AI Driven Virtual Scribes For Primary Care

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Meet Our Speaker

Matthew Fradkin, MD, MS, FAAP
Clinic Lead, Swedish Medical Group
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Digital Innovation Group
Welcome
Conflict of Interest

Matthew Fradkin, MD, MS, FAAP

Pediatric Medical Advisor, Saykara
Agenda

• Introduction
• Provider Burnout and the EMR
• Provider Facing Solutions
• Rapid Piloting Process
• Pilot Results for AI-Driven Virtual Scribes at Swedish
Learning Objectives

• Describe the difference between transcription, voice recognition software, and AI driven virtual scribes
• Assess improved charting techniques using virtual scribes
• Recognize how to select the right AI scribe/assistant for your practice
“Steve Jobs was a pioneer of digital music. But when he went home, he listened to vinyl.”
PSJH Digital Journeys

- Better Serve Medicaid
- Power Behavioral Health
- Make Caregiving Easier
- Personalization and Convenience
- Simplify Care
- Enable New Revenue Streams
Digital Innovation Business Model

Outside Tech Companies

Best of Breed Companies

Providence Ventures

Rapid Piloting Process

NewCo #1
NewCo #2
NewCo #3

Spinout
Commercialize
Define Opportunity Areas

Collaborate
Build

Digital Innovation Focus Areas

Size & Prioritize

Find/Partner and/or Invest

Analyze:
Own, Find, or Build
Leading Causes of Burnout in Primary Care

Work Factors
- excessive workloads, long working hours, specialty choice, frequent call duties, comprehensive documentation in electronic medical records, time spent at home on work-related factors, risk of malpractice suits, and methods physicians use to deal with patient death and illness

Personal Characteristics
- self-critical, engaging in unhelpful coping strategies, sleep deprivation, overcommitment, perfectionism, idealism and work-life imbalance, and an inadequate support system outside the work environment (e.g., having no spouse, partner, or children)

Organizational Factors
- negative leadership behaviors, work load expectations, insufficient rewards, limited interpersonal collaboration, and limited opportunities for advancement and social support for physicians
A national survey conducted among physicians across all specialties found that physicians who used EMRs were less satisfied with the time spent on clerical work and were at increased risk of professional exhaustion.
# Reducing Friction for Providers

<table>
<thead>
<tr>
<th>The Positives</th>
<th>The Friction</th>
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<tbody>
<tr>
<td>Powerful Data Collection</td>
<td>Increased Screen Time</td>
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<tr>
<td>Clinical Decision Support</td>
<td>Untapped Data</td>
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<tr>
<td>Improved Quality Outcomes</td>
<td>Physician Burnout</td>
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The Burnout Workflow

1 hour
Patient Contact

1-2 hours
Progress Notes
Ordering labs
Prescribing medications
Other Tasks

0
Extra Compensation
Extra Support
The Physician’s View of the Patient

HPI
Allergies
Physical Exam
Lab Results
Demographics
Family History
Vital Signs
Consults
Past Medical History
Patient Preferences

The EMR’s View of the Patient

HPI
Physical Exam
Lab Results
Allergies
Family History
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Demographics
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Past Medical History
Patient Preferences

THE NOTE
Problem Identification

**Pre-Visit**
- Chart Review Past Visit History
- Labs / Imaging
- Medication Management
- Problem Lists

**During Visit**
- Chief Complaint
  - Reason for visit
- History of Patient Illness (HPI)
  - Patients current condition in narrative form
- Review of Systems
  - Other pertinent and negative symptoms
- Past Medical History
  - Review past medical, surgical, social and familial history
- Physical Exam
  - Vital signs, measurements, physical presentation, characterization of pain
- Assessment
  - Diagnosis and etiologies of condition
- Care Plan
  - Narrative of plan to treat patient concerns

**Post Visit**
- Orders
- Medication Management
- MyChart Messages
- Referrals
- In-Box
- After Visit Summaries

Subjective
- Objective
- Assessment
- Plan
Patient Visits are Non-Linear and Hard to Predict

