



THE UNIVERSITY OF  
WESTERN AUSTRALIA  
*Achieving International Excellence*

# Nurse practitioner care in residential aged care: A randomised trial

Glenn Arendts MBBS MMed PhD FACEM



# Acknowledgements

Co-investigators (geriatrics, palliative care, primary care and nursing)

JO & JR Wicking Trust

Amana Living and Juniper



THE UNIVERSITY OF  
WESTERN AUSTRALIA  
*Achieving International Excellence*

# Are we obsessed by the “problem” of nursing home patients in ED?

Acute medical services for the residential aged care population: measuring preferences for the emergency department and alternatives

A thesis submitted for the degree of Doctor of Philosophy  
School of Public Health  
Faculty of Medicine  
University of Sydney



# Is there a charitable explanation?





THE UNIVERSITY OF  
WESTERN AUSTRALIA  
*Achieving International Excellence*

And so....



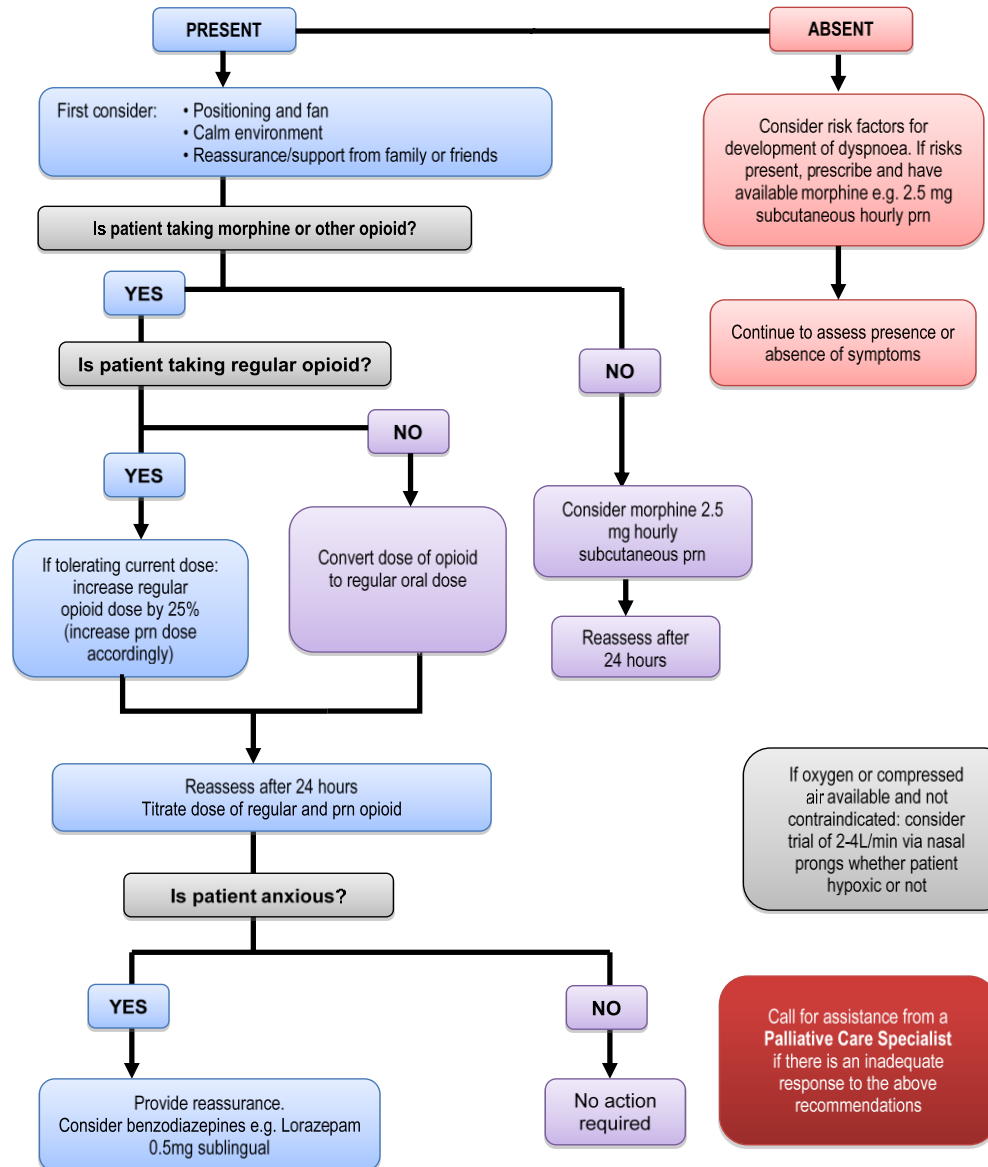
# “Consumer driven research”: the birth of the best practice guide

