



Sidney Kimmel Comprehensive Cancer Center Report 2014

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Recent initiatives that are ongoing at SKCCC: Two Examples

- Individualized Health/Personalized Cancer Medicine
 - ❖ Recent advances are having therapeutic implications
- Moving clinical practice into a Multidisciplinary Setting
 - ❖ How this is improving patient care and promoting multidisciplinary translational research

SKCCC Individualized Health/Personalized Cancer Medicine Initiative

- Purpose: To translate our strengths in genetics and tumor biology to the bedside
- Goal: To provide CLIA accredited, CAP certified sequencing for every new cancer patient at Kimmel Cancer Center (~7,000/year)

Timeline

Jan '12

- Joint discussions with Pathology and Oncology

Spring '12

- Charitable funding
- Equipment purchase

Summer '12

- Method analysis: Illumina vs. Life Technology

Fall '12

- Test validation

January '13

- Live for lung adenocarcinoma test

March '13

- Live for colorectal adenocarcinoma test

Spring '13

- Molecular Tumor board initiated

Summer '13

- Melanoma panel

September '14

- Large panel sequencing

Completed Infrastructure Goals

- Developed high-throughput sequencing abilities in clinical Pathology labs
 - ❖ Current panel of 200 actionable genes
- Formed “Molecular Tumor Board” to advise oncologists on gene-targeted therapy and to provide family counseling
 - ❖ Includes geneticists, clinicians, advocates and ethicists
- Constructing IRB-sanctioned links between medical record and genetic database to spur and broaden drug trials and discovery research
 - ❖ Ongoing collaboration with institutional IT personnel skilled in working with EPIC

Infrastructure Goals Coming Soon

- Clinical Genomics Center—ultra-high throughput state of the art labs centralizing JHMI clinical sequencing

Impact on Patient Care

- >1250 cases sequenced to date
 - ❖ ~21% increase over 2012
 - ❖ 59% colorectal
 - ❖ 31% lung adenocarcinoma
 - ❖ 9% melanoma patients
- ~8% failure rate improved to ~3% (due to scant tissue)
- Improved mean time for sequencing to 6.7 days
 - ❖ old method had mean of 10.4 days
- Reduced limit of detection 3-5%
 - ❖ Old method was 5-20%
- Reduced cost to ~\$900
 - ❖ Old method cost \$1380

Initiative has enabled new research

- NIH Grants
 - ❖ CTN of New Targeted Therapies (UM1, NCI)
 - ❖ EMERGE (U01, NHGRI)
- Charitable funding of 2 awards each \$200,000
- Publications
 - ❖ >4 publications to date

