**Gloria J McNeal, PhD, MSN, ACNS-BC, FAAN
Associate VP Community Affairs in Health
National University**

Improving Healthcare Access Using Telehealth Technologies

AACN Transform 2021 Conference

Emerging Solution Session

December 3, 2021

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NUNMC Team

Angela Williams PhD, FNP-C

PROJECT COORDINATOR

Project Coordinator and Nurse Practitioner for the NUNMC. She is a nationally certified nurse practitioner and clinical nurse leader. She has over 25 years of clinical experience with underserved populations. She is a tenured track Assistant Professor at California State University, Los Angeles.

Arneta Finney, PhD, FNP-C

PROJECT MANAGER

Project Manager for the NUNMC. She holds a doctoral degree in nursing and national board certifications as a nurse practitioner, wound care specialist and clinical nurse leader. She has presented at national and international conferences and has published in data-based articles in high impact professional journals.

Gloria J McNeal, PhD, FAAN

PROJECT DIRECTOR

Dr. McNeal is a nationally certified advanced practice nurse with more than 30 years of academic and clinical experience in nursing. She is widely published in the field of nursing on issues related to cultural competence, telehealth care, and the utilization of interdisciplinary primary care delivery models.

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Objectives

One

To prepare a culturally competent health professions workforce

Two

To foster community involvement and empowerment in the processes of health education, assessment, outcome reporting, and referral

Three

To improve access to care and to remotely monitor clinical data

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- The National University Nurse-Managed Clinic – Interprofessional Collaborative Practice (NUNMC-IPCP) initiative was operationalized at the National University Los Angeles Campus, serving as the home office location.

- The targeted patient populations residing in Watts, Inglewood and Compton experience high rates of serious chronic and acute health problems with notable poor healthcare outcomes.

- While there is an existing network throughout LA County of community-based health centers, federally-qualified health centers, and hospital-based clinics, the communities served remained designated as a medically underserved area/

ABOUT US

Embedded within churches, drug rehab centers and Salvation Army locations, NUNMC created public-private partnerships and a unique model of care delivery
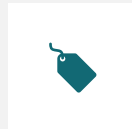
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THE PROBLEM

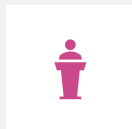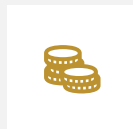| PRIMARY CARE SERVICES	TELEHEALTH	TRUST	COST	IPE
Deliver primary and behavioral health care services in underserved communities	While still limited in use virtual platforms are revolutionizing the delivery of healthcare and education	Establish relationships with community-based organizations to create a sense of trust	Implement a nurse-led initiative to delivery cost effective services	Despite repeated reports on the advantages of IPE, there remains few opportunities for students in the academic setting

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THE SOLUTION
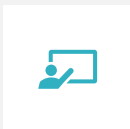
IMPROVE ACCESS	DECREASE COSTS	PATIENT EXPERIENCE
This nurse-led clinic improved access by delivering care deeply embedded in the communities served	This nurse-led clinic innovatively delivered care at no cost to the patients served	Using CHAPS survey data, this initiative documented the satisfaction levels of the patients served rating the experience at the highest levels

SOLUTION

The goal of the IHI Quadruple Aim is to enhance patient experience, improve population health, reduce costs, and improve the work life of health care providers, including clinicians and staff.

Provident, I.M., & Lape, J.E. (2020). Demonstrating Occupational Therapy's Distinct Value: Addressing the Quadruple Aim of Health Care Through Doctoral Capstone Projects. The Open Journal of Occupational Therapy, 8, 1-8.

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UNIQUE

Use of telehealth technologies to monitor symptoms remotely

FIRST TO MARKET

Establishing a nurse-led telehealth model of care delivery

TRUSTED

Nurses remain the most trusted profession according to WHO

COMMITMENT

Our interprofessional team is committed to addressing the health care needs of the underserved

