SEMI ANNUAL RESEARCH REPORT

July-December 2015

Acknowledgements

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OVERVIEW

This has been a momentous year for the AMPATH Research Program. The year began with the completion of the Chandaria Cancer and Chronic Disease building. This state of the art facility is the new home for our research program – consolidating research projects and resources that were spread between four different facilities around Eldoret. We completed a strategic planning process involving a broadbase of stakeholders from AMPATH's Research Network and we broke a new record for publications produced by AMPATH investigators.

A New Home for Research

In April, the Chandaria Cancer and Chronic Disease (CCCDC) building opened its doors along with a new floor dedicated to research and clinical trials. This allowed the program to consolidate research projects into one location from multiple locations around Eldoret. The new facility provides an important foundation for the continued growth and development of research collaborations at Moi. Centrally located in the heart of the Moi medical campus, the CCCDC building provides an ideal home for research. It offers 4 new conference rooms that will be equipped with dedicated conferencing equipment, new training facilities, secure storage space, project offices, and plenty of room to grow. The facility is also home to AMPATH's oncology program and collaboration space for the AMPATH consortium.

The Chandaria Cancer and Chronic Disease building is AMPATH's new home for research and clinical trials.

A New Strategic Direction

After nearly 5 years of growth, the AMPATH Research Program started a process to evaluate and update its strategic plan. The process began with a SWOT analysis of the program (See Figure 1). Program stakeholders from North America and Kenya were asked to complete a brief online survey identifying program's internal strengths and weaknesses and external opportunities and threats that could impact the development of the program in the future.

In October, a meeting of research program leaders and stakeholders was convened to review the program's SWOT analysis and develop a strategic plan for the next 3 years. This meeting produced four new strategic goals to develop:

- a stable, **resourced infrastructure** for research that enables the efficient conduct of high-quality, high-priority research;
- successful **independent investigators** working in collaborative, interdisciplinary research teams to improve global health;
- supportive, **global health research-intensive cultures** within the schools and departments of all AMPATH partners; and
- growth in **key, high-yield, research-related initiatives** relevant to population health, policy-makers' questions, and healthcare delivery systems and contextualized to resource-limited settings

Figure 1: 2015 Research Program SWOT Analysis Findings

Strengths

Weakneses

Opportunities

Threats

Following the strategic planning retreat, four task groups were formed around each of the new strategic goals. These task groups included key program leaders and are tasked with rapidly pursuing each goal over the next 6 months. The groups are term-limited, staff supported, visible and open, and will hold at least six meetings with an explicit set of tasks in order to catalyze progress towards the strategic goals. The groups are expected to provide their first reports to the Research Executive Committee in May 2016.

A Record Year for Publications

In addition to a new home for research and a new strategic plan, 2015 was also a record breaking year for AMPATH's research publications. In total, AMPATH investigators published nearly 60 publications in peer reviewed journals. This is the largest total for a single year on record and pushes the cumulative number of publications above 400 for the first time.

The following report includes updates on the status of research funding and publications, along with updates from 51 AMPATH research studies covering the period of July – December 2015. It was compiled with the assistance of AMPATH investigators, research coordinators, and assistants from more than 15 institutions in Kenya and North America. We begin the report with a brief summary of AMPATH research funding awarded in 2015 and continue with a description of the publications produced during the year. We conclude with brief project updates provided by AMPATH investigators listed alphabetically by the study title.

Please visit the AMPATH Research Network Website to find digital copies of our past reports, www.medicine.iu.edu/ampathresearch.

GRANTS

At the time of publication, AMPATH investigators had reported 11 new research awards totaling nearly US$7 million in direct costs for calendar year 2015. This continues a decline in the number of new research awards to AMPATH over last 4 years. However, the average total of new awards per year over the last 10 years continued hold steady at US$ 9 million per year. In total, the program has attracted more than US$ 96 million in research and training grants since 1998 (See Figure 2). The National Institutes of Health in the United States continued to be the largest sponsor of research and training grants at AMPATH (See Figure 3) – all of the new awards reported for 2015 were from NIH sources and nearly 70 percent of awards since 1998 have come from the NIH.

Figure 2: AMPATH Research & Training Cumulative Awards by Year since 1998
(Direct Costs in US$)

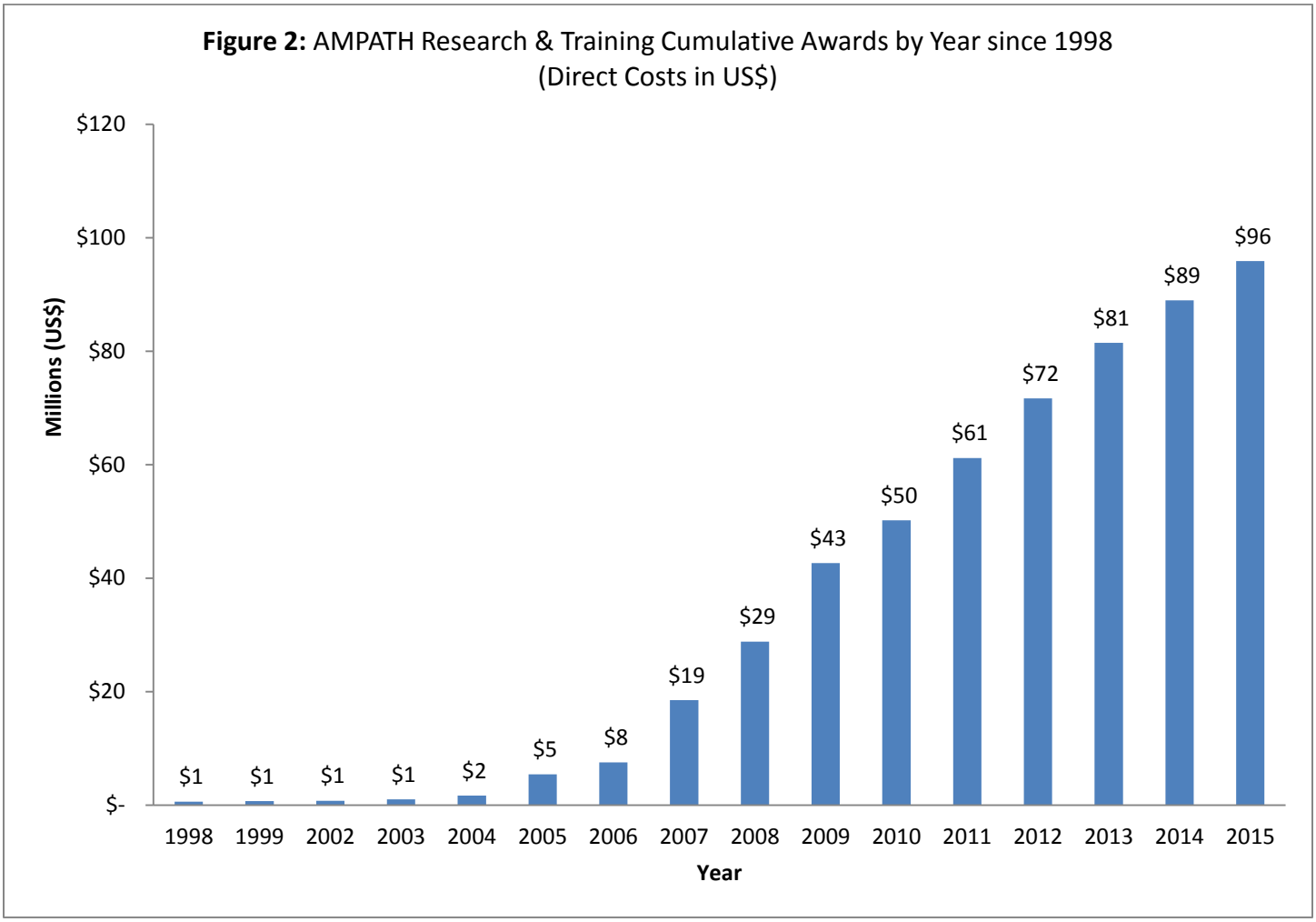
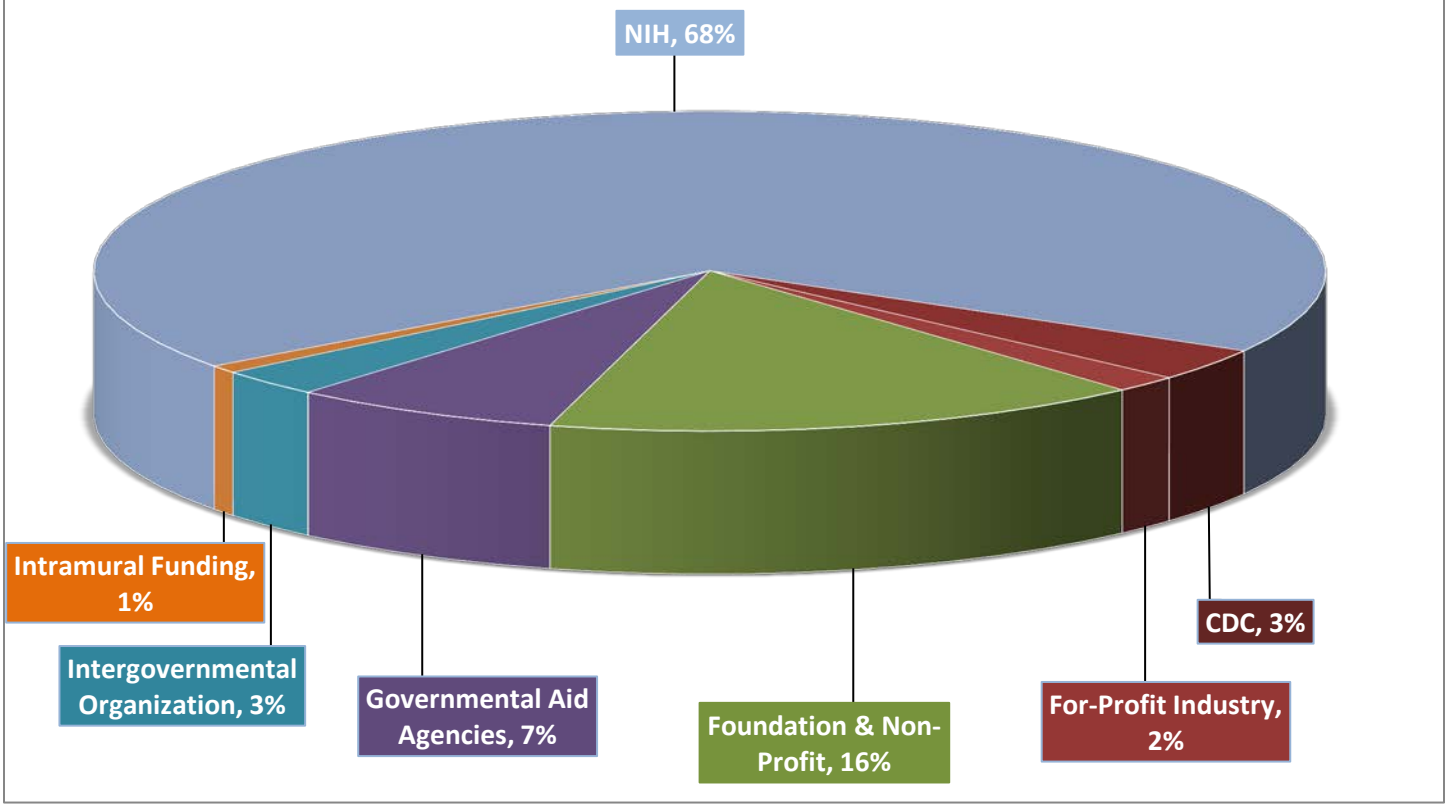


Figure 3: AMPATH Research Support by Sponsor Type (1998 - 2015)

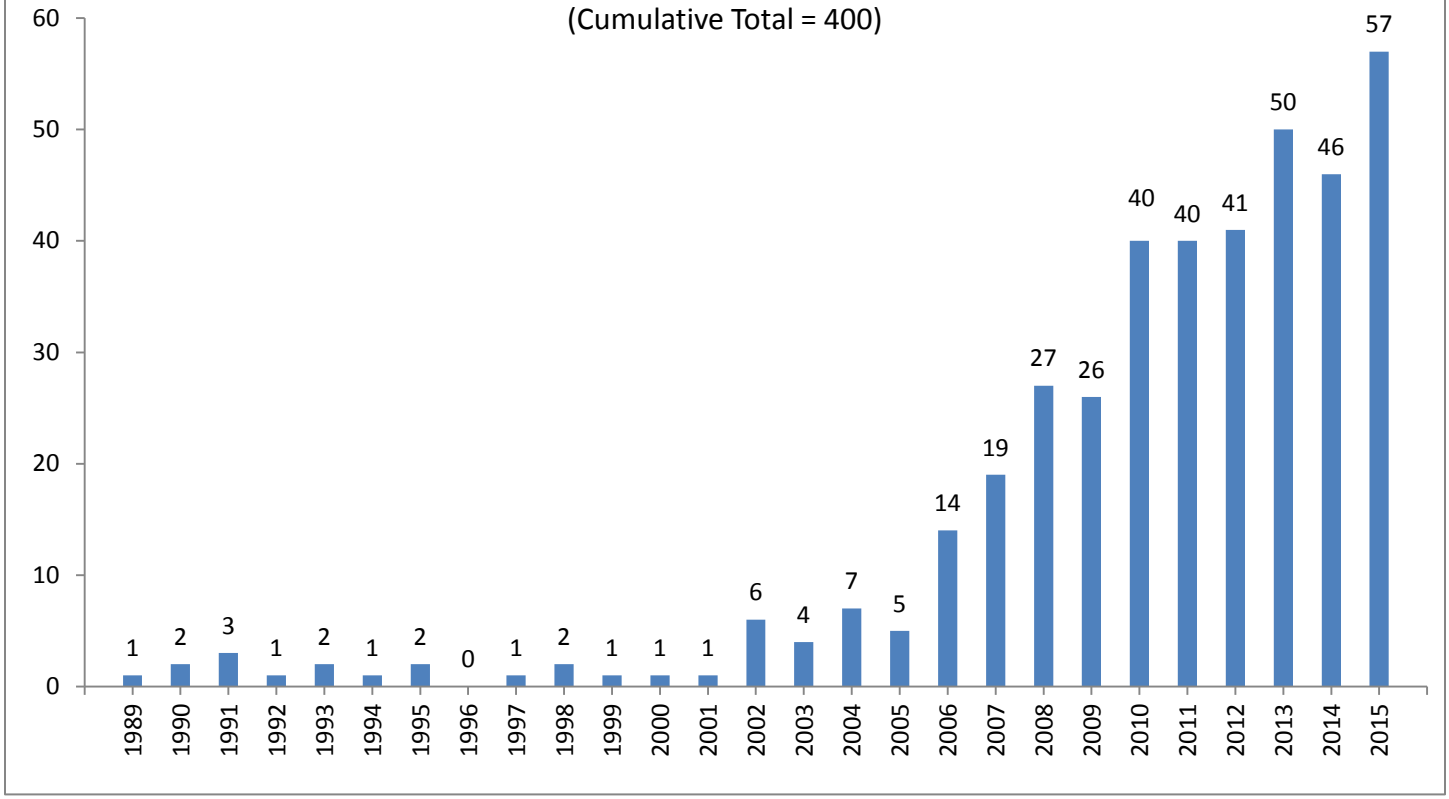


PUBLICATIONS

With nearly 60 publications from AMPATH investigators appearing in peer reviewed journals, 2015 was a record year for AMPATH research publications (See Figure 4). Nearly two thirds of these publications were published in the first half of the year. A bibliography of the manuscripts published by AMPATH investigators during this reporting period is available at the end of this report.

In addition, AMPATH investigators submitted more than 132 manuscripts, abstracts, posters, and articles to the Publications Committee in 2015. More than half of the submitted publications were posters and abstracts produced for professional meetings and conferences like the IWHOD and IAS conferences. This volume of submission is on par the last 3 years and indicates a thriving culture of publication and meaningful participation in major global health research forums.

Figure 4: AMPATH Research Publications since 1989
(Cumulative Total = 400)



STUDY REPORTS

The following reports were provided by AMPATH investigators and their study teams and cover the period of July 1 – December 31, 2015.

Study Title	**A Formative Study to Develop Culturally Valid Psychosocial Assessment Tools and Interventions to Promote Family Well-Being in Kenya**
Principal Investigator(s)	Eve Puffer, Duke University David Ayuku, Moi University
Co-Investigator(s)	
Working Group(s)	Behavioral and Social Sciences
Description	The purpose of this study is to assess family functioning and children's psychosocial well-being in a Kenyan context in order to develop culturally tailored measures and family-based intervention approaches. Many measures of child well-being, mental health, and behavior were developed in the West and are inappropriate or insufficient for use in Kenya. The same is true for measures of family well-being. Culturally tailored measures are needed to assess important aspects of family relationships, such as communication, conflict, and parenting. Such measures will be useful in identifying children and families who are in need of treatment and in measuring the impact of interventions for children and families to identify which treatments work best. We will use a variety of methods to develop assessment tools to measure family functioning and mental health. These will include focus groups with community members (both youth and adults), community leaders, and people already working in the field of mental health in the communities. Methods will also involve questionnaires and observational measures, in which family and child behaviors are directly observed and assessed. A family-based intervention to address psychosocial concerns will be developed using a community-based participatory approach.
Site(s)	Pioneer and Webuye
Project Period	5/28/2013 – 4/16/2016
Funding Status	Funded – Grand Challenges Canada, Johnson and Johnson
Direct Award (USD)	$129,000
Update	We re-opened pilot testing of the family functioning measure in Pioneer and Webuye communities in order to add more questions about adolescent behavioral outcomes. This will allow closer comparisons to current literature. In addition, observational measures and in-depth interviews continued to be piloted in Pioneer as part of the process to create and validate family functioning ratings scales within these measures. The formulation and piloting of these three measures prepares us for the quantitative validation of the survey in the future. The validity portion of the study will include both survey administration as well as in-depth interviews and observations with families in these areas. The validity study will be done in order to determine whether the survey measure which is currently being pilot tested accurately predicts diagnosis of both family

	functioning issues and mental health status of individuals within a family. We began the family therapy intervention pilot informed by community advisory committees. 7 community leaders were trained as counselors and have provided family therapy to 8 families to date. The family therapy intervention addresses issues raised in the focus group qualitative data in order to make the intervention culturally relevant for peri-urban and rural communities in Kenya. A technology tool is being piloted that assists lay counselors in conducting family therapy in the community. Thus, the study will evaluate both the family therapy intervention itself as well as the technology tool's efficacy to assist lay counselors.
Future Plans	We will complete pilot testing of the family functioning measure and launch the full validity study by conducting in-depth interviews, survey administration, and observational activities with study participants. In addition, we will continue to the second round of the family therapy intervention pilot, enrolling 8-10 new families to receive family therapy counseling assisted by the technology tool.
Publication(s)	

