COMMENT ON RIDDLE ET AL.

Diabetes Care Editors' Expert Forum 2018: Managing Big Data for Diabetes Research and Care. Diabetes Care 2019;42:1136–1146

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We commend Riddle et al. (1) for reviewing the potential and challenges of big data in modern health care, given its transformational power in predicting and improving care and outcomes. It is important, however, to recognize additional and evolving data sources as well as the equitable application of big data analytics.

The meeting report focuses on three major sources of big data: the electronic medical record, national surveys and registries, and clinical trial databases. There are additional data sources that can provide powerful insights into public health, including administrative claims data from payors, wearable devices and glucose monitors tracking and communicating physiologic variables, and precision medicine data (2).

A significant challenge posed by big data analytics is its translation into actionable information, as the article acknowledges. Data visualization is one important strategy for empowering action. For more than 15 years, the National Minority Quality Forum has applied geographic information system (GIS) mapping technology to diabetes data from surveys and claims, identifying regional variation in prevalence, treatment, costs, and outcomes (3,4). The presentation of data in maps and charts by geography has promoted awareness, advocacy, clinical trial recruitment, and policy development.

A significant concern that we have is equitable access. It is critical that big data include information from minority populations and that the analytics are accessible to minority researchers and patient representatives. The National Institutes of Health's Precision Medicine Initiative is one program taking steps to include diverse populations (5). Our updated GIS mapping platform technology—G.A.R.I. (Geo-mapping Advocacy Research Informatics)—is integrating more data and affording the end user greater control over the data analysis through the use of a relational database and, ultimately, machine learning. We are taking the deliberate steps of making this resource available to patients and their advocacy organizations, empowering their big data–informed voice.

Big data analytics has the power to transform the health care system. We need to make sure that this transformation promotes health equity and patient-centered results.

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References

1. Riddle MC, Blonde L, Gerstein HC, et al. *Diabetes Care* Editors' Expert Forum 2018: managing big data for diabetes research and care. Diabetes Care 2019;42:1136–1146
2. Mooney SJ, Pejaver V. Big data in public health: terminology, machine learning, and privacy. Annu Rev Public Health 2018;39:95–112
3. Caballero AE, Davidson J, Elmi A, et al. Previously unrecognized trends in diabetes consumption clusters in Medicare. Am J Manag Care 2013;19:541–548
4. Puckrein GA, Egan BM, Howard G. Social and medical determinants of cardiometabolic health: the big picture. Ethn Dis 2015;25:521–524
5. National Institutes of Health. All of Us Research Program (Internet). Available from https://allofus.nih.gov/. Accessed 5 September 2019

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