Distribution Notice:

The author of this presentation requests that you share this presentation only within your organization. Do not reproduce, post, or make any portion of this file available for use outside of your organization without first receiving the permission of the author.

2020

Developing and deploying a symptom management program to improve quality of life and reduce acute care hospital visits among cancer patients across six healthcare systems

Michael Hassett MD, MPH – Dana-Farber Cancer Institute

Jason Wedge - Epic

Affiliations & Disclosures

- **Michael Hassett, MD, MPH**
  - Dana-Farber Cancer Institute
    - Medical Oncologist, Division of Women's Cancer
    - Researcher, Division of Population Sciences
    - Medical Director for Clinical Information Systems & The Cancer Registry
  - Associate Professor of Medicine, Harvard Medical School
  - No relevant relationships with commercial interests to disclose

- **Jason Wedge**
  - Implementation Lead, Epic
  - No relevant relationships with commercial interests to disclose

UGM Presentation

Agenda

- Overview of NCI Moonshot Program and SIMPRO *(Slide 4-7)*

- Background of PROs *(Slide 8-11)*

- eSyM Tool Overview *(Slide 12-37)*

- Role of Epic in Development *(Slide 37-39)*

- Foundation System Build *(Slide 41)*

- Successes and Challenges *(Slide 42-46)*

- Early eSyM Data *(Slide 47-55)*

Key Contributors

UM1 Grant Leadership
Dr. Deborah Schrag, MD MPH *Co-Principle Investigator*
Dr. Sandra Wong, MD MS *Co-Principle Investigator*
Dr. Raymond Osarogiagbon, MD *Co-Principle Investigator*
Dr. Michael Hassett MD, MPH *Co-Investigator, Technical Lead*
Dr. Jessica Bian, MD *Site Investigator*
Dr. Don Dizon, MD *Site Investigator*
Dr. Hannah Hazard-Jenkins, MD *Site Investigator*

Epic Collaborators
Jason Wedge *Implementation Lead, Project Manager*
Toby Austin *MyChart Lead*
Nick Kaiser *Healthy Planet Lead*
Andrew Ellington *Healthy Planet Lead*
Eric Varley *Clarity Lead*

Overview of NCI Moonshot Program &
SIMPRO Research Center

- SIMPRO is 1 of 3 research centers funded by the <u>National Cancer Institute</u> that together comprise the IMPACT Consortium (**I**mproving the **M**anagement of sym**P**toms during **A**nd following **C**ancer **T**reatment)

- SIMPRO includes 6 health systems that care for patients from at least 9 states
  - Tennessee
  - Mississippi
  - Arkansas
  - New Hampshire
  - Vermont
  - Maine
  - Massachusetts
  - West Virginia
  - Rhode Island

- SIMPRO implementation focus
  - Community and rural cancer centers
  - Work directly with Epic

- SIMPRO Collaboration Goal ➔ Develop, refine, and implement **eSyM**, a multi-component ePRO symptom management system based on the PRO-CTCAE and integrated directly into Epic/MyChart
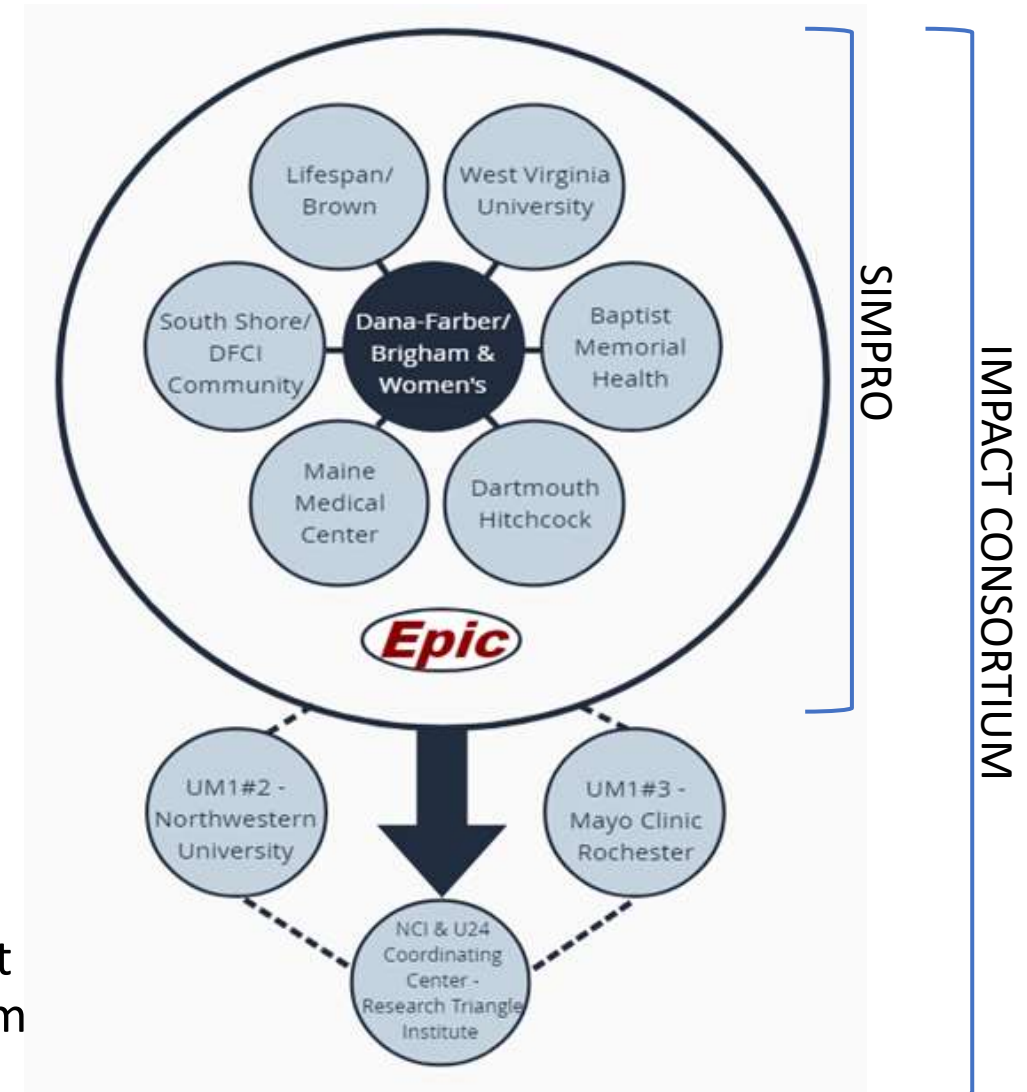
SIMPRO Project – High Level Overview

eSyM
Electronic Symptom Management

The Problem

- Cancer patients, especially those receiving chemotherapy or recovering from surgery, are at high risk for experiencing severe symptoms that can impair quality-of-life and lead to costly ED visits/hospitalizations
- Active symptom management can alleviate the burdens of severe symptoms, but doing so as part of routine clinical practice is challenging because of workflow, staffing and technical barriers

The Plan

Build eSyM

- A multi-component, **Epic/MyChart-integrated symptom management system** that collects symptoms directly from patients and provides guidance to patients and care team members to help manage severe symptoms

Deploy eSyM

- At 6 health systems as part of their **routine clinical practice**

Study eSyM

- Assess its **implementation** as well as its **impact** on patient outcomes, patient experiences, and clinical workflows

eSyM Go-Live Timeline

Group	Step	March-August 2019	Sept 2019 - Feb 2020	March-August 2020	Sept 2020 – Feb 2021	March – August 2021	Sept 2021-Feb 2022	March-August 2022	
		Run-in	Period 1	Period 2	Period 3	Period 4	Period 5	Period 6	
Early MO /late SO group	Baptist		MO	MO	MO	MO	MO	MO	✓
								SO	✓
	Maine			MO	MO	MO	MO	MO	✓
							SO	SO	
	DFCI/BWH				MO	MO	MO	MO	
						SO	SO	SO	
Late MO /early SO group	Lifespan					MO	MO	MO	
					SO	SO	SO	SO	
	Dartmouth						MO	MO	
				SO	SO	SO	SO	SO	✓
	WVU							MO	
			SO	SO	SO	SO	SO	SO	✓

Prior Go-Lives

- Baptist (Medical) - September 10, 2019
- WVU (Surgical) - October 25, 2019
- Maine (Medical) – March 16, 2020
- Dartmouth (Surgical) – April 28, 2020

Upcoming Go-Lives

- DFCI (Medical) – September 22, 2020
- Lifespan (Surgical) – October 26, 2020

Background of Patient-Reported Outcomes (PROs)

What is Patient-Reported Data?

