Real World Healthcare Costs among patients using Self-Monitoring Blood Glucose (SMBG) compared to Continuous Glucose Monitoring (CGM) in non-intensively treated Type 2 Diabetes

Francesco Giorgino, Julia Rotschke, Elena Acmet, Gert Bergman, Rana Maroun, Alexander Wu, Enrico Repetto, David Kerr.

Background and Aim

- **Glucose monitoring is an essential component of the management of type 2 diabetes (T2D)**, and several studies have demonstrated the clinical benefit of structured self-monitoring of blood glucose (SMBG) in this population (1-7).

- Novel technologies, such as continuous glucose monitoring (CGM) or flash glucose monitoring (FGM), provide more information. However, a recent randomized controlled trial demonstrated that SMBG or CGM can improve HbA1c levels in T2D patients, while **CGM can have additional benefit of minimizing hypoglycemia in those on high hypoglycemia risk medications** (8-9).

- The overall value of using CGM in T2D patients treated with oral or non-intensive insulin regimens is still unclear. **The aim of this study was to compare all-cause costs and healthcare resource utilization (HCRU) in patient populations using SMBG compared to CGM/FGM.**

References below in the notes

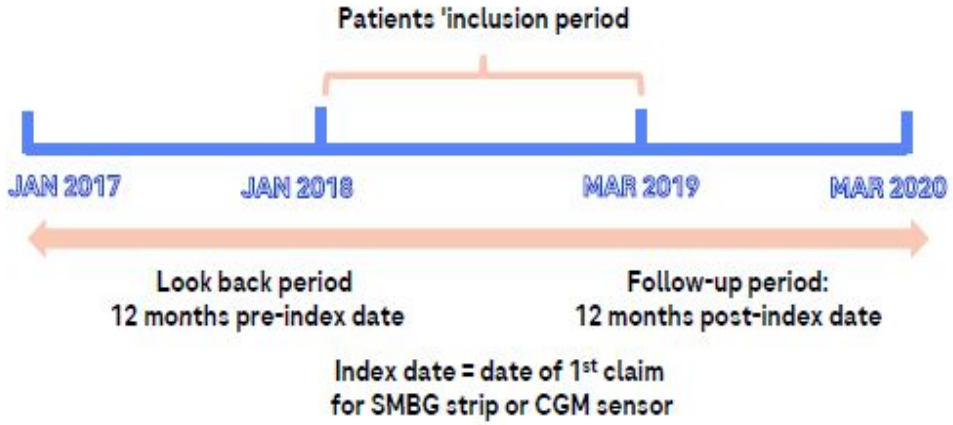
Materials and methods

Study design & Target population

- **Design:** Retrospective comparative analysis using propensity score matching
- **Intervention & Comparators:** SMBG vs CGM/FGM
- **Target population:** SMBG and CGM/FGM users with T2D treated with oral anti-diabetes medications or non-intensive insulin regimens

