AMIA
2012 Summit in CRI
CRI Year-In-Review

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Approach to this presentation

- Mix of Dan Masys' and Russ Altman's approaches
  - Started with structured approach
    - (akin to ACP "update" sessions)
  - Quickly moved to augment with "what seemed interesting" approach
- Learned a lot from doing this last year
  - Tracked manuscripts throughout the year
  - (still worked down to the wire)
- So, what was my approach…

Source of Content for Session

- Literature review:
  - Initial search by MESH terms:
    - ("Biomedical Research"[Mesh] NOT "Genetic Research"[Mesh]) NOT "Translational Research"[Mesh]) AND "Informatics"[Mesh] AND "2011/01/01"[PDat] : "2013/02/01"[Pdat]
    - Resulted in 77 articles; 41 were CRI relevant
  - Additional 63 relevant articles through:
    - Recommendations from colleagues
    - Other keyword searches using terms like:
      - Clinical Trials, Clinical Research, Informatics, Translational, Data Warehouse, Recruitment
  - Result = 104 total CRI relevant to choose from
  - I then selected 33 papers that I'll present here (*briefly*)

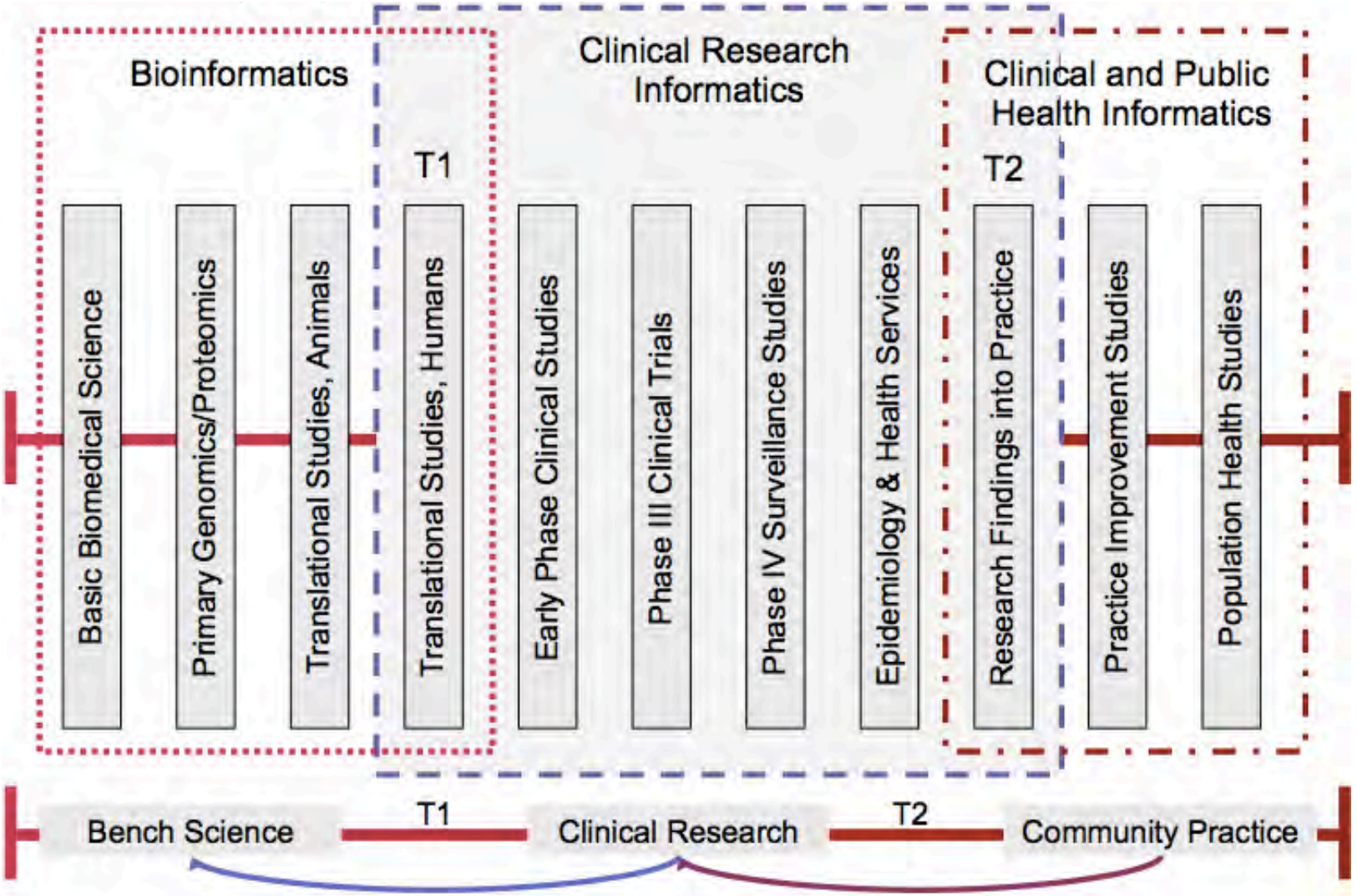
Note: If from early 2011 but discussed last year, not selected to avoid repetition

Session caveats

- What this is not…
  - A systematic review of the literature
  - An exhaustive review
- What this is…
  - My best attempt at *briefly* covering *some* of the representative CRI literature from the past year
  - A snap-shot of CRI activity over past year
  - What I thought was notable

Clinical and Translational Research & Informatics: T1, T2, and Areas of Overlap for Informatics

Shaded CRI Region is Main Area of Focus



Embi & Payne, JAMIA 2009

Topics

- Grouped 33 articles into several CRI categories (admittedly, not *all* CRI areas)
  - Clinical Data Re-Use for Research
  - Data/Knowledge Management & Discovery
  - Researcher Support & Resources
  - Participant Recruitment
  - Patients/Consumers & Research Informatics
  - Policy & Fiscal
- In each category, I'll emphasize a few key articles and then given a "shout out" to a few others
- Conclude with notable events from the past year

Apologies up front

- I’m CERTAIN I’ve missed a lot of great work
- I’m REALLY SORRY about that

Clinical Data Re-Use for Research

"Portability of an algorithm to identify rheumatoid arthritis in electronic health records" (Carroll WK et al, JAMIA, 2012)

- **Goal:** Test ability to identify a patient cohort from other institutions' EHR databases using a published phenotype algorithm demonstrated effective one site.
- **Methods:** Charts reviewed by physicians at three sites to find patients with RA. NLP approaches used against EHR derived data from each site.
- **Results:** Northwestern and Vanderbilt's data performed nearly as well as Partner's (AUC 92% and 95% vs. 97%, respectively). Retraining the logistic regression models improved results, and all were better than billing code count thresholds.
- **Conclusion:** Electronic phenotyping algorithms allow rapid identification of case populations across sites with different EHRs, NLP systems, with little retraining.

"Validity of electronic health record-derived quality measurement for performance monitoring" (Parsons A. et al, JAMIA, 2012)

- **Goal:** NYC primary care practices taught to adjust workflows and use EHR's built-in population health monitoring tools (quality measures, registries, CDSS), with technical assistance.
- **Methods:** Charts for 4081 pts reviewed across 57 practices to determine validity of documented measures and preventive services.
- **Results:** Automated, EHR-derived quality measures underestimated actual performance. Documentation varied between sites and with some exceptions did not reflect numbers of patients who actually got preventive measures.
- **Conclusion:** This study confirms that caution is required when determining performance based on EHR documentation. Implications for data re-use.

"Improving completeness of electronic problem lists through clinical decision support: a randomized, controlled trial" (Wright A. et al, JAMIA, 2012)

- **Goal:** To determine whether a clinical alert system using inference rules to notify providers of undocumented problems improves problem list documentation.
- **Methods:** Inference rules for 17 conditions implemented. Cluster, randomized trial of 28 primary care areas (14 intervention, 14 control). Alerts suggested provider add missing problem to list. Acceptance of alert main outcome.
- **Results:** 17,043 alerts presented, 41.1% accepted. Intervention providers documented more problems (OR=3.4, $p<0.0001$), with 70.4% of all problems added via alerts. Significant increases noted for 13 of 17 conditions.
- **Conclusion:** Problem inference alerts significantly increased important problem documentation. Can improve quality and research that re-uses EHR data.

Other notable papers in this category:

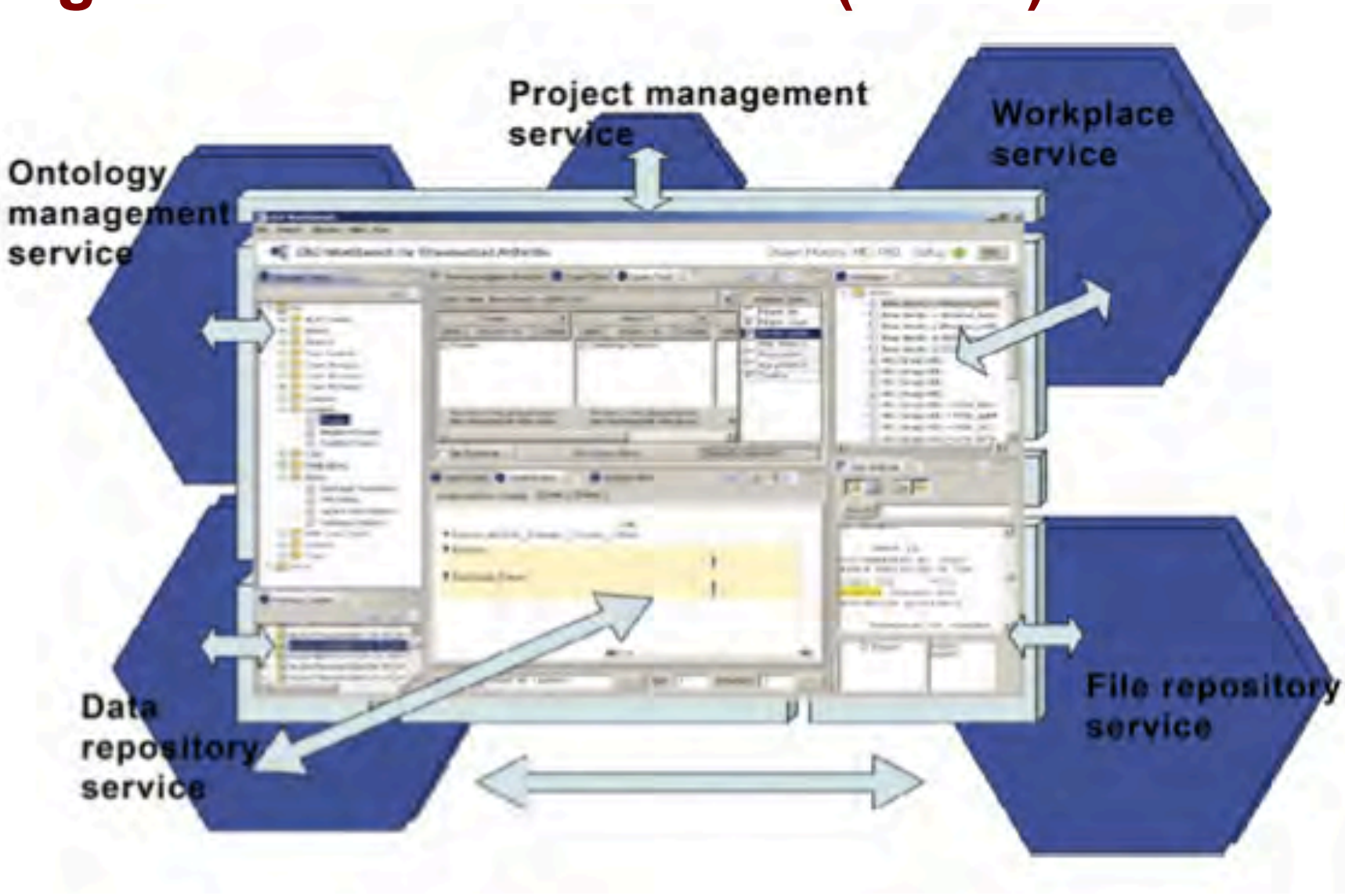
- **"Concept and implementation of a computer-based reminder system to increase completeness in clinical documentation." (**Herzberg S. et al. Int J Med Inform. 2011)
- **"Utility of electronic patient records in primary care for stroke secondary prevention trials."** (Dregan A. et al. BMC Public Health, 2011)
- **"Quality of data collection in a large HIV observational clinic database in sub-Saharan Africa: implications for clinical research and audit of care"** (Kiragga A.N. et al. J. Int AIDS Soc. 2011)
- **"Mapping clinical phenotype data elements to standardized metadata repositories: the eMERGE Network experience"** (Pathak J. et al. JAMIA. 2011)
- **"Never too old for anonymity: a statistical standard for demographic data sharing via the HIPAA Privacy Rule" (**Malin B. et al. JAMIA. 2011)