Study Title	**A Stage 2 Cognitive Behavioral Trial, Reduce Alcohol First in Kenya Intervention (RAFIKI)**
Principal Investigator(s)	Rebecca Papas, Brown University B. Gakinya, Moi University
Co-Investigator(s)	Maisto, S. Martino, S. Baliddawa, J. Sidle, J. Hogan, J. Carroll, K.
Working Group(s)	Adult Medicine, Behavioral and Social Sciences
Description	This study will determine whether a group cognitive-behavioral therapy intervention that demonstrates preliminary evidence of reducing alcohol use among HIV-infected outpatients in western Kenya is effective when compared against a group health education intervention in a large sample over a longer period of time. It will be delivered by paraprofessionals, individuals with limited professional training. This approach is consistent with successful cost-effective models of service delivery in resource-limited settings in which paraprofessionals (e.g. clinical officers, traditional birth attendants and peer counselors) are trained.
Site(s)	Iten District Hospital, Moi Teaching and Referral Hospital , Turbo Health Centre, Webuye District Hospital
Project Period	11/1/2011 – 8/31/2016
Funding Status	Funded – NIH - National Institute on Alcohol Abuse and Alcoholism (NIAAA)
Direct Award (USD)	$2,268,832.00
Update	The 5-year RAFIKI RCT, which examines the efficacy of a group Cognitive Behavioral Therapy (CBT) intervention to reduce alcohol use when compared against a group health education intervention, is half way through the fifth year of the study. We have randomized 619, and have completed recruitment and intervention for all 22 cohorts. We are now in the follow up stages for final cohorts. Recruitment and retention are

	progressing within expectations according to our NIH specific aims. We have had no immediately reportable serious adverse events during the course of this study.
Future Plans	Build on the progress made so far and attain our retention goals.
Publication(s)	
Study Title	**A5225/HiFLAC Protocol - A Phase I/II Dose-Finding Study of High-Dose Fluconazole Treatment in AIDS-Associated Cryptococcal Meningitis**
Principal Investigator(s)	John Sidle, Indiana University Abraham Siika, Moi University
Co-Investigator(s)	Lagat, D.
Working Group(s)	Adult Medicine, Behavioral and Social Sciences
Description	A5225/HiFLAC is a phase I/II dose escalation and validation study of the safety, tolerability, and therapeutic effect of an induction-consolidation strategy of high-dose fluconazole alone for the treatment of cryptococcal meningitis (CM) in HIV-infected participants. The study will proceed in two stages. In Stage 1, Dose Escalation, up to three induction doses of fluconazole will be tested in sequentially enrolled cohorts. Stage 2, Dose Validation, will not open until the maximum tolerated dose (MTD) of fluconazole has been identified in Stage 1. In Stage 2, induction doses of fluconazole that are found to be safe in Stage 1 will be tested in simultaneously enrolled cohorts. In each stage, participants will be randomized at entry into Step 1. Over the course of the study, participants will register to subsequents steps (Steps 2-4) based on their initial randomization and/or their response to treatment. The study steps are: Step 1: Induction therapy with either high dose fluconazole or ampho B; Step 2: Induction following early ampho B intolerance (only for participants randomized to ampho B treatment in Step 1) (fluconazole at 400-800 mg daily); Step 3: Consolidation therapy (fluconazole 400 mg daily); and Step 4: Maintenance therapy (fluconazole 200 mg daily).
Site(s)	Moi Teaching and Referral Hospital
Project Period	5/18/2011 – 12/31/2013
Funding Status	Funded – NIH - National Institute of Allergy and Infectious Diseases (NIAID)
Direct Award (USD)	Not Reported
Update	The site has enrolled 7 participants into stage 2 (Version 3.0) of the protocol and follow up is going on well. In total, 24 participants have been enrolled into the study, this is out of the site target of 30. Globally, accrual is 139 out of the protocol sample size of 168. A site enrollment pause was instituted by DAIDS/ACTG effective September 18 2015, to address concerns related to the Good Clinical Laboratory Practice Standards employed by the AMPATH Research Laboratory and their impact on participant safety and integrity of ongoing protocols at the site.
Future Plans	Once enrollment pause is lifted (anticipated mid-February 2016) the site plans to continue enrolling participants and hopefully attain accrual target of 30. Follow up of active

	participants will also continue.
Publication(s)	
Study Title	**A5263 'A Randomized Comparison of Three Regimens of Chemotherapy with Compatible Antiretroviral Therapy for Treatment of Advanced AIDS-KS in Resource-Limited Settings'**
Principal Investigator(s)	Abraham Siika, Moi University
Co-Investigator(s)	Naftali Wisindi Busakhala Evangeline Wawira Njiru
Working Group(s)	
Description	This is an ACTG prospective, randomized, active-controlled clinical trial in which participants will be randomized 1:1:1 to oral etoposide (ET) plus antiretroviral therapy (ART), bleomycin and vincristine (BV) plus ART, or paclitaxel (PTX) plus ART. The primary objective will be to compare the clinical efficacy of two regimens, oral ET plus ART and BV plus ART, to PTX plus ART for initial treatment of advanced stage AIDS-KS.
Site(s)	
Project Period	4/1/2014 – 2/28/2021
Funding Status	Funded – NIH - AIDS Clinical Trials Group (ACTG), NIH - National Cancer Institute (NCI), NIH - National Institute of Dental and Craniofacial Research (NIDCR)
Direct Award (USD)	Not Reported
Update	Currently a total of 167 participants out of the protocol sample size of 706 have been enrolled into this multi-centre, multi-national clinical trial. At Moi University Clinical Research Centre, 3 participants have been enrolled all in the last 6 months. A site enrollment pause was instituted by DAIDS/ACTG effective September 18 2015, to address concerns related to the Good Clinical Laboratory Practice Standards employed by the AMPATH Research Laboratory and their impact on participant safety and integrity of ongoing protocols at the site.
Future Plans	The site plans to continue screening and enrolling eligible participants once enrollment pause if lifted, hopefully by mid February 2016. Follow up of active participants will also continue.
Publication(s)	
Study Title	**A5264/AMC067 A Randomized Evaluation of Antiretroviral Therapy Alone or with Delayed Chemotherapy versus Antiretroviral Therapy with Immediate Adjunctive Chemotherapy for Treatment of Limited Stage AIDS-KS in Resource-Limited Settings (REACT-KS)**
Principal Investigator(s)	Abraham Siika, Moi University
Co-Investigator(s)	Busakhala, N. Njiru, E.

Working Group(s)	Adult Medicine, Behavioral and Social Sciences
Description	A5264/AMC 067 is a phase III, open-label, prospective, randomized study stratified by CD4+ lymphocyte cell count and antiretroviral therapy (ART) history. The study will compare the KS tumor outcomes of ART alone or with delayed Etoposide (ET) to ART with immediate ET, for initial treatment of limited stage AIDS-KS in chemotherapy and radiation treatment na- HIV-1 infected participants who are currently not receiving ART
Site(s)	Moi Teaching and Referral Hospital
Project Period	11/28/2012 – 6/30/2014
Funding Status	Funded – NIH - National Institute of Allergy and Infectious Diseases (NIAID), NIH - National Cancer Institute (NCI), NIH - National Institute of Dental and Craniofacial Research (NIDCR)
Direct Award (USD)	Not Reported
Update	Currently a total of 185 participants have been enrolled into this multi-center clinical trial. Of these, 17 are from the Eldoret site. Enrollment into this protocol has been very slow both globally and at our site and in the last 6 months only 1 participant was enrolled at this site. Accrual was impacted by a site enrollment pause instituted by DAIDS/ACTG effective September 18, 2015, to address concerns related to the Good Clinical Laboratory Practice Standards employed by the AMPATH Research Laboratory and their impact on participant safety and integrity of ongoing protocols at the site.
Future Plans	The site plans to continue screening and enrolling participants into the study once the enrollment pause is lifted, hopefully by mid February 2016. Follow up of active participants will also continue.
Publication(s)	

Study Title	**A5273 'Multicenter Study of Options for Second-Line Effective Combination Therapy (SELECT)'**
Principal Investigator(s)	Abraham Siika, Moi University
Co-Investigator(s)	Faraj Some
Working Group(s)	Adult Medicine, Behavioral and Social Sciences
Description	A5273 is a phase III, dual-arm, open-label, randomized, non-inferiority study for participants who are on a failing non-nucleoside reverse transcriptase inhibitor (NNRTI)-containing first-line regimen. The study will evaluate the difference in virologic failure rate between two treatment arms: lopinavir/ritonavir plus raltegravir (LPV/r + RAL) and LPV/r plus best available nucleos(t)ide reverse transcriptase inhibitors (NRTIs).The NRTIs to be used will be specified by the site prior to randomization. The primary objective for this study will be to determine whether the combination of LPV/r + RAL is associated with virologic efficacy that is non-inferior to that achieved with LPV/r + best-available NRTIs by 48 weeks of follow-up.

Site(s)	Moi Teaching and Referral Hospital
Project Period	1/22/2013 – 10/3/2016
Funding Status	Funded – NIH - AIDS Clinical Trials Group (ACTG)
Direct Award (USD)	Not Reported
Update	All participants have exited the study, data analysis is ongoing and there are no publications yet.
Future Plans	Complete data analysis.
Publication(s)	

Study Title	**A5274/REMEMBER Reducing Early Mortality and Early Morbidity by Empiric Tuberculosis Treatment Regimens '**
Principal Investigator(s)	Abraham Siika, Moi University
Co-Investigator(s)	David K Lagat
Working Group(s)	Adult Medicine, Behavioral and Social Sciences
Description	In this randomized, open-label, phase IV strategy trial, participants from resource-limited settings (RLS) who present with advanced HIV disease and no probable or confirmed tuberculosis (TB), as defined in the current ACTG diagnosis appendix, and who are initiating antiretroviral treatment (ART) will be randomized to one of two strategy arms: immediate, empiric TB treatment (public health approach) or local standard of care TB treatment (individualized approach). The primary endpoint is survival status in the two arms 24 weeks after randomization. AIDS progression (any new WHO Stage 3 or 4 condition), virologic and CD4+ cell response, HIV and TB drug resistance, AND safety and tolerability of, and adherence to HIV and TB drugs will be evaluated, as will the cost-effectiveness of the two strategies. The primary objective is to compare survival probabilities between the two study arms 24 weeks after randomization.
Site(s)	Moi Teaching and Referral Hospital
Project Period	10/10/2012 – 12/31/2016
Funding Status	Funded – NIH - AIDS Clinical Trials Group (ACTG)
Direct Award (USD)	Not Reported
Update	The study is closed to accrual. The site enrolled a total of 70 participants (out of 851 participants enrolled globally). Follow up is going on well and participants have completed 48 weeks of active follow up and are currently on telephone/chart review follow up every three months
Future Plans	The plan is to continue with telephone/chart review follow up every three months.
Publication(s)	[Abstract] - Empiric TB therapy does not decrease early mortality compared to Isoniazid

	Preventive therapy in adults with advanced HIV initiating ART: Results of ACTG A5274 (REMEMBER study) File Number A5274/1 StatusPresented at conference ACTG Cred
Study Title	**A5288 'Management Using the Latest Technologies in Resource-limited Settings to Optimize Combination Therapy After Viral Failure (MULTI-OCTAVE)'**
Principal Investigator(s)	Abraham Siika, Moi University
Co-Investigator(s)	Beatrice Wangari Ndege
Working Group(s)	Adult Medicine, Behavioral and Social Sciences
Description	A5288 is an open-label phase IV, prospective interventional, strategy study in resource-limited settings (RLS) for HIV-infected participants with triple-class experience or resistance to [nucleoside reverse transcriptase inhibitors (NRTIs), non-NRTIs (NNRTIs), and protease inhibitors (PIs)] and who are failing their current regimen. The use of novel agents and contemporary management tools that include standard genotyping, plasma viral load (VL) monitoring will be evaluated. The screening genotype results and antiretroviral (ARV) history will be used to allocate potential participants to one of the four cohorts and for selection of ARV regimen for each potential participant. At sites where feasible and relevant(including MTRH) the study will also conduct an adherence study. This will be a randomized comparison of cell phone-based adherence intervention plus local standard-of-care adherence procedures (CPI+SOC) versus the SOC adherence procedures. The primary objective of the study is to use novel agents and contemporary management tools, including standard genotyping to select an appropriate third-line regimen, interventions to improve adherence and plasma viral load (VL) monitoring, in order to achieve a ? 65% rate of virologic control at 48 weeks of follow-up
Site(s)	Moi Teaching and Referral Hospital
Project Period	12/18/2013 – 12/31/2015
Funding Status	Funded – NIH - AIDS Clinical Trials Group (ACTG)
Direct Award (USD)	Not Reported
Update	A5288 study was closed to accrual on December 21, 2015 after 545 of targeted 500 participants being enrolled across all participating sites. At Moi University Clinical Research Centre, a total of 23 participants were enrolled. A site enrollment pause was instituted by DAIDS/ACTG effective September 18 2015, to address concerns related to the Good Clinical Laboratory Practice Standards employed by the AMPATH Research Laboratory and their impact on participant safety and integrity of ongoing protocols at the site. Because of this, the site could not enroll participants who were in screening.
Future Plans	The site plans to continue follow up of active participants.
Publication(s)	

Study Title	**A5290 A Randomized, Phase 2b Study of a Double-Dose Lopinavir/Ritonavir-Based Antiretroviral Regimen with Rifampin-Based Tuberculosis Treatment versus a Standard-Dose Lopinavir/Ritonavir-Based Antiretroviral Regimen with Rifabutin-Based Tuberculosis Treatment**
Principal Investigator(s)	Abraham Siika, Moi University
Co-Investigator(s)	
Working Group(s)	None
Description	A5290 is a prospective, randomized (1:1:1), open-label, phase 2b study comparing three lopinavir/ritonavir (LPV/r)-based antiretroviral (ARV) regimens among participants in high tuberculosis (TB) endemic resource-constrained settings undergoing treatment for confirmed or probable TB and requiring protease inhibitor (PI)-based antiretroviral therapy (ART). A two accrual period design will be used, including a full pharmacokinetic (PK) and safety evaluation to be conducted when 54-60 participants enrolled during the accrual period 1 have completed 28 days of ARV treatment and day 12 ± 2 (after initiation of ART) drug levels are available (an early interim PK and safety evaluation will also be completed when 10-12 participants per arm have completed 28 days of ARV treatment and day 12 ± 2 drug levels are available). Primary Objective: To compare rates of virologic suppression to < 400 copies/mL at 48 weeks for the two standard dose LPV/r and RBT arms versus the double-dose LPV/r and RIF arm.
Site(s)	Moi Teaching and Referral Hospital
Project Period	5/13/2015 – 11/30/2018
Funding Status	Funded – NIH - AIDS Clinical Trials Group (ACTG)
Direct Award (USD)	Not Reported
Update	Current accrual across all participating sites is 70 out of the protocol sample size of 471 (60 in accrual period 1 and 411 in accrual period 2). At Moi University Clinical Research Centre, 9 participants have been enrolled and the site accrual target is 60 (10 in accrual period 2 and 50 in accrual period 2). A site enrollment pause which was instituted by DAIDS/ACTG effective September 18 2015, following concerns of serious to address concerns related to the Good Clinical Laboratory Practice deficiency findings at theStandards employed by the AMPATH Research Laboratory, and their impact on participant safety and integrity of ongoing protocols at the site.
Future Plans	Once site enrollment pause is lifted (anticipated by mid February 2016), the site will continue screening and enrolling participants to attain accrual target. Follow up of active participants will also continue over the next 6 months.
Publication(s)	

Study Title	**A5297 'An Open-Label, Proof of Concept, Randomized Trial Comparing a LPV/r-Based to an nNRTI-Based Antiretroviral Therapy Regimen for Clearance of Plasmodium falciparum Subclinical Parasitemia in HIV-infected Adults with CD4+ Counts >200 and <500 cells/m**

Principal Investigator(s)	Abraham Siika, Moi University
Co-Investigator(s)	
Working Group(s)	None
Description	A5297 is a phase I/II, open-label, proof of concept, two-step, two-arm, controlled randomized clinical trial (RCT) to test the superiority of lopinavir/ritonavir (LPV/r)-based antiretroviral therapy (ART) to non-nucleoside reverse transcriptase (nNRTI)-based ART for clearance of Plasmodium falciparum (Pf) subclinical parasitemia (SCP). Participants will be followed for 30 days in order to evaluate parasitemia clearance, Pf parasitemia, gametocytemia, and plasmepsin sequencing. Participants will have blood collected twice at entry, day 3, 6, 9, 12, 20, and 25 and three times for day 15 and day 30. Therefore, on most study days, participants will need to either remain at the clinic for an extended period of time or be willing to return two or three times at approximately 8-hour intervals (see section 6.2 for details). The hypothesis is that in HIV-infected participants with CD4+ counts >200 and <350 cells/mm3, lopinavir/ritonavir (LPV/r)-based ART will be superior to nNRTI-based ART in PCR-defined Plasmodium falciparum (Pf) subclinical parasitemia (SCP) clearance after 15 days of therapy. The primary objective is to compare the proportions of Pf SCP clearance between LPV/r-based and nNRTI based ART in participants after 15 days of therapy (Step 1).
Site(s)	Moi Teaching and Referral Hospital
Project Period	2/27/2014 – 6/1/2016
Funding Status	Funded – NIH - AIDS Clinical Trials Group (ACTG)
Direct Award (USD)	Not Reported
Update	Beginning July 2015 a total of 3 participants were enrolled into the study at Eldoret site and total accrual across all participating sites is 39 out of protocol sample size of 52. Accrual is generally slow across most participating sites. A site enrollment pause was instituted by DAIDS/ACTG effective September 18 2015, to address concerns related to the Good Clinical Laboratory Practice Standards employed by the AMPATH Research Laboratory and their impact on participant safety and integrity of ongoing protocols at the site.
Future Plans	Once enrollment pause is lifted, the site plans to continue screening and enrolling participants.
Publication(s)	

Study Title	**AMPATH - Oncology Institute: HPV and Cervical Cancer in Kenyan Women with HIV/AIDS**
Principal Investigator(s)	Patrick Loehrer, Indiana University - Purdue University in Indianapolis (IUPUI) Darron Brown, Indiana University - Purdue University in Indianapolis (IUPUI)
Co-Investigator(s)	Omenge, Orango, Kaaria, Alice, Cu-Uvin, Susan

Working Group(s)	Oncology
Description	The core objective of this project is to better understand the natural history of oncogenic HPV infections in HIV-infected Kenyan women, and to identify potentially modifiable (and non-modifiable) factors that are associated with progression of oncogenic HPV infection to clinical disease, including cervical cancer. Our central hypothesis is that the incidence, persistence, and spectrum of HPV are all substantially greater in HIV-infected versus non-HIV-infected Kenyan women, and that this explains a higher incidence of cervical neoplasia in HIV-infected populations. We further hypothesize that these and other modifiable factors (such as concurrent STIs, sexual behaviors, nutrition, and environment) disproportionately and adversely impact outcomes of local therapies such as cryotherapy and Loop Electrosurgical Excision Procedure (LEEP) in HIV- infected women. The specific aims of this AMPATH-Oncology Institute are to: 1. Expand the capabilities and expertise of the current laboratories and biobanking capabilities in Kenya through AMPATH and the Kenya Medical Research Institute (KEMRI) 2. Identify potentially modifiable behavioral and biological factors that are associated with the duration of infection with oncogenic HPV and cervical dysplasia in HIV-infected and non-HIV-infected women from western Kenya 3. Assess the risk factors associated with the short and long term results of cryotherapy and LEEP in VIA- positive (including LEEP-eligible) HIV-infected and non-HIV-infected women in western Kenya. 4. Provide biostatistical and data management support for proposed projects in this application and for future pilot projects, and 5. To establish a sustainable, multi-institutional and transdisciplinary mentoring program fostering the development of new cancer researchers in Kenya
Site(s)	Moi Teaching and Referral Hospital, Center for Global Health Research - KEMRI at Kisumu City, Kenya
Project Period	9/19/2014 – 8/31/2019
Funding Status	Funded – NIH - National Cancer Institute (NCI)
Direct Award (USD)	$2,132,402
Update	Over the last six months, this project started the enrollment of patients. Project One had a total of 45 patients enrolled and Project Two had 20 patients enrolled. Recruitment has been unexpectedly low with an average of one to two patients enrolled per week. The building of the REDCap database was completed through the work of a staff member from the Indiana University Simon Cancer Center who was not originally a part of the project for year one. The OnCore portion of the data management system is currently being built. In November, 2015 additional face to face meetings were held in Kenya. Darron Brown, Aaron Ermel, and Neil Flick traveled from Indianapolis to meet with the team in Eldoret and Kisumu. Darron Brown, Aaron Ermel, and a technician from their lab in Indiana provided training to KEMRI staff as part of the Translational Biology Core. The Mentoring Core has seen progress with the pilot projects of the four mentees from year one. An additional four mentees were selected from a large applicant pool for year two. Mentees are located in Kisumu and Eldoret. The Administrative Core received notice of the resignation of John Oguda, the Kenya-based Project Coordinator, who was offered a higher position out of the country.

