Incentive Grant Project Updates for the Annual Meeting

2019 Awardees
Neonatal Hospital Based Mortality Surveillance Study

Mauricio T. Caballero, MD
Argentina
Fundacion INFANT
MITS NeoSur - Argentina

• To determine the burden of infectious disease related cause of deaths in neonates hospitalized at neonatal intensive care units (NICU), in our Public Hospitals Network.

• Neonates and infants less than 3 months of age, who die at NICU from the study Network.

• 4/5 sites totally trained. 2/5 sites enrolling despite COVID 19 since mid March.

• 60-70% of parents acceptance.

Number of MITS Conducted: 10
MITS at CHUB

Djibril Mbarushimana MD, MMed;
Elisee Hategekimana MD, MMed;
Rwanda
CHUB
MI TS at CHUB

• **Key objectives**
  • Increase reporting of in hospital death,
  • Classify causes of death accurately,
  • Identify gaps for strengthening of anatomical pathology laboratory,
  • Contribute to initiation of medical autopsy rotation site for pathology residents and medical students

• **Study population**
  • 100 cases from demised patients above 27 days of age, from multiple departments at University Teaching Hospital of Butare, and Kabutare district Hospital

• **Current project update/status**
  • 63 cases enrolled
  • Extension and renovation of mortuary at 60%
  • Six cases sampled for covid-19
  • Discussion for COVID testing locally in progress

Number of MITS Conducted: 63
Minimally Invasive Tissue Sampling (MITS) implementation at Kigali University Teaching Hospital (CHUK)

Dr NTAKI RUTI MANA Gervais, Dr NDAYI SABA Marie Claire, Dr RUGWI ZANGOGA Belson, Dr MUSONI Emile, Dr MANIRAKIZA Felix.

RWANDA

KIGALI UNIVERSITY TEACHING HOSPITAL (CHUK)
MITS at CHUK
OBJECTIVES and UPDATES

Population: Any age group from any health facility in Rwanda.

To introduce MITS in the existing cause of death investigation services
To train the project team to perform MITS
To raise awareness of MITS in cause of death investigation in Rwandan community
To evaluate the attitudes and perception of healthcare professionals and relatives towards MITS

Active
About to hit the target (100 cases)
Covid-test on MITS cases: 33 cases as of now
Qualitative data to be completed mid-September 2020
Program final report end-September/2020
Determining Efficiently the Cause of Death among Adults and Generating Mortality Evidence at MITS Alliance Unit Nepal

Nuwadatta Subedi, Suraj Bhattarai, Sunita Ranabhat, Madan Prasad Baral, Binita Koirala Sharma

Nepal

Gandaki Medical College, Pokhara Academy of Health Sciences, Damauli Hospital
Key objectives:
- To identify the cause of death using MITS among adults in Gandaki Province of Nepal

Study population: Adults (more than 18 years), deaths with natural causes

Current project update/status:
- Community sensitization: Ongoing
- Case enrollment: Active, Completed: 65, Target sample size: 100
- DeCoDe completed: 25
- Presentations in different forums to disseminate the scope of MITS, primary findings and accomplishments of the research

Number of MITS Conducted: 65
Effectiveness of MITS in Establishing the Cause of Death among patients after short-term Hospitalizations at a Tertiary Hospital in Tanzania (EMECaD)

A. Mremi, P. Amsi, A. Pallangyo, G. Nkya, E. Shao, EFB. Msoka, M. Nyindo, BT. Mmbaga, C. Costales, R. Mbwasi, M. Rubach

TANZANIA

Kilimanjaro Christian Medical Centre (KCMC)
Background

- Patients who die shortly after hospital admission are unlikely to be thoroughly investigated and the causes of death in these scenario may not be correctly documented.

- Most health facilities in LMICs lack adequate qualified personnel and infrastructure needed to carry out full diagnostic autopsies (FDA) which utilize histopathology and microbiology methods, and are considered to be the gold standard in determining the cause of death.

- MITS is an alternative to FDA that consists of percutaneous collection of internal organs for histology and microbiology, with similar potential for accurate cause of death determination.

Key objectives

1. To assess the role of MITS in determining the cause of death among patients following short-term (≤ 72 hours) hospitalizations at a tertiary hospital in Tanzania.

2. To assess the accuracy of ante-mortem clinical diagnosis compared to MITS in determining the cause of death.

3. To assess the perceptions, knowledge and attitude of healthcare providers, families of the decedents, religious and government leaders regarding MITS to identify the cause of death.

