

AROC
Driving quality and outcome improvements
in rehabilitation




— AUSTRALASIAN REHABILITATION OUTCOMES CENTRE —
SOCIAL AND SPATIAL DIMENSIONS OF ACCESS TO REHABILITATION
AOCPRM & RMSANZ 2018
AUCKLAND 21-24 NOVEMBER

australian health services
research institute

UNIVERSITY OF
WOLLONGONG



AROC — 16 YEARS OLD AND GOING STRONG!!



- AROC was the brainchild of two well known and highly respected medical rehabilitation physicians, Ben Marosszky and Garry Pearce.
- Established 1 July 2002 as a joint initiative of the whole Australian rehabilitation sector with support from key New Zealand providers
 - The Australasian Faculty of Rehabilitation Medicine (AFRM) is the auspice body
 - The Australian Health Services Research Institute (AHSRI) at the University of Wollongong is the data manager and responsible for AROC's day to day operations
- AROC, as the clinical quality registry and outcomes benchmarking arm of AFRM and the rehabilitation sector:
 - plays an important role in driving continued improvement in rehabilitation outcomes
 - contributes to the evidence underpinning the value of rehabilitation
- From a twinkle in Ben and Garry's eyes all those years ago; today rehabilitation is leading the way in the measurement and benchmarking of outcomes

November 2018

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AROC PURPOSE

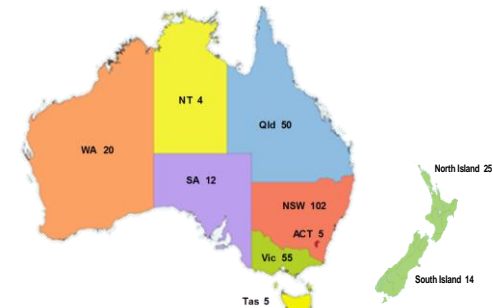
The purpose of AROC was established as, and continues to be:

- Develop a national benchmarking system to improve clinical rehabilitation outcomes for patients.
- Produce information on the effectiveness of interventions through the systematic collection of outcomes information in both the inpatient and ambulatory settings.
- Provide annual reports that summarise the Australasian data.

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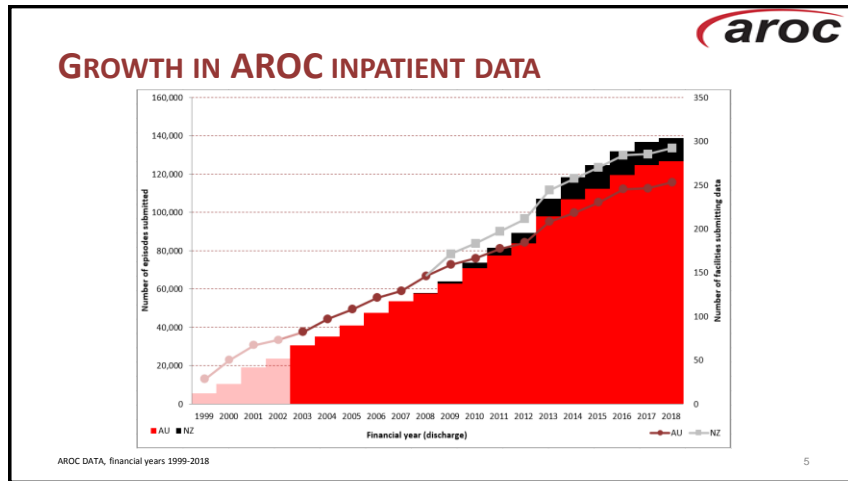
AROC COVERAGE – 292 INPATIENT SERVICES



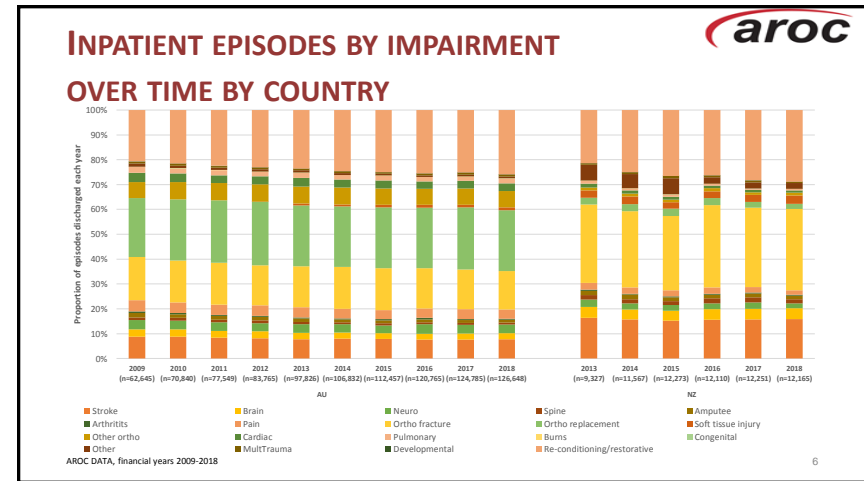
About 139,000 Inpatient episodes per annum

