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The Cancer Institute of HCA

Leveraging Organizational Culture and Leadership to Promote Change

Howard A Burris, III, MD
Chief Medical Officer, Sarah Cannon

DISCLOSURES

- I have no personal conflicts of interest to disclose.

- Sarah Cannon, the Institution that employs Dr. Burris, has been paid for consulting/advisory roles from the following companies: Mersana, AstraZeneca, FORMA Therapeutics, Janssen, Novartis, Roche/Genentech, TG Therapeutics, MedImmune, and Bristol-Myers Squibb.

- Sarah Cannon, the Institution that employs Dr. Burris, has conducted research projects funded by the following companies: Roche/Genentech, Bristol-Myers Squibb, Incyte, Tarveda, Mersana, AstraZeneca, MedImmune, Macrogenics, Novartis, Boehringer Ingelheim, Lilly, Seattle Genetics, Abbvie, Bayer, Celldex, Merck, Celgene, Agios, Jounce, Moderna Therapeutics, CytomX Therapeutics, GlaxoSmithKline, Verastem, Tesaro, Immunocore, Takeda, Millennium, BioMed Valley Discoveries, Pfizer, PTC Therapeutics, TG Therapeutics, Loxo, Vertex, eFFECTOR Therapeutics, Janssen, Gilead Sciences, Valent Technologies, BioAtla, CicloMed, Harpoon Therapeutics, Jiangsu Hengrui Medicine, Daiichi SAnkyo, H3 Biomedicine, Neon Therapeutics, OncoMed, Regeneron, and Sanofi.

REQUIREMENTS FOR LEVERAGING CARE AND THE CAREFORCE

- Technology - Patient ID, NAVQUE
- Personnel - Navigators, APP’s
- Processes - Pathways, Molecular Cancer Conferences

LEVERAGING CARE AND THE CAREFORCE

- Improve speed and quality
- Reduce redundancy and waste
- Increase patient satisfaction

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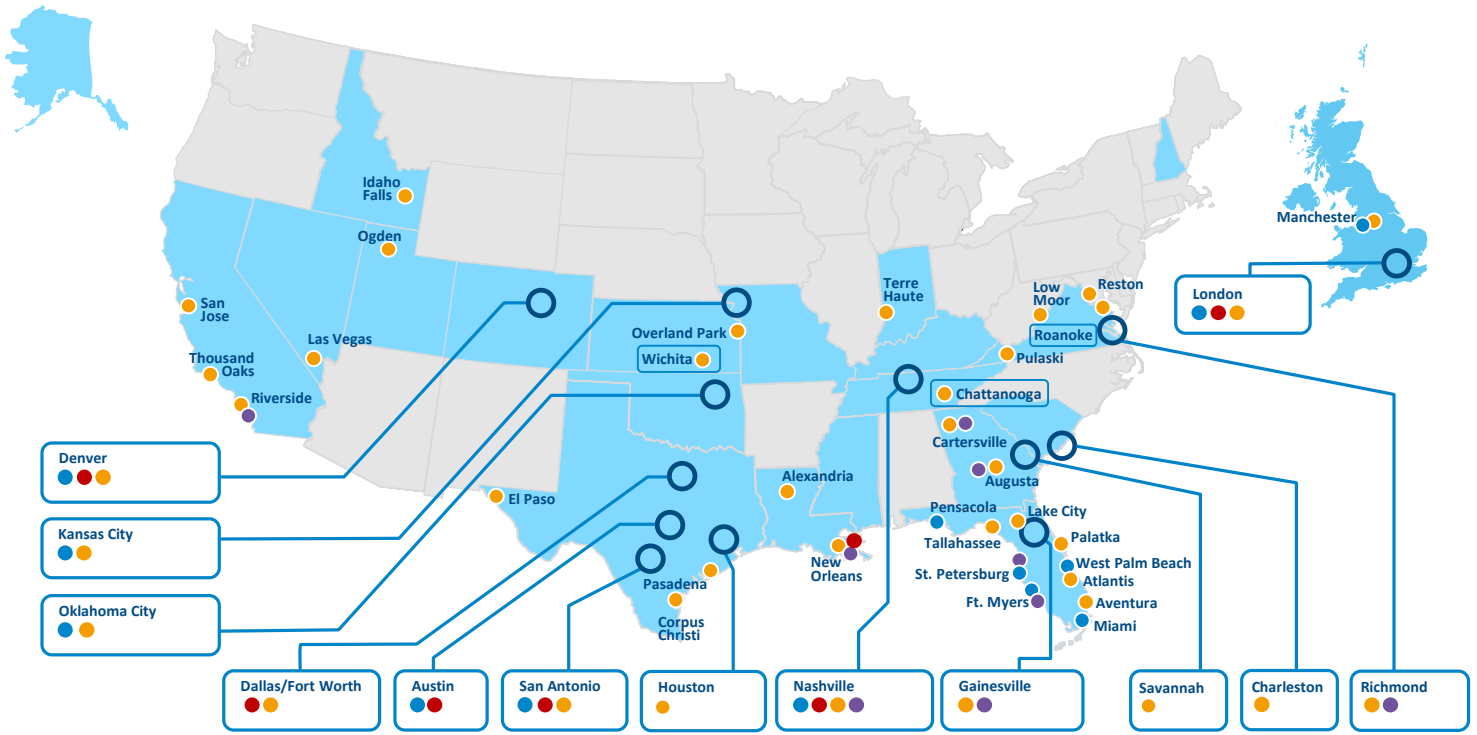
HCA/SARAH CANNON ASSET OVERVIEW



Hospital Inpatients
174 hospitals in 20 states
(Blue states have HCA Hospitals)