- **Study population:** Adult and pediatric decedents.
**Preliminary results highlights**
- Infectious diseases:
  - Bacterial pneumonia,
  - Sepsis,
  - HIV/AIDS related complications, etc.
- Malignancies
- Others terminal illness that were not established during life

**Lesson learnt**
- MITS is an essential and useful tool for assessing the quality of care,
- Improves medical education
- Highlights diseases that represent “diagnostic challenges”
- Feasible in limited-resources settings
- Pathologists and other physicians caring the patients are gaining more confidence in MITS
- High acceptance rates
- Most people including health providers are not aware about MITS

<table>
<thead>
<tr>
<th>Challenges</th>
<th>Possible solutions</th>
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<tbody>
<tr>
<td>1</td>
<td>Delay due to custom clearance regulations</td>
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<td>2</td>
<td>Delays in procurement of supplies due to lockdowns</td>
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<td>3</td>
<td>An order from MoH to suspend research implementation during the COVID-19 outbreak</td>
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<td>4</td>
<td>Not permitted yet to analyze COVID-19 samples</td>
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<td>5</td>
<td>Anxiety amongst study team members because of COVID-19</td>
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<tr>
<td>6</td>
<td>Lack of clinical data in some cases</td>
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Evaluation of Minimally invasive tissue sampling for identification of cause of death in neonates

Rahell Hailu (Pathology) (AAU), Lulu Muhe (Pediatrics and Child Heath) (AAU) Yonas B/Tsion (Pathology) (AAU), Tewodros Yalew (Pathology) (AAU), Asrat Demtse (Neonatology)(AAU)
MITS in Neonates, Ethiopia
Objectives & Study population (n=50)

- Evaluate the diagnostic capability of MITS in identification of cause of death in neonates.
- Identify major diagnostic categories that could be made on MITS samples
- Assess sampling yield (quantity and quality)
- Test the accuracy of imaging guided samples from the brain and intestine
- Assess the sampling yield of samples collected by non-pathologists

Inclusion criteria
- Neonates with gestational ages of more than or equal to 28 weeks and post natal age of less than 28 days. Three methods, i.e., ultrasound, LMP and physical examination using the new Ballard Score will be used to estimate gestational age
- Consent is given for study participation

Exclusion criteria
- Neonates that were admitted before the post natal age of 28 but died in NICU after the age of 28 days
- Stillborn
- Bodies submitted 48hours after death
MITS in Neonates, Ethiopia
Study site & Progress

• Study is conducted at Tikur Anbessa Specialized hospital (TASH) with the main campus of the College of health sciences including:
  • The Pathology department and the Pediatrics Departments
  • Has over 700 beds including the NICU with close to 40 beds

• Started the preparatory phases in May 2019 (document development, protocol, forms, getting the team together, facilities etc.)
• IRB approval was obtained from Addis Ababa university Dec 24, 2019
• Received our MITS kit shipment near the end of February 2020
• Trained Research nurses
MITS in Neonates, Ethiopia Project progress

- Started enrolling cases in March 2020
- Held the first session of case review (10 cases reviewed) and cause of death panel on 27 August 2020.

Total deaths at NICU since the start: 130
Consent requested: 78
- Consent Denied: 58
- Consent Given: 20
Validating a MITS Procedure for obtaining reliable mortality statistics to assign cause of infant death: Experience from Kazakhstan (KazCoDe Study)

Matthew Tanko, Alpamys Issanov, Milan Terzic, Ibraimov Bakytkaly, Azliyati Azizan, Yelena Marchenko, Dimitri Poddighe
Kazakhstan
Nazarbayev University School of Medicine/University Medical Center
KazCoDe Study

• **Key objectives:**
  - To determine the reliability of MITS procedure for adequate tissue sampling in determining cause of infant death vis-à-vis complete diagnostic autopsy (CDA).
  - To determine the sensitivity and specificity of MITS samples in accurately assigning cause of death vis-à-vis the gold standard-CDA.

• **Study population:**
  - 23 weeks (still births) to 11 months (infants): 50

• **Current project update/status:**
  - Training of 4 MITS specialists completed since October last year (facilitated by MITS Alliance Secretariat)
  - Further in-house training and re-training conducted in Kazakhstan
  - MITS kits received
  - MITS site assessment conducted virtually and adjudged more than adequate by MITS experts
  - Consumables and reagents just received last month (was stalled due to COVID-19 pandemic)
  - Enrolment of MITS patients yet to start:
    - Was stalled due strict quarantine measures imposed by the government.
    - Research labs were closed to researchers
    - Some University Medical Center hospitals and their testing labs were re-purposed to serve COVID-19 cases and therefore imposing restrictions on research activities.
  - Partial relaxation of quarantine measures now.
  - We hope to start enrolling patients next month, if not earlier.
MI TS at MAHAN: First level Facility and Community

Grantee/Investigator Name(s): Dr. Ashish Satav (PI)
Country: India
Institution(s): MAHAN trust
**MITS at MAHAN: First level Facility and Community**

- **Key objectives:** To identify more accurately than VA, the causes of stillbirths, neonatal deaths and deaths in (1-60 months age group) in 4 Govt. and 1 MAHAN hospitals & in community (93 villages with population of 101792) of Melghat, Central India over one year.

- **Study population:** 50-100 children of 0-5 years age with a focus on still births, neonatal deaths and deaths of pneumonia or CNS infection: the main causes of death (IMR>70/1000 live births).

