

Stroke Early Supported Discharge: theory versus reality

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Overview: why listen?



- The need to provide stroke survivors with evidence based stroke care
- Stroke Early Supported Discharge
 - Evaluation of a complex intervention in a real world setting
 - Beyond the randomised controlled trial
- Importance of Implementation research
 - Implementation science theory

What is Implementation research?

.....and why is it important?

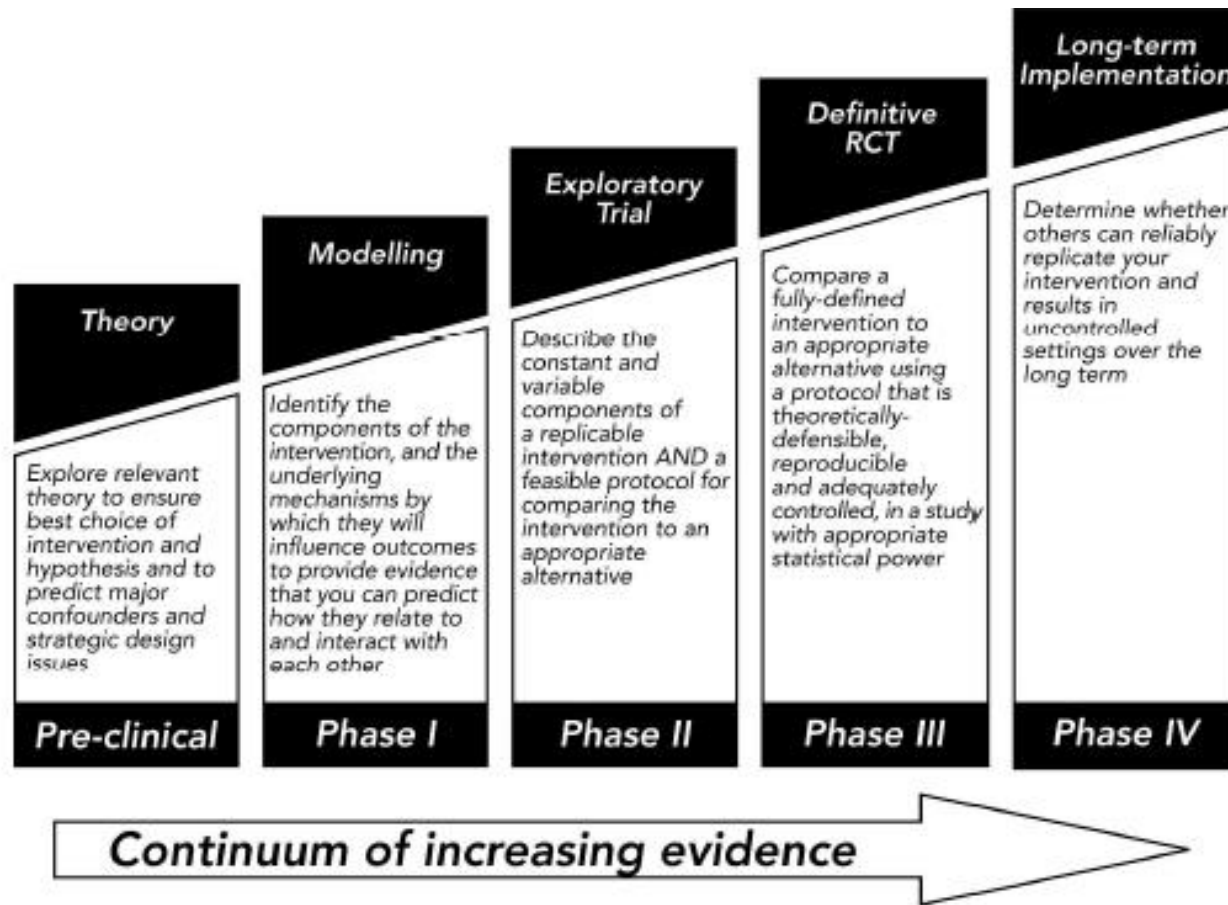


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MRC framework



Complex interventions

“determine whether others can reliably replicate your intervention”



