Institute of Clinical and Translational Sciences

Washington University in St. Louis
School of Medicine

Tracking and Evaluation on the Individual and Enterprise Level

Washington University Institute of Clinical and Translational Sciences Tracking & Evaluation team: WU ICTS Administrative Core, WU Clinical Research Training Center, WU Center for Public Health Systems Science, and Bernard Becker Medical Library

Center for Public Health Systems Science

CLINICAL RESEARCH TRAINING CENTER (CRTC)

BERNARD BECKER MEDICAL LIBRARY
delivering knowledge, informing decisions

Supported by the Clinical and Translational Science Award (CTSA) program of the National Center for Advancing Translational Sciences (NCATS) at the National Institutes of Health (NIH). Grant Numbers UL1 TR000448, KL2 TR000450, TL1 TR000449

Introductions

ICTS T&E

WORKSHOP ATTENDEES

Acknowledgement

Supported by the Clinical and Translational Science Award (CTSA) program of the National Center for Advancing Translational Sciences (NCATS) at the National Institutes of Health (NIH) Grant Numbers UL1 TR000448, KL2 TR000450, TL1 TR000449

Introduction to CTSAs and ICTS

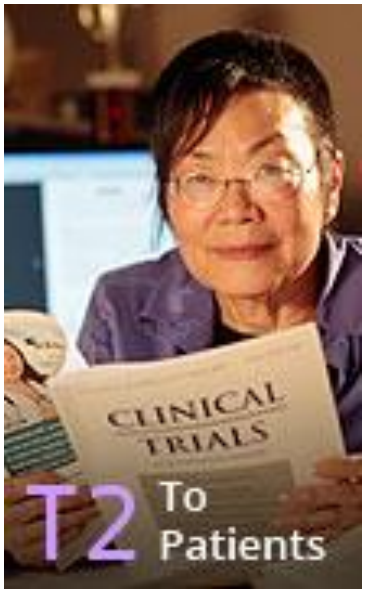
Kristi L. Holmes, PhD

Hold on to your hats.

Objectives

1. Understand the **activities, tools, and logistics for assessing** research productivity
2. Have a better understanding of **evaluation activities for groups or individuals** anywhere along the academic career trajectory, from scholars to tenured faculty
3. Understand **data sources** and **how they can be leveraged** in assessment of impact and research discovery
4. Understand **how to tell the story of research impact** and **strategies to enhance research impact**

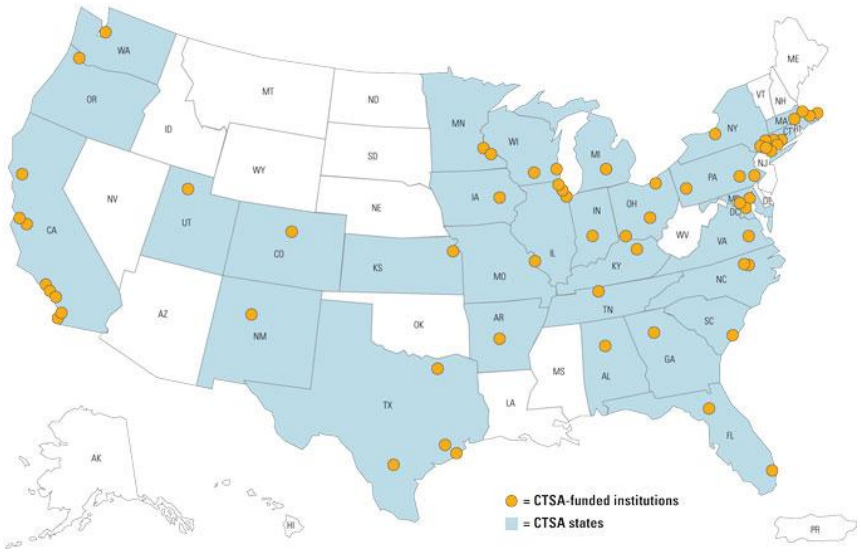
Institute of Clinical and Translational Sciences



Translational Research

Working Together, Sharing a Vision

The CTSA Consortium aims to improve human health by transforming the research and training environment to enhance the efficiency and quality of clinical and translational research.



The CTSA consortium has five *Strategic Goals*:

- National Clinical and Translational Research Capability
- The Training and Career Development of Clinical and Translational Scientists
- Consortium-Wide Collaborations
- The Health of our Communities and the Nation
- T1 Translational Research

From https://www.ctsacentral.org/about-us/ctsa

ICTS Strategic Goals

- Transform our **research support infrastructure** to foster multidisciplinary clinical & translational research
- Expand & enhance clinical & translational **research education**
- Promote & facilitate **regional & national partnerships**

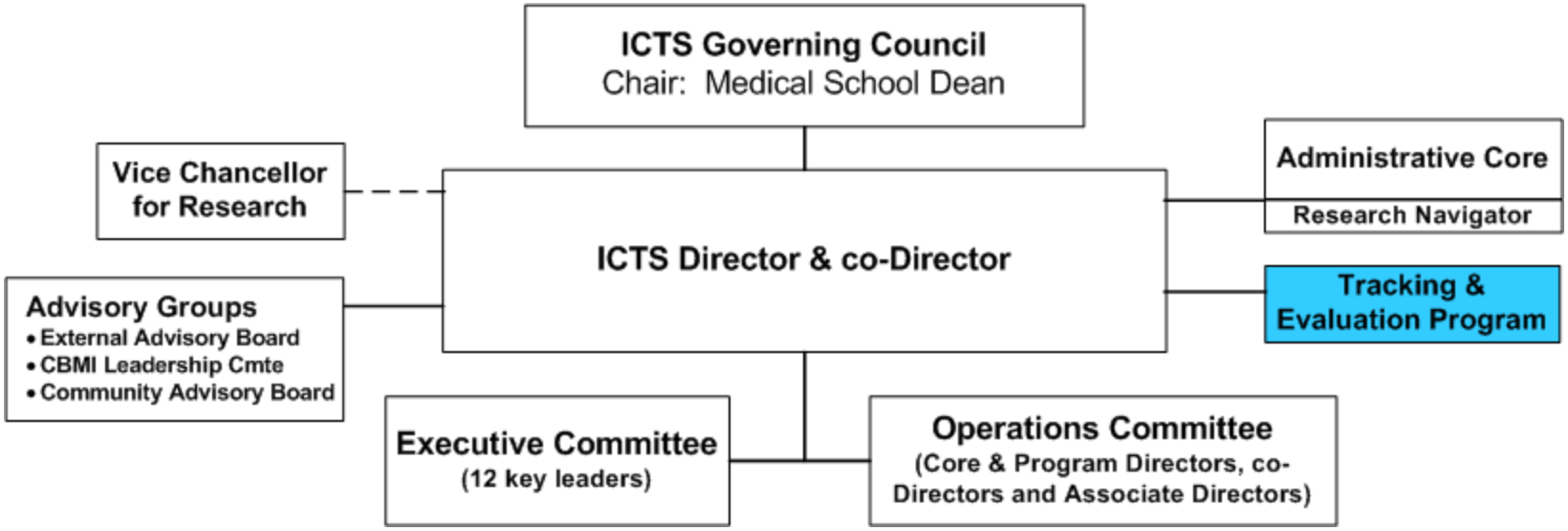
ICTS Tracking & Evaluation Goals

- Track and monitor the **integration of services and activities** of the overall ICTS, and ICTS cores. *(ICTS Goal 1)*
- Assess the growth in **scientific capacity** resulting from the ICTS education and training activities *(ICTS Goal 1)*
- Assess the growth in scientific and institutional **collaborations and communication** as a function of ICTS activities. *(ICTS Goal 3)*
- Evaluate the **impact** of the ICTS on scientific and scholarly work *(ICTS Goal 2)*

An interdisciplinary approach to tracking and evaluation

- **AC:** ICTS Administrative Core
- **Becker:** Bernard Becker Medical Library
- **CPHSS:** Center for Public Health Systems Science
- **CRTC:** Clinical Research Training Center

T&E Reports to ICTS Governance



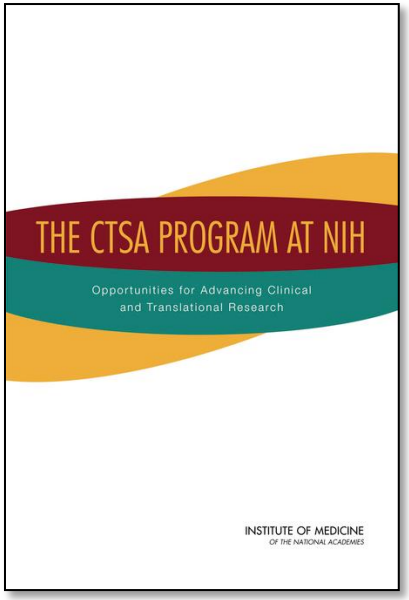
- Accountable to ICTS Director
- Periodic reports to all levels of governance as well as NIH/NCATS

What to count? What matters?

IOM CTSA Report released 6/25/13

Areas of emphasis:

- *Formalize and standardize evaluation processes for individual CTSAs and CTSA Program*
- Advance innovation in education and training programs
- Ensure community engagement in all phases of research
- Strengthen clinical and translational research relevant to child health
- Further engage strategic partnerships with a range of public/private partners (patients groups, industry, foundations, NIH Institutes, etc.)
- Build on the strengths of individual CTSAs across the spectrum of clinical/translational research



http://http://goo.gl/zykHVQ

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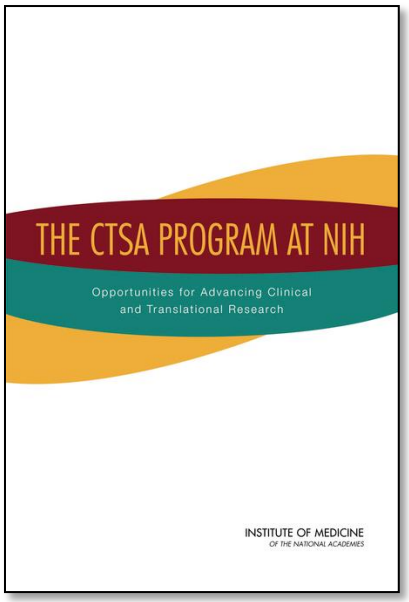


Formalize and standardize evaluation processes for individual CTSAs and the CTSA Program

The evaluations should use clear, consistent, and innovative metrics that align with the program's mission and goals and that go beyond standard academic benchmarks of publications and number of grant awards to assess the CTSA Program and the individual CTSAs.

http://http://goo.gl/zykHVQ

15 Consortium Wide Metrics

Data Collection & Analysis

- *Time* from IRB submission to approval – IOM studies
- Studies meeting *accrual* goals
- *Time* from notice of grant award to study opening (e.g., investigator initiated studies)
- *Number* of technology transfer products
- *Volume* of investigators who used services
- *Volume* of types of services used
- *Time* to publication
- *ROI* of pilot and KL2 scholars
- *Time* from publication to a research synthesis

Impact

- **Influence** of research publication (e.g., observed/expected citations)
- **Researcher collaboration** (e.g., team science; collaboration index)
- **Career development**
- **Career trajectory** (e.g., K-R transition)
- **Institutional collaboration (**public-private; cross-institutional; community)
- **Satisfaction/**needs assessment

https://www.ctsacentral.org/sites/default/files/documents/EvaluationF2F_Summary_20121018.pdf

The workshop

Workshop Outline

- Areas of Focus
  - Scientific Productivity
  - Scientific Collaboration
  - Integration of ICTS Operations
  - Dissemination
  - Impact
- Supporting dissemination and impact
- Open Discussion

Questions?

