



Emergency Department Diversion by Community Paramedics

Using the interRAI Community Health Assessment

Matt Grosvenor¹ Neil McDonald¹ Phil Hutlet¹ Ryan Sneath¹ John Lane¹ Erin Weldon^{1,2} Rob Grierson^{1,2}

1. Winnipeg Fire Paramedic Service

2. University of Manitoba Department of Emergency Medicine



BACKGROUND

- ◆ Winnipeg, Manitoba, like other cities across Canada, faces increasing demands on both its Emergency Departments (EDs) and 911 service.
- ◆ The Emergency Paramedics In the Community (EPIC) program run by the Winnipeg Fire Paramedic Service (WFPS) identifies frequent users of emergency resources and those at risk of becoming frequent users. This program began in 2013 with implementation of EPIC 1.
- ◆ This community paramedicine program aims to identify clients' unmet needs and arrange appropriate treatments and services. To do so, EPIC works closely with Home Care and other allied health agencies.
- ◆ In late 2017, the EPIC program adopted and implemented an internationally validated, evidence-based assessment tool in EPIC 2: the interRAI Community Health Assessment (CHA). The EPIC program also integrated the results of its CHA with selected Home Care offices, allowing seamless information-sharing with its most common service partner.

PURPOSE

- ◆ The purpose of this study is to evaluate the impact of the CHA used by EPIC 2 on client-centered outcome measures.
- ◆ We hypothesize that among adult clients who are identified as common 911 callers (or at risk of becoming common callers), assessment and referral under the EPIC 2 program will result in reduced use of emergency resources and improved service delivery, as compared to prior assessment methods used by EPIC 1.

METHODS

- ◆ This is a retrospective before-and-after review of patients assessed by an interRAI-trained community paramedic using the CHA in 2017.
- ◆ Quantitative variables were extracted from the electronic medical record and electronic patient-care databases.
- ◆ Outcomes include rates of emergency resource use (911 calls and ED visits), referrals for new services, and time to service implementation. Emergency resource use will be assessed six months after assessment; preliminary results presented here are analyzed by a comparison of two rates.
- ◆ Number of calls to 911 were also analyzed further by patient type:
 1. Common Callers: those who frequently call 911;
 2. At-Risk Referrals: those who were identified as being at risk by responding paramedic and fire crews.

