



Clinical and Translational Science Center (CTSC)

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Interdisciplinary Collaboration to Optimize Patient Outcomes

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Weill Cornell Medical College

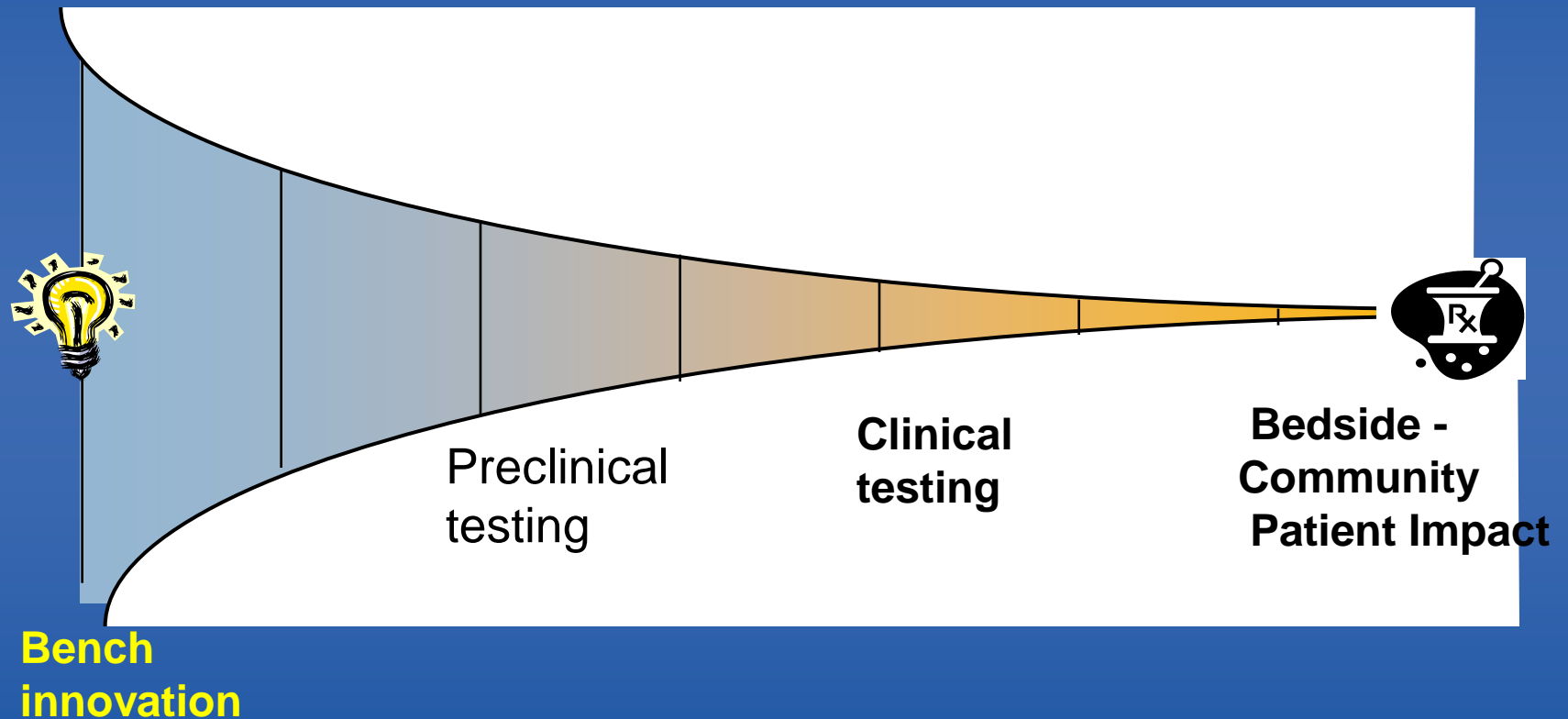
CTSC - An “NIH Roadmap” Initiative

- In 2003, Elias Zerhouni, Director of the National Institutes of Health (NIH), announced a “roadmap” to reorganize NIH-funded biomedical research.⁴
- An integral component was to “reengineer the clinical research enterprise,” by enhancing interactions between basic scientist-clinical researchers to promote transdisciplinary translational research.
- Vital to this effort was education and training of investigators who specialize in translational research.⁵

⁴ National Institutes of Health. *NIH Roadmap: Accelerating Medical Discovery to Improve Health* <http://nihroadmap.nih.gov/>. Accessed 25 July 2005.

⁵ Crowley WJ. *Translational of basic research into useful treatments: how often does it occur?* *PLoS Med* 114:503-5.

Translational Research



Translational Research Rates

- Basic research studies promising translation to clinical applications published between 1979 -1983 in Science, Nature, Cell, Journal of Experimental Medicine, and Journal of Clinical Investigation were revisited¹
- 101 articles were found that clearly promised clinical application of their findings.
- Two decades later:
 - **Only 5** of basic science promises were in licensed clinical use and only one had a major impact on current medical practice.
 - **Three quarters** had not yet been tested in a randomized trial.

¹Cripe TP. *Promoting Translational Research in Academic Health Centers: Navigating the "Roadmap"*, *Academic Medicine* Vol. 80, No. 11/November 2005.

CTSC - Translating Research into Clinical Practice

- Pasteur wrote, “To the individual who devotes his or her life to science, nothing can give more happiness than when results immediately find practical application.
- There are not two sciences. There is science and the application of science and these two are linked as the fruit is to the tree.”