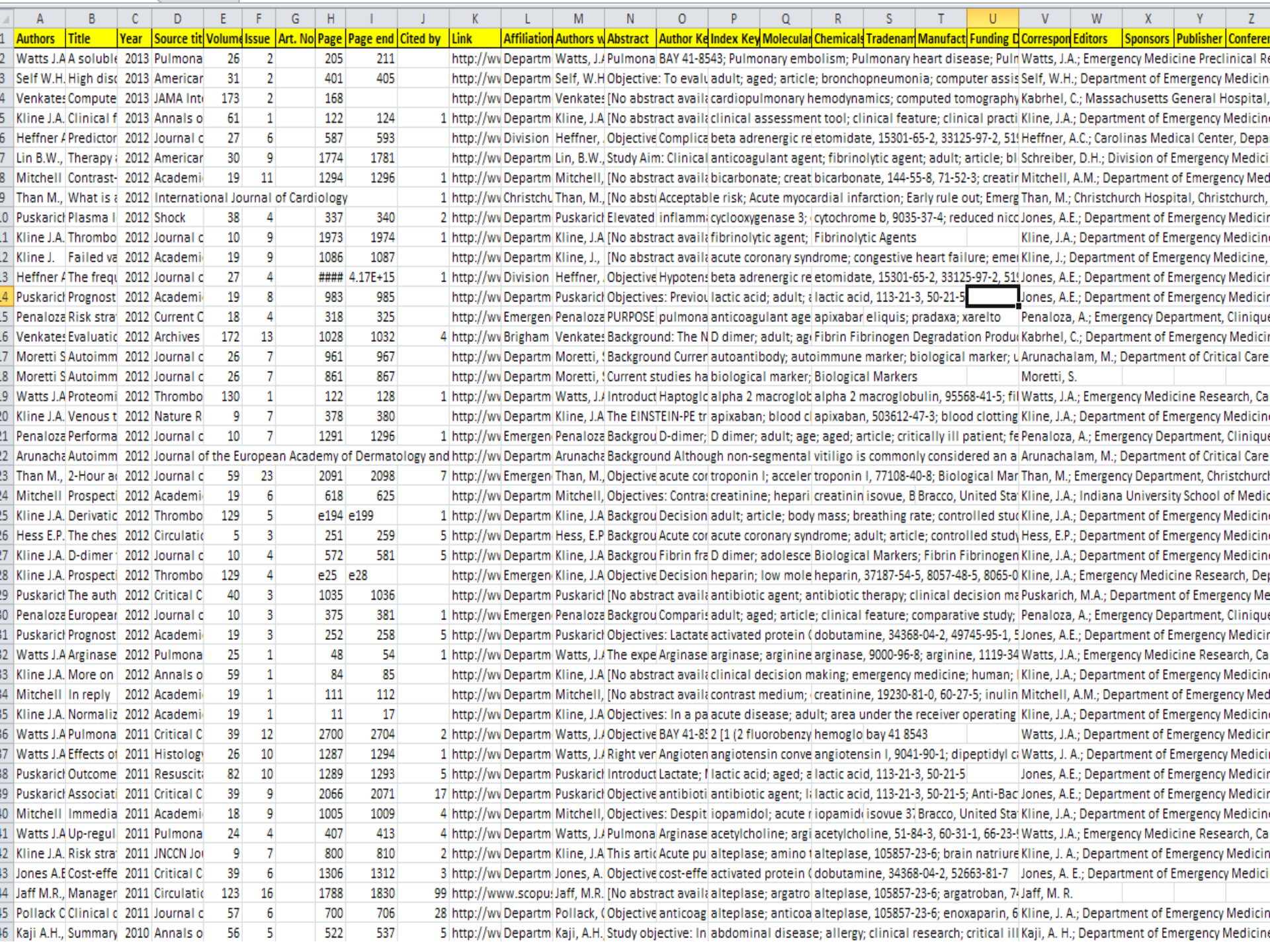
Scientific Productivity

Cathy C. Sarli, MLS, AHIP

Defined as scholarly, peer-reviewed articles authored by ICTS members.

Scientific Productivity

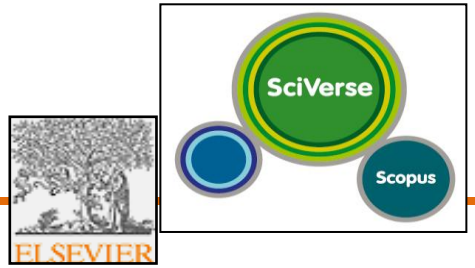
- Data
  - Publication and citation data
    - Databases
    - Self-reported
- Analysis
  - Bibliometrics
  - Manual review
  - SNA
- Impact
  - Scientific visibility of publications
  - Change in collaboration or authorship patterns



Publication Data: Annual Capture

Process:

- Annual publication data capture for ICTS members from *Scopus* via csv. file.
  - Article
  - Conference Paper
  - Review
  - Short Survey
- Each ICTS member has unique ID.
- ICTS members divided into cohorts to track progress over time.
- All ICTS members, former and current, included in the annual publication capture.
- Publication files sent to CPHSS for clean-up



Publication Data: Challenges

Challenges with Capture:

- Tracking new and former ICTS members.
- Author disambiguation:
  - Splitting
  - Lumping
- Did we capture all publications?
  - Self-reporting and serendipity

Challenges with Clean-up:

- Duplicate entries for same record (authorship or database quirk).
  - ISSN
  - PMID
  - DOI
  - Scopus link to record
- Final manual clean-up required.

Citation Data: Annual Capture and Challenges

Process:

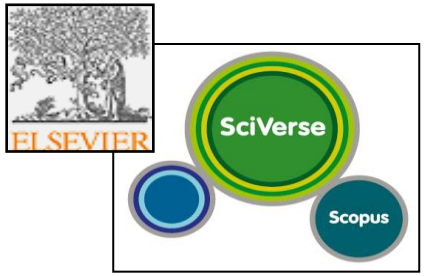
- Top 50 cited articles from *Scopus* compared to *Web of Science* citation data on annual basis.
- *Web of Science* citation data analyzed using *Essential Science Indicators* on annual basis.
  - Hot Papers
  - Highly Cited Papers
  - Core Papers (Research Fronts)
- Citation data from *Scopus* and *Web of Science* used for reporting and other purposes.

Definition:

A citation is a reference to a specific publication.

Challenges:

- Manual process
- Are citations indicative of significance?



Publication/Citation Data: Five ICTS Examples

- Benchmarking
- Scientific Visibility and Influence
- Authorship Patterns
- Timeframe from Funding to Publication
- Timeframe from Publication to Outcomes

Why?

Narratives of “success stories” based on ICTS-supported research.

Publication Data Elements	2008	2012
Publications in Scopus	2,365	3,160
States represented	49	49
Articles	1,968	2,679
Reviews	288	477
Unique journal titles	938	1,244

2008 Top Ten Article Words

2008 Top Eight Journals

1. J. of Biological Chemistry
2. J. of Pediatrics
3. American J. of Ob. and Gynecology
4. Blood
5. PNAS
6. J. of Immunology
7. Inf. Control and Hosp. Epidemiology
8. J. of Virology

2012 Top Ten Article Words

2012 Top Eight Journals

1. PLoS ONE
2. J. of Biological Chemistry
3. PNAS
4. Blood
5. Nature
6. J. of Virology
7. American J. of Ob. and Gynecology
8. Neurology and J. of Neurology (tied)

Publication Activity: 2008 and 2012

Scientific Visibility and Influence: Citations and ICTS Members (2010-2012)

In 2012, ICTS members co-authored publications with authors from every other CTSA institution (60).

Beau M. Ances, MD, PhD, MSc
Associate Professor of Neurology at Washington University in St. Louis

Creutzfeldt-Jakob Disease (CJD) is a rapidly progressive neurodegenerative disease (RPD) with diagnosis often made at autopsy. The goal of this work is to identify early changes in the brain structure due to CJD. This may allow for early intervention.

PMID: 22968768

Journal Article Published
Sept 2012 as Early E-Pub

2009

April 2009
Awarded JiT funding from ICTS to study Creutzfeldt-Jakob Disease (CJD): Diffusion Tensor Imaging (DTI) as an Early Biomarker of Cruetzfelt-Jakob Disease (CJD)

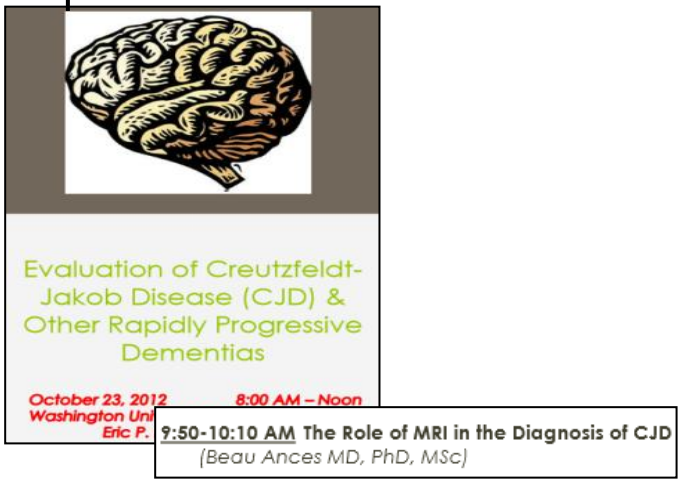
April 2010
Study completed

2010

FINDINGS:
Study results confirmed that cerebrospinal fluid abnormalities and magnetic resonance imaging (MRI) can assist in distinguishing CJD patients from non-prion RPD patients, calling for future longitudinal studies to evaluate pathological changes seen in CJD patients.

2012

Hosted Symposium
October 2012



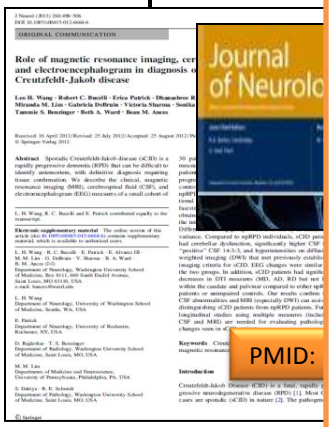
2013

Time from Funding to Publication

Beau M. Ances, MD, PhD, MSc
Associate Professor of Neurolog

2013

Journal Arti
Sept 2012 a



INITIAL OUTCOMES:

- Increase in knowledge of CJD and RPD.
- Creation of pilot data to support justification for future funding applications.
- New understanding of characterizations of patients with RPD.
- Identification of clinical and diagnostic tests to distinguish CJD from RPD, i.e., MRI and lumbar puncture.
- Identification of new research directions to pursue, i.e., longitudinal studies of pathological changes in CJD.
- Enhanced awareness of RPD and CJD via symposium.
- Recognition from the CJD Foundation as source of knowledge and assistance for patients and families.
- Increase in new referrals of patients as a result of the symposium.

Time From Publication to Outcomes with Promise for Clinical Synthesis

Recap

Uses of Publication and Citation Data:

- "Snapshot in Time" or Benchmarking.
- Track the 15 Consortium Metrics.
- Identify authorship/collaboration patterns.
- Identify publication practices.
- Identify and highlight promising publications, investigators or studies.
- Grant reporting and renewal purposes.
- Track NIH Public Access Policy compliance.

Challenges:

- What stories to tell of ICTS success?
- How and when to best "illustrate" numerical data.

Questions?

BREAK

Scientific Collaboration

Bobbi Carothers, PhD

Defined as activities that stem from ICTS scientific productivity.

Why Care About Collaboration?

- ICTS Aim 3: Assess the growth in scientific and institutional collaborations and communication as a function of ICTS activities
- Medical science is a collaborative process
- Necessary for translation from bench to practice & populations

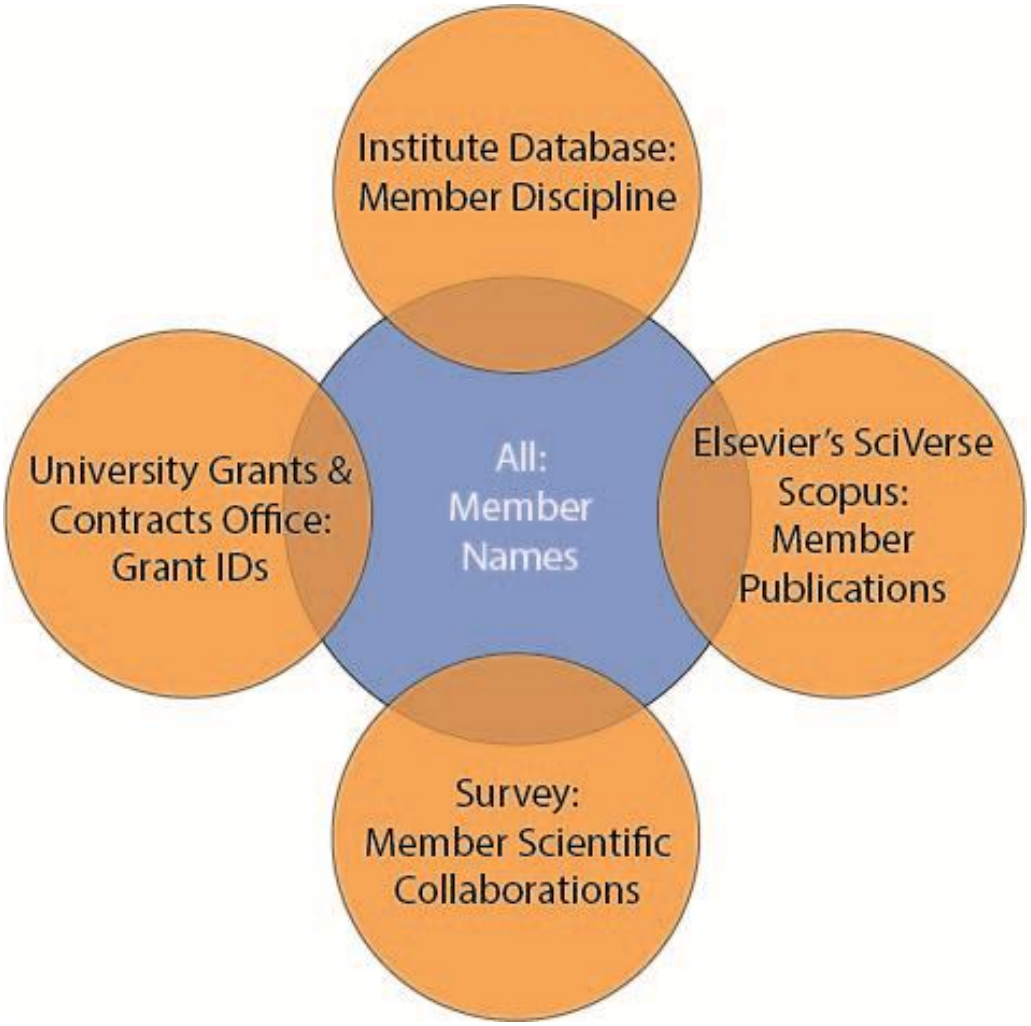
Collaboration Model

- Plan to work together
- Work together
- Disseminate results of the work

Collaboration Networks

- Data: Links between investigators
  - Grant Submissions
  - Research Collaborations
  - Publication Co-authorships
- Analysis: Social Network Analysis
  - Number of collaborations
  - Cross-discipline mix
- Impact: Change over time

