

# Understanding the Supports of and Challenges to Community Engagement in the CTSA

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## Abstract

**Background:** The Clinical and Translational Science Award (CTSA) program has raised the profile and the available funding for engagement in biomedical research. Such increased funding and attention may address known barriers to engagement. However, little work has been done to describe experiences across multiple CTSA, especially how the CTSA structure supports or challenges engagement.

**Objective:** We sought to understand the supports and challenges experienced by multiple CTSA as they pursued community engagement. This knowledge may help guide future efforts to support and enhance community engagement in biomedical research.

**Methods:** We conducted semi-structured, in-depth interviews with CTSA community engagement core leaders and staff from the 2006 cohort of CTSA ( $n = 12$ ).

**Results:** A total of 17 interviews with respondents from nine institutions identified three support themes, including: funding, existing relationships with communities, and leadership and a partnership approach at the institution. Six challenge themes arose: need for capacity development, lack of positive relationships with communities, lack of leadership, funding constraints, time and staff constraints, and unsustainable models.

**Conclusion:** The CTSA have brought much-needed attention to community engagement in research, but more can be done to adequately support engagement. Challenges remain that need to be addressed to achieve the potential benefits of engagement. *Clin Trans Sci* 2015; Volume 8: 116–122

**Keywords:** clinical trials, translational research, community engagement, supporting factors, challenges

## Introduction

Increasing translation of research into practice has been a priority of the National Institutes of Health since at least 2003.<sup>1</sup> Fundamental to translation are strong collaborations between academic medical centers and communities, known as community engagement (CE).<sup>2–4</sup> Although CE has been touted as a mechanism to increase research participation and disseminate findings to stakeholders, it has nonetheless proved difficult to achieve.<sup>5–7</sup> Understanding what facilitates or impedes effective CE by institutions might reveal key lessons for how to best foster CE and improve translation of evidence into practice.

CE in research has a long history,<sup>8</sup> but has not enjoyed such a high-profile within biomedicine before the Clinical and Translational Science Award (CTSA) program. Individual CTSA institutions have described some elements of their CE experiences,<sup>3,9</sup> but there has not been a systematic investigation into the factors that have supported or challenged the CTSA-funded institutions. Prior work in barriers and facilitators for engagement has found that funding and time commitments, especially where the demands are greater than for other types of research, presents barriers to CE in research.<sup>10,11</sup> With the advent of dedicated funding and institutional attention to CE in research, the structure of the CTSA may present a considerably different environment for researchers engaging communities.

Accordingly, we sought to understand the factors supporting or challenging institutions in their pursuit of CE. By identifying the supports and challenges experienced by the CTSA, we can begin to understand whether the influx of money and attention has improved CE in research, or whether more or different resources are needed to make engagement successful on a wide scale.

## Methods

### Study design and sample

We conducted qualitative interviews with staff of the CTSA CE Cores about their experiences implementing CE within the CTSA. Qualitative interviews provided the greatest freedom for respondents to describe their experiences, and for the researcher to explore those experiences during data collection.<sup>12</sup> The population for this study comprised the 12 institutions receiving CTSA funding in the original 2006 grant cycle, which were subsequently renewed in 2011. We selected these institutions because they received CTSA funding first and therefore had the longest time to experience implementing CE within the CTSA.

### Data sources and recruitment

We invited the Core Director or Co-Director as the first interview respondent from each institution. If the Director was unavailable, we asked them to recommend an alternate who could speak knowledgeably about CE within the CTSA. Using a form of snowball sampling,<sup>13</sup> we then asked each of the first respondents to identify a second respondent familiar with the institution's CTSA CE Core. We sought two respondents at each institution because prior conversations with CE staff at other CTSA indicated that most Cores had a director dedicated part-time and a program manager or other full-time staff-person managing the day-to-day activities of the Core. We believed each respondent would have valuable insights on the Core and that both perspectives would be necessary to understand the experience of implementing CE within the CTSA.

