Innovator Health

Martha Keegan is a 68 y/o mother of three and grandmother of seven who hails from Rustic County, Arkansas. Rustic County is home to more than 15,000 residents of which about 3,200 are over the age of 65. The Keegan's, like many of their neighbors, were born and raised in Rustic County and are REPRESENTATIVE of the more than 24 million people over the age of 65 living in rural America today.[i] Martha's main job is to keep the domestic portion of the farm running smoothly while her husband John tends to the animals and crops. However, locally she is best known for her peach cobbler, which keeps her children and grandchildren finding any reason to come back home for a visit.

The Keegan's children are grown now and living their own lives in other parts of the country. John Jr., the oldest, is an accountant and is the only one who still lives relatively close to the farm. Cindy, the middle one, is an ICU nurse in Texas, while Eric the baby of the family, is finishing his graduate degree in engineering at UCLA. The kids despite their distance have always tried to remain close to their parents by regularly emailing, calling, Skyping and returning home on holidays.

Sadly though, the kids have been in contact with their parents more often recently for a different reason. Martha found a breast mass a few months ago. Not knowing what it was and obviously very concerned, she started with their long time family physician, Dr. Leonard Simpson. Dr. Simpson is one of six family physicians caring for the residents of Rustic County. Like his colleagues, he does everything from delivering babies to covering call in the local ER. This is typical with only 9% (90,000) of all physicians in the US practicing in rural America.[ii] Dr. Simpson confirmed the breast mass and sent Martha for a mammogram. Unfortunately, mammography services were not available at Rustic Hospital, which is the local critical access hospital serving Rustic County, leaving her no other choice but to go to Metropolitan Hospital. Metropolitan Hospital is the next closest hospital and home to the most cutting edge medical services in Arkansas. Everything that Martha would need to include a great surgeon, imaging, labs, genetic counselor and even an oncologist, should that be necessary, was available there. However, Metropolitan Hospital is more than 60 miles away from the farm in one direction. In fact, commuting 90 miles round-trip for specialty medical care services is the national average for rural residents.[iii]

Martha and John spent the next six weeks making that commute on dozens of occasions in an attempt to determine whether the lump in Martha's breast was cancerous or just a benign mass. In those six weeks, Martha not only needed mammography, but she needed an ultrasound, labs, a surgical consultation, CT scan, genetic testing, a breast biopsy, and a follow-up visit to discuss the results. Many of these services could have been provided locally at Rustic County Hospital, but because Rustic County Hospital and Metropolitan Hospital are not integrated, the surgeon coordinating Martha's care just ordered the work-up to be done at Metropolitan. After six long weeks Martha finally got her answer and the news was not good.

The pathology report for Martha's biopsy came back showing a type of cancer called Invasive Ductal Carcinoma (IDC), which is the most common form of breast cancer affecting 180,000 women a year.[iv]

Martha was obviously frightened, but her family was there to support her. Her daughter Cindy was the most concerned. As an ICU nurse and a potential carrier of the breast cancer gene, Cindy knew the potential ramifications of IDC and peppered her mom with questions. However, these were questions that Martha could not answer and truthfully Martha did not even know to ask her surgeon about them in advance of her visit. And, with Cindy located a thousand miles away, getting involved in mom's care was almost impossible. Cindy did her best to call and speak to the surgeon herself, but between her schedule and that of the surgeon, Cindy could learn very little about her mom's prognosis and treatment options.

Once again, Martha and John found themselves spending more time in the car commuting between Rustic County Hospital and Metropolitan Hospital over the next two months. This time it was back to the surgeon to discuss her treatment options, a new visit to an oncologist, PET-scan, more labs, more imaging, pre-operative testing and eventually an admission to Metropolitan Hospital for a double mastectomy followed by chemotherapy. Martha's kids were home whenever possible. They flew into be with mom, but also were there to help dad with the daily commute to Metropolitan, the costs for transportation, the farm and the other daily responsibilities that were piling up.