DATA


Institute Database:
Member Discipline
University Grants &
Contracts Office:
Grant IDs
All:
Member
Names
Elsevier's SciVerse
Scopus:
Member
Publications
Survey:
Member Scientific
Collaborations

Collection

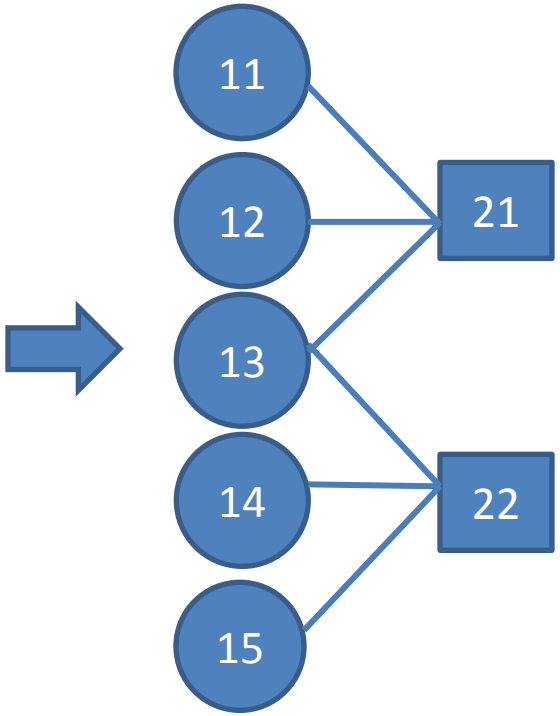
Relationship	Method	Frequency
Grant Submission	Administrative Records	Every 2 Years
Research Collaboration	Online Survey of Members (Qualtrics)	Every 2 Years
Publication Co-authorship	Literature Review	Annually

Grant Submissions

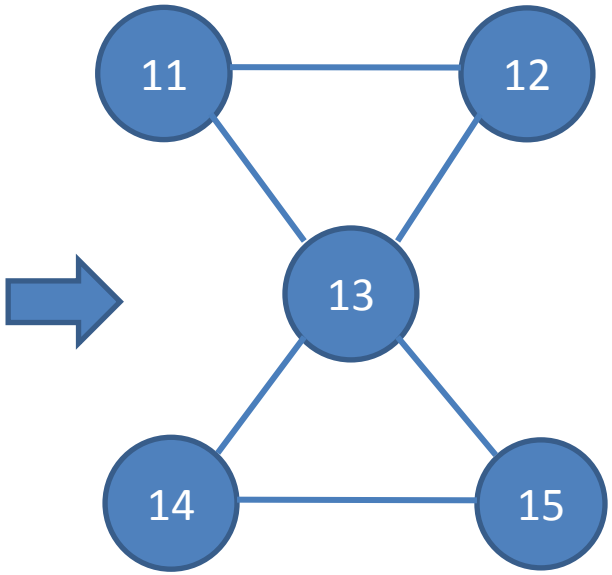
Raw Data

Member ID	Grant ID
11	21
12	21
13	21
13	22
14	22
15	22

Relationships between people & grants



Relationships between people



Research Collaborations

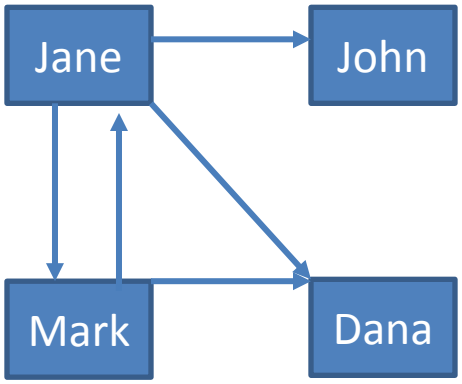
Raw Survey Data

Participant	Collaborator 1	Collaborator 2	Collaborator 3
Jane	Mark	John	Dana
Mark	Jane	Dana	

Participant/ Collaborator

Participant	Collaborator
Jane	Mark
Jane	John
Jane	Dana
Mark	Jane
Mark	Dana

Network



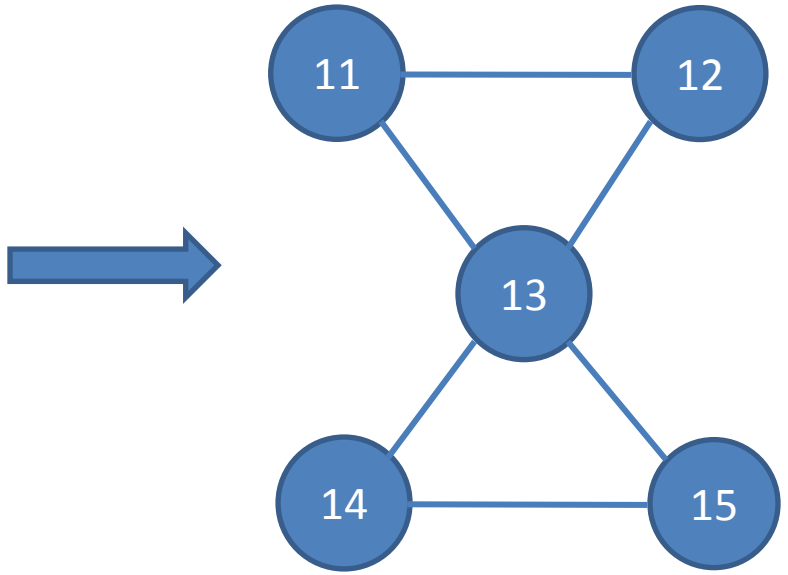
Publication Co-authorships

- Managed similarly to grant submissions

Raw Data

Member ID	Publication Title
11	Cool cancer treatment report
12	Cool cancer treatment report
13	Cool cancer treatment report
13	Nifty Alzheimer's gene report
14	Nifty Alzheimer's gene report
15	Nifty Alzheimer's gene report

Relationships



Challenges

- Research Collaborations
  - 1400 members → too many for participants to hunt through a drop-down list in order to find collaborators
  - Participants write in the names of their collaborators
    - Many are not ICTS members
    - Creative spelling
  - Labor-intensive data cleaning
- Publication Co-authorships
  - Variations in publication titles require cleaning
  - Not all publications appear with DOI or PubMed ID

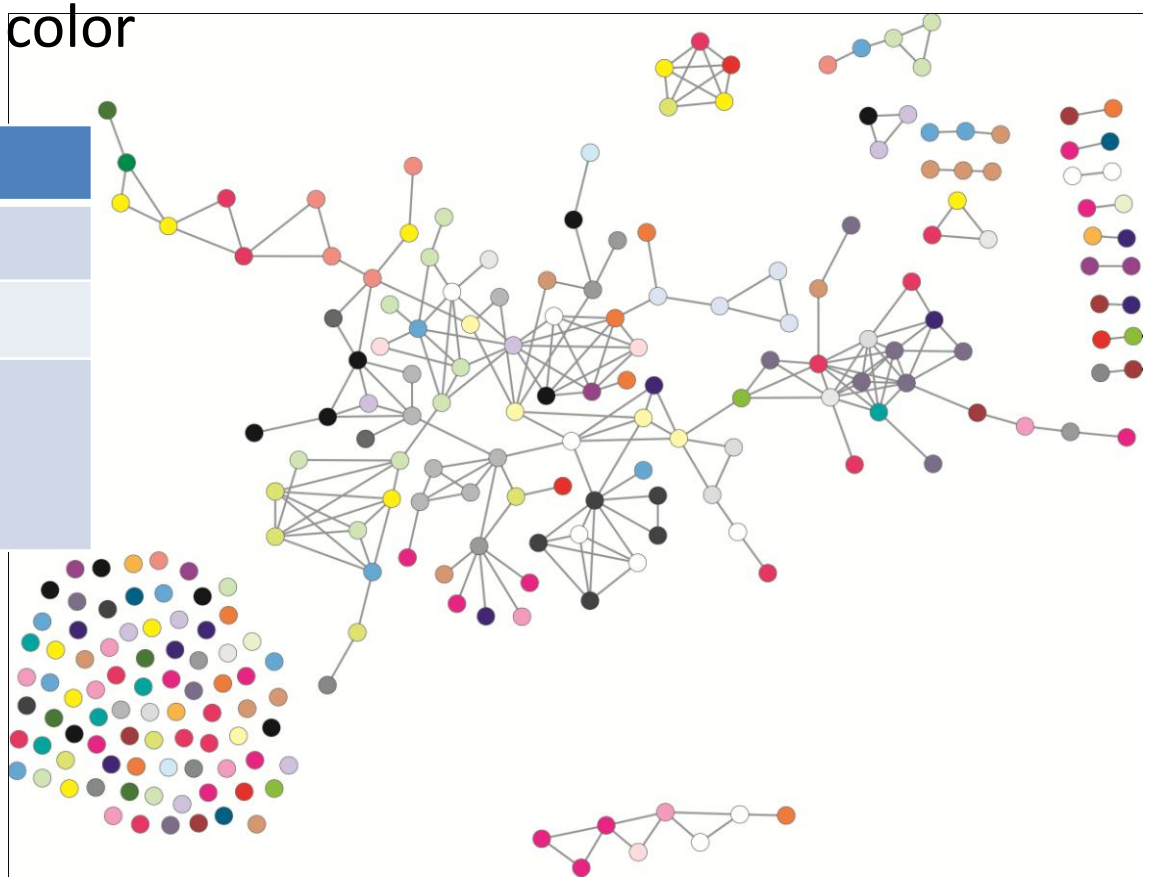
SOCIAL NETWORK ANALYSIS

Visualizations
Relationship Patterns

Grant submission network (2007)

