Supplemental Material

Table S1. Contribution Per Specialized Diabetes Centre of Adult Patients in the RT-CGM Reimbursement Program

	Adult Patients in the RT-CGM Reimbursement Program (n = 515)
AZ Delta	16 (3%)
AZ Sint-Jan Brugge	32 (6%)
CHR la Citadelle Liège	20 (4%)
CHU de Liège	39 (8%)
CHU de Charleroi	15 (3%)
Cliniques du Sud Luxembourg	10 (2%)
Cliniques universitaires Saint-Luc Bruxelles	12 (2%)
Grand Hôpital de Charleroi	13 (3%)
Hôpital Erasme	19 (4%)
Imeldaziekenhuis Bonheiden	23 (5%)
Jessa Ziekenhuis	18 (4%)
Onze-Lieve-Vrouwziekenhuis Aalst	41 (8%)
University Hospital Antwerp	36 (7%)
University Hospital Brussels	71 (14%)
University Hospital Ghent	28 (5%)
University Hospital Leuven	97 (19%)
Ziekenhuis Oost-Limburg	25 (5%)

Data are n (%).

Table S2. Validated Quality of Life Questionnaires Used in the RESCUE Trial

	Explanation of the Quality of Life Questionnaire
Health-related quality of life (SF-36, version 2)	SF-36 is a generic short-form questionnaire that includes 36 questions divided into 8 subscales: physical functioning, role limitations due to physical problems (role-physical), bodily pain, general health perception, vitality, social functioning, role limitations due to emotional problems (role-emotional), and mental health. For each scale, answers were scored, summed up and transformed into a scale ranging from 0 to 100, with higher scores representing a better health state.
Five-item short-form of the Problem Areas in Diabetes (PAID-SF)	PAID-SF measures psychosocial adjustment specific to diabetes and captures the patient's perspective on current emotional burden of diabetes and its treatment. It contains 5 items which have a five-point response option (0–4 representing 'Not a problem' through to 'Serious problem'). Total scores on PAID-SF range from 0 to 20 with higher scores suggesting greater diabetes-related emotional distress.
Worry subscale of the Hypoglycemia Fear Survey version 2 (HFS-II)	HFS assesses specific concerns and fears that patients with T1D may experience in relation to a hypoglycemic event. HFS is subdivided into a behavior and worry subscale. The worry subscale has 18 questions in total, but in this study, only 13 of them were presented to the patients. Each item was placed in Likert form, where subjects could rate each item from 0 ("never") to 4 ("very often"). The total score of the worry subscale ranges from 0 to 52 with higher scores representing more hypoglycemia-related concerns and fears.

PAID-SF= Problem Areas In Diabetes – Short Form, HFS= Hypoglycemia Fear Survey

Table S3. Questions in Patient Diaries

In the past year/month
How many blood glucose measurements per day did you perform on average?
At what blood glucose value did you sense an imminent hypoglycemic event?
How many times were you hospitalized?
How many of these hospitalizations were due to severe hypoglycemic events?
What was the total duration of these hospitalizations due to severe hypoglycemic events?
How many of these hospitalizations were due to a proven ketoacidosis?
What was the total duration of these hospitalizations due to a proven ketoacidosis?
How often have you been in a coma because of hypoglycemia?
How many times did you need help from third parties associated with severe hypoglycemia?
How often did you have seizures because of hypoglycemia?
How many times did you need glucagon to overcome a hypoglycemic event?
How often did you need assistance from ambulance personnel associated with severe hypoglycemia?
How many of these times have you been taken to a hospital?
How many days of work did you miss due to your diabetes?
How many sensors did you use?[a]

[a]Only to be answered during the reimbursement program.

Table S4. Indications for Starting RT-CGM Therapy

Indications	Groups
Having frequent serious hypoglycemic events	Hypoglycemia (56%)
Epilepsy with hypoglycemia	
Hypo unawareness	
Very unstable blood glucose control	
Avoiding hypoglycemia for sport	
Avoiding hypoglycemia for professional reasons	
Poor glycemic control without explanation	Insufficient and variable glycemic control (26%)
Frequent ketoacidosis	
Pregnancy	Pregnancy (13%)
Pregnancy wish	
Improving adherence to therapy	Other (5%)
Variable life	
Age	
Other	

Figure S1. Overview of Patients and Completeness of Data in the RT-CGM Reimbursement Program.