Data/Knowledge Management & Discovery

"A translational engine at the national scale: informatics for integrating biology and the bedside" (i2b2) (Kohane et al, JAMIA, 2012)

- **Goal:** Brief communication, update on tools designed to integrate medical record and biological data for research.
- **Methods:** Description of NIH-supported i2b2 software for cohort finding and query.
- **Results:** Now implemented at >60 centers inter-nationally. Query capability across instances via SHRINE. Multiple partner sites contributing to collaborative development.
- **Conclusion:** i2b2 has become a valued and widespread resource for clinical and translational science.

i2b2 toolkit software components (cells), organized into collections (hives)



Map of sites that have adopted i2b2

CTSAs* Adopting i2b2

CTSAs* Evaluating i2b2 platform

Academic Medical Centers Adopting i2b2 Platform

Foreign Medical Centers Adopting i2b2 Platform

Geographical distribution of over 60 academic health centers (50 in the USA). Some locations (eg, San Francisco and Boston) have more sites than can be shown at the map's resolution.

"The Biomedical Resource Ontology (BRO) to Enable Resource Discovery in Clinical and Translational Research"
(Tenenbaum J, et al. J Biomed Inform, 2011)

- **Goal:** To enable semantic annotation and discovery of biomedical resources across sites to facilitate their discovery among investigators.
- **Methods:** Development and use of Biomedical Resource Ontology (BRO) as well as the Resource Discovery System (RDS).
- **Results:** Through study of the RDS framework (the federated, inter-institutional pilot project that uses BRO to facilitate resource discovery over the Internet) and its associated Biositemaps infrastructure, the BRO facilitated semantic search and discovery of biomedical resources.
- Some key elements…

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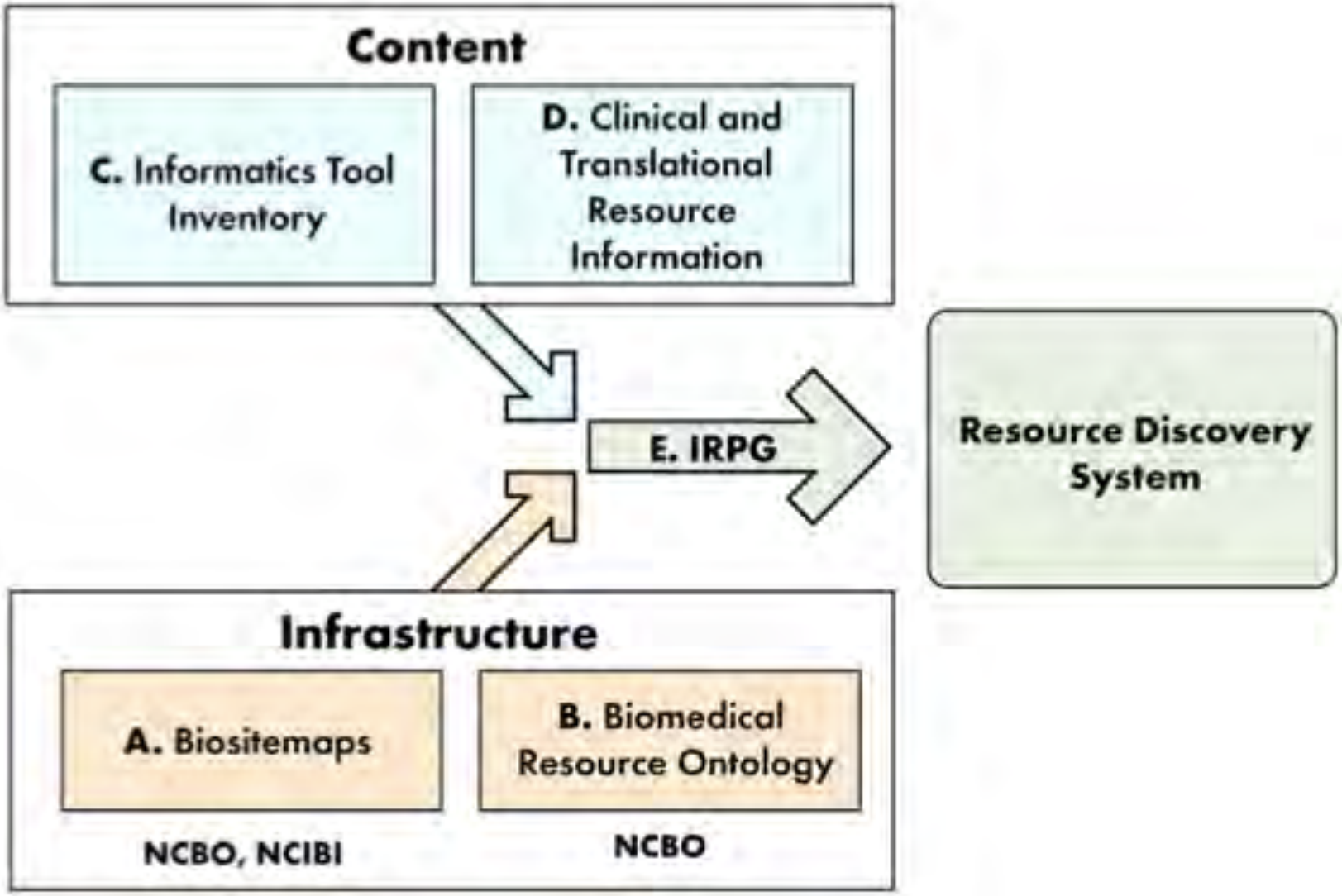

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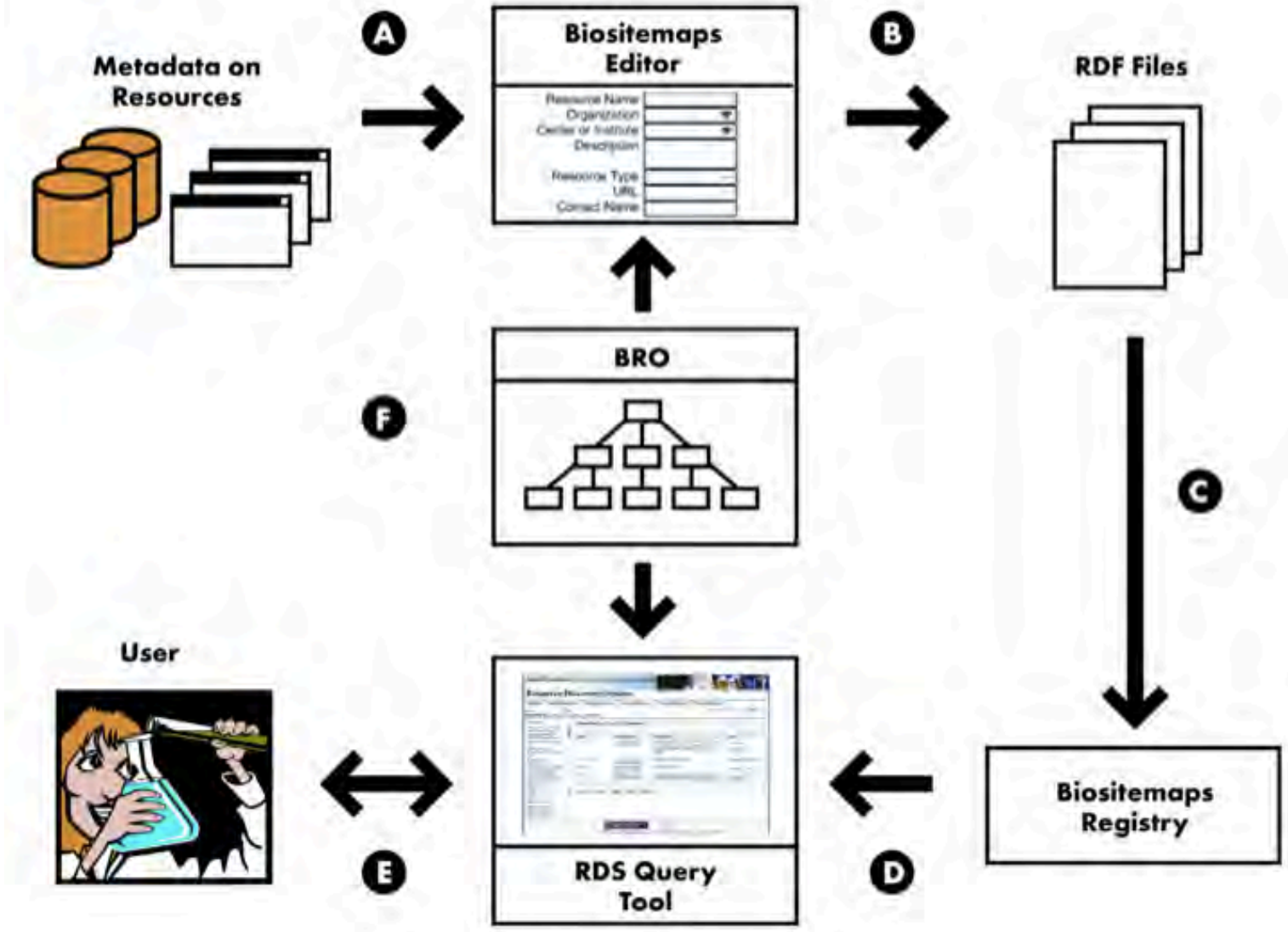

