

Patient Generated Health Data Beyond Wearable Devices



Parnassus
Consulting

WHAT ARE PATIENT-GENERATED HEALTH DATA?

Patient-generated health data (PGHD) are **health-related data** created, recorded, or gathered by or **from patients** (or family members or other caregivers) to **help address a health concern.**

PGHD include, but are not limited to:



HEALTH HISTORY



TREATMENT HISTORY



BIOMETRIC DATA



SYMPTOMS



LIFESTYLE CHOICES

PGHD are distinct from data generated in clinical settings and through encounters with providers in two important ways:



PATIENTS, NOT PROVIDERS, ARE PRIMARILY RESPONSIBLE FOR CAPTURING OR RECORDING THESE DATA.



PATIENTS DECIDE HOW TO SHARE OR DISTRIBUTE THESE DATA TO HEALTH CARE PROVIDERS AND OTHERS.

EXAMPLES OF PGHD



WHY ARE PATIENT-GENERATED HEALTH DATA IMPORTANT?

PGHD CAN:



Provide information relevant to preventive and chronic care management



Gather health information on an ongoing basis



Provide important information about how patients are doing between medical visits

THE USE OF PGHD OFFERS POTENTIAL OPPORTUNITES FOR:



Increased patient engagement

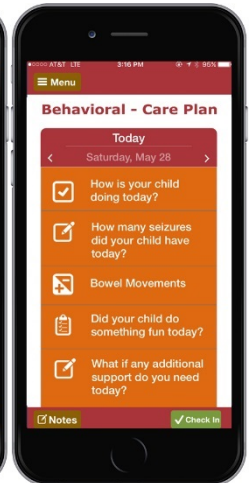
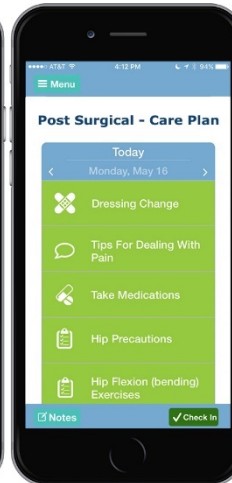
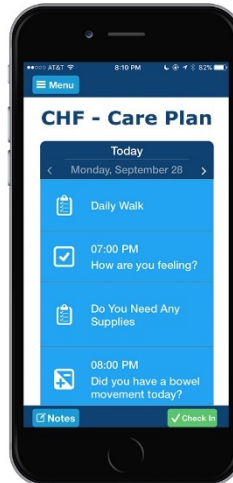


