Your virtual physician will see you now: an exploration of Virtual Assistants in Healthcare

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Agenda

Florence: An Exploration of Virtual Assistants in Healthcare

- Challenges
- Project background
- Bringing Florence to life through an EHR
- Extending workflow to smart wearables
- Takeaways
Challenges
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Increase quality, actionable information

 Fee-for-Service + Alternative Payment Models

Focus on new ways to increase the quality of actionable information physicians provide while decreasing the time it takes to provide it

1. Enhancing the delivery of high-quality care and providing a leaner approach to delivering it
2. Driving faster, more accurate, data-rich, documentation to increase clinical usefulness
3. Simplifying provider-provider and provider-patient communication
4. Empowering patients with the tools they need to take more control of their own health and wellness
75% of people today feel that they are **forced to adapt to technology**, as opposed to the technology adapting to them

**SOURCE:** Speak Easy: Majority of Consumers Want Mobile Personal Assistants and Apps That Can Adapt and Converse; August 2013
Want-vs-Get (+Have)
Reducing the gap between the “want” and “get”
Want-vs-Get (+Have)
Reducing the gap between the “want” and “get”
We need to **reinvent**
the relationship
between clinicians and
technology
Technology needs to adapt to clinicians instead of the other way around.
Project background
From data collection to development...

Survey results, usability studies, focus groups, and more...

January 2013 survey to 10,000 clinical professionals asked “do you believe that virtual assistants (VAs) will drastically change how clinicians interact and use electronic health records?”

- Initial Florence prototype developed based on survey results (debuted 2013)
- Subsequent surveys and focus groups were conducted to further refine Florence prototype, use cases, and supported workflows

Based on survey results, 8 of 10 clinicians believe that statement to be true and;

65% feel VAs could provide more accurate, timely information to support care and alert physicians to missing information in patient charts

73% think VAs could improve healthcare and patient engagement

80% believe VAs will benefit patients by better engaging them in the care process
Focused clinical use cases

Supporting navigational and transactional commands

- Florence is an intelligent system that supports 2 broad categories of conversational interactions:
  - **Navigation commands** that allow the clinician to quickly retrieve and view information (e.g. “what is my schedule” or “show me latest lab results”)
  - **Transactional commands** that allow a clinician to complete complex, multi-step operations (e.g. “order a chest PA and lateral to check for possible pneumonia”)

- Florence utilizes clinical language understanding (CLU) to understand the “intent” of the clinician’s request:
  - Eliminates the need to memorize exact command syntax
  - Different clinicians can request the same action using different commands
Bringing Florence to life through an EHR
UI Study and Alpha Development
Landmark Hospitals and Technomad ChartPad

**Purpose**: Determine and observe how clinicians interact with a system if voice were the only input.

**Goals/Objectives**: Perform usability testing with clinicians to observe exactly how users react to, and interact with, a virtual assistant for the purpose of documenting a patient encounter. Identify what works and what doesn’t. Further refine navigational and transactional commands for the first commercial release of Florence.

**Participation**: 10 clinical professionals/EHR users; 30 minute usability testing per physician and post-session data collection
Usability Study and Alpha Development

Landmark Hospitals and Technomad ChartPad

- Nuance team reviewed participant responses and audio logs:
  - Implemented technical updates and further developed and refined the grammar models to improve Florence response accuracy
  - Optimized speed/responsiveness and interruption workflows
  - Tweaked verbosity and added new, more natural, “voices”
  - Feedback also led to development of new “batch mode” to analyze physician note and prompt for orders based on note content

- What they liked:
  - Interactivity, click elimination, and overall potential

- What they thought could be improved:
  - Verbosity and rigidity

- Takeaways:
  - Clinicians wanted faster response, fuller understanding and knowledge depth, more flexibility, and unobtrusive workflows
Extending workflow to smart wearables
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Florence smartwatch workflow concepts
Takeaways

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Humanizing Healthcare

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Intelligent systems **break down technology barriers** and ease the shift to the digital age of healthcare
Closing the Want-vs-Get Gap
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Intelligent systems adapt to people instead of the other way around and help people get to “the want” faster
Helping Doctors and Patients
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Intelligent systems support day-to-day duties of caregivers and empower patients by understanding, learning, anticipating, adapting and making the complexities of technology disappear.
Thank you