Big Data and The Future of Cancer Care

Kevin Fitzpatrick
CEO
CancerLinQ
Origins of CancerLinQ:

“We seek the development of a learning health system in which science, informatics, incentives, and culture are aligned for continuous improvement and innovation – with best practices seamlessly embedded in the delivery process and new knowledge captured as an integral by-product of the delivery experience.”
The Challenges

1. To learn from every patient
2. To harness data in powerful new ways
Lung cancer: from one cancer to many

1986: One disease

2014: 7 molecular drivers—and more to be discovered

- KRAS
- EGFR
- BRAF
- PIK3CA
- AKT1
- HER2
- EML4-ALK
- Unknown
Only 3% enroll in clinical trials.

1.7MM people diagnosed with cancer in the US.
... and everyday patients tend to be ... older... less healthy... and more diverse...

- **25%** of clinical trial patients are 65+ vs. **61%** of real-world patients are 65+.\(^1\)
- **40%** of kidney cancer patients were not healthy enough to qualify for the trials that supported the approval of their treatments.\(^2\)
- **90%** of patients in NCI trials are white vs. **23%** of the US POPULATION is non-white.\(^3\)

...than clinical trial patients.

The Current State

1.7MM people diagnosed with cancer in the US

97% of patient data locked away in unconnected files and servers
Data Knowledge base Rapid learning

Real-world applicability

From Data to Learning

Understanding
# Patient Care Timeline

## Ronald Warren
876 Thornberry Way, Annandale, VA 22003, US

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<tr>
<th>Timeline</th>
<th>Overview</th>
<th>Related Documents</th>
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### Timeline Details:

- **Mar 30, 2013**: Disease - Primary Diagnosis - Colon
- **Mar 30, 2015**: Disease - Secondary Diagnosis
- **May 2, 2013**: Pathology - Results, Disease - Colon
- **Mar 30, 2013 - May 2, 2013**: Pathology - Stage Group, Disease - Colon
- **Mar 30, 2012 - May 3, 2012**: Procedure - Treatment - Procedure
- **Jan 5, 2015**: Treatment - Procedure - Location - Mercy Hospital Columbus, OH
- **Jan 5, 2015**: Treatment - Procedure - Location - Mercy Hospital Columbus, OH
- **Jul 5, 2012 - Dec 3, 2012**: Systemic Therapy - Treatment - Systemic Therapy - Treatment - Systemic Therapy - Treatment - Systemic Therapy - Treatment - Systemic Therapy - Treatment - Systemic Therapy - Treatment - Systemic Therapy - Treatment
- **Jan 19, 2015 - Apr 27, 2015**: Systemic Therapy - Treatment - Systemic Therapy - Treatment - Systemic Therapy - Treatment - Systemic Therapy - Treatment - Systemic Therapy - Treatment
- **Jan 10, 2015 - Feb 7, 2015**: Treatment - Regimen
- **Jul 5, 2012 - Dec 3, 2012**: Treatment - Regimen
- **Jan 10, 2015 - Feb 7, 2015**: Treatment - Regimen

*Note: The table provides a summary of medical events and timelines related to Ronald Warren's care.*
Patient Care Timeline

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For detailed information, please refer to the image.
Real-Time Quality Measurement & Improvement
When Fully Deployed CancerLinQ Will:

Unlock, assemble, and analyze de-identified cancer patient medical records

Uncover patterns that can improve patient care

Allow doctors to compare their care against guidelines and the care of their peers

Provide guidance by identifying the best evidence-based course of care