

Welcome



State of the Cleveland Clinic 2010



Key Highlights for GMI's Mission

State of Cleveland Clinic - 2010

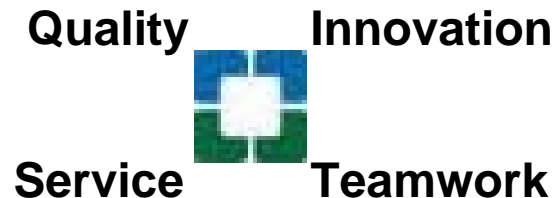


“Cleveland Clinic strives to be the world’s leader in patient experience, clinical outcomes, research and education.

How do we put our vision in action?

The foundation is our cornerstones:

Quality, Innovation, Teamwork and Service



- Delos “Toby” Cosgrove, MD, CEO

State of Cleveland Clinic - 2010



Innovation

▣ Research

- Research Funding:
NIH ↑ 9%
Total ↓ 8%
- Research Activity ~ same
- LRI Publications ↑ 6%

▣ Research Achievement Highlights

- Phil Howe (*Cancer Biology*): New Key to Metastasis
- Tatiana Byzova (*Molecular Cardiology*): New Biological Pathway in Angiogenesis
- Charis Eng (*GMI*): New Gene Linked to Cowden Syndrome

▣ Education

- Lerner College of Medicine: Applications ↑ 15%
- Cleveland Clinic Academy: Attendees ↑ 32%

▣ Sones Innovation Award

Dr. Vince Tuohy for identifying the first steps toward a Breast Cancer Vaccine

Dr. Cosgrove: “innovative research is baked into our DNA”

State of Cleveland Clinic - 2010



Finances

▣ Guiding Principles

- Maintain Patient Care
- Preserve Jobs
- Maintain Compensation
- Invest in Future

▣ Operating Income

- Revenue: ↑ 5%
- Investments: ↑ 21%
- “Days Cash on Hand”: ↑ 6%

▣ Economic Status






- Unemployment ~9.2% (OH), 8.9% (US) (*2% improvement from 2009*)
- Government Reimbursement is ↓ 2%

Unsure of future healthcare reform impact, but preparing to “Do More with Less”

State of Cleveland Clinic - 2010



Our unique strengths include:

-  Our staff model
-  An integrated healthcare delivery system
-  A strong balance sheet
-  Data-driven organization by the electronic medical record
-  Ability to respond quickly to challenges and opportunities

I am extremely proud of all your hard work in 2010!”

- Delos “Toby” Cosgrove, MD, CEO



State of the Genomic Medicine Institute

2010 Annual Report

Charis Eng, MD, Ph.D., FACP, Chair & Director

April 14, 2011



GMI Core Values

- ❑ To be the **expert base** for the principles and practice of **genomic medicine**
- ❑ To promote **scholarly activity** (research), **academic clinical practice** and **education**
- ❑ To provide a **work culture** that enables us to **bring genetics and genomics**, through our research and clinics, into **all subspecialties** of the **Cleveland Clinic's** healthcare system
- ❑ To foster **innovation** ultimately **directed** at **personalized genomic-based healthcare**

GMI Quality

Clinic cornerstone

We maintain the highest standards and achieve them by continually measuring and improving our outcomes

GMI cornerstone

To be the expert base for the principles and practice of genomic medicine

GMI Quality

▣ Medical Experience

Center for Personalized Genetic Healthcare (CPGH)

- Genetics patient care integration in 9 Institutes & 2 Regional Hospitals
- 19 total locations , 5 new in 2010

Recognition of Medical Expertise

- Dr. Eng
 - Elected Member of the Institute of Medicine of the National Academies (IOM)
 - Selected as Editor-in-Chief of the Endocrine-Related Cancer journal
 - Co-chaired the Task Force for Whole Genome Sequencing for Clinical Application for DHHS' Advisory Committee on Genetics, Health and Human Society (SACGHS)
 - Grand Rounds: Partners Health, Mass General Hospital
- Dr. Moran
 - Awarded "2010 the Center for Child Neurology Merit Award" (Pediatric Neurology)
- Drs. Eng and Moran named to the 2010 *Best Doctors* List (Cleveland Magazine)
- Dr. Eng named to the 2010 Castle Connolly Medical Ltd *Top Doctors* list for Clinical Cancer Genetics and Medical Oncology

