

# CTSAs AS CATALYSTS OF TRANSLATION: THE PUBLIC IMAGE

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# NCATS

## Abstract

- In the era of data abundance, how can we assess the public image of complex NIH programs?
- This project focuses on visualizing the catalytic role of the CTSA program via analysis of data from publications, CTSA websites, social media and the NIH RePORTER.
- We study various dimensions of the program that include research topics, resources and collaborations among CTSA, other stakeholders and funding agencies.

## Disclaimer

***All results are preliminary and presented for the purposes of discussion and gathering user feedback. No part of this presentation can be referred to or cited publically.***

## NCATS Mission

The mission of the National Center for Advancing Translational Sciences (NCATS) at the National Institutes of Health (NIH) is to catalyze the generation of innovative methods and technologies that will enhance the development, testing and implementation of diagnostics and therapeutics across a wide range of human diseases and conditions.

# Clinical and Translational Science Awards (CTSA) Program

- National consortium of medical research sites
- Work together to improve the way clinical translational research is conducted nationwide
- Provide training for clinical translational researchers
- The CTSA program was established in 2006 to re-engineer the translational research enterprise
- Evolved from GCRC (>40 years) and clinical training programs as part of NIH Roadmap for Medical Research
- Was led by NCRR and became part of NCATS in 2011
- Evolved from 12 sites in 2006 → to 62 in 2014
- NIH's largest single investment in clinical research (~\$500 M, ~75% of NCATS budget)



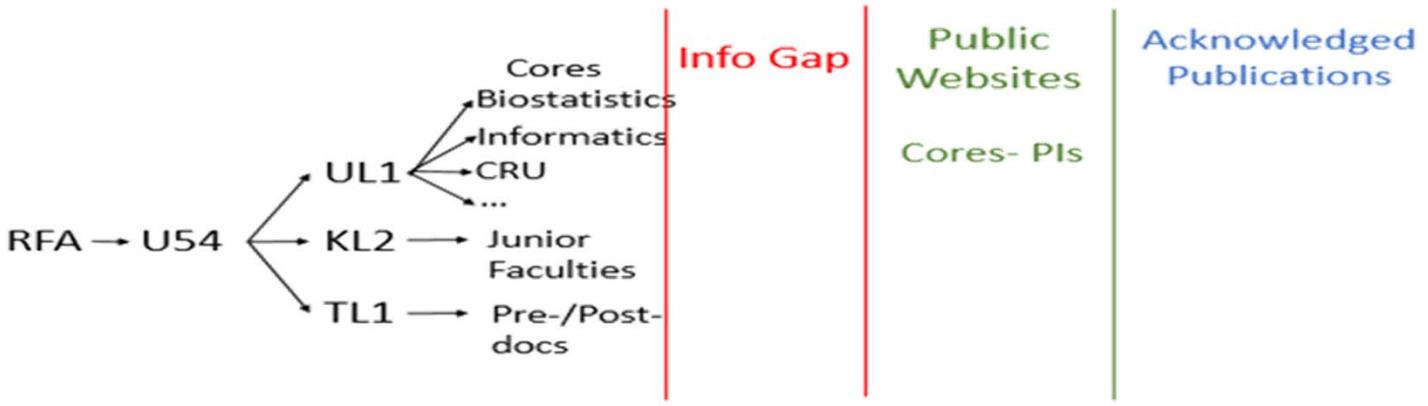
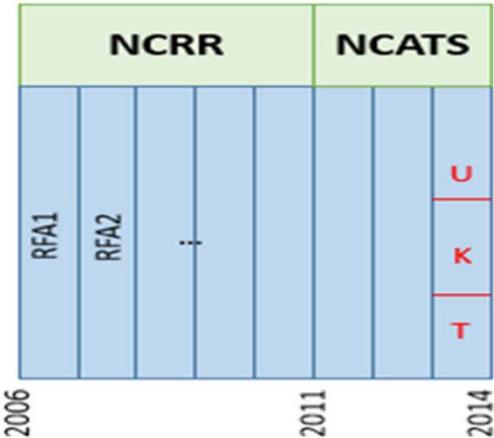
# CTSA Complexity

