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Using AI and NLP to Alleviate Physician Burnout

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MACHINE LEARNING & AI
FOR **HEALTHCARE**
A HIMSS EVENT

FEBRUARY 11, 2019
ORLANDO, FL



**Using AI and NLP to Alleviate
Physician Burnout**

www.HIMSSConference.org | **#smartHIT**



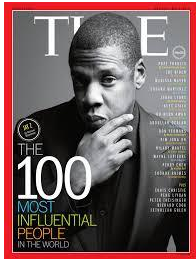
Context: AI as a New Technology



It is Day 1: We're very early in this Journey- we'll be wrong



Other Industries are ahead- we need to learn from them (Financial Services, Online Retail, Digital Marketing, etc.)



New Technology Paths: Enable existing models before creating something entirely new- Internet, Online Magazines, Social Media

PSJH Digital Journeys



Make Caregiving Easier



Better Serve Medicaid



**Personalization and
Convenience**



**Power Behavioral
Health**



Simplify Care



**Enable New Revenue
Streams**

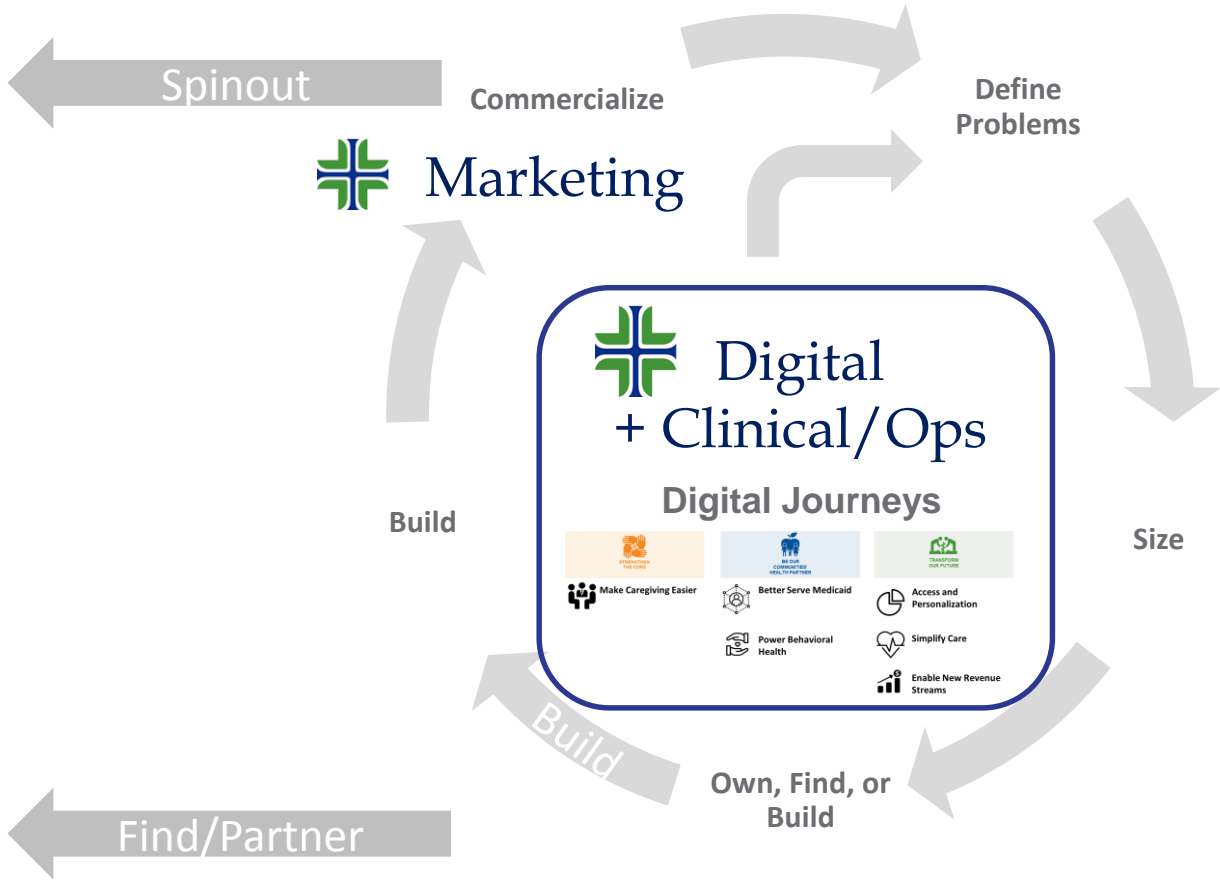
PSJH: DIGITAL INNOVATION MODEL



Incubate/ Spinout



Best of Breed





Innovating at the End of the Value Chain





Enabling The “Sacred Encounter”



