

COMMUNITY HEALTHCARE



SUMMIT

Community Healthcare Program

Portland – Vancouver Metro Area
EMS Providers

2014

The emergency medical call-takers, fire first responders and ambulance services within the Portland – Vancouver metro area are taking proactive approaches to the way we deliver healthcare. These innovative and efficient programs bridge the gap between urgent and continuous healthcare, creates additional provider partnerships and ensures proper care for those we serve.

- 911 - Nurse Triage
- EMS - Low Acuity Triage
- Community Paramedics

TABLE OF CONTENTS

Executive Summary	1
Purpose.....	4
EMS Providers and Coalition	4
Draft Vision	4
Draft Mission.....	4
Draft Objectives	5
Healthcare Challenges	5
Challenges in Healthcare	5
Challenges in Emergency Medical Care	6
Low Acuity Patients.....	6
Frequent Users.....	8
At-Risk Patients	9
Community Healthcare Program Opportunities	10
911 - Nurse Triage.....	10
EMS - Low Acuity Triage.....	11
Community Paramedic Program	12
Community Healthcare Program Implementation	13
Organization and Administration.....	13
Establishing Partnerships.....	14
Workforce and Systems Development	15
Community Outreach.....	17
Reporting and Evaluation	17
Conclusion	19

Appendices:

- A. List of EMS Providers
- B. Community Healthcare Program Expense and Savings Analysis

Executive Summary

In the last 20 years, we have seen a significant increase in the number of individuals who utilize 9-1-1 services for routine and episodic healthcare. Transferring these patients from the emergency system into a structured healthcare plan is challenging.

Emergency Medical Service (EMS) organizations (emergency medical call-takers, fire first responders and ambulance service providers) throughout the Portland-Vancouver metro area (Clackamas, Clark, Multnomah and Washington Counties) strive to provide state-of-the-art services to the citizens we serve in an efficient manner. Despite these efforts, we have identified three distinct gaps in the patient care continuum:

- Lack of access to appropriate care systems;
- A need for a wider variety of response and destination options; and
- A need for additional methods to deal with frequent users of emergency medical resources.

An additional challenge for EMS in effectively responding to these gaps is ambulance insurance reimbursement that requires transport to the hospital Emergency Department (ED) which perpetuates a costly healthcare system.

EMS providers in the Portland-Vancouver area are forming a coalition so that multiple agencies and organizations can come together to better coordinate and maximize response in addressing the healthcare challenges our community is facing. The proposed Community Healthcare Programs outlined below encompass distinct strategies designed to address these challenges and are based on the specific needs of the community and reduce healthcare costs.

911 - Nurse Triage Program (Proposed Pilot in Clark County)

This program involves a trained nurse dispatcher that manages low-acuity 9-1-1 calls and provides secondary triage designed to identify the most appropriate resource and destination. This simple, yet effective system provides an alternative option to emergency response. A substantial number of 9-1-1 calls do not require an EMS response, and many patients do not require a visit to a hospital ED. Some callers simply need help connecting with appropriate healthcare resources. The nurse dispatcher can field these calls to provide and find the

appropriate services. Such services may include: scheduling appointments with a primary care provider, making arrangements for transportation, or dispatching a community paramedic unit to respond for further assessment or hands-on help. The nurse dispatcher may help direct the patient to an in-network provider for continuity of care, or help find available alternate care resources for patients who are not assigned a primary care provider.

With the decline of fee-for-service based medicine and the transition to accountable care organizations, it's more important than ever to ensure patients are receiving the services most appropriate to ensure the best outcomes. A 9-1-1 Nurse Triage Program also alleviates some of the burden on the healthcare system by better allocating resources for non-emergent situations.

The Nurse Triage Program could initially be offered in Clark County, Washington and may be expanded to other counties in the metro area. As an example, the estimated costs per nurse triage call, including clinic appointment, is \$309¹ compared to \$1039² traditional EMS response and transport to the hospital ED (See Appendix B for details). The cost per call for operating a Nurse Triage Program would continue to decline as other counties implement the program due to the economies of scale.

EMS Low Acuity Triage (Proposed in All Counties with Current Pilots in Clackamas and Multnomah Counties)

Approximately 22% of EMS calls to 9-1-1 are for low acuity complaints that usually don't require a rapid emergency response,³ the EMS resources typically sent on 9-1-1 medical calls, or transport to an emergency department. Some low acuity patients may be appropriate for alternate care options⁴ such as: ambulance transport to urgent care; clinic appointment; physician consult; and home care. During the assessment for alternate care services the paramedic can use the Nurse Triage Program to help the patient access services for appropriate care.

¹ Assumes 9% of all 9-1-1 medical calls processed in the nurse triage program and based on and OHSU's 2012 CMS Innovation Grant Budget cost for out-patient visit.

² Based on Clark County EMS District #2's 2012 ambulance cost per transport and OHSU's 2012 CMS Innovation Grant Budget cost for ED.

³ Based on Clark County EMS District #2's 2012 patient acuity data and corresponding response priorities.

⁴ Based on OHSU's 2012 CMS Innovation Grant application estimating 6.3% of total EMS responses.

As an example, the estimated costs per EMS - Low Acuity Triage including clinic appointment is \$584⁵ compared to \$1,039 traditional EMS response and transport to the hospital ED (See Appendix B for details).

Community Paramedic Program (Proposed in All Counties)

Fire departments and ambulance services provide non-emergent care in daily operations all across the country. When a patient dials 9-1-1 and receives an emergency response for a low acuity or non-urgent situation, the level of care provided is not only unnecessary but adds significant costs to the healthcare system.

An alternative response is the Community Paramedic Program (aka, Mobile Integrated Healthcare Practice, IHP) that utilizes more efficient vehicles and fewer EMS personnel. For example, a [Community Paramedic](#) could respond in a car for pre-scheduled assessment/prevention⁶ and intervention services⁷. Eligible patients for a Mobile IHP Program would be pre-identified as either frequent users of 9-1-1 services, or high likelihood to be re-admitted to the hospital.

As an example, the estimated costs per patient visit in the Mobile IHP Program is \$170⁸ compared to \$10,601⁹ traditional EMS response and transport to the hospital ED and hospital admission (See Appendix B for details).

By forming local partnerships with other healthcare providers and health insurance carriers, Portland-Vancouver EMS providers will be able to move forward with these programs to help realize the Coalition's vision that *emergency medical dispatchers, EMS personnel, medical providers and public health officials will be fully interconnected in a united effort to ensure that each patient receives the most appropriate care, at the most optimal location, with a minimum delay.*

⁵ Based on Clark County EMS District #2's 2012 ambulance cost per transport and OHSU's 2012 CMS Innovation Grant Budget cost for out-patient visit.

