

National Alliance

Understanding the Spectrum from Genomics to Precision Medicine *A Primer for Benefit Managers*

August 12, 2021



Micorbiome
Epigenomics
Targeted Therapies
Precision Treatment
Precision Medicine
Personalized Medicine
Genomics
Biomarkers
Immunotherapy
Epigenetics
Pharmacogenetics
Liquid Biopsy
Proteomics

Speakers



MODERATOR
Stan Schwartz, MD
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Suresh Mukherji, MD, MBA
Medical Director of the
Economic Alliance of
Michigan and Kentuckiana
Health Collaborative



K. Andrew Crighton, MD
Crighton Consulting Group

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Genetics in Healthcare:

A Primer for Benefits Managers



Confusion



Fear



Basic Categories of Genomics in Medicine



“Curiosity”



“Screening”



“Genomics & Proteomics”



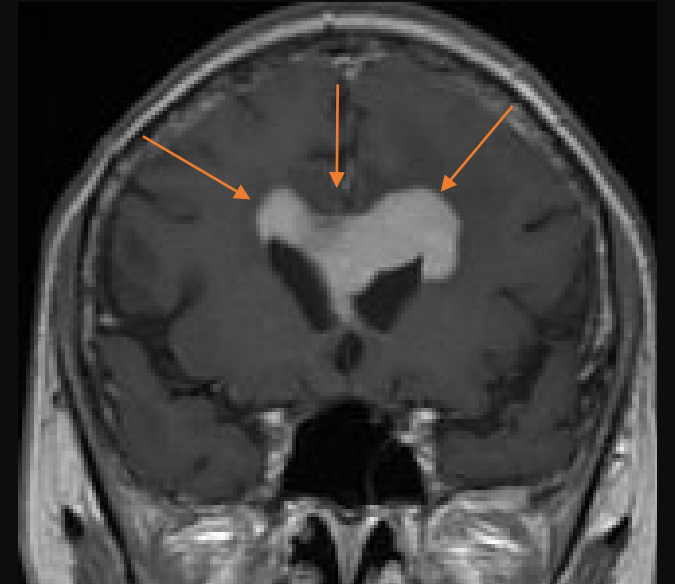
“Targeted Therapies”

First Question to Ask....



“Whose genome are we testing?”

Person or the tumor?





“Curiosity”



23andMe





“Curiosity”





“Curiosity”



FIRST OPINION

23andMe had devastating news about my health. I wish a person had delivered it

“To my utter shock, the results showed that I have a mutation in a gene called BRCA1, which puts me at a huge risk of developing breast and ovarian cancer. I broke into tears.”