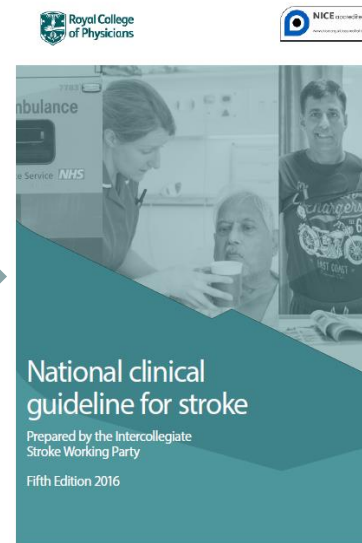
Definition



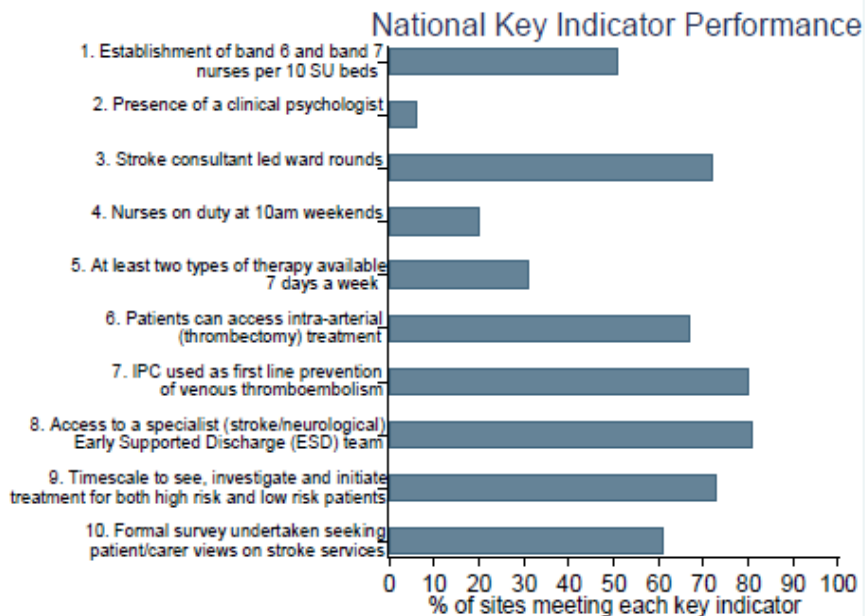
- Implementation research: study of methods to promote systematic uptake of clinical research findings and other evidence based practices into routine clinical practice, and hence to improve the quality and effectiveness of healthcare

Implementation in stroke

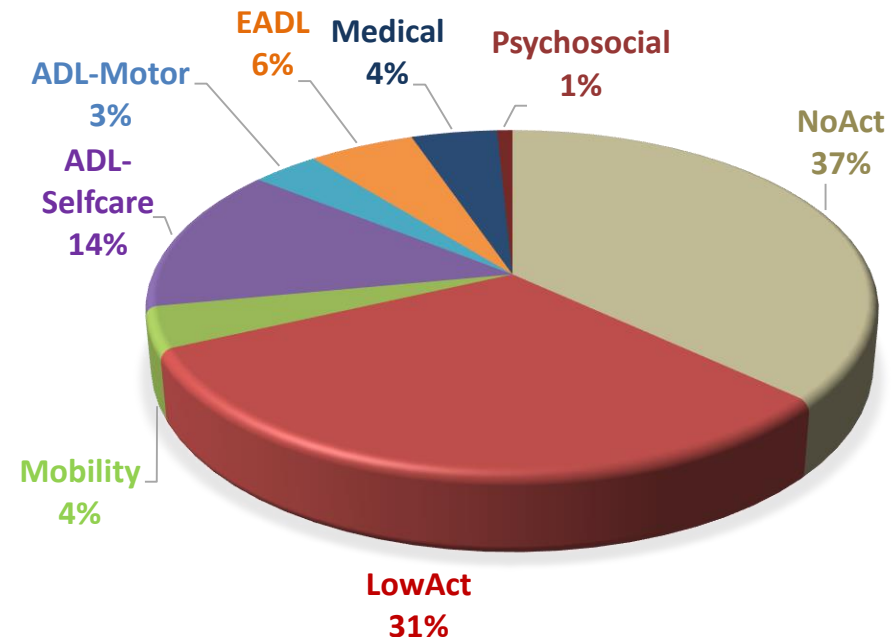
Randomised
controlled trial



What's the problem?