GMI Quality

▣ Research Experience

Research Emphasis

Diseases: Cancer, Cardiovascular, Pulmonary, Neuro-Psych, Metabolic

Recognition of Research Expertise (*selected presentations*)

- Dr. Aldred:
 - Aspen Lung Conference
 - Pulmonary Hypertension Association 9th International Conference
- Dr. Eng:
 - American Society for Human Genetics Annual Meeting media briefing
 - Collaborative Group of the Americas plenary talk
- Dr. Sehayek:
 - Arteriosclerosis Thrombosis and Vascular Biology Annual Meeting
- Dr. Ting:
 - University of California, San Francisco
- Substantial GMI representation at Annual Meetings of:
 - American Society for Human Genetics:* 3 Platforms, 10 Posters
 - National Society of Genetic Counselors:* 1 Educational Breakout Session, 2 Presentations, 5 Posters

GMI Quality

▣ Research Experience

Quality Assurance

- *Clinical Research*
 - Conducting internal quality assessments for all GMI research protocols
- *Labmatrix*
 - Enhancements to aliquoting and biomaterial transfer utilities
 - Creation of custom data for the Autism study and standardization of the import process for the data
 - Increased data standardization and data volume (Genotype module)
 - Redesign of 8458 data forms and data migration or entry of the data
- *Biorepository*
 - Overall 91% success rate for cell line immortalizations
 - Successfully implemented the use of Labmatrix for PTEN monthly transfers

GMI Quality

Employee Experience

Employee Engagement initiative

- 3rd year survey results:
 - ↑ 0.25 in overall engagement scores (*up 7%, significant*)
- 4th year survey: *June 22 - July 14*
Goal: build on momentum of efforts and continue increasing engagement (*increase scores by >0.2*)

Employee Communications & Relations

- Published “*Translations*” newsletter
- Employee Bulletin Board
- GMI Festive Friday
- GMI Summer Picnic
- GMI Holiday Party
- Professional Development & Networking



GMI Quality

▣ Employee Experience

- Recognition & Awards
(for scientific excellence)

Charis Eng, MD, PhD elected as a member of the National Academy's Institute of Medicine (IOM)

This honor distinguishes those having made unparalleled contributions to health and biomedical sciences

GMI Quality

Employee Experience

- Recognition & Awards

(for scientific excellence)

- Fellowships:

Min-Han Tan, MBBS, PhD: Lee Foundation (Singapore)

Yu Wang, PhD: Susan G. Komen Postdoctoral

Chunlei Zheng, PhD: AHA Postdoctoral

Ying Ni: DOD Breast Cancer Research Program Pre-doctoral

Emily Pontzer: NIH Pre-doctoral Training Fellowship in Genetics

Joanne Ngeow, MBBS: Singapore Health Services Fellowship (SingHealth)

- Awards:

Kylie Drake, PhD: Jane Morse Memorial Award (American Thoracic Society)
Clinical Research Prize (Respiratory Institute Research Day)

Ying Ni: Outstanding Translational Research Award (Mol Med Retreat)

Min-Han Tan, MBBS, PhD: Assoc of South East Asian Nations Youth Award (ASEAN)

Jessi Mester, MS, CGC: Research Special Interest Group Award (NSGC)

GMI Quality

Employee Experience

- Recognition & Awards

- **LRI Excellence Award:**

(Caregiver Celebrations recognition for outstanding achievements having significant impact on the Cleveland Clinic Experience)

Q3

MyFamilyHealthHistory team



Q4

Kathleen Babb Executive Health GC team



- **GMI Employee of the Quarter Award:**

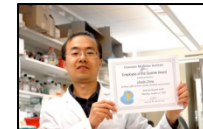
(peer recognition for being a pillar of Teamwork, Service, Quality or Innovation)

Q1: Kathleen Babb & Nichole Prescott

Q2: Monika Hanus & Jen Wilcox

Q3: Chunlei Zheng

Q4: Kylie Drake



GMI Innovation

Clinic cornerstone

We welcome change, encourage invention and continually seek better, more efficient ways to achieve our goals

GMI cornerstone

To foster innovation ultimately directed at personalized genomic-based healthcare