Sarah Cannon Markets
Key markets to focus on comprehensive oncology strategy and the continuum of care

Sarah Cannon Secondary Markets

Sarah Cannon Research Institute

BMT Sites

Radiation Oncology

Cardiovascular

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NAVIGATION WITH PATIENT ID AND NAVQUE

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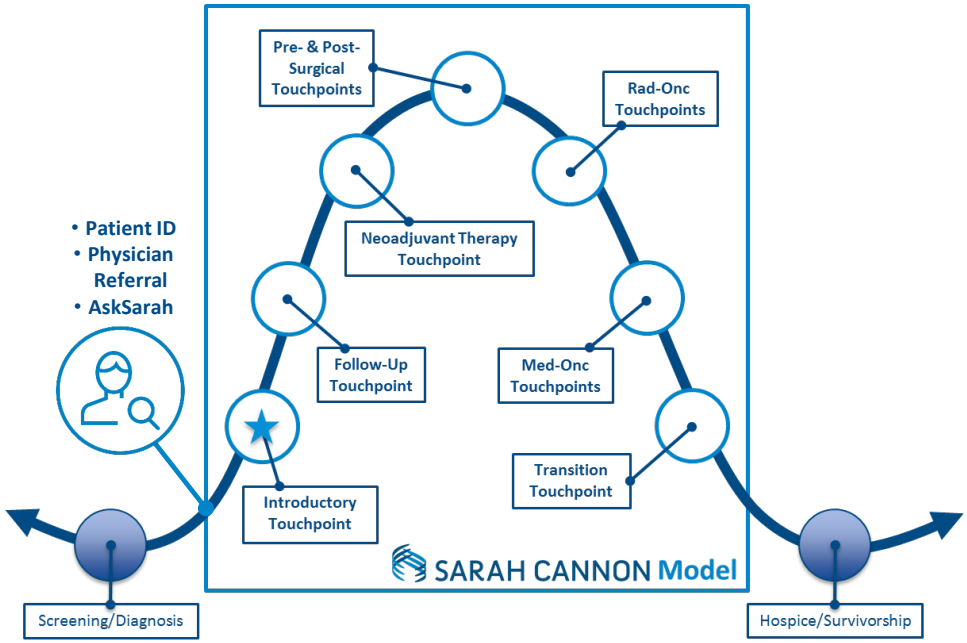
NAVIGATION WORKFLOW & MISSION

Navigation focuses on the critical period of vulnerability between **diagnosis** and **definitive treatment;** Navigators continue to engage patients at critical transitions through their cancer journey.



MISSION: Navigators **care for cancer patients** by ensuring compliance to the treatment plan through removal of barriers to care

1. **Develop** trust with the physicians and patients through multidisciplinary care coordination
2. **Assist** in educating patients about their cancer so they can make informed decisions about their care
3. **Provide** emotional support to the patient, family and caregivers
4. **Improve** access and utilization of HCA partnered resources
5. **Advocate** for the patient's voice in development of the treatment plan