History

Screening

Symptoms

Values/Preferences
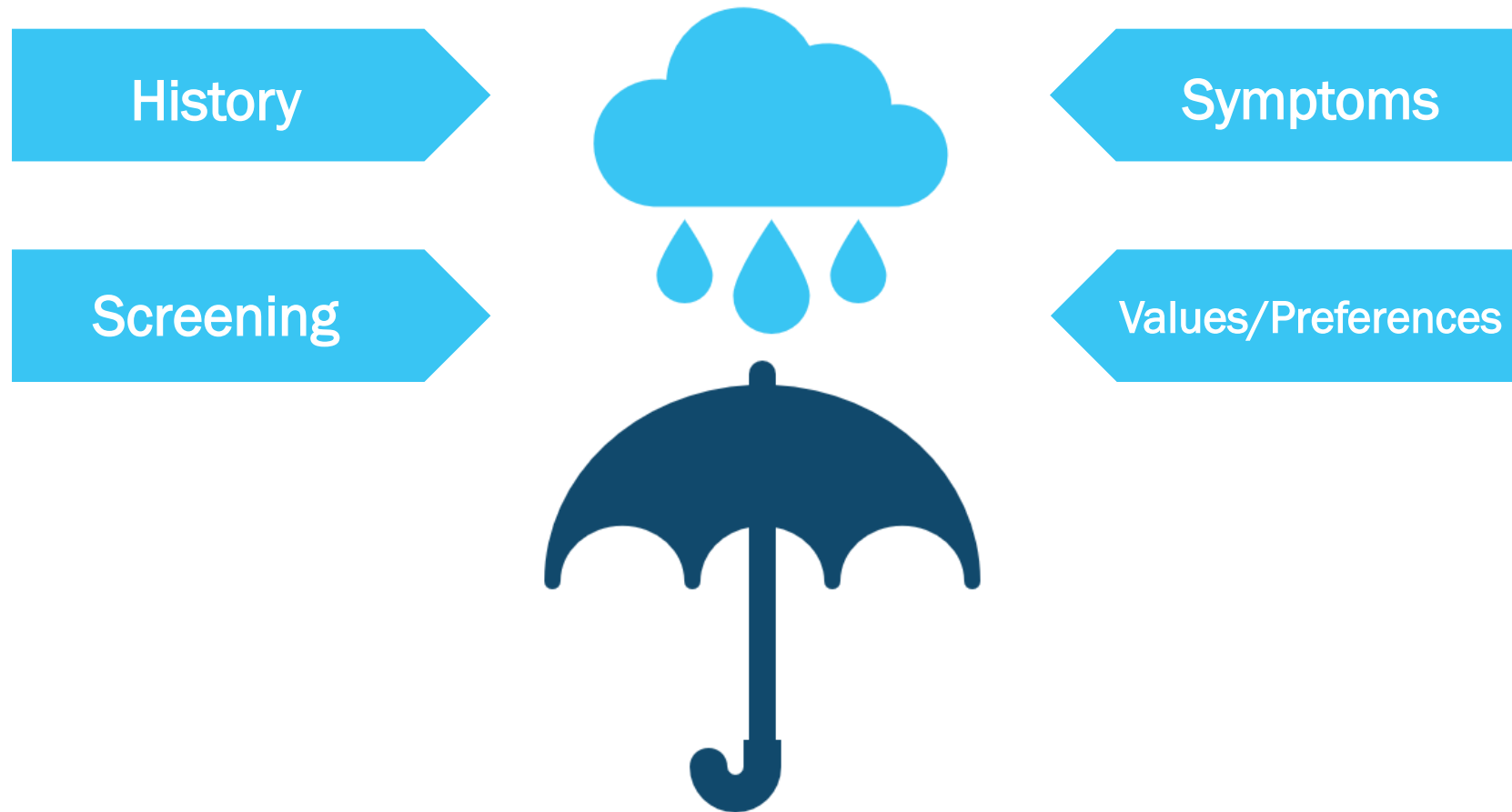
Patient Reported Data (PRD)
an umbrella term used to encompass a
diverse set of data reported DIRECTLY by patients
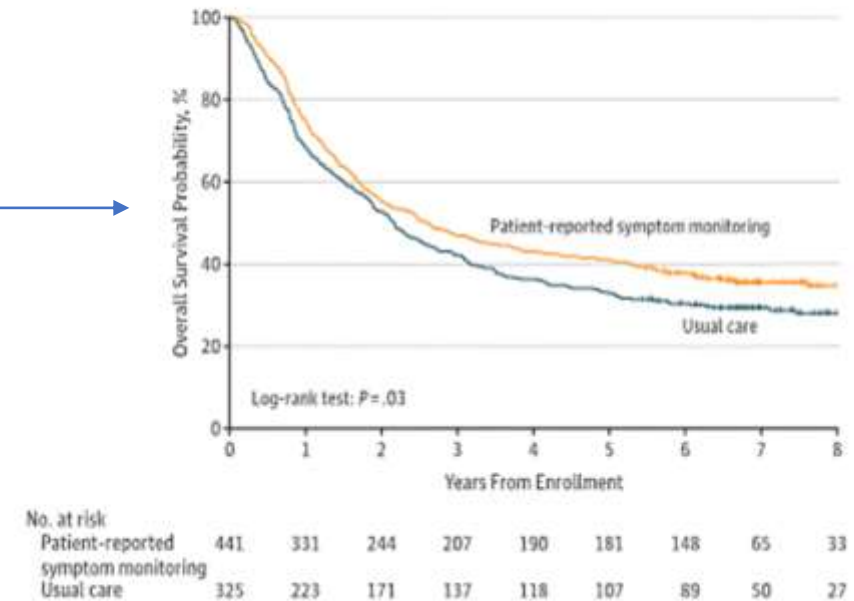
Compelling evidence shows that collecting PROs...

1. Helps accurately and completely assess symptom severity

2. Supports efficient clinical operations and regulatory requirements

3. Improves outcomes and reduces costs

For example, in a study of 766 patients with advanced cancer randomly assigned to report symptoms via a tablet in clinic or at home (vs. standard of care), those who reported symptoms experienced…

- Longer survival

- Fewer emergency department visits & hospitalizations

- Longer duration of active treatment

With minimal impact on clinic operations and high patient engagement (73% response rate)

Figure. Overall Survival Among Patients With Metastatic Cancer Assigned to Electronic Patient-Reported Symptom Monitoring During Routine Chemotherapy vs Usual Care

No. at risk								
Patient-reported symptom monitoring	441	331	244	207	190	181	148	65	33
Usual care	325	223	171	137	118	107	89	50	27

Basch, Schrag, et al JAMA. 2017, 318(2); Basch JAMA 2016, 34(6)

Evolution of Patient-Reported Outcomes (PROs)

Use tech for clinical trial data

Studies show clinicians miss some adverse events the PRO tools identify

Begin to collect PROs in clinical trials

Early efforts to collect PROs at home & point of care

Development and validation of the NCI's PRO-CTCAE

PROs improve clinical outcomes

EHR systems and third-party applications begin to integrate PROs

Development & testing of eSyM

| 2000s | 2003 - 2016 | 2017 | 2017-present | 2018-2023 |

eSyM Tool Overview

What is eSyM?

