Community Paramedicine: A Preventive Adjunct toTraditional Primary Care

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ABSTRACT

Community paramedicine is an evolving field in which paramedics take on extended roles beyond emergency response. These responsibilities include monitoring of medication compliance, vaccination administration, public health, prevention and wellness, chronic disease monitoring, and various minor treatments in the patient's own home. Pilot programs in the United Kingdom, Canada, the United States, and Australia have shown up to 50% decreases in emergency department admissions in targeted populations, such as the elderly and frail. Community paramedicine could become an adjunct to traditional primary care, alleviating the burden of care on family physicians and emergency departments in British Columbia's rural communities.

KEYWORDS: *emergency medical services, allied health personnel, preventive medicine, primary health care*

For two decades, there have been calls for increased numbers of primary health care providers to meet the needs of British Columbia's rural communities.[1] However, a shortage of providers based in rural areas remains, despite coordinated provincial efforts to train and retain more doctors, including efforts such as the establishment of Canada's first truly distributed medical education program, regional training initiatives, a greater emphasis on rural family practice in medical school, and broad incentive strategies to attract new graduates to settle in smaller communities across the province.[2] Nevertheless, innovative solutions continue to arise, including telehealth, increased nurse practitioner training, and most recently the emerging field of community paramedicine.[3]

The British Columbia Ambulance Service provides Emergency Medical Services for the province of B.C. by maintaining and staffing all of the ambulance stations in the province. Many BC Ambulance Service stations are found in rural and remote communities with small populations and few local resources. In many instances, the closest medical clinic, doctor, or hospital is hours away. Transporting patients to the hospital can be a major challenge at many levels: financially, for the health care system; logistically, for the patient; and medically, for the community, leaving it without emergency response coverage while paramedics transfer the patient and return. Additionally, if the patient requires specialized or advance care, an air ambulance may be required to urgently transfer him or her to the appropriate care centre.

Paramedics are primarily trained to recognize and respond to life–threatening injuries and illnesses, as well as to stabilize and monitor patients during their transport to definitive care at a hospital. Paramedics cannot diagnose illnesses, refer patients to other health care services on an outpatient basis, or provide continuing care for chronic conditions. As such, community paramedicine is an emerging field in which paramedics operate in expanded healthcare roles to deliver healthcare to underserved populations.[4] Under a community paramedicine model, paramedics receive additional training in primary care, public health, chronic disease management, mental health, and prevention and wellness, among other skills. These additional skills allow paramedics to take on roles in the community that are left unfilled due to a lack of primary care providers. The model of community paramedicine was originally introduced in the landmark paper "Rural and frontier EMS agenda for the future: A service chief's guide to creating community support of excellence in EMS" by the U.S. Department of Health and Human Services.[4] This concept has been used in Canada,[5] the United States,[4] the United Kingdom,[6] and Australia,[7] and each pilot program has sought to emphasize the aspects of primary care most important to their specific community.

In the United Kingdom, the National Health Service had become overwhelmed with emergency medical admissions to hospitals. In an effort to "improve the care and assessment of patients" the University of Sheffield developed a "paramedic practitioner" program specifically aimed at treating elderly and frail patients, who make up 21 per cent of emergency department visits.[6] Paramedic practitioners were trained to perform home visits to assess, treat, and discharge older patients with minor acute conditions.[6] The trial evaluated over 3000 patients and found that patients attended by paramedic practitioners were 28 per cent less likely to attend an emergency department, 13 per cent less likely to require hospital admission within 28

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days, and reported being highly satisfied with their experience, compared to standard care.[8] The evidence from Sheffield showed that paramedics with extended skills could provide a clinically effective alternative to standard ambulance transfer and treatment to prevent unnecessary admission of frail and elderly patients.

Canada's first community paramedicine pilot program was developed in Nova Scotia in two isolated island communities. The program provided 24/7 "community paramedic practitioner" coverage on the two islands as well as a part–time nurse practitioner, all supervised by an off–site physician.[5] The community paramedics administered flu shots, checked blood pressure and blood glucose levels, assessed medication compliance, performed wound care, administered antibiotics, performed phlebotomy for routine blood tests, and organized preventive education sessions, such as fall prevention for seniors.[5] Community paramedic services could be directly requested by residents of the community, or could be requested as continuing care after being seen by the nurse practitioner or physician.[5] If the community paramedics felt they were outside of their scope of practice, they could consult a physician on–call or transport the patient to hospital for more advanced care. Over the course of three years, the program resulted in a 23% decrease in emergency department visits from island residents.[5]

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The community paramedicine model is not only effective in rural health care settings. It has also been adopted by Toronto Emergency Medical Services with a focus on health promotion and injury prevention.[9] Through the Community Referrals by EMS (CREMS) program, any paramedic responding to a 9-1-1 call in the greater Toronto area is able to refer patients they feel require additional healthcare or support services.[9] These referrals are followed up by a central Community Access Care Centre to provide appropriate services to the patient.[9] Additionally, the Ontario government has recently announced a $6 million expansion of the community paramedicine program specifically targeted at seniors, who utilize the emergency response system frequently.[10] The pilot program showed a 50 per cent reduction in 9-1-1 calls and a 65 per cent reduction in emergency department visits by targeted patients.[10]

The most evident barrier to implementing community paramedicine programs is cost, including whether the program will be cost–effective in the long term. While limited data from pilot programs suggest community paramedicine is a cost–effective model, sample sizes were small and program formats varied, so it is difficult to make any definite conclusions thus far.[5,8] Secondly, a large number of paramedics will need to be provided additional training in extended care roles, which could temporarily decrease the ability of those personnel to provide services to their communities. The optimal type and scope of extended roles for paramedics has yet to be determined, as well as how these additional roles will be regulated. Lastly, the program may meet resistance to change, whether from other health–care providers, internally from paramedics, or from patients themselves.

The community paramedicine model could provide an adjunct to traditional primary care in B.C. in order to alleviate the burden of care on family physicians and emergency departments, specifically in rural areas where primary care is intermittent and difficult to access. This will be increasingly relevant given B.C.'s aging population, many of whom will have chronic diseases and multiple medications that require routine monitoring but may not require a physician visit. Given the shortage of rural primary care providers, these problems traditionally accumulate until the patient deteriorates or uses emergency services unnecessarily, resulting in enormous resource consumption. While community paramedicine programs have been shown to be effective in both urban and rural settings, benefits would be great in a geographically distributed health care system, such as in B.C., where there is a gap between primary care and the needs of regular patients in rural communities. Community paramedics could bridge this gap in rural primary care and provide preventive care, minor treatment, and disease maintenance services to the communities where they already reside and work, while continuing to also provide essential emergency care when necessary.

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