Multi- and Interdisciplinary Research is Required to Solve the “Puzzle” of Complex Diseases and Conditions

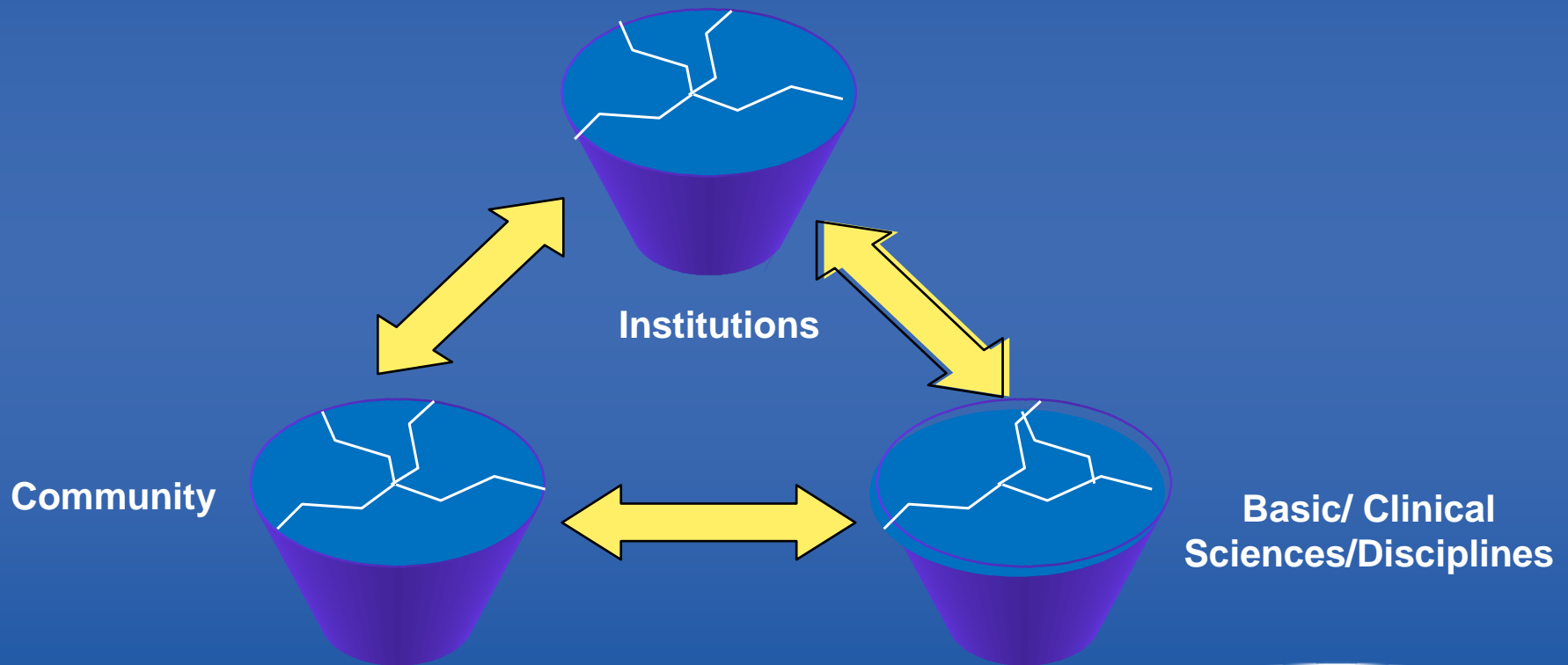
Genes
Behavior
Diet/Nutrition
Infectious agents
Environment
Society
???



Clinical Translational Science Center's Mission:

Eliminate barriers across several dimensions

facilitating research from bench to bedside to the community



WEILL CORNELL CLINICAL AND TRANSLATIONAL SCIENCE CENTER (CTSC)

Who We Are:

- A biomedical partnership of institutions on the East Side of Manhattan both public and private with a large community outreach program and solidly connected to our Ithaca campus

The Overarching Goal of the CTSC:

- To increase the speed of clinical and translational research from bench, to bedside and to the community
- Enhance and encourage community engagement

Our Clinical Translational Science Center – *Who We Are*

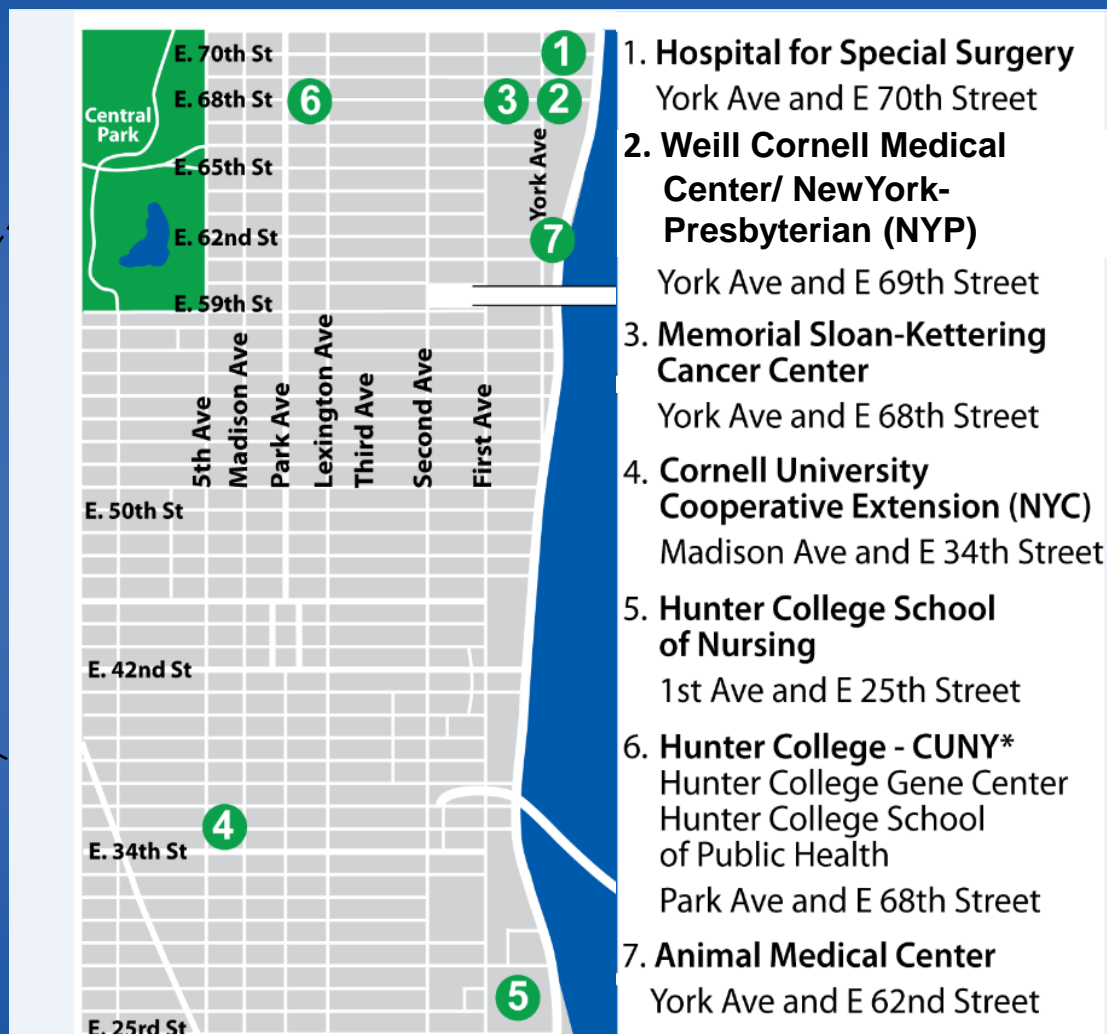
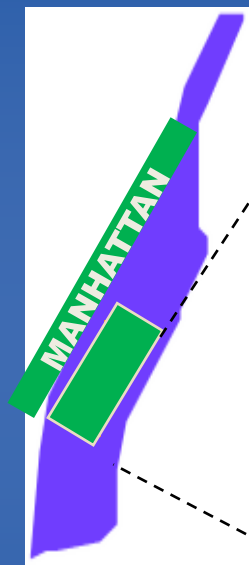
■ ***Lead Institution***

