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Mobile Integrated Healthcare/Community Paramedicine (MIH/CP)
Primer

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Mobile Integrated Healthcare/Community Paramedicine (MIH/CP) Primer

Part 1: Introduction

Mobile integrated healthcare and community paramedicine (MIH/CP) is a term applied to a new model of community-based health care service delivery that often primarily uses emergency medical services (EMS) personnel and systems to provide acute medical care, coordination of services, healthcare maintenance, post-acute care, and prevention services to patients outside of routine EMS transport service to hospital destination care. MIH programs may also use nurses, social workers, nurse's aides, and other personnel to provide coordinated mobile care. In this paper we will review the origins of MIH/CP, functions of community paramedics, funding and potential value of MIH programs, and current demonstration projects. We also discuss possible risks and cautions associated with MIH/CP.

Part 2: Early Visions of MIH/CP

The idea of MIH/CP first appeared in the 1996 landmark *EMS Agenda for the Future* [1,2] (<http://www.nhtsa.gov/people/injury/ems/agenda/emsman.html>) was published, calling for EMS to add *service lines* and, therefore, *value* to its communities served through:

“Community-based health management.... fully integrated with the overall health care system...able to identify and modify illness and injury risks...able to provide acute illness and injury care and follow-up, and, able to contribute to treatment of chronic conditions and community health monitoring

This concept was reinforced in the 2004 *Rural and Frontier EMS Agenda for the Future* (<https://www.nasemso.org/Projects/RuralEMS/documents/Rural-Frontier-EMS-Agenda-for-the-Future.pdf>) [3] which repeated the recommendation that EMS embrace primary and tertiary prevention and suggested a specific *service line* be added for “EMS based community health care” or “community paramedicine” (CP), a notion that first appeared in a 2001 publication by Rowley [4].

In the early 2000's, taskforces charged with developing the National EMS Core Content, [5] National EMS Scope of Practice Model, [6] and the National EMS Education Standards [7] each considered but did not add content for an advanced care paramedic that could serve in MIH/CP. Meanwhile, healthcare systems in Australia, Canada, and the United Kingdom (UK), along with a select number of U.S. communities, began an international dialogue dedicated to CP. The first annual meeting of the International Roundtable on Community Paramedicine was held in Halifax, NS in 2005 and has fostered rapid developments and research focusing on CP in Australia, Canada, New Zealand, the UK and the US, and generated a white paper noting, "The pre-hospital EMS system is uniquely positioned to care for 9-1-1 patients and assist less-emergent patients with transport to the most appropriate care setting based on medical and social needs. Such an approach may reduce the total cost of care, provide more patient-centered care and may reduce the burden on EDs, thus enhancing the quality of care received by all patients". [8] The concept of MIH/CP was further expanded in 2012 as the original programs moved into multiple non-rural settings. This concept integrated community paramedics with primary care offices, hospices, Visiting Nurse Association services, social services, and other home health care providers to provide community centered care.

Mobile Integrated Healthcare – Community Paramedicine (MIH/CP) was envisioned to provide healthcare using patient-centered, mobile resources in the out-of-hospital environment. MIH is provided by a wide array of healthcare entities and practitioners that may be administratively or clinically integrated with EMS agencies, while CP is one or more services provided by EMS agencies and practitioners that are administratively or clinically integrated with other healthcare entities. MIH/CP programs are evolving some models that have been proposed are, services that increase access to care in underserved areas, providing telephone advice to 9-1-1 callers instead of dispatching resources, using specially trained EMS providers to manage care for high healthcare system utilizers, patients at risk for hospital admission or readmission, chronic disease management, preventive care or post-discharge follow-up visits. Others include the transport or referral of patients to a broad spectrum of care settings and are not limited to hospital ED's.

CP and MIH are used interchangeably in some provider communities and trade magazines, whereas others describe them as distinct entities. Regardless, both CP and

MIH programs blend components of public health, primary care, public safety and prevention in a service delivery model beyond a traditional first responder ambulance model. Some programs contract staff members that are independent practitioners, which raise questions as to whether they and their programs are really part of the EMS system

CP and MIH are both patient-centered, mobile services offered outside of medical facilities. Often used definitions refer to CP as an extension of EMS where practice and services cover health care gaps in communities. MIH is an administrative organization consisting of multi-disciplinary medical, nursing, and other practitioners, which may or may not involve EMS paramedicine providers.

