Close loop experience in children and adolescents

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Declaration of potential conflicts of interest:

T. Battelino’s institution has received research grant support, with receipt of travel and accommodation expenses in some cases, from Abbott, Medtronic, Novo Nordisk, Eli Lilly, GluSense and Diamyd.

T. Battelino received honoraria for participating on the speaker’s bureaux of Eli Lilly, Novo Nordisk, Bayer, Roche and Medtronic, and consulting fees as a member of scientific advisory boards from Bayer, LifeScan, Eli Lilly, Sanofi-Aventis and Medtronic.
• Introduction
• Rationale
• Evidence
• Vision
The Loop Club

Towards an Artificial Pancreas

Ljubljana, Slovenia, 2003
Singapore, 2004
Krakow, Poland, 2005
Lyon, France, 2005
Berlin, Germany, 2006
Pediatric Patients Use Two Devices During Closed-Loop Experiments

Closed-Loop Study

Hybrid control (pre-meal prime bolus followed by closed-loop control) improves blood sugar control by reducing the post-prandial excursion.

<table>
<thead>
<tr>
<th></th>
<th>MEAN (mg/dl)</th>
<th>DAYTIME (mg/dl)</th>
<th>PEAK (PP) (mg/dl)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Closed Loop</strong></td>
<td>147 ± 58</td>
<td>154 ± 60</td>
<td>219 ± 54</td>
</tr>
<tr>
<td><strong>Hybrid</strong></td>
<td>138 ± 49</td>
<td>143 ± 50</td>
<td>196 ± 52</td>
</tr>
</tbody>
</table>

Emerging Treatments and Technologies
Original Research

Diabetes Care 31:934-939, 2008

Fully Automated Closed-Loop Insulin Delivery Versus Semiautomated Hybrid Control in Pediatric Patients With Type 1 Diabetes Using an Artificial Pancreas

Stuart A. Weinzimer, MD¹, Garry M. Steil, PHD², Karena L. Swan, MD¹, Jim Dziura, PHD³, Natalie Kurtz, PHD² and William V. Tamborlane, MD¹,³
Closed-Loop Insulin Therapy Improves Glycemic Control in Children Aged <7 Years

A randomized controlled trial *Diabetes Care* 36:222–227, 2013

Andrew Dauber, MD, MMSc
Liat Corcia, MD
Jason Safer, BS

Michael S.D. Agus, MD
Sara Einis, MSN
Garry M. Steil, PhD

<table>
<thead>
<tr>
<th>Outcome measure</th>
<th>Open loop</th>
<th>Closed loop</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nocturnal mean glucose (mg/dL)</td>
<td>209 ± 18</td>
<td>178 ± 10</td>
<td>0.18</td>
</tr>
<tr>
<td>Nocturnal time (h)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt;70 mg/dL</td>
<td>0.21 ± 0.15</td>
<td>0.17 ± 0.10</td>
<td>0.86</td>
</tr>
<tr>
<td>70–109 mg/dL</td>
<td>0.98 ± 0.48</td>
<td>1.1 ± 0.33</td>
<td>0.85</td>
</tr>
<tr>
<td>110–200 mg/dL</td>
<td>3.2 ± 0.77</td>
<td>5.3 ± 0.66</td>
<td>0.12</td>
</tr>
<tr>
<td>201–300 mg/dL</td>
<td>4.3 ± 0.99</td>
<td>3.2 ± 0.69</td>
<td>0.43</td>
</tr>
<tr>
<td>&gt;300 mg/dL</td>
<td>1.3 ± 0.42</td>
<td>0.18 ± 0.08</td>
<td>0.035</td>
</tr>
<tr>
<td>Nocturnal AUC &gt;200 mg/dL (mg/dL × h)</td>
<td>384 ± 84</td>
<td>162 ± 40</td>
<td>0.049</td>
</tr>
</tbody>
</table>
Closed Loop
DREAM Project Aim

To Evaluate the Efficacy and Safety of the MD-Logic Artificial Pancreas System in Controlling the Blood Glucose Levels of Patients with T1DM at Home

Schneider Children’s Medical Center of Israel

University Children’s Hospital

Slovenia

Diabetes-Zentrum für Kinder und Jugendliche Kinderkrankenhaus auf der Bult

Germany
MD-Logic Artificial Pancreas System

- Medical team fuzzy logic
- Basal / Bolus approach
- Individualized & Learning system
- Multi device connectivity
- Remote safety monitoring