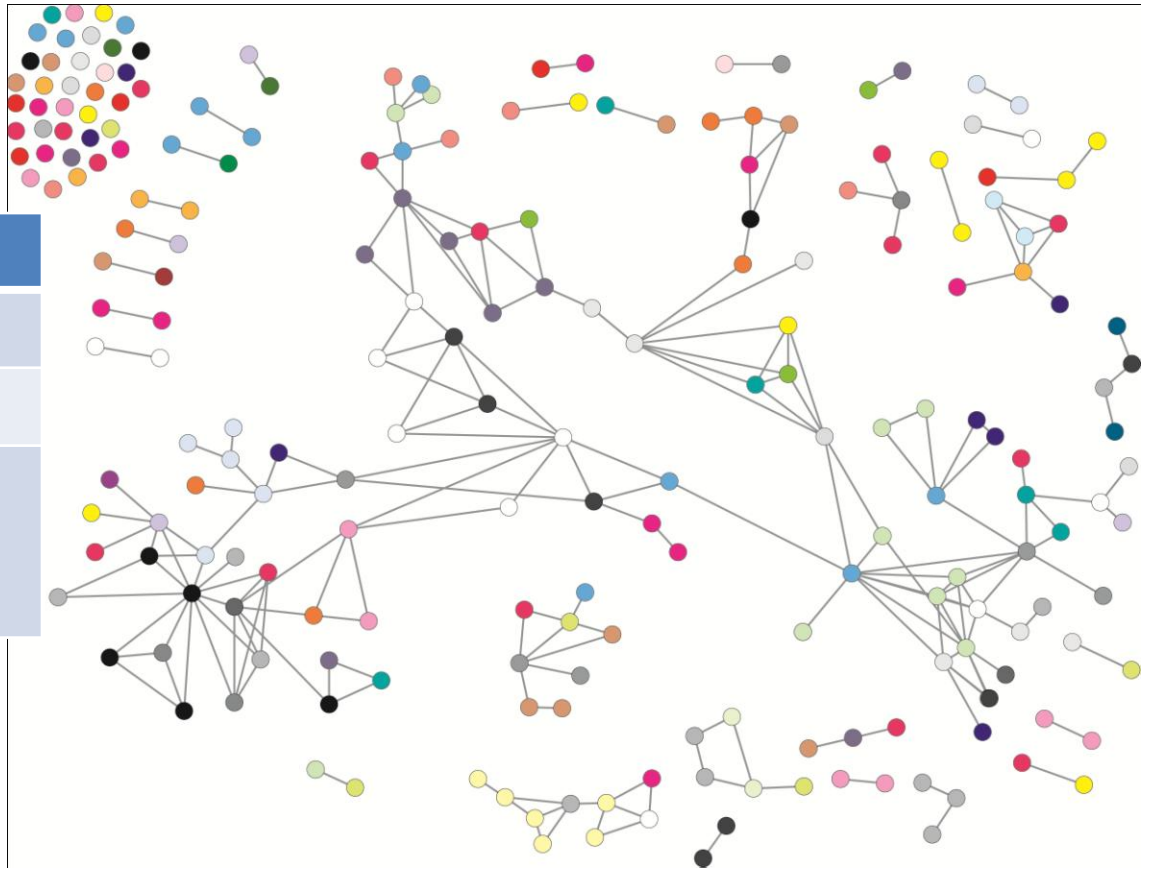
- Before ICTS grant
- Discipline denoted by color

Out of 387 members	
# Submitted grants	236
Average # of collaborators	1.92
Cross-discipline to within-discipline collaboration density ratio	.216



Publication Co-authorship Network (2007)

Out of 387 members	
# Published	221
Average # of collaborators	2.02
Cross-discipline to within-discipline collaboration density ratio	.191

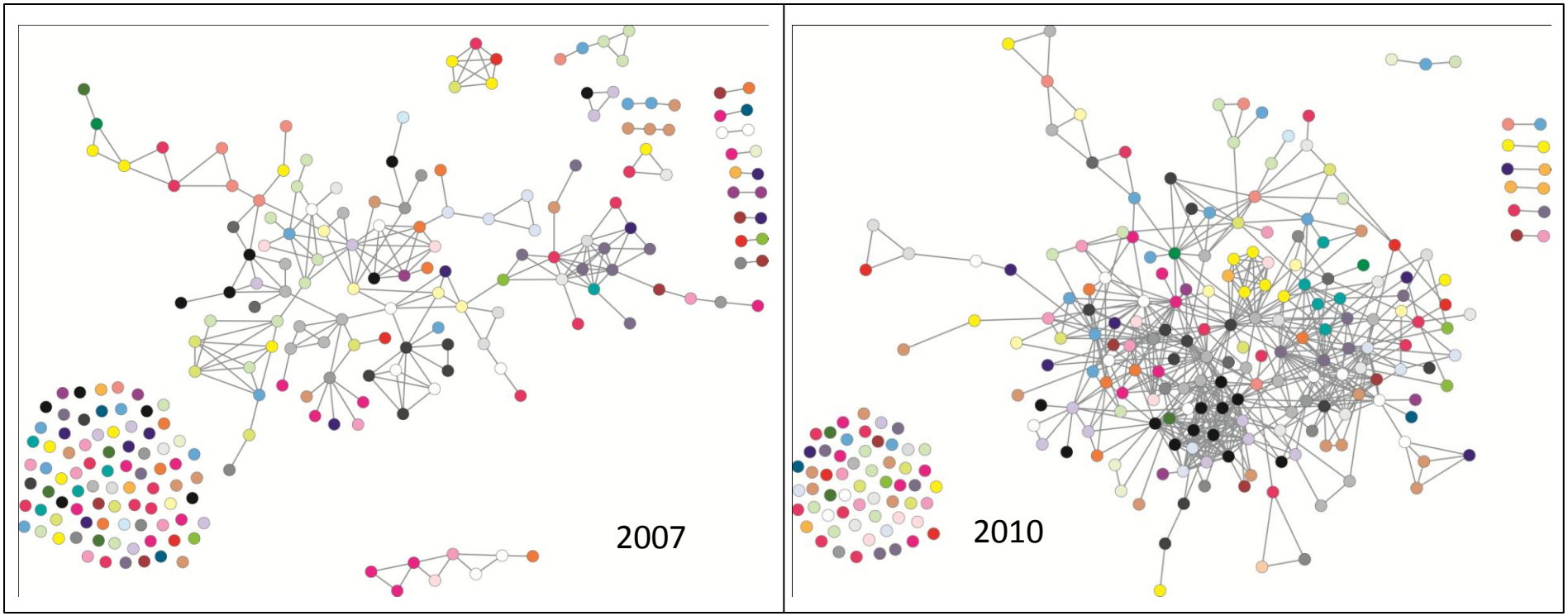


IMPACT

So what?

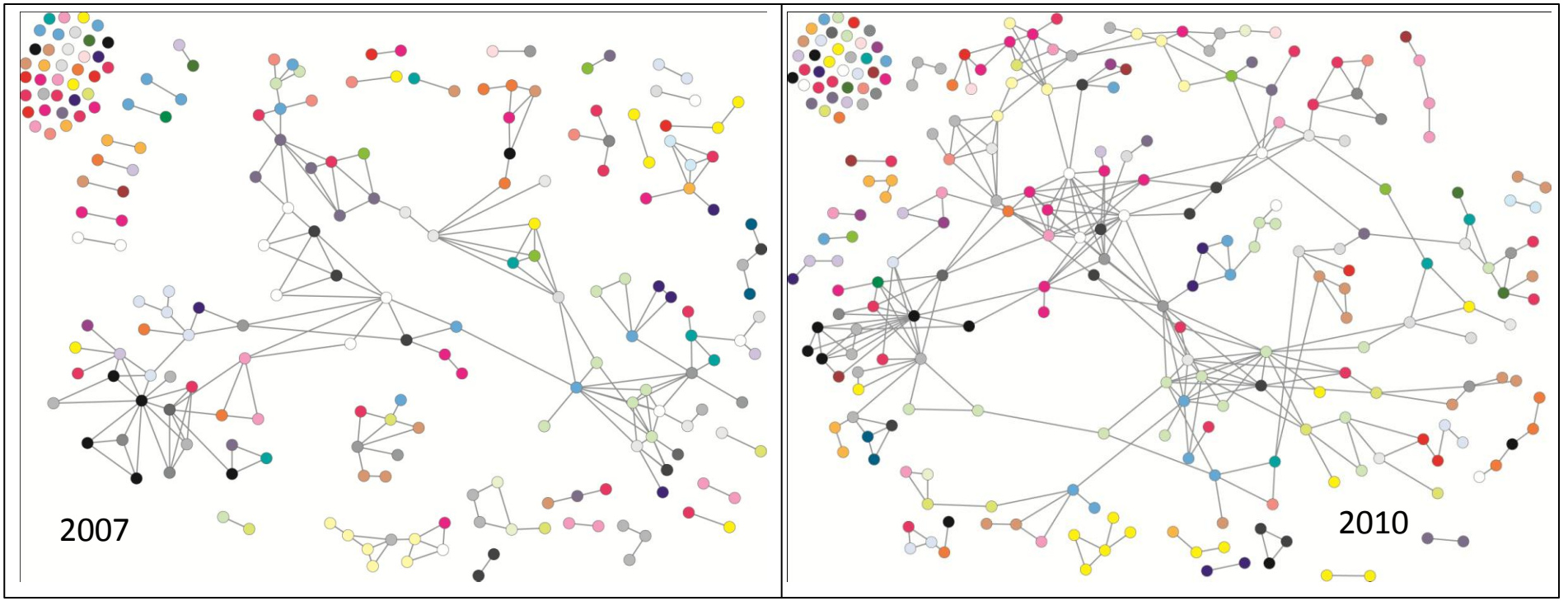
Change over time

Grant Submissions, 2007 vs. 2010



Year	# Members	Average # Collaborators	Cross- to Within-discipline Collaboration Density Ratio
2007	236	1.92	.216
2010	257	4.81	.436

Publication Co-authorships, 2007 vs. 2010



Year	# Members	Average # Collaborators	Cross- to Within-discipline Collaboration Density Ratio
2007	221	2.02	.191
2010	256	2.64	.230

Conclusions: Does ICTS Improve Collaboration?

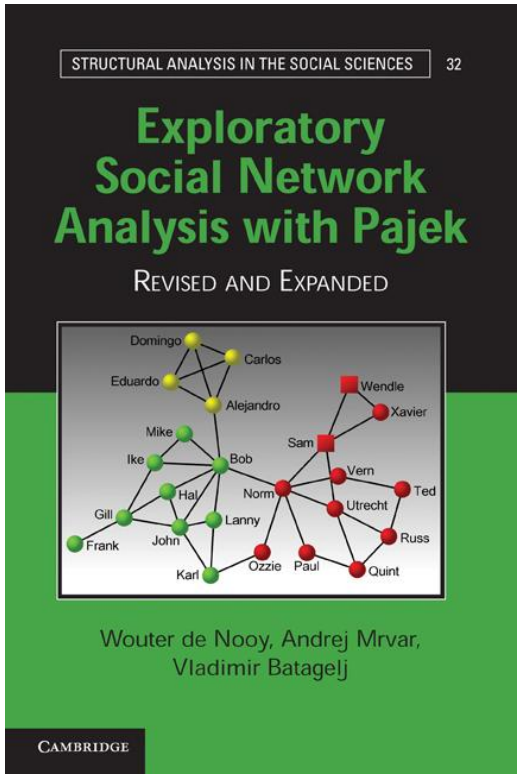
- Increase in number of people submitting grants and getting published
- Increase in number of collaborators
- Increase in cross-disciplinarity of collaborations
- Pattern less strong for publications than grants likely due to lag time
- Second research collaboration survey to occur in the fall

RESOURCES

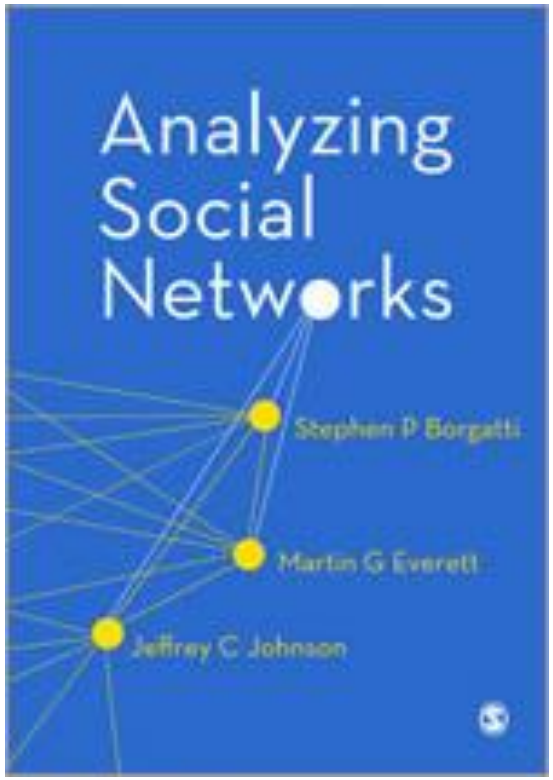
What we used
Where to get it

Software

Pajek



UCINet



R/Statnet

- All are frequently updated

Links

- Pajek: http://pajek.imfm.si/doku.php?id=pajek
- Qualtrics: http://www.qualtrics.com/
- Statnet: http://statnet.csde.washington.edu/index.shtml
- UCINet: https://sites.google.com/site/ucinetsoftware/home

Questions?

Integration of ICTS Operations

Elizabeth Palombo, MEd

Defined as integration of services and activities of ICTS within WU & resulting satisfaction by ICTS members, removal of barriers to conduct TR, more efficient TR activities, etc.