Future Plans	There is a planned a face to face meeting in Eldoret in January 2016 to discuss a smooth transition with the Kenya-based Project Coordinator leaving. Expected North American attendees include Patrick Loehrer, Ann Moormann, Susan Cu-Uvin, and Neil Flick.
Publication(s)	

Study Title	**Analysis of ICU Admissions and Outcomes at the Moi Teaching and Referral Hospital Intensive Care Unit**
Principal Investigator(s)	Peter Kussin, Duke University Wangari Waweru-Siika, Moi Teaching and Referral Hospital
Co-Investigator(s)	
Working Group(s)	Adult Medicine
Description	This study aims to explore the outcomes and mortality of patients admitted to the intensive care unit (ICU) at Moi Teaching and Referral Hospital by conducting a retrospective chart review of all patients admitted during 2011 through 2015. We aim to describe the demographic and clinical characteristics of these patients, evaluate specific procedures performed while patients are admitted to the ICU, investigate microbiological lab data specifically surrounding sepsis, and to establish the general cost of a hospital stay at MTRH. The overall goal is to develop a strong foundational data set that can be used to evaluate future clinical interventions. Furthermore, we intend for the prospective arm of this study, which is completely tablet-based, to serve as one step closer to the first electronic medical record for inpatient care at MTRH.
Site(s)	MTRH
Project Period	10/26/2015 – 6/1/2016
Funding Status	Unfunded
Direct Award (USD)	None
Update	In collaboration with the records department at Moi Teaching and Referral Hospital, we began the retrospective arm of the study and have completed 250 chart reviews.
Future Plans	We plan to complete at least 1000 retrospective chart reviews and launch the prospective arm of the study by collecting data on currently admitted ICU patients. The retrospective study will be complete in the next 6 months and we will be able to report th
Publication(s)	

Study Title	**Biomarkers of Vincristine Toxicity in Kenyan Children**
Principal Investigator(s)	Jodi Skiles, Indiana University F. Njuguna, Moi University
Co-Investigator(s)	Skiles, J.

Working Group(s)	Oncology, Pediatrics
Description	This study evaluates the presence of peripheral neuropathy induced by Vincristine in Kenyan children receiving chemotherapy. The main purpose is to assess whether the genetic makeup of each child (particular the genotype of CYP3A5) influences drug exposure and subsequent vincristine toxicity.
Site(s)	Moi Teaching and Referral Hospital
Project Period	6/23/2011 – 6/30/2014
Funding Status	Funded – NIH
Direct Award (USD)	$8,743
Update	The first of the manuscripts that will result from this work was submitted to NEJM in May 2014. It received good comments, but was ultimately rejected. It was then resubmitted to Journal of Clinical Oncology where it received constructive feedback and the request for the planned 2nd manuscript to be submitted to support the methodology used in this paper. The 2nd manuscript was completed and submitted to Journal of Chromatography B where it received constructive feedback but was also ultimately rejected. We are in the process of running additional experiments to allow us to adequately respond to reviewer comments prior to resubmission to a new journal. Once it is accepted for publication, the original manuscript will be re-submitted to Pediatric Blood and Cancer
Future Plans	Publication of the 2 manuscripts referred to above
Publication(s)	

Study Title	**Bridging Income Generation with Group Integrated Care(BIGPIC)**
Principal Investigator(s)	Rajesh Vedanthan, Mount Sinai School of Medicine Jemimah Kamano, Moi University
Co-Investigator(s)	Pastakia, Sonak Naanyu, Violet Chesoli, Cleophas Andama, Benjamin Fuster, Valentin Horowitz, Carol Manyara, Simon Menya, Diana
Working Group(s)	Adult Medicine, CVMD
Description	The objective of this proposal is to utilize a trans disciplinary implementation research approach to address the challenge of reducing CVD risk in low-resource settings. The research aims at integration of group medical visits and microfinance with the additional social network characteristics.Aim 1: Identify the contextual factors, facilitators, and barriers that may impact integration of group medical visits and microfinance for CVD risk reduction, using a combination of qualitative research methods: 1) baraza; and 2) focus group discussions among individuals with diabetes or at increased risk for diabetes, microfinance group members, and rural health workers. Then develop a contextually and culturally appropriate integrated group medical visit-microfinance model. Aim 2:Evaluate the effectiveness of group medical visits and microfinance groups for CVD risk reduction among individuals with diabetes or at increased risk for diabetes, by conducting a four-arm cluster randomized trial comparing: 1) usual clinical care; 2) usual clinical care plus

	microfinance groups only; 3) group medical visits only (no microfinance); and 4) group medical visits integrated into microfinance groups. Aim 3: Evaluate the incremental cost-effectiveness of each intervention arm of the trial.
Site(s)	Bumala A Health Centre, Bumala B Health Centre, Chulaimbo Sub-District Hospital, Endebess Sub-District Hospital , Kapsara District Hospital, Khunyangu Sub-District Hospital , Matayos Health Centre , Moi's Bridge Health Centre , Saboti Sub-District Hospital
Project Period	4/1/2015 – 3/31/2020
Funding Status	Funded – NIH
Direct Award (USD)	$2,478,465
Update	General: In the past six months, community entry has been completed in all the study sites by introducing the study to all relevant stake holders, i. e county officials. A total of five mabaraza and sixteen focus group discussions were done, consisting of 366 participants (170 male, 196 female). All of the sessions were recorded, transcribed, and translated into English. The content analysis code book was finalized and used to code the transcripts with NVivo software. The coded transcripts are currently undergoing analysis. Preliminary data on GISE coverage has been generated in the study sites. These results were used to randomize the sites into four trial arms: usual care, usual care and microfinance, microfinance, and group care with microfinance. The unit of randomization has been modified to the health facility, and the power calculations have been revised accordingly. Discussions have been ongoing with AMPATH Chronic Disease Management Program, AMPATH Community Strategy Initiative, and AMPATH Safety Net Program, to coordinate the initiation of the cluster randomized trial. A design team consisting of representatives from the community, CDM, FPI, BIGPIC pilot team, and the research team are working to develop the microfinance model that will be used in the project. Both the social network survey and the costing questionnaire survey instruments have been drafted, and will be finalized by the co-investigators. Personnel Capacity Building: The team continues to actively seek out capacity-building opportunities for the research team in Kenya. During period 1 of this project, we have been able to provide the following training and professional development activities: • Qualitative training-how to conduct interviews and focus group discussions • Attended by Research Coordinator and Research Assistants • Qualitative training-introduction to coding • Attended by Research Coordinator and Research Assistants • Association of Research Administrators in Africa training • Attended by one Research Assistant • Global Alliance for Chronic Disease Implementation Research Workshop • Attended by Research Coordinator Enrollment: • Mabaraza: 5 mabaraza sessions have been conducted • Focus group discussions (FDG): 16 focus groups have been conducted • 5 sessions with patients • 6 sessions with microfinance members • 5 sessions with rural health workers

	• Total 21 qualitative sessions (N=366; 170 male, 196 female) **Project Challenges:** The following challenges have been encountered for this reporting period: • Participant recruitment may pose to be a challenge for the mabaraza and FGDs. To resolve this potential challenge, we will review and follow strategies which in similar and recent projects were successful. It is also possible to asses for barriers to recruitment using a survey-based quantitative approach.
Future Plans	Aim 1: To complete content analysis of Mabaraza and FGD transcripts. Prepare a method manuscript to submit for publication. Aim 1.1: Complete the protocol, feasibility and acceptability testing, and manuscript preparation. Develop the contextually and culturally appropriate integrated and group medical visit-microfinance model. • Aim 2: Train the rural clinicians and public health officers who will be involved in the group medical visit-microfinance intervention. Initiate enrollment of individuals into the trial. Secure integrated and coordinated access to the AMPATH Medical Record System (AMRS), in order to ensure harmony between the trial database and AMRS. Develop and implement a data management plan in order to avoid future reliability issues. • Aim 2.1: Finalize the social network survey instrument in order to administer the survey to study participants within the appropriate time period. Establish a site visit consultation by a social network analysis expert. • Aim 3: Finalize costing questionnaire survey instrument in order to administer the survey to study participants during the appropriate phase of the project. • Recruitment of the project staff: The research team is looking to recruit more project staff in order to handle the increased workload.
Publication(s)	

Study Title	**Building Competencies through Bilateral International Exchanges-Using Qualitative Methods to Measure the Impact on Pediatric Residents from Host and Visiting Countries in Professionalism, Communication and Systems-Based Care**
Principal Investigator(s)	Debra Litzelman, Indiana University Samuel Ayaya, Moi University
Co-Investigator(s)	Umoren, R. Woodward, J. Vreeman, R. Palmer, M. Stelzner, S. Lorant, D. Riner, M.
Working Group(s)	Pediatrics
Description	This study uses focus groups to assess the impact of resident exchange project on participating residents from Indiana University School of Medicine (IUSOM), Moi University School of Medicine (MUSM), and Universidad Autonoma del Estado de Hidalgo Health Sciences Campus (UAEH) particularly related competencies in professionalism, communication, systems based practice, and practice based learning and improvement.
Site(s)	Moi Teaching and Referral Hospital
Project Period	11/27/2007 – 6/30/2014

Funding Status	Unfunded
Direct Award (USD)	None
Update	Completion of data analysis and preparation of manuscript for publication.
Future Plans	Submit for review
Publication(s)	

Study Title	**Can integration of effective family planning services into Anticoagulation Management Services (AMS) improve uptake?**
Principal Investigator(s)	Astrid Christoffersen-Deb, University of Toronto Imran Manji , Moi Teaching and Referral Hospital
Co-Investigator(s)	
Working Group(s)	Reproductive Health
Description	The purpose of the study is to evaluate whether integration of family planning education and free, on-site provision of all reversible family planning methods in Anticoagulation Monitoring Service (AMS) Clinic can improve uptake of long-acting reversible contraception (LARC); specifically intrauterine contraceptive devices (IUCDs) and contraceptive implants) in this high-risk population. Our hypothesis is that implementation of an educational intervention emphasizing long-acting reversible contraception (LARC) combined with free on-site provision of LARC within Anticoagulation Monitoring Service (AMS) can improve uptake of these methods by 250% in this population. Our objectives are to: 1) Determine whether integration of education about and free provision of highly effective long-acting reversible contraceptive methods within Anticoagulation Monitoring Services (AMS) is feasible. 2) Determine whether integration of education about and free provision of highly effective long-acting reversible contraceptive methods within Anticoagulation Monitoring Services (AMS) can improve uptake of long-acting reversible contraceptive methods (IUCDs and contraceptive implants). 3) Determine whether integration of education about and free provision of highly effective long-acting reversible contraceptive methods within an Anticoagulation Monitoring Services (AMS) Clinic can prevent unplanned pregnancies. In order to evaluate these objectives we will provide the intervention and follow the participants for the following 1 year time period. At 3-month, 6-month, and 12-month follow-up we will evaluate whether they are using any method of family planning and whether they have experienced subsequent unplanned pregnancies. This data will be compared to the same group of women prior to implementation of the education intervention and free, on-site provision of all reversible contraceptive methods.
Site(s)	Moi Teaching and Referral Hospital
Project Period	4/20/2015 – 8/31/2016
Funding Status	Unfunded
Direct Award (USD)	None

Update	Over the past 6 months we were able to reach and surpass our goal for recruitment. Our sample size is 144 and we have enrolled 201 participants so far. We have exceeded our sample size due to the fact that we would like to offer enrollment to all eligible patients within our target population of Anticoagulation Management Services (AMS) Clinic patients. We began conducting 3 month follow up in July 2015 and so far have an 88% rate of follow-up at 3 months post-enrollment. We also initiated data collection for 6-month follow up in October with 50 successful follow-ups done so far. Preliminary data analysis for 80 patients who completed 3-month follow-up was performed in October 2015. We found that the use of family planning, specifically Tier 1 methods (sterilization, intrauterine contraceptive device, and implants) and Tier 2methods (depo-provera and oral contraceptive pills), increased from 34% to 63%, which is statistically significant. In December 2015 we received IREC approval for a study amendment in order to begin enrolling patients from other chronic disease management clinics, in addition to AMS clinic patients. In order to recruit participants through referrals, we have carried out multiple outreach and education sessions with healthcare providers in AMPATH and the chronic disease management clinics, such as hematology-oncology and cardiology.
Future Plans	Over the next 6 months, we will initiate enrollment of participants from the other chronic disease clinics. We will also continue recruiting participants from the AMS clinic, with a goal to offer enrollment to all eligible participants from that clinic. W
Publication(s)	

Study Title	**Childhood Leukemia in Kenya Identified Through Malaria Slide Review**
Principal Investigator(s)	Terry Vik, Indiana University F. Njuguna, Moi University
Co-Investigator(s)	Skiles, J. Moormann, A.
Working Group(s)	Oncology, Pediatrics
Description	The aim of this study is to improve the case detection rate of leukemia by retrospectively reviewing blood smears done for malaria screening to identify children with leukemia in defined population cohorts. If the case detection rate can be improved by utilizing a common and well established procedure, then there is potential to identify children, refer them earlier for treatment and save lives.
Site(s)	Kitale District Hospital, Moi Teaching and Referral Hospital
Project Period	7/1/2012 – 6/30/2015
Funding Status	Funded – Alex's Lemonade Stand Foundation
Direct Award (USD)	$200,000
Update	The slide review is complete. We are hoping to finish the DNA analysis in the next 3 months.
Future Plans	We hope to have 2 manuscripts submitted in the next 6 months.

Publication(s)	

Study Title	**Developing and Assessing a Community-Based Model of Antiretroviral Care**
Principal Investigator(s)	Abraham Siika, Moi University Kara Wools-Kaloustian, Indiana University
Co-Investigator(s)	Naanyu Violet,PhD Goodrich Suzanne,MD Yiannoutsos Constantin,PhD Mwangi Ann,PhD Thirumurthy Harsha,PhD Batenganya Moses,MD Spira Thomas,MD Nyunya Boaz
Working Group(s)	None
Description	ART Co-ops study will develop and assess an alternative care model that is established on the platform of a HIV-infected peer-group (ART Co-op) and facilitated by community health workers (CHWs). This model of care is intended to decentralize ART services and bring them closer to the patients. Specifically, we will: 1. Develop an acceptable and sustainable model for extending HIV care and treatment into the community. 2. Perform a pilot study comparing the outcomes of patients enrolled in the ART Co-ops program to those receiving standard of care. 3. Determine the cost savings and cost effectiveness of ART Co-ops.
Site(s)	Kitale District Hospital
Project Period	2/9/2015 – 2/9/2017
Funding Status	Funded – Centers for Disease Control and Prevention (CDC)
Direct Award (USD)	$924,042
Update	Four RA's were employed in July 2015 to execute specific aim 1 (focus group discussion's & interviews) Enrollment for specific aim 1 started on the 17th of Sept 2015. 30 interviews & 4 FGD's were done. The study was monitored by Fhi 360 on behalf of CDC as from the 2nd - 6th of November 2015. The recommendations have since been adopted.
Future Plans	1. Complete the remaining 12 FGD's for specific aim 1. 2. Employ 4 CHW's to execute specific aim 2, 3 & 4. 3. Employ 1 Clinical Officer to execute specific aim 2, 3 & 4. 4. The sponsor,CDC will visit our site as from the 2nd-5th of Feb,2016 to assess our preparedness for execution of specific aim 2, 3 & 4. 5. Enroll participants for specific aim 2, 3 & 4.
Publication(s)	

Study Title	**Drug Resistance in HIV Infected Children after Failure of Prevention of Mother to Child Transmission in Western Kenya**
Principal Investigator(s)	Winstone Nyandiko, Moi University Rami Kantor, Brown University
Co-Investigator(s)	Vreeman, R. Songok, J. Diero, L. Kosgei, R. Ayaya, S.
Working Group(s)	Pediatrics, Reproductive Health

Description	The project seeks to determine the proportion of children getting HIV infected despite interventions of pMTCT, and the type, if any, of antiretroviral drug resistance in those children who get HIV infected after failure of pMTCT.
Site(s)	Kitale District Hospital, Moi Teaching and Referral Hospital, Turbo Health Centre
Project Period	5/3/2011 – 4/10/2015
Funding Status	Funded – Other, AITRP Grant-Brown University.
Direct Award (USD)	$20,000
Update	We have not enrolled any study participant since the last update .We have had challenges in getting eligible patients to be recruited. This is due to few children turning positive after undergoing the PMTCT intervention within AMPATH. This is as a result of a vibrant PMTCT program within AMPATH. However, since the last update,the study has been closed to enrollment. We have so far enrolled a total of fourteen participants into the study. None of the study participants has either withdrawn or defaulted.
Future Plans	A manuscript is under development otherwise the study has been closed to enrollment.
Publication(s)	A manuscript is under development .

