NORTH WALES has three emergency departments (EDs), a population of about 700,000 and historical inequalities in emergency ambulance transports to these units.

The region has one health board and EDs at Ysbyty Gwynedd, Ysbyty Glan Clwyd and Wrexham Maelor. Inequalities have been perceived over the years in numbers of emergency ambulance conveyances to Ysbyty Glan Clwyd compared to the others.

We know from international evidence that older patients and those living in more deprived communities are more likely to go by ambulance to an ED. So we proposed to examine emergency ambulance transport rates to each ED in North Wales to see if demographic differences explained the perceived disparity.

Age standardised rates of emergency ambulance conveyance for the three hospitals were calculated using emergency ambulance catchment area maps and designated postcodes from the Welsh Ambulance Service NHS Trust. Data on ambulance conveyances to EDs in 2013/14 financial year were extracted from the national ED care data set. Denominator data were from the Welsh Demographic Service for all North Wales residents registered with a GP in June 2014.

**Catchment differences**

Total emergency ambulance conveyances of North Wales residents numbered 18,428 to Ysbyty Glan Clwyd, 13,284 to Ysbyty Gwynedd and 15,632 to Wrexham Maelor. The rate to Ysbyty Glan Clwyd was 38% higher than to Ysbyty Gwynedd, and 17% higher than to Wrexham Maelor after age was taken into account, both figures being statistically significant at the 95% confidence level. The main driver was its home catchment area rather than visitors.

An important limitation of the analysis was that we were not able to assign about 20% of ambulance conveyances to a specific catchment. We do not know if there was anything systematic in the missing data that could have contributed to the patterns observed. Another limitation was that journeys related to the patient’s residence, not where the ambulance picked them up from.

Ysbyty Glan Clwyd’s high conveyance rate could be due to deprivation: 40% of its catchment falls within the most deprived 40% of small areas in Wales, as opposed to 22% for Ysbyty Gwynedd and 28% for Wrexham Maelor. We know that deprived communities make greater use of emergency care. The high rate may be due also to other factors associated with deprivation, such as lower car ownership levels so that individuals are more likely to rely on ambulance transport.

Inequalities could occur elsewhere in the UK, especially in pockets of deprivation and this helps to fuel ambulance queuing and places huge pressure on emergency services. How could it be addressed?

A short-term fix could be to change existing ambulance catchment areas within organisational boundaries, altering the size and make-up of areas to rebalance catchments. But it is important that this does not increase patient travel times.

The longer-term fix would be to make changes within existing catchment areas: a range of interventions have been shown to be effective in reducing use of emergency care (Flores-Mateo et al 2012, Morgan et al 2013), though not specifically in deprived communities. These range from healthcare education to case management to measures to improve accessibility of alternative services.

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