



Core Faculty Member [Brian Suffoletto, MD](#) is Research Director of the Emergency Department of UPMC Mercy Hospital and a practicing clinician interested in using technology to improve patient support and health outcomes. His current research is focused on using a text-message intervention to reduce binge drinking among adolescents.



The [Center's](#) Julia Holber had the opportunity to ask Dr. Suffoletto about his lifelong interest in technology, the biggest challenges he's faced in implementing a text-messaging program, and the key ingredients to a successful technology-based behavioral intervention.

**Julia: Tell us a bit about yourself and your background.**

Brian: I grew up in a techy household. My father's first job out of college was at IBM, and I grew up hearing about and talking about computers. I remember my father bringing home our first PC and floppy discs with basic games, and that just blew my mind. From an early age I was always thinking about technology and what it could do. Travelling with him to computer shows, I got the sense of its transformative possibilities. I grew up in New England, moved up and down the East Coast, went to medical school in Chicago, and trained at Pitt in Emergency Medicine.

**Julia: Your current research is focused on reducing binge drinking among adolescents. What inspired you to pursue research in this field?**

Brian: When I arrived here, our department, like most, was largely focused on researching cardiac arrest, sepsis, and prehospital care. Towards the end of my fellowship, where I was largely trained in doing cardiac arrest research, the CDC came out with guidelines stating that universal screening of HIV should occur if your department's point prevalence was above 0.1%. We didn't know what ours was in the emergency department, so I screened 1,000 adult patients for HIV and risk behaviors. The most interesting finding of this project was the number of behavioral and substance use risk factors I observed in people that come to the emergency department. This project turned me onto the idea of the emergency department as an opportunistic setting to identify and intervene with people with behavioral risks around substance use.

**Julia: What made you choose text messaging as the platform of your intervention?**

Brian: I started reading about Screening Brief Intervention models ([SBIRT](#)) that had been applied to the emergency department and thinking about how to best utilize technology. In a busy emergency department, I didn't have time to screen for these problems that were latent in a lot of patients or even counsel them to intervene, which was and is the existing prevalent research model. People had used text messaging to try and get patients to take medications or use sunblock, but they were largely one-way. Texts were used to broadcast ideas to people, to spit out messages, but I wanted to do something different. I had the great fortune of identifying [Jack Doman](#), the Director of the [Office of Academic Computing](#) at WPIC. I explained that I wanted to develop a two-way messaging system where we could ask a question, receive a response, and somehow interpret that response to ask a further question or provide some feedback. He immediately said, "Oh I can do that!" To date nobody has been able to do that at an academic center except for him, and I truly believe he is both a genius and an unsung hero for this work.



**Julia: And even as the digital health space became filled with apps and online programs, you chose to stick with messaging.**

Brian: Yes. I like its immediacy. There is something elegant about the simplicity and usefulness that attracted me. You don't have to navigate through three websites to get to a message somebody left for you. It's not delivered to an email already saturated with spam. As apps started to come out and people began building complex interventions, it's become clear that these programs are not being used for long periods in the way investigators want them to be or in any way that's proven to result in lasting behavior change. Whatever modality that allows me to communicate easily and effectively with people, I'm going to use.

**Julia: What have you found to be the key ingredients to a text-message intervention targeting behavior risks?**

Brian: Number one: you need to work with a team that understands the behavior you're targeting. What drives the behavior? For example we know that certain things happen inside the brain of a young adult before they go out drinking. They start thinking about what that experience is going to be like, they develop "expectancies." They build a mental model of having a lot of fun and potentially getting drunk- and even though we as behavioral researchers view that as a negative, they often view that as a positive thing. You need to understand both the proximal drivers of that behavior and what the mind of the person who's enacting the behavior is like. You also need to know when that behavior occurs, and what strategies we need to employ to intervene. Because digital technologies were only recently invented, we only recently began thinking about how in that moment, when somebody is in that risky pre-behavior state, we can strategize to divert them from that. The science of that is pretty nascent, but basic behavioral theory says you can't just tell them to change. For our alcohol program, this is about understanding that you don't need 20 drinks when you go out to have a good time. Our program is an iterative process, and it's in the repetitiveness of the behavioral support that we're teaching someone the small steps to change.

**Julia: What has been your biggest challenge and what advice can you offer to overcome it?**

Brian: The biggest challenge has been implementing effective, evidence-based text messaging interventions in a healthcare setting. Health systems have unfortunately taken a prohibitively conservative stance. They disallow text message interventions to convey meaningful health-related information, even though there have been no breaches of privacy that I'm aware of. It's interesting, and it's frustrating because it's the patients who suffer. If I truly believed there was another comparable technology like secure messaging or an app that could achieve what we want to do, I would use it. But I don't. So I had to start thinking creatively- what are other markets outside of healthcare systems where we can do this work? I worked with [Don Taylor](#) at [healthStratica](#) to translate our effective SMS intervention to colleges. We have had some early successes and just received an email yesterday from a coalition of over 20 colleges in West Virginia that want to partner with us. So I hope that this continues.

**Julia: Despite these challenges, have these programs been successful?**

Brian: Over the past 10 years, we've developed over 15 different text message programs addressing behavioral issues, ranging from alcohol use to concussion management to medication adherence to hypertension to sleep hygiene to depression. In each of these indications, we've seen some metric of efficacy. I've spent the most work on alcohol use, and I can honestly say, after enrolling over 4,000 young adults across all my studies, that it works. We can get people to longitudinally engage with us in a meaningful way, we know the strategies that are effective and how to deploy them. Are the interventions optimized? I think they could be improved and our team is working hard to figure out how to do so. What a great and fun challenge.

