

Introduction to Outcome Measurement in Clinical Practice and Research

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Lecture Outline



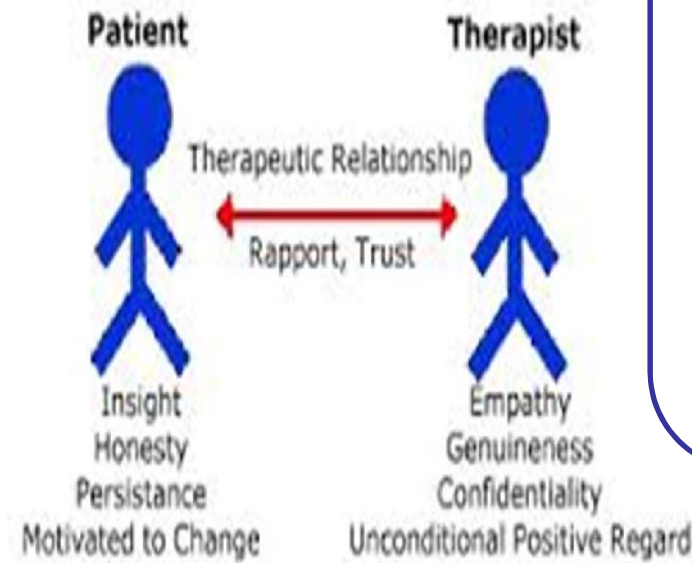
This lecture reviews the use of outcome measures (OMs) in physical therapy (PT) practice under the following headings;

- ❖ Terminology related to outcome measures in clinical practice (e.g. assessment , evaluation, test , scale & outcome measurements).
- ❖ Extent to which OMs are employed in PT and related rehabilitation practice .
- ❖ Benefits to use OMs in field of rehabilitation .
- ❖ The attitudes towards use, barriers identified and facilitator by PTs in hindering the use of OMs and facilitator for promoting the use of OMs

Patient-Therapy Relationship



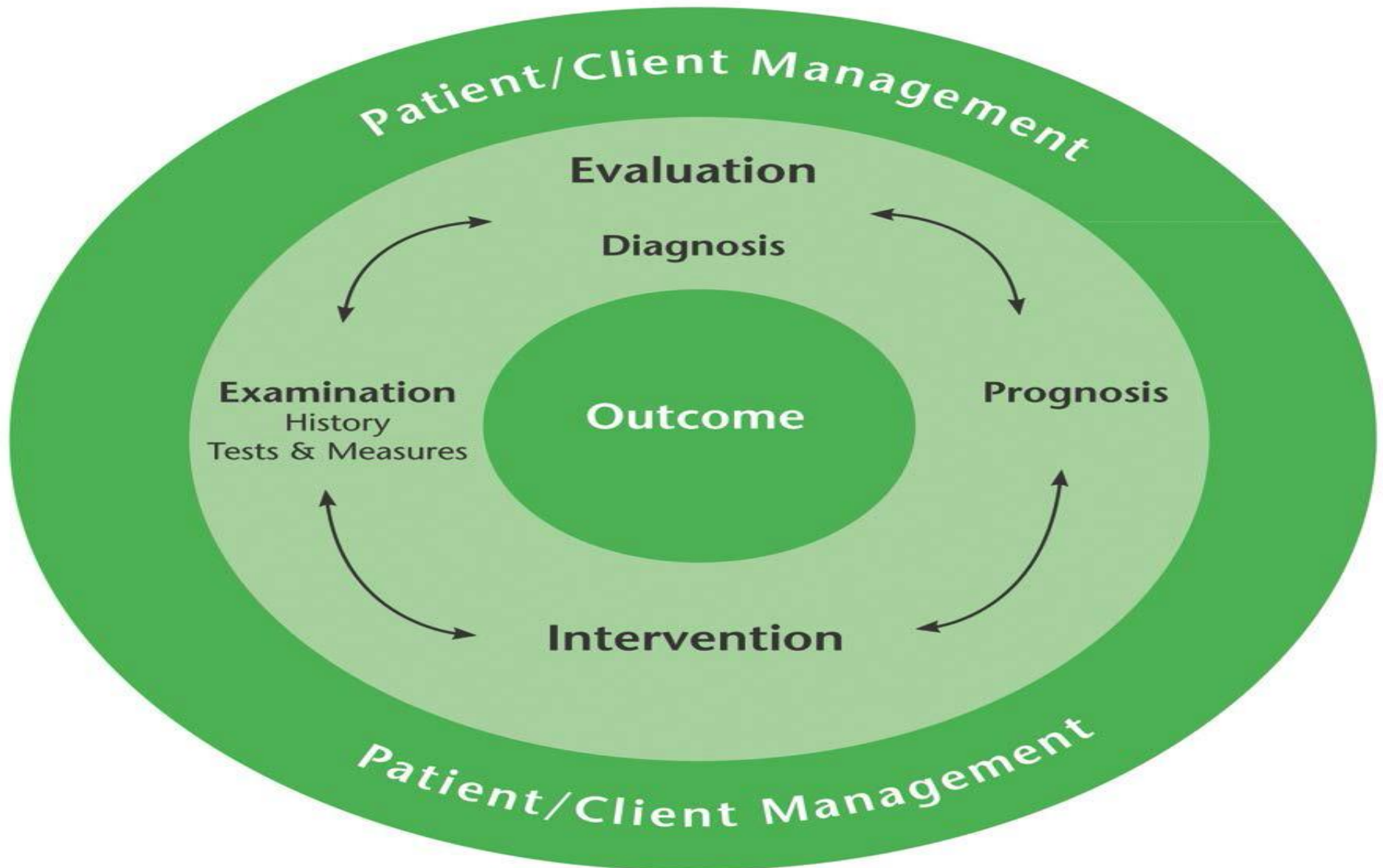
The word patient stems from the Latin word pati, which means 'to suffer' and is still used in medical settings, such as in-patient hospital care.