Follow-up: 11 patients <4 months, 23 patients 4-8 months, 12 patients 8-12 months, 417 patients ≥ 12 months

RT-CGM=Real-Time Continuous Glucose Monitoring, CSII=Continuous Subcutaneous Insulin Infusion, QOL=Quality of Life

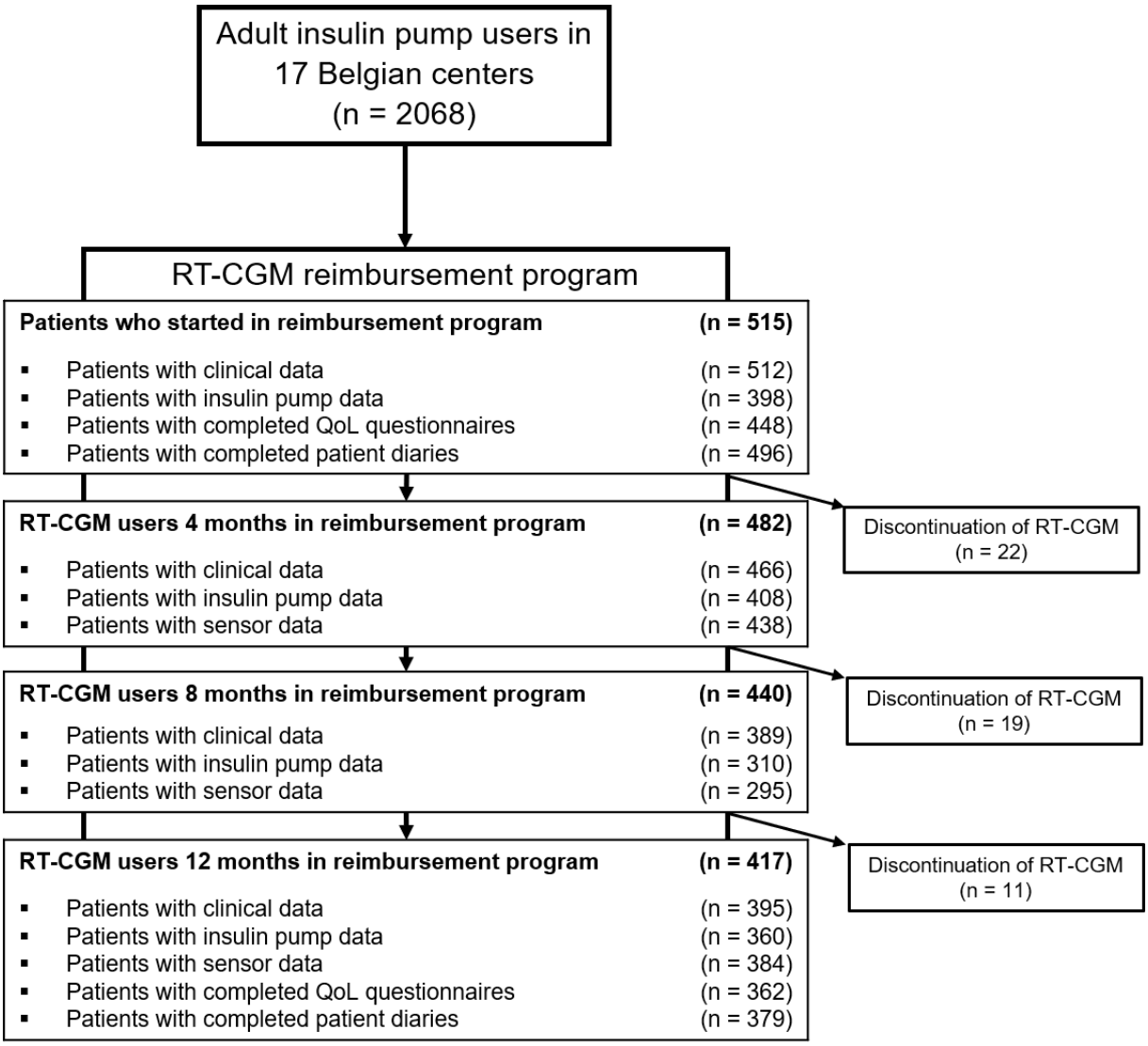


Figure S2. Result of Multivariable Model for the Evolution of HbA_{1c} From Before Until 12 Months After Start of the RT-CGM Reimbursement Program

The figure presents the variables for which the interaction with time was retained in the multivariable model based on the AIC criterion and illustrates the dependency of the changes on baseline HbA_{1c}.