CLINIC SERVICES

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HEALTHY HEART FAIR

HEALTH FAIRS

Bringing health education directly to the community : nutrition, stress management, HIV testing, vision and hearing, blood pressure screening
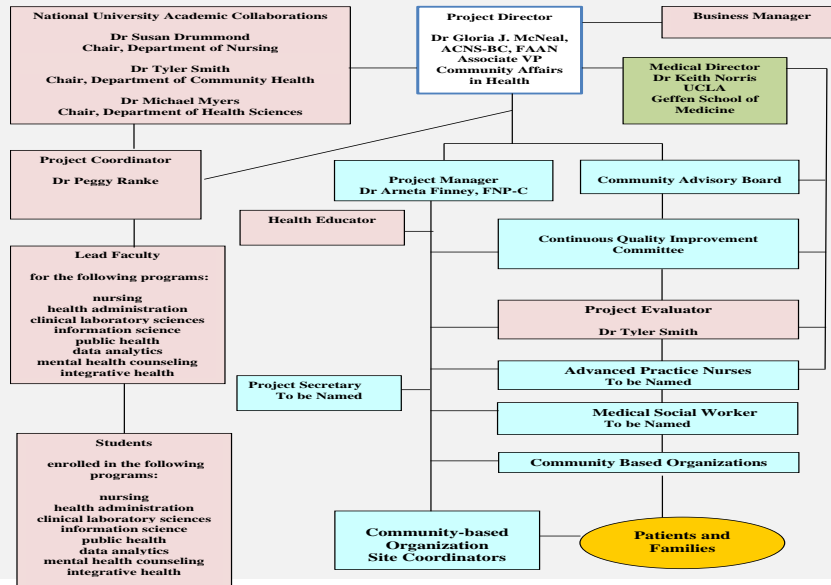
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NUNMC Organizational Chart

NATIONAL UNIVERSITY NURSE MANAGED CLINIC
ORGANIZATIONAL CHART

National University Academic Collaborations
Dr Susan Drummond
Chair, Department of Nursing
Dr Tyler Smith
Chair, Department of Community Health
Dr Michael Myers
Chair, Department of Health Sciences

Project Director
Dr Gloria J. McNeal,
ACNS-BC, FAAN
Associate VP
Community Affairs
in Health

Business Manager

Medical Director
Dr Keith Norris
UCLA
Geffen School of
Medicine

Project Coordinator
Dr Peggy Ranke

Project Manager
Dr Arneta Finney, FNP-C

Community Advisory Board

Health Educator

Continuous Quality Improvement Committee

Lead Faculty
for the following programs:
nursing
health administration
clinical laboratory sciences
information science
public health
data analytics
mental health counseling
integrative health

Project Evaluator
Dr Tyler Smith

Advanced Practice Nurses
To be Named

Project Secretary
To be Named

Medical Social Worker
To be Named

Community Based Organizations

Students
enrolled in the following
programs:

nursing
health administration
clinical laboratory sciences
information science
public health
data analytics
mental health counseling
integrative health

Community-based Organization Site Coordinators

Patients and Families

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OUR SERVICES

Extended Virtual Office Hours

Mon - Fri: 6:00AM to 9:00PM
Sat: 8:00AM-7:00PM

Primary Care Services

Treatment for infections, colds and flu symptoms, diabetes, high blood pressure, asthma, vision and hearing testing, women's health assessment, HIV/Sexually Transmitted Infection, dental assessment and referral, and social services referral
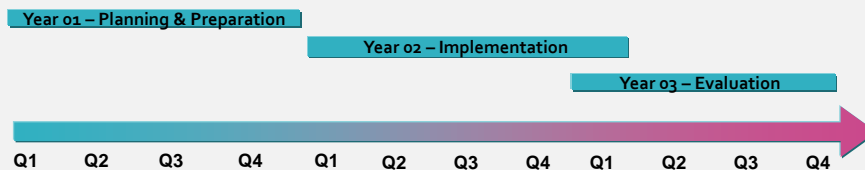
Mental Healthcare Services

Behavioral Health screening

Tele-counseling Services

Treatment for stress, anxiety, depression, addiction, and other mental health disorders

Call-in GP Consultation Available

24/7 On-Call Answering service

Prescriptions

Electronically transmitted to your local pharmacist

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PROJECT TIMELINE

- **Phases of Project Development**

Year 01 – Planning & Preparation

Year 02 – Implementation

Year 03 – Evaluation

Q1 Q2 Q3 Q4 Q1 Q2 Q3 Q4 Q1 Q2 Q3 Q4

Project Outcome Measures:

- Decrease in mortality/morbidity rates associated with ambulatory care sensitive (ACS) conditions in clients served as measured by clinical data;
- Increase in referrals for follow up care as measured by percent of return visits;
- Increased community involvement as measured by number of MOUs executed;
- Increased patient satisfaction as measured by surveying instruments; and,
- Increased dissemination of health information as measured by number of health packets distributed

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NUNMC-IPCP OUTCOME MEASURES

The NUNMC outcomes measured with well-established, valid and reliable instruments:

- Biometric data derived from the EHR (BMI, blood pressure, pulseox, blood glucose),

- Clinical data to assess changes in chronic diseases

- Self-reported (SF-8, Audit-C, DAST 10, PHQ-9)

- Clinician/Group-level Consumer Assessment of Health Care Providers and Systems (CG-CAHPS) surveying instrument used to measure satisfaction with health care delivery

- ACE-15 to assess team readiness

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NUNMC INTERPROFESSIONAL COLLABORATIVE PRACTICE ACTIVITIES
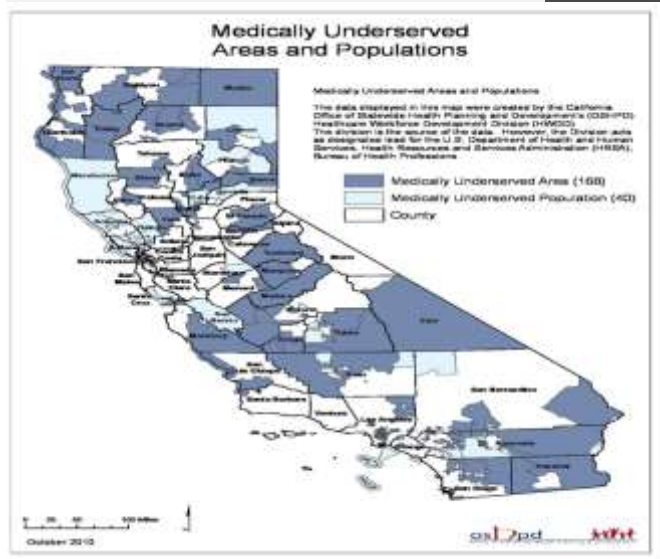
- **The NUNMC-IPCP initiative:**

  Is cost effectively utilizing faculty-supervised nursing and health professional students

  Collaborates with a full-time interprofessional healthcare team, consisting of eight healthcare disciplines : nursing, public health, information science, mental health counseling, data analytics, allied health, health administration, integrative health programs of study

  Works in collaboration with a Community Advisory Board, CBOs , faculty and students in departments of nursing, community health and health sciences

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MEDICALLY UNDERSERVED

Medically Underserved Areas and Populations

Watts, Inglewood and Compton Communities

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WATTS COMMUNITY DEMOGRAPHICS

The Los Angeles campus of National University is nestled in the South Los Angeles area of the county, which is the large geographic and cultural community lying to the south and southeast of downtown Los Angeles, California. The area has the highest concentration of racial/ethnic minorities, is a significantly distressed region with a high crime rate, and is the most socioeconomically disadvantaged neighborhood in all of Los Angeles County. Sitting within the county's South Central Los Angeles area is the small community of Watts. According to recent U.S. Census Bureau data there are 36,815 people residing in Watts, an area of 2.12 square miles, with a density of 17,346 people per square mile, among the highest in the nation. Ethnically, the residents of Watts are 61.6% Hispanic/Latino, 37.1 % African American, 0.5% White, and 0.2% Asian American. The median household income is $25,161 with only 2.9% of the residents over 25 years of age holding a four-year degree (Mapping LA, 2013).

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COMMUNITY ENGAGEMENT

**The Tree of Life Missionary Baptist Church**   seeks to provide ministry that will improve healthcare to the impoverished, vulnerable, publicly insured and under or uninsured people without access to care in the South Los Angeles area. Through the efforts of the Church, the South Los Angeles community is provided with improved health care that is networked to build capacity. The Church is focused to strengthen access to primary and preventive care, health promotion and education to ultimately address health disparity now, and in the future. The Church will partner with the NUNMC team to identify patients and families in the Watts neighborhood in need of primary care services.