- The Weil Cornell Medical Center (WCMC) / New York Presbyterian Hospital

■ ***Partners***

- MSKCC
- Hospital for Special Surgery
- Hunter College of the City University of New York
 - School of Nursing (HCSON)
 - Hunter Gene Center/Research Center for Minority Institutions (RCMI)
 - School of Public Health
- Cornell University
 - Cooperative Extension in New York City (CUCE-NYC)
 - Department of Biomedical Engineering
 - Nanotechnology Institute
 - College of Veterinary Medicine (CVM)
- The Animal Medical Center

CTSC Consortium – Core Institutions



Innovation Through Collaboration

Translational Research

Our CTSC through this partnership provides essential components of diversity and integration to accelerate translational research to improve human health including a

- Depth and breadth of biomedical researchers from our partners
- Unique and large student pool
- Multi-disciplinary faculty allowing for the development of innovative educational programs and innovative research.

- Refunded 2012-2017

CTSC Notable Facts

1173 Investigators)

**766 Research
Projects¹**

**87% of approved
investigators using
CTSC resources**

**527 Consultations
for CTSC core
services³**

**126 Seed Funding
Awards**

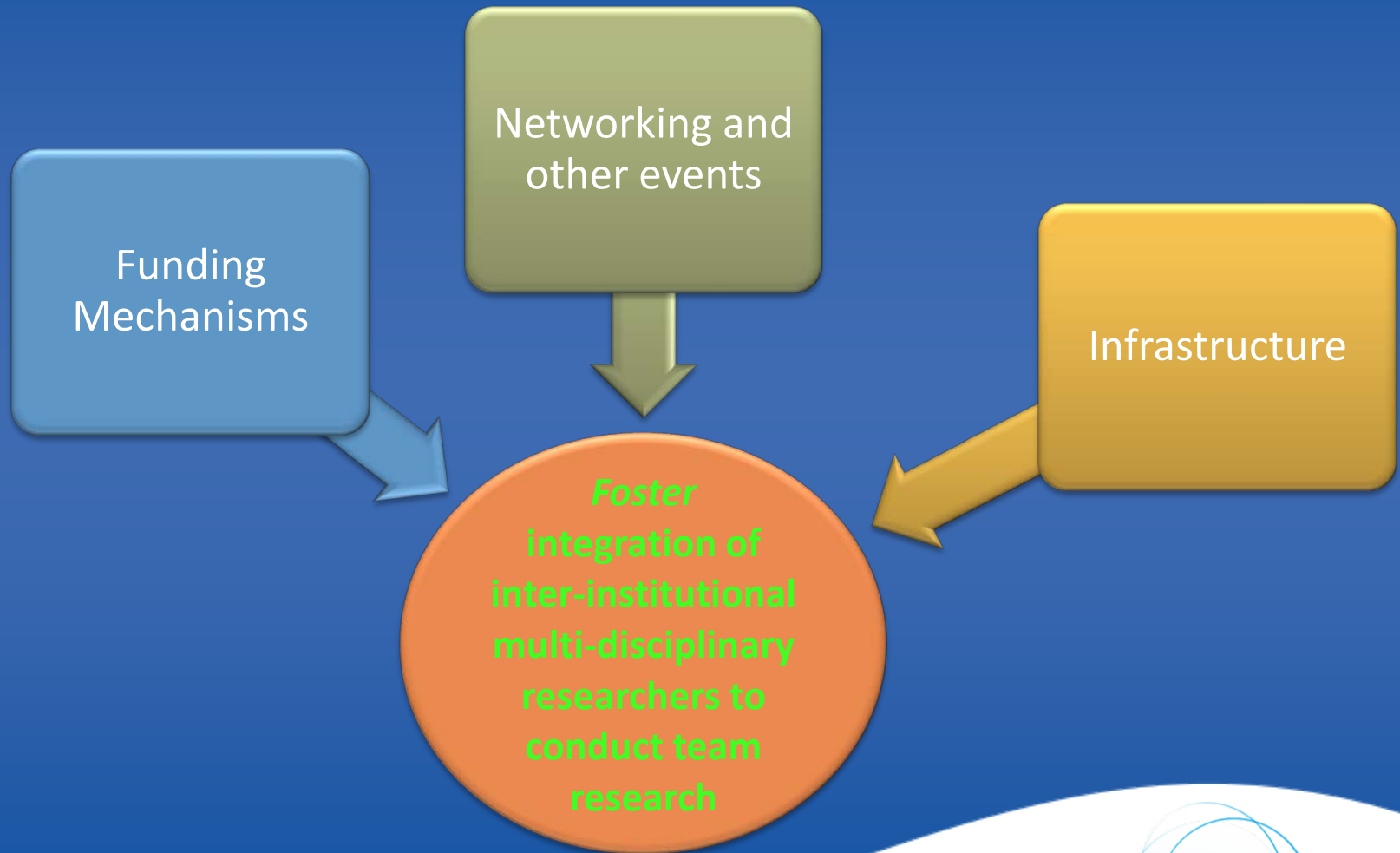
**399 Students in
education program**

¹ Includes approved full research protocols, education, seed funding; core institutions only; externally approved projects.

