

Speech Recognition Systems

Fusion Text – 2 transcription options

- Digital dictation (sound)
- Simultaneous speech recognition

Speech Recognition Fusion Systems

Run-in

- All physicians digital dictate
- Dictation is recorded as a sound file
- Generation of voice recognition file by transcriptions
- Evaluation mode between digital and voice recognition
- Speech recognition adapts to speaking habit, profile of each physician
- Switch to speech recognition

Advantages of Fusion Systems

- Turnaround time from 24-96 hours to 4-72 hours
- Annual transcription cost in outsourcing reduced by 40%
- Transcription production improves 50%
- Little change in physician work method

Speech Recognition Systems: Real Time

- Link speech recognition to word processing in real-time

Requirements

- Open document
- Switch on and off italics
- Go back and forth for corrections
- Allow for spelling
- Insert blocks of text (“smart phrases”) (“speech macros”)
- Navigate forms without keyboard
- Recognize acronyms which are turned to full phrases
- Differentiate “command” from “text”

Pitfalls

- Receiver operator dependent
- Upstart physician time
- Acoustic background interference
- Dialect differences
- Pronunciation
- Integration into existing database systems
- Context vocabulary
- Spontaneous dictation often leads to:
 - Missing articles
 - Missing verbs
 - Lack of or incorrect punctuation
 - Redundancies and repeats
- Integration into other systems
- Electronic failure (power outage “downtime”)

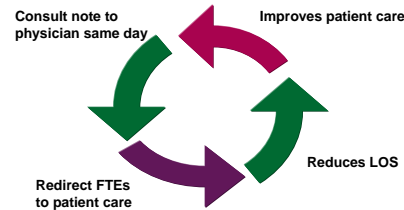
Speech Recognition Systems: Real Time

Ancillary Features

- Auto text design for routine report
- Intelligent speech interpretation technology eliminates background noise, redundancy

Advantages

- Generates text in 1/3 of the time needed for typing
- Face to face time with patient
- Improves efficiency 50% over transcription services
- Shortens front-end, back-end processing
- Adapted to different physician preference – editing, correcting, hard copy
- Attach reports and images in real-time
- Reduce telephone traffic
- Improves physician efficiency by reducing interruptions



Accuracy

- 90-95%- operator dependent
- PC compatible headsets wired, wireless, handheld with barcode scanners, digital recorders

Transcription Costs per Month: CCHS

- Private practice \$1000/physician/year
- General Internal Medicine: \$79,000/year
- Orthopedic Surgery: \$168,000/year
- Urology: \$39,000/year
- Taussig Cancer Center \$24,000/year

Transcription Costs by Transcription Service
Per Month

Company	Costs per Year
CYMED of Ohio	906,147
Medical Transcription	47,615
Marquis Inc	1,943,855
Premier Office Tech	142,509
Spheris Operations	2,808,531
Totals	\$5,648,657

Transcription Services Savings after EMR Implementation CCF Weston, FL

- Number Physicians : 100
- Year of EMR implementation: 2006
- Comparison of Transcription costs between 2005 and 2006

Transcription Costs Before EMR

	2005	2006	2007	2008	2009
Month total	104,570.93	105,433.59	117,312.79	97,513.10	98,602.87

Savings with EMR

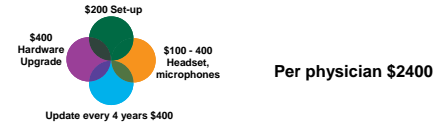
Sum of Jan-May of 2005	\$ 523,433.28
Sum of Jan-May of 2006	53,306.37
5 months of Savings	\$ 470,126.91

Approximate annual savings using a full year is \$1.3 million.

Current Transcription Costs

	2007	Jan	Feb	March	April	May
Month total	14,299.60	9,539.77	9,958.10	10,354.38	9,154.52	

Software License (Dragon Naturally Speaking) \$800-1000



Intangible Costs

- Personnel for maintenance
- Time to full implementation by physician and system
- Downtime
- Integration into Epic

Speech Recognition Systems: Stakeholders

- Transcriptionist – Fusion Technology
- Physicians- Real Time Technology

Speech Recognition Systems Address

- Front-end, back-end report processing
- Delays in care
- Inefficiencies due to:
 - Telephone traffic
 - Time delays between studies/consultation and reports
- Length of stay
- Communication between consultant/referring physician
- Overhead costs

Rationale for Speech Recognition Systems

- Hard copy record is gradually transforming into an electronic record
- Transcription needs will increase
- Inefficiencies will increase since the “typed” word is slower than the “spoken” word
- Overhead costs will increase with diminished revenues
- Patient care may become less efficient

Weakness of Speech Recognition Systems

- Technology adapted to CCHS
- Physician buy in
- Receiver operator dependency
- Upfront costs during transition (transcription plus speech recognition systems)

Speech Magic

- Discussions between Philips and EPIC
- License to distribute both together
- Support for Speech Magic in Smart Text
 - Progress notes, in-basket ED
 - Speech to text
 - Use of Smart Tools to create pre-defined text
 - Basic navigation available; workflow specific n/a

Opportunities of Speech Recognition Systems

- “Complete” transition to fully electronic record
- Reduce overhead, freeing funds for innovative projects or direct patient care

Threats of Speech Recognition Systems

- Technology may not be advanced enough for rapidly changing medical environments (limited usefulness to non-specialized or non-complex practice environments)
- Lack of integration: systems not fully integrated resulting in “piecemeal” add on technologies that are cumbersome
- Start-up costs

Recommendation

- Fusion technology for efficiency before advancing to Real Time
- Once efficiency is tested, roll out Real Time to target services for feasibility. Target services would have been involved with Fusion testing
- First step is to investigate, interview and bid multiple companies (Dragon, Philips Speech Recognition)

Action Items

- Clarify indirect costs
- Invite companies to display, present and bid
- Reassess based on technology-go or no go
- Trial Fusion Speech Recognition-3-6 months
- Visit facilities using Speech Recognition Systems
- Assess efficiency, accuracy, turn around time, satisfaction, cost, work accomplished per unit