WORKING GROUP (WG) PRESENTATIONS SUPPLEMENT

MONDAY, SEPTEMBER 25th

8:15 AM – 10:00 AM: PLENARY DISCUSSION—WOMEN'S HEALTH

TITLE: *Plenary Session on a Women's Cohort in PHACS*

MAIN TAKEAWAYS

Over the past year, the PHACS Women's Cohort Team has been working to develop a research agenda to study the health of women living with HIV in PHACS. Although SMARTT focuses on the health of children, we also collect limited data about the health of SMARTT mothers. We plan to expand the types of data we collect from women so that we can learn more about how HIV affects women's health before, during, and after pregnancy, and how their health affects their children's health.

We have just received funding from NICHD to expand our ability in PHACS to learn about women's health. We plan to take a more in depth look at the health of women living with HIV during pregnancy and the postpartum period. We will invite women to consent to take part in a study of their health. Women with HIV who are newly enrolling in SMARTT, and mothers of SMARTT Dynamic cohort children up to age 5 who attend a follow-up visit in the next twelve months are eligible. We will ask women for permission to collect information from their medical records about their HIV disease and care, and their overall health. We will also invite them to take part in surveys about their mental health, stressors, intimate partner violence and other aspects of their life that could impact their health in the short- and long-run.

QUESTIONS FOR THE COMMUNITY

- How interested would women living with HIV (involved in SMARTT/AMP/ AMP UP) be in taking part in a longitudinal cohort study such as this? What would be barriers we should keep in mind?
- If you or others feel this type of cohort study would be of interest, what is the frequency with which you or others would be willing to participate in study visits?
- What are the key questions you would like to see a cohort like this answer for women living with HIV?
- How would women feel about completing new questions about their own life and health just after giving birth? At 1 year postpartum?
- What are the most important women's health issues for us to focus on in the first few years after women give birth?

GLOSSARY TERMS

ART: Antiretroviral Treatment

ARV: Antiretroviral

CVD: Cardiovascular Disease

ECG: Electrocardiogram

GED: General Education Development

HS: High School

NPHIV: Non-Perinatally HIV-Infected

Perinatal: Around the time of pregnancy, birth

PHIV: Perinatally HIV-Infected (from birth)

PLHIV: Person Living with HIV

Postpartum: After birth

SMARTT: Surveillance Monitoring for ART Toxicities Study; looks at uninfected children born to mothers with HIV. Many mothers with HIV take antiretroviral medications while pregnant so they don't pass the virus on to their babies. The goal of SMARTT is to study the long-term safety of these medications for babies who were exposed to them in the womb or after birth.

WIHS: Women's Interagency HIV Study

WLHIV: Women Living with HIV

VL: Viral Load

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10:15 AM – 11:15 AM: ND/NEUROLOGY

TITLE: *Prospective Memory in Youth with Perinatally-acquired HIV Infection*

MAIN TAKEAWAYS

In daily life, there are many things that we have to remember to do, like paying bills, making appointments, and taking medicine. Often, we have to "remember to remember" to do them at particular times. Remembering to do something in the future is called "**prospective memory**." Prospective memory is a skill that young people learn over time. For young people with HIV, this skill is important since they have to remember to take medicine and do other healthcare tasks.

We had 258 children and adolescents ("youth") in the Memory Study (173 with HIV and 85 without HIV) do some tests that measure prospective memory. We then looked to see if we could predict which young people have the most trouble with prospective memory.

We found that most youth with HIV did just as well on the tests as youth without HIV. But, youth who had been very sick in the past had more trouble remembering to do things when they were supposed to. Youth who had other problems with thinking and remembering also had more trouble with the prospective memory tests. These youth might need more help learning how to manage daily life activities including taking medication.

We can use this information to help develop services to help youth "remember to remember."

QUESTIONS FOR THE COMMUNITY

- Do you feel that prospective memory in youth with HIV is an important area for us to understand?
- Do you notice problems with "remembering to remember" in yourself or your kids?
- What have you found to be most helpful?
- Have you received help from your healthcare team with this, or would you be interested in such help?
- If you or your child have received services to help with remembering to remember, were they useful?