AROC DATA, financial year 2018

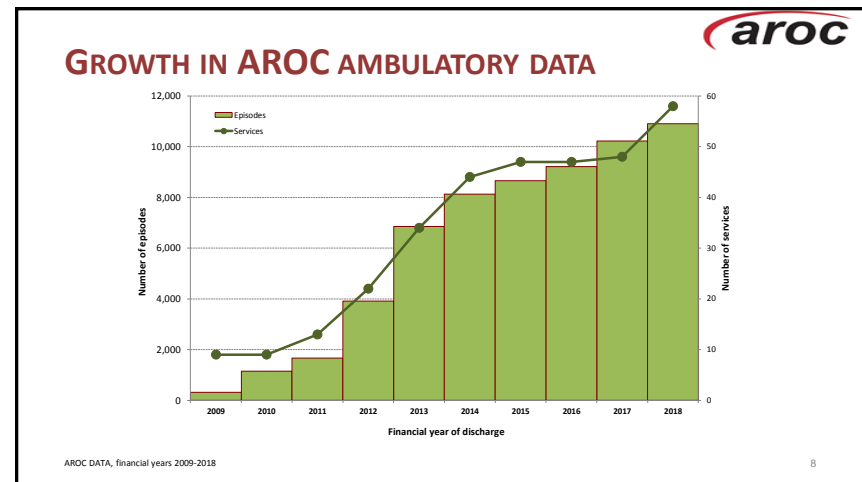
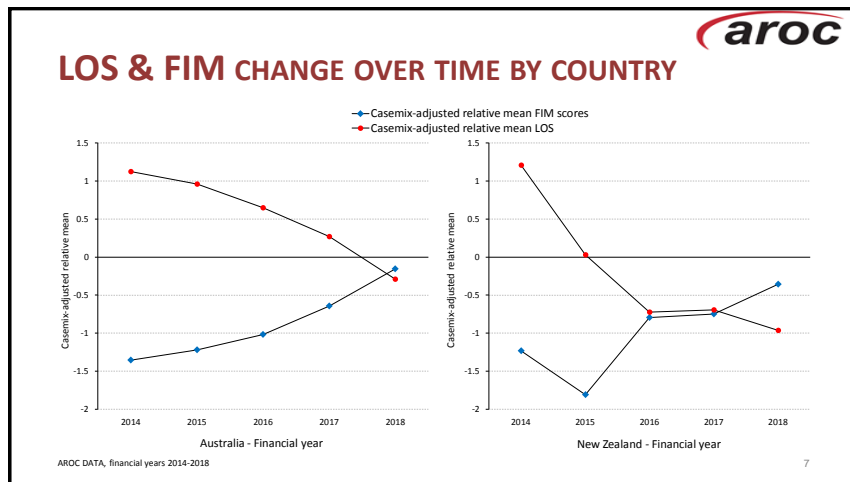
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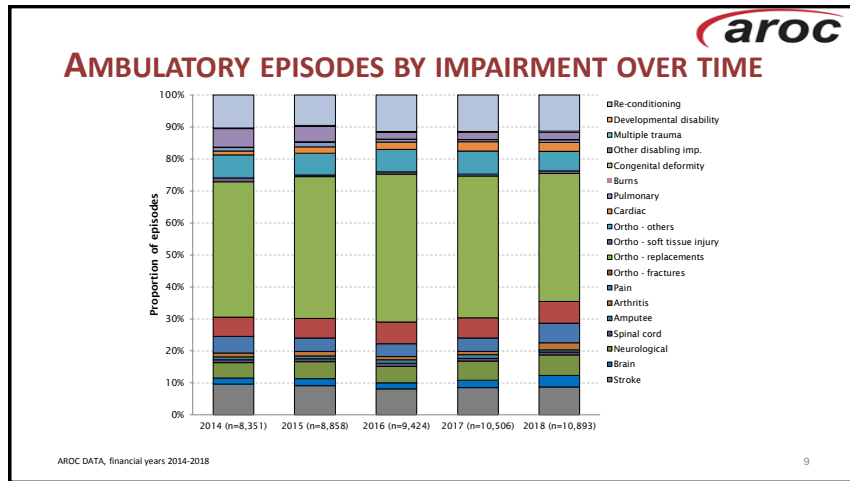


