VA Mission

• To fulfill President Lincoln's promise: "To care for him who shall have borne the battle, and for his widow, and his orphan" by serving and honoring the men and women who are America's Veterans
How Well Do You Know the VA?

- Veterans: 22 million, ~9% female, 22% minority
- VA composed of VHA, VBA, National Cemeteries
- VHA enrolled Veterans: 9.11 million (Aug ‘15)
- VA Hospitals: 144
- VA Outpatient sites: 1203
- ~50,000 new cancer cases per year
  - 3.5% of national total
- Well established, integrated EHR
Quality of Care for Older Patients With Cancer in the Veterans Health Administration Versus the Private Sector

- CRC: diagnosed at earlier stage
- Colon: higher rate of curative-intent surgery
- DLBCL: higher rate of standard chemotherapy
- Myeloma: higher rate of bisphosphonate
- Prostate: lower use of IMRT or 3D-CRT
- 9 other measures: similar
- Conclusions:
  - VHA system generally similar to or better than care for fee-for-service Medicare beneficiaries
  - adoption of some expensive new technologies may be delayed in the VHA

The VA National Precision Oncology Platform

- Turnkey processes established for molecular profiling
- National contracts to reduce costs and increase uniformity
- Molecular oncology consultation service to assist clinicians
- New drugs made available to patients through research partnerships
  - Clinical trials are often a standard of care in Oncology
- Patient data aggregated for learning and research purposes
Goals

• Define and disseminate Precision Oncology best practices
• Provide standardized high quality care
  – Reduce disparities
  – Facilitate providers
  – Engage patients
• Utilize program data to:
  – Understand cost and effectiveness
  – Generate knowledge on what works and what does not
  – Provide opportunities for clinical trial participation
• Realize economies of scale for laboratory and drug costs
Learning and Research in POP

- Interdependence of clinical care and research programs
  - Molecular profile has value only if targeted therapies exist
  - Targeted therapy development requires access to patients who have been profiled

- Large patient population critically enables a complete view of the full landscape of patient profiles:
  - Many profiles will have substantial numbers, speeding learning
  - For any clinical trial, can find patients with the appropriate profile
  - Good coverage of the space of profiles improves power of statistical modeling
Traditional Research Opportunities

- Intramural and sponsored clinical trials opened nationally to enable broad patient access
  - Structure provided by the VA Cooperative Studies Program and the VA Central IRB
  - Intellectual capital provided by VA clinicians and external stakeholders
  - Patients matched to clinical trials through data repository

- Appeal to potential sponsors and partners
  - Rapid enrollment into clinical trials due to size of the VA
  - Cost effective participation given VA infrastructure and programs
  - Potential for participation in Cancer Moonshot Programs
Rapid Learning Opportunities

- Analytics applied to the data repository predict expected outcomes for patients based on past experience
- This knowledge will be used by providers, tumor boards, researchers and Program sponsors for:
  - Decision support
  - Practice guidelines refinement
  - Determination of Precision Oncology Program effectiveness
  - For publication if knowledge is generalizable

_The POP is an exemplar of a “Learning Healthcare System” where traditional clinical and research silos are replaced by systematic learning using scientific methodology in the clinical care ecosystem_
Applied Proteogenomics Organizational Learning and Outcomes (APOLLO) Consortium VA/DoD/NCI

- Veterans
  - Residual tissue for CLA-approved targeted sequencing
  - VA Hospitals

- Active Duty & DoD Beneficiaries
  - Consents to VA/DoD/NCI research program
    - The American Genome Center
    - Murtha Cancer Center

- NIH
  - National Cancer Institute
    - CPTAC PCC
  - NCI CTEP/CPTAC PRTC

- Civilian

- Patients with new cancer diagnosis

- Proteogenomics Characterization (~8,000 patients)

- VA ORD and NCI-sponsored Clinical Trials

- Adaptive Learning Healthcare System

- Research Data
  - Clinical Data
  - Clinical Phenotype & outcomes
  - VA Hospitals
  - Murtha Cancer Center

- Patients with new cancer diagnosis

- Data aggregation, analysis, and sharing to rapidly improve outcomes for active duty, beneficiaries, veterans, and civilians
RQ12A – Clinical Therapeutics and Evaluation Program (CTEP): Trial Participation Rates (Open and Closed)

- Participation rates in the VA system are statistically lower than the national rates when we look at **strictly males** (i.e., 0.74% vs 0.37%)
- Restricting the analysis to **only VA facilities enrolling patients**, the VA rate of participation increased substantially to 2.07% (exceeding the national rate of 1.8)