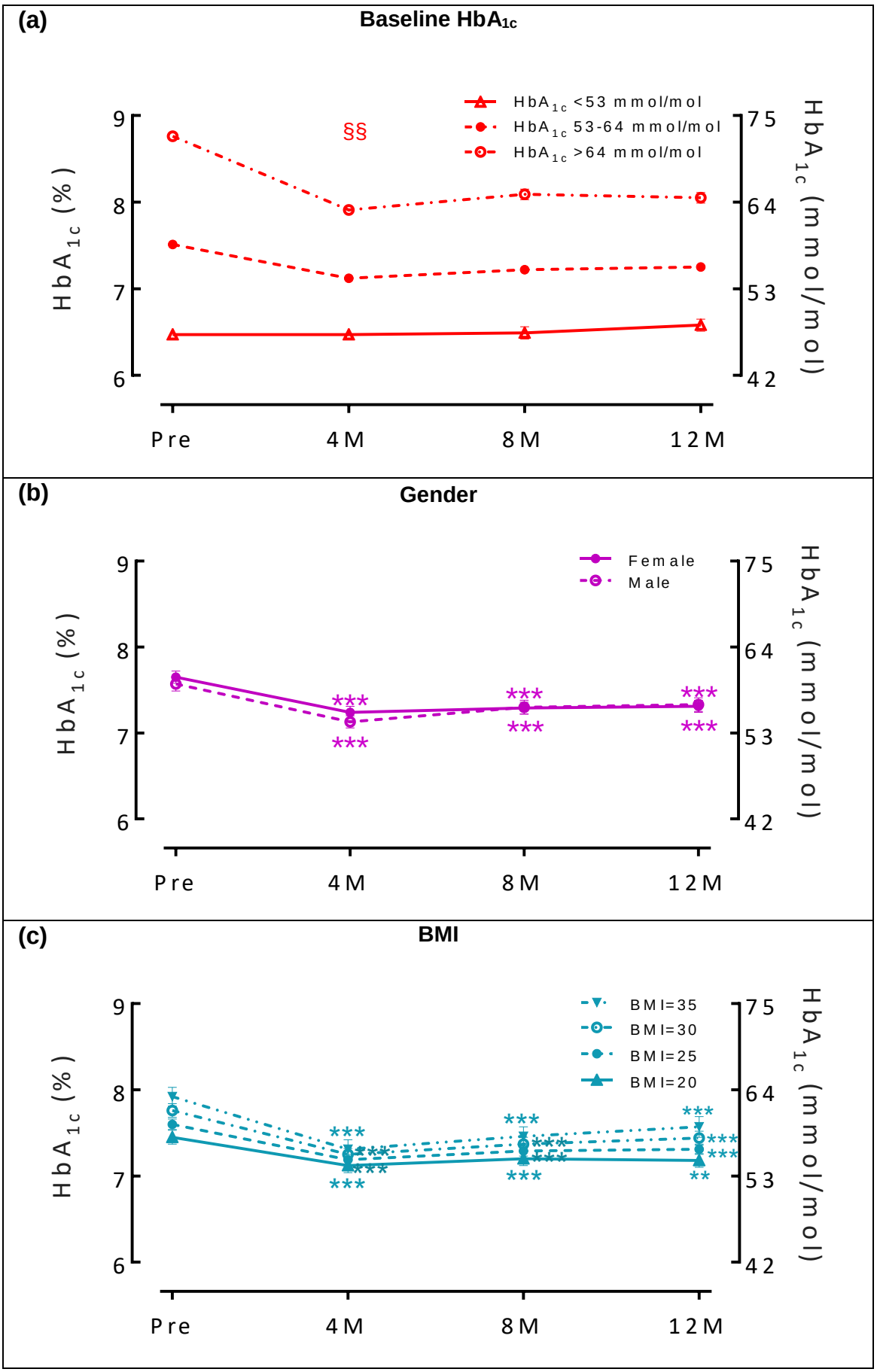
Data points represent mean (SE) of HbA_{1c} measurements per time point (**a**) as a function of baseline HbA_{1c}, (**b**) for males and females, (**c**) as a function of BMI, (**d**) divided per indication to start RT-CGM therapy, and (**e**) as a function of duration of CSII therapy. Note that in panel d, the 14 subjects who entered the RT-CGM program for other indications are not included in the figure. For BMI (**c**), which is a continuous variable, the differences in evolution are illustrated for BMI = 20, 25, 30 and 35 kg/m². For duration of pump therapy (**e**), which is a continuous variable, the differences in evolution are illustrated at 1, 3, 5 and 10 years. In panel **a**, the model based predictions (obtained from the multivariate normal distribution) are averaged within the groups with baseline values >64 mmol/mol (>8%), 53-64 mmol/mol (7%-8%) and <53 mmol/mol (<7%), respectively.