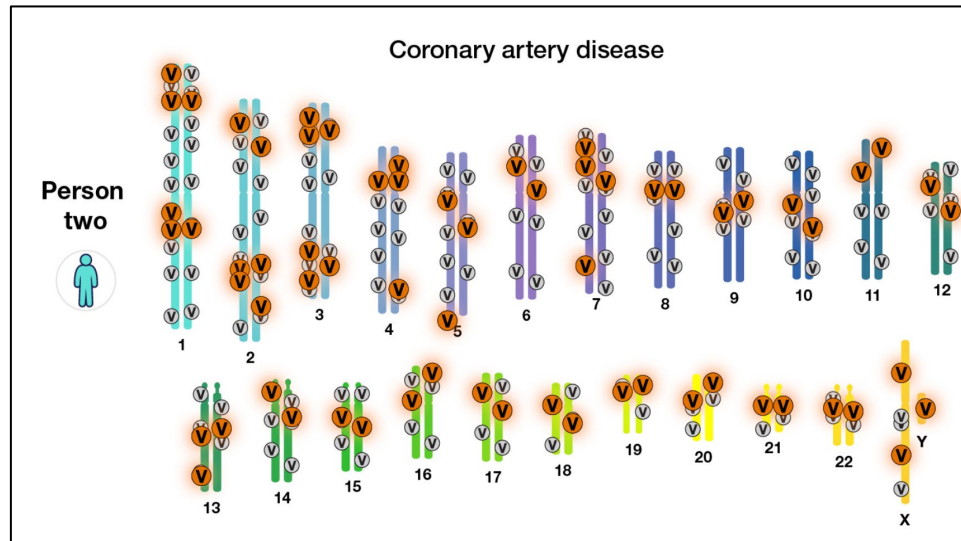
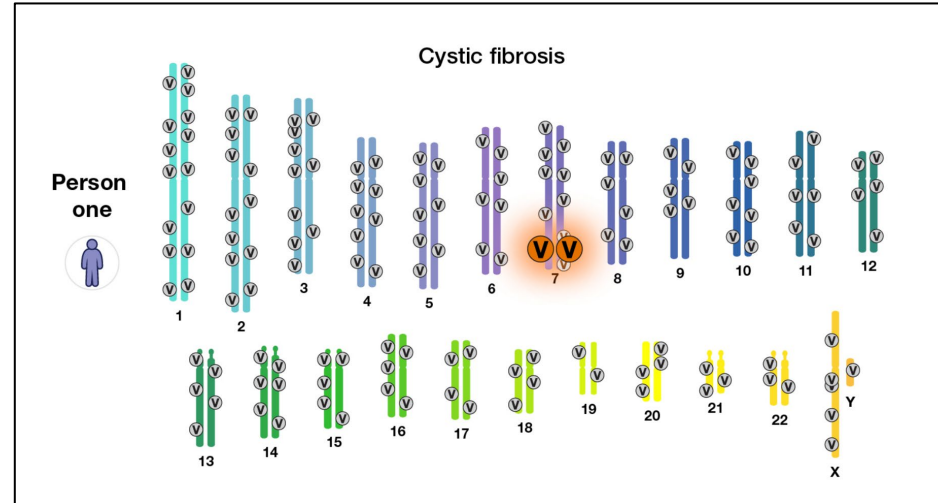
“Screening”: Family History



- Breast Cancer (BRCA)
- 291 genes (1%) associated with Cancer
- Developmental Disorders
- Muscles/Skeletal
- Cystic Fibrosis
- “Polygenic Risk Score”



“Screening”: Family History





“Screening”: Family History



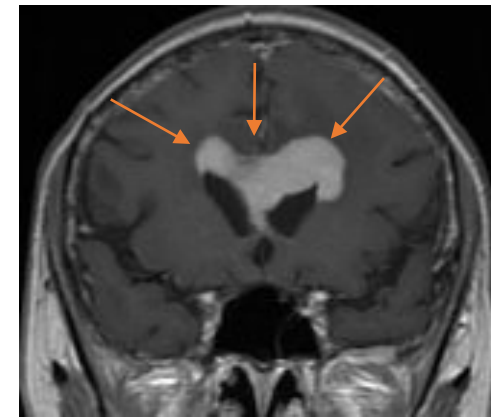
Genetic Counseling



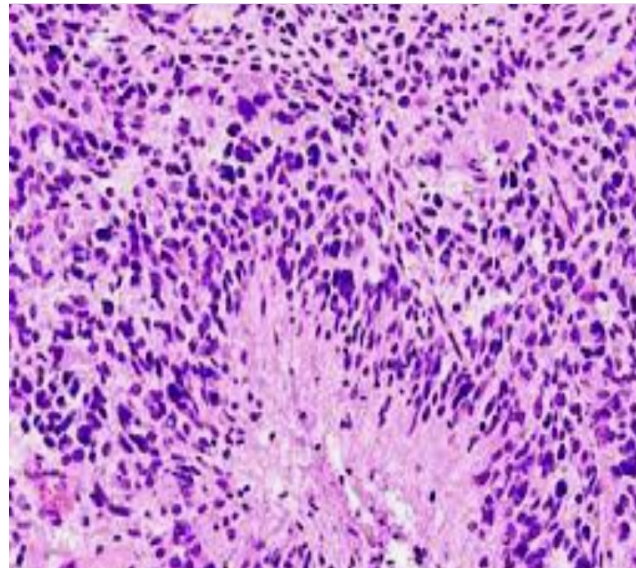
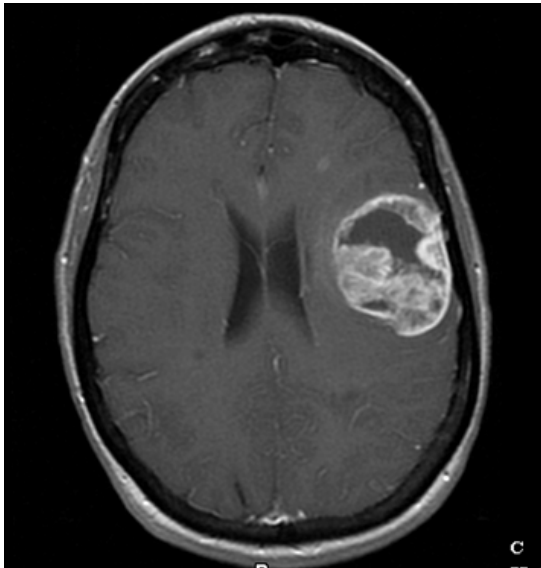
https://www.cdc.gov/genomics/gtesting/genetic_counseling.htm



