Virtual Journal club

When Work Hits Home: The Cancer-Treatment Journey of a Clinical Scientist Driving Digital Medicine

January 10th, 2023 12pm ET
But first, housekeeping

• Please note today’s session is being recorded
• To ask a question for discussion during Q&A, please:
  • Either ‘raise your hand’ in the participant window and moderator will unmute you to ask your question live, or
  • Type your question into the chat box
• Slides and recording will be available after today’s session
## Digital Health Technologies in Cancer

<table>
<thead>
<tr>
<th>Application</th>
<th>Concept</th>
<th>Measurement examples</th>
<th>ePRO</th>
<th>BioMeT</th>
<th>Maturity</th>
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<tr>
<td>Diagnosis</td>
<td>Multidomain tool to diagnose complex medical conditions that require longitudinal surveillance, eg, frailty syndromes</td>
<td>Activities of daily living</td>
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<td>Grip strength</td>
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<td>Prognosis or risk</td>
<td>Determination of near-term risk for adverse health outcomes including treatment toxicity</td>
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<td>Physiologic measure composites (eg, VO2max (est))</td>
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<td>Free living gait speed</td>
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<td>Treatment efficacy</td>
<td>Assessment of physiologic response or patient-reported improvement from treatment</td>
<td>Quality of life</td>
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<td>Other fitness measures (eg, heart rate variability)</td>
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<td>Adverse effect</td>
<td>Evaluation of treatment-related toxicities</td>
<td>Adverse event self-report</td>
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<td>monitoring</td>
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<td>Vital sign monitoring</td>
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<td>Physical activity</td>
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Patient Journey

- Diagnosis of suspected cancer
- Tumor removal surgery
- Hospital stay
- Postsurgical recovery at home
- Return to work

Digital monitoring

- Point-in-time
- Continuous

510(k) cleared medical devices

Commercial technologies

Source: ES Izmailova, RD Ellis JCO Clinical Cancer Informatics 6, e2200033
Virtual care made significant inroads during the pandemic, and it works!

DHT derived data can help virtual care delivery, provide useful information and minimize hospital stay.
“Inactive” patients:

- ▲ hospitalizations during RT 50% v. 9%, p=0.004
- ▼ rate of completing RT without delay >1 week 67% v. 97%, p=0.006
- ▼ PFS median 5.3 months v. 18.3 months, HR=4.52, p<0.001
- ▼ OS median 15.0 months v. not reached, HR=3.88, p=0.007

36% reduction in the risk of hospitalization for every 1,000 steps taken each day (HR=0.64, p<0.001)

Int J Radiation Oncol Biol Phys, Vol. 105, No. 4, pp. 745-751, 2019
Data Sharing Is Important!

Some days were better than others; I had my ups and downs, but my digital technologies were my North Star. I’m very grateful to my family, friends, and colleagues who supported me through this journey (and looked at my results too!), and the team of outstanding physicians and nurses (receptive to my data gathering and sharing too!) who got me to where I am now, so I can continue to live and work. I am also grateful to the fact that I live in a time when early cancer detection is widespread and readily available, making cancer a curable condition for many patients.
Acknowledgments

Thanks to colleagues across .com .edu and .org

In particular
- Chris Benko, Koneksa Health
- Adam Dicker, Jefferson Center for Digital Health
- Robert Ellis, Koneksa Health
- Nitin Ohri, Montefiore Medical Center
- Andrew Pearlmutter, Koneksa Health
- Diane Stephenson, C-Path Institute
- John Wagner, Koneksa Health
- William Wood, Lindenberg Cancer Center, UNC
Join us at our upcoming DiMe webinar!

Join us on Wednesday, February 1st at 11:00-12:00 ET for our next webinar:

**Increasing software innovation in digital health products through unified cross architecture programming**

Hear from thought leaders at **Intel**, **Canon Medical**, and **Oracle** as they discuss how digital health product teams can deliver groundbreaking solutions that are both innovative and equitable.
Applicability of Artificial Intelligence in Healthcare in Resource-Poor Settings

Thursday, February 9th, 2023 12pm ET
THANK YOU

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