Discharges Against Medical Advice (DAMA):
Relationship with Rurality in Ischaemic Heart Disease admissions

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• A mixed methods research and translation project
• Addresses disparities in cardiovascular health and medical care in Aboriginal people living in Western Australia
• Additional focus on rural disparities
THE CARDIOVASCULAR DISEASE JOURNEY

Micro/macro Environment ➔ Lifestyle ➔ Biological Risk factors ➔ Cardiac Events ➔ Services/Treatments ➔ Outcomes

Information to support change
Background

DAMA related to

• increased re-admissions
• poor health outcomes
• Increased health system costs

Risk factors include:
Males, younger adulthood, social disadvantage, alcohol misuse/mental health, Aboriginality, rural

DAMA → indirect indicator of responsiveness of hospitals to Aboriginal needs & of the quality of care
Objectives

To investigate risk factors for Discharge Against Medical Advice (DAMA) among IHD patients in WA

• Focus on rural residence and hospital location
Methods

Study Design:
Historical cohort study

Data source:
• WA hospital and death records
• WA data linkage system used for linkage

Cohort definition:
• Persons experiencing their first-ever admission for IHD – coded as principal diagnosis
• Age 25-79 years, 2000-08

Outcome:
DAMA at end of first episode of care.
Remoteness categories
(Roughly based on ARIA+)

1. Metropolitan (Perth)
   Urban plus 80% Inner Regional

2. Regional
   (Remainder inner regional +
   Outer regional + Remote)

3. Very Remote
   (yellow)
Definitions

Remoteness of Residence
- Metro
- Regional
- Very Remote

Hospital type/location
- Metro Teaching
- Metro non-teaching (excl privately funded)
- Regional
- District
- Private

Hospital-Residence combined
- Metro hospital, Metro residence
- Metro hospital, Rural residence
- Rural hospital, Rural residence
- Rural hospital, Metro residence
- Private
Definitions

Aboriginal
- Identification on >=25% of all hospital admissions

Type of admission
- Booked vs Emergency

Type of IHD diagnosis
- Myocardial infarction (MI)
- Unstable Angina (UA)
- Other IHD

Co-morbidity
- Charlson Co-morbidity Index using 5-year lookback
- Alcohol, Drug or Mental Health admission =5-year lookback
Statistical methods

**Descriptive Statistics:**
- Simple frequencies and proportions
- Means
- Subgroup comparisons

**Regression Analysis: SAS**
- Investigate relationship of DAMA with rurality
- Multiple logistic regression methods
- Inclusion in models of:
  - Demographic,
  - Hospital type/location
  - Past & current clinical variables

Additional restriction to subgroups
RESULTS
Profile of first-ever IHD cases, WA 2000-08

- Metro: 77%, Mean age = 60.7
- Regional: 18%, Mean age = 55.3
- Very Remote: 5%, Mean age = 62

- Non-Aboriginal: 98% in Metro, 94% in Regional, 63% in Very Remote
- Aboriginal: 2% in Metro, 6% in Regional, 37% in Very Remote

Total cases in Metro: 28,362, Regional: 6130, Very Remote: 1185
Rural location as a risk factor for DAMA

Adjusted

- OR=0.17
- OR=0.57
- OR=1.51
- OR=0.46
- OR=1
  BASELINE

Unadjusted

- Private hospital: OR=0.08*
- Rural hospital, metro residence: OR=0.78
- Rural hospital, rural residence: OR=2.66 *
- Metro hospital, rural residence: OR=0.73
- Metro hospital, metro residence: OR=0.73

Baseline

Odds ratio (95% CI)
Limitations

• Use of administrative data → unable to ascertain reason for DAMA and circumstances at the time

• Measures of rural crude eg many categories grouped together

• Relatively small numbers, affecting the power of the study and the categories of sub-groups

Strengths

• Specific IHD focus → able to focus on demographic and relevant clinical factors

• First-ever IHD admissions: a well-defined event for all in cohort

• Linked data → person-based analysis

• Ascertainment of co-morbidities, past DAMA, identification of Aboriginality
Summary

• Rural patients are
  – more likely to DAMA from rural hospitals
  – less likely to DAMA from metro hospitals
  – Among those not receiving procedures, rural DAMA comparable to metro patients

• Other risk factors confirm the association with:
  Age, sex, Aboriginality, history of substance abuse
Discussion

• May reflect lower confidence in smaller hospitals where resources, staffing suboptimal
• Sense of less serious illness if transfer is not organised
• Need for early identification of those at risk of DAMA
• Post-discharge interventions required to reduce risk of adverse health and system outcomes
• Resourcing of rural hospitals and a review of rural health policy
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