## Three Components

### U award (cooperative agreement)

- *Overarching topics*: informatics, integration of health and research, diversity, community engagement, quality and team science
- *Required modules*: Workforce development, research design, regulatory knowledge, pilot studies, participant interactions, special populations
- *Optional modules* in areas of institutional strength or opportunity
- *Network support*: multi-site studies (IRB, contracting), and recruitment (EHR, on-the ground recruitment support)
- **K award** – Mentored career development
- **T award** – NRSA Training Award **(RFA TR 14-009)**

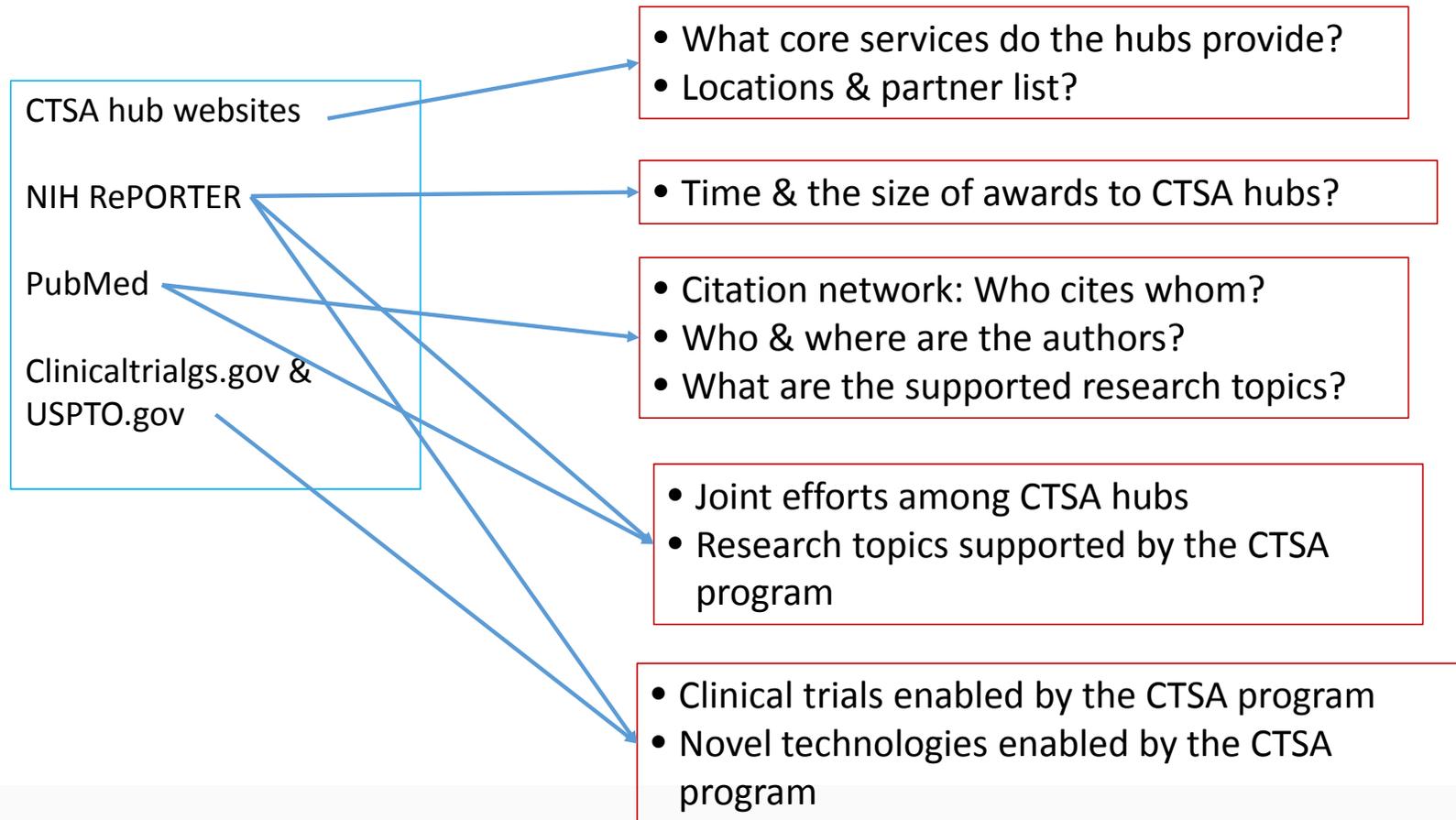
# Step 1. Information sources and gaps



# Data Sources & Associations



# Data Sources & Questions



## Step 2. Identifying CTSA awards

- Search by RFAs: *RFA-RM-06-002, RFA-RM-07-002, RFA-RM-07-006, RFA-RM-07-007, RFA-RM-08-002, RFA-RM-09-004, RFA-RM-09-019, RFA-RM-10-001, RFA-RM-10-020, RFA-RR-10-007, RFA-RR-11-004, RFA-TR-12-00*
- *Complications:*
  - *Change in IC*
  - *Come in as U54, which are then (usually) split into UL1, KL2 & TL1*
  - *Types of awards: 1, 3, 4, 5, 7, 8*

