Tufts CTSI
Common Metrics Implementation

Learning Session 5

January 10, 2016

Tufts CTSI Tufts Clinical and Translational Science Institute
Common Metrics Implementation

Conversations

- Calls with NCATS Program Directors
- Purpose and objectives
- Logistics

All teach, all learn

- The Matrix Model of Mentoring
- Utah CCTS

Dissemination - Pilot metric

- Driver Diagram
- Change Package
- Best and promising practice examples

Plans for Discussing Common Metrics Implementation with NCATS Program Directors

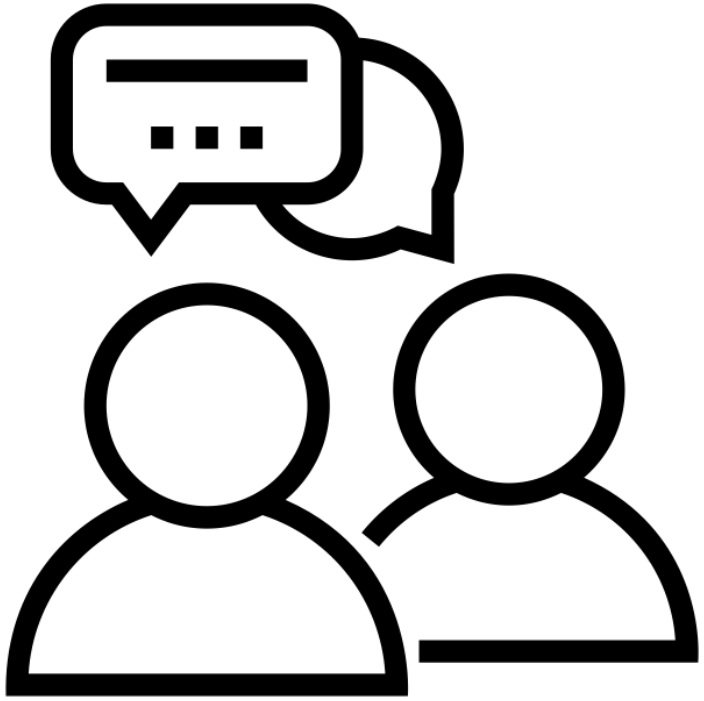
Redonna Chandler, PhD

Deputy Director, Division of Clinical Innovation

NCATS

Tufts CTSI Tufts Clinical and Translational Science Institute

Common Metrics Implementation



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Common Metrics Implementation

A Matrix Mentoring Model to Improve Clinical and Translational Career Development

Carrie L. Byington, MD (now Dean COM, Senior Vice President for Health Sciences, and Vice Chancellor for Health Services Texas A&M University)
Erin Rothwell, PhD
University of Utah

Outline for Today's Presentation

- Matrix Mentoring Model approach
- Recruitment of Under-represented Populations in this Model
- Questions about the Mentoring Model
- How the Matrix Mentoring Model guided our Turn the Curve Plan
- Development of Mentoring Metric (Yes!)
- Questions about Turn the Curve and Common Metrics

Why focus on Mentoring for Career Development?

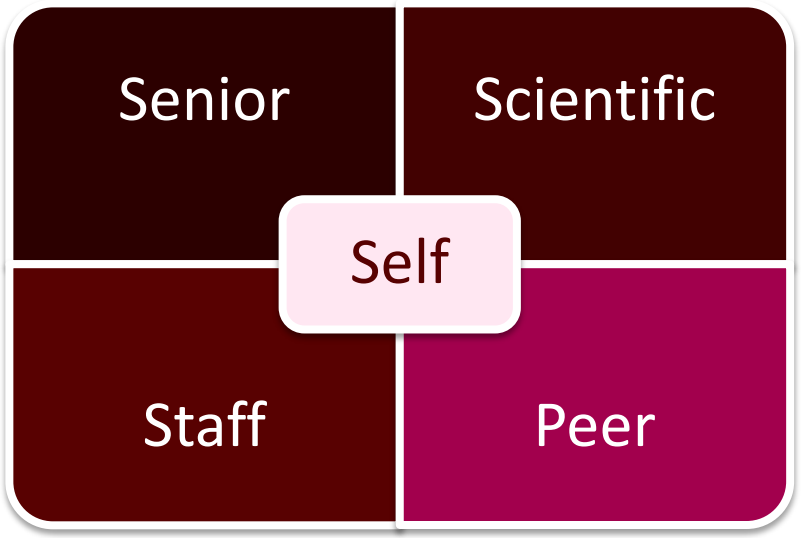
- NIH has reported a steady decline of physician-scientists and other clinician-scientists since the 1970s.[1]
- Clinician-scientists are uniquely positioned to translate basic science into evidence-based clinical interventions.
- Mentorship is recognized at the core component for addressing this growing problem.
- Historical models of mentoring (dyadic models) are not working especially for women and members of underrepresented minorities.[2]

[1]National Institutes of Health. Physician–
Scientist Workforce Working Group Report.
Bethesda, Md: National Institutes of Health;
2014.

[2] Byington et al., 2016. A Matrix Mentoring Model That Effectively Supports Clinical and Translational Scientists and Increases Inclusion in Biomedical Research: Lessons From the University of Utah. Academic Medicine, 91(4), 497-502.

Matrix Mentoring Model

- Five levels
  - Self-mentorship
  - Senior mentorship
  - Scientific mentorship
  - Peer mentorship
  - Staff mentorship



Byington et al., 2016. A Matrix Mentoring Model That Effectively Supports Clinical and Translational Scientists and Increases Inclusion in Biomedical Research: Lessons From the University of Utah. Academic Medicine, 91(4), 497-502.

Table 2

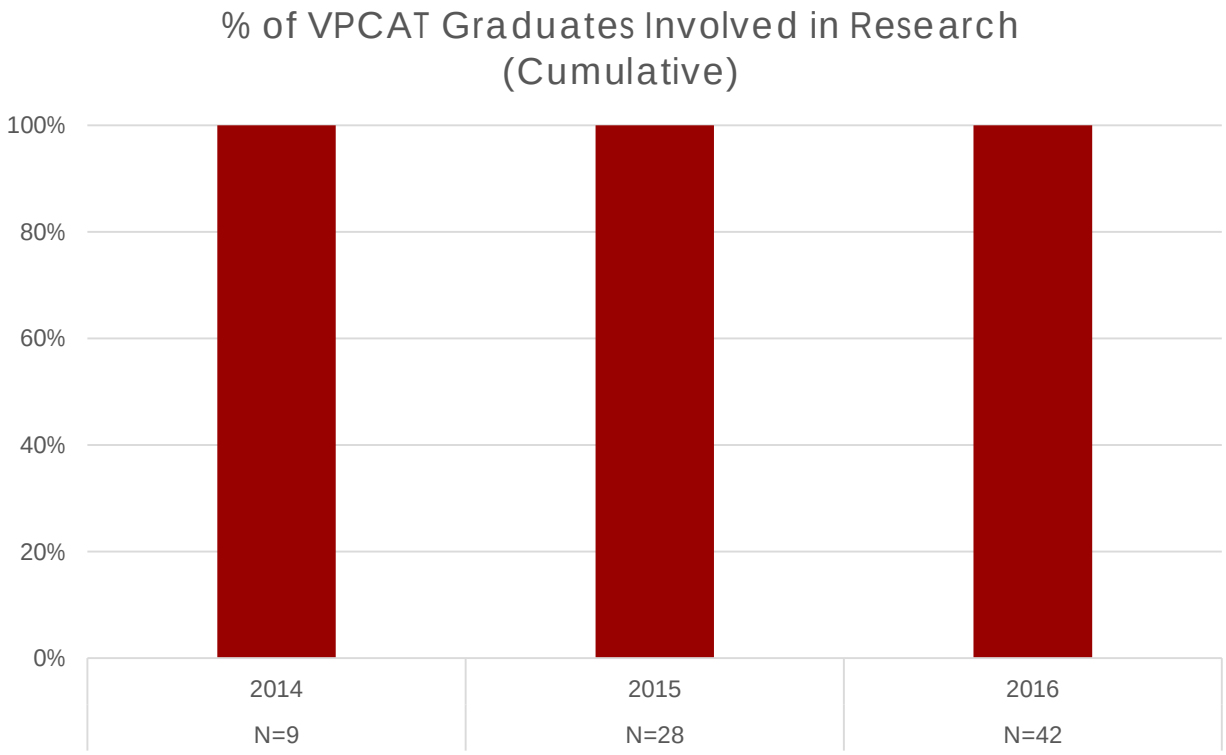
Data of the Clinical and Translational Scholars (CATS) Programs

