

Trends in Technology and Implications for the Oncology Careforce

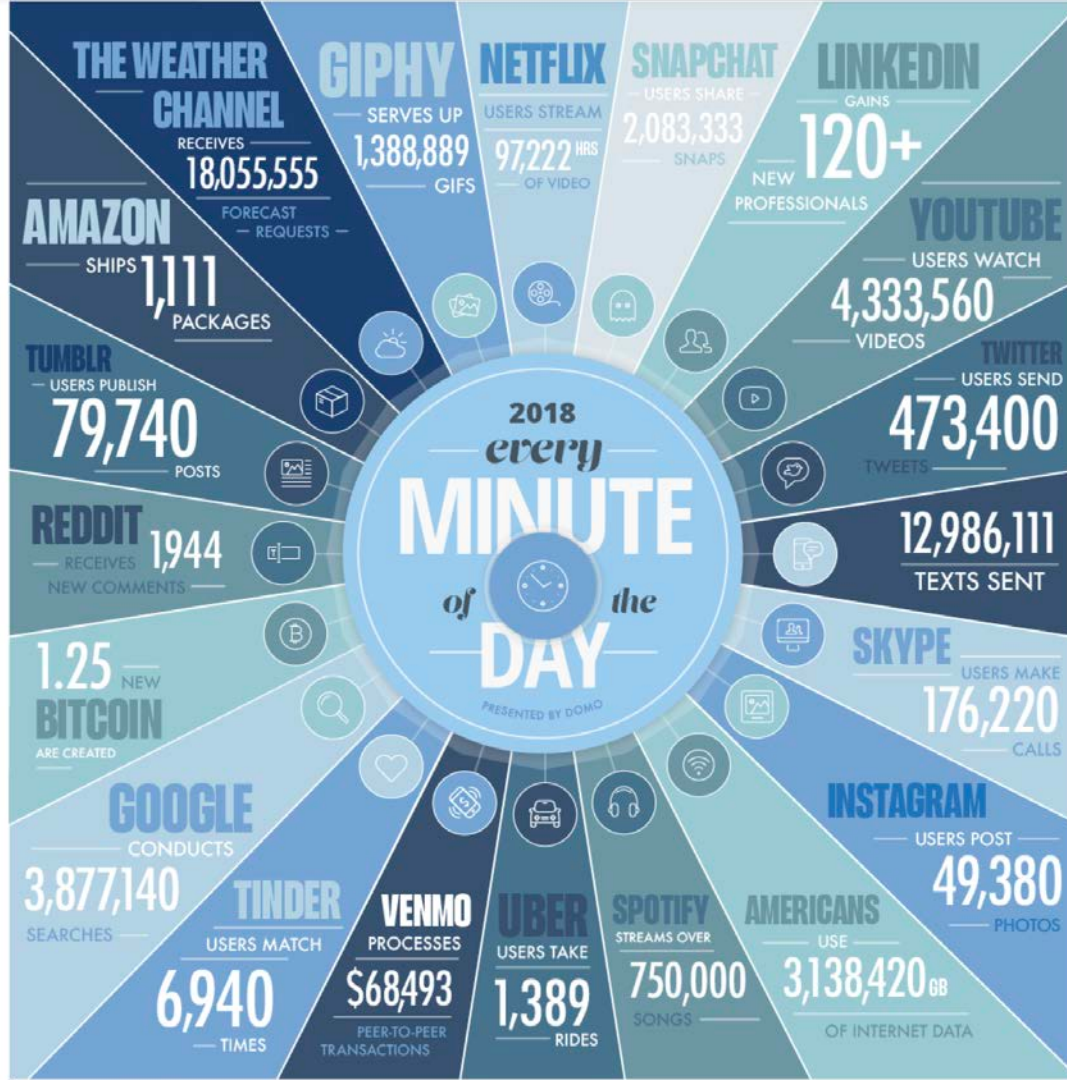
Mia Levy, MD, PhD
Rush University Cancer Center



Disclosures

- **Research funding:** Pfizer, BMS, GenomOncology, Komen, NIH/NCI
- **Consulting/Advisory:** GenomOncology, Personalis, Roche
- **Equity:** GenomOncology, Personalis



