# Icahn School of Medicine at Mount Sinai

DENNIS S. CHARNEY, M.D. Dean

September 27, 2016





#### Icahn School of Medicine at Mount Sinai

# 2006 ISMMS Strategic Plan- Accomplishments

With investments made in programs identified in this strategic plan, ISMMS is now perceived as an exciting institution where innovation and creativity is transforming education, research and healthcare:

- New research building (Hess)
- Created 18 multidisciplinary institutes bridging research, education and clinical care
- Recruited > 100 research faculty, many at the top of their fields
- Expanded translational research
- Rose in NIH rankings to #15
- Modernized and expanded MD and Graduate School curricula
- Expanded faculty practice membership, sites for care, patient volume

The creation of Mount Sinai Health System has provided new opportunities for growth and innovation in all areas.

Affiliations and partnerships with non-traditional institutions has provided expanded opportunities for faculty and students to explore exciting new areas at the forefront of biomedical research



# Quality



#### **Best Doctors in NY**

250 Doctors in New York's Magazine's 2016 list (includes doctors in MSHS)

An additional 47 physicians from affiliated hospitals were also on the list The 297 doctors represent almost 23% of the 1,300 on the list

#### **NIH Funding Rank**

Funding increased from 2015 by ~9% from \$265M to nearly \$290M(incl contracts) in 2016 7 departments in Top 10 in NIH awards: Microbiology(#1), Emergency Medicine(#2), Pharmacology(#3), Neuroscience(#3), Pediatrics(#3), Rehab (#6), Genetics(#8)

#### **AAMC Rank**

U.S. Medical Schools (AAMC) 2015 #1 Research Dollars/Principal Investigator (up from #2)

U.S. Medical Schools (AAMC) 2015 #3 Research Expenditures/sf (up from #7)

#### **Major Recognition:**

Joseph Buxbaum inducted into The National Academy of Medicine





# **ISMMS Growth in Faculty**

The full-time faculty has grown by 78% since creation of the Mount Sinai Health System in 2013:

		Full Time I	Faculty Counts		
Year	2013	2014	2015	2016	Increase 2013-2016
Count	2,042	2,753	3,178	3,633	+1,591

Continued growth is expected in 2016 and beyond as MSHS implements new strategic initiatives

# **New Appointments**



**Deans:** 

Gary Butts Dean for Diversity Programs, Policy, and Community Affairs

Marta Filizola Dean of the Graduate School of Biomedical Sciences

Reginald Miller Dean for Research Operations and Infrastructure

Eric Nestler Dean for Academic and Scientific Affairs

**System Chairs:** 

Joseph Herrera Rehabilitation Medicine

Rene Kahn Psychiatry

Prabhjot Singh New department of Health System Design and Global Health

**Institute Directors:** 

Joel Dudley Next Generation Healthcare Institute





# **MD Students-Matriculating Class of 2016**

•	Number of Complete Applications	4,949
•	Number of Interviews	752
•	Size of Class	140
•	MD/PhD	13
•	Early Assurance	44
•	Women	51%
•	Under-represented in Medicine	21%
•	Median MCAT	35
•	Median GPA	3.77
•	Number of Undergraduate Schools	61



# MD/PhD Students-Matriculating Class of 2016

•	Number of Complete Applications	378
•	Size of Class	13
•	Women	31%
•	URM	15%
•	Median MCAT	36
•	Median GPA	3.74
•	Number of Undergraduate Schools	10



# **Medical Education Notable Accomplishments**

- The inaugural FlexMed class matriculated with the entering Class of 2020
- Launched IcahnBeWell, a program dedicated to improving the well-being of every student by following the six pillars of wellness: spiritual, emotional, physical, professional, social, and financial
- Launched formal longitudinal curricular training in patient safety and quality improvement for all third-year medical students
  - 64% of the graduating Class of 2016 had at least one publication
  - 70% of the graduating class matched to their first or second choice

#### **Recognition Awards**

Dr. Gary Butts—Champions of Health Lifetime Achievement Award from National Medical Fellowships