Atlas E et al, Diabetes Care 33(3):1072-6, 2010
Fuzzy-Logic Applications
The MD-Logic Artificial Pancreas System

Fussy Logic Based, Closed Loop and Wireless System
DREAM Project: Overnight Closed-loop Control

DREAM1: Feasibility
Adolescents & Young Adults (N=12)

DREAM2: Inpatient Overnight
Children, Adolescents & Young Adults (N=15)
Pediatr Diabetes 2013;14:159-67

DREAM3: Overnight At a Diabetes Camp
Children & Adolescents (N=54)
N Engl J Med 2013 Feb 28;368(9):824-33

DREAM4: Overnight At Home
Children, Adolescents & Young Adults
Pediatr Diabetes 2013 Aug 15. doi: 10.1111
Diabete Care 2014, in press
Nocturnal Glucose Control with an Artificial Pancreas at a Diabetes Camp

Moshe Phillip, M.D., Tadej Battelino, M.D., Eran Atlas, M.Sc., Olga Kordonouri, M.D., Natasa Bratina, M.D., Shahar Miller, B.Sc., Torben Biester, M.D., Magdalena Avbelj Stefaniha, M.D., Ido Muller, B.Sc., Revital Nimri, M.D., and Thomas Danne, M.D.

Patients at a diabetes camp who were treated with an artificial-pancreas system had less nocturnal hypoglycemia and tighter glucose control than when they were treated with a sensor-augmented insulin pump. (Funded by Sanofi and others; ClinicalTrials.gov number, NCT01238406.)
Results: Primary Endpoints

- **Time <60 mg/dl [Hour]**
  - Control: 0 [0 to 27.5]
  - MD-Logic: 0 [0]
  - P=0.015

- **Total number of episodes <63 mg/dl**
  - Control: 22
  - MD-Logic: 7
  - P=0.0027

- **Mean overnight Glucose [mg/dl]**
  - Control: 140.4
  - MD-Logic: 126.4
  - P=NS
DREAM 3: Main Segment
Safety All 54 Patients from 3 Camps

- No severe side effect
- No episodes of severe hypoglycemia
- No episodes of DKA
DREAM 4: Overnight MDLAP Control At Patients Home
The First Overnight Closed-Loop at Home

First Home - 17 June 2012, Israel

Blood Glucose [mg/dL]

Glucose [mg/dL]

Treatment [Units/Hour or Units]

Insulin [Units]

Time [HH:MM]
DREAM4 – 4 Nights Study

- Randomized, two arms, cross-over, multinational, multicenter single blind study
- Comparing the GlucoSitter™ to Sensor Augmented Pump for 4 nights at patients home
- Free Activity

Nimri R et al, Pediatr Diabetes, 2013
MD-Logic Artificial Pancreas – DREAM at Home
Ljubljana, 21st October 2013
Risk for Hypoglycemia Alarms – Remote Monitoring Alerts
• Randomised, two arms, cross-over, single blind study
• 4 nights under MD-Logic AP vs. Sensor Augmented Pump

Main Inclusion Criteria
• Type 1 Diabetes > 1 year
• $10 \leq \text{Age} \leq 65$ years
• $7 \leq \text{HbA}_{1c} < 10$
• Insulin pump therapy > 3 months
• Previous/current use of CGM

Main Exclusion Criteria
• Concomitant diseases that influence metabolic control
• Diabetic ketoacidosis / severe hypoglycemia in the month prior to enrollment
DREAM4 – 4 Nights Study - Design

- **Run in Period**
- **Assessment Period**
- **MD-Logic AP**
- **SAP-Control**
- **MD-Logic AP**

**Key Phases:**
- Sensor Education & general diabetes Training
- Pump settings optimization
- Washout period
- Study End

**Timeline:**
- Recruitment
- Randomization
- 0, 2, 3, 4, 6, 7 weeks
## 75 T1DM patients (50 Children & Adolescents, 25 Adults)

