Speech Recognition Software in Medical Practice

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Introduction:

Once purely the realm of science fiction, computerized speech recognition is now a mature technology enhancing productivity wherever there is a need for detailed documentation. Nowhere is the benefit of speech recognition technology more dramatically affecting workflow and enhancing efficiency than in the medical arena. In both the inpatient and outpatient setting, physicians are finding this technology the perfect bridge between the necessity of electronic record keeping and need to preserve the breadth of detail in the clinical documentation.

The advantages of moving to speech recognition software are diverse and depend on current documentation methods.

- For those offices currently still using paper, the ability to document at the “speed of speech” offers clinicians the ability to document in a more robust and readable manner and in so doing better document the clinical encounter and support appropriate billing levels.
- For those practices currently outsourcing transcription, the advantage of transitioning to speech recognition is an immediate and dramatic reduction in cost. As detailed below, for the average provider, the return on investment is measured in just a month or two
- For the provider who has already transitioned to an electronic medical record and struggling to emulate a detailed clinical history or document complex medical decision-making with button clicks, speech recognition offers a return to traditional clinical narrative for those areas in the clinical record where elaboration is necessary. For those struggling to hand-type significant pieces of the history, speech recognition technology offers a welcome break from keyboard entry.

Central to the success of speech recognition software is the simple fact that with simultaneous evolution of speech recognition technology and computer hardware, the process is now highly accurate after just a few minutes of basic training. In the medical realm, with the availability of specialty-related vocabularies, accuracy is now matching if not exceeding that of human-based transcription. A unique feature of speech recognition software is the fact that it draws only from a defined vocabulary does not make spelling errors.

In addition to basic dictation, speech recognition software allows medical providers to accomplish two other highly useful tasks: 1) navigate on the computer by means of voice and 2) utilize voice-initiated text commands. This latter feature, akin to “quick-text” in some EMRs, allows providers to use simple text commands to insert text documenting common, repetitively performed dictation, including:
- Normal portions of the physical exam
- Documentation of common management recommendations (e.g. non-pharmacologic recommendations for hypertension management, post-operative care management, etc.)
- Insertion of differential diagnosis for common clinical issues
- Documentation of counseling discussions

**Return on investment**

Return on investment calculations are highly dependent upon current workflow and the magnitude of current transcription costs. The simplest scenario is the office that is currently paying for transcription. In this situation, the cost of software can typically be recouped in transcription savings within 2 months or so. If hardware needs to be purchased, the ROI may be in the range of 3-4 months. The detailed ROI will depend upon current cost of transcription. Excluding the need for hardware, the following chart shows the ROI calculation from Dartmouth Hitchcock in Lebanon, New Hampshire and shows break-even points based on varying levels of annual transcription cost.

<table>
<thead>
<tr>
<th>Annual Transcription Cost per Provider</th>
<th>Year One Break Even Point for Speech Recognition (number weeks)</th>
</tr>
</thead>
<tbody>
<tr>
<td>$1000</td>
<td>Never</td>
</tr>
<tr>
<td>$5000</td>
<td>17</td>
</tr>
<tr>
<td>$8000$1</td>
<td>11</td>
</tr>
<tr>
<td>$10,000</td>
<td>8</td>
</tr>
<tr>
<td>$15,000</td>
<td>6</td>
</tr>
<tr>
<td>$20,000</td>
<td>4</td>
</tr>
<tr>
<td>$25,000</td>
<td>5</td>
</tr>
</tbody>
</table>

For those offices in which an existing electronic medical record the return on investment may still be measurable in dollars, but rather than saving transcription dollars, the use of speech recognition software may provide benefits in terms of:

- Improved provider satisfaction
- Improved documentation
- Reduction in repetitive stress injuries
- Improved billing support

**Logistical considerations:**

Successfully integrating speech recognition into a medical office should be done thoughtfully, and ideally with input and training from a value added reseller (VAR). It should be said at the onset that speech recognition software is not for every physician. It requires some minimum computer savvy and the ability to dictate with reasonably careful enunciation. For physicians currently dictating at a rapid pace

1 $8000 annual figure is based on data from the Medical Transcription Market Alliance.
for a human transcriptionist, it may be necessary to change dictation style slightly to more carefully enunciate words, since the computer will transcribe only what is heard and not what is meant. In our experience, approximately 75% of physicians successfully adopt this technology.

