SUPPLEMENTARY DATA

Members of the STAR 3 Study Group

Members of the STAR 3 Study Group are as follows (asterisks indicate principal investigators): Mountain Diabetes and Endocrine Center, Asheville, NC: W.S. Lane,* K. Arey, T. Przestrzelski; Joslin Diabetes Center, Boston: S. Mehta,* L. Laffel,* J. Aggarwal, K. Pratt; University of North Carolina School of Medicine, Chapel Hill: J.B. Buse,* M. Duclos, J. Largay; Ohio State University College of Medicine, Columbus: K. Osei,* C. Casey-Boyer, H. Breedlove; University of Colorado Denver, Denver: R. Slover, II,* S. Kassels, S. Sullivan; Duke University Medical Center, Durham, NC: J.B. Green,* J. English-Jones; Helen DeVos Children's Hospital, Grand Rapids, MI: M.A. Wood,* E. Gleason, L. Wagner; East Carolina University, Diabetes and Obesity Center, Greenville, NC: R.J. Tanenberg,* C. Knuckey; Rocky Mountain Diabetes and Osteoporosis Center, Idaho Falls, ID: D.R. Liljenquist,* J.E. Liljenquist,* B. Sulik; Kingston General Hospital, Kingston, ON, Canada: R.L. Houlden,* T. LaVallee, A. Breen, R. Barrett; Scripps Institute, La Jolla, CA: G. Dailey,* R. Rosal, J. Shartel; Kentucky Diabetes Endocrinology Center, Lexington: L. Myers,* D. Ballard; Endocrinology Diabetes Clinic, Madison, WI: M. Meredith,* C. Trantow; Diabetes Research Institute, Miami: L.F. Meneghini,* J. Sparrow-Bodenmiller, R. Agramonte; International Diabetes Center at Park Nicollet, Minneapolis: R.M. Bergenstal,* A.B. Criego, S. Borgman; Vanderbilt University, Nashville: M.E. May,* S.N. Davis,* C. Root; Yale University, New Haven, CT: S.A. Weinzimer,* L. Carria, J. Sherr; Children's Hospital of Orange County, Orange, CA: M. Daniels,* J.S. Krantz,* H. Speer, J. Less; Children's Hospital of Philadelphia, Philadelphia: S.M. Willi,* T. Calvano, E. Garth; Oregon Health and Science University, Portland: A. Ahmann,* C. Bogan, V. Chambers, B. Wollam; Mayo Clinic, Rochester, MN: Y.C. Kudva,* B. Wirt; University of Rochester School of Medicine and Dentistry, Rochester, NY: C. Orlowski,* S. Bates, B. Johnson; Endocrine Research Solutions, Roswell, GA: J.C. Reed, III,* J. Tapia, K. Wardell, S. Newsome; Memorial University of Newfoundland, St. John's, NL, Canada: C. Joyce,* D. Gibbons, J. O'Leary; Washington University in St. Louis School of Medicine, St. Louis: N.H. White,* M. Coleman; Children's Hospital of St. Paul, St. Paul, MN: R.C. McEvoy,* C. Girard; Utah Diabetes Center, Salt Lake City: C.M. Foster,* T. Brown, E. Nuttall; Toronto General Hospital, Toronto: B.A. Perkins,* A. Orszag; Endocrine Research, Vancouver, BC, Canada: H. Tildesley,* B. Pottinger; Mid-America Diabetes Associates, Wichita, KS: R.A. Guthrie,* J. Dvorak, B. Childs. Members of the STAR 3 Steering Committee are as follows: T. Battelino, University Children's Hospital, Ljubljana, Slovenia; S.N. Davis, University of Maryland School of Medicine, Baltimore; E.S. Horton, Joslin Diabetes Center, Boston; S.W. Lee, Medtronic, Northridge, CA; R.R. Rubin, Johns Hopkins University, Baltimore; K.A. Schulman, Duke University, Durham, NC; W.V. Tamborlane, Yale University, New Haven, CT.

STATISTICAL METHODS

Analyses were performed using SAS (version 9.2; SAS Institute, Cary, NC). All P values are two-sided. Values of $P < 0.05$ were considered statistically significant. The last observed A1C value was carried forward for subjects who entered but did not complete the continuation phase. Comparison of within-treatment group A1C values at different time points was performed with a repeated ANCOVA model that included visit number, sex, and pooled investigational center as categorical variables and BMI, duration of diabetes, and week-52 A1C values as continuous variables. Sensor wear time was calculated as the average number of sensor glucose readings per day divided by the number of 5-minute intervals in a day (ie, 288). A general linear model with sex and pooled investigational center as categorical variables and BMI, duration of diabetes, week-52 A1C values, and sensor wear time as continuous variables was used to examine the relationship between sensor wear and A1C reduction. Wilcoxon’s

test was used to evaluate sensor wear times between treatment groups. Subjects were assigned to adult (age 19-70) or pediatric (age 7-18) age groups at study entry; subjects who reached their 19th birthday while participating in the study were not reassigned to the adult age group. Rates of severe hypoglycemia and diabetic ketoacidosis were compared with Fisher's exact test. Areas under glucose concentration-time curves were compared via two-sample t-tests (between-group comparisons) or paired t-tests (within-group comparisons).

SUPPLEMENTARY DATA

Supplementary Table 1. Sensor wear and ΔA1C in the continuation phase, SAP and crossover groups

	SAP Group			Crossover Group	
Sensor Wear (%)	n	ΔA1C (mean ± SD, %)		n	ΔA1C (mean ± SD, %)
0-20	23	0.3 ± 0.9		31	0.0 ± 0.8
21-40	26	0.3 ± 0.5		28	-0.3 ±0.7
41-60	42	0.0 ± 0.6		53	-0.2 ± 0.8
61-80	79	0.0 ± 0.5		71	-0.6 ± 0.6
81-100	46	0.0 ± 0.4		21	-0.6 ± 0.5

Supplementary Table 2. Severe hypoglycemia and DKA in the continuation phase; AUC at weeks 52 and 78

	SAP Group (SAP to SAP) (n=216)	**Crossover Group (MDI to SAP) (n=204)**	***P* Value (SAP vs. Crossover)**
Severe hypoglycemia			
Subjects (%)	6 (2.8%)	2 (1.0%)	NS
Diabetic ketoacidosis			
Subjects (%)	1 (0.5%)	2 (1.0%)	NS
AUC >180 mg/dL, mean ± SD			
Baseline (week 52)	19.7 ± 15.2	31.9 ± 21.1	<0.001
End continuation phase (week 78)	20.3 ± 15.7	21.0 ± 16.6	NS
***P* value (week 52 vs. week 78)**	NS	<0.001	
AUC <70 mg/dL, mean ± SD			
Baseline (week 52)	0.2 ± 0.4	0.3 ± 0.5	NS
End continuation phase (week 78)	0.3 ± 0.6	0.3 ± 0.7	NS
***P* value (week 52 vs. week 78)**	NS	NS	

DKA, diabetic ketoacidosis; AUC, area under the glucose concentration-time curve (mg/dL × min)

SUPPLEMENTARY DATA

Supplementary Figure 1. Consolidated Standards of Reporting Trials (CONSORT) flow diagram