# Step 2. Identifying CTSA awards

Total in NIH RePorter  
(search by RFA)

**2700**

Type 1 only

**383**

Distinct CTSA hubs

**62**

admin	date	Project number	type	activity	year	organization	mechanism
NCRR	29-Sep-06	1TL1RR024 147-01	1	TL1	1	UNIVERSITY OF TEXAS HLTH SCI CTR HOUSTON	Training; Institutional
NCRR	5-Sep-07	5TL1RR024 147-02	5	TL1	2	UNIVERSITY OF TEXAS HLTH SCI CTR HOUSTON	Training; Institutional
NCRR	20-Aug-08	5TL1RR024 147-03	5	TL1	3	UNIVERSITY OF TEXAS HLTH SCI CTR HOUSTON	Training; Institutional
NCRR	25-Sep-09	5TL1RR024 147-04	5	TL1	4	UNIVERSITY OF TEXAS HLTH SCI CTR HOUSTON	Training; Institutional
NCRR	3-Aug-10	5TL1RR024 147-05	5	TL1	5	UNIVERSITY OF TEXAS HLTH SCI CTR HOUSTON	Training; Institutional
NCRR	25-Aug-11	3TL1RR024 147-05S1	3	TL1	5	UNIVERSITY OF TEXAS HLTH SCI CTR HOUSTON	Training; Institutional

Activity Code	Category	Title	Number of Grants
KL2	Research Career Programs	Mentored Career Development Award	135
TL1	Training Programs	Linked Training Award	105
U54	Cooperative Agreements	Specialized Center--Cooperative Agreements	4
UL1	Cooperative Agreements	Linked Specialized Center Cooperative Agreement	135



**Achievements**  
The CCTS provides critical assistance to investigators in the effort to improve human health

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**News and Announcements**  
Get the latest news and announcements from the CCTS

**Achievements**  
See what we've accomplished

## Center for Clinical & Translational Science

The University of Utah Center for Clinical and Translational Science (CCTS) serves as an academic home for clinical and translational research, developing innovative health services for the community and researchers, and training a new generation of clinical and translational investigators.

### Eight Core Areas

The CCTS is composed of eight different core areas:

- [Biomedical Informatics](#)
- [Clinical Services](#)
- [Community Outreach & Collaboration](#)
- [Patient-Centered Research Methods](#)
- [Recruitment, Retention & Safety](#)
- [Research Education, Training, & Career Development](#)
- [Study Design & Biostatistics Center](#)
- [Translational Technologies & Resources](#)

**Apply To Use CCTS Resources**

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**Featured Videos**

Research Participant Stories - For...

CTSI: Accelerating Research to Improve Health

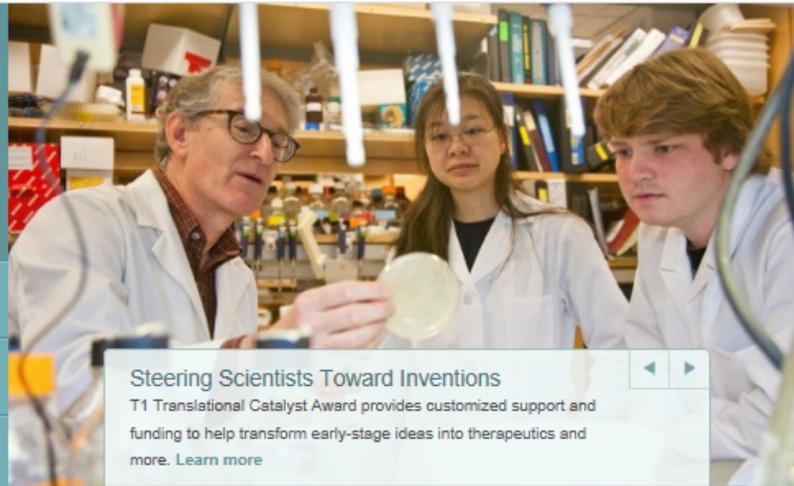
FEEDBACK

# See how CTSI is accelerating research to improve health

▶ ENABLING TRANSLATIONAL RESEARCH

▶ BUILDING INNOVATIVE PARTNERSHIPS

▶ ACHIEVEMENTS



### Steering Scientists Toward Inventions

T1 Translational Catalyst Award provides customized support and funding to help transform early-stage ideas into therapeutics and more. [Learn more](#)