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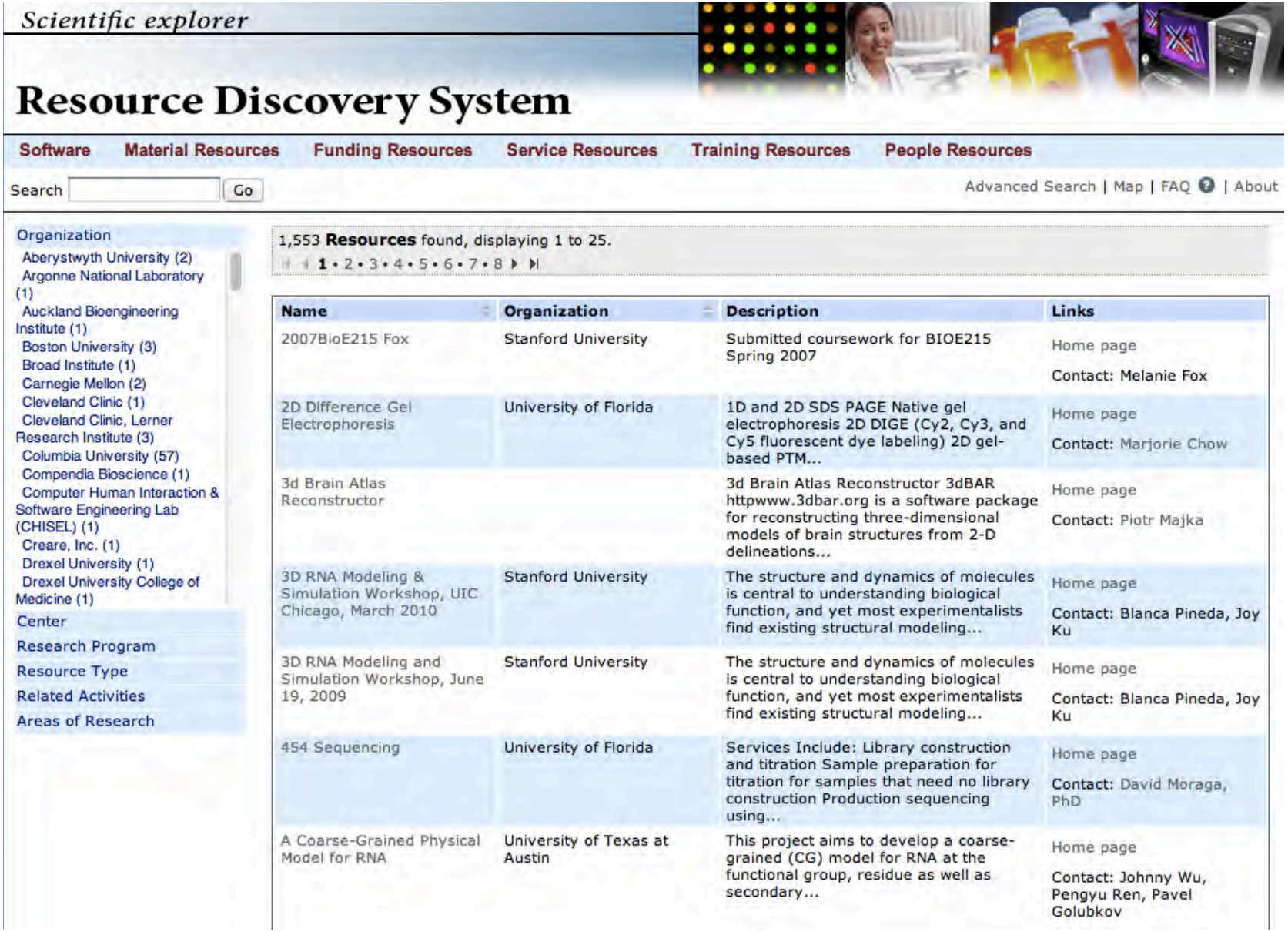


"The Biomedical Resource Ontology (BRO) to Enable Resource Discovery in Clinical and Translational Research"
(Tenenbaum J, et al. J Biomed Inform, 2011)

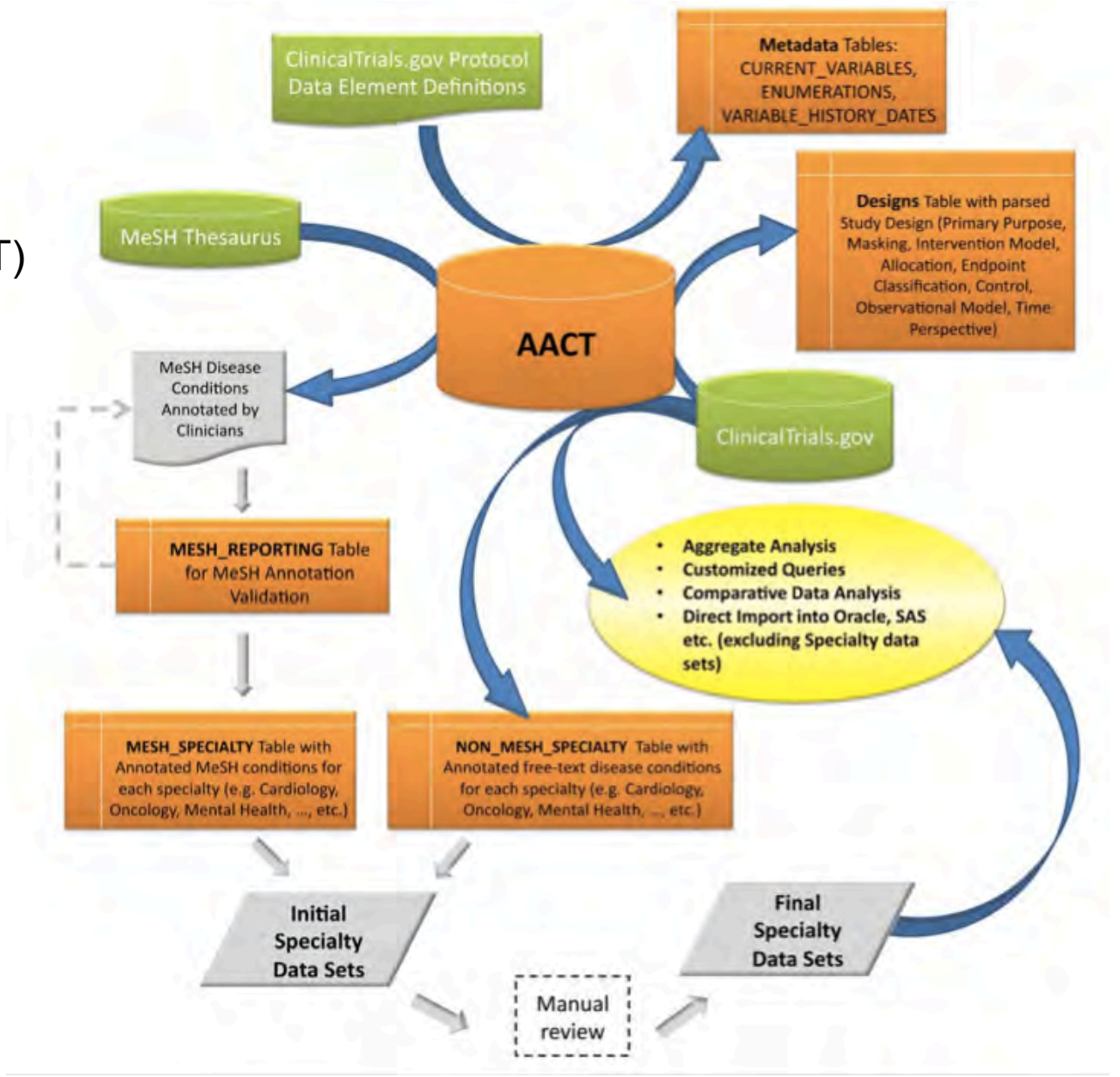
- **Conclusion:** This approach/resource shows promise to help investigators discovery resources otherwise not visible to them, thereby potentially streamlining research.

“The Database for Aggregate Analysis of ClinicalTrials.gov (AACT) and Subsequent Regrouping by Clinical Specialty”
(Tasneem A, et al. PLoS One, 2012)

- **Goals:** Enhance utility of clinicaltrials.gov as a research resource by creating a database for aggregate analyses of registered content, and annotate by clinical specialty.
- **Methods/Results:** Consumed clinicaltrials.gov XML for all 96,346 trials in at that time. Also developed methodology involving experts for annotating studies by clinical specialty. Clinical experts reviewed and annotated MeSH and non-MeSH disease condition terms and algorithm was developed. Ability to extend dataset, link additional data sources, and integrate metadata are planned.

AACT – PLoS 2012

- **Figure:** A schematic representation of the database for Aggregate Analysis of ClinicalTrials.gov (AACT) with its key enhancements.



AACT – PLoS 2012

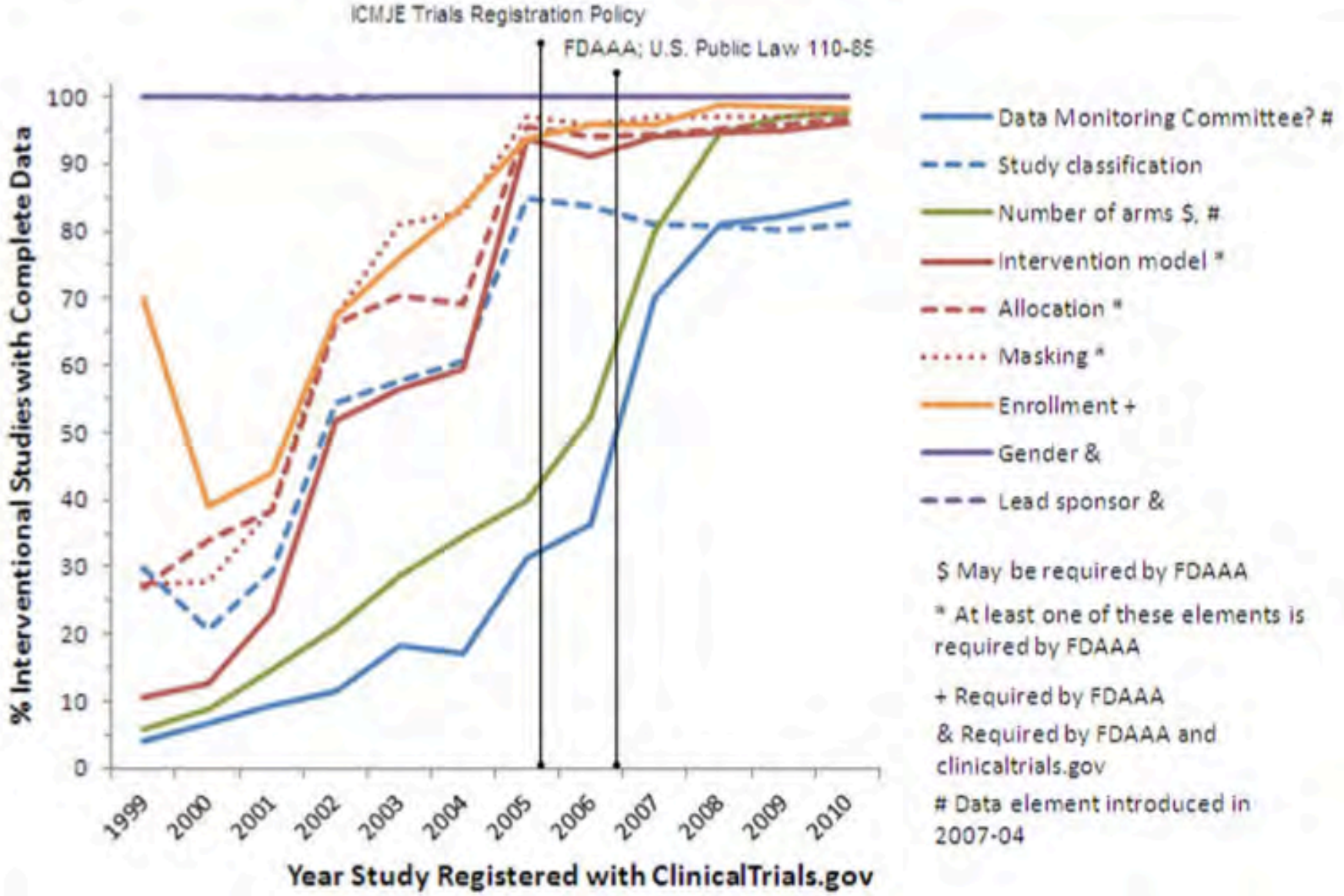


Figure 3. Percentage of interventional studies with complete data by registration year for selected data elements.
doi:10.1371/journal.pone.0033677.g003

“The Database for Aggregate Analysis of ClinicalTrials.gov (AACT) and Subsequent Regrouping by Clinical Specialty”
(Tasneem A, et al. PLoS One, 2012)

- **Conclusions:** This database of ClinicalTrials.gov content organized for aggregate analysis and public should enable analyses of historical data previously not possible or very time-consuming. It represents a resource for those interested in the content of clinicaltrials.gov.

