Mobile Health: Opportunities to Improve Health Literacy and Nutrition Behaviors
68% have access to a sanitation facility

91% have access to improved drinking water

97% have mobile phone subscriptions

WHO, 2015; ITU, 2015
Who Texts in the U.S.?

Pew Research Center, 2015

- 92% own a cell phone
  - 80% use text messages
- 68% have a smartphone
  - 62% users looked up health information last year
  - 75% of users under 30 looked up health info
Digital Divide Smaller for Mobile Phones

Pew, 2013
Smartphone Ownership by Age and Income

Pew, 2013

- **18-29**: 90% (>$30,000), 77% ($30,000-74,999), 81% (<$30,000)
- **30-49**: 87% (>$30,000), 68% ($30,000-74,999), 47% (<$30,000)
- **50-64**: 72% (>$30,000), 40% ($30,000-74,999), 22% (<$30,000)
- **65+**: 43% (>$30,000), 21% ($30,000-74,999), 8% (<$30,000)
What is mHealth?

• Medical and public health practice supported by mobile devices, such as mobile phones, patient monitoring devices, ... and other wireless devices (WHO, 2011)

• Short Message Service (SMS)
  – ≤160 characters of text (including links)

• Multimedia Messaging Service (MMS)
  – Text, images, video
Who Can We Reach?

• Racial/ethnic minorities
• Dispersed
• Rural/urban
• Low-income
• Young
• Busy
• Stigmatized
• Field-based workers
Why Use Text Messages?

- **Texting is ubiquitous**
  - Access to a diverse audience (DHHS, 2013)
  - Hard-to-reach populations (Duggan, 2013)

- Relatively **low cost** to researchers and participants (Fjeldsoe et al., 2009)

- Easily and **quickly** sent to a large audience

- Perceived as personal and **informal** (Gold et al., 2010), **private**

- Can tailor, target, and personalize

- **Real-life settings**
  - In time & in context
  - Reduce participant burden (Marshall et al., 2013)

- **Interactive**
Promising Findings in mHealth

• Increase in health knowledge
  • Sexual health  (Lim et al, 2011)

• Increase in positive health behaviors
  – Child immunization  (Stockwell et al., 2012)
  – Smoking cessation rates  (Free et al., 2011; Rodgers et al., 2005)
  – Physical activity  (Lau et al., 2011)
  – Adherence to appointment schedules  (Koshy et al., 2008)

• Some research using texts has produced negative or inconclusive findings
  (Cocosila et al., 2009)
mHealth as a Tool in Health Literacy

• SMS can improve patient-provider communication (Kumar & Arya, 2015)

• Internet health info seeking is unrealistic for underserved groups (Connolly & Crosby, 2014)

• Medically underserved far more likely to use text, apps to get health info (Broderick et al., 2014)

• Textisms promote literacy (Drouin & Davis, 2009; Kemp & Bushnell, 2011; Plester, Wood, & Bell, 2008; Powell & Dixon, 2011)
Unidirectional Messages

- Educate
  
  Chlamydia: hard to spell, easy to catch—Use a condom. (Lim et al., 2011)

- Remind
  
  Stop, drop, and pop. Take your meds now. (Lewis et al., 2013)

- Challenge
  
  Try a new vegetable this week! Ever tried kale? Jicama? (Gerber et al., 2009)

- Encourage
  
  Your goal is 2,000 steps today! Keep taking the stairs!
Bidirectional Messages

• Tailored Programming
  – Ask contingency questions
  – Provide feedback
• Evaluation
  – Confirm message receipt
  – Track and monitor
  – Assess
  – Receive feedback

You’ve achieved your goal of taking 2,000 steps today! Keep taking the stairs!
Reply ‘YES’ if you’ve received this message.

How many hours last week did you engage in physical activity? (Bauer et al., 2010)

What’s the main reason U drink? A. It’s a habit; B. To feel better; C. To have fun; D. To cope. Text me your answer. (Irvine et al., 2012)

How do you feel about the number of text messages you receive from us? 1 = fewer texts; 2 = more texts; 3 = the same amount of texts.

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Supporting Practitioners

- Diagnosis
- Monitoring
- Service, resource referrals
- Training and technical assistance

Is your patient facing food insecurity? Fill out a WIC Medical Referral form, and have her call for an appt.

Serving a family that could benefit from a home visiting program? Call the White Mountain Apache Health Dept at 338-4811.

Want to serve local apples during Homegrown School Lunch Week? Call Weber’s Farm for a special price!