Respondents participated in semi-structured hour-long phone-based interviews. An interview guide was used for all interviews. It was developed using literature, findings from a grant

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analysis project,<sup>14</sup> and recommendations from key informants.<sup>13</sup> A Program Manager from a CTSA that was not in this study pilot-tested the interview guide.

### Data analysis

Interviews were recorded, except in two cases where respondents asked to have only notes taken. Research assistants transcribed the interviews, which JH then reviewed and validated against the recording and notes. Transcriptions and notes were uploaded and analyzed using Atlas.ti 6.2.27. We began coding with a start list of codes developed from the topic areas of the interview guide. Additional codes were developed inductively from respondent descriptions during the first review (conducted by JH).<sup>15</sup> A research assistant selected a transcript at random and coded it using the preliminary codebook. Then JH and the research assistant compared their coded transcripts and clarified areas of confusion through negotiated consensus.<sup>15</sup> The final codes were applied to all transcripts during a second review. The codes were grouped into the themes of supports and challenges.<sup>13</sup>

For each institution, we coded transcripts in the order the interviews occurred. The analysis within institutions examined areas of concordance and discordance between institutional respondents. Across institutions, the analysis looked for common themes in supports and challenges, as well as differences in institutional experiences.

### Human subjects protections

The Johns Hopkins Bloomberg School of Public Health IRB reviewed the project and deemed it not human subjects research.

### Member checking

All respondents quoted in the Results had the opportunity to review those quotations.<sup>13</sup> Respondents made clarifications, flagged potentially identifying information, and some requested that quotes not be used. The researchers removed quotations as requested and used discretion in determining what changes to the quotes to accept.

### Results

A total of 17 interviews were conducted in nine of the 12 invited institutions. Two institutions chose not to participate; one we did not pursue due to relevant staff turnover. Respondents included directors of the CE Core ( $n = 7$ ), deputy or co-Core directors ( $n = 3$ ), associate Core director ( $n = 1$ ), program managers or coordinators ( $n = 5$ ), and in one case a faculty respondent with roles within several CTSA cores but no official CE Core title.

The respondents varied in their prior CE experience, from one respondent with no prior experience in engagement to a respondent with experience in excess of 30 years. Most had several years of CE experience. Respondents had held their roles in the CE core from 8 months to 6 years. Most had been in the role for at least 3 years.

The institutions varied widely in their history in their communities and with CE. One institution had little organized CE in research prior to the CTSA, but a large presence through corporate giving. Another institution had a preexisting department for CE in research, of which the CTSA CE Core became a component. The other institutions fell between these two extremes, usually with some prior CE occurring in parts of the institution.

### Supports

Three key themes emerged in the area of engagement supports: funding for engagement, building from existing relationships, and the importance of leadership support at many levels in the institution.

### Funding

All respondents were asked about funding and acknowledged that it was essential for making CE possible. Funding for the CE Core at each of the institutions varied widely and was often complex. Two institutions described the ways in which CTSA funding added to or enhanced existing CE work within the institution (*Table 1*). At another institution, there had been no prior institutional work on CE in research. In that case, funding for CE through the CTSA focused new attention on engagement around research. Elsewhere, funding allowed the institutions to create incentives for faculty to disseminate their findings to communities and community partners (*Table 1*). Even at institutions where CE had enjoyed support prior to the CTSA, CTSA funding expanded their plans for engagement.

Respondents at four institutions discussed supplemental or external funding for their CE plans—keeping them intact in the face of budget cuts, or making possible strategies, such as a community research center and funding for pilot grants, which would have been infeasible otherwise.

### Prior Relationships

Respondents at eight institutions mentioned relying on prior relationships with community partners (*Table 1*). Prior relationships largely smoothed the way for CE within the CTSA. Additionally, the CTSA allowed institutions to enhance existing relationships with community partners.

In some cases, the Core staff were hired in part because of their existing community affiliations. In one case, a full-time staff member of the Core was a business owner. In two other cases, staff members had worked in the health department. Respondents noted that personal relationships benefited the CTSA in those institutions because they provided avenues to potential partners (*Table 1*).