ICTS Operations

- Data:
  - Surveys
  - Service Use
  - Membership
- Analysis:
  - Survey reports
  - Cross-disciplinary tables
  - Dashboards
- Impact:
  - Enhance ICTS core services
  - Core/service funding allocation
  - Translational Research education
  - Reporting to ICTS Governance and NCATS/NIH

Improve Member Research Experience and Reduce Barriers

DATA: Member & Satisfaction Surveys

- Methodical Plan
  - Avoid over-surveying
  - Helps with maintaining history and consistency
- Survey Purposes
  - Satisfaction with cores and services
  - Marketing of ICTS, cores and services
  - Program evaluation
  - Core specific as requested
- Beyond the ICTS
  - Siteman Cancer Center
  - CTSA Evaluation Key Function Group

Standardized Core Questions

1. Rate core satisfaction on:
   - Process to request services
   - Timeliness of services received
   - Quality of the services received
2. Rate satisfaction with the core services
3. Would you use the core services again?
4. Comments

DATA: ICTS Service Use

- Purpose? Why is it important?
- How is it reported?
  - Core Evaluation Coordinators
  - Service Tracker
  - Excel Spreadsheet
- What is included?
  - Investigator Information
  - Service Details
  - Project Information

DATA: Core Service User Departmental Distribution

Human Imaging Unit (HIU)
Service Use 9/17/07-2/15/13

220 Unique investigators used HIU Services over 6 years

Institution/School/ Department	Year of Use					
	1	2	3	4	5	6
Saint Louis University (SLU)					1	
Washington University (WU)						
Arts & Sciences		2	4	4	4	6
Engineering		1	2	2	4	3
Anatomy & Neurobiology			1			1
Anesthesiology			1	3	4	3
Internal Medicine	6	26	27	28	32	26
Neurological Surgery			1	1	2	4
Neurology	7	18	21	20	21	23
Obstetrics & Gynecology				2	2	2
Occupational Therapy		1	1			
Ophthalmology & Visual Sciences		1	1			
Orthopaedic Surgery		3	6	3	5	4
Otolaryngology		1	1	2	4	1
Pediatrics	2	5	10	12	12	10
Physical Therapy	1	2	4	5	5	5
Psychiatry	2	7	11	10	8	7
Radiation Oncology	2	2	3	4	4	4
Radiology	9	13	18	20	23	25
Surgery	2	7	9	8	8	5
Total Unique Users Each Year	31	89	121	124	139	129

ANALYSIS: Cross-Disciplinary

ICTS Current Membership

Institution	Number of Members
Nursing Schools	
Goldfarb School of Nursing *(excluded from BJH total belov*	7
Saint Louis University (SLU) *(excluded from SLU total belo*	4
Southern Illinois University Edwardsville (SIUE)	11
University Of Missouri - St. Louis (UMSL)	15
Nursing Schools Subtotal	**37**
Barnes Jewish Hospital (BJH)	21
Community Organizations	6
St. Louis Children's Hospital (SLCH)	2
St. Louis College of Pharmacy (STLCOP)	36
Saint Louis University (SLU)	128
Partner Institutions Subtotal	**230**
Washington University (WU)	
Danforth Campus	
Arts & Sciences	23
Olin Business School	4
School of Engineering & Applied Science	14
Brown School of Social Work	32
Danforth Campus Subtotal	**73**
School of Medicine	
Preclinical Departments	
Anatomy & Neurobiology	6
Biochemistry & Molecular Biophysics	8
Cell Biology & Physiology	8
Developmental Biology	12
Genetics	29
Molecular Microbiology	11
Preclinical Departments Subtotal	**74**
Other School of Medicine Departments/Units	
Administrative	6
Anesthesiology	31
Audiology & Communication Sciences	3
Biostatistics	10
Internal Medicine	292
Neurological Surgery	19
Neurology	68
Obstetrics & Gynecology	40
Occupational Therapy	21
Ophthalmology & Visual Sciences	27
Orthopaedic Surgery	48
Otolaryngology	31
Pathology & Immunology	56
Pediatrics	138
Physical Therapy	28
Psychiatry	52
Radiation Oncology	26
Radiology	53
Surgery	89
School of Medicine Subtotal	**1112**
Washington University Total	**1185**
Grand Total	**1418**

ANALYSIS: Survey Reports

- Types of Reports
  - Executive Summary
  - Tailored to specific audience (membership, program directors)
- Feedback Loop
  - Reporting to membership
  - Let them know we value their responses and time
  - Present examples of change because of responses

ICTS Member Satisfaction Survey Results

About the Survey:

- Distributed February 28 – April 5, 2013
- Year 4 of ICTS/Siteman Cancer Center (SCC) collaborative effort
- Anonymously distributed through Qualtrics via email to ICTS/SCC members

2013	*ICTS Members Surveyed*	*SCC Members Surveyed*	*Total Surveys*
Distribution	**1418**	274	**1485** (duplicates removed)
Responses/ Rate	**613/43%**	**179/65%**	**642/43%**

- ICTS response rates: 43% in 2013, 54% in 2011, 38% in 2010, 28% in 2009
  - Names associated with completed surveys entered into random drawing
  - 6 prizes issued - *iPad (1) & B&N $20 Gift Card (5)*
- Core Director response/survey results to be discussed with director at their next scheduled meeting with Drs. Evanoff and Moley

ICTS Core Service Satisfaction

4.35 = Mean Core Satisfaction Score

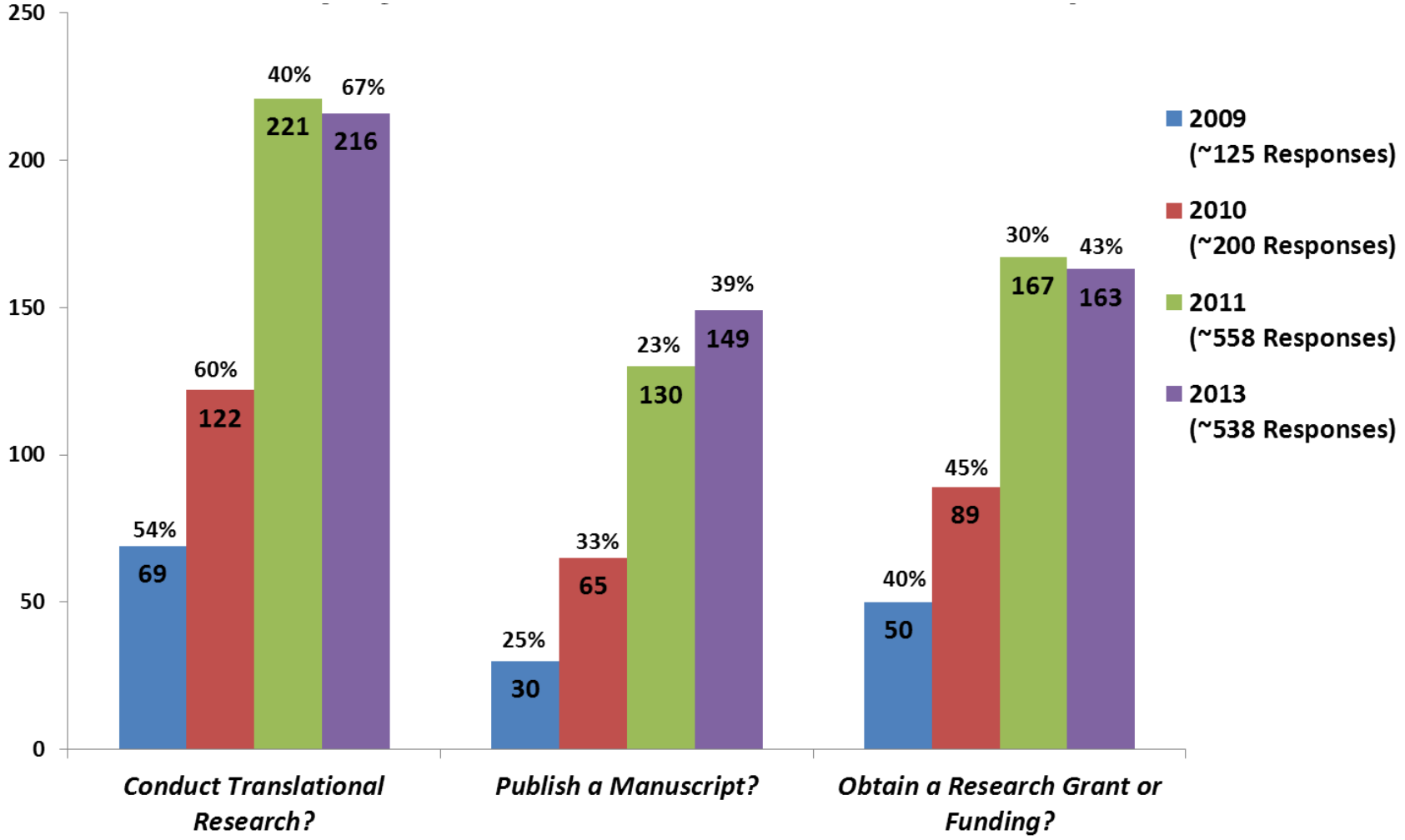
Core Name	ICTS Service Users	Responses	2013 Mean Satisfaction	2011 Mean Satisfaction
Core 1	97	171	4.16	4.17
Core 2	36	33	4.33	4.33
Core 3	18	20	3.81	4.25
Core 4	27	29	4.54	4.26
Core 5	27	8	4.90	4.56
Core 6	129	62	4.40	4.28
Core 7	43	46	3.89	3.92
No Services Used	**-**	**280**	**-**	**-**

1=Very Dissatisfied
2=Somewhat Dissatisfied
3=Neither Satisfied nor Dissatisfied
4=Somewhat Satisfied
5=Very Satisfied

Number of Different Cores Used by Investigators as Reported in Survey

# Different Cores Used	1	2	3	4	5	6	7	8
Investigators	203	121	51	22	11	9	5	5

Investigators Benefited from the ICTS Cores and Services



Most Helpful Services Received from the ICTS Cores?

(Check all that apply)

	# Responses	% of Respondents
Collaboration	130	24%
Technical support for data management and/or analysis	127	24%
Proposal Development	108	20%
Participant Recruitment	81	15%
Funding	68	13%
Access to Data	64	12%
Training / Education	58	11%
Support for IRB and/or compliance issues	48	9%
Other	48	9%

15 Consortium Wide Metrics

Data Collection & Analysis

- *Time* from IRB submission to approval – IOM studies
- Studies meeting *accrual* goals
- *Time* from notice of grant award to study opening (e.g., investigator initiated studies)
- *Number* of technology transfer products
- *Volume* of investigators who used services
- *Volume* of types of services used
- *Time* to publication
- *ROI* of pilot and KL2 scholars
- *Time* from publication to a research synthesis

Impact

- **Influence** of research publication (e.g., observed/expected citations)
- **Researcher collaboration** (e.g., team science; collaboration index)
- **Career development**
- **Career trajectory** (e.g., K-R transition)
- **Institutional collaboration (**public-private; cross-institutional; community)
- **Satisfaction/**needs assessment

https://www.ctsacentral.org/sites/default/files/documents/EvaluationF2F_Summary_20121018.pdf

ANALYSIS: Dashboards

#	Outcomes Metrics to Dashboards	ICTS Aim	Type of Data	Value of Information	Level of Difficulty
1	Time from IRB submission to approval	1	Research/ clinical	***	+
2	Studies meeting accrual goals	1, 3	Research/ clinical	***	++
3	Time from notice of grant award to study opening (investigator initiated studies)	1, 3	Research/ clinical	***	+++
4	Number of technology transfer products	1, 3	Admin	***	++
5	Volume of investigators who used services	1	Service	****	+
6	Volume of types of services used	1	Service	****	+
7	Satisfaction/Needs assessment	1	Service	***	+
8	Time to publication (need to define time)		Pubs	*	++++
9	Influence of research publication (observed/expected citations)	3	Pubs	****	++
10	Researcher collaboration (team science; collaboration index)	3	Admin	****	++
11	ROI of pilot and KL2 scholars	all	Admin	****	+++
12	Time from publication to a research synthesis		Pubs	***	++++
13	Career development	2	Education	***	++
14	Career trajectory (includes K-R transition)	2	Education	***	++
15	Institutional collaboration (public-private; cross-institutional; community)	3	Admin	***	++++

Value of Information: **** = High Value * = Low Value Level of Difficulty: + = Low Difficulty ++++ = High Difficulty

T&E Effect on ICTS Operations

- Enhance ICTS Services
  - Services added
  - Improved service delivery
  - Certain expertise added to meet needs
- Core/Service Funding
  - Funding direction can change based on:
    - Feedback or service demands
    - Distribution of service users
- Translational Research
  - Introducing a new way of thinking
  - Emphasis on moving research from one stage to next
  - Communicating that ICTS cores, staff and resources can help investigators go further with research

Questions?

Dissemination

Kristi Holmes, PhD

Defined as an active approach of spreading evidence-based interventions to the target audience via determined channels using planned strategies.