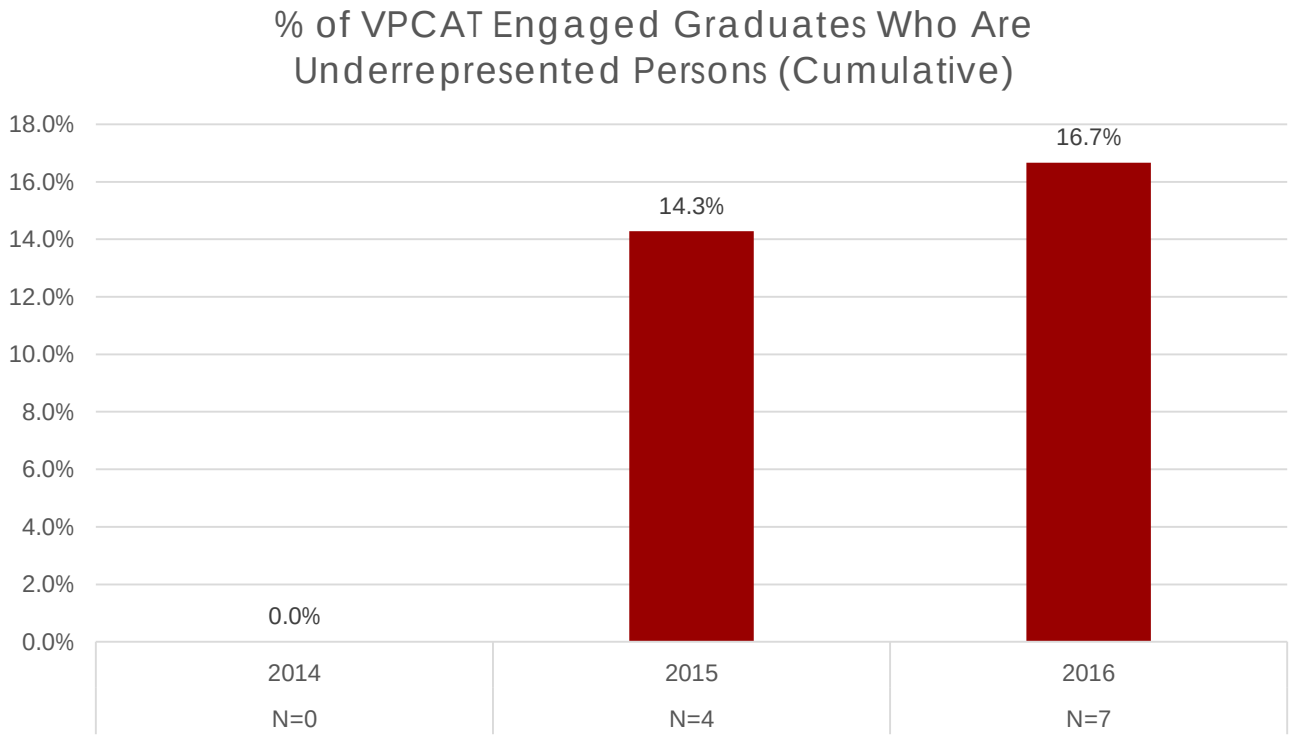
Data descriptions	CATS program		CATS program totals
	Pediatric/ child health	Health sciences	
FY program began	FY 2008	FY 2013	
Total applicants	49	67	116
Scholars accepted on 1st or 2nd application	46 (94%)	40 (61%)	86 (74%)
Female	27 (59%)	19 (48%)	46 (53%)
Under-represented minorities	3 (6.5%)	7 (17.5%)	10 (11.6%)
Number of Scholars with extramural funding by program graduation	38/40 (95%)	23/26[a] (89%)	61/66 (92%)
Total extramural awards	207	96	304
Total value of awards (in millions)	$29.3	$13.5	$42.8
Total career development awards (NIH, VA, or equivalent)	19	14	33
Utah CTSA KL2 awards – total possible KL2 awards = 14 (FY 2008-15)	5/10 (50%)	4/4 (100%)	9/14 (64%)
Total NIH P, R or U or VA merit award or equivalent	10	9	19
Scholars remaining in academic medicine	45 (98%)	40 (100%)	85 (99%)
Scholars remaining at the University of Utah	42 (91%)	40 (100%)	82 (95%)

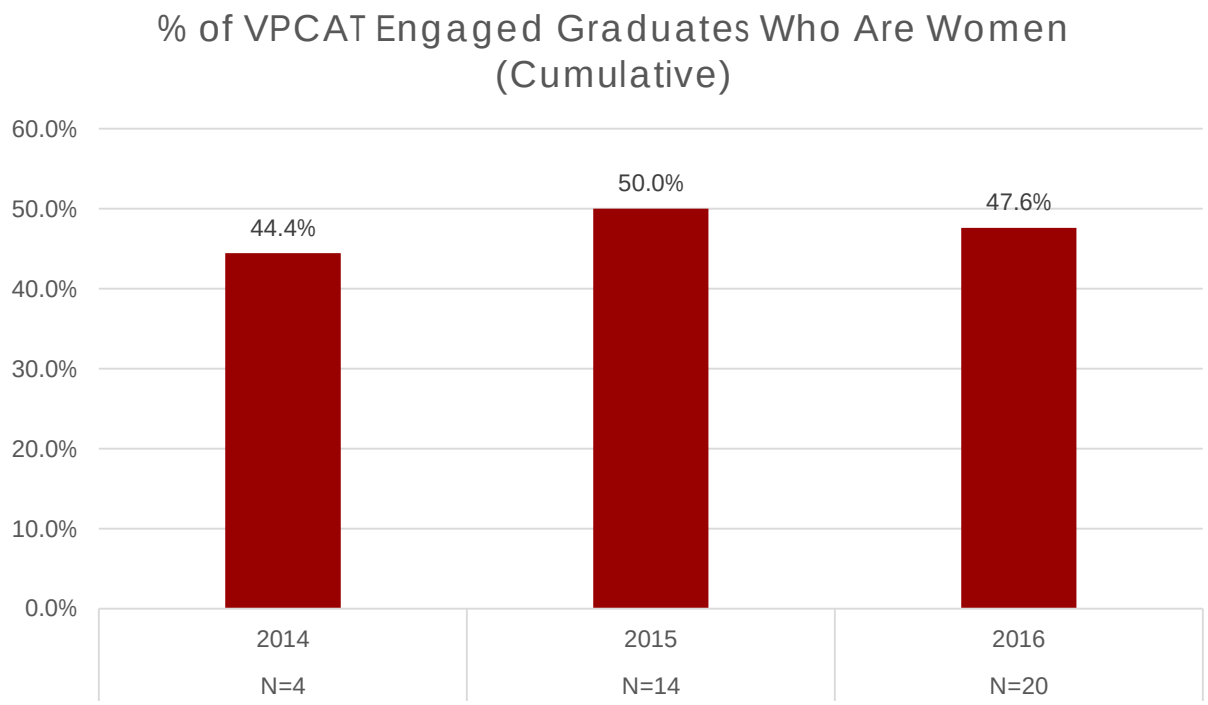
Abbreviations: FY indicates fiscal year; NIH, National Institutes of Health; VA, U.S.