<table>
<thead>
<tr>
<th></th>
<th>Mean ± SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age [yrs]</td>
<td>19.4 ± 10.0</td>
</tr>
<tr>
<td>Sex [F/M]</td>
<td>37 / 38</td>
</tr>
<tr>
<td>Duration of Diabetes [yrs]</td>
<td>11.0 ± 8.6</td>
</tr>
<tr>
<td>Duration on Pump Therapy [yrs]</td>
<td>6.4 ± 4.5</td>
</tr>
<tr>
<td>BMI [kg/m²]</td>
<td>22.4 ± 3.6</td>
</tr>
<tr>
<td>Total Daily Dose [U/kg]</td>
<td>50.2 ± 18.9</td>
</tr>
<tr>
<td>HbA1C [%]</td>
<td>7.8 ± 0.7</td>
</tr>
</tbody>
</table>
Primary Endpoints (ITT, *N=72)

(P=0.004)

% of Night Time

Time < 70 mg/dl

(P=0.007)

% of nights with mean glucose level within 90-140 mg/dl

* 1 Patient dropout before randomization
2 patients were not included in analysis < 2 nights

Two tails paired Wilcoxon sign rank test
DREAM4 – 4 Nights Study - Results

Improved Time In Range (ITT, N=72)

**P<0.001***

![Bar chart showing improved time in range for two groups: SAP (Control) and MDLAP.](chart)

* Two tails paired Wilcoxon sign rank test
DREAM4 – 4 Nights Study - Results

Reduce Over Night Hypoglycemia (ITT, N=72)

<table>
<thead>
<tr>
<th></th>
<th>MDLAP</th>
<th>SAP</th>
<th>P-Value*</th>
</tr>
</thead>
<tbody>
<tr>
<td>% of readings &lt;63 (mg/dl)</td>
<td>0.44 (0.0, 2.7)</td>
<td>0.92 (0.0, 5.7)</td>
<td>0.004</td>
</tr>
<tr>
<td>Events &lt; 63 (mg/dl)</td>
<td>0.0 (0.0, 0.25)</td>
<td>0.0 (0.0, 0.5)</td>
<td>0.001</td>
</tr>
<tr>
<td>Area &lt; 63 (mg/dl*min)</td>
<td>3.75 (0.0, 77.2)</td>
<td>29.46 (0.0, 199.4)</td>
<td>0.004</td>
</tr>
<tr>
<td>LBGI</td>
<td>0.56 (0.2, 1.1)</td>
<td>0.89 (0.23, 2.1)</td>
<td>0.003</td>
</tr>
</tbody>
</table>

Values presented are Median (IQR)

* Paired Wilcoxon signed rank test
DREAM4 – 4 Nights Study - Results

Percentages of readings spent below different hypoglycemia thresholds – ITT, N=72

Values presented are Median (IQR)

* Paired Wilcoxon signed rank test
## Lower Over Night Hyperglycemia (ITT, N=72)

<table>
<thead>
<tr>
<th></th>
<th>MDLAP</th>
<th>SAP</th>
<th>P-Value*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean glucose levels (mg/dl)</td>
<td>135.8 ± 20.0</td>
<td>138.4 ± 26.4</td>
<td>0.32</td>
</tr>
<tr>
<td>Time &gt; 180 (%)</td>
<td>8.4 (3.4,19.7)</td>
<td>15.4(4.2,30.3)</td>
<td>&lt;0.01</td>
</tr>
<tr>
<td>Time &gt; 140 (%)</td>
<td>36.6 (20.2, 48.7)</td>
<td>45.2 (27.1, 60.6)</td>
<td>0.02</td>
</tr>
<tr>
<td>Area &lt; 140 (mg/dl x minutes)</td>
<td>4895 (2378, 11173)</td>
<td>8259 (3205, 14523)</td>
<td>0.01</td>
</tr>
<tr>
<td>HBGI</td>
<td>2.38 (1.3, 4.8)</td>
<td>3.8 (1.6, 6.2)</td>
<td>0.02</td>
</tr>
</tbody>
</table>

Values presented are Median (IQR) or mean +/- SD

* Paired Wilcoxon signed rank test
Histogram of the Mean Overnight glucose levels (N=72)
DREAM4 – 4 Nights Study - Results

Insulin Treatment – Total Night Dose - ITT

Values presented are Median (IQR) or mean +/- SD

* Paired Wilcoxon signed rank test

No significant different was found in the Total Night Dose.
Patient: ST, A1c 8.8%

