Collaboration for Leadership in Applied Health Research and Care Northwest London

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Evaluating the articulation of programme theory in practice as observed in Quality Improvement initiatives

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What is programme theory?
...and why do we need it?

Quality Improvement (QI) initiatives often lack explicit articulation of theory behind cause/effect relationships linking proposed interventions and intended outcomes for patients.[1,2]

A clear theory of how and why a QI initiative is taking place (programme theory) supports identification of appropriate interventions and subsequent monitoring of implementation and evaluation of effectiveness.[3]

Whilst many conceptual models exist for identification and articulation of programme theory,[4-6] there has been little study of their application in practice in healthcare settings.

The Action-Effect Method (AEM)
A co-designed method, built on Driver Diagrams

Through use of the Driver Diagram method in QI, CLAHRC NWL identified a need for greater clarity around the purpose and process of creating programme theory diagrams, and what a quality diagram should look like.

As a result the AEM was co-developed by researchers, healthcare professionals and patients.

The AEM is a structured, facilitated approach, with detailed descriptions of diagram components and how they can be used consistently to articulate programme theory.

Programme theory quality assessment

We evaluated diagrams from 3 sources:

22 CLAHRC DDs, Driver diagrams from QI initiatives before AEM co-development

21 CLAHRC AEDs, from QI initiatives started subsequent to AEM co-development
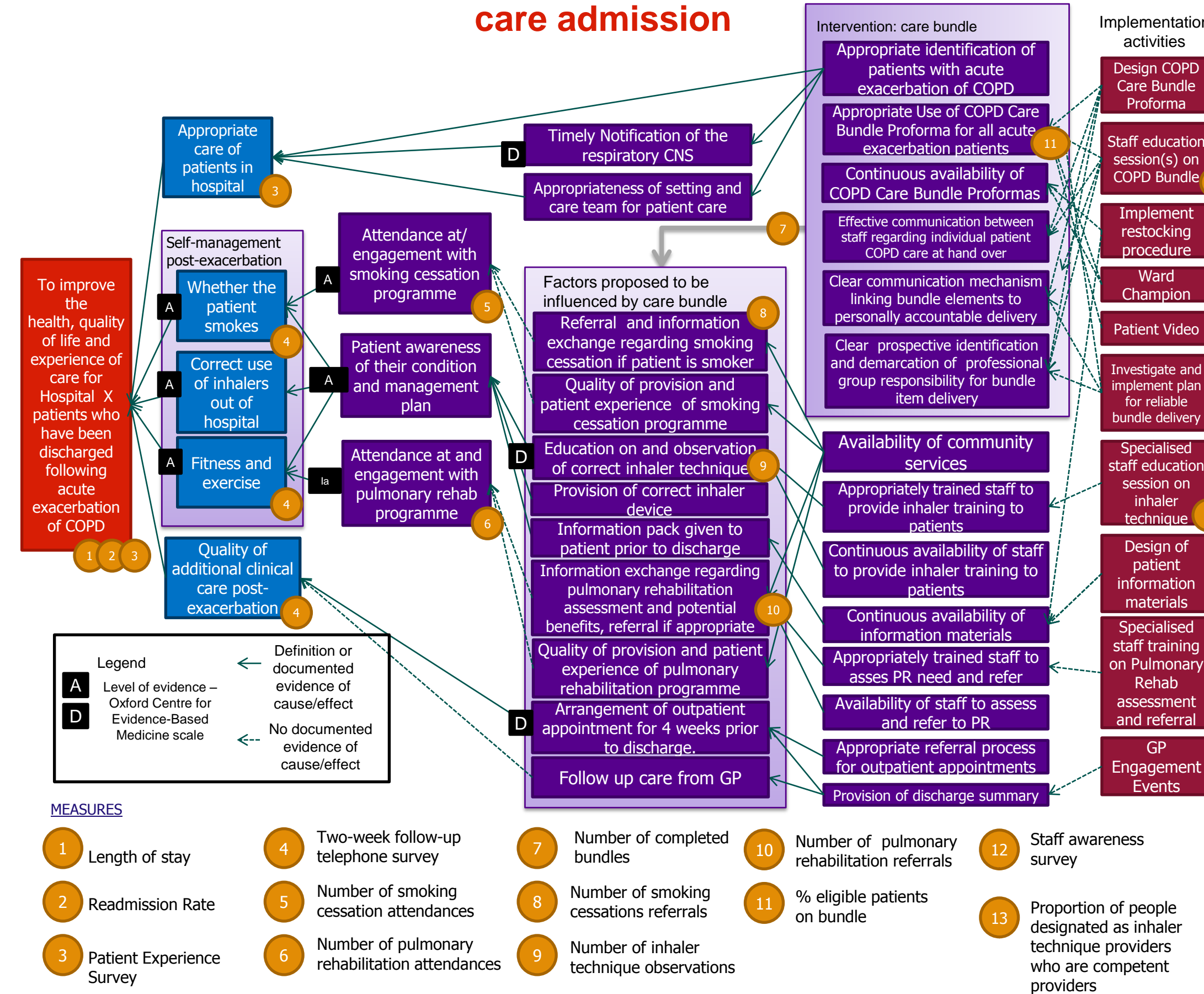
20 Published DDs, from a systematic review of peer-reviewed QI journal articles