Lomas J. Diffusion, dissemination, and implementation: who should do what? *Ann N Y Acad Sci*. 1993;703:226–235.
MacLean DR. Positioning dissemination in public health policy. *Can J Public Health*. Nov–Dec 1996;87(Suppl 2):S40–S43.

Some thoughts about dissemination

What is dissemination?

- Dissemination is an active approach of spreading evidence-based interventions to the target audience via determined channels using planned strategies.
- For the purpose of this workshop, we are also including the process of communicating results/findings to the general public or funding agencies or other stakeholders as DISSEMINATION.

Brownson, Ross C, Colditz, Graham A, Proctor, Enola K. *Dissemination and implementation research in health : translating science to practice*. New York: Oxford University Press, 2012. Chapter 2. eBook. <http://www.oxfordscholarship.com/view/10.1093/acprof:oso/9780199751877.001.0001/acprof-9780199751877 >.

Some thoughts about dissemination

Dissemination Strategies for varied stakeholders

- Dissemination strategies describe mechanisms and approaches that are used to communicate and spread information about interventions to targeted users.
- Dissemination strategies are concerned with the packaging of the information about the intervention and the communication channels that are used to reach potential adopters and the target audience.
- It is consistently stated in the literature that dissemination strategies are necessary but not sufficient to ensure widespread use of an intervention.

Putting it into practice…

Brownson, Ross C, Colditz, Graham A, Proctor, Enola K. *Dissemination and implementation research in health : translating science to practice*. New York: Oxford University Press, 2012. Chapter 2. eBook. <http://www.oxfordscholarship.com/view/10.1093/acprof:oso/9780199751877.001.0001/acprof-9780199751877 >.

Some thoughts about dissemination

Examples of dissemination

- **Passive dissemination strategies** include mass mailings, publication of information including practice guidelines, and untargeted presentations to heterogeneous groups.
- **Active dissemination strategies** include hands-on technical assistance, replication guides, point-of-decision prompts for use, and mass media campaigns.

Motivations – Why disseminate?

CRITICAL to communicate findings to various stakeholders – researchers, potential collaborators, partners, members of the public, funders, other consortium members, policy makers, and so on…

Beau M. Ances, MD, PhD, MSc
Associate Professor of Neurology at Washington University in St. Louis

Creutzfeldt-Jakob Disease (CJD) is a rapidly progressive neurodegenerative disease (RPD) with diagnosis often made at autopsy. The goal of this work is to identify early changes in the brain structure due to CJD. This may allow for early intervention.

PMID: 22968768

Journal Article

2009

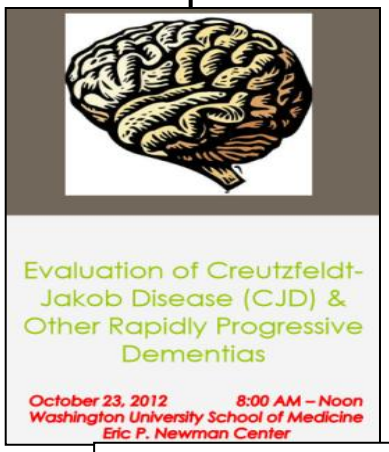
Awarded JiT funding from ICTS to study Creutzfeldt-Jakob Disease (CJD): **Diffusion Tensor Imaging (DTI) as an Early Biomarker of Cruetzfelt-Jakob Disease (CJD)**

2010 2011

FINDINGS:
Study results confirmed that cerebrospinal fluid abnormalities and magnetic resonance imaging (MRI) can assist in distinguishing CJD patients from non-prion RPD patients, calling for future longitudinal studies to evaluate pathological changes seen in CJD patients.

2012

Hosted Symposium



9:50-10:10 AM The Role of MRI in the Diagnosis of CJD
(Beau Ances MD, PhD, MSc)

2013

Length of time from funding to publication

Impact

Kristi Holmes, PhD

Defined as successful completion of research and communication of discoveries that leads to changes in knowledge and clinical practice.

Impact?? HOW do you measure that?

- Why measure? How to measure?
- What things do people typically count?
- What things should you measure?

"It is no longer enough to measure what we can – we need to measure what matters."

How do we measure what matters?

Wells R, Whitworth A. 2007. Assessing outcomes of health and medical research: do we measure what counts or count what we can measure? *Australia and New Zealand Health Policy*, 4:14

A great resource: the RAND Report

- Measuring Research: A Guide to Research Evaluation Frameworks and Tools
  - AAMC commissioned a report from the RAND Corporation
  - Summarizes current conceptual models for how biomedical research translates into academic, health, social and economic impacts, and profiles 14 robust research evaluation initiatives already in use
  - Includes a detailed and critical review of a host of tested and documented assessment tools, which can be used for various purposes--whether for advocacy, accountability, analysis or internal allocation decision-making.
  - A related research brief is also available.

Tools

- **bibliometrics:** a range of techniques for assessing quantity, dissemination and content of publications and patents; uses quantitative analysis to measure patterns of publication and citation, typically focusing on journal papers
- **surveys:** provide a broad overview of the current status of a particular program or body of research; widely used in research evaluation to provide comparable data across a range of researchers and/or grants which are easy to analyze
- **logic models:** graphic representation of the essential elements of a program or process; aims to encourage systematic thinking and guide planning, monitoring and evaluation
- **case studies:** can be used in a variety of ways; flexible enough to capture a wide variety of impacts, including the unexpected, and can provide the full context around a piece of research, researcher or impact
- **economic analysis:** comparative analysis of costs (inputs) and consequences (outputs); aims to assess whether benefits outweigh opportunity costs and whether efficiency is achieved; generally, there are three types of economic analysis: cost-benefit analysis (CBA), cost-effectiveness analysis (CEA) and cost-utility analysis (CUA)
- **peer review:** review by peers, typically other academics in the same or a similar field, of outputs of research; rationale that subject experts are uniquely qualified to assess the quality of the work of others
- **data mining:** allows access to and understanding of existing data sets; uses algorithms to find correlations and patterns and present them in a meaningful format, reducing complexity without losing information
- **interviews:** used to obtain supplemental information on areas of interest, generally to access personal perspectives on a topic, or more detailed contextual information
- **data visualization:** tool for data summarization, presenting large amounts of data in a visual format for human comprehension and interpretation
- **site visits:** visit by evaluating committee to department and institution; generally consists of a series of meetings over one or more days with a range of stakeholders
- **document review:** review of existing documentation and reports on a topic.

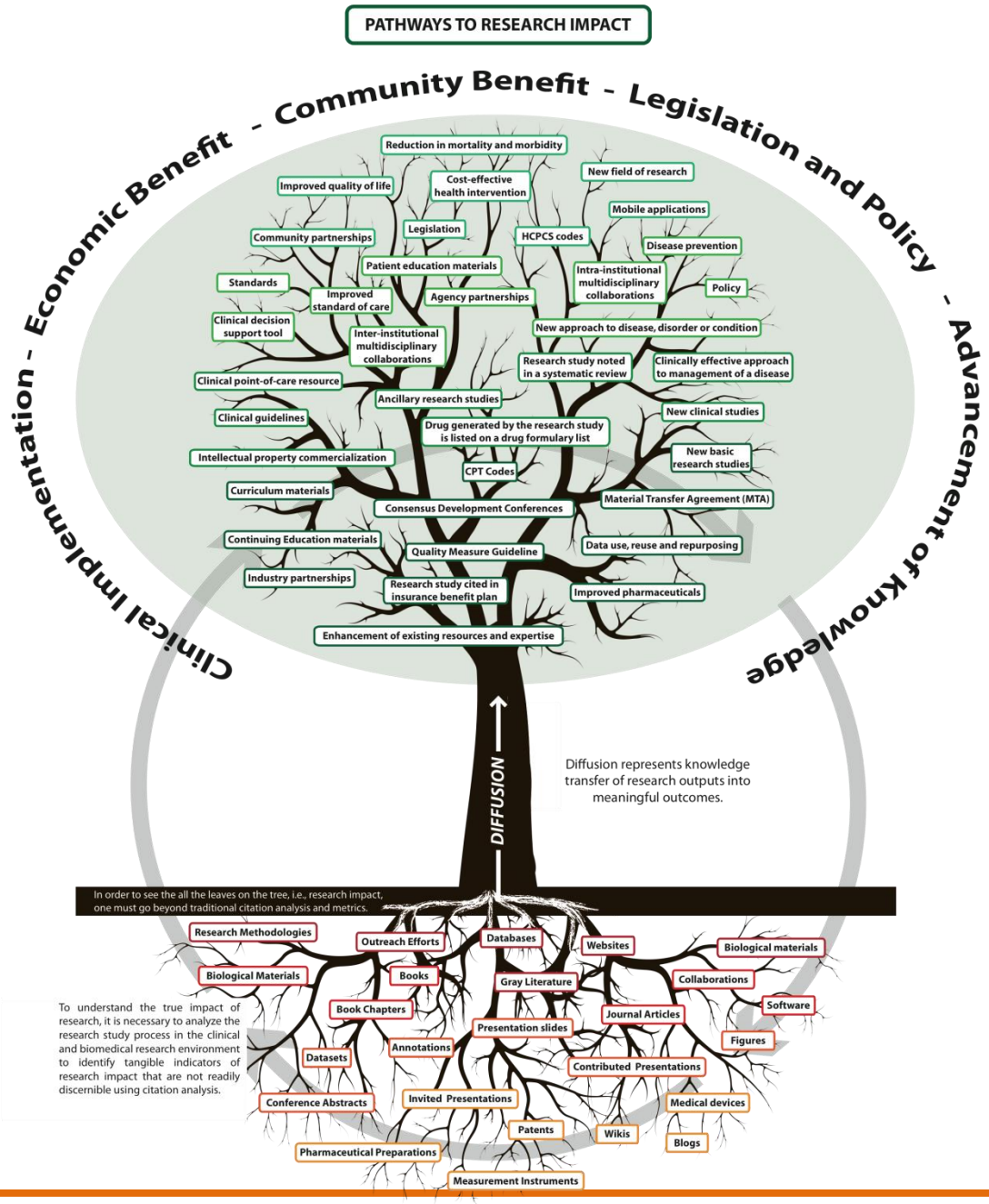
What is it?
When should it be used?
How is it used?

Frameworks

- Canadian Academy of Health Science Payback Framework (Canada)
- Excellence in Research for Australia (ERA) (Australia)
- National Institute of Health Research Dashboard (England)
- Research Excellence Framework (REF) (UK)
- Productive Interactions (Netherlands and European Commission).
- Science and Technology for America's Reinvestment: Measuring the Effect of Research on Innovation, Competitiveness and Science (STAR METRICS) (US)
- Several others…

Origin and rationale
Scope
Measurement
Application to date
Analysis
Wider applicability

The Becker Model



The Becker Model involves tracking **research outputs** that have been **disseminated/diffused** to locate **indicators** that demonstrate evidence of **research impact**.

