

Communication Focused Technologies to Improve Adherence in Adolescent Chronic Illness

Shelagh Mulvaney, PhD

Kevin Johnson, MD, MS

Vanderbilt University Medical Center
Nashville, Tennessee

Funded by AHRQ R18 HS018168,
NIH DK070026 , DK020593,
CTSA RR024975, and RWJF 59881

Adherence Challenges

- Low adolescent adherence
- Need for adolescent autonomy
- Multiple contexts and stakeholders
- Infrequent communication with patient/parents
- Competing clinical priorities
- Low/no reimbursement for communication

Adolescent Autonomy

[Video Removed For 508 Compliance]

Design of Health Communications Systems

- **Why more/better communication?**
- **Who needs to / should communicate?**
- **What is the best focus for communication? Detail?**
- **Why this technology with this population?
Sustainability?**
- **Is the timing of communication critical?**

Two Current Projects

■ SuperEgo

- Prompt and motivate diabetes adherence through scheduled reminders and text messages from significant others

■ MyMediHealth

- Prompt adherence, improve communication between multiple stakeholders, and reduce medication errors

SuperEgo



SUPEREGO
...messagIng YOUR WAY*

[Help](#)

Your Way to Remember!

Use this website as the part of your brain that reminds you when and why to do things...

login

[Forgot Password?](#)

What is SuperEgo?

SuperEgo is a tool that helps you remember to do things, and stay motivated to do things. Let's face it, we all have some things that we forget to do, and some things that we might avoid doing, or have a hard time doing.

Say you forget to check your blood before practice in the afternoons? No problem! Set a reminder. Do you remember to check, but something stops you, like not wanting your team to know you have diabetes? No problem! You can write yourself text messages that help you get through difficult situations.

You can also ask your friends and family to log on and write text messages for you to schedule!



**Check it out, and let us know what YOU think. We're always looking to improve SuperEgo!*



Create, Search, Select, Request

The screenshot displays the SuperEgo web application interface. At the top, there is a navigation bar with the SuperEgo logo and the tagline "...messaging YOUR WAY". The main content area is titled "Your Messages" and includes a search bar for "Message Keywords, Tags or Author" with "Search" and "Clear" buttons. A filter dropdown is set to "None".

The message list is as follows:

Messages (8)	Author	Access	Tags
<input checked="" type="checkbox"/> If you check your sugar, you won't have to guess at what your insulin dose should be.	shelagh	Public	check sugar, insulin, guessimate
<input checked="" type="checkbox"/> Slow down! Take the time to take care of yourself! You will feel better for it.	shelagh	Public	rushing, time, feel better, help, talk, communicate
<input checked="" type="checkbox"/> Have an apple instead of that candy bar. You'll feel better and won't be hungry in 30 minutes.	shelagh	Public	candy, hunger, fast sugar
<input checked="" type="checkbox"/> Do you have fast sugar with you?	shelagh	Public	fast sugar, supplies, planning, food, carbs, carbohydrates, count, counting
<input checked="" type="checkbox"/> Cynthia would be very proud of you, and give you a big hug!	shelagh	Private	self care
<input checked="" type="checkbox"/> Breathe deeply and slowly!	shelagh	Private	breathe slowly
<input checked="" type="checkbox"/> Take a walk outside and clear your thoughts.	shelagh	Private	walk, calm

At the bottom of the list, there is a "Messages (5)" section and a pagination link: « Previous 1 2 Next ».

On the right side, there is a "Create a Message" form with a text input field (150 characters left), a "Tags, separate with commas" field, a "Private" dropdown menu, and a "Select Message for Schedule" checkbox. A "Publish New Message" button is located below the form.

Below the form is a section titled "What are you dealing with now?" with a sub-section "Ask SuperEgo users for a message:" and a "Briefly Describe an Issue you have" text input field. A "Request A Message" button is located below this section. At the bottom of this section, it says "What other users are saying »".

At the bottom of the page, there is a copyright notice: "© 2010 Vanderbilt University. All Rights Reserved." and a link: "Visit www.SuperEgo.org for more information."

Default Messages

- **Barrier: Isolation**
 - “Sometimes friends are afraid to ask about your diabetes. Be the one to bring it up with them first.”
- **Barrier: Embarrassment**
 - “Lots of people take care of diabetes in public places every day. Give it a try.”
- **Barrier: Forgetting**
 - “Don’t forget your diabetes supplies!”

Schedule Messages

Logout shelagh Change Password Help



Your Schedule Your Messages Your Network

Your Schedule

Choose a date, then select a message and drag it to the time you wish to receive it...

May 26, 2010

May 2010							Previous
Sun	Mon	Tue	Wed	Thu	Fri	Sat	
25	26	27	28	29	30	1	06:00 AM
2	3	4	5	6	7	8	
9	10	11	12	13	14	15	07:00 AM
16	17	18	19	20	21	22	
23	24	25	26	27	28	29	08:00 AM
30	31	1	2	3	4	5	08:00 AM If you check your sugar, you won't have to guess at what your insulin dose should... [Edit]

Messages (click to drag onto timeline)

If you check your sugar, you won't have to guess a... [Drag]
Slow down! Take the time to take care of yourself... [Drag]
Have an apple instead of that candy bar. You'll fe... [Drag]
Do you have fast sugar with you? [Drag]

« Previous Next »

09:45 AM Do you have fast sugar with you? [Edit]

Next

Create a network of support for goals

The screenshot displays the SUPEREGO website interface. At the top right, there are links for "Logout shelagh", "Change Password", and "Help". The SUPEREGO logo is on the left, with the tagline "messageing YOUR WAY". Below the logo are three navigation buttons: "Your Schedule", "Your Messages", and "Your Network".