Governmental statements

Legislated enablement of MIH/CP component services and programs at the federal, state and local levels must be in place for programs to exist. Federal and state agencies have long supported the integration of EMS community health-focused initiatives, particularly in rural areas. From 1996, with the US DOT *EMS Agenda for the Future* called for integrating EMS into the community providing services typically associated with primary care, including preventive care, community health interventions, and outpatient management of chronic illness. This landmark document was followed by a 2004 US Department of Health and Human Services guide for EMS service chiefs asking for community paramedicine in rural populations. In 2010 the Joint Committee on Rural Emergency Care strategic plan called for community paramedics to receive training in general primary and preventive care. More broadly, a 2012 consensus conference of the National Association of State EMS Officials (NASEMSO) formally defined CP as an emerging healthcare delivery model that increases access to basic services through the use of specially trained emergency medical service providers in an expanded delivery model.

Other governmental organizations, such as the National Highway Traffic Safety Administration (NHTSA) and the Federal Interagency Committee for EMS (FICEMS) have identified issues that are important to resolve when starting MIH/CP programs including: the qualifications of field EMS personnel, where impactful state level regulation exists (state health or public safety departments, state boards, etc.), interface with regulations for the rest of the healthcare system, the fit of MIH/CP with principles of

the PPACA; whether there should be federal reimbursement of services; whether the absence of regulation by states should prompt an intentional slowing of the number of MIH/CP programs; and, what are the universally accepted education standards for both field EMS personnel and non-EMS personnel that are part of MIH/CP programs. In addition, if either the *EMS Agenda for the Future* or the *Rural and Frontier EMS Agenda for the Future* are updated, they should be written emphasizing a “public health” approach. Helpful state data would include a listing of existing or planned legislation or rule making that defines the separation between traditional EMS, and MIH/CP, as well as a listing of any states that require 9-1-1 requests for service to be managed in a particular fashion.

National EMS Advisory Council (NEMSAC) developed a report exploring CP and to make recommendations to NHTSA and FICEMS. NEMSAC noted as that CP, as a community-focused extension of the emergency care system, has the potential to prevent and reduce the impact of illness and injury and to reduce health care expenses for payers and citizens. They identified factors that hinder CP achieving its full potential. These included (1) lack of understanding of specific parts of the PPACA that may be applicable for CP/MIH such as reimbursement requirements; (2) lack of a national education standards and scope of practice; (3) inadequate training in public health practices; (4) changing role and responsibility of medical directors in the planning, oversight and quality programs; and, (5) the lack of a standardized methodology for recording the health care visit. NEMSAC urged NHTSA and FICEMS to provide resources and guidance to assist communities in developing high quality CP programs

Early models

The first MIH/CP programs were focused on rural health care needs where rural community residents had insufficient access to health care and worse health outcomes. There were fewer physicians and higher mortality rates for injured. With only 14% of practicing primary care physicians providing services to 25% of the nation’s population who reside in rural areas, community leaders and EMS providers focused early programs to improved access to health care. The extension of ambulance service personnel to provide non-emergency public health and primary care activities began with programs in New Mexico and North Carolina [9] in the 1990’s using EMS providers with

supplemental training. One well-documented early CP program was the 1992 Red River Project, a consortium effort of the University of New Mexico School of Medicine Department of Emergency Medicine, the New Mexico Department of Health, and the rural town of Red River whose closest hospital was over an hour away. Funded by federal grant money and backed by state legislation, it featured expanded EMS provider scope of practice offering services to fill health care gaps to cover chronic disease surveillance, community health education, and prevention, administration medications, including oral antibiotics, and performing simple procedures such as suturing. Although the program generated considerable initial publicity, interest in it waned and by 1997, only 1 of the original 16 EMS providers remained in practice. The program voluntarily closed in 2000.