Throughout this course, the term therapist will be used to include physical therapist.

- An ongoing collaborative process of decision-making that exists throughout the plan of services.

Physical Therapist Patient/Client Management Model



Assessment



The WCPT describes assessment as the first stage of the physiotherapy process.

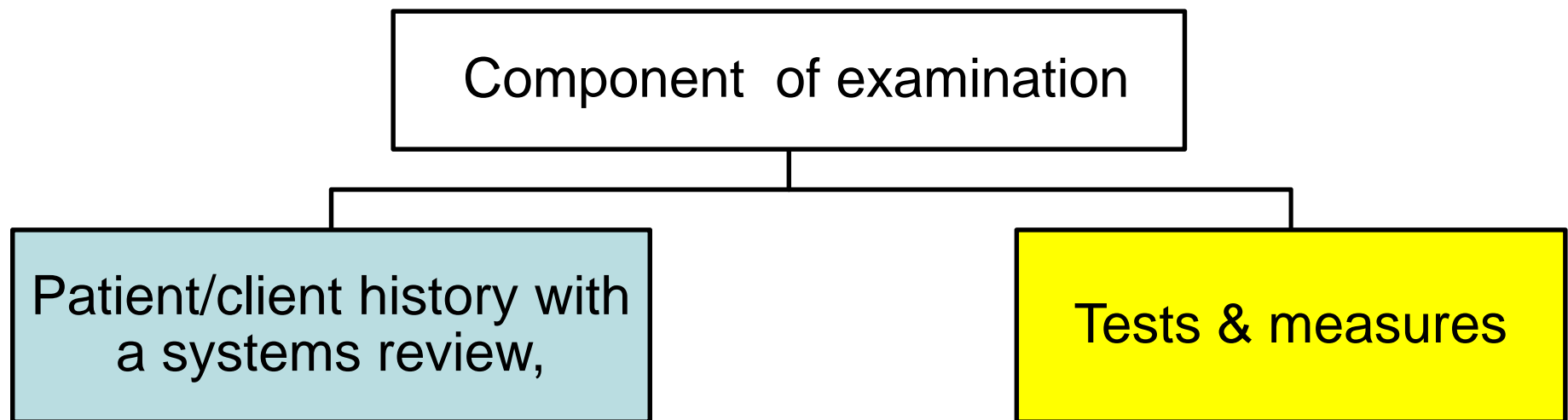
- Assessment is a dynamic process includes evaluation and measurement of outcomes, and examination of individuals or groups with actual or potential **impairments, functional limitations, disabilities, or other conditions of health** by history taking, screening and the use of specific tests and measures and evaluation of the results of the examination through analysis and synthesis within a process of clinical reasoning.

Examination



Examination is a comprehensive screening and specific testing process leading to identifying potential and existing movement-related disorders, diagnostic classification and/or, as appropriate, to a referral to another practitioner.

Examination is required prior to the initial intervention and is performed for all patients/clients



Test



A standardized type of examination; given

Qualitative or quantitative

Determine presence or absence of a particular capacity, knowledge, skill, and construct.

Determine the degree by the relative position of an individual in the group or whole population, or by assigning a definite numerical value in terms of some selected unit.

Evaluation



Evaluation. is a component of assessment process

Evaluation is based on the data gathered from the examination(e.g. history, systems review, and tests and measures) and synthesizes all of these findings to establish the diagnosis, prognosis, and plan of care.



Evaluation often involves data being collected at two time points in order to measure effect and also can involve the translation of observations to numerical scores.

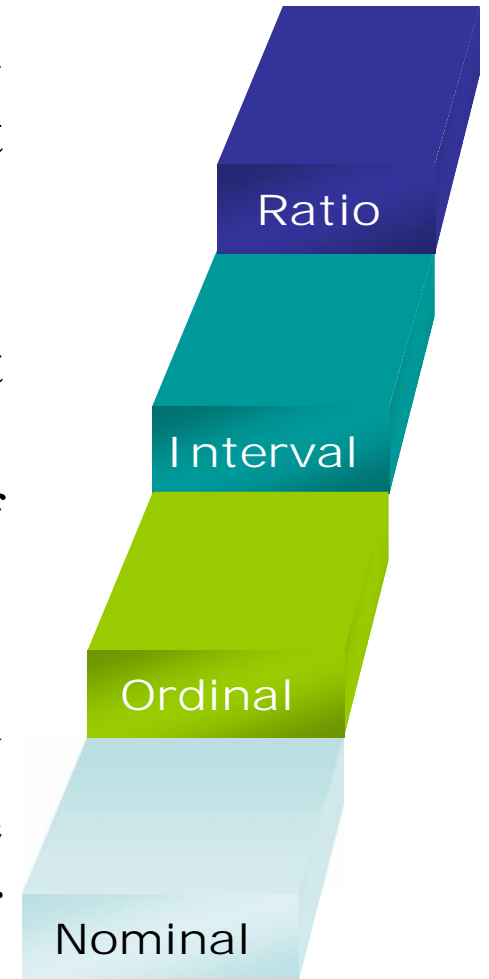
Scale



Within therapy and rehabilitation literature, we use the terms scale, rating scales and measurement scales

A scale provides a means of recording something that can be rated in terms of levels, amounts or degrees and can be categorized into one of four levels of measurement.

Therapists use scales to rate the presence or severity of a problem, such as a symptom, to rate the person's level of independence in a needed or chosen occupation, activity or task.



Measurement



- A measurement is the data obtained by measuring.
- A measurement is obtained by applying a **standard scale/tools/equipment** to variables, thus translating direct observations or client/proxy reports to a numerical scoring system.

Measuring is undertaken by therapists;

To make diagnosis


To describe status (baseline for therapeutic intervention)

To document change (worth or improvement).

To explain performance.


