



**CIMIT<sup>®</sup>**

Center for Integration of Medicine  
& Innovative Technology

**UK Diagnostics Forum:  
Improving the Evidence on Diagnostic Tests**

**May 2, 2013**

**St Anne's College, Oxford**

**CIMIT**

**Point-of-Care Technology Research Center in Primary Care\***

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*\*Supported by the NIH's NIBIB Point-of-Care  
Technology Research Network (PoCTRN)*

# Contents ...

<b>1</b>	<b>CIMIT Introduction</b>
<b>2</b>	<b>The CIMIT Model &amp; CoLab®</b>
<b>3</b>	<b>Point-of-Care Technology Research Center in Primary Care Summary</b>

# CIMIT's Mission ...



**Accelerate the healthcare innovation cycle**

*by:*

**Facilitating collaboration**

*between:*

**Clinicians, technologists, entrepreneurs & co's**

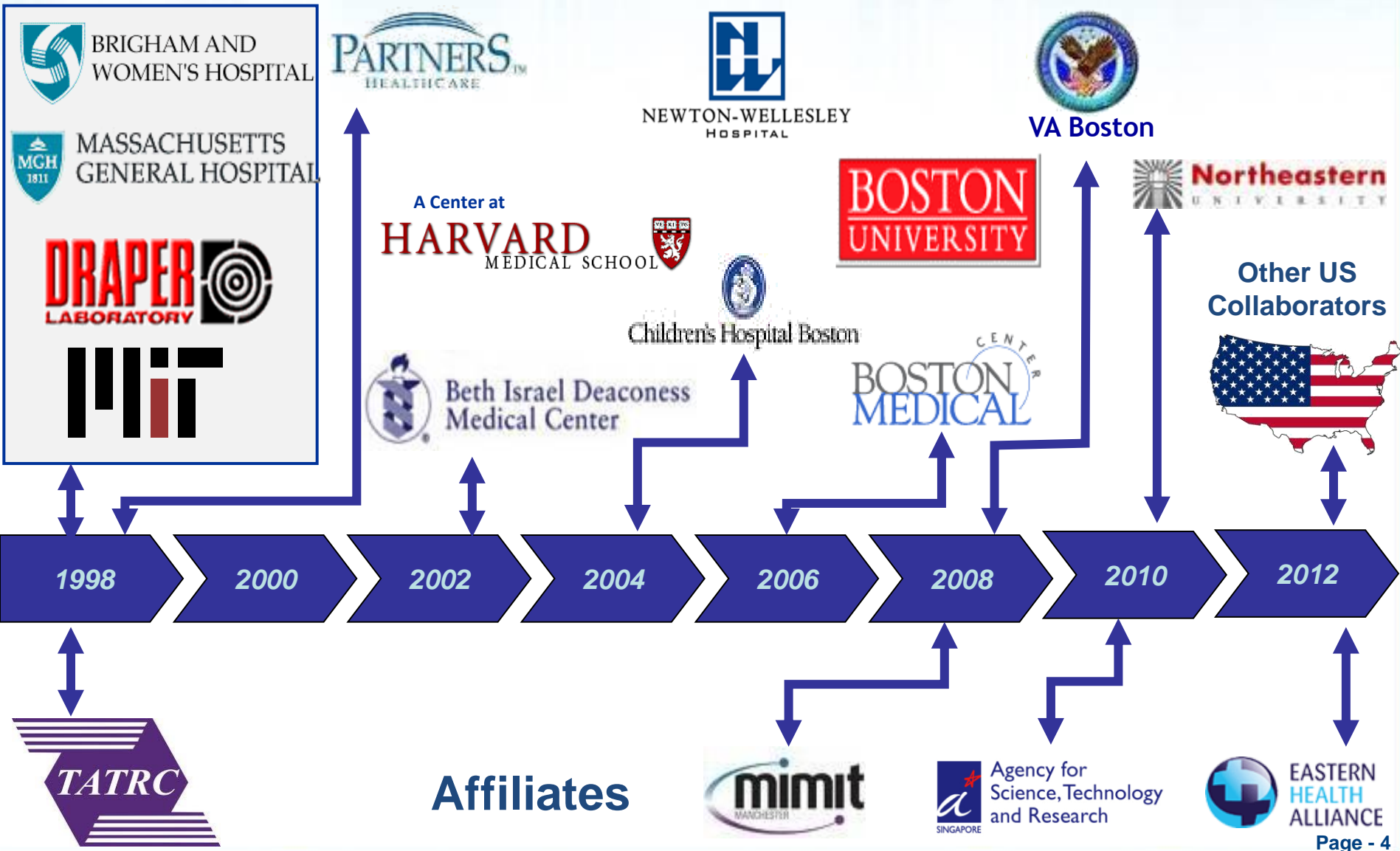
*in:*

**Creating novel products, services and procedures**

*to:*