Part 3: Organizational Variability

State Regulations

State EMS offices are charged with protecting the public through two mechanisms; ensuring the EMS system operates as required by statute and rule (regulatory role), and to monitor, evaluate and improve the EMS system (system development role). Typically, an appointed advisory board or commission, made up of the state's EMS stakeholders, provides guidance in accomplishing these two functions. The state's regulatory oversight commonly includes the licensure of field EMS agencies and field EMS personnel who must meet standards set by state under the authority of state statute. Personnel must be trained with approved curricula and pass didactic and practical testing to demonstrate entry-level competency. Most states have adopted a common scope of practice template and training curriculum for field EMS personnel in their traditional emergency response roles [5].

Current statutes and regulations in many states may present barriers to development of MIH/CP programs. Some mandate EMS transport for all patient encounters. Others specifically prohibit practice by EMS personnel in any venue outside of structured EMS transports. In these circumstances, law prohibits MIH/CP practice, and exemptions or legislative relief must be sought to conduct demonstration projects before a program can be created. This is true even if a hospital or ACO would like to employ paramedics to work in outreach programs as these paramedics would be acting outside of their

legislated scope of authority and in violation of state rules and regulations governing EMS practice. Thus, unique challenges exist for state EMS offices that wish to regulate CP. While they may recognize the potential benefit of CP, there is no national standard for education or scope of practice for the community paramedic. A national standard would provide guidance to state regulators who wish to provide oversight and educational programs for community paramedics.

Even though regulations are quite variable across states, there are some that have model legislation. For instance, Minnesota has specific legislation that permits community paramedicine (statutes 144E) and Maine has removed the cap on approved pilot programs (LD 1837). Minnesota's legislation is quite specific noting a requirement of at least two years of full-time service as a paramedic; successful completion of a community paramedic education program from a college or university approved by the board or accredited by a board-approved national accreditation organization that includes clinical experience provided under the supervision of a medical director, advanced practice registered nurse, physician assistant, or public health nurse operating under the direct authority of a local unit of government. It also specifically notes that a community paramedic must practice in accordance with protocols and supervisory standards established by an ambulance service medical director. A community paramedic may provide services as directed by a patient care plan if the plan has been developed by the patient's primary physician or by an advanced practice registered nurse or a physician assistant, in conjunction with the ambulance service medical director and relevant local health care provider. The care plan must ensure that the services provided by the community paramedic are consistent with the services offered by the patient's health care home, if one exists, that the patient receives the necessary services, and that there is no duplication of services.

Scope of practice issues

As mentioned previously in this document, there is variability between states regarding EMS personnel scope of practice, as well as expanded practice scope, allowing for the development of individual MIH/CP programs. Each state wishing to allow for such practice has codified, within regulations or statutes, changes in specific language to increase the ability of special trained personnel, added skillsets and program functions increasing variability of these programs. Agencies that have transformed to include

MIH/CP programs continue to operate in a system defined by state law coordinated and regulated by a state EMS office. CP is generally provided as a *service line* within these agencies. They may also have contracts or other agreements to coordinate/integrate their CP services with other health/medical organizations, facilities, payers, and systems.

EMS personnel should receive additional education to deliver CP services. “Community paramedics”, “community paramedic technicians”, “community paramedic clinicians”, “community paramedic practitioners”, “community paramedicine providers”, “community health paramedics”, “integrated health paramedics”, are some of the designations used to describe personnel with more extensive, usually college-sponsored, specialty education, to provide CP services. These are specialty designations and *not* additional licensing levels. In some states, non-EMS health care providers may take educational bridge programs and become certified as community paramedics and therefore be CP providers. Some CP personnel may also operate in MIH capacity cooperatively with home health or other community based organizations. When non-EMS personnel operate as part of a CP service, they become part of and are controlled by the EMS agency that must adhere to regulations of the state EMS office. These may include medical dispatchers and non-nurse advice line operators, and other categories of CP service providers. A model for this type of relationship and increased scope of practice is the way flight nurses operate within EMS agencies currently.

