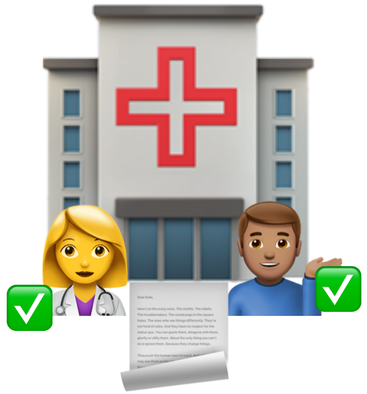
Introducing Shamu

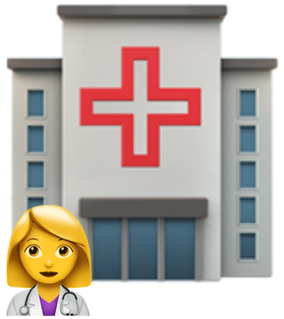
Team 15: Elmo's World

Erkin Otles, Joan Gargaro, Kaleb Pifer, Pratik Vaidya, Kayla Mandel, Olivia Alge, Paul Holtz



EHR

PORTAL



EHR

PORTAL

SHAMU

EHR

PORTAL

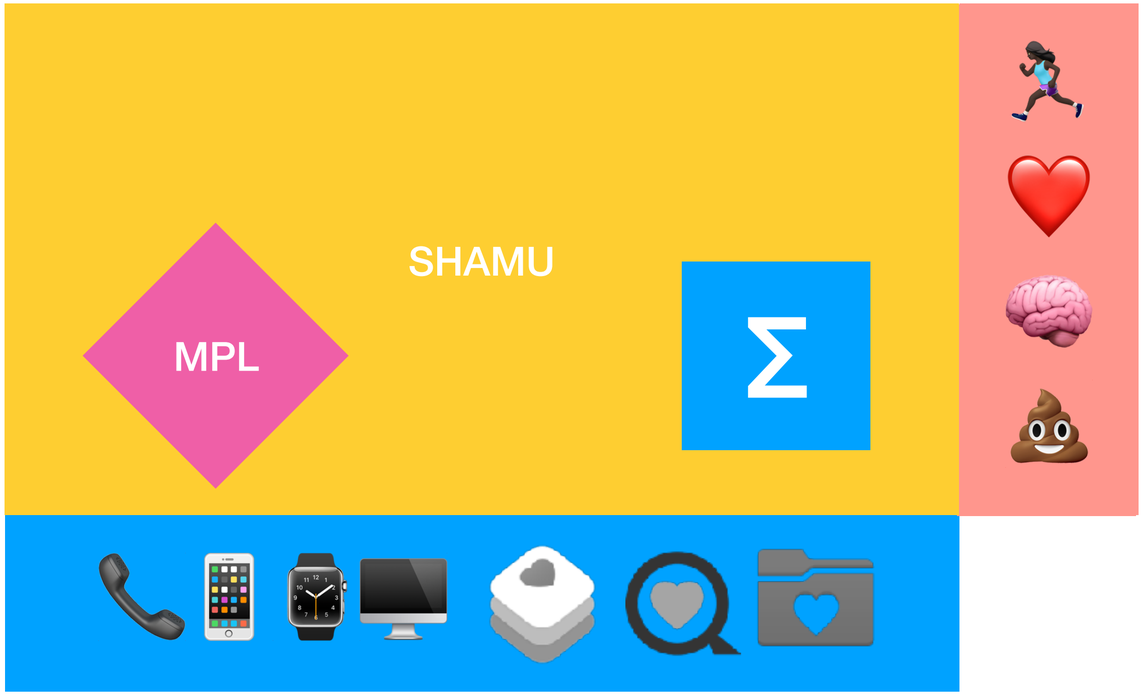
Design principles

Keep the health plan ALIVE - patients & providers communication enhanced

Right info, right person, right time - like the good doctor ordered

Easy for patient and physician - hard as heck for us

Gross anatomy…



MPL: open & computable!

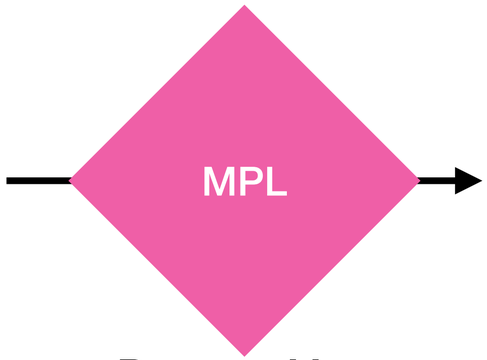
Mr. Jay Elmo a 67 year old gentleman recently hospitalized with acute on chronic heart failure, diabetes, complicated with major depressive disorder and general anxiety disorder.

Discharge instructions for J. Elmo:
You were recently hospitalized for an exacerbation of your heart failure. Over the course of your stay we helped remove some of the extra water from your body. We would like you to follow up with your primary care physician within the next week.

For your heart failure, please continue to take Lasix (40mg) once daily. We would also like you to weigh yourself daily and also measure your blood pressure weekly. Please stay on a low-sodium diet.

For your mood we have started you on 10mg of Lexapro. This may cause some anxiety initially; however, it should subside, in 2w time you should increase the dose to 20mg.

We encourage you to incorporate 30m of daily activity. We have sent your PCP a copy of our records, please contact them if you have any questions. If you experience chest pain, severe shortness of breath, my little pony, etc. please come into the emergency department.



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Action	Object	Frequency
Call	PCP	1x/week
Take	Lasix 40mg	1x/day
Measure	Weight	1x/day
Measure	Blood Pressure	1x/day
Start	Low Sodium Diet	null
Take	Lexapro 10mg	1x/day
Exercise	30 min	1x/day

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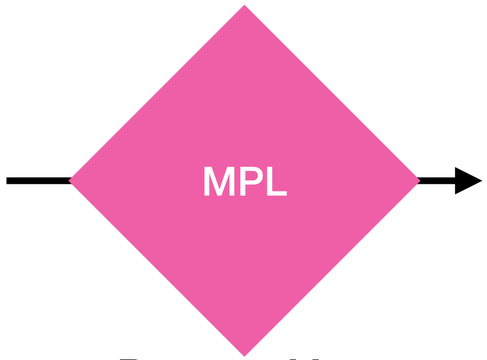

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Action	Object	Frequency
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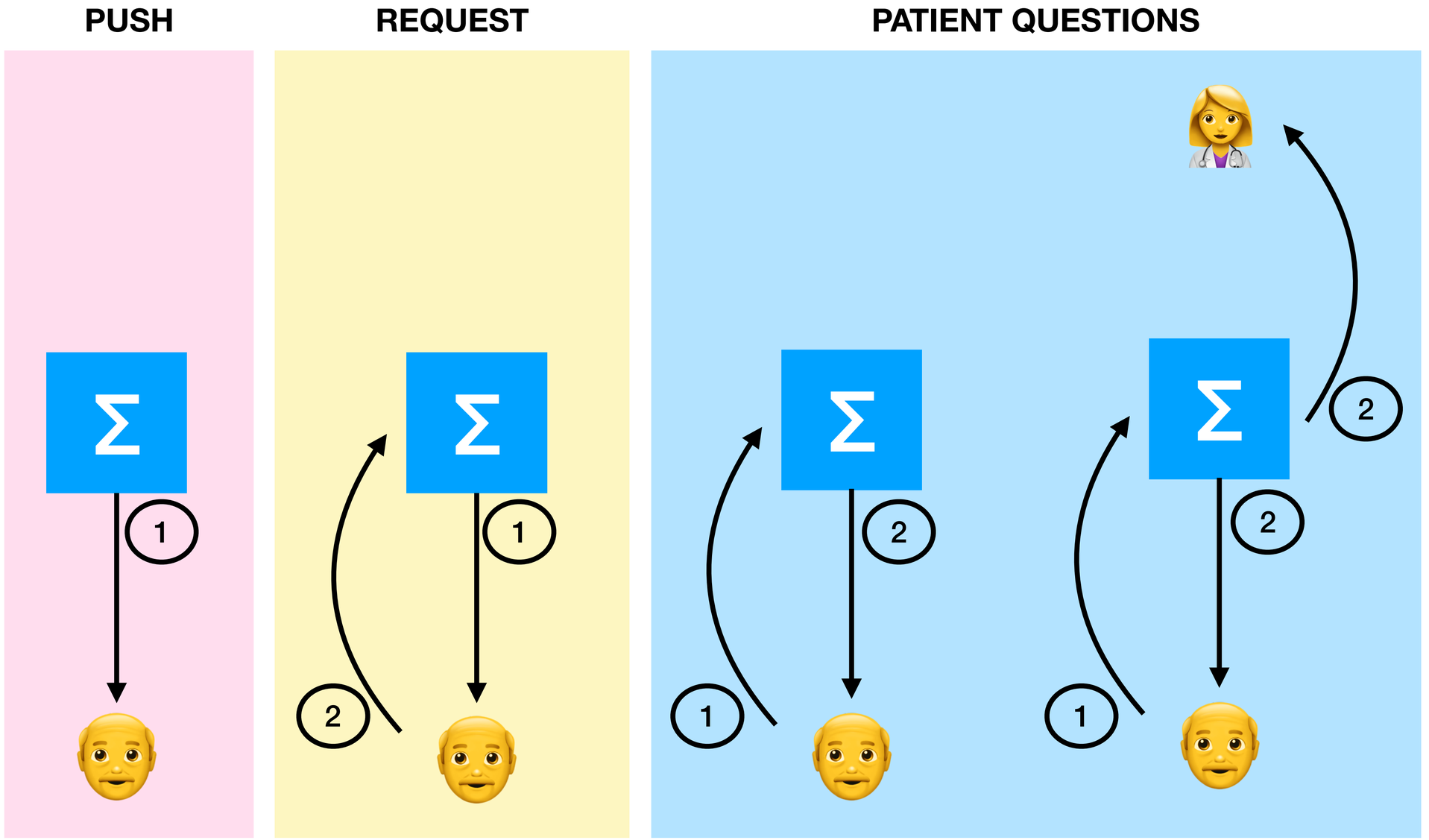
Measure	Weight	1x/day
Measure	Blood Pressure	1x/day
Start	Low Sodium Diet	null
Take	Lexapro 10mg	1x/day
Exercise	30 min	1x/day