GLOSSARY TERMS

- **CDC Class C:** Diagnosis with Acquired Immune Deficiency Syndrome (AIDS).
- **NEPT:** Naturalistic Event-Based Prospective Memory Test, a test of prospective memory.
- **NCI:** Neurocognitive impairment, or problems with thinking and remembering.
- **PHEU:** Being perinatally (around birth) exposed to HIV but not infected with it.
- **PHIV:** Having perinatally acquired HIV (HIV acquired around birth).
- **PROMACY:** Prospective Memory Assessment for Children & Youth, a test of prospective memory.
- **Prospective Memory (PM):** Remembering to remember to do something.

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11:25 AM – 12:25 PM: COMPLICATIONS

TITLE: *Using Cumulative Measures of Viral Load Burden in Pediatric HIV Research*

MAIN TAKEAWAYS

Missing data can cause problems for PHACS data analyses.

There are assumptions that must be made when confronted with missing data.

It is possible to model viral load to help enhance our understanding of the effect of HIV.

QUESTIONS FOR THE COMMUNITY

- What do you think are the important limits of drug adherence?
- How can the PHACS community encourage youth and young adults to attend clinic visits to minimize missing clinical information?

GLOSSARY TERMS

- **Adherence:** Taking the correct dose of a medication at the correct time.
- **Cumulative:** The total amount of something when it's all added together.
- **MCAR:** Missing Completely at Random
- **MAR:** Missing at Random
- **NMAR:** Not Missing at Random
- **AUC:** Area Under the Curve

WHO TO CONTACT

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TITLE: *Prospective Cohort Study of HIV and Zika in Infants and Pregnancy (HIV ZIP)*

MAIN TAKEAWAYS

Understand what ZIKA is and the goals of a new study, HIV-ZIP.

QUESTION FOR COMMUNITY

Are people aware of ZIKA in their community and resources to answer their questions?

GLOSSARY TERMS

- **Zika:** A newly described viral infection transmitted by mosquitoes.
- **ZIP:** Zika in Pregnancy, an NIH Study of the effect of ZIKA during pregnancy.
- **HIV-ZIP:** A new NICHD study of pregnant women infected with both HIV and Zika conducted at some PHACS sites.

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1:45 PM – 2:45 PM: HEARING/LANGUAGE

***TITLE*: Hearing in AMP Up:** *WIN Test Results and Additionally Hearing Testing*

MAIN TAKEAWAYS

- PHIV children and adolescents in AMP had significantly poorer hearing compared to PHEU children and adolescents. In PHACS AMP Up, however, only Words-in-Noise (WIN) data are being collected to screen for hearing loss.
- PHEU young adults have poorer WIN results compared to PHIV young adults. But after considering site variation for these data, PHIV and PHEU were not significantly different.
- Compared to previous hearing test results in AMP based on standard clinical test, WIN results seem to test different aspect of hearing ability.
- We will collect additional, more extensive, pilot hearing data to further evaluate hearing in PHACS AMP Up young adults and subsequently compare components of those data to existing WIN data.

GLOSSARY TERMS

- **Cognitive:** Related to thinking; a child's cognitive development is the growth in his or her ability to think and solve problems.
- **PHEU:** Being perinatally (around birth) exposed to HIV but not infected with it.
- **PHIV:** Having perinatally acquired HIV (HIV acquired around birth).
- **WIN:** Words-In-Noise test; An assessment that uses words in signal to noise ratios to see a person's ability to understand speech in background noise.

3:30 PM – 4:30 PM: METABOLIC/NUTRITION

TITLE: *Bone Health*

GLOSSARY TERMS

DXA: Dual Energy X-Ray Absorptiometry; This is test that is done using a machine that produces low energy X-rays to measure how much mineral (mainly calcium) is in bone. Generally, the higher the amount of mineral, the denser the bone is. And the denser that bones are, the less likely they are to fracture. The machine generates a report that compares children's "bone density" to children of the same age and sex.

BMC: Total Body Bone Mineral Content; Total grams (g) of calcium and other minerals in the all bones in the body. Sometimes this is measured "without the head" since the skull is made of very dense bones but not bones that bear weight.

BMD: Bone Mineral Density

Total BMD: Total grams (g) of calcium and other minerals in all bones in the divided by the total surface area of this bones. This then equals grams in a square centimeter of bone (g/cm2). This is sometimes called an "apparent" density because it doesn't take into account how large the bones are in depth.

