






Ambulance utilisation in serious health emergencies in rural health populations - measuring unmet need

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INTRODUCTION
Ambulance use in rural and remote parts of Australia has been reported to anecdotally to be lower than in urban areas based on anecdotal reports. Experiences of paramedics in rural and remote locations gave rise to the question of whether this phenomenon was occurring and what was the basis for lower utilisation of ambulances in these communities.

BACKGROUND
Calling an ambulance in a serious health emergency requires a complex set of decisions ranging from recognising that an emergency is occurring to making a risk-benefit analysis of potential courses of action. A number of psychological models of behaviour have been applied to ambulance use and largely recognise that ambulance calling behaviour is heavily influence by socio-emotional factors.

METHODS
Data from Emergency Department records was obtained from the Hunter New England Area Health Service (HNEAHS) from 1 July 2008 to 30 June 2009. In total, 354,909 records were obtained. These records were de-identified and contained 11 characteristics for analysis. This data was analysed to determine the method of arrival across the sample and specifically in high acuity patients. Logistic regression modelling was used to determine if any specific characteristics were indicators of ambulance use.

RESULTS
People from Inner Regional areas are 41.5% less likely to use ambulances overall and 27.7% less likely to use ambulance in serious health emergencies than people living in Major Cities. People from Outer Regional and Remote areas are 55.1% less likely to use ambulance overall and 27.9% less likely to use ambulances in serious health emergencies than people living in Major Cities. Logistic regression modelling indicated that rurality was a significant factor in ambulance use in adults in all areas outside Major Cities and in children in Inner Regional areas. Gender was not a determinant of ambulance use, however, age was a significant predictor of ambulance demand with older people using ambulance more, although the rate of increase with age was much greater in Major Cities than in regional areas.

DISCUSSION
This study indicates that there is a disparity between rates of ambulance use in urban and non-urban areas. The concept of unmet need should be considered as a more complex phenomenon than simply a utilisation gap and exploration of true levels of unmet need is warranted. It is likely that rural residents operate under a different paradigm of problem solving than urban residents which focuses more on self-sufficiency and action planning. Likewise, some studies have shown that health literacy and knowledge of ambulance capacity may be limited in rural and remote areas, and this is a critical factor in the risk-benefit decisions people make when deciding to call an ambulance. A clearer understanding of how rurality effects ambulance use has a number of implications for ambulance services both in terms of demand management and workforce issues.

CONCLUSION
Poor understanding of the benefit of ambulance use in serious health emergencies combined with psycho-social features of rural problem solving paradigms are likely to result in lower ambulance use. This potentially denies rural populations access to a critical health resource which can potentially increase health outcomes in health emergencies in rural communities.

RECOMMENDATIONS
1) Targeted ambulance community education campaigns which address specific health literacy issues.
2) Increased community engagement by ambulance services
3) Use of Medical Emergency Plans specific to each rural residence

For the full report on this project visit our website, follow the link to the Rural Research Capacity Building Program and click on 'view completed projects'

Buck Reed is a paramedic based in Boggabri in rural northwestern NSW, and Rural Project Officer for the Ambulance Service of NSW. Buck is the first paramedic accepted to the Rural Research Capacity Building Program. Buck is undertaking completing a masters degree at UNE in Health Management and has research interests in rural ambulance models of care and human behaviour in health emergencies.

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