We noticed you were missing diabetes in your plan. Would you like to pull in the previous diabetes plan?

Engagement Engine

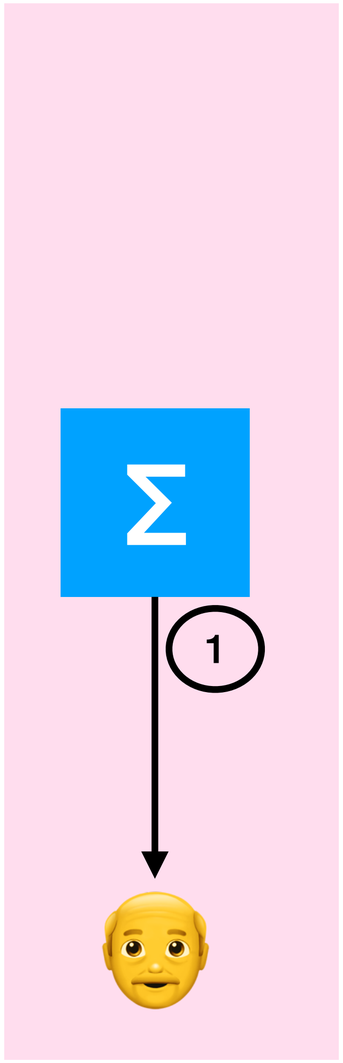


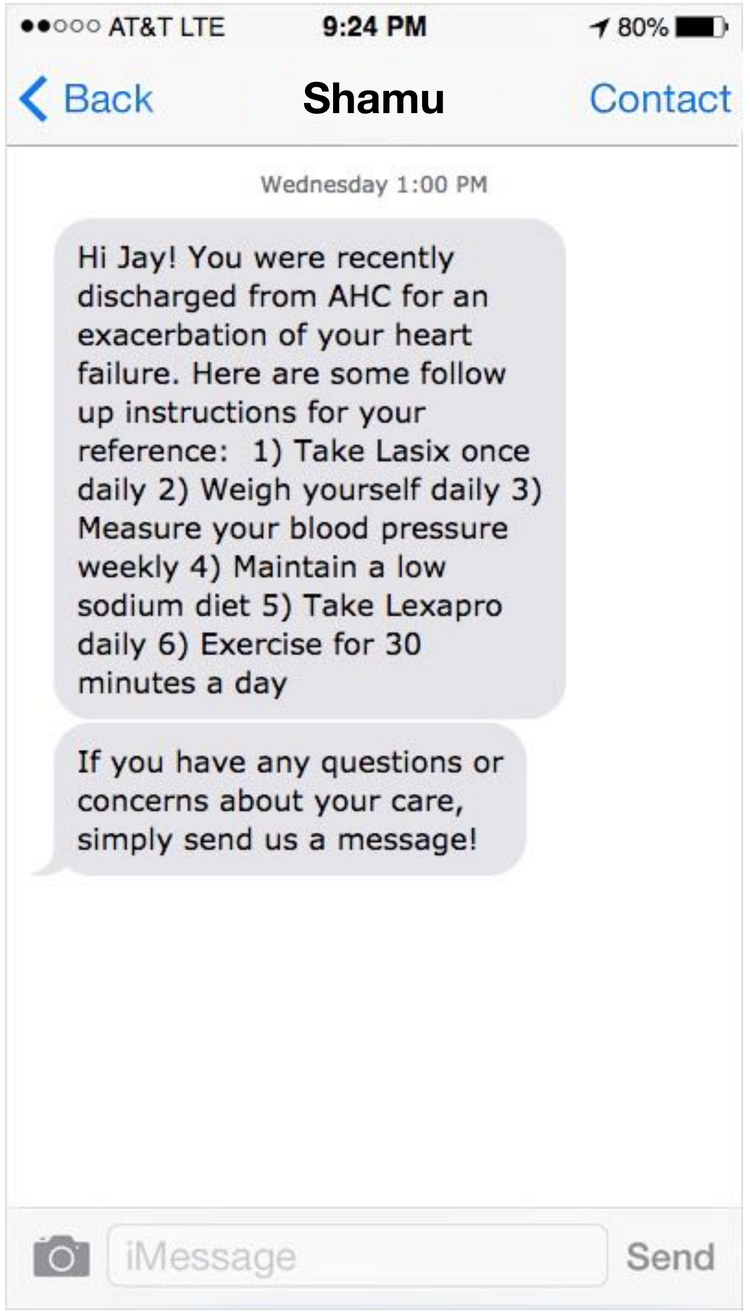
DEMO

MPL

Action	Object	Frequency
Take	Lasix 40mg	1x/day
Measure	Weight	1x/day
Measure	Blood Pressure	1x/week
Start	Low Sodium Diet	null

PUSH





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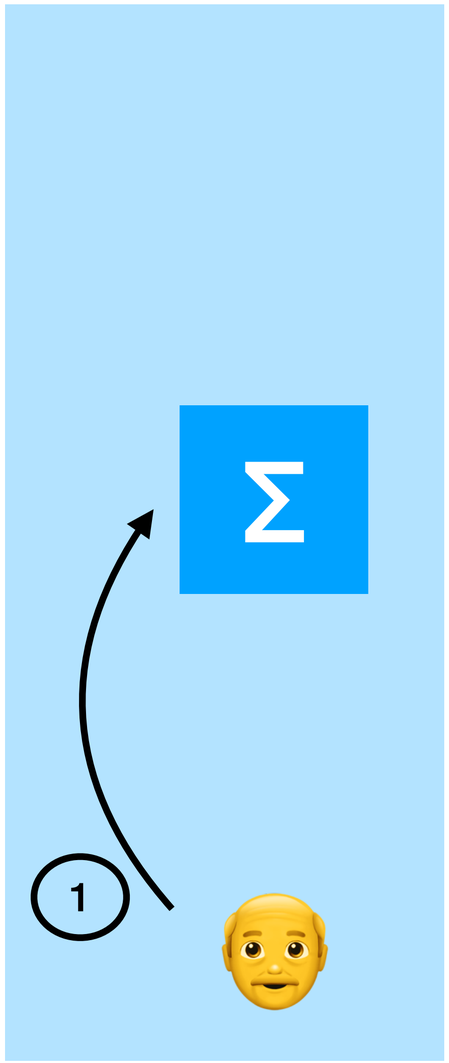
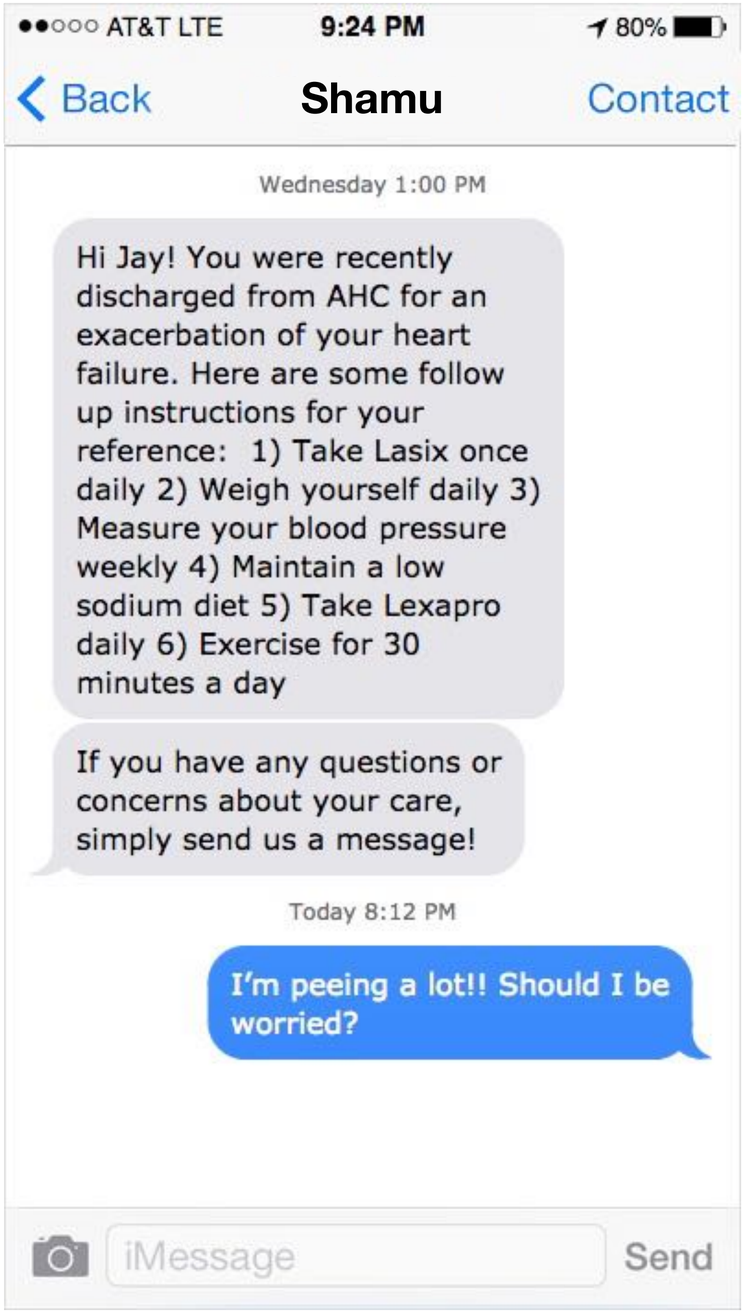
Action	Object	Frequency
Take	Lasix 40mg	1x/day