⁶ Such as: BP and BGL monitoring, prescription drug compliance, fall risk-assessment, 12-lead ECG tracing, specimen collection, immunizations/vaccinations and social interaction.

⁷ Such as: breathing treatments, medication administration and IV monitoring.

⁸ Assumes 23 Clark County patients enrolled each receiving 2 scheduled visits per week.

⁹ Based on Clark County EMS District #2's 2012 ambulance cost per transport and OHSU's 2012 CMS Innovation Grant Budget cost for ED and hospital admission.

Purpose

The ultimate purpose of the Community Healthcare Program is to improve the standard of care for patients while at the same time reducing costs. This paper provides an overview of the Portland-Vancouver area EMS providers; the demographics of the patients eligible for the Community Healthcare Programs being offered; and an overview of the Programs' services, costs and steps towards implementation.

Portland-Vancouver EMS Providers

EMS Providers in the Portland – Vancouver area include five 9-1-1 dispatch and two ambulance control centers, 29 fire first agencies, five ambulance services, as well as EMS training/research institutions, partner organizations and regulatory agencies. These providers represent both government agencies and private organizations whose combined service area includes:

Residents - 2,129,100

Square Miles - 3,654

EMS Responses – 175,000

(See Appendix A for a complete list of EMS Providers)

EMS providers in the Portland-Vancouver area are in the process of forming a Coalition in order that multiple agencies and organizations could come together to better coordinate and maximize response in addressing the healthcare challenges our community is facing. The Coalition's draft Vision, Mission and Objectives are as follows:

Draft Vision

Emergency medical dispatchers, EMS personnel, medical providers and public health officials will be fully interconnected in a united effort to ensure that each patient receives the most appropriate care, at the most optimal location, with a minimum delay.¹⁰

Draft Mission

Provide quality out-of-hospital care that is patient focused, value demonstrative and outcome driven.

¹⁰ National Academy of Sciences, Institute of Medicine. *Emergency Medical Services: At the Crossroads*; The National Academies Press 2007. p 5.

Draft Objectives

1. Include EMS in an integrated healthcare delivery system aimed at meeting the three part aim of better health, better care and lower costs.
2. Reduce the probability of providing acute emergency care for at risk patients and the medically underserved, thereby reducing unnecessary healthcare expenditures.
3. Increase outreach activity and public illness/injury prevention efforts for EMS providers.

Healthcare Challenges

Challenges in Healthcare

Spending on healthcare in the United States has been growing faster than the economy for many years. Stemming the growth of healthcare costs has become a major priority, as the government, employers, and consumers increasingly struggle to keep up with health care costs. What these healthcare cost reform efforts will eventually look like is still unknown. With the passage of the Affordable Care Act (ACA) in 2010, some of the key measures aimed at cost containment include¹¹:

- Greater government oversight and regulation of health insurer premiums and practices.
- Increasing competition and price transparency in the sale of insurance policies through Health Insurance Exchanges.
- Payment reforms that aim to reduce payments for treatments and hospitalizations resulting from errors, or poor quality of care.
- Funding for comparative effectiveness research (CER) that compares different interventions and strategies to prevent, diagnose, treat, and monitor health conditions.¹²
- Refocusing medical delivery systems to be patient-centered and improve the coordination and quality of care (e.g. ACOs, medical homes).¹³

¹¹ Healthcare.gov. *Key Features of the Law*. HHS, 2011.

¹² Government Accountability Office, *Use of Recovery Act and Patient Protection and Affordable Care Act Funds for Comparative Effectiveness Research*, June 2011.

¹³ Healthcare.gov. *Accountable Care Organizations*. HHS, 2011.

EMS is in a unique position to address this last bullet point. The Community Healthcare Programs outlined in this document will show how EMS through effective partnerships can deal with the healthcare challenges in our community.

Challenges in Emergency Medical Care

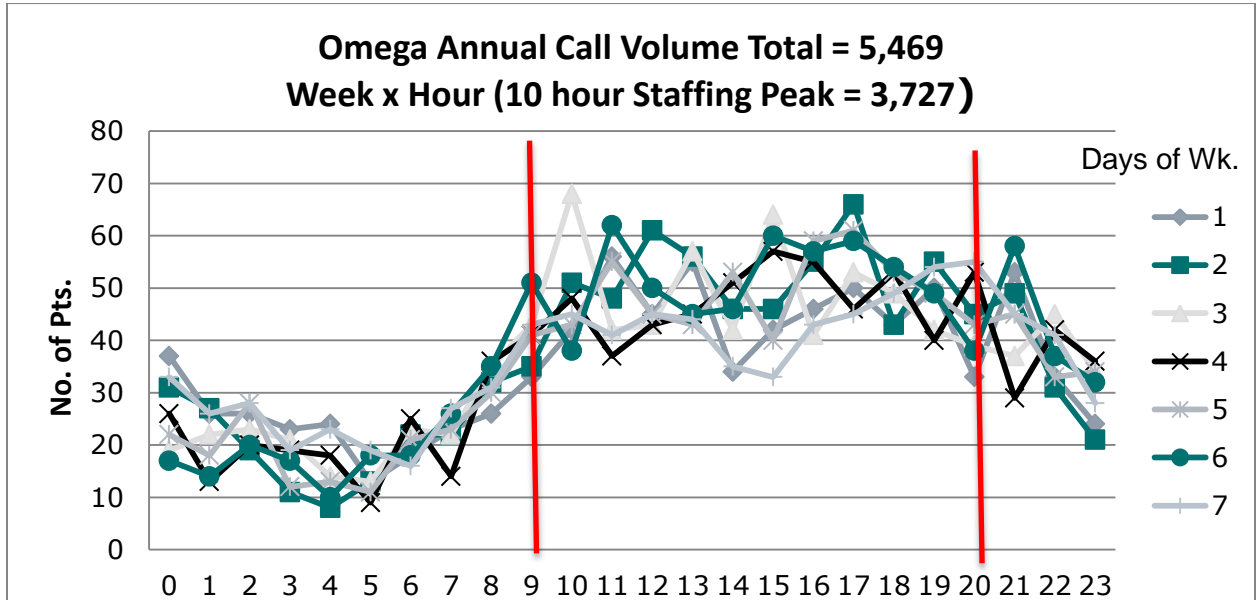
Callers dial 9-1-1 and enter the emergency medical care system because: 1) they believe they are having an emergency; 2) it's the only option available; or 3) to meet some unmet social need. These patients receive limited options in the current EMS system of treatment and transport to a hospital emergency department, or refusal of care and/or transport.