Other notable papers in this category:

- **"The TOKEn project: knowledge synthesis for in silico science"** (Payne PRO, et al. J Biomed Inform, 2011)
- **"Data standards for clinical research data collection forms: current status and challenges"** (Richesson RL, et al. JAMIA, 2011)
- **"Toward and ontology-based framework for clinical research databases"** (Kong YM, et al. J Biomed Inform, 2011)
- **vSPARQL: a view definition language for the semantic web"** (Shaw M. et al. J Biomed Inform, 2011)

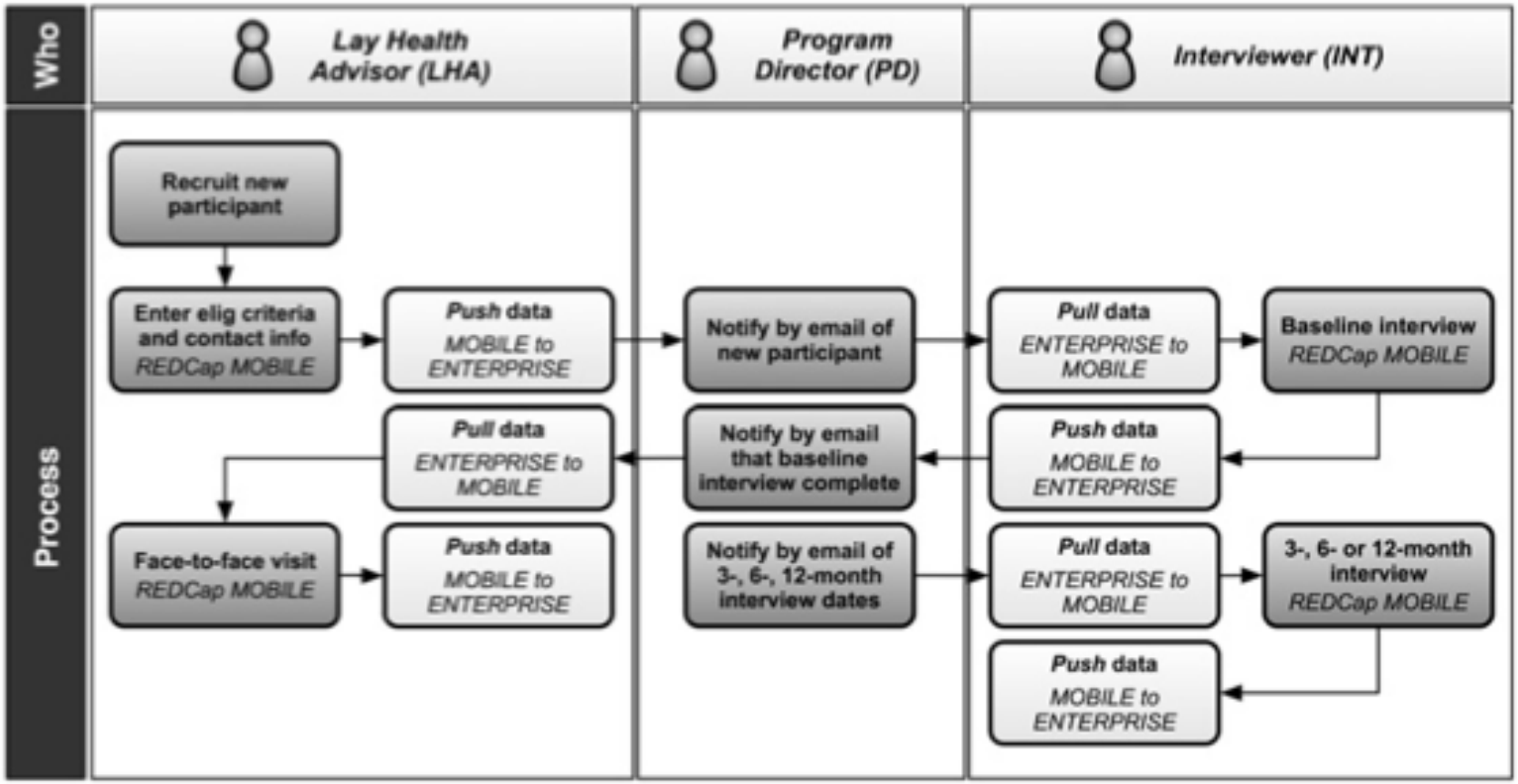
Researcher Support & Resources

“Enabling distributed electronic research data collection for a rural Appalachian tobacco cessation study”
(Borlawsky T, et al. JAMIA, 2011)

- **Goals:** Enable secure, systematic electronic data capture in remote community-based research sites with limited Internet connectivity.
- **Methods:** Integration of the REDCap data collection application with a customized synchronization tool to enable encrypted data exchange with laptop-based when connection next established.
- **Results:** System functioned as intended, allowing users to easily adopt and use the system in a secure manner even with limited internet connectivity.

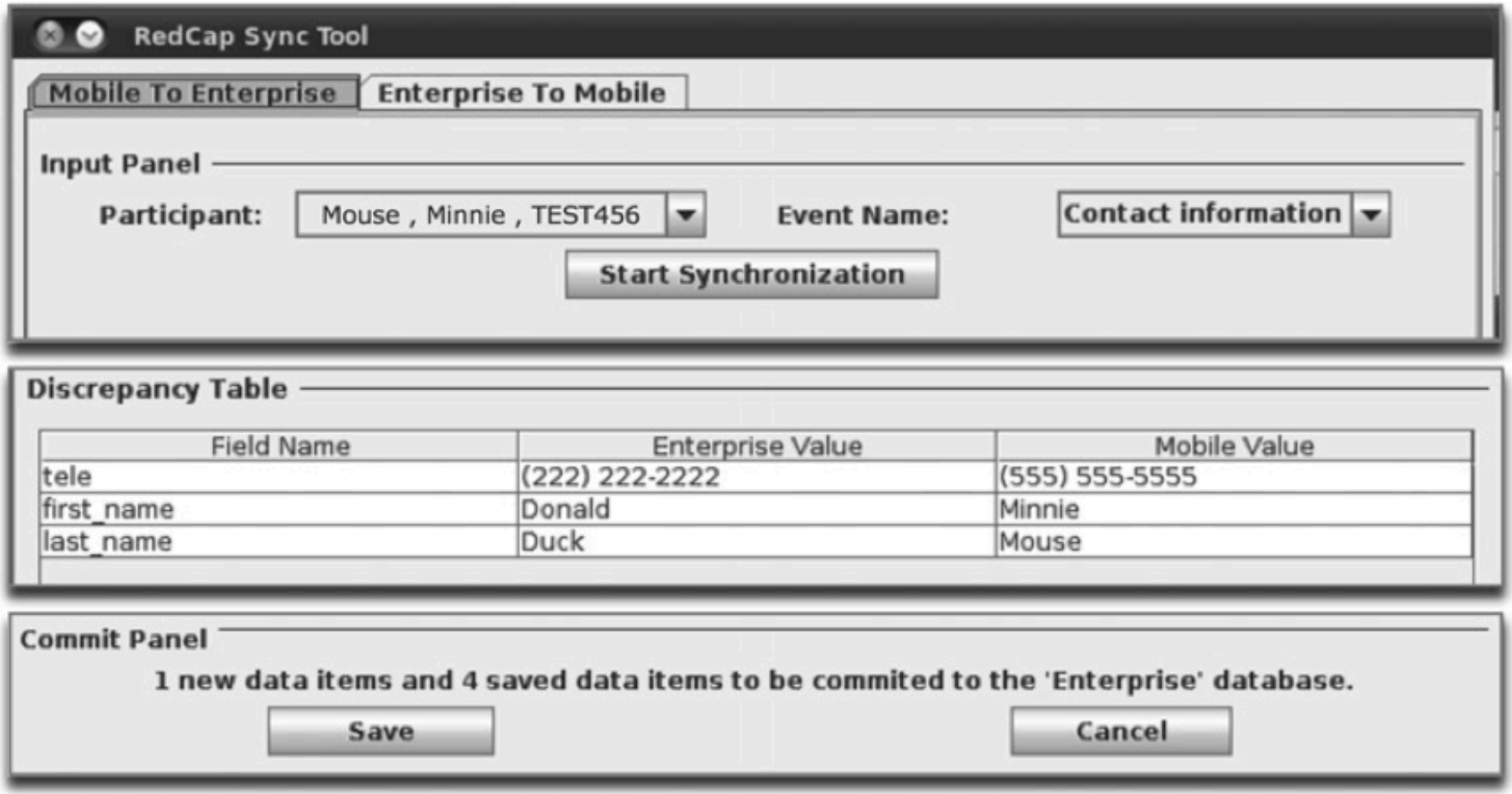
"Enabling distributed electronic research data collection for a rural Appalachian tobacco cessation study" (Borlawsky T, et al. JAMIA, 2011)

- Overview of synchronization workflow:



“Enabling distributed electronic research data collection for a rural Appalachian tobacco cessation study” (Borlawsky T, et al. JAMIA, 2011)

- Synchronization tool interface, with discrepancy reconciliation, if needed



“Enabling distributed electronic research data collection for a rural Appalachian tobacco cessation study”
(Borlawsky T, et al. JAMIA, 2011)

- **Conclusions:** Combination of off-the-shelf EDC tools and a custom data synchronization application can facilitate the central coordination of distributed research studies conducted in communities with limited internet access, as well as provide near-real-time exchange among field project staff members and the study coordinator.

"Current State of Information Technologies for the Clinical Research Enterprise across Academic Medical Centers" (Murphy SN, et al. Clin Trans Sci. 2012)

- **Goals:** Clinical Research Forum IT Roundtable group surveyed member organizations to assess current state, changes in Research IT infrastructure since prior surveys in 2005 and 2007.
- **Methods:** Survey to all member sites. Four main areas:
  - The use of IT in research compliance, such as conflicts of interest, research budgeting, and reporting to the Institutional Review Board (IRB);
  - The use of IT for electronic data capture (EDC) requirements related to clinical studies and trials of different size;
  - The use of data repositories for the repurposing of clinical care data for research; and,
  - The IT infrastructure needs and support for research collaboration and communication.

"Current State of Information Technologies for the Clinical Research Enterprise across Academic Medical Centers" (Murphy SN, et al. Clin Trans Sci. 2012)

- **Results:** 17/51 responded (33% response rate)

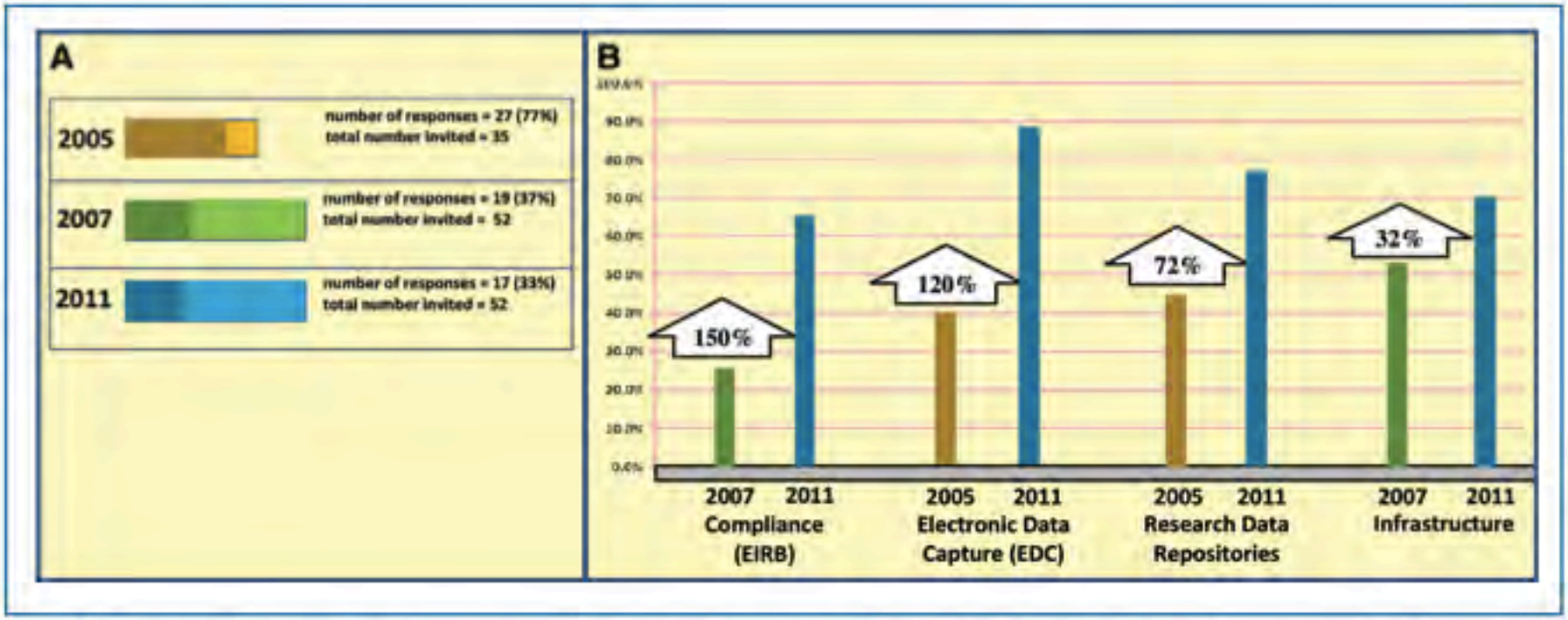


Figure 1. Comparison of response rates and responses regarding adoption of major categories of research IT infrastructure between the current (2011) and previous (2005 and 2007) surveys. (**A**) It demonstrates the response rate difference. (**B**) It depicts percentage increases for each category.