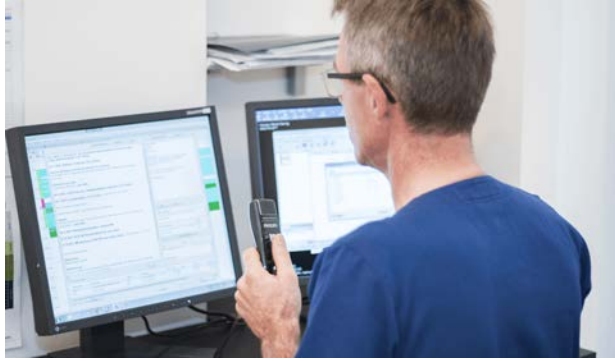


Data Never Sleeps

Trends in Technology Impacting the Oncology Careforce



Assist clinical documentation



Voice Recognition Dictation



Human Scribes



Voice interaction with EHR

Health Information Exchange



Blue Button
**Download
My Data**

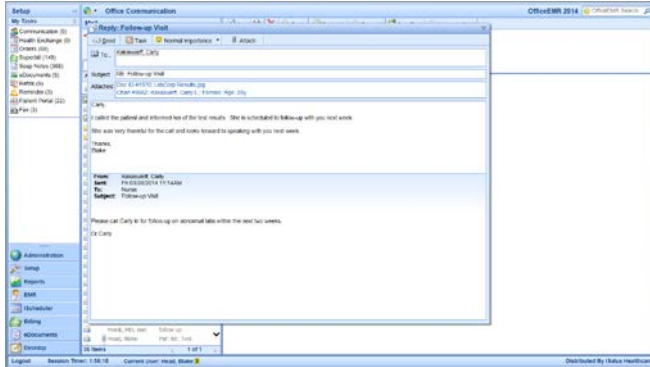
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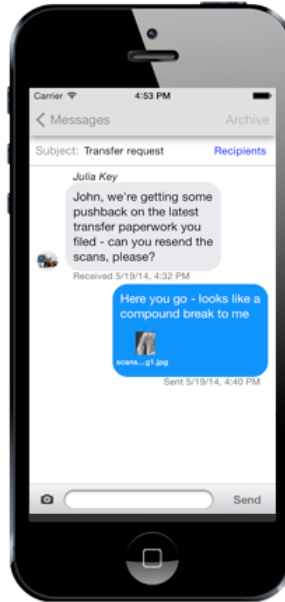
Communication Trends



Asynchronous Communication



Secure Email within
EHR/Patient Portal



Synchronous Communication



Text, Chat, Video Chat

Remote Monitoring



Tools and Services for Extended Family/Friends Care Team





as featured in
**GOOD
HOUSEKEEPING**
magazine



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*simplifying
meal coordination
so friends can show
they care*

Create

Create a customized online sign up sheet that makes it easy for friends and family to take meals to those in need.

- Fast, Easy, and FREE
- Get Started in 5 Minutes or Less
- We Send the Invitations
- Automated Reminder Emails

Create

[View A Sample Schedule!](#)

Find

Find a friend's meal schedule by searching below.

RECIPIENT LAST NAME

PASSWORD

Find

[Need Help? Click Here!](#)

Send

Show your care by sending a meal. Our web store makes it easy to purchase and send a meal.



Send

[Explore Our Store!](#)

<https://takethemameal.com/>

< Medical

Get help with cancer fundraising

With a free GoFundMe, you can get immediate help with cancer costs.

Start a GoFundMe

Cancer survivor Jenny raised \$66k to help other kids going through chemo.





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Disaster relief

Medical stays

Refugee housing

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OPEN HOMES · MEDICAL STAYS

Host people in need of critical care and respite

Offer free, temporary housing to people who need a place to call home.

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Learn more



A family from Fisher House

<https://www.airbnb.com/openhomes/medical>

Get patients everywhere their care takes them

Start caring for patients the minute they step out the door with scheduled and on-demand rides — no smartphone required.

[GET STARTED](#)

How do we measure the
impact of tools on careforce?

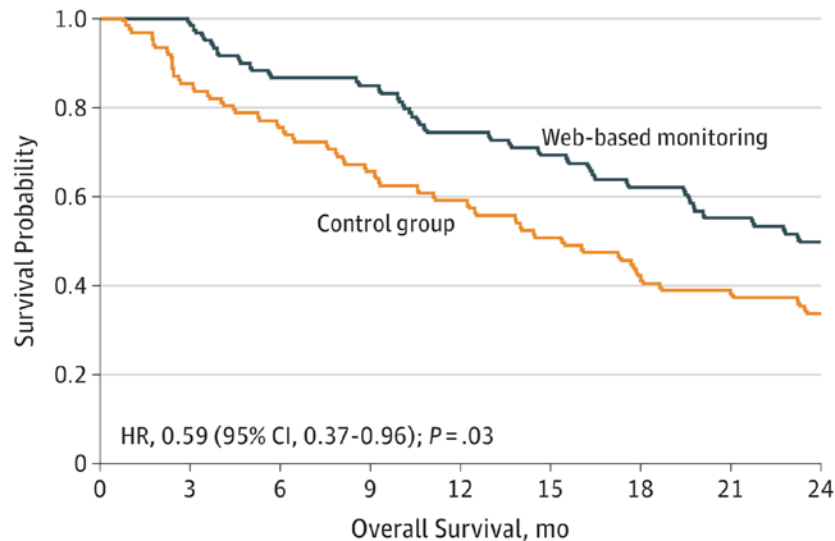


Clinical Outcome Measures

- Survival
- Disease control endpoints
- Avoidance of adverse outcomes
- Adherence measures