Study Title	**Effect of free maternity care on maternal and fetal outcomes of preeclampsia/eclampsia at a teaching hospital in Western Kenya: A retrospective chart review.**
Principal Investigator(s)	Astrid Christoffersen-Deb, University of Toronto
Co-Investigator(s)	Parks, Caitlin, Millar, Heather, Kosgey, Wycliffe, Thorne, Julie, Kipchumba, Bett
Working Group(s)	Pediatric, Reproductive Health
Description	The aim of this study is to determine the incidence of diagnosis and treatment of pre-eclampsia and eclampsia at MTRH. We will measure the maternal and neonatal outcomes in women with these diagnoses. We will evaluate the data in order to determine areas for improvement in our diagnosis and management of pre-eclampsia/eclampsia in order to decrease maternal and neonatal morbidity and mortality at MTRH. Finally, we would like to evaluate the effect free maternal care has played in the measured incidence and outcomes of pre-eclampsia and eclampsia at our institution. Specifically, we will: 1. Determine and compare the incidences of pre-eclampsia within our institution in the year before and the year after the initiation of free maternal care in June, 2013 2. Evaluate the maternal and neonatal outcomes, including major causes of morbidity and mortality in each group. Again we will compare these before and after the initiation of free maternal care in June, 2013. 3. Evaluate the risk factors for adverse maternal and neonatal outcomes 4. Evaluate the adherence of treatment in our facility in accordance with World Health Organization standards, again comparing treatment before and after the initiation of free maternity care in June, 2013. The data for this study is collected using a comprehensive 100-item data collection form, including patient demographics, symptomatology, documented clinical signs and laboratory results, delivery details, and maternal and neonatal outcomes

Site(s)	Moi Teaching and Referral Hospital
Project Period	1/12/2015 – 12/31/2015
Funding Status	Unfunded
Direct Award (USD)	None
Update	In October 2015, file review and data collection was completed. 1042 maternal files were reviewed and entered into REDCAP database. Of these, 1035 were to be included for analysis after exclusion of those with a wrong diagnosis. 325 NBU files were flagged for identification. This was an increase for the estimated 184. However, only 126 files were reviewed. This was because the NBU IP numbers could not be identified form the RMBH database after matching with the mothers names.
Future Plans	Project activities for January - June 2016 include starting data analysis. after completing data analysis we plan to prepare a manuscript for publication as well as plan for local dissemination activities for relevant clinical departments, including Nursi
Publication(s)	

Study Title	**Enhancing Training for Implementation Research in Chronic Disease: CITE/Kenya**
Principal Investigator(s)	Tom Inui, Indiana University Paul Ayuo, Moi University
Co-Investigator(s)	Siika, A. Litzelman, D.
Working Group(s)	Adult Medicine
Description	An innovative clinical and implementation research training program for Kenyan investigators, one built on the foundation of the highly successful and mature clinical and implementation research core curriculum for young investigators within our IUSM CTSI, will be developed. This program will attract graduate trainees nominated by faculty at Moi University schools of medicine, public health, dentistry, nursing, and possibly young faculty from health-related behavioral and social science programs at Moi. This curriculum will be presided over by seasoned Eldoret-based investigators from the AMPATH research network (especially Dr. Thomas Inui and his 5 co-directors of the AMPATH Field Research program). Trainees who complete the core curriculum will be eligible to compete for resources to propose and conduct research in an implementation research practicum under the supervision of a tailored mentorship panel populated by Moi and international faculty. This research will focus upon a chronic disease of importance to the health of the populations in Western Kenya and will contribute to the improvement of health care processes, including village-based processes, medical and psycho-social services, and integration of care for chronic conditions within the MOH delivery system. The 'laboratory' for this research will be the AMPATH-MOH chronic disease program. The training program will build on the successful AMPATH multi-disciplinary and multi-institutional research foundation already in place, supported by AMPATH's remarkable e-Health infrastructure. This program's graduate training will

	enable Kenyans to acquire knowledge and skills in health systems and implementation research, enhance their capacity to promote continuous improvement of health care, inform health policy, and acquire leadership and management skills needed to develop, manage and improve chronic disease control programs. The ultimate aim of this proposal is to prepare Moi health professionals to serve as effective change agents and scientific leaders in Kenya's evolving system of care.
Site(s)	Moi Teaching and Referral Hospital
Project Period	10/1/2012 – 9/30/2016
Funding Status	Funded – NIH - Fogarty International Center (FIC)
Direct Award (USD)	$862,970
Update	Dr. Inui traveled to Eldoret in October 2015 and met with all D43 fellows, documenting their progress and challenges and circulating this document to Drs. Siika, Ayuo and Litzelman for additional comments. A special presentation session was held for Dr. Ngetich, who wished to summarize initial findings from his practicum before departing for specialty training in neonatology in South Africa. Summary feedback from Drs. Siika, Ayuo and Inui was communicated to Dr. Ngetich after this presentation. All fellows were urged forward in their practicum projects, emphasizing the need to bring projects to at least preliminary closure by March, 2016, when Drs. Inui and Litzelman will be in Eldoret.
Future Plans	A no-added-cost extension has been requested for the time period after April, 2015, in order to provide continuing support to the fellows as they complete their projects. A work-in-progress presentation of all projects will be organized for March, 2016.
Publication(s)	Oduor CO, Keter A, Diero O, Siika AM, Williams LS. Stroke types, risk factors, quality of care and outcome at a referral hospital in western Kenya. East African Med J 2015; 92(7): 324-332
Study Title	**Epidemiology, Acute Management, and Outcomes of Patients with Sepsis Presenting to a Referral Hospital in western Kenya before and after implementation of a World Health Organization sepsis management algorithm**
Principal Investigator(s)	Wangari Siika, Moi Teaching and Referral Hospital Lindsay Boole, Duke University
Co-Investigator(s)	Gerald Bloomfield, MD, MPH Peter Kussin, MD Nathan Thielman, MD, MPH Charles Kwobah, MBChB
Working Group(s)	Adult Medicine
Description	This study will describe the epidemiology of patients presenting with severe sepsis, to examine the microbiology causing severe sepsis, to describe current management and outcomes for severe sepsis, and to test the effect of implementation of the WHO resuscitation algorithm at MTRH. The study design is a prospective before and after clinical trial. In an initial observational phase, adult patients presenting to the MTRH Casualty Department with sepsis and severe sepsis (the latter of which will be defined by elevated lactate) will be enrolled into a prospective observational cohort. Demographic

	data, medical characteristics, and microbiological studies will be obtained, then the management and outcomes of these patients will be observed. In a second phase, patients with sepsis will continue to be enrolled into a prospective observational cohort, while patients with severe sepsis will be enrolled into an intervention group. Patients in the intervention group will be managed according to the WHO resuscitation algorithm. Specifically, the WHO algorithm involves fluid boluses guided by vital signs and physical exam findings, rapid and early administration of empiric antibiotics, and frequent patient monitoring. The outcomes of interest are achievement of lactate clearance, which is a correlate of tissue perfusion, as well as 24-hour, in-hospital, and 30-day mortality. Specific Aims: 1. To describe the characteristics, including demographics, medical co-morbidities, and acute health status of patients presenting to MTRH with sepsis. 2. To describe the microbiological epidemiology of community-acquired sepsis at MTRH. 3. To understand the fraction of patients with severe sepsis who achieve adequate tissue perfusion as measured by 24-hour lactate clearance within current practices, and to determine the short-term (48-hour) and long-term (30-day) outcomes of these patients. 4. To analyze the WHO algorithm's effect on clinical outcomes (lactate clearance, mortality) of patients with severe sepsis. 5. To determine whether there are any physical exam-based markers of volume status and/or perfusion which reliably predict fluid responsiveness or lactate clearance.
Site(s)	Moi Teaching and Referral Hospital
Project Period	1/12/2015 – 12/31/2015
Funding Status	Funded – NIH - Fogarty International Center (FIC), Duke Global Health Institute
Direct Award (USD)	$22,038.00
Update	In the period 1 July 2015 to 31 December 2015, subject enrollment has continued on weekdays in the MTRH Casualty Department. Forty-two subjects were accrued during this 6-month period. Of those, 36 had high lactate, meaning that they contributed to the target sample size of 140 high lactate subjects. This brought us to a total of 138 subjects since study initiation, 85 of which had high lactate. On 1 September 2015, Phase 2 of the study began. All subjects enrolled on or after that date received the intervention, consisting of quantitative fluid resuscitation, early antimicrobial initiation, detection and treatment of hypoglycaemia, and treatment of hypoxaemia as needed.
Future Plans	In the next 6 months, subject accrual will continue; while we anticipate reaching our target sample size in 2016, we do not anticipate that this will occur in the first half of the year. Our interim analysis and DSMB review is scheduled to take place after the 105th high-lactate subject has been recruited; it will likely occur during the next 6-month reporting interval.
Publication(s)	
Study Title	**Evaluation of A Comprehensive Strategy to Measure Pediatric Adherence to Antiretroviral Therapy (CAMP study)**
Principal Investigator(s)	Rachel Vreeman, Indiana University Winstone Nyandiko, Moi University

Co-Investigator(s)	Inui, T. Tierney, W. Tu, W. Marrero, D. Ayaya, S. Blaschke, T. Arpadi, S. Caroll, A. Bell, D.
Working Group(s)	Pediatrics
Description	The primary objective of this study is to develop and test a reliable, valid instrument to measure pediatric ART adherence for children ages 0 to 14 years in western Kenya and to evaluate which administration strategy yields the most accurate information about children's ART adherence. We will pursue the following four specific aims: Aim 1: Develop a reliable, valid comprehensive pediatric ART adherence measurement questionnaire (CAMP - Comprehensive ART Measure for Pediatrics); Aim 2: Develop a reliable, valid, short-form version of the pediatric ART adherence measurement tool (SF-CAMP) for use as an adherence screening measure in busy clinical care environments; Aim 3: Evaluate the field readiness, implementation feasibility, and clinical utility of CAMP and SF-CAMP within the AMPATH HIV clinical care system in western Kenya; and Aim 4: Evaluate the reliability and validity of this measurement tool in a clinic-based care setting compared to a home-based care setting.
Site(s)	Moi Teaching and Referral Hospital
Project Period	9/11/2009 – 2/28/2014
Funding Status	Funded – NIH - National Institute of Mental Health (NIMH), PEPFAR - United States President's Emergency Plan for AIDS Relief - Public Health Evaluation (PHE)
Direct Award (USD)	$1,336,011
Update	In colaboration with IU biostatisticians, we utilized pharmacokinetics (PK) model developed by Profs. Nyandiko and Vreeman to evaluate the PK modeling properties of Nevirapine and the Medication Event Monitoring (MEMS) adherence data from CAMP phase 2 patients to assess the proximity of patient's actual drug exposure to intended levels. . We assessed the validity of adherence reported on questionnaire items compared to independent constructs such as electronic dose-timing data and plasma drug concentrations. Analyses from this evaluation were finalized and abstracts presented to the International Aids Society meeting in July, 2015 in Vancouver, B.C., and the manuscript is currently under review. We completed the analysis os CAMP Phase 3 data that investigated the performance of CAMP long forms (CAMP-LF) adherence questionnaire (40 questions) versus CAMP short-form (CAMP-SF) adherence questionnaire (10 questions). Preliminary results indicate favorable adoptability and validity of CAMP-SF in clinical settings as compared to the CAMP-LF, and preparation of manuscript describing the results is ongoing. With substantial global interest in standardizing pediatric ART adherence measures across cohorts of children receiving HIV care, we now seek to evaluate and validate our adherence measure in additional settings beyond Kenya. We are leading a prospective adherence evaluation and measurement validation with samples of children from East Africa, Southern Africa, and Asia-Pacific regions within the International Epidemiology Database for Evaluation of Aids (IeDEA) Consortium, involving 6 months of adherence monitoring using MEMS® and the short-form adherence questionnaire we developed in Kenya. We adopted the CAMP-SF adherence questionnaire to use within the ICAMP(IeDEA-Comprehensive Adherence Measure for Pediatrics) study, in which the primary objective is to validate adherence questionnaire items from routine ART adherence and monitoring, using electronic dose

	monitoring as external criterion for adherence with patients in 3 large and diverse IeDEA global sites. All patients have been recruited and evaluations are underway.
Future Plans	We have submited an RO1 application to the NIH on HIV Failure and Resistance in Kenyan Children, in which we intent to retrospectively and prospectively utilize CAMP study patitcipants, as part of a well-characterized pediatric cohort in western Kenya, with detailed medication-taking, drug level, and clinical data, to longitudinally evaluate treatment failure and drug resistance to improve long-term care for HIV-infected children in Kenya and other resource limited settings. Based on the success of this application, our next 6 months plan is to re-enroll all 685 CAMP Phase1 patients for additional assessment, including additional blood draw, to facilitate investigation of the longitudinal nature of drug resistance evolution.
Publication(s)	Manuscripts: Vreeman RC, Nyandiko WM, Liu H, Tu W, Scanlon ML, Slaven JE, Ayaya SO, Inui TS. Comprehensive Evaluation of Caregiver-Reported Antiretroviral Therapy Adherence for HIV-Infected Children. AIDS and Behavior. 2015 Apr;19(4):626-34. PMID: 25613

Study Title	**Evaluation of the growth and development of young children of HIV-infected mothers in western Kenya.**
Principal Investigator(s)	Megan McHenry (maiden name: Uhl), Indiana University
Co-Investigator(s)	Apondi, Edith Vreeman, Rachel Ayaya, Samuel
Working Group(s)	Pediatrics
Description	Children under five years of age are at significant risk for mortality in resource-limited settings. One in nine children in sub-Saharan Africa die before they reach five years of age. Approximately 45% of child deaths are related to poor growth and malnutrition. Children born to HIV-infected mothers are at increased risk for stunting, wasting, and being underweight, and children with HIV and AIDS are even more likely to be malnourished. Without treatment, 50% of HIV-infected and 7% of HIV-exposed, but uninfected infants will die before two years of age. My long-term research goal is to provide evidence to improve the nutritional status and, in turn, decrease under-5 mortality for children born to HIV-infected women in resource-limited settings. As access to HIV care expands and we push towards the Millennium Development Goal of reducing child mortality, we must address the risks faced by young children exposed to or infected with HIV. The Academic Model Providing Access To Healthcare (AMPATH) in Kenya provides an ideal setting in which to evaluate the growth and development of this vulnerable population, and to explore effective interventions to improve their health. AMPATH is a long-standing, academic partnership, created between the Moi University School of Medicine, Moi Teaching and Referral Hospital, and the Indiana University School of Medicine, that provides care for over 15,000 HIV-infected and HIV-exposed children, one of the world's largest pediatric HIV cohorts. Few current data focus on the best strategies to foster the growth and development of HIV-exposed and HIV-infected children under five years of age and living in resource-limited settings. The objective of this study is to evaluate the growth and development of young children of HIV-infected mothers in western Kenya, with attention to identifying areas to target for future

	interventions. We plan to accomplish our research objective by pursuing the following four specific aims: Aim 1: Evaluate the changes in anthropometrics over time for children under the age of five who are born to HIV-infected mothers enrolled in AMPATH clinics. Hypothesis: Among those enrolled in AMPATH, HIV-infected children will have lower Z-scores for measured anthropometrics (WAZ, HAZ, WHZ) than HIV-exposed children. Aim 2: Determine factors associated with poor weight gain in this population of children. Hypothesis: Factors such as being orphaned, being HIV-infected, having developmental delays, having been hospitalized, and lower immunization rates will be associated with lower Z-scores for measured anthropometrics in both HIV-exposed and HIV-infected children under 5. . Aim 3: Evaluate the rates at which clinical providers detect failure-to-thrive in children under 5 years during routine AMPATH clinic visits. Hypothesis: Clinical providers will have low rates of identifying failure-to-thrive as a problem for children under-five requiring follow-up. Aim 4: Describe the mortality rates and rates of losses to follow-up in this population. Hypothesis4a: Mortality rates will be higher among those children who are HIV-infected and malnourished. Hypothesis 4b: Losses to follow-up are more common among HIV-exposed children compared to HIV-infected children. Rates of those lost to follow-up for both groups will be <20%, which is generally considered acceptable in research studies.
Site(s)	All AMPATH Sites
Project Period	7/1/2015 – 6/30/2017
Funding Status	Unfunded
Direct Award (USD)	None
Update	We continue to be working through the slow process of data analysis. Our bio statisticians are first looking at it, but I would like to do some of the statistics myself as well. We are currently gathering very basic summary statistics to include in an abstract submission. Data from 13,925 patients born to HIV-infected mothers was included in this study. 51.7% (n=7197) were female, 2.67% (n=3731) were orphaned, 14.75% (n=2054) were ultimately found to be HIV-infected. Mean WFA Z score was -0.677. 55.4% (n=7719) had WFA Z-scores between -1 and -2 at some point during the study period, and 14.4% (n=2014) had WFA Z-scores under -3 at some point during the study period. Mean HFA Z score was -1.4. 54.0% (n=7521) had HFA Z-scores between -1 and -2 at some point during the study period, and 25.0% (n=3488) had HFA Z-scores under -3 at some point during the study period. WFA Z-score changes over time differed between males and females, as well as for those who were HIV-infected and HIV-exposed Further analysis is needed. One of the major challenges we've faced is the time required to work through the analyses.
Future Plans	I hope to make great strides on the analysis. We'd like to submit an abstract to the AIDS conference and pediatric HIV workshop that will be held this summer. If all of the analysis is completed, we'd like to write a manuscript, but that may take more tim
Publication(s)	
Study Title	**Group B streptococcus colonization among antenatal women: Prevalence and**

	Antibiotic Susceptibility at Moi Teaching and Referral Hospital
Principal Investigator(s)	Saudah Farooqui, Moi University Astrid Christoffersen-Deb, University of Toronto
Co-Investigator(s)	
Working Group(s)	Reproductive Health
Description	This project is being done in Moi Teaching and Referral Hospital in the antenatal clinic. Based on studies performed in developed countries, approximately 10%-30% of pregnant women are colonized with GBS (Group B Streptococcus) in the vagina or rectum. GBS sepsis is a leading cause of maternal and perinatal morbidity and mortality and one of the most common causes of neonatal sepsis throughout the world. A rectovaginal swab is done on all pregnant women who fit our inclusion criteria and the culture is done in Lancet lab. Our main objectives are: 1. To determine the prevalence of GBS colonization among pregnant women seeking antenatal care in MCH at MTRH. 2. To determine the antibiotic susceptibility profile in pregnant women attending antenatal clinic at MTRH. 3. To determine feasibility of a screen and treat program at MTRH
Site(s)	Moi Teaching and Referral Hospital
Project Period	5/5/2015 – 10/30/2015
Funding Status	Unfunded
Direct Award (USD)	None
Update	We managed to get our sample size of 386 antenatal mother's by late November. The follow up involved first half of December. In total we had only 8 positive GBS cultures, all were sensitive to the antibiotics we tested against. We have a tentative write up for publication Our challenge was that we took a little more time to achieve sample size and follow up than we expected. Preliminary results: we have a GBS prevalence of 2.07% in our antenatal mother, sensitive to all antibiotics. We find it is not feasible to initiate a screen and treat program for GBS for antenatal mothers
Future Plans	We hope to finish a thesis write up in the next 6months and also to have an article ready for publication.
Publication(s)	

Study Title	**Growth response to combined Anti-Retroviral Therapy (cART) initiation among HIV infected children receiving Comprehensive Care in Western Kenya**
Principal Investigator(s)	Samuel Ayaya, Moi University Winstone Nyandiko, Moi University
Co-Investigator(s)	Esther Nabakwe, Joe Hogan, Rachel Vreeman, Alfred Keter, Carolyne Ombok, Justus Simba, Anne Mwangi
Working Group(s)	Pediatric

Description	This study was a retrospective analysis of prospectively collected data on the response of the anthropometirc measurements to the initiation of combined ART. We found that early initiation of ART was associated with rapid increase in weight for age and weight for height Z - scores. however, the response flattened out after 3 years both in children aged upto2 and more than 2 years. We concluded that early initiation of ART was beneficial to the children and supported the current recommendation of initiating ART in all children aged below 10 years. We recommended a study to find out why the response flattens out after 3 years on ART.
Site(s)	All AMPATH Sites
Project Period	10/1/2002 – 12/31/2014
Funding Status	Unfunded
Direct Award (USD)	None
Update	The words in the manuscript have been truncated to 3,500 but the figures and tables need to be reduced to the number acceptable to JAIDS. Prof. Joe Hogan is looking at it to advice on which tables and figures to exclude.
Future Plans	We shall submit it to the JAIDS ion the next month or two. We also intend to submit the abstract at the AIDS conference in Durban, South Africa in July
Publication(s)	

Study Title	**HI-Train: Health Informatics Training and Research in East Africa for Improved Health Care**
Principal Investigator(s)	Abraham Siika, Moi University Martin Were, Indiana University
Co-Investigator(s)	Ayuo, Paul Nabukenya, Josephine Mughal, Khalid Tylleskar, Thorkild
Working Group(s)	None
Description	With increased deployment of eHealth systems, comes the need for an appropriate health information technology workforce. This workforce includes: (a) Local level: Health IT professionals, eHealth specialized programmers, data managers, implementation managers, support specialists and reporting personnel; (b) Institutional level: chief medical information officers; and health information management specialists, (c) administrative: regional and national eHealth coordinators and eHealth monitoring and evaluation specialists, and (d) Other: health information privacy and security specialists and HI researchers. End users, institutional managers and policy makers also need to be appropriately trained on the relevant eHealth systems. Alarmingly, most sub-Saharan countries remain woefully unprepared to systematically train an adequate workforce to support the eHealth systems already being deployed. Countries like Uganda and Kenya recognize an emergent need for national strategies to build health informatics human capacity. These countries have appropriately developed national eHealth capacity-building strategies Implementing the strategies however requires direct leadership by Higher Education Institutions in the relevant countries. The urgency for sustainable

	mechanisms to increase HI workforce and research capacity in developing countries is self-evident. This goal can only be realized by having enough faculty members from developing countries fully trained in Health Informatics. These staff faculty can then be part of a well-functioning and high quality HI program moving forward. Recognizing this need, and the multidisciplinary competencies needed for HI training and research, our team identified partner institutions with complementary capabilities to support advanced Health Informatics training in East Africa for our project. Aims 1) Provide post-graduate (Masters and PhD) level training in Health Informatics and research. The focus will be on post-graduate training for health professionals and computer science personnel to help them become HI faculty at their institutions. 2) Increase number of women and marginalized populations in faculty-level training in Health In-formatics and research at the LMIC higher education institutions. 3) Improve the quality and quantity of Health Informatics research conducted primarily by re-searchers based in the LMIC countries in collaboration with our Northern partners. 4) Provide model curricula, educational programs and approaches for faculty-level health informatics training that can be emulated by regional higher education institutions.
Site(s)	Moi University, Makerere University, University of Bergen
Project Period	12/5/2013 – 6/30/2019
Funding Status	Funded – Other, NORAD - Norwegian Agency for Development Cooperation
Direct Award (USD)	$2,757,830
Update	PhD students were recruited and accepted into the University of Bergen PhD Program (1 from Moi and 3 from Makerere). The 4 students traveled from LMIC to Norway to undertake course work. 14 Students were accepted and admitted in the Msc Health Inform- PhD students were recruited and accepted into the University of Bergen PhD Program (1 from Moi and 3 from Makerere). The 4 students traveled from LMIC to Norway to undertake course work. - 14 Students were accepted and admitted in the Msc Health Informatics programme at Moi University Schools of Medicine in September 2015. 13 students from Moi and Makerere were awarded scholarships (7 for Moi and 6 for Makerere) - MSc Health Informatics course work began in September 2015 - 1 candidate for the UiB PhD programme from Makerere was admitted at Moi to undertake MSc Health Informatics courses as a pre-requisite for the PHD programme - HITRAIN leadership meeting was held in August 2015 at the Boma hotel with participants from Moi, Makerere and University of Bergen. - HITRAIN annul meeting with Norad was held in December and attended by faculty from University of Bergen, Moi and Makerere Universities. Challenges - Recruitment of female candidates into the PhD program for the first cohort - Identification of marginalized groups or individuals who are qualifies for the Msc HI programme.

