The Gift of the OMERACT Filter

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Outline

- What is a core set and why do we need them?
  - Issues with Trials
- Current initiatives to develop core sets
  - Outcome Measures in Rheumatology (OMERACT)
  - Core Outcome Measures in Effectiveness Trials (COMET)
- Existing definitions, conceptual structures and their history
- OMERACT proposal for core areas of measurement

Problems with trials

- Trials are done to evaluate whether an intervention is effective and safe
- Choice of measures to reflect benefit and harm
- In most areas choices not standardized
  - heterogeneity between trials
  - potential for bias (selective outcome reporting)
  - choice of measures less relevant to users

Solution

Development of trial core sets

- Minimum set of outcomes that should be measured and reported in all clinical trials of a specific condition

- What is an outcome?
- How to decide what belongs in a core set?

"*O*utcome *ME*asures in *R*heumatoid *A*rthritis *C*linical *T*rials"

*Outcome Measures in Rheumatology**

- Informal, unofficial
- Group of health professionals and patient experts interested in outcome measures and endpoints in rheumatology

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* www.omeract.org

Rheumatology, 1980-1990

No consensus over which measures to include in RA trials

- >25 different measures available
- 5 meetings: no single consensus
  - Confusion: purpose, focus of measurement, and selection of measures
  - Increasing recognition of the importance of sensitivity to change
  - Transatlantic divide

OMERACT 1

Maastricht, 1992

- Core set for RA trials
- Minimum relevant improvement patients/trials
- Composite measures/ improvement criteria

WHO/ILAR core set RA clinical trials

- global assessments patient & assessor
- pain
- painful joint count
- swollen joint count
- physical disability
- acute phase protein

- in studies ≥ 1 year: X-rays hands & feet

OMERACT 11
(Pinehurst, 2012)

preconference symposium
- CAT/IRT

mini-module
- Psoriatic Arthritis

workshops
- Worker Productivity
- Acute Gout
- Ultrasound responsiveness RA
- Vasculitis
- OMERACT Filter 2.0
  - Truth: Areas/Domains
  - Truth: Instruments
  - Discrimination & Feasibility
  - Putting it all together
    - Patient Reported Outcomes
    - Imaging & Biomarkers

extra activities
- Fellow training

extended interest group
- Flares in RA

special interest groups
- Myositis
- MRI-Juvenile Infl. Arthritis
- PROMIS
- Hand Osteoarthritis
- Equity
- Polymyalgia Rheumatica
- MRI-inflammatory arthritis
- Item Response Theory
- Hip Osteoarthritis
- Connective Tissue Disease/ Interst. Lung disease

Bottom line

Achieving consensus over measures involves:

- Content
  - Education in methodology
  - Agreeing on:
    - Purpose
    - Domain(s)
    - Applicability of specific measures
  - Iteration

Bottom line

Achieving consensus over measures involves:

- Content
- Process
  - Data-driven
  - Iterative, stepwise
  - Inclusivity
    - Important role for dissenters
    - Harsh data softened by political considerations

OMERACT Filter 1.0

OMERACT Filter to select measures

To be applicable in its intended setting, a measure must be

- truthful
- discriminative
- feasible

OMERACT Filter

Truth

- free from bias
  - criterion, construct validity
- relevant
  - content, face validity

OMERACT Filter

Discrimination

- able to distinguish between states that are of interest:
  - at one time point
  - at different time points
  - reliability, reproducibility, sensitivity to change

OMERACT Filter

Feasibility

- time
- costs
- interpretability

OMERACT Filter

- Filter works best to select instruments once the areas of measurement have been decided on
- Truth: "...measure what it's supposed to..." but how to decide on the supposition?

- For any core set we need to decide in what areas we need to measure
  → core areas of measurement

Example
WHO/ILAR core set
rheumatoid arthritis clinical trials

- global assessments by patient & assessor
- pain
- painful joint count
- swollen joint count
- physical disability
- acute phase protein

- in studies ≥ 1 year: X-rays hands & feet

RA core set & outcome

- Outcome:
  "how a patient feels, functions or survives"
  - patient global
  - pain
  - physical function
- Disease activity
  - assessor global
  - swollen and tender joint counts
  - acute phase protein
- Damage: X-rays

Patient input in OMERACT started in 2002

- Core set is deficient because it does not include enough (patient-important) outcome measures
  - Fatigue
  - Sleep Quality

- ...Content validity problem!
- ...Core area problem!