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COMMUNITY ENGAGEMENT

Canon Human Services is a substance abuse treatment center that provides both outpatient and short-term residential treatment of drug addiction. Multiple payment plans are available including military insurance (e.g., VA, TRICARE); self payment; and sliding fee scale (Fee is based on income and other factors)

COMMUNITY ENGAGEMENT

The Salvation Army, an international movement, is an evangelical part of the universal Christian Church. Its message is based on the Bible. Its ministry is motivated by the love of God. Its mission is to preach the gospel of Jesus Christ and to meet human needs in His name without discrimination. For more than 125 years, The Salvation Army of Southern California has provided services and hope to those in need from San Luis Obispo to Orange County. The Salvation Army's history of public service dates back to 1865, over the years it has since evolved into a social service provider of unmatched scope and breadth - delivering assistance to those in need without discrimination. The Salvation Army currently has representation in more than 125 countries worldwide, in addition to nearly 8,000 centers of operation across the United States.

COMMUNITY ENGAGEMENT

Healthy African American Families II (HAAFII) was founded in 1992 by the late Dr. Loretta Jones. It was originally funded by the Center for Disease Control (CDC) to investigate low birth weight and infant mortality in African American women in Los Angeles. Since then HAAFII has grown into a multi-faceted community agency. Part of its mission is to ensure research is being done ethically and equitably in community. HAFFII supports a bidirectional learning model, where all knowledge is important and it holds all partners accountable for reporting back and creating wins for both academia and community. Its mission is to improve the health outcomes of the African American, Latino, Korean, and other minority communities in Los Angeles County by enhancing the quality of care and advancing social progress through education, training and collaborative partnering with community stakeholders, academia, researchers, and government. HAAFII is widely regarded in the community as an advocate voice, and source of education and training around disparities and research, for the local community. Its partners include Charles R. Drew University of Medicine & Science, the University of California, Los Angeles, the RAND Corporation, and over 150 community based organizations. As such, it is dedicated to addressing social, institutional and policy determinants of health equity.

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PROJECT SUSTAINABILITY

Extramural Revenue Generation

- **Fed Qualified Health Center (FQHC) Look-Alike Designation**

- **Third Party Reimbursement**

  - **Corporation/ Employer Insurance/ Private Insurance**

- **Charity Care**

- **External Funding Mechanisms**

  - **Federal/ State**

  - **Foundations**

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PROJECT COMMUNITY SUPPORTERS

- The Black Community Health Task Force
- Salvation Army
- Canon Human Services
- Tree of Life MB Church
- Healthy African American Families
- Health Net Connect HNC
- The National University Office of the Chancellor

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McNeal, G.J. (1978). Twenty-four hour ambulatory monitoring: A new electrocardiographic tool. *Nursing Clinics of North America, 13*(3), 128-132

Taking Critical Care Monitoring from the ICU to the Community

Improving Access to Care for Underserved Communities

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Transformation:
Earlier Research on Telemetric Remote Monitoring of Critical Care Data
Published Articles

Nursing Clinics of NA	▷	AJN	▷	Critical Care Nursing Clinics of NA

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Transformation:
Earlier Research on Telemetric Remote Monitoring of Critical Care Data
Published Articles

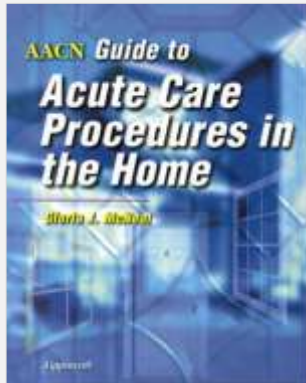| Critical Care Nurse	▷	Critical Care Nurse	▷	Critical Care Nurse

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Transformation:
Earlier Research on Telemetric Remote Monitoring of Critical Care Data
Published Articles

Computers in Nursing	▷	AACN Guide	▷	AACN Bold Voices

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IOM, AAN, and NAM More Recently Published Recognition
Report, Press Release, and Podcast

Institute of Medicine Future of Nursing Report 2009	▷	American Academy of Nursing Press Release 2020	▷	National Academy of Medicine Podcast 2021