Future Plans	Recruit more female candidates for the Masters and PhD programmes for the 2016/2017 intake Implementation of the marginalized mentorship program Enhance the Online system to support most of the courses offered for Health Informatics at Moi Univers- Recruit more female candidates for the Masters and PhD programmes for the 2016/2017 intake - Implementation of the marginalized mentorship program - Enhance the Online system to support most of the courses offered for Health Informatics at Moi University - Finalize the development and tabling of the PhD in Health Informatics curriculumn - Announce the next intake for the MSc HI programme - Strengthening capacity for research work at software engineering support
Publication(s)	Were MC, Siika A, Ayuo PO, Atwoli L, Esamai F. Building Comprehensive and Sustainable Health Informatics Institutions in Developing Countries: Moi University Experience. Stud Health Technol Inform. 2015;216:520-4. Keny A, Wanyee S, Kwaro D, Mulwa E, Were MC. Developing a national-level concept dictionary for EHRs implementations in Kenya. Stud Health Technol Inform. 2015;216:780-4.

Study Title	**HIV-1 Drug Resistance in Different Subtypes**
Principal Investigator(s)	Rami Kantor, Brown University Lameck Diero, Moi University
Co-Investigator(s)	Nathan Buziba Wilfred Emonyi
Working Group(s)	Adult Medicine
Description	Examine drug resistance upon tenofovir-containing first line antiretroviral therapy in multiple subtypes in western Kenya using different analyates.
Site(s)	Moi Teaching and Referral Hospital
Project Period	5/12/2012 – 2/20/2014
Funding Status	Funded – NIH - National Institute of Allergy and Infectious Diseases (NIAID)
Direct Award (USD)	$98,168
Update	The study has been completed and data analyses and dissemination are the major efforts, with more details provided in the publications cited.
Future Plans	One paper is currently under review and we hope to get it published. Data are also used in the following abstract, to be presented this coming February: 1.M Coetzer, L Ledingham, L Diero, E Kemboi, M Orido, W Emonyi, R Kantor. Longitudinal Evaluation o
Publication(s)	1. K Brooks, A DeLong, M Balamane, L Schreier, M Orido, E Kemboi, M Chepkenja, E Kemboi, M D'Antuono, PA Chan, W Emonyi, L Diero, M Coetzer, R Kantor. HemaSpot™, a Novel Blood Storage Device for HIV Drug Resistance Testing. Journal of Clinical Microbiolog

Study Title	**IeDEA Comprehensive Adherence Measure for Pediatrics (ICAMP)**
Principal Investigator(s)	Rachel Vreeman, Indiana University Winstone Nyandiko, Moi University
Co-Investigator(s)	Samuel Ayaya, Annette Sohn, Mary-Ann Davies, Stephen Kerr, Karl-Günter Technau
Working Group(s)	Pediatrics
Description	The primary objective of the proposed study is to validate an adherence questionnaire for pediatric and adolescent patients at 3 IeDEA sites using electronic dose monitors (Medication Event Monitoring Systems®, or 'MEMS', MWV/AARDEX, Switzerland) as external criterion for adherence. While the adherence questionnaire (known as the Comprehensive Adherence Measure for Pediatrics - Short Form, or 'CAMP-SF') has been previously validated in a large, urban referral site at AMPATH in the East Africa IeDEA region, re-validation is warranted to ensure external and internal validity is upheld across resource-limited sites. In conducting this validation study, we will also collect valuable, detailed prospective data on adherence to ART among this sample of HIV-infected children and adolescents using electronic dose monitoring. The study has the following specific aims and hypotheses: Specific Aim 1: Validate a 10-item adherence questionnaire for routine use as an adherence measurement tool in resource-limited settings. Hypothesis 1a: Adherence estimates from the CAMP-SF will be reliable and valid across 3 IeDEA sites in East Africa, Southern Africa and Asia-Pacific when compared with MEMS electronic dosing data. Specific Aim 2: Describe pediatric adherence to ART prospectively over 6 months using electronic dose monitoring (i.e., MEMS) and the CAMP-SF among a sample of HIV-infected children and adolescents at 3 IeDEA sites. Hypothesis 2a: Rates of adherence to ART will be similar for children across different IeDEA sites. Hypothesis 2b: More pediatric non-adherence will be reported during prospective evaluation using the CAMP-SF than in existing rates reported in IeDEA datasets for children. Specific Aim 3: Evaluate factors associated with adherence among a sample of HIV-infected children and adolescents at 3 IeDEA sites. Hypothesis 3a: Risk of medication non-adherence is increased among older children, children with lower disease stages, children with higher CD4 counts, children with a higher medication burden, and orphaned children. Hypothesis 3b: Sites will differ in factors that may influence adherence, including number of children initiating ART; availability of nutritional support, adherence support, disclosure support, and pediatric formulations; and routine use of standardized adherence measures. Specific Aim 4: Assess evidence of the impact of ART non-adherence on clinical outcomes such as treatment failure and mortality, and programmatic factors such as loss-to-follow up. Hypothesis 4a: Medication non-adherence by MEMS is associated with increased risk of changing to second-line antiretroviral medications. Hypothesis 4b: Medication non-adherence by MEMS is associated with increased risk of mortality. Hypothesis 4c: Medication non-adherence by MEMS is associated with high risk of loss to follow-up.
Site(s)	Busia District Hospital, HIV-NAT Clinic, Bangkok, Thailand; Rahima Moosa Mother and Child Hospital, Johannesburg, South Africa
Project Period	8/1/2014 – 7/31/2016
Funding Status	Funded – NIH - National Institute of Allergy and Infectious Diseases (NIAID)

Direct Award (USD)	$171,257
Update	We initiated recruitment of study participants on 03/06/2015 and enrolled a total of 110 participants, the study sample size. One study participant withdrew from the study after failing to turn up for follow up appointments since initial recruitment. We are continuing with participant assessments.109 participants completed the third month evaluations. We successfully conducted blood draws on all 109 participants at month three as per the study protocol, and samples were safely transferred to AMPATH reference lab for viral load testing. We are still waiting on lab results for these tests. Currently, we are conducting month 6 of participant follow up, and 102 of these final assessments have been completed. We have also started data entry of ICAMP data into REDCap database, and 60 participant records have so far been entered.
Future Plans	We plan to continue with month 6 of the study participant follow up and aim to complete assessment by end of the next 6 months. We also plan to complete data entry of study data into REDCap database in the next six months and start working on preliminary data analysis.
Publication(s)	

Study Title	**Innovative public-private partnership to target subsidized antimalarials in the retail sector**
Principal Investigator(s)	Wendy Prudhomme, Duke University Diana Menya, Moi University
Co-Investigator(s)	Laktabai, Jeremiah
Working Group(s)	Public Health and Primary Care
Description	In most malaria-endemic countries, a large fraction of fevers are treated in the informal health sector where diagnostic testing is uncommon and effective drugs are expensive. For many families, particularly in rural areas, the first source of treatment for fevers are retail medicine outlets such as chemists, pharmacists and small, unregulated medicine shops.These retail outlets, also referred to as the 'informal health sector', are more accessible than formal health services, but effective drugs are expensive and most clients purchase cheaper, ineffective therapies to which high levels of resistance exist. The Global Fund piloted a drug subsidy called the Affordable Medicines Facility - malaria (AMFm) to reduce the prices of effective, high quality ACTs in the private sector. AMFm was launched in 2010 and provided quality-assured ACTs to wholesale markets at substantially reduced prices in seven pilot countries, including Kenya. $339 million dollars were earmarked for subsidies and 155.8 million doses were delivered in the first 18 months of the program (ICF International, 2012). Prices of subsidized ACTs in most pilot countries dropped below that of cheaper, ineffective drugs and substantial cost savings were seen by the end consumer. In Kenya, the retail market share of ACTs increased from 12% to 61% in the first 18 months of the program (Tougher et al., 2012). However, there is concern that dramatically lowering the price of ACTs opened the door to over-treatment and overuse of ACTs. The overall objective of this study is to evaluate the public health impact of targeted antimalarial subsidies through scale-up by determining the

	community-wide effects of targeting an antimalarial subsidy through a partnership between CHVs and the private retail sector. Cluster-randomized design was used to assign community units to either an intervention or control arm. The study is being be carried out in two sub-counties in Western Kenya (Bungoma East and Kiminini) with similar malaria burden but different access to health services. Community Units (CUs) in each sub-county were the clustered and randomized. There are 32 CUs in total across both sub-counties, 20 in Bungoma East and 12 in Kiminini. Half of the community units in each study area (10 in Bungoma East sub-county and 6 in Kiminini) were randomly allocated to the intervention and the remainder of the community units to the comparison arm. In the intervention arm a conditional subsidy is offered in the form of a voucher providing for the purchase of a WHO-qualified ACT at a reduced, fixed price to those with a positive malaria test that can be redeemed at a local drug retailer, while individuals in the comparison arm only receive standard community health volunteer (CHV) visits. Cross-sectional household surveying at pre-intervention, and 6 months, 12 months, and 18 months post-baseline will be used to determine any change in the percent of fevers that are tested for malaria and the effect of testing on subsequent drug purchasing decisions. The primary hypothesis to be tested is that offering a fixed-price voucher that reduces the cost for ACT purchase in the retail sector conditional on a positive malaria test (targeted subsidy) can improve uptake of testing for malaria and will increase the proportion of fevers tested for malaria before treatment. The primary outcome of this study is to compare the percent of fevers that receive a malaria test from any source between the intervention and control arms. The secondary outcomes of this study will also be measured and compared between intervention and control arms. The main secondary outcome is the percent of all ACTs used that were taken by people with a malaria positive test. Additional secondary outcomes are: the percent of all ACTs used that were taken by people without a test, the percent of those with a positive test who got an ACT, and the percent of those with a negative test who got an ACT.
Site(s)	Webuye, Kitale,
Project Period	1/1/2014 – 12/31/2018
Funding Status	Funded – NIH
Direct Award (USD)	$1,654,917
Update	In pre-intervention baseline survey we enrolled 2,065 febrile individuals out of 3,871 households from both intervention and comparison arms. The study currently has 271 active CHVs from intervention CU who have been trained on mRDT and quality data collection procedure. An active data collection process is ongoing in the intervention CUs in both sub-counties.
Future Plans	Ready to roll out the first 6 months cross-sectional household survey.
Publication(s)	

Study Title	**IU Health Cardiovascular Research Biobanking Project**
Principal Investigator(s)	Tom Inui, Indiana University Sylvester Kimaiyo, Moi University

Co-Investigator(s)	Bloomfield, G.
Working Group(s)	Adult Medicine, Cardiovascular and Metabolic Disease
Description	Atrial fibrillation is the most common sustained arrhythmia in high-income countries. Recent insights have been made with regard to the genetic variations that may predispose an individual to developing atrial fibrillation. There has long been observed a disproportionately low prevalence of atrial fibrillation among Africans and African-American compared to people of European descent. Whether mutations in the genes known to cause atrial fibrillation are also causing AF among Kenyan patients with this disorder is unknown. Identification of the frequency of mutations in these genes in patients with atrial fibrillation in Kenya may shed light into the causal pathways of atrial fibrillation in this population. Using a case-control (1:2) research design in a Kenyan population with atrial fibrillation, we propose to perform mutational analysis of the coding sequence and flanking splice sites of the KCNQ1, KCNJ2, KCNE2 and KCNA5 genes known to be mutated in familial and lone atrial fibrillation in patients from high-income countries. A thorough phenotyping protocol will be employed which will include clinical assessment, a medical history, echocardiography and electrocardiography. Genetic material will be collected, stored and processed in Eldoret as the first initiative of the Genetic Biorepository Initiative (PI: Inui, Co-PI: Emonyi) and subsequently shipped for analysis of specific alleles at Indiana University. Using a convenience sample of approximately 140 patients with atrial fibrillation and 140 controls, we will demonstrate the frequency of pathological mutations in the aforementioned genes and provide a thorough clinical description of patients with atrial fibrillation including echocardiographic descriptions and the burden of other comorbid illnesses.
Site(s)	Moi Teaching and Referral Hospital
Project Period	4/30/2012 – 4/28/2017
Funding Status	Funded – IU Health
Direct Award (USD)	$1,060,000
Update	During the July 1, 2015 - December 31, 2015 study period the Eldoret-based activities of this project were concluded, including shipping to IU of a limited number of specimens with inadequate DNA in initial shipping. Data were collected on the hospitalization experience and vital status of the original cohort, establishing informational platform for prognosis analyses. All Moi data were entered into a RedCap database that was cleaned, backed-up, and shared with Duke and IU. Echocardiograph analyses and NextGen genomic analyses were begun at Duke and IU, respectively. An application to the Charles Fisch Cardiovascular Research Fund at IU was successful, providing budget for completion of genomic analyses. An application to the Doris Duke Foundation for support of proteomic analyses was unsuccessful. Personnel in Eldoret were terminated at the close of SRI and CTSI funding. The project's methods paper was published.
Future Plans	Completion of genomic and echocardiographic analyses, pulling data together for a manuscript.
Publication(s)	Bloomfield G, Temu T, Akwanalo CO, Binanay C, Chen PS, Emonyi W, Heckbert SR, Koech MM, Manji I, Shen C, Vatta M, Velazquez EJ, Wessel J, Sylvester Kimaiyo S, Inui TS. Genetic

	Mutations in African Patients with Atrial Fibrillation: Rationale and Design of the Study of Genetics of Atrial Fibrillation in an African Population (SIGNAL). Am Heart J 2015; 170(3): 455-64.
Study Title	**Knowledge, Attitudes and Practices of Sepsis Management at Moi Teaching and Referral Hospital, Kenya**
Principal Investigator(s)	Elizabeth Mathenge, Duke University
Co-Investigator(s)	
Working Group(s)	Adult Medicine
Description	Study objectives: Sepsis is the presence of suspected or confirmed infection, in addition to systemic manifestations of infection. In many developing countries the data on sepsis - causes, prevalence, morbidity, mortality and current practices - is sparse. This study aims to understand sepsis related intervention practices among health care providers within a referral center in Kenya. This study will also look at the main attitudinal and health system barriers to adequate care for patients with sepsis. Methods: This is an analytical cross-sectional study. Knowledge Attitude and Practice (KAP) questionnaires will be distributed to health care providers at the Moi Teaching and Referral hospital in Eldoret, Kenya. The target population is physicians, clinical officers, and senior nurse practitioners working at the ICU, casualty and Nyayo wards between June 2014 and August 2014. Data analysis: Data will be presented using descriptive statistics in the form of frequencies and percentages for similar open form questions, and standard deviations for quantitative variables. Chi-square and fisher's exact test will be used for categorical variables and the level of significance will be set at 0.05. Open format responses will be analyzed qualitatively into nominal categories using NVIVO. Certain themes that represent the objectives of the study will be identified.
Site(s)	Moi Teaching and Referral Hospital
Project Period	7/13/2014 – 3/31/2015
Funding Status	Funded – Duke Global Health Institute
Direct Award (USD)	$1,000
Update	Over the last six months, we are in the process of analyzing the data that was collected from the pediatrics department. Additionally, we are in the process of writing a manuscript with the aim of presenting our findings from the Casualty, Internal Medicine and ICU/HDU departments.
Future Plans	1) Finish data analysis 2) Complete the first manuscripts
Publication(s)	
Study Title	**Latency period and AIDS survival Time among HIV infected children attending Comprehensive Care Clinics in Wesyern Kenya**