### Leadership and a Partnership Approach

All of the respondents reported that the CTSA principal investigator (PI) was supportive of CE. Respondents gave examples of PI advocacy, involvement in the Core's work, and the PI "getting" the value of CE to the CTSA (*Table 1*). Notably, some respondents described needing to educate the PI about CE early in the tenure of the CTSA, but those felt the PI had come to understand the value of the Core, demonstrated by increased attention to the Core's work or increased integration of the Core into the rest of the CTSA.

Within the CTSA, and the institution more broadly, other champions were recognized as supportive and beneficial for furthering the CE Core's work. In some cases, the leadership of the institution, like deans and chancellors, championed CE (*Table 1*). In other cases, the champions were primarily faculty members with a history of conducting and supporting CE in research.

Furthermore, respondents acknowledged the impact of an institutional partnership approach. In one case, the CTSA was part of a broader system the respondent noted was "community minded." In another case, the respondent described a general partnership spirit within the city. At a third institution, though

Support Funding	N (out of nine)	Quote (institution code, respondent code)
CTSA funding used to incentivize CE	Nine	<i>"Partly, some of the reward is just that's what we use our CTSA funding and some of the institutional matching funds is to actually support people who do just that. So you know, we will say, you're funded five percent time not to do a study on childhood obesity but to take what you know from your research and your knowledge of the literature and work with these community groups to try to help them in this process. So partly, it's being able to fund that in a way that's very hard to fund if it's just the, you know, it's very hard to get a grant funded for that. You do need more of these kinds of core resources from a CTSA award and some of the matching institutional funds." (Respondent 7.1)</i>
Importance of non-CTSA funding sources	Nine	<i>"And I have to also say that for example we have a community space...about 1800 square feet, half a mile removed from the medical campus, and the funding to maintain the space is not through the CTSA, it's funded through our endowment." (Respondent 1.2)</i>
<b>Existing relationships</b>		
<b>Eight</b>		
Prior relationships through core		<i>"It became more of a discussion about what could we realistically achieve because we had a lot of stuff already on the ground, so what was the next step we ought to take, which is really about a more formal process of needs assessment with over 100 community partners. . . . We brought 100 groups we were already working with, we weren't starting from ground zero." (Respondent 2.1)</i>
Prior relationships through staff		<i>"&lt;Community Co-Director&gt;, who is our CEO through the Urban League of &lt;City&gt;. So she's on board to help us with connections and her mission is to improve quality of life for African Americans in &lt;County&gt;." (Respondent 7.2)</i>
<b>Leadership and partnership approach</b>		
<b>Nine</b>		
PI "gets" CE		<i>"First of all, he gets what we're doing in the community engagement side of things so there's not a huge, lets to say, translational gap within our CTSA, in terms of this being completely alien territory for him. . . . He just philosophically is supportive of this and it is one of our three major cross cutting CTSA initiatives for this current five year grant period, so it's a very high profile initiative now in terms of what we are doing around the community engagement piece so that he is very invested in its success because it is actually one of the key things we've told the NIH that is going to be a featured initiative for this five year cycle." (Respondent 7.1)</i>
Broader institutional support		<i>"Well we had, about the time our CTSA was first funded we had just about that time established at the chancellor's level. . . a university community partnerships office. And at the time, that was set up by the provost. . . . He had a very strong vision around &lt;Site&gt; being a more civically engaged institution. . . and then once our CTSA was funded those kind of worked hand in glove on related activities on community engaged research and other forms of civic engagement at &lt;Site&gt;." (Respondent 7.1)</i>
Partnership approach		<i>"So, we have a rich history of being corporate citizens and having long standing relationships with lots of groups, but it's tended to be one off sorts of efforts, often times people don't know what somebody else is doing with the community so people are stumbling over each other. . . . So I think a lot of what we are trying to do is organize all that, a little more strategic thinking about what are we really trying to do here and can we really provide the most long lasting benefit to our community. And then from our standpoint at the CTSA how do we use research as a tool within this effort to actualize what we are doing. So lots of good things happening, just trying to get it organized." (Respondent 3.1)</i>

**Table 1.** Quotations describing supports identified by respondents.

engagement in research had been rare, there was a history of community awareness and relationships around non-research activities, including corporate charity and citizenship. The institution saw the value in the process of engagement broadly, making engagement around research a logical extension of existing engagement activities (Table 1).