- eSyM is a coordinated set of tools within Epic which allow patients to **report** and clinicians to efficiently **track and react** to patients' symptoms during cancer treatment or after surgery
  - Clinicians access eSyM their Hyperspace
  - Patients can access eSyM through MyChart

- The primary aim of eSyM is to decrease patient hospitalizations and ED visits during cancer treatment or after surgery by...
  - Encouraging patients to track and manage their symptoms
  - Alerting and engaging clinicians about potentially serious symptoms
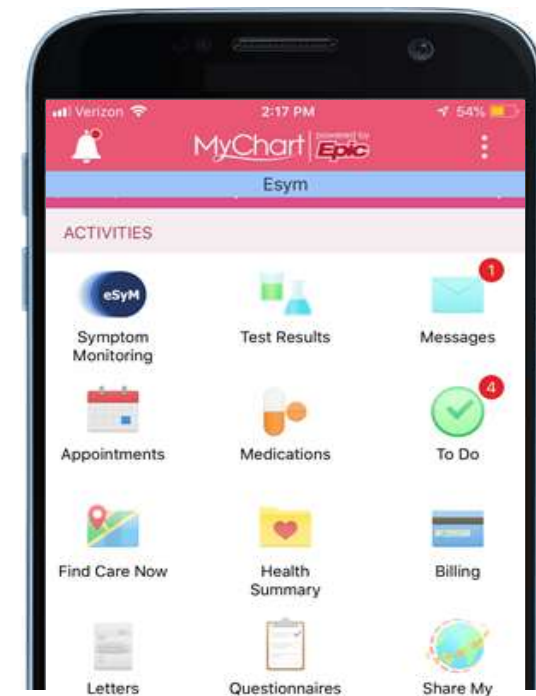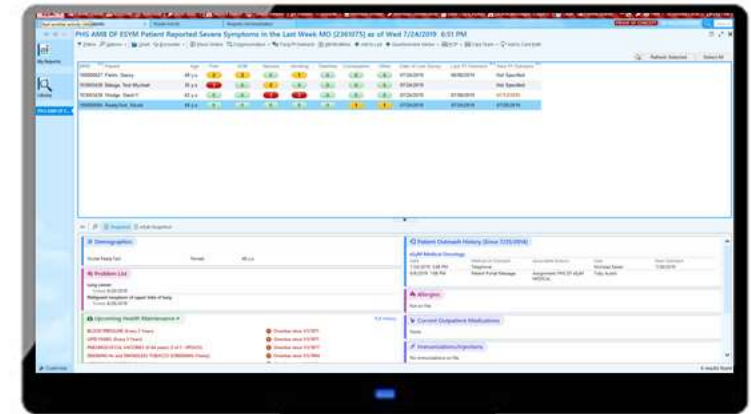
What are the goals of eSyM?

To improve quality of life and recovery

To decrease patient hospitalizations, ED visits and readmissions

To improve symptom management

To increase patient engagement

To improve communication and efficiency

What are the functions of eSyM?

A system with tools designed to help three 'clients'

For patients:

1. Automated access to eSyM questionnaires via MyChart (enhanced PRO-CTCAE) or tablet
2. Notifications to answer eSyM questionnaires
3. Alerts to call the care team for severe symptoms
4. Self-management tip sheets to help manage symptoms
5. Views of symptom trends

For administrators:

1. Registry identifies eligible patients and assigns questionnaires automatically
2. Dashboard displays applicable reporting workbench reports and KPIs
3. Outreach report identifies patients who need to be signed up for MyChart or who should be reporting via eSyM
4. Assigned patients report identifies patients who have eSyM turned on
5. Registry report shows the entire cohort and evaluates outcomes

For clinicians:

1. InBasket messages for patients with severe symptom
2. Reports of all past PRO responses in the EMR (via synopsis/flowsheets)
3. Smart phrases for easy charting
4. Weekly population management reports to support patients recently reporting severe symptoms

What are the key EHR elements of eSyM?

1. EHR identifies eligible patients using the following data:
- cancer diagnosis
- chemotherapy treatment plan
- surgical procedure
- hospital discharge

2. EHR assigns questionnaire series. The questionnaire content, frequency and duration depend…
- type of treatment: chemo vs. surgery
- time since starting chemo or being discharged after surgery

3. Patient portal prompts patients to complete questionnaires.

From the patient portal, patients…
- respond to questionnaires
- view past responses
- view self management tip sheets

6. EHR tools are used by clinicians
- to view past symptom reports
- to document outreach/training
- to document actions taken in response to severe symptoms

5. EHR dashboard and reports help identify patients needing outreach, because they…
- are not responding to questionnaires
- have severe symptoms

4. EHR generates a score for each reported symptom and identifies 'severe' symptoms.
- For severe symptoms, EHR prompts patients and clinicians to connect.

What does eSyM ask patients to report?

- Patients answer validated symptom reporting questionnaires using the validated PRO-CTCAE instrument
  - Ask the most common symptoms during post-op recovery or after chemotherapy
  - Report on severity, frequency, and intensity of symptoms as well as their interference with daily activities
  - Summary scores are generated: **0=none**, **1=mild**, **2=moderate**, **3= severe**
- Two pictogram questions ask about overall wellbeing and functional status
- Patients are asked to report 2x/week via a short (<5min) questionnaire
- Patients may choose other symptoms to report if they wish, no free text option

CTCAE vs. PRO-CTCAE

eSyM
Electronic
Symptom
Management

CTCAE	Grade	PRO-CTCAE
None	0	None
Mild	1	Mild
Moderate	2	Moderate
Severe	3	Severe
Hospitalized/life-threatening	4	NA
Deceased	5	NA

CTCAE = Common Terminology Criteria for Adverse Events

https://ctep.cancer.gov/protocolDevelopment/electronic_applications/ctc.htm

PRO-CTCAE = Patient Reported Outcomes version of the CTCAE

https://healthcaredelivery.cancer.gov/pro-ctcae/overview.html

eSyM Core Symptoms

Chemotherapy Symptoms N = 15
Pain
Nausea
Vomiting
Constipation
Shortness of breath
Fatigue
Anxiety
Trouble drinking fluids
Poor appetite
Overall well being
Physical function
Other (link to list of other symptoms)
Rash
Numbness and tingling
Diarrhea

Surgery Symptoms N = 15
Pain
Nausea
Vomiting
Constipation
Shortness of breath
Fatigue
Anxiety
Trouble drinking fluids
Poor appetite
Overall well being
Physical function
Other (link to list of other symptoms)
Wound redness
Wound discharge
Painful urination

eSyM 'Other' Symptoms

Oral and Gastrointestinal Symptoms
- ❑ Difficulty swallowing
- ❑ Mouth or throat sores
- ❑ Heartburn

Heart and Lung Symptoms
- ❑ Cough
- ❑ Wheezing
- ❑ Heart palpitations
- ❑ Swelling

Skin symptoms
- ❑ Itching
- ❑ Hand foot syndrome

Specific Types of Pain
- ❑ Joint Pain
- ❑ Muscle Pain
- ❑ Headache
- ❑ Abdominal pain

