

Thinking “outside the box”

Much evidence supports that having more nurses leads to better patient outcomes. However, why is nurse staffing still lacking in practice? Previous studies on the nursing workforce have, so far, focused on determining “more nurses and better patient outcomes.” However, a controversial debate on the cost-effectiveness of hiring more nurses still continues (Aiken, Cimiotti, Sloane, Smith, Flynn, & Neff, 2011). When it comes to nursing workforce policy-materializing in practice, the inconclusiveness of nursing efficiency is considered to be one of the critical reasons for the failure to narrow the gap between the ideal and the real. How can we fix this two-sided coin? The bottleneck is impeding us from moving forward from a “volume-driven” to “value-driven” healthcare delivery system. There is no more time for delay. We need to rethink this issue from a different angle.

To improve both the “efficiency” and “quality” of care, relentless and sustained small-scale changes by multidisciplinary team-led care delivery redesign operations are necessary to make a real difference (Bohmer, 2016). Such changes can transform the healthcare delivery system to be more value-driven, justifiable and more effective. It is particularly critical that such operations build upon evidence-based, informed shared decision-making rationales among all parties comprising our healthcare delivery system. However, these rationales are absent from the current literature. Knowledge without a foundation in science might lead to muddled policy-making.

A typical example is the Korean Ministry of Health & Welfare’s “Comprehensive Nursing Care Services (Korean-CNCS),” which refers to integrated nursing care services provided by professional nursing personnel only, without caregivers or carers. In Korea, there is a tradition that family member(s) or a hired carer(s) stays with the patient while he or she is in the hospital. However, it was discovered that the practice made effective and efficient infection control impossible. The care tradition was one of the reasons behind the 38 fatalities (a lethality rate of 20.4%) caused by the Middle East respiratory syndrome coronavirus in 2015 (Kim, 2015), whereupon the inception of the Korean-CNCS began to emerge as the key solution.

The Korean-CNCS first looked to satisfy everyone. Hospitals can use government grants to hire more nurses and provide better qualitative care including infection control. Caregivers can also lessen the burden of time as well as the physical and emotional stresses from exhaustive caring. In addition, caregivers can benefit from an insured caring cost from the Korean National Health Insurance Corporation. However, surprisingly, in February 2017, the Korean government retracted the original plan to expand the Korean-CNCS to the whole country by 2018 (Shin, 2017). Why?

The number of nurses per 1,000 inhabitants in 2014 was 5.6 for Korea, which was about half the average of countries in the

Organization for Economic Cooperation and Development (OECD) and even less than one-third of Switzerland’s 17.6 (OECD 2017a). Korea already has a significant shortage of nurses in practice; and what is worse, the Korean-CNCS seems to make nurses’ working conditions more difficult. Four of five new nurses left their jobs because of the much heavier workloads caused by the Korean-CNCS (Chae, 2016). In fact, the majority of newly hired nursing staff hold temporary positions (Kim, 2016). Furthermore, the Korean-CNCS caused inequity in access to healthcare when urban hospitals absorbed the nurse staffing of local hospitals to get more government grants, which eventually led to the closure of the only emergency center in a certain rural area (Kim, 2017).

Bohmer’s (2016) report shows that financial incentives actually did not lead to real change. Increasing the quota of nursing school entrants was also fruitless in meeting the demand of nurse staffing in practice (Shin, 2017). Ironically, in 2014 Korea produced the most nursing graduates per 100,000 inhabitants among all OECD countries, and even more than three times that of the UK (122 vs. 29) (OECD 2017b). A special law on the health workforce with strict regulations is now expected to be re-proposed to ensure patient safety (Seo, 2016). However, will it be the best way to secure a sufficient nursing workforce to actually sustain the policy?


The critical reason for this bottleneck is our failure to “think out of the box”—or to realize that “there is no box.” The crux of the matter resides in the lack of a scientific body of knowledge on the optimum level of nurse staffing—specifically, the number of nurses, nursing care hours or the composition of nurse staffing—to satisfy all three parties: i.e., nurses, patients and hospitals (or stakeholders). That is to say, the realizable solution is not situated in traditional statistics-based nursing research, but in synthesizing Decision Science and incorporating Mathematical Economics and Operations Research into nursing science (Park, 2017). The multidisciplinary consilience can provide feasible solution(s)—not simply right answer(s)—to the important and yet unanswered question: i.e., balancing quality, cost and nurse staffing in the continuum of changes for better nursing workforce practice and policy-making (Park, 2017).

A shift in approach and thinking is the only way to solve the problems we face today. The Fourth Industrial Revolution heralds the burgeoning demand for Artificial Intelligence-driven: (1) decision-making support programming; and (2) future forecasting systems in all related areas, which can enhance the quality of decision-making in the future world of entropy (Park & Glenn, 2017). This thought-provoking transition urges us to think “outside the box” toward incorporating a synthesis of technology and mathematical modeling into research, practice and policy-making.

As the saying goes: "There is nothing that is a more certain sign of insanity than to do the same thing over and over and expect the results to be different." This is also in line with what Hamming (1986) said at the Bell Communications Research Colloquium Seminar: "What happens to the old fellows is that they get a technique going; they keep on using it. They were marching in that direction which was right then, but the world changes. There's the new direction; but the old fellows are still marching in their former direction. You need to get into a new field to get new viewpoints" (pp. 14). Silera, Leeb, & Beroc (2014) and Lamont (2009) also set forth similar opinions that editors tend to become averse to taking risks because of the limited time and resources in peer reviewing and selecting manuscripts, not falling outside the existing hegemony-based system, which may sometimes be the cause of missing timely innovation in science.

Now is the time to reassess our perspectives on our own program of research. Such self-reflection will help us to recognize and address the truly important problems in the world, which will in turn enable us to achieve value-based healthcare delivery reform, improving lives and consequently steering us to become great scientists. Let me conclude by citing the most impressive part of Hamming's (1986) *You and Your Research*, which emphasizes a "drive" and 'commitment' to the important challenges of doing first-class science:

Great scientists tolerate ambiguity very well. They believe the theory enough to go ahead; they doubt it enough to notice the errors and faults so they can step forward and create the new replacement theory. [...] It requires a lovely balance. But most great scientists are well aware of why their theories are true, and they are also well aware of some slight misfits which don't quite fit and they don't forget it. [...] When you find apparent flaws, you've got to be sensitive, and keep track of those things, and keep an eye out for how they can be explained or how the theory can be changed to fit them. Those are often the great contributions. Great contributions are rarely done by adding another decimal place. It comes down to an emotional commitment. Most great scientists are completely committed to their problem. Those who don't become committed seldom produce outstanding, first-class work (Kaiser, 1986, pp. 5).

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