

“New Twist” in Diabetes Care for HbA_{1c} Reporting: “It Takes Two to Tango”!

Most likely everyone, at some point in an everyday conversation, has heard the phrase, “it takes two to tango.” The saying originated in a song, “Takes Two to Tango,” which was written and composed in 1952 by Al Hoffman and Dick Manning (1). Apparently this particular phrase was incorporated in the lyrics of a song about romance, but this expression has been applied to a much broader range of situations. For example, it might be used to describe an activity between two individuals or organizations that cannot be completed unless both are in complete agreement and cooperate. The phrase, perhaps accompanied by throwing up one’s hands, may also describe why certain activities are not brought to fruition: because one or the other party refuses to cooperate or does not hold up their end of the bargain, or because both parties are to blame. Given these variations on the theme, we suggest that, given the focus on HbA_{1c} in this issue of *Diabetes Care*, the phrase “it takes two to tango” is an appropriate description of our new policy at the journal to require dual reporting of units for HbA_{1c}.

Readers may be curious why so much focus is placed on HbA_{1c} in the current issue. First, there is an original research article on a metric assessing discordance between HbA_{1c} and blood glucose, termed the glycation gap (2). We also feature a review on the history and standardization of HbA_{1c} by Dr. David Sacks (3), a very thoughtful commentary on the original research and HbA_{1c} review by Cohen and Lindsell (4), and our new initiative (Profiles in Progress) about Dr. Samuel Rahbar, the person who first reported the significance of HbA_{1c} for individuals with diabetes (5). What could be so new about a test that has been validated as the gold standard for assessing glycemic control, has been clinically proven to be associated with diabetes complications, and has become such a routine part of diabetes care by providers across the world? Perhaps the fact that we are so comfortable with this test may be the exact reason why important recent developments have really been “flying under the radar.”

One of the new initiatives we would like to report is called Profiles in Progress, and the first narrative appears in this issue.

This initiative was the result of an incredible idea from Lyn Reynolds, who has expertly managed the editorial office of *Diabetes Care* for many years. The purpose of this narrative and new initiative is to specifically recognize a researcher or provider in the field of diabetes whose contributions and discoveries were so noteworthy and remarkable that the findings truly changed the landscape of diabetes management forever. Our plans are to have such narratives in *Diabetes Care* three to four times per year. It is appropriate and fitting that our first Profiles in Progress, a contribution from Dr. Erika Gebel, Associate Editor of *Diabetes Forecast*, recognizes Dr. Samuel Rahbar. Dr. Rahbar discovered that HbA_{1c} is elevated in individuals with diabetes and, as a result of this research, this test has become an invaluable aspect of management. Clearly, Dr. Rahbar should feel gratified that his dedication to this cause and his life’s work can be directly linked to a reduction in morbidity and mortality from diabetes.

Other aspects of HbA_{1c} reported in this issue are the article by Rodríguez-Segade et al. (2) and the commentary by Cohen and Lindsell (4). Specifically, Rodríguez-Segade et al. report on the glycation gap, a term that refers to a metric that quantifies discrepancies between HbA_{1c} and blood glucose. In a large cohort, they describe the stability and repeatability of this measurement. This study, along with others, as suggested by the commentary of Cohen and Lindsell, supports that the discordance between HbA_{1c} and blood glucose is not simply the result of random measurement error. As outlined, there appears to be “some systematic deviation that is stable within individuals over time and that suggests a physiologic basis for the disagreement” (4).

In addition to the other narratives on HbA_{1c}, in this issue of *Diabetes Care* we feature a state-of-the-art comprehensive review on HbA_{1c} by Dr. Sacks from the National Institutes of Health (3). Sacks’s review is extremely timely given an important decision and announcement by the editorial team of *Diabetes Care* in conjunction with our colleagues at the American Diabetes Association. Specifically, beginning on 1 January 2013, we will

require all submissions to report HbA_{1c} levels in both traditional units (i.e., reported as %, derived Diabetes Control and Complications Trial [DCCT] units) and Système International (SI) units (reported as mmol/mol).

The decision to require dual reporting was made with the understanding that the change would have significant implications for authors and readers, but our rationale for implementing this change was based on several factors. First, we recognize that there is now, and will continue to be for the foreseeable future, controversy on how to report the HbA_{1c}. As elegantly outlined in the review, Sacks describes the history of the measurement of HbA_{1c}, the process leading to standardization to DCCT/NGSP numbers, and the rationale for the global use of International Federation of Clinical Chemistry and Laboratory Medicine (IFCC) standardization. It is clear that there are strong opinions on which units to use, and as a result, the ways HbA_{1c} results are reported to clinicians already differ among countries of the world (see Table 5 in ref. 3). Given these differences, there is an obvious concern of being able to compare past studies using one unit with future studies reporting with a different unit. More concerning is that young clinicians in some countries may, in only a few years, not recognize HbA_{1c} in percent DCCT units.

It is very important to note that changing HbA_{1c} reporting from DCCT/NGSP to SI units is not as simple as would be the case for glucose or other traditional parameters. The readers are referred to Sacks’s review and, specifically, Fig. 1 in ref. 3. The relationship between HbA_{1c} in NGSP units and IFCC units is indeed a straight line, but has a slope that differs from 1 and an intercept that differs from 0. As also outlined by Sacks, at an NGSP HbA_{1c} value of 4%, the IFCC values are fivefold higher (20 mmol/mol), while at 12%, the IFCC results are ninefold higher (108 mmol/mol) (see Table 4 in ref. 3). Thus, the conversion between NGSP units and IFCC units is based on a master equation as outlined. Additionally, different calculations need to be done for mean HbA_{1c}

in a study and for smaller values such as standard deviation or change in HbA_{1c}. Fortunately, there are now tables and calculators that assist in these conversions such as the program found on the NGSP website (<http://www.ngsp.org/convert1.asp>). Instructions for authors in *Diabetes Care* will now link to the conversion calculator hosted on the NGSP website.

The decision of *Diabetes Care* to implement this change was also reflective of the fact that a majority of submissions to our journal originate from outside the U.S. and that our readership is an international audience. The decision to implement dual reporting stemmed from our desire to be able to compare current studies using SI units to past studies reporting only NGSP units and to be able to compare results and data in *Diabetes Care* to other studies reporting either one or the other units.

So, beginning on 1 January 2013, we start a new era for the journal where we require submissions to dual report HbA_{1c} in both % and SI units. We feel this

change will allow clinicians and patients from around the world to continue to understand current research findings in *Diabetes Care* and to compare the results reported to articles for which one or the other unit is solely reported. In this case, yet again, “it takes two [units] to tango.”

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