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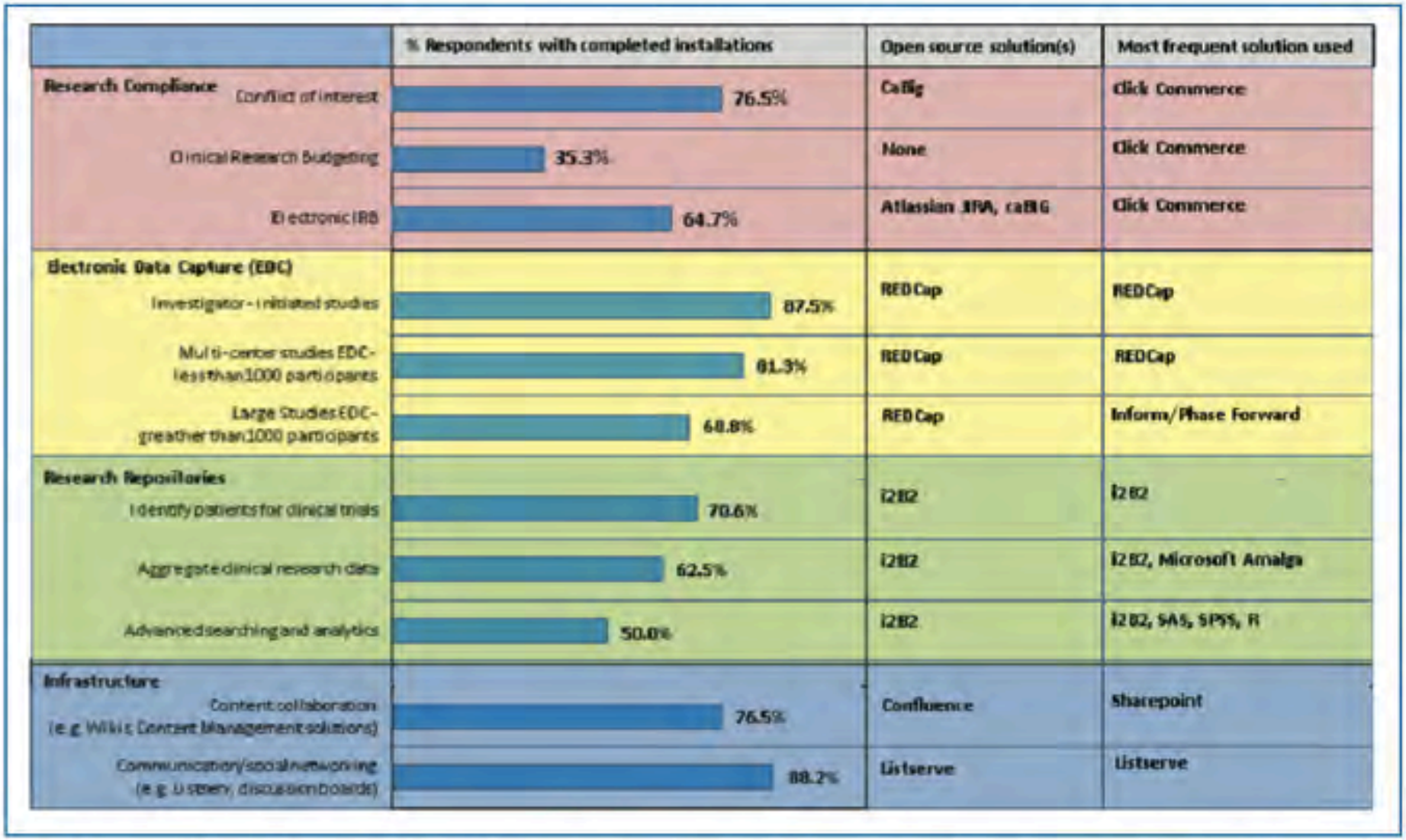


	% Respondents with completed installations	Open source solution(s)	Most frequent solution used
Research Compliance			
Conflict of interest	76.5%	caBig	Click Commerce
Clinical Research Budgeting	35.3%	None	Click Commerce
Electronic IRB	64.7%	Atlassian JIRA, caBIG	Click Commerce
Electronic Data Capture (EDC)			
Investigator-initiated studies	87.5%	REDCap	REDCap
Multi-center studies EDC-less than 1000 participants	81.3%	REDCap	REDCap
Large Studies EDC-greather than 1000 participants	68.8%	REDCap	Inform/Phase Forward
Research Repositories			
Identify patients for clinical trials	70.6%	i2B2	i2B2
Aggregate clinical research data	62.5%	i2B2	i2B2, Microsoft Amalga
Advanced searching and analytics	50.0%	i2B2	i2B2, SAS, SPSS, R
Infrastructure			
Content collaboration (e.g. Wikis, Content Management solutions)	76.5%	Confluence	Sharepoint
Communication/social networking (e.g. listserv, discussion boards)	88.2%	Listserve	Listserve

Figure 2. Percentage of respondents with completed installations, open-source solutions cited by respondents, and most commonly cited solution cited by respondents (commercial or open source) for key elements of functionality in the categories of research compliance, electronic data capture, research repositories, and infrastructure.

“Current State of Information Technologies for the Clinical Research Enterprise across Academic Medical Centers”
(Murphy SN, et al. Clin Trans Sci. 2012)

- **Conclusions:** Research IS adoption across respondent sites has increased over past 7 years. The availability of more robust and available vendor-based and “open-source” solutions, coupled with new research initiatives (e.g., CTSA) and regulatory requirements, appear to be contributing to these advances.

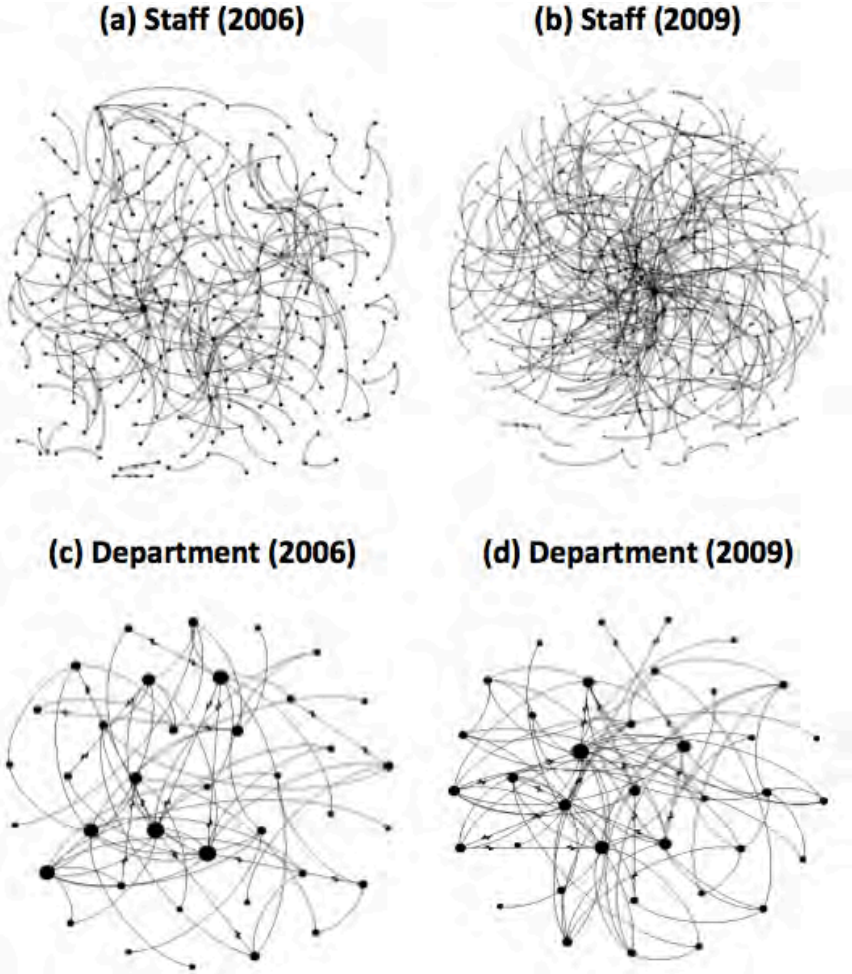
“Temporal evolution of biomedical research grant collaborations across multiple scales – a CTSA baseline study”
(Nagarajan R, et al. AMIA Ann Symp Proc, 2011)

- **Goals:** To understand the properties of biomedical research grant collaboration networks as a function of scale (Staff, Department) and time (2006, 2009), with onset of CTSA.
- **Methods:** Data derived from internally developed grans management system and analyzed using Network analysis approach.

"Temporal evolution of biomedical research grant collaborations across multiple scales – a CTSA baseline study"

(Nagarajan R, et al. AMIA Ann Symp Proc, 2011)

- **Results:** BRGC networks appeared disconnected with mutually exclusive research clusters. Coefficient of the dominant weakly-connected cluster was noted to increase with more time in the Staff and Department network, suggesting increasing collaboration over time.
- While the Staff network captured the collaborations between the principal investigators and co-investigators in a grant, the Department network specifically targeted inter-departmental collaborations with multiple Staff belonging to a given Department.