Successful integration of speech recognition software will not happen without a thoughtful plan. The following will greatly increase the likelihood of success:

1. Arranging for formal training. We recommend a dedicated 2-hour one-on-one training session with a professional speech recognition instructor. This will afford the opportunity to become fully competent with the software, including methods of correcting errors to lessen the likelihood of repeat errors, methods of building simple text commands, and the means by which new words can be added to the vocabulary.

2. Assuring you have a sufficiently powered personal computer and high quality microphone. We recommend that clinicians be supplied with tablets, notebooks, or work stations that meet “recommended” standards and not simply “minimum” standards. The use of a high quality microphone (not the inexpensive microphone included with the software) is a critical adjunct to careful enunciation in achieving high levels of accuracy. We recommend use of the hand-held Dictaphone PowerMic II for most clinicians. For those working in particularly loud environments, we recommend the use of the Sennheiser ME3. Show below is the current hardware recommendations by Nuance, the maker of Dragon NaturallySpeaking:

<table>
<thead>
<tr>
<th></th>
<th>Processor</th>
<th>RAM</th>
<th>Free Hard Drive</th>
<th>L2 Cache</th>
</tr>
</thead>
<tbody>
<tr>
<td>“Minimum”</td>
<td>Intel Pentium 1 GHz or faster</td>
<td>512</td>
<td>2.5 GB</td>
<td>512 KB</td>
</tr>
<tr>
<td>“Recommended”</td>
<td>Intel Pentium 2.4 or 1.6 dual core (2GB*)</td>
<td>2.5 GB</td>
<td>1 MB</td>
<td></td>
</tr>
</tbody>
</table>

3. Provide physicians with a base set of medically oriented text commands. These are huge time savers and productivity savers and allow the clinician to insert a commonly used segment of text (or complete paragraph or series of paragraphs) with a single spoken command. Speech Recognition Solutions has a basic set of commands which it supplies to all medical customers. In addition we have the availability of an extensive set of third-party commands which can be purchased and provide commands specific to a number of medical specialties.

4. Obtain or build Dragon commands to assist your providers in navigating and emulating functionality within your EMR via voice command. These are generally easy to build and often a physician champion within a practice will enjoy the role of building and tweaking these commands. Speech Recognition Solutions is delighted to provide assistance in the development of productivity enhancing commands.
Integration with electronic health records

Although Dragon will work in virtually all common word processing documents and the medical version is designed to be functional in most electronic medical record systems, with literally hundreds of available EMRs, it is worth assuring that Dragon will be compatible with your system. Dragon Medical works with most windows-based EHRs such as Waiting Room Solutions, Epic®, Cerner®, GE®, McKesson® and many more listed below (self-reported to EHRscope.com):