Reducing Friction for Providers

The Positives



Powerful Data Collection



Clinical Decision Support



Improved Quality Outcomes

The Friction



Increased Screen Time



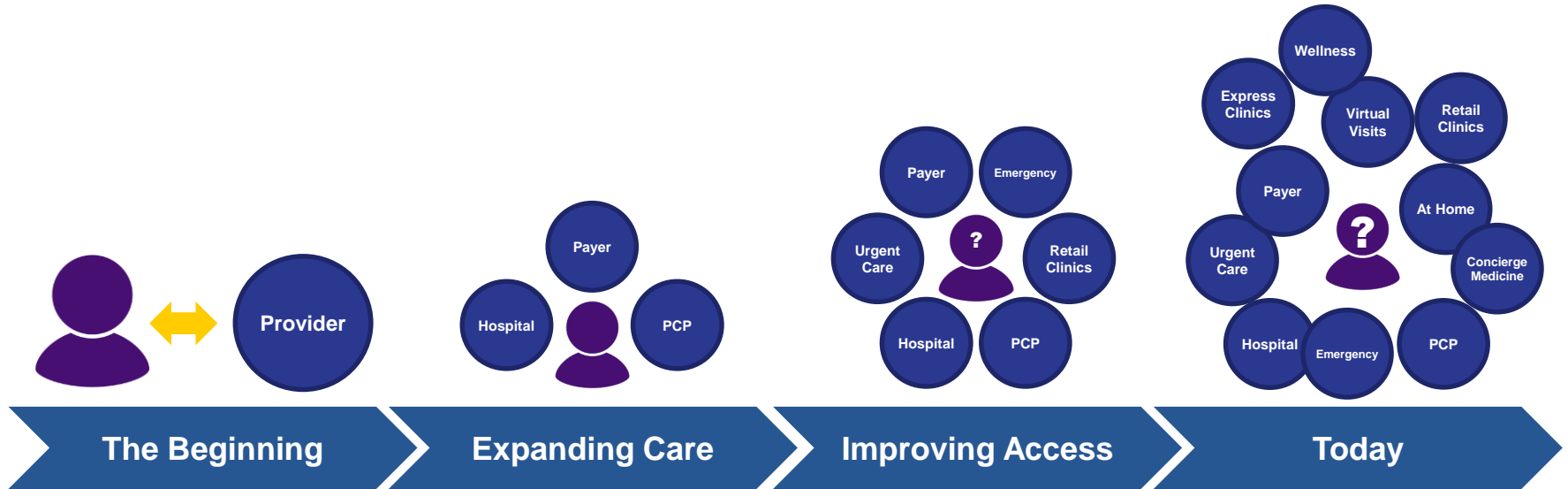
Untapped Data



Physician Burnout



Navigation: Increased Access Options Complicates Patient Experience





How AI Can Help



The Sacred Encounter



Consumer-Facing AI

What insurance plans do you accept?

Where can I get care for this condition?

What do these symptoms mean?

I want a prescription refill.

Patient Need



Concierge

Navigation/Triage

Diagnosis Support

Self-Service

Solution



Help patients understand the system and their benefits

Help patients understand their options

Help diagnose patients before seeing a provider

All-encompassing assistant to navigate a patient's needs

Powered by Generalized AI Platform



Effective AI



Accurate: Especially in Health Care



Modular: Using Several Technologies for Different Contexts



Context-Aware: Provides Help in Different Patient/Provider Contexts



Multi-Channel: Voice, Chat, Smart Speaker



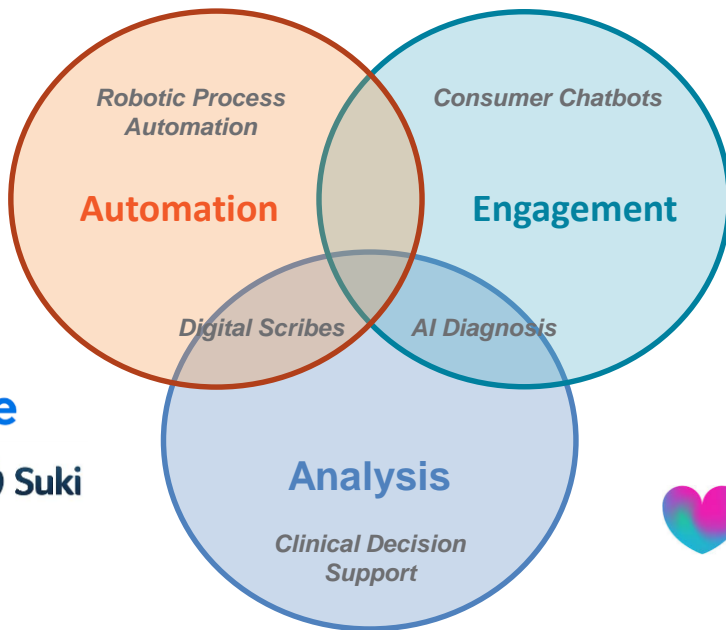
Persistent: No Need to Relearn Prior History or Context



Vendor Approaches

Automation: AI as Assistant

Takes tedious tasks and automates them intelligently, freeing up patients and/or providers to focus on other tasks



Engagement: AI as Customer Service

Offers personalized, thoughtful, and helpful customer service experiences, with no wait or cost to the health system

Analysis: AI as Advisor

Enables clinicians and patients to make better decisions, powered by predictive models and real-time data support