Principal Investigator(s)	Ayaya Samuel, Moi University Rachel Vreeman, Indiana University
Co-Investigator(s)	Hai Liu, Nyandiko WM,
Working Group(s)	Pediatric
Description	Pediatric AIDS Latency period(LP) and AIDS survival time(AST) are epidemiological time frames that look at the progress of the HIV infection in children. Their durations and the factors associated with them have not been studied. The aim of this study was to determing these time frames and the factors associated with them, we found that the overall the LP was 168 days and AST was 2065 days. both were shorter than what is in the literature from adult studies. There are no pediatric figure in literature. the factors that were statistically significantly associated with LP were Cd 4 count/percent at diagnosis, CDCstage at diagnosis and never on ARVs; for AST the factors were never on ARVs and CD 4 count/percent nearest to diagnosis of AIDS Defining Event (ADE).
Site(s)	
Project Period	10/31/2002 – 12/31/2014
Funding Status	Unfunded
Direct Award (USD)	
Update	The words in the manuscript were truncated to 3,500 as required by the journal. However, the tables and figures are more than expected. Hai the study biostatistician has been requested to advice on which tables/figures should be excluded to meet this requirement.
Future Plans	We would like to submit the manuscript to JAIDS for publication in the next one month. We shall also present the abstract to the AIDS Conference for presentation in July 2016.
Publication(s)	Manuscript has been developed and is being adjusted to meet the JAIDS criteria by reducing the number of tables and figures.
Study Title	**Linkage and Retention to Care in Western Kenya Following HIV Testing**
Principal Investigator(s)	Becky Genberg, Brown University Juddy Wachira, Moi University
Co-Investigator(s)	Elizabeth Pfeiffer
Working Group(s)	Adult Medicine
Description	This project is focused on identifying the individual, psychosocial, and structural barriers to timely linkage and retention. This project has three specific aims: 1. To comprehensively describe linkage and retention to HIV care following home-based counseling and testing by examining time from testing to linkage and the socioeconomic, demographic and structural determinants of linking to care. We will conduct retrospective and multilevel analyses using existing de-identified clinical and facility-level data collected within AMPATH, defining linkage to care as the completion of an initial HIV clinical

	encounter with a provider following testing. We will also examine factors that predict retention in HIV care over time. 2. To characterize the psychosocial and structural facilitators and barriers to linkage and retention to care following positive HIV diagnosis through HBCT and PITC. We will conduct a qualitative study to examine the psychosocial factors inhibiting or motivating linkage to care, experiences in accessing care, and factors that promote or interrupt retention among those who tested positive via HBCT or PITC. We will also collect data from clinicians and community health workers to examine how features of the healthcare system facilitate or constrain linkage and retention to care. 3. To develop and implement a feasibility study of a pilot psychosocial intervention aimed at increasing linkage to care among individuals testing positive for HIV. The content of this intervention pilot will be informed by the results of Aims 1 and 2. The first aim of this study involves secondary analysis of data collected during home-based counseling and testing linked to medical records data. This data will include information collected as part of routine testing procedures and care, for those who successfully linked to care. AIM 2 will employ qualitative approaches to identify barrier and facilitators to linkage and retention. AIM 3 will include information collected as part of routine care, for those who successfully linked to care. Specifically, medical record reviews at baseline and post-intervention.
Site(s)	Other
Project Period	7/19/2013 – 6/30/2018
Funding Status	Funded – NIH - National Institute of Mental Health (NIMH)
Direct Award (USD)	$496,582
Update	During the period of July 2015-December 2015, we have been focused on Aim 2 of the project. Aim 2 is to characterize barriers and facilitators of linkage and retention in HIV care among patients living in the AMPATH catchment region. We conducted in-depth interviews with n=60 health care providers. We completed the coding of this data in July 2015 and since then we have been working on ongoing analysis. These analyses are organized into two main areas of inquiry: provider perspectives on provider and system barriers to promote linkage and retention in HIV care, and patient-provider relationships/communication with implications for retention in HIV care. In addition we have begun recruitment and data collection for our qualitative study that is focused on linkage to care from the patient perspective. We have interviewed n=30 adults who linked to care following an HIV-positive test result through home based counseling and testing. These participants were recruited and interviewed in three AMPATH sites from July 20-August 28; that is 10 in Mukhobola Health Centre, 10 in Port Victoria Health Centre and 10 in Busia District Hospital. These interviews are in the process of being transcribed and translated for the purposes of analysis.
Future Plans	During the next 6 months, we aim to complete the activities of Aim 2 of this study. We will focus on completing the qualitative research among patients who did and did not link to care following home-based counseling and testing. We will do so by recruiting and interviewing n=30 adults who tested-positive for HIV and did not link to care following their diagnosis. We will recruit from the catchment areas surrounding Mukhobola Health Center, Port Victoria Health Centre, and Busia District Hospital. We will transcribe and code these interviews along with those from participants who did link to care. We aim to

	begin analytic work on this data set in the next six months.
Publication(s)	
Study Title	**Nurse Management of Hypertension Care in Rural Western Kenya**
Principal Investigator(s)	Rajesh Vedanthan, Mount Sinai School of Medicine Sylvester Kimaiyo, Moi University
Co-Investigator(s)	
Working Group(s)	Adult Medicine, Cardiovascular and Metabolic Disease
Description	This project aims to evaluate barriers and facilitators to nurse management of hypertensive patients in rural western Kenya, using a qualitative research approach. The four specific aims for attaining this objective are: Aim 1: To evaluate facilitators and barriers to nurse-based management of hypertensive patients in rural western Kenya. This will be accomplished by conducting a rapid assessment procedure involving key informant interviews, focus group discussions, and field observations. Aim 2: To develop and evaluate an innovative smartphone-based DEcision Support and Integrated REcord-keeping (DESIRE) tool utilizing a participatory, iterative, human-centered design process, to assist nurses taking care of hypertensive patients. We will evaluate the usability and feasibility of the DESIRE tool using qualitative methods (e.g. think-aloud, mock patient encounters, semi-structured interviews, and focus groups). Aim 3: To conduct an impact evaluation of a pilot program for nurse-based management of hypertension to be implemented by AMPATH, by performing secondary analysis of routine clinical data collected by AMPATH. The primary outcome measure will be change in systolic blood pressure in hypertensive patients assigned to nurse-based management after one year. Aim 4: To estimate the nurse workforce requirements for stable, long-term treatment of hypertension throughout western Kenya, using a needs-based workforce estimation model.
Site(s)	Mosoriot Rural Health Training Centre, Turbo Health Centre
Project Period	9/17/2011 – 7/30/2016
Funding Status	Funded – NIH - Fogarty International Center (FIC)
Direct Award (USD)	$675,543
Update	Marked progress has been made on this study project during the period of July 1,2015 thru Dec 31, 2015 Below is a delineation of progress, key outcomes and accomplishments by category. **General:** The study was amended to include patient-based evaluation of the Decision Support and Integrated Record-Keeping (DESIRE) Tool, a technology intended to assist rural clinicians taking care of hypertension patients at the community level. The amendment to evaluate the DESIRE tool was submitted and approved by IREC on 16th September, 2015. **Personnel Capacity Building:** Capacity building of the study personnel with specialized

	and targeted training is ongoing. • Continuous training of qualitative data coding and analysis is ongoing • Global Alliance for Chronic Disease Implementation Research Workshop Attended by Research Coordinator **Data Capturing:** Thus far, the team has conducted two Key Informant Interviews (KIIs), and two focus group discussions (FGDs). **Enrollment:** A total of 13 participants (7 female and 6 male) have been enrolled **Project Challenges:** The following challenges have been encountered for this reporting period: There have been a few logistical difficulties and challenges encountered, including: 1) transportation to the rural areas of western Kenya especially in inclement weather (impact: all Aims); and 2) programmatic delays in data entry of hypertensive patients seen by the rural clinicians in the dispensaries (impact: Aims 3 and 4). We have actively worked with the chronic disease management, transportation, information technology/mHealth, and data management teams of AMPATH in order to address these logistical issues. Significant progress has been made and several of the logistical issues have been addressed-Aims 1 and 2 data collection activities are complete; Aim 3 data entry is also now complete. All data collection activities for Aim 4 are also now complete. While these logistical challenges have delayed some of the research activities, we have been able to secure the completion of data entry and the initiation of data cleaning. In addition, we have been able to present the results of Aim 2 at international conferences, as well as successfully publishing the results of Aim 2. The manuscript for Aim 1 is near completion. Abstracts are in the process of being prepared for Aims 3 and 4, and we anticipate that final analyses and manuscripts will be completed in the near future. **Papers/Publications/Posters:** In the past six months, initial findings have been reported both through presentations and publications. The abstract titled, 'Estimating the Health Workforce Requirements for Hypertension Management in Rural Western Kenya' was presented as an e-poster at the AHA conference in Orlando in December of 2015. A copy of the paper titled, 'Usability and Feasibility of a Tablet-Based Decision-Support and Integrated Record-Keeping (DESIRE) Tool in the Nurse Management of Hypertension in Rural Western Kenya' was published in the International Journal of Medical Informatics on January 7, 2015.
Future Plans	We hope to complete the following activities pertaining to each study aim: Aim 1: Complete qualitative manuscript Aim 2: Carryout 10 KIIs and 8 FGDs to further evaluate the DESIRE tool Aim 3: Complete preliminary and final data analyse
Publication(s)	
Study Title	**Optimizing Linkage and Retention to Hypertension Care in Rural Kenya**
Principal Investigator(s)	Valentin Fuster, Mount Sinai School of Medicine Jemima Kamano, Moi University
Co-Investigator(s)	Fuster, V. Horowitz, C. Were, M. Inui, T. Hogan, J. Velazquez, E. Bloomfield, G.

	Naanyu, V. Menya, D. Kimaiyo, S. Akwanalo, C.
Working Group(s)	Adult Medicine, Cardiovascular and Metabolic Disease
Description	Hypertension awareness, treatment, and control rates are low in most regions of the world. A critical component of hypertension management is to facilitate sustained access of affected individuals to effective clinical services. In partnership with the Government of Kenya, the Academic Model Providing Access to Healthcare (AMPATH) Partnership is expanding its clinical scope of work in rural western Kenya to include hypertension and other chronic diseases. However, linking and retaining individuals with elevated blood pressure to the clinical care program has been difficult. To address this challenge, we propose to develop and evaluate innovative community-based strategies and initiatives supported by mobile technology. The objective of this project is to utilize a multi-disciplinary implementation research approach to address the challenge of linking and retaining hypertensive individuals to a hypertension management program. The central hypothesis is: community health workers (CHWs), equipped with a tailored behavioral communication strategy and a smartphone-based tool linked to an electronic health record, can increase linkage and retention of hypertensive individuals to a hypertension care program and thereby significantly reduce blood pressure among these patients. We further hypothesize that these interventions will be cost-effective. To test these hypotheses and achieve the overall objectives, we will pursue the following specific aims: Aim 1: Identify the facilitators and barriers to linking and retaining individuals with high blood pressure to a hypertension care delivery program, using a combination of qualitative research methods: 1) baraza (traditional community gathering) form of inquiry; 2) focus group discussions among individuals with elevated blood pressure during home-based testing; and 3) focus group discussions among CHWs. Subsidiary Aim 1.1: Using identified facilitators and barriers, develop a tailored behavioral communication strategy guided by the Health Belief Model modified by incorporating emotional elements for the CHWs to use with hypertensive patients, focusing on regular and timely attendance at hypertension clinic. We will test the communication strategy for face and content validity using focus group discussions with CHWs and individuals with elevated blood pressure. Subsidiary Aim 1.2: Using identified facilitators and barriers, develop a smartphone-based tool linked to the AMPATH Medical Record System (AMRS) to be used by CHWs to optimize linkage and retention of hypertensive patients to the care program, and evaluate the usability and feasibility of this tool using think-aloud technique, mock patient encounters, focus group discussions, and participant observation. Aim 2: Evaluate the effectiveness of CHWs equipped with a tailored behavioral communication strategy and a smartphone-based tool in improving linkage and reducing blood pressure among hypertensive patients, by conducting a cluster randomized trial comparing: 1) usual care (CHWs with standard training on recruitment of individuals with any chronic condition); 2) CHWs with an additional tailored behavioral communication strategy; and 3) CHWs with a tailored behavioral communication strategy an also equipped with smartphone-based tool linked to the AMRS. The co-primary outcome measures will be: 1) documented linkage to care following home-based testing, and 2) one year change in systolic blood pressure among hypertensive individuals. Aim 3: Evaluate the incremental cost-effectiveness of each intervention arm of the cluster randomized trial. Cost effectiveness will be presented both in terms of costs per unit decrease in blood pressure and in terms of costs per reductions in cardiovascular disease (CVD) risk by extrapolating one-year blood pressure reductions to CVD risk reductions based on the

	QRISK2-2011 CVD risk calculator specific for Black African populations. This research will generate innovative and productive solutions to the expanding global problem of hypertension, and will add to existing knowledge on scalable and sustainable strategies for effectively managing hypertension and other chronic diseases in low- and middle-income countries.
Site(s)	Mosoriot Rural Health Training Centre, Turbo Health Centre
Project Period	5/4/2012 – 3/31/2017
Funding Status	Funded – NIH - National Heart, Lung, and Blood Institute (NHLBI)
Direct Award (USD)	$2,104,519
Update	Marked progress has been made during this reporting period. Key accomplishments include: • Ongoing administration of Behavioral Assessment tools by Community Health Workers (CHWs) across thre three arms of the study aligned with continuous supervision and mentorship. • Data management plan; Development of Data Management protocol, SAS script as well as concept dictionary is ongoing. • mUzima platform for smartphone app has been developed and is fully operational operational aligned with data collection by virtue CHWs equiped with smathphones • LARK Study databases/servers (Virtual Machine, AMRS & Redcap) are fully operational • Roll-out of the study was completed marked with trainings of the Community Health Workers and Community Health Extension Workers on, coveraged entailed: Overview of LARK study, Hypertension, Behavioral Assessment tools and Communication Strategy as well as Motivational Interviewing was carried out. Tech-arm CHWs received additional smartphone-based training • Participant enrolment is on-going across all the study sites (24 Community Units); the cumulative total enrolment by end of December, 2015 is 1,308. Aim 3 (cost-effectiveness analysis) • Administration of Costing questionnaire (both electronic and paper-based forms) is on-going Real-time entry on • Data entry is on-going for the initial paper-costing questionnaires • Preliminary analyses to be soughted once data cleaning/entry is done • 12 months costing follow-up for the costing questionnaire is on-going, currently, a total of 162 participant shave been followed up. • Aligning LARK study with Process Evaluation aimed at ascertaining the fidelity of the study protocol, various tools have been utilized in the exercise and these include: Objective Structured Clinical Examinations (OSCEs), CHWs' Written Tests, Focus Group Discussion (FGD) Guide for both CHWs & Hypertensive patients as well as System Usability Testing. The main database for the data obtained from OSCEs Redcap databases. IREC approval too to partake the exercise was obtained.

- OSCEs; 31 OSCEs have been done out of a target of 40, the remaining 9, will be done in smartphone arm, Turbo Division
- 5 sets of FGDs with CHWs have been done out of the required 6.
- 4 sets of FGD with HTN patients have been done too out of the required 8.
- Written Tests & Usability Testing have been embedded in the process evaluation
- Data Entry of OSCEs and transcription of FGDs are on going
- Two posters/abstracts (Knowledge Retention and Skill Retention) have been generated based on process evaluation of already analysed OSCEs data and transcripts, the abstracts have been accepted too for presentation at World Congress of cardiology.

Papers/publications/posters

- Qualitative paper 1 was published online on 4th Jan, 2016 by JGIM (see the attached) Barriers Influencing Linkage to Hypertension Care in Kenya: Qualitative Analysis from the LARK Hypertension Study. Journal of General Internal Medicine (JGIM. Volume 31, Number 1, January 2016.
- Abstract titled 'Perceptions of the Role of CHWs in HTN Management: A Qualitative Analysis of the LARK Hypertension Study' was accepted as an e-abstract to the AHA conference in November, 15.
- 'Content Validity of a Behavioural Assessment Tool for Optimizing Linkage and Retention to Hypertension Care in Kenya (LARK Hypertension Study)' was accepted as a poster to the AHA conference in November, 15.

Faculty (PIs/Co-PIs/Trainees) Visits (to Eldoret), we have had several visits by Faculty.

Personnel Capacity Building/Hire:

- Three of the study personnel attended a Global Alliance for Chronic Diseases (GACD) Annual Scientific meeting/conference organized by National Institute of Medical Science and Nutrition Salvador Zubirn (INCMNSZ) and Consejo Nacional de Cienciay Tecnologia (CONACYT) in Mexico from 9th to 13th November 2015.
- The whole study team attended a one day Qualitative training led by Dr. V. Naanyu (Moi University) as well as Objective Structured Clinical Examination (OSCEs)-Process evaluation led by Debra Litzelman (Indiana University) in preparation for Process Evaluation

Next Steps:

- Study personnel to be considered for any future trainings/workshops
- Following the resignation of Data Manager and promotion of one of the Research Assistant to the post of Assistant Study Coordinator in Kenya, hiring process for the vacant post of Data Manager and Research Assistant was successfully done. Equally in North America- Mt. Sinai University, Program/Study Coordinator resigned too, and the post was filled too.

Challenges:

- Ministry of Health Activities that are done concurrently with the study activities have impacted negatively on study deliverable especially on timelines
- Personnel related challenges i.e. Study Data Manager, Biostatistician and Java Programmer resignation
- Data-related challenges cutting across the databases, server, data collection and

	entry • Delays in administrative and procurement processes due to new system (Ampath Transformational Project {ATP}) being implemented and associated initial slowness. • Participant enrolment difficulties.
Future Plans	Next Steps • Protocol for usability and feasibility testing was developed and finalized, yet to be administered after Communiy Health Workers getting adeaquate experience with smartphone use • Year five IREC approval yet to be soughted
Publication(s)	As noted in progress notes as well as publication as attached
Study Title	**Palliative Care at AMPATH-Oncology**
Principal Investigator(s)	Kenneth Cornetta, Indiana University
Co-Investigator(s)	
Working Group(s)	Oncology
Description	This was a retrospective review of the palliative service, describing program development and implementation along with challenges. The goal was to describe a paper, it was performed during my fellowship and 2 visits to Eldoret.
Site(s)	
Project Period	10/1/2014 – 6/30/2015
Funding Status	Unfunded
Direct Award (USD)	None
Update	Paper has been published, there was not budget or protocol with this retrospective review. Paper was reviewed by AMPATH publication committee prior to submission
Future Plans	study closed
Publication(s)	
Study Title	**Patient-Centered Disclosure Intervention for HIV-Infected Children, Helping AMPATH Disclose Information and Talk about HIV Infection (HADITHI)**
Principal Investigator(s)	Rachel Vreeman, Indiana University W. Nyandiko, Moi University
Co-Investigator(s)	Marete, I. Inui, T. Mwangi, A. Hogan, J. MC Henry, M.
Working Group(s)	Behavioral and Social Sciences, Pediatrics

Description	The purpose of this study is to assess the effect of a patient- and family-centered intervention guiding disclosure to HIV-infected Kenyan children using a randomized trial comparing the intervention to routine care. The primary endpoint will be probability of disclosure among children, with secondary endpoints of adherence, clinical outcomes, psychological distress and social outcomes. Phase One, which will last 6 months, focuses on cultural adaptation of the intervention materials through intensive patient participation, including focus groups and cognitive interviewing; selecting narrative components; and training dedicated disclosure counselors. Phase Two consists of a randomized design to examine whether the culturally adapted, multi-component HADITHI intervention increases the prevalence of disclosure to HIV-infected children in western Kenya compared to children receiving usual care. HIV-infected children ages 10-15 years who are enrolled in HIV care within the eight selected AMPATH clinics in western Kenya will be eligible for study enrollment and have a comprehensive patient assessment every 6 months for 2 years.
Site(s)	Burnt Forest Sub-District Hospital, Chulaimbo Sub-District Hospital, Khunyangu Sub-District Hospital, Kitale District Hospital, Moi Teaching and Referral Hospital , Mosoriot Rural Health Training Centre, Turbo Health Centre, Webuye District Hospital
Project Period	9/1/2012 – 9/1/2016
Funding Status	Funded – NIH - National Institute of Mental Health (NIMH)
Direct Award (USD)	$1,886,804
Update	Phase 1: The first phase of the HADITHI study was a qualitative inquiry into the experiences of HIV-infected adolescents and caregivers of HIV-infected children with HIV disclosure to children in terms of their beliefs, practices and preferences. Dissemination of early findings are proceeding, with one publication on this phase already published (Vreeman RC, Scanlon ML, Inui TS, McAteer CI, Fischer LJ, McHenry MS, Marete I, Nyandiko WM. 'Why did you not tell me?': perspectives of caregivers and children on the social environment surrounding child HIV disclosure in Kenya. AIDS. 2015 Jun;29(1): 47-55.) and another manuscript under review. Phase 2: Phase 2 of the HADITHI study aims to evaluate the impact of a clinic-level disclosure intervention that involves multiple counseling components, including peer support groups and individual counseling. All 286 patients were recruited for Phase 2, and data collection for all active participants, including 24 months of patient follow-up, has been completed. Month 24 assessments included blood samples for viral load testing and hair sampling for ARV concentrations, in addition to the multiple measures of adherence, depression, behavioral symptoms, stigma, quality of life, and social functioning. Data entry, cleaning and preparation of data set has been done and preparation for analysis is ongoing. In this quarter, we also published baseline data on this cohort: Vreeman RC, Scanlon ML, Marete I, Mwangi A, Inui TS, McAteer CI, Nyandiko WM. Characteristics of HIV-infected adolescents enrolled in a disclosure intervention trial in western Kenya. AIDS Care. 2015 Dec;27(Suppl 1): 6-17. For the counseling intervention in Phase 2, the HADITHI counselors have been using computer tablets that are loaded with a set of resources for counseling, including HADITHI disclosure videos for individual and group counseling sessions and the HADITHI animation, which is an animated narrative describing the effects of HIV and impact of