PATIENT QUESTIONS





MPL

Action	Object	Frequency
Take	Lasix 40mg	1x/day

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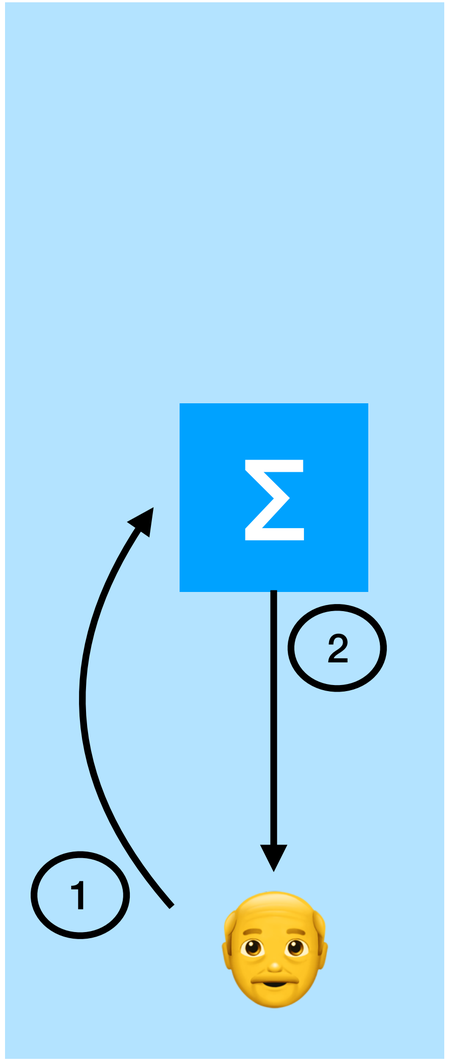
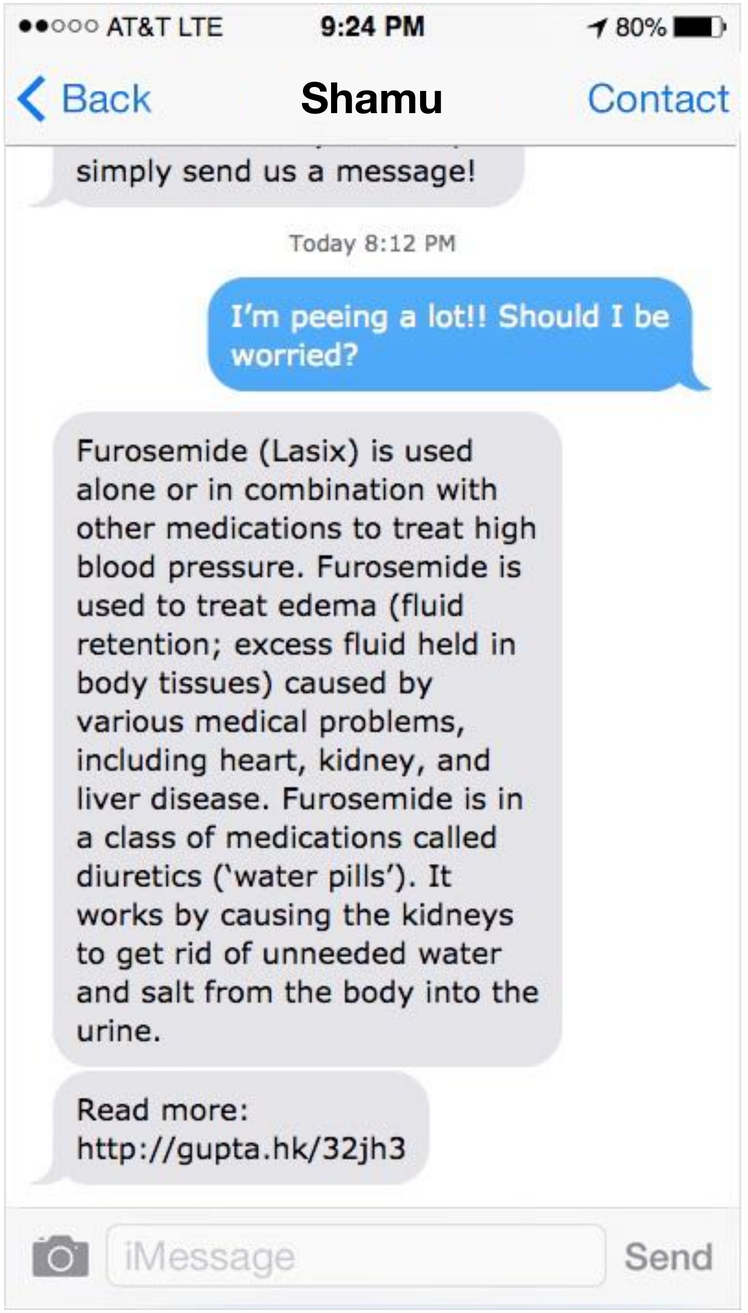
MedlinePlus®
Trusted Health Information for You

