REPORT TO THE

TWENTY-NINETH LEGISLATURE

STATE OF HAWAII

2017

RELATING TO HCR 90

REQUESTING THE CHIEF OF THE DEPARTMENT OF HEALTH EMERGENCY MEDICAL SERVICES AND INJURY PREVENTION SYSTEM BRANCH TO CONVENE AND CHAIR A WORKING GROUP TO DEVELOP A COMMUNITY PARAMEDIC PROGRAM, INCLUDING EDUCATIONAL STANDARDS FOR CERTIFICATIONS, TO ALLEVIATE EMERGENCY SERVICES FROM RESPONDING TO NON-EMERGENCY CALLS.

PREPARED BY:

EMERGENCY MEDICAL SERVICES & INJURY PREVENTION SYSTEM BRANCH

DEPARTMENT OF HEALTH
STATE OF HAWAII
DECEMBER 2016

EXECUTIVE SUMMARY

Health disparities and health care costs continue to rise in Hawaii's changing healthcare environment. Healthcare providers statewide have recognized that part of the rise in costs is due to underserved populations such as the elderly, Native Hawaiians, Pacific Islanders, and the homeless. Many of these persons with acute and chronic diseases believe their only access to healthcare is by calling 911. To alleviate this growing problem the Legislature called for a Working Group to develop a Community Paramedicine solution to improve the health of Hawaii's residents. Traditional paramedics function with a medical director often using offline standing orders. Similarly, community paramedics would work with a medical director, but more closely, using real-time individualized, patient-centered instructions with medical direction. Community paramedics would integrate with existing systems of care (e.g., community hospitals, community-based Native Hawaiian health system partners, and other primary care physician offices) to promote successful plans of care to improve the health of the population. The community paramedic leverages the expertise of working in the community environment with keen medical assessment skills and situational awareness that accompanies their legacy as strong team members.

HCR90, in 2016, directed that a Working Group be formed to develop a community paramedicine program for Hawaii. The nine member Working Group identified that community paramedicine could improve Hawaii's health in the following areas: high volume users of emergency medical services, 911 callers needing alternate destinations than emergency departments, post hospital discharge care, homeless population, hospice care, and behavioral health. Acute and chronic medical conditions such as infectious diseases, diabetes, hypertension, and asthma where identified as areas that could also benefit from community paramedicine interventions. Other conditions were identified such as, wound care and suture removal after emergency department visits.

Since this would be a new program, the Working Group recommends a pilot program be funded by the Legislature under the auspices of the Department of Health, Emergency Medical Services Injury Prevention System Branch. Six (6) sites were identified as pilot candidates for the program with the Working Group recommending 2-3 sites (metropolitan and rural) for the initial pilot. Fee for service billing would be done by the EMSIPSB with collected funds returned to the State's General Fund as is done currently for EMS services statewide.

SUMMARY OF RESOLUTION

WHEREAS, the City and County of Honolulu Emergency Medical Services ran almost ninety thousand calls in 2015; and

WHEREAS, of these calls, many are from repeat callers who call multiple times per day for issues that do not need emergency services, but rather general assistance; and

WHEREAS, as the call volume rises each year and the number of ambulance stations remains the same, it is critical to develop proposals to establish community paramedic

services to provide the appropriate services for these repeat callers who would otherwise be using resources that could best serve individuals who need emergency medical services; now, therefore, BE IT RESOLVED by the House of Representatives of the Twenty-eighth Legislature of the State of Hawaii, Regular Session of 2016, the Senate concurring, that the Chief of the Department of Health Emergency Medical Services and Injury Prevention System Branch is requested to convene and chair a working group to develop a community paramedic program, including educational standards for certifications, to alleviate emergency services from responding to non-emergency calls.

