

Implementation of the HOME core outcome set for clinical trials of atopic eczema - barriers and opportunities: The HOME IX meeting report.

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Abstract

The Harmonising Outcome Measures for Eczema (HOME) initiative established a core outcome set (COS) for atopic eczema (AE) clinical trials in 2019. This set encompasses 4 core outcome domains and corresponding measurement instruments: clinical signs (EASI), patient-reported symptoms (POEM and NRS 11 point for worst itch over the last 24 hours), quality of life (DLQI/CDLQI/IDQoLI), and long-term control (Recap or ADCT). Following its roadmap, the HOME initiative is now focused on supporting *implementation* of the COS. To identify barriers and facilitators to implementation of the COS, and to guide the effort to promote COS uptake.

A virtual consensus meeting was held over 2 days (25–26 September, 2021) attended by 55 participants (26 healthcare professionals, 16 methodologists, 5 patients, 4 industry representatives, and 4 students). Implementation themes were identified by a pre-meeting survey distributed to HOME members, presentations, and whole-group discussion. Participants were divided into 5 multi-professional small groups which ranked their top 3 most important themes, followed by whole-group discussion and anonymous consensus voting (consensus criterium <30% disagreement). Three most important implementation themes were identified and agreed upon: 1) awareness and stakeholder engagement, 2) universal applicability of the COS, and 3) ensuring minimum administrative burden. Working groups to address these issues are now a priority for the HOME initiative. Results from this meeting will inform the development of a HOME Implementation Roadmap in an effort to support other COS groups planning for effective implementation of their core sets.

Introduction

The HOME initiative has agreed upon clinician-reported signs, patient-reported symptoms, quality of life and long-term control as the core domains to measure for AE trials.^{1,2,3} Guided by the assessments of the measurement properties of instruments available to measure these domains, consensus processes identified instruments for each domain.^{1,3-6} COSs are needed for optimal comparison and combination of trial data in order to make informed decisions that drive improved patient care. However, a COS is only as useful as its uptake; unless the COS is utilized, the goals of research harmonization and ultimate patient benefit will not be realized.

The scientific community has made considerable progress in accepting the utility and necessity of COS utilization in research,^{7,8} however COS uptake remains a challenge. Late phase trials published in prominent journals reveal very low COS use in all areas of medicine, even when a COS was available to the investigators.⁹ A recent systematic review of COS uptake in different healthcare fields showed a large variation of COS uptake, measured by the percentage of randomized controlled trials utilizing the full COS, ranging from 0% to 82%.¹⁰ COS implementation was strongest in fields that had longer established COSs.¹⁰ A COS also serves to guide the choice of outcomes analyzed in systematic reviews however uptake for this purpose is also lacking. A sample of 100 Cochrane systematic reviews from 2019 showed low uptake, with only 7/34 (21%) citing a COS for selecting outcomes.¹¹

Data regarding uptake of the HOME COS specifically are limited. A recent study examining 177 phase III/IV AE studies between 2005 and 2018 for COS domain/instrument uptake showed an increase in inclusion of the clinician-reported signs, patient-reported symptoms, and quality of life

domains (long-term control was not included in this study due to being undefined by HOME when the work was done).¹² Encouragingly, the COS instruments recommended by HOME for clinician-reported signs and patient-reported symptoms increased, with the EASI's inclusion rate nearly doubling since HOME's recommendation.¹²

However, use of the quality of life domain, irrespective of instrument, and the POEM, HOME's recommended patient-reported symptoms instrument, remains low despite a high proportion of studies including patient-reported symptoms, presenting a clear challenge to the HOME initiative's mission and implementation efforts.¹² To address this challenge, a meeting was convened with the objective of identifying key facilitators and barriers to COS uptake. Achieving consensus of the initial steps for HOME COS implementation was the theme of the HOME IX meeting held over 2 days (25-26 September 2021) as a part of the larger Cochrane Skin-Core Outcome Set Initiative (CS-COUSIN)/Core Outcome Measures in Food Allergy (COMFA) meeting. This report presents a summary of the meeting and decisions made by the HOME membership to enhance the implementation of the HOME COS.