To predict outcome measure.

Outcome Measures (OMs)



An outcome measure can be defined as a standardized measurement tool to document the change of one or two values over time, and should be valid, reliable and responsive to change

The OMs can be used to measure different components of health status as described in ICF.



Routine OMs are the systematic use of a standardized outcome measures (SOMs) in clinical practice with every patient as a part of a standardized assessment practice guideline.

Outcome Measures in clinical research



OMs

Primary Outcome

represents the variable providing the most relevant and convincing evidence related to the main objective of the research.

Secondary Outcome

can be supportive measurements of the primary objective or measurements of effects related to other secondary objectives.



Primary outcome should be:

- Clinically relevant and Interpretable
- Sensitive to the effects of intervention
- Practical /Affordable to measure
- Measurable in an unbiased manner

Outcome
Assessment in
Randomized
Controlled Trials of
Stroke Rehabilitation
Am J Phys Med
Rehabil 2007;86

1968-2005
491RCTs
Included 1447 assessment
used 489 OM's tools
30 OM's tools were core and
cited more than 10 times
(51%)

TABLE 2 Frequently cited outcome measures

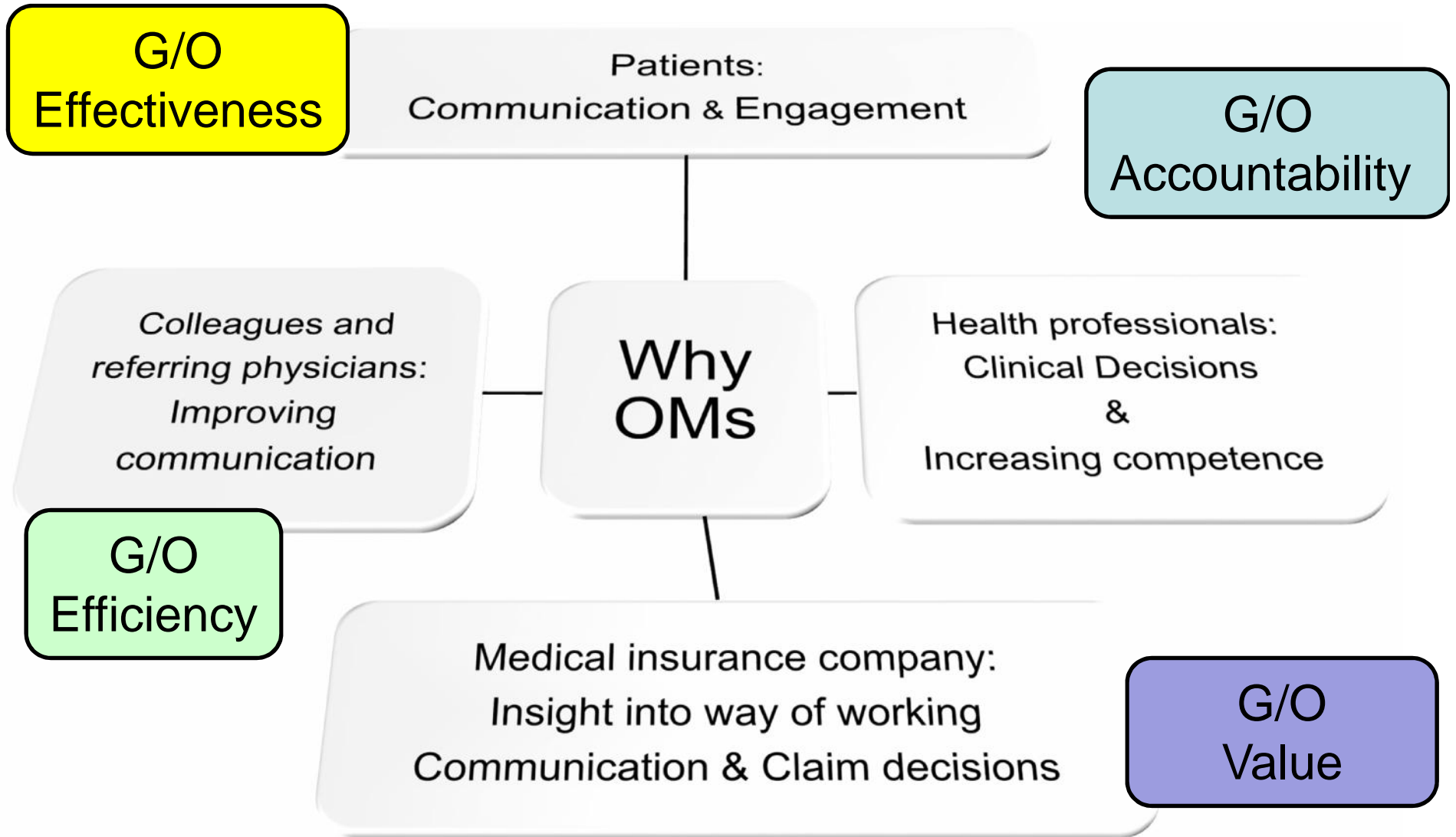
Most Frequently Cited Outcomes 1968–2005	No. of Citations
Barthel index ²²	123
Timed walk assessments (varying times and distances) ^{23,24}	72
Fugl–Meyer assessment of stroke recovery ²⁵	58
Modified ashworth scale ^{26,27}	43
Functional independence measure ²⁸	38
Mini-mental state examination ²⁹	27
Action research arm test ³⁰	25
Frenchay activities inventory ³¹	22
Nottingham health profile ³²	22
Medical outcomes study short form-36 ^{33,34}	22
Nottingham extended activities of daily living ³⁵	21
Motor assessment scale ³⁶	21
Hospital anxiety and depression scale ³⁷	17
Berg balance scale ^{38,39}	16
Rankin handicap/modified Rankin/ Oxford handicap ⁴⁰	16
Nine-hole peg test ⁴¹	15
Hamilton rating scale for depression ⁴²	15
Motricity index ⁴³	14
General health questionnaire-28 ⁴⁴	14
Rivermead mobility inventory ⁴⁵	13
Rivermead motor assessment ⁴⁶	13
VAS–pain ^{47,48}	12
Porch index of communicative ability ⁴⁹	12
Motor activity log ⁵⁰	12
Brunnstrom scale ⁵¹	11
Caregiver strain index ⁵²	11
Timed up and go ⁵³	10
Functional ambulation categories ⁵⁴	10
Scandinavian stroke scale ⁵⁵	10
Weschler memory subtests ^{56,57}	10

Why using OMs?