#### NEWS

[View All](#)

FEATURED

#### UCSF Innovation Partners Collaborate to Accelerate Promising Research



June 29, 2015  
Promising early stage research highlighted at Spring 2015 Catalyst Awards event.

[Read more](#)

FEATURED

#### Landmark LGBTQ Health Study Brings Novel Approach to Participant Engagement



June 24, 2015

#### CALENDAR

[View All](#)

Events

JUL 30 **HBA Dine Around with June Lee, MD: Translating Discovery to Products in Academia**

AUG 05 **"Catalyzing the Next Generation of Healthcare Technologies and New Medicines"**

### ONLYUCSF150

#### TRACKING PROGRESS



Dashboard



Infographics

CTSI is pushing UCSF to  
**INNOVATE**  
IN TRANSLATIONAL  
**SCIENCE**

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[Home](#) > [Centers](#) > [ICTR](#) > [Overview of ICTR Cores](#)



## Harold and Muriel Block **INSTITUTE FOR CLINICAL AND TRANSLATIONAL RESEARCH** at Einstein and Montefiore

Founded on the partnership between Albert Einstein College of Medicine and Montefiore Medical Center, the ICTR has helped cement that collaboration in clinical and translation research since 2007.

The ICTR is a member of the nationwide Clinical and Translational Science Awards (CTSA) consortium, funded by the National Institutes of Health (NIH). The CTSA is designed to break down barriers that inhibit cross-disciplinary, bidirectional research from the laboratory to the clinic and back again.

Descriptions of Cores are located under [Services](#) or can be found by hovering over the core bubbles below.



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### ICTR SERVICES >

RET

BERD

RIC

CISC

OCT

BioR

BARC

CECC

PAR

### COLLABORATION ZONE >

• [Search for Grant Opportunities >](#)

# Step 3. CTSA websites



University	Resource
Albert Einstein College of Medicine	RESEARCH TRAINING, EDUCATION AND CAREER DEVELOPMENT PROGRAMS (RET)
Albert Einstein College of Medicine	BIostatISTICS, EPIDEMIOLOGY & RESEARCH DESIGN CORE (BERD)
Albert Einstein College of Medicine	RESEARCH INFORMATICS CORE (RIC)
Albert Einstein College of Medicine	CLINICAL INVESTIGATION SERVICES CORE (CISC)
Albert Einstein College of Medicine	OFFICE OF CLINICAL TRIALS (OCT)
Albert Einstein College of Medicine	BIOREPOSITORY CORE (BIOR)
Albert Einstein College of Medicine	BIOMARKER ANALYTIC RESEARCH CORE (BARC)
Albert Einstein College of Medicine	COMMUNITY ENGAGEMENT CONSULTATION CORE (CECC)
Albert Einstein College of Medicine	PROJECT ACCELERATION RESOURCE (PAR)

## Examples of normalizing services

Before:	After:
Genomics	Genomics
Genomics & Proteomics	Genomics
Genomics and Microarray Core	Proteomics
Genomics Core	Genomics
Genomics Core (GCF)	Microarray
Genomics Core Facility	Genomics
Genomics Core (Immunology Dept.)	Genomics
Genomics Research Core	Genomics
Genomics Services Overview	Genomics
GENOMICS SHARED RESOURCE	Genomics
Genomics and Bioinformatics Core	Genomics
Genomics/Genetics	Bioinformatics
	Genomics
	Genetics

Albert Einstein College of Medicine:  
<http://www.einstein.yu.edu/centers/ictr/>

## Step 3. CTSA websites

Which CTSA hubs provide services on biomarkers?