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USE OF TELEHEALTH CARE TECHNOLOGIES

To monitor:
- **Blood pressure**
- **Heart rate**
- **Lung sounds**
- **Body weight**
- **Body temperature**
- **Oxygen saturation**

VA Home Telehealth - Washington DC VA Medical Center

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Communication Linkages

- **Telehealth Peripheral Devices**

- **Cell Phone**

- **Laptop**

- **Tablet**

- **Faxing capability**

- **ECG Transmission**

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NATIONAL UNIVERSITY VIRTUAL NURSE MANAGED CLINIC

Blood Pressure Apparatus

12 lead ECG

Telestethocope

HNC Tablet

Weight scale

Pulse Ox

Thermometer

Spirometer
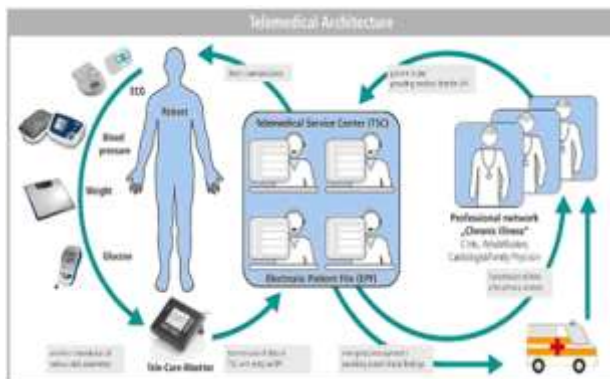
TELEHEALTH TECHNOLOGIES
Remote Biometric Monitoring Devices

Telemedicine Bangladesh (telemedicinebd.blogspot.com)

Remote Biometric monitoring using medical apps embedded in mobile kiosks used to transmit clinical data to the tablets, hand-held devices or laptop computers of the clinicians for frequent assessment and documentation in the EHR:

- **Blood pressure**   [tele-sphygmomanometer]
- **Glucose**   [tele-glucometer]
- **Weight**   [tele-scale]
- **Heart sounds**   [tele-stethoscope]
- **Lung sounds**   [tele-stethoscope]
- **Bowel sounds**   [tele-stethoscope]
- **FEV$_1$**   [tele-spirometer]
- **ECG**   [tele-cardiology]
- **PT/PTT/INR**   [tele-INR station device]
- **O$_2$ Sat**   [tele-pulse ox]
- **Mental Health**   [tele-counseling]

CONCEPTUAL FRAMEWORK

Person-Centered Care served as the theoretical construct for our model of care

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DISSEMINATION OF FINDINGS

Published outcome data

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PENN MAGAZINE

Nursing As Teamwork

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MAJOR COMPETITORS

MINUTE CLINIC

Minute Clinics are staffed by nurse practitioners and physician assistants Services offered by Minute Clinics include Vaccinations, such as influenza, tetanus-pertussis, pneumovax, and Hepatitis A & B, sports and camp physicals, Department of Transportation physicals, sexual transmitted disease testing and treatment, contraception services, smoking cessation, and TB testing. Local Convenient & Quality Family Health Care Walk-in CVS MinuteClinic | CVS Health

WALGREEN HEALTHCARE CLINIC

The Healthcare Clinic nurse practitioners and physician assistants are part of a network of more than 70,000 healthcare professionals across Walgreens pharmacy, Walgreens Infusion Services, Walgreens Specialty Pharmacy and other lines of business. Walgreens rebrands its in-store 'Take Care' clinics as 'Healthcare Clinics' - Industry News (healthcarefacilitiestoday.com)