Dr. David Muller—Alpha Omega Alpha Robert J. Glaser Distinguished Teacher Award



#### Icahn School of Medicine at Mount Sinai

# **Graduate Medical Education – MSHS Integration**

- Largest GME Program in U.S. (146 Programs and 2,219 Residents and Fellows) in ACGME approved programs.
- Eight programs nationally ranked among Top 25 Programs in U.S.
  - 1. Anesthesiology MSH (24)
  - 2. Dermatology (20)
  - 3. Emergency Medicine MSH (20)
  - 4. Internal Medicine MSH (19)
  - 5. Nuclear Medicine MSH (25)
  - 6. Ophthalmology NYEEI (19)
  - 7. Physical Medicine & Rehabilitation (18)
  - 8. Psychiatry MSH (17)
- •ISMMS institutional accreditation with "commendation" (ACGME)
- Neurosurgery fellow awarded research sabbatical scholarship by Verily (Google X)
- Parker Palmer Courage to Teach Award highest award for GME clinical educators
   Only 10 awarded in all of US; Sinai received 2 of them:

Adam Levine, MD Anesthesia MSH Vicki Lynne Shanker, MD Neurology MSBI





# **PhD Students-Matriculating Class of 2016**

•	Number of Complete Applications	403
•	Size of Class	39
•	Women	64%
•	URM	10%
•	Median GRE	320
•	Median GPA	3.60
•	Number of Undergraduate Schools	36



# **Graduate School Notable Accomplishments**

- Graduated first cohort of Master of Science in Biostatistics students
- Matriculated the first cohort to the new Master of Science in Bioinformatics
- Partnership established with Xavier University of Louisiana for both research and educational programs to create a pipeline for increasing diversity at Sinai.
- First research symposium involving ~80 undergraduates from Northeast universities to raise both Graduate School and ISMMS visibility among potential future graduate students and their faculty advisors.
- Design and launch of a new course in Intellectual Property in partnership with MSIP to start distributing a culture of entrepreneurship more broadly across the graduate school.
- Design and launch of a new course in 'Introduction to R' to have our students start developing minimal computational skills.
- Design of a new 'Rigor and Reproducibility' module to be added to our training in 'Responsible Conduct in Research'.
- Enhance Grad School visibility on social media through new dedicated pages on Facebook, LinkedIn and Twitter.



# **Graduate School Notable Accomplishments**



#### Master of Science in Biomedical Informatics Launched:

#### Goals:

- Train individuals to be immediately productive in biomedical research and clinical teams with our unique, practical approach focused on tackling biomedical questions with computational and data skills
- Gain real-life experience with our academic and industry partners through a capstone project that will accelerate job search and placement
- Cross-training in computer science and biosciences through a dual-track curriculum

#### Four areas of concentration:

- Genetics and Genomic Sciences
- Structural and Chemical Biology
- Biophysics and Systems Pharmacology
- Clinical and Translational Informatics

Inaugural class: Fall 2016 with seven students

http://www.mssm.edu/msbmi





### **Graduate School Goals**

- Develop a Certificate in Commercialization and Entrepreneurship
- Foster research and educational collaborations between students at ISMMS and Stony Brook University
- Explore ways to increase flexibility in the MSTP pathway
- Increase diversity (although we are already doing as well as, if not better than, other programs nationally).
- Increase the number of F30/31/32 awards by providing students and postdocs more centralized instructions/help with their applications.
- Establish a database for grad school alumni
- Enhance opportunities for post-doctoral fellows to teach both at Mount Sinai and outside Mount Sinai.

