

Decreasing Practice Expenses Through Implementation of Voice-to-Text Software

Case Study

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Introduction

The practice of pathology has been inextricably tied to the processes of dictation and transcription for decades. The practice was revolutionized in the 1960s with the widespread adoption of dictation machines that utilized cassette tape recording media. The next leap forward came with the advancement in digital recording technology that eliminated the need to buy cassettes that could wear out or be lost and allowed for dictation to be transmitted electronically to anyone, virtually anywhere, in the world. With each of these technological advances it became possible for practices to shift the administrative task of typing reports away from the physician, thus making better use of the most expensive human resource most practices employ. In today's increasingly digital practice it is not uncommon for practices to outsource this function completely, eliminating the need to employ any transcription staff at all. Yet for some practices the shift to outsourcing can be scary due to hesitance of being so fully reliant on technology and the sheer fear of change.

Until 2012 the pathology practice had utilized a cassette dictation system for physician dictation. By this time, digital dictation recorders were prevalent in the market and cassette machines were becoming increasingly difficult to find and more expensive than their digital counterparts due to their limited availability. Additionally, the tapes had a limited life expectancy and therefore had to be replaced on a regular basis, adding an additional cost to the process. The decision was made to switch to a digital dictation system in order to eliminate the need for tapes and expensive, outdated cassette equipment. However, the physician owner was not willing to look at voice-to-text

solutions at that time and instead opted to simply keep the cassette based processes while utilizing the digital solution.

Since the implementation of the digital dictation system, the practice has experienced exceptional growth in the number of physicians employed as well as case volumes. This resulted in a number of issues for the practice that necessitated a revision to the current process.

First, because the practice had retained the cassette workflows after the digital dictation implementation it still needed to employ the same ratio of transcriptionists to cases, approximately 7 to 1. Now that the case volume had increased more staff had to be hired to meet the demands. In one year, three new transcriptionists were hired, adding over \$100,000 of new employee expenses to the practice every year. Another less obvious cost that became apparent as a result of the added staff was the cost of office space for them to work. The practice is located in a multiuse office building and was rapidly acquiring additional spaces for its growing staff, increasing the monthly rent expense by thousands of dollars.

When these issues were presented to the physician owner it became clear that the process needed to be reevaluated. During the discussion, the owner expressed a number of concerns about changing the current process. First and foremost was the owner's dedication to the existing transcription staff. He would not support any change that resulted in laying off staff. This would rule out wholesale outsourcing of the function. Next, any change had to retain the existing level of productivity or improve upon that. The cornerstone of the practice's service was rapid turn-around time, therefore, any option had to be capable of meeting the same speed.

This case study will outline several options, and the considerations for each, that were proposed to the group's owner. Following the selection of a solution, the implementation of that solution will be discussed. Finally, a brief discussion of the outcomes of that choice will be undertaken.

Alternatives Considered

The first alternative to be considered was to make no change at all. After all, this had been the preferred course of action in the past and the practice had managed to remain successful and even thrive. Furthermore, keeping the same processes avoided layoffs and retained the same level of productivity the practice had today. Finally, all of the physicians were accustomed to the current processes so no additional training or disruption would be incurred under this plan.

Despite the relative comfort of this option, there were significant consequences to this decision, many of which had led to this discussion in the first place. The practice would need to continue to hire additional transcription staff for every increase of seven cases to the daily case average, approximately two individuals per year. In addition to the human resource cost, additional costs in the way of office space, office furniture, and office equipment would be incurred for each new individual. Eventually the practice would need to rent an additional suite just to accommodate the size of the department. This alone presented a significant challenge to this solution because the transcription staff would no longer be in the same suite as the physicians, creating inefficiencies that in and of themselves, would change the current process.

The next possibility was to develop a "homegrown" solution that would be a hybrid of the practice's current process and a full voice-to-text implementation. The

process would make use of all of the existing digital dictation software but would utilize “quick text” shortcuts available through Microsoft Word to decrease the amount of typing needed by each transcriptionist on every case.

Due to the practice’s sub-specialization, over 99% of its cases consist of the same type of specimen and could easily be standardized. For example, Dr. John Smith would typically use two to three basic templates for dictating the light microscopy section of his reports. Currently, he has these templates memorized and simply dictates from memory, requiring the transcriptionist to type each word resulting in adding time to dictate and type the report. However, these templates could be loaded into quick text shortcuts and the physician would simply dictate “LM1,” for instance, and the transcriptionist would input “JSLM1” into Word which would propagate the entire paragraph template with blanks for case specific details. At this point the physician would simply dictate the information corresponding to each blank.

This option would again avoid the need for layoffs as transcriptionists would still be needed to input the quick text, organize, and proofread the reports. Additionally, the practice would avoid incurring the cost of new hardware as it would utilize its existing equipment which had only been in use for three years. Finally, the efficiency created would allow each transcriptionist to produce an estimated two additional cases per day in the same amount of time thus reducing the rate at which new staff would need to be added.

