

Understanding the relationship between interventions and outcomes.

**Erasmus +
Masterclass**

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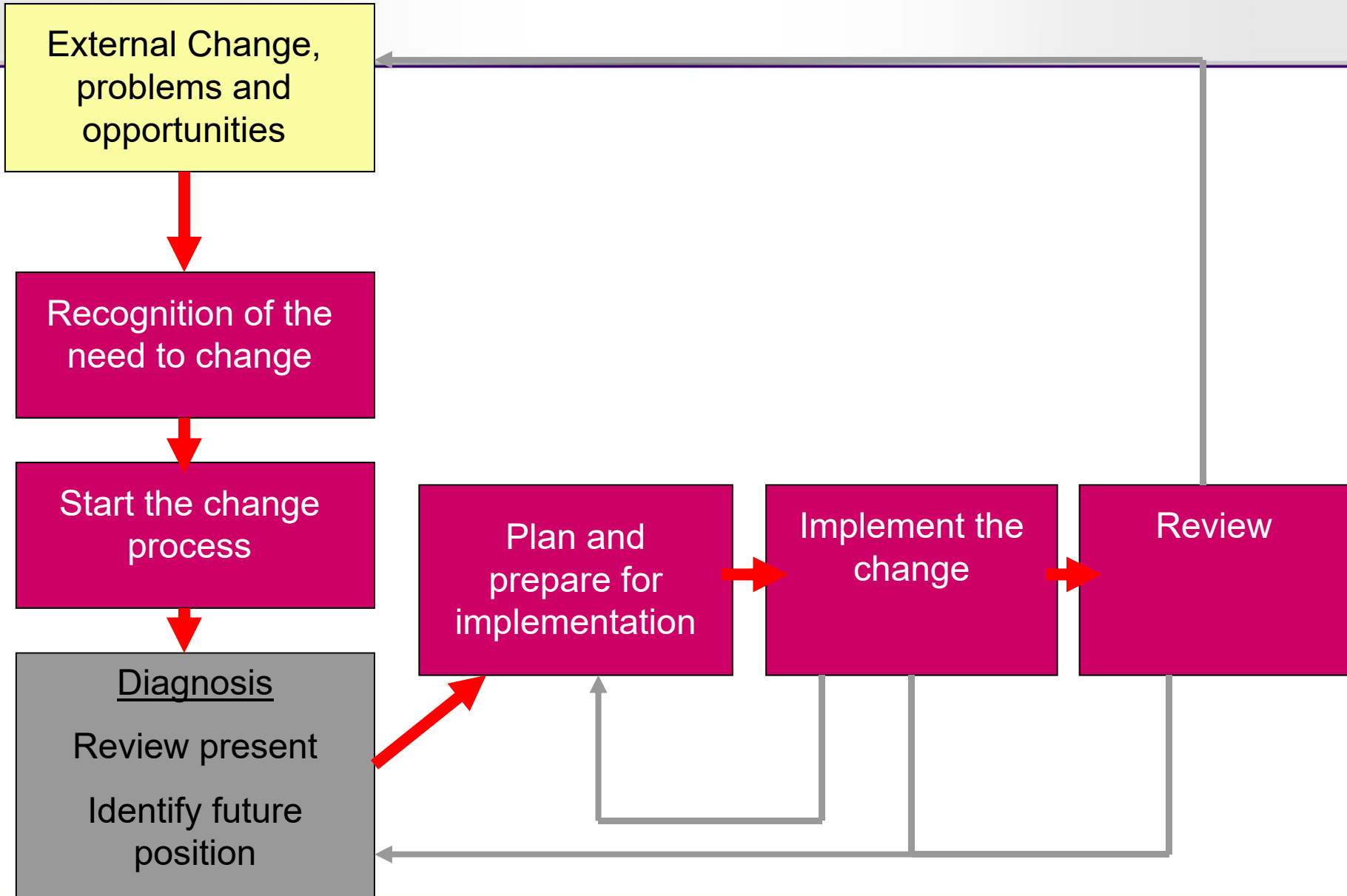
Terminology

- Intervention
 - Workplace intervention
 - Physical, procedural, engineering, behavioural, training
- Outcome
 - Quantity or quality arising from the intervention
- Outcome Measures
 - Value associated with the recorded outcome
 - Measure pre and post
- Outcome Measurement Tools
 - Complex measurement device with built in assessment system (MAPO, DiNO, SOPMAS PHOQS, CT, etc)

A thought.