**Improve patient care**

# The CIMIT Consortium: A growing platform



# CIMIT Model: Investing in innovation at multiple levels ...

## People

The CIMIT Model is all about people ... a network across academic, engineering and business organizations collaborating to improve healthcare

## Platform

Premier healthcare and academic institutions committed to collaborations that improve healthcare at lower costs.

## Projects Portfolios

Related ideas with near-term impact potential, driven by clinical and technical experts to address unmet clinical needs

# Innovative Products, Services & Procedures to Transform Patient Care

## Processes

A model with 15+ years of success in facilitating collaborative, multi-disciplinary teams navigate the healthcare innovation cycle.

## Programs

Thematic areas of concentration, stimulating, creating and supporting synergistic collaborations

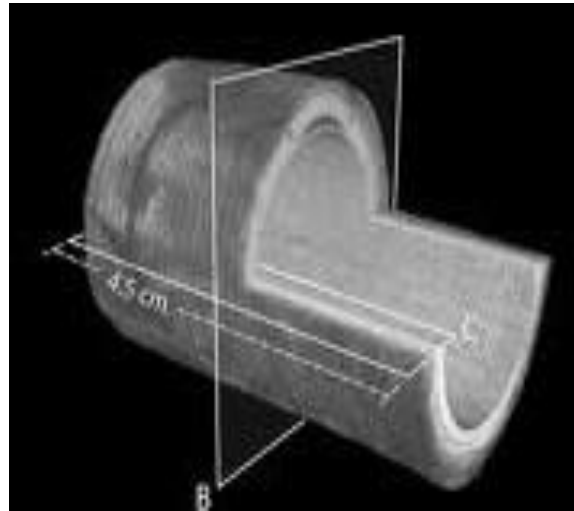
## Examples: 3 of >600 CIMIT supported projects