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SOCIAL AND SPATIAL DIMENSIONS OF ACCESS TO REHABILITATION IN AUSTRALIA AND NEW ZEALAND



MEASURES OF SOCIAL AND SPATIAL DIMENSIONS USED

- GEOGRAPHIC LOCATION OF PATIENT AND REHABILITATION SERVICE
 - **Australia:** ABS Australian Standard Geographical Classification – Remoteness Areas (ASGC-RA)
 - **New Zealand:** Stats NZ Urban-Rural Index (URI)
- SOCIO-ECONOMIC DISADVANTAGE OF PATIENT AND REHABILITATION SERVICE
 - **Australia:** ABS Socio-Economic Indexes for Areas – Index of Relative Disadvantage (SEIFA-IRSD)
 - **New Zealand:** Stats NZ Index of Relative Socioeconomic Deprivation (NZDep)
- DISTANCE PATIENT HAS TO TRAVEL TO REHABILITATION SERVICE
 - **Australia and New Zealand:** Determined using latitude and longitude of postcode

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OBTAINING POSTCODE LEVEL DATA

- **Australia:** Data from the Australian Bureau of Statistics 2016 census was used. The ASGC-RA and SEIFA-IRSD provide measures mapped to Australian postcodes.
- **New Zealand:** Data from the Stats NZ 2013 census was used. The URI and NZDep data (obtained from Otago University) provides measures mapped to meshblock (the smallest statistical area in NZ of ~80-100 people). Meshblocks are not directly mappable to NZ postcodes. To map to postcode geospatial data containing postcode and meshblock for each address in NZ was used (obtained from Koordinates). Meshblocks that crossed over postcodes were assigned the postcode with the most addresses. Postcode level data was obtained by weighting the data by the meshblock population – within each postcode the URI with the highest population and the median NZDep were identified and assigned to the postcode.

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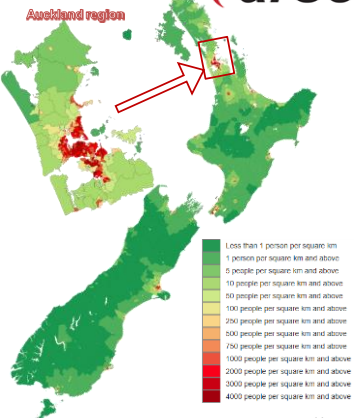
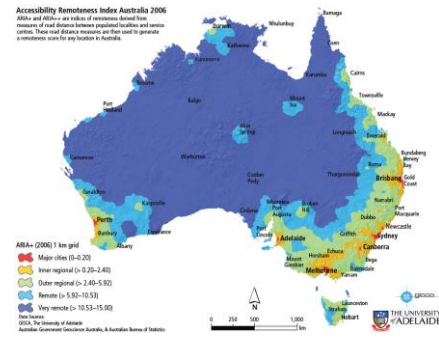
GEOGRAPHIC LOCATION

- **Australia:** The ASGC-RA classifies postcodes into geographically similar categories, depending on the 'remoteness' of the area.
 - Major Cities of Australia
 - Inner Regional Australia
 - Outer Regional Australia
 - Remote Australia
 - Very Remote Australia
- **New Zealand:** The URI classifies meshblocks into geographically similar categories, based on measures of rurality.
 - Main Urban Area (population of 30,000 or more, e.g. cities)
 - Secondary Urban Area (population of 10,000 to 29,999)
 - Minor Urban Area (population of 1,000 to 9,999)
 - Rural Centre (population of 300 to 999 people)
 - Other Rural
 - Other (Inland Water, Inlet and Oceanic)