The main reason these patients use EMS as primary care is the fact that there is no bridge between EMS and structured healthcare options. If we do not change our model and improve the way we deliver care, these patients will continue to call 9-1-1 and receive the most expensive means of transportation (ambulance) to the most expensive means of treatment (hospital emergency department), which increases financial strains on all providers and insurers.

There are three groups of patients that could qualify for the Community Healthcare Programs proposed:

Low Acuity Patients - One patient group includes large amount of 9-1-1 emergency medical use for non-emergent care. In the Portland-Vancouver area, an estimated 24,000 "Omega" or low acuity patients could qualify for a secondary nurse dispatcher triage system. This represents an estimated 14% of all 9-1-1 requests for EMS response. Approximately 16,000 low acuity patients could be eligible for alternate care services, based on peak Omega call volumes, typical hours of operation for alternate care services and nurse triage calls returning to 9-1-1 for EMS response (See Graph A – *showing Clark County only*)

Graph A

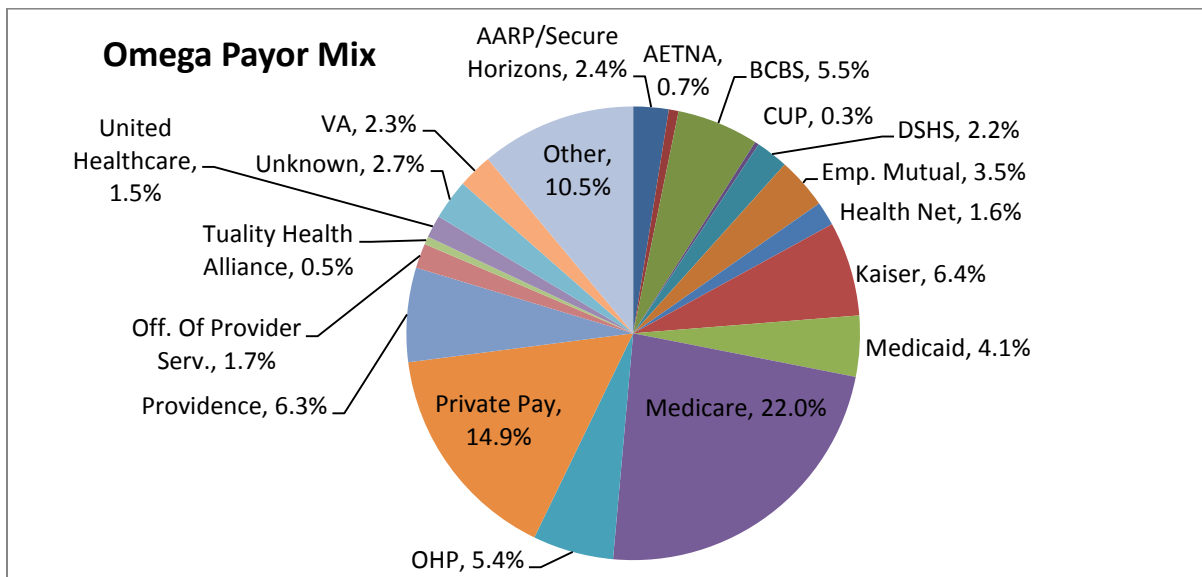


*Source – Clark Regional Emergency Services Agency’s EMS Data Network for Clark County.

Based on the low acuity data for Clackamas, Clark, Multnomah and Washington Counties that was provided by AMR and Metro West, the top payor groups include: Medicare at 22%, Private Pay (uninsured) at 15% and Kaiser Permanente at 10%.¹⁴

Graph B shows the payor mix of the Omega patients eligible for alternate care services.

Graph B



¹⁴ Note – “Other” includes a variety of payors whose separate amounts are less than those specifically displayed in Graph B.

Frequent Utilizers - Another significant problem is the large amount of frequent users accessing 9-1-1 emergency medical services. Below is an example of the top 12 (or less) frequent utilizers per county that exceeded 12 calls in 2013. This equated to 1,141 EMS responses for that year, or a total of 4,241 calls over the previous 3 years (See Graph C).

Graph C

	Frequent 9-1-1 Utilizers							
	Clark		Clackamas		Multnomah		Washington	
	2013	2011 - 2013	2013	2011 - 2013	2013	2011 - 2013	2013	2011 - 2013
A	71	374	56	107	25	264	26	137
B	32	170	23	23	23	177	53	73
C	16	156	22	25	37	177	29	50
D	44	122	18	73	12	174	29	46
E	26	105	15	77	70	155	28	60
F	22	89			33	152	22	57
G	22	89			42	149	20	87
H	35	65			26	146	20	77
I	17	62			36	141	14	41
J	33	57			61	128		
K	17	54			16	127		
L	35	50			15	125		
	370	1393	134	305	396	1915	241	628

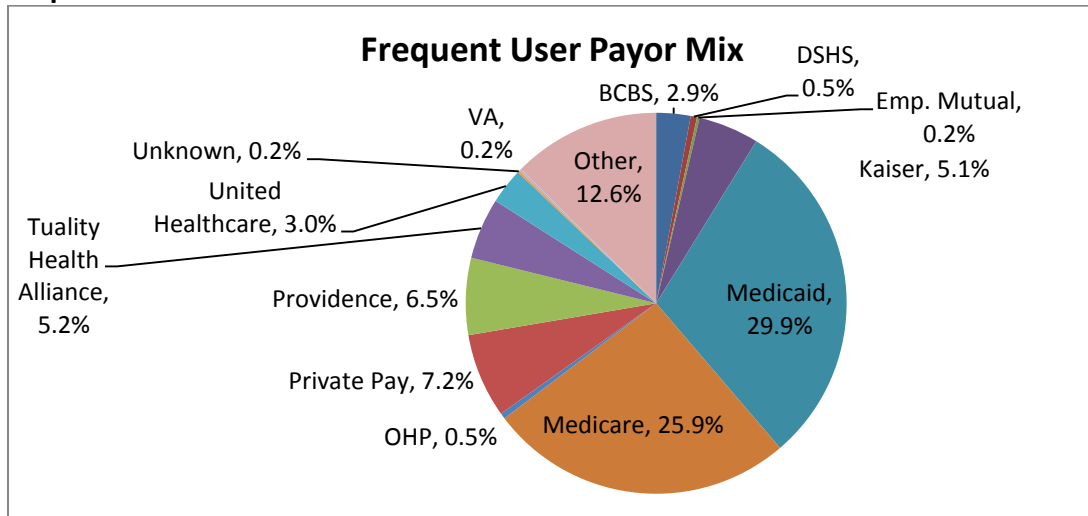
*Source – Clark Regional Emergency Services Agency’s EMS Data Network for Clark combined with Data from AMR (Clackamas and Multnomah) and Metro West (Washington).