Department of Veterans Affairs; CTSA, Clinical and Translational Science Award

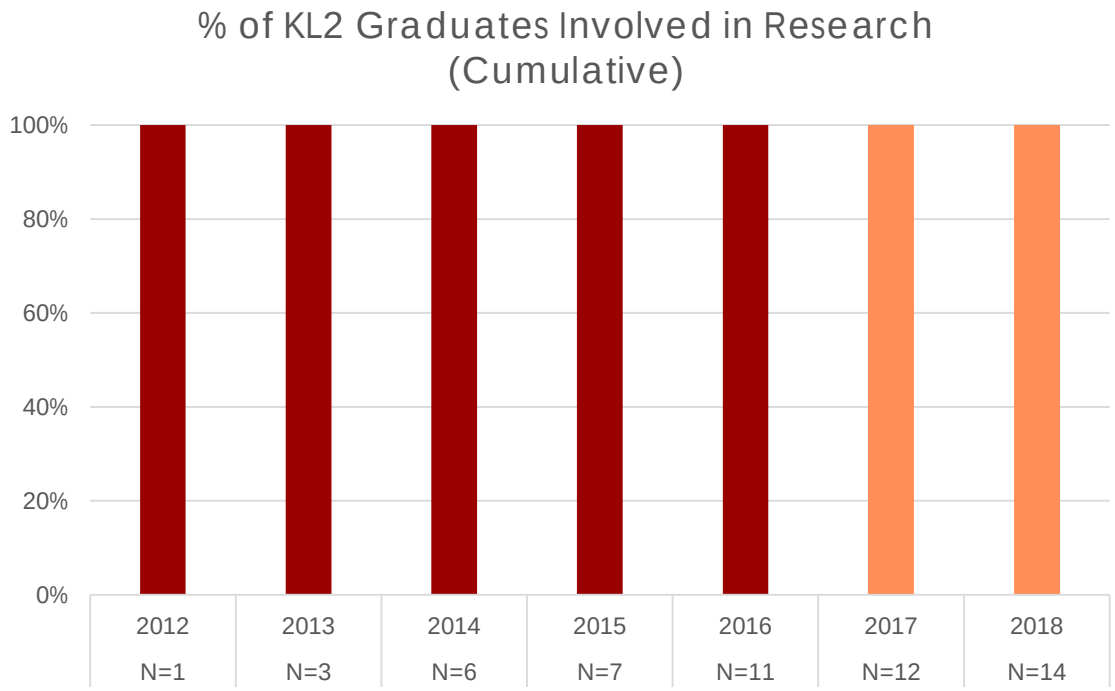
Byington et al Academic Med 2016

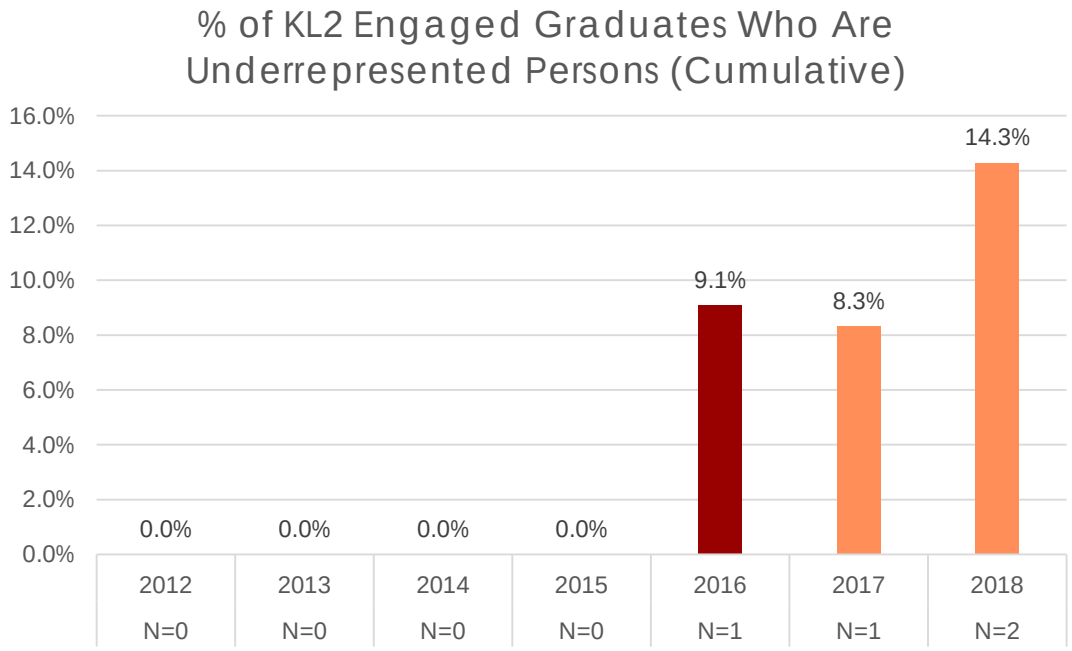

% of VPCAT Graduates Involved in Research (Cumulative)
100%
80%
60%
40%
20%
0%
2014
N=9
2015
N=28
2016
N=42

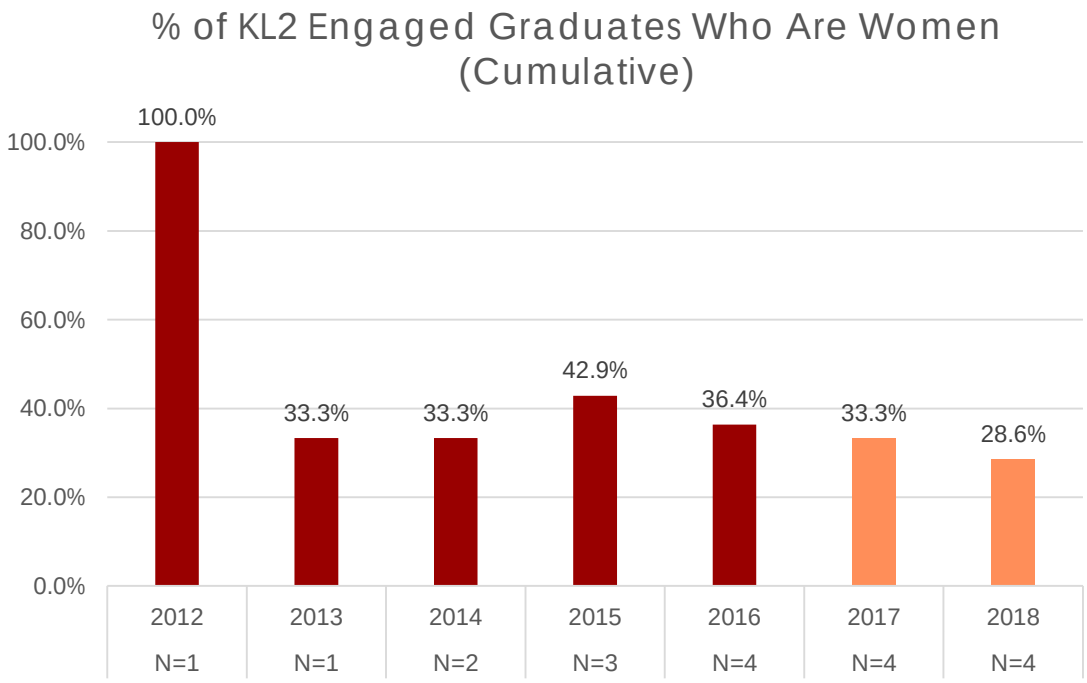

% of VPCAT Engaged Graduates Who Are Underrepresented Persons (Cumulative)
18.0%
16.0%
14.0%
12.0%
10.0%
8.0%
6.0%
4.0%
2.0%
0.0%
0.0%
14.3%
16.7%
2014
N=0
2015
N=4
2016
N=7