- To decide on core sets,
  we need to define core areas first

OMERACT Filter 2.0

Core areas of measurement

Core areas of measurement

- Def.: areas that should always be addressed by measures included in a core set for trials aimed at a specific health condition
- to decide on core areas, we need:
  - a conceptual structure of health and health conditions
  - consensus on which areas in this structure are core
  - consensus on whether core areas are generic or specific to a certain health condition

Definitions

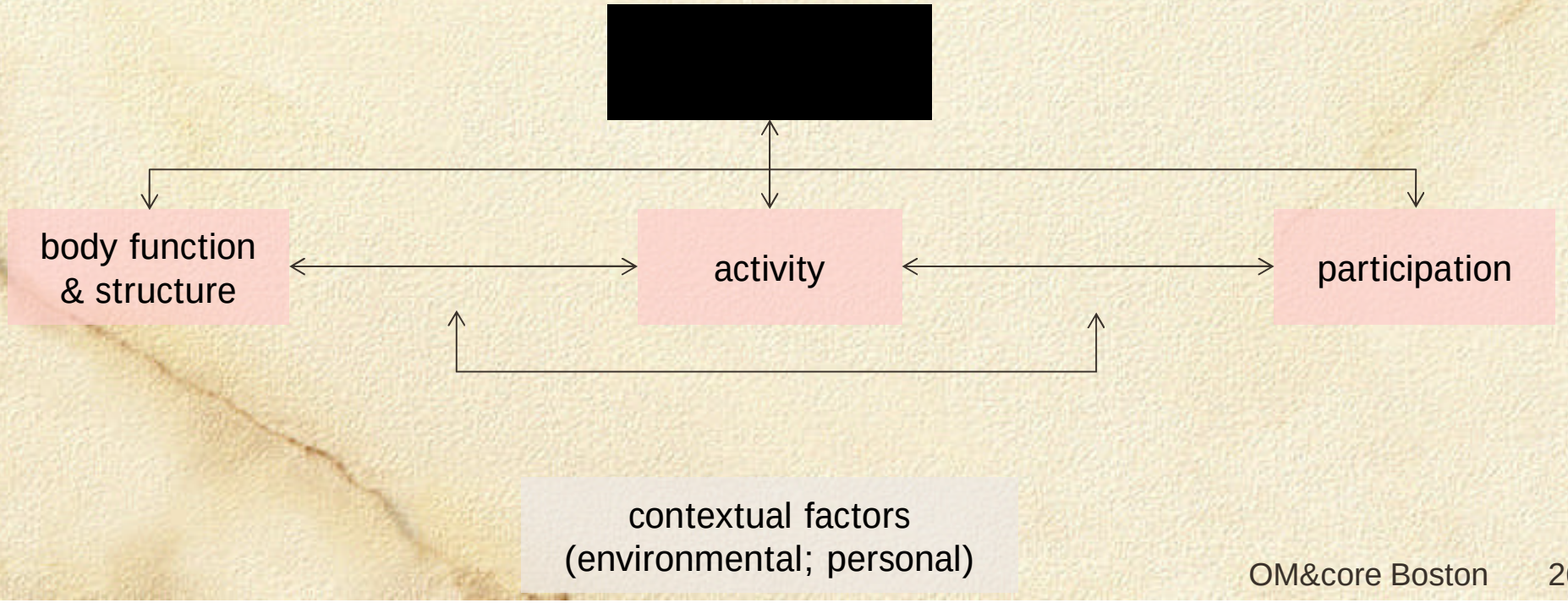
- health
- health intervention
- core area: aspect of a health condition that needs to be measured to appropriately assess the effects of a health intervention.
- (sub)domain: component of core area: a concept to be measured, a further specification of an aspect of health, categorized within a core area.

Definitions

- health
- health intervention
- core area: essential aspect of a health condition..
- (sub)domain: construct within a core area
- outcome: any identified result in a (sub)domain arising from exposure to a causal factor or a health intervention.
- measurement instrument: a tool to measure a quality or quantity of a variable.

Existing conceptual structures and their history

- WHO 2001
  International Classification of Functioning (ICF)
  - universal classification of human functionality, both positive and negative



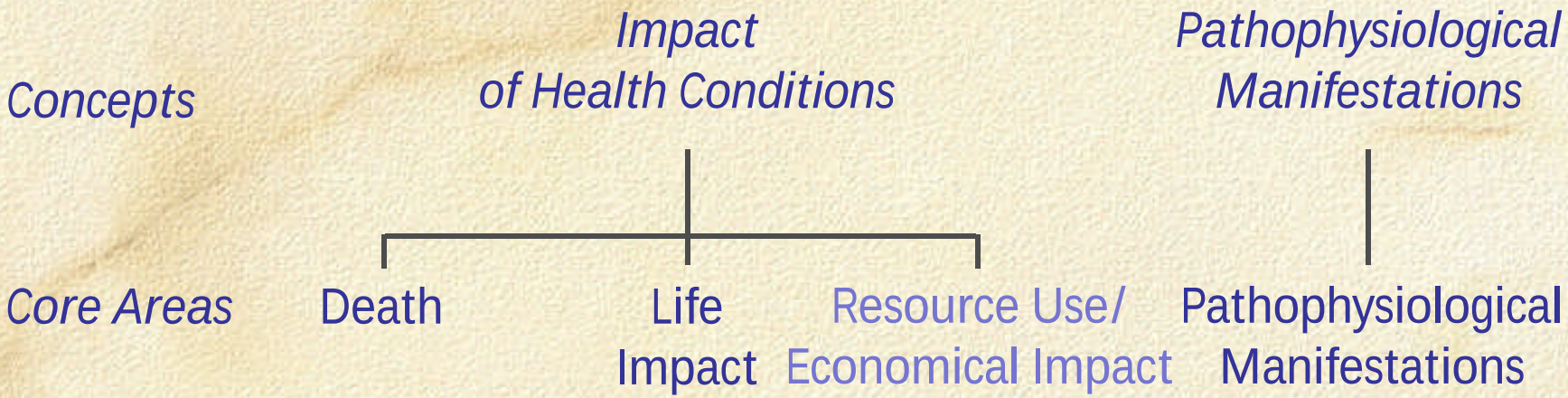
Core Areas for Measurement in Health Interventions

