

amber - ambulance research repository



Using medical priority dispatch system activation rates to explore out-of-hours activity for the Northern Ireland Helicopter Emergency Medical Service

Authors	Percival, David;Dunlop, Karen;Mitchell, Hannah;McFetridge, Lisa;McMurray, Tom;Wolfe, Julia
Citation	Percival, D., et al, 2025. Using medical priority dispatch system activation rates to explore out-of-hours activity for the Northern Ireland Helicopter Emergency Medical Service [Poster presentation]. College of Paramedics Research Conference 2025. http://hdl.handle.net/20.500.12417/2030
Download date	2026-06-15 07:33:11
Link to Item	https://hdl.handle.net/20.500.12417/2030
Repository Link	https://amber.openrepository.com

Using Medical Priority Dispatch System Activation Rates to Explore Out-of-Hours Activity for the Northern Ireland Helicopter Emergency Medical Service

David Percival¹, Karen Dunlop¹, Hannah Mitchell², Lisa McFetridge², Tom McMurray³ and Julia Wolfe¹

¹Northern Ireland Ambulance Service Health and Social Care Trust, ²Queen's University Belfast, ³Glasgow Caledonian University

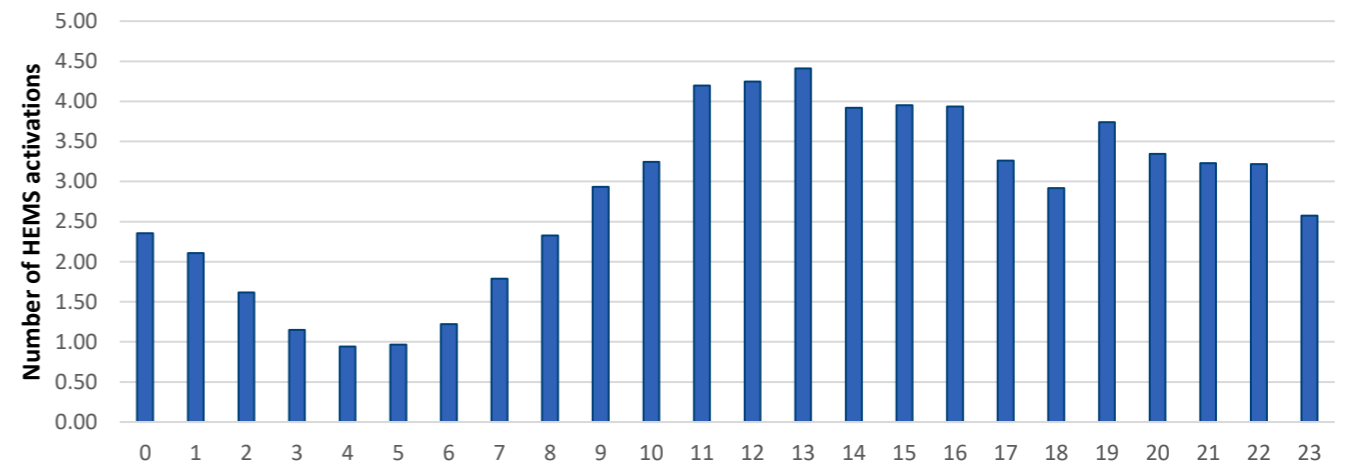
Background

The Northern Ireland Helicopter Emergency Medical Service (NI HEMS) is provided through a collaborative partnership between the Air Ambulance Northern Ireland (AANI) charity and the Northern Ireland Ambulance Service (NIAS). It operates within limited hours, creating a potential gap in prehospital critical care coverage during out-of-hours periods. This project aimed to explore retrospective Medical Priority Dispatch System (MPDS) codes from in-hours periods and use these to predict HEMS activations during unstaffed hours.