Based on the frequent utilizer data for Clackamas, Clark, Multnomah and Washington Counties that was provided by AMR and Metro West, the top payor groups include: Medicaid at 30%, Medicare at 26%, Private Pay (uninsured) at 7%, and Providence at 6.5%.¹⁵

¹⁵ Ibid 12

Graph D shows the payor mix of the Omega patients eligible for alternate care services.

Graph D



At-Risk Patients – Finally, another patient group includes those patients who are at risk of being re-admitted to the hospital. The estimated number of eligible patients is dependent on those enrolled in Community Paramedic (aka, Mobile Integrated Healthcare Practice) programs. The Medicare Payment Advisory Commission estimates around \$15 billion in Medicare expenditures for potentially preventable readmissions in the United States.¹⁶ There are a variety of screens (e.g., LACE¹⁷) used by primary care providers to identify patients at-risk for readmissions. For example, the Agency on Healthcare Research and Quality found the 30-day readmission rate for Congestive Heart Failure (CHF) patients was 24.7% nationwide¹⁸, and 52% of these patients did not see their doctor between discharge and readmission¹⁹.

¹⁶ Report to the Congress: Promoting Greater Efficiency in Medicare, June 2007

¹⁷ Length of stay, Acute admission, Comorbidity and Emergency room visit.

¹⁸ Bernheim SM, et al, *2012 Measures Maintenance Technical Report: acute myocardial infarction, heart failure, and pneumonia 30-day risk-standardized readmission measures*. Baltimore (MD): Centers for Medicare & Medicaid Services (CMS); 2012 Apr 16. 55 p.

¹⁹ Epstein et al, *The Relationship between Hospital Admission Rates and Rehospitalizations*. N Engl J Med 2011;365:2287-95

Community Healthcare Program Opportunities

EMS providers in the Portland-Vancouver have found some areas where EMS is in a unique position to help address these healthcare challenges in our community. The following section is a brief overview of the proposed programs and actual pilots being offered.

911 - Nurse Triage Program (Proposed Pilot in Clark County)

The 911 - Nurse Triage Program uses the [Emergency Communications Nurse System \(ECNS\)™](#) that provides a comprehensive nurse dispatcher triage system. Using software and 200 embedded protocols, the 9-1-1 Nurse Dispatcher can schedule appointments with providers in real-time. The 9-1-1 Nurse Dispatcher can also dispatch community paramedics if a patient needs face-to-face assistance or home evaluation. Hospitals, home health and hospice, and other providers can also request community paramedics through the 9-1-1 Nurse Dispatcher for a variety of services (See “Community Paramedic Program” for details).

ECNS™ has a proven track record being used over 20 different emergency medical call centers internationally including the United States, United Kingdom, Australia, South Africa, Italy, Austria and Botswana, with over 2 million calls being processed annually. Studies evaluating ECNS™ has shown that non-urgent calls can be safely transferred for nurse advice, or further assessment for alternative response.^{20, 21, 22} In addition, the ECNS™ program has shown a high patient satisfaction rate.²³

Applying similar models to our current emergency medical dispatch system, approximately 10% of the 9-1-1 call volume could be routed through the 911-Nurse Triage Program. The 911-Nurse Triage Program could initially be offered in Clark County, Washington and may be expanded to other counties.

²⁰ Smith, et al. *EMS telephone referral program: an alternate approach to nonurgent 9-1-1 calls*, Prehospital Emergency Care, 5(2), 2001

²¹ Dale, et al. *Computer assisted assessment and advise for “non-serious” 999 ambulance service callers: the potential impact on ambulance dispatch*, Emerg Med J 2003; 20:178-183.

²² Turner, et al. *The cost and benefits of managing low priority 999 ambulance calls by NHS Direct nurse advisors*. Medical Care Research Unit, University of Sheffield, 2006

²³ Kirsten Miller, *Pain to Pink-eye: Low-acuity Call Triage in Louisville*. Findings presented on patient satisfaction survey, Louisville Metro EMS

As an example, the estimated costs per Nurse Triage call including clinic appointment is \$309²⁴ compared to \$1039²⁵ traditional EMS response and transport to the hospital ED (See Appendix B for details). The cost per call for operating a Nurse Triage Program would continue to decline as other counties implement the program due to the economies of scale.

EMS - Low Acuity Triage (Proposed All Counties with Current Pilots in Clackamas and Multnomah Counties)

Paramedics who are on-scene with low acuity patients use a field triage protocol jointly developed by the participating counties' medical directors. Using this triage tool, patients can be appropriately identified as eligible for alternate care options such as: ambulance transport to urgent care, clinic appointment, physician consult and home care. During the assessment for alternate care services the paramedic could also use the 9-1-1 Nurse Dispatcher (if implemented) to help the patient access services for appropriate care.

The EMS - Low Acuity Triage Program began as a pilot November 2013, in Clackamas and Multnomah Counties. Clark and Washington County are interested in implementing similar programs.

EMS providers have demonstrated the ability to effectively triaged patients with minor complaints to urgent care clinics rather than the local emergency departments. Based on physician review and patient interviews, the alternate care intervention has been shown to be both safe and satisfactory.²⁶

As an example, the estimated costs per EMS - Low Acuity Triage including clinic appointment is \$584²⁷ compared to \$1,039 traditional EMS response and transport to the hospital ED (See Appendix B for details).

²⁴ Ibid 1

²⁵ Ibid 2

²⁶ Schaefer RA, Rea TD, Plorde M, Peiguss K, Goldberg P, Murray JA. *An emergency medical services program of alternate destination of patient care*. Prehosp Emerg Care. 2002 Jul-Sep; 6(3):309-314.

²⁷ Ibid 5

Community Paramedic Program (Proposed All Counties)

There are approximately 250 [Community Paramedic](#) programs in the United States. Despite the relative few programs in this nation, similar programs have been operating for a number of years in the United Kingdom, Canada and Australia. These programs have proven to be safe and effective with high patient satisfaction rates.^{28, 29, 30}

One of the more integrated models in the United States is [MedStar's Mobile Integrated Healthcare Practice](#) (IHP) Program operating in Fort Worth, Texas. This program focuses on: 1) EMS frequent users, 2) CHF patients, 3) avoiding hospice revocation, and 4) emergency department discharge in-home observation.

For example, the CHF Readmission Avoidance Program has community paramedics working with cardiologist to provide pre-scheduled in-home visits of CHF patients. They provide patient education, assessments (i.e., vital signs, 12L ECG, draw blood for labs, prescription drug compliance and weight monitoring) and intervention services (i.e., breathing treatments and diuresis). Of the 23 patients enrolled in the program, MedStar reported a 60% reduction in transports to the ED and a 47% reduction in hospital admissions.