Pathways

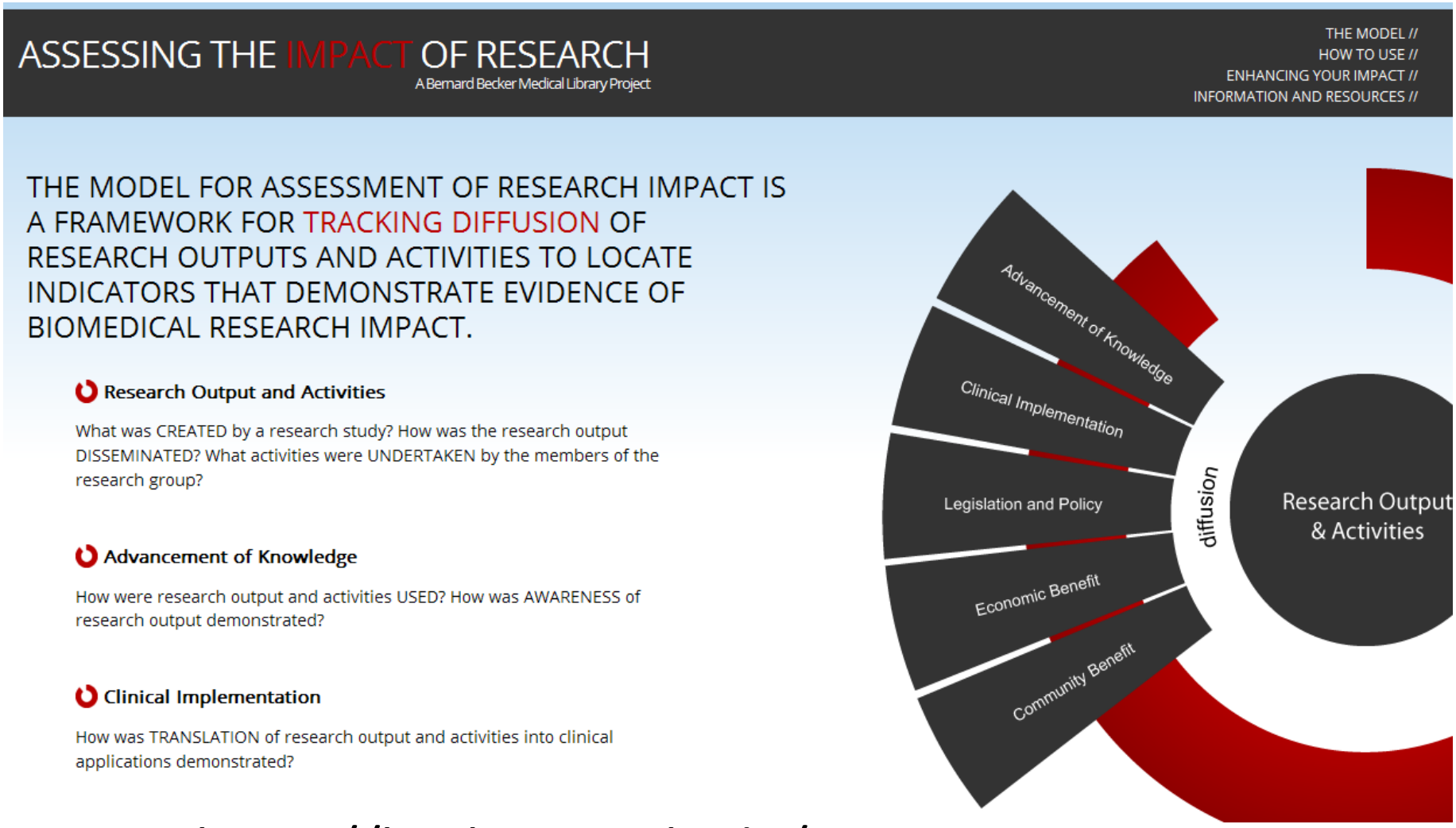
- ✓Advancement of Knowledge
- ✓Clinical Implementation
- ✓Legislation and Policy Enactment
- ✓Economic Benefit
- ✓Community Benefit

The Becker Model

- Provides a supplement to publication analysis to provide a more robust and comprehensive perspective of biomedical research impact.
  - reporting templates, glossary of resources and terms, examples of relevant indicators of impact across the research process, readings, and a sample of a completed report
- Straightforward framework for tracking diffusion of research outputs and activities to locate indicators that demonstrate evidence of biomedical research impact
  - individual, core, and institutional-level; modify for different disciplines
- Guidance for quantifying and documenting research impact as well as resources for locating evidence of impact.

- Strategies for ***enhancing*** the impact of research.
  - *Preparing for Publication, Dissemination, and Keeping Track of Your Research*

Project Website



https://becker.wustl.edu/impact-assessment

Implementation of Becker Model

- Case Study
  - Select 3-5 for further analysis
- Operationalize application of the Becker Model
  - Make it replicable and scalable at other sites
  - Develop an SOP or "product" for others to use.

Target Sample Criteria:

- Member of ICTS
- Recipient of JiT or Pilot funding from ICTS or K12 support
- ICTS member with high levels of collaboration (in renewal document)
- A mix of ICTS members at various career stages including scholars
- ICTS members (at least one bench, one clinical) and one project group such as a Core Facility that has received or is currently receiving funding from ICTS
- Suggestions by T&E Team, and ICTS PIs and administrators

Implementation of Becker Model

Seminar Series for Investigators and Scholars and/or Recipients of ICTS Funding

NIH Public Access

- Recipients of ICTS funding are required to cite the ICTS award in peer-reviewed publications that result from ICTS funding. This session will provide an overview of the NIH Public Access Policy including the steps involved in complying with the policy and how to demonstrate compliance.

Optimizing Dissemination of Research

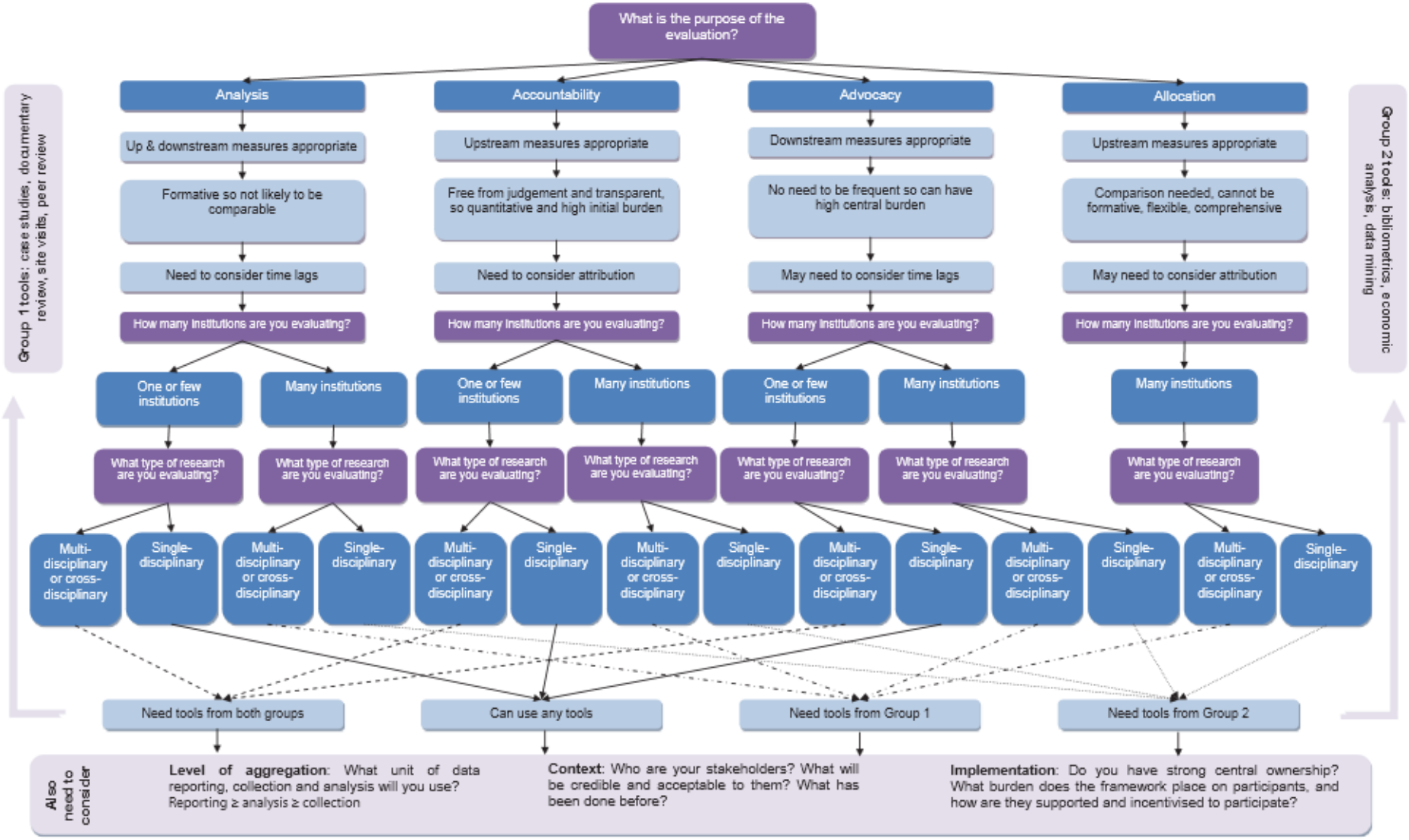
- Optimizing discoverability and access of research findings is the surest way to enhance visibility and impact of ICTS research efforts. This session will review a variety of strategies for investigators and scholars to consider as they prepare to disseminate their research.

Reporting Impact

- The ability to effectively demonstrate Return on Investment (ROI) and impact is essential for ICTS reporting purposes and can also be a very valuable component of promotion and tenure activities. This session will describe how investigators and scholars can effectively report on impact and “success stories” from ICTS funding using publication data, grant application/award data, new or promising discoveries, collaborations, and other information.

Translating this into your own environment…

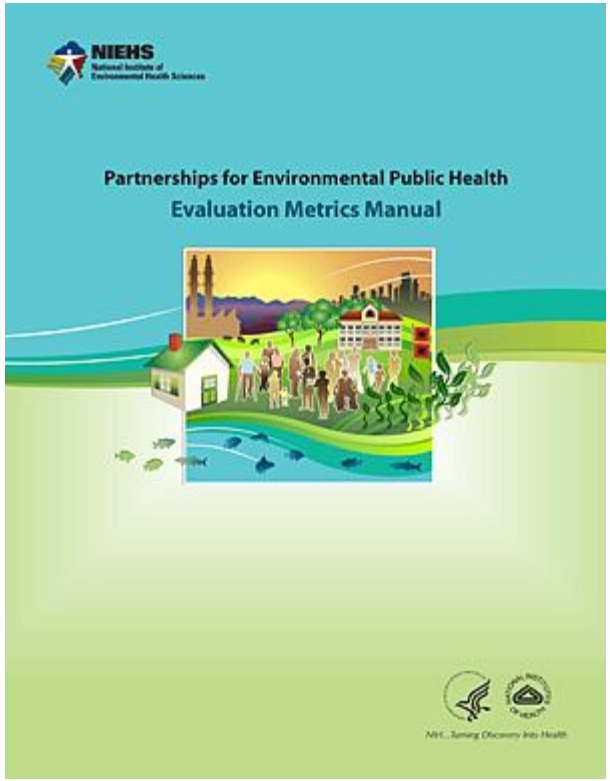
A decision tree for developing a research evaluation framework



Translating this into your own environment

Partnerships for Environmental Public Health (PEPH) Evaluation Metrics Manual

- NIEHS Division of Extramural Research and Training
- Ideas about how to measure and document success



Sample metrics from grantee programs include:

- **Demonstrating success at identifying partners** — The University of Cincinnati's anti-idling campaign provided a ***description of the partners involved and the resources they bring to the project***. Cincinnati Public Schools (CPS) provided access to students and schools, Cincinnati Health Department provided nursing services, a Councilwoman provided credibility and the ability to attract attention to the project, and the Hamilton County Department of Environmental Services provided training and information to CPS staff and students.
- **Demonstrating that they communicated their findings in a variety of products** — The Bay Area Breast Cancer and the Environment Research Center described the number and demographics of their ***social media audience***. The center has more than 1,000 followers on twitter and 864 Facebook friends. Followers are 70 percent female and more than half are age 40 or older.
- **Demonstrating the policy impacts of their advocacy** — The Trade, Health, and Environment Impact Project at the University of Southern California documented its contribution to the formation of the San Pedro Bay Ports Clean Air Action Plan. The plan stated that the Ports of Los Angeles and Long Beach would reduce air pollution by 45 percent by 2011. The project also documented its involvement in passing the Clean Air Action Plan, which established a progressive ban on polluting trucks. ***The plan resulted in a 70 percent reduction in port truck emissions in the Port of Los Angeles in the first year.***

More information about the manual & developing metrics at www.niehs.nih.gov/pephmetrics

Questions?

Supporting Dissemination & Impact

Jae Allen, MBA

Strategies and people.

T&E Team Role

- *Strategy*: Develop, describe & implement T&E aims and procedures to measure impact of the WU CTSA
- *Data*: Collect, clean and store information
  - Data elements (ex. publications, grants received)
  - Examples of successful research (vignettes)
- *Analysis*: Apply our diverse areas of expertise to analyze information and develop representations (graphs, tables, charts)

T&E Team Role, continued

- *Illustrate*: Weave the various representations into a description of impact
- *Disseminate* our findings through multiple communication channels

Weaving the Tapestry of Impact

Describing Impact, to date:

- Built infrastructure to support clinical & translational research (Elizabeth)
- Broke down barriers to increase research collaborations (Cathy & Bobbi)
- Measured quality and extent of clinical & translational science (Cathy)

How do we take the next step of describing IMPACT?

New Initiatives

- New Resources
  - Navigation Resources (Betsy Keath, PhD)
  - Research Forums (John Kotyk, PhD)
- Return on Investment for Funding Programs
- Becker Model Implementation

New Resources

- Personalized Consultation (Dr. Keath)
  - Research and Teaching Experience
    - Experience as lead investigator, educator and mentor in University setting (20+ yrs)
    - Participated in scientific review on national study sections (6 yrs)
  - Scientific Programme Officer for Science Foundation Ireland
  - Consultant for Irish Cancer Society
    - Needs assessment
    - Gap analysis on priority topics to influence agency policy
- eNavigator Portal

http://www.icts.wustl.edu/icts-researchers/icts-cores/contact-icts-navigator

New Resources, cont.