RT-CGM=Real Time-Continuous Glucose Monitoring, CSII=Continuous Subcutaneous Insulin Infusion, SE=Standard Error.

*** denotes $P<0.001$, ** denotes $P<0.01$, and * denotes $P<0.05$ for the comparisons between HbA_{1c} before reimbursement and the time points after start (**b-e**).

§§§ denotes $P<0.001$, §§ denotes $P<0.01$, and § denotes $P<0.05$ for the relation between the variable and the change versus baseline (i.e. test if the correlation between baseline HbA_{1c} and the change in HbA_{1c} exceeds the regression to the mean effect in panel **a**; test for the interaction term in panels **b-e**).

Figure S2.


(a)
Baseline HbA1c
HbA1c <53 mmol/mol
HbA1c 53-64 mmol/mol
HbA1c >64 mmol/mol
§§
HbA1c (%)
HbA1c (mmol/mol)
9
8
7
6
75
64
53
42
Pre
4M
8M
12M
(b)
Gender
Female
Male
***
(c)
BMI
BMI=35
BMI=30
BMI=25
BMI=20
**

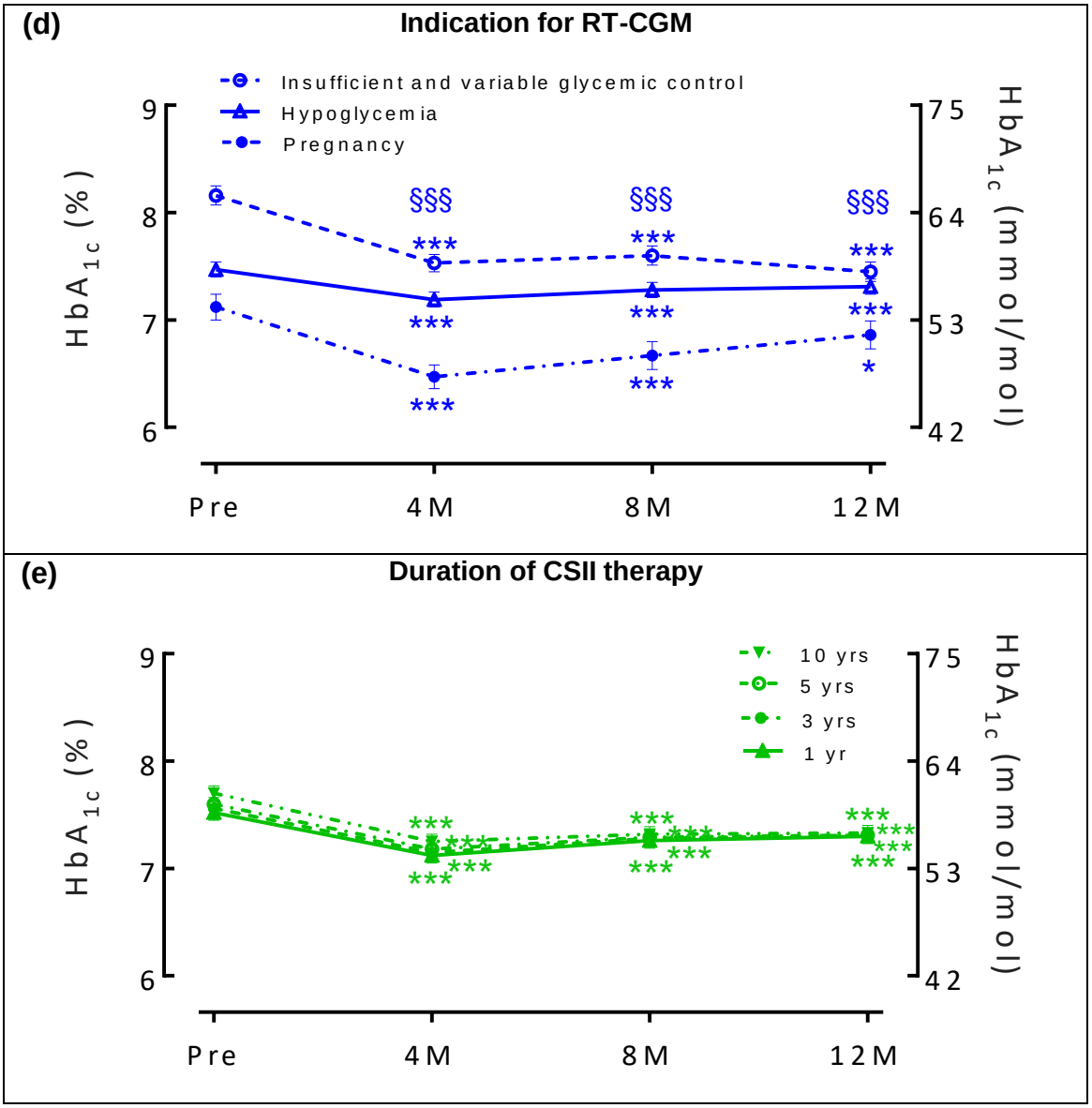

(d)
Indication for RT-CGM
Insufficient and variable glycemic control
Hypoglycemia
Pregnancy
HbA1c (%)
HbA1c (mmol/mol)
9
8
7
6
75
64
53
42
§§§
***
*
Pre
4 M
8 M
12 M
(e)
Duration of CSII therapy
10 yrs
5 yrs
3 yrs
1 yr
HbA1c (%)
HbA1c (mmol/mol)
Pre
4 M
8 M
12 M

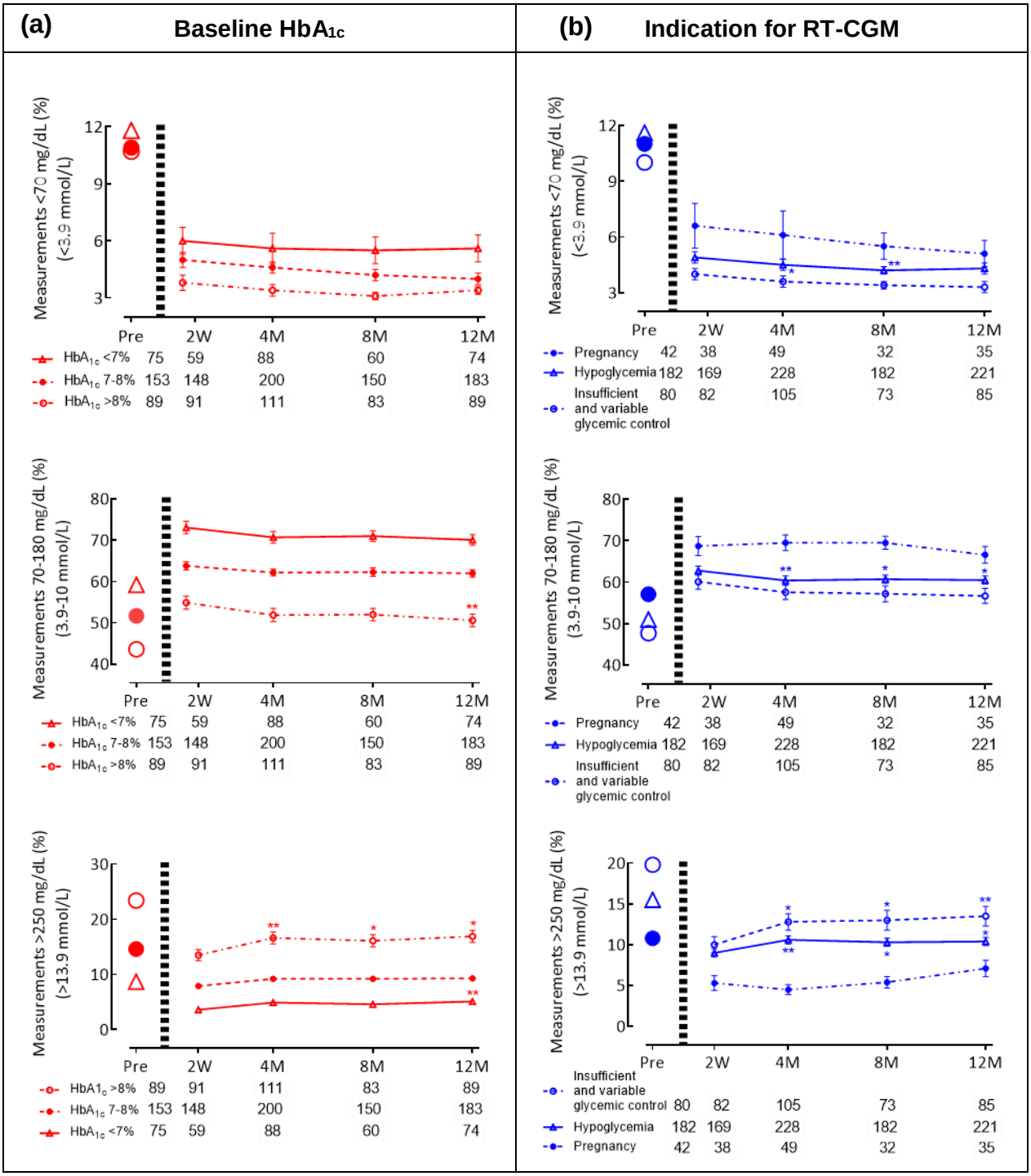
Figure S3. Evolution of Time in Hypoglycemia (Upper Row), Target Range (Middle Row) and Hyperglycemia (Bottom Row) From Before Until 12 Months After Start of the RT-CGM Reimbursement Program