**Trial Participation Rates, overall and VA (Men Only) 2001-2003**

<table>
<thead>
<tr>
<th></th>
<th>Overall (US Population)</th>
<th>VA (all VA Hosps)</th>
<th>VA (only participating VA Hosps)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CRC</td>
<td>1.16%</td>
<td>0.30%</td>
<td>2.00%</td>
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<tr>
<td>Lung</td>
<td>0.67%</td>
<td>0.30%</td>
<td>1.40%</td>
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<tr>
<td>Prostate</td>
<td>0.70%</td>
<td>0.47%</td>
<td>2.50%</td>
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<tr>
<td>Myeloma</td>
<td>0.52%</td>
<td>0.74%</td>
<td>18.20%</td>
</tr>
<tr>
<td>NHL</td>
<td><strong>0.15%</strong></td>
<td><strong>0.00%</strong></td>
<td><strong>0</strong></td>
</tr>
<tr>
<td>Overall</td>
<td>0.74%</td>
<td>0.37%</td>
<td>2.07%</td>
</tr>
</tbody>
</table>

Source: VA Oncology Program Evaluation (GPRA), 2010
Interventional Trials at VA Facilities: Open Trials per Site

Total = 82 VA facilities
Mean ~3.4 trials/facility
Interventional Trials at VA Facilities: Sites per Open Trial

Total = 120 trials
Mean ~2.3 facilities/trial

Source: CT.gov; accessed 7/1/2016
NCI Trials in VA

• NCI-VA MOU to use NCI cIRB (June 2, 2015)
  — 4 sites have added NCI cIRB (Indianapolis, Atlanta, Durham, and West Haven)
  — 2 sites have started process (Buffalo, New Orleans)

• NCI PMI trials
  — MATCH: Durham (opening)
  — LungMAP: West Haven, East Orange, Indianapolis, Ann Arbor, Hines, Kansas City, Houston
  — ALCHEMIST: Brooklyn, Minneapolis

• Other NCI-sponsored studies: 49

Source: Marisue Cody; CT.gov, accessed 7/1/2016
PRESS RELEASE
For Immediate Release
Oct. 1, 2015

SWOG Pushes to Expand Access to Cancer Trials for U.S. Veterans

PORTLAND, OR – As part of a major effort to expand access to cancer clinical trials for the nation’s military veterans, SWOG, the international cancer clinical trials network, and its charitable arm, The IHope Foundation, are providing $125,000 to five U.S. Department of Veterans Affairs medical centers across the country.

Under the new VA Integration Support Program, each VA medical center will receive $25,000 in seed funding to help them enroll veterans in trials run by SWOG and other members of the National Cancer Institute’s National Clinical Trials Network (NCTN).

Winners of the VA Integration Support Program awards are:
- Cincinnati VA Medical Center, Cincinnati, Ohio
- Durham VA Medical Center, Durham, N.C.
- VA Eastern Colorado Health Care System, Denver, Colo.
- VA New York Harbor Healthcare System, Manhattan Campus, New York, N.Y.
VA Protocol Review Processes

Privacy Officer
Information Security Officer

Varley PR, Hall DE et al. in press
VA IRB Review Time

- 2010-2011
- 9 VA IRBs and the VA cIRB
- 139 full board review
  - 43 therapeutic interventional
  - Mean = 131 days
  - 10% <= 60 days
- 63 exempt
- 117 expedited

Varley PR, Hall DE et al. in press
Strawman Model for VA Cancer Clinical Trials

• Maximize use of VA and NCI cIRB, regardless of sponsor
  – VA cIRB now accepting pharma-sponsored and other non-VA sponsored trials
• Prioritization of clinical trials by disease group steering committees
  – Align with clinical care priorities, including Precision Oncology
  – Access to VA cIRB governance
• Leverage VA Clinical Studies Program support
• Partner with NCI, industry, non-profit foundations
Extra Slides
### VA Facilities Near NCI-Designated Cancer Centers

<table>
<thead>
<tr>
<th>City</th>
<th>NCI-designated cancer center</th>
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</thead>
<tbody>
<tr>
<td>Boston</td>
<td>Dana-Farber Cancer Institute</td>
</tr>
<tr>
<td>White River Junction</td>
<td>Dartmouth-Hitchcock Medical Center</td>
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<tr>
<td>West Haven</td>
<td>Yale University School of Medicine</td>
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<td>New York</td>
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<tr>
<td>Bronx</td>
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<td>Fred Hutchinson Cancer Research Center</td>
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Interventional Trials at VA Facilities: Facilities by ZIP Code

Total = 82 VA facilities
Mean ~3.4 trials/facility