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What is the Impact of Stroke Early supported discharge?

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- Clinical trials demonstrated effectiveness of ESD (Langhorne,2005; 2017)
- Core components of effective ESD services identified (Fisher,2011):
 - Stroke specialist
 - Multidisciplinary team
 - Eligible stroke survivors
 - Intensive rehabilitation
- Widespread implementation of ESD services in England
- Type of ESD services is variable and in some regions ESD is not offered at all (SSNAP)



What is the Impact of Stroke ESD?

Work Package 1:

- How effective is ESD when implemented at scale in practice?
- What adopted models of ESD exist and how do these relate to evidence based recommendations?

Work Package 2:

- What factors influence whether ESD is implemented in the first place and the model of service adopted?
- What are the perceived benefits of implementing ESD from the perspective of service users, clinicians, managers and commissioners?
- What are the mechanisms driving the delivery of ESD in practice?

“What works for whom in what circumstances?”



Pawson R, & Tilley N. 1997 [2003]. Realistic Evaluation. Thousand Oaks, CA: Sage Publications.

Context



Mechanisms

&



&



Outcomes





Process of programme theory development

1. Sketch out candidate programme theories

- Rapid evidence synthesis
 - Results from WP1
- Experts' opinions/researchers' hunches



2. Test and refine programme theories through data collection



3. Analyse findings in parallel with data collection

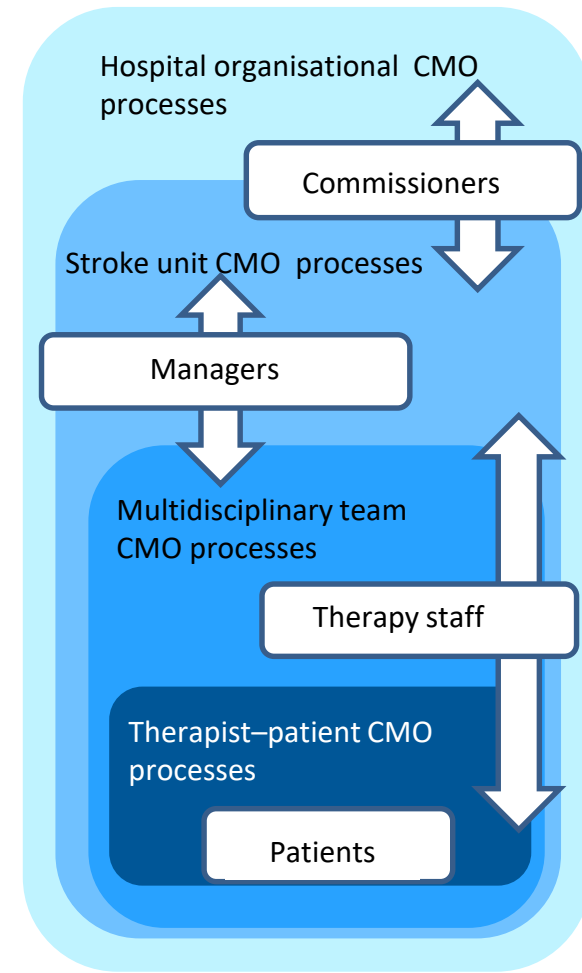
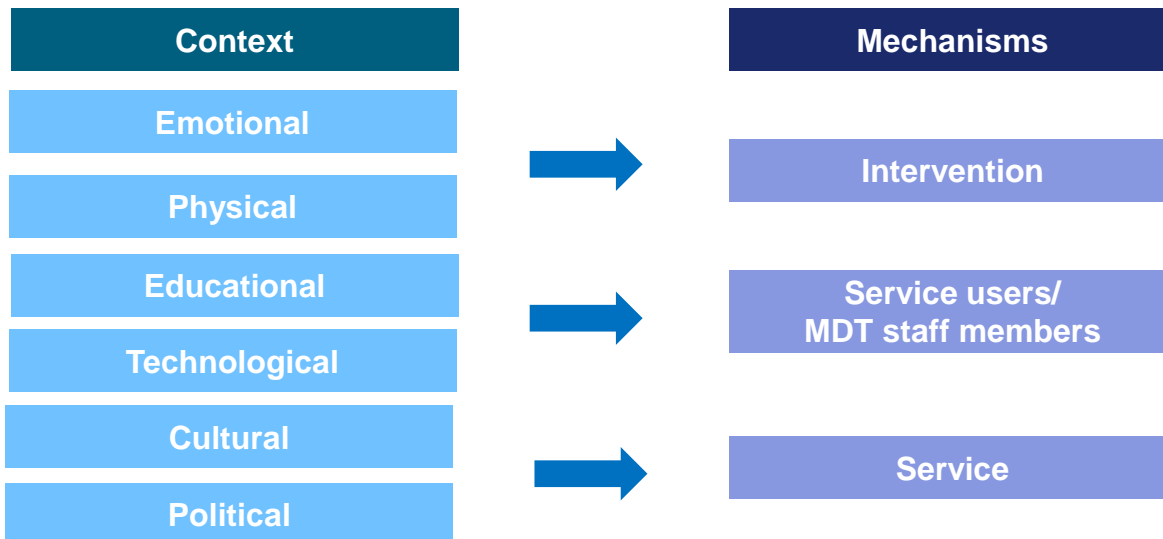