Blood Glucose [mg/dL]

Insulin Delivery [U/hour]

MDLAP Manual

DreaMed, Ltd. First to Close the Loop
MD-Logic Alerts Module Vs. CGM Alerts

• MD-Logic Alerts module is superior to CGM alerts:
  o Improve quality of life and less burden
  o Could be a separate product

<table>
<thead>
<tr>
<th></th>
<th>MD-Logic</th>
<th>Sensor Augmented Pump</th>
</tr>
</thead>
<tbody>
<tr>
<td>162 Nights</td>
<td>160 Nights</td>
<td></td>
</tr>
<tr>
<td>Total Number of Hypoglycemia Alarms</td>
<td>50</td>
<td>113</td>
</tr>
</tbody>
</table>

Nimri R et al, Pediatr Diabetes, Aug 2013 – Epub ahead of print
DREAM4 – 4 Nights Study - Results

All Patient Under MDLAP Treatment - ITT
(N=74 patients in 268 Nights)

Manuscript submitted

median (interquartile range)
DREAM 4: 6 Weeks Overnight MDLAP Control At Patients Home
DREAM4 – 6 Weeks Study

- Randomized, two arms, cross-over, single center study
- Comparing the GlucoSitter™ to Sensor Augmented Pump for 6 weeks at patients home
- Free Activity

Inclusion Criteria
- Age >12 and < 65 y
- T1DM at least one year since diagnosis
- CSII > 3 months
- Previous experience using CGM
- HbA1c ≥ 6.5 and <10
- BMI for age ≤ 95th percentile
- subject living with at least one other adult person.
DREAM4 – 6 Weeks Study - Design

Continue Daily Routine & Diabetes Management

MDLAP
- Sensor Augmented Pump
- MD-Logic Closed Loop

Free meals with pre-meal bolus

System Hook-up
- Bed Time
- Awake

07:00

SAP
- Sensor Augmented Pump

07:00

DreaMed, Ltd.
First to Close the Loop
Example of Day Routine

<table>
<thead>
<tr>
<th>Time</th>
<th>AP ON</th>
<th>Meal</th>
</tr>
</thead>
<tbody>
<tr>
<td>21:00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>23:00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>01:00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>03:00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>05:00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>07:00</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Mg/dl</th>
</tr>
</thead>
<tbody>
<tr>
<td>50</td>
</tr>
<tr>
<td>100</td>
</tr>
<tr>
<td>150</td>
</tr>
<tr>
<td>200</td>
</tr>
<tr>
<td>250</td>
</tr>
</tbody>
</table>

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### DREAM4 – patient characteristics

<table>
<thead>
<tr>
<th>N=24</th>
<th>Mean ± SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age [yrs]</td>
<td>21.2 ± 8.8</td>
</tr>
<tr>
<td>Sex [F/M]</td>
<td>12/12</td>
</tr>
<tr>
<td>Duration of Diabetes [yrs]</td>
<td>11.5 ± 8.8</td>
</tr>
<tr>
<td>Duration on Pump Therapy [yrs]</td>
<td>7.4 ± 4.8</td>
</tr>
<tr>
<td>BMI [kg/m²]</td>
<td>22.7 ± 4.0</td>
</tr>
<tr>
<td>Total Daily Dose [U/kg]</td>
<td>51.1 ± 20.3</td>
</tr>
<tr>
<td>HbA1C [%]</td>
<td>7.9 ± 0.9</td>
</tr>
</tbody>
</table>

3 patient did not complete the study
**Primary Endpoints (ITT, N=19)**

- **Time < 70 mg/dl**
  - SAP (Control): 24.8
  - MDLAP: 12.1

*Paired Wilcoxon signed rank test

2 patient didn’t have 30% valid nights

Values presented are Median (IQR) or mean +/- SD

* Paired Wilcoxon signed rank test
**Secondary Endpoints (ITT, N=19)**

<table>
<thead>
<tr>
<th>Time</th>
<th>Median (IQR) or Mean +/- SD</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Time &lt; 50 mg/dl</strong></td>
<td>3.06 (1.2)</td>
<td>P&lt;0.12</td>
</tr>
<tr>
<td><strong>Time within 70-140 mg/dl</strong></td>
<td>2.91 (3.79)</td>
<td>P&lt;0.003*</td>
</tr>
<tr>
<td><strong>Time &gt; 240 mg/dl</strong></td>
<td>42.3 (24.1)</td>
<td>P&lt;0.001*</td>
</tr>
</tbody>
</table>