- Change is often managed less effectively than it might be because those responsible for managing it fail to attend to some of the critical aspects of the change process
- (Hayes 2002)

Process of Change. (Hayes 2002)



How do you measure that the change process has been successful?

Did you have a target?

Do you have a measure of success?

Can you ever reach 100% of anything?

What Intervention Strategies Are There to Reduce Patient Handling Risks ?

What Intervention Strategies Are There to Reduce Patient Handling Risks ?

Organisational
Environmental/Physical
Personal/Behavioural

	Intervention strategy
Organisational	<ul style="list-style-type: none"> Risk Assessment Work organisation / practices changed Feedback Group problem solving / Team building Review / Change of policies and procedures / Safe systems of work Discussion of goals with clients (patient) Change / Introduce patient risk assessment system Introduction of hazard register Audit of working practices / Risk assessments Patient handling supervisor, peer leader, local risk assessor Management systems, change management, organisational structures National regulation
Physical or engineering	<ul style="list-style-type: none"> Equipment purchase or provision (including training) Equipment design / evaluation Equipment maintenance Work environment redesign, space constraints addressed Review staffing levels, Increase staffing levels Introduction of lifting team programme Task analysis, job design analysis Change in uniforms
Personal	<ul style="list-style-type: none"> Education and training Injury monitoring, treatment e.g. Return to work Physical fitness training Stress management Medical examination and lifting skill assessment

What Intervention Strategies Are There to Reduce Patient Handling Risks ?

Hierarchy of Control (UK HSE 1998)

Elimination

Substitution

Prevent Access

Limiting Access or Exposure

Warnings

Personal Protective Equipment

Behavioural

What change do you hope to achieve?

What is the intended outcome?

Who is to change?

Who is the change agent?

Who benefits from the change?

How would you measure the change?

Outcomes

Beneficiary	Outcome	No	
Staff (429)	Staff competence	25	
	Staff competence (Org)	3	
	Staff injuries	81	
	Staff knowledge skill	12	
	Staff perception	127	
	Staff use of equipment	14	
	Physical workload	153	
	Psychological well-being	5	
	Modified Work	2	
	Number of staff	5	
	Carer perception	2	
	Patient (44)	Patient perception	38
		Patient result	6
Organisation (83)	Financial	28	
	Incident/Accident	8	
	Quality of care	1	
	Risk assessment	6	
	Staff absence	32	
	Training numbers	7	
	Audit performance	1	
Task (32)	PH techniques	10	
	Time for task	22	
Equipment	Equipment	8	
Relative	Relative perception	2	
	Total	598	

Observational Tools

- Organisational Checklist-Dr Sue Hignett
- MAPO-Dr Natale Battevi
- Care Thermometer-Nico and Hanneke Knibbe (Arjo-Huntleigh ab)
- DiNO-Christina Johnsson
- SOPMAS-Leena Tamminen-Peter

Beneficiary	Outcome Measure	Tool			
Organisation outcome	Financial evaluation Sickness absence OH management				
	Organisational commitment	MARCH			
	Patient handling safety culture			PHOQS	
Task outcome	Hoisting Equipment Other handling aids Environment provision	MAPO MAPO MAPO	Care Thermometer	Quick scan Quick scan	HIT
	Training provision	MAPO			
Staff outcome	Physical outcome measures Laboratory observation Field observation	Posture / exposure / biomechanics Posture / exposure / biomechanics			
	Compliance with safe methods Video observation Field observation	Pate, Warming DINO			
	Skill levels and competencies	SOPMAS			
Patient outcome		Only subjective assessment criteria			

Tool for Risks Outstanding in Patient Handling Interventions (TROPHI)

Fray M., Hignett S. (2013). TROPHI: Development of a tool to measure complex, multi-factorial patient handling interventions. *Ergonomics* 56, 8, 1280-1294.