² Includes trainees, scholars, students researchers, seed funding programs, and CTSC staff

³Services provided by CTSC that do not require formal application/ approvals (Includes biostatistics consults, walk-in informatics and application clinics, and initial consults by TREST

Weill Cornell CTSC – Sparkling Inter-Institutional Collaboration



Funding Opportunities

foster translational team research across disciplines and partners

Pilot Project Awards

- To develop projects between basic and clinical researchers and the community; up to \$50,000 per year for two years

Planning Awards

- To develop research ideas leading to studies with an inter-disciplinary and inter-institutional focus, up to \$20,000 for one year

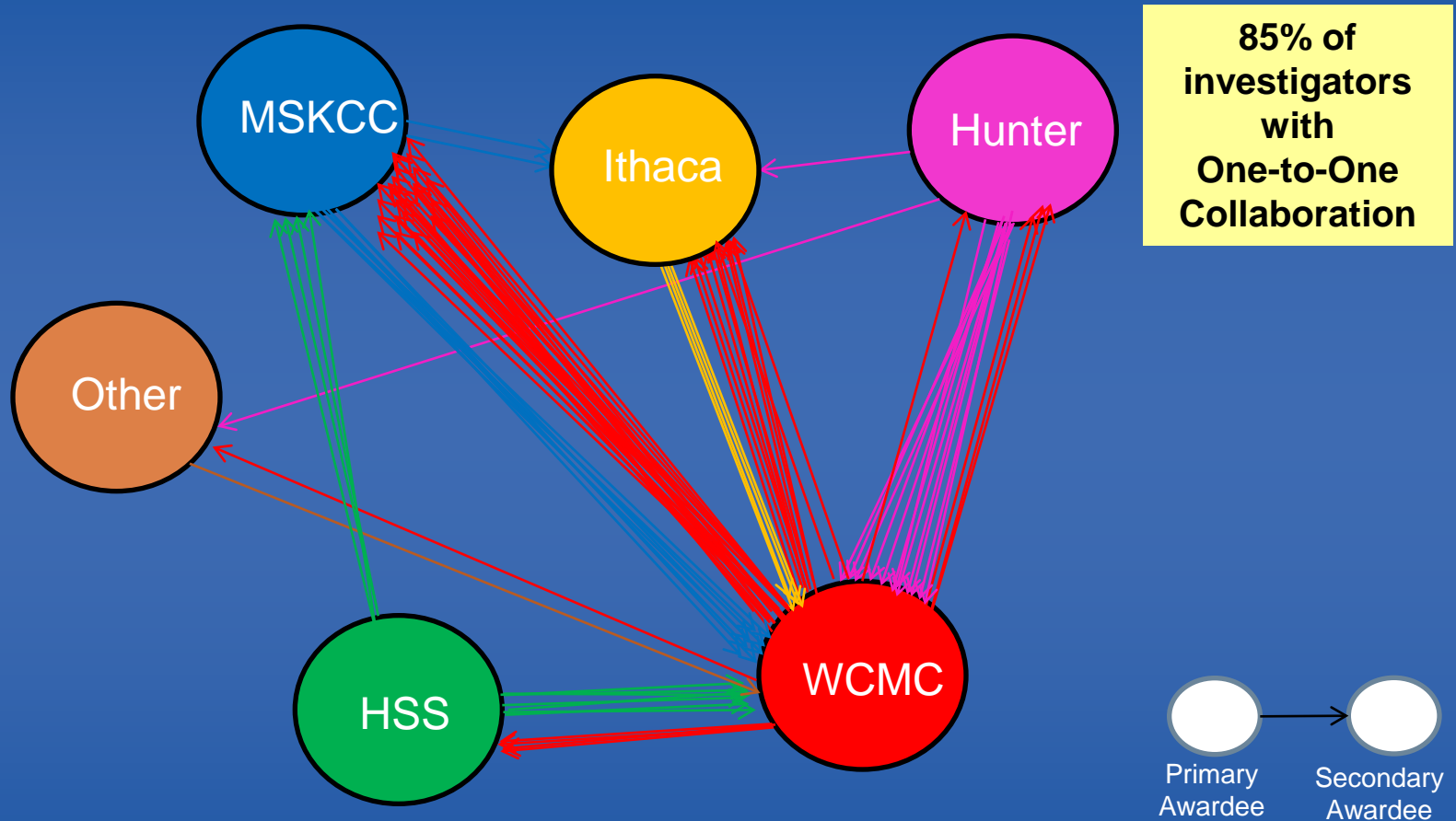
Innovation Incubator Awards

- Foster the development of multidisciplinary proposals that develop new tools and methodologies for patient care; up to \$20,000 for one year