Values presented are Median (IQR) or mean +/- SD

* Paired Wilcoxon signed rank test
DREAM4 – 6 Weeks Study - Results

(Per protocol, N=18)

<table>
<thead>
<tr>
<th></th>
<th>Total # Events Below 60 mg/dl</th>
<th>Mean Glucose Levels (mg/dl)</th>
<th>% of Readings within 70-180 mg/dl</th>
<th>Mean Total Night Dose (Units)</th>
</tr>
</thead>
<tbody>
<tr>
<td>SAP</td>
<td>100</td>
<td>160 ± 25</td>
<td>59.6 (52,69)</td>
<td>12.7 ± 5.6</td>
</tr>
<tr>
<td>MDLAP</td>
<td>24</td>
<td>146 ± 15</td>
<td>78.3 (52,69)</td>
<td>12.4 ± 6.7</td>
</tr>
</tbody>
</table>

P-value<0.05, using the paired non-parametric Wilcoxon signed-rank test

3 patients were excluded from the analysis due to missing sensor data from the control nights.
DREAM4 – 6 Weeks Study - Results

Results for patients who are prone for hypoglycemia (HbA1c<7.5%)

N=8

<table>
<thead>
<tr>
<th></th>
<th>MDLAP</th>
<th>SAP</th>
<th>P-Value*</th>
</tr>
</thead>
<tbody>
<tr>
<td>% of readings &lt;60 mg/dl</td>
<td>0.69 (0.6, 0.9)</td>
<td>4.14 (1.5, 7.7)</td>
<td>0.03</td>
</tr>
<tr>
<td>Events&lt;60 mg/dl</td>
<td>0.05 (0.0, 0.1)</td>
<td>0.18 (0.1, 0.2)</td>
<td>0.03</td>
</tr>
<tr>
<td>Area &lt;60 [mg/dl* minutes]</td>
<td>18.51 (11.0, 32.5)</td>
<td>163.07(36.6,468.5)</td>
<td>0.03</td>
</tr>
<tr>
<td>% of readings within 70-140 mg/dl</td>
<td>54.27 (42.2, 65.6)</td>
<td>37.68 (35.2, 45.4)</td>
<td>0.01</td>
</tr>
<tr>
<td>% of readings &gt;240 mg/dl</td>
<td>2.38 (0.6, 4.2)</td>
<td>6.90 (3.0, 10.0)</td>
<td>0.02</td>
</tr>
</tbody>
</table>

Values presented are Median (IQR) or mean +/- SD

* Paired Wilcoxon signed rank test
Day time perspective (Per Protocol)

<table>
<thead>
<tr>
<th></th>
<th>MDLAP</th>
<th>SAP</th>
<th>P-Value*</th>
</tr>
</thead>
<tbody>
<tr>
<td>% of readings within 80-120 mg/dl</td>
<td>20.8 (19.1, 29.3)</td>
<td>20.2 (15.3, 25.4)</td>
<td>0.02</td>
</tr>
<tr>
<td>% of readings within 70-140 mg/dl</td>
<td>39.2 (35.9, 52.1)</td>
<td>36.9 (26.2, 46.2)</td>
<td>&lt;0.01</td>
</tr>
<tr>
<td>Mean glucose levels (mg/dl)</td>
<td>152 ± 25</td>
<td>164 ± 32</td>
<td>0.02</td>
</tr>
<tr>
<td>% of readings &gt;140 mg/dl</td>
<td>55.7 (41.4, 62.3)</td>
<td>58.5 (48.9, 73.1)</td>
<td>0.01</td>
</tr>
<tr>
<td>HBGI</td>
<td>5.7 (3.3, 7.6)</td>
<td>6.2 (5.2, 8.9)</td>
<td>&lt;0.01</td>
</tr>
</tbody>
</table>

Values presented are Median (IQR) or mean +/- SD

* Paired Wilcoxon signed rank test
Day time perspective (Per Protocol, N=18)