PATIENT QUESTIONS





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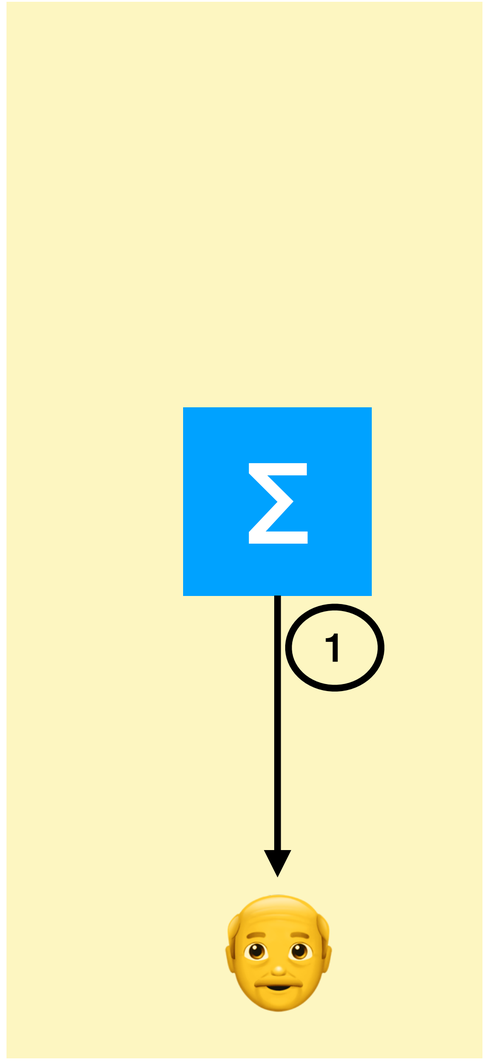
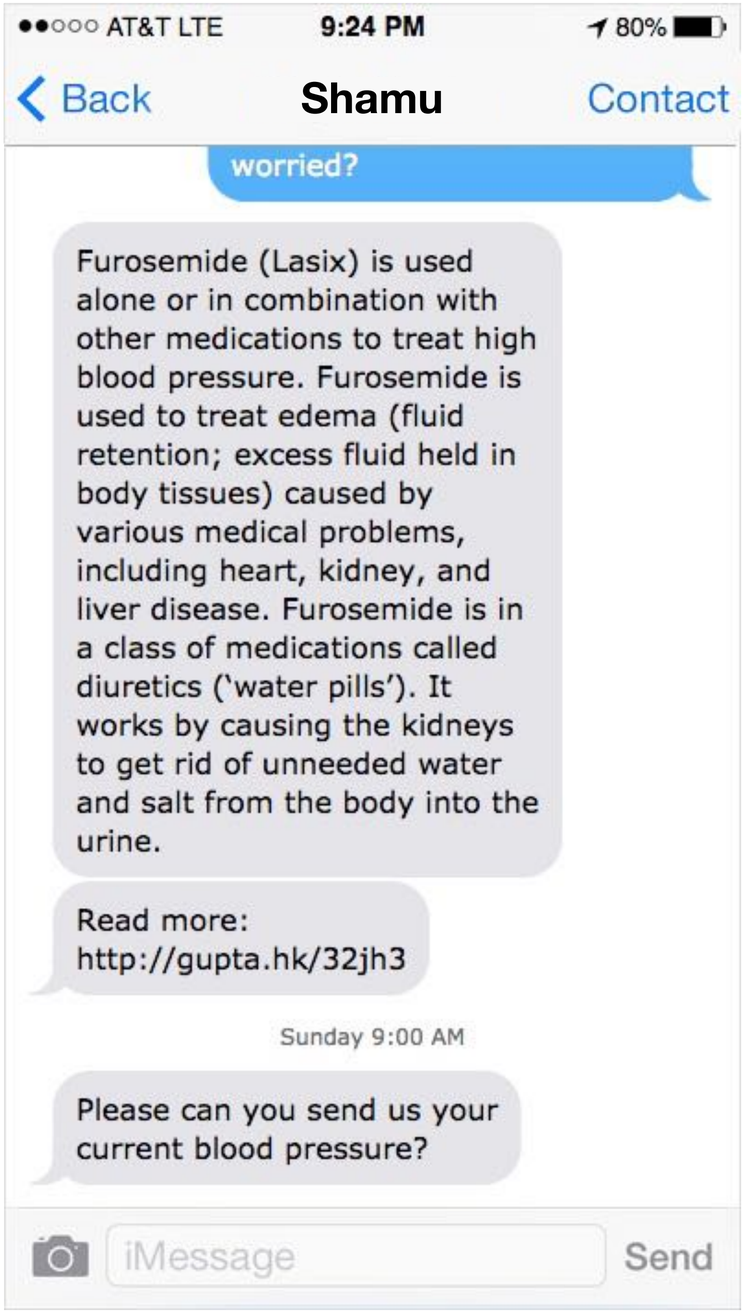
Action	Object	Frequency
Measure	Blood Pressure	1x/week

REQUEST





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Action	Object	Frequency
Measure	Blood Pressure	1x/week

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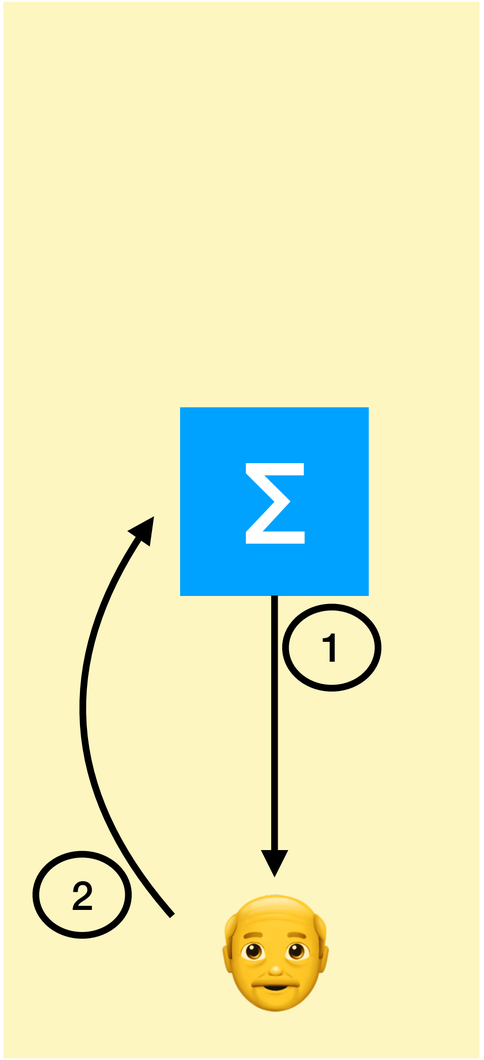