	ART, which was created using a community participatory process and cross-cultural adaptation techniques. Counselors use these tools in pre- and post-disclosure counseling with caregivers and children to explain HIV physiology and its treatment, as well as to guide families through the disclosure process. Counselors have also been using the computer tablets to record audio counseling reflections, which helps identify counseling issues within this cohort and aids in self-reflection among the counselors. These counseling tools have been useful to the counselors in the implementation of our counseling intervention to the HADITHI cohort at intervention clinics. We recently completed a qualitative analyses of the counseling encounters to assess the usability of these counseling resources and identify key themes for caregiver and child counseling sessions. An abstract has been prepared for submission to the 2016 International AIDS Society meeting. Our counseling teams have requested additional resources related to child sexual abuse and body safety. With an addendum to our protocol approved by the ethics review boards, we are now developing a child body safety book. A draft resource, The Body Safety Book, was developed with HADITHI disclosure counselors through group discussion and then translated into Swahili. The book is designed to teach children about good and bad touches, with an aim to increase disclosure of sexual abuse (inappropriate touches) among children who visit AMPATH clinic in order to faciliate appropriate care and referrals. Next, focus group discussions will be conducted at Kitale and MTRH clinics for better understanding of the usability and cultural sensitivity of the book and to guide further adaptation. Once the FGDs are analyzed, edits will be made to the body safety book and implemented in AMPATH clinics for better disclosure for children who have experienced body safety and abuse issues.
Future Plans	Over the next 6 months, we plan to: • Begin key data analyses of the HADITHI cohort data. • Conduct four focus groups with 6-10 caregivers of HIV-positive children seeking care at AMPATH to gain culturally relevant feedback on a prototype of body safet
Publication(s)	Rachel C. Vreeman, Michael L. Scanlon, Irene Marete, Ann Mwangi, Thomas S. Inui, Carole I. McAteer & Winstone M. Nyandiko (2015) Characteristics of HIV-infected adolescents enrolled in a disclosure intervention trial in western Kenya, AIDS Care, 27:sup1 6
Study Title	**'Point of Care CD4 testing for people who fail to engage in care after testing HIV positive'.**
Principal Investigator(s)	Paula Braitstein, University of Toronto Samson Ndege, Moi University
Co-Investigator(s)	
Working Group(s)	Adult Medicine
Description	This supplement responds to unique aspects of Specific Aim 1 of the East Africa-International epidemiological Databases to Evaluate AIDS (IeDEA) grant, which seeks to 'Determine the short and long-term outcomes of adults and children along the entire spectrum of HIV care.' Our broad aim is to inform and evaluate the implementation of AMPATH's HIV treatment and prevention work by fully characterizing the cascade of HIV care in population-based settings and identifying gaps and opportunities for

	improvement. The primary objective of this study is to characterize the outcomes of HIV-positive adults who did not engage with HIV care following the catchment-wide HBCT campaign held from Dec 2009-Feb 2011 in Bunyala.
Site(s)	Bunyala Sub-county, could be others as well
Project Period	2/2/2015 – 2/1/2016
Funding Status	Funded – NIH
Direct Award (USD)	$62,432
Update	Approval by IREC for amendment of Participant Information Sheet and justification for use of verbal consent was given on 17th July 2015. An introductory letter was written to the Busia County Health Director in July 2015 to introduce the study and seek permission to go on with the study at Bunyala Sub-County. Permission was granted. Start up meeting to roll out the study was done with the County, Sub-County Health Management teams and PHCT Counselors on 13th July 2015 at Port Victoria Sub-County Hospital.Two CD4 machines and supplies were delivered to the Counselors and Supervisors at Port Victoria to begin study participant tracing. Airtime and transport was given to the Counselors to facilitate tracing of study participants. Another CD4 machine was provided in September 2015 to fast track CD4 testing due to challenges in distances that the Counselors had to cover. A follow up meeting was held on 25 August 2015 at Port Victoria Sub-County Hospital to check progress of the study. A field visit by the study team was done on 29 September 2015 to shadow the Counselors as they trace participants and check on data collection and quality issues. A follow up meeting was then done on 30 September 2015 where recommendations of the findings were shared. A Feedback meeting by Dr. Goodrich and Anthony on 15 October 2015 was also held to discuss data collection, data quality and CD4 testing. Another follow up meeting was held on 3 December 2015. Twelve data collection forms have been received and entered into the database. Some Counselors were deployed to another Sub-County (Butula) due to changes in AMPATHPlus Program hence creating a shortage of Counselors in Bunyala to continue with the study. There were Incomplete forms from the counselors who relocated hence challenge of incomplete data. Five Counselors who remained at Bunyala are now based at the health facilities and have limited time to do community work.
Future Plans	In the next 6 months, we will hire 3 additional Counselors to be dedicated to complete the study. A letter has been written to the Busia County Health Director to facilitate the selection process of the 3 Counselors. A strategy will be put in place for th
Publication(s)	

Study Title	**Prevalence and Impact of Alcohol Use in Patients Enrolling in HIV Care**
Principal Investigator(s)	Kara Wools-Kaloustian, Indiana University Lameck Diero, Moi University
Co-Investigator(s)	Judith Hahn, Jayne Kulzer, Suzanne Goodrich , , Mwebesa Bosco Bwana, Patrick Oyaro, Maurice Aluda

Working Group(s)	Adult Medicine, Behavioral and Social Sciences
Description	Though drug use (including inhalant use) is an increasing problem in East Africa, alcohol remains the most common substance of abuse in our populations. There are limited data on the impact of alcohol use on immune reconstitution, adherence and retention in care within sub-Saharan African HIV- infected populations. Given the high rates of food insecurity and resulting malnutrition, the impact of alcohol use on clinical outcomes in HIV-infected individuals in East Africa may be more profound than that seen in North America. Further exploration of the prevalence of and impact of alcohol use on the outcomes of HIV-infected individuals in sub-Saharan Africa is needed in order to inform HIV-care and treatment programs and assess the need for systems adaptation targeted towards identifying and intervening in individuals with alcohol addiction issues.
Site(s)	Moi Teaching and Referral Hospital
Project Period	6/3/2013 – 7/31/2014
Funding Status	Funded – NIH - National Institute on Drug Abuse (NIDA)
Direct Award (USD)	$36,000
Update	Data analysis is still ongoing and planning to publish in the near future. Submitted an abstract at the University of Nairobi Collaborative Conference, January 2016. Abstract Title: Prevalence of Hazardous alcohol use, characteristics and retention in care of adults newly enrolling in HIV care in the East Africa IeDEA cohort.
Future Plans	Planning to submit an abstract to IAS in July 2016
Publication(s)	

Study Title	**Randomized, Phase II Trial of CHOP vs. Oral Chemotherapy with Concomitant Antiretroviral Therapy in Patients with HIV-associated Lymphoma in Sub-Saharan Africa**
Principal Investigator(s)	Naftali Busakhala, Moi University Evangeline Njiru, Moi Teaching and Referral Hospital
Co-Investigator(s)	
Working Group(s)	Oncology
Description	Patients will be randomized to one of two treatment arms: either standard, intravenously delivered CHOP, delivered over six 3-week cycles or oral chemotherapy delivered over three 6-week cycles. Formal assessment of objective response (complete response [CR]/partial response [PR]/stable disease [SD]) will be performed following cycle 6 for CHOP and following cycle three for the oral regimen, and the patient will then be followed for relapse and survival. Patients found to have progressive disease (PD) at any time will come off study and receive the local standard of care treatment for their disease.
Site(s)	

Project Period	9/1/2015 – 8/31/2018
Funding Status	Funded – NIH
Direct Award (USD)	$75,000
Update	IREC and IRB approvals were granted for the study.
Future Plans	We intend to start recruitment of study participants.
Publication(s)	

Study Title	**REALITY 'Reduction of EArly mortaLITY in HIV-infected adults and children starting antiretroviral therapy'**
Principal Investigator(s)	Kara Wools-Kaloustian, Indiana University Abraham Siika, Moi University
Co-Investigator(s)	Prof. Winstone Nyandiko
Working Group(s)	Adult Medicine
Description	A 2x2x2 open-label factorial multi-centre trial, conducted in 9 centres in 4 countries (Kenya, Malawi, Uganda, Zimbawe). Study participants will be1800 HIV-infected patients including adults, adolescents and children aged 5 years or older with low CD4 counts about to initiate combination antiretroviral therapy (ART). There will be Three methods to reduce early mortality following ART initiation (i) increasing the potency of ART with a 12 week induction period using 4 antiretroviral drugs from 3 classes (ii) augmented prophylaxis against opportunistic/bacterial infections and helminths for 12 weeks (iii) macronutrient intervention using ready-to-use supplementary food for 12 weeks. Each intervention will be compared with standard of care, which in previously untreated patients presenting late with very low CD4 counts is to initiate ART with 3 drugs from 2 classes, together with cotrimoxazole prophylaxis and macronutrient intervention only for those with low BMI (or low weight-for-height/mid-upper arm circumference in children). The primary objective of the trial is to identify effective, safe and acceptable interventions to reduce early mortality (all-cause) in HIV-infected adults, adolescents, and older children (5 years or more) initiating ART.
Site(s)	Moi Teaching and Referral Hospital
Project Period	8/1/2013 – 8/1/2017
Funding Status	Funded – Medical Research Council
Direct Award (USD)	Not Reported
Update	During the reporting period approximately 64 participants exited the study after completing 48 weeks of follow up and were transitioned back to their respective AMPATH clinics where they were before joining the trial.
Future Plans	The site will continue to follow up active participants which is expected to be completed in March 2016.

Publication(s)	Two abstracts resulting from REALITY trial are uploaded below.
Study Title	**SAFI (Stigma in AIDS Family Inventory) Validation Study**
Principal Investigator(s)	Rachel Vreeman, Indiana University Winstone Nyandiko, Moi University
Co-Investigator(s)	Irene Marete, Hai Liu, Violet Naanyu
Working Group(s)	Pediatrics
Description	For families raising HIV-infected children in resource-limited settings, HIV/AIDS-related stigma shapes every aspect of the children's HIV management, from daily adherence to medication to decisions about pediatric HIV disclosure. We do not know the most effective strategies to reduce stigma for HIV-infected children and their families in resource-limited settings nor how to measure its effects on physical, emotional, or social outcomes. We want to learn more about how stigma affects families. As part of the HADITHI study, SAFI aims to develop and test a reliable, valid instrument to measure HIV/AIDS stigma as perceived, enacted, and internalized by Kenyan families with HIV-infected children. The specific aims for the SAFI validation study are to: Aim 1: Identify and modify H/A stigma questionnaire items for maximum reliability and content validity to measure perceived, enacted and internalized H/A stigma among Kenyan families with HIV-infected children. Aim 2: Assess the validity of the measures of perceived, enacted and internalized H/A stigma compared to independent construct measures including pediatric adherence to therapy and children's physical, psychological and social outcomes. Aim 3: Examine whether disclosure of a child's HIV status to the child reduces perceived, enacted, or internalized stigma for families with disclosed children compared to families with non-disclosed children. We thus propose assembling, adapting, and then validating measurement items for assessing the relevant domains of H/A stigma experienced by HIV-infected children and their caregivers in sub-Saharan Africa.
Site(s)	Burnt Forest Sub-District Hospital, Chulaimbo Sub-District Hospital, Khunyangu Sub-District Hospital, Kitale District Hospital, Moi Teaching and Referral Hospital , Mosoriot Rural Health Training Centre, Turbo Health Centre, Webuye District Hospital
Project Period	12/17/2013 – 11/30/2015
Funding Status	Funded – NIH - National Institute of Mental Health (NIMH)
Direct Award (USD)	$567,828
Update	No modifications have been made to the specific aims as stated in the original proposals. We have ongoing Institutional Review Board and local ethics committee approval for the aims. Data were collected through the SAFI study to provide a comprehensive and validated family HIV/AIDS-related stigma measure for assessing HIV/AIDS (H/A) stigma in western Kenya, including perceived, enacted and internalized stigma. A stigma tool was was developed using qualitative data gathered in our initial focus group discussions, as well as an extensive systematic review of pediatric HIV-related stigma measures. The findings of this qualitative analysis were presented as abstracts at the International AIDS

	Society meeting in July 2015, in Vancouver. A manuscript is currently under review. We continue to complete the systematic review compiling items used to measure pediatric and caregiver H/A stigma in other settings. The review is well underway. The stigma measurement tool was incorporated into evaluations with study participants who were enrolled in the ongoing 2-year parent study on disclosure of HIV status to children, called the Helping AMPATH Disclose Information and Talk about HIV Infection (HADITHI Study) to test the reliability and validity of the stigma items in this setting. The H/A stigma measurement tool was administered to all study participants at their final 24-month evaluations that started in May 2015, and ended in October 2015. Data management and preparation of these data for analysis is now underway.
Future Plans	In the next 6 months, we plan to complete the systematic review and submit this manuscript for peer review. Final data collected from the HADITHI cohort of families will be used in analyses to assess the validity of the questionnaire measures of family stigma compared to independent construct measures including medication adherence, and children's clinical, psychological, and social outcomes analysis underway. The data collected through the SAFI revision will enable us to assemble a comprehensive family HIV/AIDS-related stigma measure with maximum reliability and validity for assessing all relevant domains of stigma, including perceived, enacted and internalized stigma, and for use with all members of the family unit.
Publication(s)	McHenry, MS, Nyandiko WM, Scanlon ML, Fischer LJ, McAteer CI, Aluoch J, Naanyu V, Vreeman RC. 'HIV stigma: Perspectives from Kenyan Child Caregivers and Adolescents on living with HIV.' (Under Review -- Journal of the International Association of Providers of AIDS Care.)
Study Title	**Tablet Computer-Based Disclosure Counseling for HIV-Infected Adolescents and their Families: A Pilot Study of Perspectives from Providers**
Principal Investigator(s)	Megan McHenry (maiden: Uhl), Indiana University
Co-Investigator(s)	Vreeman, Rachel Apondi, Edith, Nyandiko, Winstone McAteer, Carole Scanlon, Michael Fischer, Lydia
Working Group(s)	Pediatrics
Description	The objective of this study is to evaluate a pilot project using Google tablet computers for disclosure-related counseling with HIV-infected children and their caregivers in three AMPATH clinics. Google Nexus 7 Android tablets donated to the IU-AMPATH Android Program will be loaded with materials developed as part of the ongoing HADITHI disclosure intervention trial (PIs: Nyandiko and Vreeman) and includes educational materials on HIV and disclosure, counseling-based activities, and video narratives sharing experiences of HIV and disclosure. A plan was in place prior to this proposal of this study to implement the tablet computers in these clinic sites regardless of whether the benefits or hindrances of these devices are measured. This study is focused on understanding how this implementation affects the healthcare provider's disclosure practice or perspectives. The healthcare providers (HCPs) targeted in this study will include all healthcare workers who handle children in the clinics of study. This would include a clinical officer, nurse, counselor, social worker, or other similar position. Our central hypothesis is that AMPATH

	HCPs will find these tablet computers usable and helpful as a tool in disclosure counseling. The long-term goal of this study is to provide evidence to better support adolescents through the disclosure process and increase the number of adolescents who know their HIV status. We plan to accomplish our research objective by achieving the following specific aims: Aim 1: Describe current disclosure practices and barriers to disclosure at three clinics (Bumala, Busia, and Port Victoria) in Western Kenya through interviews with key clinic staff. Aim 2: Compare the prevalence of disclosure at these clinics for HIV-infected adolescents (10 to 14 years) before and after the introduction of the tablet computers using disclosure status data collected through AMRS. Aim 3: Evaluate provider acceptability and usability of the tablet computers for disclosure counseling through surveys, cognitive interviews, and focus group discussions. Sub-aim 3a: Describe any changes in providers' knowledge, comfort, and attitudes regarding disclosure after the introduction of the tablet computers.
Site(s)	Bumala A Health Centre, Bumala B Health Centre, Busia District Hospital, Port Victoria Sub-District Hospital
Project Period	2/23/2015 – 2/1/2016
Funding Status	Unfunded
Direct Award (USD)	None
Update	Over the last six months, we were able to wrap up our monthly surveys (ended in November). We also held semi-structured interviews with the clinical staff using the tablets to understand more about their experiences with the tablet. For analysis, we were able to do qualitative coding for the Phase One interviews. Currently, we're analyzing the survey data and summarizing the final interviews. In total, 21 healthcare providers participated in this study. Most believed caregivers should disclose their children's status to them, with healthcare providers supporting them with encouragement and answering questions the children may have. Major perceived barriers for caregivers were lack of parental HIV knowledge and stigma. Surveys indicated tablets were used during 75% or more clinic encounters by 71% (15/21) of providers initially, and 90% (18/20) at the end of the study. At follow-up, all (n=21) providers reported tablets improved disclosure process at their clinic with both caregivers and children. Providers reported child participation and attendance to group sessions improved and children increasingly attended clinic specifically to watch disclosure videos on the tablet. This effect was sustained throughout the study period. Providers report cases of caregivers opening a dialogue with providers after learning topics from the disclosure videos, such as medication adherence. Additionally, many providers also reviewed the materials outside of work hours to increase their own knowledge and comfort with disclosure. No technical issues were reported during the study period.
Future Plans	We are currently putting together an abstract for the AIDS conference and pediatric workshop that will be held this July. We would love to present this work. We'd also like to write the manuscript and submit it.
Publication(s)	

Study Title	**Taking to the Streets: a Mixed-Methods Systematic Review of the Reasons Children and Youth Become Street-Involved**
Principal Investigator(s)	Lonnie Embleton, Moi University Paula Braitstein, Indiana University
Co-Investigator(s)	Ayuku, David
Working Group(s)	Pediatrics
Description	A wide variety of reasons children take to the streets to work or live have been cited in the literature; yet there lacks any compiled data on this topic by geographic region. It is suspected the dynamics that drive children to the streets are quite diverse and vary between high income and low-to-middle income countries. This systematic review aims to identify similarities and differences internationally for children living or working on the streets. In turn this literature should help identify future research needs as well as policy changes to best suit the needs for the millions of children worldwide before or after they turn to the streets as a way of survival. Overall objective To compile and critically analyze the literature regarding reasons why children and youth, aged <1-24, turn to the streets as a way to survive in order inform public health research and policy, while identifying gaps in knowledge and evaluating the strength of existing evidence. Specific Aim To describe the reasons children and youth become street-involved in both high and low to middle income countries including but not limited to: differences between street connected children in resource-constrained and very-high income settings, children on and of the street and males and females for street-involvement and the age they start living on the streets. Specific Questions: 1. What are the reasons children and youth come to the street both from quantitative and qualitative literature and are the reasons between the two methodologies similar or different? 2. What are the differences in reasons between children on the street versus of the street for coming to the streets? (if able to distinguish based on reporting) 3. What are the differences between children/youth in high versus low/middle income countries? 4. What are the differences between genders?
Site(s)	Moi Teaching and Referral Hospital
Project Period	8/1/2013 – 5/1/2014
Funding Status	Unfunded
Direct Award (USD)	None
Update	This manuscript was submitted to JAMA Pediatrics and accepted for publication.
Future Plans	This project is finished as the manuscript has been accepted.
Publication(s)	Embleton L, Lee H, Gunn J, Ayuku D, Braitstein P: Taking to the streets: a systematic review and meta-analysis of the reasons children and youth become street-involved in developed and developing countries. JAMA Pediatr 2016, In press.