Spinal BMD: Bone in the spine is measured in certain lumbar (L) vertebrae (L1-L4). Spine BMD is the total grams (g) of calcium and other minerals in the spine in L1-L4 divided by the total surface area of L1-L4. This then equals grams in a square centimeter of bone (g/cm2) in the spine. This is also sometimes called an "apparent" density because it doesn't take into account the front-to-back depth of the spine bones.

PBM: Peak Bone Mass; The total amount of bone acquired when bone growth and mineralization stops at the end of childhood. PBM is sometimes thought of as a "bone bank" that is important for making sure people have enough bone mineral through their adult years.

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4:40 PM – 6:00 PM: MATERNAL EXPOSURES

TITLE: *Trends in neonatal prophylaxis and predictors of combination antiretroviral prophylaxis in US infants from 1990-2016*

PAPER CITATION: *Williams et al (2017). Trends in neonatal prophylaxis and predictors of combination antiretroviral prophylaxis in US infants from 1990-2016. (to be submitted to AIDS)*

Below is a research summary for this presentation:

BACKGROUND

In the US, babies born to women with HIV infection usually receive antiretroviral (ARV) medications after birth. This helps prevent HIV infection. There are specific guidelines about what ARV regimens should be used. The guidelines also say how long these ARV drugs should be taken. These recommendations depend on whether the baby has other risk factors. We wanted to understand how the choice of drugs had changed over time. We also wanted to see whether the guidelines were being followed in the US.

WHO WE STUDIED

We included 6,386 uninfected babies from three cohort studies. The studies included the SMARTT study, the PACTG 219C study, and the Women and Infants Transmission Study (WITS). Only the SMARTT and WITS infants were included when looking at predictors of certain ARV regimens after birth.

WHAT WE DID

We looked at changes over time in ARV regimens taken after birth. We also looked at factors that predicted whether the baby received combination ARVs after birth. We compared the actual use with US guidelines at the time a baby was born

WHAT WE FOUND

Most babies receive only a single ARV drug called zidovudine (ZDV) after birth. But 4% also received a single dose of a second drug, nevirapine (NVP). And an additional 6% received a combination of two or more drugs. Babies whose mothers with more advanced HIV or who did not get ARVs during pregnancy were more likely to get combination ARVs after birth. Use of combination ARVs has become more common in the last few years. Yet half of higher-risk babies do not receive this suggested treatment. These practices vary across different clinics. However, almost all babies get 6 weeks of ARVs after birth in the US.

WHAT WE LEARNED

Use of combination ARVs after birth for infants of HIV+ women is increasing in the US. But some clinics still seem reluctant to use it. About half of the babies at higher risk of getting HIV infection do not get the recommended combination ARVs after birth. At the same time, more low risk babies are being born to mothers with HIV, and these babies could receive shorter treatments.

MAIN TAKEAWAYS

Taking HIV medications during pregnancy reduces the risk of the baby getting infected with HIV to almost zero. This is a great success.

However, taking any drugs during pregnancy may cause problems. We know that taking some HIV medications during pregnancy increases the chances of having a small baby or a baby that is born preterm.

For a baby, being born small or preterm can increase their chances of having health problems later in life. In fact, researchers now believe that the womb environment shapes how the baby develops and the baby's long-term health. So things like brain development, how well a baby will do in school, how well the baby's immune system will function, how likely the baby will be to get heart disease or diabetes when they grow older, depends in part on the environment the baby experienced in the womb. This theory is called the "Developmental Origin of Health and Disease". Our group is trying to understand how HIV medications change the womb environment and if these changes affect the baby.

Our data show that some HIV medications change the levels of the hormones progesterone and estrogen during pregnancy. These hormones are very important for a healthy pregnancy, and they also play a role in the baby's brain development.

To study how changes in the womb environment affect the baby in the long-term, we have developed a mouse model. In this model we feed HIV medications to the pregnant mice and then study the development of the pups. Our data show that the brain of pups exposed to HIV medications in the womb differs from control pups (who were not exposed to HIV medications). We also show that pups exposed to HIV medications in the womb don't perform as well as controls in tests of memory, sensory, and motor function.

We think that it's important to study how HIV medications change the womb environment, and the long-term effects of these changes on HEU children. We hope that our research will help in choosing the HIV medications that will result in the best long-term health of HEU children.