Concepts

Impact of Health Conditions

Pathophysiological Manifestations

Core Areas for Measurement in Health Interventions



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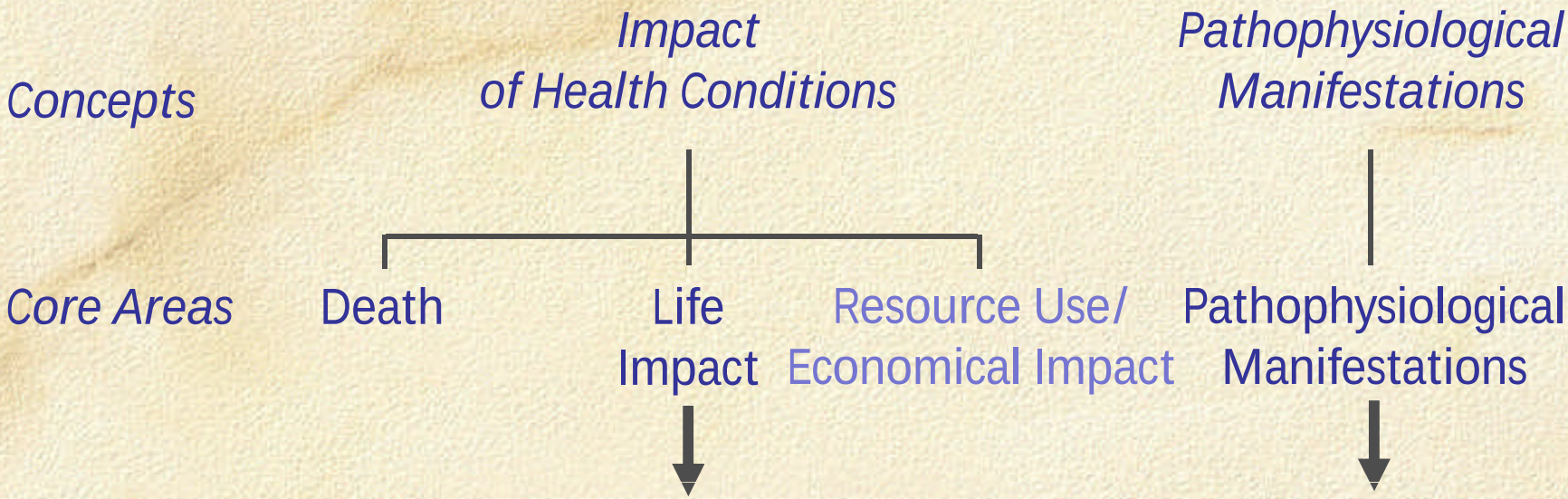