- Research Forum – Child Health (Dr. Kotyk)
  - Pharmaceutical Industry, Research Fellow (17 years)
    - Research – drug discovery and development
    - Project management
  - Research Associate Professor of Radiology (8 years)
    - Helped create the WU Center for Clinical Imaging Research
    - Established the ICTS Human Imaging Unit
    - Protocol/Project development
- Personal connections to the success stories

Annual ROI Analysis

- Annual Clinical & Translational Awards
  - ~20 awards, ~ $50,000
- Progress Reports & Annual Surveys (5 yrs post)
  - External Grants Submitted
  - External Grants Awarded
  - Publications

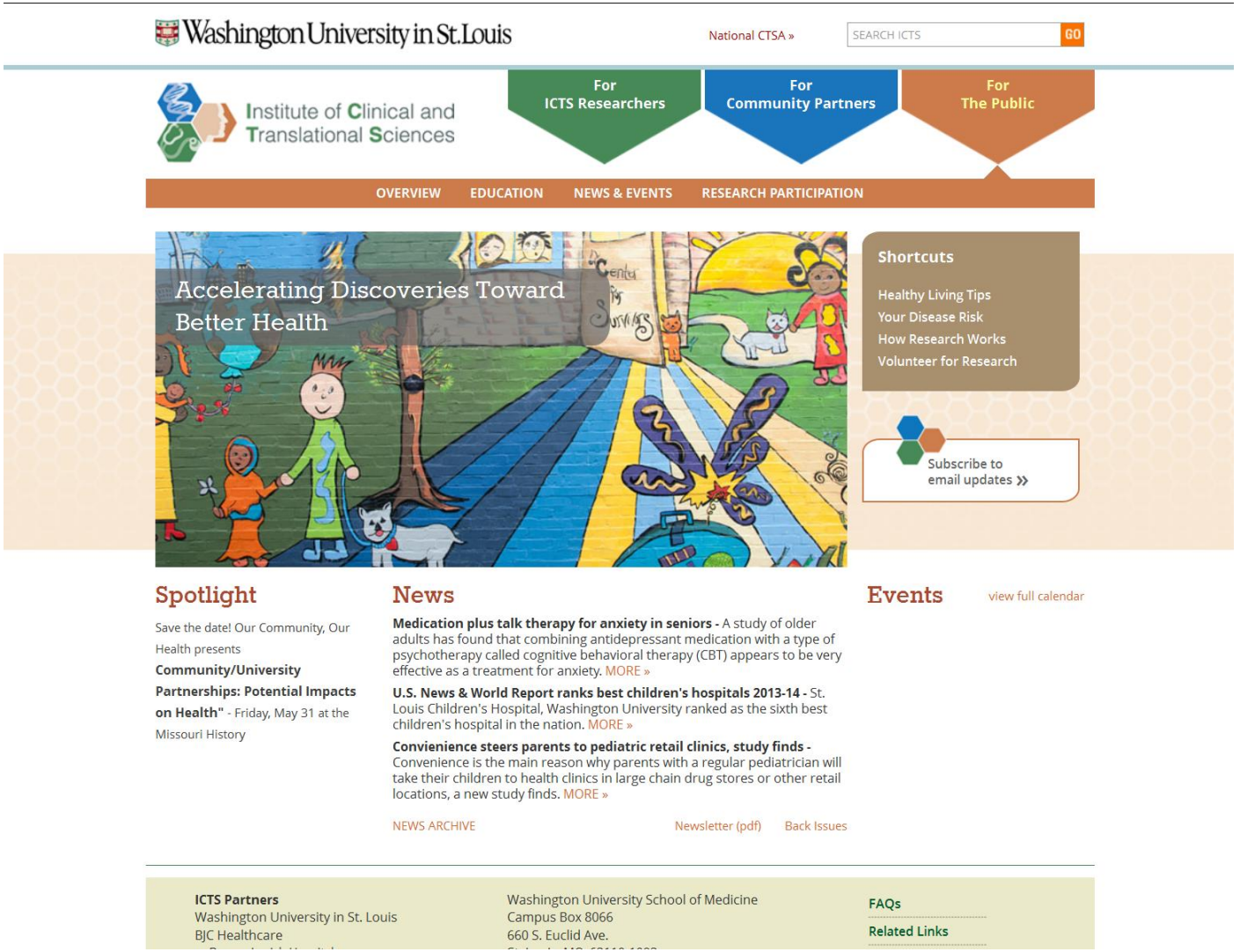
Pilot Program ROI

# Years Post Award	External Funding, in Millions	# External Grants
1	$10.2	10
2	$27.7	25
3	$46.7	40
4	$47.2	41

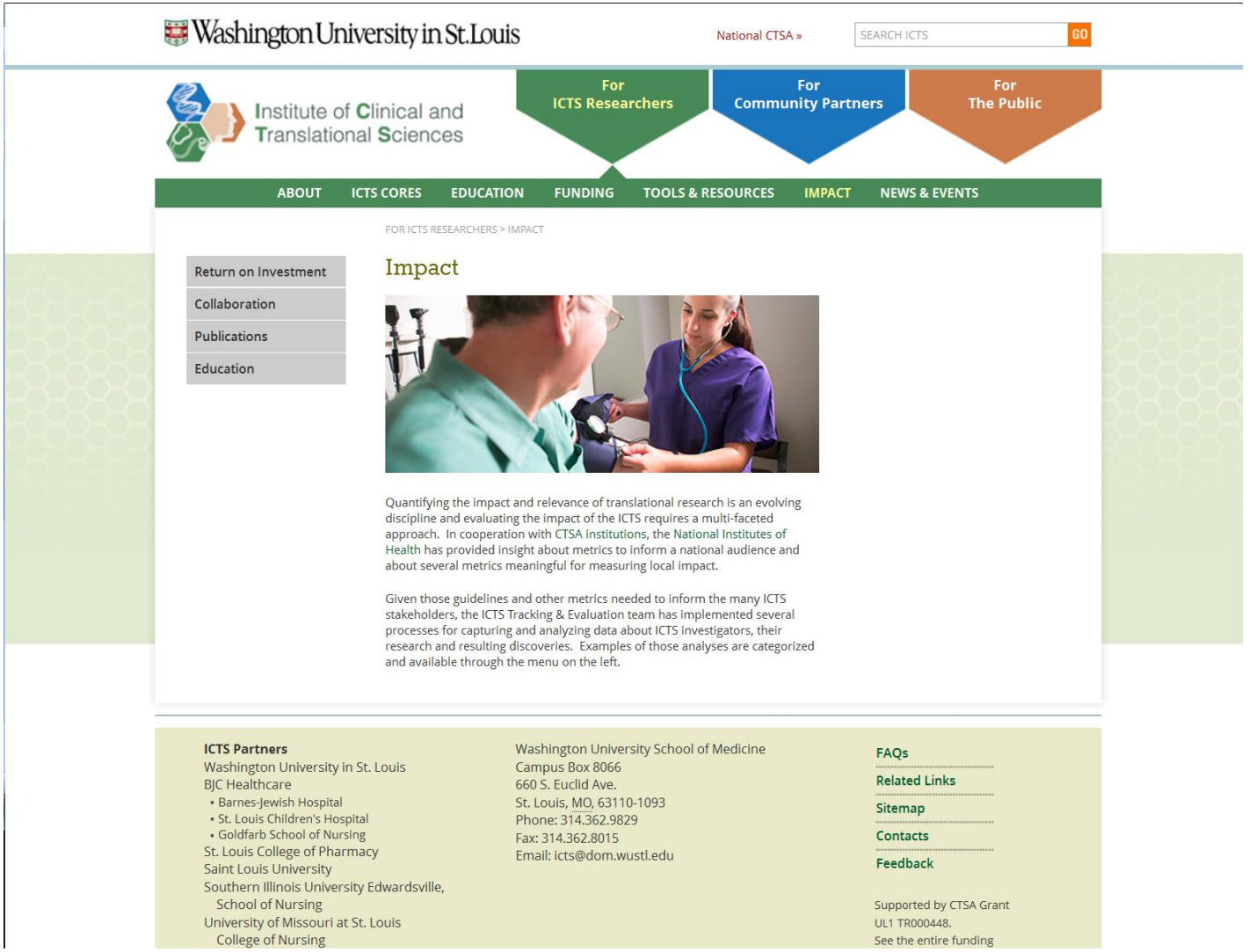
Return of $5.51 per dollar spent on the program over 5 years.

Dissemination & Communication Channels

ICTS Website: Audiences



ICTS Website: Impact Section



WU Public Affairs (Outlook Magazine)

Washington University in St. Louis School of Medicine MAGAZINE

Outlook APR 2013

CONTENTS

seeds of discovery

funding initiative speeds innovation to improve health

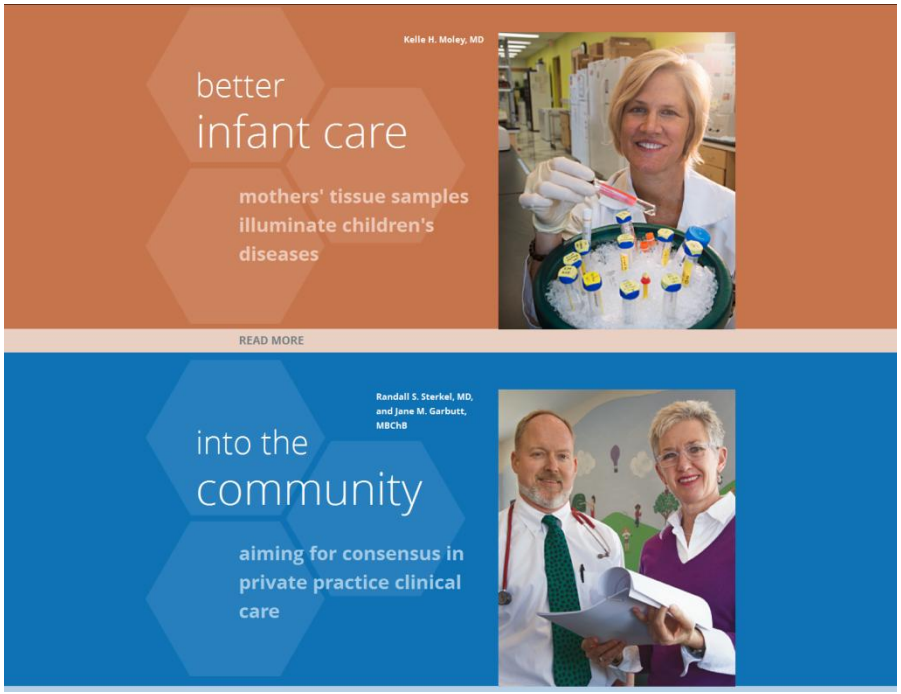
Each dot denotes a faculty member of the ICTS, and each connecting line represents a collaboration between faculty in submitting an NIH grant application. ICTS began in 2007, above left, and by 2010, above right, there had already been a dramatic increase in the number of collaborations and the density of interconnections among research groups.

BY JULIA EVANGELOU STRAIT

Whether providing pilot funding to gather initial data or final funding for projects heading toward publication, grants awarded by Washington University's Institute of Clinical and Translational Sciences (ICTS) are ultimately aimed at one goal — supporting medical research that has the highest likelihood of benefiting patients quickly.

"Facilitating new research collaborations across traditional disciplinary

Outlook Magazine



Dissemination: Communication Channels

- Monthly “ICTS Digest”: email with links to website updates
- Emails to Members
- Scholarly works (posters and publications)
- Annual Progress Reports

Benefit at Multiple Levels

- Individual: highlights accomplishments and documents career progression
- ICTS: illustrates value & informs decision making
- Institution: enhances intra-institutional connections, strategic value for Washington University
- Consortium: illustrates value and impact of national community health research, inter-institutional with local partners

How do YOU illustrate Impact?

Sharing roundtable discussion.

Open Discussion

Sharing roundtable discussion.

Credits

- http://www.performanceobjectivesnow.com/blog/wp-content/uploads/2011/09/po4steps.jpg
- http://wsfcs.k12.nc.us/cms/lib/NC01001395/Centricity/Domain/926/Pictures/course_outline2.jpg
- http://1.bp.blogspot.com/-BZNfDFAW5vs/TgyStWZT-oI/AAAAAAAAAOo/KbpJort-6dI/s1600/speaking-at-podium1.jpg

Acknowledgement

Supported by the Clinical and Translational Science Award (CTSA) program of the National Center for Advancing Translational Sciences (NCATS) at the National Institutes of Health (NIH) Grant Numbers UL1 TR000448, KL2 TR000450, TL1 TR000449