- A.I.med EMR By Acrendo Software, Inc.
- ABELMed EHR - EMR / PM By ABEL Medical Software Inc.
- Abraxas EMR By Abraxas Medical Solutions
- Accel® By CliniWorks™, Inc.
- AdvantaChart™ By AdvantaChart, Inc.
- Agatha Medical Records (EMR) By Agatha, Inc.
- AllMeds EMR System By AllMeds, Inc.
- Amazing Charts By AmazingCharts.com, Inc.
- ARIA™ Oncology Information System By Varian Medical Systems, Inc.
- BETTERHEALTH record™ By BETTERHEALTH Global (USA), Inc.
- Centricity® By GE Healthcare
- ChartCare EMR By CHARTCARE, Inc.
- ChartEvolve By The CIMS Group
- ChartLogic EMR By ChartLogic, Inc.
- ChartMaker® By STI Computer Services, Inc.
- ChartWare® By Chartware, Inc.
- Clinical Navigator By Systemedx, Inc.
- CureMD PRS® By CureMD PRS®
- CYRAMED™ By Mountain Medical Technologies, Inc.
- DC Talk™ By JR Consulting
- digiChart® By digiChart, Inc.
- Doc-U-Chart for the Tablet PC® By Doc-U-Chart
- DoctorAssistant By HealthHighway™.com, Inc.
- Doctors Choice EMR™ & Nurses Choice EMR™ By EMRSystems
- DocuMed® By DocuMed, Inc.
- Dragon® Medical By Dragon® Medical
- e-MDs Solution Series By e-MDs, Inc.
- e-Medsys™ Electronic Health Record By PracticeOne, LLC
- E-Record EMR By Exscribe, Inc.
- eClinicalWorks By eClinicalWorks
- EDIM By EDIMS, LLC
- Electronic Patient Charts By American Medical Software
- eMedRec By Holt Systems, Inc.
- EmpowER System™ By ECDS
- Medamation™ MD By Medamation, Inc.
- MedAppz iSuite By MedAppz, LLC
- Medflow EMR By Medflow, Inc.
- Medi-EMR By Medi-EMR, LLC
- Medical and Practice Management (MPM) By LSS Data Systems®
- MedicalNotes.com By MedicalNotes.com
- Medical Practice Solutions By Medical Voice Products
- MedicsDocAssistant™ By Advanced Data Systems Corporation
- Medios EHR By IOS Health Systems
- Medscribbler™ By Scriptnetics, Inc.
- MedTemps™ By Trigram Technology
- MicroMD® EMR By Henry Schein® Medical Systems, Inc.
- MindLinc from Duke University Behavioral Health Informatics By MindLinc: Duke University Behavioral Health Informatics
- mMD.net EHR By Health Communication Systems, Inc.
- NetPractice EHR By Noteworthy Medical Systems, Inc.
- Nightingale On-Demand By Nightingale Informatix Corporation
- OfficeEMR™ 2008 By iSALUS Healthcare™
- OmniMD™ EMR By Integrated Systems Management, Inc.
- OncoEMR By Altos Solutions
- ORIGIN By Medaxis Corporation
- Patient Chart Manager By Prime Clinical Systems, Inc.
- PBOmd By PBO Corporation
- PeakPractice™ By Eclipsys®
- PerfectMed™ EHR By Imogen Systems
- Phoenix Ortho By Phoenix Ortho, LLC
- Physician Practice Documentation (PPD) By Healthland, Inc.
- Power Chart By Exan Mercedes Software, Inc.
- PowerSoftMD By Data Tec, Inc.
- Practical Medical Record™ By Electronic Pediatrician, LLC
- Practice 2009 By NexTech Systems, Inc.
- PracticeOrders By PracticeSuite.com/Incite Systems, LLC
- Practice Partner® By Practice Partner/McKesson Corporation
- PracticeStudio.NET® By MicroFour, Inc.
- Practice Today By Legacy Press
- PRAXIS EMR V4.0 By Infor*Med, Inc.
- PrimeSuite® 2008 By Greenway® Medical Technologies
If you are interested in learning more about implementing Dragon into your office, we recommend you consider the following next steps:

1. Participate in a web-based Dragon demonstration. Speech recognition solutions schedules an online demonstration by its physician founder, Jon Wahrenberger, MD, every couple of weeks. For more information on these speech recognition web conferences, please contact Laurie Wahrenberger at laurie@speechrecsolutions.com or call 866-778-0524.
2. View a recorded demonstration of Dragon used within an EMR at any time at the following location: http://www.speechrecsolutions.com/XXXXXXX
3. Arrange for a personalized demonstration for your providers.
4. Contact us for more information, a price quote or to discuss the process in more detail

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