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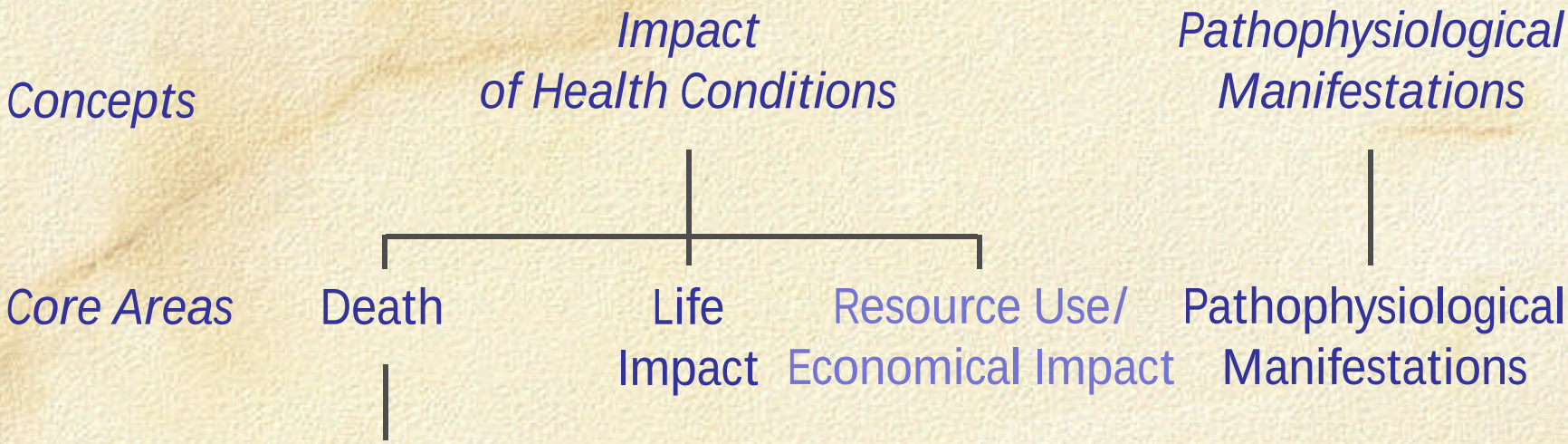
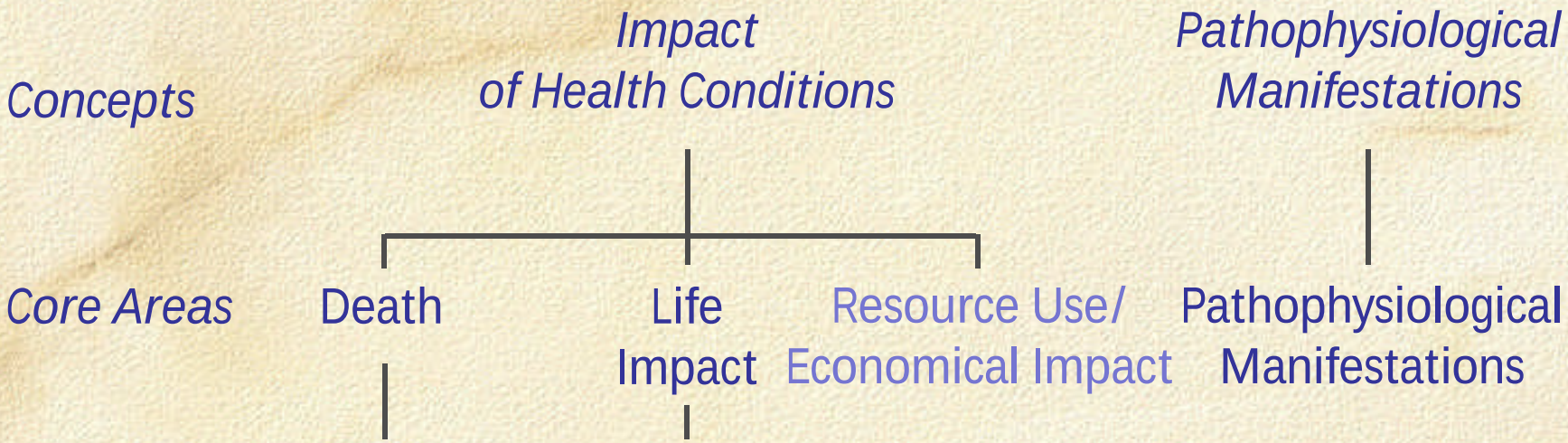


*Examples of specific Domains within Areas**

- disease
- intervention

* in all areas, domains can be generic or made more specific:
eg. disease-specific, time specific (eg. short or long-term), specific for patient preference

Core Areas for Measurement in Health Interventions



*Examples of specific Domains within Areas**

- disease
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- ICF domains: activity and participation
- quality of life
- patient perception of health
- loss of ability to work
- psychosocial impact
- 2^{ary} impact on family, caregivers
- utility

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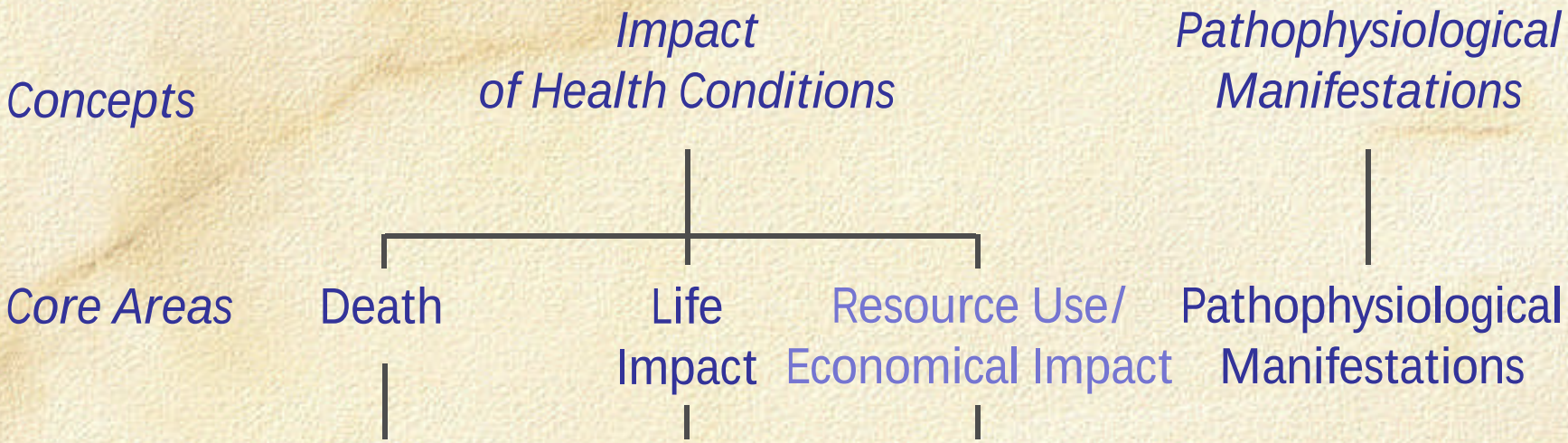

