### Common Roadblocks to Clinical and Translational Science

<table>
<thead>
<tr>
<th>Roadblock Category</th>
<th>Specific Roadblock</th>
</tr>
</thead>
</table>
| **Infrastructure**                | - Research cost and lack of funding  
- Lack of national coordination and support for clinical research based on national priorities  
- Mismatches in priorities and incentives among industry sponsors, researchers, clinical care providers, and patients  
- Insufficient national regulatory infrastructure that would allow for accelerated review/approval  
- Lack of communication, coordination, and connection between clinical care and research enterprises  
- Limited multi-institutional clinical trial networks  
- Lacking digital and information technology infrastructure to facilitate trials  
- Inadequate access, transparency, and interoperability of data across clinical care and research |
| **Workforce**                      | - Lack of qualified C/T investigators (and team members)  
- Limited education/training, mentoring (scientific and cultural) for workforce  
- Lack of education on translational science  
- Impractical academic reward system and career disincentives  
- Researchers compete against each other (poor coordination and limited incentives for collaboration) |
| **Research Management**            | - Organizational silos and increasing administrative burden  
- Insufficient project management at all levels of research administration  
- Lack of incentives/credit for team science  
- Limited resources for intellectual property management |
| **Research Methodologies**         | - Inefficient methodologies in preclinical development  
- Insufficient use of pleiotropy and promiscuity in therapeutic development  
- Inefficient clinical study designs; underuse of registries and natural history studies, biomarker qualification, pharmacoepidemiologic studies, comparative effectiveness trials, adaptive clinical trial designs  
- Limited implementation of evidence-based practices |
| **Clinical Trial Operational Inefficiencies** | - Lack of innovation solutions to the primary causes of clinical trial delay and cost including:  
  - multisite institutional review board (IRB) review and contracting,  
  - site and investigator qualification,  
  - recruitment and retention (particularly of URM)  
  - surge capacity,  
  - adequacy and timeliness of results reporting.  
- Lack of sufficient community and stakeholder engagement and outreach to underrepresented groups  
- Lack of robust strategies for ongoing patient and community collaborations that are demonstrated to shorten the time and/or improve efficiency |