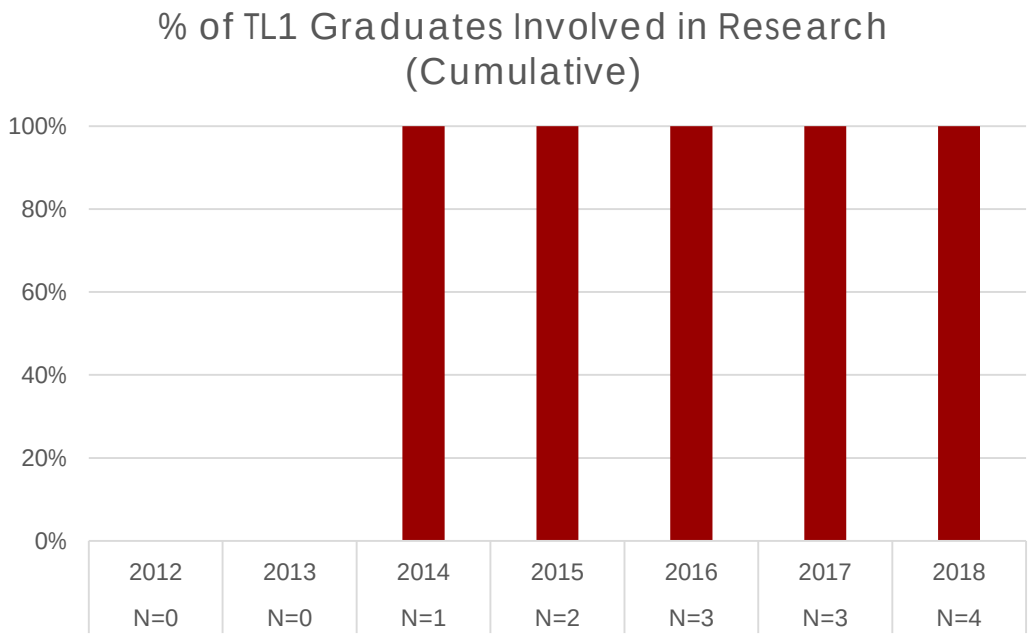

% of VPCAT Engaged Graduates Who Are Women (Cumulative)
60.0%
50.0%
40.0%
30.0%
20.0%
10.0%
0.0%
44.4%
50.0%
47.6%
2014
N=4
2015
N=14
2016
N=20

Data from Common Metrics


% of KL2 Graduates Involved in Research (Cumulative)
100%
80%
60%
40%
20%
0%
2012
N=1
2013
N=3
2014
N=6
2015
N=7
2016
N=11
2017
N=12
2018
N=14


% of KL2 Engaged Graduates Who Are Underrepresented Persons (Cumulative)
16.0%
14.0%
12.0%
10.0%
8.0%
6.0%
4.0%
2.0%
0.0%
0.0%
0.0%
0.0%
0.0%
9.1%
8.3%
14.3%
2012
N=0
2013
N=0
2014
N=0
2015
N=0
2016
N=1
2017
N=1
2018
N=2


% of KL2 Engaged Graduates Who Are Women (Cumulative)
100.0%
80.0%
60.0%
40.0%
20.0%
0.0%
100.0%
33.3%
33.3%
42.9%
36.4%
33.3%
28.6%
2012
N=1
2013
N=1
2014
N=2
2015
N=3
2016
N=4
2017
N=4
2018
N=4


% of TL1 Graduates Involved in Research (Cumulative)
100%
80%
60%
40%
20%
0%
2012
N=0
2013
N=0
2014
N=1
2015
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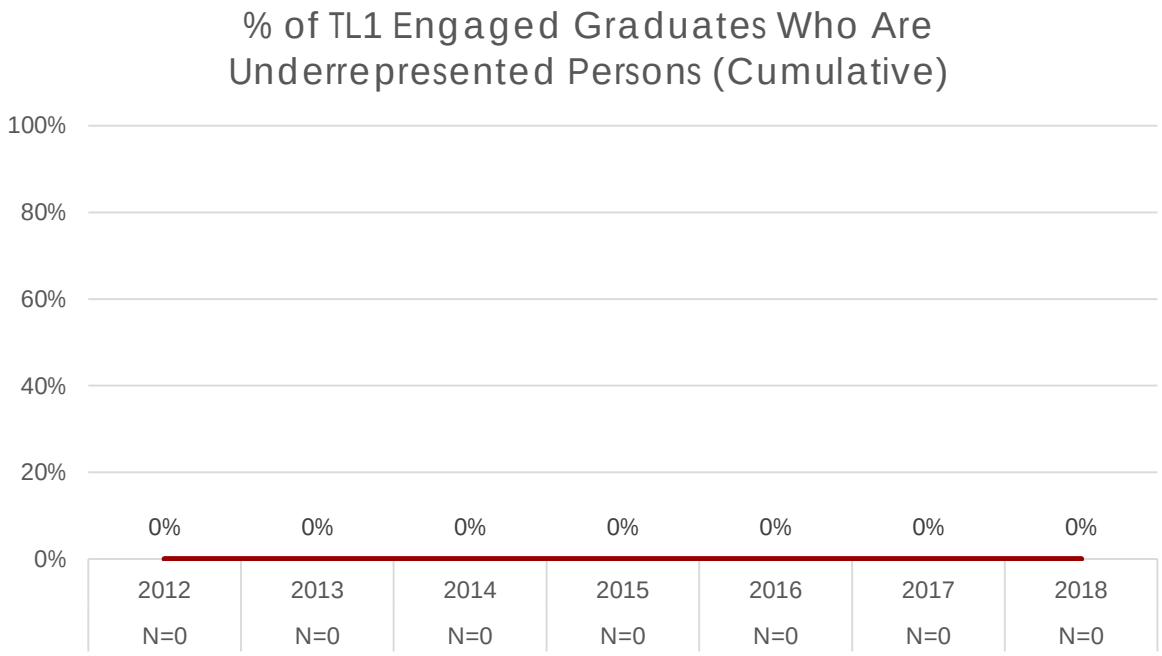
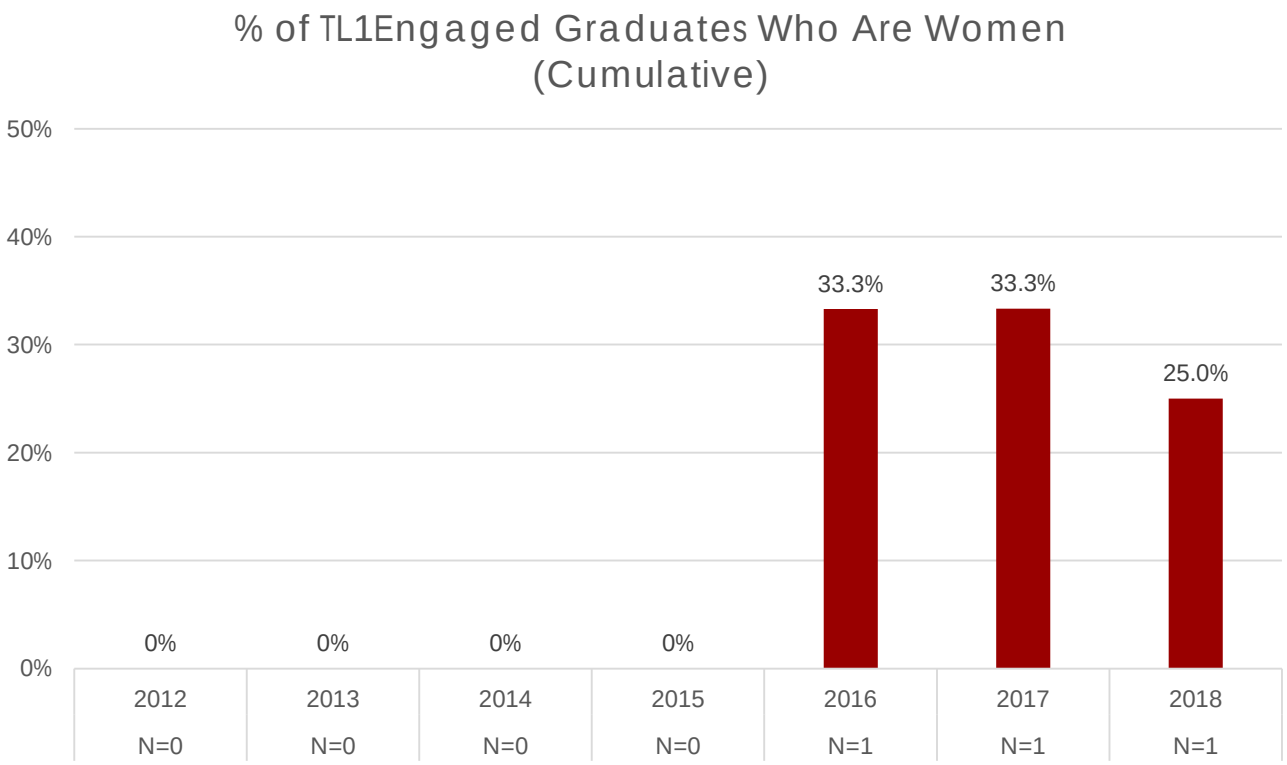
2016
N=3
2017
N=3
2018
N=4