SSNAP Acute organisational audit 2016



Chouliara, Fisher, Crosbie, Walker et al 2018

Beyond the RCT



Understanding the intervention: mechanisms of action
Does it work? (randomised controlled trial)

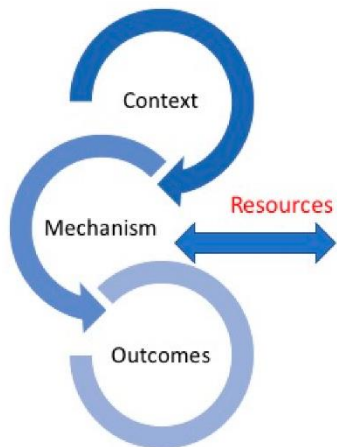


Facilitators and barriers to implementation: influence of context
How does it work?
Does it still work in real world conditions?

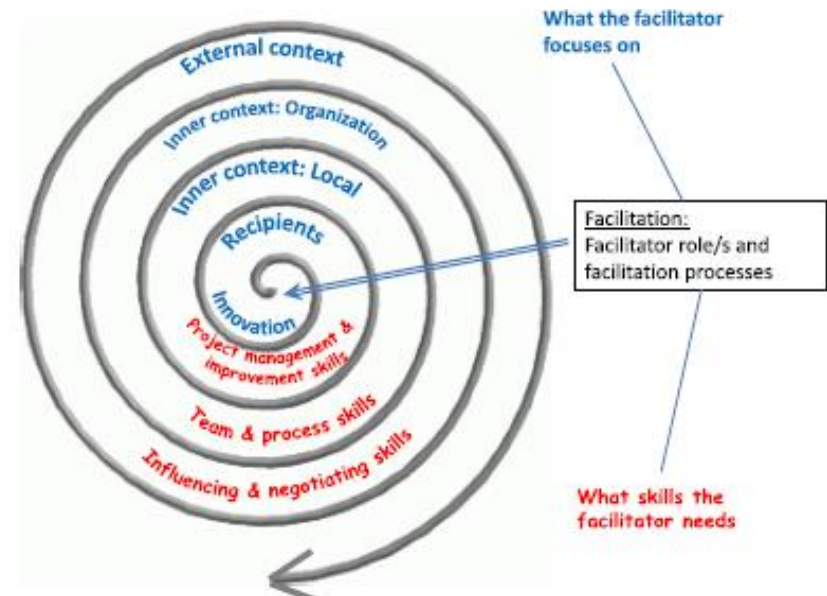


Improvement activities
How can we help make sure it survives?

Theoretical frameworks



- **Context:** Something that can impact or even block, a Mechanism. The context may be provided by the intervention, or by a broader contextual 'backdrop' within which the programme (intervention) operates.
- **Resources:** Required to enable a mechanism.
- **Mechanism:** The generative force that results in an Outcome. It can be manifested as a reasoning and or response to the resources or capabilities offered by or embedded in a programme (intervention).
- **Outcome:** What happened intended or unexpected.