# Verily (Google[X] Life Sciences) Academic Partnership with Mount Sinai



Train a generation of investigators whose frame of reference, ingenuity, and approach to problem-solving is not constrained by traditional industry or academic constraints

#### **Medical Student Research Fellowship**

2 years between the 3<sup>rd</sup> and 4<sup>th</sup> year of medical school

#### **Doctoral Program for M.D./Ph.D. or Ph.D. students**

Degree from Mount Sinai, Thesis @Verily Sample scientific areas include:

Application of GLS experimental and computational systems biology platforms to pathway analysis in animal models or using data from human clinical studies

High-throughput screening of combinatorial nanoparticle libraries for development of diagnostic tools or novel therapeutics

High complexity clinical trials for diagnostic and prognostic biomarker discovery



#### Icahn School of Medicine at Mount Sinai

## **Alumni Engagement**

### **Expanded Alumni Relations activities**

Alumni community includes ISMMS graduates of the MD, PhD, and Masters programs, former house staff, postdoctoral fellows and faculty.

Mount Sinai's impressive alumni community currently includes 30K individuals with thousands more to be engaged.

Now incorporating former house staff at the MSHS member hospitals.

Targeting outreach with a robust Social Media presence

- -Facebook "Likes" have increased by 20%
- -Twitter followers have increased by 23% (@MtSinaiAlumni)

Student/Alumni engagement activities (e.g., Match Day celebration, Alumni Mentoring program) foster a sense of community that continues after graduation.



# **2016 Faculty Development Initiatives**



#### **BUILDING NEW LEADERS**

- Professional development workshop initiatives: "Mentoring and Team Building," "Effective Negotiations," "Communication and Conflict Resolution in Research Management"
- Faculty Development Symposium: A&P committee panel discussion about promotion of clinical and research faculty
- Mount Sinai Faculty Resource Fair: face-to-face information sessions with faculty

#### **FOSTERING MENTORING**

- Mentoring Junior Faculty throughout the Sinai Health System: focus groups and interviews with junior and senior clinical faculty to assess strengths and weaknesses of mentorship programs
- Networking opportunities for site based physicians /OADE events

#### PROMOTING COLLABORATION

- Faculty Idea Prize for Innovative Collaborations applications increased four fold and winners will be announced at Sina*Innovations*.
- "Coffee Talk" and "Faculty First" events promote networking of faculty from across the System
- Co-sponsor departmental grand rounds to promote mentorship and leadership

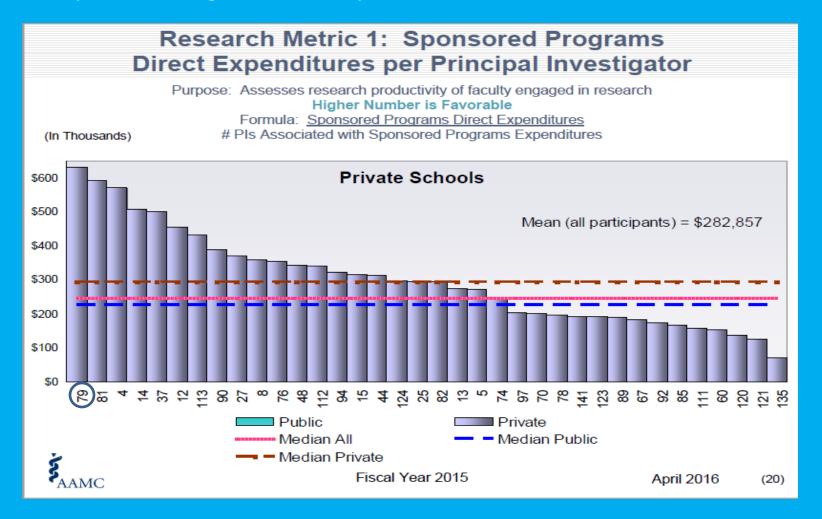
**Lakshmi Devi, PhD** – Dean, **Elizabeth Howell, MD, MPP** – Associate Dean, **Elizabeth Urbanski, MPA**- Program Manager, **Ramaa Chitale, MPH** – Program Coordinator







