Conceptual Framework for Task Shifting and Task Sharing: An International Delphi Study

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Research

Keywords: Task shifting, Task sharing, Conceptual framework, Theoretical framework, Delphi process, Global health, Health human resources, Community health workers

Posted Date: December 31st, 2020

DOI: https://doi.org/10.21203/rs.3.rs-136796/v1

Abstract

Background

Task shifting and sharing (TS/S) involves the redistribution of health tasks within workforces and communities. Conceptual frameworks lay out the key factors, constructs, and variables involved in a given phenomenon, as well as the relationships between those factors. Though TS/S is a leading strategy to address health worker shortages and improve access to services worldwide, a conceptual framework for this approach is lacking.

Methods

We used an online Delphi process to engage an international panel of scholars with experience in knowledge synthesis concerning TS/S and develop a conceptual framework for TS/S. We invited 55 prospective panellists to participate in a series of questionnaires exploring the purpose of TS/S and the characteristics of contexts amenable to TS/S programmes. Panellist responses were analysed and integrated through an iterative process to achieve consensus on the elements included in the conceptual framework.

Results

The panel achieved consensus concerning the included concepts after three Delphi rounds among 15 panelists.

The COATS Framework (Concepts and Opportunities to Advance Task Shifting and Task Sharing) offers a refined definition of TS/S and a general-purpose statement to guide TS/S programmes. COATS describes that opportunities for health system improvement arising from TS/S programmes depending on the implementation context, and enumerates eight essential conditions and important considerations for launching TS/S interventions.

Conclusion

The COATS Framework offers an essential theoretical and conceptual model for TS/S programmes. The COATS Framework is comprehensive and adaptable, and can guide refinements in policy, programme development, evaluation, and research to improve TS/S globally.

Background

Shortages of trained and accessible health professionals are a threat to health and health equity worldwide. Health systems and professionals face substantial burdens to respond to new pressures, such as the COVID-19 pandemic, while maintaining the operation of routine services and care. Task shifting and task sharing (TS/S) involve the strategic redistribution of tasks among health workforce teams and

personnel. Specific tasks are moved, shared or delegated, usually from highly trained health workers to those with shorter training or fewer qualifications, including lay people.[1]

Task shifting and task sharing is a promising way to address global health workforce shortages and insufficient access to care for critical health problems and has been used effectively to improve health in a range of contexts and conditions.[1,2] Task shifting and task sharing strategies allow for more efficient use of health human resources, especially as health systems worldwide struggle to maintain essential services while responding to the COVID-19 pandemic.[2]

Conceptual frameworks lay out the key factors, constructs, and variables involved in a given phenomenon, as well as the relationships between those factors.[3] Conceptual frameworks can guide programme design and implementation, and assessments of programme performance, including effectiveness, equity, efficiency and quality.[3,4] Conceptual frameworks offer an essential theoretical synthesis of a given phenomenon, however, there are no conceptual frameworks to identify commonalities among the contexts and conditions suited to TS/S programmes.[5,6] A conceptual framework for the conditions and contexts suited to TS/S programmes could refine the development and implementation of TS/S programmes and research globally.

The goal of this study was to develop a conceptual framework for TS/S, using an online Delphi process to engage an international panel of scholars with experience in knowledge synthesis around TS/S.

Methods

Delphi design

We used a Delphi process to guide the iterative development of the Concepts and Opportunities to Advance Task Shifting and Task Sharing (COATS) Framework.[7] We used a modified online Delphi process to engage and gather opinions from scholarly experts on TS/S, and identify consensus responses to two research questions:

1. What differentiates task shifting from other circumstances where workers with limited training or qualifications are involved in health care?
2. What criteria can be used to identify conditions and contexts suited to task shifting?