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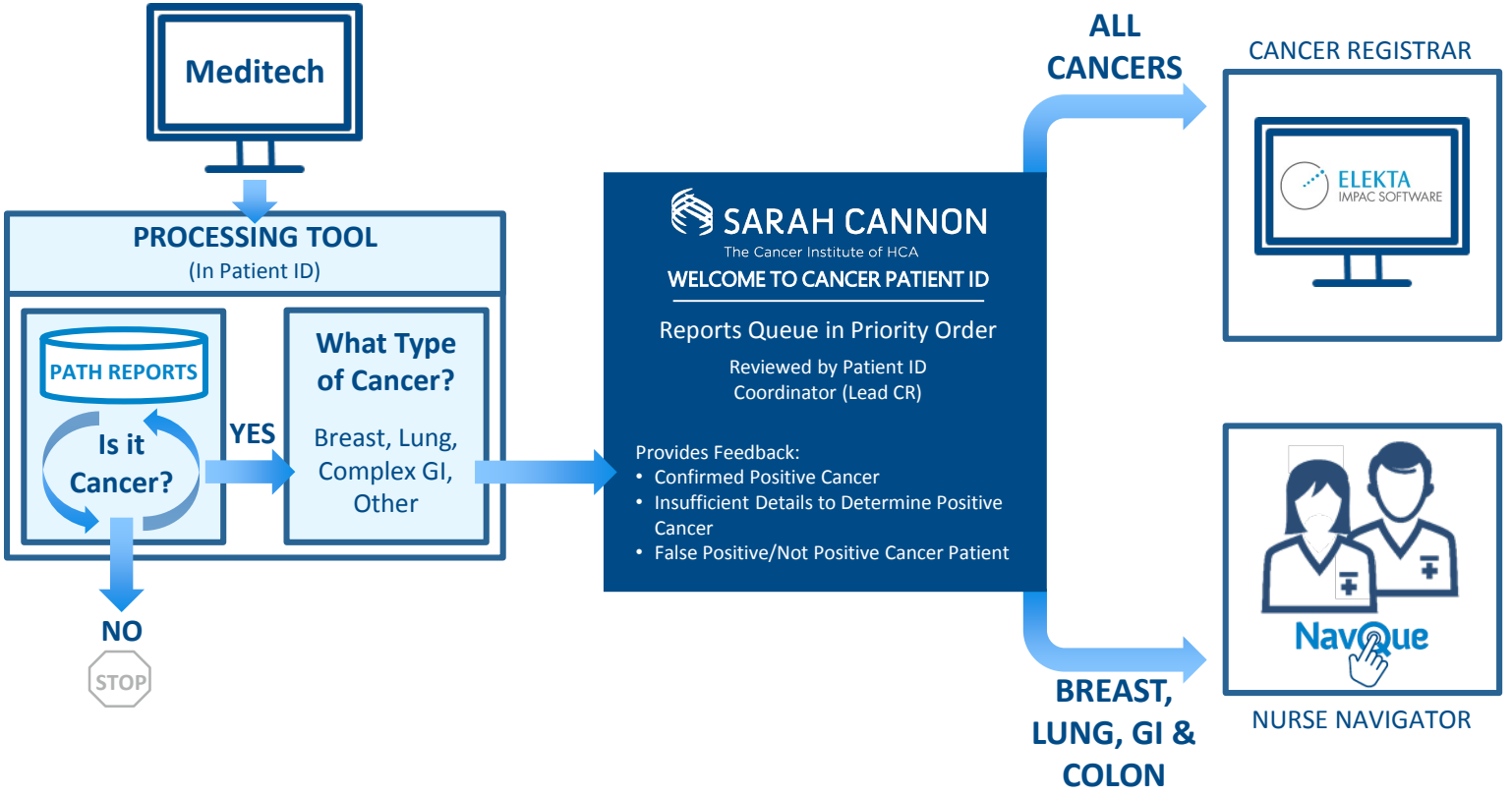
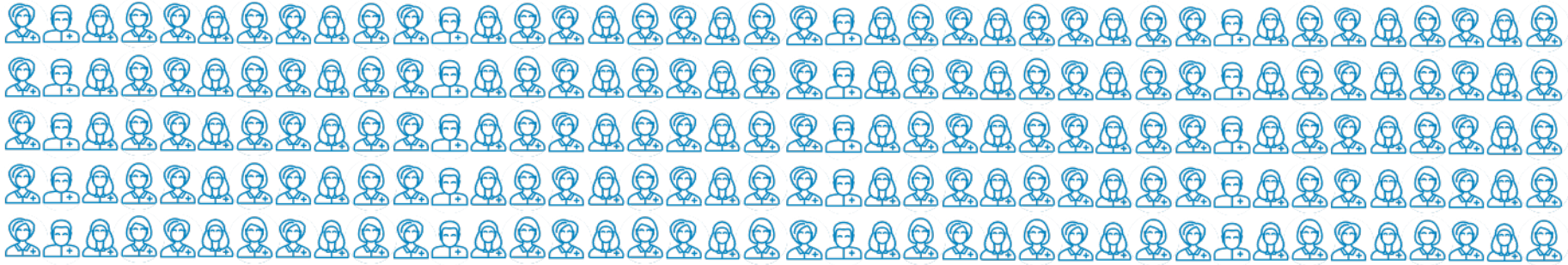
PATIENT ID PROCESS OVERVIEW



SARAH CANNON NURSE NAVIGATION

200+ Nurse Navigators, 14 Divisions, Covering 8 Disease Sites



Central/West Texas	Continental	Gulf Coast	MidAmerica	North Texas	San Antonio	TriStar
Capital	East Florida	Far West	Mountain*	North Florida	South Atlantic	West Florida*

BREAST | COMPLEX GI | COLON | GYN | HEME | LUNG | NEURO | SARCOMA

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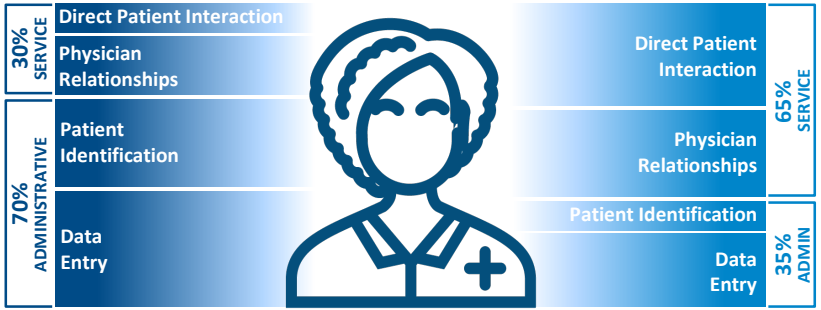
*Currently no division navigation director in place

NAVIGATION OUTCOMES

Patient ID Has Enabled Navigators to Spend More Time With Physicians and Patients

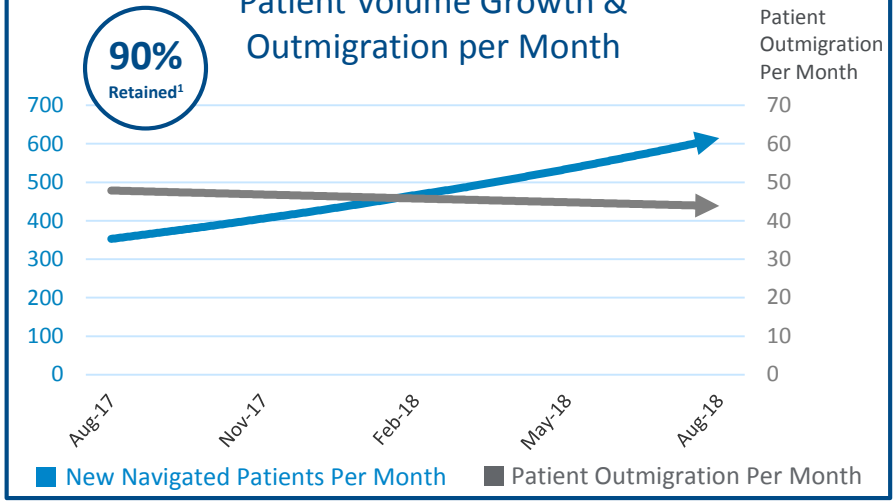


Pre-Patient ID
30% Physician/Patient Relations

<7% Navigator turnover

Post-Patient ID
65% Physician/Patient Relations

Patient Volume Growth & Outmigration per Month



SERVICE
+35% Increase in navigator time spent with patients and physicians

GROWTH
+59% Increase in navigated patients growth YTD 2018 vs 2017[1]

