, M.D.

Mary McKay, Ph.D.

Katherine Elkington, Ph.D.

Cheng-Shiun Leu, Ph.D.

Curtis Dolezal, Ph.D.

E.Karina Santamaria, M.P.H.

Jose Bauermeister, Ph.D.

Andrew Wiznia, M.D.

Mahrukh Bamji, M.D.

Ezer Kang, Ph.D.

Pat Warne, PhD

CHAMP+/VUKA

Mary McKay, Ph.D

Elaine Abrams, M.D.

Helga Holst, M.D.

Arvin Bhana, Ph.D.

Inge Petersen, Ph.D.

Stacey Alicea, M.P.H.

Danielle Friedman, M.P.H.

Sally John, M.A.

Nonhlashla Myeza, M.A.

Giselle Pardo, MSW, M.P.H

PHACS

Kathleen Malee, Ph.D.

Renee Smith, Ph.D.

Russell Van Dyke, M.D.

George R. Seage, DSc.

Paige Williams, Ph.D.

Katherine Tassiopoulos, DSc.

Susannah Allison, Ph.D.

Rohan Hazra, M.D.

Pim Brouwers, Ph.D.

Ann Usitalo, Ph.D.

Suad Kapetanovic, M.D.

IMPAACT P1055

Sharon Nachman, M.D.; Paige Williams, PhD.; Deborah Kacanek, DSc.

SPECIAL NEEDS CLINIC

Dir: Warren Ng., M.D.; patients and staff