**Challenges**

All respondents described challenges related to their institution's CE efforts. Challenges included needing capacity development, lack of positive relationships with community members, lack of leadership, funding constraints, time and staffing constraints, and unsustainable models. Sometimes, the challenges were temporary setbacks, while in other cases, the challenges persisted over time. Respondents also described challenges they believed community partners experienced.

**Need for Capacity Development**

All respondents described one challenge as inadequate capacity and preparation for engagement on both the institutional and

the community partner sides. Educating researchers within the institution about the value and methods of CE to prepare them to partner with communities was often needed (n = 7 institutions; Table 2). Respondents believed that community partners were not always prepared to partner in research, needing capacity built for identifying how research could help their mission and preparation for them to participate as research partners (n = 5; Table 2).

All institutions needed to undertake educational efforts with both institutional staff as well as potential community partners. Several respondents noted that this slowed engagement around particular research projects, although most felt this was part of the mission of the Core. Education was often a priority for the CTSA (n = 5), including increasing awareness of and willingness to participate in research among the community, and increasing researchers' cultural sensitivity and awareness of CE methods. These educational efforts were in addition to the activities of the educational core of the CTSA, a separate key function and an acknowledged source of support and collaboration at some institutions.

Challenge	N (out of nine)	Quote
<b>Need for capacity development</b>	<b>Nine</b>	
Need for in-reach		<i>"I think we are all subject to the same need to have someone reach in to us and so first I had to drink the Kool-Aid and then I had to get everyone else to . . . But, part of reaching in includes even some of the leadership, helping them understand that there really is a value in this, and the trick for us, since we don't have a large community based practice, we don't have a hospital connection. We have a research hospital but no practice hospital connected to us. . .we don't have a natural community of primary care patients so we have to make a deliberate effort to find the right match. . . . So the reaching in and the reaching out are very deliberate. We all had to learn, we tried partnering with politicians, we tried partnering with random community health centers in different underserved areas and those models didn't serve. So it took us probably the first at least two years to sort of gain the confidence for a model that would work for us." (Respondent 5.1)</i>
Community capacity		<i>"So, yeah I think that the lack of capacity issues both on the community and on the investigator side is really the overwhelmingly most important barrier that we face. . . . Partly, they are just in a very basic stage and are not at all prepared to be true partners." (Respondent 3.1)</i>
<b>Lack of positive relationship</b>	<b>Eight</b>	
Historical poor relationship		<i>"...the bottom line is they're still getting over the underlying suspicion of drive-by research and the interests of academic health centers as being a bit suspect and exploitative, so there is always the need for lots and lots of work to just build trust and show there's a genuine commitment there. So that's always part of the challenge." (Respondent 7.1)</i>
Recent poor relationship		<i>"...we've actually had some damage done by &lt;Site&gt; groups that have kind of charged in full tilt to tell the community what they would do to and for them and that hasn't really gone over well." (Respondent 2.1)</i>
<b>Lack of leadership</b>	<b>Five</b>	
Lack of federal support		<i>"Oh yeah, our biggest problem is actually federal rules that actually don't embed in the expectation that community is involved in the planning or actually finding out what the results are. One of the more troublesome battles at &lt;Site&gt; is our saying to researchers is 'look, one of the conditions of us working with you is that when the study is done you will come back and tell the groups who participated what you found,' and a lot of folks didn't see that as their responsibility." (Respondent 2.1)</i>
<b>Funding constraints</b>	<b>Six</b>	
Budget cuts		<i>"...it has to be on our list of goals to obtain additional funding because the CTSA money is not enough to keep us going, so we have applied for supplements as well as other pockets of money to keep certain programs that we feel would be of value for our community engagement efforts." (Respondent 1.2)</i>
Community partner fund limits		<i>"Especially not-for-profit organizations which are usually understaffed and underpaid. There's usually this expectation that when we reach out to an organization that every staff member in that organization will be unselfish with regards to participation in events, and I think that's a barrier that continues to exist." (Respondent 1.1)</i>
Institutional funding structure		<i>"So one of these community organizations is run on shoestrings. They don't have a lot of infrastructure and I think sometimes it's hard for them to partner with us. Well, this is kind of a shared issue between us... we have huge indirects [costs charged against grants by institutions to cover operating and administrative costs]. And then for community organizations to subcontract with us, we have issues with indirects. So there are some financial issues that sit on both sides. But the community organizations, I think it's challenging for them to participate because they do not have lots of resources. One guy who met with us said 'you know, you guys come in and you want to do this research and it takes a little bit of my secretary's time and a little bit of the outreach person's time or whatever,' and he says 'It's hard to get funding for, while yes you can pay for that person's time or whatever, the cost of the space the cost of the other, the infrastructure costs that we have.'" (Respondent 10.2)</i>
Tenuous solution		<i>"Basically I email the dean, and whine about wanting to do it, and he says OK. Recently actually he didn't say OK... It's not an institutionalized way to do this, and I don't know what the answer is. We tried to work on that early on when we first had the CTSA and the dean's office at that time, a different dean, actually the PI, but at that time he said "I'm not going to play ball with this because I want that to be my prerogative." It does worry me because if you don't have it institutionalized it will hinge on if the dean is a fan of community engagement. The dean now happens to be, but that could change, and that would be a problem." (Respondent 10.1)</i>
<b>Time and staff constraints</b>	<b>Five</b>	
Institutional staff		<i>"So I think it was our hope that bringing &lt;Staff person&gt; on would be able to do something that would free me up to be a little more intimate with our partners; unfortunately we've started more projects, and I haven't been able to. So that's the real gap." (Respondent 9.2)</i>
<b>Unsustainable models</b>	<b>Eight</b>	
Insufficient salary		<i>"I was asked to significantly reduce our effort [to reduce costs], but the problem is that on projects like this, even when you significantly reduce your effort, say going from 25 to 10 percent, you don't significantly reduce your time, and that's really very unfair." (Respondent 1.1)</i>
Misaligned priorities		<i>"And then finally, what do you do when you really feel that your priority is the right priority and the community feels is the wrong priority, and what they want to be the priority has absolutely nothing to do with health and your interests, and I mean you know, how do you do that?" (Respondent 1.1)</i>