Since its 2009 inception, MedStar's IHP Program has saved more than \$7.4 million in emergency room charges, and reduced 9-1-1 use by these patients by 86.2 percent in 12 months post-enrollment, saving \$1.6 million in EMS charges. Not only has the program saved money, it has given patients access to resources they were unable or unwilling to use in the past.

EMS Providers in the Portland-Vancouver area would provide community paramedic light-response vehicles during peak hours. The community paramedic responsibilities would include, but are not limited to: 1) EMS frequent user check-ups, 2) 9-1-1 Nurse Triage dispatched appointments, 3) CHF in home assessment and intervention services, 4) discharged patient

²⁸ Dixon S, Mason S, Knowles E, Colwell B, Wardrope J, Snooks H, et al. *Is it cost effective to introduce paramedic practitioners for older people to the ambulance service? Results of a cluster randomized controlled trial.* Emerg Med J 2009; 26:226-251.

²⁹ Mason S, Knowles E, Colwell B, Dixon S, Wardrope J, Gorringer R, Snooks H, Perrin J, Nicholl J. *Effectiveness of paramedic practitioners in attending 999 calls from elderly people in the community: cluster randomized controlled trial.* BMJ. 2007 Nov 3; 335(7626):919.

³⁰ Cain E, Ackroyd-Stolarz S, Alexiadis P, Murry D. Prehospital hypoglycemia: the safety of not transporting treated patients. Prehosp Emerg Care 2003; 7:458-465.

observations, 5) home safety checks, and 6) other miscellaneous medical services that help fill in the gaps in community healthcare. With the assistance of the 9-1-1 Nurse Dispatcher, a community paramedic can assist in scheduling appointments at clinics or primary care providers, arranging transportation, or contacting long-term services such as home health, hospice, aging services, etc.

As an example, the estimated costs per patient visit in the Community Paramedic (aka, Mobile Integrated Healthcare Practice) Program is \$170³¹ compared to \$10,601³² traditional EMS response and transport to the hospital ED and hospital admission (See Appendix B for details).

Community Healthcare Program Implementation

As mentioned earlier in this document, current EMS reimbursement is incentivized to provide the highest cost transport to the highest cost care setting (Medicare's requirement for ambulance service reimbursement is based on ambulance transport to the hospital ED). In order to move away from a reimbursement model with limited and costly options, the EMS providers in the Portland-Vancouver area hope that partnerships can be formed with local hospitals, primary care providers and insurance carriers. This section describes how we can move forward to assist our community in having: better health, better healthcare and lower healthcare costs ([CMS' Triple-Aim](#)).

Organization and Administration

Portland-Vancouver EMS Providers Coalition is being formed in order that multiple agencies and organizations can come together to better coordinate and maximize response in addressing the healthcare challenges our community is facing. The Coalition will form a Community Healthcare Program Steering Committee. The Steering Committee will be composed of leadership representatives from member organizations, EMS medical directors and county EMS administrators. This Steering Committee's membership could be expanded to include representatives from participating local hospitals, primary care providers, and insurance carriers as programs are implemented. The purpose of the Steering Committee is to provide

³¹ Ibid 6

³² Ibid 7

coordination of: information, data collection, monitoring and evaluation of the Community Healthcare Programs that are implemented.

Establishing Partnerships

The ability to implement any of Community Healthcare Programs being offered is contingent on partnerships being established for sustained funding, as well as out-patient providers and hospital systems referring patients for Community Healthcare Program services. No one insurance carrier, hospital, or out-patient provider can fund any of the programs alone. Yet with combined partnerships and the ability to fully implement the programs offered, real cost savings can be realized.

As a place to start discussions, the following information provides ideas on how to move forward with partnerships with the specific programs offered:

911 - Nurse Triage Program (Proposed Pilot in Clark County) - The 911 - Nurse Triage Program can initially be offered in Clark County, Washington since the County's 9-1-1 center, [Clark Regional Emergency Services Agency \(CRESA\)](#) and [American Medical Response's \(AMR's\)](#) ambulance control center are accredited by the [International Academy of Emergency Dispatch \(IAED\)](#). This program may be expanded to other counties in the metro area contingent on 9-1-1 centers being accredited by the IAED³³.

Based on Clark County alone, it's estimated the 911 - Nurse Triage Program would result in \$730* in cost savings, or \$1,826 in reduced charges per patient compared to the traditional EMS and ED response. **Note – These reduced charges assume 100% reimbursement for services offered (See Appendix B for details).*

The estimated annual cost of the 911 - Nurse Triage Program is \$467,284. Please note that one control center could process all the eligible calls in the Portland – Vancouver metro area. As counties are added, the cost per call would decrease based on the existing production capacity. One way this program could be funded is based on the actual payor mix and local hospitals' portion of those patients that are private pay.

³³Compliance to a medically researched and standardized protocol is necessary to safely identify those calls eligible to be triaged out of traditional EMS response.

EMS - Low Acuity Triage (Proposed All Counties and Current Pilot in Clackamas and Multnomah Counties) - The EMS - Low Acuity Triage Program can be offered in all counties in the Portland – Vancouver metro area. This program is currently being piloted in Clackamas and Multnomah Counties.

It's estimated the EMS - Low Acuity Triage Program would result in \$455* in cost savings, or \$1,554 in reduced charges per patient compared to the traditional EMS and ED response.

**Note – These reduced charges assume 100% reimbursement for services offered (See Appendix B for details).* Like the 9-1-1 Nurse Triage Program, one way to fund this program could be a capitated amount based on the actual payor mix and local hospitals portion of those patients that are private pay. It could also be funded on the actual cost per call since the traditional work force is being used.

Community Paramedic Program (Proposed All Counties) - The Community Paramedic Program can be offered in all counties in the Portland – Vancouver metro area.

One example of possible Community Paramedic Programs offered are patients who are at-risk for being readmitted to the hospital. It's estimated the Community Paramedic Program would result in \$10,244* in cost savings, or \$35,676 in reduced charges per patient compared to the traditional EMS and ED response, and hospital admission. **Note – These reduced charges assume 100% reimbursement for services offered (See Appendix B for details).*

Again, one way to fund this program could be a capitated amount based on the actual payor mix and local hospitals portion of those patients that are private pay.

