

**NEWLY EMPLOYED IN A NEW CONTEXT,
ONGOING RESEARCH IN NORTHERN
SWEDEN - COLLABORATION IS NEEDED
TO ADVANCE FURTHER.**



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REGION OF VÄSTERBOTTEN



Area: 54 665 km²

Population: 278 729

Population density: 14,8 inhabitants/km²

Population increase by 7% (2010-2022)

15 Municipalities

Age	0-15	16-24	25-44	45-64	>65
%	17.5	11.3	26.7	22.9	21.6

SCB 2024



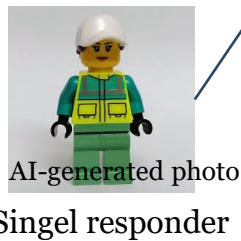
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REGION VÄSTERBOTTEN, AMBULANCE SERVICE

REGION OF VÄSTERBOTTEN



Search And Rescue

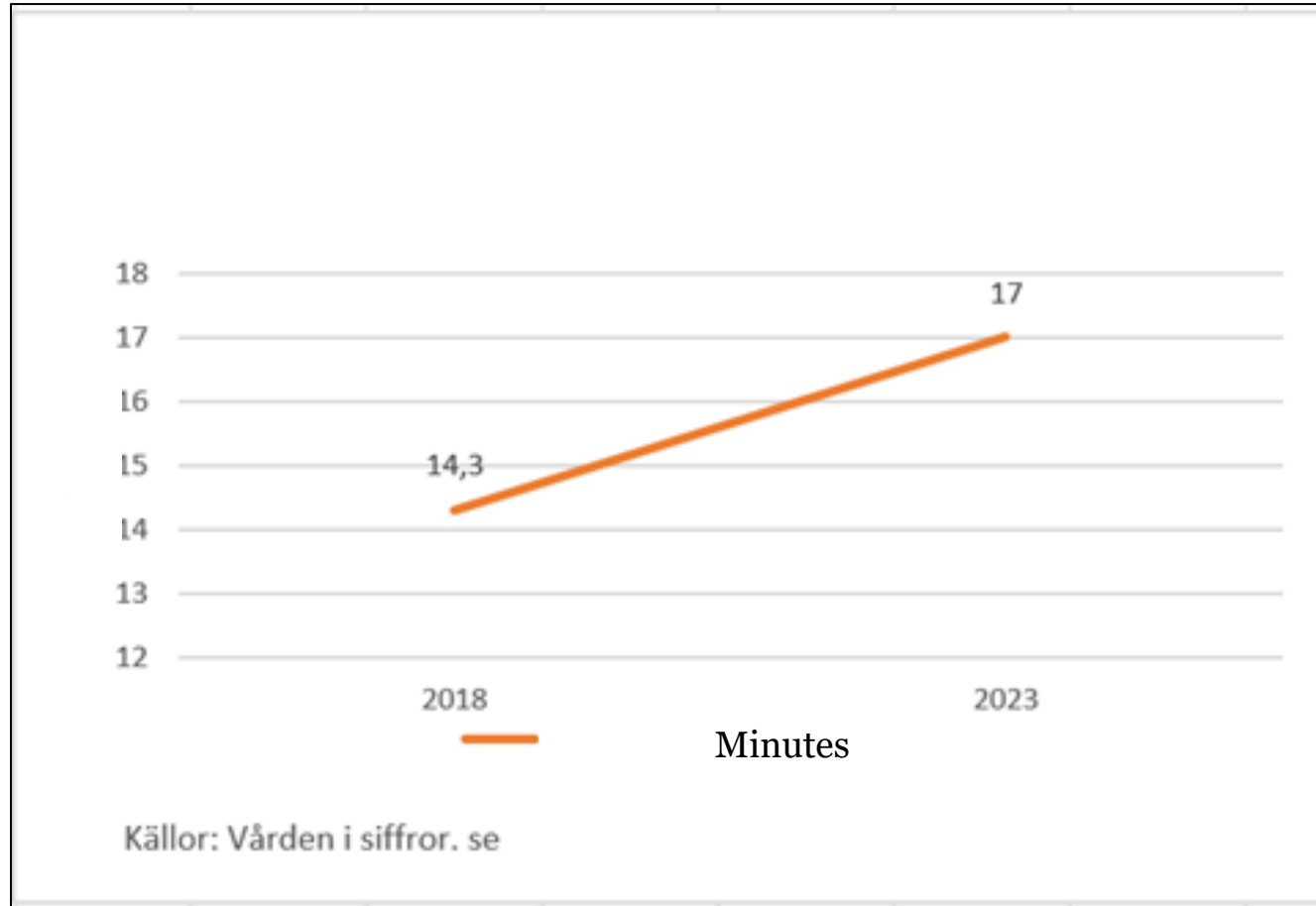


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Sambulans- Skellefteå-Umeå-Lycksele

MEDIAN RESPONSE TIMES HAS INCREASED



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DATA-DRIVEN DECISION SUPPORT SYSTEM FOR THE EMS – A GENDER PERSPECTIVE

OVERALL AIM:

- 1) Develop a simulation model of the EMS system by using > 30 000 (Priority 1) ambulance assignments to evaluate policies and configurations
