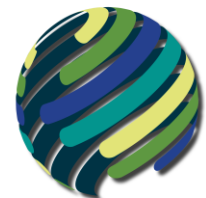


A Proposed Loma Linda University Health International Center for Antimicrobial Resistance Surveillance (LLUH-ICARS): A Private Healthcare Sector Model

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LOMA LINDA UNIVERSITY
HEALTH



— 2023 —
GLOBAL
HEALTHCARE
CONFERENCE

A “silent pandemic”

- Antimicrobial resistance (AMR) is a public health concern and a global threat that is already the cause of at least 700,000 deaths per year with a predicted rise to 10 million by 2050
- Global Antimicrobial Resistance and Use Surveillance System (GLASS) report:
 - ~ high rates of resistance in common pathogens to first-line antibiotics used to treat urinary tract infections (UTIs).
 - ~ extremely high resistance is also observed to last-resort antibiotics in some healthcare-associated pathogens.
 - ~ Most alarming - data show higher rates of resistance in low- and middle-income countries (LMICs) for the most common causes of bloodstream infections (BSIs).



A “silent pandemic”

- an inability to fully initiate and maintain appropriate interventions could lead AMR to become one of the world’s largest health threats with an impact far surpassing many other major conditions, such as cancer and diabetes.
- AMR will have a damaging impact on a range of healthcare interventions such as surgery, chemotherapy, and organ transplants.
- The AMR burden will disproportionately fall on low- and middle-income countries (LMICs) given the predication that the largest numbers of lives that will be lost as a result AMR infections are predicted to be in these countries



The private healthcare sector is a significant contributor to achieving universal health coverage

- Multiple supranational networks concerned with surveillance exist and have been monitoring and analyzing drug resistance in bacterial infections, malaria, HIV and TB in humans and animals since 2000.
- There is still critical gap in coverage in the population served by the private healthcare sector.
 - **How to sustainably increase private sector engagement across LMICs will be one of the key challenges for the AMR community going forward.**
- There is a critical need for a model to encompass the private healthcare sector in LMICs to improve standards, efficiency and the quality of care that will ensure the most desirable cost-effective outcomes.



Loma Linda University Health is poised to leverage our active long-standing international involvement to focus on the gaps in AMR surveillance coverage to extend a Global Healthcare Detection and Response network.



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LLUH: capacity and established global healthcare activities

AHI - 20 years in 40 countries covering 120 not-for-profit private hospitals and clinics



The contribution of the SDA healthcare sector to achieve UHC coverage is significant given its capacity and the support for its focus on mission.

» GC Health Ministry Department 2021 report

- ~ 2,235 healthcare institutions
 - 230 hospitals & sanitariums
 - 92 nursing homes/retirement centers
 - 1,877 clinics/dispensaries
 - 128 dental clinics
 - 8 orphanages/children's homes
- ~ beds capacity – 40,126
- ~ daily census – 27,222
- ~ in-patient admission 1,421,105
- ~ outpatient visits 28,184,400

Collectively, the capacity represents an important pillar in advancing universal health coverage. This system, if fully coordinated with the CDC and WHO, could significantly expand AMR surveillance globally.

Our goal for collaboration

To build a comprehensive surveillance network that includes the already established Loma Linda University global not-for-profit private healthcare affiliates.

This network will improve/extend the detection of emerging AMR and identify AMR risk factors in the clinic and community environments. It will also facilitate the development of prevention strategies across healthcare facilities and their surrounding communities



Outcomes:

- Reduce healthcare-associated infections and deliver safe healthcare;
- Ensure facilities and countries are better prepared to respond to emerging AMR threats in healthcare and the environment;
- Develop country and region level familiarity of AMR in enteric pathogens, invasive bacterial and respiratory pathogens.
- Control and prevent outbreaks and emergencies in healthcare facilities and affected communities.