Community Engagement and Outreach Awards

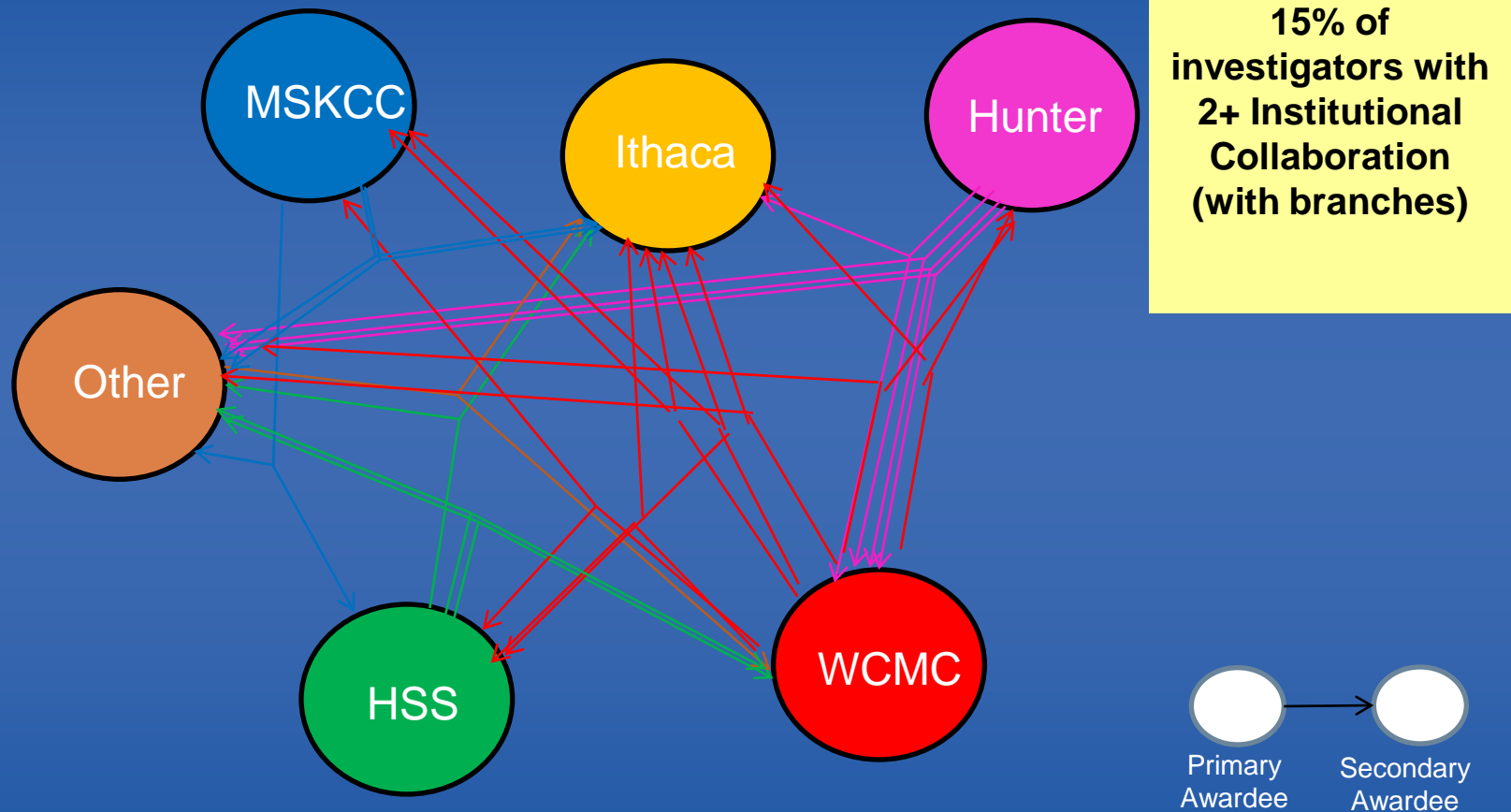
- Foster research proposals and collaborations focusing on community engagement relevant to community health concerns; up to \$20,000 for one year

CTSC Seed Funding Awards – Inter-institutional Collaborations



*Includes pilot, planning, community, and novel awards

CTSC Seed Funding Awards – Inter-institutional Collaborations



*Includes pilot, planning, community, and novel awards

Seed Funding Awards Among CTSC Partners

Type of Award	WCMC		MSKCC	HSS	Hunter College	CU-Ithaca and Affiliates	Totals
Pilot Awards: 2-year awards (up to \$50,000 per year)	36		11	8	13	1	69
Planning Awards: 1-year awards (up to \$10,000)	9		2	3	3	0	17
Community Engagement Awards: 1-year awards (up to \$20,000)	9		1	1	3	1	15
Novel Research & Methodology Awards: 1-year awards (up to \$10,000)	7		4	4	4	4	23
Informatics Research Fellows : 1-year awards (\$20,000)	0		0	0	0	2	2
Total	WCMC 34	NIH 27	18	16	23	8	126