- 2) Analysis of response times and, then trying to optimize the response time and reduce the inequities by using a dynamic algorithm to optimize ambulance allocation and minimize median response times. The approach will involve using a multivariate local search algorithm and dividing the problem space to reduce computational costs

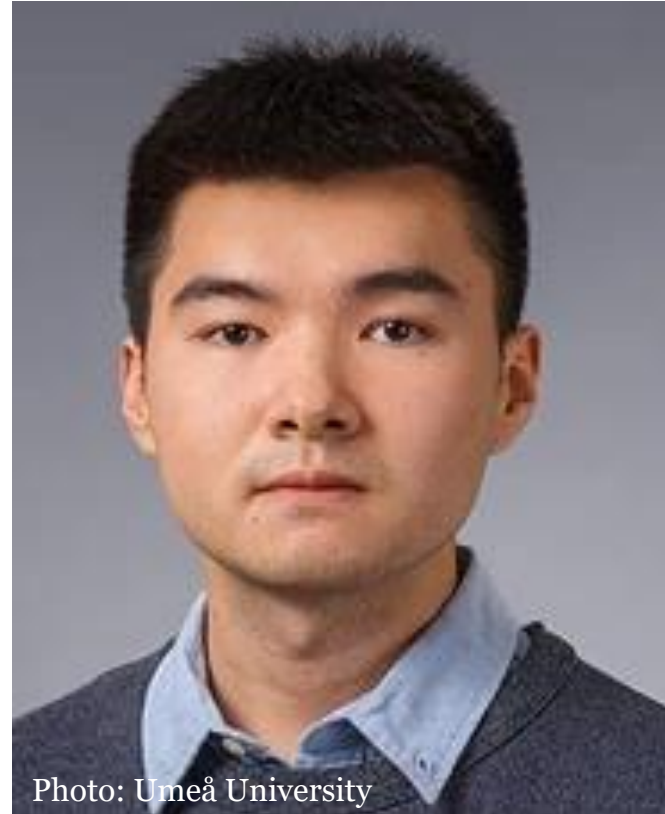


Photo: Umeå University

PhD student Kean Tang



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PRELIMINARY FINDINGS PRIORITY 1 ASSIGNMENTS JUNE 2022-JUNE 2023 (N= 35 332)

The spatial distribution- the number of **assignments is unevenly distributed across** the region, with the highest number in Umeå, Skellefteå, and Lycksele (youngest people live in Umeå)

The temporal distribution of **alarms changes periodically** over the year with a peak in the winter and fluctuation in other seasons. Daily there is a **clear peak around 16:00** and a **trough around 4:00**.

Differences in response time between municipalities i.e., Bjurholm has longer response times than other municipalities (rural areas with no ambulance) & Lycksele has the shortest response time

The response time is longer for **older patients** (>70-79 years (majority of patients between 70-89 years)



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HOW CAN WE USE THE FINDINGS?