Shé et al. *Int. J. Environ. Res. Public Health* **2018**, *15*(2), 199; doi:[10.3390/ijerph15020199](https://doi.org/10.3390/ijerph15020199)

PARIHS revisited: from heuristic to integrated framework for the successful implementation of knowledge into practice

Gill Harvey^{1,2*} and Alison Kitson^{1,3}

A practical example

Implementation of Early Supported Discharge



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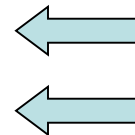
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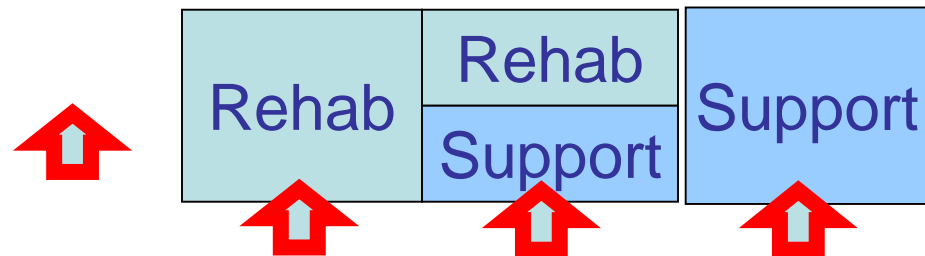
Early Supported Discharge



Hospital



Home



Early Supported Discharge

Intervention	Clinical Trials (participants)	Trial results (extra independent survivors per 100 patients treated)	Significance
Rapid secondary prevention	1(1278)	2	P=0.0001
Stroke unit	28 (5855)	5	P=0.0007
Stroke ESD	14 (1957)	5	P=0.02
Aspirin	12 (43,041)	1	P=0.008
rtPA (0-3 hrs)	12 (7012)	11	P=0.001
Mechanical thrombectomy	8 (2423)	11	P=0.00001
Hemicraniectomy	3 (93)	20	P=0.014

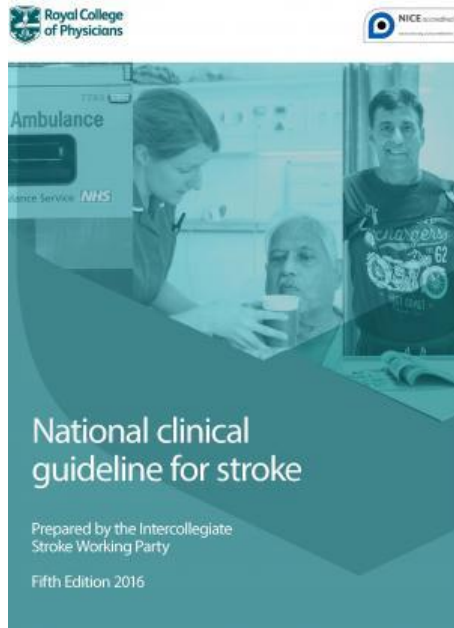
Table with permission from Peter Langhorne.

Data from:
Rothwell et al 2007
SUTC 2013
ESD trialists 2012
Sandercock et al 2008
Wardlaw et al 2012
Balami et al 2015
Vahedi et al 2007

2017 ESD Cochrane systematic review: 17 trials (2422), 16 trials (2359)

- ESD group: reductions in the length of hospital stay equivalent to approximately six days
- Odds ratios (OR) for the outcome of death or dependency (median 6 months; range 3 to 12) was OR 0.80 (95% CI 0.67 to 0.95, $P = 0.01$), which equates to five fewer adverse outcomes per 100 patients receiving ESD

What's the problem?



Royal College of Physicians | Sentinel Stroke National Audit Programme (SSNAP)

Sentinel Stroke National Audit Programme (SSNAP)