Sparking Collaborations through Networking

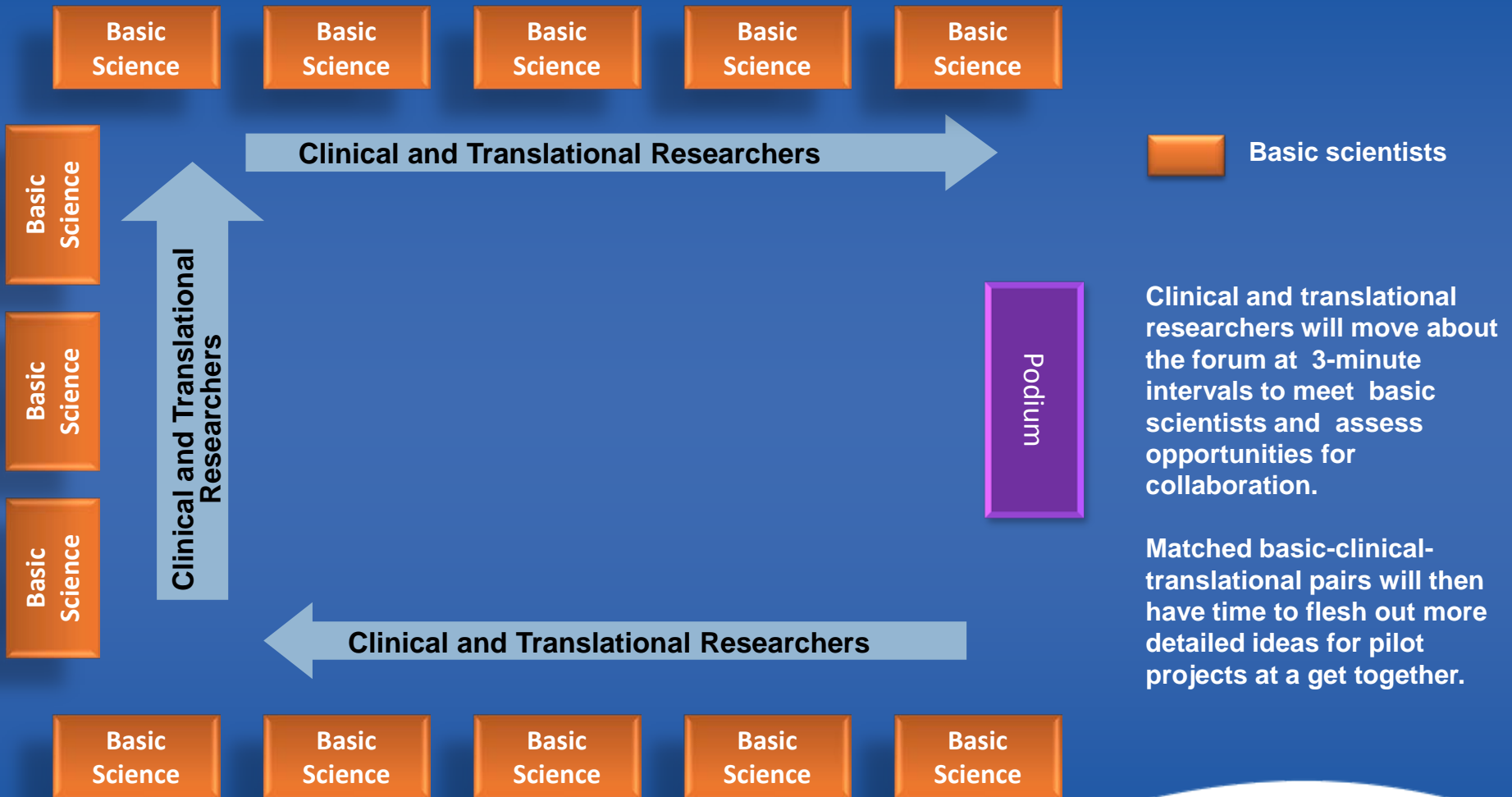


Weill Cornell Medical College

Speed Networking – Research Bazaar

- First in the CTSAs consortium to host event
- Two successful events with over 120 basic and clinical scientists from partner institutions brought together to develop collaborative projects
- Yielded eight proposals thus far from new “partners”, and an NIH R01 proposal was submitted
- Sparked other events locally and nationwide
- Future Events: Community research nurses with clinical researchers
- Industry partners with C/T researchers; Public health researchers with community practitioners; Bioengineers with Clinical Researchers

Translational Research Bazaar



Translational Research Bazaar - Speed Networking

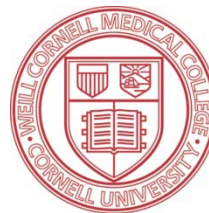


Speed Networking for Translational Scientists: Meena Katdare, PhD, Associate Professor of Cell and Developmental Biology, Department of Surgery, WCMC, meets Dr. Ben Rajegowda, Chief of Neonatology, Lincoln Medical & Mental Health Center.



- Feature article about the CTSC Bazaar with “how to guide” appeared in Science’s online publication (Published June 11, 2009)
- The Speed Networking was cited again in their “Best of 2009” issue.
- Provided ‘how to’ advice to other institutions
- In September 2009, the University of California, San Francisco (UCSF) published an online article, on our speed-networking model event
- In 2010 CTSC Administration organized a speed networking session at an NIH annual meeting

Infrastructure



Weill Cornell Medical College

An Administrative Home

- In January 2009, the CTSC administrative offices moved into a newly constructed home on East 61st Street bringing together administrative staff .



- It has an open floor plan facilitating teamwork.
- State-of-the-art videoconferencing facilities for education and outreach events
- The Compliance Office and the Grants and Contracts Office are located on the first floor providing easy communication.



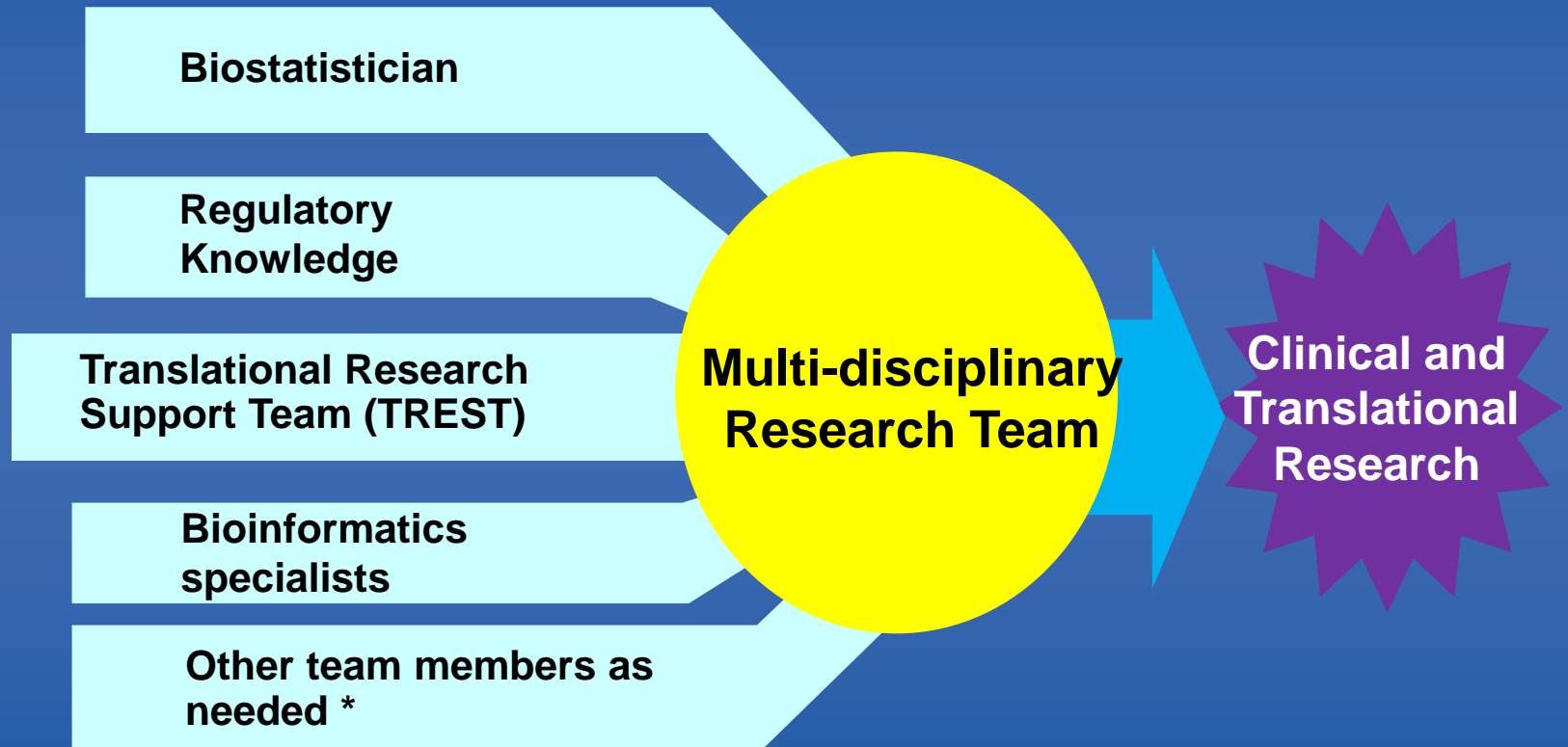
Translational Research Support Team (TREST)