GMI

One of 4 Institutions with input

into the

Advisory Board Company's

2010 Practice of Genomic Medicine

GMI Innovation

■ *MyFamilyHealthHistory*

CC Physician Responses

- “The prospect that with *MyFamilyHealthHistory*, patients in the **primary care setting** could eventually enter their data into the system, have it processed and a professional opinion generated as to the utility of genetic counseling services would lead the **Cleveland Clinic to the forefront** of the world in terms of **technologic innovation in the area of cancer genetics.**”
- “My feeling is that this tool will support our **comprehensive care approach** for each patient, **without adding to our workload** or that of our nurses or support staff. **Thank you** for all your efforts and please let me know if there is anything additional our team can do to help expedite **this important project.**”
- “Wow...**Impressive.**”

GMI Innovation

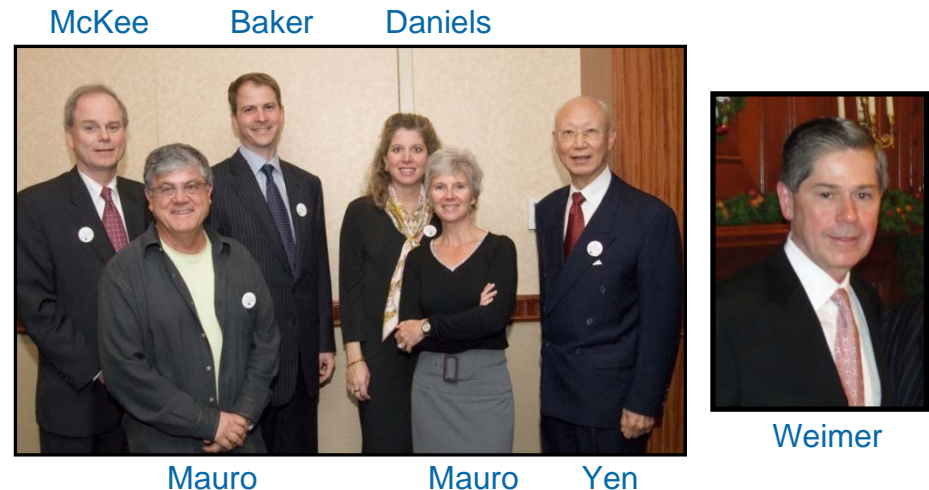
■ GMI's Advisory Board for Business & Development Efforts

Objectives:

- Provide guidance and support on internal and external business endeavors
- Advocate for GMI initiatives internally (CCHS) and externally to medical community, the public and with their peers
- Assist in raising funds for innovative initiatives

Members

- David McKee (Chair)
- Biff Baker
- Anthea Daniels
- Deb & Tom Mauro
- Anthony Yen
- Gary Weimer



GMI Innovation

Research

- Funding ↑ 11.7%
- Publications 25
(Impact Factor >10): 7



Research Highlights (selected work)

- Research led by Dr. Aldred is innovative citing the first evidence that somatic mutations may be possible “second-hit” in PAH recognized by American Journal of Respiratory and Critical Care Medicine in Editorial
- Research led by Dr. Eng uncovers new gene and novel mechanism in rare cancer syndrome featured in “This Week in JAMA” and Editorial
- Drs. Eng and Teng hosted Dr. Leroy Hood, President and Co-Founder of Institute for Systems Biology (ISB), in exploratory session with CC Leadership about possible innovative research collaborations
- Drs. Eng and Sharp wrote Invited Commentary on problem of misattributed equivalence for direct-to-consumer genomic testing in Science Transl Medicine

GMI Innovation

▣ Clinical Research

- Dr. Eng participated in by-invitation NCI Think-Tank Workshop on Returning Research Results from Biospecimen Resource-derived patient-oriented Research
- Designed innovative pulley-system with engineering for liquid nitrogen tank sample retrieval

▣ Bioinformatics Core

- Transformed GMI's Integrative Genomics Analysis Core to an LRI core service leveraging bioinformatics and statistical personnel to perform efficient data and novel pathway analyses for innovative research

▣ Genomics Core

- Awarded funding and obtained next generation sequencing capability to provide innovative research opportunities for researchers

GMI Innovation

▣ Clinical Highlights

- Completed transition to innovative GC model of care
 - increasing patient access
 - improving patient satisfaction
 - providing a new revenue stream for GC services
- Embedded genetic services into 2 new Clinical Institutes and 5 new genetics clinics
- *MyFamilyHealthHistory (MyFHH)* prototype electronic family history and pedigree drawing tool implemented further in CPGH Cancer Genetics Clinic
- **Meg Doerr, MS, CGC**: founded new NSGC Health-IT Special Interest Group (SIG)

▣ Education

Lerner College of Medicine

Course Instructors: 10 GMI staff

Regional Educational Efforts

- >60 Educational Events
given by over 15 GMI staff

In-Service	Community Outreach
Public Events	Symposiums
Traditional/CME	Web Outlets
Grand Rounds / Health Talks	

General Education Campaign transferred to Center for Personalize Healthcare (CPH)

GMI Service

Clinic cornerstone

We strive to exceed our patients expectations for comfort and convenience. We take every opportunity to serve and support those in our care.