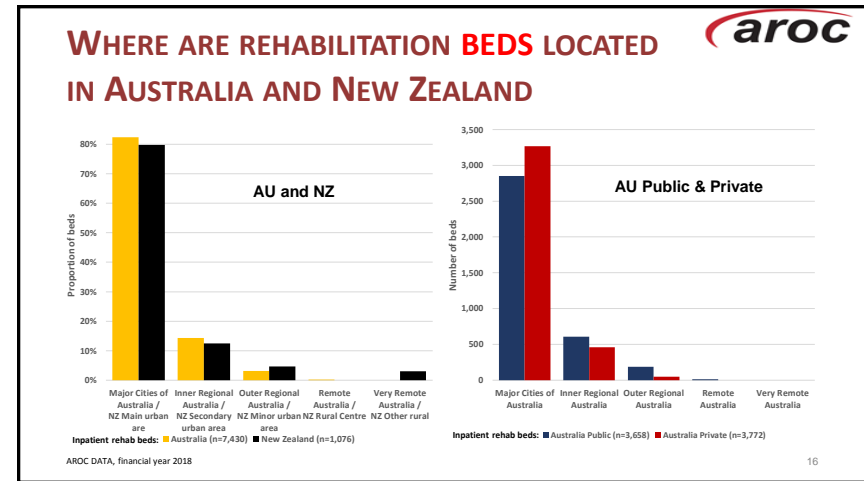
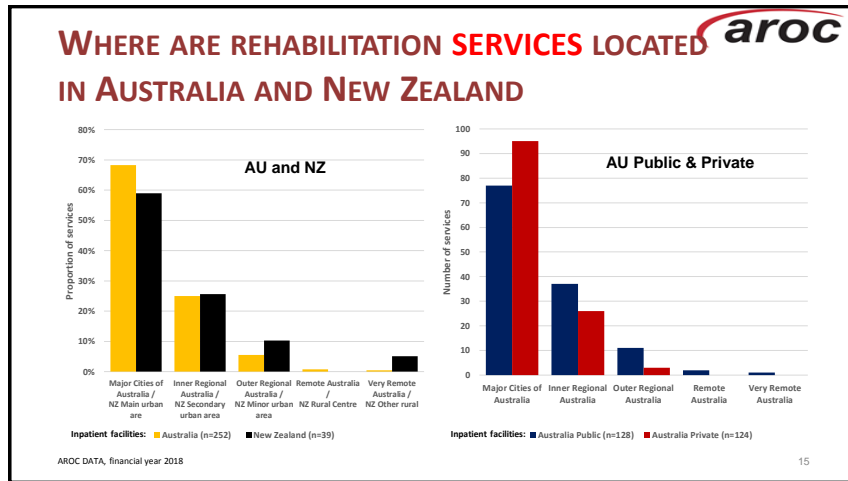
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GEOGRAPHIC LOCATION

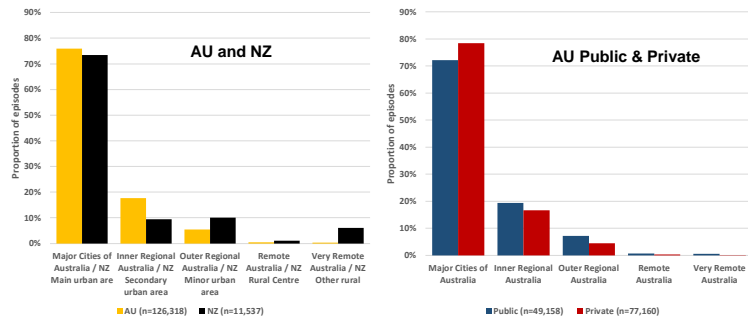
Accessibility Remoteness Index Australia 2006
ARIA and ARIA+ are indices of remoteness derived from measures of road distance between population centres and nearest centres. These road distance measures are then used to generate remoteness levels for any location in Australia.



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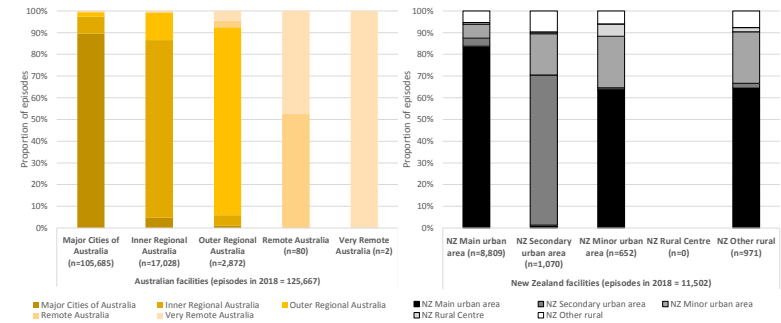
WHERE DO PATIENTS RECEIVING REHABILITATION LIVE IN AUSTRALIA AND NEW ZEALAND