% of TL1 Engaged Graduates Who Are Underrepresented Persons (Cumulative)
100%
80%
60%
40%
20%
0%
0%
0%
0%
0%
0%
0%
0%
2012
N=0
2013
N=0
2014
N=0
2015
N=0
2016
N=0
2017
N=0
2018
N=0


% of TL1Engaged Graduates Who Are Women (Cumulative)
50%
40%
30%
20%
10%
0%
0%
0%
0%
0%
33.3%
33.3%
25.0%
2012
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2013
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2014
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2015
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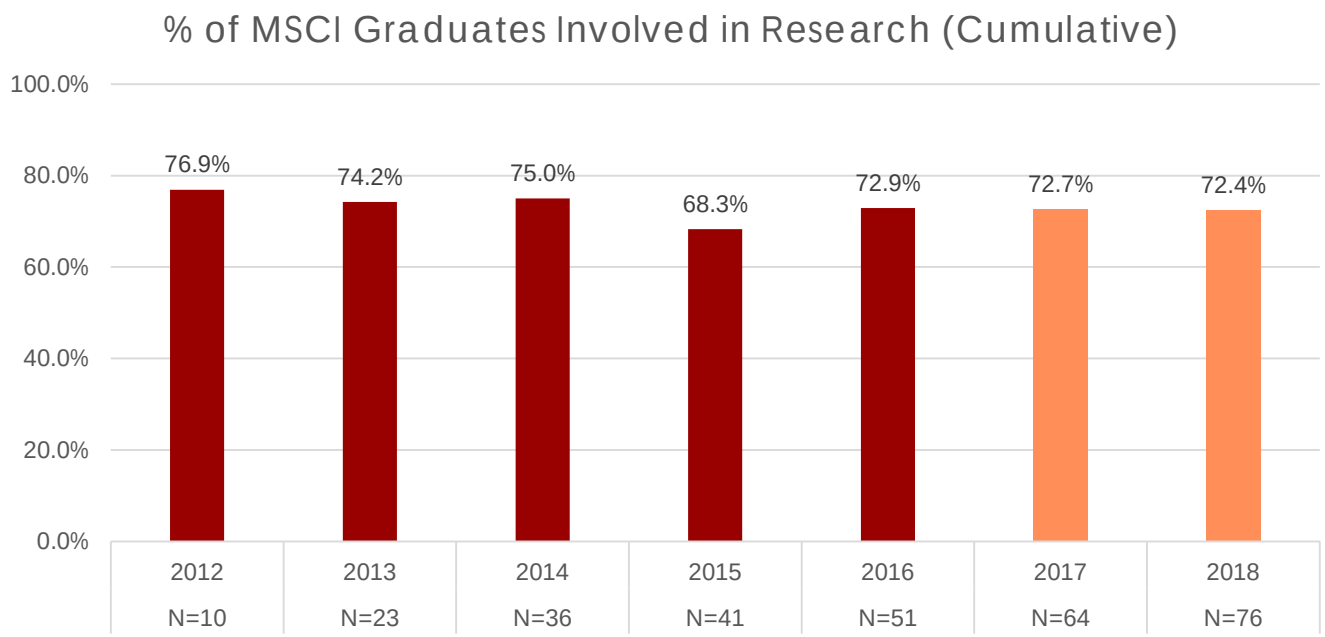
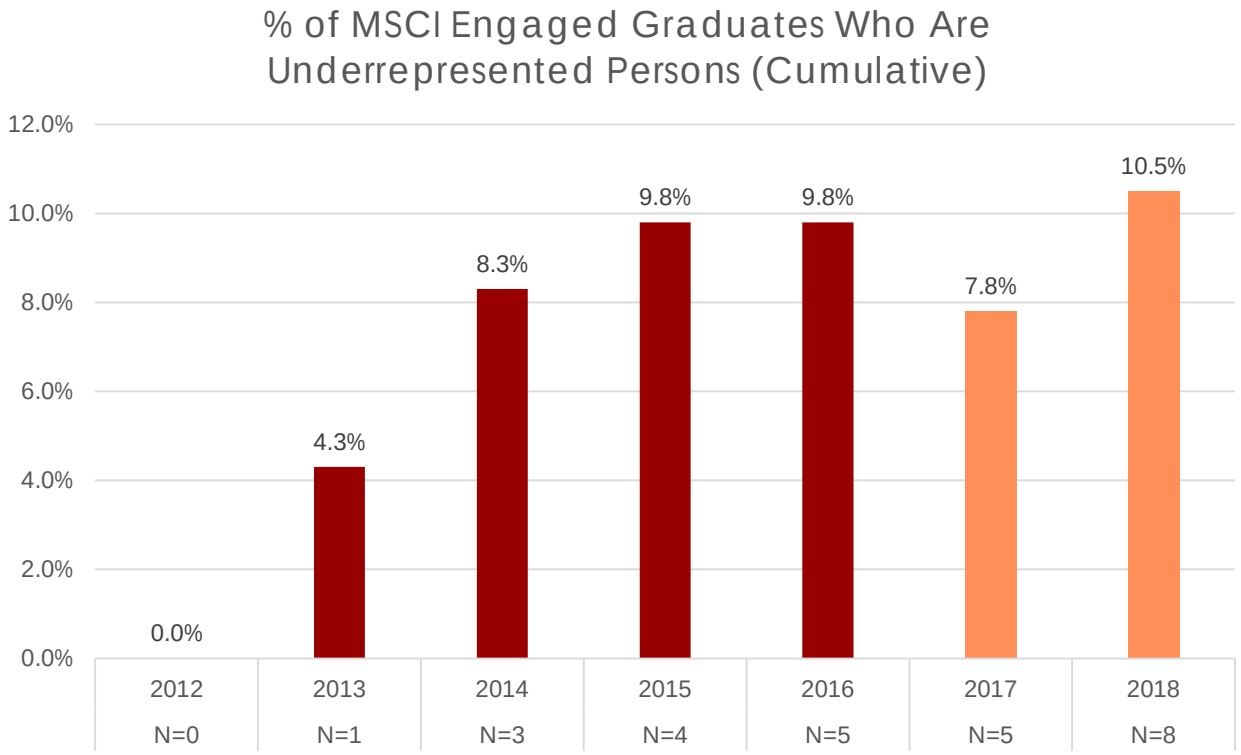
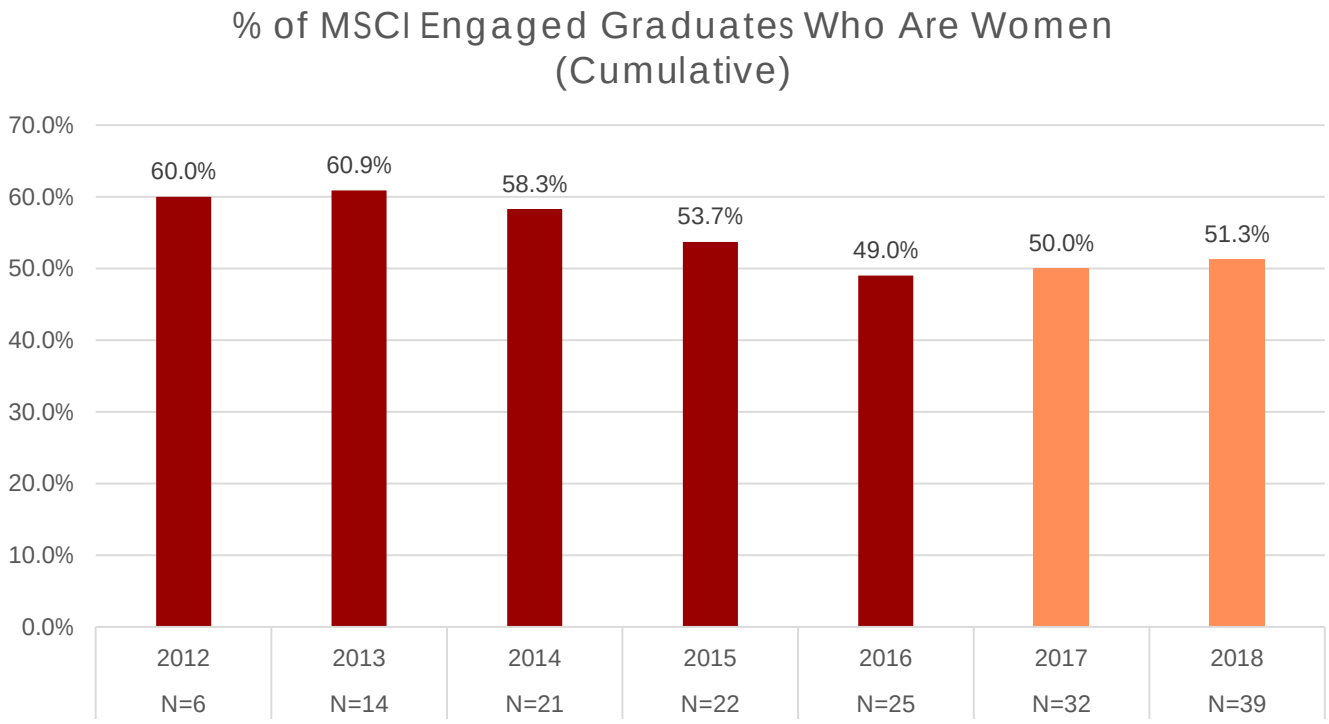
2016
N=1
2017
N=1
2018
N=1