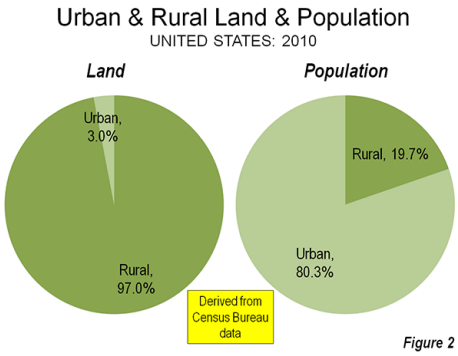

Figure 2

Although, this is an made-up story, the information contained in this paper is based on factual data and experiences of what rural Americans are facing on a daily basis. There are 24 million Americans over the age of 65 (elderly) living in rural areas.[v] Elderly see a physician an average of 11.4 times a year and of those visits, 6.3 are to a specialist.[vi, vii] That equates to more than 150 million specialty visits by rural elderly each year. Elderly use 1/3 of all US healthcare resources ($1.2 trillion / year).[viii] Rural residents commute an average of 42 miles one way to visit a specialist. Of the more than 500,000 specialists practicing in the US today, only 45,000 are practicing in a landmass that consists of 97% (Figure 2) of the geographical footprint of the United States.[ix, x]

The problem is simple and telemedicine is the solution. Specialists cannot practice in rural areas because the volumes of patients needed to support their practices do not exist. The opportunity is also simple. If, you aggregate those specialty visits through telemedicine, the social, clinical and financial opportunities are enormous. As an example, Rustic County's

population that is over the age of 65 would visit a specialist more than 20,000 times a year. If the critical access hospital in Rustic County could capture just 1/3 of that business, it could generate more revenue for the hospital, provide greater access to its local residents and reduce patient costs. The revenue generated for the CAH is a reflection of the telemedicine facility fees paid by Medicare and the indirect revenue generated by labs, imaging and procedures – services Martha could have received in her hometown. This is in stark contrast to how Rustic County Hospital was marginalized during Martha's ongoing care. Any new revenue for a CAH is substantial considering that the more than 1,300 critical access hospitals in the US operate on an average 1% net margin.[xi]

However, Rustic County could not accomplish this endeavor without the assistance of a partner health system such as Metropolitan Hospital. Health systems are looking to grow market share and maximize the efficiency of their employed physician staff. Affiliating with local critical access hospitals, which they are already trying to do, can achieve both goals. Also, the financial incentive for Rustic County is just as lucrative for Metropolitan Hospital. The partnering health system can generate substantial revenue from professional service fees in states that have payer parity laws (29 as of the writing of this paper) for their insured patients and the indirect revenue for the services that will be provided that are not available at the local critical access hospital such as complex surgeries, interventional procedures, and specialty counseling (genetic, exercise, diabetic, etc.). And, if the volume of specialists does not exist at Metropolitan Hospital, they can now recruit nationally for providers licensed in Arkansas. This is the way that telemedicine was truly envisioned to improve access, lower costs and enhance the quality of care.

The question is whether the current telemedicine technology is adequate to deliver an experience that is going to keep a patient coming back month after month? Today, there are six companies in the telemedicine technology marketplace. Five of these companies utilize a cart-based solution with a 27" screen and one company that uses an even smaller screen mounted to a robot. The problem with this dated technology is that healthcare is about relationships and their top mounted camera disrupts the natural eye contact that would be present in a traditional visit. How will Martha and her family build rapport with her oncologist, if he cannot look her in the eye and assure her that he is the best physician to treat her cancer? How can an orthopedic surgeon discuss surgery on the knee or shoulder without being able to point to the joint as if they were in the same room?

The technical design of the hardware is only half of the problem. The other issue is that these devices run on a proprietary piece of hardware called a "codec". The codec is what takes the image and converts it into data that is transmitted across the Internet to a device using the same brand of codec, which then converts the data back into an image. These codecs require a substantial amount of bandwidth to operate effectively and bandwidth is often limited in rural areas.