#### #1: Sponsored Programs Direct Expenditures/PI





# 2015 Research Funding

# 3: Sponsored Programs Expenditures/Net Assignable Square Feet

Hess space almost filled; density increased from #7 to #3

# Research Metric 3: Sponsored Programs Expenditures per Net Assignable Square Foot (NASF)

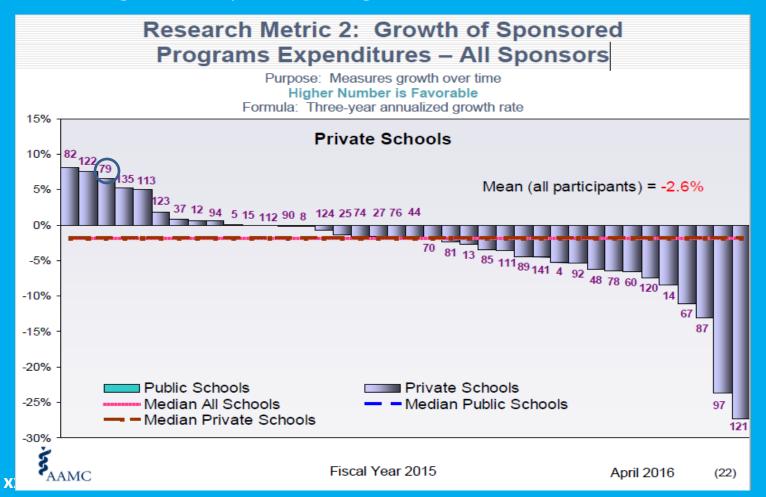
Purpose: Reflects productivity of research space Higher Number is Favorable Formula: Sponsored Programs "Recorded" Expenditures Non-class lab NASF \$800 Private Schools \$700 \$600 Mean (all participants) = \$310 Total Costs \$500 \$400 \$300 \$200 \$100 \$0 37 27 12 ■ Indirect (F&A) Costs Direct Costs Median All Schools Median Public Schools Median Private Schools Fiscal Year 2015 April 2016 (24)





## **2015 Research Funding**

#### #3 – Robust growth of Sponsored Programs from all sources







Collaborations on a wide range of research programs

Leverage ISMMS strength in biomedical research and Stony Brook's expertise in Mathematics, High Performance Computing and Physical and Chemical Sciences

Mount Sinai and Stony Brook will invest a combined \$500K to launch competitive and unique pilot programs

The Schools will develop joint graduate and medical education programs

Students will be able to take courses at both campuses

Mount Sinai and Stony Brook will also build a Summer program for undergraduate, graduate and postgraduate students

# **Integrating Research Across MSHS**



ISMMS received its second CTSA award with a mission of enhancing clinical and translational research, now extended to the entire Mount Sinai Health System (MSHS).

All eligible grant awards across the MSHS were transferred to ISMMS.

All new human subjects research projects at Mount Sinai St. Luke's (MSSL) and Mount Sinai West (MSW) are reviewed centrally by the IRB at ISMMS.

Implemented System-wide policy for Financial Conflicts of Interest in Research (FCOIR) and additional policies related to faculty consulting.

Established a Hospital Grants Office to manage non-School eligible awards (e.g., NYS-DOH) for all MSHS member hospitals, including MSH.

Reorganized the Office of Research Services (ORS) to better delivers its services to investigators and research personnel, including:

- > Consultations on pre-protocol development
- ➤ Internal regulatory support to obtain IACUC and IRB approvals
- External regulatory support, including assistance with IND/IDE submissions to the FDA, Clinicaltrials.gov postings, and grant applications







# **Mount Sinai Innovation Partner (MSIP)**

Performance Metrics	2013	2014	2015
Faculty, Staff and Trainees Engaged:	394	519	549
Gross Licensing Proceeds in \$millions:	41	47	57.9
Revenue Generating License Agreements:	72	97	93
Industry Research Funding in \$millions:	38.5	20.1	21.5
New Inventions (IP Disclosures):	104	121	117
New Patents Filed:	147	155	205
New Licenses & Options:	45	50	57
Collaborative & Sponsored Research Agreements:	79	99	119
• Enabling Agreements (MTAs, CDAs, IIAs):	1101	1224	1231
Active Equity Holdings in Spinouts:	9	6	5