Study Title	**The IU Simon Cancer Center (IUSCC) AMPATH-Oncology Institute (AOI): An Exemplar of Care for the Developing World and a Population-Based Research**

	Environment for IUSCC
Principal Investigator(s)	Tom Inui, Indiana University Naftali Busakhala, Moi University
Co-Investigator(s)	Asirwa, C., Omenge O.
Working Group(s)	Oncology
Description	Kenya, like much of the developing world, is rapidly undergoing an 'epidemiologic transition' from a health scene dominated by infectious diseases to one in which the major causes of death and disability are cancer and other chronic diseases. Under these circumstances, applying science to the management and control of cancer has become as relevant to Kenya as it is in the United States. Similarly, what is learned about the prevention and treatment of cancer in the developing world literally has direct relevance to care in the United States. Cancer care and attendant research in Kenya, whose population is the most genetically diverse in the world, will catalyze the discovery of new genes of importance to our fight against cancer, new genomic predictors of cancer, and new genetic variants that predict response to therapy. Recognizing both emerging threats to population health and potential for advancing care and science, the IU Simon Cancer Center (IUSCC) and the IU-Kenya AMPATH Program have been actively pursuing resources to respond. The focus of the partnership is to develop a sustainable and comprehensive academic clinical care program that will serve the citizens of western Kenya, and in the process, create a unique program of international collaboration for patients with, or at risk for, malignancies. The mission of the AMPATH Oncology Institute (AOI) is to be the premier cancer program in Sub-Saharan Africa, noted for excellence in cancer prevention, treatment and palliative care. AOI activities will directly contribute to advances in cancer care, accelerate discoveries in the biology and treatment of cancer, and provide support for the IU Simon Cancer Center's quest to become a federally designated Comprehensive Care Center. Naftali Busakhala will characterize the awareness, beliefs, attitudes and behaviors of women coming to AMPATH's clinician breast exam screening as volunteers, comparing these beliefs to those of a community-based sample of women. He will also characterize the yield of the AMPATH screening program, the kinds of cancers detected, and the quality of care achievable in Western Kenya at present, with comparison against an international standard of care. Chite Asirwa will similarly characterize the awareness, beliefs, attitudes and behaviors of a community-based sample of women, comparing their beliefs to those of their husbands, often a key influence on behavior in traditional societies. Taken together these two studies should reveal a great deal about how to influence women's behaviors and encourage participation in the only breast cancer screening program available presently - clinician examination. Both of these studies will use the BCAM (Breast Cancer Awareness Measure), a survey tool developed in Great Britain. We have worked carefully through the standard BCAM to sort questions into theoretically sound domains, using the Health Belief Model as a framework. Violet Naanyu will be conducting field testing and focus groups to do a culturally appropriate Kiswahili version.
Site(s)	Mosoriot Rural Health Training Centre, Turbo Health Centre, Kapsakworny
Project Period	10/1/2011 – 7/1/2014
Funding Status	Funded – Walther Cancer Foundation

Direct Award (USD)	$1,200,000
Update	Integrated breast and cervical cancer screening campaign in Webuye was designed and conducted, using key information from earlier phases of the Walther project. The objective of this campaign was to offer an integrated breast and cervical cancer screening package to community members in Webuye. Webuye was selected as the ideal community for this activity, given that this integrated service was already being offered on a routine basis at the clinic. The Walther project therefore collaborated with the Webuye clinic team led by a family physician Dr. Laktabai in order to extend this service to the wider Webuye community and to make optimal use of what had been learned about citizen educational needs, communication preferences, and motivational approaches from the Walther project in its earlier phases. In many respects, this activity was the capstone implementation phase of the Walther project. The following activities that led to the integrated screening campaign in Webuye Community: 1. The Walther Team initiated a series of meetings with Dr. Laktabai and Webuye clinic team. These meetings led to the constitution of a committee that was tasked to plan and facilitate community awareness campaigns as well as the screening events. The committee comprised of Walther representatives, nurses, outreach workers, clinical officers. 2. Following our previous efforts to promote breast cancer screening in western region of Kenya through the Walther project, we learned from our surveys that radio announcements on local radio stations was the most preferred mode of communication regarding upcoming screening events. We therefore organized for a one-hour radio talk show on the 25th and 30th November 2015 with the Nyaota FM (local radio station in Webuye). On 25th November 2015 the talk show was focused on breast cancer. Those present for the talk show were Walther representatives (Dr. Busakhala and Job) and a social worker from the Webuye clinic. The session covered signs and symptoms of breast cancer, importance of early screening, the venues for the integrated breast and cervical cancer screening campaigns, and available care points for treatment. On 30th November 2015 the session focused on cervical cancer. Present were Dr. Omenge and Job representing Wather and a social worker from Webuye. During the session, emphasis was placed on the cause of cervical cancer (HPV), signs and symptoms of cervical cancer, importance of regular screening, the venues for the integrated breast and cervical cancer screening campaigns and available care points for treatment. The screening events occurred different dates. In total we held 5 events in the following sites between 3rd and 10th December. • Khalala - 3rd December 2015. 61 patients screened. • Furoi - 4th December 2015. 63 screened. • Kakimanyi - 8th December 2015. 81 screened. • Misemwa - 9th December 2015. 93 screened. • Chebosi - 10th December 2015. 67 screened. In total we screened 365 community members.

Future Plans	The principal efforts of the next six months will go to disseminating findings from the study. It should be possible to publish six studies in toto. We have applied for and secured approval for a no-added-cost extension of the project's timeline for thi
Publication(s)	Kisuya J, Wachira J, Busakhala N, Naanyu V, Chite AF, Omenge O, Otieno G, Keter A, Mwangi A, Inui T. Impact of an educational intervention on breast cancer knowledge in western Kenya. Health Educ Res 2015; 30: 786-796.
Study Title	**The Role of Faith Leaders Towards Promotion of Home Based HIV Counseling, Testing and Linkage to Treatment Program Around Kisumu, Kenya**
Principal Investigator(s)	Eunice Kamaara, Moi University Amy Nunn, Brown University
Co-Investigator(s)	
Working Group(s)	Behavioral and Social Sciences, Behavioral and Social Sciences
Description	The Nyanza region of Kenya has high rates of HIV infection, even among individuals. The faith community plays an important role in shaping social norms about HIV testing, prevention treatment and retention in care. Local home based HIV testing efforts have been effective in reducing AIDS related morbidity and mortality. This proposed study will explore the role of faith leaders in promoting HIV testing, treatment and linkage to care. In spite of increased national success in HIV testing and treatment, HIV prevalence in Nyanza has increased from 14.9 in 2007 to 15.1 % in 2011. Unfaithfulness combines with ignorance of HIV status to register new infections. The proposed exploratory study will use qualitative interviews and focus group discussions (FGDs) with purposively selected participants to explore the role of faith leaders in promoting home based HIV testing and linkage to care. The aim of the proposed study is to better understand the role that faith leaders could play in promoting and normalizing home based HIV testing, treatment and linkage to care in Nyanza. This will inform and help expand home-based HIV testing program of AMPATH in Nyanza for improved prevention, control and management of HIV and AIDS. The specific objectives include: 1. To explore the beliefs of faith leaders about home-based HIV testing and treatment 2. To investigate barriers to home based HIV testing and treatment 3. To identify opportunities for promotion of home-based HIV testing, treatment and linkage to care. 4. To conduct a pilot study about the role of faith leaders in promoting HIV testing, treatment and linkage to care in home-based HIV testing program of AMPATH in Nyanza.
Site(s)	Mosoriot Rural Health Training Centre, Port Victoria Sub-District Hospital
Project Period	11/1/2014 – 10/30/2015
Funding Status	Funded – Brown University - Center For AIDS Research
Direct Award (USD)	$25,000
Update	Data collection was completed successfully, analysis has been done and final report prepared. However, we considered it prudent to seek a No-Cost Extension (NCE) for another six months to allow for further analysis of data towards paper publications. Our request was approved and so we continue to scrutinize and analyze the data collected.

The following is a summary of findings of the study: 8 Key Findings of the Kisumu Faith Leaders Project

1. Different beliefs and attitudes and different levels of knowledge among faith leaders around Kisumu - some have positive beliefs and high levels but others have negative beliefs and low levels of knowledge - Catholic priests more knowledgeable (and therefore have positive beliefs and attitudes) than indigenous African Christian leaders and Muslim leaders
2. All concur that stigma is still high and HBCT could help address fear of testing. Some faith leaders responsible for the high stigma as they moralize HIV and this is a barrier to testing, seeking care and remaining in care
3. Some faith leaders have promoted positive patients' clinical practices related to HIV/AIDS (have encouraged (some very proactively) faithful to present for HIV testing, to seek treatment and to remain in care; But others continue to stigmatize and therefore discourage testing. Other faith leaders (especially Pentecostal and Africa indigenous churches) promote faith healing and prevent people from seeking care and from following up on care;
4. Key roles that faith leaders can play that were mentioned include: mobilization, creating awareness & education, involvement in testing
5. Barriers to faith leaders' positive involvement include: inadequate knowledge; undesirable beliefs and attitudes; lack of or inadequate theological education
6. Barriers to partnership - Attitude; mixed response by faith leaders/healthcare providers
7. All (faith leaders, healthcare providers, AMPATH & non AMPATH outreach workers) concur that they need to partner with faith leaders in HIV prevention and control and more specifically in HBCT - good practice of that catholic health care facility.
8. All (faith leaders, healthcare providers, AMPATH & non AMPATH outreach workers) concur that there is great unexploited potential for faith leaders to promote HIV prevention - especially HBCT

We derive two main conclusions from the findings of this study: i) Faith leaders play a major dual role in promoting or hindering HBCT. ii) Faith leaders could be involved in mobilization, creating awareness & education for and in actual HBCT; iii) Involving faith leaders in HIV/AIDS programming could significantly reduce the spread of HIV/AIDS. iv) Both faith leaders and health care providers would wish to partner in promoting HBCT One hypothesis and one research question emerge from the findings of this study: i) The level of knowledge of faith leaders around Nyanza is related to their beliefs and attitudes on HIV/AIDS and more specifically on HBCT. ii) What are the specific barriers to partnership between faith leaders and health care providers in prevention of HIV/AIDS? These indicate need for further research.

Future Plans

We plan to do further analysis and to write and submit at least two manuscripts for possible publication in refereed journals.

Publication(s)

Study Title

The Role of PD-1 Pathway and Tissue Microenvironment in HIV-Kaposis Sarcoma and Endemic Kaposis Sarcoma Cohort in Western Kenya

Principal Investigator(s)	Patrick Loehrer, Indiana University Asirwa Chite, Indiana University
Co-Investigator(s)	
Working Group(s)	Oncology
Description	Even before the HIV pandemic, equatorial Africa had among of the highest KS incidences in the world. In this area, 'endemic KS' (the term given to the HIV-unassociated form of KS) was manifested primarily as indolent localized disease in men and represented 4 to 10% of adult cancers. Although sub-Saharan Africa was already a hotbed for KS, the clinical manifestations and impact of the disease dramatically changed with the onset of the HIV epidemic in the 1980's when the incidence of KS and other HIV associated malignancies exploded. The advent of anti-retroviral therapy (ART) improved prognosis of HIV-associated KS, but survival remains unacceptably poor in low to middle income countries(LMIC). A recent Cochrane review on late stage KS showed that in 6 studies in which chemotherapy was added to HAART, no survival benefit was seen above that of ART therapy alone nor amongst the different types of chemotherapy. Endemic KS, while less likely to progress to visceral disease, leaves patients with profound functional disabilities often requiring treatment. Because this population is HIV negative, ART is not used. Research that leads to a better understanding of the biology of KS must be explored to provide alternative therapies to ART and standard chemotherapy. Based upon preliminary data from UCSF which supports the role of PD1 pathway and tissue micro-environment in KS, we propose to conduct a prospective analysis on two patient cohorts. Cohort 1: KS in HIV-infected subjects who have failed at least one KS-directed chemotherapeutic intervention; and Cohort 2: KS in HIV-negative patients (i.e. endemic KS) who have failed at least one KS-directed chemotherapeutic intervention.
Site(s)	
Project Period	10/1/2015 – 9/30/2018
Funding Status	Funded – NIH
Direct Award (USD)	$199,453
Update	Finalizing on IREC approvals in readiness to start the recruitment process.
Future Plans	We intend to start the recruitment of study participants into the study.
Publication(s)	

Study Title	**Validation of Spirometry Prediction Equations in Western Kenya**
Principal Investigator(s)	Peter Kussin, Duke University David Lagat, Moi University
Co-Investigator(s)	
Working Group(s)	Adult Medicine
Description	This is a cross-sectional study of healthy adult Kenyans living in and around Eldoret. The

	purpose of the study is to validate a set of spirometry prediction equations for the local population. Adults age 18 years and older who are HIV negative, with no history of chronic cardiac or pulmonary disease and with <5 pack year smoking history are eligible for participation. Specific Aim: Determine pulmonary function reference equations that can accurately predict normal spirometric values in a Kenyan population. • 1A: Statistically compare phenotypically normal Kenyan spirometric profiles with values obtained from published pulmonary function reference equations to determine the most accurate equation set. • 1B: If published reference equations do not accurately reflect normal Kenyan lung function profiles, develop new reference equations.
Site(s)	
Project Period	1/1/2015 – 3/1/2016
Funding Status	Unfunded
Direct Award (USD)	None
Update	In the past 6 months we have completed data collection and are finalizing data analysis. An abstract of a portion of this work has been submitted to the American Thoracic Society for consideration in their annual conference. In it, we were able to create novel spirometry prediction equations for healthy Kenyans.
Future Plans	In the next 6 months we plan to finalize our data analysis and submit a manuscript for publication of our results.
Publication(s)	

Study Title	**Vincristine Optimization in Kenyan Children with Cancer**
Principal Investigator(s)	Jodi Skiles, Indiana University - Purdue University in Indianapolis (IUPUI) Festus Njuguna, Moi University
Co-Investigator(s)	G Olbara, MBBS S Langat J Musimbi T Vik, MD S Mostert, MD,PhD GJL Kaspers,MD,PhD N Busakhala F Asirwa P Loehrer J Renbarger, MD1
Working Group(s)	Oncology, Pediatrics
Description	In resource-limited settings, access to chemotherapeutic agents is confined to a few therapies. Vincristine (VCR) is a mainstay in such settings due to its low cost and lack of myelosuppression, however, little is known regarding its disposition and true optimal dosing, especially in the pediatric population. Negative clinical outcomes, such as serious side effects due to drug overdosing or lack of efficacy due to sub-therapeutic dosing, may result. VCR is associated with highly variable cumulative dose-dependent peripheral neuropathy (VIPN). While pediatric oncology patients in the U.S. who receive VCR experience significant VIPN and excellent disease outcomes, Kenyan children with cancer who receive VCR experience little to no VIPN, highlighting the opportunity for optimization of VCR in this population. While there are clearly multiple factors that contribute to poor disease outcomes in Kenya, suboptimal dosing of VCR is the piece we aim to address in this study. The biological basis for the minimal VIPN we have observed in Kenyan children is uncertain but includes such things as genetic differences in VCR

	pharmacologic pathways as well as genetic variability in susceptibility to neuropathy. This gap in knowledge provides a clear opportunity to optimize use of this medication in Kenyan children with cancer and evaluate genetic associations with VIPN in order to personalize this medication for individual children once VCR dosing is augmented. Preliminary data has shown that Kenyan children with cancer (n=100) experience minimal VIPN. Despite the negligible neuropathy observed, subclinical VIPN can be detected using a very detailed, non-invasive assessment tool that we developed for detecting even very minor toxicity. Utilization of this tool in Kenyan children allowed us to identify an association between VIPN severity, CYP3A5 genetic polymorphisms, and an individual's ability to metabolize VCR, such that children with an allelic variant of CYP3A5 that results in a high VCR metabolizer phenotype experience less VIPN. Variability in VCR response and toxicity may be particularly significant within Africa, where human genetic variability is greatest, and where ~90% of Kenyans patients were fast VCR metabolizers. In one recent study, pharmacokinetic (PK) variability was linked to overall survival in children with acute lymphoblastic leukemia (ALL), such that children with faster VCR clearance had a greater chance of relapse. If VCR disposition, response, and neurotoxicity are linked, it may be possible to optimize dosing based on easily obtained knowledge of genetic polymorphisms responsible for disposition and subsequent neurotoxicity variability. This research is of particular importance in Africa, where VCR is one of few available anticancer drugs and is used in the treatment of over half of all cancer patients. Furthermore, given that most Kenyan children are CYP3A5 high expressers and thus VCR fast metabolizers, they may tolerate and benefit from higher doses of vincristine than are conventionally used in the U.S. and Africa. This proposed prospective study will be conducted in two parts, which will both enroll pediatric patients age 1-18 years with newly diagnosed acute lymphoblastic leukemia or nephroblastoma. Part I will be a VCR dose escalation phase (in combination with routine multi-agent chemotherapy) to determine the maximum tolerated dose of VCR in a population of Kenyan children with cancer. Part II will be utilize the maximum tolerated dose of vincristine determined from Part I in place of the standard dose of VCR in combination with routine multi-agent chemotherapeutic protocols. DNA and pharmacokinetic samples will be collected on all subjects to allow determination of biomarkers of development of VIPN. Subjects will be monitored closely for development of toxicity with laboratory assessments as well as detailed neuropathy assessments. The specific aims (SA) for this proposal are as follows: SA1: To determine the maximum tolerated dose (MTD) of VCR administered in conjunction with conventional chemotherapy in cohorts of Kenyan children with ALL or Wilms tumor receiving VCR as part of their anti-cancer treatment. SA2: To validate our pilot study findings and to further evaluate the association between common or functional variants in genes in the vinca alkaloid pharmacologic pathway and across the human genome with VCR PK, VIPN, and disease response in the same populations as SA1. SA3: To further develop our pharmacologic prediction model of VIPN describing associations between pharmacogenetic, pharmacokinetic, and clinical biomarkers and carefully characterized VIPN in the same population of patients as SA1. SA4: To evaluate the validity and reliability of several chemotherapy-induced peripheral neuropathy (CIPN) measurement approaches when used to quantify neuropathy and associated neuropathic pain in Kenyan children receiving vincristine.
Site(s)	
Project Period	2/3/2014 – 1/31/2018

Funding Status	Funded – NIH - National Cancer Institute (NCI), NIH - Eunice Kennedy Shriver National Institute of Child Health and Human Development (NICHD)
Direct Award (USD)	$103,254
Update	This study commenced in February 2014 and 31 subjects have been enrolled to date and we are currently recruiting subjects for Phase I, Dose level 2. In Fall of 2015, it was noted that there was an increased rate of death compared to historical controls in Dose Level 3 (separate prompt report submitted to both IU IRB and Moi IREC). Because of this, Dose level 3 was closed and we are in the final stages of enrolling subjects on Dose Level 2 in accordance with the protocol. Recruitment continues to be slower than anticipated due to issues with access to chemotherapeutic agents. Ideally, we would like to complete recruitment for Phase I of this study within the next 1 month.
Future Plans	Completion of enrollment to Phase I of this study in the next 1 month with hopeful submission of a manuscript in 6-12 months. It is unlikely that Phase II of this study will be completed due to ongoing issues with abandonment of care in this population making it difficult to draw any meaningful conclusions about whether the dose escalation schema has any impact on outcomes/survival.
Publication(s)	

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