A Proposed LLUH-ICARS

- To be established as a collaborative venture of the LLU Schools of Medicine, Pharmacy, Public Health, and AHI

LLUH-ICARS Activities:

1. Develop, manage and maintain the Antimicrobial Resistance and Surveillance Network that will target and include affiliates of all the privately operated not-for-profit hospitals and clinics worldwide.
2. Assure data quality and sharing with all relevant and appropriate surveillance networks including the Centers for Disease Control (CDC) and the World Health Organization (WHO).
3. Set standards and certify affiliates for antibiotic usage and reporting.
4. Coordinate the training and building of capacity within affiliate hospitals and clinics in infection prevention and control (IPC).
5. Coordinate the training and development of hospital/clinic affiliate's antibiotic stewardship program. This is vital to increase infection cure rates while reducing treatment failures, *Clostridium difficile* infections, adverse effects, antibiotic resistance, hospital costs and lengths of stay.



LLUH-ICARS Activities:

6. Establish and maintain education program and resources that specifically address antimicrobial resistance and best practices in IPC, antibiotic stewardship, epidemiology and Quality and Patient Safety.
7. Facilitate/Coordinate teleconsultation from global hospital/clinic network affiliates for infectious diseases and clinical laboratory.
8. Facilitate/Coordinate the antibiotic resistance research and policy for LLUH in collaboration with the Quality and Patient Safety at Loma Linda University Health.
9. Facilitate/Coordinate philanthropic activities to support the global mission to reduce the antimicrobial resistance threats in the private healthcare sector.
10. Monitor the quality of locally available antimicrobial pharmaceuticals, identified by WHO as a significant contributing factor in the emergence of AMR.



GRASP International Activity

| Country | Hospital/Institution |
|----------------|------------------------------|
| | |
| Jamaica | Andrews Memorial Hospital |
| Nigeria | Babcock University (Pending) |

Primary Qualification of the LLUH-ICARS Team

Microbiology
Antibiotic Resistance
Infectious Diseases
Pharmacy
Applied Epidemiology/Epidemic Intelligence
Geoinformatics
Information Technology
Bioinformatics/Genomics
Clinical Laboratory Sciences
Antimicrobial Stewardship
Management



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LLUH-ICARS Team

Hansel M. Fletcher, Ph.D. – Principal Investigator
Jennifer Veltman, M.D. – Co-Principal Investigator
Kyle Sousa, Ph.D. - Co-Principal Investigator

Team Lead

Eugene Liu, M.D. - Applied epidemiology and epidemic intelligence
David P. Harris, Ph.D. - Information systems
Seth Wiafe, M.P.H., Ph.D. - Geoinformatics
Paul C. Herrmann, M.D., Ph.D. - Clinical laboratory sciences
Charles Wang, M.P.H., M.D., Ph.D. - Bioinformatics and genomics
Ryan Sinclair, M.P.H., Ph.D. - Environmental Microbiology
Rodney D. Neal, M.B.A. - Financial management

Other Core

Sandy Chang, M.D. - Infectious Diseases
Anna Leigh Ursales, M.D. - Global Infectious Diseases
Richelle Guerrero-Wooley, M.D. - Antimicrobial Stewardship

LLUH-ICARS Team

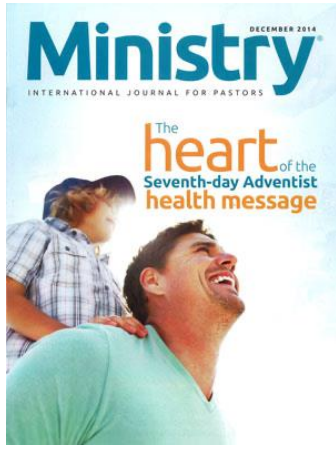
- **CONSULTANTS**

- ~ **Richard Hart, M.D., Dr.PH**, President, Loma Linda University Health, President, Adventist Health International. The global health expert who established and leads the AHI not-for-profit private hospitals and clinics network.
- ~ **Walter Johnson, M.D., M.B.A., M.P.H., FACS, FAANS**, Professor of Surgery, Neurosurgery and Public Health at Loma Linda University, Founding Director, Center for Global Surgery, Associate VP, Academic Programs, PAACS

- **COLLABORATIONS:**

- ~ Adventist Health International
- ~ Adventist Development and Relief Agency (ADRA)
- ~ The Pan American Health Organization (PAHO)/The World Health Organization (WHO)





The heart of the Seventh-day Adventist health message contains a motivational and inspirational framework for God's mission in the world.

John Skrzypaszek, Ministry, 2014

“With the power and light that God imparts, you can comprehend more and accomplish more than you ever before deemed possible.”

Ellen G. White, The Ministry of Healing p514



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