### **Diversity Initiatives**

- Racism is a significant public health issue in the United States.
  - It contributes to unacceptable differences in access, quality, and outcomes for people of color.
- Mount Sinai aspires to be at the forefront of academic health centers to undo our profession's legacy of racism in health care.
- CMCA(Center for Multicultural and Community Affairs) is leading the effort with Medical Education on Race Bias initiative to review curriculum materials for unconscious bias.
- CMCA's Office for Diversity and Inclusion (ODI) and CHECER (Center for Health Equity and Community Engaged Research) are leading an effort to design a Health Disparities Dashboard.
- CMCA's Office for Diversity and Inclusion (ODI) and Faculty Diversity Council have launched an systemwide Bias Training initiative
- Mount Sinai's Center for Excellence in Youth Education(CEYE) continues to provide innovative enrichment and rigorous early exposure to J/HS and college students
- Diversity in the MD program 21% are from groups underrepresented in medicine (13 male), 51% women; GME 13.2% are from groups underrepresented in medicine, 57% women; 10% URM and 64% women in Graduate School
- Reginald Miller, DVM and Gary Butts, MD were appointed first African American Deans in ISMMS





### **Diversity Initiatives**



**Mount Sinai Health System** ranked #3 by DiversityInc in the 2016 list of top 10 hospitals and healthcare systems in the country for diversity management. The award is the result of an extensive survey process detailing information on senior leadership commitment, human capital, organizational communications, and supplier diversity.



INSIGHT Into Diversity selected the **Icahn School of Medicine at Mount Sinai** for the second year in a row as a recipient of the Higher Education Excellence in Diversity (HEED) Award – a national recognition which honors "colleges and universities that exhibit outstanding efforts and success in the area of diversity and inclusion throughout their campuses."



The Human Rights Campaign recognized six out of the seven MSHS hospitals – Mount Sinai Beth Israel, The Mount Sinai Hospital, Mount Sinai Queens, Mount Sinai St. Luke's, Mount Sinai West and New York Eye and Ear Infirmary of Mount Sinai – as leaders in LGBT healthcare equality in 2016.

# **Mount Sinai Doctors Faculty Practice Accomplishments 2016**



#### Growth

- 6.8% in 2015
- 12.5% through 2016 July YTD

#### Operating Margin

- 2.3% in 2015
- 2.7% in 2016 YTD July

#### Contribution Margin

- 78% in 2015
- 81.6% in 2016 YTD July

#### New Sites

- East 85<sup>th</sup> Street Multispecialty
- Respiratory Care Institute in Tower

#### Urgent Care Growth

- Columbus Avenue: 42 Average Visits/Day
- Inwood: 26 Average Visits/Day



# **Mount Sinai Doctors Faculty Practice Ongoing Initiatives**



#### Faculty Practice Integration

Over 1,000 BISLW providers integrated since 2016 and final 100+ to be integrated January 2017

#### Clinical Program Development and Oversight

- East 85<sup>th</sup> Street Ambulatory Surgery Center
- Urgent Care Site in DUMBO

#### Patient Satisfaction

- Survey tools rolled-out to Health System's ambulatory sites
- "Patient Experience Rating" being rolled out on Mount Sinai "Find a Doctor" pages

#### Access

- Centralized Call Center
  - Expanding from 21 depts. to 35 by Q4'17, implementing home-based agents, and developing QA program
- Zocdoc
  - Implementing Enterprise Scheduler to enable patients to schedule through Mount "Find a Doc" Functionality

#### IT Systems

- Epic and e-IDX Wave 4 at BISLW Sites
- Epic Practice Management Implementation



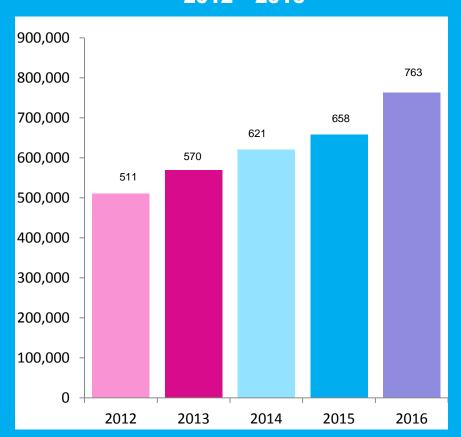
# **Mount Sinai Doctors Faculty Practice Current Positioning: FP Clinical Activity**