The Delphi method is a structured approach to develop consensus among experts through a series of questionnaires and structured feedback. It involves collecting and distilling knowledge from a dispersed panel of experts to build reliable group consensus on a specific issue. This approach has been used to forecast trends across a range of policy and research domains, and to drive decision-making and resource allocation.[8] There are numerous Delphi variants, but most share design features such as purposive sampling, participant anonymity, iterative design, structured communication between participants and researchers, thematic analysis of expert responses, and statistical aggregation of group

feedback.[7,9,10] Delphi methods add structure to the process of building group consensus and reduce biases that can arise in face-to-face meetings by limiting the social, psychological, and political aspects of conventional group interactions, improving the quality, efficiency, long-term accuracy and validity of panellists' predictions and judgements.[10,11]

The Delphi panel and method were not intended to deliver consensus or final approval for the specific language, structure, and format of the conceptual framework. The Delphi process was intended to solicit and synthesize a broad range of knowledge and experience concerning TS/S and provide consensus on the elements included in the COATS Framework

Panel selection, recruitment and retention

We determined that three Delphi rounds using email for correspondence would be sufficient to achieve consensus and stability within our expert panel.[7,9,10] We aimed to retain a minimum of 12 experts after three rounds of Delphi participation, and based on our experience with previous Delphi studies, we planned for 40% attrition in each round. Therefore, we estimated that 40 invitees would be required in the first round of the Delphi.

We used two techniques to convene the panel of scholarly experts. The first set of panellists recruited to the Delphi were the corresponding authors from published, international systematic reviews on TS/S (n = 36). Rather than approaching researchers engaged in the evaluation of individual TS/S programmes, we chose scholars who had demonstrated experience in knowledge synthesis around TS/S and could contribute to the development of a conceptual framework. We deliberately sought scholars who had published systematic reviews because these experts would have high-level, global knowledge of TS/S and the concepts needed to synthesize multiple TS/S programmes. They were identified from a separate systematic review underway by members of our research team.[12] Given that these invitees were corresponding authors on global systematic reviews concerning TS/S, this sample offered a panel with global and representative knowledge of the scholarly literature and research concerning TS/S. Second, panellists in our initial set of 36 contacts were invited to recommend colleagues who, in their opinion, might be interested in participating in this Delphi based on their work or expertise.

Throughout the Delphi process, panellists were blinded to the identity of the other panellists, except for the individuals who referred us to subsequent panellists. Survey content was never associated with a panellist identifier; only the investigators could associate panellists with responses. All the included questions from the survey concerned the respondents' area of professional expertise.

We sent email reminders to panellists on a weekly basis to increase the response rate. As an incentive to complete the study and to express appreciation for panellists' participation, we offered to donate in the participant's name to a medical humanitarian organization of the participants' choice.

Delphi rounds, data collection and analysis

To ensure a systematic and meaningful synthesis of responses, we drafted and refined the questions asked of the panellists in every round. We piloted the questionnaires among members of our authorship team who were not directly involved in designing the Delphi. We communicated with the panellists in English and used Google Forms to conduct our surveys.

We developed a prespecified definition of consensus based on two criteria.[13] First, the panel was eligible to have achieved consensus around a given survey item if at least 70% of respondents agreed with that item. When using a seven-point Likert scale, we defined “disagreement” as a score of three or less. This criterion ensured that a strong majority of respondents agreed with any included survey item. Second, an item was said to have achieved consensus only if none of the dissenting respondents raised concerns that were fundamentally incompatible with the inclusion of that survey item. This criterion aligns with approaches from formal consensus decision-making, where a structured discussion is used to understand and resolve the merits and drawbacks of a given proposal.[14] This approach recognizes that essential insights can be tendered by a minority of decision-makers and attends to the substance of minority opinions. Procedurally, these minority opinions were gathered by requiring that panellists offer free-text comments if they disapproved of a survey item. We analysed these free-text responses and incorporated that feedback into subsequent rounds of the Delphi and into the final COATS framework. As the analysis advanced, an emphasis on and reiteration of certain issues above others became more apparent. These elements coalesced into the final categories and themes.

Round I was designed to elicit broad and general concepts from the panellists using unstructured, open-ended, questions:

1. What is, in your opinion, the purpose of task shifting?
2. What are the three to five characteristics of a health problem that make it amenable to task shifting?
3. What are three to five examples of delegation of responsibilities from highly qualified health workers to individuals with fewer qualifications and shorter training that are not task shifting?

Following Round I, investigators combined and analysed the panellists’ responses in a taxonomy according to common themes and categories. We attempted to make the items on each list mutually exclusive and comprehensive. We synthesized these findings in a survey to elicit participants’ level of agreement with each of the themes and categories on a seven-point Likert scale for Round II. This survey also offered free-text response options for panellists to add additional comments or categories as required.

