### Supplementary Table S1. School-based diabetes interventions and their outcomes.

<table>
<thead>
<tr>
<th>Author</th>
<th>Title</th>
<th>Date</th>
<th>Country</th>
<th>Objectives</th>
<th>Interventions</th>
<th>Duration</th>
<th>Theoretical framework</th>
<th>Study population</th>
<th>Study design/ # respondents</th>
<th>Measurement Tools/scales/ indicators</th>
<th>Results/outcomes</th>
</tr>
</thead>
</table>
| Bachman and Hsueh     | Evaluation of online education about diabetes management in the school setting | 2008 | US      | - To educate school nurses in how to manage care for children with diabetes in school  
- To evaluate an online education about diabetes management for school nurses in the school setting                                                                                          | Online continuing education program (3 lessons) for school nurses about diabetes management for children in schools.                                                                                      | Two 3-week online sessions (Jan and June 2007)                                                                                     | Roger's theory of the diffusion of innovation for the development, implementation and evaluation of online continuing education program | 19 school nurses who were unable to attend state wide face-to-face diabetes workshops in Missouri, US | Online satisfaction questionnaire (n=19) | 3 online evaluation questionnaires about objectives met and effectiveness | - majority of school nurses rated the class as excellent for value and usefulness (91%)  
- “information would improve their ability to manage students with diabetes” (91%)  
- half of the respondents were not so sure if they preferred online or face-to-face education |
| Bobo et al            | Diabetes management at school: Application of the Healthy Learner Model | 2011 | US      | - To better prepare school nurses to address the needs of students with diabetes  
- To equip school nurses with the knowledge, skills and expertise needed to provide effective and consistent care to students with diabetes                                                                 | Development of the MAP program to provide education, tools, and resources to the practicing school nurse to assist students to effectively manage their disease at school. Diabetes resource nurse: key component of the MAP program | 5-year program (2005-2010)                                                                                                       | The Healthy Learner Model: comprehensive chronic care model to guide health services provided in schools for children with chronic illness | 66 school nurses in 2 public schools:  
- Albuquerque Public Schools (APS): 178 students with T1DM and 9 with T2DM  
- Saint Paul Public Schools (SPSS): 87 students with T1DM and 20 students with T2DM  
- 101 families with children with T1DM or T2DM                                                                                   | 1) On-line surveys of school nurses four times during the 5-year program response rate ranged from 77% to 100% in SPSS and from 33% to 100% in APS (n=34 in May 07; n=47 in Jan 08; n=42 in Oct 08; n=85 in Apr 09).  
2) Survey distributed to 101 families | 1) On-line survey of school nurses:  
- information about their experiences with the program  
- knowledge, confidence, job satisfaction  
2) Survey among parents: awareness and satisfaction with the program | 1) Survey among school nurses:  
- “knowledge and skills enhanced” (90% of respondents)  
- “using the MAP management forms contributed to a change in their practice” (75%)  
- “they have improved their ability to manage children with diabetes” (77%)  
- higher level of confidence in ability to advocate for and communicate concerns about the student's diabetes management  
2) Survey among parents:  
- “the school nurses was knowledgeable” (more than 75% families)  
- “our child's diabetes management needs were met at school” (more than 87%) |
| Bobo et al | A collaborative approach to diabetes management: the choice made for Colorado schools | 2011 | US | - To provide a healthy and safe environment for students with T1DM that promotes learning and academic achievement 
- To promote collaboration between school nurses and other key stakeholders to ensure students with diabetes receive consistent, effective and evidence-based care | Colorado Kids with Diabetes Care and Prevention Collaborative: - Guiding principles / partnership among the school, families, the student and health care providers 
- Standardized approach to care 
- Diabetes Resource Nurse 
- Colorado kids with diabetes website School Nurse Toolkit (guidelines and tools for the management of diabetes in school) | 3 years (06/07; 07/08; 08/09) | The Healthy Learner Model (see Bobo et al, 2011) | - 27 Diabetes Resource Nurses 
- 240 School Nurses (out of the approx. 300 school nurses in Colorado) who attended the HANDS education workshop 
- Parents (06/07 school year n=200; 07/08 school year n=71) 
- Colorado practicing school nurses (in 06 n=490; in 08 n=469) | 1) Survey and activity logs of Diabetes Resource Nurses (n=27) 
2) Survey among school nurses who attended the HANDS workshop 
3) Survey among parents (n=26 respondents in 06/07; n=71 in 07/08) 
4) Survey among Colorado school nurses (n=333 respondents, response rate: 72% in 2006; n=219, response rate: 47% in 08) | 1) Satisfaction, perceived skills and knowledge number of consultations / activity logs 
2) Satisfaction with the HANDS workshop 
3) Perceived improvement in diabetes care 
4) Perceptions of diabetes care at baseline and after one year | 1) Enhanced knowledge and skills (both clinical and consultative) reported by Diabetes Resource Nurses. 