SERVICE
75% Maintained Press Ganey top box patient satisfaction for overall navigation experience after introducing virtual navigation

QUALITY
≤30 Days From first treatment to diagnosis; Maintained timeliness of care[1]

PRODUCTIVITY
96% Met productivity target with an increased benchmark from 175 to 200/year/navigator[1]

Source: [1]iNavigate

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Fighting Cancer Together™

NAVIGATION + PATHWAYS = IMPROVED PATIENT CARE

3,392+

Patients on Pathway

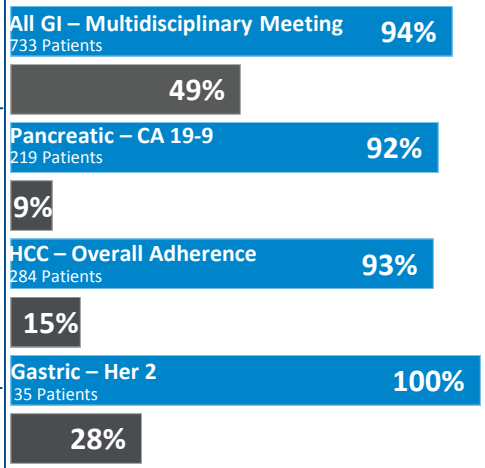
110+

Engaged Physicians across **9 Markets**

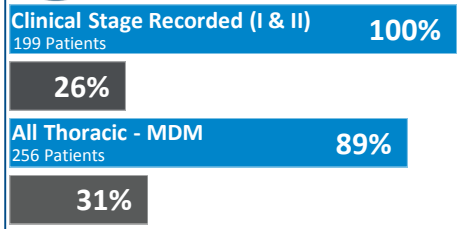
50+

Navigators utilizing **20 pathways**

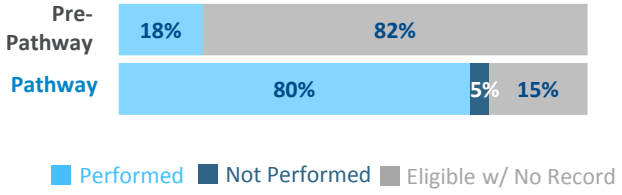
Complex GI Pathways



Thoracic Pathways



Breast Pathways



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[1]Data Range: 10/15 to 4/18

Leveraging High-Quality Pathways to Measure Resource Use

- A fair and appropriate methodology for measuring Resource Use for oncologists is critical

- Pathways feasible alternative to episodes of care:
  - Can assess measure adherence to clinically appropriate course of care
  - Provides a mechanism to assess the quality and cost of care provided
  - Already being used by payers—and many practices

ASCO
AMERICAN SOCIETY OF CLINICAL ONCOLOGY

PERSONALIZED MEDICINE

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NGS Testing - In the News

DRUG DISCOVERY & DEVELOPMENT

FDA Finalizes Guidances for Next-Generation Sequencing Tests

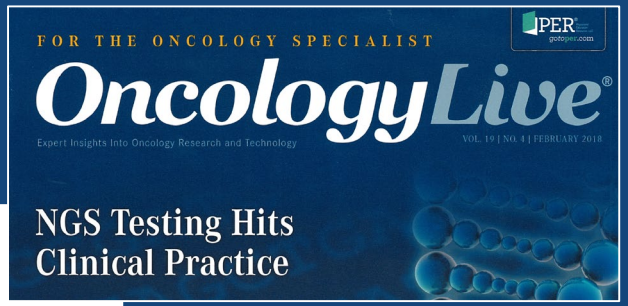
Fri, 04/13/2018 - 9:58am by FDA

JOURNAL OF CLINICAL PATHWAYS

Next-Generation Sequencing Proves Cost-Effective in Metastatic NSCLC

05/17/18

An economic model comparing different types of genetic testing in metastatic non-small cell lung cancer (NSCLC) showed that next-generation sequencing (NGS) is more cost-effec



HEALTHCARE FINANCE

MAR 16 | MORE ON ANALYTICS

CMS approves Next Generation Sequencing for cancer patients

The FoundationOne CDx test is the first breakthrough-designated in vitro diagnostic test and can detect genetic mutations in 324 genes.

Susan Morse, *Senior Editor*

The Centers for Medicare and Medicaid Services has finalized coverage of Next Generation Sequencing for cancer patients.

Targeted Oncology

Next-Generation Sequencing for Metastatic NSCLC Associated With Substantial Cost Savings