GMI cornerstone

To take every opportunity to serve and support those in our research, clinical and greater communities

GMI Service

■ Environmental Stewardship

- Plastic and paper recycling (Iron Mountain)
- Continue striving to reduce Energy Usage

■ Community Benefit

- Adopt-A-Family for the Holidays (3 families aided)
- Team leaders & participation in fundraisers for American Heart Association, Susan G. Komen Breast Cancer Foundation, Bolton School Supplies, United Way

■ Improved Wellness initiatives

- **ShapeUp & Go:** 3 GMI teams participating (2010)
- **360-5 Wellness Store:** CPGH genetic counselors hosted “Genomics Week”

GMI Teamwork

Clinic cornerstone

Our culture encourages collaboration and individually we must seek opportunities to pool our knowledge and skills for the good of the patient and the advancement of medicine

GMI cornerstone

To provide a work culture that enables us to achieve all our core values

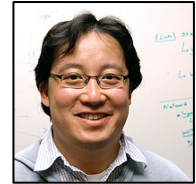
GMI Team

▣ New personnel recruited in 2010:

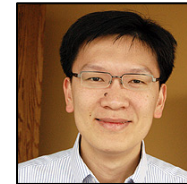
- Thad Meese, eGMI Senior business analyst
- Ricky Chan, Serre lab postdoc
- Min-Han Tan, Eng lab research scholar
- Nichole Achkar, GMB research tech
- Byron Lee, Ting lab resident
- Joanne Ngeow, Eng lab clinical cancer genetics fellow
- Michelle Morgan, Sehayek lab research tech
- Winnie Wong, Sehayek lab postdoc



Thad



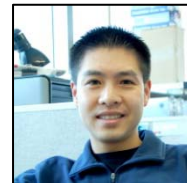
Ricky



Min-Han



Nichole



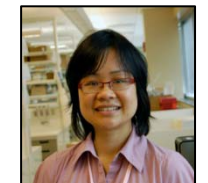
Byron



Joanne



Michelle



Winnie

GMI Team

▣ New personnel recruited in 2010:

- Vaijyaanti Das, Zhang lab graduate student
- Nahum Meller, Sehayek lab project scientist
- Kyle Logue, Serre lab graduate student
- Chiara Federici, Aldred lab postdoc
- Pauline Funchain, Eng lab fellow



