

The quantum theory of rural practice

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The large world in which we all live has 2 physics. One is Newtonian, in which the apple falls, and matter is divisible into any quantity visible to the eye. The other is that of the molecular and submolecular levels, where quantum effects rule. This is the field of probability, entangled particles, particles that act like waves and all other sorts of phenomena that amaze at the quantum scale. Rural medicine is another set of small systems that work at quantum scale.

Quantum rule of rural practice no. 1: the quantum definition of rural

The definition of rural medicine can be debated. One approach is to define it by what rural doctors do. It doesn't take much distance from the big smoke to see a difference in practice style.¹ However, another approach is to describe the system and how it changes with changes in number of providers.

Rural medicine has elements of quantum theory that govern it. We truly do not work in a continuum. Losing or gaining a physician does not cause an incremental change. Rural doctors work where the change of one doctor causes a quantum state change.

One doctor too few and rural practice stalls. It is a state change. It's not just that shifts in the emergency department become hard to manage. The skill set of the person who is gone doesn't matter. Everything — emergency department shifts, inpatients, obstetrics, unattached patients, office patients —

becomes hard to manage and the perturbations affect all.

It follows that because such changes affect the entire system, the most resilient rural system is one built on rural generalists. When those left behind can handle multiple roles, one doctor leaving doesn't "break" the system. It will stress it for sure, but generalist flexibility will allow for coverage of priority needs.

Quantum rule of rural practice no. 2: the rule of $n + 1$

The right number of doctors is an interesting challenge. We could argue for the right number, understanding that rural doctors have a scope of practice that extends both in breadth and depth so as to make urban comparisons meaningless (especially because rural doctors work to fill niches in the local need that elsewhere would be done by specialists).

Although the number that makes sense depends on who the doctors are and the medical needs of the town, I posit that if the right number is n then the stable number is $n + 1$. Once a minimum complement has been defined, having 1 more practitioner gives just that additional buffer that makes the community attractive to stay in (and, paradoxically, attractive to join).

REFERENCE

1. Hutten-Czapski P, Pitblado R, Slade S. Scope of family practice in rural and urban settings. *Can Fam Physician* 2004;50:1548-50. Available: www.cfp.ca/content/50/11/1548.long (accessed 2015 Feb. 24).