A Intention-to-treat analysis



No. at risk									
Web-based monitoring	60	60	51	48	43	39	35	31	27
Control	61	52	45	38	34	29	24	22	19

Source	Median OS	12-mo OS, %	24-mo OS, %
Web-based monitoring	22.5 mo	75	50
Control	14.9 mo	56	34

Web-base symptom monitoring improved overall survival in lung cancer cohort

Denis F, Basch E, Septans A-L, Bennouna J, Urban T, Dueck AC, et al. Two-Year Survival Comparing Web-Based Symptom Monitoring vs Routine Surveillance Following Treatment for Lung Cancer. JAMA. 2019 Jan 22;321(3):306–7.

Measures of Work and Team Interactions

- Volume of task
- Duration of time spent on task
- Interruptions due to task
- Task shifting
- Social Network Analysis



Asynchronous communication in EHR for patients with early stage breast cancer

88
(1, 821)

Message threads per patient

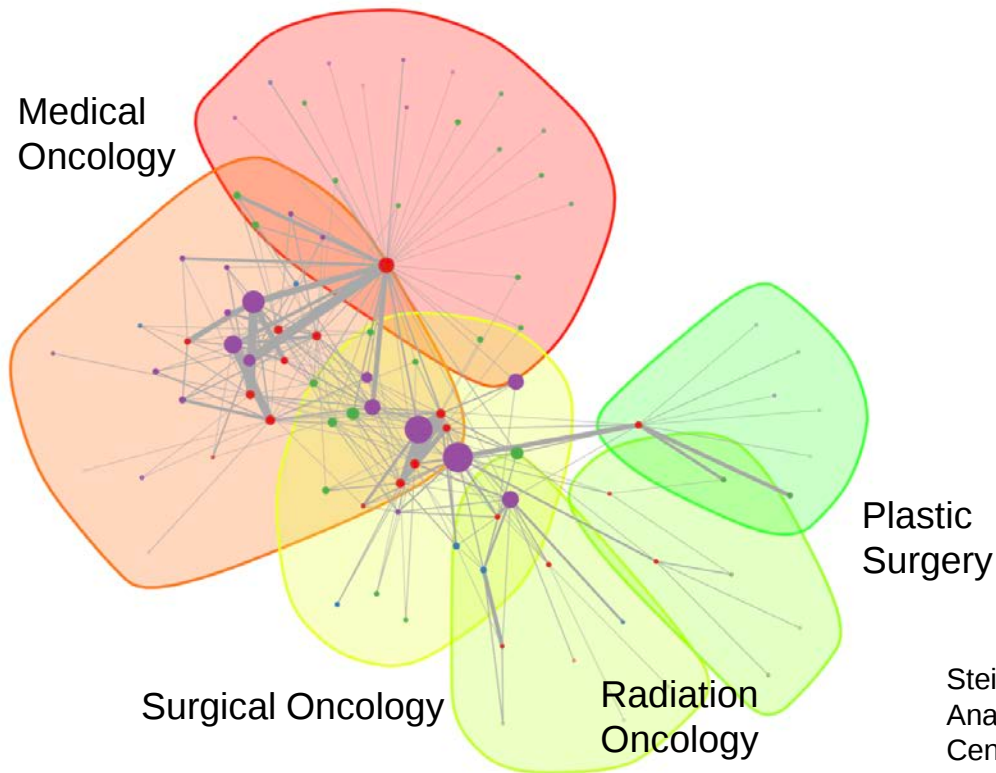
106
(2, 363)

Providers/Staff involved in communication



Bryan Steitz, MS

Social Network Analysis of Team of Teams



Bryan Steitz, MS

Steitz BD, Levy MA. Temporal and Atemporal Provider Network Analysis in a Breast Cancer Cohort from an Academic Medical Center (USA). Informatics. 2018 Sep;5(3):34.