“Genomics & Proteomics”



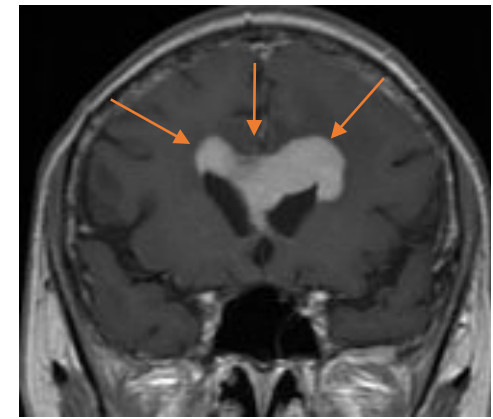
- Specific genetic mutations and proteins within a tumor that can predict the aggressiveness of a tumor and affect prognosis
- Directly affect how patients are treated.



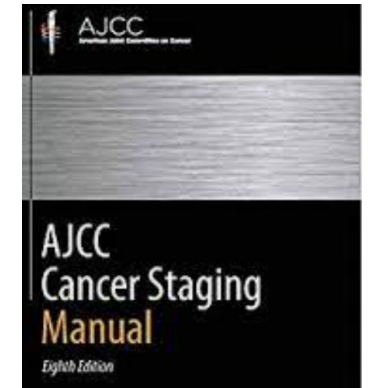
- IDH
- 1p/q19
- H3K27



“Genomics & Proteomics”

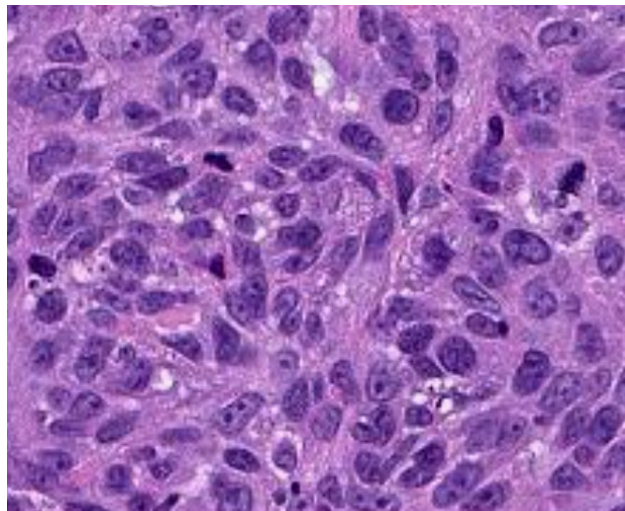


- Majority of tumor genetic testing should be part of routine tumor analysis
- May require “special stains”
- “Personalized Medicine” for Cancer Treatment



