

# Biomedical Equipment Engineering Training: *Building Capacity to Mitigate “Junk for Jesus” in Mission Hospitals*



**LLU Global Healthcare Conference**

# Introduction “AHI”



# Presentation Objectives

- » To provide awareness of the benefits of biomedical equipment training for capacity development
- » To highlight the importance of partnership among stakeholders for capacity development.

# Junk for Jesus?



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# Junk?



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# Background & Problem Statement

- » Significant shortage of skilled technicians
- » Saturation of low-standard equipment in the market
- » Poor maintenance culture
- » High cost of outsourcing and contracting repairs and maintenance
- » The “Junk for Jesus” situation

# AHI Initiative

AHI-Global sponsors a cohort of **15** trainees from selected institutions in Africa, for the **Diploma in Biomedical Engineering Technology (BMET)** at **Valley View University** during the **Summers of 2019 to 2021**

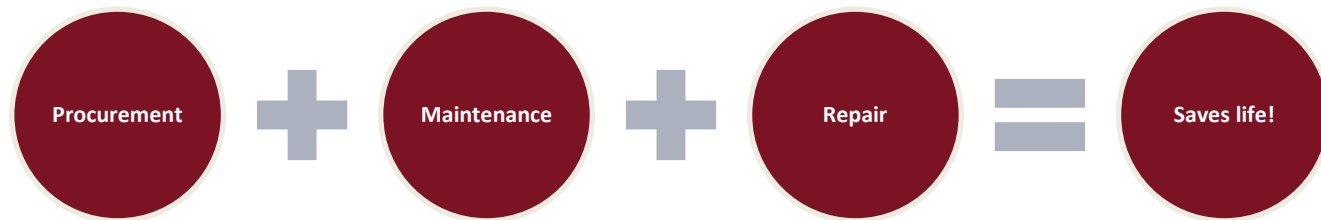


**Front L-R:** Isaac, *Nigeria*; Watson, *Liberia*; Hope, *Malawi*; Maxwell, *Ghana*; Nicolas, *Chad*; Peter, *Malawi*; Dickson, *Malawi*; Emmanuel, *Ghana*; Boemo, *Botswana*; Victor, *Sierra Leone*; Michel, *Madagascar*;

**Back L-R:** Nascimento, *Angola*; Solomon, *Nigeria*; Emmanuel- Host Instructor, *Ghana*; Jacob- Assistant Instructor, *Ghana*; Samuel, *Kenya*; Dennis, *Zambia*;

# A Vision for the BMET Program

To train the cohort of students on basic biomedical equipment procurement, maintenance, and repair