WORKING GROUP COMPOSITION

The composition of the Working Group delineated by HCR 90 is:

1) The Director of the City and County of Honolulu Emergency Services Department, Mark Rigg;

2) The Chief of Emergency Medical Services for Honolulu, Dean Nakano;

3) The General Manager of American Medical Response, William “Speedy” Bailey;

4) The Oahu Operations Manager of American Medical Response, Andy Ancheta;

5) The Battalion Chief of the Navy Region Hawaii, Federal Fire Department-Emergency Medical Services, Douglas Asano;

6) The Battalion Chief of the Emergency Medical Services Hawaii County Fire Department, Lance Uchida;

7) The Dean of Emergency Medical Services, Health Sciences and Nursing at Kapiolani Community College, Patricia O’Hagan;

8) The Chair of the Department of Emergency Medical Services at Kapiolani Community College, Jeff Zuckernick;

9) An Instructor of Emergency Medical Services at Kapiolani Community College, Edward Caballero.

BACKGROUND

In 1966, the Division of Medical Sciences, National Academy of Science, National Research Council published the seminal paper: *Accidental death and disability: The neglected disease of modern society.* This publication marked the birth of Emergency Medical Services (EMS) in the United States (US). Based in part on this paper, Hawaii developed a statewide comprehensive EMS system providing 911 Emergency care to residents and visitors. The next evolutionary step in pre-hospital care occurred in 2004 with the publication of the National Rural Health Association's paper Rural and Frontier EMS Agenda for the Future. Like the 1966 National Research Council whitepaper, this report is credited for launching the concept of Community Paramedicine in the US. Nationwide Community Paramedicine is in its formative stages. This allows traditional paramedics to practice beyond the well described emergency response and transport model. This report and the Hawaii's legislature's foresight formed the basis for this resolution to respond to current Hawaii healthcare needs.

INTRODUCTION

Health disparities and health care costs continue to rise in our ever changing healthcare environment. Healthcare providers statewide have recognized that part of the rise in costs is due to underserved populations such as the elderly and Native Hawaiians and Pacific Islanders, and the homeless with acute and chronic diseases only access to healthcare is by calling 911. To alleviate this growing problem we propose a Community Paramedicine solution to improve the health of Hawaii's residents.

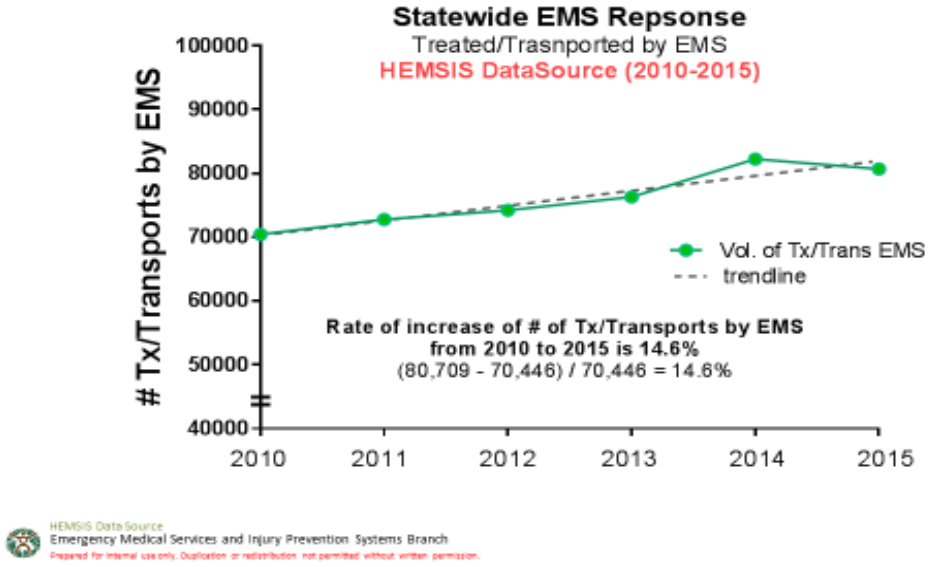
In an effort to reduce the burden on pre-hospital, hospital, and community-based health care clinics, we propose to implement a program that will identify high volume emergency medical service users and provide options for more appropriate and cost effective access to healthcare services. Effectively, this will preserve EMS resources for those individuals who require emergent pre-hospital and emergency department health care services. The Working Group hypothesis is that this will improve patient outcomes while reducing patient call volume.

THE PROBLEM

The increase in 911 emergency responses is occurring statewide while the number of ambulance units has remained relatively static (Figure 1). The most frequent reasons for 911 activations are falls and breathing problems, fortunately not all of these calls are for life threatening reasons. Many of these calls for help can be prevented through early intervention by supporting existing community programs.