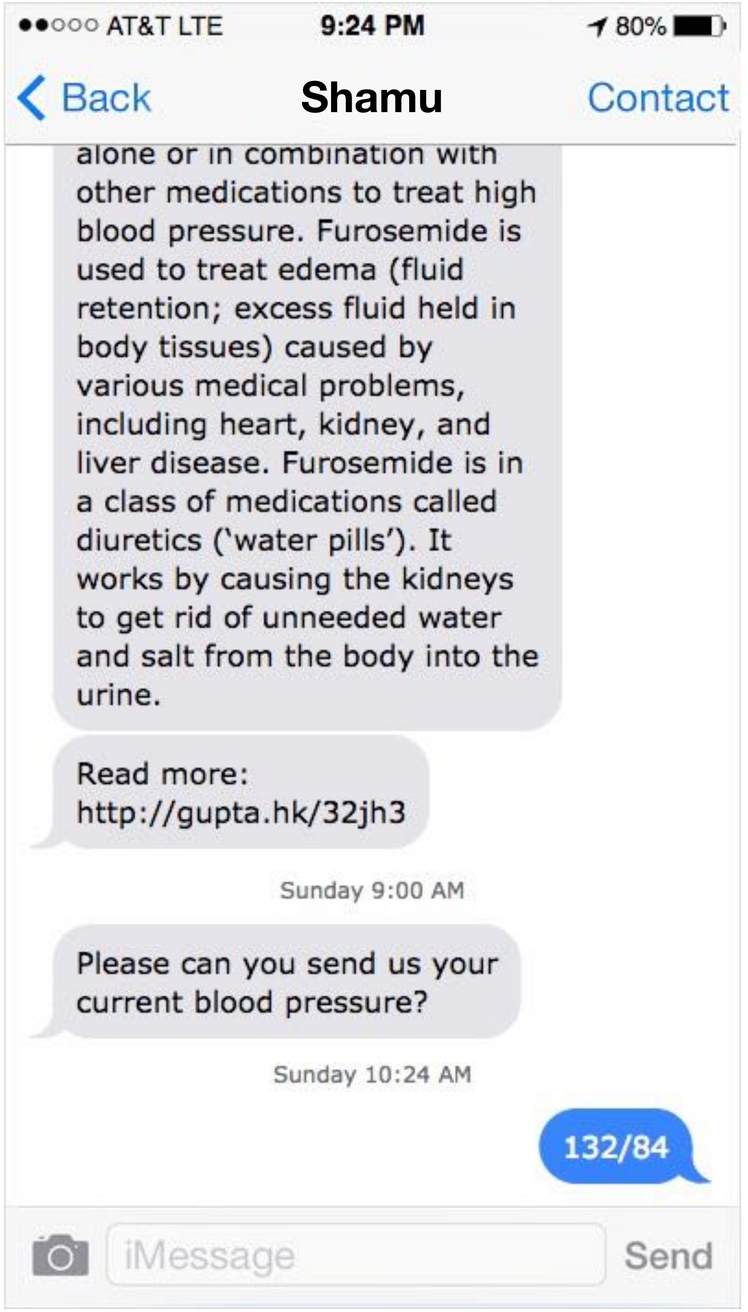

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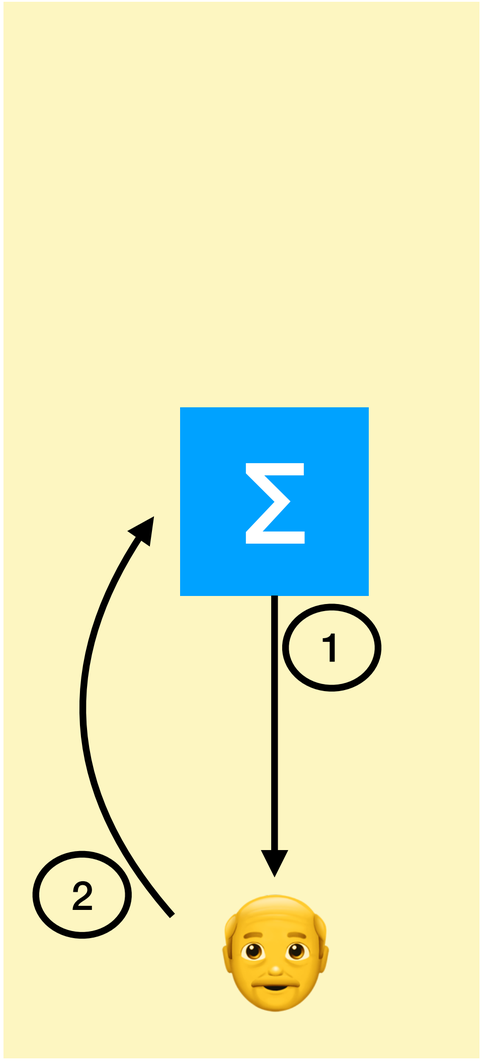
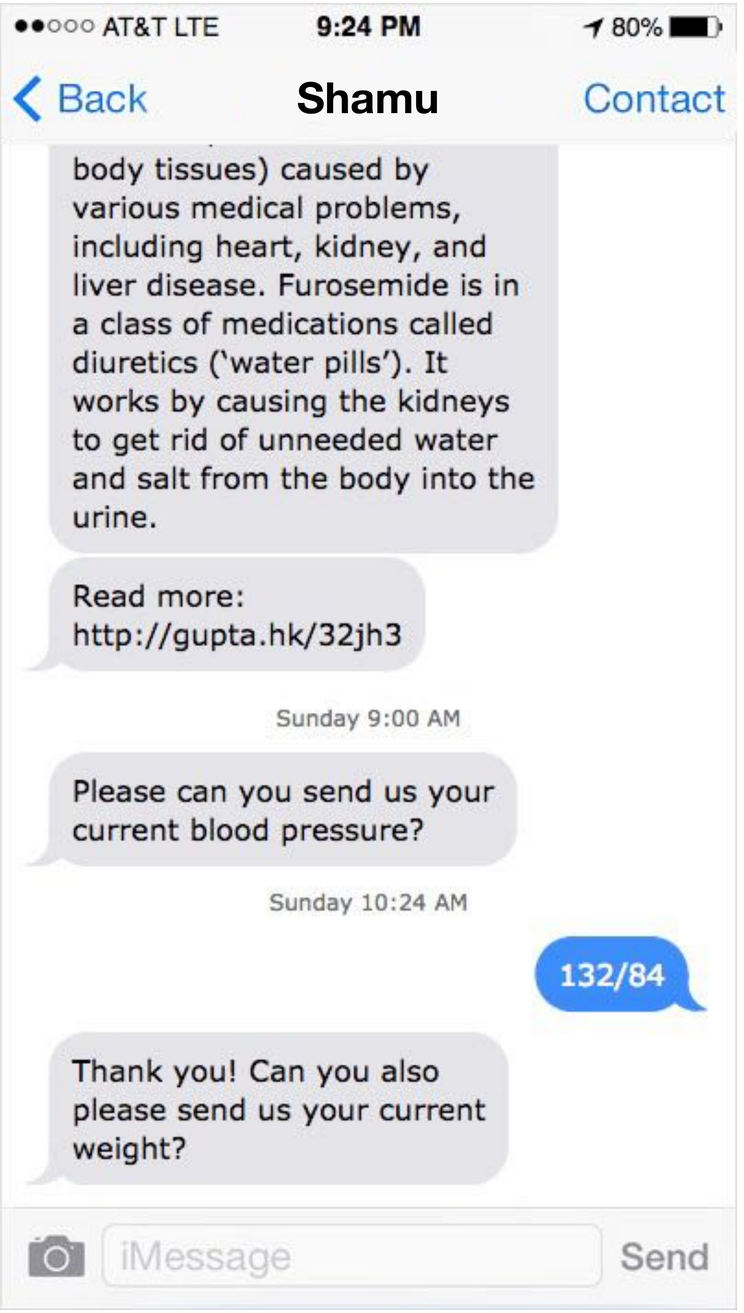
Measure	Blood Pressure	1x/week

REQUEST





Dear Kate,
Here's to the crazy ones. The misfits. The rebels.
The troublemakers. The round pegs in the square
holes. The ones who see things differently. They're
not fond of rules. And they have no respect for the
status quo. You can quote them, disagree with them,
glorify or vilify them. About the only thing you can't
do is ignore them. Because they change things.
They push the human race forward. And

?

Appendix

Our Backend

Header	Command	Object	Frequency	Note	Start_Time	Stop_Time
General	Call	PCP	1x/week		03/21/2018	03/28/2018
Heart Failure	Take	Lasix 40mg	1x/day		03/21/2018	continuous
Heart Failure	Measure	Weight	1x/day		03/21/2018	continuous
Heart Failure	Measure	Blood Pressure	1x/week		03/21/2018	continuous
Heart Failure	Start	Low Sodium Diet	null		continuous	continuous
Behavioral Health	Take	Lexapro 10mg	1x/day	May increase anxiety	03/21/2018	04/04/2018
Behavioral Health	Take	Lexapro 20mg	1x/day		04/04/2018	continuous
General	Exercise	30 min	1x/day		03/21/2018	continuous

Header	Command	Object	Frequency	Note	Start_Time	Stop_Time
<string>	<string>	<string>	<int>x/<unit>	<string>	<time_fmt>	<time_fmt>
			“as needed”			
			null			

Command	Command_Description	Units	Time_Fmt
Take	Instructions to take medication	second	continue
Measure	Quantitative sample (e. g. weight, blood pressure)	minute	DD/MM/YYYY
Monitor	Monitor symptoms	hour	null
Call	Schedule appointments, follow-ups	day	
Exercise	Collective term for physical activity	week	
Send	Forward information to specified lab/physician	month	
Stop	Cease an activity not mentioned above	year	
Start	Begin an activity not mentioned above		
Alert	Notify PCP of specified condition		

Couldn’t Epic just implement this?

Yes!

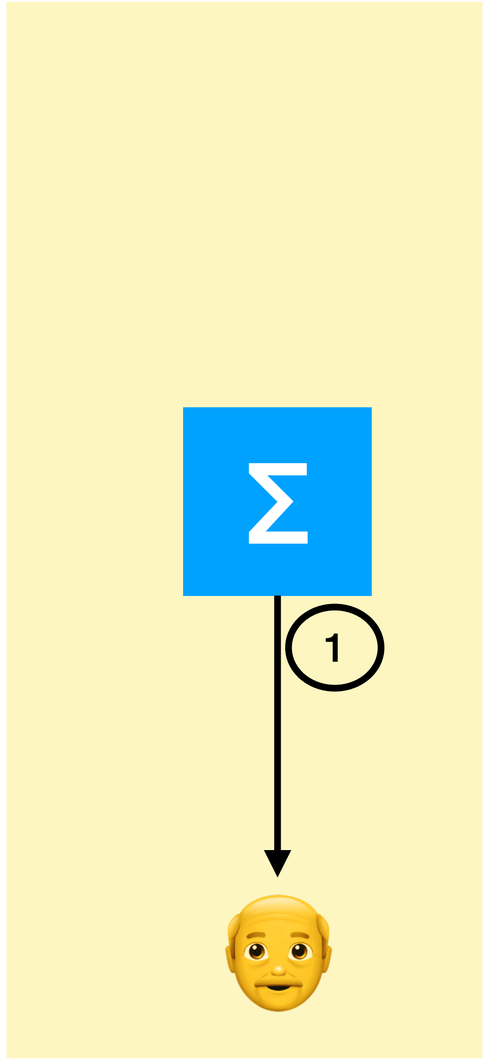
It would be nice if they did. That would save us a lot of work.