Table 2. Continued.

Challenge	N (out of nine)	Quote
Need for capacity development	Nine	
Not ideal for junior faculty		<i>"... the only drawback with CTSA is that they take a huge amount of time and commitment and it's not clear yet that in terms of career paths for faculty remembers, that we have reaped the rewards of those multidisciplinary relationships yet... so people that are involved in the CTSA are trailblazers, but junior faculty I think still continue to be hindered in their academic progress because of CTSA. I think that most junior faculty who are just taking part in the program for the CTSA are great but faculty involved and directors throughout the whole CTSA, it's, I think the CTSA movement and the time involved does take away from other academic pursuits, and people have to be careful... The other part of that really is to take a field where there are no mentors is very problematic. It's not right for you to mentor yourself." (Respondent 1.1)</i>

**Table 2.** Quotations describing challenges identified by respondents.

**Lack of Positive Relationship**

Lack of a positive relationship between the institution and potential community partners was challenging ( $n = 8$ ). In some cases, this lack of prior relationship lengthened the relationship-building phase ( $n = 2$ ). In most cases, though, the institutions had either historical or more recent relationships with one or more local communities that had not been positive ( $n = 7$ ). Reasons included prior research described as harmful or insensitive to a community ( $n = 6$ ), researcher behavior creating tension ( $n = 3$ ), and community organizations uninterested in participating in research ( $n = 2$ ). In most cases, the past or more recent offense had been addressed with a particular community. In a few cases, poor relationships and lack of partnerships remained with certain communities, resulting in gaps in representation from those communities.