Example of a clinical advance resulting from this NGS initiative

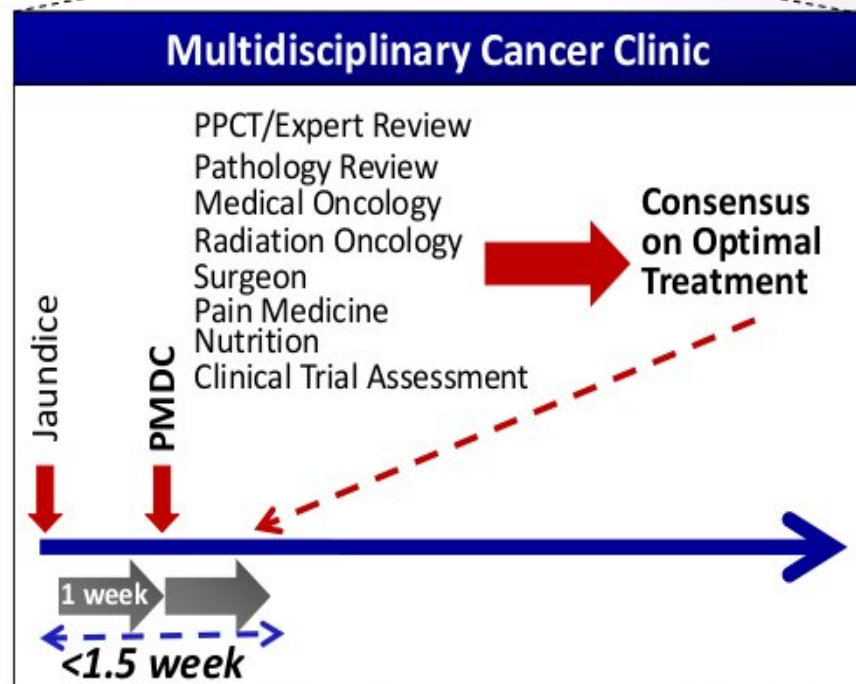
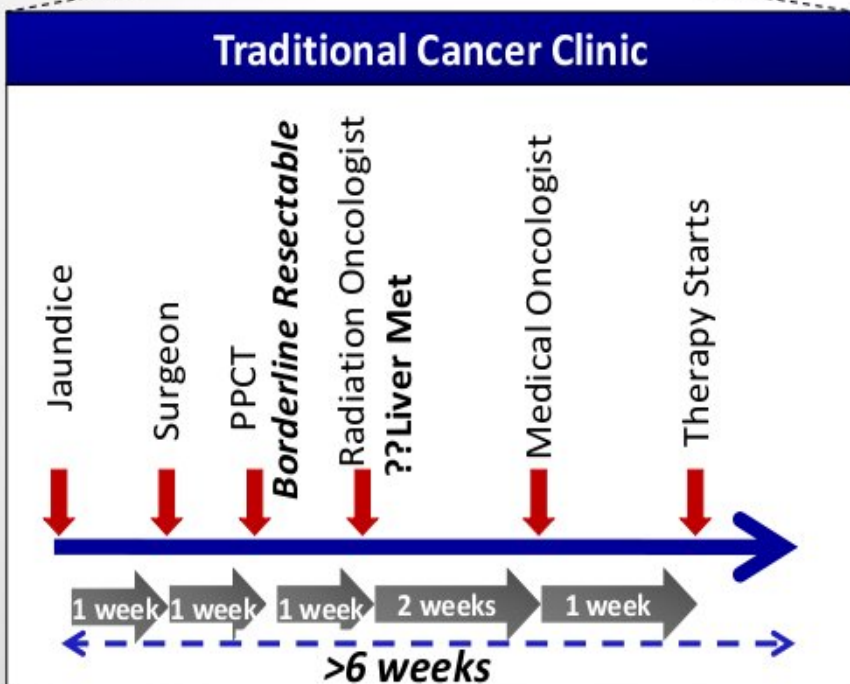
- *BRAF* gene mutations are prognostically important in lung adenocarcinoma
- Reports using old methods indicate 1-3% frequency
- Our study (better mutation detection) shows 6% mutation frequency
- More patients will potentially benefit from BRAF targeting agents

The SKCCC Multidisciplinary Cancer Clinic (MDC) Platform

- Demonstrating improved clinical outcomes
- Promoting integrated translational research

Traditional Clinic versus MDC Clinic

Evolution of Cancer Care Delivery



Realized Benefits of an MDC Clinic

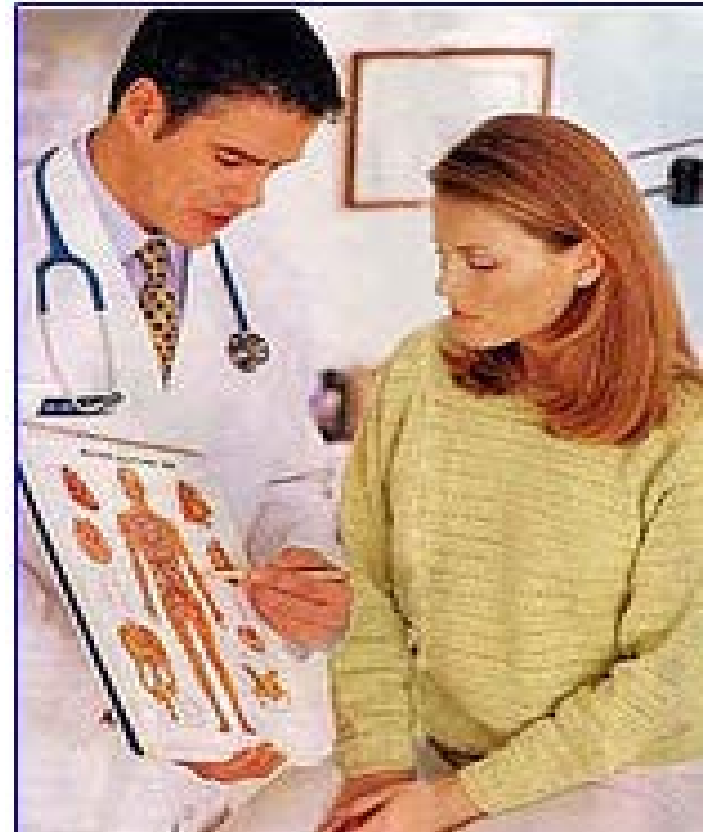
- One stop shop
 - ❖ Patients receive consensus in one day from multiple experts
 - ❖ Reduced cost to health care system for multiple experts – one cost for multiple providers
- Improved coordination of patient care
- Increased retention of patients for long term care
- Early patient awareness of clinical trials
- Improved translational research across disciplines
- Improved educational opportunities for students and residents