- Dramatic increase in the number of consultations logged in 08-09 (78) vs 06-07 (700). 
2) Overall satisfaction of the HANDS education workshop reported by school nurses. 
3) Improvements reported by parents (after 1 year vs baseline); reduced fears. 
4) Improvements reported by the Colorado school nurses (insulin administration, policies in place about glucagon) after 1 year |
| Bullock et al | Continuing education: improving perceived competence in school nurses | 2002 | US | To improve the perceived competence in school nurses (including diabetes) | Diabetes continuing education programs for school nurses over 3 years (MDHSS) | 3 years | 120 school nurses in Missouri who completed continuing education on diabetes vs 417 who didn't | Randomized Controlled Trial 
Control group (n=417) vs Intervention group (n=120) | Perceived competence 
Mail back 35-item questionnaire survey | Statistically significant difference in the participant group who reported higher self-perceived competence than the non-participant group: mean score for those completing courses: 1.54 (p=.0001) vs 1.87 for those not completing courses |
| Engelke et al | School nurse case management for children with chronic illness: health, academic, and | 2008 | US | To improve the academic success and quality of life of children with chronic conditions such as diabetes | - School-based diabetes management regional training sessions of school nurses (3 sessions) 
- Teaching and one school year (2006-2007) | Case Management: comprehensive approach and coordination of services across a continuum to | Children with diabetes (n=36), aged from 5 to 18 years | Survey on health and academic outcomes of children with diabetes at baseline and | 1) QoL for children with diabetes measured by the PedsQL 3.0 T1DM Module (28-item) 
2) Academic outcomes | 1) Significant increase in QoL. diabetes QoL mean: 65.48 at baseline vs 69.41 at the end of the year (+6% increase) p=.075. 
Gained skills and knowledge of children to manage their
<table>
<thead>
<tr>
<th>Study</th>
<th>Description</th>
<th>Year</th>
<th>Setting</th>
<th>Interventions</th>
<th>Participants</th>
<th>Methods</th>
<th>Findings</th>
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<tbody>
<tr>
<td>Engelke et al</td>
<td>School nurses and children with diabetes: a descriptive study</td>
<td>2011</td>
<td>US</td>
<td>- To establish a safe school environment&lt;br&gt;- To provide effective symptom management and effective self-care&lt;br&gt;- To foster academic success and improve family/peer relations</td>
<td>School Nurse Case Management consisting of: - direct care&lt;br&gt;- student education / counseling&lt;br&gt;- parent / family interventions&lt;br&gt;- teacher/staff education&lt;br&gt;- care coordination</td>
<td>2009-2010 school year (mean: 7.1 months)</td>
<td>Children with diabetes (n=86), aged from 5 to 17 years in North Carolina public schools Participating school nurses (n=63)</td>
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<tr>
<td>Faro et al</td>
<td>Improving students' diabetes management through school-based diabetes care</td>
<td>2005</td>
<td>US</td>
<td>- To promote optimal management of diabetes through school-based diabetes care&lt;br&gt;- To increase the knowledge and confidence of school nurses in treating children with diabetes&lt;br&gt;- To strengthen collaboration, resolve diabetes</td>
<td>Monthly school visits (20-30 min) by a pediatric nurse practitioner (PNP) to review home and school blood glucose records and deliver appropriate training/education to children with diabetes. Training delivered occasionally to teachers or school</td>
<td>one year</td>
<td>Bandura's Social Cognitive Theory used to develop the intervention</td>
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<tr>
<td>Author et al.</td>
<td>Year</td>
<td>Location</td>
<td>Study Design</td>
<td>Participants</td>
<td>Measures</td>
<td>Results</td>
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<td>Husband et al.</td>
<td>2000</td>
<td>Canada</td>
<td>Randomized Controlled Trial</td>
<td>37 teachers in elementary schools (n=17 teachers in the intervention group vs 20 teachers in the control group)</td>
<td>- 17-item knowledge questionnaire</td>
<td>No significant difference in pre-tests scores between control and experimental groups for total knowledge, hypoglycemia and confidence. Post-test scores for knowledge increased in both groups but gain was not significant.</td>
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<tr>
<td>Izquierdo et al.</td>
<td>2009</td>
<td>US</td>
<td>School-centered telemedicine for children with type 1 diabetes mellitus</td>
<td>Children with diabetes (5-14 years) in 25 schools in Onondaga County, New York (18 students in 13 schools: usual care vs 23 students in 12 schools: usual care and telemedicine)</td>
<td>1) Randomized Controlled Trial longitudinal study (baseline, after 3, 6 and 9 months) (Control group (n=18) vs Intervention group (n=23)) 2) Student/parent telemedicine satisfaction survey completed by students with their parents at the end of the study (n=22)</td>