Our study initially used the term task shifting in isolation, rather than the broader concepts of both task shifting and task sharing. In Round I, panellists raised conceptual distinctions between task shifting and task sharing. Recognizing that this had emerged organically from the Delphi process, we added questions to refine the distinction between task shifting and task sharing and integrated this distinction into our conceptual model.

Once we received all responses from Round II, these data were again reviewed by the investigators. Concepts were eliminated and retained based on the panellists' scores and collapsed into more general categories, including a definition of TS/S, the purpose of TS/S, opportunities arising from TS/S programmes, and conditions required for the implementation of TS/S. These results were sent back to the panellists as a survey for Round III. Panellists were asked to review the final list of items, state whether they agreed or disagreed with each item, and voice concerns or comments in free text. Following Round III, the investigators integrated the experts' consensus responses into a reasonable and manageable set of concepts and sub-concepts to form the conceptual framework.[3]

Results

The Delphi process was initiated on August 26, 2019 and completed on June 20, 2020. The process was paused in March through May 2020 given the COVID-19 pandemic.

Figure 1 provides a flow chart of panellist recruitment and retention in each of the Delphi phases. Although the response rate for the first Delphi round was 31% (17/55), attrition thereafter was low, with one non-responding panellist in each of the subsequent rounds. Fifteen (15) panellists participated in the full Delphi. All panellists were university faculty or research institute appointees with expertise related to TS/S in the United States (7), South Africa (3), the United Kingdom (2), Nigeria (1), India (1), and Australia (1).

The panel arrived at a consensus concerning the themes and content of the conceptual model following three Delphi rounds. Supplement A provides the questionnaires for each round of the Delphi with summary statistics of panellist responses to each item. In Round I, 17 concepts were identified to describe conditions and contexts suited to TS/S. In Round II, these features were distilled into eight conditions by combining similarly ranked survey items and removing lower ranked features. In Round III, the eight conditions were split into four essential conditions and four important considerations based on dissenting participants' reasoning. Round III achieved consensus around all survey items.

The COATS Framework is provided in Fig. 2. This conceptual framework consists of the following elements:

1. a generalized definition of TS/S, with distinctions between task shifting and task sharing;
2. a generalized purpose statement for all TS/S programmes, expressed as a single concept;
3. opportunities for health system improvement arising from TS/S programmes, depending on the implementation context, expressed as five concepts; and
4. the essential conditions and important considerations for launching a TS/S programme, expressed as eight concepts (four essential conditions, four important considerations).

Throughout the COATS framework, the term "intervention" is used to refer to the task that is shifted or shared in the context of a TS/S programme, be it a preventive, curative, therapeutic, diagnostic, or other

health action. For linguistic clarity, we recommend that the overall TS/S initiative be referred to as a programme rather than an intervention.

In Round II, seven panellists identified task shifting and task sharing as related but different entities, where task shifting concerns delegation, while task sharing focuses on collaboration between different workers. Another eight panellists indicated that task shifting and task sharing refer to the same phenomenon, but that task sharing is the preferred term because it captures the intrinsically collaborative nature of these undertakings.

Supplement B provides an analysis of dissenting views from Round III and how these were interpreted and incorporated into the COATS framework. This feedback was largely concentrated in two areas. First, dissenting panellists indicated that some of the conditions that are important to the implementation of TS/S programmes are context-specific rather than universal. Essential conditions in one setting may be less relevant in others. For example, one panelist indicated that TS/S is often implemented as a response to a human resources shortage, but it "doesn't have to be a response to a shortage." The "essential conditions" category was therefore more suitably subdivided into "essential conditions" and "important considerations" for the implementation of a TS/S programme, each expressed as four concepts. Second, panellists offered feedback concerning the distinction between task shifting and task sharing. This led to refinements in the COATS Framework to offer distinctions between task shifting and task sharing along with an overarching definition of TS/S.

Discussion

Task shifting and task sharing is a leading and promising health systems strategy to address health workforce shortages, transform health care delivery, and improve health outcomes and inequities.[1,2] However, TS/S is not a universal solution to insufficient or inequitable access to care. Conceptual frameworks can guide and refine a range of public health policies and decision-making, including for example, the implementation of screening programmes, immunization programmes, action on the social determinants of health, or public health ethics.[4,15–18] The COATS Framework offers an the essential theorization to guide and refine TS/S programmes.