Materials and Methods

“HOME-work”: Pre-meeting Survey

Prior to the meeting, HOME members' views on implementation and how HOME might encourage widescale use of the HOME COS were surveyed. The COS implementation survey asked members to identify the most important stakeholders to engage with to encourage COS adoption, prominent implementation barriers and facilitators, and COS language and cultural issues for consideration and further discussion. Discussions held during HOME IX were informed by survey responses and allowed HOME members who were unable to attend the meeting the

opportunity to contribute their views. Prior to the virtual meeting, survey responses were synthesized by the HOME Executive Committee into implementation themes for small groups to discuss and vote to prioritize during the meeting.

Home IX Virtual Meeting Activities Overview

In light of the COVID-19 global pandemic, the meeting was held virtually in 2 3-hour sessions spread over 2 days on 25-26 September 2021 to accommodate attendees' diverse time zones and maximize global participation. The meeting was held as a part of a larger virtual Cochrane Skin – Core Outcome Set Initiative (CS-COUSIN (<http://cs-cousin.org/>) meeting, jointly organized with the Core Outcome Measures in Food Allergy (COMFA (<https://comfa.eu/>) initiative. CS-COUSIN is an umbrella organization that helps support COS development in dermatology and is currently a part of the Consortium for Harmonizing Outcomes Research in Dermatology (CHORD), COUSIN Collaboration (C3: <https://www.c3outcomes.org/>), and the COMFA initiative's purpose is to develop core outcome measures for food allergy.

Small Group Discussions

Participants were divided into 5 groups led by a facilitator and rapporteur selected by the Executive Committee. Group assignments were random, but designed to ensure an equal distribution of stakeholder representatives (patients, clinicians, methodologists, students, and industry). Briefly, attendees were randomly assigned to small groups based on their registration. Participants, facilitators, and rapporteurs were provided with respective instructions for their roles in the small group session prior to the meeting. After a discussion, groups ranked their top 3 implementation

themes from those identified from the pre-meeting survey, and results were presented back to the entire group.

'Padlet' suggestion board

After whole-group voting on the three main implementation themes, participants were also asked to share possible solutions addressing the identified challenges to a Padlet board (Wallwisher, Inc., <https://en-gb.padlet.com/dashboard>) for future discussion and analysis. The proposed solutions were classified under which of the three themes they belonged to, and the HOME Executive Committee collated these responses into summary subthemes.

Results

"HOME"-work: Pre-meeting survey

At the start of the meeting, there were 43 responses and data were collated into 17 themes for subsequent ranking of importance by small groups during the meeting (Table 1).

HOME IX Virtual Meeting Demographics

In total, 55 participants attended, representing an international set of stakeholders of 26 dermatologists, 16 methodologists, 4 industry representatives, 5 patients, and 4 students.

Meeting Day One Activities

The meeting opened with presentations highlighting the achievements of the initiative, describing the current landscape of implementation of the HOME COS, and a tribute to Professor Hywel Williams in recognition of his role in Chairing the HOME initiative over the past decade (new co-Chairs: Eric Simpson and Christian Apfelbacher). This was followed by small group discussions and reports from discussion group leaders.

Table 1. Summary of pre-meeting survey results used to inform small group discussions. Respondents were instructed to select any issues they deemed as important facilitators and barriers to implementation.