Two qualitative researchers scored each diagram on the eight-point criteria (bottom left) on a scale from 0 to 3. Scorer inter-rater reliability was 78% and averaged scores are reported.

References
1. Davies P, et al. A systematic review of the use of theory... *Implement Sci* 2010;5(1):14.
2. Shojania KG, Grimshaw JM. Evidence-based quality improvement. *Health Aff* (Millwood). 2005;24(1):138–50.
3. Walshe K. Understanding what works and why in quality improvement. *Int J Qual Health Care.* 2007;19(2):57–9.
4. Langley G, et al. The improvement guide. 2nd edition. San Francisco, CA: Jossey-Bass Publishers 2009.
5. Plsek PE. Tutorial: management and planning tools of TQM. *Qual Manag Health Care* 1993;1(3):59–72.
6. Rogers PJ. Using Programme Theory to Evaluate… *Evaluation.* 2008;14:29-48.
7. NHS Institute for Innovation and Improvement. Driver Diagrams. www.institute.nhs.uk/quality_and_service_improvement_tools/quality_and_service_improvement_tools/driver_diagrams.html.

Sample Action Effect Diagram – COPD following an acute care admission

Programme theory diagram quality criteria
We developed the following criteria based on theoretical benefits of using driver diagrams[4,7] and of pre-planning QI initiatives.[4-5]

Service-user focus
1. Overall aim: High-level, focused on the service user, indicating direction and aspiration, free from interventions, cause/effect relationships, hypotheses, assumptions
2. First column of factors: A comprehensive and systematic breakdown of the service user focused aim
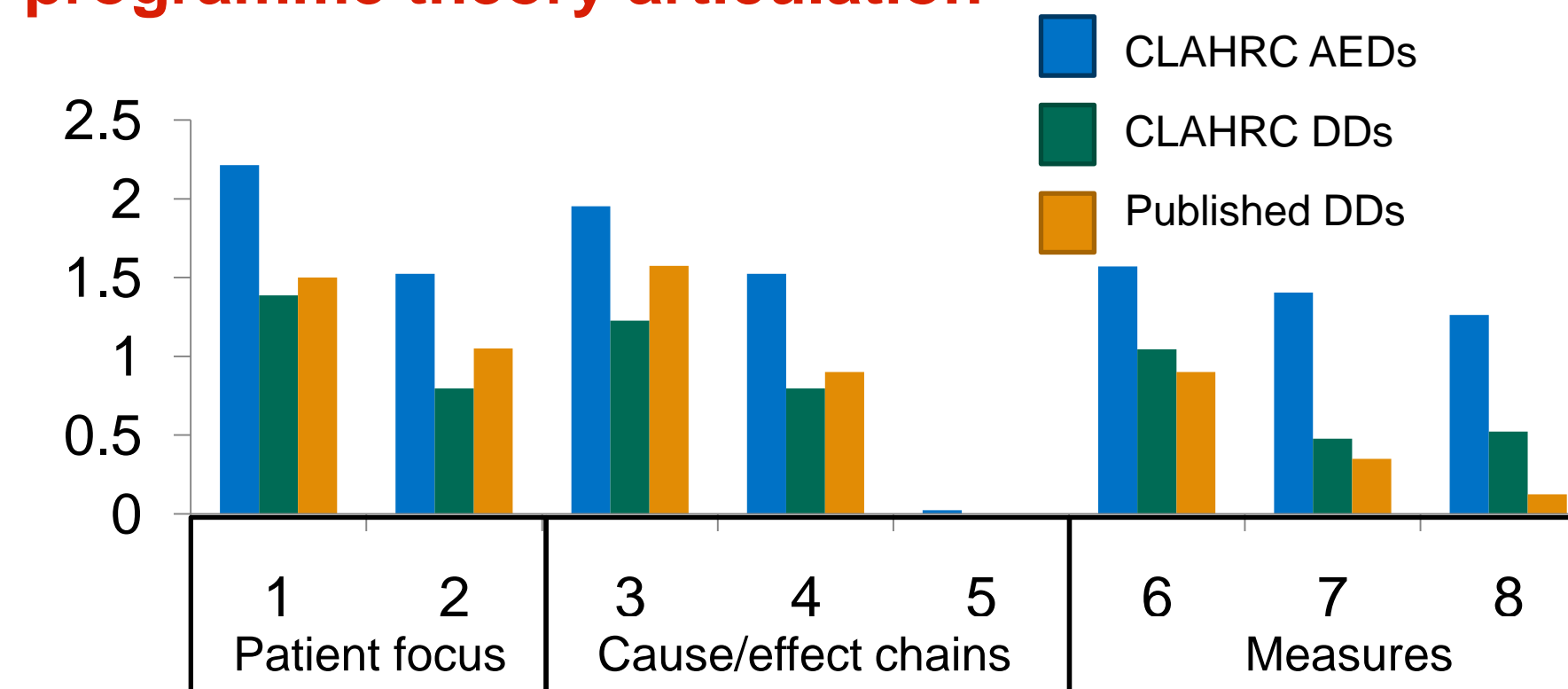
Cause/Effect Chains
3. Clarity of Components: Do all factors (items in boxes) have a clear meaning to the suggested audience (QI stakeholders)?
4. Cause/Effect Relationships: Are linkages between cause/effect relationships clear, plausible, and free from logical leaps?
5. Documentation of evidence: Is it made clear the extent to which the proposed cause/effect relationships are evidenced?

