Information Technology and the New Pathology "Supergroup"

A Regional Model for the Delivery of Pathology Healthcare in the 21st Century

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Anatomic pathology is unlike any other medical specialty. For patients, pathologists are the most important doctor they will never see. For physicians, a trusting relationship with a pathologist colleague is critical for medical decision making. For healthcare in general, pathology/laboratory findings drive 60-70% of healthcare decisions and profoundly influence costs. How a pathology laboratory integrates IT into their practice can have a significant impact on these relationships.

Four years ago, three western Washington anatomic pathology groups (Black Hills Pathology in Olympia, Associated Pathologists in Everett and Washington Pathology Consultants in Seattle) merged to become CellNetix Pathology & Laboratories. Amongst the threats the companies faced pre-merger, as small independent pathology groups, were new IT requirements, the costs and complexities of which were far beyond their budgets and resources.

Upon its formation, CellNetix utilized its merged resources to implement state-of-the-art IT technologies, as well as to centralize laboratory operations and leverage increased pathologist sub-specialty expertise. This in-

volved considerable expense ($3 million for IT alone) and would probably not have been embarked upon in the current economy. Pathology groups, or even large hospitals, are not now willing to spend these kinds of resources on IT in the niche of anatomic pathology. Because we did, we are separated from our competition by a financial "Grand Canyon." IT costs are increasing the optimal operating size of pathology practices and labs that traditionally have been relatively small and centered on one or two hospitals. CellNetix is one of an emerging cadre of "Super Groups" whose origin can, at least in part, be traced to the creation of an advanced IT infrastructure that centers on innovation, reliability, and quality.

At the outset we identified seven critical IT objectives:

- Identical IT systems at all sites
- Robust interfaces with key hospitals and clients and the ability to fast-track future ones
- Barcode driven, paperless workflow
- Specimen tracking from collection to report delivery
- Telepathology to enable specialty diagnostic teams (SDT) in a geographically dispersed environment

- Web delivery of pathology results

- Facilitate cost control through efficiencies of operations and centralizing IT

The opening of our new 50,000 sq. ft. facility in October 2007 required a rapid (10 month) implementation of start-up operations. The remaining objectives have taken us the last three years to implement.

One Desktop, One Practice: Homogenous Systems at all Sites

Prior to merging, three different Laboratory Information Systems (LIS) were in use at seven sites, from Aberdeen to Everett. Some sites were on hospital campuses using hospital PCs and there was little interconnectivity. The solution to the problem involved three steps.

Step 1: A single LIS for all Cell-Netix work was chosen after an exhaustive analysis.

Step 2: A secure Wide Area Network (WAN) was installed between all sites.

Step 3: It was critical to have the same applications available to what would be 200 employees. We chose "Thin Client" technology. This allowed our data center in Seattle to provide end-users with the same applications over relatively slow WAN links.

A single LIS, robust WAN and application availability all played critical roles in surmounting logistical barriers that could have kept us operating inefficiently as separate companies rather than the cohesive force we are now.

HL7 Heaven: Client Interfaces

Connecting with our hospital and clinic clients was (and is) mission critical. We quickly put together a still-existing effective interface team during the build-out stage of our operation. We built three major hospital interfaces in about four months, which was not a minor feat, as just getting on the hospital project schedules was a huge task. We now create many interfaces each year; an impossible task for the pre-merger groups.

Supermarket Science: Barcoding

It's simple: patient identification is critical to patient safety. To increase patient safety, CellNetix implemented barcode technology at each step in our workflow. Using the same barcode scanners that you see at the supermarket we aimed to reduce errors. A recent study from the Henry Ford Hospital showed that barcoding results in a dramatic reduction in slide

misidentification (95% error reduction), while increasing technical throughput by 125%.

Fed Ex® Findability: Specimen Tracking

It's a dirty little secret of the lab business that most of the time, specimen movement from site to site is rarely tracked or reconciled. Specimens have been left on top of cars and have been found in parking lots (not at CellNetix). We developed a specimen tracking system that tracks specimens from the client office through the various stages of processing in the lab to slide delivery at our remote sites. At every point on the journey from collection to result we know where the specimen is. Critically, we also know how long specimens are spending at each stage so we can eliminate delays and congestion in the workflow.

Pathologists Without Borders: Telepathology

Our forty-four pathologists at eight different sites allows us to offer a range of specialty diagnostic teams (SDT) that very few groups can match - even on a national level. We have sub-specialists in almost every major area of pathology. These sub-specialists can now support each and every hospital we serve, regardless of hospital or pathologist location. How could we make our Seattle neuropathologists available in Aberdeen without purchasing a Lear jet? Microscope cameras and encrypted software

that allows doctors to easily view each other's slides were the answer. Telepathology also allows clients to interact with pathologists and review microscopic images securely in real-time. We are able to provide our smaller hospitals and even our largest medical centers with far more sub-specialty expertise than if they employed their own pathologists.

Personal Pathology Portal: Web Results

Pathology reports these days often contain images. At CellNetix we print all our reports in full color and felt that we needed a better immediate delivery method than faxing. Accordingly, we implemented a web portal to ensure clients can see images and full color reports. In addition we are in the process of adding supply ordering and delivery of other ancillary reports such as diagnosis summaries. Ultimately, we will connect with personal health portals to provide chart information to patients.

Cost Efficiencies

The IT solutions described above allow us to move specimens through the system more rapidly (increased technical throughput, with decreased turn around time). These benefit patients (faster results), physician practices (providing a competitive edge), as well as hospitals (decreased length of stay). In addition, we are able to adjust workload amongst our pathologists, which helps to mini-

mize pathologist staffing.

Conclusion

We put a lot of blood, sweat and tears into making the above happen in a very short time – however, our IT accomplishments have contributed to CellNetix's place as one of the best and largest pathology groups in the nation.

The above examples illustrate how powerful IT can be in:

- Improving patient care

- Providing hospitals with quality and sub-specialization expertise otherwise unobtainable

- Merging practices and cultures

- Competing in a changing market

- Reducing costs

As a middle market organization we believe we are better equipped to tackle change than smaller or larger companies. If smaller, we could not have supported the costs, if larger, we could not have responded quickly enough. We believe that IT demands (costs, expertise, and intellectual talent) will continue to promote consolidation in anatomic pathology and reduce competitiveness of smaller pathology groups or hospital employed pathologists (regardless of hospital size).

If you are interested in a tour of CellNetix, and our IT systems please contact info@cellnetix.com.