- Documentation in electronic records and information systems
- Development of clinical knowledge and professional education
- Establish a patient's baseline status and progress in a quantifiable manner
- Track a patient's progress to determine the effectiveness of the plan of care and improve care.
- Inform payers of patient progress to enhance reimbursement.

BENEFITS OF USE OMs





The Use of
[OUTCOME MEASURES]
in Clinical Practice

Outcome measures

In Past: The formal use of standardized OMs was not an integral part of routine clinical practice.

In the last two decades

- Many healthcare systems have been in an “era of accountability”
- Healthcare policies moves from a “**physician-centered**” to a “**patient-centered**” treatment approach.
- Involvement of insurance companies as third party payers.

Outcome measures

Internationally, physical therapy organizations and physical rehabilitation started to advocate the use of OM's to their members;



American Physical Therapy Association



Center for Rehabilitation Outcomes Research
Rehabilitation Institute of Chicago



World Confederation
for Physical Therapy

EUROPEAN REGION



World Confederation
for Physical Therapy

www.optum.com



Canadian
Physiotherapy
Association



physiopedia

Welcome to Physiopedia



European Standardization of Outcome
Measurement in Rehabilitation” (Pro-ESOR),

Outcome Measures

- The current situation regarding the awareness and use of OM's by physical therapists in Arab world (e.g. Saudi Arabia) is not known.
- A comprehensive review of the literature about routine use of outcome measurement by allied health professions shows the following.

Outcome Measures

The most common 5 used OMs and the pattern of setting there are used in different clinical setting

- ROM MMT VAS
- Berg balance Goal setting
- Percentage of Physical therapists who used OMs were
- In 1991 was 34%
- In 1992 was 42%
- In 1998 was 43%

Physiother Can 53:268–275, 281, 2001.

Use of Outcome Measures in Physiotherapy Practice in Ireland from 1998 to 2003

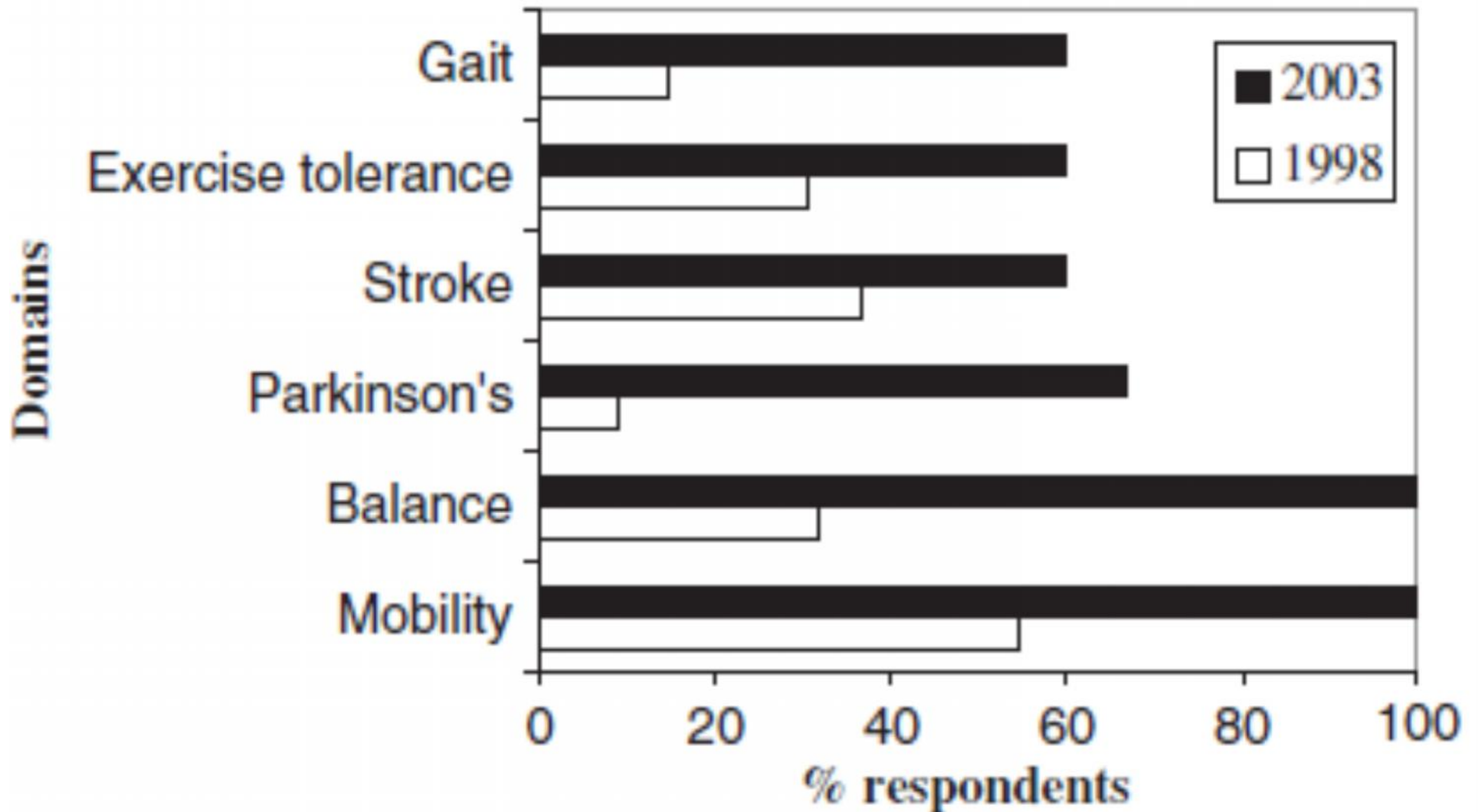


Table 1 Standardized Outcome Measures used by Irish Physiotherapists in 2003: Percentage and Number of Users