# Outpatient Visits 2012 – 2016



\*2016 Annualized based on June YTD

**SINA***Innovations*Leading a New Era of Discovery





# MSDFP - Patient Experience CG-CAHPS Survey Percentile Ranking YTD June 2016

Category	Sinai All Sites	Sinai Inner NYC Metro
Recommend this provider office*	46	65
Provider expl in way you understand	44	60
Provider listen carefully to you	42	60







HOME

**DOCTORS** 

**HOSPITALS** 

HEALTH CARE / BEST HOSPITALS



# **Mount Sinai Hospital**

Nationally Ranked in 18 specialties | New York, NY

### **Financial Results**



The School's goal for 2016 is at least breakeven or positive financial operating results.

#### **Financial Operating Results:**

	<u>Results</u>
2016 (Budget)	Plan is at least breakeven results
2015	\$ (12,894)
2014	\$ 85
2013	\$ 77
2012	\$ 7,481*

Research and FPA growth are major contributors to the School's financial success

<sup>\*</sup> Includes benefit from one time licensing settlement



# **Financial Challenges to Continued Success**

- School unrestricted operating loss in 2015 was (\$12.4) million.
- Liquidity constraints from rapid growth
- Member Hospital faculty practice finances.
- Clinical space constraints.
- Growth in research grants necessary to help pay the annual operating costs (\$32 million) of fully operational HCSM Building.
- Capital Project Funding for existing school buildings.
- Investment returns necessary to meet endowment income spending budget.
- Loss of Fabrazyme and Medimune Royalty Income (over \$24 million).
- Philanthropy support for Strategic Initiatives.
- Revenue Diversification.



#### Icahn School of Medicine at Mount Sinai

# **Action Plan to Meet Financial Challenges**

- Continue successful Financial Policies and Goals:
  - School's financial operating results must be positive using only the 4.5% endowment spending rate investment income.
  - Department's must consistently achieve positive financial results.
    - Clinical Depts minimum 2.5% margin.
    - Basic Sciences, Research Institutes achieve budget targets.
    - Incentive plans encourage revenue and margin growth.
- Principles of Department Compensation Models consistently followed:
  - 100% of compensation tied to performance
  - Compensation must be covered by Teaching, Research and Clinical Revenue
  - Quality, productivity and outcomes goals integrated
  - Performance goals for each physician with regular reviews of actual results
  - Productivity Standards.
- Business plans for all clinical and research initiatives.
- Continuous monitoring of financial results with timely corrective actions, if necessary





# **Action Plan to Meet Financial Challenges**

CHALLENGE	ACTIONS
• 2015 operating loss (\$12.4) million	<ul> <li>Replacement hiring only, except for grants and program initiatives with positive financial results</li> <li>Basic science / clinical financial improvement</li> <li>Participation with Hospitals in 340B initiatives</li> <li>Overtime reduction initiative</li> <li>School share of Outreach sale</li> <li>MSIP initiatives:         <ul> <li>SEMA 4 Diagnostic Testing</li> <li>Precise MD</li> <li>Monoclonal Antibodies</li> <li>Others</li> </ul> </li> </ul>
<ul> <li>Member Hospital Faculty Practice Finances</li> </ul>	<ul> <li>Improved Leadership and Financial Management / Reporting</li> <li>Improved physician productivity</li> </ul>
Clinical Space Constraints	<ul> <li>85<sup>th</sup> Street 50,000 sq. ft.</li> <li>Effective use of member hospital FPA space</li> <li>Saint Luke's FPA space renovations</li> </ul>



# **Action Plan to Meet Financial Challenges**

CHALLENGE	ACTIONS
Capital Project Funding	<ul> <li>Bond refinancing provides project funding</li> <li>FPA Growth and Renovation Reserve Funds</li> </ul>
<ul> <li>Philanthropy to Support Strategic Initiatives</li> </ul>	2017 Capital Campaign
<ul> <li>Investment Returns to support endowment spending rate</li> </ul>	Endowment spending rate reduced to 4.5%
<ul> <li>Support for Research         Operating Costs     </li> </ul>	<ul> <li>Improve research density (grants/sq.ft.)</li> <li>Continued grant growth from existing faculty and new recruits</li> </ul>
• Liquidity	<ul> <li>Clinical revenue cycle initiatives</li> <li>Action items above</li> </ul>



## **Marketing Initiatives**

Ads focused on ISMMS, emphasizing innovation, leadership and entrepreneurship.