1. Comprehensive Medical Assessment
2. Education Resources
3. Care Guidelines
  - 3.1 Commonly encountered acute primary symptoms/problems
  - 3.2 Care pathways for specific acute conditions
  - 3.3 Assessment scale for chronic symptoms
  - 3.4 Palliative principles for commonly encountered chronic symptoms
  - 3.5 Advance care planning
4. Medication Review

Arendts G et al *Arch Gerontol Geriatr.*  
58(1):15-9, 2014.



## Management of dyspnoea – in the dying patient





# Aim

To determine if nurse practitioners, working as independent clinicians with a scope of practice defined by this best practice guide, could reduce ED transfers from nursing homes (primary outcome) and improve resident quality of life and other secondary outcomes.





# Secondary outcomes

Health-related QoL. Measured every 6 months

Functional status. Measured every 6 months using the modified Barthel Index (MBI)

Death

Hospital inpatient admissions and total hospital bed-days

Intervention fidelity



# Method

A cluster RCT in long term residents of six RACF, three randomly assigned to intervention and three control

Approved by UWA ethics committee and conforming with the Declaration of Helsinki

Informed patient (proxy) consent

ACTRN 12611000933954



# Intervention

Consenting residents in the intervention facilities were assigned to NPs with an autonomous scope of practice that included independent diagnosis and prescribing (conferring with a GP as needed)

Under the best practice guide the scope of practice included maintenance of chronic illness, future care planning, palliative care and unplanned acute care for enrolled residents.

Monthly management committee review of all ED attendances made by intervention residents



# Patient entry

Age 65 years or more

Not a respite admission

Estimated life expectancy of at least 6 months

Able to undergo direct or proxy assessment of  
QoL



# Sample size

Previous research in the setting of this study showed an incidence of 75 transfers for each 100 RACF residents per year.

However as transfer rates are as low as 30/100 RACF residents/year in some jurisdictions, we based our sample size estimates on this, with an assumption that halving this to 15 transfers/100 residents/year (i.e. relative risk = 0.5) would be clinically meaningful.

Based on an estimated mean exposure time of one year, 250 patients would have 80% power to detect this risk difference at a significance level of 0.05.