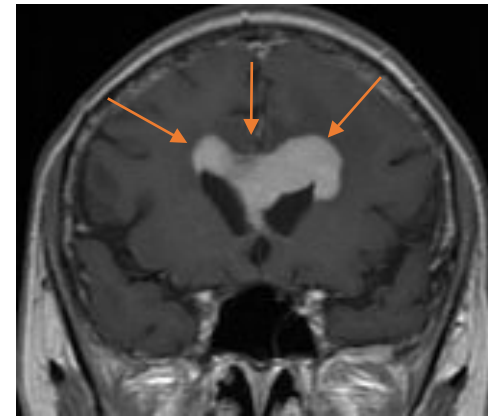
PCR

Human papilloma Virus





“Targeted Therapies”



Historically, there are three treatments for cancer:

Surgery



Radiation Therapy

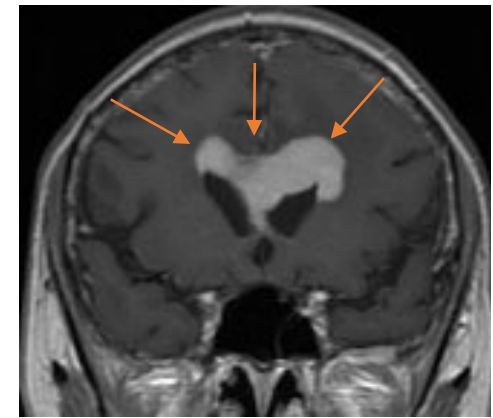


Chemotherapy





“Targeted Therapies”



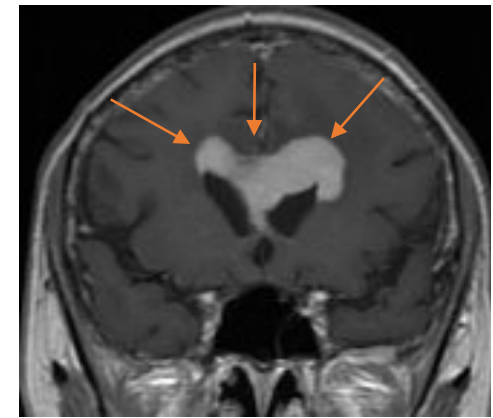
- Standard chemotherapy affects all cells
- Effective because prevents growth of the most rapidly growing cancers
- Very effective in many types of cancer but does have side effects
- Balance between killing cancer cells and sparing normal cells

Chemotherapy





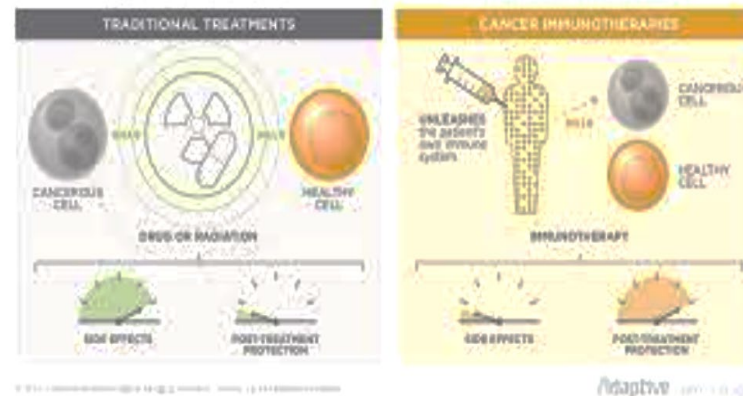
“Targeted Therapies”



Chemotherapy

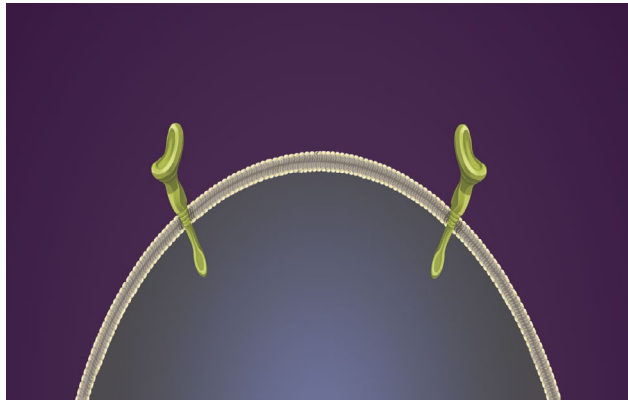
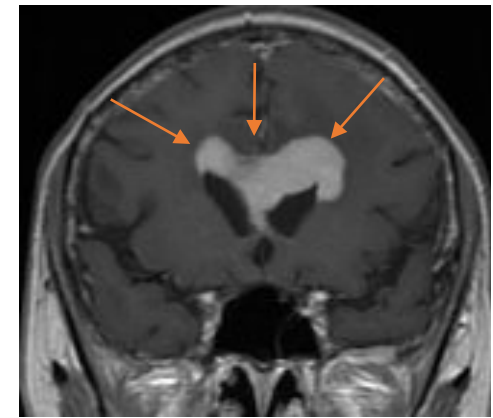