Other researchers have examined the various context-specific facilitators and barriers to successful TS/S implementation.[19,20] This study builds on this research with a consensus from international TS/S scholars to advance a conceptual framework for TS/S programmes. A central strength of our study is the use of a high quality international Delphi process, with reproducible panel selection processes, prespecified consensus criteria, and a prespecified number of Delphi rounds.[13] This process supported the iterative theorization processes involved in the development of a conceptual framework, achieved consensus across the COATS concepts, and integrated the breadth and diversity of TS/S experience and expertise worldwide.[3] The COATS Framework offers a practical definition of TS/S (including the distinction between task shifting and task sharing approaches), guides programme development and implementation with a central purpose statement for TS/S, and can also direct decisions to use (or not

use) TS/S with a list of essential conditions and important considerations in the implementation of TS/S programmes. The COATS Framework is both simple and adaptable: it offers a singular purpose and essential conditions suitable to all TS/S programmes, but also incorporates opportunities and important considerations that attend to the diversity of circumstances or contexts where TS/S may be implemented.

Our study and resulting framework have limitations. Our Delphi panel was convened deliberately to engage panellists with scholarly experience related to TS/S and elicit consensus among these practitioners. This expertise may differ from the voices of policy makers, providers, or patients, and the resulting framework may well be adapted by other stakeholders. Our definition of TS/S did not explicitly include task redistribution directly to patients or artificial intelligence systems.[6] However, patient self-care and artificial intelligence may be sufficiently distinct from conventional TS/S to merit separate conceptual frameworks.

Conclusion

The COATS Framework delivers an essential theorization of TS/S. Better theorization of TS/S can drive more deliberate, strategic, and effective programmes. The COATS Framework is both comprehensive and adaptable, and suited to support refinements across a range of TS/S policy and programmes, including planning, decision-making, implementation, evaluation and research worldwide.

Declarations

Ethics approval and consent to participate

The study was reviewed and approved by the University of Toronto Office of Research Ethics (Protocol #: 00037336).

Consent for publication

Not applicable

Availability of data and materials

All data generated or analyzed during this study are included in this published article [and its supplementary information files].

Competing interests

None

Funding

The study received no specific funding.

Aaron Orkin receives funding from the Canadian Institutes of Health Research Postdoctoral Fellowship Programme and from the University of Toronto Department of Family and Community Medicine Investigator Programme.

Alexandra Martiniuk receives funding from the National Health and Medical Research Council (NHMRC) of Australia (Translating Research into Practice Fellowship; and Investigator Grant)

Sampreeth Rao receives funding from the Canadian Institute of Health Research Team Grant: Pathways to Health Equity for Aboriginal People.

Authors' contributions

Aaron Orkin: study conception, methodological design, implementation, data curation, analysis and interpretation, study design, verification of underlying study data, preparation of first draft manuscript

Sampreeth Rao: study conception, methodological design, implementation, data curation, analysis and interpretation, administrative support for Delphi process, study design, verification of underlying study data, manuscript revision support.

Fabio Salamanca-Buentello: study conception, methodological design, implementation, data curation, analysis and interpretation, study design, verification of underlying study data, manuscript revision support.

Ross Upshar: study conception, financial and infrastructural support, study design, data interpretation and analysis, manuscript revision support.

Jeyasakthi Venugopal: study design, data interpretation and analysis, manuscript revision support.

Natasha Kithulegoda: study design, data interpretation and analysis, manuscript revision support.

Pete Wegier: study design, data interpretation and analysis, data visualization, manuscript revision support.

Stephen D. Ritchie: study design, data interpretation and analysis, manuscript revision support.

David VanderBurgh: study design, data interpretation and analysis, manuscript revision support.

Alexandra Martiniuk: study design, data interpretation and analysis, manuscript revision support.

Acknowledgements

We thank the study's Delphi panellists, including Dr. Laura Asher (University of Nottingham), Dr. Miya L. Barnett (University of California), Dr. Christopher J. Colvin (University of Cape Town), Dr. Nathan Ford (University of Cape Town), Dr. Nadja van Ginneken (University of Liverpool), Dr. Theresa J. Hoeft (University of Washington), Dr. Panniyammakal Jeemon (Sree Chitra Tirunal Institute for Medical

Sciences and Technology), Dr. Rohina Joshi (George Institute of Global Health), Dr. Bonnie Kaiser (University of California San Diego), Dr. Caitlin E. Kennedy (Johns Hopkins Bloomberg School of Public Health), Dr. Nyanyiwe Masingi Mbeye (South African Medical Research Council), Dr. Baba Maiyaki Musa (Bayero University), Dr. Eve Puffer (Duke University), Dr. Claire Snell-Rood (University of California Berkeley), and Dr. Rajesh Vedanthan (New York University). Thank you to Andrea Meeson for assisting with manuscript administration. Dr. Carol Strike, Dr. Laurie Morrison, and Dr. Peter Jüni are also acknowledged for their feedback on this research as members of Aaron Orkin's doctoral thesis committee.