# The Partnership (4 Parties)



**Valley View University (VVU)**

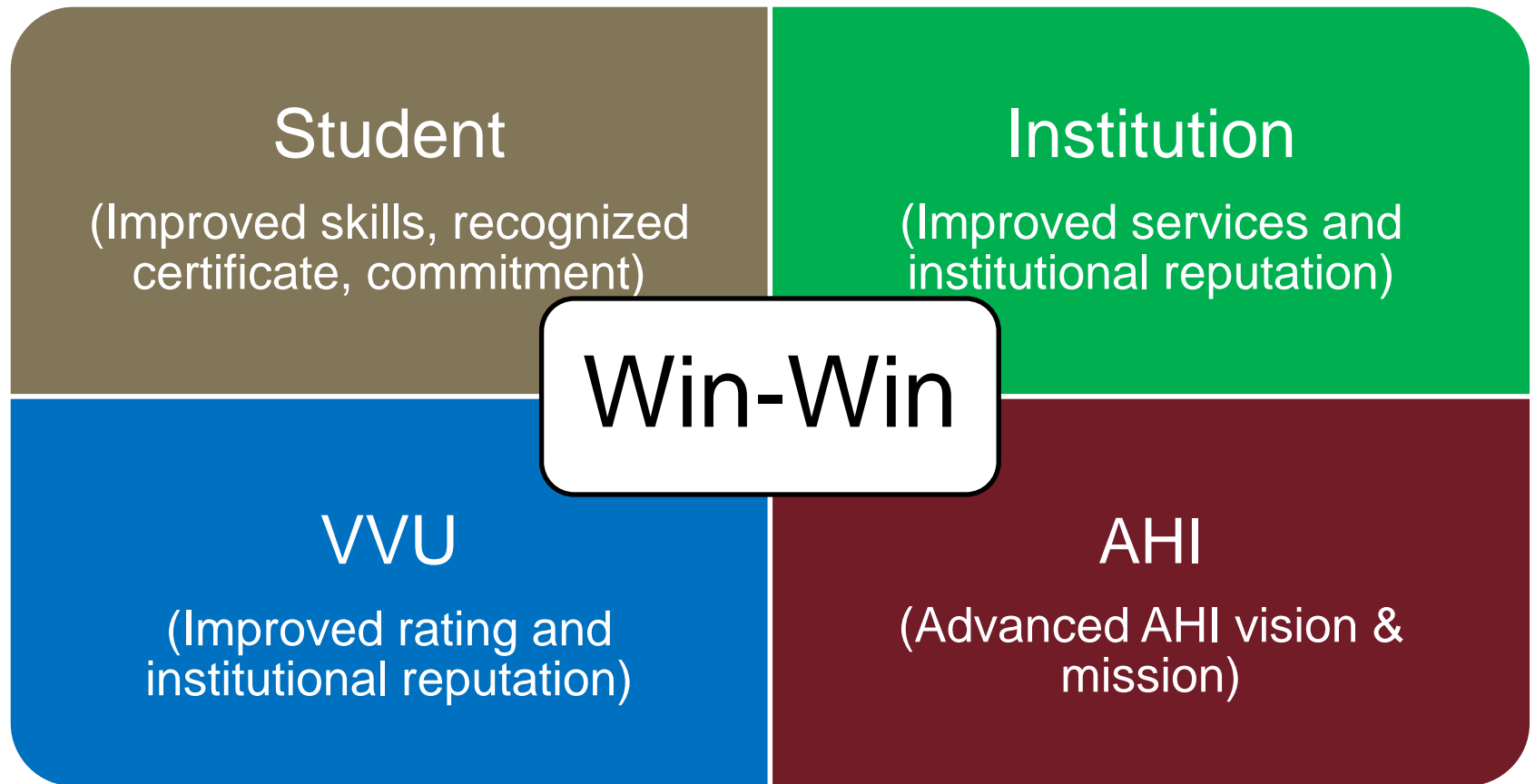


**15 Selected Institutions**



# The Partnership (4 Parties)

Perceived drives for Success & Sustainability



VVU Hospitals, Ghana



AHI, USA



SMA, Madagascar



Huambo, Angola



Bere, Chad



Malamulo, Malawi



Mwami, Zambia



Waterloo, Sierra Leone



SCGC Facilities, Ghana



Blantyre, Malawi



Kendu, Kenya



Lilongwe, Malawi



Cooper, Liberia



Ile-Ife, Nigeria



AHI, USA



VVU, Ghana



Jengre, Nigeria



VVU, Ghana



**“How are you doing?”**  
**AHI Zoom Meeting with**  
**BMET Program Cohort**  
**Tuesday, July 21, 2020**



# Maxwell- VVU Hospitals, Ghana



Autoclave Machine



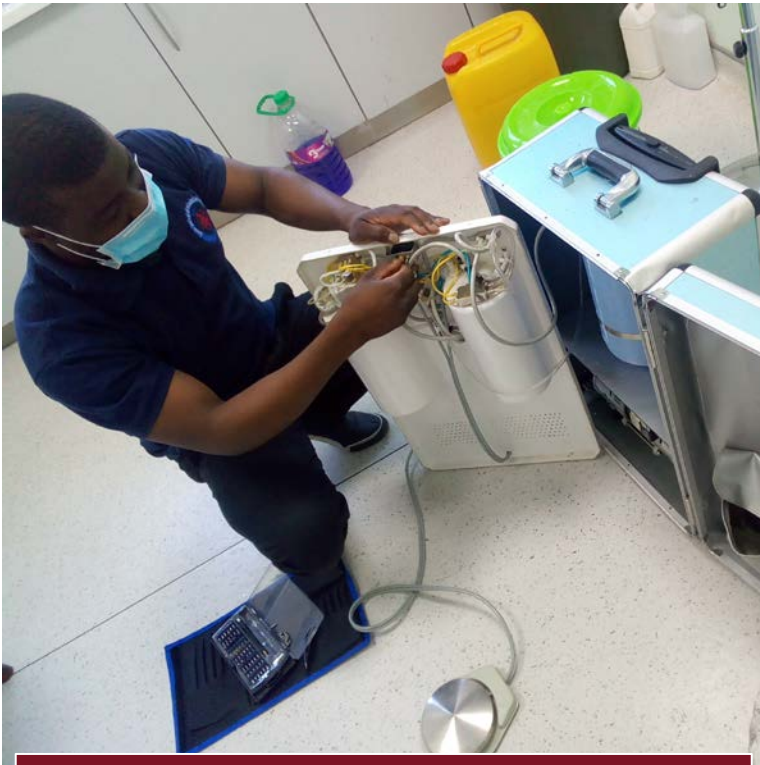
Lab Equipment



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*“Routine maintenance work on equipment”*