Data source & Study period

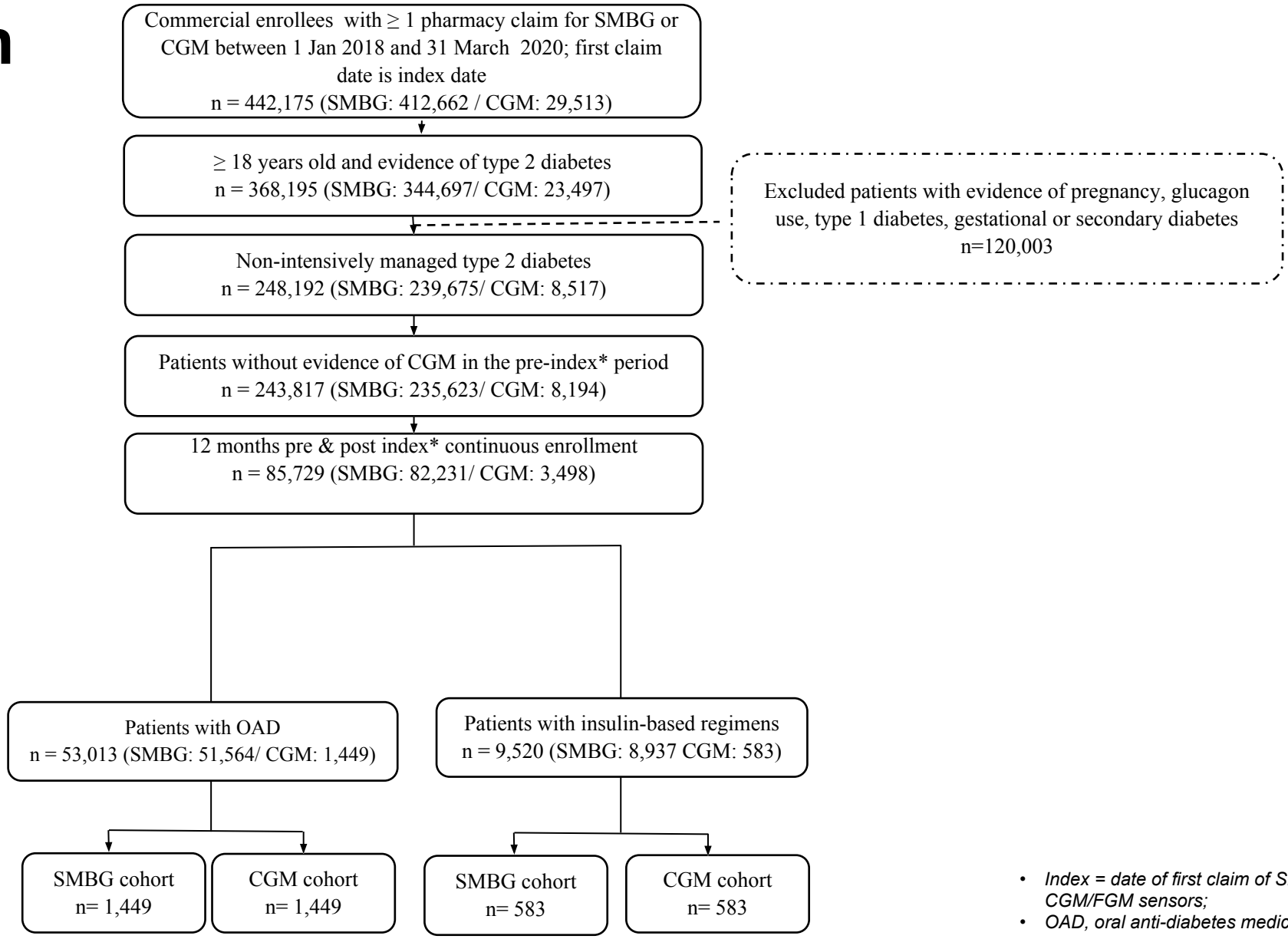
- IBM® MarketScan® Databases



Study outcomes

- All-cause costs and healthcare resource utilization (HCRU)