**Lack of Leadership**

Although all of the respondents reported supportive PIs at the time of the interview, respondents noted lack of leadership within their institution as a barrier ( $n = 5$ )—especially failure to “get” how community engaged research functions differently from traditional biomedical research and its potential benefits. Respondents felt the institution’s leaders did not always fully appreciate what good-quality CE requires, and were not prepared to provide the necessary support. In two cases, respondents felt the institutions’ stated support was not borne out in action, resulting in insufficient follow-through or because of administrative barriers, making engagement more difficult. Lack of leadership on CE from funders was also noted as a problem because it is difficult to encourage researchers without funder requirements ( $n = 1$ ; *Table 2*).

Respondents noted that lack of leadership or buy-in for CE among leaders of community partners challenged the success of CE as well ( $n = 7$ ). Two institutions had community partners with leaders who did not support engagement. In other cases, Cores struggled because individuals with whom they partnered did not have leverage within their organizations to prioritize research and partnership. Where possible, Core staff worked with leaders of community partner organizations to identify the areas where the partner would benefit from research, and bring those leaders on board.

**Funding Constraints**

Funding was a constraint on three distinct levels: general CTSA funding from the NIH, division of assets among the key function cores within a CTSA, and funding for potential partners.

Respondents felt the overall budget for the CTSA, including the CE key function, was insufficient and hampered their success ( $n = 4$ ).

**“Nobody is getting a lot of money... none of the key functions are getting adequately funded.” (Respondent 10.2)**

Respondents described cuts (initiated by the NIH) to the overall CTSA budget between the original grant and the renewal ( $n = 4$ ). These cuts affected the CE cores differently; some had a very small budget already and little was cut. Others had a PI who advocated for preserving the CE budget. In some institutions the Core was cut steeply, as were other cores. In some cases, proposed engagement strategies were not implemented or were postponed; in other cases, alternate sources of funding covered the cuts (*Table 2*).

Among those Cores experiencing cuts, all sought alternate funding from their institutions, supplemental grants for the CTSA, or other sources. In one case, this included direct fundraising by the PI. Respondents from one institution acknowledged their Core had still not been successful in receiving additional funding.

The precise CE budget allocation was not known, but respondents estimated it between 2% and 10% of the total CTSA budget. A majority estimated a 5% allocation. Most respondents felt that CE was funded fairly relative to the other cores. In one exception, a respondent was concerned that the CE budget was at greater risk because it seemed more likely to her the NIH would cut it than other key functions. Several of the respondents mentioned that the new NIH management for the CTSA made it unclear whether CE in particular would continue to receive the same level of attention within the CTSA.

Community partner funding was also a challenge. Many respondents mentioned that the limited budgets of their partners meant engagement opportunities were limited (*Table 2*). Some respondents found this particularly hard given recent severe cuts in the safety net funding within states. Tension arose in the way grant funds were distributed between academic institutions and community partners. Respondents reported that the nature of institutional funding made it a challenge to work with community organizations ( $n = 4$ ). Specifically, deducting indirect or overhead costs from the total grant was highlighted by two of respondents as problematic because: (1) community partners do not have the same opportunity to deduct, which respondents felt created an unfair difference in compensation; and (2) in cases of small grants, the institution’s deduction of overhead costs reduced the funds for the project considerably (*Table 2*). Unfair distribution of grant funding was particularly concerning because community

partners were often at a disadvantage since their overhead costs were not covered.

Among the four institutions whose respondents reported challenges related to funding between the institution and community partners, strategies for coping included gathering community partners together to determine the appropriate distribution of funds, and at one institution, receiving special case-by-case permission to forgo deducting institutional overhead costs. In that case, the respondent was concerned that the solution was tenuous (Table 2).

### Time and Staffing Constraints

Time and staffing constraints were raised as challenges by five institutions. Constraints occurred on the part of both the institution and the community partner. In many cases, the CE core was very small—often consisting only of the director, a program manager or coordinator, and possibly administrative staff. Six institutions had only one full-time employee (FTE) working in the core, usually with part-time support from faculty and administrative staff. The largest core had four FTEs and 1–2 additional FTEs divided among several part-time staff and faculty. At one institution, the respondent reported the operation was quite “thin,” and she, the core director, had no administrative support, taking her own minutes for meetings.