### *Operating Room of the Future*



**Procedures & Systems**

### *Optical Coherence Tomography*



**Start-ups**

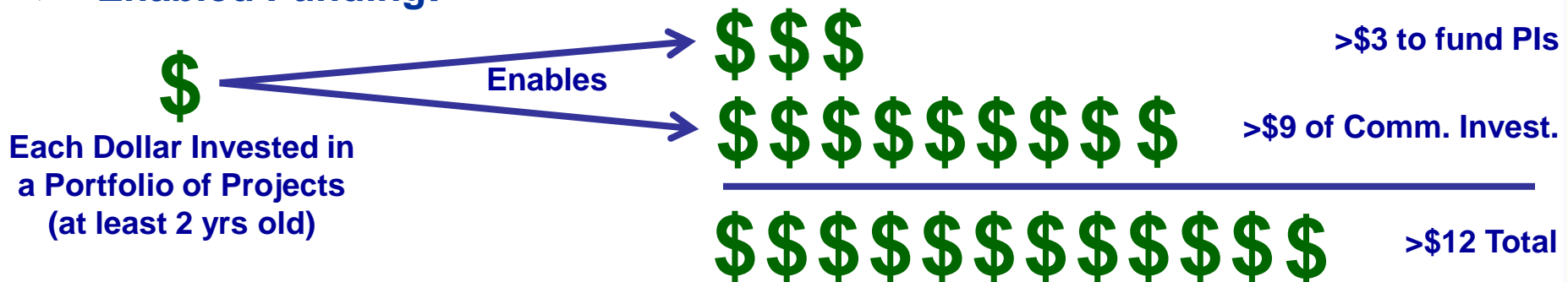
### *Seizure Detection*



**Licensing**

# Evidence that the CIMIT Model works: Sample results from CIMIT's "Clinical Impact Study" (CIS)

- **Scale of investment in projects initiated from '98 to '09:**
  - Over \$62M funding for more than 520 supported projects:
    - 175 in lightly facilitated independent projects
    - 350 as part of 102 heavily facilitated "Packs" of projects
- **Patient Impact:**
  - Commercial: Over 3 dozen new companies/product lines
  - New Practices/Procedures/Improvements: Still counting