<i>To Measure Problems with Mobility</i>	<i>To Measure Problems with Balance</i>	<i>To Measure Gait Disorders</i>	<i>To Measure Exercise Tolerance</i>	<i>To Measure People with Stroke</i>	<i>To Measure People with Parkinson Disease</i>
Elderly Mobility Scale: 86.7% (<i>n</i> = 13)	Berg Balance Scale: 73.3% (<i>n</i> = 11)	POMA-G 60% (<i>n</i> = 9)	Six-minute distance test: 33.3% (<i>n</i> = 5)	Motor Assessment Scale: 60% (<i>n</i> = 9)	Webster Scale: 13.3% (<i>n</i> = 2)
Timed Up & Go: 40% (<i>n</i> = 6)	Functional Reach: 80% (<i>n</i> = 12)		Shuttle test: 13.3% (<i>n</i> = 2)	Motor Club Assessment: 6.7% (<i>n</i> = 1)	Hoehn & Yahr: 26.6% (<i>n</i> = 4)
POMA-G: 73.3% (<i>n</i> = 11)	POMA-B: 66.7% (<i>n</i> = 10)		Borg Rate of Perceived Exertion: 33.3% (<i>n</i> = 5)		Uniform Parkinson's Disease Rating Scale: 6.7% (<i>n</i> = 1)
	Falls Efficacy Scale: 26.7% (<i>n</i> = 4)		Visual analogue scale for exertion/fatigue: 40% (<i>n</i> = 6)		

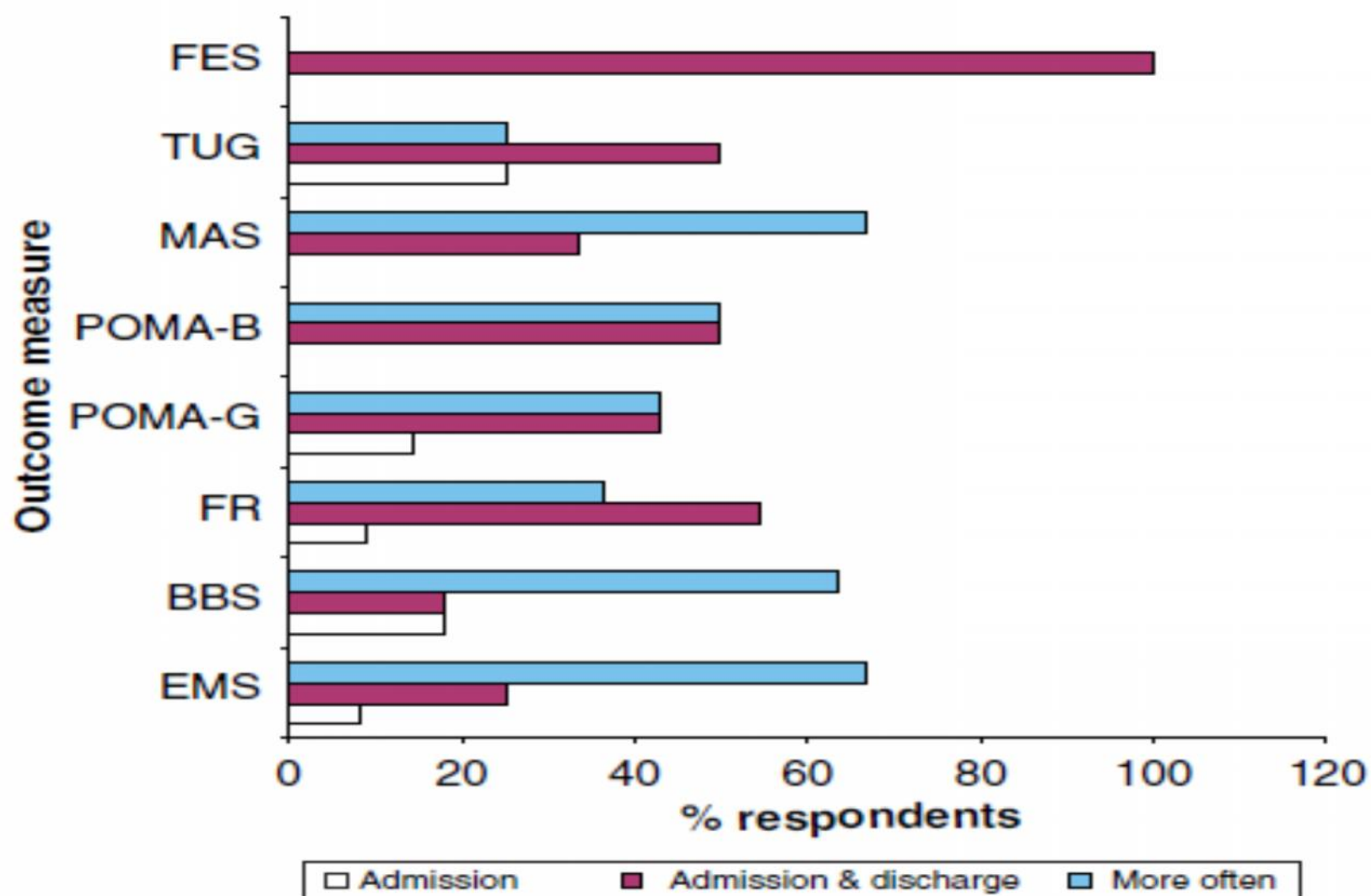


Figure 2 Frequency and pattern of use of standardized outcome measures. BBS = Berg Balance Scale; EMS = Elderly Mobility Scale; FES = Falls Efficacy Scale; FR = Functional Reach; MAS = Motor Assessment Scale;