# Analysis

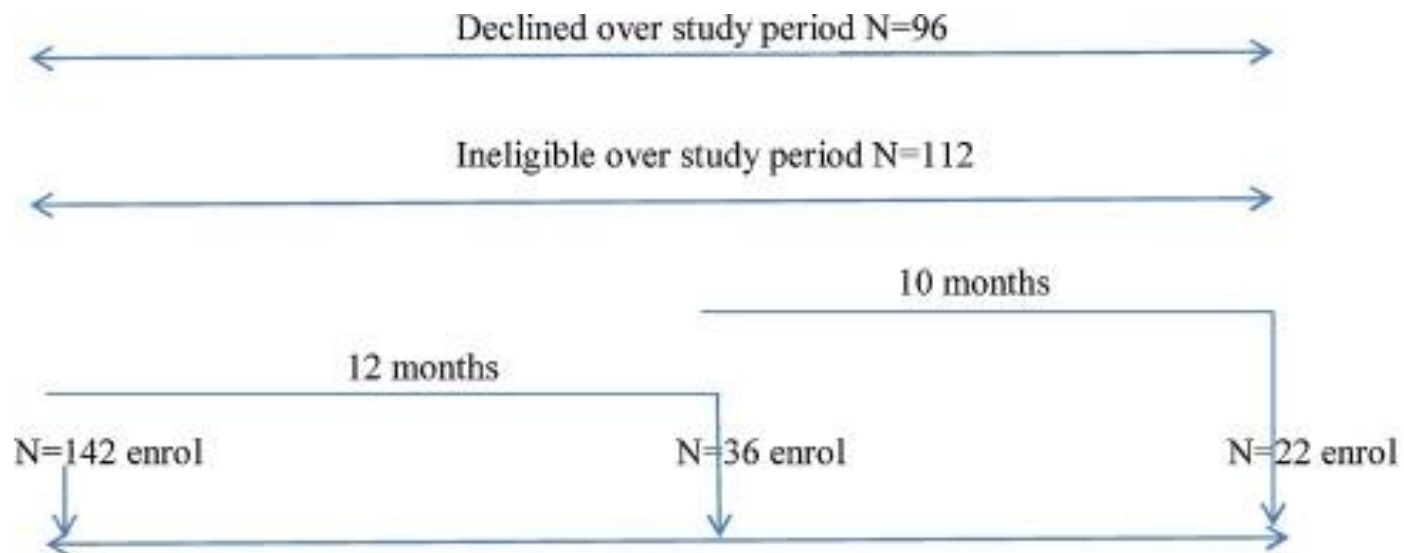
Pearson's  $\chi^2$  test for dichotomous outcomes and, depending on distributions, parametric or non-parametric tests for continuous outcomes.

Kaplan-Meier survival curves with log-rank test were estimated for unplanned transfers to ED

Logistic regression analysis adjusting for gender, number of comorbidities and medications, treatment group and baseline functional and cognitive status on the likelihood of ED attendance.