% of MSCI Graduates Involved in Research (Cumulative)
100.0%
80.0%
60.0%
40.0%
20.0%
0.0%
76.9%
74.2%
75.0%
68.3%
72.9%
72.7%
72.4%
2012
N=10
2013
N=23
2014
N=36
2015
N=41
2016
N=51
2017
N=64
2018
N=76


% of MSCI Engaged Graduates Who Are Underrepresented Persons (Cumulative)
12.0%
10.0%
8.0%
6.0%
4.0%
2.0%
0.0%
0.0%
4.3%
8.3%
9.8%
9.8%
7.8%
10.5%
2012
N=0
2013
N=1
2014
N=3
2015
N=4
2016
N=5
2017
N=5
2018
N=8


% of MSCI Engaged Graduates Who Are Women (Cumulative)
70.0%
60.0%
50.0%
40.0%
30.0%
20.0%
10.0%
0.0%
60.0%
60.9%
58.3%
53.7%
49.0%
50.0%
51.3%
2012
N=6
2013
N=14
2014
N=21
2015
N=22
2016
N=25
2017
N=32
2018
N=39

Overlap with MSCI program

- **18 Graduates**
- **7 (39%) graduated with MSCI degree**
- **10 (56%) have taken individual classes**
- **Total 95% of KI2 scholars have participated in MSCI program**

Turn the Curve Plan with Career Development for Underrepresented Investigators

- **What works**
  - Overlap of educational graduate level classes from MSCI and VPCAT programs with KL2 programs
  - Structured Matrix Mentoring
    - Mentors for KL2 scholars receive 5% FTE from institution
    - All mentors for K or T programs receive mentor training
    - Mentorship is recognized as Education or Service for RPT
  - Access to resources to facilitate appropriate study design, collection of pilot data and preparation and submission of competitive grant applications
  - Inclusive Environment supported by University wide policies (see next slide)