What are the key barriers to implementation?	% of respondents rating an item as an important barrier to implementation (n=43)
Logistics	
Clarity on how to best collect the data (e.g. combining all HOME COS instruments efficiently and in what order, and what timepoints?)	18%
Availability of the HOME COS instruments in electronic data capture formats	13%
Availability of the HOME COS instruments in different languages	12%
Using the HOME COS instruments in trials involving children (or children and adults)	10%
Ability to gain approvals for using the HOME COS instruments	10%
Availability of data for sample size calculations (e.g. mean (SD) of HOME COS instruments for a variety of settings and participant characteristics)	7%
Availability of information on how to interpret the HOME COS instruments (e.g. minimum clinically important difference, bandings for interpretation of the scores).	7%
Availability of clear training materials for using the HOME COS instruments	6%
Clarity on how to best analyse the data (e.g. repeated measures, continuous versus binary cut-offs)	6%
Ability to find the HOME COS instruments	2%
Awareness of what the HOME COS instruments are	0%
Cultural / Social Considerations	
Suitability of the HOME COS instruments for different groups of individuals (e.g. children, elderly people, people with darker skin tones)	54%
Completeness or comprehensiveness of the HOME COS instruments	18%
Cultural variation in suitability of the HOME COS instruments	14%
Stakeholders	
Engagement and buy-in from key stakeholders*	N/A
Other Considerations	
Burden of using COS / feasibility (e.g. clinician time, overlap in questions, need to see face-to-face for EASI, expense)**	N/A
Clarity over how to use data from historical trials that have used alternative outcome instruments in systematic reviews (e.g. SCORAD – EASI mapping)**	N/A

* Category added to small group discussions by HOME Executive Committee based on answers to a separate question

** Category added to small group discussions based on survey free-text answer

Small Group voting

After small-group discussions about implementation topics informed by the pre-meeting survey (Table 1), each group was asked to rate their top 3 of the 17 collated themes and present the results

of their discussion to the entire group. Themes prioritized by the small groups are presented in Fig. 1.

	Data collection clarity	Electronic data capture format availability	Language Availability	Use in trials involving children	Instrument awareness	Suitability for different groups of individuals	Stakeholder engagement and buy-in	Burden of using COS /feasibility	Other
Group 1	X		X		X				
Group 2				X	X	X			
Group 3						X	X	X	
Group 4		X				X	X		
Group 5						X		X	X

Figure 1. Small group voting results. Small groups consisting of clinicians, students, methodologists, industry representatives, and patients discussed barriers to implementation were asked to rank their top three barriers from the themes identified in the pre-meeting survey.

Implementation Themes

The HOME Executive Committee met after the conclusion of the first day’s meeting activities. Based on the small group discussions and voting results, the 9 topics prioritised by the small groups were collated into 3 comprehensive implementation themes to be voted on by all participants the following day: awareness raising / stakeholder engagement, universal applicability of the COS, and how best to use the COS to achieve least burden and most benefit.

Meeting Day Two Activities

The second day began with a presentation describing the COS implementation landscape, barriers to implementation, and strategies for overcoming them and promoting COS usage. This was followed by voting to confirm the 3 implementation themes that had emerged from the discussions

of the previous day. Consensus was defined as having less than 30% of all participants disagreeing with the inclusion of the three themes as a priority for the HOME initiative's implementation efforts. Of all participants, 92% agreed, 8% agreed, but felt something important was missing, and 0% disagreed. The 8% who agreed but felt something was important was missing were given the opportunity to elaborate on their choice but they declined to do so. Whole group discussions of the results and initial strategic planning for HOME COS implementation followed. In reflecting the theme and goal of the larger CS-COUSIN/COMFA meeting in bringing multiple COS groups together and in recognition of HOME's progress and presence as a leader in COS development in dermatology, a discussion was dedicated to how HOME could serve as a model and help support other COS initiatives in progress. Results from the discussions were presented back to the larger CS-COUSIN meeting after the conclusion of HOME IX.

'Padlet' suggestion board

At the end of Day 2 meeting activities, attendees were encouraged to post solutions to problems falling under the implementation themes to the Padlet discussion board and suggestions were collated into themes to prompt further discussions (Table 2). Thirty eight responses from 20 contributors were recorded. Nineteen (50%) of responses focused on solutions to COS awareness raising and stakeholder engagement. Seven responses (18.4%) focused on universal applicability, and 12 (31.6%) targeted improving the use of the COS.