- **Current project update/status:** Conducted 4 MITS in Ambulance. Approached 8 cases, got consent from 50% cases: success rate. Govt. of Maharashtra Ethical committee approval for hospital MITS awaited (final meeting done). COVID lockdown still going on, waiting approval from district administration. So no MITS at present.
Validity of Minimally Invasive Tissue Sampling in Determining the Cause of Death in Stillbirths and Neonates due to Neurological Insults in the Brain: A Study in a Tertiary Care Center in India

Mary Mathew, Leslie Lewis, Shalini Nayak, Teddy Andrews

India

Kasturba Medical College, MAHE, Manipal, Karnataka
Key Objectives: *Etiology & patterns of brain injury*

Study population: *Neonates & Stillbirths*

Current project update/status: *Ongoing*

**TERM neonate - Candidal Sepsis**
- Microglial nodules
- Reactive astrocytes
- Oligodendrocytes

**PRETERM neonate - Acinetobacter sepsis**
- Anoxic neurons
- Reactive Astrocytes
- Preoligodendrocytes
Minimally Invasive Tissue Sampling for Tuberculous Meningitis in Zambia (MITZ study)

Omar K. Siddiqi MD MPH
Zambia
University of Zambia School of Medicine
MITZ

• **Objectives** - Establish the true prevalence of tuberculous meningitis (TBM) among hospitalized Zambia adults
• **Study population** - Adult (> 18 yo) inpatients with meningitis at the University Teaching Hospital in Lusaka, Zambia
• **Current project update/status** - Active recruitment currently underway after pause from March - August due to COVID.

Number of MITS Conducted: 1
Zambia Pertussis/RSV Infant Mortality Estimation Study (ZPRI ME)-MITS
Dr. Chris Gill, Boston University School of Public Health- ZPRI ME PI
Dr. Lawrence Mwananyanda, Right to Care-Zambia- ZPRI ME Co-PI
Lusaka, ZAMBIA
University Teaching Hospital
ZPRIME-MITS

- **Key objectives**
  - To assess the feasibility and acceptability of MITS sampling in this population
  - To use MITS to calibrate our existing process for adjudicating infant deaths as 'Respiratory' vs. 'Non-Respiratory'
  - To use MITS to establish the rate of PCR concordance between upper and lower respiratory tract RSV infections

- **Study population**
  - Deceased infants aged 4d-6 months who are “Brought in Dead” (BID).
    - BID (definition): Deaths occurring at home, en route to the hospital, or prior to admission and facility deaths where time in the hospital is <48 hours

- **Current project update/status**
  - Actively enrolling thru October 2020
  - Next steps: PCR for respiratory pathogens (FTD-33)
Incentive Grant Project Updates for the Annual Meeting

2020 Awardees
Community-based infant RSV mortality study in Karachi, Pakistan: MITS

Dr Abdul Momin Kazi
Pakistan
Aga Khan University
AKU RSV-MITS

- **Key objectives**
  - Assessing burden and prevalence of RSV in community-based infant mortality
    - Microbiology: PCR for (1) nasopharyngeal swab (2) lung tissue
    - Histopathology: Lung morphology
  - Cause of death consultation

- **Study population**
  - **150** deceased infants, between 0 days and 6 months of age, born/died within 4 catchment areas

- **Current project update/status**
  - Formative phase ongoing
  - Pilot surveillance/specimen collection training in September followed by sample collection

Number of MITS Conducted: N/A
Causes of Childhood and Perinatal Deaths by MITS in Central Nigeria (Nigeria_Obaro)

Prof. Stephen Obaro
Nigeria
University of Nebraska Medical Center/University of Abuja Teaching Hospital, Gwagwalada, Nigeria
Nigeria_Obaro

- **Key objectives**
  1. Administer MITS in the investigation of the causes of deaths in the following groups
     a. Stillbirths
     b. Neonatal deaths
     c. Maternal/pregnancy-associated deaths
  2. Administer MITS in the investigation of deaths in children aged 1mo-18years
  3. Explore socio-behavioral factors that are associated with acceptance or refusal of MITS

- **Study Population**
  - Pregnancy and peuperium
  - Stillbirths
  - Neonatal deaths
  - Children up till age 18years

- **Current project update/status**
  - Local IRB secured IRB
  - Support staff identified
  - Proposed start date - October 2020
Determination of Causes of Maternal and Perinatal Mortality Using Minimally Invasive Tissue Sampling (MITS) – a Feasibility Study

Departments of Anatomical Pathology, Medical Microbiology, Pediatrics and Obstetrics and Gynecology

University of Benin Teaching Hospital, Benin City, Nigeria
Maternal and Perinatal Mortality, Benin City, Nigeria

• **Key objective**
  - To employ the techniques of MITS in determining the causes of maternal and perinatal mortality in our setting

• **Study population**
  - 50 cases of maternal and perinatal mortality over a one-year period

• **Current project status**
  - An MITS-naïve centre awaiting training, having recently received shipments of both training and project kits

Number of MITS Conducted: 0