Despite the benefits, this alternative also had problems. The first is that each physician would need to develop their own templates for each section of their reports. Traditionally, the physicians were free to practice relatively independently without much

interference from the physician owner. This resulted in process variations that could not be accommodated if this alternative were to achieve maximum efficiency. There was also a risk that the physicians would not be able to settle on a template that they liked and would make constant changes requiring the transcription manager to take time out to make corrections. Finally, and most critically, it only slowed the growth of department staff, it did not eliminate or reverse the growth. This would allow the practice to avoid acquiring a new suite by an additional 12 to 18 months, but the move would still be inevitable.

The last option considered was to implement a voice-to-text solution such as Dragon Naturally Speaking. These systems have existed for over twenty years and, while their accuracy had been an issue in the past, the technology has improved to the point where it is now the norm in professions that require transcription. The software would allow the physicians to dictate their own reports, reduce the reliance on transcription staff, and eliminate the need to be in close proximity to the transcription department. In fact, with the software fully implemented, the transcription department could be virtually eliminated. Furthermore, the software would integrate with the practice's LIS and allow the physician to control all functions of the case process by voice command alone.

While this option seemed to be perfect on the surface, it too had drawbacks. It was, by far, the most expensive option. The practice would need to purchase not just the software, but also all new hardware to replace the digital dictation system acquired a couple of years ago. Additionally, each of the physicians would need a significant amount of training to learn the new system as well as to set-up and customize their

particular program. This would almost certainly decrease productivity for several months until everyone became accustomed to the new processes.

There was also the very real possibility that several of the physicians would be unable to adopt the new software without creating serious production issues. The practice had three senior physicians and two with very heavy accents that would almost certainly have difficulty using the system without slowing them down. The practice would need to run dual report creation workflows in order to accommodate these physicians.

Finally, because the physician owner would not consider layoffs, the practice would need to pay for this solution while still retaining all of the transcription staff. However, it would not need to add additional staff and, in the meantime, some of the staff could be utilized to accommodate the physicians who would not be adopting the system. Staff could also be retrained to assist with other non-specialized processes such as case assembly in the laboratory (Singh). The only way that the practice would achieve staff reductions would be through attrition.

Procedures Used to Make Decision

In order to evaluate and choose the appropriate solution, a very clear understanding of the transcription process was needed. To achieve this, the administrator worked alongside the transcription manager to map the progress of a case through the process. Through this exercise the physician-based variation in the process became apparent. Additionally, a number of functions performed by the department, such as case assignment would still be needed despite which solution was chosen. Therefore, some staff would need to be retained to address that work regardless of the chosen solution.

Next, the practice's LIS provider recommended a voice to text vendor and a demo was set-up to gather more information about the product. The demo outlined the basic functions of the system along with how it integrated with the LIS. Several implementation options were discussed such as a staggered roll-out, bringing several "early adopters" on to learn and champion the system while bringing others on after a few months, and finally, implementing all of our participating physicians at one time. The staggered roll-out would be more expensive due to travel and on-site labor cost associated with each go-live, whereas the practice would only pay once for the full implementation approach. It also became clear that the process of getting to go-live would take approximately nine months.

Lastly, the administrator discussed the options with each physician. They were the stakeholders of this process and it was important to hear their feedback. During the discussions several physicians expressed frustration that they were unable to complete all of their dictation before the transcription staff left for the day leaving them to finish typing their reports on their own if they were to meet the practice's turnaround time goals. This slowed them down, increased the opportunity for errors, and kept them at the office later than necessary. Other sites had been able to leverage voice-to-text systems to alleviate this "after hours" work and reduce errors (Singh). It was also discovered that many of the physicians, especially the younger staff, were already familiar with voice-to-text software from their training programs. Conversely, as expected, the senior physicians expressed skepticism about voice-to-text software and were reluctant to support it. Therefore, the trend was for the younger physicians to support the full voice-to-text solution while the senior physicians supported the "homegrown" solution.

Decision

After considering the pros and cons of each alternative with the transcription manager and gathering the additional information, the administrator recommended to the physician owner that the practice implement a voice-to-text solution through the LIS's preferred vendor. Ultimately the decision resulted from a consideration of stakeholder feedback, the projected growth of the practice, and the costs which would be incurred as a result.

The voice-to-text system would allow those physicians who complained about not completing their dictation on time to be more efficient and avoid manually typing their cases. It was expected that this would not only reduce errors in grammar and spelling on the reports but would also be much faster, allowing the physicians to leave at an earlier time.