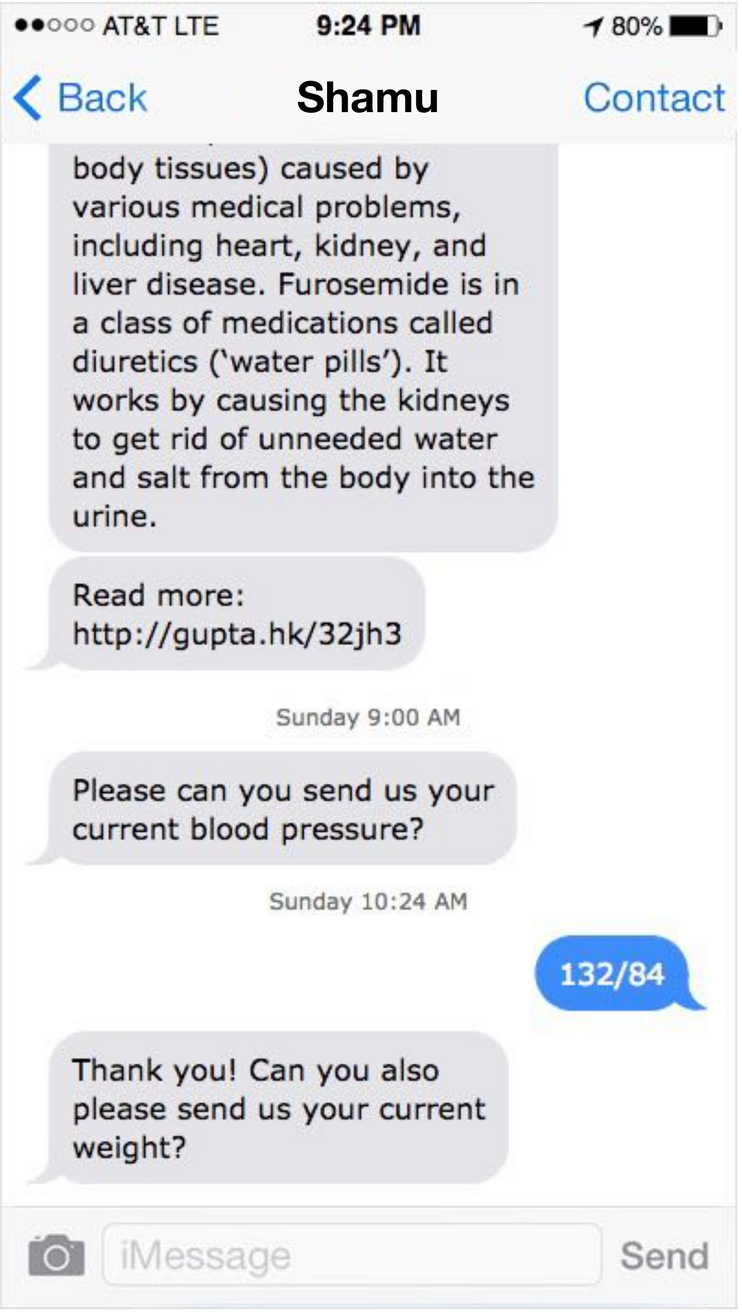
We’d just ask that they donate the profits to ending child hunger...

MPL

Action	Object	Frequency
Measure	Weight	1x/day

REQUEST





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Measure	Weight	1x/day

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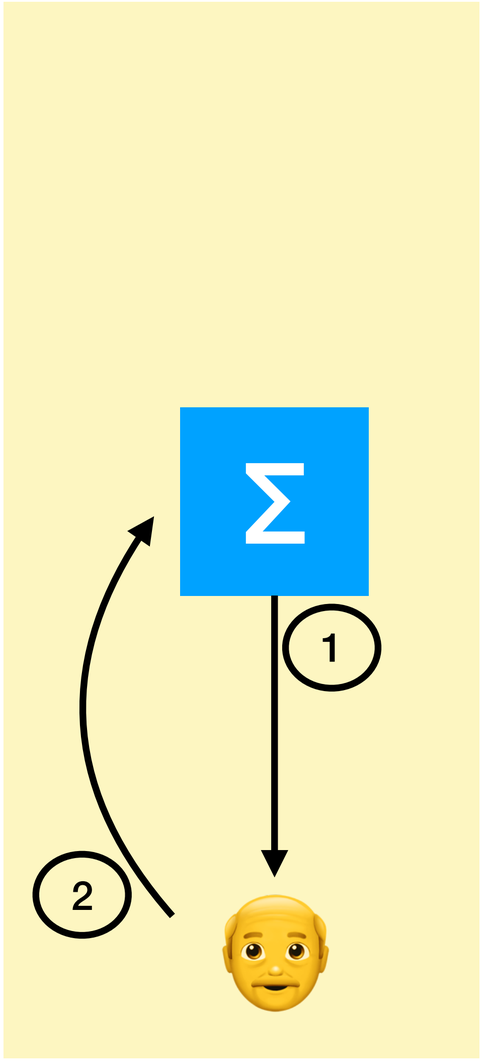