Vaijyaanti



Nahum



Kyle



Chiara



Pauline



Qi



Jill

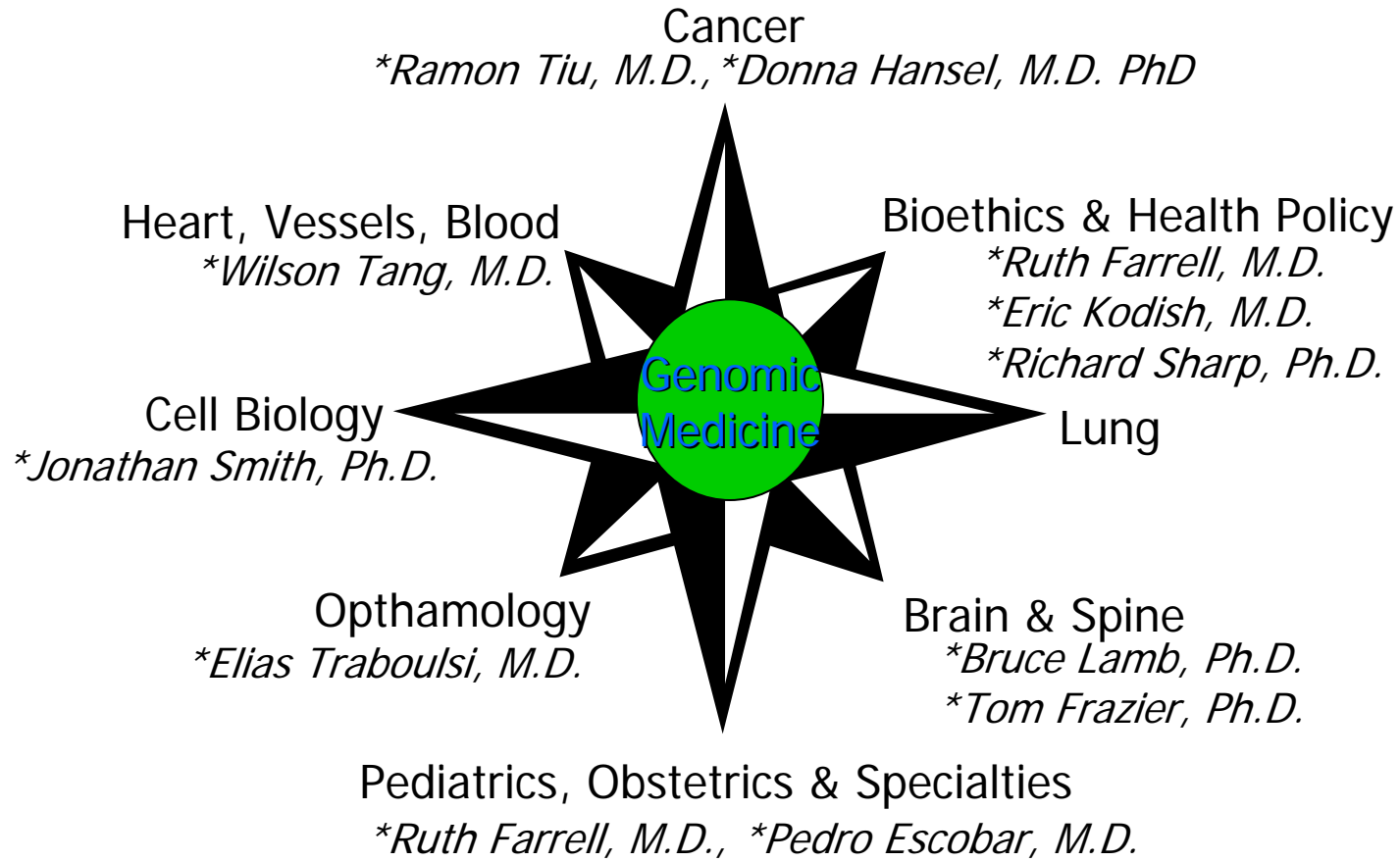
2011:

- ❖ Qi Yu, Eng lab Senior research tech
- ❖ Jill Polk, CPGH Genetic Counselor

Since 2009, 15 people have joined the GMI team

GMI Team

- Staff Members with adjunct appointments in GMI complement GMI's Research and Clinical Programs



GMI Teamwork

▣ Multidisciplinary Programs (Research and Clinical Collaborations)

- Malaria and Population Genomic Susceptibility (Serre)*
- Oral Metagenomics Multidisciplinary Research Program (Eng/Ghanoum)*
GMI: Charis Eng, Gurkan Bebek
- Autism Spectrum Disorder Multidisciplinary Research Program (Eng/Frazier)
GMI: Charis Eng, David Serre, Rocio Moran, Allison Schreiber
- PTEN Hamartoma Tumor Syndrome Multidisciplinary Research and (Virtual) Clinic Program (Eng)
GMI: Charis Eng, Jessica Mester
- Uveal Melanoma Multidisciplinary Translational Research Program (Singh/Triozzi)
GMI: Charis Eng
- Asthma and Pulmonary Hypertension (Erzurum)
GMI: Michaela Aldred, Christina Rigelsky
- Barrett Esophagus/Esophageal Adenocarcinoma Consortium (Eng)
GMI: Charis Eng, Brandie Leach

**(New in 2010)*

GMI Teamwork

▣ Multidisciplinary Programs

- Heritable Colorectal Cancer Multidisciplinary Research Group & High Risk Cancer
GMI: Charis Eng, David Serre, Angela Ting, Brandie Leach
- Endocrine Neoplasia Genomics Research Group and Multidisciplinary Clinic (Eng)
GMI: Charis Eng, Jessica Moline
- Head & Neck Neoplasia Genetics & Genomics Research Group & High Risk Clinic
GMI: Micheala Aldred, Charis Eng, Jessica Moline
- Von Hippel-Lindau disease Multidisciplinary (Virtual) Clinic (Eng)
GMI: Charis Eng, Amy Shealy
- Gorlin Syndrome (Virtual) Clinic (Eng)
GMI: Charis Eng, Amy Shealy
- Marfan Syndrome Multidisciplinary Clinic (Greenberg)
GMI: Rocio Moran, Christina Rigelsky, Patty Arscott
- Tuberous Sclerosis Multidisciplinary Clinic (Gupta)
GMI: Rocio Moran, Charis Eng, Amy Shealy