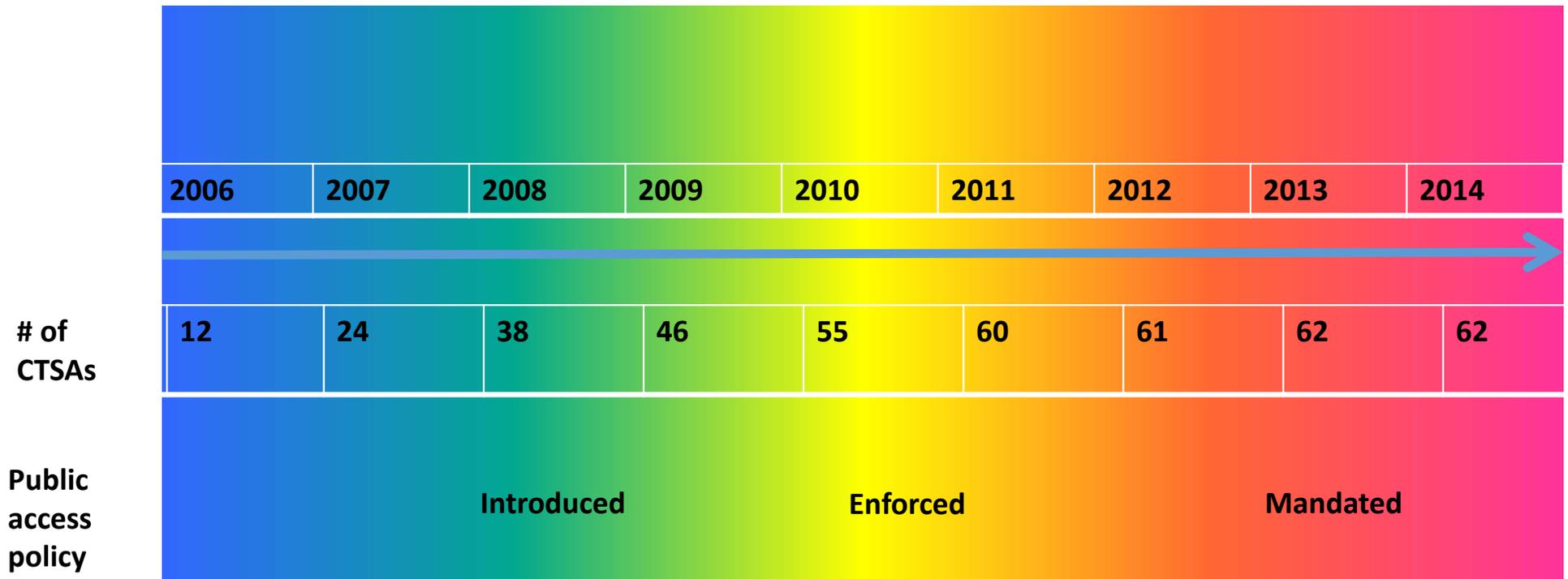
service ID	CTSA institution	Services	Keyword
159	University of Arkansas for Medical Sciences	Biomarker Analysis	Biomarker
160	Albert Einstein College of Medicine	BIOMARKER ANALYSIS	Biomarker
161	University of California Los Angeles	Biomarker Discovery Platform	Biomarker
162	University of North Carolina at Chapel Hill	Biomarker Mass Spectrometry	Biomarker
163	Columbia University	Biomarker	Biomarker
215	Indiana University School of Medicine	Bioplex Biomarker Assay	Biomarker
487	University of Miami	Biomarkers	Biomarker
1067	University of Massachusetts Medical School, Worcester	High Throughput Biomarker	Biomarker
1373	University of Texas Health Science Center at Houston	Biomarker	Biomarker
1661	Johns Hopkins University	PROTEOMIC BIOMARKER	Biomarker
1902	University of Pittsburgh	Small Molecule Biomarker	Biomarker

## Step 4: Publications

*What can we learn from publications?*

- Collaborations. Does CTSA program promote team science?
- Topics of the supported research
- Clinical trials

