



JOHNS HOPKINS

INDIVIDUALIZED HEALTH INITIATIVE

Scott Zeger, Director
Ken Pienta, Co-Director
Ted DeWeese, Steering Committee

Building on our past, we are poised to once again change the way medicine is practiced

Variability is the law of life, and as no two faces are the same, so... no two individuals react alike and behave alike under the abnormal conditions which we know as disease. – William Osler



Hopkins *inHealth* – *intelligent* use of *information* to better “subset” and treat patients

- Explain meaningful variation by:
 - **Novel measurements**
 - **Novel analysis** of existing data
- Identify subsets of patients and optimal treatments for each group
- Develop and disseminate tools for others to follow

Novel Measurements

The NEW ENGLAND JOURNAL of MEDICINE

ORIGINAL ARTICLE

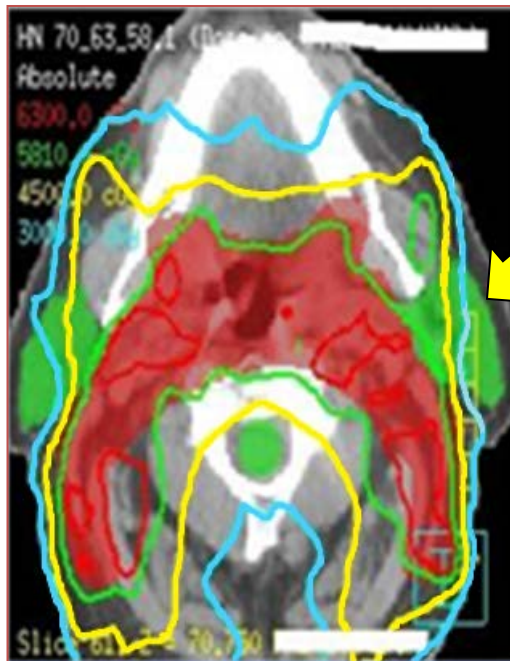
AR-V7 and Resistance to Enzalutamide and Abiraterone in Prostate Cancer

Emmanuel S. Antonarakis, M.D., Changxue Lu, Ph.D., Hao Wang, Ph.D., Brandon Lubber, Sc.M., Mary Nakazawa, M.H.S., Jeffrey C. Roeser, B.S., Yan Chen, Ph.D., Tabrez A. Mohammad, Ph.D., Yidong Chen, Ph.D., Helen L. Fedor, B.S., Tamara L. Lotan, M.D., Qizhi Zheng, M.D., Angelo M. De Marzo, M.D., Ph.D., John T. Isaacs, Ph.D., William B. Isaacs, Ph.D., Rosa Nadal, M.D., Channing J. Paller, M.D., Samuel R. Denmeade, M.D., Michael A. Carducci, M.D., Mario A. Eisenberger, M.D., and Jun Luo, Ph.D.

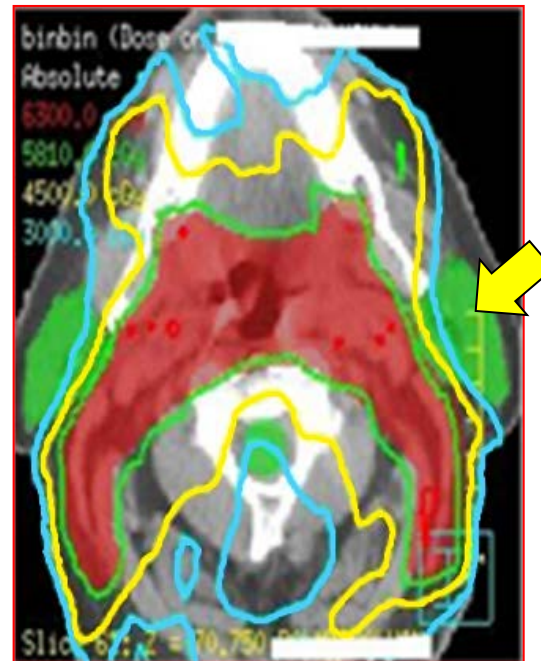
Novel Analysis

OncoSpace

Original plan



Automated plan



Automated plan resulted in 30% reduction in dose to parotids

To support your faculty, Hopkins *inHealth* can:

1. Consult on best design and implementation of your faculty's *inHealth* projects

bioethics, data, statistics, project management, business models, and dissemination

2. Match start-up funds; leverage other sources of investment
3. Support grant writing
4. Disseminate ideas, methods, new tools and success stories <http://hopkinsinhealth.jhu.edu/>

Follow-up for Departments to Get Involved

1. *inHealth* leadership visit to your department to identify potential *inHealth* projects to address unmet medical needs
2. Contribute \$150K to support 3 pilot *inHealth* projects within your department
3. Appoint *inHealth* Steering Committee member
4. Encourage faculty to join *inHealth* to compete for pilot funding <http://hopkinsinhealth.jhu.edu/>



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INITIATIVE

Thank You

Extra Slides

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JHM as a leading academic health center

VIEWPOINT

Transforming From Centers of Learning to Learning Health Systems The Challenge for Academic Health Centers

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**S. Claiborne Johnston,
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Clinical and

Health care organizations face intensifying pressure to achieve the triple aims of better patient experience, better health, and affordability. Although all health systems grapple with these imperatives, the tripartite mission of research, education, and patient care presents particular challenges for academic health centers in responding to demands for high-value, patient-centered care and population health. In this Viewpoint, we propose that health reform offers an opportunity for academic health centers to create new synergies across mission areas to become exemplary learning health systems.

Tensions Between Mission Areas

Clinically oriented constituents at academic health centers are concerned that patient care is subservient to the other 2 mission areas, often sensing that clinical operations are valued less for their success in meeting

nities who voice concern that clinical operations already do not adequately accommodate the other academic missions. They are apprehensive that the clinical enterprise's heightened attention to customer service, productivity, and affordability will imperil the educational and research missions. At the same time, many members of these constituencies acknowledge that academic health centers cannot truly teach high-quality medicine without consistently practicing great medicine, or excel in scientific discovery without discovering how to make their patient care services reliably excellent.

The Learning Health System

Academic health centers should replace the concept of a tripartite mission with a commitment to a single mission: the improvement of health and health care through

Survey of Unmet Medical Needs

Unmet Medical Needs

More effective cancer screening

Better prediction of patient outcomes

- Myocardial infarction/heart failure
- Traumatic brain injury
- Scleroderma
- Kidney disease
- Impact of gender/sex

More individualized patient care

- Drug/dosing for transplant patients
- Targeted therapies

Novel Measurements

Biomarker discovery

- Genetics
- Epigenetics
- Metabolomics
- Tractable
- Non-invasive

Targeted therapies

- Based on genotype/phenotype associations

Survey of Unmet Medical Needs

Novel Analytics

Predictive modeling

- Incorporating genotype/phenotype

Integrated databases

- Animal models
- Tissue banks
- Clinical data
- Genetic data
- Financial systems

Relevant patient populations

- Priority Partners
- JHHC
- Pregnant women

Necessary Support

Data analysis expertise/core

Adequate workforce

Collaborations across disciplines

Database development

Tissue bank development

Development of EPIC for research purposes

Bioinformatics support

- Genotyping
- Image mining
- Induced pluripotent stem cell core