Cost savings, such as by avoiding readmissions and reducing the need for tests

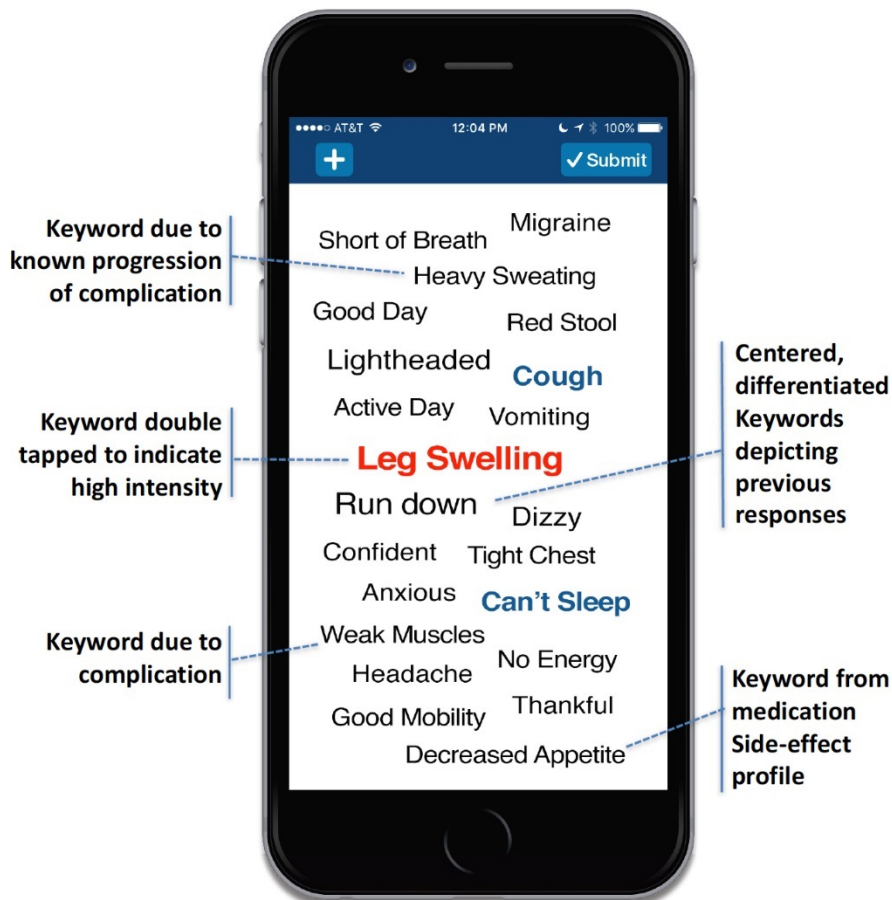


Improvements in quality, care coordination, and patient safety

TAPCLOUD – Care Plans



TAPCLOUD – Symptom Cloud



TAPCLOUD – Patient Panel

Active Patients - View Case List

Add Patient to this Panel

ACO 4 Alerts		Diabetes	Surg										
First	Previous	1	2	Next	Last								
1	Patient		Days	7/0	Recent Events	Well being				Pain	LACE		
5	Davis, Mary		0							8	0		
5	Harbinson, Burt		0							2	0		
2	Quintana, Jesus		7							3	0		
5	Conost									0	0		
	Stubbs									2	0		
	Treeho									0	0		
	Chigurh, Anton		5							9	0		
	Singer, Marla		25							6	0		
	Rossi, Janice		25							0	0		
	Kujan, David		31							4	0		
	Winnfield, Jules		32							2	0		
	Sobchak, Walter		39							0	0		
	Finneran, Edie		44							0	0		
	Connors, Phil		47							0	0		
	Bowman, Dave		52							0	0		

ALERT: Quick View:

Wed, 12/9 7:20 PM CST – Pain Level Alert:
Patient reported a pain level of 8

Wed, 12/9 7:20 PM CST – Patient Note:
“The incision on my knee looks very red.”

ALERT: Quick View:

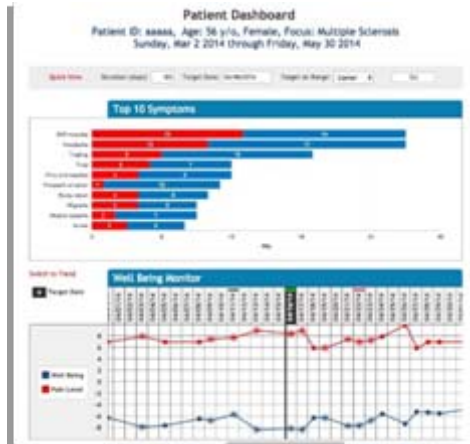
Tues, 12/8 7:52 AM CST – Patient Note:
“Felt warm all night, I think I have a fever.”

