Given sufficient time, resources, and a commitment to ongoing change, nursing faculty could “employ technology to analyze community and population data and use those data to continuously inform the design of curriculum content and learning experiences to reflect the contemporary health and healthcare needs of society” (Josiah Macy Jr. Foundation, 2015, p. 10). Even legacy data sources, such as electronic health records (EHRs), claims data, and public databases, could generate representative case studies that highlight current treatments and practices within a local community. Although life-long longitudinal data are scarce, a series of snapshots of current care for different age cohorts could suggest healthcare over time. Individual descriptive cases studies could be put into community or agency perspectives, as well as comparing them to different populations by comparing categorical variables, such as gender, age, race, income, or source of care. Cases also could be compared to outliers based on concomitant conditions, compilations, and errors. Individual cases also could be compared with the facility’s entire census in terms of such variables as diagnosis, age, or payer type. Local data could be compared with regional or national benchmarks.

However, case descriptions extracted from legacy data would still be incomplete, especially concerning patients’ lived experiences of illness and hospitalization. How many EHRs record a patient’s story as richly and deeply as they are known by the best nurses?

Ironically, legacy data contain little information about nurses and nursing, the largest segment of healthcare. Except for medication administration and specific treatments, routine nursing interventions often are poorly and incompletely recorded. It would be difficult to use legacy data sources to reconstruct a nurse’s minute-by-minute judgments or actions. Especially absent are the lived experiences of practicing nurses. In the simplest terms: How can data tell novice nurses what it is like and how it feels to be an expert nurse?

Emerging data sources may help complete the picture, especially for social variables. Researchers are still exploring ways to harvest new data, such as social media posts, online search behavior, or utilization patterns of patient-nurse electronic communication devices. However, the most meaningful data sources may not yet be recognized or compiled.

Regardless of the sources of the data harvested, educational experiences based on data are consistent with the quantum principles described by Zurlinden and Pepsnik (2013). Specifically, information is a dynamic resource with a short half-life that must flow freely within and between educational and practice organizations. However, data are inherently multifaceted and require learners to explore diverse perspectives that may seem ambiguous and based on probability. In essence, learners provide a variety of meanings to every educational experience and co-create knowledge.

Legacy and emerging data sources are well-suited to descriptive statistical methods but grow nettlesome when examined by inferential methods that imply causation. Because data were collected independently of the analysis, they are probably incomplete, are somewhat inaccurate, and may have been poorly recorded or altered after collection (Brennan & Bakken, 2015). In Think Like a Freak, Levitt and Dubner’s (2014) primer on problem solving that easily dovetails with evidence-based nursing practice, measurement is an important step. Levitt and Dubner also reminded readers, “Correlation does not equal causality” (p. 8).

Inferential statistics may lead to mistaken conclusions. On a statistical level, the chance of incurring a type-1 or
false-positive conclusion dramatically grows as the number of tests of comparison increases (Harris & Taylor, 2008). Statistical methods can appropriately alter the level of significance to help mitigate this effect. Are nurse educators able to account for potential misunderstandings that could arise from the interactions of a large number of emerging-data-generated comparisons? Instead, Brennan and Bakken (2015) wisely advised nurses to eschew causality or hypothesis testing by focusing on “insight rather than prediction” (p. 479).

For students, exploring, measuring, and interpreting data may be some of the most valuable skills they learn in nursing school. They will apply these tools again and again to evidence-based practice and quality-improvement activities throughout their future careers. Nurse educators need to blend diverse data sources—legacy data and emerging data, as well as the personal experiences of patients and nurses—to paint meaningful portraits of patients, nurses, and health care. Nurses can learn from Angus Deaton, an economist who integrates big data, policy, health economics, and their effects on individuals and households, a difficult task that earned him the 2015 Nobel Prize in Economics.

REFERENCES