# Dickson- Blantyre, Malawi



Dental Mobile Suction Machine



Oxygen Concentrator



Fixed an incubator to save the life of a baby in critical condition



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# Hopekings- Malamulo, Malawi



Oxygen Concentrator

*“Low oxygen output and circuit board issues fixed”*



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# Peter- Lilongwe, Malawi



Lab Incubator



Anesthesia Machine



*“Ventilator for anesthesia machine...and temperature control issue for incubator fixed ”*



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# Isaac- Ile-Ife, Nigeria



Autoclave Machine



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*“Water pump of autoclave machine fixed”*



# Emmanuel- \*SCGC Facilities, Ghana

Dental Chair



Anesthesia Machine



\*South Central Ghana Conference Hospitals  
Hart, Nobewam & Konkoma



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*“Anesthesia Machine- Leakages in breathing circuit and monitor not working. Both fixed.  
...routine maintenance work on dental chair”*

# Watson- Cooper, Liberia



Hematocrit- Lab Machine



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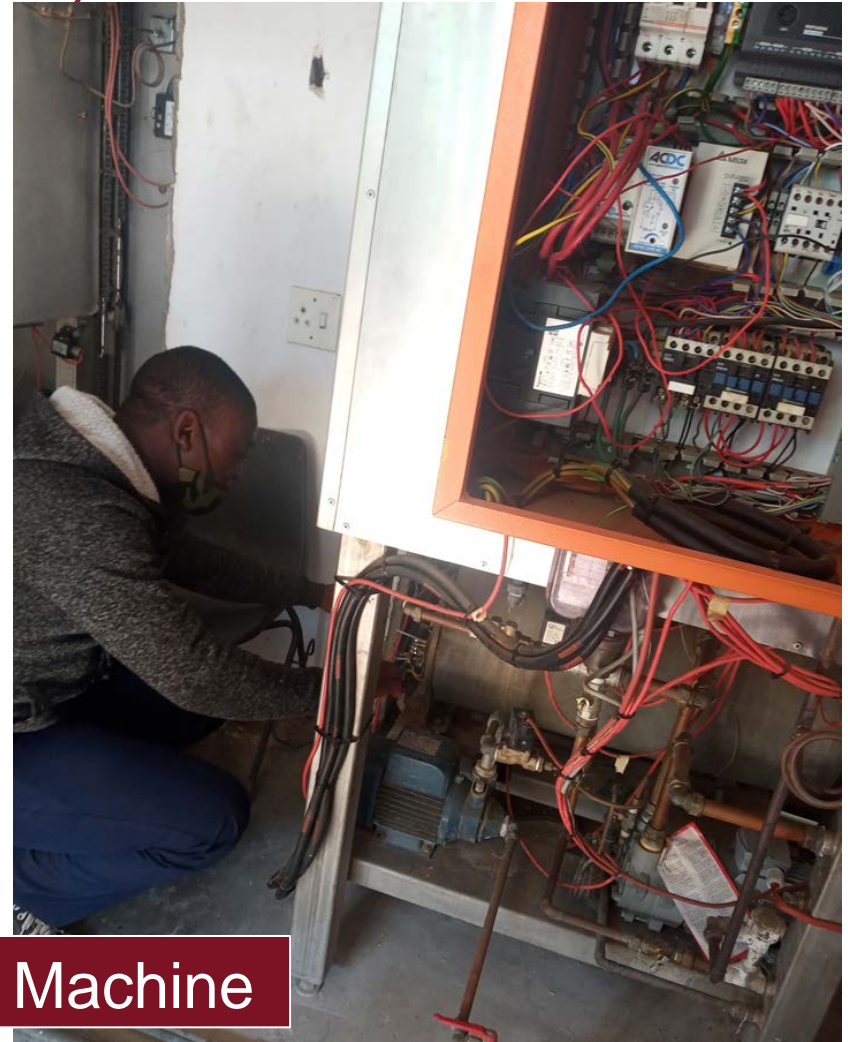
*“Lab machine had brush issues  
and was fixed”*