Angelica Welch
Published Online: 5:05 PM, W

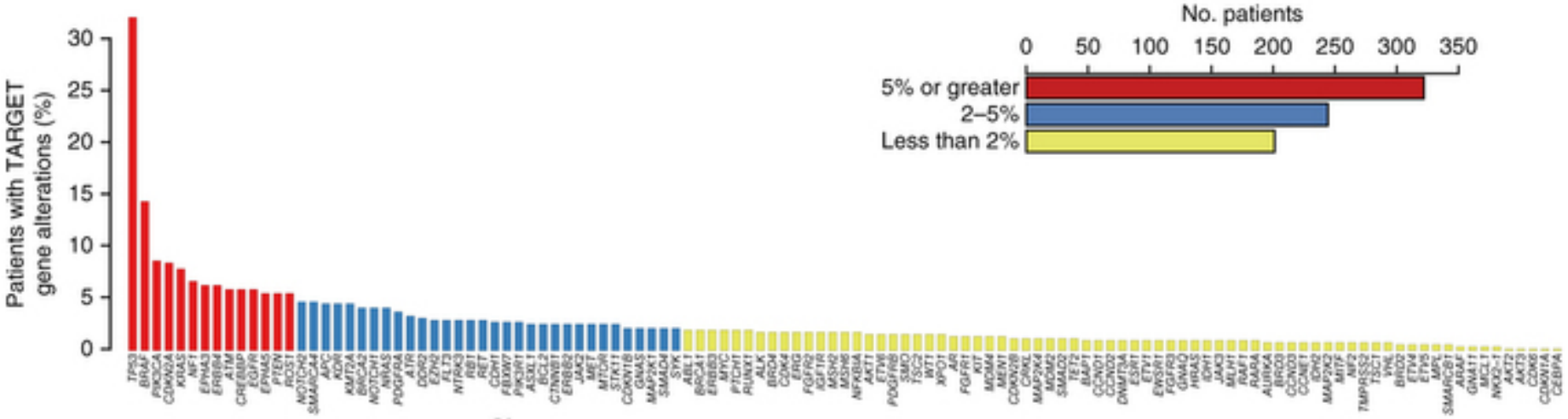
Forbes

MAR 6, 2018 @ 10:30 AM 9,474

All Cancer Patients Should Have Access To Genomic Testing

Days after Thanksgiving, the FDA approved Foundation Medicine's comprehensive genetic test for evaluating cancer. The idea—and practice—of testing tumors for specific DNA or protein abnormalities is not new. Previously, the agency listed several dozen approved companion diagnostic tests; these earlier tools check one or a few molecules to inform the cancer subtype, prognosis, and likelihood of response to treatments.

THE CHALLENGE OF PRECISION MEDICINE



Van Allen et al. Nature Medicine 2014;20:682-688

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Research Institute

ASCO ADVANCE OF THE YEAR 2019

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OPPORTUNITY

As new data and technologies emerge, clinicians are required to interpret and act upon increasingly complex information

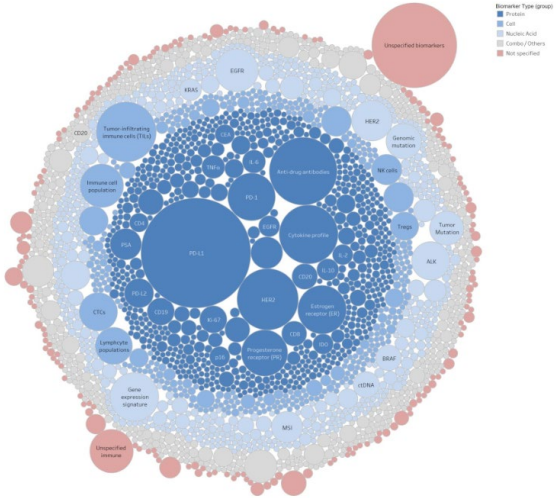
DNA Gene List: Entire Coding Sequence for the Detection of Base Substitutions, Insertion/Deletions, and Copy Number Alterations

