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Using Electronic Routine Linked Health Records in HTA Of Interventions In Emergency Care

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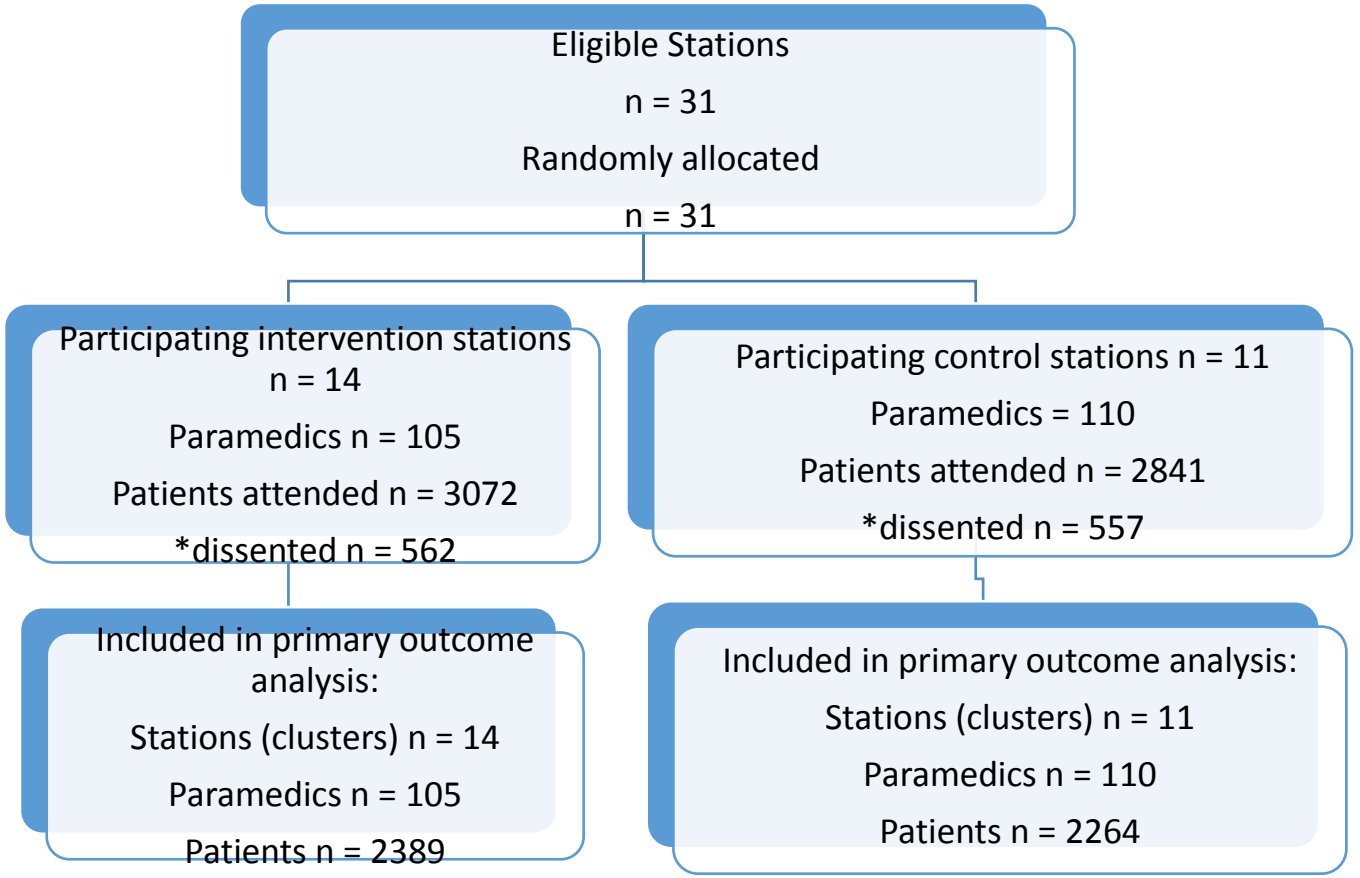
Swansea University
Prifysgol Abertawe

SAFER2 RCT

- **Objective**
  - Assess new protocols for paramedics treating falls in older people
- **Aims**
  - Evaluate outcomes for patients at 1 & 6 months
  - Outcome hierarchy includes death, further unscheduled Hospital Admissions, ED attendances & emergency calls
- **Setting**
  - 3 Ambulance Services in UK
  - 2 in England; 1 in Wales – this site also participated in SAFER1
- **Design**
  - Cluster RCT
  - paramedics at ambulance stations assigned to Intervention (new protocol) or control