Innovative models calls for paramedics to play a larger role in reducing the need for patient transport and readmissions. Successful program implementation requires a comprehensive assessment of local health care needs during program planning and implementation. Not every community has the same health care gaps or priorities, and each program must be individually designed to meet those unique needs. EMS Medical directors should visit communities and plan services with stakeholder agencies, such as visiting nurses association, home health care providers, local physicians, LIP’s, community clinics, EMS agencies, and hospitals

With MIH programs which are generally multi-disciplinary, administrative organizations of mobile health services usually operated by a healthcare agency, facility, or system of which CP is one component. It is difficult if not impossible for an EMS agency to operate an MIH program independently. However, they can do so as a demonstration project if approved and state statues allow or a specific exemption exists. Usually MIH programs

are separate from normal operations and thus state EMS licenses. Because MIH is an administrative construct of multidisciplinary independent practices over which the EMS office often has little, partial, or no authority, these programs are often approved by the state Board of Health who has oversight of such programs. MIH programs may provide its' own paramedicine services or may contract with EMS services to provide CP. MIH system providers may include doctors, nurses, therapists, nurse practitioners, physician assistants, dentists, dental assistants and others besides paramedics. Community paramedics may provide clinical, operational or logistical services as a part of MIH.

Specialized Training

MIH/CP programs represent an expansion in the standard scope of practice for EMS providers who perform only emergency stabilizing treatment and acute transport. Depending on the needs of the target population and resources available in the community, some programs provide significant additional training for CP providers. Expanded education in psychomotor, diagnostic, and triage skills, cultural sensitivity, chronic disease pathophysiology, and familiarity with community resources, are important parts of a curriculum. The Community Healthcare and Emergency Cooperative in North Central EMS Institute in St. Cloud, MN developed one such curriculum. Undergraduate-level educational institutions may obtain the curriculum free and customize it for institution and community specific community paramedicine training programs. Another well- developed program resides at Hennepin Technical College in Brooklyn Park, MN, which has trained community paramedics since 2008. This particular program has been adopted as an initial training option by MIH/CP programs in several states. The curriculum includes 72 in-person and 72 online hours of classroom time, along with 196 hours of clinical training. Inver Hills Community College, in Inver Grove Heights, MN, started a similar program in 2013. The Inver Hills program requires 100 hours of online theory-based coursework and 200 hours of clinical training. The North Central EMS Institute (NCEMSI) has developed another internationally standardized CP curriculum currently in its 3rd edition. This curriculum includes a core set of didactic modules and one clinical module unique to each locality, which can be adjusted depending on the local needs and gaps. NCEMSI provides the curriculum without charge to accredited colleges and universities. It is currently being used by 35 colleges [10]

Medical legal considerations

MIH/CP programs have unique medical legal considerations. Expanded practice roles for providers may require different malpractice coverage for supervising physicians. EMS medical directors currently face malpractice challenges to secure coverage for traditional EMS oversight, as common malpractice insurance plans do not cover this activity. Specific coverage, or riders onto existing insurance coverage, is available. Currently there is relatively little activity with respect to legal action against EMS medical directors for inappropriate care by providers. MIH/CP programs have expanded services addressing wellness, prevention, care for the chronically ill, post discharge care, social support networks, and increasing medical compliance for a local population. These activities may increase the exposure of medical directors to legal malpractice challenges. Medical oversight for MIH/CP activities may not be covered in the current insurance coverage afforded to EMS medical directors. Prior to starting or being involved with a MIH/CP program, medical directors should verify the details of their malpractice coverage to ensure that such activities are covered, and if not, secure proper coverage prior to involvement.

Financing and reimbursement

Current programs are in large part funded by grant monies or subsidized by hospital or other health care entities as cost saving/ reduction vehicles, particularly in response to bundled payments and formation of ACO's. The Centers for Medicare & Medicaid Services (CMS) has recently announced their intention to offer innovation grants to MIH/CP pilot programs to further assess the impact of these programs on patient care. There is no current long-term model for financing these programs and no standardized reimbursement for MIH/CP activities at the federal level. For continuation of these programs they must be financially sustainable. This will require proactive discussions and financial planning with federal payers, health systems, ACO's, managed care organizations, Physician Hospital Organizations, legislators, and other stakeholders to continue MIH/CP programs. Potential sources of reimbursement must be addressed early, especially since CMS and many insurance plans only reimburse EMS providers for actual loaded miles for transporting patients to traditional destinations. Without fundamental changes to the Medicare reimbursement model, MIH/CP programs may not be able to sustain

operations on a wide scale. Two proposals being explored are to decouple EMS payment for treatment from that of transport; and to institute a population-based payment system, like bundled payments or shared savings models, as funding mechanisms. Programs must address how they will continue operations, training, and quality assurance if and when initial funding or public support is diminished.

