Learning from the "Biggest A1c Movers:"

Interdisciplinary Review of A1c Trends to Drive Process Improvements in a DSMES Program

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Background

Patients enrolled in Diabetes Self-Management Education and Support (DSMES) in outpatient settings routinely complete HgA1c labs. At Brooklyn Hospital Center, the A1c lab results are integrated into the Electronic Medical Record (EMR) and compiled into a diabetes registry report, which the Diabetes Care Team (DCT) reviews to identify patients in need of outreach or treatment intensification.

In 2021, the DCT began calculating, for each patient in the registry, the difference between their most recent A1c value and the previous A1c value in order to establish the trend. This data allows the DCT to identify the patients with the biggest changes in A1c ("**The Biggest Movers**"). These outliers are reviewed by the DCT at a monthly interdisciplinary case conference, and also used to supplement outreach efforts to engage patients in appropriate care.

Standard Display vs. "Biggest Movers"

Mock data displayed below for illustration only, not derived from patient data

Patient	Most Recent A1c	Most Recent A1c Dt
Patient 2	11.9	4/21/2022
Patient 8	10.3	4/13/2022
Patient 7	9.8	5/26/2022
Patient 9	9.7	6/13/2022
Patient 1	9.1	6/6/2022
Patient 5	8.2	6/14/2022
Patient 3	8.1	4/15/2022
Patient 4	7.3	3/25/2022
Patient 10	6.9	5/31/2022
Patient 6	6.6	6/9/2022

Using the standard view of A1c registry data **(left)** patients with the greatest most recent A1c were sorted to the top and prioritized for outreach and treatment intensification.

The "Biggest Movers" view of A1c registry data **(below, left)** adds information about the 2nd most recent A1c value to establish the trend, allowing for patients with substantial changes in A1c to be prioritized for outreach ***in addition to patients with persistently uncontrolled A1c***. For example, the Biggest Movers view indicates that Patients 7 and 1 may benefit from outreach, in addition to Patients 2 and 8 identified through the Standard Display.

Patient	2nd Most Recent A1c	2nd Most Recent A1c Dt	Most Recent A1c	Most Recent A1c Dt	Change in A1c
Patient 7	6.2	3/1/22	9.8	5/26/2022	3.6
Patient 1	6.5	1/4/22	9.1	6/6/2022	2.6
Patient 10	6.2	3/16/22	6.9	5/31/2022	0.7
Patient 2	11.4	3/1/22	11.9	4/21/2022	0.5
Patient 6	6.4	11/2/21	6.6	6/9/2022	0.2
Patient 4	7.1	12/20/21	7.3	3/25/2022	0.2
Patient 3	8.2	12/17/21	8.1	4/15/2022	-0.1
Patient 8	10.4	8/3/21	10.3	4/13/2022	-0.1
Patient 5	8.6	3/7/22	8.2	6/14/2022	-0.4
Patient 9	11.9	3/22/22	9.7	6/13/2022	-2.2

The Diabetes Care Team

- PCPs and Endocrinologists
- Certified Diabetes Educators/Nutritionists
- Nurses
- Pharmacist
- Care Manager
- Social Worker

Technical Process

1. On a monthly basis, the Nurse Manager matches the most recently updated version of the Diabetes Registry with a version that was securely saved three months prior and calculates the difference between the two A1c values for each patient.
2. Patients whose A1c has risen or declined by more than 2.0% (e.g. from 8.0% to 10.1%) are included in a "Biggest Movers" list that is securely available to members of the Diabetes Care Team
3. The list is then presented at monthly Diabetes Care Team meetings. The DCT draws on patient testimony and recent assessments to identify patient barriers/challenges and strategies that have driven the trends and formulates a plan of action for the patient to reverse declines and maintain improvements.
4. For patients with worsening diabetes control, CDEs or Care Managers perform outreach to assess the patient's progress towards goals, address barriers and schedule follow up appointments.

   Of the 32 patients on the "Worsening A1c" list for April and May of 2022: 90% were successfully reached via telephonic outreach, 96% completed a PCP visit in the next 30 days and 78% completed a nutrition or pharmacy encounter.

5. When the case conference highlights opportunities to improve DSMES services, the DCT will initiate an improvement process (Plan-Do-Study-Act)

Common Factors in A1c Trends

Commonly Identified Causes of Increase in A1c:

- Lack of access to medication due to prolonged travel
- Patient is re-establishing care after lapse of insurance
- Life Events Triggering Distress (i.e. family death, illness, housing)
- Improper or discontinued administration of injectables (insulin or GLP-1 Inhibitors) due to changes in social support (e.g. home care)
- Missed appointments due to transportation barriers

Adjustments to DSMES Protocols and Practice to Address Commonly-Identified Causes for A1c Increases:

- CDEs will proactively assess for upcoming travel in order to develop plans for medication access
- Referral to social work in the context of insurance barriers or adverse life events is crucial
- Newly prescribed injectables must be accompanied by administration teaching with teachback and inclusion of family members/support staff, where possible
- DCT should encourage patients to schedule telephone visits to overcome transportation barriers.

Commonly Identified Reason for Improved A1c:

- New Medication Regimen established
- Achievement of patient's nutrition or exercise goals
- Understanding how, when, and why to take medications, augmented by social support from family/caregivers
- Support from outreach by CDCES/RD, RN, PharmD, SW

Key Takeaways

The Diabetes Care Team at The Brooklyn Hospital Center established a monthly interdisciplinary process to review patients with a recent A1c value that has increased or improved dramatically relative to the previous value. This has had the perceived benefit of:

1. Identifying patients who require additional outreach to achieve diabetes control (negative outliers) and facilitating positive reinforcement of patients with substantial improvements (positive outliers) for patients and staff. Highlighting changes in A1c that are recent is conducive to understanding the causes and demonstrating to DCT members the factors driving trends in A1c for this population of patients, as well as early action to address diabetes exacerbations and prevent adverse events.
2. Identifying opportunities to improve DSMES and clinical diabetes management through innovations or greater fidelity to protocols incorporated into performance improvement processes.
3. Fostering interdisciplinary collaboration and knowledge sharing between clinicians, nurses, nutritionists, pharmacists and care managers through monthly case conferences.