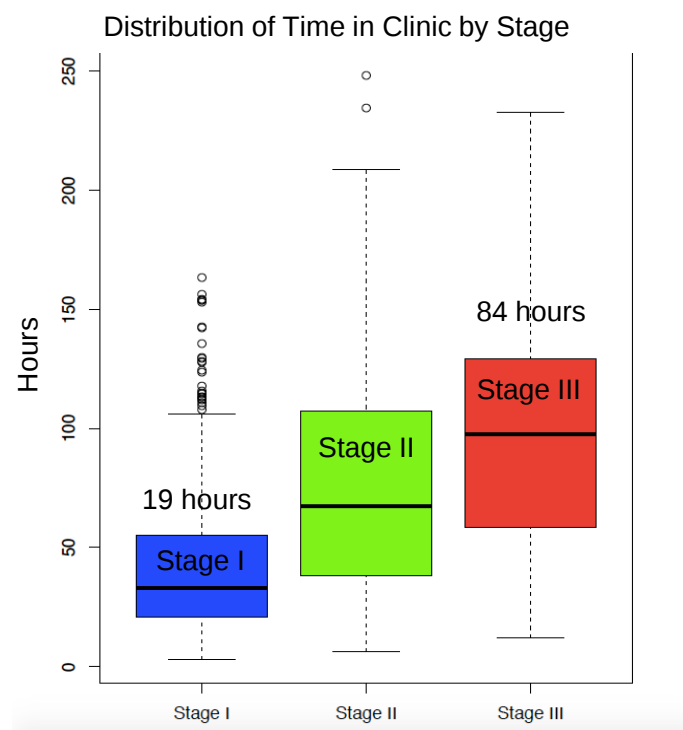
5620 employees communicated about 1181 patients

Patient Work Measures

- Number of clinical encounters (respective unique days)
- Wait time
- Commute time and costs
- Missed days of employment

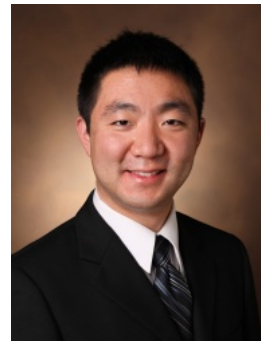
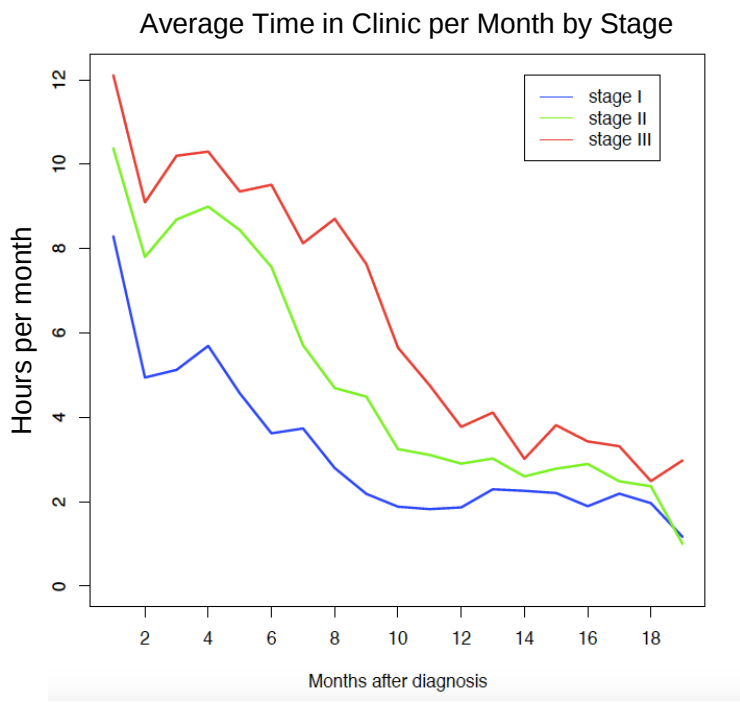


Breast Cancer Patient Treatment Workload Varies by Stage



26 hours

62 hours
commuting



Alex Cheng, PhD

Commuting costs over 18 months

Breast Cancer Stage	Close (within 20 miles)	Far (>20 and <100 miles)
Stage I	\$609 (\$51.06 - \$954.76)	\$1047 (\$238.02 - \$3187.27)
Stage II	\$824 (\$77.25 - \$3125.06)	\$1455 (\$198.29 - \$4958.17)
Stage III	\$1050 (\$198.29 - \$4958.17)	\$1625 (\$294.48 - \$4779.91)

Median (IQR)

Implementation Challenges



Embedded versus Tethered



Built-in



Brought-in



Balancing Innovation with Careforce Burnout



Thank you

mia_levy@rush.edu