GLOSSARY TERMS

- **Adrenal:** A gland that sits on top of our kidneys and makes some of the hormones we will be talking about.
- **ARVs:** Antiretrovirals, HIV medications
- **Birth weight centile or percentile:** If a baby boy is 10th percentile in birth weight that means that 10% of all baby boys the same age as him weigh less than him and 90% of all baby boys the same age as him weigh more than him.
- **cART:** Combination antiretroviral therapy, three or more HIV medications used to treat HIV.

GLOSSARY TERMS

- **Cord blood:** Blood collected from the umbilical cord. This blood is blood from the baby.
- **Correlation:** When things are connected in some way. For example as babies get older they gain weight, so age of the baby and the baby's weight are correlated.
- **Dysregulation:** Changes in the regulation of normal physiological processes.
- **Elimination of hormones:** Braking hormones down so they can be removed from the body
- **Hippocampus and cingulate cortex:** Areas in the brain that plays a role in memory (and other function but we will be talking about memory)
- **In utero environment:** The environment in the womb; the environment the baby experiences while still inside his mothers womb.
- **LBW:** Low birth weight; babies that are born weighing less than 2500 grams
- **Maternal:** Of the mother
- **Mechanistic studies:** Studies that try to understand why things are happening the way they are.
- **Metabolism of hormones:** Changing one hormone into another hormone, which can have a different function
- **Murine model:** Mouse model, using mice to do experiments
- **Neurocognitive performance:** Thinking tasks; testing the ability of your brain to perform mental tasks that need processing of information and thinking.
- **Neurodevelopment:** The development of the brain and nervous system.
- **NNRTIs:** Non-nucleotide reverse transcriptase inhibitors, a class of HIV medications
- **Odds ratio:** The chances that something will happen given that something else is true or false. For example if someone smoke, their chances of having lung cancer are 4 times more likely than someone who doesn't smoke. So we would say that someone who smokes has an odds ratio of 4 for having lung cancer compared to someone who doesn't smoke.
- **PIs:** Protease inhibitors, a class of HIV medications
- **Pre-term birth:** Being born before 37 weeks of pregnancy/gestation.
- **Randomized:** Being assigned to a group randomly

GLOSSARY TERMS

- **Sex-dependent:** When something is different in males versus females.
- **Sex steroid hormone:** Special type of hormones made from cholesterol. It is a large group of hormones that includes testosterone, estrogen, cortisol, and progesterone. We will be talking about progesterone and estradiol (a type of estrogen). They are very important in pregnancy. They also play an important role in the development of the fetus, including the brain.
- **SGA:** Small for gestational age; babies that are born smaller than the 10th percentile expected for their gestational age (length of pregnancy)
- **Synthesis of hormones:** Making the hormones
- **Volumetric analysis:** Changes in the volume of structures. We will be talking about volumetry changes in the brain, meaning changes in the volume (size) of specific areas in the brain.

TUESDAY, SEPTEMBER 26th

10:45 AM – 11:45 AM: ADOLESCENT AND YOUNG ADULT

TITLE: *HPV4 Vaccine Immunogenicity/Effectiveness in Perinatally HIV-Infected Youth*

MAIN TAKEAWAYS

The HPV vaccine can prevent some types of cancers, and it is recommended that children receive 3 doses of this vaccine. In our Working Group's first presentation, Dr. Barbara Moscicki will present results from our study of the HPV vaccine in young people in AMP. Most youth received fewer than the recommended 3 doses. The amount of antibody produced by the vaccine was lower in youth with perinatal HIV than in youth perinatally exposed but uninfected. In girls with HIV, the vaccine seemed less likely to protect against abnormal cells in the cervix. However, better vaccine response (higher amounts of antibody produced) in these girls appeared to lower the risk of developing abnormal cervical cells.

We also found that when there was lower HIV viral load when the first HPV vaccine does was given, the response of the vaccine was stronger, and there appeared to be a lower risk of developing abnormal cervical cells.

In the second part of Dr. Moscicki's presentation, she will talk about a new PHACS study that is going to examine in more detail the risks of developing abnormal cervical cells in AMP and AMP Up.

TITLE: *Perspectives on Disclosure from PHACS Families*

MAIN TAKEAWAYS

In 2013-2014, PHACS interviewed young adults and CAB members at 8 PHACS clinical sites about their experiences with using social media and technology and about being part of a research study. During these conversations, many also volunteered their insights about their experiences with disclosure in many areas of their lives. In the first part of the WG's focus on disclosure, we will present quotes and themes we heard from caregivers and their HEU young adult children about disclosure within their families, and about navigating HIV as a caregiver, or a caregiver's HIV status as a young person.