ABL1	*ABL2*	*ACVR1B*	*AKT1*	*AKT2*	*AKT3*	*ALK*	*AMER1 (FAM123B)*	*APC*	*AR*
ARAF	*ARFRP1*	*ARID1A*	*ARID1B*	*ARID2*	*ASXL1*	*ATM*	*ATR*	*ATRX*	*AURKA*
AURKB	*AXIN1*	*AXL*	*BAP1*	*BARD1*	*BCL2*	*BCL2L1*	*BCL2L2*	*BCL6*	*BCOR*
BCORL1	*BLM*	*BRAF*	*BRCA1*	*BRCA2*	*BRD4*	*BRIP1*	*BTG1*	*BTK*	*C11orf30 (EMSY)*
CARD11	*CBFB*	*CBL*	*CCND1*	*CCND2*	*CCND3*	*CCNE1*	*CD274*	*CD79A*	*CD79B*
CDC73	*CDH1*	*CDK12*	*CDK4*	*CDK6*	*CDK8*	*CDKN1A*	*CDKN1B*	*CDKN2A*	*CDKN2B*
CDKN2C	*CEBPA*	*CHD2*	*CHD4*	*CHEK1*	*CHEK2*	*CIC*	*CREBBP*	*CRKL*	*CRLF2*
CSF1R	*CTCF*	*CTNNA1*	*CTNNB1*	*CUL3*	*CYLD*	*DAXX*	*DDR2*	*DICER1*	*DNMT3A*
DOT1L	*EGFR*	*EP300*	*EPHA3*	*EPHA5*	*EPHA7*	*EPHB1*	*ERBB2*	*ERBB3*	*ERBB4*
ERG	*ERRFI1*	*ESR1*	*EZH2*	*FAM46C*	*FANCA*	*FANCC*	*FANCD2*	*FANCE*	*FANCF*
FANCG	*FANCL*	*FAS*	*FAT1*	*FBXW7*	*FGF10*	*FGF14*	*FGF19*	*FGF23*	*FGF3*
FGF4	*FGF6*	*FGFR1*	*FGFR2*	*FGFR3*	*FGFR4*	*FH*	*FLCN*	*FLT1*	*FLT3*
FLT4	*FOXL2*	*FOXP1*	*FRS2*	*FUBP1*	*GABRA6*	*GATA1*	*GATA2*	*GATA3*	*GATA4*
GATA6	*GID4 (C17orf39)*	*GLI1*	*GNA11*	*GNA13*	*GNAQ*	*GNAS*	*GPR124*	*GRIN2A*	*GRM3*
GSK3B	*H3F3A*	*HGF*	*HNF1A*	*HRAS*	*HSD3B1*	*HSP90AA1*	*IDH1*	*IDH2*	*IGF1R*
IGF2	*IKBKE*	*IKZF1*	*IL7R*	*INHBA*	*INPP4B*	*IRF2*	*IRF4*	*IRS2*	*JAK1*
JAK2	*JAK3*	*JUN*	*KAT6A (MYST3)*	*KDM5A*	*KDM5C*	*KDM6A*	*KDR*	*KEAP1*	*KEL*
KIT	*KLHL6*	*KMT2A (MLL)*	*KMT2C (MLL3)*	*KMT2D (MLL2)*	*KRAS*	*LMO1*	*LRP1B*	*LYN*	*LZTR1*
MAGI2	*MAP2K1*	*MAP2K2*	*MAP2K4*	*MAP3K1*	*MCL1*	*MDM2*	*MDM4*	*MED12*	*MEF2B*
MEN1	*MET*	*MITF*	*MLH1*	*MPL*	*MRE11A*	*MSH2*	*MSH6*	*MTOR*	*MUTYH*
MYC	*MYCL (MYCL1)*	*MYCN*	*MYD88*	*NF1*	*NF2*	*NFE2L2*	*NFKBIA*	*NKX2-1*	*NOTCH1*
NOTCH2	*NOTCH3*	*NPM1*	*NRAS*	*NSD1*	*NTRK1*	*NTRK2*	*NTRK3*	*NUP93*	*PAK3*
PALB2	*PARK2*	*PAX5*	*PBRM1*	*PDCD1LG2*	*PDGFRA*	*PDGFRB*	*PDK1*	*PIK3C2B*	*PIK3CA*
PIK3CB	*PIK3CG*	*PIK3R1*	*PIK3R2*	*PLCG2*	*PMS2*	*POLD1*	*POLE*	*PPP2R1A*	*PRDM1*
PREX2	*PRKAR1A*	*PRKCI*	*PRKDC*	*PRSS8*	*PTCH1*	*PTEN*	*PTPN11*	*QKI*	*RAC1*
RADS0	*RADS1*	*RAF1*	*RANBP2*	*RARA*	*RB1*	*RBM10*	*RET*	*RICTOR*	*RNF43*
ROS1	*RPTOR*	*RUNX1*	*RUNX1T1*	*SDHA*	*SDHB*	*SDHC*	*SDHD*	*SETD2*	*SF3B1*
SLIT2	*SMAD2*	*SMAD3*	*SMAD4*	*SMARCA4*	*SMARCB1*	*SMO*	*SNCAIP*	*SOCS1*	*SOX10*
SOX2	*SOX9*	*SPEN*	*SPOP*	*SPTA1*	*SRC*	*STAG2*	*STAT3*	*STAT4*	*STK11*
SUFU	*SYK*	*TAF1*	*TBX3*	*TERC*	*TERT (promoter only)*	*TET2*	*TGFBR2*	*TNFAIP3*	*TNFRSF14*
TOP1	*TOP2A*	*TP53*	*TSC1*	*TSC2*	*TSHR*	*U2AF1*	*VEGFA*	*VHL*	*WISP3*
WT1	*XPO1*	*ZBTB2*	*ZNF217*	*ZNF703*					

DNA Gene List: For the Detection of Select Rearrangements

ALK	*BCL2*	*BCR*	*BRAF*	*BRCA1*	*BRCA2*	*BRD4*	*EGFR*	*ETV1*	*ETV4*
ETV5	*ETV6*	*FGFR1*	*FGFR2*	*FGFR3*	*KIT*	*MSH2*	*MYB*	*MYC*	*NOTCH2*
NTRK1	*NTRK2*	*PDGFRA*	*RAF1*	*RARA*	*RET*	*ROS1*	*TMPRSS2*		

An increasing number of SOC treatment options and clinical trials require the knowledge of a molecular alteration



Molecular reports do not present information in an easily clinically actionable format

TUMOR TYPE: STOMACH ADENOCARCINOMA (NOS)

Genomic Alterations Identified†

CDC73 V230fs*28
CIC P1116fs*45
DICER1 C1354fs*1
MLL2 R4904*
MSH2 Q183fs*31
PPP2R1A R183W
RUNX1T1 R458C
SOX9 Q505fs*72

Additional Findings†

Microsatellite status MSI-High
Tumor Mutational Burden TMB-High; 32 Muts/Mb

Additional Disease-relevant Genes with No Reportable Alterations Identified†

ERBB2

Sarah Cannon's Personalized Medicine program is uniquely positioned to address the opportunities for our partnered medical oncologists, molecular profiling vendors, and pharmaceutical industry partners

