

Impact of the COVID-19 pandemic in the Netherlands on primary healthcare use and clinical outcomes in persons with type 2 diabetes

Jesse M. van den Berg^{1,2,3}, Marieke T. Blom^{1,2}, Karin M. A. Swart^{1,2,3}, Jetty A. Overbeek^{1,2,3}, Sharon Remmelzwaal^{1,2,4}, Petra J. M. Elders^{1,2} and Ron M. C. Herings^{2,3,4}

¹Department of General Practice, Amsterdam UMC location Vrije Universiteit Amsterdam, Amsterdam, The Netherlands; ²Amsterdam Public Health, Health Behaviors & Chronic diseases, Amsterdam, The Netherlands; ³PHARMO Institute for Drug Outcomes Research, Utrecht, The Netherlands; ⁴Department of Epidemiology and Data Science, Amsterdam UMC location Vrije Universiteit Amsterdam, Amsterdam, The Netherlands.

Background

The COVID-19 pandemic impacted healthcare systems worldwide, including chronic care for persons with type 2 diabetes (T2D). General practitioners (GP) saw fewer patients during the first wave of the pandemic. The effects of this possible decline in healthcare use on clinical outcomes in T2D are not well known.

Aim

Examine impact of COVID-19 pandemic in people with T2D regarding:

- Primary healthcare use
- Clinical outcomes

Methods

- Retrospective cohort study
- DIAbetes MANAGEMENT and Treatment (DIAMANT) cohort
 - Electronic patient records from ~25% of Dutch GPs with information on T2D
- Compared healthcare use and clinical outcomes in 2020 vs. 2019
- Adjusted negative binomial and GEE models



- Type 2 diabetes
- Diagnosis < March 2019



- HbA1c
- Body mass index
- LDL-cholesterol
- Blood pressure



- Office visits
- Home visits
- Phone calls

Results

- **182,042** persons with T2D on 1 March 2019
- **168,097** persons with follow-up in 2020
- Decline in clinical measurements
- Increase in HbA1c levels
- Increase in GP office visits and phone calls

Table 1. Rate ratios of visit counts comparing 2020 to 2019.

	Multivariate rate ratio
	2020 vs. 2019 (95% CI)
Total GP visits	1.09 (1.08 to 1.09)
GP office visits	1.06 (1.06 to 1.07)
GP home visits	1.02 (0.99 to 1.04)
GP phone calls	1.33 (1.31 to 1.35)

Table 2. Differences in population averages of clinical measurement values, comparing 2020 to 2019.

	Multivariate estimate
	2020 vs. 2019 (95% CI)
HbA1c (mmol/mol)	+1.65 (1.59 to 1.70)
BMI (kg/m ²)	-0.07 (-0.08 to -0.06)
LDL (mmol/L)	-0.03 (-0.03 to -0.03)
SBP (mmHg)	+1.27 (1.18 to 1.36)

Conclusions

Healthcare utilization changed in 2020:

- Decreased clinical measurements
- Increased GP office-visits and phone calls

On population level, HbA1c value increased

- No clinically relevant changes in trends for BMI, LDL and SBP