# Boemo- Kanye, Botswana



Autoclave Machine



*"Machine couldn't remove moisture. It is now fixed"*



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# Samuel- Kendu, Kenya



Analog Xray Machine



Autoclave Machine

*“Repaired xray and autoclave equipment”*



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# Solomon- Jengre, Nigeria

Xray Machine

Microscope

Oxygen Cylinder

*“Routine maintenance and repairs on  
Xray, lab and OR equipment”*



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# Dennis- Mwami, Zambia



Anesthesia Machine

*“Fixed gas leakage on anesthesia machine...As a government paid-staff, I also provide biomed engineering for the Province with large hospitals in 13 districts”*



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# Victor (Class Rep)- Waterloo, Sierra Leone

## Blood Bank



# The Platform




## Case #1- Blantyre

Boost 6:23 PM

BMET 2019 GHANA  
AHI- Marcus, BMET- Solomon Jengre, Chat...

Malawi- Hope BMET-BAH



**Autoclave**

+254 712 930599 ~Samuel  
Excellent brother 1:23 AM

Malawi- Hope BMET-BAH  
Work done...  
It was an air lock that caused the problem.....  
With my colleague  
\*We switched off the autoclave  
\*We drained water from the water chamber  
\*open valves and release pressure from the chamber

Then we filled the water chamber and restarted the cycle and everything gone well and sterilisation is fully completed.  
Have a blessed day 2:17 AM

## Case #2- Kendu

Boost 6:21 PM


BMET 2019 GHANA  
AHI- Marcus, BMET- Solomon Jengre, Chat...

GRT JOB 3:05 AM

+233 24 104 3228 ~Ruther S.Watson  
Great job brother. 3:37 AM

+254 712 930599 ~Samuel  
Welldone 3:37 AM


+254 712 930599 ~Samuel



**Water distiller**

My hospitals water distiller couldn't initially perfectly work well. Because the heating elements had become faulty. The new heating elements were fixed and now the machine is properly working. Good experience. 3:53 AM

Ghana- Jacob VVU



4:01 AM

## Case #3- Lilongwe


Boost 9:10 AM

BMET 2019 GHANA  
AHI- Marcus, BMET- Solomon Jengre, Chat...

We have this problem at work. The ventilator is not working, the anesthetist has to use the bag throughout the procedure. Any ideas? 1:10 AM

That error code is for an electronic failure according to the maintenance manual I downloaded. But the challenge is to identify where the problem exactly is. 1:11 AM