- **Publications and Patents:**
  - Over 700 peer reviewed articles
  - Over 450 issued US patents, with over 320 applications pending
- **Enabled Funding:**



# The CIS highlights that “Packs” appear to be much more effective in creating commercial impact (...but, about the same on traditional academic metrics)

## Summary Totals

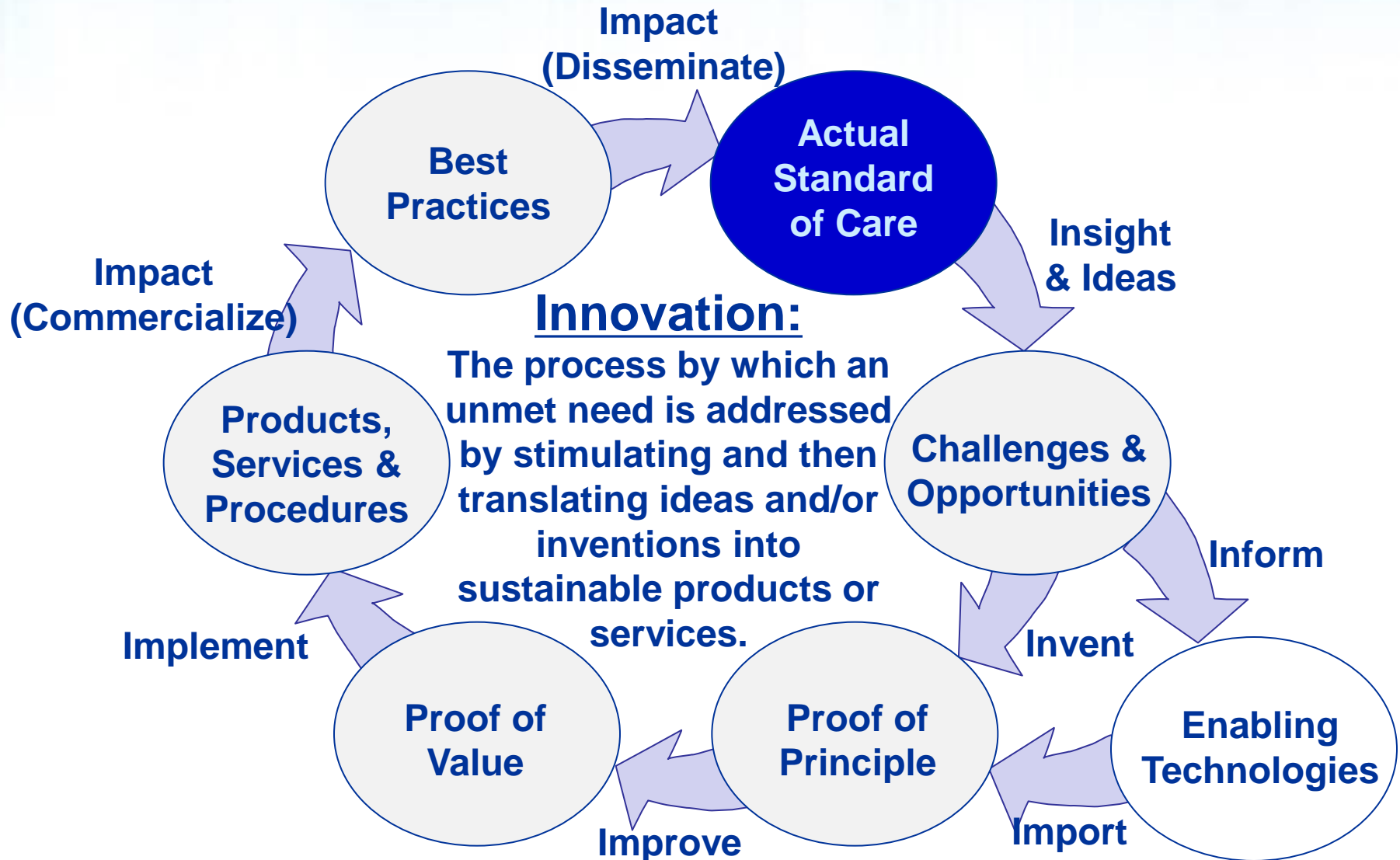
	Number	CIMIT Funding (\$M)	Follow-on Funding (\$M)	Publications	Commercial Invest. (\$M)	Issued US Patents
<b>Projects</b>	175	\$ 14.1	\$ 47.1	149	\$ 6.20	45
<b>Packs</b>	102	\$ 47.9	\$ 144	554	\$ 544	414
<b>Total</b>	277	\$ 62.1	\$ 191	703	\$ 550	459