Figure 1: Statewide EMS Response

Volume of Tx/Transports by EMS have increased by 14.6% in the past 6 years.



HEMSIS Data Source
Emergency Medical Services and Injury Prevention Systems Branch

Data from The Queen's Medical Center Punchbowl (QMC) provides evidence of the need for integrated services for the growing numbers of high volume repeat users of emergency medical services. Daniel Cheng M.D., MPH, Assistant Chief and Medical Director, QMC and Assistant Clinical Professor at the University of Hawaii John A. Burns School of Medicine has studied this high volume user patient group. QMC recorded over 600 EMS ambulance visits during an average 3-month period attributed to high volume users on Oahu representing 60% of all high volume users. These visits resulted in a gross cost of over $600,000 quarterly which equates to $2.4 million annually. Furthermore, high volume users account for over 1,500 QMC ED visits with an annual gross cost of over $12 million dollars. Adding pre-hospital emergency services costs (approximately $1150.00 per 911 ambulance response) to each visit amplifies the financial impact. While community- and hospital-based efforts to help high volume user populations are in progress, additional community partners are needed to augment efforts to better serve this growing number of patients and their need for healthcare and preserve emergency services. Even more troubling, Dr. Cheng found the average lifespan of male high volume users to be 51 years, compared to 80 years for other males living in Hawaii. This equates to a 36% shorter life span.

The Hawaii Emergency Medical Services System demonstrated that it can respond to chronic medical conditions through a community paramedicine approach. One such example occurred in October 2013. A patient who was having difficulty remembering to take medication. Over time, the patient's kidneys began failing. The patient repeatedly accessed 911 emergency services for emergency department care which engendered recurrent hospitalizations. Despite this, the patient's health continued to decline because the root cause of the repeated 911 calls and hospitalizations was not

addressed – the inability to remember to take medicines. Declining health necessitated that that patient move from their home. At the request of the public health nurse, paramedics visited the patient daily to offer reminders to take medication. This intervention helped the patient get healthier, stay out of the hospital, and remain at home. This model now needs to be piloted on larger scale to demonstrate the impact on improving health of Hawaii's community groups without growing costs for 911 emergency services.

The goal of the Community Paramedicine Program is: 1) maintain medically indicated and cost effective use of emergency medical systems and 2) enhance access to health and human services for at risk and disproportionately disadvantaged populations. Based on discussions with community stakeholders, Native Hawaiian, Pacific Islanders, homeless, and the elderly are underserved, at-risk populations.

FINDINGS

Traditional paramedics function with a medical director often using offline standing orders. Similarly, community paramedics would work with a medical director, but more closely, using real-time individualized, patient-centered instructions when medical direction is needed. They would integrate with existing systems of care (e.g., island hospitals, community native Hawaiian health clinic partners, and other primary care physician offices) to promote successful plans of care to improve the health of the population. The community paramedic leverages their expertise with keen medical assessment skills and situational awareness.

The Working Group identified that community paramedicine could improve Hawaii's health in the following areas: high volume users of emergency medical services, 911 callers needing alternate destinations than emergency departments, post hospital discharge care, homeless population, hospice care, and behavioral health. Acute and chronic medical conditions such as infectious diseases, diabetes, hypertension, and asthma where identified as areas that could also benefit from community paramedicine interventions. Other conditions were identified such as, post emergency department visits for wound care and suture removal.

Data

The Working Group reviewed State of Hawaii EMS pre-hospital statistical data. Historically 57% of 911 patients are aged 20 – 64 years, 34% are 65 years and 3% Pediatric age 0-10 years. Over the past 6 years across the state the volume of patients treated and transported by EMS has increased by 14.6% (Figure 1). The following chart shows the top 10 dispatch complaints by age group: Adult 20-64 years, Senior 65+ years, and Pediatric 0-5 years:

Table 1: Hawaii EMS Top 10 Dispatch Complaints						
Age	**Adult: 20 - 64 years**		**Seniors: 65+**		**Pediatric: 0 - 5 years**	
Rank						
1	Sick Person/No Other Appropriate Choice	22%	Falls	18%	Convulsions	16%
2	Breathing Problems	10%	Breathing Problems	14%	Sick Person/No Other Appropriate Choice	15%
3	Traffic/Transportation Incident	8%	Unconscious/Fainting/Near-Fainting	11%	Traumatic Injury	13%
4	Chest Pain (Non-Traumatic)	7%	Chest Pain (Non-Traumatic)	6%	Breathing Problems	12%
5	Unconscious/Fainting/Near-Fainting	7%	Stroke/CVA	4%	Falls	10%
6	Traumatic Injury	6%	Abdominal Pain	3%	Traffic/Transportation Incident	9%
7	Falls	6%	Traumatic Injury	2%	Allergic Reaction/Envenomation	3%
8	Psychiatric Problem/Abnormal Behavior	5%	Traffic/Transportation Incident	2%	Unconscious/Fainting/Near-Fainting	3%
9	Abdominal Pain	5%	Hemorrhage/Laceration	2%	Drowning/Diving/SCUBA Accident	2%
10	Assault/Sexual Assault	4%	Uknown Problem/Person Down	2%	Hemorrhage/Laceration	2%

Hawaii EMS data shows that most 911 calls originate from home/residences and many are often for medical concerns that could be addressed by a functioning community paramedic system. A review of the dispatch complaints by age group reveals that many of the calls might be more appropriately managed by a Community Paramedicine response. Additional support for this idea is suggested by the fact that paramedics code patient condition as *minor* in 40.7% of 911 calls with 55.2% serious and 2.1% critical.

SOLUTION

Multidisciplinary Team Approach

After multiple meetings, the working group determined that a multidisciplinary team approach including community paramedicine could best address the multiple at risk populations identified by the group. The idea is to provide *the right care, in the right place, at the right time*. The community paramedic would be an integral part of this group to meet the needs of these challenging populations due to their familiarity with the community and community members. Additionally paramedics have a good reputation in the community and are perceived as nonthreatening. As previously mentioned, partnership would include statewide hospitals, community-based Native Hawaiian health system partners, and other primary care physician offices.

Based on the analysis, the Working Group believes there are a significant number of 911 users, as well as other community members, who could be cared for where they reside or in other non-emergency department settings for non-emergent medical conditions thus preserving the 911 system and hospital emergency departments for more traditional emergency care. A range of social services can be accessed through and facilitated by using community paramedics. Decreasing unnecessary 911 pre-

hospital and hospital use for non-emergent conditions, thus improves the availability of emergency services and overall patient outcomes while controlling costs for these essential services.

Establishment of a Hawaii Community Paramedicine program would provide a pathway for experienced paramedics to have another career choice that would allow them to practice their skills in a non-emergent model leveraging their years of field training for new patients.

WORKING GROUP RECOMMENDATIONS

Health care needs far outnumber health care options for communities with where there are a disproportionate number of elderly citizens, immigrants, impoverished families, and those in poor health. To reduce the frequency of 911 ambulance calls and emergency room visits with the goal of increasing the capacity for a Culture of Health across the communities of Hawaii, the EMSIPSB recommends community paramedicine. For example, the community paramedics would work along with Papa Ola Lokahi and its system sites as members of a prevention/intervention team to build a Culture of Health across the state of Hawaii. An integrated, multidisciplinary team approach would also include community health workers as part of the Department of Health led by public health nurses. Implementation will require development of new administrative rules for the community paramedic provider.

TABLE 2: MOBILE INTEGRATED HEALTH CARE PARTNERS

OAHU Kuakini Ke Ola Mamo Medicine Center Kahuku Ko ʻolauloa Service District Pualalea Kahuku Waianae Ke Ola Mamo Medicine Center Metro Honolulu **MAUI** Wailuku Hui No Ke Ola Pono Walter Cameron Center Hana Hana Community Center	**MOLOKAI** Kaunakakai Na Puʻuwai Health Community Health Center **HAWAII COUNTY** Hilo Hui Mālama Ola Nā ʻŌiwi Puna Hui Mālama Ola Nā ʻŌiwi **KAUAI** Kapaa Hoola Lahui Hawaii Waimea Hoʻola Lahui Hawaii

Since emergency medical services need to be preserved in all Hawaii counties, the Working Group recommends to pilot the community paramedicine project, often referred to as mobile integrated health care, in selected communities with eventual expansion to statewide service. The Working Group identified 6 potential pilot program locations:

Kahuku, Liliha/Alewa, Waianae, Molokai, Hilo, and Metro Oahu (See Table 2: Mobile Integrated Health Partners). The Working Group, based on discussions with stakeholders, recommends that initially 2 - 3 pilot sites from the 6 candidate sites.

