

Systematic Review on the Barriers and Facilitators to Acceptance of Connected Health



Executive Summary

Obstructive lung disease (OLD) is a catch-all term for a range of lung conditions, primarily including chronic obstructive pulmonary disease (COPD), and asthma. Globally these conditions present an enormous health and social cost.

Exacerbations in COPD, for example, the most common severe chronic disease in primary care, cost \$16 billion in the US annually. Similarly, a recent European prevalence-based cost study on Asthma, demonstrated that the expected total cost was €19.3 billion when extended to the whole European population aged from 15 to 64 years. Critically the cost of OLD increases as disease control decreases, thus highlighting the need for optimal management.

Management of OLD – which primarily takes place through primary care/GP care – is facilitated by development of Clinical Practice Guidelines (CPG), and Clinical Decision Support Systems (CDSS) which are often built upon their relative CPG. In fact it is thought that CPGs for OLDs can be implemented, and user compliance (i.e., healthcare provider compliance) to them optimised, via health information technologies (HIT).

However while there is evidence that CPGs/CDSSs can facilitate enhanced patient outcomes, acceptance by HCPs about the utility of such innovations – and their subsequent use – is not uniform. The aim of this systematic review study therefore was to identify, through the available research, what HCP-related factors influence the use, adherence, etc. to CPGs/CDSSs, specific to obstructive lung disease.

A comprehensive search strategy – developed with best practice protocols – yielded a set of 1325 studies. Upon detailed and protocol-based screening, the final number of studies included in the review was 35 CPG-related studies, and 8 CDSS-related studies. A majority were cross-sectional studies from Europe/ the US, focusing on COPD or Asthma.

A number of key factors emerged, and an explanatory framework with four key themes was developed: Situational, Personal, Educational, and Clinical (SPEC). Within the SPEC framework, two primary factors emerged: **Time**, and **Trust**. In the case of this review Time relates to issues such as: how long the CPG/ CDSS is? will it slow down clinical practice? will it impose an additional practice burden? will I have to spend time learning this systems? etc. Trust refers primarily to two sub-components: 1) Trust in the veracity of the information (i.e., does HCP believe the information?); and 2) Trust in the provider of the information (i.e., does HCP believe in the source of the information?).

As with all studies there are limitations and avenues for future research are identified. However the findings from this review and the SPEC framework may be a useful addition to the literature.

Companies with a commercial interest in these connected health opportunities or who are interested in collaborating with ARCH should contact Alica May, Project Co-ordinator on info@arch.ie or call 01 7165400.

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Collaborators

Vitalograph

Research Theme

Change

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Project Deliverable*

Systematic Review Report

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Recommendations for Providers of Connected Health Solutions

► *Honest broker*

As stated, **Trust** – in the information, and in the provider of the information – emerged as an important factor and addressing this issue may represent both the biggest challenge and the best opportunity for developers of guidelines and (computerised) decision support systems. Two suggested ways to begin this process are through:

- Genuine acceptance of the range of views held by HCPs in relation to management of care for obstructive lung disease, and
- Via a comprehensive partnership programme with key stakeholders.

1. Acceptance of HCP non-acceptance

CPGs/CDSSs don't always improve outcomes, and HCPs know this. A negative feedback loop can therefore occur, whereby – in trial and study settings – HCPs do not use new CPGs or CDSSs as developed, perhaps biased by previous experiences of non-improvement. As these management tools are developed to enhance outcomes, if followed as prescribed, patient outcomes might therefore not improve. Yet lack of positive outcomes – which then creates a lack of acceptance among HCPs – may in fact be due to HCP recalcitrance rather than deficiencies in the intervention.

Thus, stakeholder **acceptance or understanding, of HCP non-acceptance**, could be an important way of crossing the valley of death between development and implementation, addressing one of the components of the Trust issue head-on (lack of agreement with the content of CPG/CDSS).

Developers of CDSS should at a **minimum** begin to establish a data repository relating to which alerts/guidelines are more commonly ignored or not adhered to (e.g., what type; how/when delivered; by whom; in what sequence; in what environment, etc.).

2. Partnership development

Information was identified (including from studies not eventually included in the final systematic analysis), relating to another finding of relevance to the Connected Health space: namely, the need for development by partnership. One comprehensive study (a meta-regression of 162 randomised controlled trials on components relating to effective decision supports) found that CDSSs which incorporate use – and thus prior knowledge of needs – by both patient and HCP are more likely to be effective (OR 2.77); essentially, genuinely **connected** health systems are far more effective.

► *Beat the system*

A final factor – not necessarily identified in the studies as either a barrier or a facilitator, but rather simply an outcome – is that HCPs often reported navigating through the CPG/CDSS, in a way which circumvented parts of/entire process. This was reported for Pt-related and/or other reasons (e.g., **to save time**). While as with the point 1 above this is problematic. However it highlights a related and potentially more important finding, and recommendation.

The key finding in a recent meta-regression of 162 RCTs – which Brent James and the Intermountain Healthcare group has previously highlighted – is that the odds of success are significantly enhanced (OR = 11.23) when HCPs are required to **provide reasons when over-riding the default** evidence-based prompt.

Relating this approach to our findings provides a direct recommendation for CDSS development. Several related questions may also need to be concurrently answered in the CDSS development process; Does a company:

1. Develop a system which cannot be circumvented?
2. Develop an agile system, so that even when circumvented HCPs still arrive at critical points in the path?
3. Develop a system that HCPs do not desire to circumvent, by integrating the factors identified in this review, **primarily making them time neutral, and trusted sources of information**