## CIMIT Funding Normalized Results

	% of Funding	Ave Funding \$KPer	Follow-on Multiplier	Publications per \$1M	Commercial Multiplier	Issued Patents per \$1M
<b>Projects</b>	23%	\$ 80.8	3.3	10.54	0.4	3.18
<b>Packs</b>	77%	\$ 469.9	3.0	11.56	11.3	8.64
<b>Total</b>	100%	\$ 224.1	3.1	11.33	8.9	7.39



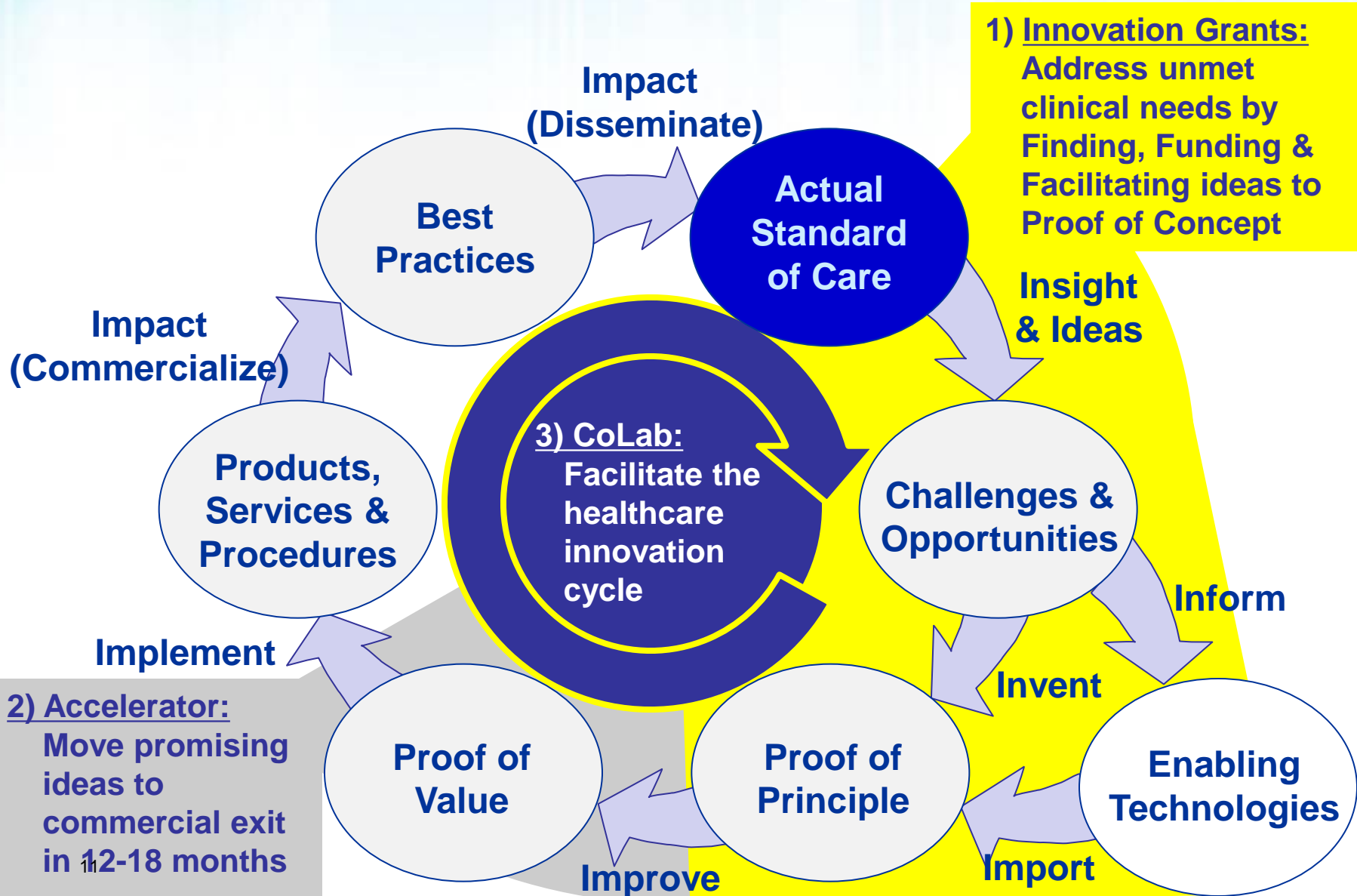
# CIMIT Experiences: The “Healthcare Innovation Cycle”



# CIMIT Experiences: What often really happens ...



# CIMIT's Functional Priorities:



# CoLab: A cloud-based platform enabling institutions to encourage, manage and measure innovation.

## Communities

Individuals and groups linked in dynamically defined, collaborative roles

## Process Engine

User configurable, codified workflows for collaborative practices, like the “CIMIT Model”.

## Content

Secure, structured, web-accessible information; links, documents, ratings, decisions, etc.

## Portfolios

Projects and activities organized for reporting and management oversight



Powered by:

Induct

# The IH&W team has chosen CoLab to be its innovation web portal to help Accelerate Adoption and Diffusion in the NHS

“There are great people in the NHS with great ideas. Through a focus on outcomes, we are going to enable and encourage them to turn those innovative ideas into reality. This will result in better care and outcomes for patients.”

SECRETARY OF STATE FOR HEALTH, ANDREW LANSLEY

## INVENTION

The originating idea for a new service or product, or a new way of providing a service

## ADOPTION

Putting the new idea, product or service into practice, including prototyping, piloting, testing and evaluating its safety and effectiveness

## DIFFUSION

The systematic uptake of the idea, service or product into widespread use across the whole service.

**NHS**

# INNOVATION HEALTH AND WEALTH

ACCELERATING ADOPTION AND DIFFUSION IN THE NHS

WE WILL DEVELOP AND PUBLISH AN INNOVATION SCORECARD TO TRACK COMPLIANCE WITH NICE TECHNOLOGY APPRAISALS

WE WILL PROCURE A SINGLE COMPREHENSIVE AND PUBLICLY AVAILABLE WEB PORTAL FOR INNOVATION IN THE NHS

“The NHS needs an intellectual marketplace of ideas, a ‘problems and solutions warehouse’ – where innovators can showcase and exchange their ideas.”