“Temporal evolution of biomedical research grant collaborations across multiple scales – a CTSA baseline study”
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- **Conclusions:** Network analysis approaches like this are preliminary, but could provide insights into:
  - Effects of investments into services and resources designed to enhance collaboration over time
  - Enable identification of isolated or perhaps influential group nodes that might be worthy of targeting with research informatics interventions to encourage collaboration
  - Would need to be studied in different settings… interesting…

Other notable papers in this category:

- **“Enabling collborative research using the Biomedical Informatics Research Networks (BIRN)”** (Helmer, KG, et al. JAMIA. 2011)
- **“A CTSA-sponsored program for clinical research coordination: networking, education, and mentoring”** (Brandt, D.S. et al. Clin Transl Sci. 2011)

Recruitment Informatics

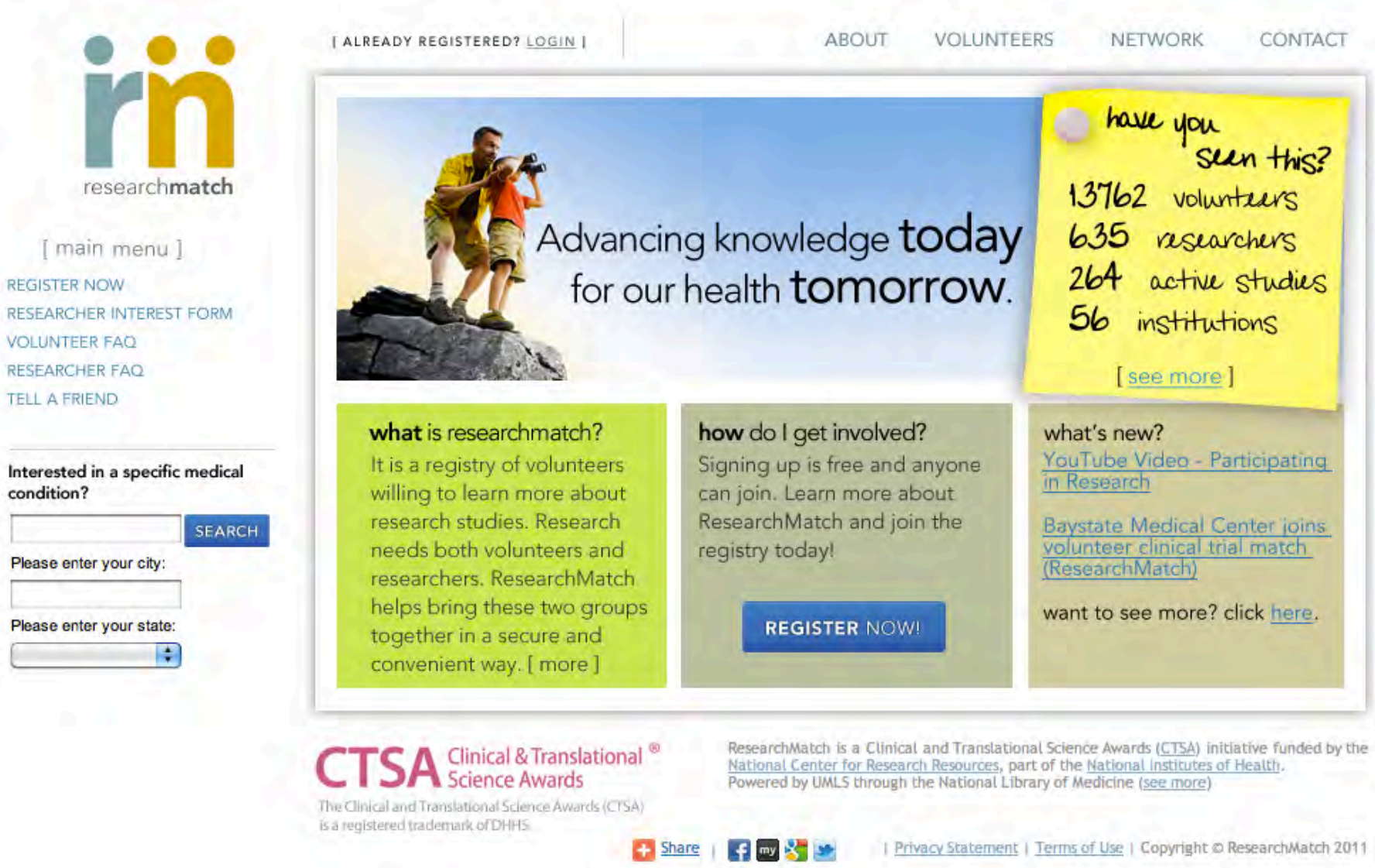
"A novel method to enhance informed consent: a prospective and randomised trial of form-based vs electronic assisted informed consent in paediatric endoscopy"
(Friedlander JA, et al. J Medical Ethics. 2011)

- **Goals:** To evaluate the ability to augment informed consent via supplemental computer-based module.
- **Methods:** Parents were randomized to either form-based or form-based plus interactive learning module (electronic assisted) consent. Anxiety, satisfaction, number of questions asked, and attainment of informed consent were measured and analyzed.
- **Results:** Ability to achieve informed consent was 10% in control and 33% in intervention group ($p<0.0001$). Electronic assisted consent did not alter satisfaction, anxiety or number of questions asked of endoscopist.

“A novel method to enhance informed consent: a prospective and randomised trial of form-based vs electronic assisted informed consent in paediatric endoscopy”
(Friedlander JA, et al. J Medical Ethics. 2011)

- **Conclusions:** Form-based consents is limited, at least for studies like this one. Supplemental information via electronic form was helpful, but still consent rates were sub-optimal. Further study is needed.

Recruitment: Researchmatch.org



"ResearchMatch: A National Registry to Recruit Volunteers for Clinical Research" (Harris PA, et al. Acad Med. 2012)

- **Goals:** To establish a registry for public who are interested in volunteering for research studies.
- **Methods:** A CTSA-consortium resource that originated at Vanderbilt University. Disease neutral by design. Volunteers register and are then contacted by investigators.
- **Results:** Over 15,800 volunteers from all 50 US states, though 75% from 10 states. Registration growing steadily. About 20% acceptance rate by registrants upon being contacted for a study. Over-representation by whites (81.2% vs. 75.1% in population), and women (72.7% vs. 50.9% in population).

"ResearchMatch: A National Registry to Recruit Volunteers for Clinical Research"

(Harris PA, et al. Acad Med. 2012)

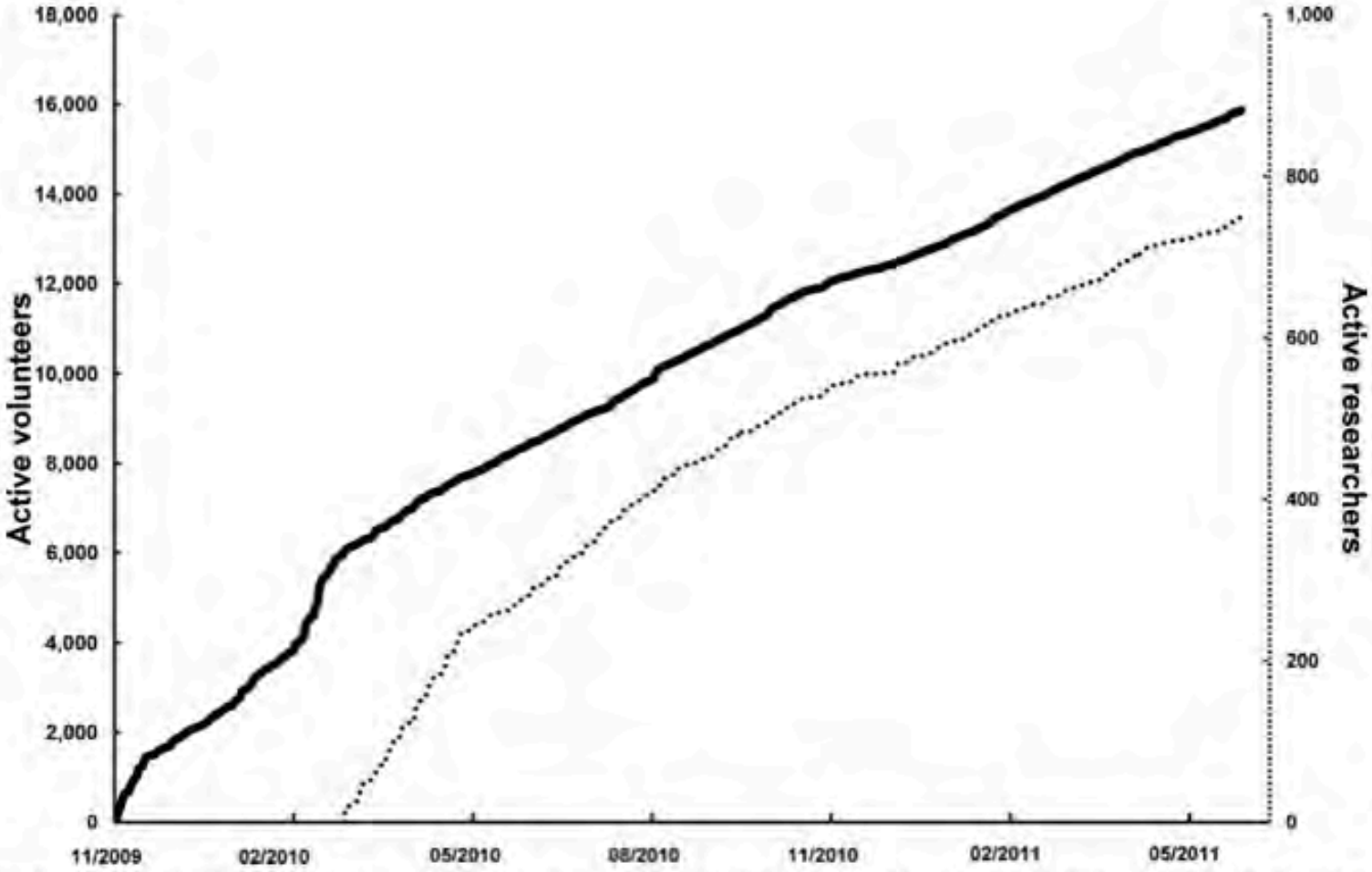


Figure 1 Growth in the populations of volunteers (thick line) and researchers (dotted line) who registered with ResearchMatch during its first 19 months of operation (November 2009 to June 2011). ResearchMatch did not start registering researchers until about four months after starting to register volunteers in order to first build a pool of volunteers who might fit researchers search criteria.

“Enrollment into a time sensitive clinical study in the critical care setting: results from computerized septic shock sniffer implementation”
(Herasevich V, et al. JAMIA. 2011)

- **Goals:** To improve recruitment of patients with recent-onset (24hrs) septic shock into a trial using automated alerts.
- **Methods:** A sniffer program monitored EHR for parameters indicating shock, then paged research coordinator on-call to recruit patient. Before-after study assessing recruitment rates.

"Enrollment into a time sensitive clinical study in the critical care setting: results from computerized septic shock sniffer implementation"
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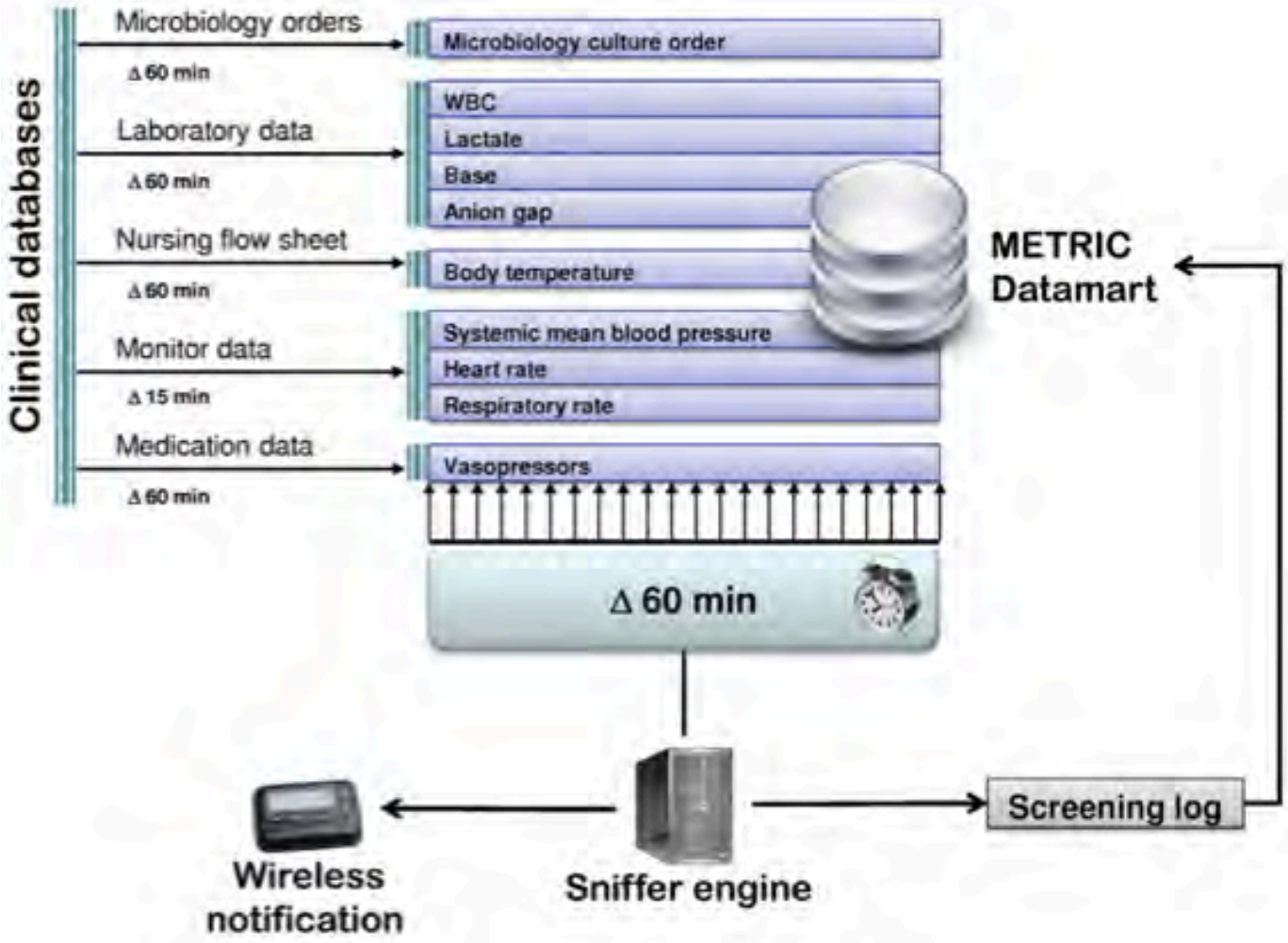