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Innovator Health intends to change everything about the status quo for what you have been reading thus far. First and foremost, Innovator Health has created a system that allows for a life-size physician to be broadcasted to the patient's bedside, and allows the patient and the physician to interact with direct eye contact. The system is called a Rounder. It is the only system of its kind and operates under patented and proprietary set of technologies. Not only does the patient perceive that they are physically in front of the physician, but the image is transmitted utilizing 1/3 of the bandwidth of its competitors. In addition, it has other unique features to include a dedicated broadcast station called a Studio, integrated nurses workstation, dual monitor and video system, and a HIPAA compliant cloud based video platform that does not require any downloads or additional configuration to operate.

If, Rustic County Hospital had this in place with the assistance of Metropolitan Hospital, Martha and her family could have had a very different experience. It likely would have gone like this:

After the completion of Martha's mammogram at Metropolitan Hospital, Martha and her husband reviewed the results with her surgeon who was broadcasting live from Metropolitan Hospital to Rustic County Hospital where John and Martha were being seen just a few miles from the farm. Her surgeon interacted in life-size form, had direct eye contact and with the help of a bedside nurse, was able to provide a comprehensive physical exam, document the encounter and coordinate additional testing that was done right there at Rustic County Hospital. After one face-to-face visit to meet the Keegan's in person, palpate the mass and coordinate a biopsy, Martha's pre and postoperative care with her surgeon continued at Rustic County Hospital. In fact, Martha's daughter Cindy even participated in the visit from Texas utilizing the Rounder's 2nd screen and video functionality. Cindy was emailed a link that when opened in a Google Chrome browser, was instantly connected to her mom and the surgeon. All of Cindy's questions were addressed, and she knew exactly what the plan was every step along the way for each appointment she chose to participate in.

Martha's care continued post-operatively, with many of the visits that required the hour-long commute delivered directly through Rustic County Hospital. Martha's value proposition was that she received personalized and high quality care without the commute. Metropolitan Hospital's value proposition was that it locked in Rustic County Hospital as a partner site ensuring the majority of its referrals were sent to Metropolitan, while Rustic County received the benefit of a broad set of specialty services that were typically not available in rural America.

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These remote specialty services ensured that the clinical testing that was leaving the community could now be delivered locally. This not only saved the Keegan's time and money, but bolstered the operations of Rustic County Hospital and Metropolitan Hospital, further improving access to care in their community. Most importantly, this was all done with Martha and her family's best interest at heart.

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[i] "Rural Assistance Center." Rural Aging Introduction. Web. 22 July 2015.
[ii] Rosenblatt, Roger A., and L. Gary Hart. "Physicians and Rural America." Western Journal of Medicine. Copyright 2000 BMJ Publishing Group, Web. 22 July 2015.
[iii] Mattson, Jeremy. "Transportation, Distance, and Health Care Utilization for Older Adults in Rural and Small Urban Areas." Transportation Research Record: Journal of the Transportation Research Board 2265 (2011): 192-99. Web.
[iv] "IDC - Invasive Ductal Carcinoma." Breastcancer.org. Web. 22 July 2015.
[v] "Rural Assistance Center." Rural Aging Introduction. Web. 22 July 2015.
[vi] Care., E., Only Three Of The Nation's 145 Medical Schools, Physician Visits Each Year (See Figure 1)., and Have A Full-Scale Department Of Geriatrics That Requires. Training Physicians in Geriatric Care: Responding to Critical Need Web.
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[ix] Rosenblatt, Roger A., and L. Gary Hart. "Physicians and Rural America." Western Journal of Medicine. Copyright 2000 BMJ Publishing Group, Web. 22 July 2015.
[x] "Rural Character in America's Metropolitan Areas." Rural Character in America's Metropolitan Areas. Web. 22 July 2015.
[xi] Kaufman, Brystana G., Sharita R. Thomas, Randy K. Randolph, Julie R. Perry, Kristie W. Thompson, George M. Holmes, and George H. Pink. "The Rising Rate of Rural Hospital Closures." The Journal of Rural Health (2015): Web.