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- societal
- individual
- health care
- direct/indirect (productivity)
- intangible costs

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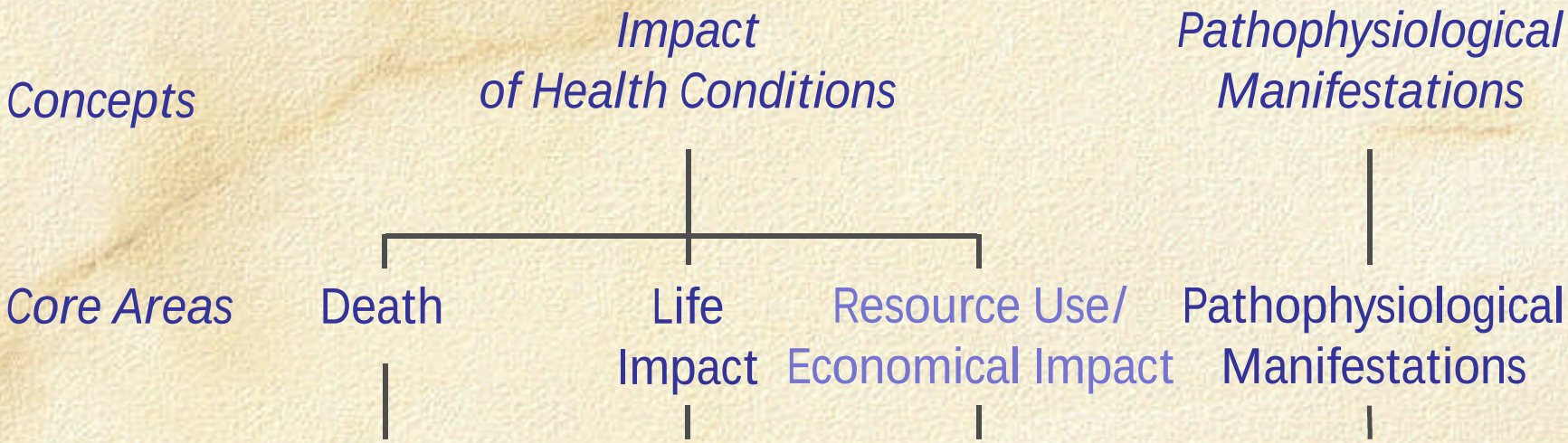

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- societal
- individual
- health care
- direct/indirect (productivity)
- intangible costs

- ICF: body function and structure
- organ function (eg lung function)
- reversible manifestations
- irreversible manifestations
- biomarkers
- surrogate outcomes

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Core Areas for Measurement in Health Interventions

Concepts	*Impact of Health Conditions*			*Pathophysiological Manifestations*
Core Areas	Death	Life Impact	Resource Use/ Economical Impact	Pathophysiological Manifestations
*Examples of specific Domains within Areas**	• disease • intervention	• ICF domains: activity and participation • quality of life • patient perception of health • loss of ability to work • psychosocial impact • 2^{ary} impact on family, caregivers • utility	• societal • individual • health care • direct/indirect (productivity) • intangible costs	• ICF: body function and structure • organ function (eg lung function) • reversible manifestations • irreversible manifestations • biomarkers • surrogate outcomes

Adverse Events — AE's are measured within the core areas, but are labeled separately to allow assessment of benefit and harm.