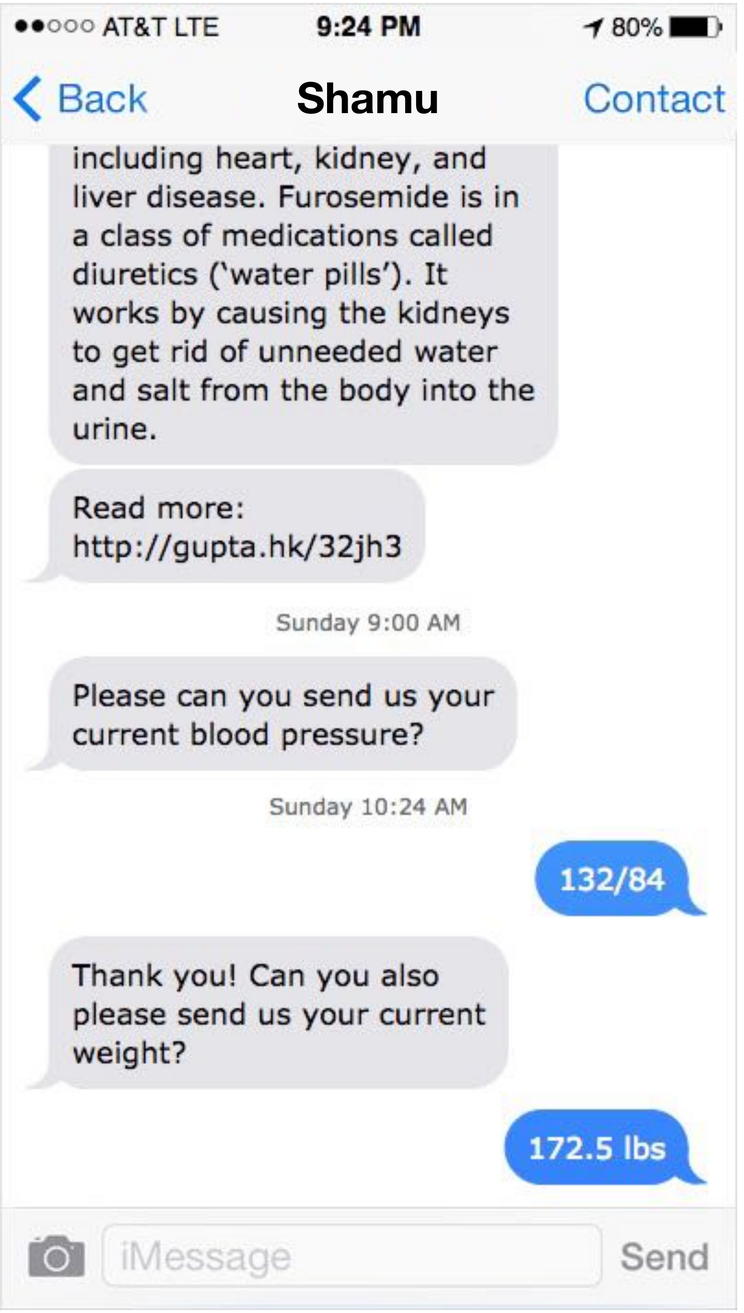

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Measure	Weight	1x/day

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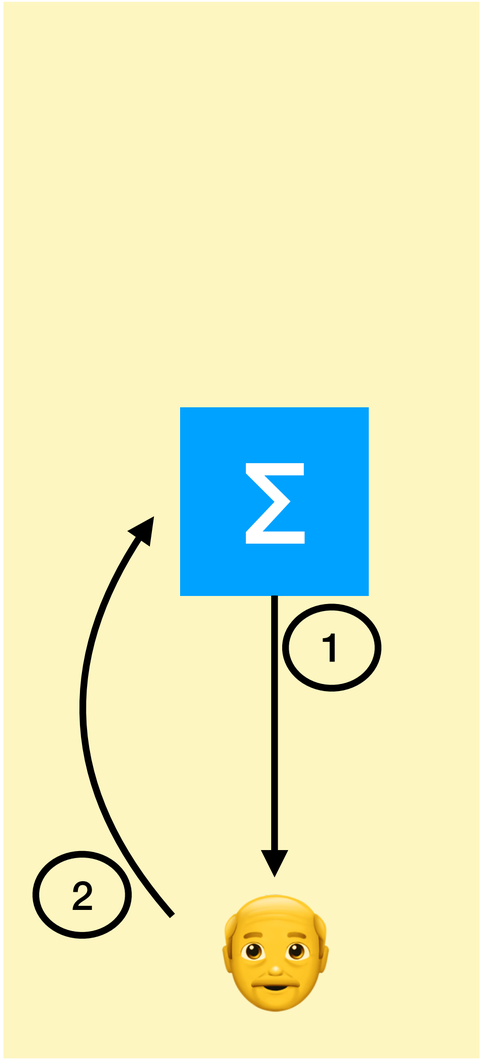
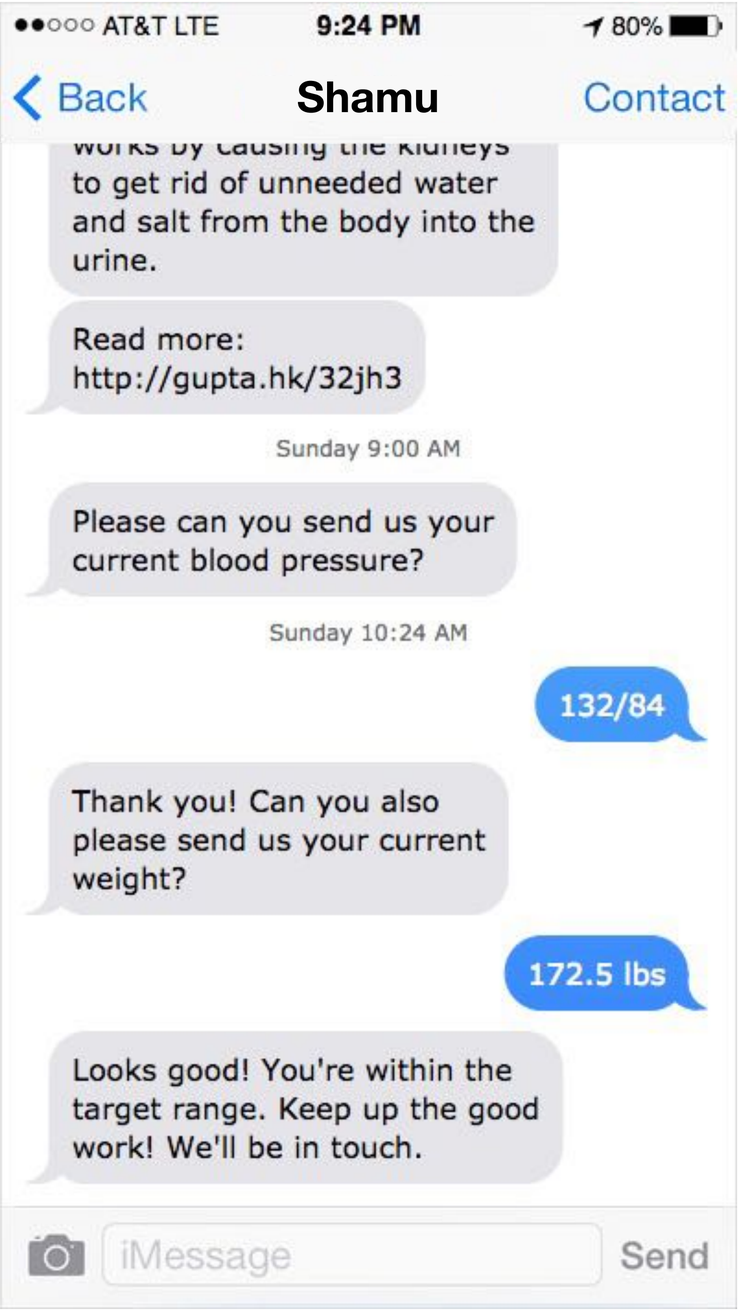
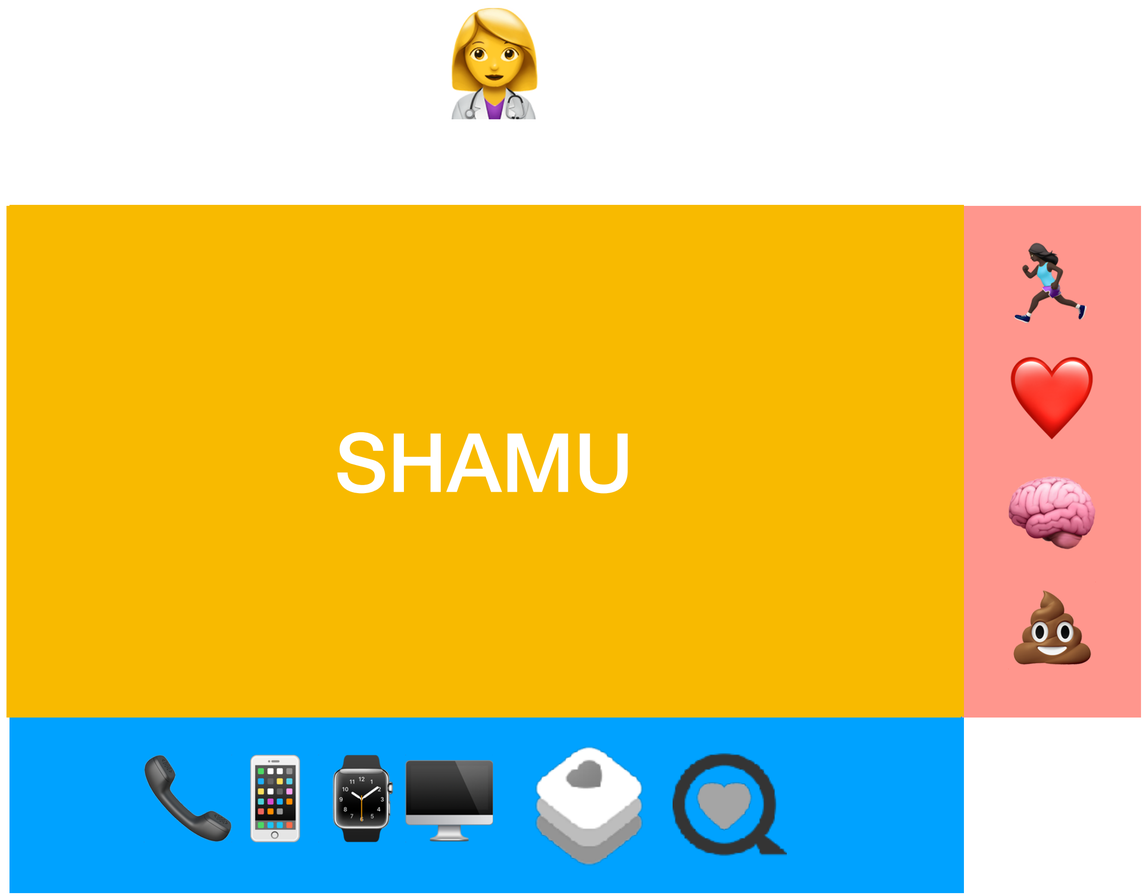
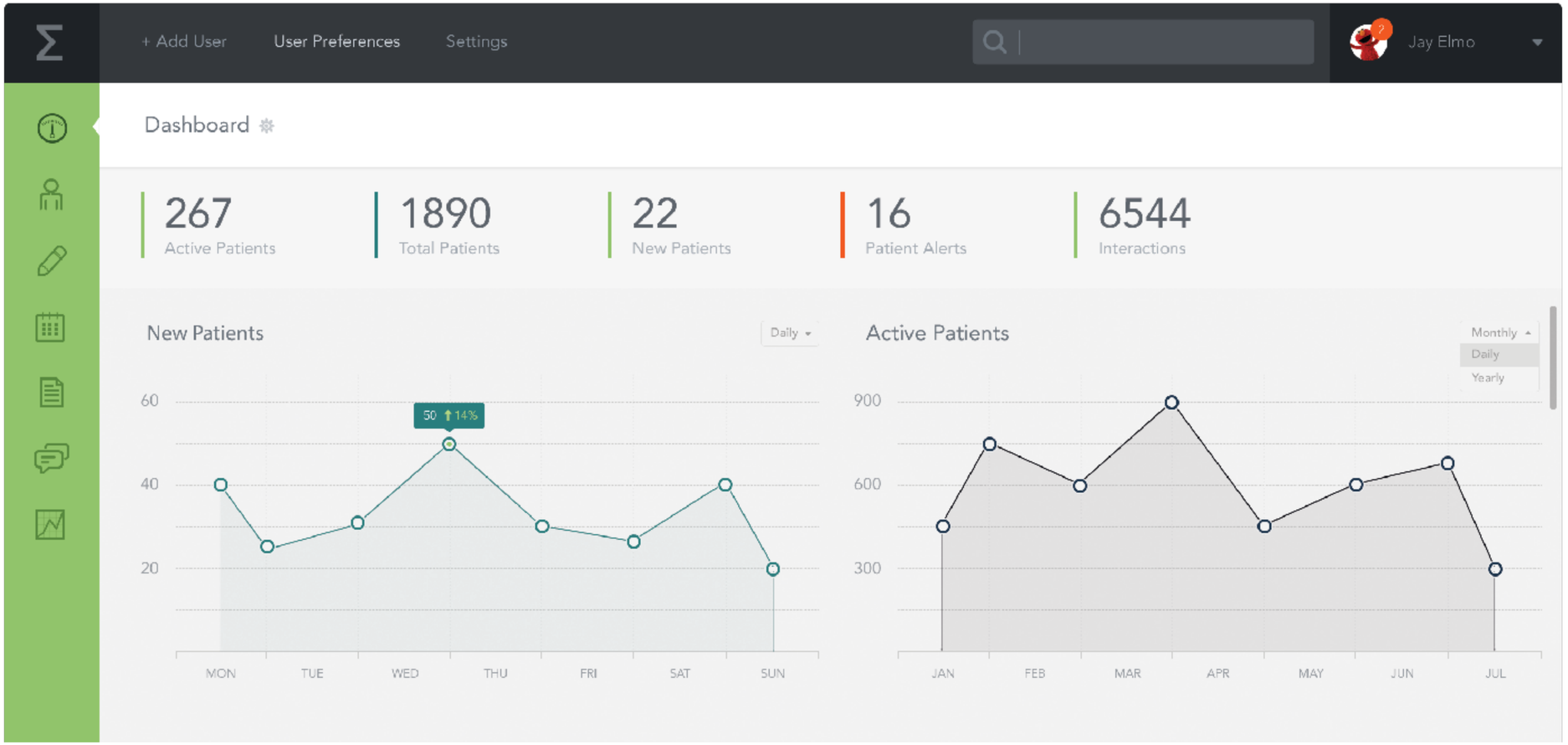