Patient Satisfaction Survey from a Pancreatic Cancer MDC Clinic

Pancreas Multi-Disciplinary Clinic Evaluations	N/A	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
My overall experience attending this clinic was good.				1		12
Making the appointment for the clinic was easy.					3	10
The wait time I experienced when making calls to Johns Hopkins about my appointment was adequate.				1	3	9
Calls and/or emails were returned in a timely manner by the clinic staff.	1			2	1	9
Information provided before and during my appointment helped to decrease my anxiety.			1	1	3	8
The registration process on the day of my appointment was easy.			1		2	10
My questions about my treatment plan and the potential impact to my life were answered by the clinic staff.	1				1	11

Pancreatic Cancer MDC Clinic Patient Schedule

- 7-8 AM: Necessary imaging and lab studies obtained
- 8-9 AM: Patients given overview of support services
- 9-11 AM: Patients seen by fellows, residents, NPs, and PAs for a complete history and physical exam
- 11-12 PM: Multi-D team meeting for case review
- 1-4 PM: Patients seen by physicians to discuss options



Pancreas MDCC: Case Review



**Present cases
using outline**

**Review
pathology**

**Review imaging
CT/PET/MRI/
EUS**

**Discuss case
and reach
consensus**

**See patients and
discuss options**

**Enroll in trials
Dictate note and
cc to referring
physicians**

Realized Impact of the Pancreatic MDC Clinic

- 24.9% change in overall diagnosis of 345/1,241 patients
 - ❖ Pathologic change for 19.7%
 - ❖ Stage change in 44%
 - ❖ cross sectional imaging picked up previously undiagnosed metastases
 - ❖ 3-D CT Scan converted unresectable to resectable
- 20% increase in enrollment into a National Familial Pancreas Tumor Registry (NFPTR)
- Opportunity to conduct neo-adjuvant trials
 - ❖ More than 100 patients enrolled
 - ❖ Opportunity to deliver therapy earlier
 - ❖ Opportunity to study the direct effects of new therapies on the cancer