CONVENIENCE CLINICS

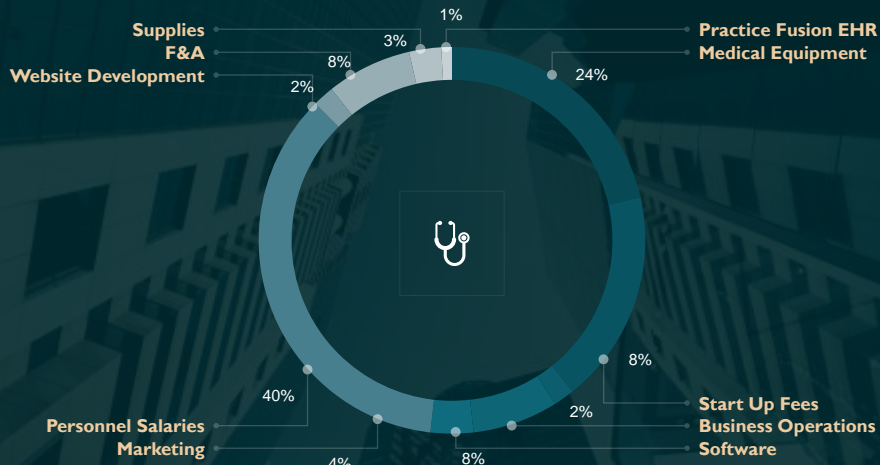Convenient care clinics are often referred to as walk-in clinics and are typically located within a drug store such as CVS or Walgreens. These clinics were initially intended to serve the uninsured or underinsured, providing a more affordable option for basic medical services than a visit to the emergency room or even urgent care center. Urgent Care VS Convenient Care | How They Are Different | UrgentWay

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REQUIRED FUNDING

Supplies
F&A
Website Development

1%

3%

8%

2%

Practice Fusion EHR
Medical Equipment

24%

8%

Start Up Fees
Business Operations
Software

40%

Personnel Salaries
Marketing

2%

4%

8%

POTENTIAL FUNDING

2%

CMS
Reimbursement
$110,000 – 2%

**American Nurses
Foundation**
$1,500,000 – 8%

8%

HRSA
$5,800,000–90%

90%
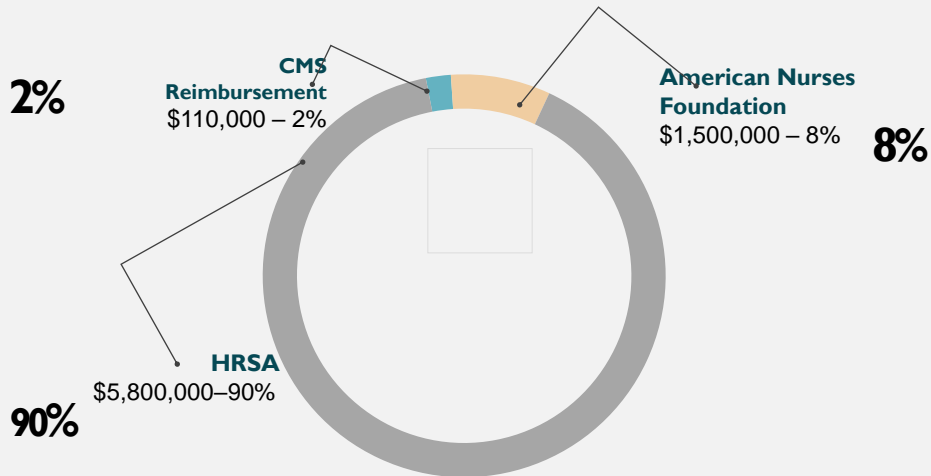
HOW DATA DRIVES NEW CARE DELIVERY MODELS AND IMPROVEMENTS IN HEALTHCARE

BACKGROUND

- In underserved communities, the absence of clinics, pharmacies, physicians, and other healthcare services directly translates into poor healthcare outcomes

PURPOSE

- This project was implemented to shift the paradigm for the provision of primary care services by taking a mobile nurse-led interprofessional health care team directly to the community, to decrease the number of ER visits for the patients served

METHODS & DATA

- A descriptive study design was used to examine the health records of 477 patients treated by the nurse-led team, to extract demographic data, determine cost effectiveness and calculate loss to follow rate of return

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SELECTED OUTCOME DATA

Table 1: Patients by FPL

Income as Percent of Poverty Line	Number of Patients n (%)
100% and below	293(61.4%)
101-150%	13(2.7%)
151-200%	6(1.3%)
Over 200%	16(3.4%)
Unknown	149(31.2%)
Total	**477(100%)**

Table 2: Patients by Race

Race	Hispanic /Latino	Non-Hispanic/Latino	Total n (%)
Asian	0	19	19(4%)
Native Hawaiian	0	0	0%
Pacific Islander	0	1	1(0.2%)
Black	0	235	235(49.2%)
Am Indian/Alaska Native	0	0	0%
White	109	27	136(28.5%)
>one race	2	4	6(1.3%)
Unreported	0	0	80(16.8%)
Totals	**111**	**286**	**477(100%)**