Showing 1 to 15 of 16 entries

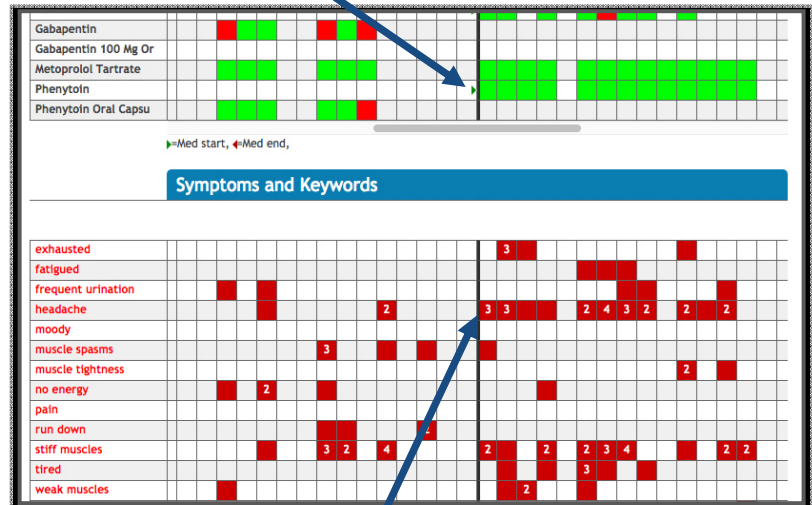
Show 15 entries

Reset Sort Order

TAPCLOUD – Patient Dashboard



Begin Phenytoin



Headaches Reported

TAPCLOUD RESULTS

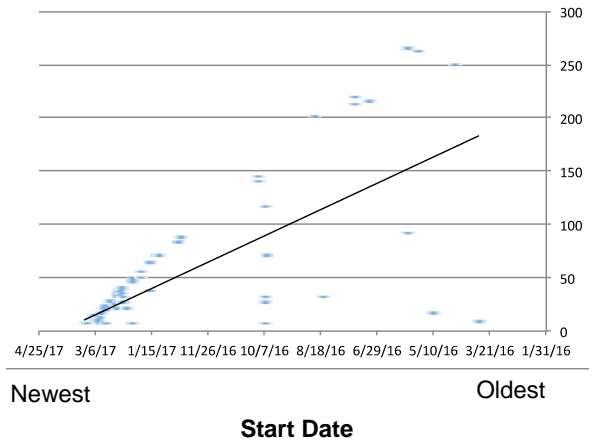
Reduced Unnecessary Utilization

Orthopedic Surgery

<u>Population</u>	<u>Readmission Risk</u>
General	5.1%
TapCloud Users	<1%

Sustained Patient Utilization

Usage Duration (Days)



TAPCLOUD – Voice of the Patient

41 Year Old, Male, Depression

Feb 11: Just annoyed today, but it did get better as the day went on.

Feb 16: This ain't a bad app. I was able to check in at 7 because I'm home. A nice thing to do is have custom times for this.

Feb 25: I took missy out for ice cream (I bet you're jealous). It was also my dads bday and I survived being around everyone. I set a reminder to do this every night.

Feb 26: I hung out with missy today and it was fun. Saw my brother and I need to charge him for helping him with his android crap. Missy and I also helped a person who was in a car accident when I was taking her to her moms place

Feb 27: So since Friday I been feeling really good lately. Positive, happy, calm, and just a good feeling. I also been remembering to do this, aren't you impressed?

Feb 28: Talking to Stacey about her work, I'm a little worried it might not be open for long. They are so slow and asking coworkers to bill out stuff just to get money in.

Mar 1: Not as bad as yesterday.

Mar 4: Went to the chain of rocks bridge and it was fun. I was so proud that stacey walked the whole thing. I know it t wasn't easy for her. I feel great today :)

Mar 8: Worried about my mom. She had a cable issues and I helped her, but she started to cry and I know everything is getting to her. My siblings need to stop having my parents be their personal babysitter.

Mar 10: Had a good day today. Took tony out for lunch and had a date with stacey.

Mar 15: I am trying this again. So after I did this yesterday I learned that 1 year ago yesterday was when I called to start getting better. I told Karen today (HR) and she hugged me.

Where are things going with Patient Generated Health Data?