- Schematic of information flow in the notification system.
- METRIC = Multidisciplinary Epidemiology and Translational Research in Intensive Care

“Enrollment into a time sensitive clinical study in the critical care setting: results from computerized septic shock sniffer implementation”
(Herasevich V, et al. JAMIA. 2011)

- **Results:** Sniffer had positive predictive value of 34%. Electronic screening doubled enrollment, from 37 before to 68 enrolled during period after implementation ($p<0.05$).
- **Conclusions:** Automated screening and paging to recruit to trials for acute, time-sensitive conditions appears effective.

Other notable papers for this section:

- **"The design and implementation of an open-source, data-driven cohort recruitment system: the Duke Integrated Subject Cohort and Enrollment Research Network (DISCERN)"** (Ferranti JM, et al. JAMIA. 2011)
- **"Implementation of a deidentified federated data network for population-based cohort discovery"** (Anderson N. et al. JAMIA. 2011.)
- **"EliXR: an approach to eligibility criteria extraction and representation"** (Weng C. et al. JAMIA. 2011.)

CRI and Patients/Consumers

"Spontaneous Coronary Artery Dissection: A Disease-Specific Social Networking Community-initiated Study"
(Tweet MS, et al., Mayo Clin Proc. 2011)

- **Goal:** To improve identification, recruitment and evaluation of patients with rare conditions.
- **Methods:** Members of a disease-specific support group contacted investigators via social-networking site. Then, investigators used the social networking site to identify and recruit participants who had been diagnosed with at least 1 episode condition. Medical records were reviewed and original diagnosis was independently confirmed via imaging studies. Health status was assessed via questionnaires and validated assessment tools.
- **Results:** Recruitment of all 12 participants was completed in 1 week of IRB approval. Data collection was completed within 8 months. All completed the study questionnaires and provided needed records and tests results.
- **Conclusions**: Successful example of patient-initiated research. Demonstrates feasibility of social media to recruit for rare diseases.

"Patient-driven online survey on Granulomatosis with Polyangiitis"
(Hall A, et al., Arthritis & Rheumatism. Suppl. 2011)

- **Goal:** Patient-driven survey of fellow patients with rare form of vasculitis.
- **Methods:** Patient developed and posted survey-monkey questionnaire on her blog to solicit responses from others with this condition. The survey targeted patients with GPA, as a self-reported diagnosis, and included 10 questions to anonymously assess country of residence, gender, age at diagnosis, selected comorbidities, presenting symptoms, specialty of the physician who eventually provided the diagnosis, diagnostic delay and initial treatments.
- **Results:** within 7.5 mos, 369 had completed survey, with 345 remaining in study after some exclusions. 75% were from US, and responses were consistent with that expected for patients with GPA.
- **Conclusions**: Another example of successful patient-initiated research using Web technologies.

“Osteoarthritis Index delivered by mobile phone (m-WOMAC) is valid, reliable, and responsive” (Bellamy N, et al., J. Clin Epidemiol. 2011)

- **Goal:** Evaluate the validity, reliability, responsiveness, and mode preference of electronic data capture (EDC) using WOMAC on mobile phones.
- **Methods:** Patients with OA undergoing hip or knee replacement were randomly assigned to paper-based vs. electronic WOMAC. They completed survey pre- and post-surgery.
- **Results:** No clinically important or statistically significant between-method differences were noted.
- **Conclusions**: There was close agreement and no differences between paper and mobile delivered WOMAC.

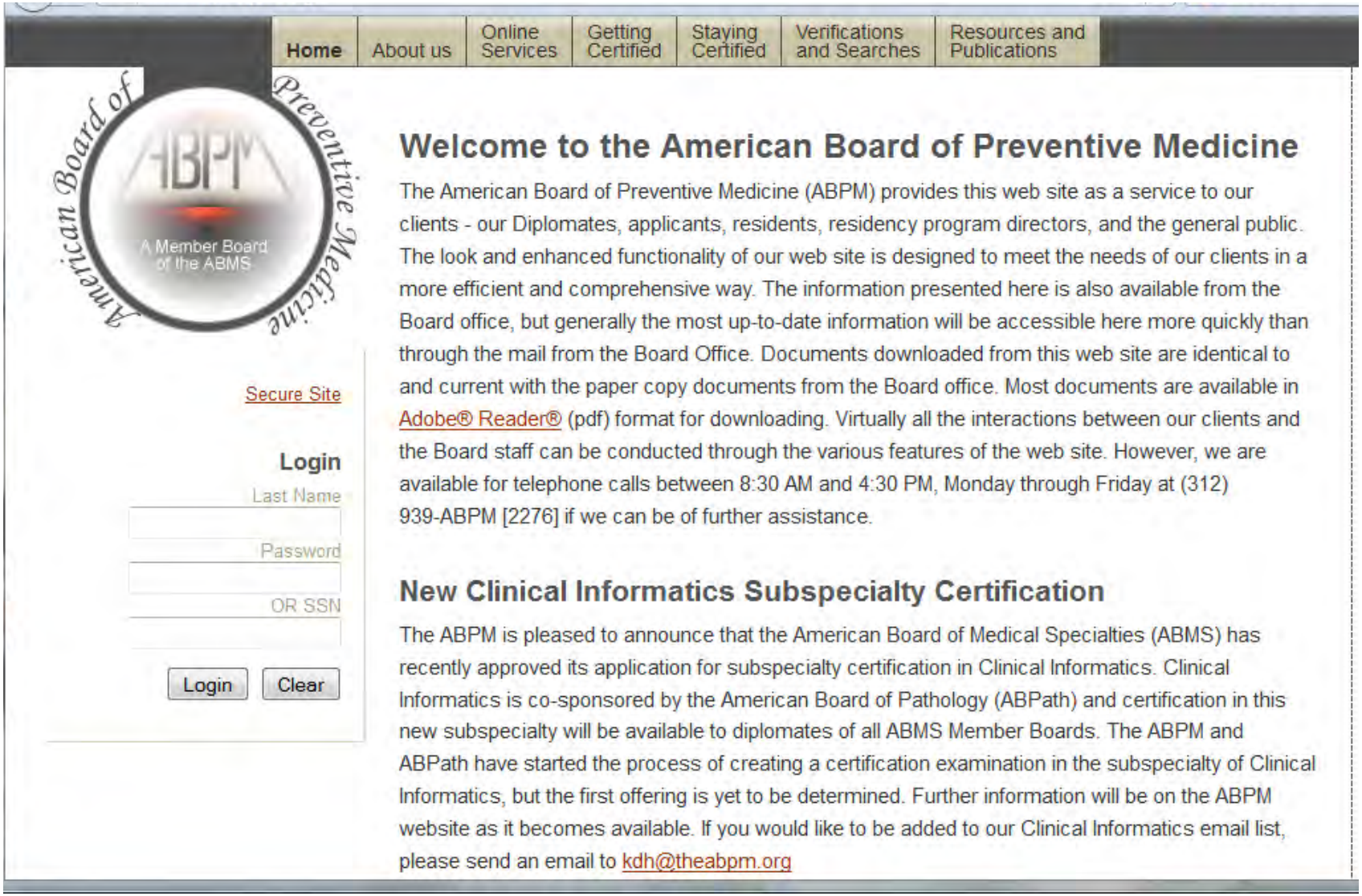
Policy and Fiscal

Commentaries related to CRI Policy & Fiscal:

- **"A historical perspective on clinical trials innovation and leadership: where have the academics gone?"** (DeMets, DL, & Califf, RM. JAMA, 2011)
  - A call to action
- **"The relative research unit: providing incentives for clinician participation in research activities."** (Embi PJ & Tsevat J. Acad Med. 2012).
  - Incentivizing clinician participation in research
- **"Translational informatics: an industry perspective."** (Cantor, MN. *JAMIA*, 2012)
  - Tools, standards, and effective delivery

Notable CRI-Related Events in Past Year

Approval of ABMS clinical informatics sub-specialty



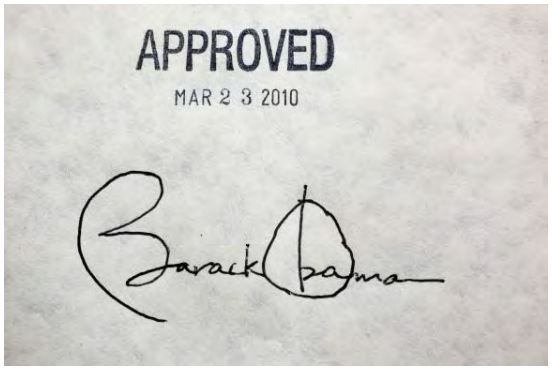
Establishment of new NIH Center: *National Center for Advancing Translational Sciences (NCATS)*

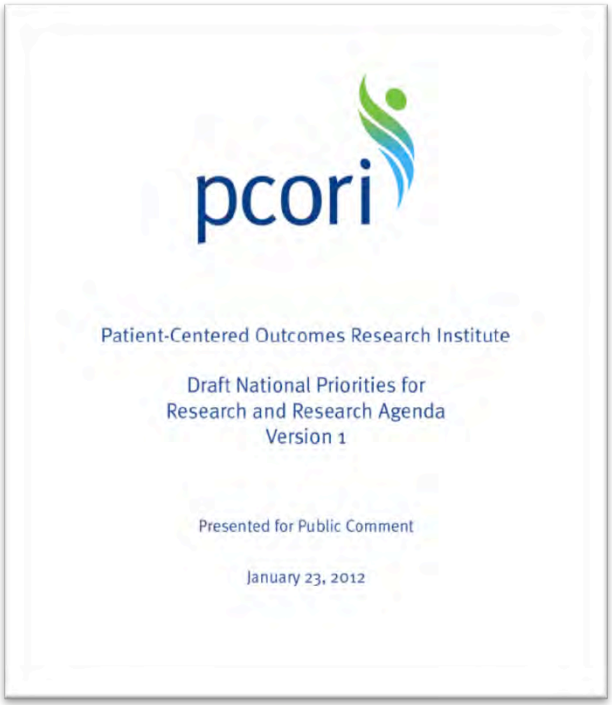
- Established December 23, 2011
  - As part of FY12 omnibus appropriations bill
  - Budget of $575M for FY2012
- Includes CTSA program among others
- Major implications for CRI efforts

- **"Reengineering translational science: the time is right."** (Collins, FS. Sci Transl Med. 2011).