Table 3: Follow Up Rate of Return

Dx	# Visits	# Pts	Follow Up Return Rate	Confidence Intervals
BMI >25	158	114	44/114 = 38.6%	95% CI [29.6%, 48.2%]
Depression	75	34	41/34 = 100%	100% follow up
Asthma	32	28	4/28 = 14.3%	95% CI [4.0%, 32.7%]
Diabetes	92	26	36/26 = 100%	100% follow up
HBP	130	67	63/67 = 94%	95% CI [85.4%, 98.4%]
Totals	**457**	**269**	**188/269=69.9%**	**95% CI [64.0%, 75.3%]**

Future of Healthcare Education

Mixed Reality

https://youtu.be/KGv2iRzQzQg

Mercy Virtual Hospital

https://www.youtube.com/watch?v=jAQuEZUdB-A

Telecommunication Technologies

https://www.hfmmagazine.com/articles/2272-mercy-virtual-expands-its-network-of-telemedicine-partners

- Telemedicine
- Telenursing
- Teleinfusion
- Teleradiology
- Telespirometry
- Telehealth
- Robotics
- Remote monitoring
- Teleconferencing

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Telehealth Monitoring

- Teleconferencing technology

https://www.google.com/url?sa=i&url=https%3A%2F%2Fwww.canstockphoto.com%2Fafrican-american-doctor-video-conference-82670347.html&psig=AOvVaw1zrFSnDcEkg6-jg5-88ppQ&ust=1636506008684000&source=images&cd=vfe&ved=0CAgQjRxqFwoTCJCqt56KivQCFQAAAAAdAAAAABAE

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Televisit

Telehealth Monitoring

- Tele-otoscope

Telesensor

- Monitors body temperature, blood pressure, blood glucose levels and transmits results to mobile phone

Telesthetoscope

https://www.google.com/url?sa=i&url=https%3A%2F%2Fwww.ek uore.com%2Fhow-integrate-ekuore-pro-electronic-stethoscope-in-telemedicine-project%2F&psig=AOvVaw1yEPMamXcm9wt4_kGHedCe&ust=163 6506719216000&source=images&cd=vfe&ved=0CAgQjRxqFwoTC KDl2fCMivQCFQAAAAAdAAAAABAD

https://www.aarp.org/ppi/info-2017/gloria-mcneal.html

Robotics

https://www.google.com/url?sa=i&url=https%3A%2F%2Fwww.pinterest.com%2Fpin%2F540150549030685701%2F&psig=AOvVaw0HPVx2EQ42bb_BrqbX0yig&ust=1636506881321000&source=images&cd=vfe&ved=0CAgQjRxqFwoTCJCbr8ONivQCFQAAAAAdAAAAABAE

Web-enabled Teleconferencing Technology

- From the point-of-care to the desktop or hand-held device of the clinician

https://www.google.com/url?sa=i&url=https%3A%2F%2Fwww.or-technology.com%2Fen%2Fproducts%2Fhuman%2Fdicompacs-mobileview.html&psig=AOvVaw3PAMzyA8DwoYf2FUbfwhTC&ust=1636507270878000&source=images&cd=vfe&ved=0CAgQjRxqFwoTCJidooCPivQCFQAAAAAdAAAAABAD

- The majority of patients treated represented ethnically diverse groups, who are often lost to follow up due to barriers to access

- The study findings support primary care treatment at a nurse-led clinic as a strategy to reduce costs when compared to ER utilization rates

- This project was able to foster community involvement and place desperately needed health services directly at locations people in the community trust and frequently visit

- The use of telecommunication technologies improves access to care especially for the residents of underserved communities

SUMMARY

- Improve Access
- Reduce Cost
- Enhance the patient experience

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Salvation Army Partnership - Inglewood California - National University
https://www.youtube.com/watch?v=86_15M_yi6Q

NUNMC GRAND OPENING

Salvation Army Inglewood California

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ACKNOWLEDGEMENT STATEMENT

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Thank You

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