**Dan Foltz
President and Managing Director
Parnassus Consulting**

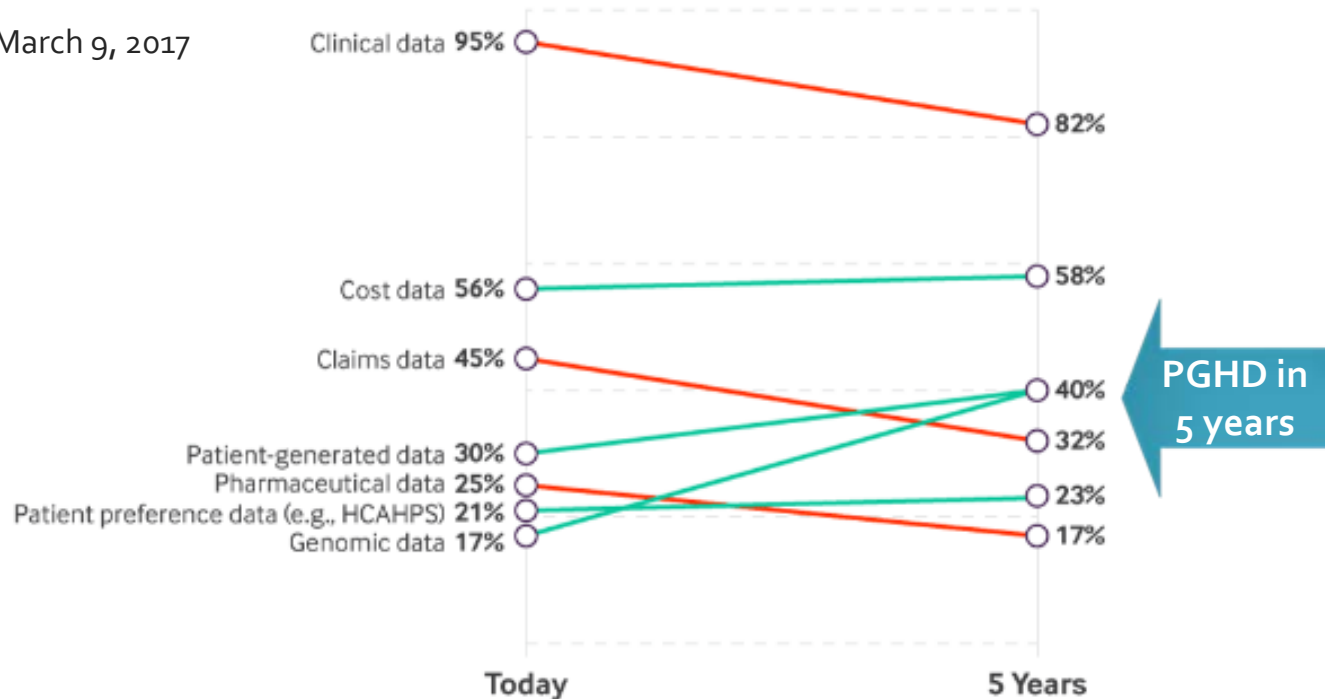


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Consulting**

PGHD Outlook

In five years, patient-generated data will join clinical, cost and genomic data as the most useful sources of health care data

March 9, 2017



Base = 682 (Multiple responses)

NEJM Catalyst (catalyst.nejm.org) © Massachusetts Medical Society

Why PGHD? Orthopedic Surgery Pilot Results

333 Patients - Full joint replacement - 11 months

RESULTS

<1%

**Patients
Readmitted**
(baseline: 5.1%)

61%

**Patient
Sign-up Rate**

15,888

**Patient
Interactions**

MONITORING

Care Team Alerted

2,210 Notices of Completed Pre-Surgical Activity

1,116 Clinical Alerts (potential patient at risk)

398 Nurse Interventions

Care Team Usage

1,233 Views

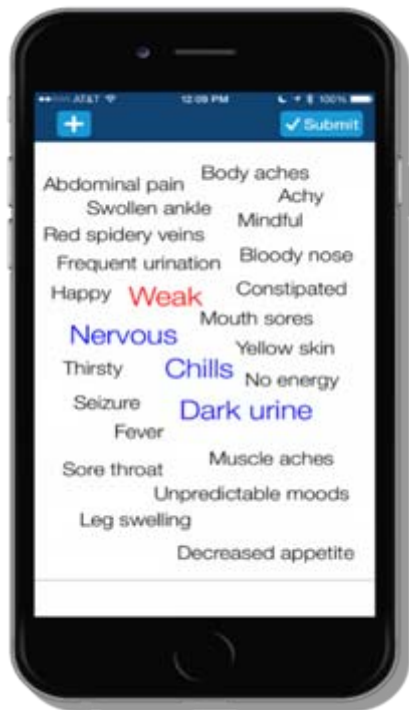
**2 hours: Total Nurse
hours/day using TapCloud**

COMMUNICATION

	From Patient	From Clinician	System Generated
In App Notes	275	401	n/a
Secure Messages	36	64	21,372
Email	n/a	n/a	708
Incision Site Photos	44	n/a	n/a

Why PGHD? Role in Real World Evidence Generation

FDA project to demonstrate a generalizable approach to gather info from an consumer app and link it to health plan data.