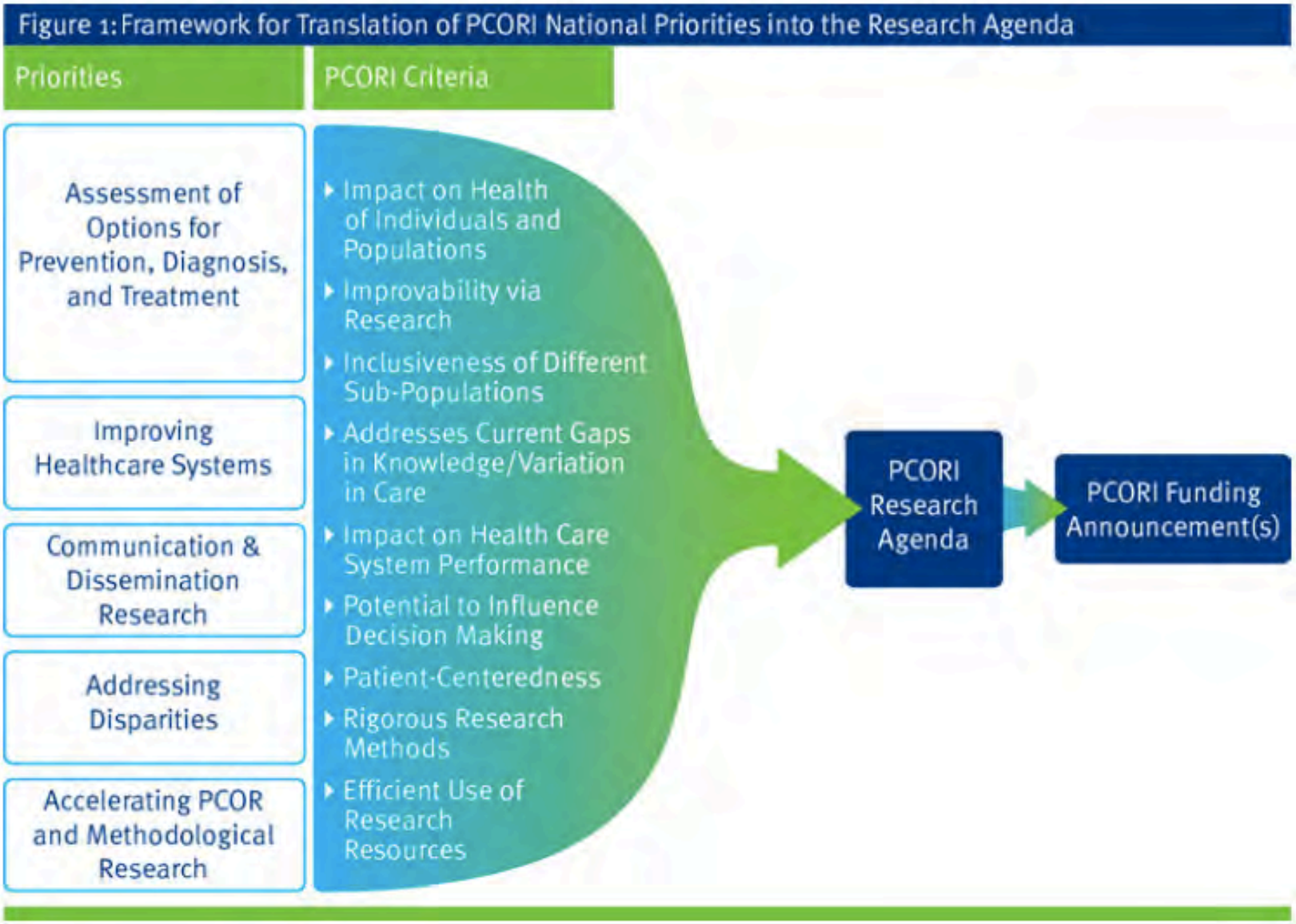
Patient Centered Outcomes Research Institute (PCORI)

- Established in the Patient Protection and Affordable Care Act of 2010
  - 2nd Anniversary Today
- PCORI funding opportunities already under way
- Draft National Priorities for Research and Research Agenda released in January





PCORI: Proposed Priorities and Research Agenda



HITECH Act

- ARRA allocated ~$27B billion to the Office of the National Coordinator for Health IT (ONC)
  - For incentives for “meaningful use” of health information technology through

- Continuation of HITECH
  - Stage 2 meaningful use rules announced – Feb ’12
  - Include registry reporting

Common Rule: Advanced Notice of Proposed Rule Making announced July 2011

- "Seven possible regulatory reforms are envisioned and described in the ANPRM:
  1. Revising the existing risk-based framework to more accurately calibrate the level of review to the level of risk.
  2. Using a single Institutional Review Board review for all domestic sites of multi-site studies.
  3. Updating the forms and processes used for informed consent.
  4. Establishing mandatory data security and information protection standards for all studies involving identifiable or potentially identifiable data.
  5. Implementing a systematic approach to the collection and analysis of data on unanticipated problems and adverse events across all trials to harmonize the complicated array of definitions and reporting requirements, and to make the collection of data more efficient.
  6. Extending federal regulatory protections to apply to all research conducted at U.S. institutions receiving funding from the Common Rule agencies.
  7. Providing uniform guidance on federal regulations."

AMIA Strategic Plan Update – Featuring CRI

- Published in February 2011
- Calls out and acknowledges the importance of CRI and TBI key domains our profession and hence for AMIA

Messages from AMIA

AMIA's realigned strategic plan

AMIA
INFORMATICS PROFESSIONALS. LEADING THE WAY

It is an honor to serve as the Chair of the Board of Directors of such a vibrant and member-focused organization.

Before beginning my term as chair, I met with the AMIA staff. One of the questions I was asked was "What is your vision for AMIA and what do you want your legacy to be?" As I learned during my 1-year term as chair-elect, it is nearly impossible for one person to understand the sheer volume and depth of our programs and activities. AMIA's board, committees, working

were shared with the board for comment and refinement and we are excited to share this report, which contains the organizational goals and selected objectives, with our members.

MISSION

AMIA and its members aim to transform healthcare through trusted science, education, and practice in biomedical and health informatics.

JBI CRI Special Issue

- Highlight selected papers from the 2011 CRI Summit

Journal of Biomedical Informatics 44 (2011) S54–S55

Contents lists available at SciVerse ScienceDirect

Journal of Biomedical Informatics

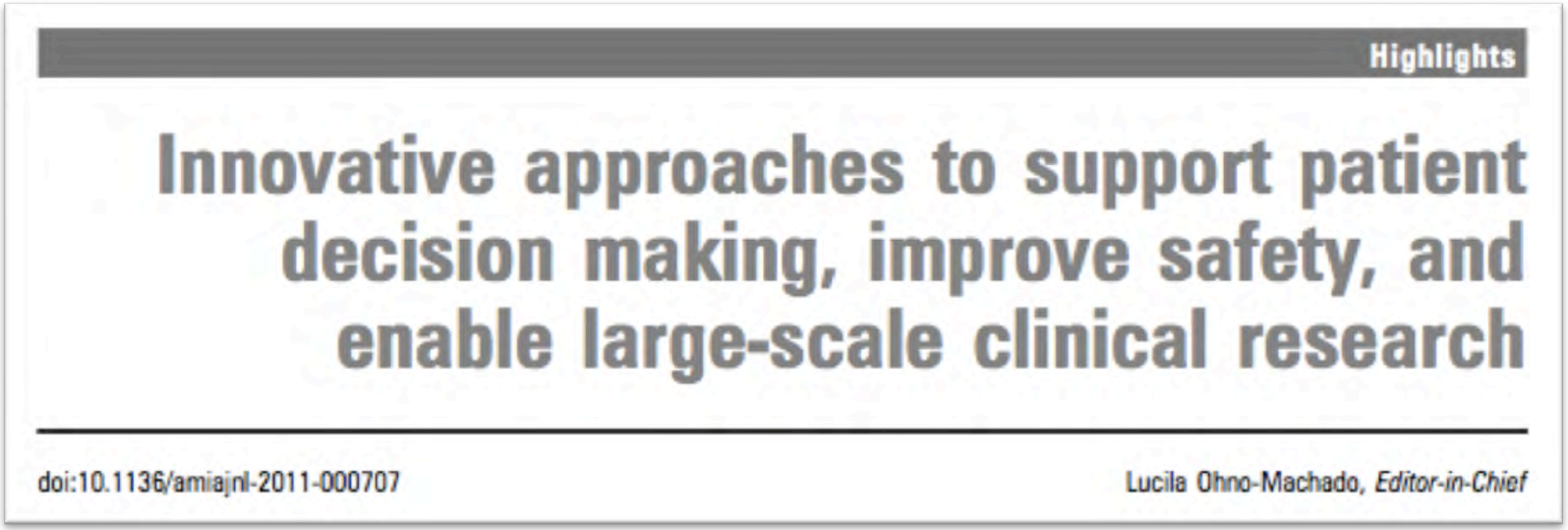
journal homepage: www.elsevier.com/locate/yjbin

Editorial

Selected Papers from the 2011 Summit on Clinical Research Informatics

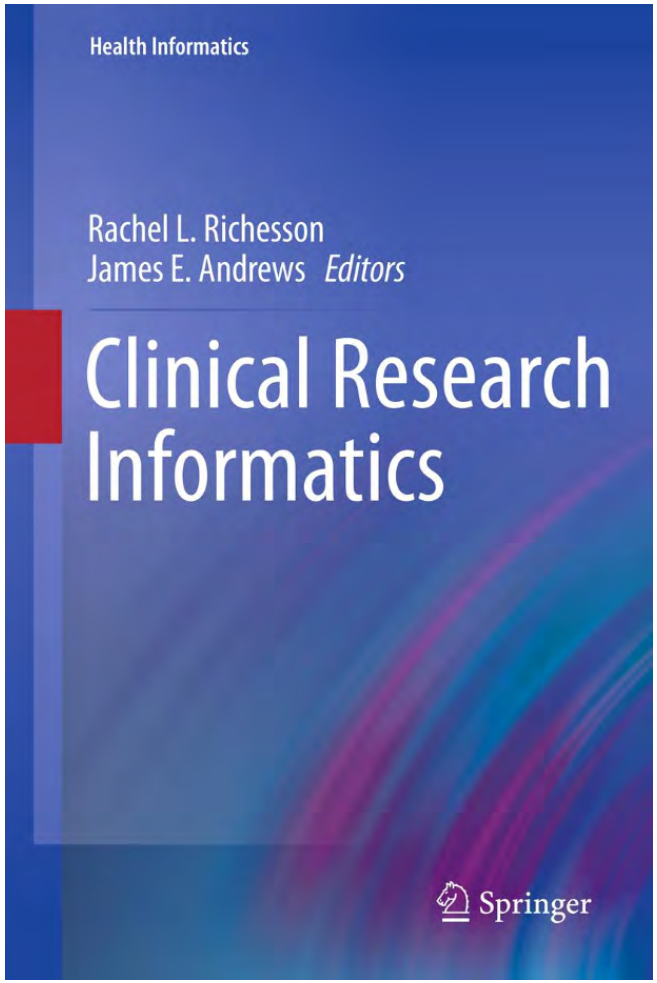
JAMIA Special Issue highlighting articles on clinical research informatics

- Several CRI papers, along with related topics
- Inspired by events related to PCORI, NCATS, etc.
- Preview of upcoming CRI-dedicated special issue scheduled for 2012



First of its kind textbook dedicated to CRI

- Editors: Richesson & Andrews
- Contributing authors from across our community
- A major achievement
- More evidence of CRI as established domain



- http://www.springer.com/public+health/book/978-1-84882-447-8
- http://www.amazon.com/Clinical-Research-Informatics-Health/dp/1848824475

In Summary…

- Maturing data infrastructure and sharing capabilities
- Advances toward accelerating and improving science
- Some (too few) randomized, controlled studies
- Poised to deploy and test our approaches to realize the "*learning health system*"

- Exciting time to be in CRI!

Thanks!

Special thanks to:

- Michael Kahn
- Philip Payne
- Eta Berner
- Rachel Richesson
- Joyce Niland
- Adam Wilcox

Thanks!

Peter.Embi@osumc.edu

Slides will be posted on AMIA Website & on http://www.embi.net/ (click on “Informatics”)