4. Synthesize findings from WP1 & WP2 to produce middle range theories to answer questions.

1a. Defining context: Consider frameworks of contextual influences

- **Damschroder et al. (2009)**
a) Intervention, b) Individual, c) Inner setting, d) Outer setting
- **Fleuren et al. (2004)**
a) Innovation, b) User, c) Organisation, d) Environment

- **Bate et al. (2008)**



Examples of CMO configurations

Programme theory:

“Core components of ESD will operate differently in urban versus rural settings”

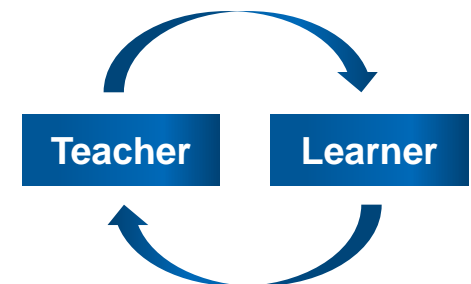


- “If an evidence based ESD service has to cover long travelling distances in rural settings, this may place a burden on the team’s coordination and timetabling processes and result in patients receiving less therapy than patients in urban settings.”
- “If an evidence based ESD team has to spend a lot of their time travelling, then the team may respond by making effective use of their team communication processes (e.g. MDT meetings) and result in achieving patient centred goal setting and smooth handover between therapists.”
- “If an ESD service is delivered in a setting where there is a lack of appropriate follow up services, then staff members may use eligibility criteria flexibly to cater for more severe patients which may compromise the effectiveness of the service.”

Design: multiple case study design to investigate qualitatively 6 purposively selected ESD teams to include a) contrasting ESD models, b) urban vs rural sites.

Duration: data collected between September 2018 and December 2019.

1. Semi-structured **one-to-one interviews** with up to **8** NHS staff members at senior management, service lead and commissioning level at each ESD site **(N=48)**
2. Up to **two group interview** sessions at each of the six sites with a representative cross section of the disciplines working in each ESD team **(N=72)**
3. Interviews with **5 ESD patients per site (N=30)**
4. Obtain **documentary evidence** i.e. service specifications, monthly and annual reports, meeting notes and paperwork used by the teams as part of their day-to-day operational activities.



Phase 3: Analysis and synthesis of findings

- The **Framework approach** (Richie & Spencer, 2002) will be used to identify CMO patterns and chart relationships between them:
 1. Code data into CMO configurations
 2. Thematic charting
 3. Comparisons with initial programme theories
 4. Development of middle-range theories
- Example of synthesis matrix

Programme Theories	WP1			WP2		
	C	M	O	C	M	O
e.g. Within a rural setting the use of effective timetabling will enhance the responsiveness of the team						

How effective is ESD when implemented at scale in practice?