## 352 beds across six facilities

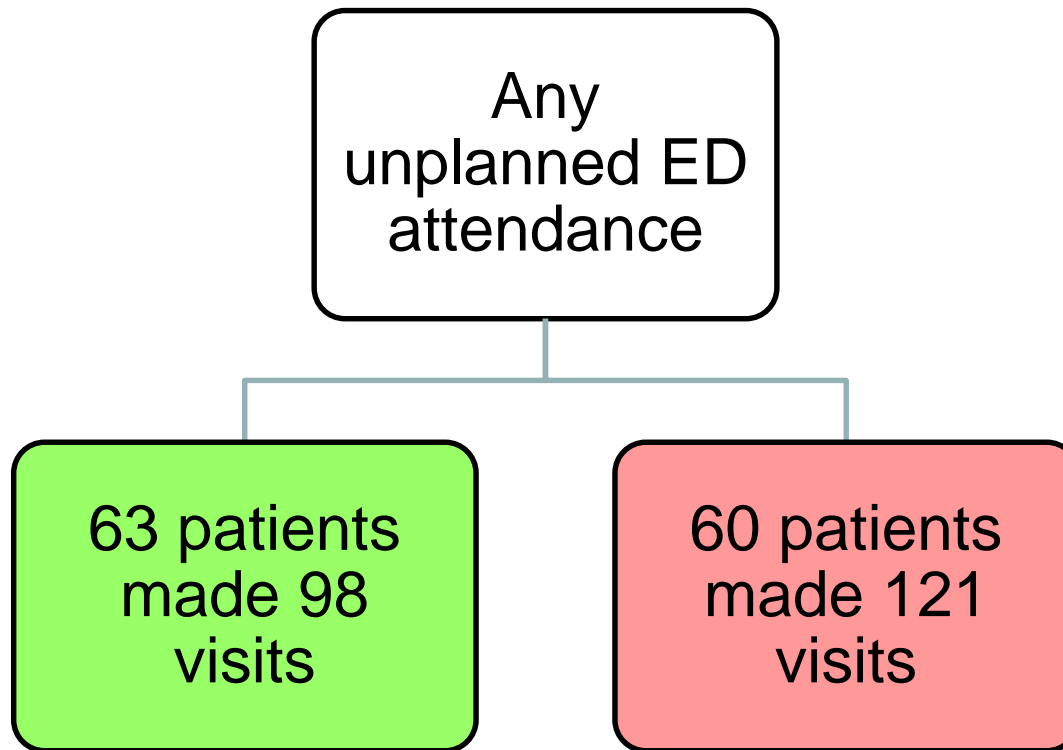




## Baseline analysis (n=200)

Parameter	Intervention (n=101)	Control (n=99)	p value
Age years	89, 8	89, 9	0.22
Female gender	82%	70%	0.10
Weeks between admission to RACF and enrolment in study	57, 151	64, 149	0.45
Number of medications	11, 3	10, 4	0.39
Count of comorbidities	6, 3	6, 3	0.30
Enrolment PAS (cognition)	11, 11	12, 9	0.16
Enrolment MBI	55, 60	65, 50	0.03