The goal of CP is to improve individual and community health while reducing unnecessary hospitalizations and overall healthcare costs. [11] Early experiences suggest these programs may lead to cost savings while increasing access to care. The goals of healthcare reform efforts are summed up by what the Institute for Healthcare Improvement calls the “Triple Aim”: lowered costs, improved patient experience and improved outcomes. [12-16] MIH/CP programs may be ideally suited and a viable solution to help achieve these goals.

Part 4: MIH/CP Interface with EMS Physicians

Medical direction authority

MIH/CP programs must be under the medical direction of a dedicated trained EMS medicine specialist. EMS physicians are uniquely qualified to create and provide medical oversight of these programs. National organizations such as ACEP, NAEMSP, and NASEMO have policies on the medical oversight of MIH/CP programs, all calling for strong qualified medical leadership and involvement. EMS Medical directors should involve a large number of stakeholders in creating and overseeing of these programs, including but not limited to state and local health departments, hospital officials, elected officials, the physician community at large, EMS leaders, and firefighters’ or health care workers’ unions. EMS medical directors must take the lead in establishing treatment protocols or guidelines, review of care, design and oversight of quality management programs. They should also take the lead in approving content, initial instruction, and continuing education of community paramedics. Involved medical direction is absolutely vital for these programs to achieve their short-term goals and long-term success. As some programs may be primarily designed to provide care for post-acute care patients, such as CHF discharged patients, or routine health maintenance, other physicians such as cardiologists or internists may also be appropriate leaders of such programs in conjunction with EMS medical directors.

Quality Management Programs

MIH/CP programs must be designed and implemented in a holistic manner ensuring patient safety, quality of care and improved population health. Well integrated and data driven physician led quality management programs should be an integral part of any program. Quality assurance programs should review patient contacts to ensure that CP assessments and treatment decisions regarding care, utilization of resources and alternative transport destinations are safe and appropriate. Quality management program data also should analyze patient outcomes, develop evidence-based performance measures from this information, and promote clinical research. This data can also provide benchmarking opportunities with other similar programs.

Part 5: MIH/CP Interface with Emergency Medicine

Emergency Physicians

MIH/CP programs may have several points of interface with emergency medicine. Some physicians, who are also EMS specialists, will likely serve as project medical directors. Emergency Physicians, as a group, may serve in the consultant role in the form of online medical command. They may also play a role in education of CP providers in advanced scope of practice. The impact of these programs depends on the specifics of the program itself and the local environment. The primary impact may be transports of patients to alternative destinations, rather than to an emergency department, and decreased ED volume as a result. Most current programs employ alternative destinations in patients who are high volume users with chronic problems that could be managed in a more appropriate environment such as sobering centers. The actual loss of patient volume to any ED is likely to be minimal. The important issues for MIH/CP programs is to ensure proper screening is in place by appropriately trained CP's to ensure that patients who summon EMS are taken to a facility that can manage their needs. Any patient with an undifferentiated medical complaint who is not well known in the system as a high volume user should receive a diagnostic work up in an ED. MIH/CP programs should not be used as a way to divert patients to specific ED's, such as those who are in managed care networks, away from other ED's. Emergency physicians should be part of the advisory group of these programs, integral to reviewing destination guidelines and assessment protocols. Ongoing communications between the project

EMS medical director and leadership in area ED's is paramount to creating and maintaining a functional system that ensures patient safety.

Role of online medical command

Some MIH/CP models call for paramedics to play a larger role in reducing the need for inappropriate or unnecessary patient transports and readmissions, often due to lack of compliance with regimens and outpatient resources. Basic treatment guidelines and protocols will be in place, but every situation cannot be anticipated nor covered. Gaps will exist where CP's need consultative direction as to the correct course of action. Program leadership should interface with the resources utilized in their traditional EMS systems to provide online real-time consultations. It is not possible for the EMS physician acting as the program medical director to be able constantly available for real time consultation. Real time online medical consultation, either by radio, cellular phone, or video-conferencing, should be available when requested by CP providers. Some areas also employ EMS specialty physicians for this function, while others use emergency physicians. The program medical director should ensure that online medical command resources are available 24/7 and that these physicians are appropriately trained and understand the capabilities and practice of CP providers. If online consultation is done by those without this understanding, it may increase risk and lead to undesired outcomes. It is incumbent on the program medical director to ensure proper training and quality management oversight of this function.