AROC DATA, financial year 2018

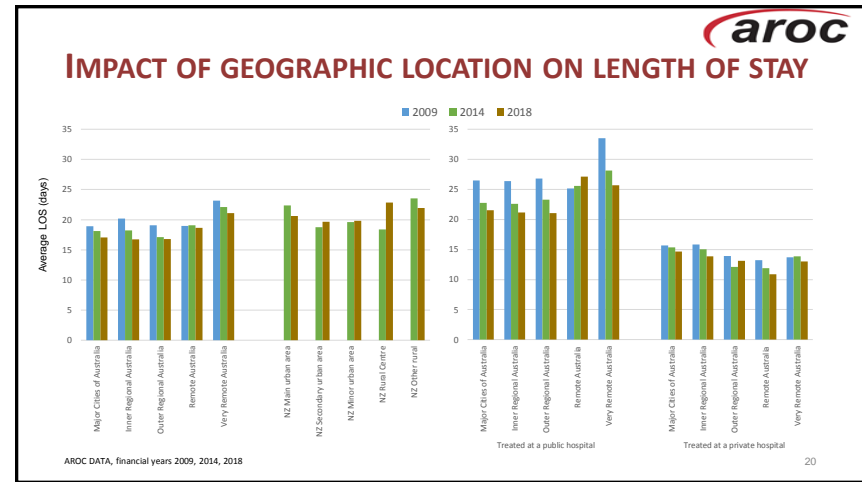
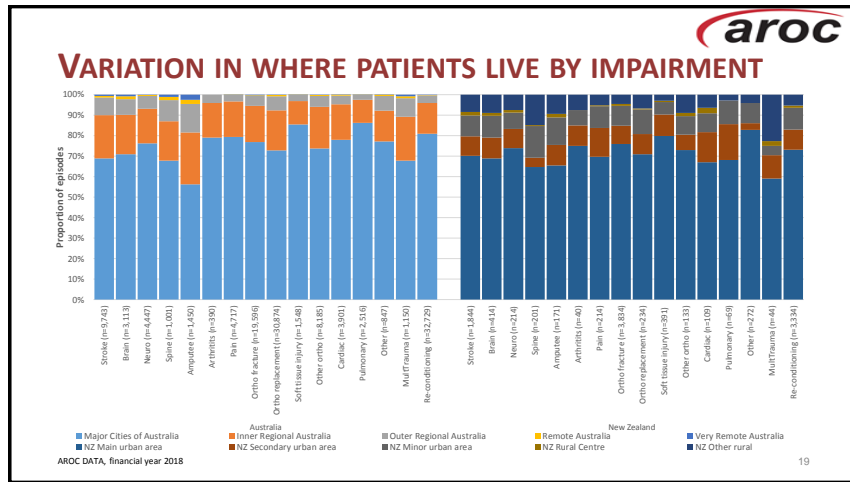
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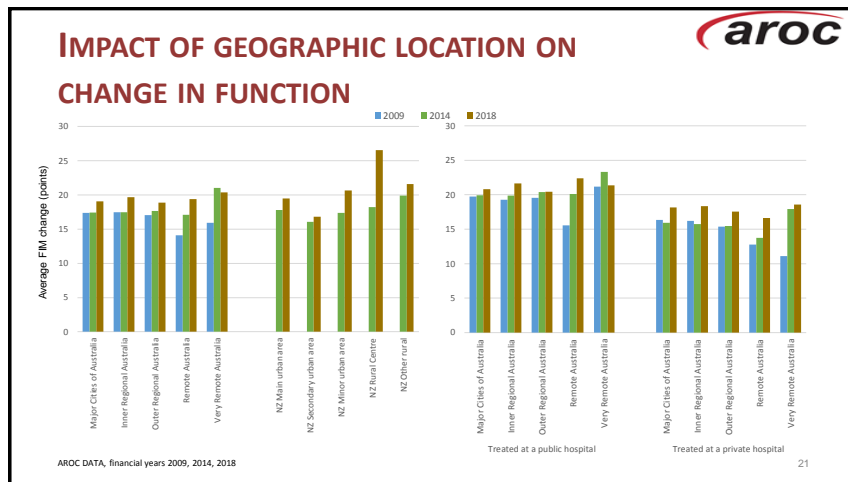
DO PATIENTS LIVE WHERE INPATIENT REHABILITATION SERVICES ARE LOCATED