**Active Drug
Surveillance**

**Comparative
Effectiveness
Research**



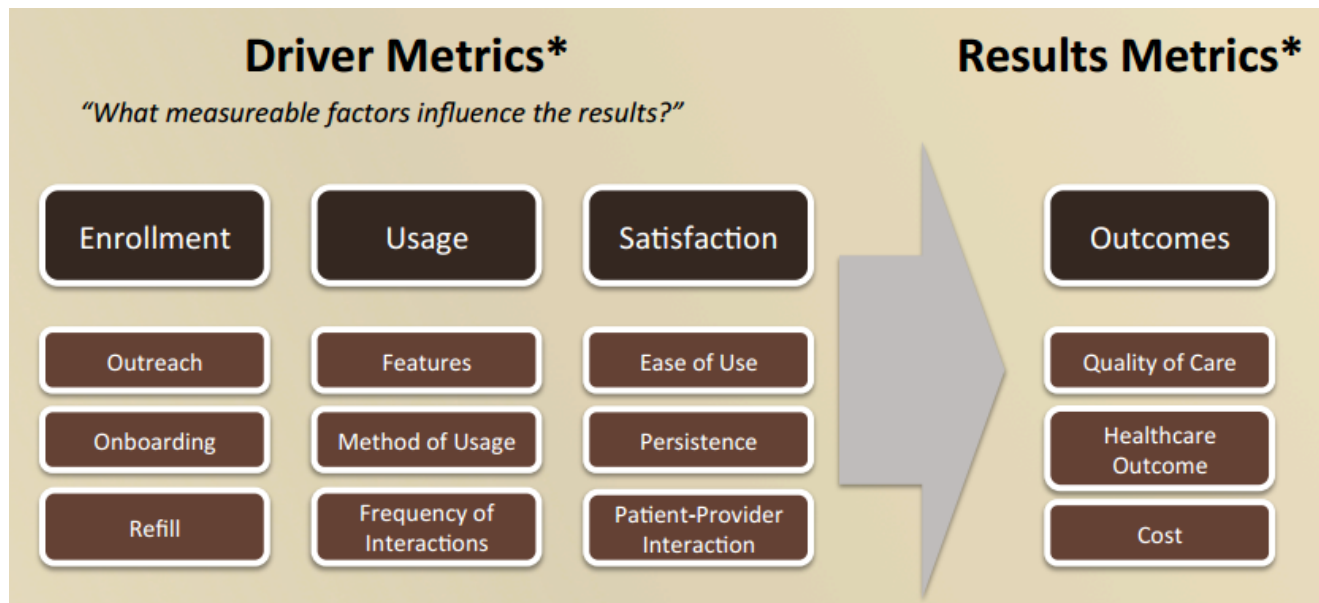
Source:
Jeff Brown, Associate Professor
Department of Population Medicine
Harvard Medical School

We need to formalize & measure new types of utilization

- Patient Check-In
- Biometrics Collection
- Reminders
- App facilitated Patient-Provider Interactions
- Care Giver Interactions



Framework for measuring the impact of PGHD

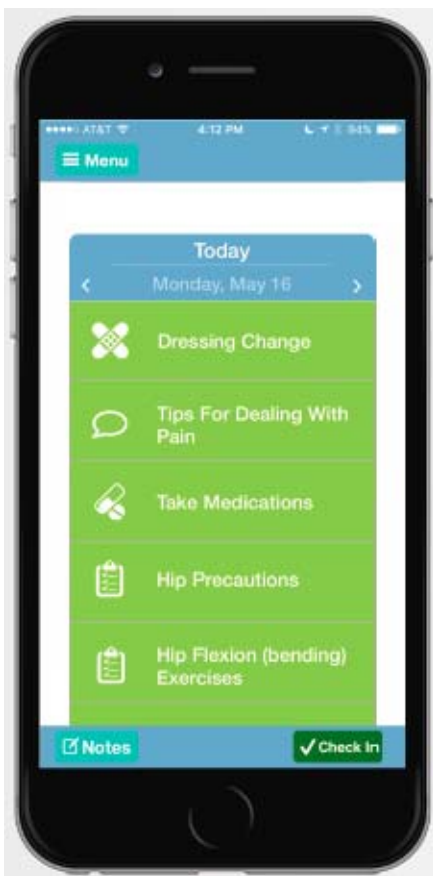


Source: A Data Science Framework for Mobile Health--Engagement and Outcomes

Mansur Shomali MD, CM1,2; Malinda Peebles, MS, RN, CDE1; Joseph Isenberg, MS1; Anand Iyer, PhD1