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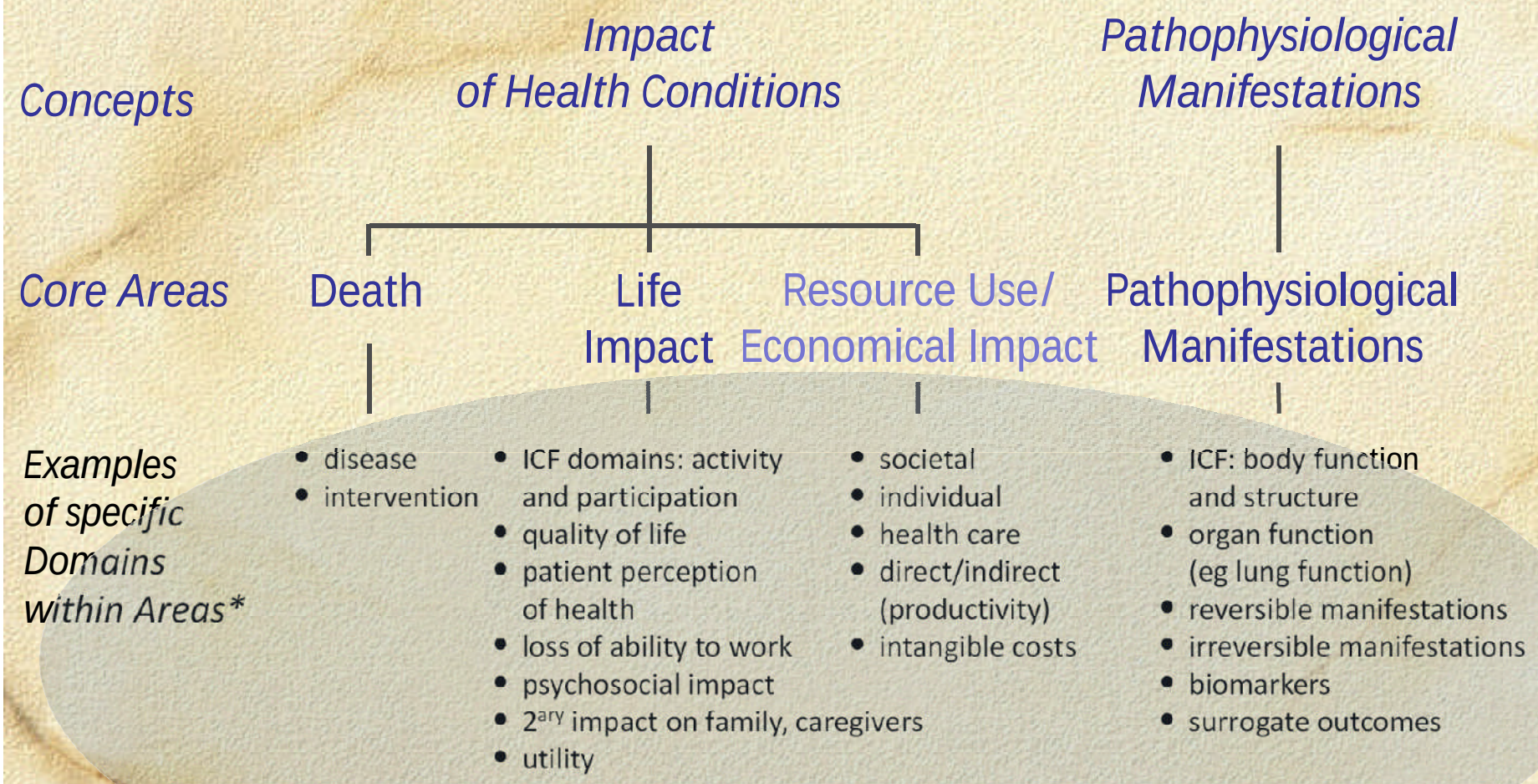
Core Areas for Measurement in Health Interventions



Context

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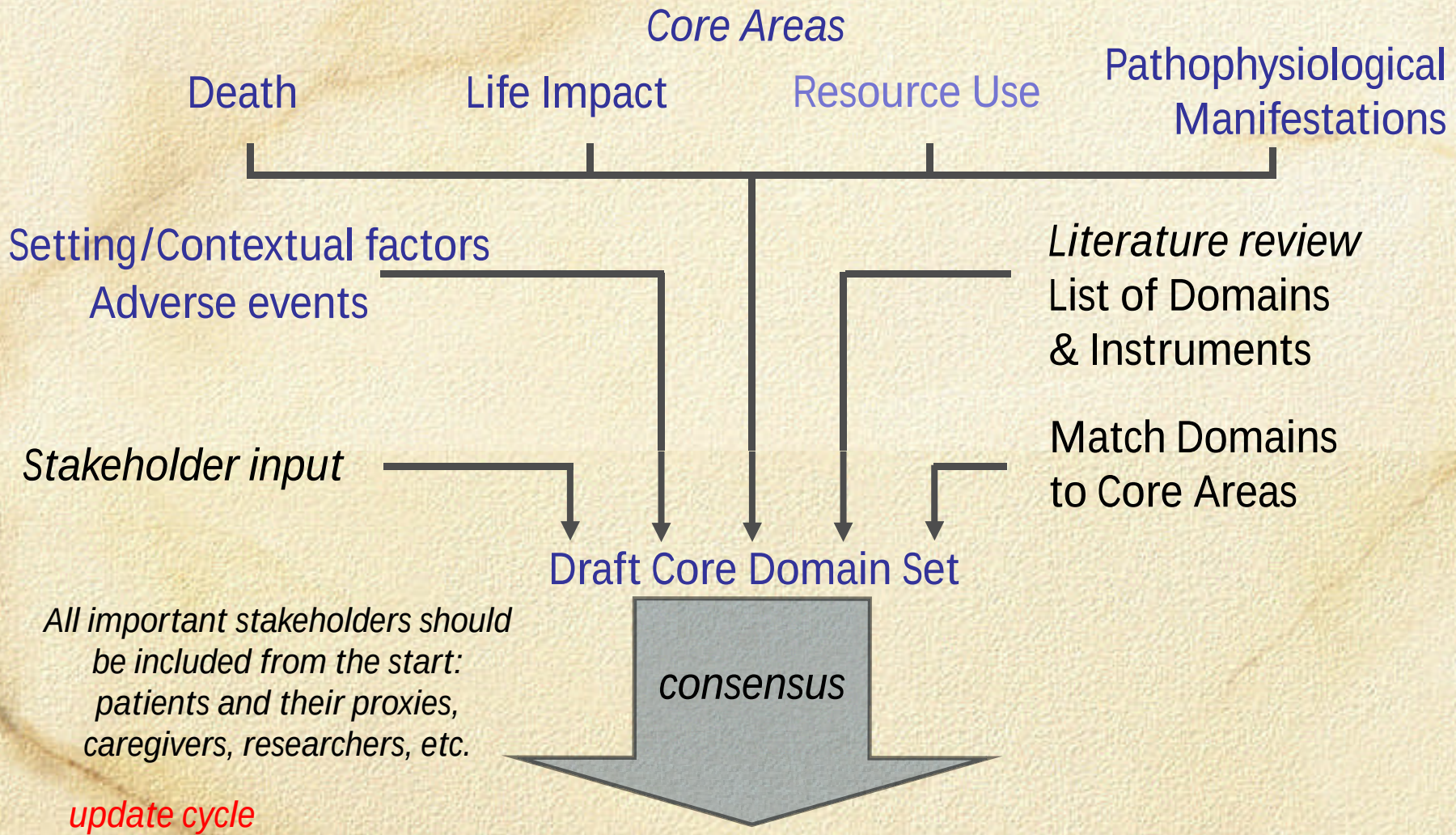
Developing a Core Outcome Measurement Set