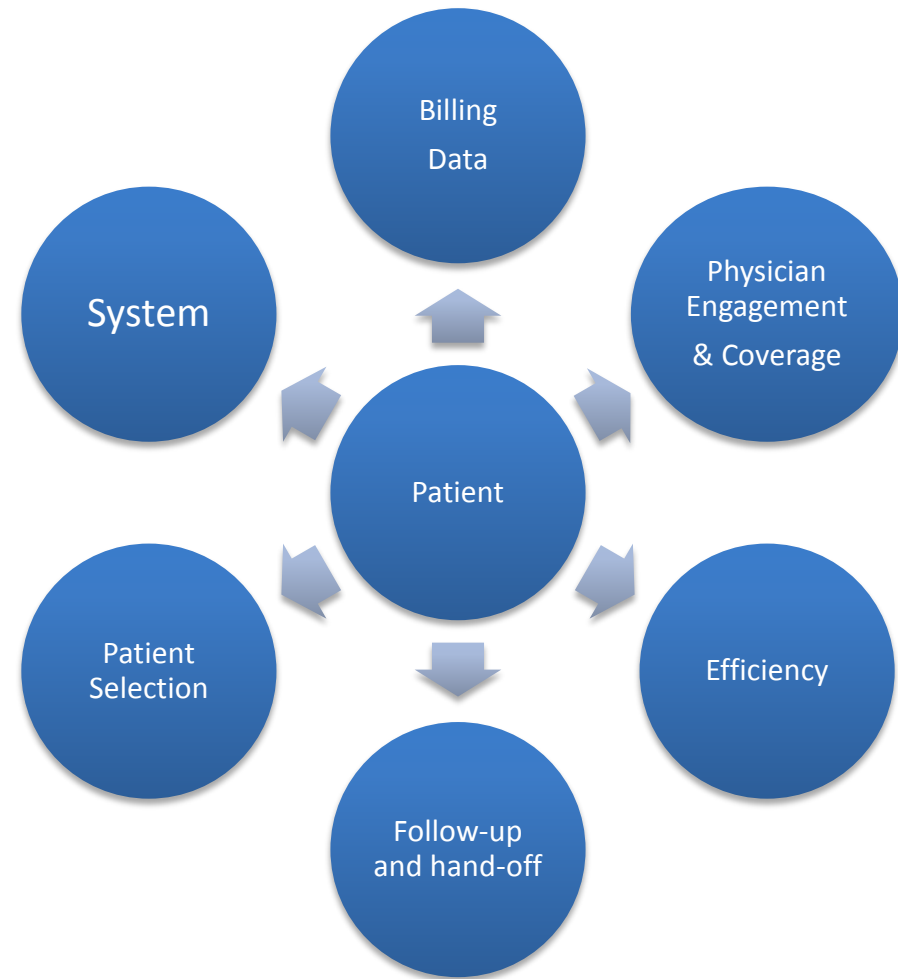
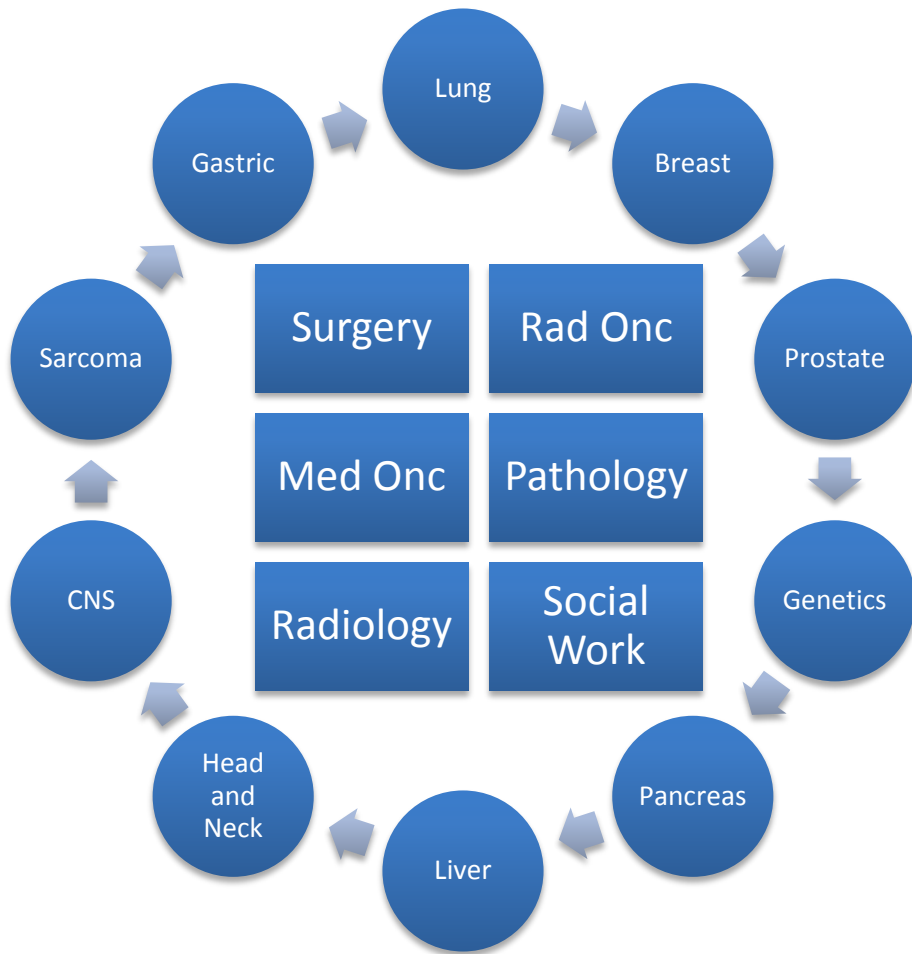
Published Report of the Successes of the JHH Pancreatic MDC Clinic

Journal of the National Comprehensive Cancer Network

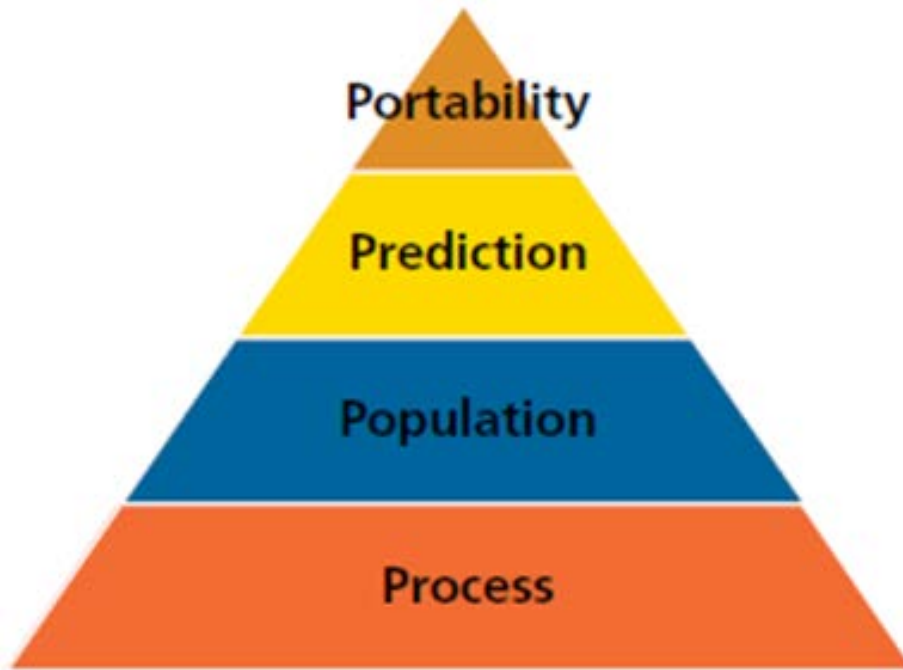
More than the Sum of its Parts: How Multidisciplinary Cancer Care Can Benefit Patients, Providers, and Health Systems