Research Team Facilitator with the Study Coordinators

The “gateway” to the CTSC, a primary point for establishing and expediting team research to provide help with:

- Expediting completion of protocol documents for the approval processes (IRB, IACUC, and the Translational Research Advisory Committee)
- Coordinating ancillary team members, i.e. other collaborators, research nurses, research pharmacists
- Obtaining necessary cores, staff, equipment, and facilities to achieve aims specific to each study
- Introducing research team to Web-based research systems and biomedical informatics
- IRB of record

Infrastructure for the Conduct of Research



*e.g., , nutritionist, epidemiologist, clinical pharmacologist

Adult and Pediatrics Inpatient and Outpatient Units

Staffing - Nurses

- Inpatient - 7 research nurses
- Outpatient - 3 research nurses and 1 phlebotomist.
- Provides support to an average of 80 protocols
- The outpatient unit is open from 7am-6pm

Laboratory Core

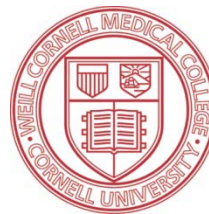
- Assays
- Sample processing

Metabolic Kitchen

- Prepare specialized diets
- Analysis of food records and questionnaires
- Body composition by anthropometrics and indirect calorimetry

CTRU Patient Care Units	Features	Space (sq. ft)
Adult Inpatient Unit Payson 2	- Six rooms with nine beds - Nursing station/ nurse manager's office - Metabolic kitchen	5,170
Adult Outpatient Unit F260-F263	- Six examination rooms - Study room for continuous infusion studies - Phlebotomy room - Spacious reception area	1,930
Pediatric Inpatient Unit Greenberg 6 North	- Six rooms with eight beds - Inpatient procedure/ treatment room	2,134
Pediatric Outpatient Unit Helmsley Tower 3	- Two examination rooms - Treatment room - Phlebotomy room - Reception area	1,800

Community Outreach



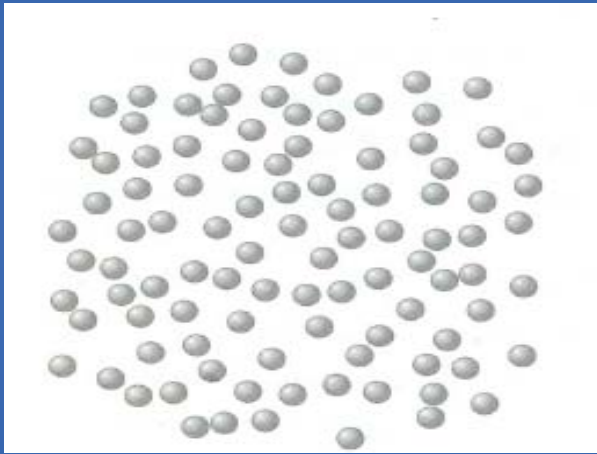
Weill Cornell Medical College

Promoting Community Health and Wellness

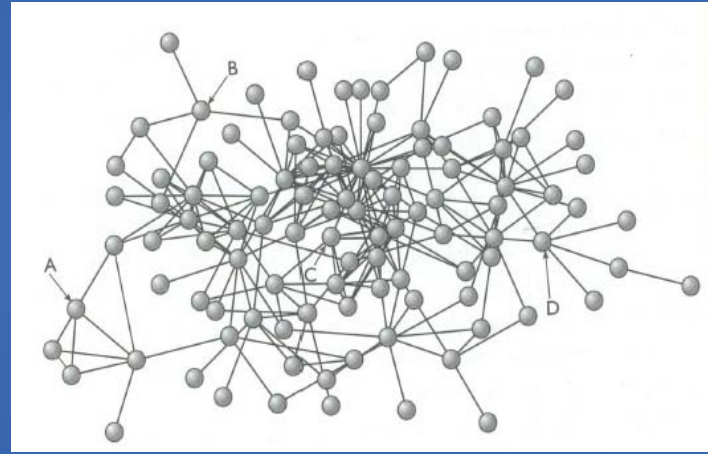
Objectives

- Gain the trust of communities
- Advance prevention of disease within communities on a large scale
- Empower communities to adopt sound medical practices
- Provide a platform for participation of underrepresented groups in clinical trials and other research

Unlike a clinic population, communities are defined by structural connections. Therefore, educating a community is a more powerful method to enable information dissemination.



Unconnected¹
Clinics Doctor's offices



Connected group¹
Churches and
Community Organizations

¹ Christakis N and Fowler J. [Connected: The Surprising Power of Our Social Networks](#)
New York. Little, Brown & Company, 2009

Community Telehealth Interactive Talks

- This program was sculpted to provide simultaneous real time interactive video casting of health related topics to multiple community groups simultaneously .
- Using interactive videoconferencing medical experts broadcast from a central location and stream to multiple communities.
- Two-way streaming allows for running dialogue between health experts and participants

Community Telehealth Interactive Talks

Methods

- Medical specialists are recruited from our CTSC partner institutions to address health topics chosen by the community.
 - Experts include physicians, nurses, diabetes educators, nutritionists, exercise physiologists, interior decorators etc.
- Presentations are shared by two experts from different disciplines to enhance dialogue.
- Live stream interactive-videocasting links the host-site to communities at remote sites.
- Liaisons are at community sites to work with the audience

Community Telehealth Interactive Talks

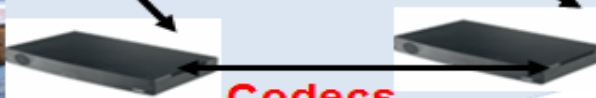
Real-time Interactive Preventive Medicine using Video Conferencing



Physicians, Nutritionists, and Nurse Practitioners



**Bringing interactive
Telehealth events with health
experts, to communities**



Codecs



Community Health Interactive Talks: Technical Capabilities

- Simultaneous high definition broadcasts
- Equipment is transportable and can be adapted to a wide range of locales
- The presentations of each event are recorded and made available to the public

Community Telehealth Interactive Talks

- Conducted 34 events at 26 sites since February 2010
- Reached an estimated 980 attendees in the neighborhoods: Harlem, Jamaica - Queens, South Bronx, East New York, Bushwick
- Lula Mae Phillips, RN, MED, MDiv, *Community Engagement Program Coordinator* works closely with the underserved communities to identify appropriate sites and topics

Heart 2 Heart Campaign

- Collaboration between MD/PhD, MD, WCMC and Nursing Students from the Hunter College School Of Nursing
- Free health screening every month in underserved communities.
- Partnering with the offices of New York State Senators Jeff Klein and John Sampson to hold events at community Centers throughout New York
- *Joe Saladino, RN, MSN, NPP Director of Undergraduate Programs - left*



Heart 2 Heart Campaign



- All participants are escorted through screening stations by a medical, nursing or PA student.
- BMI, BP, Blood Glucose, HbA1C and a Lipid Panel are measured.
- After results are collected, each participant is given a 1-on-1 consult with a WCMC Physician to explain their results and suggest lifestyle changes.