Figure 1: Total 911 Calls, ED Visits, by Month

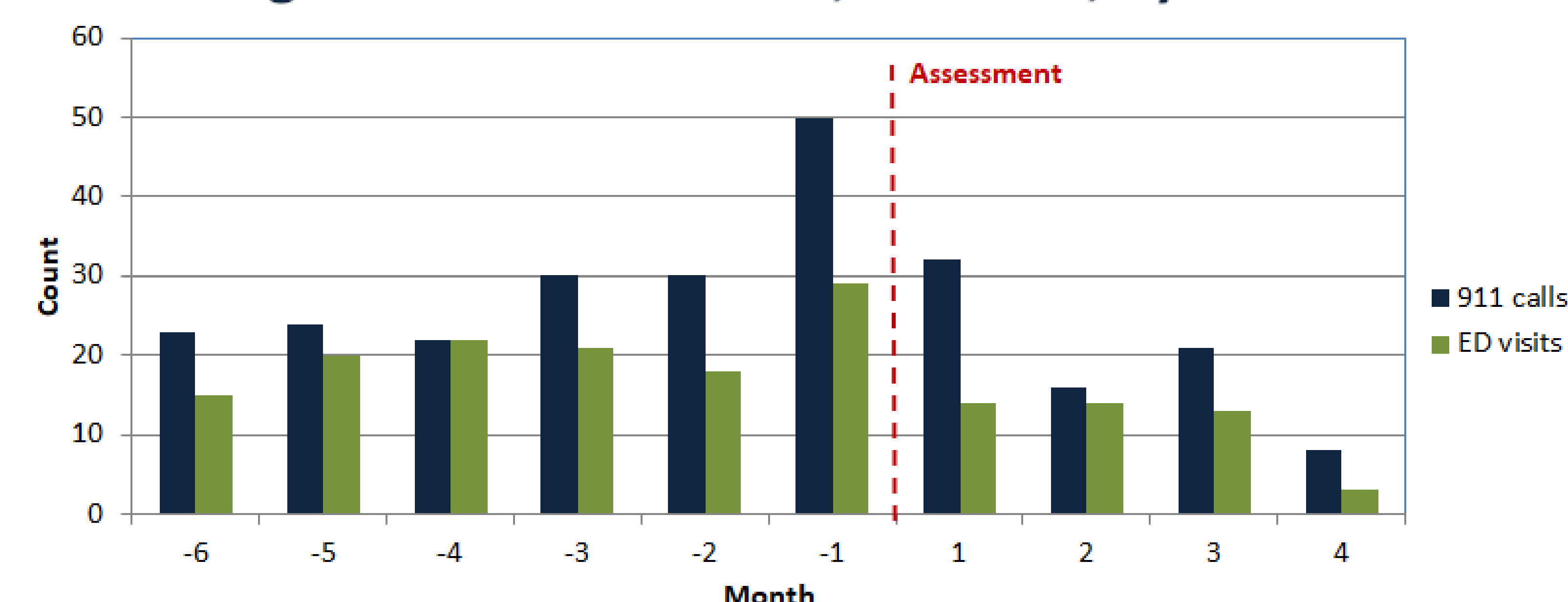


Table 1: Before and After Rates of 911 Calls and ED Visits

	Rate ¹ Before (95% CI)	Rate ¹ After (95% CI)	Difference (95% CI)	% Reduction	p
Before, After Assessment					
911 calls(all clients)	1.49 (1.28, 1.73)	0.99 (0.78, 1.24)	0.50 (0.18, 0.83)	34	0.0024
911 calls (by Common Callers)	2.08 (1.74, 2.45)	1.30 (0.98, 1.70)	0.78 (0.26, 1.27)	37	0.0033
911 calls (by At-Risk Referrals)	0.78 (0.56, 1.05)	0.62 (0.39, 0.93)	0.16 (-0.19, 0.52)	21	0.3734
ED visits	1.04 (0.87, 1.24)	0.58 (0.42, 0.77)	0.46 (0.20, 0.73)	45	0.0006
Before, After New Services²					
911 calls	1.72 (1.44, 2.03)	0.75 (0.52, 1.05)	0.97 (0.54, 1.40)	56	< 0.0001
ED visits	1.18 (0.95, 1.45)	0.45 (0.28, 0.70)	0.73 (0.37, 1.08)	62	0.0001

1. Rates expressed as events per client per month
2. Shown for the 13 patients who received new services

RESULTS

- ◆ 20 clients were assessed in the study period: 12 females, 8 males. The overall mean age was 67.0 (SD 10.7, median 65.7).
- ◆ Figure 1 shows the monthly total of emergency resources used by this group of clients. It illustrates decreasing 911 calls and ED visits after assessment by a community paramedic.
- ◆ Table 1 shows the rates of calls to 911 and ED visits before and after EPIC 2's involvement. Among all clients, there was a significant decrease in 911 calls and ED visits after assessment by a community paramedic. Among those who received new services, there were large and significant drops in 911 calls (56%) and ED visits (62%) after service implementation.
- ◆ Figure 2 illustrates the sequence of events for three selected cases, highlighting the various resources provided to the clients and the time between assessment and implementation of these new services.
- ◆ 13 of 20 clients received additional services. In these cases, the time from referral to service implementation averaged 11 business days (SD 12, median 7, range 1-47).
- ◆ In the six months prior to assessment, patients in the group averaged 8.95 calls to 911 (1-20) and 6.25 ED visits (0-20). After assessment, 7 patients had no 911 calls and 6 had no ED visits.

LIMITATIONS

- ◆ This study faces the limitations inherent in a retrospective design with a small number of included subjects and within group-comparison.
- ◆ These results are preliminary. Future research will include an equivalent (six-month) post-assessment period and additional outcomes related to hospital admissions among the included group.

CONCLUSIONS

Preliminary results show a reduction in 911 calls and ED visits among frequent users of emergency resources. These reductions are associated with the use of the interRAI Community Health Assessment used by community paramedics in EPIC 2.

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Figure 2: Case Illustrations

Timelines showing six months before, four months after intervention by a community paramedic