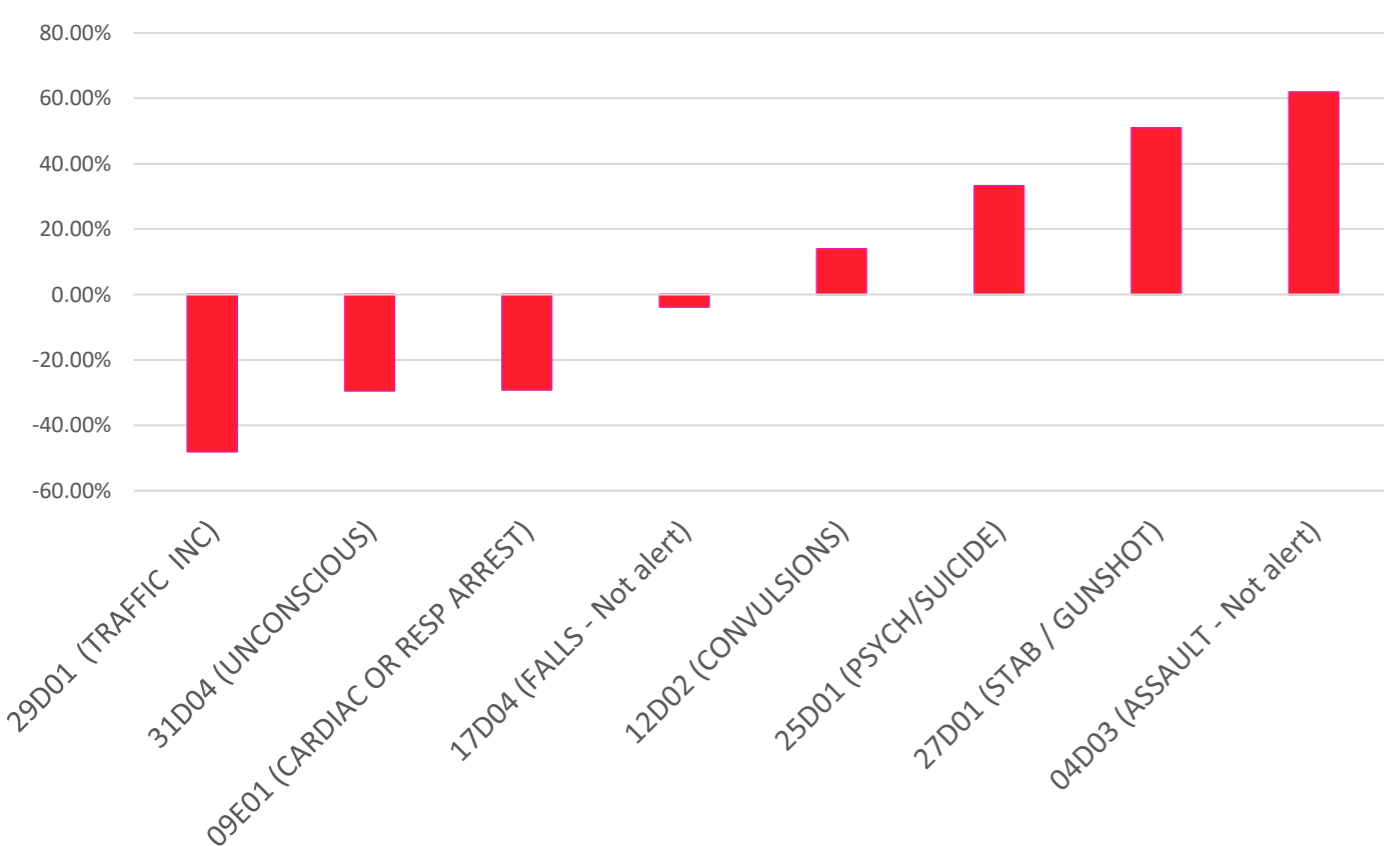
Methods

A retrospective analysis was conducted on NI HEMS dispatch data from November 2018 to December 2023. The project focused on incidents occurring between 07:00 and 19:00, using MPDS codes to calculate a HEMS activation rate (AR). These rates were calculated by dividing the number of calls attended by HEMS per code by the total number of calls per code. These rates were then applied to full-service dispatch data for the same time period to predict HEMS activity during the unstaffed period of 19:00-07:00. This period was explored using hour long time slots.

Monthly HEMS activations (known and predicted) over 24 hours



19:00 TO 07:00 FREQUENCY CHANGE (%) COMPARED TO 07:00 TO 19:00 (MPDS CODE OCCURRENCE WITHIN WHOLE OF NIAS)



Results

It was estimated that an additional 317.52 annual HEMS activations could have occurred during out-of-hours periods, particularly in the late evenings. Notably, the highest predicted activity occurred between 19:00-20:00, with 3.74 activations per month and the lowest being between 04:00-05:00 (0.94 activations per month).

Certain MPDS codes, such as those for severe trauma and cardiac emergencies, had higher HEMS activation rates. E.g., animal attacks if unconscious or in cardiac arrest had an AR of 50.0%. Burns or explosions if unconscious had an AR of 42.8%.

Some MPDS codes, particularly assault and penetrating trauma incidents, were more prevalent in the evening. Assault codes had 1074 occurrences during the 07:00-19:00 period but 2496 in the 19:00-07:00 period. Stabbing or gunshot codes occurred 839 times between 07:00-19:00 versus 1398 in the overnight time slot.

Conclusions

This evaluation showed that based on in-hours activation rates and the assumption that HEMS would respond at night in the same way as it did during the day, that an additional 317 emergency calls per year may have been attended. Expanding service coverage could mitigate the current gap in out of hours prehospital critical care, improving patient outcomes and addressing the inequities in access to emergency medical services.