Neurological
- ❑ Dizziness
- ❑ Difficulty concentrating

Mood
- ❑ Feeling discouraged
- ❑ Feeling sad

Miscellaneous
- ❑ Difficulty sleeping
- ❑ Fever
- ❑ Bleeding

Reporting Timeline
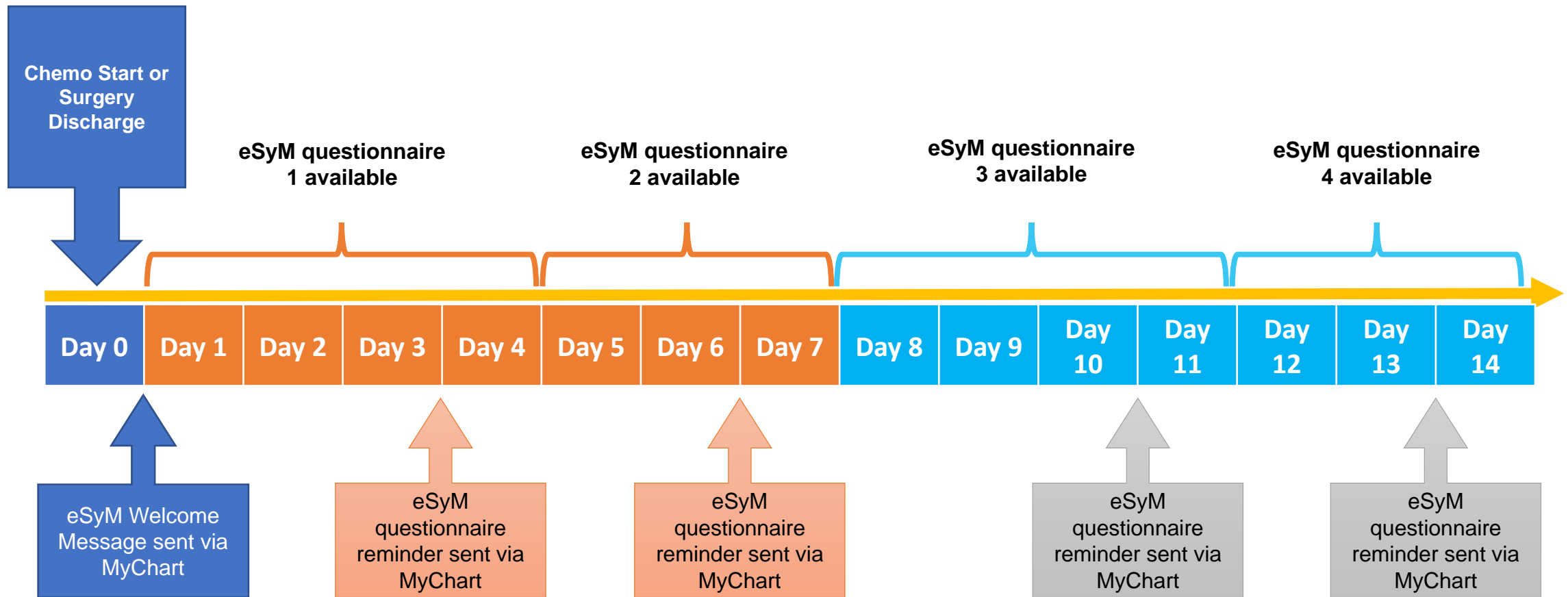
What happens after a patient reports?

	Patient-Facing *(in MyChart)*	Clinician-Facing *(in Hyperspace)*
Patient does not report	Automated MyChart reminder on day questionnaire is due	Dashboard report identifies non-responders and prompts direct outreach
Patient reports mild/moderate symptoms only	Prompted to view symptom-specific self-management tip sheets	Responses saved and viewable in the EMR; no alerts or InBasket messages
Patient reports severe symptom(s)	Alerted to contact care team for guidance Prompted to view symptom-specific self-management tip sheets	InBasket message that includes reported severe symptoms and list of all responses Dashboard report identifies patients reporting severe symptoms in the past week

eSyM
Electronic
Symptom
Management

Patient eSyM Experience

Download MyChart app

Receive notifications

Login to MyChart
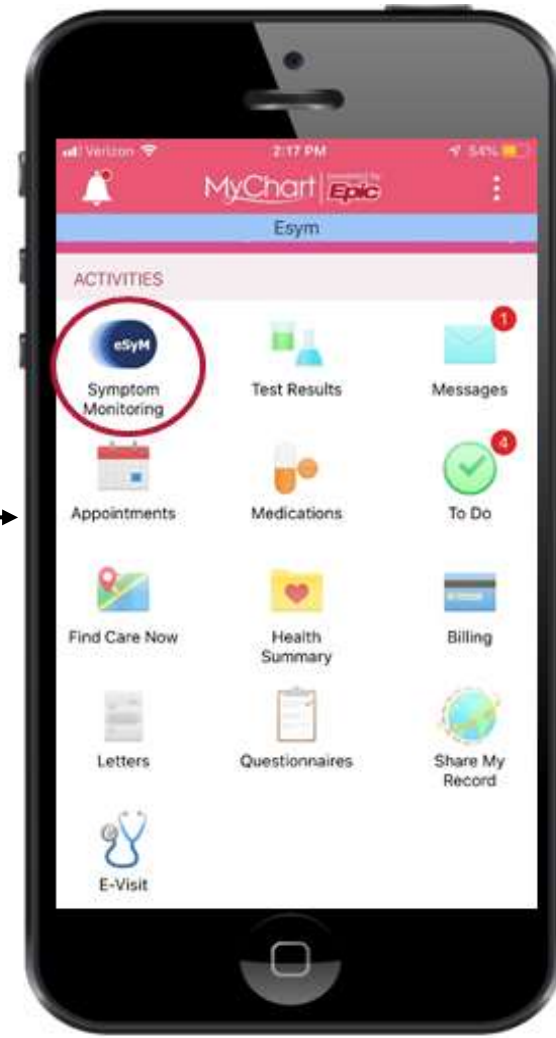
Click on the eSyM icon

Begin eSyM questionnaire
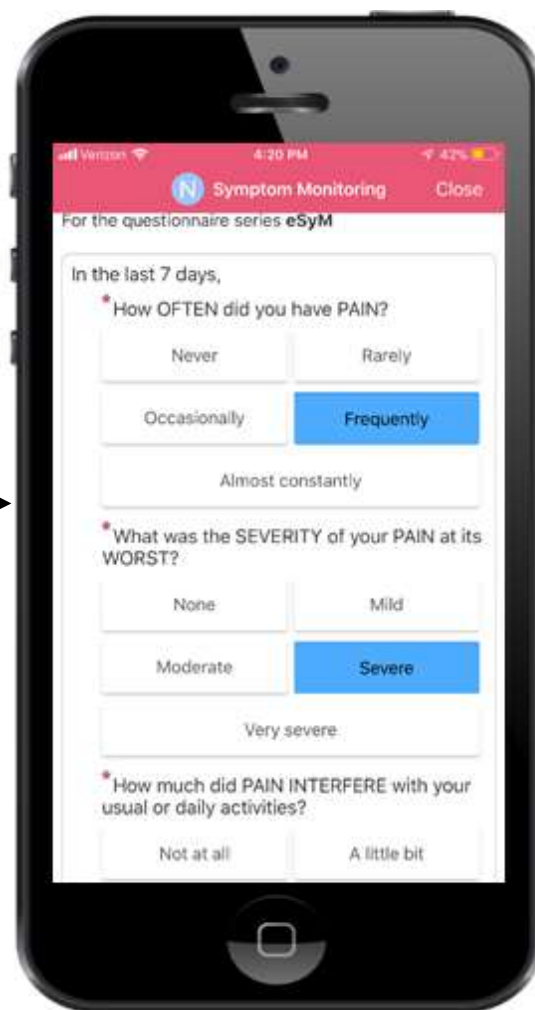
Report symptoms
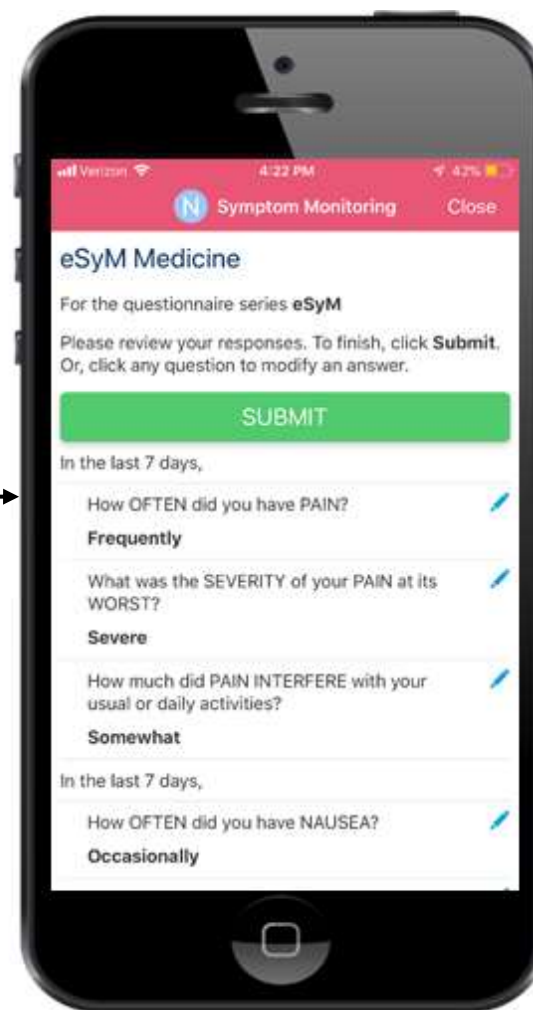
Must Submit responses
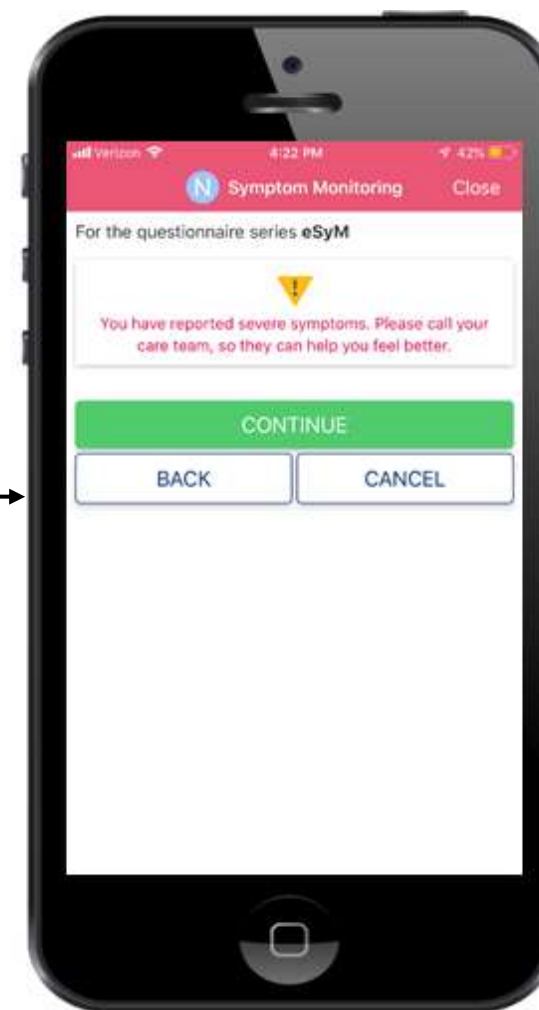
Get an alert if a severe symptom is reported

