Use of the Multidisciplinary Translational Team (MTT) model for training translational research competencies

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Overview

- The growth of multidisciplinary research teams (MTTs) has been embraced by the Clinical and Translational Sciences Award (CTSA) to better facilitate scientific translation of new drugs, devices, or practice modifications that measurably affect population health.
- In this model of training, the processes and structure of MTTs are unique within the broader scope of team science, and focus training on areas not previously emphasized. The MTT is a hybrid structure that includes goals of both an academic research team in knowledge generation and training, with those of a product-driven business team, to develop a clinical translation (1).
- To accomplish these missions, the MTT has specific design characteristics that include a strategic core of multidisciplinary investigators dynamically engaged in training, capacity development and product generation.
- As such, the MTT can be used for both translational project development, and to enrich and train learning communities at all stages of professional development.

Aims

Here we propose use of the CTSA MTT as an educational vehicle for attaining team-oriented and translational research competencies. We report how the MTT organization supports the development and practice of team-related competencies.

Methods

- Conducted a literature review of group learning models relevant to translational teams
- Described the learner communities within the MTT construct
- Described the targeted training and education functions occurring within our MTTs

Theoretical background (from literature review):
- Social negotiation - Integration and alignment of group members' scientific knowledge and research experience is necessary to attain group goals. Social negotiation occurs when individuals communicate about shared problems and develop mutual understanding.
- Scaffolding - Providing cognitive support when experienced individuals interact with novices (e.g. students) or other peers (e.g. junior faculty, research specialists, biostatisticians) during practice-based research work.
- Evolutionary adaptation - The inter-professional experience of the MTT environment that promotes innovation through evolutionary adaption; effective transfer of knowledge and interdependent information sharing is highly predictive of knowledge production and team innovation.

Learner communities - The major learner communities include established investigators, early stage investigators, graduate students and health professions trainees. The unique training stages of each learner community dictates the use of different educational approaches (Figure 1) and addresses different competencies, appropriate for each stage.

Results

<table>
<thead>
<tr>
<th>Learner Group (PGY) / MTT Role</th>
<th>Team Activities</th>
<th>Team-relevant Competencies</th>
<th>Stage-relevant Training Program</th>
</tr>
</thead>
<tbody>
<tr>
<td>Senior Faculty (15+) / Principal Investigator</td>
<td>Overall direction of team</td>
<td>Transformative Leadership</td>
<td>Team Leadership Council</td>
</tr>
<tr>
<td>Senior Faculty (15+) / Principal Investigator - Established and Junior Investigators</td>
<td>Networking with external collaborators; Project management</td>
<td>Inter-professional skills; Negotiation/Conflict resolution; CTSA Team Leadership series</td>
<td></td>
</tr>
<tr>
<td>Assistant Professor, K12, K12 (10+) / Project Manager</td>
<td>Project management</td>
<td>Team Leadership; Inter-professional skills; Negotiation/Conflict resolution; Research Design</td>
<td></td>
</tr>
<tr>
<td>Fellow / Resident (5+) / Trainees</td>
<td>Experimentation</td>
<td>Inter-professional skills; Research Design; Domain-specific vocabulary/ theory</td>
<td></td>
</tr>
<tr>
<td>Pre-Doctoral Student</td>
<td>Experimentation</td>
<td>Research Design; Inter-professional skills; Domain-specific vocabulary/ theory</td>
<td></td>
</tr>
</tbody>
</table>

An integrated framework

Conclusions

MTTs consist of a wide base of learner communities at distinct career stages.

Team related competencies are career stage-dependent and require distinct programs and training activities.

Future Directions:
Definition of competencies will inform evaluation strategies and educational rubrics for assessing their effectiveness.

References


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