New Laboratory Websites that allow researchers to maintain

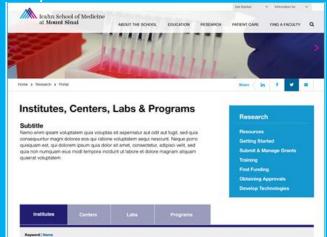


**SINA***Innovations*Leading a New Era of Discovery

New social media pages – Facebook traffic increased by 130%



New Research Portal allows Pl's to easily find the information and tools they need





## 2016 Strategic Plan - Process

- > 35 Strategic Plans developed by Departments, Divisions & Institutes
   Each invited outstanding leaders (External Advisory Board) in
   American medicine and biomedical research to critique their plans
- A Strategic Plan "Council" charged to review all plans to identify:
  - Highest priorities for investment
  - Best opportunities for synergies across disciplines
- Parallel strategic planning process underway to formulate a path forward for the Mount Sinai Health System.
- This process to be completed by November 2016
- Launch of a capital campaign in early 2017 to support a vision for Mount Sinai for next generation of research, education, and clinical care





## 2016 – A Strategic Plan for the next 5 Years

#### **Broad Themes Emerging from the individual plans:**

- Mount Sinai should be a leader in Precision Medicine
- Immunology, genomics, bioinformatics, microbiome, stem cells and imaging are relevant to virtually all disciplines and both breadth and depth required in these areas
- Interdisciplinary collaboration is essential for success and should be encouraged and facilitated
- Basic-Translational-Clinical trials continuum should be shortened to deliver new treatments
- Research infrastructure must be strengthened to support programs
   e.g., biorepository, data analysis, consenting—IT solutions will be critical
- Enormous potential to increase clinical research footprint at all MSHS campuses and should be pursued
- Aim to bring all departments to top 10 in research in US
- Incorporate changing approaches to scientific discovery into the educational curricula, e.g., new programs, more intensive research training for clinical fellows



# 2016 – A Strategic Plan for the next 5 Years



What is the best path forward to make Mount Sinai a top 10 research powerhouse.

Establish bridges across medical disciplines, and across levels of experimental analysis to lead in next generation medicine.

Leverage the patient diversity of MSHS to drive the most innovative, bold approaches to medical research and improvements

Conduct outcome studies to improve diagnosis, treatment and prevention in different patient populations

Create largest and most diverse biobank, capable of providing new insight into disease vulnerabilities and pathophysiology through unparalleled and unbiased assessment of the genome, metabolome, lipidome, microbiome, exposome, and so on.

Become a leader in bringing disease diagnosis and monitoring to the patient, through the increasing use of wearable devices, smart phone apps, and the like.



#### Icahn School of Medicine at Mount Sinai

# 5<sup>th</sup> SINA*Innovations* – Therapeutic Discovery

# SINAInnovations

Leading a New Era of Discovery

Therapeutic Discovery

October 25-26, 2016

# SINAIMedMaker Challenge

The Icahn School of Medicine at Mount Sinai will host the first ever SINA/MedMaker

Challenge on October 21-23, 2016, a healthcare technology competition and a new satellite event of SINA/nnovations. Multidisciplinary teams will aim to create novel solutions for the management, monitoring, and treatment of Pain and Fatigue.

# Trainee Forum and Networking Reception

The 2016 program for the 4<sup>th</sup> annual SINA*Innovations* Trainee Forum is highly interactive and tailored specifically for graduate and medical students, residents, and post-doctoral fellows.