+265 995 39 47 28 ~Peter



**Ventilator**

1:23 AM

# Partnership in Curriculum Development



**\$7,500.00**

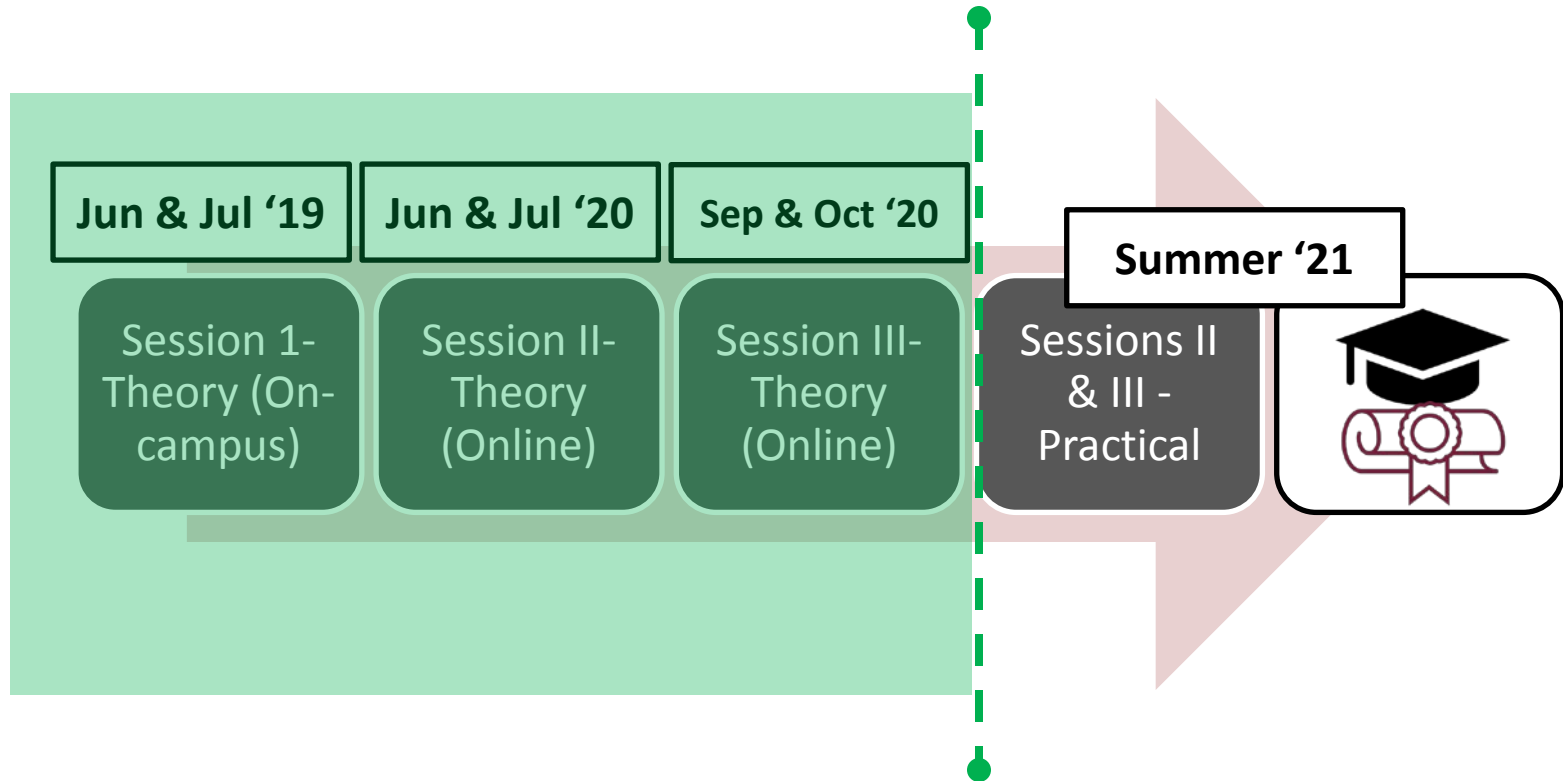


**KENYATTA  
UNIVERSITY**

**\$7,500.00**

A part of the \$7,500.00 grant received by VVU will be used for the purchase of basic tools for the students

# Timeline



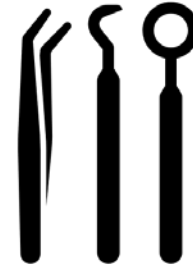
# Practical Session for Next Year



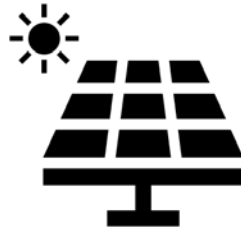
**Laboratory**



**Radiology**



**Dentistry**



**Solar System**



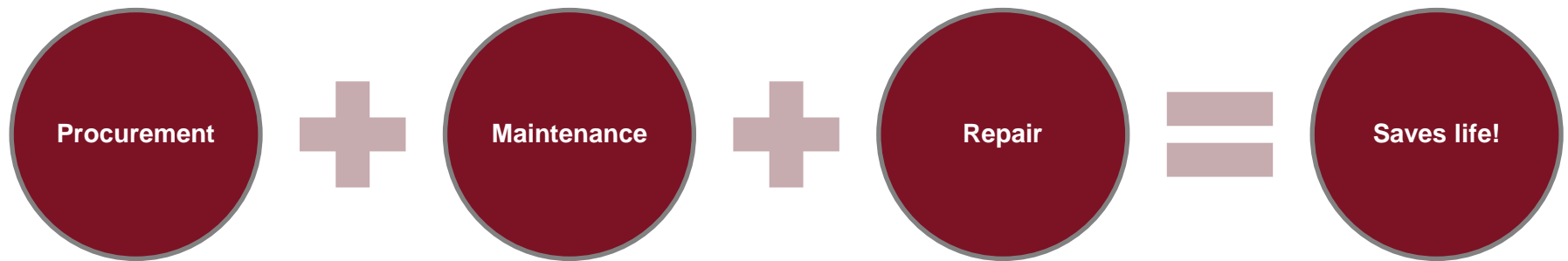
**Medical Gas**



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# Conclusion

Our Vision Formula



Otherwise, it is “Junk for Jesus” !



# Thank You!!



LOMA LINDA  
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HEALTH



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All 15 Adventist Healthcare Institutions



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# Contact Information



Danjuma Daniel DrPh, MPH, MBA

[dddaniel@llu.edu](mailto:dddaniel@llu.edu)

+1-909-991-9105



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