Table 2. Proposed solutions to implementation barrier themes agreed upon by HOME membership.

Theme	Proposed Solutions by Meeting Attendees	Action Items Agreed Upon by HOME Executive Committee
Awareness raising / stakeholder engagement	<ul style="list-style-type: none"> • Promoting COS use by engaging key stakeholders <ul style="list-style-type: none"> ○ Regulatory agencies ○ Funding agencies ○ Journal editors ○ Medical associations 	<ul style="list-style-type: none"> • Awareness of the COS • Engagement with stakeholder groups
Universal applicability of the COS	<ul style="list-style-type: none"> • Address validation gaps • Engaging with clinicians and investigators worldwide • Enhancing electronic access and use of COS instruments 	<ul style="list-style-type: none"> • Suitability for different groups (children, elderly, different ethnicities) • Different languages and cultural validity
How best to use the COS to achieve least burden and most benefit	<ul style="list-style-type: none"> • Practical how-to guides • Frequency and quantity of COS measures use • Reducing administrative burden of accessing and using the COS 	<ul style="list-style-type: none"> • How best to collect the data, feasibility issues, frequency of collection • How to minimise the burden of data collection / analysis • How to reduce the burden of administration associated with accessing the COS • Electronic data capture

Discussion

The HOME IX discussions met the goal of identifying a diverse set of implementation themes (Figure 1). In order to most efficiently tackle these challenges, the HOME Executive Committee collated these into three broad themes addressing the challenge of COS implementation. These

were awareness raising / stakeholder engagement, universal applicability of the COS, and how best to use the COS to achieve least burden and most benefit for study participants and research teams. From these, the group developed specific action items to pursue. These findings serve to guide the HOME implementation efforts moving forward and working groups to address these challenges have been formed and are currently in progress.

COS implementation is a dynamic, multi-faceted process. Some published COS developers consider COS uptake and implementation to be the “biggest challenge” faced by the field.¹³ With COS development and implementation still largely in naissance, there are few examples of successful implementation. A leader in the COS development field which has had the highest uptake, rheumatology and its COS development group Outcome Measures in Rheumatology (OMERACT) not only pioneered COS creation, but also its uptake.^{10,14} Since the completion of the rheumatology COS, uptake has improved in both pharmacological and non-pharmacological trials, but adoption is not yet universal.¹⁵ In 2016, OMERACT convened a workshop to identify methodology for improving COS uptake.¹⁴ The group identified several factors and considerations for supporting implementation which are in concordance with the findings of our HOME meeting, including stakeholder engagement, and COS usability, accessibility, and applicability.¹⁴ Further work has supported these findings and identified several additional barriers to COS uptake including the attributes of the COS itself, such as accessibility and usability, investigator preference for using their own and/or previously used outcomes, lack of knowledge pertaining to COS existence and use, and poor and/or conflicting stakeholder involvement.^{9,10,16} Key solutions promoted by OMERACT and others include promoting COS awareness, fostering communication between related organizations, engaging with post-regulatory decision makers, and additional

empirical COS uptake research.^{9,14} These similarities highlight the universality of many COS implementation barriers and facilitators.

The next steps of the HOME Initiative will be to utilize the results of these meetings to establish a HOME Implementation Roadmap which may help other COS groups navigate their implementation efforts, and to address the implementation themes identified through dedicated working groups involving the broader HOME membership. Success of the HOME initiative will be judged by whether clinical trialists and systematic reviewers adopt the COS recommendations and facilitate the synthesis of trial data in meta-analyses. Uptake of the HOME COS is something that all stakeholders and individual members of the HOME initiative can contribute to and support in order to realise the patient benefit of using the same core outcome set in atopic eczema clinical trials.

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