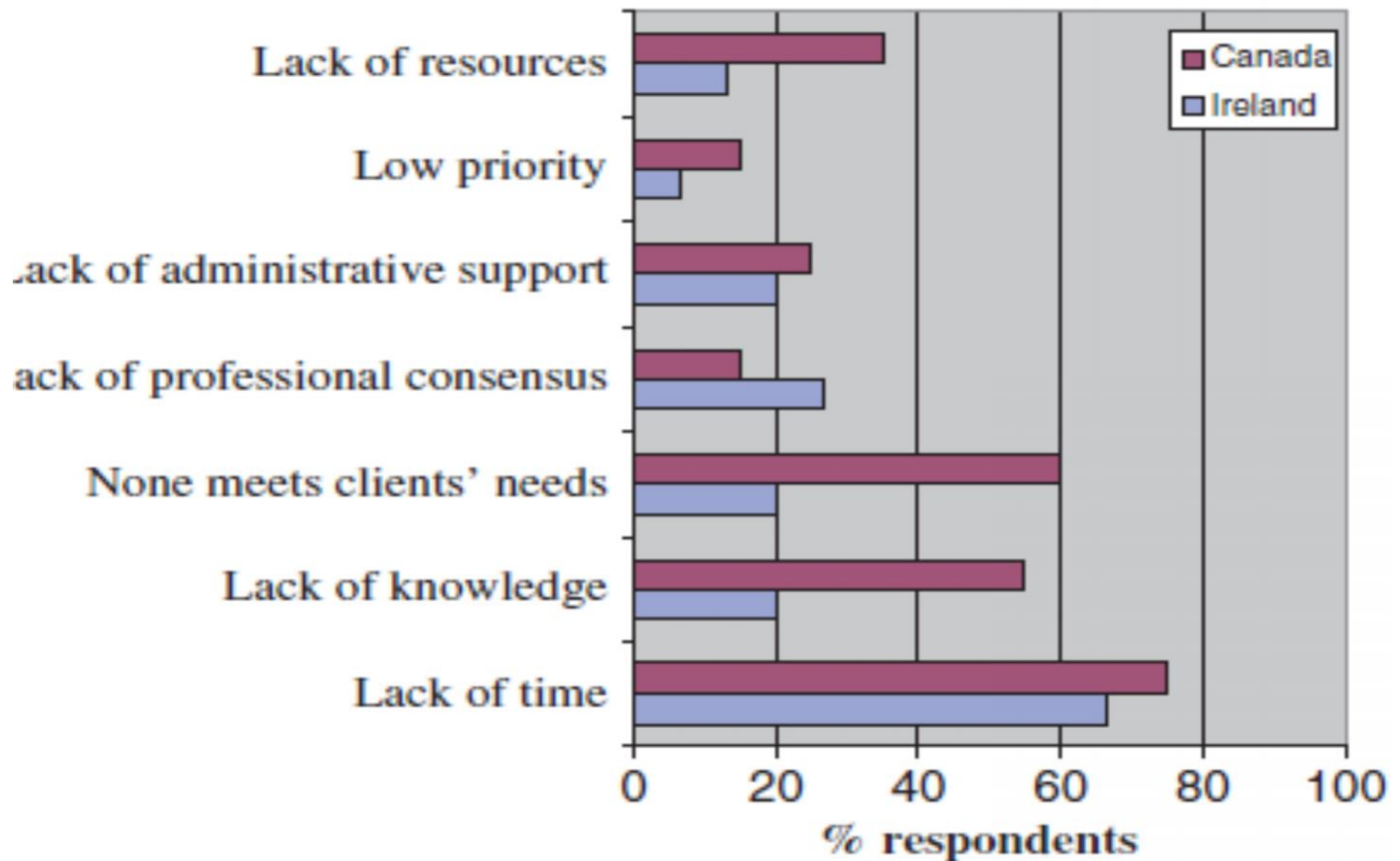
- Outcome measurement in Australian rehabilitation environments J Rehabil Med 2005; 37: 325–329

Measure	LBP <i>n</i> (%)	WAD <i>n</i> (%)	SCL <i>n</i> (%)	NMD <i>n</i> (%)	TBI <i>n</i> (%)	Stroke <i>n</i> (%)	ULA <i>n</i> (%)	LLA <i>n</i> (%)	Burns <i>n</i> (%)
ROM	279 (85.1)	195 (85.5)		171 (85.1)				115 (89.1)	56 (84.8)
MMT	220 (67.1)	143 (62.7)	93 (78.2)	151 (75.1)				100 (77.5)	
FIM TM	88 (26.8)		73 (61.3)	96 (47.8)	74 (50.7)	108 (51.4)	16 (28.1)	74 (57.3)	19 (28.8)
MBI			23 (19.3)	45 (22.4)	34 (23.3)	59 (28.1)		32 (24.8)	12 (18.2)
COPM	36 (11.0)			30 (14.9)			11 (77.5)	21 (16.3)	8 (12.1)
SF-36	49 (14.9)	22 (9.6)				17 (8.1)			
BBS				56 (27.9)	25 (17.1)	67 (31.9)			
MP-S	81 (24.7)	52 (22.8)					11 (77.5)		
VAS	216 (65.9)	156 (68.4)	34 (28.6)					43 (33.3)	
RBM					39 (26.7)	43 (20.5)			

Barriers to use of standardized
outcome measures



Barriers to use of standardized outcome measures: Canada and Ireland (Canadian data from Kay et al.2001)