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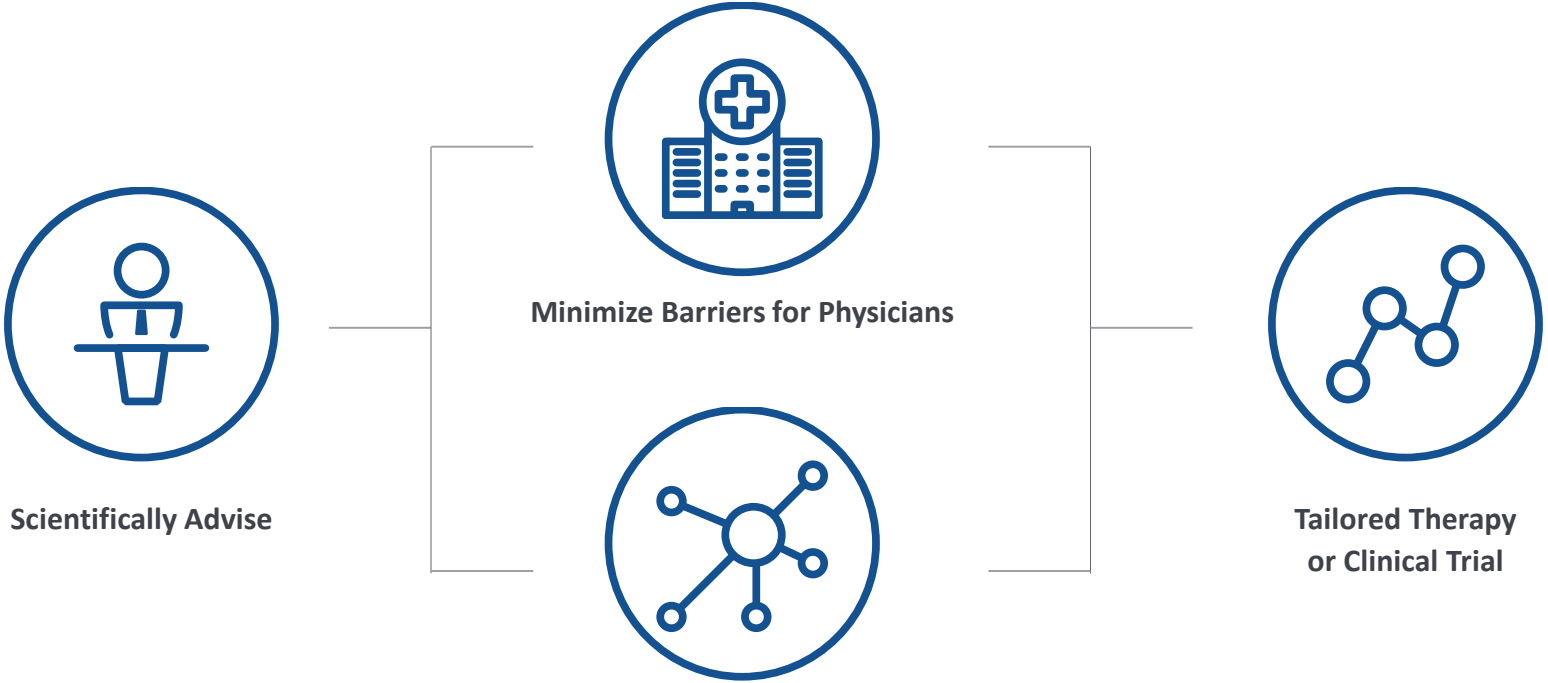
THE SARAH CANNON PERSONALIZED MEDICINE VISION