Core Domain Set

agreement on *what* to measure

at least one Domain from each Core Area

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agreement on *what* to measure

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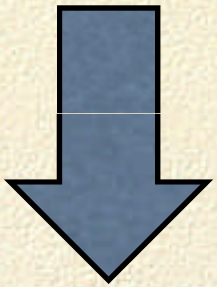


Core Outcome Measurement Set

agreement on *how* to measure

at least one applicable Instrument per Domain

Developing a Core Outcome Measurement Set

Core Domain Set

Literature review

List of candidate Measurement Instruments per Domain

For each domain: covered by at least one Instrument?

yes

document applicability

(for each available instrument: is it Truthful, Discriminative and Feasible?)

yes

When all Domains have at least one applicable instrument:

→ Candidate Core Outcome Measurement Set

consensus

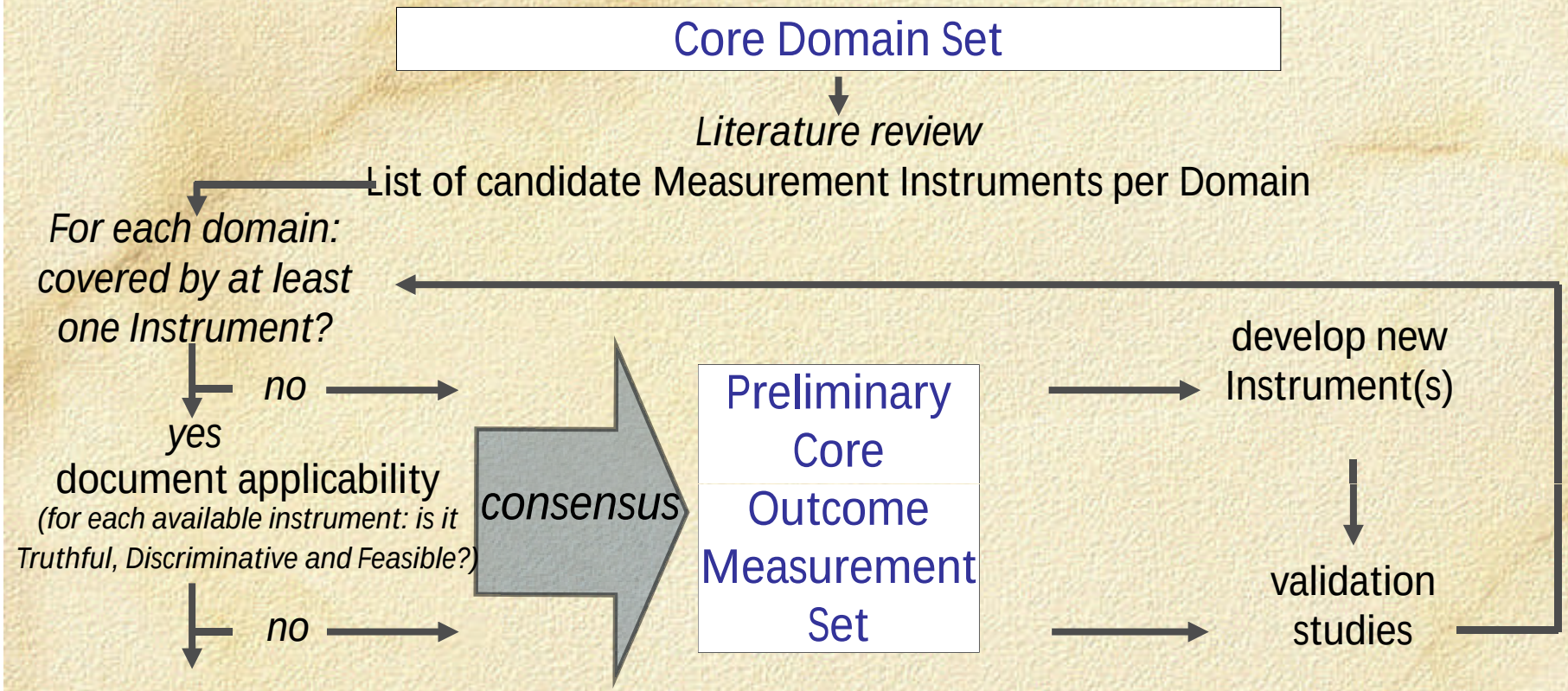
update cycle

Core Outcome Measurement Set

agreement on *how* to measure

at least one applicable Instrument per Domain

Developing a Core Outcome Measurement Set



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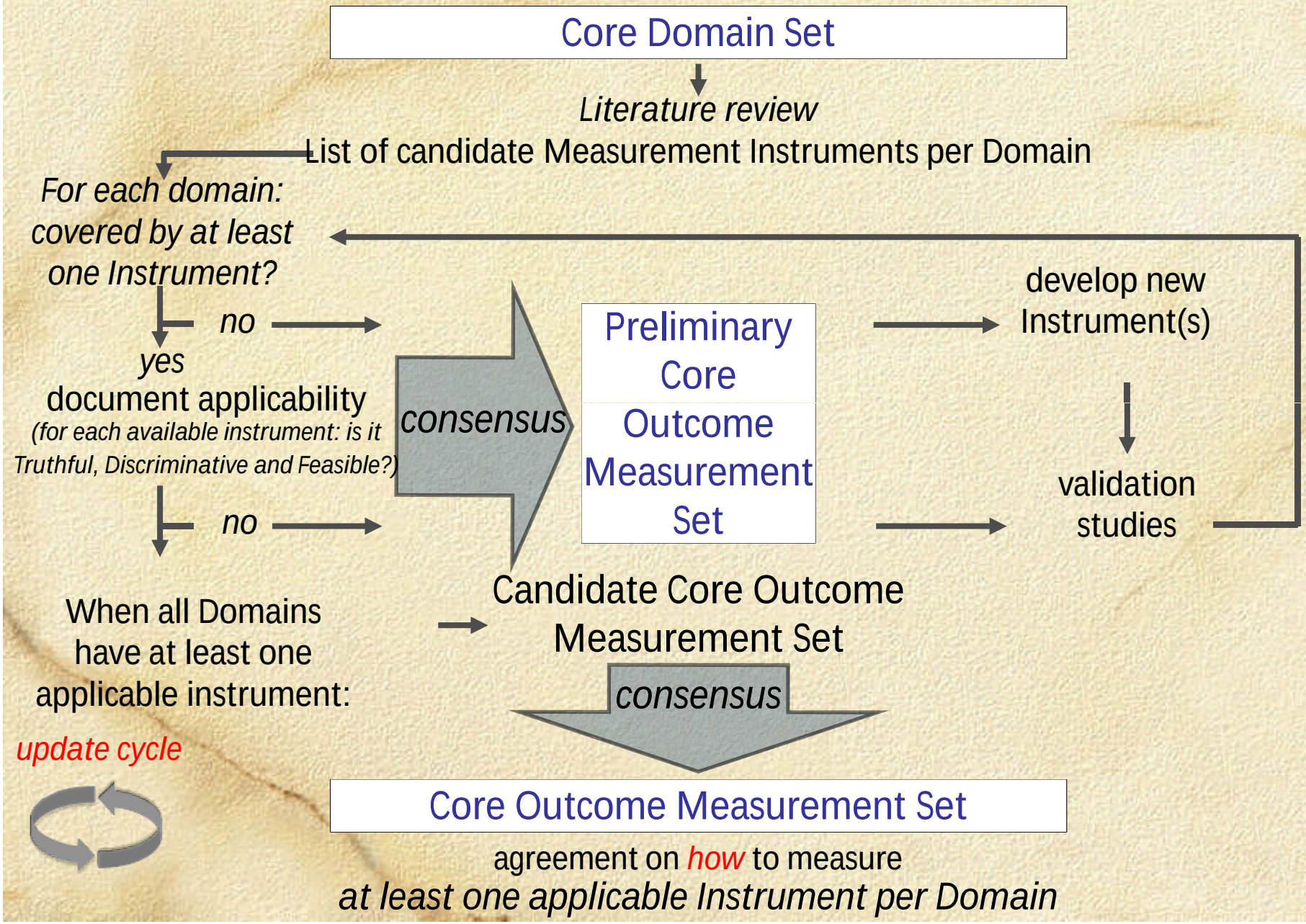

Thank YOU!
Questions,
Comments...