Symbols represent mean percentage of SMBG measurements <70 mg/dL (3.9 mmol/L) (upper row), 70-180 mg/dL (3.9-10 mmol/L) (middle row), and >250 mg/dL (13.9 mmol/L) (bottom row) before reimbursement and serve as a reference point. Connected data points represent mean (SE) percentage of RT-CGM measurements <70 mg/dL (3.9 mmol/L) (upper row), 70-180 mg/dL (3.9-10 mmol/L) (middle row), and >250 mg/dL (13.9 mmol/L) (bottom row) at the different time points after start of reimbursement, and equals time in hypoglycemia, in range and in hyperglycemia for (**a**) the total population divided per level of baseline HbA_{1c}, and (**b**) divided per indication to start RT-CGM therapy. Numbers under the graphs represent number of patients who had data at the specific time point.

RT-CGM=Real Time-Continuous Glucose Monitoring, SE=Standard Error, SMBG=Self-Monitoring of Blood Glucose.

*** denotes *P*<0.001, ** denotes *P*<0.01, and * denotes *P*<0.05 for the comparisons between RT-CGM data point at 2 weeks and the later RT-CGM data points.

Figure S3.


(a)
Baseline HbA1c
(b)
Indication for RT-CGM
Measurements <70 mg/dL (%) (<3.9 mmol/L)
Measurements 70-180 mg/dL (%) (3.9-10 mmol/L)
Measurements >250 mg/dL (%) (>13.9 mmol/L)
Pre
2W
4M
8M
12M
HbA1c <7% 75 59 88 60 74
HbA1c 7-8% 153 148 200 150 183
HbA1c >8% 89 91 111 83 89
Pregnancy 42 38 49 32 35
Hypoglycemia 182 169 228 182 221
Insufficient and variable glycemic control 80 82 105 73 85

List of RESCUE Investigators

dr. Katrien Spincemaille, AZ Delta, Roeselare, Belgium

dr. Youri Taes, AZ Sint-Jan Brugge AV, Bruges, Belgium

dr. Marie Strivay, CHR la Citadelle Liège, Liege, Belgium

Prof. dr. Regis P. Radermecker, CHU de Liège, Liege, Belgium

dr. Jean-Claude Daubresse, CHU de Charleroi, Charleroi, Belgium

dr. Eric Weber, Cliniques du Sud Luxembourg, Arlon, Belgium

Prof. dr. Michel P. Hermans, Cliniques Universitaires St-Luc, Brussels, Belgium

dr. Denis Scarnière, Grand Hôpital de Charleroi, Charleroi, Belgium

dr. Laurent Crenier, Hôpital Erasme, Brussels, Belgium

dr. Jozef Tits, Hospital Oost-Limburg, Genk, Belgium

dr. Chris Vercammen, Imelda Hospital Bonheiden, Bonheiden, Belgium

dr. Hanny Brussaard, Jessa Hospital, Hasselt, Belgium

Prof. dr. Frank Nobels, OLV Hospital Aalst, Aalst, Belgium

Prof. dr. Christophe De Block, University Hospital Antwerp, Antwerp, Belgium

Prof. dr. Bart Keymeulen, University Hospital Brussels, Brussels, Belgium

Prof. dr. Guy T'Sjoen, University Hospital Ghent, Ghent, Belgium

Miss Sara Charleer, University Hospital Leuven, Leuven, Belgium

Prof. dr. Pieter Gillard, University Hospital Leuven, Leuven, Belgium

Prof. dr. Chantal Mathieu, University Hospital Leuven, Leuven, Belgium