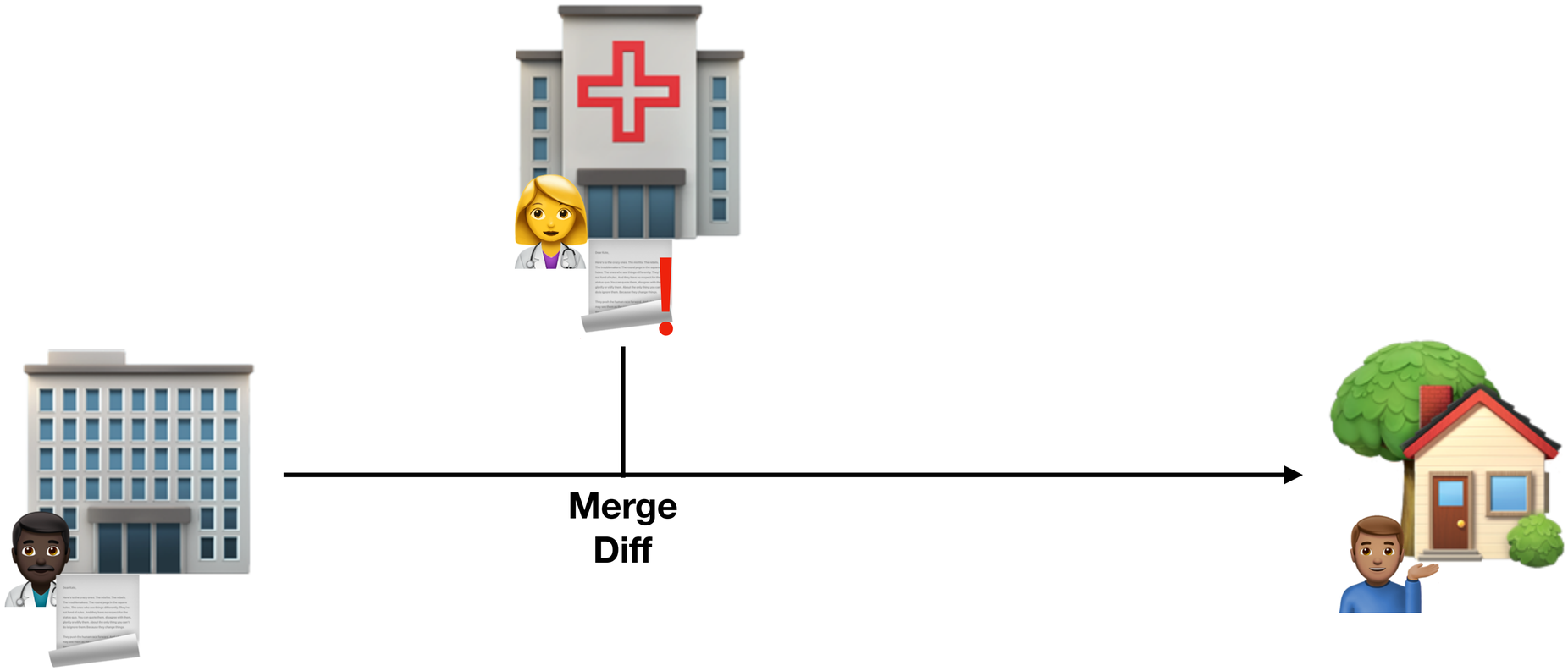


Help physicians manage a complicated space.

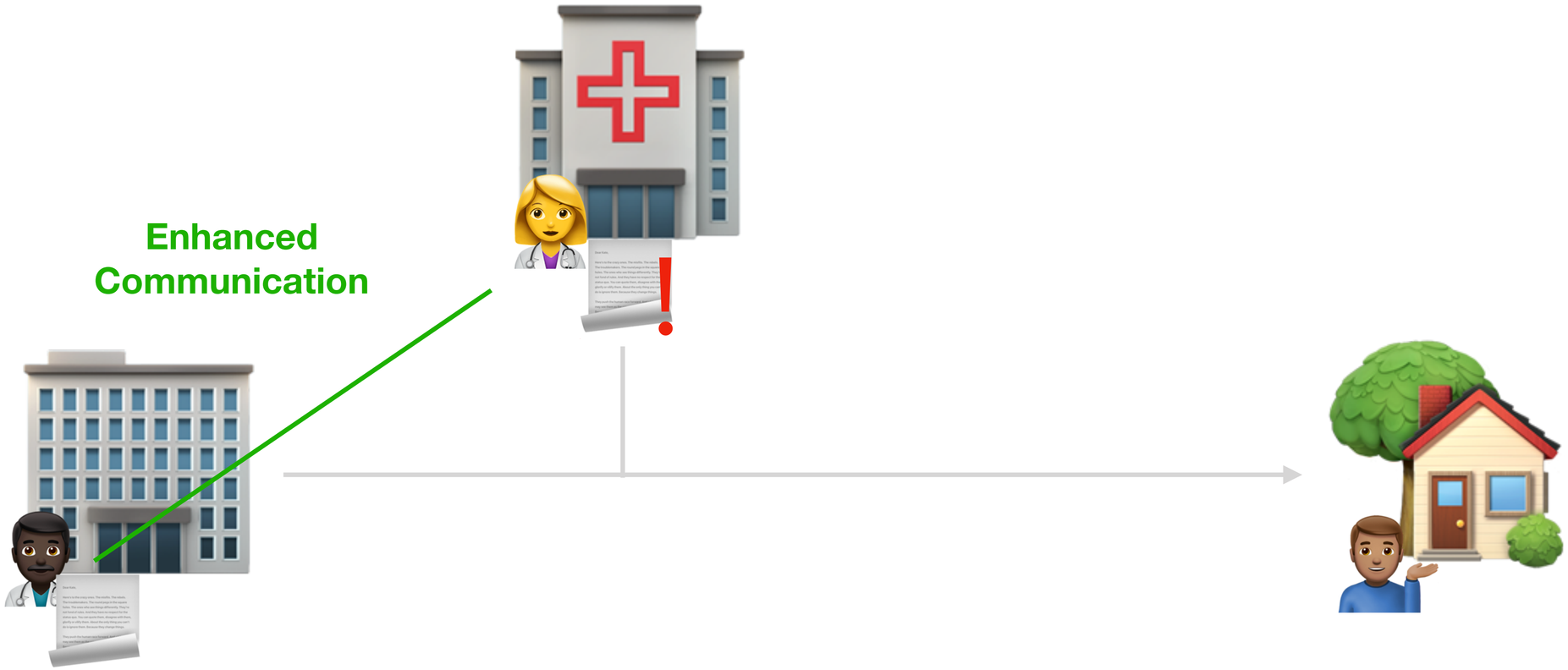


Clinician Dashboard




Merge
Diff

Enhanced Communication



Barriers

Barriers to Implementation

Do enough people have phones to make this possible?
There are more than six billion mobile phone users worldwide with almost three quarters living in LMICs

Aren't there enough mHealth apps and systems out there?
We're not designing an app, it's a platform. Shamu is not a mobile health intervention in and of its self, rather, it's a platform on which mHealth apps can run.

Is there a real need?
To fully satisfy the USPSTF recommendations, 1773 hours of a physician's annual time, or 7.4 hours per working day, is needed for the provision of preventive services. Shamu allow for continuance of the patient provider encounter and incorporation of prevention beyond the confines of the office visit.

How will Shamu deal with liability?
Shamu will make use a simple messaging to alert users to the normal use of Shamu. See an example from MiChart below:

Do not use MyUofMHealth.org for urgent medical matters.

If you are experiencing an urgent medical problem, call 911 or your physician's office immediately.

Barriers to Implementation

Won’t this increase alert fatigue?
Shamu will not increase alert fatigue as functions very similarly to a patient portal. It helps providers address more simple patient concerns more efficiently, and helps focus attention on more complex situations or concerns.

How will the system deal with protecting patient information and privacy?
Shamu will use state of the art HIPAA compliant encryption in order to maintain privacy and keep PHI secure.