IMMUNOTHERAPY VS. CHEMOTHERAPY

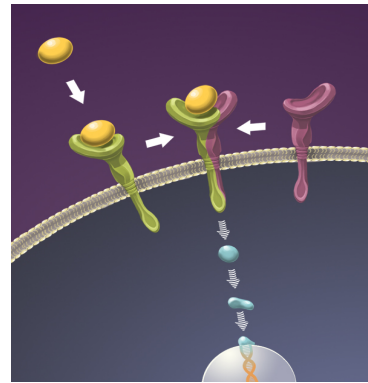




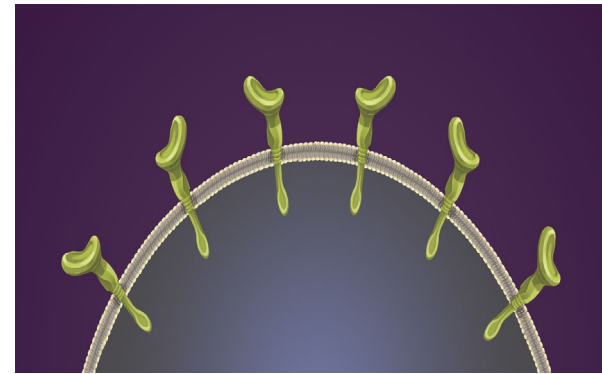
“Targeted Therapies”



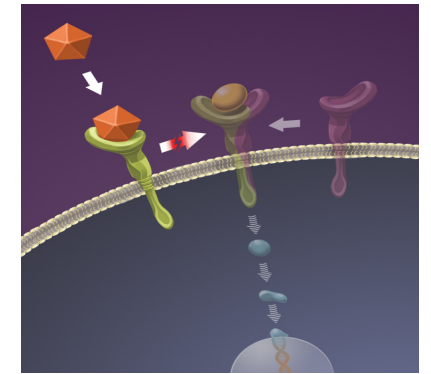
Healthy Cell



Normal Growth



Cancer Cell



Immunotherapy



- “Precision Medicine”
- “Precision Treatment”
- “Targeted Therapies”
- “Pharmacogenetics”
- “Biomarkers”
- “Proteomics”



National
Comprehensive
Cancer
Network®



“Curiosity”