LASZLO IGALI, NORFOLK AND NORWICH UNIVERSITY HOSPITAL

## HEALTH AND THE ECONOMY

The NHS contributes to the UK economy in four important ways:

- 1 Through the services it provides: a healthy population is more productive, and more economically active
- 2 By adopting innovation to improve its own productivity, it can deliver more health benefit for a given public resource
- 3 By accelerating adoption and diffusion of innovation throughout the NHS it supports growth in the life sciences industry
- 4 By exporting innovation, ideas and expertise, working in partnership with UK industry, it provides new business opportunities abroad for UK-based companies.

# CoLab: Applications and growing list of Collaborators

## Existing applications ...

- Needs and ideas solicitations
- Proposal process management
- Impact planning
- Project tracking & reporting
- Workgroups

## Under Development ...

- Connector & funding finder
- Impact registry
- Best practice curator
- Procurement manager
- Intellectual Property manager
- Regulatory master filer



# The CIMIT Point-of-Care Technology Research Center in Primary Care – Summary:

- **Supported by the National Institute of Biomedical Imaging and Bioengineering (NIBIB)**
- **A U54 grant – which is atypically for the NIH focuses on patient impact, not science as the outcome.**
- **CIMIT’s approach based on some key lessons learned:**
  1. Start with clinical pull, and keep clinicians engaged as collaborators throughout the process.
  2. Provide facilitation to the teams
    - Everything from IP and commercialization support to resources like the Ambulatory Practice of the Future at MGH
    - Uses CoLab to support multi-institutional collaborative teams and social media to “cast the net” widely
  3. Fund the best portfolio of “Innovation” and “Accelerator” projects /people to form “Packs”, not the best stand-alone projects.

## Center Aims

1. Apply CIMIT's innovation model to create clinically-driven point-of-care solutions that address critical areas of unmet need in primary health care.
2. Identify and assess unmet primary care needs and develop performance criteria where point-of-care technology solutions would have the highest impact.
3. Select the most promising point-of-care technologies and develop them into proof-of-concept prototypes.
4. Test and evaluate prototype performance in simulated clinical environments and clinical "living laboratories" relative to clinical performance and implementation criteria.
5. Transition prototypes that meet performance specifications into commercially licensable or start-up company opportunities.
6. Train and educate relevant stakeholders – including clinicians, engineers, scientists, students and industry partners – in the innovation process as it applies to meeting health care needs.
7. Disseminate "lessons learned" and best practices in innovation methodology and process both nationally and internationally in collaboration with other POCTRN Centers.



# Center Starting Point

## ➤ **Motivation:**

As the number of primary care providers diminishes and the need for primary care increases, the fundamental unmet need is to increase the capacity of providers to care for more patients without a decrease in the quality of care and without unduly burdening the providers.

## ➤ **POC Objectives:**

- Introduce point-of-care technologies that eliminate unnecessary steps and re-work to increase the efficiency of operations.
- Offload selected testing and self-monitoring capabilities to the home setting for patient self-management.

## ➤ **Initial Focus Areas:**

- **Clinical laboratory testing:** in particular complete blood count (including WBC with differential), electrolytes (potassium of highest priority), lipid panel (cholesterol, LDL), renal function panel (BUN, creatinine, microalbumin); diabetes screening panel (HbA1c of highest priority; includes renal function panel)
- **Infectious disease:** Rapid differentiation between viral and bacterial infections and if bacterial, segmentation into either gram positive or gram negative bacteria.
- **Chronic disease management:** such as asthma and anticoagulation therapy

## Projects Launched in 2012

1. Clinical laboratory testing:  
Complete blood count (CBC)  
and/or electrolyte measurement.

Rapid Disposable Microchip for  
Complete Blood Count

2. Infectious disease: Rapid  
differentiation between viral and  
bacterial infections and if  
bacterial, segmentation into either  
gram positive or gram negative  
bacteria.