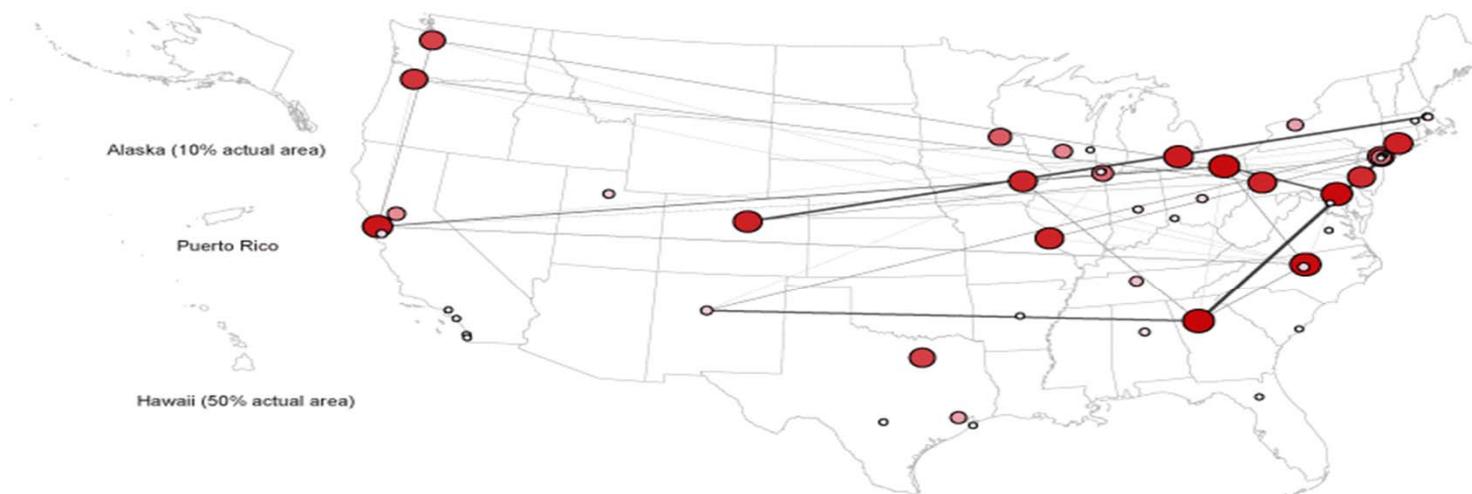
# Public access



# Collaborations among CTSA

## Geospatial Network

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May 18, 2015 | 02:34:21 PM EDT



CNS ([cns.iu.edu](http://cns.iu.edu))

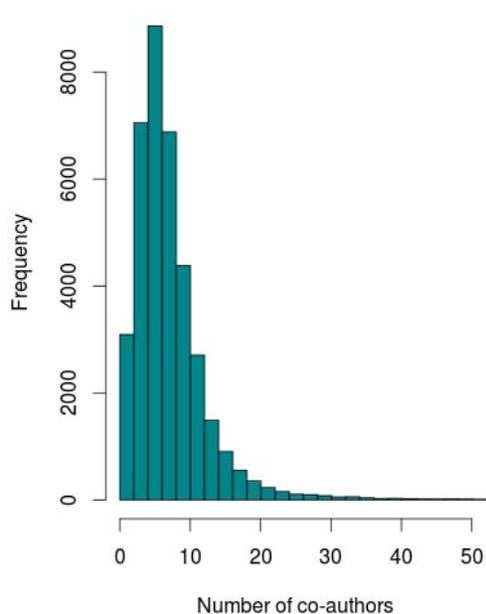
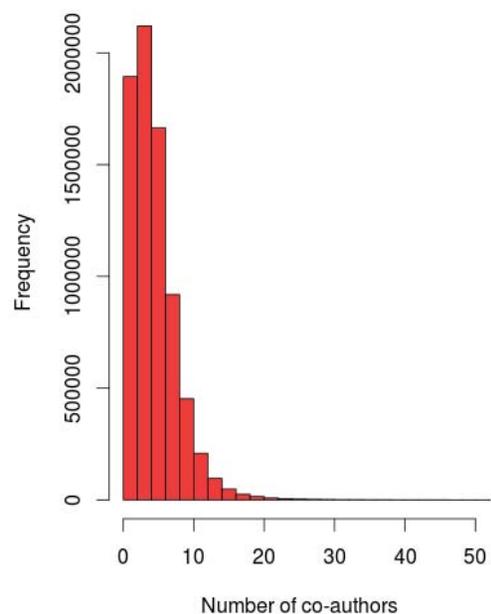