GMI Teamwork

▣ Multidisciplinary Programs

- Gene Dosage and Disease Susceptibility Research Group (Nadeau)
GMI: David Serre, Angela Ting
- Diabetes and Obesity Genomics Research Group (Serre)
- Neurofibromatosis Type 1 Multidisciplinary Clinic (Rothenberg)
GMI: Vickie Zurcher, Allison Schreiber
- Hearing Management Clinic
GMI: Rocio Moran, Allison Schreiber
- Vascular Anomalies Multidisciplinary Clinic
GMI: Rocio Moran, Amy Shealy

GMI Finances

Main Goal:

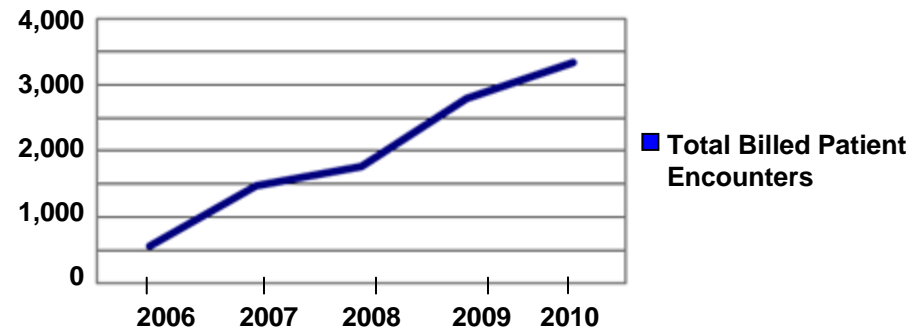
To become financially self-sustainable by keeping operating costs low and increasing revenue via research funding and patient revenue

GMI Finances

■ Guiding Principles

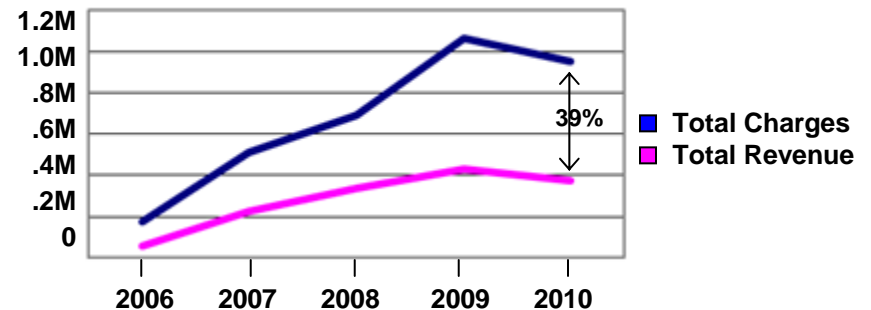
- **Increase Patient Volume**

- ↑ 542 billed patients encounters
66% of total patient visits = GC only
- ↑ 16% billed patient encounters



- **Increase Clinical Reimbursement**

- ↓ \$53K in Patient Revenue
\$377K net revenue
- 39.6% Reimbursement Rate

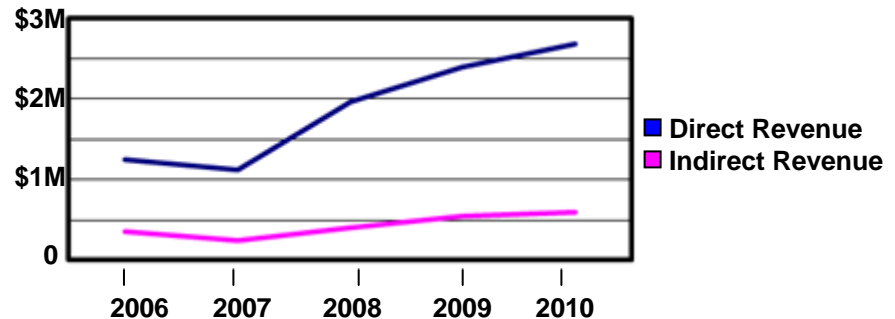


Trend: seeing more patients but less revenue is common issue in Healthcare today, but we are in a strong position with positive momentum