Microchip for Multiple Infectious  
Agents Testing

Rapid Fluorescence-based  
Determination of Antibiotic  
Susceptibility

Optical Device for Otitis Media  
Diagnosis

3. Chronic disease management,  
such as asthma and  
anticoagulation therapy for atrial  
fibrillation.

Optical-based Blood Coagulation  
Profiling Device

Microchip for Label-free Allergen  
Test at the POC

# Projects for 2013: CoLab based needs solicitation



Main Page

My Page ▾

Portfolio ▾

Work Groups

Your idea A brief title for easy reference ✕

Idea title: ⓘ

## Characterizing the Clinical Unmet Need

### What is the Unmet Need? ⓘ

*What important need exists in Primary Care that could I idea, please open another survey by clicking on the link*

### What is the Impact? ⓘ

*If that new or better POC test existed, how would it improve "surroundings" that you do today?*

### What is the Setting? Are there any Constraints? ⓘ

*Explain the clinical or home settings in which the need exists and if there are any special constraints?*

### Optional: Additional Info ⓘ

*Is there any other information you wish to add? If so please do so here or by uploading additional documents below.*

### Participation Interest ⓘ

*Are you or your practice interested in helping define and pilot a potential POC solution if one is pursued?*

I would like to participate

My practice would like to participate

I would like to see the solutions, once available

Optional: [Click here to upload additional documents](#)

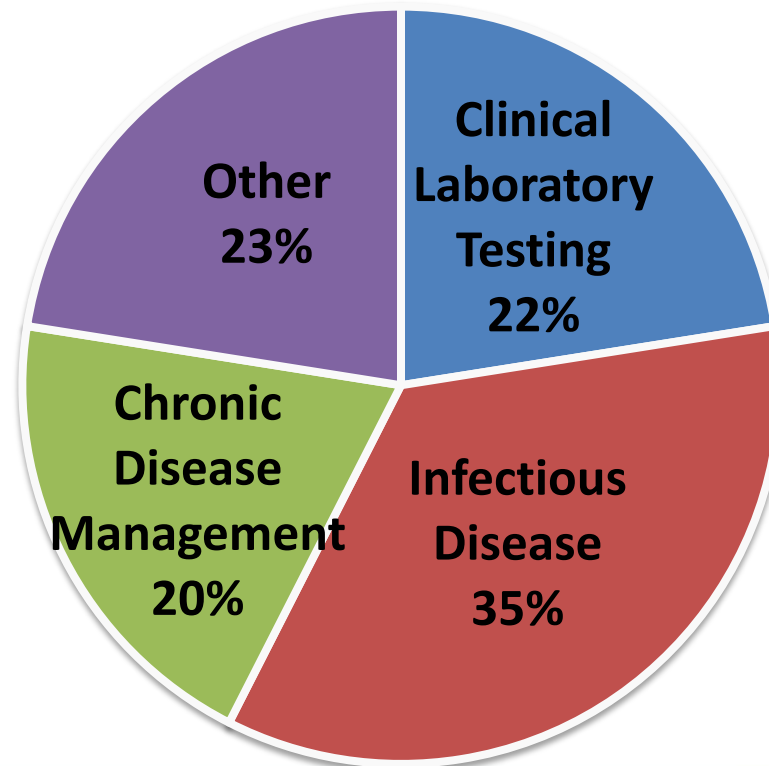
**Upload file**

## We just finished an “Expression of Interest” call for the 2013 projects, with over 40, well distributed responses:

### ➤ Distribution by Institutions

- 35% from outside of CIMIT Institutions
- 15% led by or include commercial collaborators

### ➤ Distribution of ideas by Focus Area



# CIMIT Vision: Enabling Collaborative Hubs and Thematic Networks