Workforce and Systems Development

Prior to implementation of the programs offered, there will be additional training and resource development required. The following is an outline of specific training, resources and timelines involved for each program:

911 - Nurse Triage Program - The 911 - Nurse Triage Program uses the ECNS™ that provides a comprehensive nurse dispatcher triage system comprised of over 200 protocols. It is designed to be implemented within an EMS communication center and used alongside the

IAED's [Medical Priority Dispatch System™ \(MPDS®\)](#) used to initially triage those low acuity callers eligible for ECNS™. A prerequisite is for communication centers to be accredited by the IAED in using MPDS to ensure an accurate and safe initial triage.

CRESA's and AMR's control centers are currently accredited by the IAED in MPDS. The 911 - Nurse Triage Program could be expanded to other counties in the metro area contingent on 9-1-1 centers being accredited by the IAED.

Prior to implementation of the 911 – Nurse Triage Program, the eligible control center would need to hire qualified registered nurses to be trained and certified in ECNS™. The current emergency medical dispatchers would also need some additional training in using the MPDS Omega protocol that identifies low-acuity patients eligible. During this recruitment and training period, installation and testing of the appropriate software would be done. A phase 1 implementation period would then follow that provides ECNS services, but continues to provide traditional EMS response. During this phase an assessment and evaluation would be done to match MPDS Omega call types to the EMS primary impressions to confirm properly identified low acuity patients. Upon successful evaluation, Phase 2 would then be implemented without EMS response. The estimated time from recruitment to full implementation is eight months.

EMS – Low Acuity Triage Program – The EMS - Low Acuity Program was implemented November 2013 as a pilot program in Clackamas and Multnomah Counties. The Protocol Development Committee has developed the protocol and triage tool to be used by paramedics to identify low-acuity patients who are appropriate for alternate care services. Additional training is also required for lead paramedics, or specifically selected paramedics. For new counties implementing the EMS - Low Acuity Triage Program the estimated time for selection and training is three months.

Community Paramedic Program - Prior to implementation, the Mobile – IHP Program, participating EMS agencies need to select qualified paramedics to go through the community paramedic training program that includes classroom and online training. Following the approximate 150 hour training program, the paramedics will then do a supervised internship lasting approximately 50 hours rotating among participating EDs, nursing facilities, home health agencies, and primary care and specialty outpatient clinics.

They then start supervised home visits for another two weeks and would be approved by medical directors before providing community paramedic services.

During this recruitment, selection and training period, additional equipment and supplies will be purchased and installed. These equipment and supplies can include, but are not limited to: light-duty response vehicles, 12-lead heart monitors, patient monitors and appropriate assessment and intervention supplies. The estimated time from recruitment to full implementation is six months.

Community Outreach

Prior to program implementation, the community at-large would be informed of the potential to enter into alternate care options by an initial media campaign involving media releases; advertisements in local newspapers; and a website that would link to participating EMS agencies and dispatch centers. Local hospitals and out-patient providers would also be provided posters and handouts that would be available to their patients describing the new system.

As the programs are phased in, updates will be distributed to those involved or affected; and specific Community Healthcare Program Workgroups will be scheduled to meet.

Reporting and Evaluation

Monitoring and evaluation are critical aspects of the Community Healthcare Program. Depending on successful grant funding, the lead organization in managing the data collection and evaluation is Oregon Health Sciences University's Center for Policy Research in Emergency Medicine (OHSU's CPR-EM). OHSU's CPR-EM has a 10-year history of conducting policy-relevant, high quality health services research with grants from the National Institutes of Health, Agency for Healthcare Research and Quality, Centers for Disease Control and Prevention, private foundations and the State of Oregon.

The plan outlined below includes: the metrics for evaluating the interventions; different sources for data, the mechanism for matching the dispatch/control center Computer Aided Dispatch (CAD) and EMS records to in-hospital and billing data; plus surveys of patient and providers.

Metrics for Evaluating the Interventions – The following is an overview of the metrics to be used to measure safety, quality, utilization, health outcomes and cost:

- *EMS evaluation* (total 9-1-1 calls, calls diverted to 911 – Nurse Triage, EMS transports, use of EMS - Low Acuity Triage and Community Paramedic services);
- *Health outcomes and safety* (24-hour follow up of patients, ICU admission, Community Healthcare Program patients requiring admission, or mortality within 7 and 30 days);
- *Quality measures* (under-triage and delay in time-critical interventions such as STEMI, CVA, severe trauma, severe respiratory and cardiac arrest)
- *Cost and healthcare utilization* (ED visits, hospital admissions, readmission within 30 days, length of stay)

Provider Data - All patient encounters in the programs being offered will be documented by participating EMS providers. These records will include electronic data from dispatch/control center CAD records and EMS electronic Patient Care Reports (ePCR). This data will be exported on a monthly basis and downloaded into a central server at OHSU for data analysis and reporting.

Outcome Data – Outcome information subsequent to the 9-1-1 call and EMS care has been historically difficult to access and match. Linking this data is critical in evaluating the quality of out-of-hospital care; tracking the safety of non-traditional alternate care paths; and comparing outcome and cost impact of these alternate care paths in comparison to more traditional EMS and ED care. OHSU’s CPR-EM will use probabilistic linkage to match outcome data sources of existing hospital, clinic and costs data.

Patient/Customer and Provider Surveys – Patient and provider surveys will be sent those accessing and providing the Community Health Care Program’s services within 24 hours of patient contact. These satisfaction surveys will be sent to the patient, referring physician/case worker and Community Healthcare Program provider.

Conclusion

EMS providers are in a unique position by filling in the gaps in the continuum of healthcare with a mobile 24 x 7 workforce. By forming local partnerships with other healthcare providers and health insurance carriers, EMS providers in the Portland-Vancouver metro area will be able to move forward with these programs to help realize the Coalition's vision that *Emergency medical dispatchers, EMS personnel, medical providers and public health officials will be fully interconnected in a united effort to ensure that each patient receives the most appropriate care, at the most optimal location, with a minimum delay.*

Appendix A



List of EMS Providers Portland – Vancouver Metro Area

EMS Providers / Contacts

Type	County	Agency Contact	Programs Being Offered		
Agency/Organization			911 - IHC	EMS - IHC	Community Paramedic
Ambulance Services					
American Medical Response	Clackamas	Paul Priest Paul.priest@amr.net			
	Clark	Rocco Roncarati Rocco.Roncarati@amr.net			
	Multnomah	Randy Lauer randy.lauer@amr.net			
Camas Fire Department	Clark	Nick Swinhart nswinhart@camas.wa.us			
Canby Fire	Clackamas	Tom O'Connor tomo@canbyfire.org			
Metro West Ambulance	Washington	Larry Boxman larryb@metrowest.fm			
Molalla Fire	Clackamas	Vince Stafford vstafford@molallafire.org			
North Country EMS	Clark	Ben Peeler b.peeler@northcountryems.org			
Fire First Response					
Banks Fire Dist. #13	Washington				
Boring Fire Dist. #59	Clackamas	Brian Stewart brian.stewart@boringfire.com			
Camas Fire Department	Clark	Nick Swinhart nswinhart@ci.camass.wa.us			