# Collaborations

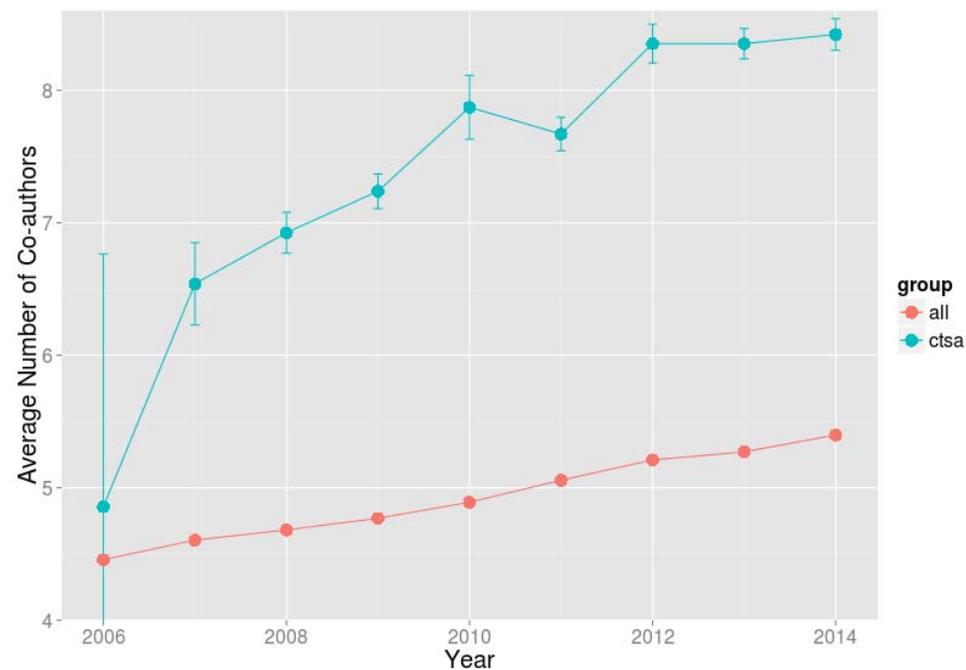
## Number of Co-Authors for All Publications and CTSA Supported Publications During 2006-2014