Inclusive Environment

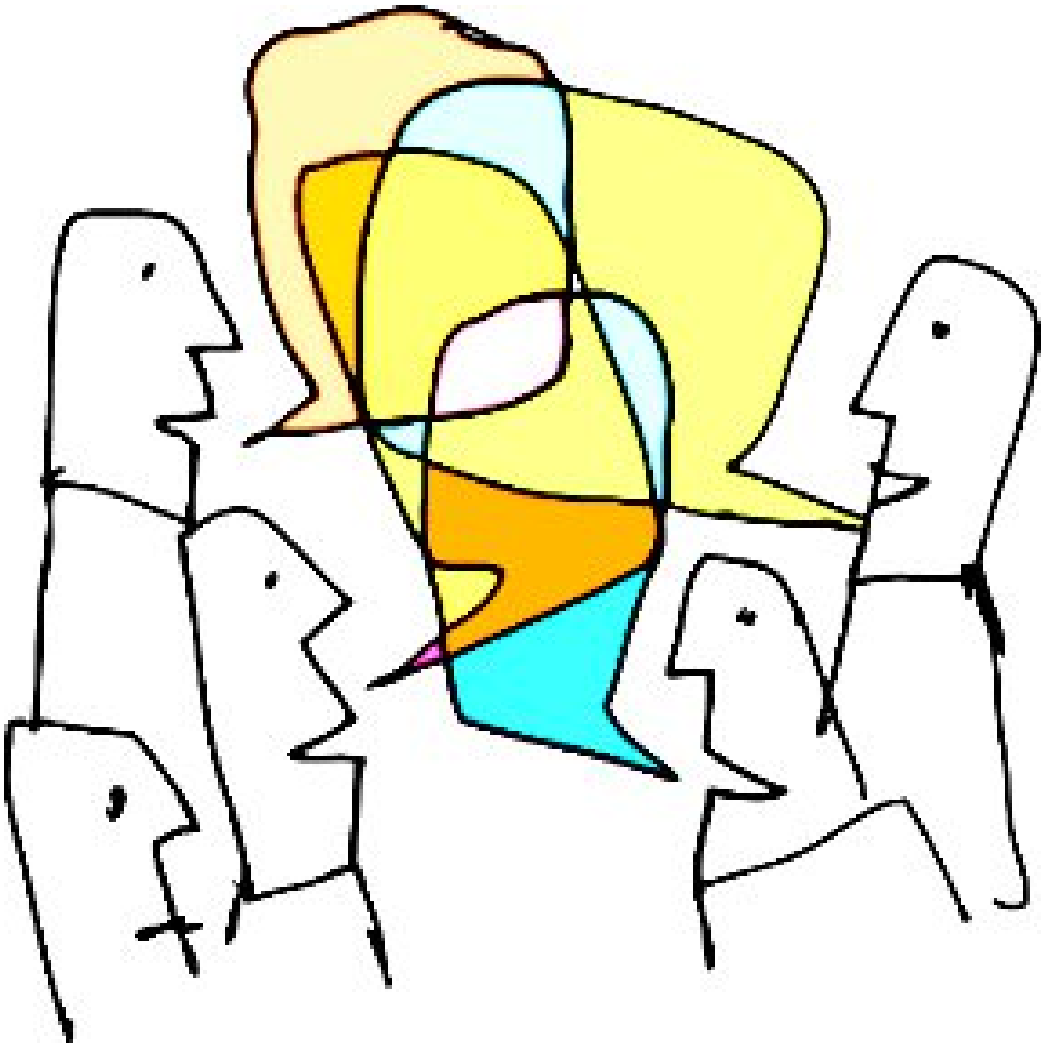
- Inclusive University Wide strategies
  - Loan repayment options to attract fellow and faculty applicants
    - Departmental
    - Automatic for EDGE scholars
    - Support for NIH loan repayment (95% funding success)
  - Part time tenure track
  - Paid parental leave
  - Recruitment incentives to department chairs
  - Stipends to add under-representative populations to grants
  - Assistance with Child Care
  - Use of NIH Diversity supplements

Turn the Curve Plan with Career Development for Underrepresented Investigators

- **Partners**
  - Masters of Science Clinical Investigation (MSCI). This program provides key foundation courses for all future and current clinical and translational scientists.
  - VPCAT program which trains junior faculty in leadership and research management.
  - Mentors from the Matrix Mentoring Model.
  - Funding from the University of Utah's CCTS (CTSA) program to support the infrastructure for these programs.

Mentoring Common Metric

- Each applicant rates satisfaction and level of involvement for each component of the Matrix Mentoring Model



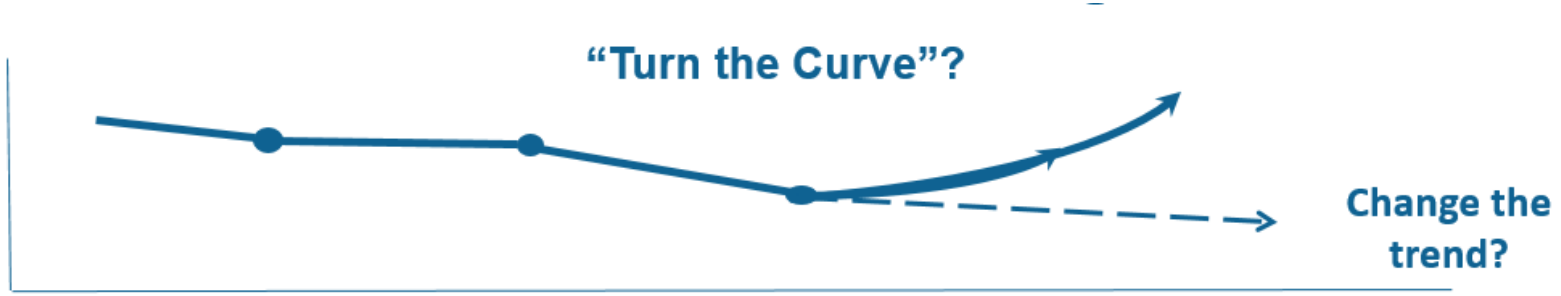
Pilot Funding Publications Change Package

Laura E. Peterson

Tufts Common Metrics Implementation Team

Tufts CTSI Tufts Clinical and Translational Science Institute
Common Metrics Implementation

“Harvest” best and promising practices that could help turn the curve



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PILOT FUNDING PUBLICATIONS CHANGE PACKAGE

Supporting dissemination of innovative clinical and translational research

www.tuftsctsi.org/research-services/research-process-improvement/common-metrics-initiative/implementation-and-training-materials/

Common Metrics Initi | NCATS SHAREPOINT | RFA-TR-16-021: Coor | Log in - Results Score | Employee Tools | Tuft | Spotify Web Player | WebEx Tufts Universit | Citymapper - The Ulti

Tufts CTSI | Research Services | Education | Funding Opportunities | Our Impact | Faculty & Staff | About Us

PI Training Session

- PI Training Session Recording (mp4 Video)
- PI RBA Overview Slides (PDF)

Additional Materials

- Training Slides for Results-Based Accountability (RBA) Experts (PowerPoint)
- Presenter Notes for Training Slides (PDF)
- Turning the Curve worksheet (PDF)
- Turn the Curve Rubric (PDF)
- Example Turn-the-Curve Plan (PDF)
- Common Metrics Scorecard Entry and Strategic Management (PDF)
- IRB Duration Metric Change Package (PDF)
- IRB Duration Metric Driver Diagram (PDF)
- Pilot Metric Worksheet (PDF)
- Common Metrics Pilot Publications Change Package (PDF)
- Pilots with Publications Driver Diagram (PDF)

“Start with the end in mind”

Common Metric Aim

Improve the number and percent of research projects that expended hub pilot funding that resulted in one or more publications

Change Package

Turn the Curve Plans

- Positive/facilitating factors from Story Behind the Curve
- What Works

Existing Evidence

"Drivers"

Drivers for Pilot Publications

1. Effective pilot-funded teams complete projects in a timely manner
2. Pilot-funded awardees receive high-quality mentorship
3. Awardees access CTSI-sponsored resources and services
4. Pilot awards are made for projects with attributes that are associated with higher rates of publication
5. Awardees are aware of the need to cite and the method for citing pilot support in publications
6. Publications with pilot funding citation are identified and tracked

Change Package

Turn the Curve Plans

- What Works
- Strategies

Existing Evidence

Strategies

Driver: Effective pilot-funded teams complete projects in a timely manner

Strategies

- Assess team capacity for project management at project start; provide intervention for identified deficits
- Reduce project start-up delays (ask what supports will be needed)
- Assign a Navigator to monitor award progress, make awardees aware of available resources and expectations
- Build designated check-in points early during project performance (before problems surface in progress reports)

Aim + Drivers + Strategies = Driver Diagram

Strategies

Pilot Funding Publications Driver Diagram v1.0

Common Metric Aim

Improve the number and percent of research projects that expended hub pilot funding that resulted in one or more publications