TITLE: *Disclosure Issues for HEU youth: It's Complicated*

MAIN TAKEAWAYS

Today, most women who have HIV are able to have healthy, uninfected children. As they raise their children, mothers need to think about whether they will tell their children about their HIV infection. This decision is complicated, and there are many factors to consider. These factors can include the mother's own health, their child's anticipated reaction, and whether other family members and friends already know about the mother's HIV status. Also, it is important that research studies follow these children to see whether there are any effects of being exposed to HIV medications (antiretrovirals or ARVs) during pregnancy.

Once these children reach young adulthood, in order for them to continue participating in these studies, or in the event that any long term side effects of ARVs are found that need follow-up, they need to know that their mothers have HIV and that they were exposed to HIV and ARVs before they were born. We will present some of these issues in our working group, and then continue the discussion in more detail in the HECC session, with a panel of mothers with HIV and their children.

QUESTIONS FOR THE COMMUNITY

- Do you have questions about how the HPV vaccine works to prevent cervical and other cancers?
- Are there specific areas of maternal HIV disclosure that you think we should focus on more (or less)?

GLOSSARY TERMS

Antibody: A protein produced by the immune system that recognizes and fights infectious organisms that enter the body. Each antibody is specific to a particular infectious organism (such as HIV antibodies or measles antibodies).

GLOSSARY TERMS

- **Cervix:** Lower part of the uterus (womb) that leads to the vagina
- **GMT:** Geometric mean titer (This refers to the amount of antibody the body produces after vaccination. Antibodies are proteins that fight infections including viruses like HIV.
- **HPV:** Human papillomavirus
- **PHEU or HEU:** Children perinatally exposed to but uninfected with HIV.
- **PHIV:** Children perinatally infected with HIV.

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11:55 AM – 12:55 PM: HEALTH EDUCATION AND COMMUNICATION COMMITTEE

TITLE: *Panel Discussion: A Family Perspective on Disclosure Decisions*

MAIN TAKEAWAYS

This panel will look at disclosure as a process, and the decisions surrounding disclosure within families affected by HIV. The panel discuss will focus on mothers living with HIV and their children born without HIV. The discussion will highlight perspectives from CAB members on their reasons for and against disclosing, as well as reflections from two mother-child pairs about disclosure experiences within their families.

Panelists will include several CAB members, including two mother-child pairs who participate in the Adult and Young Adult CABs. Anonymous perspectives from CAB members will also be featured.

GLOSSARY TERMS

- **ARVs:** Antiretroviral medications
- **Autonomous:** Having autonomy; not subject to control from outside; independent.
- **Disclosure:** Informing another person or persons of one's HIV infection status.
- **HEU:** HIV-Exposed, but uninfected

GLOSSARY TERMS

- **Intervention:** An action undertaken in order to change what is happening or might happen, especially to prevent some-thing undesirable. For example, teaching the ABCs of HIV prevention is an intervention designed to reduce the risk of HIV transmission.
- **Partial Disclosure:** Disclosure that occurs when a person does not want to go into detail about their status. For example, a mom might tell her child something like, "Mommy has a virus and has to take medicine to stay well," without mentioning HIV right away.
- **Selective Disclosure:** Disclosure when people living with HIV only tell certain people in their lives about their status.
- **Stigma:** Disapproval associated with a particular circumstance, quality, or person

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1:55 PM – 3:00 PM: CARDIOPULMONARY

TITLE: *Pulmonary Amendment to Cardiology CT Scan Study*

MAIN TAKEAWAYS

A previously unrecognized pulmonary complication of perinatally infected children has now been discovered to be a complex mixture of asthma and chronic pulmonary obstruction. In earlier non-HIV infected patients, chronic respiratory problems only worsened as the children grow older. That being so, there is a strong possibility that this new respiratory disorder will seriously affect several million children worldwide.

It is essential that these children be given the correct diagnosis, and clinical research needs to be performed to determine the best methods of treatment.

It appears that there is a significant immune imbalance of cytotoxic and inflammatory T cells that contributes to this respiratory disorder. The determination of the molecular and genetic basis for this asthma-chronic obstructive pulmonary disorder (COPD) overlap syndrome is the first step toward designing specific therapy. Collaboration of pediatricians, internists, pulmonary physicians is highly recommended.