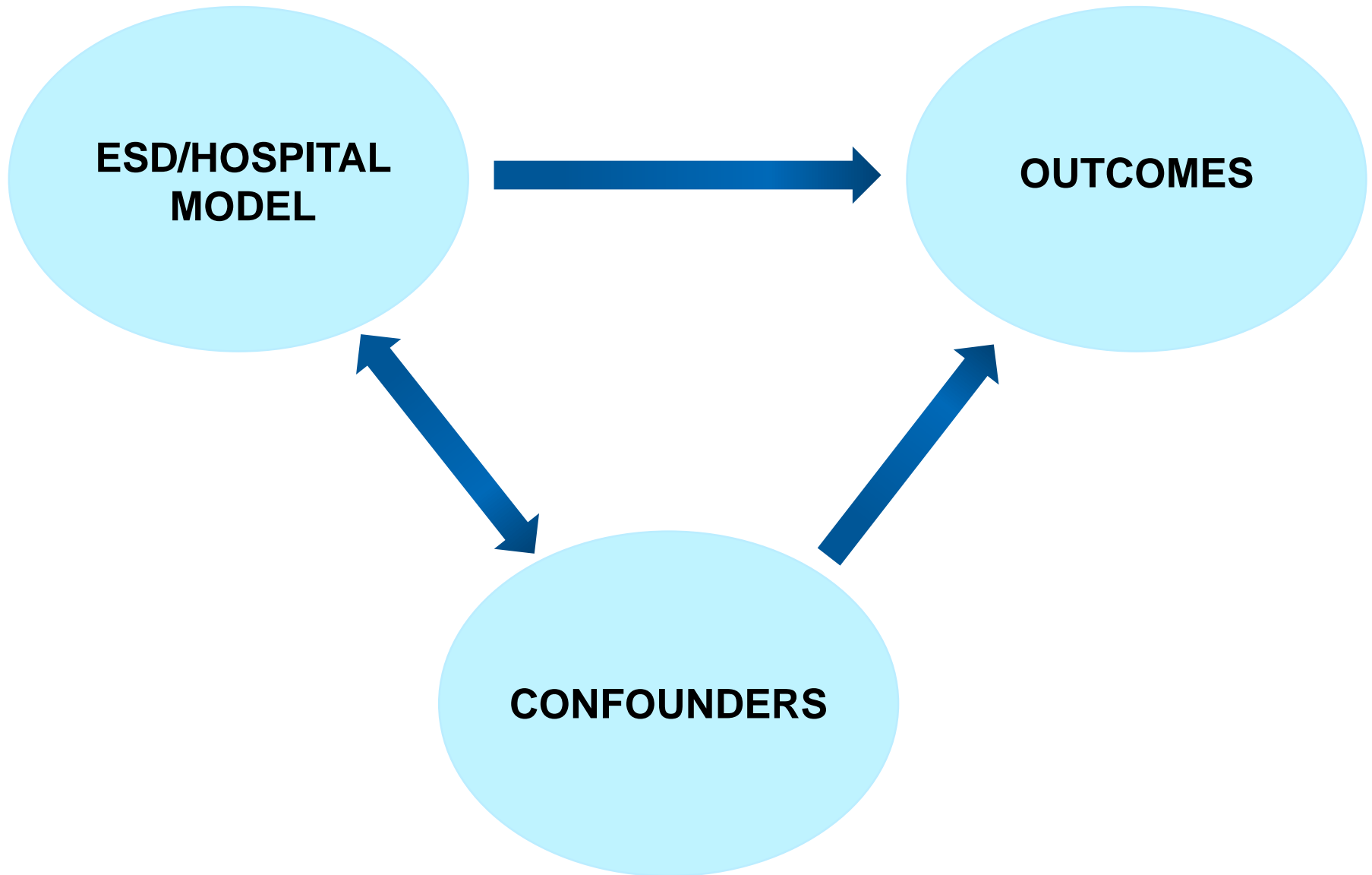
- What types of service model have been adopted to deliver ESD?
- How do you measure whether services are effective in delivering ESD?
- What influences (e.g. service model, patients, location) how effective services are in delivering ESD?
- *What are the cost-consequences of delivering different types of ESD service models?*