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Figures

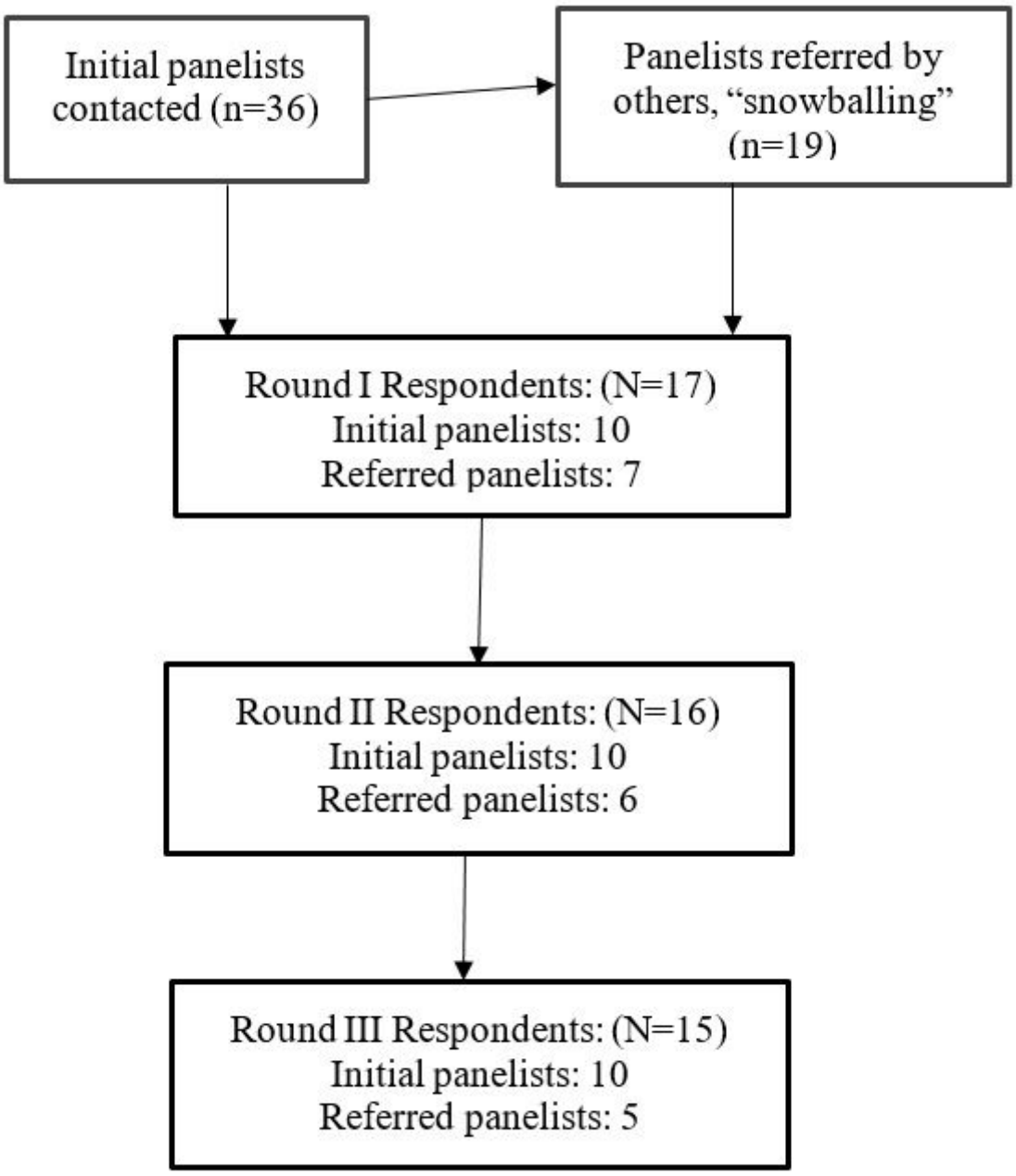

Figure 1

Flow Chart of Panelist Recruitment and Retention

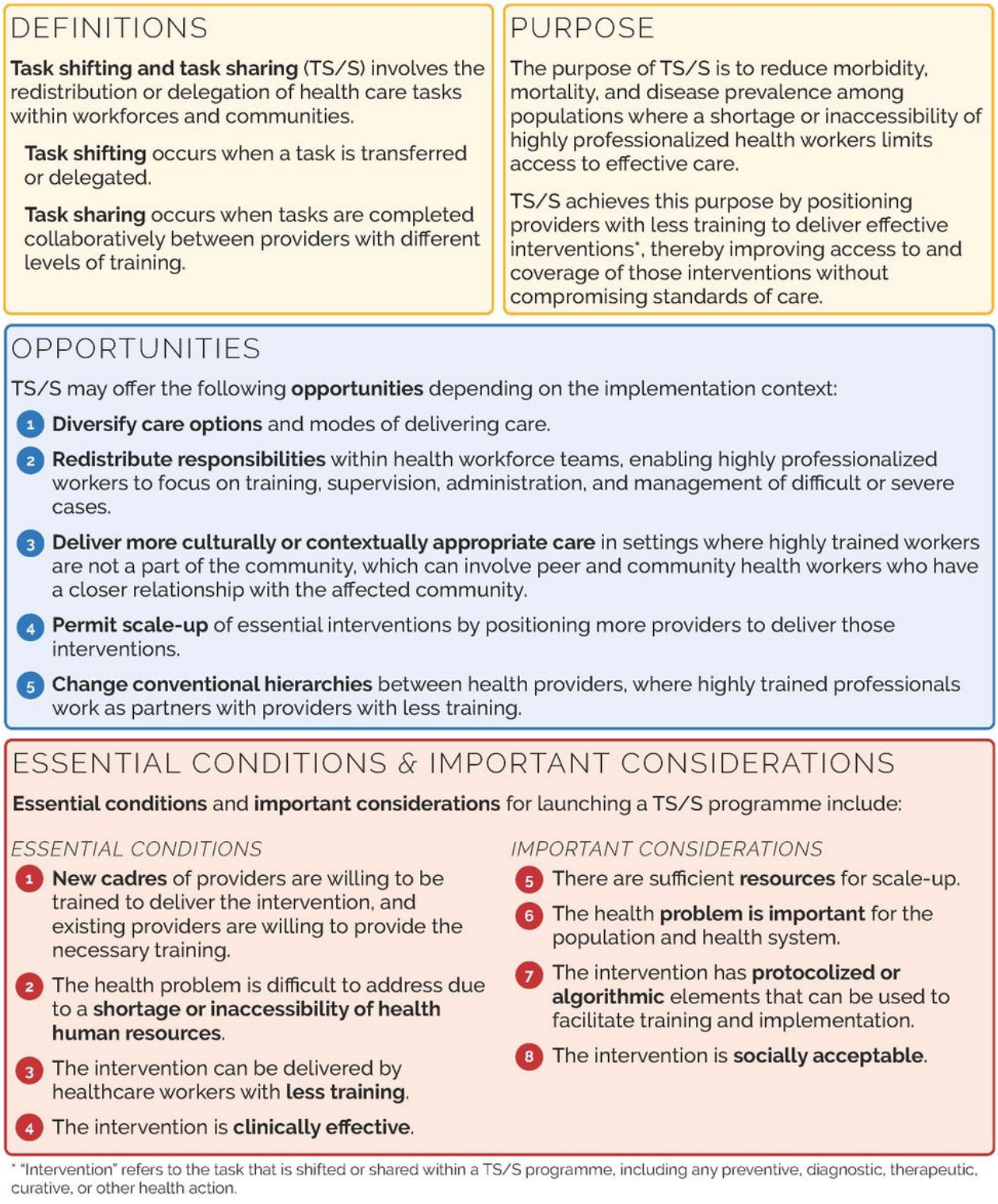

Figure 2

The COATS Framework

Supplementary Files

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- SupplementATSSDelphiQuestionnaires.docx
- SupplementBAnalysisofDissentingViews.docx