Library of Tip Sheets
You can find access information to help you manage a wide variety of symptoms here. If you have questions about any of these symptoms please ask your care team.

Disclaimer: eSyM is not monitored 24 hours a day. **If you have an urgent medical concern, please call your care team directly.**

Anxiety · Fatigue · Numbness and Tingling

Bleeding · Feeling Discouraged · Rash

Cancer Related Pain · Hand and Foot Redness · Shortness of Breath

Constipation · Headache · Swallowing Difficulty

Cough · Heart Palpitations · Swelling

Decreased Appetite · Heartburn · Troubling Drinking Fluids

Depression · Insomnia · Trouble Urinating

Diarrhea · Itching · Wheezing

Difficulty Concentrating · Mouth or Throat Sores

Dizziness · Nausea and Vomiting

Dana-Farber Cancer Institute

eSyM Electronic Symptom Management

Tips for Managing **Diarrhea**

Things you can do on your own 🏠

Keep track of your diarrhea:
- Write down how many bowel movements you have each day

Stay hydrated and change your diet to lessen your symptoms:
- Drink at least 6-8 cups of clear liquids, such as water, daily to prevent dehydration
- Avoid caffeine, alcohol, milk, and artificial sweeteners
- Avoid greasy, fatty, and fried foods
- Eat small, frequent meals throughout the day instead of 3 big meals
- Eat foods that help diarrhea like bananas, melon, rice, applesauce, and/or toast
- Drink sports drinks such as Gatorade to replenish your potassium

Keep the skin around your anus healthy:
- If your skin is getting irritated, after bowel movements gently wipe yourself with baby wipes and then apply barrier creams such as zinc oxide, Vaseline®, or diaper ointments
- Add 1-2 tablespoons of baking soda to a warm tub of water and soak your bottom

See the Other Resources page for more information

With over-the-counter medications 💊

- Ask your care team about taking 1-2 Imodium® tablets every 4 hours or after every loose bowel movement. You can buy this at your local pharmacy.

REMINDER - Always keep your care team updated about over-the-counter medicines you are taking. If your care team tells you they are not safe for you, do not take them.

Staff eSyM Experience

eSyM
Electronic
Symptom
Management

eSyM Dashboard can be accessed by any clinicians by searching for the dashboard and adding to their favorite list
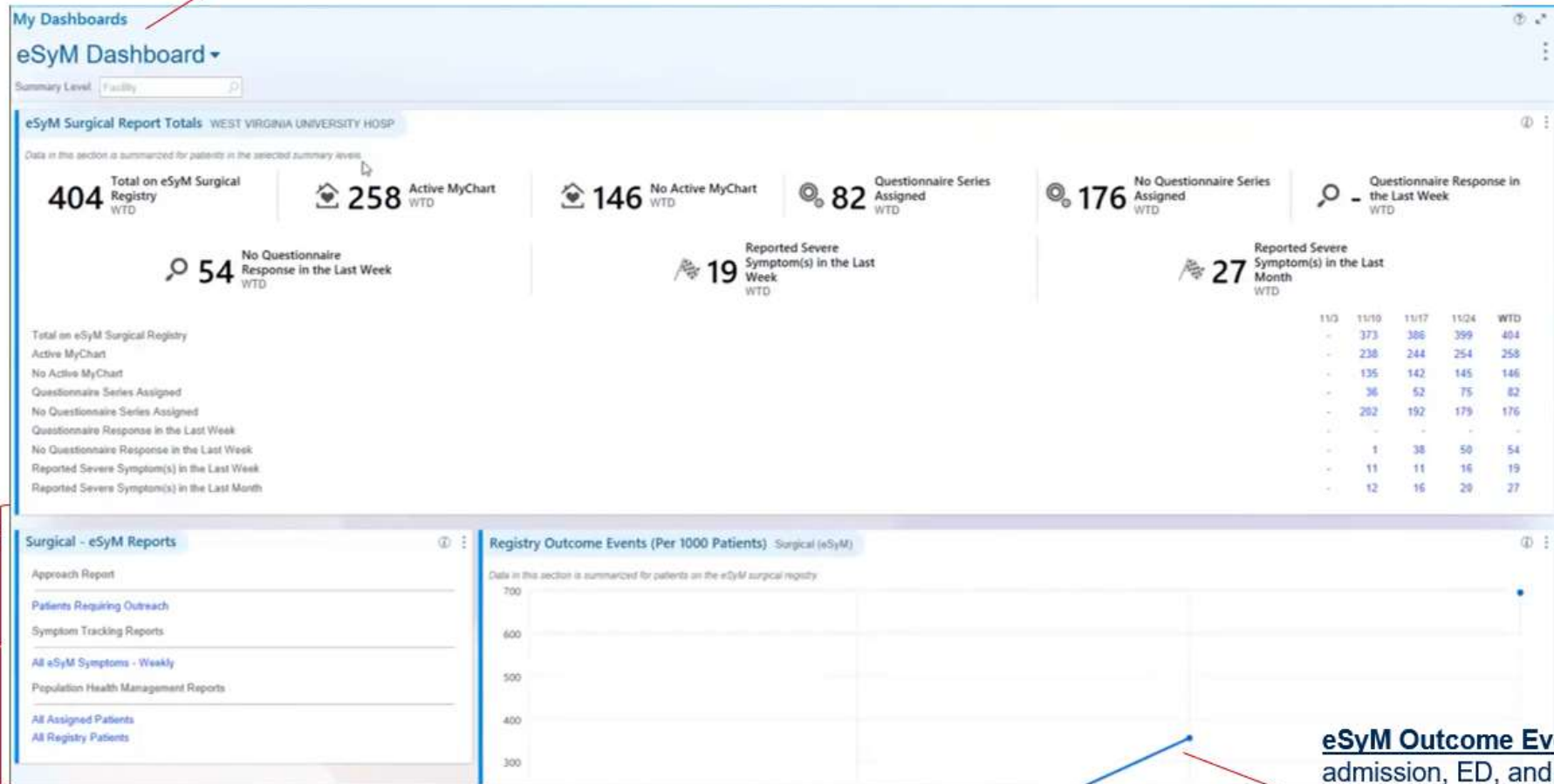
eSyM Population Overview displays relevant eSyM metrics by site, department, and provider

eSyM Reports can be used by clinicians and staff to see symptom results, track patient approaches, and monitor outcomes

eSyM Outcome Events display admission, ED, and urgent care visit rates for registry patients

- **Report #1 – Patients Requiring Outreach**
  - Outlines patients who with an upcoming D1C1 or scheduled surgery in the next 30 days (i.e. patients who need initial eSyM training)
  - Outlines patients who have not completed an eSyM questionnaire for >14 days (i.e. patients who need re-training)
  - Distinguishes patients who are admitted (bold red display)