Sponsors: Arjo-Huntleigh ab

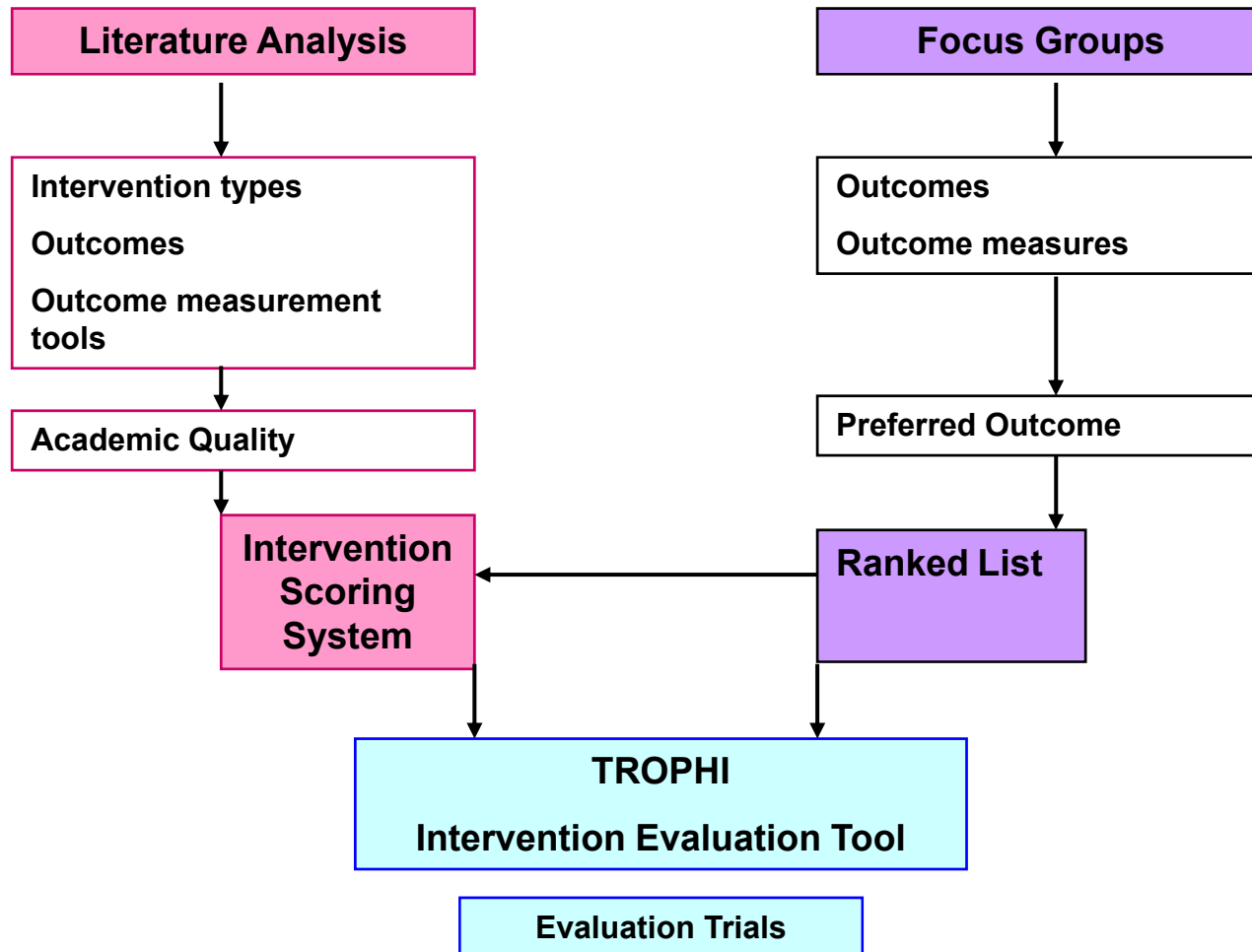
Context of study

- Many reviews have failed to identify MSD reduction from patient handling interventions (Van Poppel 2005, Bos et al 2006, Amick et al 2006, Haslam et al 2006, Dawson et al, 2007, Martimo et al 2008)
- More inclusive reviews identify that other outcomes could be used to show success (Hignett et al 2003, Fray and Hignett 2006)
- How can different interventions be compared when different measures are used?

