



**Measures Used to Assess the Impact of Interventions to
Reduce Low-Value Care:
A Systematic Review of Published Studies
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Background

- Studies of interventions to reduce low-value care are increasingly common.
- Such interventions are often complex, comprising multiple components that are tested in active healthcare delivery contexts.
- As a result, they can have unintended effects on clinical processes and outcomes as well as patient and provider experiences and outcomes.

Purpose

- To assess measures used to assess the impact of interventions to reduce use of low-value care in published and ongoing studies.
- Hypotheses:
 1. Existing studies largely focus on simple utilization of care
 2. Unintended consequences are not systematically assessed
 3. Patient-reported measures are used infrequently

Methods: Search Strategy

- We used a standard systematic review methodology.
- Identified potentially relevant studies from Pubmed, Web of Science, and clinicaltrials.gov published between 2010-2016.
- Extracted data on variety of characteristics:
 - Measure type: outcome, patient-reported
 - Measure specifications: numerator, denominator, etc
 - Whether measure assessed unintended consequences

Results

- We identified 1,315 potentially relevant published studies, 101 of which were included in our review.
 - Only 19% used randomization
 - Only 30% had a control group

What types of measures were used in published studies (N = 101)?

Type of Measure

Studies Using the Following Measure Types

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Type of Measure	Studies Using the Following Measure Types
Utilization/ordering	69 (68%)

Example: Rate of orthopedic services per 1,000 enrollees

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Appropriateness	53 (52%)

Example: Proportion of patients who received unnecessary empirical antibiotics for asymptomatic bacteriuria (overuse)

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Utilization/ordering	69 (68%)
Appropriateness	53 (52%)
Outcome	41 (41%)

Example: In-hospital mortality

What types of measures were used in published studies (N = 101)?

Type of Measure	Studies Using the Following Measure Types
Utilization/ordering	69 (68%)
Appropriateness	53 (52%)
Outcome	41 (41%)
Patient-reported	8 (8%)

Example: Satisfaction with shared decision-making for prostate cancer treatment

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Appropriateness	53 (52%)
Outcome	41 (41%)
Patient-reported	8 (8%)
Provider-reported	3 (3%)

Example: Provider experiences and satisfaction with an intervention to reduce inappropriate imaging in patients with low back pain

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Patient-provider interaction	1 (1%)

Example: Time spent discussing colorectal cancer prevention in a clinical encounter

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Value	1 (1%)

Example: Cost-effectiveness of alternative diagnostic testing strategies for coronary heart disease

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Cost	36 (36%)
Measure of unintended consequences	34 (34%)

What types of measures were used to assess unintended consequences?

Type of Measure	Measures of Unintended Consequences
Utilization/ordering	5 (7%)
Appropriateness	2 (3%)
Outcome	65 (87%)
Patient-reported	3 (4%)
Provider-reported	0
Patient-provider interaction	0
Value	0
Cost	0
Other	0

How did measure types differ between funded and unfunded studies?

Type of Measure	Studies with 1 or more of the following measure types	
	<i>Funded</i> (N=48)	<i>Unfunded</i> (N=53)
Utilization/ordering	32 (67%)	37 (70%)
Appropriateness	23 (48%)	30 (57%)
Outcome	17 (35%)	24 (45%)
Patient-reported	8 (17%)	0
Provider-reported	1 (2%)	2 (4%)
Patient-provider interaction	1 (2%)	0
Value	1 (2%)	0
Cost	14 (29%)	22 (42%)

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What about ongoing studies (i.e., unpublished clinical trials)?

- We identified 490 potentially relevant ongoing studies, 16 of which were included in our review.
- More likely to include measures of outcomes, patient and provider reports, and unintended consequences.

All your labs are back. They show a serious overuse of unnecessary and inappropriate tests and procedures.



Most Studies Still Rely on Tracking Utilization

- The majority of interventions still rely on utilization measures
 - Limit assessments about whether the right care was delivered to the right patient
- Appropriateness of care was tracked in 52% of published studies
- Outcomes were tracked in 41% of studies

Patient-reported Measures are Rare

- Fewer than 10% of evaluations used any patient reported measures (all from funded studies)
- Measures focused on scales of various types
 - Satisfaction
 - Quality of Life
- A few used patient-reports as outcomes
 - Perceptions about shared decision-making
 - Intention to engage in screening

Assessments of Unintended Consequences are Incomplete

- Only one-third assessed unintended consequences.
- Majority focused on high level outcomes that could not be adequately assessed by study design.
- Very few looked at worsening in processes of care such as underuse or substitution for other services.
- Only 3 studies examined patient-reported unintended consequences.

Implications

- Few studies use patient-centered measures that focus on appropriateness, patient-reports, unintended consequences, and meaningful outcomes.
- We should demand more meaningful assessments of interventions (or note their omission as a limitation).
- We should explicitly incorporate patient-centered measures into the design of evaluations.

Collaborators

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