Population

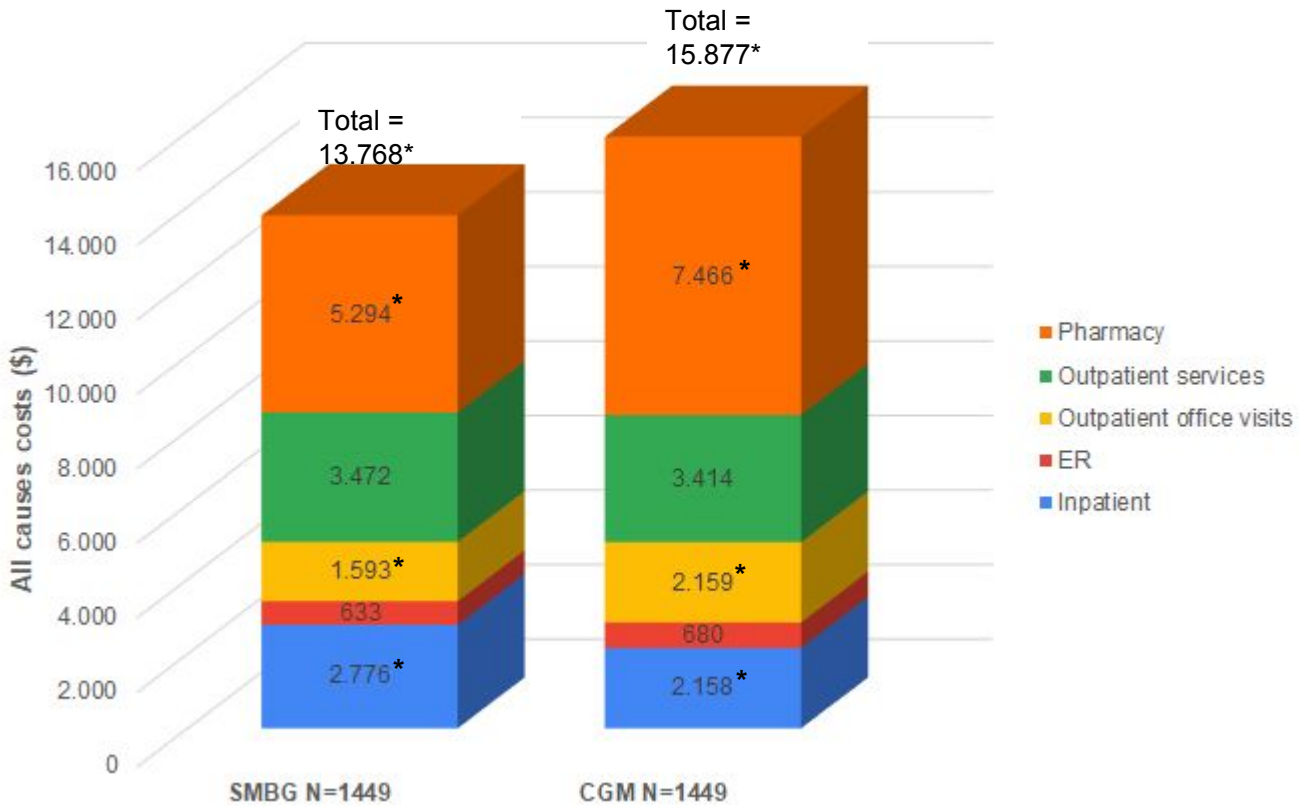


- *Index = date of first claim of SBMG strips or CGM/FGM sensors;*
- *OAD, oral anti-diabetes medications*

Results

OAD treated subgroup

- The average total healthcare costs per person/year were $2,109 less in SMBG users vs CGM users (p<0.001).
- SMBG users also had lower pharmacy costs (-$2,172 , p<0.001), and glucose-lowering medication cost (-$1,246, p<0.001).
- In both subgroups SMBG and CGM cohorts had similar emergency room admissions.