Aims of TROPHI

- Measure the success of patient handling interventions
- Differentiate between levels of performance in patient handling management
- Be applicable across EU
- Be usable by identified data collectors (PHA)

Methodology

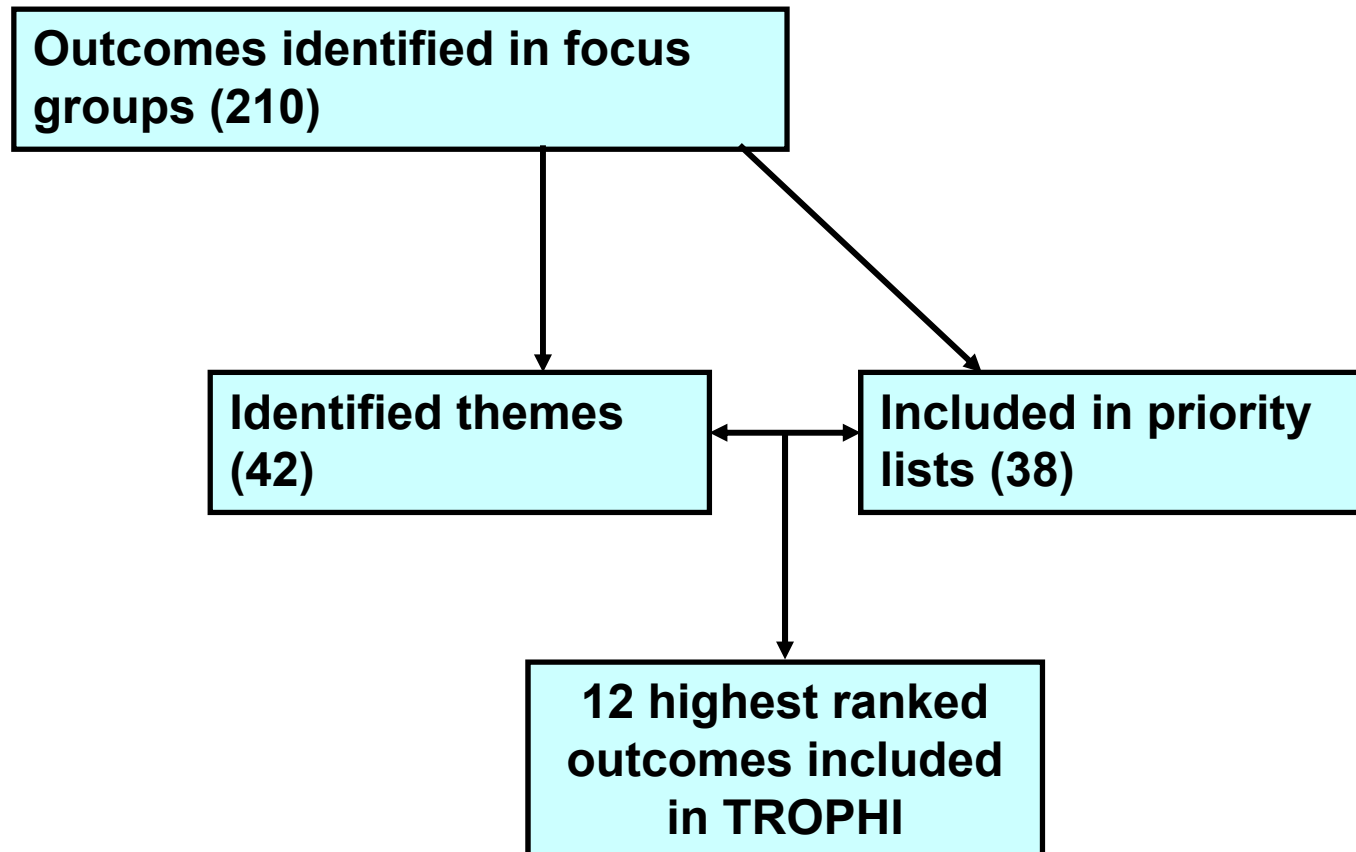


Focus Group Study

Focus groups

- Four EU focus groups (n=34)
 - UK
 - Finland
 - Italy
 - Portugal
- Two expert panels (n=10)
 - Holland, USA, Australia, Belgium, Finland, Portugal, Italy, Germany
 - Cross comparison

Qualitative Analysis



Most Important Outcomes (Ranks)