“Heart to Heart” Health Fair Community Outreach Program

“

- Screened 1,708 individuals at 31 events at 28 sites since March 2010
- Canarsie, Brooklyn; Jamaica, Queens; Prospect Park, Brooklyn; South Bronx; Harlem, Flushing, Queens

Community Health Interactive Talks: Assessment

- Immediate-feedback survey results showed the percentage of participants who:

Found the topics interesting	93%
Were able to get their questions answered	89%
Would attend future talks	86%
Would make lifestyle changes as a result of attending a single event	87%

- The Independent Cornell Survey Institute conducts three months follow-up assessment. Their survey shows the percentages who:

Made a lifestyle change as a result of attending one event	36%
Shared health information from an event with family and friends	59%
Of those who shared information, reported that family or friend made lifestyle changes	36%

Participants with Newly Diagnosed Prediabetes or Diabetes

N=1531

Not Diabetic
41%

Diabetic
A1c ≥ 6.5 -6.9
9%

Prediabetic
A1c ≥ 5.7 -6.4
37%

Previously
Diagnosed
With Diabetes
13%

**Newly Diagnosed
with Diabetes or
Prediabetes
46%**

CTSC Provides Wellness Training for National Guard through Interactive Teleconferencing

Stress-reduction classes for of Veterans of the National Guard
Operation Iraqi and Afghanistan Freedom (OIF) and Operation
Enduring Freedom (OEF) - Dept. of Psychiatry, Dr. J. Difede

The program includes other specialists addressing the following
areas :

- Nutrition
- Smoking Cessation
- Exercise & Healthy Lifestyles
- Yoga
- Job Counseling & Interview skills



Hunter College School of Nursing Community Outreach Awards

Kunsook Bernstein, NP, PhD

- **Development of a Mental Health Service Barrier Assessment Tool (2009)**
Collaborating PIs: Heejung Bang (WCMC) PhD, Biostatistics and Epidemiology, Theresa Tran Nguyen (WCMC) NP, MSN, ARNP, Psychiatry

Kathleen M. Nokes, RN, PhD

- **Creating an HIV-Specific Personal Health Record Intervention (2009)**
Co-investigators: Valery Hughes (WCMC), FNP, Medicine/Infectious Diseases, Heejung Bang (WCMC), PhD, Biostatistics and Epidemiology

Judith Aponte, RN, DNSc

- **New York City Dominicans with Diabetes (2010)**
Co-PI: Carla Boutin-Foster (WCMC), MD, MS Public Health
- **The Hispanic Pilot Program: Community Health Workers (HIPP –CHW) (2012)**
Co-investigators: Tranice Jackson (Lincoln Medical and Mental Health Center) Chronic Disease, MD
Jane Seley (NYP),DNP, MPH,, BC-ADM, CDE, Diabetes

Other Hunter – CTSC Collaborations

▪ **Memorandums of Understanding (MOU)**

- School of Public Health at Hunter College and the WCMC Department of Public Health and the CTSC will share courses and other activities including epidemiologists and biostatisticians.
- WCMC Office of Global Health Education with **Hunter College School of Nursing** will enable Hunter nursing students and WCMC medical students to train in collaborative research.

▪ **ITeach – Hunter College School of Nursing**

- Funded through an award from the Josiah Macy Foundation to develop trans-disciplinary education with WCMC and the Hunter College Schools of Nursing.
- Award provides students with new competencies in collaborative teamwork in the community and other practice based settings.

▪ **Community Engagement in Nursing and Science (CENS) - Hunter college School of Nursing- ARRA award through CTSC**

- CENS is a mentoring program which partners up high school students with Hunter nursing students to emphasize science opportunities in nursing and other medical fields.

Transforming the Research Landscape - An Historic Event

- Hunter purchased a floor - 21,000 feet of space - in WCMC new translational research building **The Belfer Research Building** for Hunter College researchers to interact with Cornell researchers.
- Located on 69th Street between York and First Avenues, the new 480,000 square foot building will include 16 program floors and become the hub for significantly expanded bench-to-bedside translational research initiatives.



Innovation Through Collaboration

Summary

Through the Weill Cornell CTSC interactions have developed that would never have occurred otherwise. They are at all levels: student, faculty, and programmatic and will have ramifications for years to come.



"I see by the current issue of 'Lab News,' Ridgeway, that you've been working for the last twenty years on the same problem Ive been working on for the last twenty years."

Thank you

- **Jennifer J. Raab, Esq**

President, Hunter College of the City University of New York

- **Gail C. McCain, PhD, RN, FAAN**

Joan Hansen Grabe Dean and Professor, Hunter School of Nursing

CTSC Membership Core Committees

Committees	WCMC	MSKCC	HSS	Hunter	CU-I
Internal Leadership Council	3	2	2	1	1
Operations Committee	12	4	3	1	2
Innovation Incubator	4	2	4	1	3
Biostatistics Scientific Coordination Comm.	7	3	2	0	0
Research Ethics Advisory Committee	11	6	2	1	0
Translational Research Advisory Committee	9	4	5	1	0
Regulatory Knowledge & Support Core	5	3	2	1	0
Technology Transfer	1	1	1	1	1
Biomedical Informatics	19	6	3	1	0
Community Engagement and Research	1	1	1	1	1
Clinical and Translational Edu. Program	11	3	2	2	1
Total	83	35	27	11	9

Future Plans – WCMC CTSC Moving Forward

CTSC's STRATEGIC INITIATIVES

**Enhancing the
Drug
Discovery
Pipeline**

**Increasing the
Breadth of
Research
Resources &
Infrastructure**

**Additional
Specialty
Training
Programs**

**Furthering
Community
Engagement &
Dissemination**