Alternative destinations

Some MIH/CP pilot programs transport patients to alternative destinations determined to best meet the patient's needs once assessment by a CP provider does not reveal an emergency condition. This assessment can either be through use of guidelines or protocols, online medical consultation or video telemedicine linkages. Such alternative destinations can include sobering centers, Independent Free Standing Emergency Departments (IFSED), urgent care centers, and mental health stabilization centers. Some of these centers, such as sobering centers, are often staffed by nurses or PA's. Funding of these centers is also varied, ranging from grant monies, nonprofit organizations, capital funding from state legislatures, private donations, to partial hospital funding. However, ongoing operational costs remain elusive. Further data regarding patient outcomes as well as any cost savings from these centers is needed to

make further projections about the safety and value of and ongoing need for these programs. In programs that transport to alternative destinations, a strong quality management program is absolutely necessary to ensure that patients are transported to the most appropriate location and that CP assessments do not miss significant illness needing emergent stabilization. Alternative destination protocols must not be allowed to undermine the prudent layperson definition of an emergency. Although by strict definition EMTALA does not apply to 9-1-1 dispatch centers or EMS services themselves, MIH/CP programs should be designed to respect that if a patient feels an emergency exists and accesses 9-1-1 services, they should receive a medical screening examination and stabilizing treatment from a “qualified medical person” as defined by EMTALA.

Part 6: MIH/CP Interface with Other Physicians

Specialty services provision

Engaged EMS physicians oversee MIH/CP programs, but other practitioners involved may include the patient’s primary care network/patient-centered medical home, specialty physicians, such as cardiologists, and public health departments. [17] To further MIH/CP acceptance and integration by other medical professionals, it is important for EMS physicians to highlight and distinguish the education and training of such providers and how this differs from traditional EMS training. In addition, a strong quality management program should exist that involve specialty and primary care physicians. Efforts to implement are most likely to reap benefits when implemented after intensive preparation and engagement of other physicians to minimize the impact of liabilities inherent in such programs

Communication methods

Communication by MIH/CP providers with physicians can occur by many routes. Real time voice communication via phone or radio is available for any questions, patient report, or to arrange resources and/or follow up as needed. The use of telemedicine technology, when appropriate and feasible, may also be employed and particularly valuable to act as a direct conduit to specialty physicians without the need for patient transport. One of the most important differences from, and benefit of, community

paramedics, versus visiting health nurses, is their familiarity with and ability to obtain real time remote dialogue with physicians while at the patient's side.

Part 7: MIH/CP Interface with Hospitals

MIH/CP programs interact with hospital systems in varying ways. They may be contracted as part of hospital based ACO. They may be created as a joint venture, with shared financial risks and/or savings. Hospitals may primarily employ community paramedics using them to supplement home health care or fill treatment gaps unable to be covered in other ways. In independent MIH/CP programs interface with hospitals include including representatives to determine destination decisions.

Part 8: MIH/CP Interface with Public Health

Integration into the larger health care system

While the services provided by local MIH/CP programs vary with locale, key characteristics of programs include the following components:

1. **Fully integrated** – a vital component of the existing healthcare system with efficient bidirectional sharing of patient health information.
2. **Goal directed** – predicated on meeting a defined need of a specific patient population in a local community articulated by local stakeholders and supported by formal community health needs assessments.
3. **Patient-centered** – incorporates a holistic approach focused on the improvement of patient outcomes
4. **Collaborative** – works together with existing healthcare systems or resources and fills resource gaps within the community
5. **Team based** – integrates multiple providers, both clinical and non-clinical, to meet the needs of patients who are either enrolled in or referred to MIH/CP programs

These resonate with public health goals caring for community and populations within a locale.

Function as part of the medical home

MIH/CP programs should be able to integrate through protocol, quality management, and record reporting as part of the patient medical home, and thus a component of value based health care models. Programs should include engaged physicians and other practitioners, as well as the patient's primary care network/patient-centered medical home. Use of telemedicine technology, where appropriate and feasible, can strength this linkage and allow for coordination of care with the patient's medical home so that all providers are current with patient needs and treatment course.