- Opportunities for forecasting ambulance assignment surges and lulls for improved planning and staffing
- Opportunities to relocate ambulances based on municipalities' needs as the population changes



AI-generated photo



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AMBULANCE ASSIGNMENTS

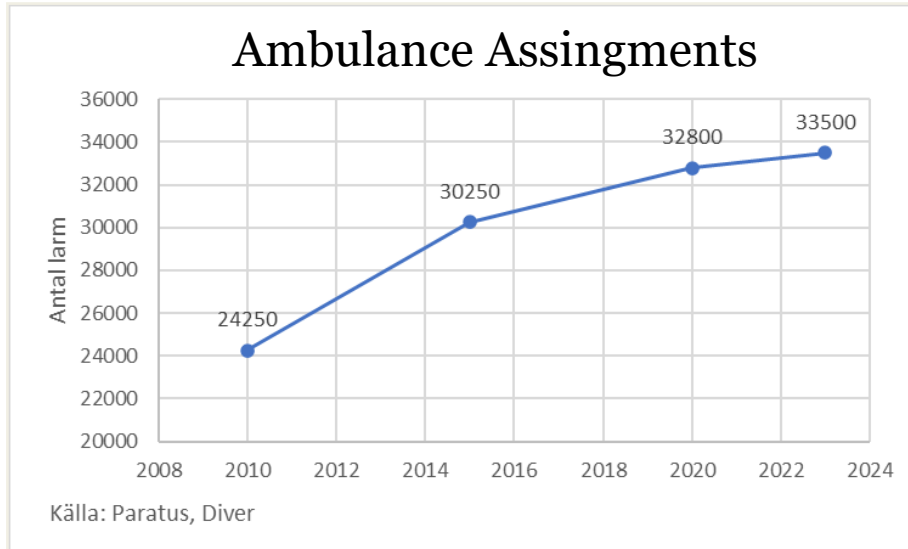


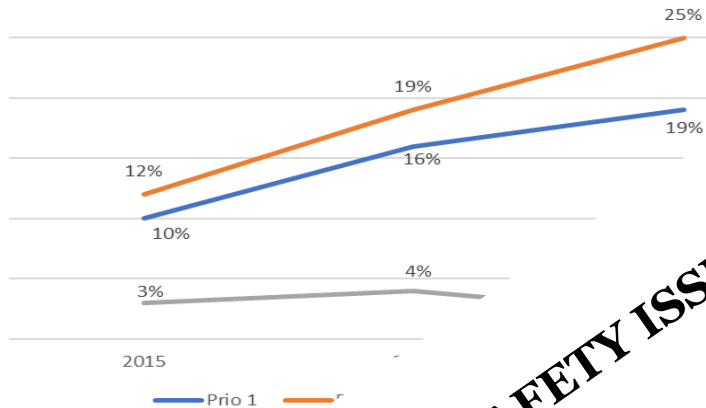
Photo: Region Västerbotten



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NON-CONVEYANCE

Dispatched as:



PATIENT SAFETY ISSUES & NO SAFETY NETTING

Decline Care



region
västerbotten

Photo: Region Västerbotten



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NON-CONVEYANCE

**Non-conveyance in the Ambulance Services-
Support for patients and professionals**



Mattias Larsson ambulance nurse accepted for PhD studies in January 2024 (Umeå University)

Non-conveyed children in the ambulance service in northern Sweden



Johan Sparrevik ambulance nurse accepted for PhD studies in April 2024 (Norrbotten, Luleå University of Technology)



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OTHER ON-GOING RESEARCH



Klara Jespen, PhD student ambulance nurse, Karolinska Institutet
Being new in the ambulance service- developing support for the newly employed transition into a new profession during their first year



Christoffer Ericsson, PhD student & Paramedic, Helsinki University
Exploring the Dynamics of Psychological Resilience in Paramedic Practitioners



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OTHER ON-GOING RESEARCH



***Sara Heldring, PhD
student, ambulance nurse***
Sophiahemmet University
*Evaluation of virtual reality
as a pedagogical model
learning to handle major
incidents*



***TriPoD Develop (design) and
evaluate a real-time Triage,
Position, and Documentation
during Medical Response to
Major Incidents thru Action
research***



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