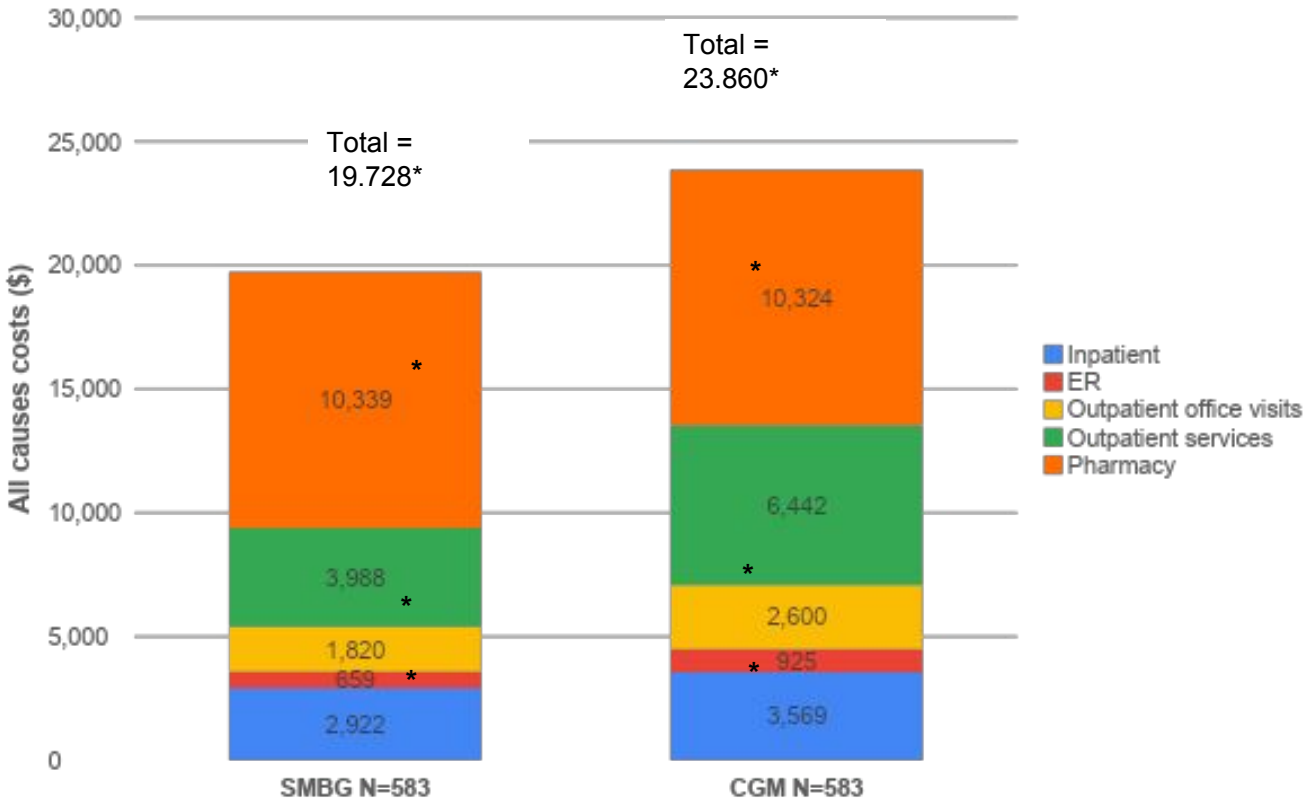
* p-value < 0.05

- *ER, Emergency room visit*

Results

Basal-insulin treated subgroup

- 583 patients were included in each matched cohort in the basal-insulin treated subgroup.
- The total healthcare costs per person/year were $4,132 less in SMBG users vs CGM users (p<0.001).
- SMBG users had also lower outpatient office visits costs (-$780, p<0.001) .
- In both subgroups, SMBG and CGM cohorts had similar emergency room admissions.



* p-value < 0.05

- *ER, Emergency room visit*

Conclusions

- T2D poses a significant economic burden to healthcare systems. Benefits of CGM technology in T1D and T2D patients who are insulin-treated is well-documented. However, in T2D patients not on multiple insulin injections the evidence is less defines. **The cost evaluation is important for a technology solution to be sustainable.**

- In this retrospective analysis of a real-world cohort, **SMBG was found to be less costly than CGM in T2D patients on oral agents or basal insulin regimens**. Moreover, **SMBG and CGM/FGM users showed similar emergency room admissions**, suggesting a similar risk of hard clinical outcomes.

- These findings may represent a **starting point to support informed-based decisions regarding glucose monitoring technologies resource allocation for the vast population of non-intensively managed T2D patients**.