Component of value based health care models (triple aim)

Our nation's health care system is in the process of transforming from a fee-for-service delivery model to a patient-centered, value-driven, and outcomes-based model. EMS is uniquely positioned to support this transformation and help achieve the Institute of Healthcare Improvement's (IHI) Triple Aim.

<http://www.ihl.org/engage/initiatives/TripleAim/Pages/default.aspx>

- Improving the patient experience of care, including quality and satisfaction;
- Improving the health of populations; and
- Reducing the per capita cost of health care.

MIH/CP programs are uniquely positioned to meet these goals. Ultimately the MIH/CP construct will likely become integrated with the ongoing development of paramedicine as a profession. Paramedicine, as a profession, is much broader than the current roles performed by EMS personnel. It includes the professional space that begins with emergency medical response and intervention and expands to a health profession focused on assisting individuals, families, and communities in attaining, re-attaining, and maintaining optimal health. This includes preventing medical emergencies and injuries and, where they cannot be prevented, mitigating the impact emergencies during and after the event which resonates with the vision of MIH/CP programs.

Part 9: Demonstration Projects

Preliminary results from MIH/CP pilot programs appear to show that using paramedics for preventative care can reduce healthcare spending. However, there are still significant challenges to growing these programs including:

- Diversity of programs currently in place
- Lack of consistency in education, program terminology and naming conventions
- No consistent data elements (metrics) that can be used for comparative research
- Lack of sustainable reimbursement as a healthcare service, requiring local funding for each program
- Lack of meaningful research showing the impact of these programs on patient health outcomes, in part due to the lack of being able to link NEMESIS data [19] with other healthcare provider information systems and databases (clinics and hospitals).
- Inconsistent education, terminology, naming conventions and data elements collected
- Confusion and lack of understanding by the public as to what services are provided
- Inconsistent services that are provided to the public.
- Educating policy makers to understand the true value of re-deploying emergency resources in a preventive mode.

The impact of increased education for personnel and their agencies should be considered, as well as the patient safety if an unprepared and inadequately trained workforce cares for patients. The balance of these interests should help direct future training and education models.

Most data on clinical outcomes and cost-effectiveness come from MedStar Mobile Health Program in Dallas Fort Worth, TX. This program focused on 2 areas: community health practice and the CHF readmission prevention. Patients received a series of home visits by CP providers receiving education in management of chronic medical conditions, as well as reinforcement of existing medical care resources. If patients access 9-1-1, a CP provider was also dispatched to ascertain whether transport to an ED could be safely deferred. Results from this program reported that from January 2010 to February 2015, 146 patients avoided 1,893 transports to the ED, resulting in a Medicare charge avoidance of \$21,627 and payment avoidance of \$5,536 per patient. Modeled after community health practice programs, the CHF readmission prevention program specifically targeted CHF patients, in tandem with cardiologists. Results were promising in that compared with the national 2013 median risk-standardized readmission rate of 23%, the readmission rate for enrolled participants was 16.3%. This resulted in a Medicare charge avoidance of \$30,343 and payment avoidance of \$7,620 per participant. Participants also reported an overall patient satisfaction score of 4.9 out of 5

with the service.

Other programs have also reported intriguing results. A rural Nova Scotia program conducted 2002-2003, reduced ED visits by 23%. A program located in Raleigh, NC, was designed to take patients to facilities best suited to their health or social needs when CP's determined they did not need ED care. The program triaged more than 300 patients to alternate treatment facilities, such as mental health crisis stabilization units and community alcohol treatment centers, however 20% to 25% required subsequent transport to the hospital. Future patient outcome and cost data from newer state-and government-supported programs should provide additional outcomes information.