Fasting Morning Blood Glucose

- **SAP**: 139-156 mg/dl
- **MDLAP**: 120-145 mg/dl

Difference in the mean day Glucose Levels

- Impact on Day Glucose Control?
  - **SAP**: 21-3 mg/dl (P=0.02**)
  - **MDLAP**: 21-3 mg/dl (P=0.02**)

*Interquartile range

**paired non-parametric Wilcoxon signed-rank test
### 24 Hours perspective (ITT)

<table>
<thead>
<tr>
<th></th>
<th>MDLAP</th>
<th>SAP</th>
<th>P-Value*</th>
</tr>
</thead>
<tbody>
<tr>
<td>% of readings &lt;70</td>
<td>3.2 (2.3, 6.0)</td>
<td>4.3 (2.5, 7.9)</td>
<td>0.04</td>
</tr>
<tr>
<td>% of readings within 70-140 mg/dl</td>
<td>41.6 (36.5, 51.5)</td>
<td>35.9 (30.2, 41.2)</td>
<td>&lt;0.01</td>
</tr>
<tr>
<td>Mean glucose levels (mg/dl)</td>
<td>151.8 ± 16</td>
<td>162 ± 25</td>
<td>0.02</td>
</tr>
<tr>
<td>% of readings &gt;180 mg/dl</td>
<td>30.4 (18.8, 34.7)</td>
<td>32.1 (28.4, 46.6)</td>
<td>&lt;0.01</td>
</tr>
</tbody>
</table>

Values presented are Median (IQR) or mean +/- SD

* Paired Wilcoxon signed rank test
Night time

- Reduced time in hypo
- Reduced hypo episodes
- Increased time in desired range
- Reduced mean glucose
- Reduced AM fasting BG
- Same amount of insulin

24 hours Full Day time

- Reduced mean BG
- Increased time in desired range
- Reduced glucose variability
- Reduced time in hyper
- Less amount of insulin

Diabetes Care, July 2014, in press
Mean = 138.7 mg/dL

HbA1c 6.5% *

* [Rohlfing et al 2002]
DREAM Way

1 Atlas E et al, Diabetes Care 33(3):1072-6, 2010
2 Miller S et al, Diabetes Technol Ther 13:983-90, 2011
3 Nimri R et al, Diabetes Technol Ther; 14:728-35, 2012
4 Nimri R et al, Pediatr Diabetes,14:159-67, 2013
5 Phillip M et al, NEJM; 368:824-33, 2013
6 Nimri R et al, Pediatr Diabetes, Aug 2013
7 Nimri R et al, Diabetes Care, July 2014, in press
Ongoing studies

- 24-hour Home study
- 24-hour Home study w/o online supervision
- Exercise study (in hospital, treadmill, 70% VO₂ max)
- …
Conclusions

In all the ~1200 nights at home & in all clinical studies with ~200 participants, the use of GlucoSitter™:

- Was found SAFE with NO severe adverse events
- Had higher effect on reducing the occurrence, duration and magnitude of hypoglycemia
- Improved the time glucose levels spent within target range
- Resulted in a safe and efficient manner of insulin delivery without pump shut off (no hyper rebound)
- Resulted in less triggers for alerts for risk of hypoglycemia
- Reduced the glucose variability among and within patients
- Achieved tight mean overnight glucose levels
- Lowered the range of morning fasting glucose levels
- Was acceptable for use by the patients and their caregivers.
- Was suitable for daily life conditions.
Executive Summary

• The DREAM Consortium aim is to evaluate the efficacy and safety of the MD-Logic Artificial Pancreas System in controlling the blood glucose levels of patients with T1DM at home

• The Consortium is clear leader in the race to an artificial pancreas, having studied ~200 patients across 7 clinical studies with more than 1000 patient nights in multicenter/multinational trials in a multitude of settings

• DreaMed Diabetes was formed by members of the DREAM Consortium to commercialize its industry-leading closed-loop algorithm for managing T1 Diabetes

• DreaMed Diabetes initiated partnering discussions with an intent to license its software to a company who can take it forward to commercial launch; it is also open to other collaborative models
What do the patient think?
So – what is needed?

- Vision
- Dedication
- Research
- Friendship
- Dream
- Faith
Thank you
Paris, February 18 – 21, 2015

www.kenes.com/attd
Thank you!

Questions?