Staffing constraints within community groups were also challenges. Respondents noted their community partners were often understaffed and overworked ( $n = 4$ ), and little time was available for staff to participate in partnerships. None of the respondents described solutions for these problems, especially in terms of community partner constraints.

### Unsustainable Models

Several issues were raised by respondents that we categorized as unsustainable models. One is institutional staff were not compensated for the amount of work they were performing for the CTSA. Respondents noted that their salary through the CTSA bought far less of their time than it demanded ( $n = 5$ ; Table 2).

Another unsustainable model was misalignment of priorities between institutions and community partners. Respondents noted that community and institutional or researcher priorities can misalign, and the misalignment can hamper partnership if it is not handled ( $n = 6$ ; Table 2). Three respondents said community partners were not initially interested in research and needed convincing, while in other cases the real need was for implementing successful interventions. Some institutions facing this issue worked with partners to identify goals that aligned, others struggled to continue in the face of misalignment, and some did not pursue misaligned partnerships further.

Finally, concern was raised by two respondents at separate institutions that the CE core does not adequately support junior faculty. Concerns included junior faculty not receiving needed mentorship and work outputs not matching expectations for career advancement. One respondent was concerned that the CTSA demanded effort that was not rewarded and was perhaps even seen as detrimental by colleagues involved in promotions. The other respondent recommended that more senior faculty work in the Core because their careers are established (Table 2).

### Discussion

These findings suggest that though the CTSA represents an influx of funding and attention for CE in research, more can still

be done to address challenges that may slow or block effective engagement. Not surprisingly, funding and relationships with partners were raised as supports when present and barriers when absent, reflecting prior literature.<sup>11,16–19</sup> Leadership was also a key support when present, and a barrier when absent. PI support affected a Core's abilities to gain and retain funding, to establish engagement strategies, and to pursue engagement projects. Lack of leadership support at the institutional level was a hindrance to engagement.

Another important challenge, rarely addressed in most CE literature, is that of sustainable institutional models for engagement. Prior literature primarily focuses on the sustainability of the project once research is completed. However, respondents noted that the current CTSA model has areas that may be unsustainable, like salary support, misalignment of CTSA and partner goals, and structures not supportive of junior faculty. The literature has acknowledged that the results of CE do not usually align well with the expectations for publications that researchers face along the promotion track.<sup>20</sup> Based on the results, there may be lingering concerns among faculty that institutions still will not reward junior faculty for CE work, which may make it difficult to recruit and train more faculty in engaged research.

Many determinants affect the success of a CE project or program.<sup>21</sup> This project identified some of them, but there are undoubtedly more. These respondents were universally institutionally affiliated, though some were also community leaders. Future work should look at community partners to determine their experiences along the course of the CTSA.

These findings should be considered in the light of the potential limitations of the study. Respondents may have responded in biased ways if they believed their participation could reflect poorly on them or their CTSA. We deidentified the quotations used for potential problems to try to address the potential for bias. We suspect, if bias exists, it would likely be to minimize the challenges, thus making the argument for addressing challenges more compelling.

The study was limited in that only nine of 12 institutions participated. The experiences of the nonparticipating institutions may be significantly different from those of the participants. The conclusions made here do not generalize to settings other than the CTSA in the study. Given that limitation, though, the data provide a starting point for investigating whether other CTSA and non-CTSA institutions have had similar experiences.

The findings of this paper give insight into the supports and challenges that will grow or lessen with changes in support for CE. The CTSA CE structure has been relatively high-profile and high-level in biomedical research, providing dedicated funding and programmatic expectations where there previously were none. Within that context, though, respondents at the institution say their engagement strategies have been undercut by decreasing budgets, lack of institutional leadership, and patchy support for engagement within institutions. If the goal is to increase CE in research and reap its potential rewards, then there seems to still be work to do in addressing the major challenges at funder and institutional levels to achieve success.

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