Your Network

Manage and expand your network of message contributors...

Current Network	Email	Type
<input type="text" value="First Name"/> <input type="text" value="Last Name"/>	<input type="text" value="Email"/>	<input type="text" value=""/> ▼
Ivana Campanella	ivana_campanella@yahoo.com	Family
Kevin Johnson	kevin.johnson@vanderbilt.edu	Friend
Sam Mulvaney	samulvaney@yahoo.com	Friend

On the right side of the network table, there are two sections: "SuperEgo users are asking for..." and "Respond to...".

© 2010 Vanderbilt University. All Rights Reserved. *Visit www.SuperEgo.org for more information.

SuperEgo Pilot Research

- Usability
- Content of Communication
- Timing of Communication
- Sender / Social Support
- Patient Engagement
- Impact on adherence and blood glucose

MyMediHealth: Medication Reminders

MEDI TEDDY

MANAGE ME

MANAGE MY MEDS

MANAGE MY SCHEDULE

MANAGE MY ALERTS

SEE HOW I'M DOING

LOGOUT

MY INFORMATION

I am managing MyMediHealth for: Myself My child

Patient Name:

Patient Cell Number: Carrier

Parent Name:

Parent Cell Number: Carrier

Yes. I want to receive an alert if my child does not respond within 15 minutes.

No. I do not want to receive an alert if my child does not respond within 15 minutes.

UPDATE INFO

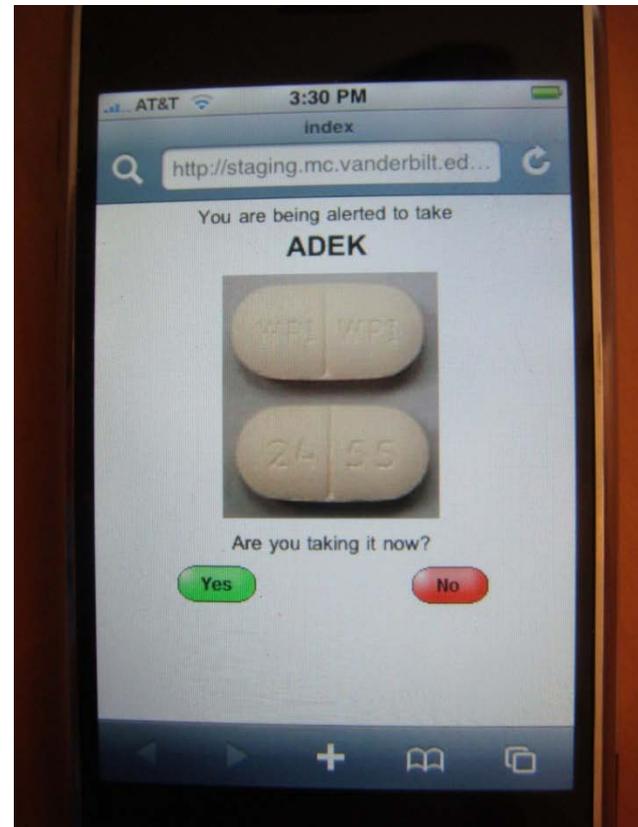
Schedule Medications

The image shows a screenshot of the 'Medi Teddy' medication scheduling application. The interface is designed to be user-friendly and colorful, featuring a cartoon bear character named Medi Teddy in the top left corner. The main area is a 24-hour grid for scheduling medications, divided into two 12-hour shifts: 12:00am to 11:00am and 12:00pm to 11:00pm. Medications are scheduled as follows:

- 12:00am - 11:00am:**
 - ACEK at 2:00am
 - FLOVENT at 5:00am
 - TETRACYCLINE at 5:00am
- 12:00pm - 11:00pm:**
 - FLOVENT at 4:00pm

On the left side, there are four navigation buttons: 'MANAGE MY MEDICINE LIST', 'MANAGE MY SCHEDULE', 'SEE HOW I'M DOING', and 'LOGOUT'. At the bottom, there is a 'MEDS' tab and a 'FOOD' tab. The 'MEDS' tab is active, showing a list of medication buttons: ACEK, ALBUTEROL, FLOVENT, PANCREASE, PULMOSZYME, TETRACYCLINE, TOBI, VEST, and Z. Each button has a 'more info' link below it. There are also navigation arrows (left and right) and a trash can icon on the right side of the medication list.

Reminders and Messages



Adherence Feedback



Summary

- Don't become invested in the technology.
- Plan on iterative, multi-phase development
- Incorporate multiple stakeholders, and specific roles for them
- Target for population, tailor for individuals. Use optimal defaults, and opt-out design (libertarian paternalism)
- Use modular design for sustainability and generalizability

Thank You

shelagh.mulvaney@vanderbilt.edu