### All Publication 2006-2014

### CTSA Publication 2006-2014

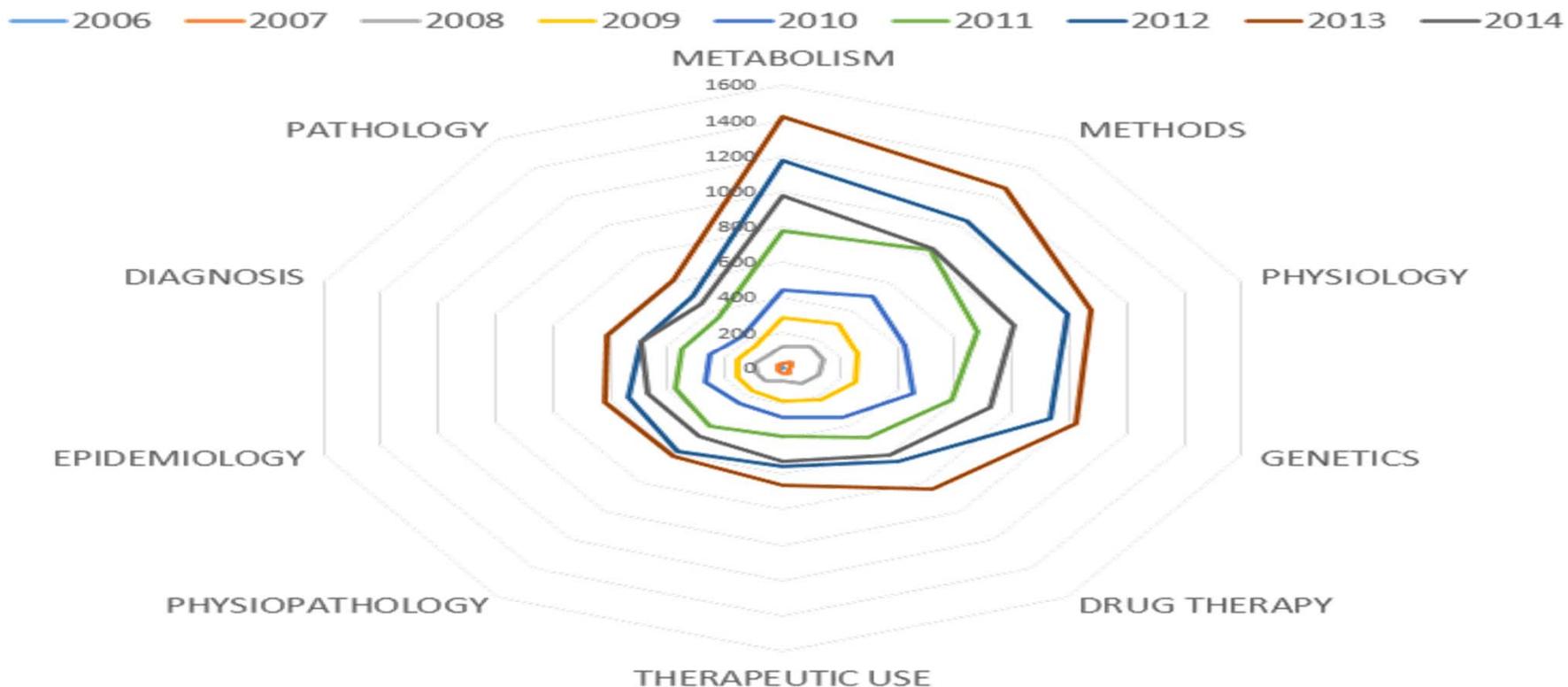


## Average Number of Co-Authors for All PubMed Publications and CTSA Supported Publications Over Year



CTSA supported publications have in average more co-authors than all PubMed publications.

# CTSA Supported Scientific topics via Mesh terms



Mesh terms (qualifier) are used as general topics from CTSA supported publications. The figure shows the trend of topic change over year.

# CTSA Supported Scientific topics via Mesh terms

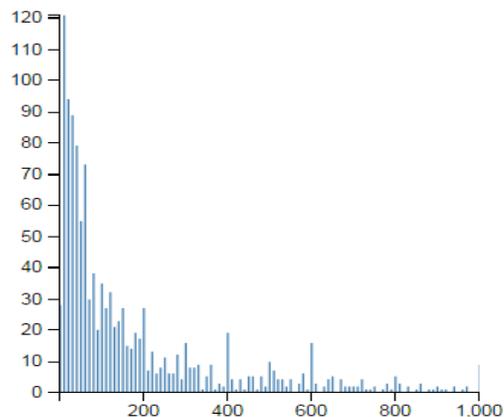
Top 30 topics extracted using PubMed paper titles;

Topics are summarized from keywords by us (for now)

Topic No	Topic	Topic No	Topic
1	Health care	16	Receptor
2	Cardiovascular risk study	17	Human HIV virus
3	Clinical research- community	18	Pregnancy
4	Obesity risk and differences	19	Diabetes
5	Stem cell & gene	20	Asthma
6	Depression	21	Life quality
7	Breast cancer	22	Imaging
8	Insulin	23	Lupus
9	Tumor cells	24	Data analysis
10	Brain function	25	Liver, kidney transplantation
11	Protein & kinase	26	Clinical pain
12	Heart failure	27	HIV therapy
13	Genetic analysis	28	Brain injury
14	Electronic clinical data	29	Weight loss
15	Clinical trials	30	Hypertension

# Clinical trials

ClinicalTrial by Enrollment (bar)



- Distributions of number of enrollment (long tail beyond 1000 is cut off for better visualization)

Enrollment Category		0
<input type="checkbox"/>	small(0-99)	649
<input type="checkbox"/>	medidum(100-499)	439
<input type="checkbox"/>	super(>=1000)	150
<input type="checkbox"/>	large(500-999)	121

## Top 10 studied conditions in CTSA supported clinical trials

Ranking	Condition	Number of Clinical Trials	Ranking	Condition	Number of Clinical Trials
1	HIV Infections	82	6	Cystic Fibrosis	27
2	Obesity	77	7	Asthma	25
3	Depression	39	8	Healthy	24
4	Hypertension	34	9	Diabetes	23
5	Cardiovascular Diseases	32	10	Heart Diseases	23

# Conclusions

- The use of publically available data requires the knowledge of internal business processes
- Linking diverse data source is possible with understanding of their detailed relationships
- CTSAs support
  - team science
  - diverse scientific areas
  - clinical trials
- **Please share with us your experience!!**
  - **What data sources you found useful for answering your questions?**
  - **Did you develop guidance for using these data sources?**

# Acknowledgements

## **NCATS**

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Bobbi Gardner

DCI

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