Post-acute organisational audit

Public Report

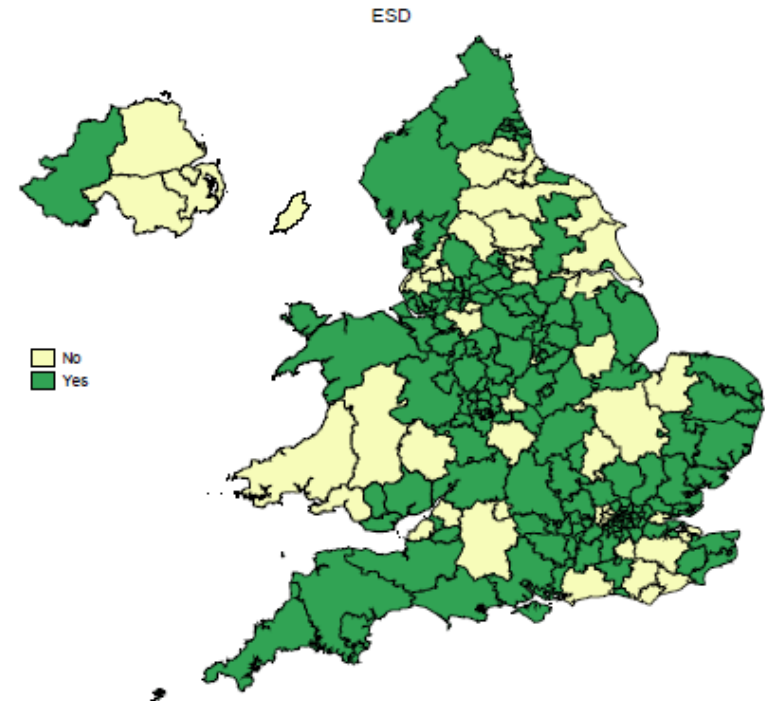
Phase 2: Organisational audit of post-acute stroke service providers

December 2015

Prepared by

Royal College of Physicians, Clinical Effectiveness and Evaluation Unit on behalf of the Intercollegiate Stroke Working Party

Post-acute organisational audit



Early supported discharge (ESD) teams describe poor access to medical and nursing expertise compared with the other domiciliary services.

Strikingly there is very poor access to nursing as part of Early supported discharge teams. Nursing expertise plays a key role in rehabilitation after stroke and especially in the management of common co-morbidities such as incontinence, medicine and pain management. Rehabilitation assistants (unregistered healthcare workers delivering care under supervision) are an important part of the post-acute stroke care team workforce and require not just supervision but training in stroke care.

National Stroke Audit

For Early Supported Discharge and Community Rehab Teams: Team centred results showing care ESD/CRT teams provided					Team type	ESD team		
						East Midlands SCN	East Midlands SCN	ESD team
						Nottingham CityCare Partnership CIC	Sherwood Forest Hospitals NHS Foundation Trust	East Midlands SCN
See "Outline of report" for further information about this section of the report						Nottingham CityCare Partnership CIC	Sherwood Forest Hospitals NHS Foundation Trust	University Hospitals of Leicester NHS Trust
Category	Item Reference	Item	Data type	All records submitted	Nottingham City ESD Team	Central Nottinghamshire ESD Team	Leicester ESD Team	
	L1.1	Number of stroke patients (discharged or transferred from ESD or CRT between October 2015 and March 2016)	denominator (d)	9655	81	82	75	
Rehabilitation goals	L2.1	Applicability for rehabilitation goals at this team	numerator (n)	8669	68	70	72	
	L2.2		d	9655	81	82	75	
	L2.3		%	89.8	84	85.4	96	
	L2.4		If applicable, rehabilitation goals set at this team	n	8163	55	67	72
	L2.5		d	8669	68	70	72	
	L2.6		%	94.2	80.9	95.7	100	
	L2.7	Number of days at this team until rehabilitation goals are set	Median	0	0	0	0	
	L2.8		Lower IQR	0	0	0	0	
	L2.9		Upper IQR	2	0	2	0	
Modified Rankin Scale	L3.1	Modified Rankin score (mRS) at discharge	Median	2	2	2	2	
	L3.2		Lower IQR	1	1	1	1	
	L3.3		Upper IQR	3	3	3	2	
Length of stay	L4.1	Length of stay at this team (including death under the care of this team)	Median	36	20.9	25.1	25.8	
	L4.2		Lower IQR	16.9	1.2	13.2	13.3	
	L4.3		Upper IQR	54.9	39.9	37.1	38.2	
	L4.4		Mean	47.1	24.9	23.9	25.6	
	L4.5	Number of days from inpatient discharge to first direct contact with this team, where this is the first team following an inpatient stay	Median	1	2	1	1	
	L4.6		Lower IQR	0	1	1	1	
	L4.7		Upper IQR	3	4	3	3	