PSJH Current Work: Virtual Physician Assistants

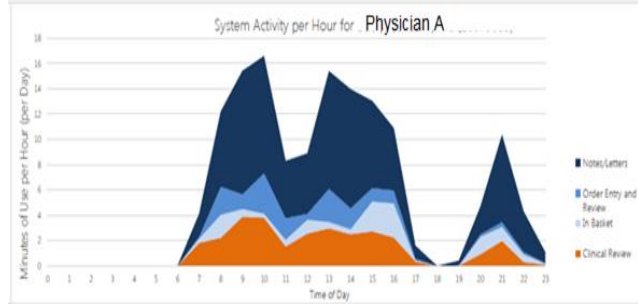
Solutions

saykara

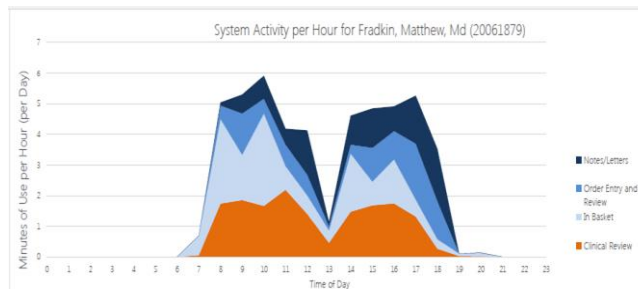
Open-ended virtual physician assistant for broad, complex use cases

Early Results

Typical Physician Daily Epic Usage



AI-Supported Physician Daily Epic Usage





PSJH Current Work: Consumer-Facing NaV Chatbots

Solution

Grace



Need Help?

Grace is a patient-facing AI capable of directing patients to an appropriate venue of care based on their symptoms or condition, as well as answering simple FAQ-style questions. Uses open-source AI.

Early Results

Grace Symptom Checker – Service Line Listing

2%

Click Rate

90%

Patient Routing
Accuracy

Grace FAQ – Help Page

18%

Click Rate

80%

Answer Accuracy

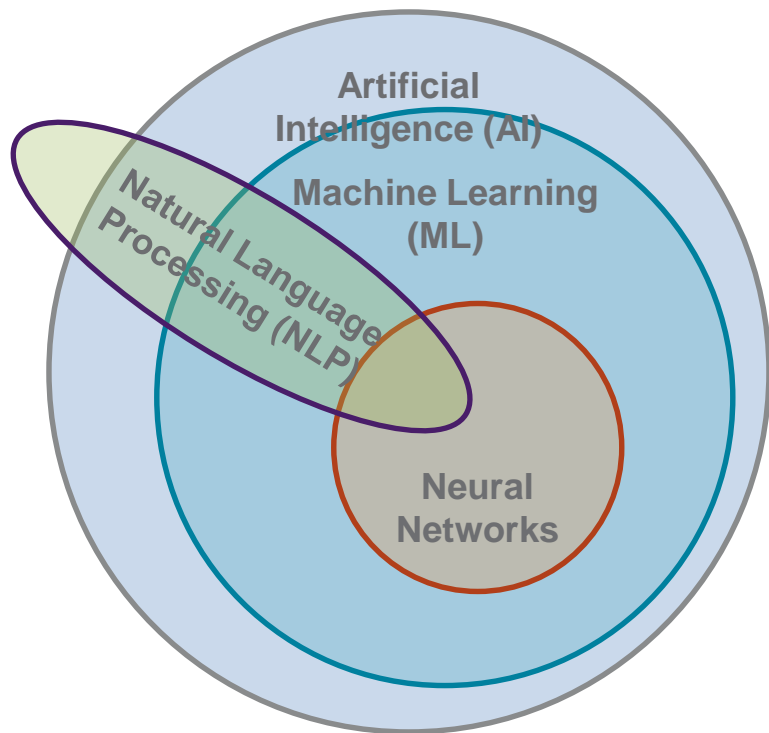


Vision for AI and Bots to Support Patients & Providers

- **Before the Visit:** Collect data from patient and mine EMR information to assist the provider and prepare the visit
- **Smarter Care:** Reduce or eliminate unnecessary care that should be algorithmic/self-service
- **Navigate:** Patients to the right care option
- **Top-of-License:** Help direct lower level licensed (or the patients themselves) to conduct low-acuity physical exams where a higher license is not available or not required
- **Seamless Experience:** Partner with technology companies and platforms to modularly access many AI/bots while providing a consistent experience and continuity



What Are AI, ML, Neural Networks, and NLP?



Artificial Intelligence:

System exhibiting intelligent behavior

Machine Learning:

AI + improving over time based on data, without human programming

Neural Networks:

A type of ML using large volumes of labelled data inputs with less need for human help than other classification algorithms

Natural Language Processing:

Understanding human "talk" and "talking back" to us in ways we understand

A nighttime photograph of a city skyline reflected in a body of water. The scene is illuminated by city lights, with several palm trees in the foreground on the right. The sky is dark blue, and the water shows clear reflections of the buildings and lights.

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