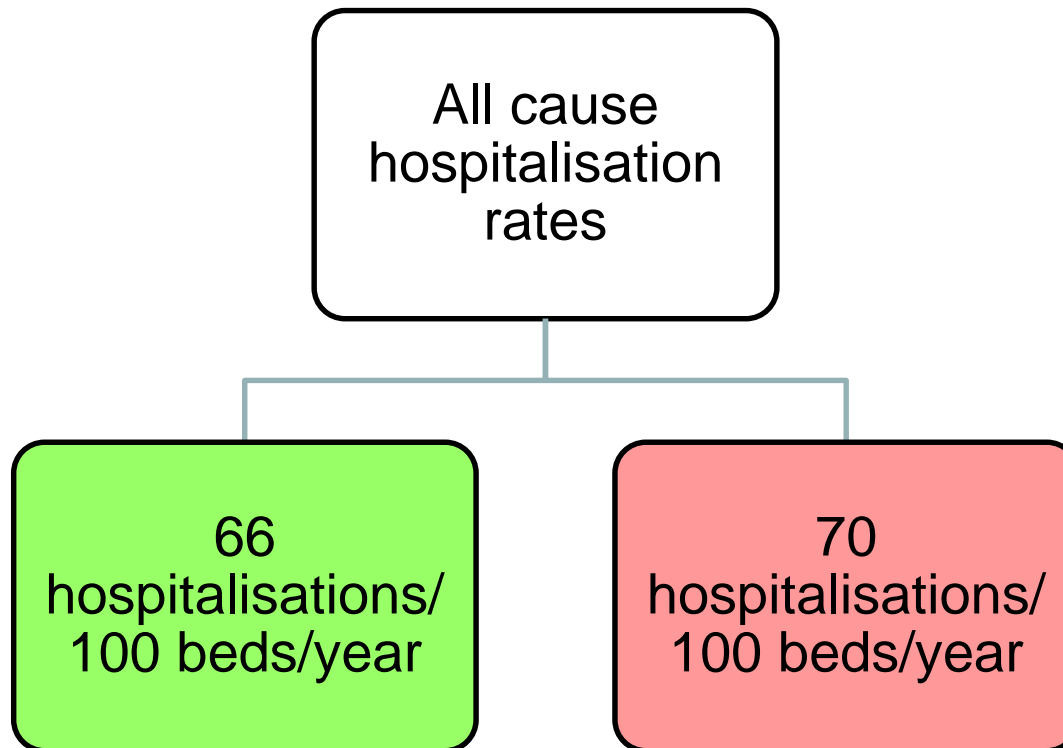


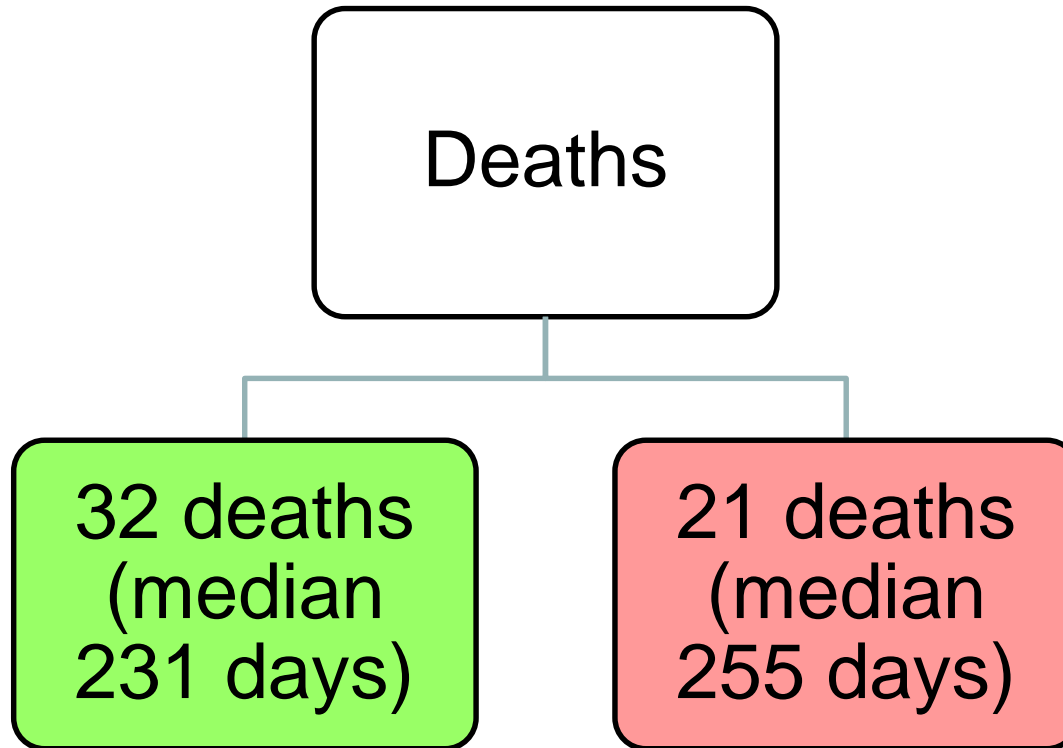
8% ARR in ED visits (95% CI = -1% -17%), NNT 12  
Not statistically significant (Pearsons  $\chi^2_1$  p=0.10)  
Adjusted OR 0.7 (0.3-1.5) p=0.34



# Quality of Life

EQ-5D	Intervention		Control	
	N	Mean (95% CI)	N	Mean (95% CI)
Baseline	101	0.43 (0.37–0.49)	99	0.46 (0.39–0.53)
6 months	87	0.44 (0.37–0.50)	90	0.44 (0.37–0.51)
12 months	66	0.43 (0.35–0.50)	72	0.38 (0.30–0.46)







# Main conclusion

Nurse practitioner care with a scope of practice defined by best practice guide maintained/improved resident quality of life but had a modest to zero effect on ED transfers and hospitalisations.



# Discussion

Principal author	Country	Method	Intervention	Findings and Comments
Aigner	USA	Retrospective review	NP	No reduction in ED visits or cost saving
Burl	USA	Retrospective review	NP	17% reduction in ED visits, significant cost reduction, no CEA
Chappell	USA	Before-after study	Nurse visitation to RACF	20% reduction in ED visits, inappropriate statistical analysis of results
Kane (1)	USA	Retrospective with facility matching	NP	No reduction in ED visits, significant reduction in hospitalizations
Kane (2)	USA	Before-after	Altered financial arrangements for NP	No reduction in ED visits, improvements in other outcomes
Kane (3)	USA	Cross sectional	NP	Significant reduction in ED visits