- **Report #2 – All Assigned Patients**
  - Outlines patients who currently have an eSyM questionnaire assigned to them
  - Can be filtered by provider, MyChart status, etc
  - Used to track KPIs

- **Report #3 – All Registry Patients**
  - Outlines patients currently on the eSyM registry
  - Can be filtered by provider, next appt dept, MyChart status, etc.
  - Used to track KPIs

Clinician eSyM Experience

eSyM Population Symptom Management Report

- Easily manage a **panel of patients**
- View the full list of patient eSyM responses by clicking on a name in the report and viewing the eSyM snapshot print group underneath
- **Sort** by disease group or provider to prioritize outreach
- **Track outreach dates** and responses directly on this report
- Access full patient chart by double-clicking on name

eSyM Population Symptom Management Report

Patient and visit data | Treatment data | Severe symptom summary | Individual symptom 'jelly beans'

- After a patient submits an eSyM questionnaire, their responses are sent to Epic Hyperspace

- If a patient reports a **severe (level 3) symptom:**

  - The patient receives a prompt to contact their care team

  - An InBasket message is sent to the provider's **eSyM Severe Symptom** folder

- Ongoing studies demonstrate 5-7% of ePRO reports are severe

- If a patient reports using eSyM, clinicians can use eSyM smartphrases to pull their symptom responses into a clinical note
  - **.eSyMmed** = final scores for all symptoms in most recent patient report
  - **.eSyMmedall** = component responses for all symptoms in most recent patient report
  - **.eSyMpain** = component responses for patient's most recent PAIN report
  - **.eSyMxxx** = components reports for patient's most recent XXX symptom report
- This fulfills a complete ROS and counts as a level 4 encounter

- Individual patient eSyM responses can be integrated into the Synopsis, Snapshot, or Flowsheets view in Epic Hyperspace

- Sites can customize this display to meet provider needs

Role of Epic in Development

Epic Involvement

- Dedicated Epic support from:
  - Project Manager
  - Healthy Planet Lead
  - MyChart Lead
  - Clarity Lead

- Collaborative team dynamic with weekly meetings

- Robust use of Sherlock to track/manage project tasks

- Developed central eSyM build and assisted site technical teams with migration, validation, and launch

- Available for regular support in the peri and post-go-live timeframes

- Major components of build
  - Registries (2)
  - Questions (64)
  - Questionnaire series (2)
  - One dashboard with KPIs (8) and an outcomes report
  - Reporting workbench reports (4)
  - Smart phrases (6+)
  - Print groups (5+)
  - BPAs
  - And others
- Tools moved to production

Foundation System Build

eSyM is NOW Included in Foundation System!

- **Current Build Includes:**
    - eSyM symptom questionnaire for medical oncology patients (14-items)
    - Symptom management tip sheets
    - BPAs for reported severe symptoms
    - EHR display build (can be incorporated in synopsis)

- **Future Build Plans:**
    - Incorporating patient registries, dashboard, reporting workbench reports
    - Incorporating Care Companion
    - May consider standard releases in the future

Talk to your Beacon & MyChart TS for more information

Epic UserWeb

Please visit the following links for more information:

- **eSyM Explained:** Track and Manage Chemotherapy Symptoms Remotely

- **eSyM Explained:** COVID-19 Chemotherapy Symptom Management Questionnaire

- **eSyM Training Information:** Oncology Clinician – Electronic Symptom Monitoring (eSyM)

- **Oncology Starter Set:** Build Considerations *(scroll down to bottom of questionnaires portion)*

Successes & Challenges

Implementation Challenges

eSyM platform

- Build constraints due to EHR-integrated design
- Enabling default text message notifications in MyChart for eSyM Questionnaires

Workflow

- Customizing workflows for each cancer center and/or disease group
- Identifying eSyM champions at each site
- Continuous staff and patient engagement

Usage

- Increasing usage rates in patients with MyChart who are not interested in eSyM.
- Increasing eSyM outreach to patients who have stopped answering questionnaires.

- **Building an ePRO-reporting tool integrated with 6 unique EHRs is challenging.**
- Epic and individual sites have unique configuration limitations, which greatly affect the eSyM build.

	EHR-integrated tools (eSyM)
Advantages	**Integrated in EHR** promoting clinician training, acceptance and sustained use **Integrated in MyChart** patient portal promoting patient acceptance and sustained use
Disadvantages	EHR-build environment **constraints** **Less control** over releasing build updates to sites

Technical Challenges

Area	Challenge	Implication	Comments/ Possible Solution
Text reminders	Most sites do NOT have text messages set up for MyChart messages	Patients only receive emails alerting them that they have a new MyChart message	Engage site leadership to turn on text reminders for questionnaire series and set as the default communication setting
Internet infrastructure	Internet strength in clinic and infusion rooms is too weak to download MyChart app	Staff cannot set up/train patients to use eSyM on their own device or help patients enable text notifications	Project could consider funding internet enhancements
Updating eSyM build	After Epic (Verona) pushes build updates to individual sites, site Epic teams must push the update to their site systems	Every site has its own technical update schedule; not all eSyM builds can be updated simultaneously	Limitation of integration eSyM in the Epic EHR system
User-Centered Design	One cannot design a user-centered digital health tool without user feedback and testing	Significant improvements had to be made after sites had access to the original live version (eSyM 1.0)	Schedule a "user feedback/pilot testing" period before officially announcing an eSyM go-live

- On-time eSyM deployment at 4 health systems to date (2 launches during the COVID-19 pandemic)

- Created the first fully Epic-integrated ePRO tool

- eSyM allows for PRO collection AND real-time symptom management feedback (for both patients and clinicians)

- The build is scalable and sustainable; can be expanded to other cancers and/or chronic disease patients

Early eSyM Data

eSyM Totals (as of 7/31/2020)

Lifetime #'s (as of 7/31/2020)					
	Baptist (Med Onc)	**WVU (Surg)**	**Maine (Med Onc)**	**DHMC (Surg)**	**GRAND TOTAL (ALL SITES)**
Go-Live Date	9/10/2019	10/28/2019	3/16/2020	4/28/2020	--
Unique # patients on registry ever	2928	1386	503	1520	6337
Unique # patients who have answered an eSyM questionnaire ever	480	383	86	165	1114
Total # of eSyM questionnaires answered	3814	2891	488	649	7842
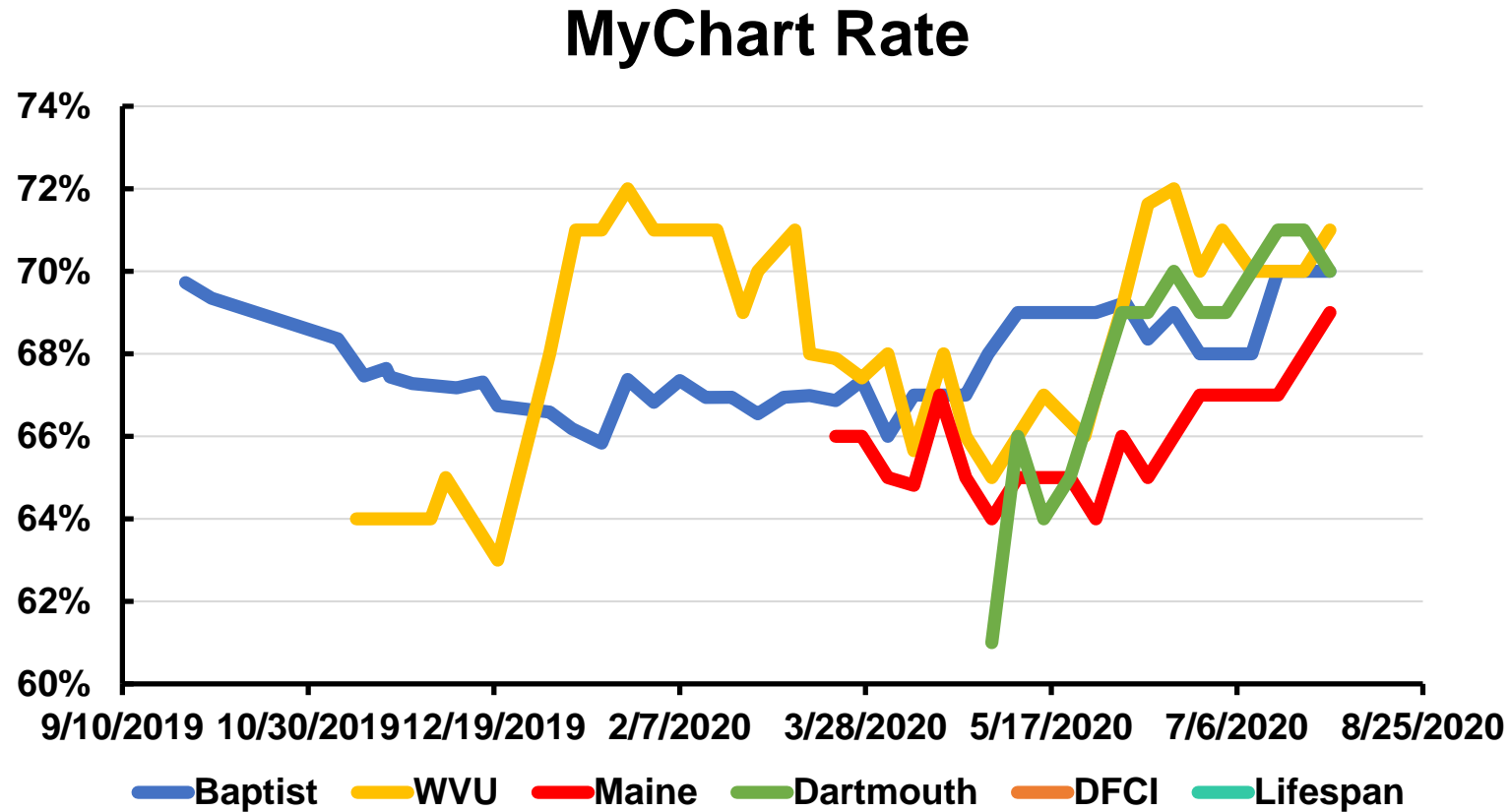
'Ever' Usage Rates – All Sites