The total cost of software, hardware, training, and initial decreased productivity was estimated to be approximately \$50,000 per participating physician. However, the total cost of a new transcriptionist was approximately \$75,000 once you considered salary, benefits, office furniture, and office equipment. The practice would be adding about two transcriptionists each year for an added cost of \$150,000 per year. It was expected that during the next year at least one transcriptionist would retire. Therefore, at the current growth rate it was estimated that the practice would recover its investment in around three years.

The practice would need to achieve its ROI through cost avoidance alone as the owner would not permit layoffs. This also meant that the administrator needed to redefine the duties of the existing seven transcriptionists. It was determined that three of the

transcriptionists would continue under the current workflows assisting the five physicians that would not be able to utilize the system. The remaining four would be tasked with reviewing the other seven physicians reports for quality assurance. They would ensure that not only was the report free of grammatical or spelling errors, but that the report flowed and there were not words which were “misheard” by the software. Additionally, they would assist with case assignment and case accessioning. As the senior physicians retired, those transcriptionists functioning in the traditional workflow would be transitioned to support the quality assurance tasks.

Implementation

The first step toward implementation was identifying a physician champion for the system. They would serve to not only be the “super user” for the system but would also develop support for the implementation and assist in on-going physician training and support. The administrator chose one of the members of the physician leadership team who had a good rapport with all of the physicians and the rest of the staff.

Before the implementation could be scheduled, the administrator needed to determine whether to put all the eligible physicians on the system at once or stagger the implementation over time. The determination was made to put all the eligible physicians on at one time. In this way it would reduce the total cost of the implementation by only needing vendor staff on-site one time rather than two or three times. Additionally, five of the physicians would still be utilizing the old workflow which would serve to mitigate some of the decreased productivity that would occur during the implementation.

The go-live was then scheduled with the vendor. The practice’s IT staff began working with support staff from the voice-to-text vendor as well as the LIS vendor to

ensure that all hardware and software was installed and functioning properly. The physicians began to develop the report templates that they would each use and the transcription staff was prepped on their new duties and processes. The vendor spent one week on-site for go-live to make sure that each physician performed the appropriate “training” of the software and that any questions or problems they had were addressed in a timely manner. Following the week on-site, the vendor followed up with the administrator and transcription manager on a weekly basis to ensure that the system was still working properly and to answer any questions that may have come up. The administrator knew this training step would be critical to the ongoing satisfaction of the system. If the clinicians, especially those uncomfortable with technology, were to see value in the system they would need to be able to use it proficiently (Hoyt).

The practice has been live on the system for three months now and the system has been less disruptive than anyone had expected. A brief period of decreased efficiency was expected while the staff developed proficiency with the system based on a review of the literature (Kang). Most of the physicians using the system had used it in the past and were able to customize their systems to perform in the manner they were accustomed to. The transcription department adapted well to their new quality assurance duties and there has been a slight decrease in the number of grammatical errors found on the reports. The workload is lighter under the quality assurance workflow than it was under the traditional transcription workflow. This has led to a decrease in overtime pay for the department.

Lessons Learned

Initially the costs associated with a voice-to-text solution seemed too great, especially given that the practice had purchased new digital dictation hardware two years

prior. However, when the costs associated with the growing transcription staff as well as the need to rent additional space to accommodate that growth was considered, it became clear that there was indeed a compelling financial case to be made for the voice-to-text option. Staff salaries and benefits are typically the largest expense a practice incurs. Any solutions that are able to reduce or avoid the growth of that expense is worth considering. Administrators should be sure to consider all costs associated with a new hire and not simply the salary and benefit amounts. New employees need computers, software licenses, and office furniture. These should be accounted for when comparing the costs of new technology.

A cost that is frequently not discussed in the literature on this topic is that of physical space. The space an employee occupies has a real value associated with it. Space that is used for support staff could be better utilized for activities that produce revenues. In this instance the practice not only avoided the need to rent additional space, but plans to repurpose some of the transcription space that was reserved for growth to make room for new revenue producing physicians.

When adopting new technologies, it is important for practice leadership to consider older physicians who may be unable or unwilling to adopt. These physicians are often the cornerstones of a group since they have built reputations over time that benefit the practice. Each practice must consider how they plan to deal with these physicians as they frequently get treated differently. These differences in workflows can create inefficiencies that may not make a solution optimal. In this group's case, only two such physicians were present and the disruption created by maintaining their old workflows was not considered significant.

In conclusion, the practice was faced with a rapidly growing transcription department that was threatening to exceed its available space. A decision had to be made to halt the growth of the department while still meeting all practice performance requirements. After gathering data, it was recommended that the practice implement a voice-to-text system that could integrate with the practice's LIS. As a result, the growth of the transcription staff was effectively stopped and the physicians were able to maintain their productivity after an initial learning curve. While it is still early, the practice appears to be well on its way to achieving its expected ROI.

References

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