AROC DATA, financial year 2018

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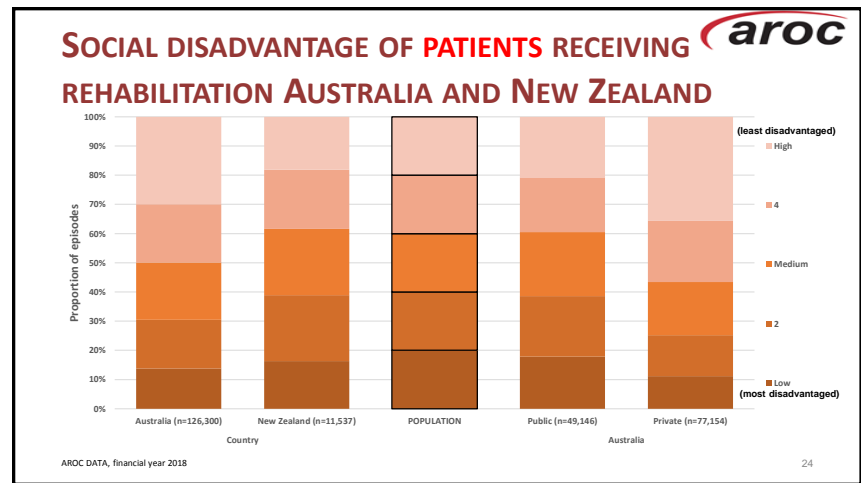
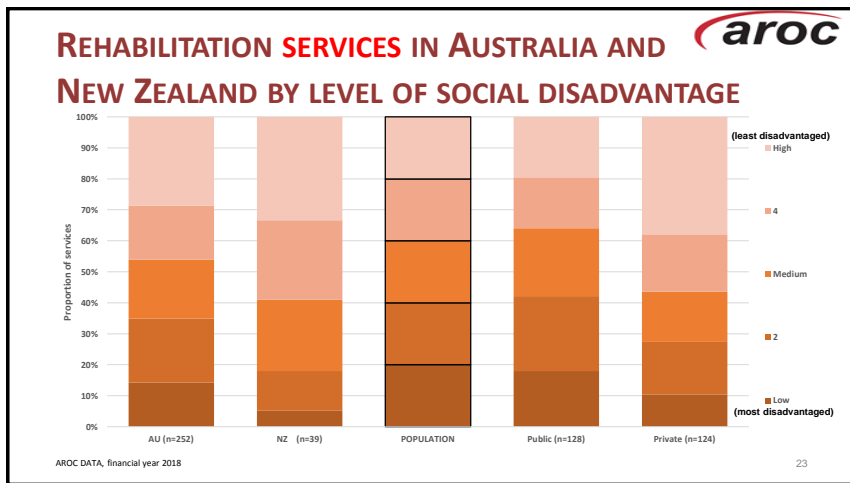


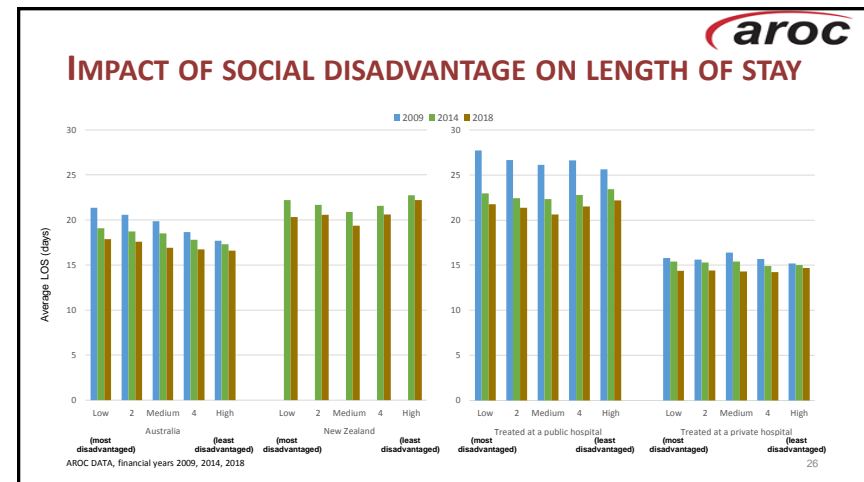
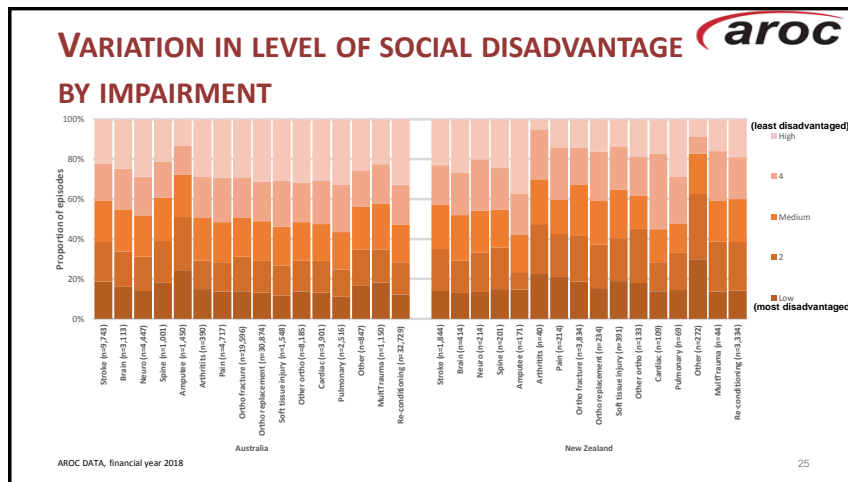