eSyM Ever Usage Rate (w/ MyChart)

Legend: Baptist, WVU, Maine, Dartmouth, DFCI, Lifespan
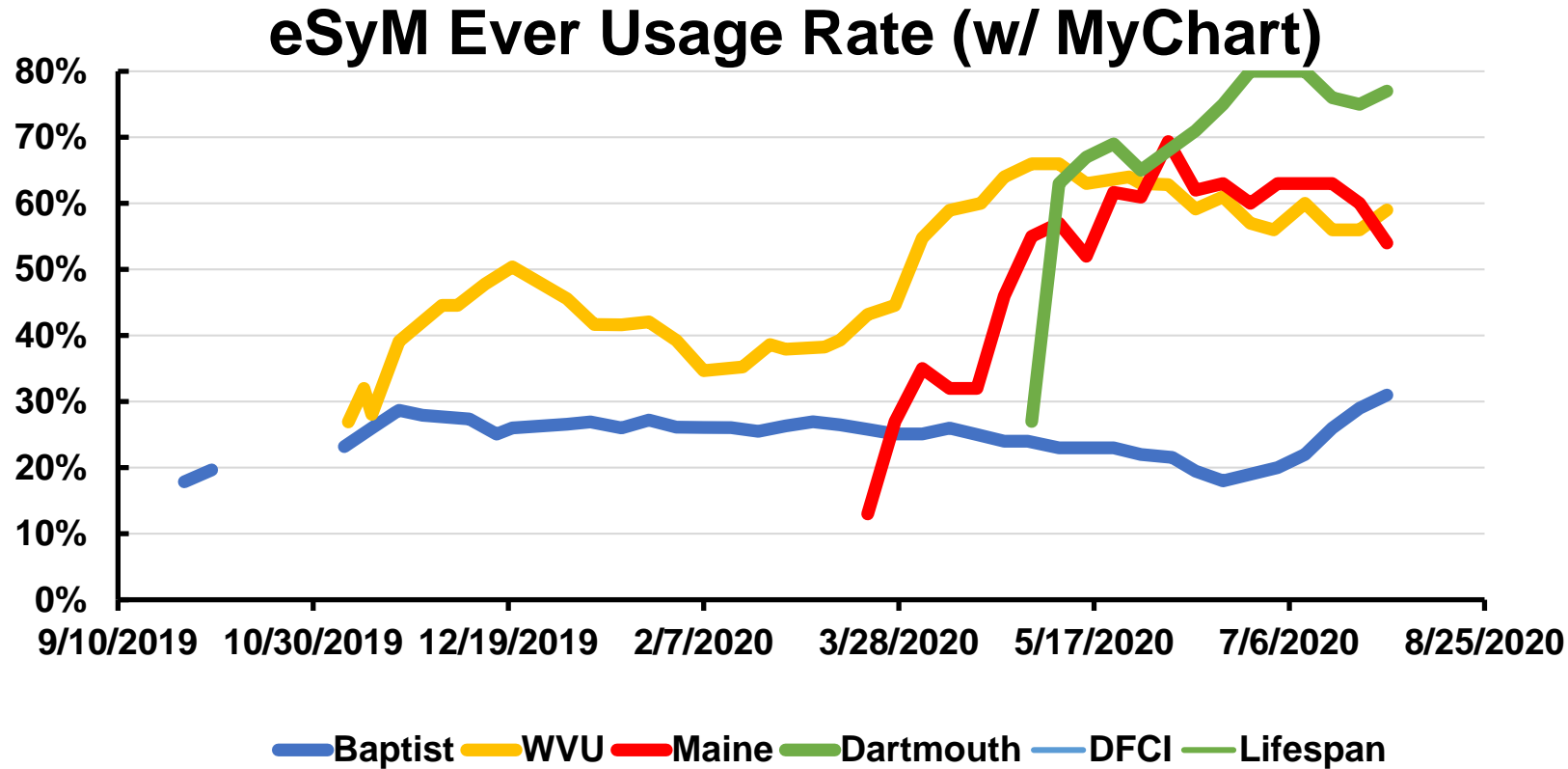
eSyM Total Usage Rate (w/ MyChart) = $\dfrac{\text{Number of patients who have completed} \geq 1 \text{ questionnaire} - \text{Total}}{\text{\# of patients with an assigned questionnaire (w/ MyChart)}}$

Weekly Usage Rates – All Sites

eSyM Weekly Usage Rate (w/ MyChart)