1WellDoc, Baltimore, MD, 2MedStar Union Memorial Hospital, Baltimore, MD

Measuring the impact of PGHD

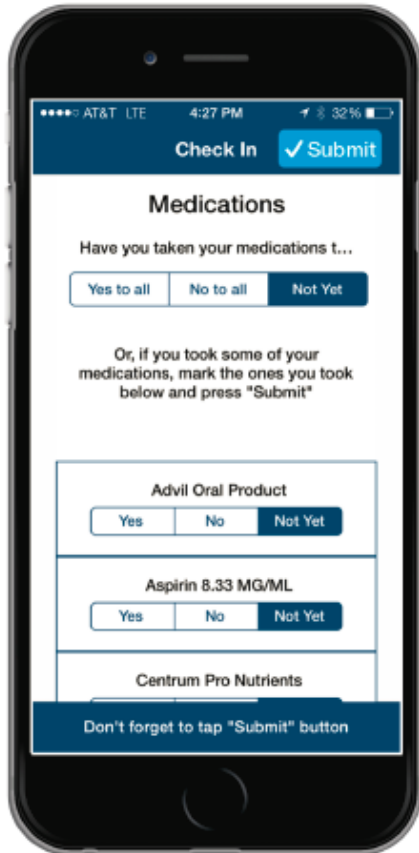


PGHD enabled
Care Management

Impact on Utilization & Cost

- + (-) PCP
- + (-) Specialist
- + (-) Pharmacy
- + (-) Urgent Care
- + (-) Rehab
- + (-) ED
- + (-) Hospitalization/
Readmissions
- + (-) Observation
- + (-) SNF
- + (-) PMPM Total Cost

Measuring the impact of PGHD



AT&T LTE 4:27 PM 32%

Check In

Medications

Have you taken your medications t...

Or, if you took some of your medications, mark the ones you took below and press "Submit"

Advil Oral Product

Aspirin 8.33 MG/ML

Centrum Pro Nutrients

Don't forget to tap "Submit" button

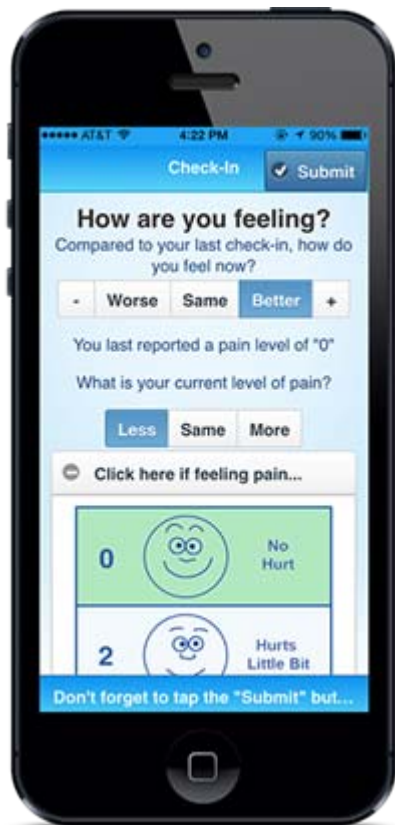
PGHD enabled
Medication
Therapy
Management

Impact as a Companion to Drug Therapy

- Adherence
- Efficacy
- Safety
- **Comparative Effectiveness**



Measuring the impact of PGHD



PGHD enabled
Care Management

Impact on Patient
Outcomes
&
Patient
Satisfaction

Consumers want digital engagement

First Movers Advantage

Market Share Growth

Brand Enhancement

PGHD & Interoperability

Sensors

Problems: 1,000+ devices



Solutions: • Device Integration Platform



Consumer Apps

Many conditions, many apps

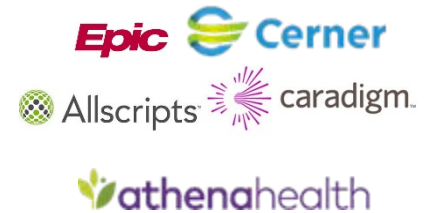


- App Market Consolidation
- Multi-Condition Support



EMR & Care Management

PGHD Integration & Clinician Usability



- Workflow integration
- Interoperable Apps



Closing Comments

- PGHD is here and closes an important gap in both patient care and real world evidence generation
- Regulations and standards covering the use and sharing of PGHD are being studied by the ONC
- In addition to fulfilling a clinical purpose, PGHD enables patients to engage with their provider in a new and meaningful way.
- Have you started the PGHD journey?

Panel Discussion



Moderator

Tom Riley

Chief Executive Officer, TapCloud



Martin Entwistle

Executive Director, Personalized Healthcare Programs, Sutter Health



Daniel Foltz

President and Managing Director, Parnassus Consulting



Kyle Grate

Assistant Vice President, Orthopedic Service Line, AMITA Health



Paul Nutting

President, TapCloud



Phil Traylor

Managing Director, KMC Solutions



Richard Vazquez, MD, FACS

Chief Executive Officer and Chief Medical Officer, SafeStart Medical Inc.

Myths & Realities

Engaging Patients

Operationalizing PGHD

Outcomes, Results, and Benefits

Panel Contact Information



Moderator

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