Contact Catholic Charities of Oregon to get help translating Burmese and Bhutanese for SNAP-Ed participants.
Model Programs in Nutrition Education
• Prenatal care
• Labor & delivery
• Safe sleep
• Breastfeeding
• Nutrition
• Immunization
• Safety
• Substance abuse
• Developmental milestones
• Mental health
• Oral health
• Family violence
Tu bebé te tiene
Usted tiene text4baby

Textoé BEBE a 511411
Recibe mensajes GRATIS en tu teléfono que te ofrecerán ayuda durante tu embarazo y el primer año de tu bebé.

text4baby

Un servicio de la Coalition Nacional de Mujeres Saludables, Bebés Saludables

FDA Office of Women’s Health
www.fda.gov/pregnancy

Soon you’ll meet your baby! Did you know that if you qualify, WIC can help you with breast feeding? To find a local WIC office, call 800-311-2229.

Help protect your baby from illnesses like the flu. Breastfeed right after baby is born. Your milk can help fight disease & protect your baby.

Have you gone back to work? It can be tough. Take it one day at a time & know you’re not alone in this balancing act.
Text4Baby Findings
USHHS HRSA, 2015

• In a sample of 4 CHC’s, 81% of participants in T4B answered at least 3 of 4 knowledge questions correctly (compared to 60-62% of non-participants)
  – How mothers plan to feed babies
  – How they plan to lay babies down to sleep
  – When is the best time to deliver
  – When a pregnancy is full-term
TXT4Tots

• Message library for parents of 1-5 year olds

• Based on AAP Bright Futures
  – Nutrition
  – Physical activity

• Some effort to integrate with Let’s Move!
• 6-session preschooler feeding practices curriculum for parents
  – Role modeling
  – Cooking and eating together
  – Division of feeding responsibilities

• Optional reinforcement texts
  – 4 reinforcements between sessions
  – 13 reinforcements after final session
  – 3 evaluation messages
• Sample reinforcement text

Eat fruits & veggies & your kids will too. Try adding fruit to breakfast!

• Sample evaluation text

Did your child help you cook a meal this week? Reply 1=yes, 0=no

• In pilot year, 84% retained
Children like to choose their own foods to eat. Offer 2-3 healthy foods to eat at mealtime. Give your child control by letting them put food on their own plate.

Have a picky eater? Offer choices! Rather than asking “Do you want broccoli for dinner?” ask “Which would you like for dinner broccoli or cauliflower?”

Your child loves being active with you. Take them outside for a walk around the neighborhood. Have your child look for different shapes and colors while you walk.

Sign Up Now! Visit www.text4healthytots.com or Text TOTS to 30644

Text4 Healthy Tots is a nutrition and physical activity text message program for parents with children ages 3-5. Messages provide you with tips on healthy meals and recipes, cooking and eating together, picky eaters, and activities for the whole family. The University of Maryland Extension SNAP-Ed has partnered with your school to offer this program. You will receive 1-2 texts per week with ideas that relate to the time of year and often link to our blog, website, and Facebook page for more information.
• Successful school programs, but limited parent engagement
• Reaches parents of elementary students at SNAP-Ed schools in MD
  – Two messages per week
  – Targeted to each school, community

Grutzmacher, Braunscheidel Duru, Speirs, Worthington, Munger, & Lachenmayr, under review.
Nutrition education
School activities
School meals
Active recreation

Local events
Libraries
SNAP and WIC
Food retail
Farmers’ markets

Enjoy the nice weather this weekend & let the kids go outside to play! Try games like pumpkin bowling, broom stick races, or musical freeze tag!

Fresh berries like strawberries & blackberries are in season now. Visit the Catonsville Market for fresh local fruits & veggies. You can even use EBT cards!

Looking for Friday Fun? Take the family to the FREE Light the Night carnival at 16 Washington St, Cumberland. There will be a bounce house slide and much more!

Oakland Library hosts a Dr. Seuss Party Monday @ 630pm. Bring your child & get a free book! Call to register. While there, find a book on fruits & veggies!

Lansdowne K students had a lesson today on seeds, soil & sun. All students took home a newsletter. Check the backpack for more info on growing plants at home.

It's National School Lunch Week! To celebrate encourage your child to try a healthy food. Yough Glades is serving broccoli and orange wedges tomorrow!
## Parent Participation

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What Have We Learned from Text2BHealthy?

• Recruitment
  – Self-enrollment, remote recruitment don’t work

• Retention
  – Dropout predictors: Time, stop messages

• Improving Response Rates
  – Prompts and reminders may help improve low response rates
  – Incentives don’t
Text “fsne” to 30644.
Let’s Try Our Own!
Acknowledgements

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• Participating schools and families

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Questions?