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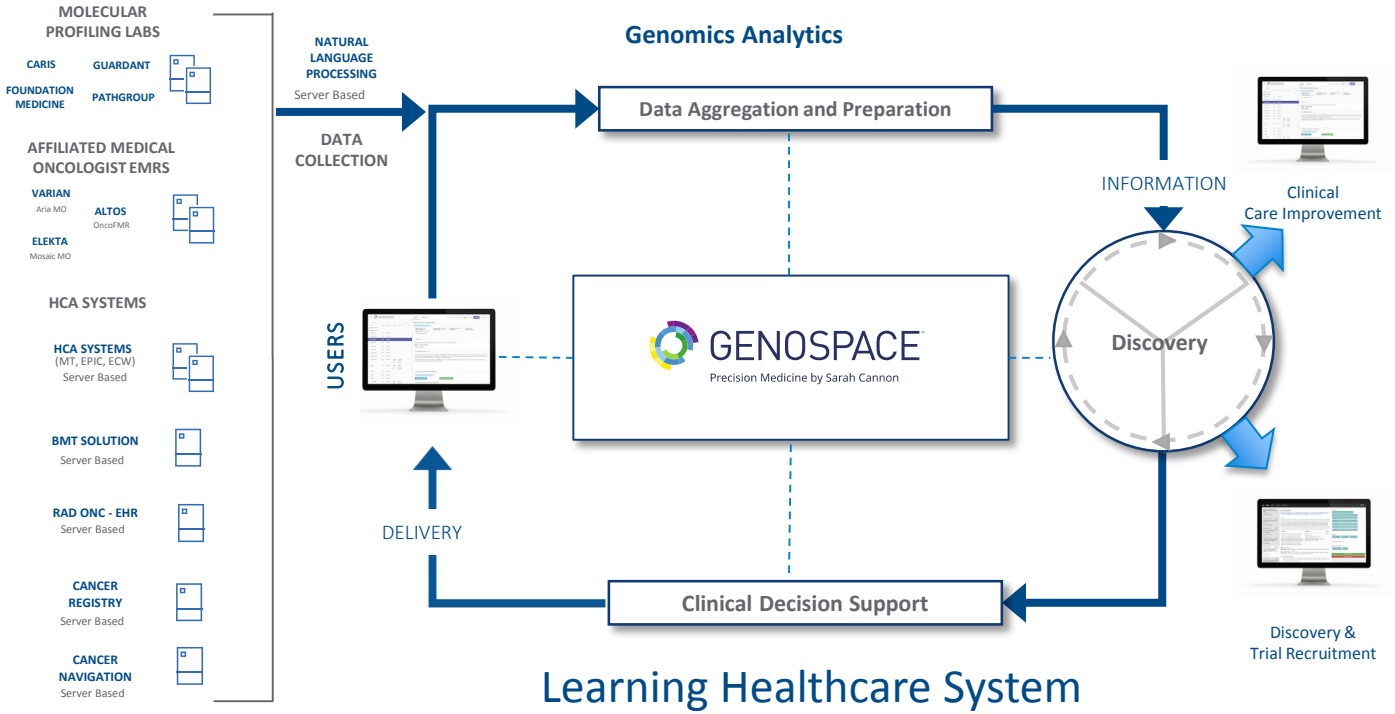
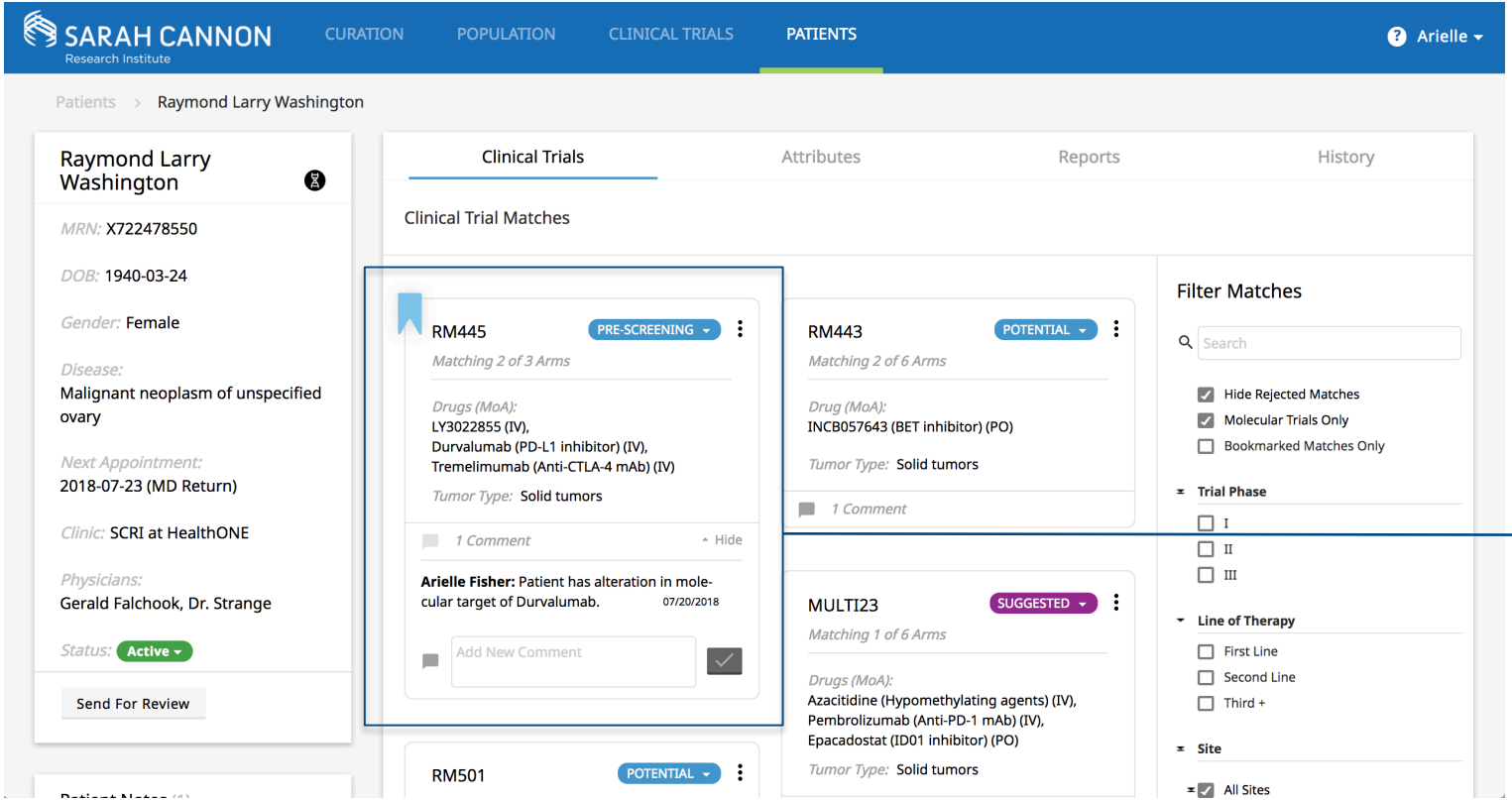
GENOSPACE: ENABLING THE CONVERGENCE OF CLINICAL RESEARCH AND CLINICAL CARE



SARAH CANNON Research Institute

REVIEW AND MANAGE YOUR PATIENT'S THERAPY OPTIONS



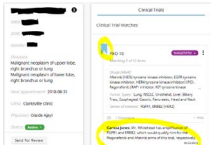
Annotate patient-trial matches to communicate with other clinical users

MOLECULAR ONCOLOGY SUPPORT SERVICES

Molecular Cancer Conferences

- **Regularly-occurring office-specific teleconference**
- >1000 MCC reviews in 12 months
- ~18% enrollment rate
- >2x increase in MP ordering
- ~23 physician-hours/month

Molecular Oncology Support Services



Personalized Molecular Insights

Powered by Genospace

- **Real-time Patient-level review of molecular profiles:**
- Since 8/6/2018, All new molecular profiles from late-phase clinics at TO have been annotated in Genospace and abstracted into Personalized Medicine Data Warehouse

"On-Call" Molecular Insights

- ***Ad hoc* (concierge-level) germline and somatic mutational analysis**
- ~4-5 *ad hoc* cases/week from FCS and TO

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CONCLUSIONS

- Better informed patients and physicians will lead to better resource utilization and experiences
- Abundance of information available to care providers is overwhelming and needs to be managed and streamlined
- Maximizing the utilization of technology and processes will be key to success

THANK YOU