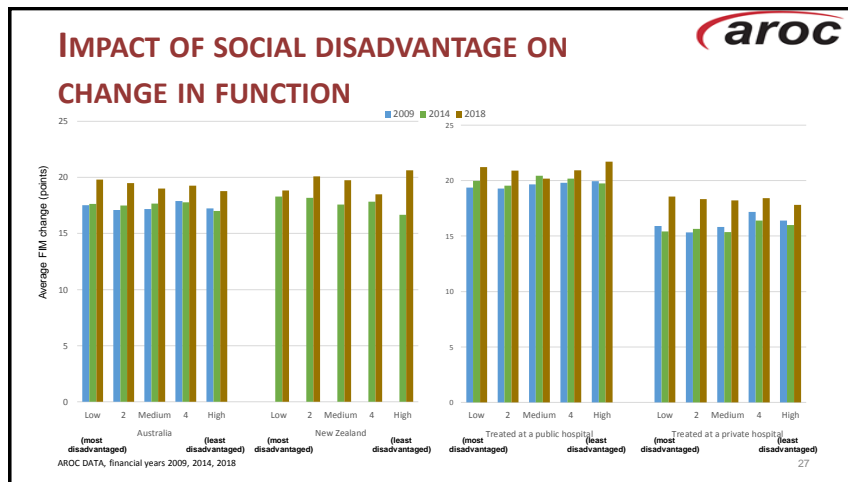
SOCIO-ECONOMIC DISADVANTAGE

- Deprivation is a state of observable and demonstrable disadvantage relative to the local community or the wider society or nation to which an individual, family or group belongs (Townsend, 1987).
- Index interpretation: the lower the SEIFA and NZDep index scores the more disadvantaged an area.
- The SEIFA and NZDep scores from all postcodes were divided into population based quintiles to enable comparative analysis.
 - The quintiles represent five socioeconomic levels from low (most disadvantaged) through to high (least disadvantaged), with each quintile representing approximately 20% of their national population i.e. 20% of the population live in the lowest socioeconomic postcodes and 20% in the highest.
- Patients were assigned a socioeconomic category based on their postcode.

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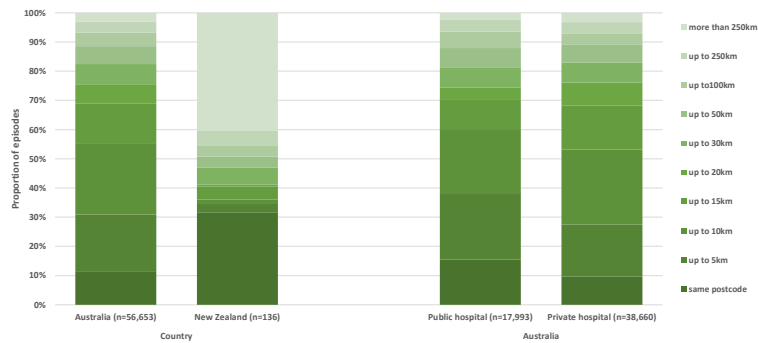




DISTANCE PATIENT HAS TO TRAVEL

- Distance between the patient's home and the facility where they received rehabilitation was estimated using the geographical locators of longitude and latitude.
 - for both Australia and New Zealand longitude and latitude of postcodes were obtained from AGGDATA (www.aggdata.com). Any postcodes missing longitude and latitude were then obtained using DISTANCESTO.COM (www.distancesto.com ... Find Coordinates).
- Straight line distance between the centre points of each pair of postcodes was used as an approximation of the distance.
- We acknowledge that the straight-line distance is likely to be underestimate of the patient's actual travel distance however it was considered a suitable approximation.

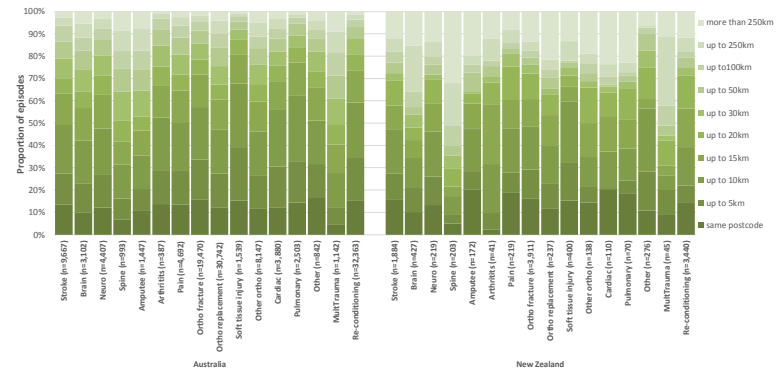
HOW FAR DO PATIENTS RECEIVING REHABILITATION NEED TO TRAVEL IN AUSTRALIA AND NEW ZEALAND



