Guest Post from Stacey Chang, Executive Director of the Design Institute for Health

Stacey Chang serves as the Executive Director of the Design Institute for Health, a collaboration between the Dell Medical School and the College of Fine Arts at the University of Texas at Austin. It is a first-of-its-kind institution, dedicated to applying design approaches to solving systemic health care challenges as an integrated part of a medical education and training program.

As I've been researching the Swedish healthcare system, I've spent the majority of my time in urban centers: Stockholm, Gothenburg, Uppsala, and Umeå. Given that much of the concentration of governance, coordination and care delivery is aggregated where the population resides, that's unsurprising.

But one of my explicit goals in Sweden was to see variations in care delivery based on the unique needs of local populations, and urban centers tend to be more similar than they are different. So I recently found myself on a small prop plane, headed north to study "rural medicine" in a tiny town called Storuman, home to 2,000 people living a hearty life just 100 miles south of the Arctic Circle. The municipality has less than 1 inhabitant per square kilometer, about the same population density as the Sahara Desert. By late October, the daylight hours are already limited to about 7 hours a day, but when light is available, it reveals a stunning environs.

The sheer beauty of the local surroundings is hard to express.

My hosts were Dr. Peter Berggren, the head of the local community hospital, and his colleague Roland Gustafson. In addition to having been a physician in the community for more than 20 years, Dr. Berggren is also the head of the Center for Rural Medicine (Glesbygdsmedicinskt Centrum, or GMC) in Storuman, an R&D enterprise in Västerbotten county conducting care delivery research in rural areas in the northern part of Sweden. Both Dr. Berggren and his center are well-recognized – the GMC was awarded Innovator of the Year in Swedish health care in 2014.

Dr. Peter Berggren, on the steps of his home in Storuman.

The term “rural medicine” conjures up images of rudimentary tools and practices, but nothing could be further from the truth. But first, to understand the intent of rural medicine requires an appreciation for the circumstances of existing in such a remote location. Some of these communities only have a few dozen people living in them. The nearest specialty care is in an urban center that is several hours away by car. Even to get to the local community hospital (which has only 8 beds in its inpatient wards) can require a long ambulance ride through snow and ice. Self-sufficiency is a prerequisite for living here. Maintaining every individual’s health plays a substantially important role in the growth and development of these rural communities, and so a challenge then is to help people take care of themselves.

Dr. Berggren outlined the “ingredients” of the unique version of rural medicine being practiced in Storuman:

1. Demography – This part of Sweden has a greater proportion of elderly individuals than even Japan. 10% of the population is over the age of 80, 30% is over the age of 65. This exacerbates the challenge of providing care from a distance, because many of the individuals have considerable trouble traveling long distances, and most do not want to.
2. Infrastructure – A combination of local and national Swedish government action has created some of the most pervasive high-speed internet access in the world. 94% of Swedes have access to the internet, 57% have access to 100-megabit broadband, with a goal of 90% access by 2020, even in the most remote rural villages.
3. Societal norms – Swedes trust their government, and the services they provide. Sweden’s government enjoys the highest trust of any democratically elected government in the world, except for Singapore.
4. Competence – By virtue of necessity, the physicians employed in the local communities practice what might Dr. Berggren called “extended generalism”, an expanded version of primary care.

What these ingredients produce is a medical capability in these locales that can handle far more than what is traditionally considered primary care. Including more common extensions like basic imaging, obstetrics/gynecology, and pediatrics, this extended generalism also includes minor surgeries, rehab medicine, palliative care, and emergency care (including ambulance services), sometimes just to stabilize patients long enough to be transported by helicopter to tertiary care centers. The facilities are on 24 hour call and have limited inpatient facilities.

The local community hospitals have standard inpatient wards, albeit at a small scale.

They also include non-traditional capabilities, like rehab facilities.

Even more interesting is the extensive use of telemedicine, something Dr. Berggren and his colleagues have been practicing for 20 years. Currently, in order to provide care to surrounding villages without requiring the patients to travel, Dr. Berggren and his colleagues have developed "virtual health rooms", which include high-end telepresence systems, as well as remote testing and electronic transfer of results for blood tests (INR for patients on blood thinners, hemoglobin for anemic patients, and glucose testing for diabetics), blood pressure, weight, and vision testing. I visited a virtual health room located in the local primary school in an adjoining village called Slussfors. These rooms allow local residents to more actively engage with their physicians, with the assistance of a trained layperson, but also have the intended effect of elevating their health literacy and awareness.

The virtual health room is a space efficient virtual clinic…

…located in the local primary school.

Building on this foundation, the research of the Center for Rural Medicine (GMC) is exploring local coordination of care, remote primary care and the definition of "extended generalism", distance-bridging technologies. Projects include the application of the rural medicine model in urban centers, remote-controlled cardiac ultrasound, ongoing development of the virtual health rooms, and care at a distance.

All of this work is impressive, not only because you don't expect it in a rural setting, but because it is pushing the boundaries of traditional primary care, as demanded by local circumstances. The work goes beyond theory, because the real value is only realized upon application. A poster in Dr. Berggren's facility read "Innovation without execution is hallucination – Thomas Edison". Amen to that.

After a day with my hosts, we sat down to dinner, and we reflected on the changing face of health care. Populations globally are contending with the rise of chronic disease, the expansion of technology, and the necessity for more-highly engaged patients, and it's driving the disaggregation of care aware from traditional hospital and clinic settings into communities, homes, and the hands of individual people. I suggested that what we had spent the day exploring, what they had termed "rural medicine", was really a surrogate for holistic, community-based, contextually-sensitive health care. In other words, the future of primary care. Dr. Berggren nodded in agreement, smiled knowlingly, and replied, "Exactly."