GMI Finances

▣ Guiding Principles

- **Increase Grant Funding**
 - 12%↑ Direct Revenue
 - 10%↑ Indirect Revenue



▣ New Extramural Grants in 2010 (>\$75K ADC)

- **Charis Eng, MD, PhD**, R01 NIDCR/NIH: "Metagenomic Profiling of Oral Polymicrobial Flora in Head and Neck Cancers" (\$740K ADC, 2yr); R01 supplement: "Nuclear-Cytoplasmic shuttling of PTEN in breast carcinogenesis" (\$142K ADC, 2yr); BCRF: "Genes that affect mitochondrial function as novel mediators of breast cancer susceptibility" (\$200K ADC, 1yr)
- **Micheala Aldred, PhD**, NHLBI- R01: "Germline and Somatic Genetic Changes in Pulmonary Hypertension" (\$250K ADC, 4yr)
- **Ephraim Sehayek, MD**, NHLBI- R01: "Cholesterol Fat Absorption" (\$250K ADC, 4yr)
- **David Serre, PhD**, R01 NIKKD/NIH: "Molecular Basis and Consequences of Early Developmental Epigenetic Programming" (\$340K ADC, 5 yr); CTSC Pilot Award: "Population and Evolutionary Analyses of Plasmodium vivax Genomes from Madagascar" (\$75K ADC, 1yr)

GMI Finances

▣ Operating Income

- **Total Revenue:** \$3.66M; ↑ 10.7%
- **Operating Costs:** \$4.38M; \$120K under budget

\$3.5M remains in GMI's initial \$25M start-up package for 2011

▣ Philanthropic Funding

- **Gifts:** \$816K; ↑ 150%

Donors

Ambrose Monell Foundation: Cancer Genomics Training Fellowship Program (\$100K)

Sondra and Stephen Hardis










- Endowed Chair in Cancer Genomic Medicine (\$300K)
- WGS Informatics Support & MyFHH
Cancer Module Development (\$400K)



Roger & Sharon Vail (\$10K; thanks to Adam Kaufman)

Blank Foundation (\$6K)

Short-term Goals for 2010

-  • Meet budgetary expectations
-  • Increase clinical revenue and satellite services
-  • Complete transition to full implementation of GC billing model for genetic services
-  • Increase GMI grant funding by >20%
-  • Implement Cancer module of eGMI prototype in GMI and Taussig Cancer Center
-  • Increase employee engagement scores by at least 5%
-  • Increase developmental opportunities and professional recognition of GMI staff
-  • Increase quantity and quality of publications
-  • Obtain next generation high-throughput sequencer

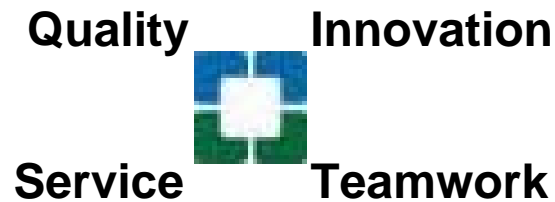
GMI's Long-term Goals

▣ Key Planning Initiatives for GMI's Future

- **CCHS Operations:**
 - Clinic's Strategic Planning & Operations Working Group for genetics and genomics integration
 - Co-Executive Sponsors of Clinical Decision Support Tool (CDST) with new Center for Personalized Healthcare (CPH) to expand prototype MyFHH to also include more encompassing 'triage' tool
- **LRI Strategic Plan:**
 - Research Strategic Council member: working on Disease-focused Research Centers of Excellence and
 - “-Omics model”: to better utilize clinical data and biospecimens in academic pursuits to improve patient care (*Drs. Harris, Eng & Erzurum*)
- **GMI Funding Plan:** 2012-2017 support package (*development in progress*)
- **CPGH Roadmap:**
 - CPGH business plan (*Dr. Moran – in progress*)
 - Clinical Genetics leadership working with Drs Wyllie and Procop to pilot restricted provider genetic test ordering



Our strengths include an innovative vision, a skilled team committed to doing all we can to reach that vision, and the teamwork and support for each other to make our vision come true.



Thank you all for your hard work!

****Please join me in looking back over 2010 at some examples...***

Questions?