Barriers to
use of
standardized
outcome
measures:
among
member of
APTA 2009
(n=238)

Reason	N	Percentage
Take too much time for patients/clients to complete	102	43.0
Take too much of clinicians' time to analyze/calculate/score	71	30.0
Are difficult for patients/clients to complete independently	69	29.1
Require a support system that I do not have (eg, technology, staffing)	64	27.0
Often are not completed at discharge, so are not useful in determining patients'/clients' response to treatment	58	24.5
Do not contain the types of items or questions that are relevant for the types of patients/clients who I see	57	24.1
Other reason	54	21.2
Are confusing for patients/clients	48	20.3
Require more effort than they are worth	47	19.8
Do not contain information that helps direct the plan of care	43	18.1
Are difficult to interpret (eg, do not know what norms are, how score relates to severity, or what a clinically important change might be)	40	16.9
Require too high a reading level for my patients/clients	27	11.4
Make patients/clients anxious	22	9.3
Provide information that is too subjective to be useful	22	9.3
Require training that I do not have	18	7.6
Are in English, a language in which many of my patients/clients are not fluent	16	6.8
Are not sensitive to the cultural/ethnic concerns of many patients/clients	10	4.2
Cost too much	7	3.0
Are really only useful for research purposes	7	3.0
Are not relevant because my practice involves consultation, case management, or discharge planning only	6	2.5
Plan to implement?		
No	110	49.3
Maybe	93	41.4
Yes	20	9.0

Barriers to Outcome Measurement

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graph LR; A[Barriers to Outcome Measurement] --- B1[B1- Knowledge, education, and perceived value in outcome measurement]; A --- B2[B2- Facility influence for outcome measure use]; A --- B3[B3- Practical considerations]; A --- B4[B4- Patient considerations];
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B1-

Knowledge, education, and perceived value in outcome measurement

B2-

Facility influence for outcome measure use

B3-

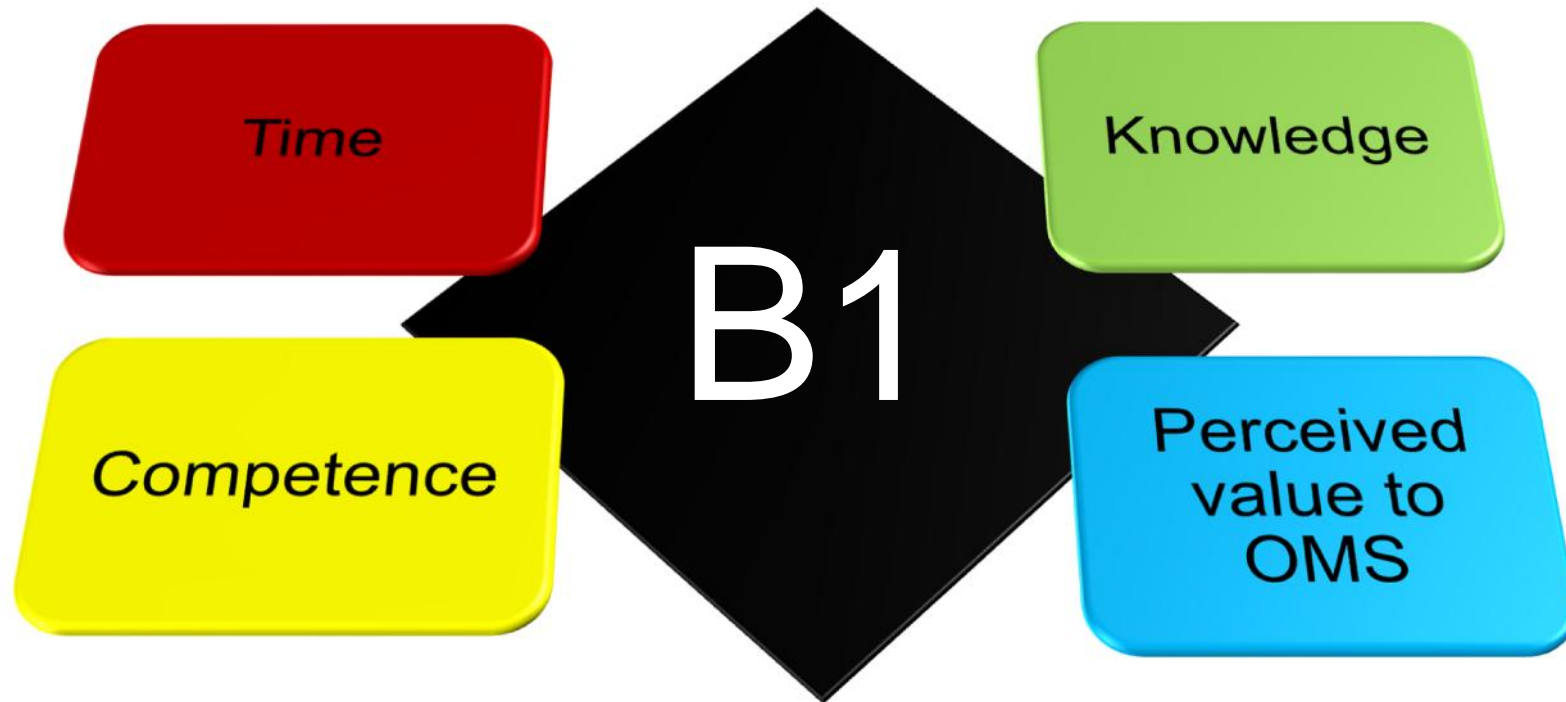
Practical considerations

B4-

Patient considerations

Time to search & find
Time to apply,
Time to Analysis& interpreter

To select suitable & appropriate
equipment required,
Familiarity with an OMs
To interpret,
Reliability & validity



Education,
Experience

Belief that outcome measures
are unnecessary,
Feeling overwhelmed,
Lack confidence in use

B2

B2 relates to the influence of organizational factors on routine outcome measurement in practice

Time and costs

Culture & policy

General time constraints

Requiring technology staffing

Access to database at work/search

Health policy

Management support

Co-operation of colleagues

B3

B3 relates to practical issues and considerations relating to the use of routine outcome measurement in practice.