The analytical approach for WP1 comprises four distinct analyses to address our research questions:

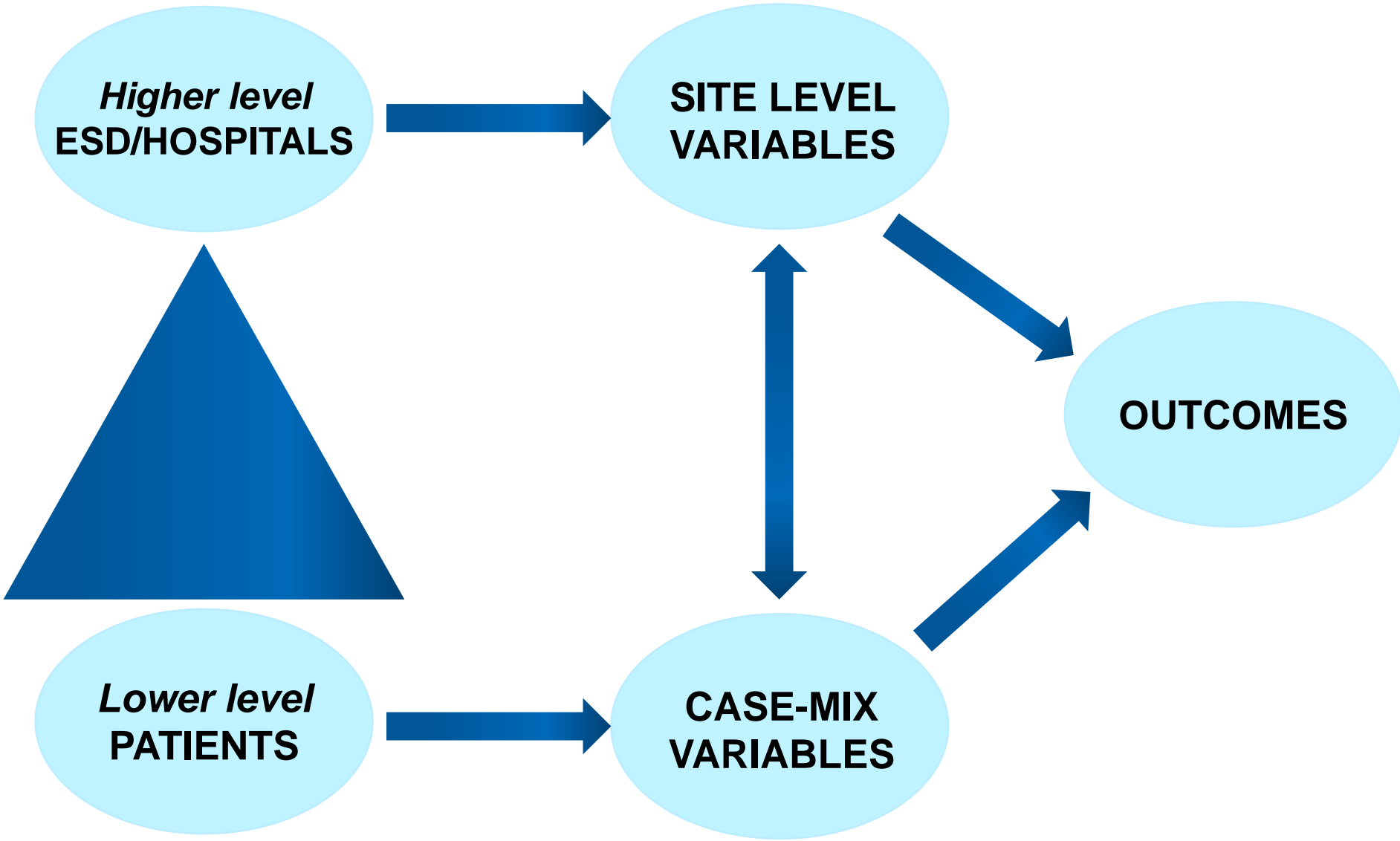
1. ESD models and levels of effectiveness
2. ESD impact on length of hospital stay
3. Difference-in-difference analysis
4. *Cost-consequences of ESD models*