Defining core components of ESD

- **Evidence based core components**
 - Multidisciplinary co-ordinated team
 - Stroke focus: care predominantly for people with stroke and team training in stroke
 - Eligibility: Mild to moderate disability
 - Intensive: same intensity as stroke unit
 - Responsive: treatment at home within 24 hours
- **Evaluation of evidence based ESD model**
 - ESD group (n=135) Non-ESD group (n=158)
 - ESD group – shorter length of hospital stay ESD 9 days (4-18.25) vs Non ESD 11 days (5-21) $p=0.029$
 - Higher odds of being in ≥ 90 Barthel category



(Fisher et al 2011 Stroke 42:1392-1397; Fisher et al 2016 Clinical Rehab 30(3):268-276)

Large scale implementation

- **Implementation of stroke unit care**
 - Use of national audit data
 - Multivariable regression
- **Impact of stroke unit care on outcomes in a Scottish population**
 - 41,692 stroke events, 36 hospitals
 - Admission to a stroke unit: greater likelihood of discharge home with lower mortality up to 1 year

(Turner et al 2014 J Neurol Neurosurg Psychiatry 0:1-5)
- **Stroke mortality and weekend working**
 - 56,666 stroke patients, 103 hospitals
 - Patients admitted on a weekend to a stroke unit with 1.5 nurses/ten beds had a higher risk of mortality compared to patients admitted to a unit with 3.0 nurses/ten beds

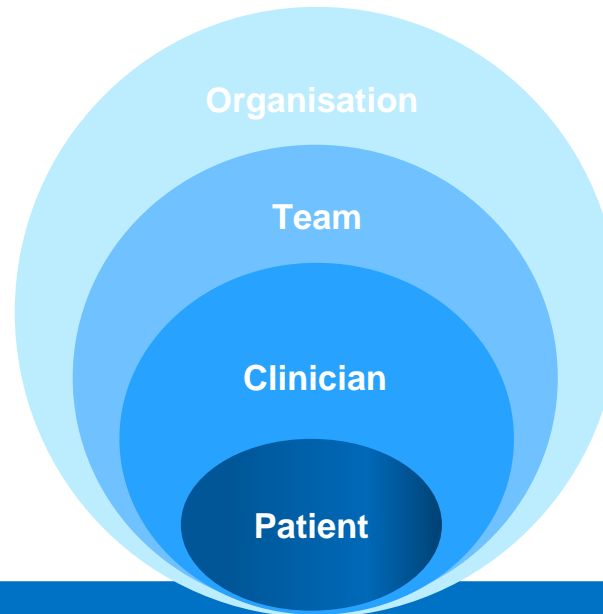
(Bray et al 2014 PLoS Med 11(8))



NIHR HS&DR What is the Impact of Stroke ESD? WISE study



Does it work in real world conditions?



Geographical location
Features of ESD service
Patient characteristics

Time to first assessment
Amount of rehabilitation delivered
Levels of dependency (Modified Rankin)
Length of hospital stay

Summary



- Implementation research: bridges that gap between clinical trials and patient care
- Methodology to evaluate complex interventions in real world settings (beyond the RCT)
- Impact of stroke Early Supported Discharge
 - Defining core components ('active ingredients')
 - Understanding context: geography, service model, patient characteristics
 - Effective and sustainable models of care
- Ensure the research we do influences the care patients receive

Over to you

A horizontal bar composed of seven colored segments: green, dark green, orange, purple, red, dark blue, and light blue.

Whose role is it drive adoption of evidence based interventions or drive evidence based service improvement in the NHS?

Where do you think research evidence should fit with regard to the priorities and decision making criteria of commissioners and NHS provider leads?

How do you think the findings from your research *could* influence patient care?

Do you think your findings *will* influence patient care and if so when?

Implementation references



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The National Institute for Health Research (NIHR) Collaboration for Leadership in Applied Health Research and Care East Midlands (CLAHRC EM) is a partnership between Nottinghamshire Healthcare NHS Foundation Trust and the Universities of Nottingham and Leicester.

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