Table 3 shows the most common types of medical problems and 911 calls for various at risk population

TABLE 3: MOBILE INTEGRATED HEALTH CARE OPPORTUNITIES			
Focus population	**Major Health issues**	**EMS most frequent call other than sick person***	**Top 2 EMS Response Locations**
Geriatric adults	Asthma Diabetes Hypertension	Breathing problems Falls	Home/residence
Homeless adults	Blood sugar Environmental conditions	Unconscious/fainting/near fainting Traumatic injury	Unknown
Native Hawaiians across age groups, (infant, pediatric, adolescent, adult and geriatric)	Hypertension Diabetes Cardiac EKG	Traumatic injury Medical Condition	Home/residence

*The most frequent 911 calls are dispatch complaint: sick person – not otherwise specified

Implementation of mobile integrated health care services through community paramedicine would require a number of activities to prepare paramedics to respond to non-emergent conditions. To achieve a functioning community paramedicine system for Hawaii the following components would need to be implemented:

1. TRAINING

    a. Kapiolani Community College
        i. Develop Community Paramedic Curriculum
        ii. Institute Community Paramedic Training Program (1 - 2 semesters)
        iii. In partnership with University of Hawaii Community Colleges - train community health workers based on common core competencies to work with Community Paramedics

2. STAFF

    a. Department of Health (DOH) Emergency Medical Services and Injury Prevention System Branch (EMSIPSB)
        i. Hire Community Paramedicine Administrator

ii. Recruit and hire 0.5 FTE community paramedicine medical director(s) – initially 1 for both pilot sites.
iii. DOH EMSIPSB will contract with existing EMS agencies serving the counties where the pilot locations are selected to staff the community paramedicine response 5 days a week 8 - 12 hours per day

3. EQUIPMENT and SUPPLIES

    a. DOH EMSIPSB will procure 2 - 3 non-transport SUV type vehicles.
    b. DOH EMSIPSB will contract with EMS providers selected for the procurement of necessary supplies and medical equipment
        i. Medical Equipment (blood pressure monitoring device, pulse oximetry monitoring device, EKG monitor, iStat device, glucometer, and, computer)
        ii. Emergency radios

4. MEDICAL RECORDS

    a. Initially Community Paramedics will use the current Hawaii EMS medical record system
    b. This will be replaced once a more suitable medical record system is identified and depending on funding

5. BILLING

    a. Fee schedule will be developed by EMSIPSB in concert with insurance carriers
    b. Community Paramedicine services will be billed by DOH EMSIPSB
    c. Collections to be returned to the State's general fund

6. OFFICE SPACE

    a. Administrator
    b. Medical Director

7. PILOT EVALUATION

    a. DOH EMSIPSB will evaluate the pilot site effectiveness for patient outcomes, 911 system impact, and costs within 18 months of pilot start

8. RETURN on INVESTMENT

    a. Return on investment can be calculated using metrics from
        i. Comparing costs of additional 911 ambulances [range $1.3 -2.6 million per ambulance]
        ii. Emergency care paid for by the State for non-emergent conditions
    b. Evaluation of program impact

LEGISLATION

Legislation would be required to implement the pilot. The Working Group would collaborate with the Legislature to draft the proposed legislation to advance a Community Paramedicine program for the state.

CONCLUSION

The Working Group thanks the Hawaii Legislature for the opportunity to examine the concept of Community Paramedicine for Hawaii. The Working Group supports Community Paramedicine as a solution for the growing health needs of Hawaii. The members of the Working Group believe Community Paramedicine (often referred to as mobile integrated health services) will improve the health people in Hawaii while preserving essential emergency services for emergency conditions and result in decreased expenditures for emergency services for non-emergent conditions.

15 December 2016 – Honolulu, Hawaii

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