Drivers	Strategies
1. Effective pilot-funded teams complete projects in a timely manner	• Assess team capacity for project management at project start; provide intervention for identified deficits • Reduce project start-up delays (ask what supports will be needed) • Assign a Navigator to monitor award progress, make awardees aware of available resources and expectations • Build designated check-in points early during project performance (before problems surface in progress reports)
2. Pilot-funded awardees receive high-quality mentorship	• Provide mentorship including for key components of projects and publications (e.g., managing a research project, writing /revising research articles) • Offer mentorship training to mid-career and early senior faculty
3. Awardees access CTSI-sponsored resources and services	• Increase investigator awareness of available hub resources and services (provide a list with award letter and IRB approval letter; ask what supports will be needed) • Provide access to free or vouchers for study recruitment, statistical and regulatory consultation; core laboratories; clinical research unit; research software • Develop and offer manuscript writing, editing and expert review services, especially for junior investigators
4. Pilot awards are made for projects with attributes that are associated with higher rates of publication	• Increase initiatives that promote collaborative research projects • Investigate rates of publication by sub-group (e.g., translational phase, community-partnered or not, clinical trials, size of pilot award) • Assess potential for generating data to support preparation of a publication as an award review criterion
5. Awardees are aware of the need to cite and the method for citing pilot support in publications	• Provide reminders to cite pilot funding (in award letter, progress report templates, automated emails) • Provide awardee training in how to cite pilot support • Partner with librarians/university libraries to help awardees cite funding and do PubMed Central postings
6. Publications with pilot funding citation are identified and tracked	• Search the PubMed database for publications authored by the awardee dated after project initiation. Verify identified articles with the awardee • Conduct root cause analysis to determine why awardees are not reporting • Ask about published, submitted or planned publications in pilot progress reports • Utilize software programs to identify and track pilot-associated publications • Encourage awardees to register for and use an ORCID persistent digital identifier

Pilot Funding Publications Driver Diagram v1.0

Common Metric Aim

Improve the number and percent of research projects that expended hub pilot funding that resulted in one or more publications

Drivers	Strategies
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Pilot Funding Publications Driver Diagram v1.0

Common Metric Aim

Improve the number and percent of research projects that expended hub pilot funding that resulted in one or more publications

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Pilot Funding Publications Driver Diagram v1.0

Common Metric Aim

Improve the number and percent of research projects that expended hub pilot funding that resulted in one or more publications

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Hub example strategies, by driver

DRIVER: EFFECTIVE PILOT-FUNDED TEAMS COMPLETE PROJECTS IN A TIMELY MANNER

Rationale:

Even in high-performing, well-established teams, room for improvement likely exists in areas such as meeting productivity, team communications, and resolving team conflicts.

EXAMPLE STRATEGIES

UC Irvine's research acceleration and facilitation team (RAFT) proactively assists researchers with timely project execution

Navigators, individuals or teams who are expert in all phases of translational research, can monitor award progress and connect researchers with resources and services. Example Navigator programs at hubs include:

- Indiana CTSI
- Tufts CTSI
- University of Rochester CTSI

Hub example strategies, by driver

DRIVER: EFFECTIVE PILOT-FUNDED TEAMS COMPLETE PROJECTS IN A TIMELY MANNER

Rationale:

Even in high-performing, well-established teams, room for improvement likely exists in areas such as meeting productivity, team communications, and resolving team conflicts.

EXAMPLE STRATEGIES

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DRIVER: PILOT-FUNDED INVESTIGATORS RECEIVE HIGH-QUALITY MENTORSHIP

Rationale:

Mentoring: Beginning and midlevel members are assisted by and collaborate with established scholars.

In clinical and translational science, mentorship is particularly important for helping trainees develop, integrate, and apply skill sets related to basic science research and to clinical research.

EXAMPLE STRATEGIES

University of Illinois at Chicago CCTS provides a number of mentoring resources, including best practices and tools

Entering Mentoring training materials, developed by the Institute for Clinical and Translational Research at University of Wisconsin-Madison, for use with clinical and translational science award mentors.

The UCSF CTSI Mentor Training Program includes online and in person components designed to train mid-career and early senior faculty to be effective clinical and translational research mentors

"Strong mentorship has been linked to enhanced mentee productivity, self-efficacy, and career satisfaction."

--Pfund, et al

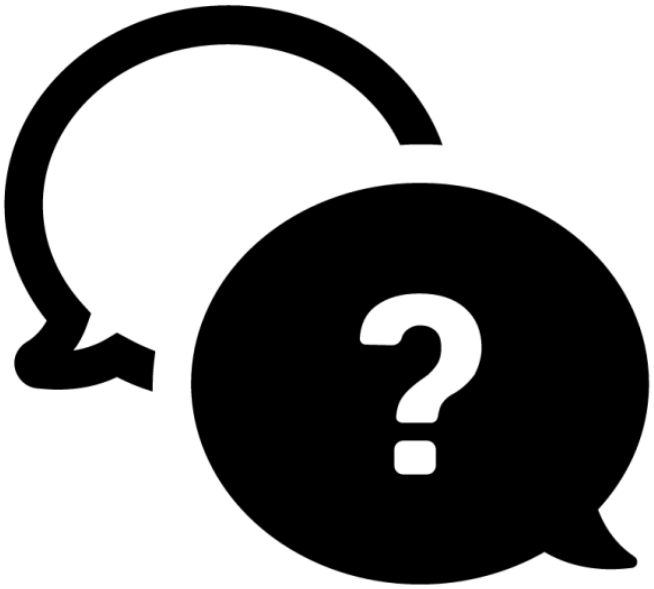
Pilot Funding Publications Driver Diagram v1.0

Tufts CTSI Tufts Clinical and Translational Science Institute

Common Metrics Implementation


Food for Thought


NOT REQUIRED



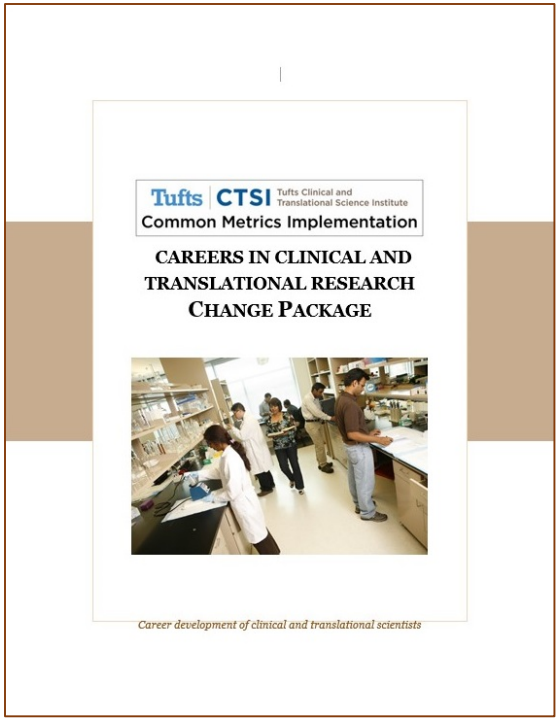
Tufts CTSI Tufts Clinical and Translational Science Institute

Common Metrics Implementation

Next Learning Session

Tuesday Feb. 14, 2017

3pm – 4pm ET



Science Café

ADVANCING HEALTH THROUGH RESEARCH AND DISCOVERY
CTSI

Clinical & Translational Science Institute
of Southeast Wisconsin

Tufts CTSI Tufts Clinical and Translational Science Institute
Common Metrics Implementation