Measures
6. Clear meaning: Do the measures have a clear meaning to the suggested audience?
7. Clear purpose: Is it clear why the measures are associated with proposed cause/effect relationships?
8. Distribution: Is there an even distribution of measures at different levels of control and influence across the diagram?

Action-Effect Method led to improvements in programme theory articulation

ANOVA results indicated the **Action-Effect Method** resulted in a **significant improvement** in diagram quality **over Driver Diagrams**, either previously published in peer-reviewed journals, or those developed by internal CLAHRC NWL teams (p<0.01).
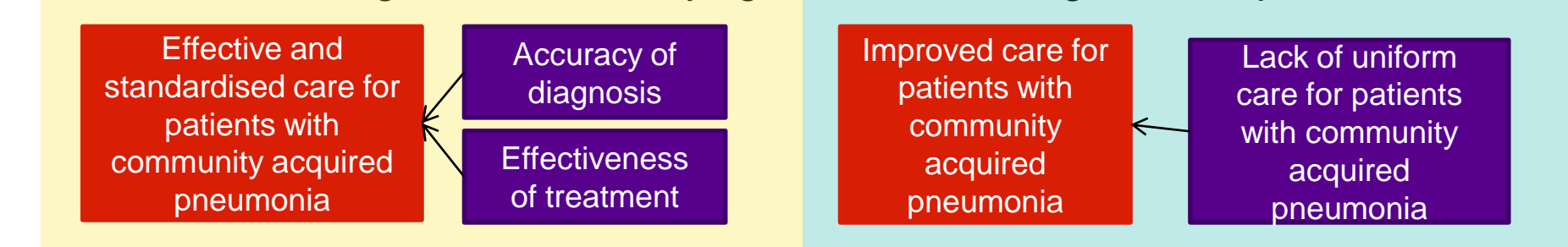
Characterization of improvements
Service-user focus

The most substantial improvements were in assessments of overall aim, which were more likely to be patient-focused and high-level in AEDs than DDs.

AEDs	DDs
To improve the quality of care for COPD patients at [site]	To develop a COPD care bundle for admission and discharge, which is implemented across the Trust

Cause/Effect Chains
In AEDs, individual factors were more clearly articulated, and factors were more clearly linked together without relying on tacit knowledge for interpretation.

Measures
AEDs also were more likely than DDs to contain measure concepts, to have an appropriate selection of process and outcome measures, and to link these concepts clearly and logically to cause-effect predictions.