GLOSSARY TERMS

- **Asthma:** A condition in which a person's airways become inflamed, narrow and swell, and produce extra mucus, which makes it difficult to breathe.
- **Chronic Obstructive Pulmonary Disease:** A group of lung diseases that block airflow and make it difficult to breathe.
- **Cytotoxic:** Toxic to living cells
- **Genetic:** A description of traits people inherit from their family through DNA
- **Pulmonary:** Related to the lungs
- **Inflammation:** A process by which the body's white blood cells and substances they produce protect us from infection with foreign organisms, such as bacteria and viruses.
- **Respiratory:** Anything related to respiration: how we breathe
- **T-Cell:** A type of white blood cell in the immune system that helps to protect the body from infections. Destruction of CD4 cells by HIV harms the immune system, which leaves the person at higher risk of serious infection or disease.

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Steve Lipshultz will give an update on several PHACS projects related to heart health. These include the following projects:

MAIN TAKEAWAYS

Cardiac biomarkers in AMP youth: This project used blood samples in youth from the AMP study, and looked at whether certain blood tests (biomarkers) could predict which children might be more likely to have problems with their heart. This project was completed and the paper is about to be submitted to the journal AIDS. A summary of this paper, led by Dr. Jay Wilkinson, is on page 16.

Vitamin D and heart health: This project, led by Dr. Renee Margossian, is evaluating the links of vitamin D and other measures of bone health with how well the heart works. The study used blood samples taken near the time of the echocardiogram (ultrasound picture of the heart) done in AMP youth. The analyses showed that children with HIV infection were more likely to have elevated parathyroid hormone (PTH). Also, children with low vitamin D levels and those with elevated PTH tended to have smaller hearts.

Longitudinal Cardiac Study: Dr. Steve Lipshultz and the team which conducted the original echocardiograms in the AMP and SMARTT study have been awarded a new grant to study heart health. Based on the first grant, papers were published showing how children treated with combination antiretroviral regimens usually had better heart health. In the new grant, youth at certain sites in AMP with a previous echocardiogram will have a follow-up echocardiogram. Also, blood samples will be taken to look at possible markers of heart health. Having a second measurement of heart function and size will allow the team to look at whether there have been changes over time in heart health.

Pulse Wave Velocity Study: The working group has also been talking about other ways to measure heart health of youth with HIV infection, and with HIV exposure. One measure is called "arterial stiffness", and it reflects how large arteries may become stiff with age or other stresses on the heart. Dr. Elaine Urbina is proposing to add "pulse wave velocity", as a measurement of arterial stiffness, to Dr. Lipshultz echocardiogram grant. These measurements only take about 15 minutes and could be done on the same subjects after their echocardiogram.

Below is a research summary for the Cardiac biomarkers in AMP Youth Study:

BACKGROUND

In the early 1990's, many children living with HIV had serious heart problems. We wanted to see if there were any signs that HIV and ARVs had damaged the hearts of children in AMP.

WHO WE STUDIED

246 children and teenagers in AMP living with HIV who are now taking or took ARVs in the past and 156 children in AMP who did not have HIV but whose mothers took ARVs during pregnancy.

WHAT WE DID

We tested all of the children's blood for 3 chemicals, called biomarkers, which tell us different things about heart health. They measure damage to heart muscle, swelling of the heart, and heart stress. We also measured 7 other chemicals which tell us how the body's immune system is working. In all of the children we also looked at a moving picture of the heart.

WHAT WE FOUND

Children with HIV more often had high levels of the biomarker measuring heart muscle damage compared to the children who did not have HIV. The children with HIV also had higher average levels of some of the immune system biomarkers. The children with higher levels of the heart health or immune system biomarkers tended to have lower heart function and appeared to have smaller hearts on average. Children with HIV who had higher viral loads and lower CD4 counts at their last check-up had higher average levels of some of the immune system biomarkers.

CONCLUSION

Children living with HIV may have higher levels of some biomarkers of heart health and immune system function. Children with these higher biomarker levels may have changes in how the heart works and the size of their hearts. None of the children in either group had heart disease. Children living with HIV should take their ARVs to control their HIV but should also have regular check-ups of their heart health.