Data: historical prospectively collected Sentinel Stroke National Audit Programme (SSNAP) data

Research sites: East Midlands, West Midlands, East of England and North of England



Work package 1 – multilevel model structure





Work package 1 – ESD service delivery

Configuration of ESD model measure	Yes	No
Core team members meeting or exceeding recommended WTE level per 100 stroke patients:		
Doctors ≥ 0.1	1	0
Nurses ≥ 0.4	1	0
Occupational therapists ≥ 1	1	0
Physiotherapists ≥ 1	1	0
Speech and language therapists ≥ 0.3	1	0
Access to other team members:		
Clinical psychologists	1	0
Social workers	1	0
Rehabilitation assistants	1	0
Training opportunities:		
Nurses	1	0
Therapists	1	0
Rehabilitation assistants	1	0
MDT meetings:		
Weekly meetings	1	0
Core team attend	1	0
ESD member attends acute meeting	1	0
Service:		
Stroke specific	1	0
Median waiting time between referral and ESD ≤ 1 day	1	0
Weekly service > 5 days	1	0



Work package 1 – ESD site level variables

**ESD SITE
LEVEL
VARIABLES**

- SSNAP grade/score of discharging hospital
- Level of rurality based on CCG & QOF
- Level of deprivation based on CCG & QOF
- Number of WTEs per number of staff based on SSNAP PAP2 data

HOSPITAL LEVEL VARIABLES

- Type of hospital
- SSNAP grade/score
- ESD on the care pathway (yes/no)

HOSPITAL SITE LEVEL VARIABLES

- Level of rurality based on CCG & QOF
- Level of deprivation based on CCG & QOF
- Average daily rate of delayed transfers of care per 100,000 people aged 18+ (ASCOF)



Work package 1 – patient level variables

**CASE-MIX
VARIABLES**

- Age at admission
- Sex
- Pre-stroke independence
- Comorbidities
- NIH stroke scale score on admission
- Type of stroke
- Modified Rankin Score at discharge from hospital



Work package 1 – outcome variables



OUTCOMES

- Time to first assessment from hospital discharge (ESD)
- Number of rehabilitation therapy minutes delivered (ESD)
- Modified Rankin Score after ESD delivered
- Length of hospital stay

CONTEXTS

**MECHANISMS
(Resources)**

OUTCOMES

Level of rurality (CCG/QOF)
Level of deprivation (CCG/QOF)
Size of team (WTEs/Staff)
SSNAP score of discharging hospital

Core team members \geq recommended WTE level per 100 stroke patients
Access to other team members
Training opportunities
MDT meetings
Service

Length of hospital stay
Time to first assessment from hospital discharge
Number of rehabilitation therapy minutes delivered
Modified Rankin Score after ESD delivered



Work package 1 – *cost-consequence analysis*

- Cost-consequence analysis overlaps between work packages 1 and 2
- 6 sites are selected based on contrasting ESD model types using the SSNAP data in work package 1
- Staff/travel/equipment costs will be collected during the site visits as part of work package 2 data collection
- Using patient caseload information, direct costs per patient will be calculated
- These costs will be contrasted against the patient outcome data from work package 1