In 2013 the Regional Emergency Medical Services Authority, based in Washoe County, NV, was the recipient of a \$9.6 million Centers for Medicare & Medicaid Innovations grant to start community health programs focusing on alternative transport, paramedic in-home care, and a permanent nurse help line for telephone evaluations. The program ran from December 2012 to June 2014, and reported a reduction of 1,795 ED visits, 354 ambulance transports, and 28 hospital readmissions avoiding \$7.9 million in charges and \$2.8 million in Medicare payments. The California state government EMS Authority currently has a CP pilot program involving twelve sites across the state. Paramedic training began this year and is expected to undergo independent evaluation in 2017. Preliminary data from one of California's alternative destination pilots is concerning. In 6 months, only 9 patients have been enrolled and 4 had to be redirected to the emergency department. 1 patient was having an acute myocardial event and required emergency stenting of a blocked coronary artery. Stopping at the alternative destination delayed this patient's care, although it is impossible to assess the damage from the delay. Finally, a CP pilot program started January 2014 was established in Indianapolis, IN to address pediatric asthma readmissions, with current results on effectiveness pending.

In 2012, the Health Resources and Services Administration (HRSA) published an evaluation tool for MIH/CP programs in an effort to standardize program evaluation. The self-assessment tool was intended to be used by program leadership, key community stakeholders, including public health, hospitals, EMS, primary care, regulatory agencies, and any other health and social services groups affected by the program. This tool scores programs in several major areas: 1. Continuing assessment/analysis of local

community health needs, 2. Establishment of a system to collect and process data and ensure information dissemination to stakeholders; 3. Appropriate policy development, including program resource prioritization, obtaining proper legislative and regulatory authority, and continued quality management activities to assure patient safety, 4. Dedicated medical oversight, 5. Ongoing cost-effectiveness, and 6. Maintenance of a competent and legally compliant workforce. The tool is intended to help with prioritizing activities, recognizing improvement opportunities, and provide internal benchmarks over time. It is not intended to be used to compare different programs, as they are unique to communities they serve.

MIH/CP potential value

Data reporting from current pilot projects are still forthcoming. This is absolutely necessary to be able to fully evaluate the value of these programs to communities and the health care system. Preliminary results are encouraging as reported elsewhere in this document. Programs are encouraged to employ the HRSA tool to assess their growth and progress while continuing to collect and report data.

Part 10: Future Vision and Recommendations

Although the definition and scope of MIH/CP programs have been refined since the original publication of *EMS Agenda for the Future* eventually leading to the National Consensus Conference on Community Paramedicine in 2013, there remain hurdles to progression of these programs. Long-term financial viability is certainly one, but the primary issue is the lack of demonstrated safety, efficacy, and long-term outcomes data. MIH/CP programs are designed to address wellness, prevention, care for the chronically ill, post discharge care, social support networks, and increasing medical access for a local population. Financial savings are expected through less readmissions, earlier prevention of worsening of illness, and choosing appropriate destinations that are most cost-effective without compromising medical care. However, to date there has been little data published on the safety, outcomes and cost-effectiveness of these programs. Outcomes data should be forthcoming from existing pilot programs, of which have specifically integrated evaluation components in them. It is incumbent upon current

pilot programs to report and publish, for peer review, their outcomes. If favorable, findings in safety profile and outcomes are demonstrated, these programs will show value to patients, the medical community and the government. They could then become a safe and effective means of addressing health care gaps. This will be absolutely necessary to ensure any financial reimbursement for such programs. Evidence of patient benefit, along with improved data reporting in the National EMS Information System (NEMSIS) and state health information exchanges will be essential to continued program assessment. Preliminary data from current pilot programs is mixed. Some is encouraging, suggesting that MIH/CP programs lead to fitting proper resources to patient needs in a more holistic fashion, while reducing unneeded EMS transports. Other data is worrisome, suggesting some risk to patients and no cost savings. Additional study is needed to explore the benefits, structure, and outcomes of such programs.

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Appendix: list of pilot programs and contacts

1. HIV testing in Vulnerable populations using Community Paramedics- Helen Yaworski, University of Manitoba
2. Evaluation of MIH program on non-transport of ambulatory sensitive conditions presenting to EMS in Nova Scotia, Ryan Brown, Dalhousie University Division of EMS
3. Cost Effective Analysis of the use of Community Paramedicine Programs for patients with heart failure, Sathya Riyapan, Penn State University Hershey Medical center
4. Evaluation of patient attitudes towards types of mobile integrated health providers, Jeffrey Luk, Case Western Reserve Hospital and University
5. Feasibility of emergency telemedicine to reduce unnecessary ambulance transports and emergency department visits, Jonathan Fisher, University of Arizona College of Medicine, Phoenix