- Time constraints (Pt. PT)
- Institutional restrictions
- Suitability of OMs
- Fund /cost



B4 relates to clinicians' concerns about using outcome measures with and for their patients..



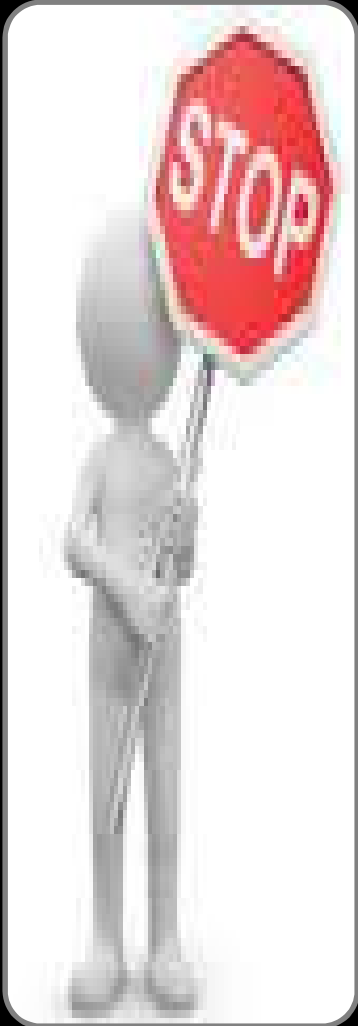
Provide subjective information

Don't help to inform or direct patient care

Clinicians' concerns about patients' ability to complete OMs

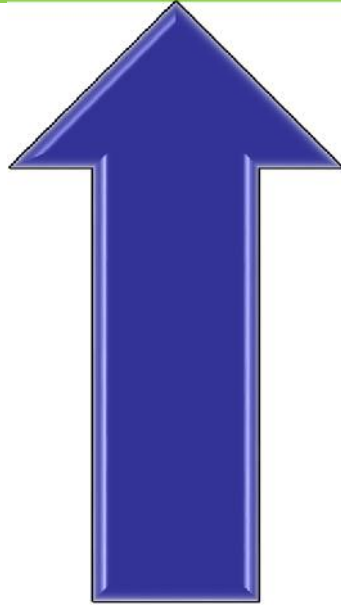


Facilitators to Outcome Measurement



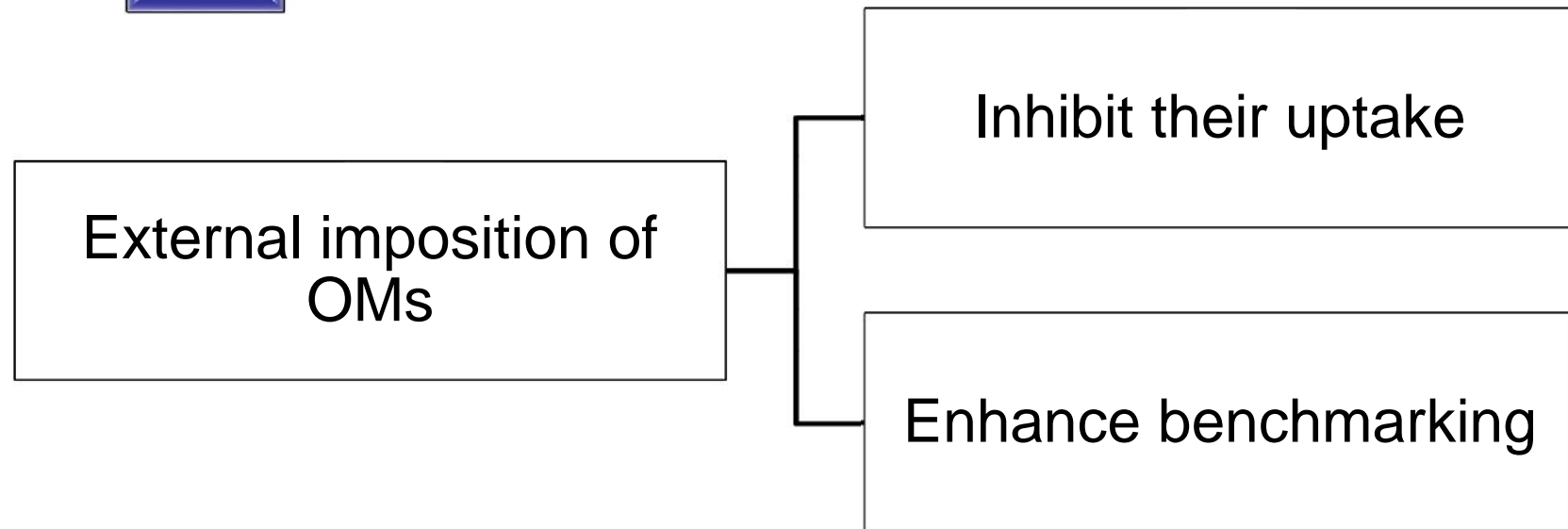
Achieving successful use of standardized OMs in clinical practice appear to be multi-level that require information and collaboration between organizations, teams and individuals

Facilitators of Outcome Measurement



Organization

- Appropriate training & education
- Sufficient administrative supportive
- Adequate allocation to resource
- Sufficient time
- Positive team culture and ethos of evaluation.



Facilitators of Outcome Measurement



Individual

- Positive attitude and responsibility
- Academic degrees and clinical setting exposure
- Education and training about OMs
- Social interaction within work place
- Convinced of the benefits of the use of measurement instruments
- Patients: require objective instruments to evaluate the treatment process

Thank You !!