Legend: Baptist — WVU — Maine — Dartmouth — DFCI — Lifespan
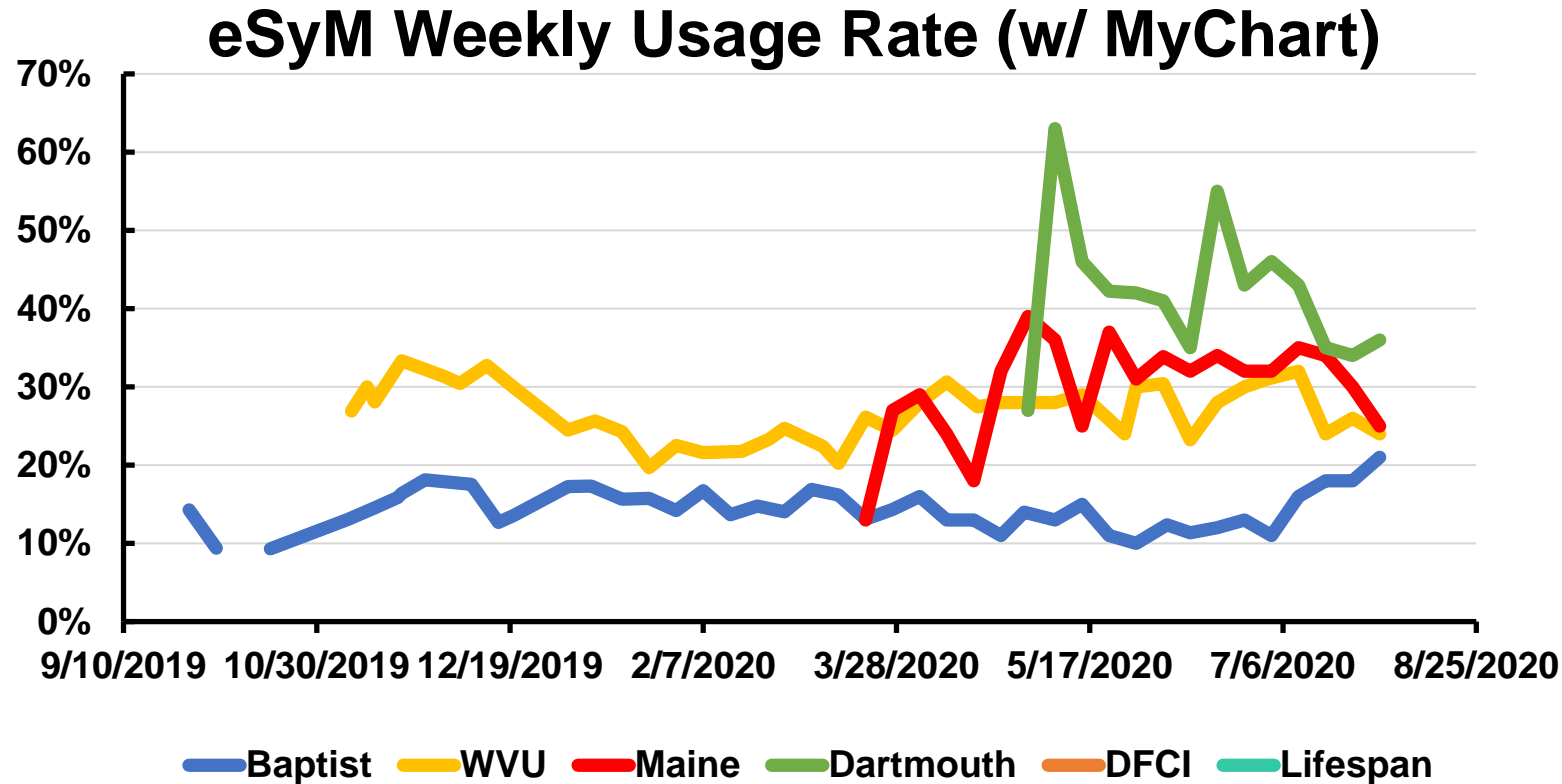
eSyM Weekly Usage Rate (w/ MyChart) = $\dfrac{\text{\# of patients who responded to any eSyM Questionnaire this week}}{\text{\# of patients with an assigned questionnaire (w/ MyChart)}}$

Early Demographics
(data as of 1/22/2020)

	Baptist Cohort		WVU Cohort	
	#	%	#	%
All patients (n)	**166**	---------	**97**	---------
Age				
Mean	65	---------	57	---------
Standard deviation	11.24	---------	12.9	---------
Minimum and maximum	23-90	---------	18-88	---------
Quartile 1	42	25	23	24
Quartile 2	40	24	28	29
Quartile 3	41	25	22	25
Quartile 4	43	26	24	25
Sex				
Male	96	58	37	38
Female	70	42	60	62
Ethnicity				
Hispanic	2	2	0	0
Not Hispanic	163	98	92	99
Unknown	1	0	5	0
Race				
White	128	77	89	92
Not white	36	22	2	2
Unknown	2	1	6	6
Seven	9	5	3	3
Eight+	43	26	23	24

Early eSyM Responses
(data as of 1/22/2020)

	Baptist Cohort		WVU Cohort	
	#	%	#	%
All patients	**166**	---------	**97**	---------
Cancer/Procedure Type				
GYN (medical dx or surgical procedure)	33	20	124	26
GI (medical dx or surgical procedure)	63	42	224	48
Thoracic (medical dx or surgical procedure)	70	38	125	26
Response based on time following the anchoring event				
Any response in 1st week	104	26	67	27
Any responses in 2nd week	75	19	57	23
Any responses in 3rd weeks	66	16	49	20
Any responses in 4th week	62	15	37	16
Any response in 5th week or after	99	24	38	15
Number of responses/patient				
One	50	30	29	30
Two	26	16	16	16
Three	18	11	8	8
Four	6	4	4	4
Five	6	4	9	9
Six	8	5	5	5
Seven	9	5	3	3
Eight+	43	26	23	24

Early eSyM Responses
(data as of 1/22/2020)

eSyM Electronic Symptom Management

Proportion of responses that were grade 3

Medicine

Symptom	Value
Anxiety	6.1
Bleeding	3.45
Constipation	5.19
Cough	6.76
Decreased appetite	3.87
Diarrhea	2.21
Difficulty concentrating	10
Difficulty sleeping	16.17
Difficulty swallowing	20.69
Dizziness	3.53
Fatigue	14.6
Feeling discouraged	10.56
Feeling sad	11.39
Fever	1.22
General pain	14.92
Hand foot syndrome	5.33
Headache	12.96
Heart palpitations	11.54
Heartburn	0
Itching	13.51
Mouth/throat sores	5.41
Nausea	2.98
Numbness or tingling	3.32
Painful urination	23.68
Rash	0
Shortness of breath	3.43
Swelling	19.05
Trouble drinking	0
Vomiting	1.22
Wheezing	6.58

Surgery

Symptom	Value
Anxiety	3.51
Bleeding	0
Constipation	5.24
Cough	6.82
Decreased appetite	2.22
Diarrhea	12.5
Difficulty concentrating	8.7
Difficulty sleeping	30.23
Difficulty swallowing	0
Dizziness	9.38
Fatigue	12.61
Feeling discouraged	7.41
Feeling sad	42.86
Fever	0.84
General pain	17.02
Hand foot syndrome	16.67
Headache	20.83
Heart palpitations	0
Heartburn	0
Itching	8.7
Mouth/throat sores	0
Nausea	1.26
Numbness or tingling	n/a
Painful urination	2.94
Rash	0
Shortness of breath	3.15
Swelling	25
Trouble drinking	0
Vomiting	0.21
Wheezing	0
Wound discharge	0
Wound redness	0

Grade 3 Symptoms after Chemotherapy
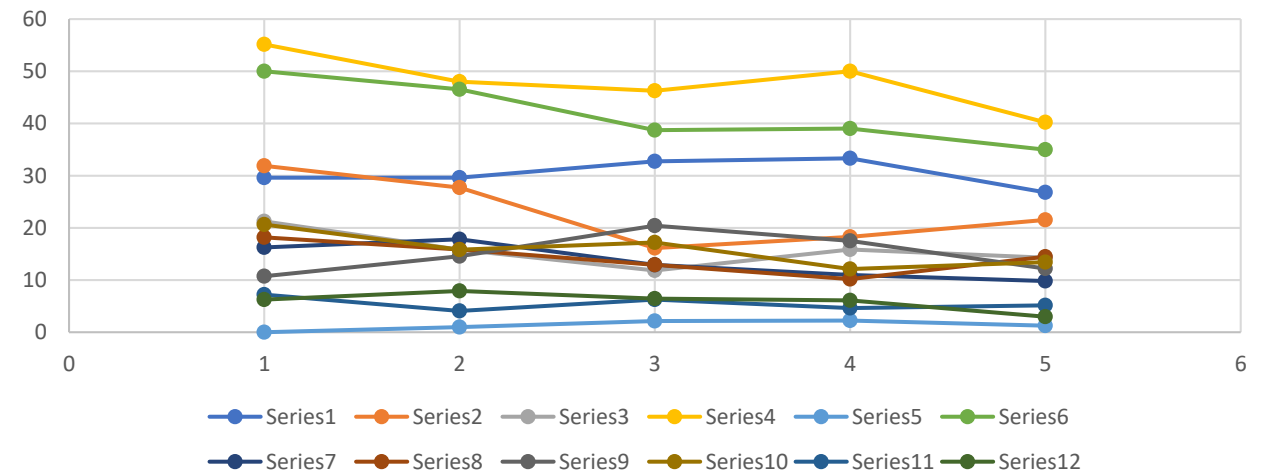
Grade 3 Symptoms after Surgery

If you have any questions, please contact:

eSyM Research Project – Michael_Hassett@dfci.Harvard.edu

eSyM Foundation System Build – jwedge@epic.com

For more information about this project, please visit:

www.esymcancermoonshot.org

Thank you!!!