- **Start of Visit**
- **End of Visit**

### Subjective
- **Chief Compliant**
  - Reason for visit
- **History of Patient Illness (HPI)**
  - Patients current condition in narrative form
- **Review of Systems**
  - Other pertinent and negative symptoms
- **Past Medical History**
  - Review past medical, surgical, social and familial history

### Objective
- **Physical Exam**
  - Vital signs, measurements, physical presentation, characterization of pain

### Assessment
- **Assessment**
  - Diagnosis and etiologies of condition

### Plan
- **Care Plan**
  - Narrative of plan to treat patient concerns
Burned out Providers Align to Two Groups

Typical Users, Significant Notation Challenges

- Chart Review
- Labs / Imaging
- Med Management
- Problem Lists

Willing to Change Templates

In-Visit
- Chief Compliant
- History of Illness
- Review of Systems
- Past Medical History
- Physical Exam
- Assessment
- Care Plan

Post-Visit
- Orders
- Med Management
- Referrals
- In-Box
- After Visit Summary

Super Users with Efficiency Challenges

- Chart Review
- Labs / Imaging
- Med Management
- Problem Lists

Not Willing to Change Templates

In-Visit
- Chief Compliant
- History of Illness
- Review of Systems
- Past Medical History
- Physical Exam
- Assessment
- Care Plan

Post-Visit
- Orders
- Med Management
- Referrals
- In-Box
- After Visit Summary

Consistent problem

Problem area

Not a concern
Digital solutions are positioned to solve the problem

- **Manual Intervention**
  - Keyboard and mouse
  - Manual typing

- **Human Led**
  - Template driven
  - Telephonic solutions
  - Remote scribing

- **Mixed Use**
  - Virtual scribes
  - Advanced voice driven templates
  - Smart dictation
  - Call/response action

- **Computer Led**
  - Ambient listening solutions for notation
  - Ambient listening solutions for navigation
  - Automated auditing and coding

- Intelligent Clinical Environment
  - TBD
What about speech recognition

Physician/Provider has to do the Q/A Review

Doctor is still tethered to the PC/ EMR, can’t be mobile.

Sometimes the dictation is not formatted in the EMR correctly

The clinical data doesn’t get structured discretely

Requires word for word expressions
Digital solutions are positioned to solve the problem

- **Manual Intervention**
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- **Intelligent Clinical Environment**
  - TBD
What Are AI, ML, Neural Networks, and NLP?

Artificial Intelligence (AI):
System exhibiting intelligent behavior

Machine Learning (ML):
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 (NLP):
Understanding human "talk" and "talking back" to us in ways we understand
Augmented AI Process

Audio from an encounter is mapped to concepts (pattern) in the AI model.

EHR

Fallback for concepts AI model doesn’t cover

History of Illness

The patient is a 35 year male who comes in for fever. He reports that the fever began 5 days ago and has been waxing and waning.

Physical Exam

...
How’d I Pick

• Simple operation - literally turn it on
• Can work with any workflow
• Can use current templates from provider, system
• Can merge and make note templates on the fly
• Is scalable - not dependent on a person scribe to provider interaction

SET IT AND FORGET IT
The Admin’s KPI

- More Patient’s Per Day
- Increased Billing
My KPI

- Does it actually do my notes?
- Can I spend more time with my patients?
- Am I home for Dinner?
- I/We am/are not changing our workflow/brainflow for anyone
- Train it once and it just gets better and better
The Pilot
Success Factors

- Set it and Forget It
- Combination of Personal Templates and System Wide Templates
- Heavy Lifting Kept Away from Providers
- Kept Learning, Kept getting better
- NO CHANGE TO WORKFLOW/BRAINFLOW
Learning Points

• The more I interacted with the Virtual/Augmented Scribe, the faster it learned

• Biggest Time Savers
  • Multiple Problem Visits
  • Well --> Sick Visits
  • Behavioral Health Visits

• Added Note Review 15 min blocks to Schedule
Your Providers are Worth It
Questions

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