* Member of EMS Consortium Steering Committee

Type	County	Agency Contact	Programs Being Offered		
Agency/Organization			911 - IHC	EMS - IHC	Community Paramedic
Canby Fire Dist. #62	Clackamas	Tom O'Connor tomo@canbyfire.org			
Clackamas Co. Fire Dist. #1	Clackamas	Fred Charlton Fred.Charlton@clackamasfire.com Ryan Hari Ryan.hari@clackamasfire.com			
Clark County Fire & Rescue	Clark	Dennis Mason dennis.mason@clarkfr.org			
Clark Co. Fire Dist. #3	Clark	Steve Wrightson steve@clarkcofd3.org			
Clark Co. Fire Dist. #6	Clark	Jerry Green jerryg@ccfd6.org			
Clark Co. Fire Dist. #10	Clark	Gordon Brooks Gordon.Brooks@clark.wa.gov			
Clark Co. Fire Dist. #13	Clark	Ben Peeler b.peeler@northcountryems.org			
Colton Fire Dist. #70	Clackamas	Richard Beaudoin rbeaudoin@colton.com			
Cornelius Fire Department	Washington	fire@ci.cornelius.or.us			
East County Fire & Rescue	Clark	Scott Kohler skoehler@ecfr.us			
Estacada Fire Dist. #69	Clackamas	Bob Morrisey bmorrisey@estacadafire.org			

Type	County	Agency Contact	Programs Being Offered		
Agency/Organization			911 - IHC	EMS - IHC	Community Paramedic
Forest Grove Fire & Rescue	Washington	Michael Kinkade mkinkade@forestgrove-or.gov			
Gaston Fire Dist.	Washington	Roger Mesenbrink			
Gladstone Fire Department	Clackamas	Mike Funk Funk@ci.gladstone.or.us			
Gresham Fire Department	Multnomah	Scott Lewis lewis@ci.gresham.or.us			
Hillsboro Fire Department	Washington	Scott Malone malones@ci.hillsboro.or.us			
Hoodland Fire Dist. #74	Clackamas	Mic Eby miceby@hoodlandfire.org			
Lake Oswego Fire Department	Clackamas	Larry Goff lgoff@ci.oswego.or.us			
Molalla Fire Dist. #73	Clackamas	Vince Stafford vstafford@molallafire.org			
Portland Fire & Rescue	Multnomah	Mark Kaiel Mark.kaiel@portlandoregon.gov			
Sandy Fire Dist. #72	Clackamas	Phil Schneider p.schneider@sandyfire.org			
Tualatin Valley Fire & Rescue	Washington	Mark Stevens Mark.Stevens@tvfr.com			
Vancouver Fire Department	Clark	Joe Molina Joe.Molina@cityofvancouver.us			

Type	County	Agency Contact	Programs Being Offered		
Agency/Organization			911 - IHC	EMS - IHC	Community Paramedic
Washington County Fire Dist. #2	Washington	Greg Nelson d2-admin@comcast.net			
Communications Centers					
American Medical Response	Clackamas	Kevin Anderson Kevin.Anderson@amr.net			
	Clark				
	Multnomah				
Bureau of Emergency Communications	Multnomah	Lisa Turley Lisa.turley@portlandoregon.gov			
Clackamas County Department of Communications	Clackamas	Bob Cozzie bobcoz@co.clackamas.or.us			
Clark Regional Emergency Services Agency	Clark	Anna Pendergrass Anna.Pendergrass@clark.wa.gov			
Lake Oswego Communications Center	Clackamas	Leslie Taylor ltaylor@ci.oswego.or.us			
Metro West Ambulance	Washington	Kristen Hoover Kristen.hoover@metrowest.fm			
Washington County Consolidated Communications Agency	Washington	Kelly Durta			
EMS Agencies					
Clackamas County EMS	Clackamas	Larry McDaniels larrymac@co.clackamas.or.us			
Clark Regional Emergency	Clark (EMS)	Doug Smith-Lee			

Type	County	Agency Contact	Programs Being Offered		
Agency/Organization			911 - IHC	EMS - IHC	Community Paramedic
Services Agency	District #2)	doug.smith-lee@clark.wa.gov			
Multnomah County EMS	Multnomah	Darrell Knott darrell.c.knott@multco.us			
Washington County EMS	Washington	Jonathan Chin Jonathan_Chin@co.washington.or.us			
Medical Directors					
	Washington	Mohamud Daya, MD dayam@ohsu.edu			
	Multnomah	Jon Jui, MD jui@ohsu.edu			
	Clackamas	Terri Schmidt, MD schmidtt@ohsu.edu			
	Clackamas	Craig Warden, MD wardenc@ohsu.edu			
	Clark	Lynn Wittwer, MD wittwermpd@iinet.com			

Appendix B



Community Health Care Program Expense and Savings Analysis

Community Health Care Program - Expense and Savings Analysis

Program	Index			A	B	C	D	E	F	
		Clark		Clark						
		Number	Percent	Amb. Cost / Transport	ED Cost / Visit	Admit Costs / Day	911 - IHC	Clinic Costs	Mobile IHP	
911 - IHC	1	911 Calls	38,457	100%	\$397	\$642	\$9,562	\$467,284		\$407,582
	2	911-IHC Eligible	6,153	16%						
	3	Available Hours	4,230	11%						
	4	911-IHC. Qualified	3,846	10%						
	5	Return to 911	346	9%						
	6	911-IHC	3,500	9%						
	7	Transports Avoided	3,020	86%	(\$1,198,997)					
	8	ED Visits Avoided	3,020	86%		(\$1,938,932)				
	9	Admissions Avoided	302	10%			(\$2,887,861)			
	10	Out-Pt. Incurred	2,416	69%						
	11	Average Pt. Charge			\$835	\$1,300	\$20,265	\$122	\$187	
	12	Collection Rate			38.2%			100%	100%	
	13	Revenue			\$ 963,231			\$467,284	\$451,813	
	14	Cost - Revenue Balance			(\$235,766)					
911-IHC Provider Cost Reduction Per Patient									\$730	
911-IHC Per Patient Charge Savings									\$1,826	