SAFER 2


Eligible Stations
n = 31
Randomly allocated
n = 31
Participating intervention stations n = 14
Paramedics n = 105
Patients attended n = 3072
*dissented n = 562
Participating control stations n = 11
Paramedics = 110
Patients attended n = 2841
*dissented n = 557
Included in primary outcome analysis:
Stations (clusters) n = 14
Paramedics n = 105
Patients n = 2389
Included in primary outcome analysis:
Stations (clusters) n = 11
Paramedics n = 110
Patients n = 2264

Data from Two Routes

- Some data available in two ways
  - ED attendances & Hospital Admissions
    - Route 1 *[identifiable]* – Traditional Approach
      - Researchers visited Hospitals to review case notes
    - Route 2 *[anonymised]* – Routinely Linked Data
      - Available on all non-dissenting participants
      - Following SAFER1 study, Welsh Site data from this route only
- Sample Sizes
  - Approximately 6000 potential participants
    - 1300 dissented from further follow up
    - 4700 consented to follow up via Route 2, of which
    - 1550 also consented to follow up via Route 1

Aspects of Interest

- Characteristics of the sub-sample of 1500 identifiable participants
  - Our entire sample without routine linked data
- Outcomes at individual level
  - Consistency in outcome data in the two routes
    - Direct comparison in participants in the two English sites
- Good linkage
  - Improving with experience
  - Approximately 1% unmatched

Sub-group of Identifiable Participants

- Sample sizes in the three sites
  - Overall = England A (EMAS) + England B (LAS) + Wales (WAST)
    - Identifiable: 1548 = 709 + 409 + 430
    - Anonymised only: 3107 = 1939 + 625 + 543
    - Overall: 4655 = 2648 + 1034 + 973
- Characteristics at Index emergency call
  - Age
  - Gender
  - Timing
  - Distance to ED

Patient Characteristics at Index Emergency Call

• Mean age (years)			
• Identifiable:	81.22	(sd=8.09)	[p<0.001]
• Anonymised only:	82.92	(sd=7.94)	
• Gender (% Female)			
• Identifiable:	63.2%	(979/1548)	[p=0.669]
• Anonymised only:	62.6%	(1945/3107)	
• Timing (% calling outside standard GP hours)			
•Identifiable:	38.4%	(594/1546)	[p=0.001]
•Anonymised only:	43.5%	(1350/3106)	
• Distance to ED (miles)			
•Identifiable:	4.86	(sd=3.48)	[p=0.026]
•Anonymised only:	4.64	(sd=3.16)	

Outcomes

- Agreement at the Individual level
  - Same date of death?
  - Same ED attendance dates?
  - Same Hospital Admission dates?
  - Same Hospital Length of Stay?
- Comparison between Identifiable and Anonymise
  - Based on patients at English sites



Some results for 6 months follow up [1]

- 1118 patients in the two English sites allowed ED attendance data to be gathered by both routes
  - Data on next subsequent ED attendance

		Identifiable	
		No event	Event recorded
Anonymised	No event	622	5
	Event recorded	90	401

  - Exact agreement on dates in 385/401 (96.0%) cases with events in both routes

Some results for 6 months follow up [2]

- Hospital Admission data on the same 1118 patients
  - Data on next subsequent Hospital Admission

		Identifiable	
		No event	Event recorded
Anonymised	No event	572	5
	Event recorded	120	421

- Exact agreement on dates in 377/421 (89.5%) cases with events in both routes

Some results for 6 months follow up [3]

- Researchers at one English site also collected mortality data on identifiable participants
  - Mortality data for n=709 cases
    - 696 cases: exact agreement
    - 4 cases: agreement within one day
    - 9 cases: date of death in routine data only

Data on components of primary outcome [1]

- Proportion with a further ED attendance

	Intervention	Control
•1M		
Identifiable	90/552 = 16.3%	77/566 = 13.6% [p=0.205]
Overall	463/2391 = 19.4%	418/2264 = 18.5% [p=0.433]
•6M		
Identifiable	185/566 = 32.7%	218/552 = 39.5% [p=0.018]
Overall	1079/2391 = 45.1%	1021/2264 = 45.1% [p=0.983]

Data on components of primary outcome [2]

- Proportion with further Hospital attendance

	Intervention	Control
•1M		
Identifiable	97/566 = 17.1%	121/552 = 21.9% [p=0.044]
Overall	517/2391 = 21.6%	475/2264 = 21.0% [p=0.593]
•6M		
Identifiable	193/566 = 34.1%	233/552 = 42.2% [p=0.005]
Overall	1153/2391 = 48.2%	1084/2264 = 47.9% [p=0.815]

Conclusions

- Sub-groups of patients allowing identifiable data to be collected or not have some similar and some different characteristics
- Good (not perfect) agreement on outcomes from the two routes at the individual level
- Analysis of identifiable data alone can lead to very different conclusions from those drawn from analysis of anonymised data



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