<td>1) HbA1c levels measured with a DCA2000+ Analyzer - Pediatric QoL questionnaire - Number of urgent encounters and treatment provided 2) Satisfaction survey at the end of the study</td>
<td>1) HbA1c values decreased in the telemedicine cohort after 6 months (p&lt;.02) and improvements maintained over the next several months. Significant improvements in several subscales of the Pediatric Diabetes QoL questionnaire (&lt;.04 for dimension 1 after 6 months; p&lt;.02 for dimension 2 before the summer break) in the telemedicine cohort. Fewer hospitalizations, emergency departments visits and urgent diabetes-related calls in the telemedicine group. 2) Overall satisfaction with the telemedicine services (mean=4.59 on a scale of 0-6).</td>
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<tr>
<td><strong>Nguyen et al.</strong></td>
<td>Targeting blood glucose management in school improves glycemic control in children with poorly controlled type 1 diabetes mellitus</td>
<td>2008</td>
<td>US</td>
<td>To improve blood glucose management and glycemic control in children with diabetes</td>
<td>School nurse supervision of children with T1DM (blood glucose check and insulin injection)</td>
<td>3 months</td>
<td>36 children with T1DM - 18 children receive a three-month intervention - 18 children in the control group</td>
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<tr>
<td><strong>Nimsgren and Camponeschi</strong></td>
<td>Implementing a new diabetes resource for Wisconsin schools and families</td>
<td>2005</td>
<td>US</td>
<td>- To increase school staff's knowledge about diabetes and improve its management</td>
<td>- To improve social and policy environments</td>
<td>- To improve diabetes care for children in schools in Wisconsin</td>
<td>- 21 training sessions for school professionals (762 people)</td>
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<tr>
<td><strong>Peery et al.</strong></td>
<td>Parent and teacher perceptions of the impact of school nurse interventions on children's self management of diabetes</td>
<td>2012</td>
<td>US</td>
<td>- To optimize the child's educational experience in schools</td>
<td>- To promote the child's normal growth and development and socialization</td>
<td>School Nurse Case Management program based on: direct care, student/education counseling, family education, teacher/staff education, and coordination of one school-year (2009-2010)</td>
<td>69 children with diabetes and having difficulty in managing their illness or difficulty at school elementary (55%), middle school and high school</td>
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<td>Radjenovic and Layne Wallace</td>
<td>Computer-based remote diabetes education for school personnel</td>
<td>2001</td>
<td>US</td>
<td>To develop and evaluate a computer-based training system about type 1 diabetes specifically designed for elementary school personnel compared to standard paper-based diabetes instructions</td>
<td>Web-based diabetes information program (45 min) using computer audio and video to enrich a text-based training experience</td>
<td>Mantei and Teorey’s usability framework used to develop the computer HTML diabetes training system</td>
<td>42 school teachers (mean age: 32.67 years): - 21 school teachers received paper-based training - 21 school teachers received computer-based training</td>
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</table>
| Siminerio and Koerbel | A diabetes education program for school | 2000 | US | To improve the knowledge of school personnel in order to feel | Comprehensive education program entitled the 5C of diabetes (cause, 1996-1998) | 156 school personnel (teachers and school nurses in 6 Pre and post diabetes knowledge study | Ten-item knowledge questionnaire | Statistically significant improvement in overall knowledge scores (p<0.004). Main concerns reported in
| Smith et al | Evaluation of the impact of a diabetes education curriculum for school personnel on disease knowledge and confidence in caring for students | 2012 | US | To evaluate the effectiveness of a type 1 diabetes education program for school personnel on increasing knowledge of diabetes and confidence in caring for students with diabetes | - Basic program: 60-minute basic training programme (overview of diabetes)  
- Expanded program: basic training program + in-depth overview of diabetes during 180-minute session | From Feb to Dec 2010 | Social Cognitive Theory (Bandura) according to which the confidence or self-efficacy individuals possess influences their willingness to perform a behavior | Randomized Controlled Trial  
Control group (n=44) vs Intervention group (n=37) Pre-test and Post-test for both basic and advanced training courses | - Knowledge questionnaire (20-item questionnaire)  
- Confidence questionnaire (9-item questionnaire) | - Knowledge improved but not significantly  
- **Significant difference** in overall knowledge between pre and post-test assessment (p<.001)  
- All confidence items in caring for students **improved significantly** between the pre and post-test assessment (p<.001) |