Program	Index				A	B	C	D	E	F	
			Clark		Clark						
			Number	Percent	Amb. Cost / Transport	ED Cost / Visit	Admit Costs / Day	911 - IHC	Clinic Costs	Mobile IHP	
					\$397	\$642	\$9,562	\$467,284		\$407,582	
EMS - IHC	15	EMS Responses	34,957	91%							
	16	Transports	30,168	86%							
	17	EMS-IHC Qualified	2,202	6%							
	18	Transports Avoided	2,202	6%	(\$874,320)						
	19	ED Visits Avoided	2,202	6%		(\$1,413,888)					
	9	Admissions Avoided	220	10%			(\$2,105,856)				
	10	Out-Pt. Incurred	1,762	80%							
	11	Average Pt. Charge			\$835	\$1,300	\$20,265	\$397	\$187		
	12	Collection Rate			38.2%			100%	100%		
	13	Revenue			\$ 702,397			\$874,320	\$329,467		
	14	Cost/Revenue Balance			(\$171,923)						
	EMS-IHC Provider Cost Reduction Per Patient										\$455
	EMS-IHC Per Patient Charge Savings										\$1,551

Program	Index			A	B	C	D	E	F
		Clark		Clark					
		Number	Percent	Amb. Cost / Transport	ED Cost / Visit	Admit Costs / Day	911 - IHC	Clinic Costs	Mobile IHP
				\$397	\$642	\$9,562	\$467,284		\$407,582
	31	Average Pt. Charge		\$838	\$1,300	\$33,895		\$187	\$170
	32	Collection Rate*		41.3%				100%	100%
	13	Revenue		\$ 6,299				\$2,723	\$141,757
	14	Cost/Revenue Balance		(\$927)					
		Mobile IHP Provider Cost Reduction Per Patient							\$10,244
		Mobile IHP Per Patient Charge Savings							\$35,676

Expense and Savings Analysis Index

- 1 *9-1-1 Calls* - Based on 2012 CRESA Annual Report Total EMS Events.
- 2 *911 IHC Eligible* - Based on CRESA Omega Data Summary's spreadsheet finding at 16% of all EMS calls.
- 3 *Available Hours* - Based on Omega Data's spreadsheet sum of call count per staffed hours at 11% of all EMS calls.
- 4 *911 IHC Qualified* - Based on Omega calls during staff hours #3 - 1% held by 9-1-1 per RAA experience.
- 5 *Return to 9-1-1* - Based on ACP Disp. Qualified - 9% return rate per RAA experience.
- 6 *911 - IHC - ACP Dispatch Qualified - Return to 9-1-1.*
- 7 *Transport Avoided* - Based on Clark County Omega 2010 dispositions @ 86.3% transportation rate.
- 8 *ED Visits Avoided* - Based on all 9-1-1 calls currently transported to ED.
- 9 *Admissions Avoided* - Based on OHSU's 2012 CMS Innovation Grant Summary presentation spreadsheet "Cost Savings" at est. 10% admission rate for this group.
- 10 *Out-Pt. Incurred* - Based on OHSU's 2012 CMS Innovation Grant Summary presentation spreadsheet "Cost Savings" at est. 80% of ED visits result in out-patient visits for this group.

Average Patient Charge - Based on Ambulance Cost = 2012 Annual Report Clark County EMS Dist. #2 Average Patient Charge; ED Cost = Based on Consumer Health Rating's, 2007 Medical Expenditure Panel Survey @ 4.8 annual inflation per CPI medical care plus verbal confirmation by local providers; and Admit Cost = Based on MS-DRG 914 Washington State Hospital Pricing website for Clark ending June 2012.
- 11
- 12 *Collection Rate* - Based on Ambulance Cost = 2012 Annual Report Clark County EMS Dist. #2 payor mix collection rates.
- 13 *Revenue* - Average Charge x Collection Rate.
- 14 *Cost - Revenue Balance* - Revenue = Average Patient Charge x Transport Avoided x Collection Rate subtract (**Cost = Amb. Cost x Transport Avoided**).
- 15 *EMS Responses - 9-1-1 calls* - IAM processed + return to 9-1-1.
- 16 *Transports* - Based on Clark County Omega dispositions @ 86.3% transportation rate.
- 17 *EMS-IHC Qualified* - Based on OHSU's 2012 CMS Innovation Grant application estimating 6.3% of total EMS responses.
- 18 *Transports Avoided* - (See EMS-IHC Qualified)
- 19 *ED Visits Avoided* - Based on all 9-1-1 calls currently transported to ED.
- 20 *Frequent Users* - Based on CRESA 2012 Frequent User Data > 20 responses/yr. ("Patient Summary" Tab)
- 21 *EMS Responses* -Based on CRESA 2012 Frequent User Data > 20 responses/yr. Based on CRESA 2012 Frequent User Data > 20 responses/yr. ("Patient Summary" Tab)
- 22 *Transports* - Based on CRESA 2012 Frequent User Data > 20 responses/yr. ("FF Stats" Tab)

- 23 *Transports Avoided* - Based on MedStar's CHP program at 76% reduction as of 09'12
- 24 *ED Visits Avoided* - Based on all 9-1-1 calls currently transported to ED.
- 25 *Est. No. Home Visits 2 x wk* - Based on 15 patients being see twice per week.
- 26 *At-Risk Patients* - Estimate based on MedStar's CHF enrollment rate compared to total EMS call volume.
- 27 *Transports* - Estimate based on MedStar's average number of CHF transports pre-enrollment rate compared.
- 28 *Transports Avoided* - Based on all 9-1-1 calls currently transported to ED.
- 29 *ED Visits Avoided* - Estimate based on MedStar's CHF ED transports prevented @55.9%.
- 30 *Admissions Avoided* - Estimate based on MedStar's CHF admissions prevented @46.8%.
- Average Patient Charge* - Based on Ambulance Cost = 2012 Annual Report Clark County EMS Dist. #2 Average Patient Charge; ED Cost = Based on Consumer Health Rating's, 2007 Medical Expenditure Panel Survey @ 4.8 annual inflation per CPI medical care plus verbal confirmation by local providers; and Admit Cost = Based on MS-DRG 291 Washington State Hospital Pricing website for Clark ending June 2012.
- 32 *Collection Rate** - Note the collection rate shown here assumes no re-admissions within 90 days.
- A *Amb. Cost / Transport* - Based on Ambulance Cost = 2012 Annual Report Clark County EMS Dist. #2 average cost per transport.
- B *ED Cost / Visit* - Based on OHSU's 2012 CMS Innovation Grant Budget.
- C *Admit Cost / Day* - ED Cost = Based on OHSU's 2012 CMS Innovation Grant Budget.
- D *911 IHC* - CRESA Draft 911 IHC draft budget.
- E *Clinic Costs* - Based on OHSU's 2012 CMS Innovation Grant Budget.
- F *CHP* - CRESA Draft Mobile IHP draft budget.