*Shereef M. Elnahal MD, MBA; Peter J. Pronovost MD, PhD;
and Joseph M. Herman MD, MSc*

Expansion and Challenges of MDCC Model



Four P's of Efficiency in MDCC



Portability: staff a clinic coordinator to manage real-time changes in expected task requirements, moving key staff where they are needed

Prediction: determine the unique resource needs of each patient prior to clinic day

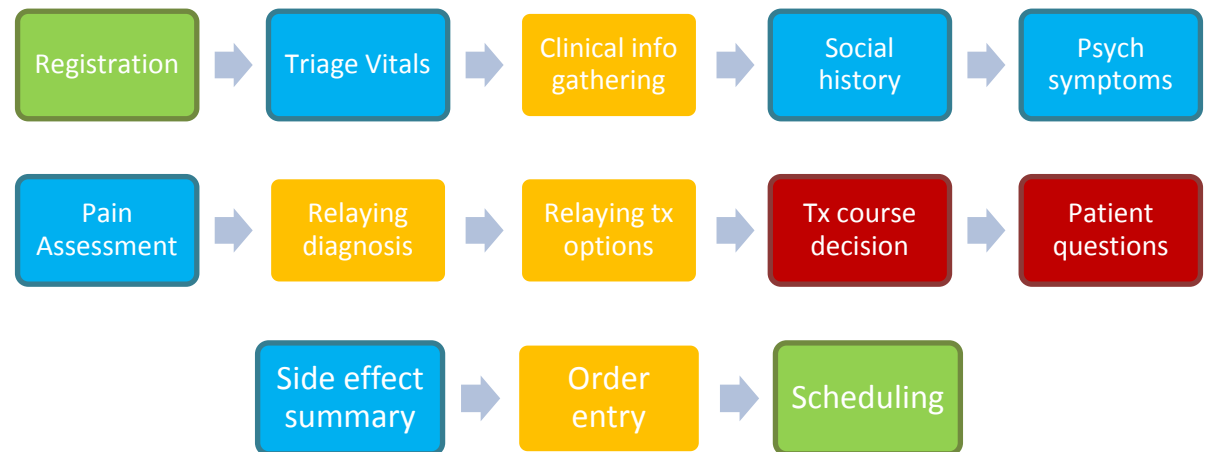
Population: pre-select patients more likely to benefit from care by multiple specialists

Process: define, map, and systematize the patient triage process, assigning roles to staff as appropriate

JHH Pancreatic MDC Efficiency Model: Process Mining

- Identify which clinical tasks are **fungible**, or able to be completed by non-physician personnel *safely and completely*
- MOST tasks are fungible:

- **Green** = Performable by any staff member, including administrative staff
- **Blue** = Performable by staff with minimum level of clinical training (e.g., nurse assistant) or higher
- **Yellow** = Performable by staff with any level of decision making/ prescribing power (NP, PA, MD)
- **Red** = Performable by physician only



JHH Pancreatic MDC: Summary

- Patient-centered care, improved access, patient satisfaction, and retention
- Correct diagnosis leads to improved outcomes
- Improved physician collaboration, teaching
- Increased enrollment in registries and trials
- **Efficiency, safety, and integration** across systems requires further evaluation

New Skip Viragh Outpatient Building Opening Early 2017

- 10 Story building with disease specific MDC clinics
 - ❖ Infusion suites
 - ❖ Palliative Care
 - ❖ Phlebotomy
 - ❖ Retail Pharmacy
 - ❖ Imaging
- For solid tumor patients
- Space for clinical research staff and studies

New Skip Viragh Outpatient Building – Opening 2017



Thank you!