Theme	Italy	Port	Fin	UK	TOTAL
Accidents	8	3	11	5.5	6
Absence, Staff health	3	8	2	3.5	4
Financial	11.5	11.5	7	10	12
Risk Management, Safety culture	2	1	1	2	1
MSD Measures	1	5	8	1	2
Exposure Measures	11.5	9	5	12	10
Compliance, competence	4	2	4	5.5	3
Psychological well-being	10	6.5	9	3.5	7
Patient injuries	8	11.5	11	9	11
Patient perception	8	10	11	8	9
Patient condition	6	6.5	6	11	8
Quality of care	5	4	3	7	5

Included outcomes

Outcome	Conversion factor
Safety culture	12
MS health measures	11
Competence compliance	10
Absence or staff health	9
Quality of care	8
Accident numbers	7
Psychological well being	6
Patient condition	5
Patient perception	4
MSD exposure measures	3
Patient injuries	2
Financial	1

Literature Analysis

Literature Analysis

- Search Strategies from existing publication
(Hignett et al 2003)
- Intervention type, study design
- Specific outcome recorded
- Level of outcome measure (Robson et al 2007)
- Measurement device used for outcome
- Academic quality score (Downs and Black 1998)
- Practitioner rating (Hignett et al 2003)
- Ranking of outcome from EU study
- 323 studies 2 reviewers

Literature Analysis - Level of Outcome (Robson 2007)

Intervention

Outcomes that measure quantities and qualities of the intervention

Outcomes that represent a reduction in exposure to known risk factors

Outcomes that measure real effects in the target population in a real situation

TROPHI Evaluation Tool

- **Inclusion Criteria**
- Tool used in patient handling study
- Level of the QR >50% (308 Included)
- **Selection Criteria**
- Evidence of peer reviewed validation studies
- Used to score a peer reviewed intervention trial
- Most frequently used measurement devices
- Complexity of the data collection in health

Format of TROPHI tool

Preferred outcome	Method for collection	Source paper
Safety Culture	PHOQS Documentation review	Hignett 2005, 2007
MSD measures	Nordic Questionnaire (or derivative)	Knibbe 1996 Lagerstrom 1997
Competence Compliance	Observational checklist. DINO	Johnsson 2002, 2005
Absence or staff health	OSHA Logs. Standardised data per population	Charney 1997, Nelson 2006
Quality of care	Meeting clinical needs of the patient, patient evaluation.	Nelson 2008
Accident numbers	Standardised incident numbers and non-reporting ratio	Menckel 1997
Psychological well being	Job satisfaction Psychosocial stressors	Evanoff 1999
Patient condition	Meeting the clinical needs of the patient, staff evaluation.	Arjo Care Therm. 2007 Nelson 2008
Patient perception	Comfort, security, fear patient evaluation	Kjellberg 2004
MSD exposure measures	Patient handling demand	Knibbe 1999, Cohen 2004, Arjo Resident Gallery 2005
Patient injuries	Detrimental effects of poor case management	New tool
Financial	Calculation of costs v. investment	Chokar 2005, Nelson 2006, Collins 2004

Data Collection Format

1. Organisation Review -Interview with manager
2. Safety Culture Audit -Interview with manager
3. Patient Handling Observation – Staff and Patient feedback
4. Staff and Patient Survey – distributed, self completion.
 - 3 hours

TROPHI report table

	Outcome Theme	No Observed	Observations required	Score	%
1	Safety Culture			2.93	26.67
2	MS Health Measures			2.93	26.67
3	Compliance, Competence			2.73	27.34
4	Absence or Staff Health			0.00	0.00
5	Quality of Care			2.67	33.33
6	Incidents and Accidents			10.29	128.57
7	Psychological Well-being			4.51	75.13
8	Patient Condition			0.80	15.91
9	Patient Perception			0.50	12.50
10	MSD Exposure Measures			2.40	80.00
11	Patient Injuries			1.45	72.73
12	Financial			0.00	0.00

TROPHI Total (87)

31.21

TROPHI Score
(100%)

35.88

Evaluation Studies

- 4 EU sites, UK, FI, PO, IT 2 wards.
- Kettering General Hospital – Audit Feedback
- Edinburgh Royal Infirmary – Comparison with SAQ Safety Culture (Sexton et al 2011)
- Inter-rater reliability North West multiple site multiple observers
- New Zealand Counties Manakau DHB. New system set up and monitoring.
- Ohio BWC project 50 LTC centres

Thank you for listening



Thank You



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eUlift

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