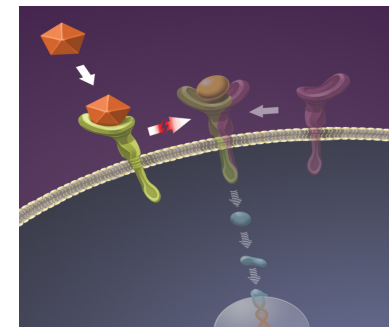
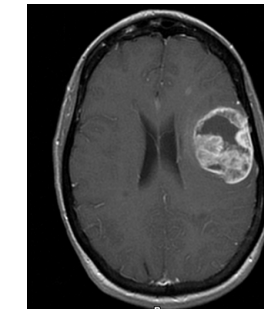
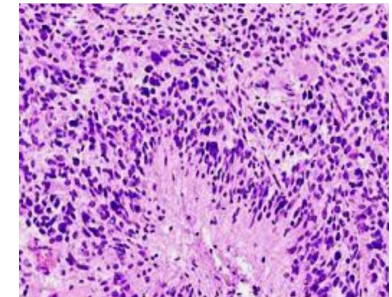
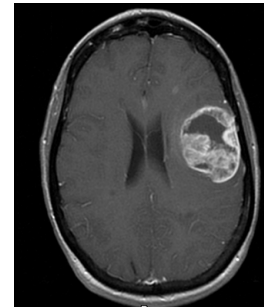
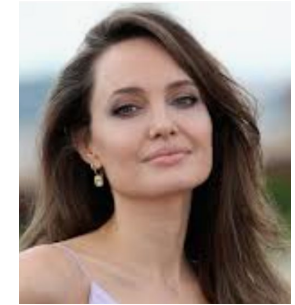
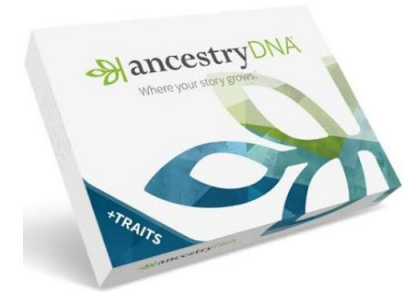
“Screening”



“Genomics & Proteomics”



“Targeted Therapies”



Speaker



K. Andrew Crighton, MD
Crighton Consulting Group

Potential Benefits

- Improved medical decision-making
- Delivery of appropriate therapies that are tailored to a patient's sequence variants or genotype rather than the general population
- Optimized disease prevention strategies, including lifestyle and behavioral modification, as well as pharmaco-prevention
- Avoidance of medications of lower efficacy
- Reduced exposure to medications that have the potential for greater toxicity, with resulting lower incidence of treatment-related side-effects and complications

Limitations of Widespread Use

- Limitation for clinical use
 - Cost for those at low or no risk
 - Variability in genetic test clinical relevancy between labs
 - Exception is single gene conditions such as Hemophilia B and Cystic Fibrosis
- Lack of clinical expertise and knowledge in interpreting actual risk of results
- Lack of diversity in genomic databases
 - Primarily populated with genetic data of European origin

The Field Continues to Evolve and Provide Great Insight for Clinicians

Barriers to Genetic Testing Implementation

- Limited predictive value of most tests
- Lack of physician knowledge
- Inadequate informatics infrastructure
- Information provenance and patient privacy issues
- Inconsistent standardization and oversight of testing
- Reimbursement issues
- Genetic discrimination
- Societal issues and misconceptions

Takeaways

- Critically evaluate the relevance of generalized testing for your population
- Evaluate proposals that target high risk populations with screenings
- Have candid conversations with medical carrier on process to evaluate and update new biomarkers and genetic tests directing medical treatment
- Ensure genetic counselors are used to evaluate the need for any genetic testing and interpreting results
- How will your plan design handle follow up testing for a probable positive genetic screening test?
 - Will the confirmation test be considered screening or diagnostic?
- Have a trusted medical resource to assist you in evaluating, on-boarding and monitoring personalized medicine offerings for you population (through broker, consultant, medical carrier or second opinion partner)

No such thing as a harmless test

Questions?



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Upcoming Webinars and Meetings

August

- **Fiduciary Check In National Webinar**
August 19, 2021, 1 - 1:30 pm
- **Mental Health Index National Webinar**
August 20, 2021, 12 pm – 12:30 pm
- **COVID-19 Townhall**
August 23, 2021, 4 - 5 pm

All times are Eastern Time

A banner for the 25th Annual Forum. On the left is a photograph of the U.S. Capitol building. On the right, the text "25th ANNUAL FORUM" is in large blue letters, with "25th" in a script font. Above this, the National Alliance logo is shown. Below the forum title, the dates "NOVEMBER 8-10, 2021" and the location "Crystal Gateway Marriott, Arlington, VA 22202" are listed.

- Registration is open
- Early Bird Rates:
 - Non-Member - \$650.00
 - Member Rate - \$450.00
- Hotel Discount Rate - \$229/per night until October 15, 2021

COVID-19 ANNOUNCEMENT: Based on the current environment and for the health and safety of all our attendees, we will require all attendees to be vaccinated