AROC DATA, financial year 2018

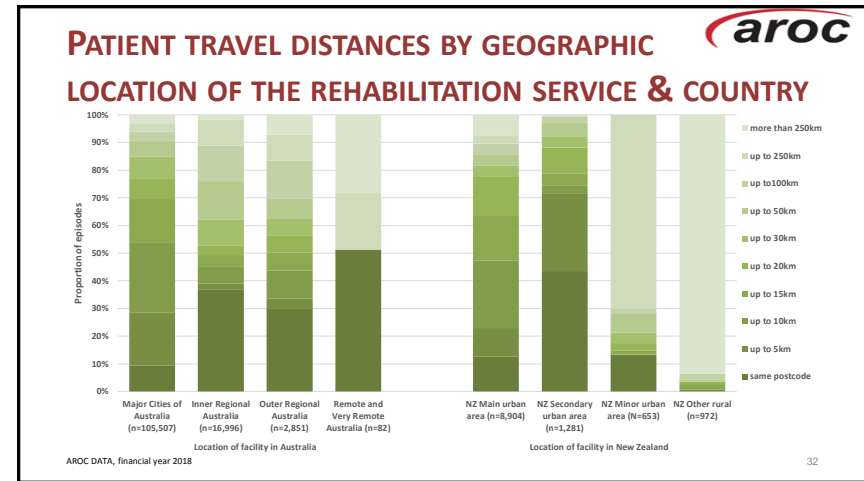
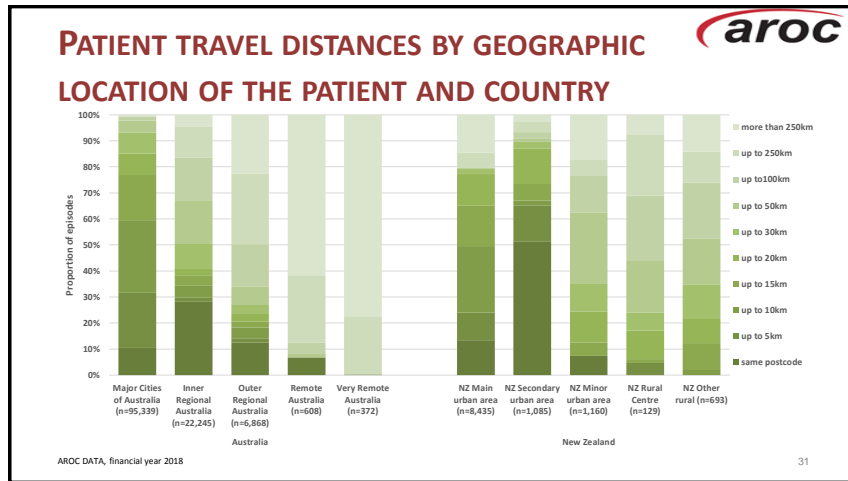
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VARIATION IN PATIENT TRAVEL DISTANCE BY IMPAIRMENT



AROC DATA, financial year 2018

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**AROC IN ACTION:
BENDIGO HEALTH CRITICAL CARE
DATATHON (SEPTEMBER 2018)**

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**AROC IN ACTION:
BENDIGO HEALTH CRITICAL CARE DATATHON (SEPT'18)**

- First datathon covering the full patient journey — ED admission to ICU to recovery in rehabilitation to community
 - 140 Million records (Victorian public services only)
 - patient linked data across 7 sources
- Data custodians agreed on anonymization rules before linkage
 - most demographic information removed or rolled up (eg. age groups)
 - all facility information removed
- Data linkage: Centre for Victorian Data Linkage (CVDL)

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AROC IN ACTION:**BENDIGO HEALTH CRITICAL CARE DATATHON (SEPT'18)**

- AROC data
 - 10 years of Victorian public services data (~170,000 episodes)
- Linked with
 - Dept. Health and Human Services Victoria
 - VEMD (Emergency Department)
 - VINAH (Non-Admitted)
 - VAED (Admitted)
 - VCR (Victorian Cancer Registry)
 - HACC (Home and Community Care)
 - ANZICS: Australia New Zealand Intensive Care Society
 - reported by contributing ICUs for benchmarking

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AROC IN ACTION:**BENDIGO HEALTH CRITICAL CARE DATATHON (SEPT'18)**

- 18 teams looked at different topics, for example
 - Team CARDIAC ARREST looked at **What happened next** for the 52.1% of patients that presented to ICU following a cardiac arrest and survived
 - As intensivists, they wanted to know how many of their patients went on to have rehabilitation and what their outcomes looked like
 - They were very surprised to learn most patients going on to rehabilitation showed improved function, were able to return home **and very few die** – this was an unexpected finding for them
 - This team learnt just how beneficial rehabilitation is

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**AROC IN ACTION:
BENDIGO HEALTH CRITICAL CARE DATATHON (SEPT'18)**



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AROC CONTACT DETAILS



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