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# Insulin Pump School: Back to the Basics of Pump Therapy

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## INTRODUCTION

•The Longstreet Clinic (TLC), P.C. is a regional multidisciplinary physician practice. The Internal Medicine (IM) and Family Medicine (FM) departments are located in Gainesville and Oakwood (Hall County), Georgia.

•Hall County is located in Northeast Georgia 50 miles northeast of Atlanta. It lies at the southern edge of the Chattahoochee National Forest and the foothills of the Blue Ridge Mountains. The population of Hall County is approximately 187,700.

•Diabetes Education and Medical Nutritional Therapy department provides diabetes education and management services for IM and FM patients with diabetes.  
•Team of CDEs: RN, RD, PharmD  
•RN and PharmD are Certified Pump Trainers

•Statistics  
•20% of total IM and FM patients have diagnosis of diabetes.

•47% of patients with diabetes on insulin therapy.

•3% of patients on insulin therapy are on insulin pump therapy.

•After a few insulin pump patients had severe hypoglycemic episodes while driving, the need for review of insulin pump survival skills was identified in order to prevent possible future incidents.

## OBJECTIVE

•The objective of this program is to review insulin pump survival skills for new and experienced pump patients in order to prevent emergency room visits.



## METHODS

### Patient Selection

•Search of practice database in summer 2011 to identify all IM and FM patients on insulin pump therapy.

### School Format

- Pump download and settings adjustments
- Interactive educational roundtable
- Discussion of adjustments to pump settings with patient
  - Provide copy of adjusted pump settings
- Survival skills kit
  - Educational materials reviewing topics discussed
  - Glucose tablets
  - Diabetes driver decal
  - Bag of syringes
- Follow up appointment made

### Interactive Educational Roundtable

- Advanced carbohydrate counting using food models
- Battery change and pump settings
- DKA prevention
- Troubleshooting unexplained high blood glucose
- Prevention and treatment of hypoglycemia
- Infusion site care
  - Infusion set type
  - Infusion sites
  - Infection prevention



### Evaluation of Insulin Pump School

•Pre-class evaluation of hemoglobin A1c was evaluated within 12 months of starting class and then compared to a 3 month hemoglobin A1c after completion of class.

•Evaluation of emergency room visits 12 months prior to class compared to emergency room visits 3 months after class.

•At the conclusion of each class, a satisfaction survey was conducted.  
•Likert scale of 1 – 5 with 1 being Do Not Agree and 5 being Strongly Agree  
•Yes / No questions

## RESULTS

### Outcomes

#### Sessions Held

- First session held in July 2011.
- Goal: every 6 – 8 weeks with 5 participants per session
- 6 sessions held with average of 4 participants per session.
- 26 participants completed class July 2011 – March 2012.

#### Hemoglobin A1c

- July 2011 Class
  - Average pre-class hemoglobin A1c: 7.1%
  - Average post-class hemoglobin A1c: 7.4%
  - Difference in hemoglobin A1c: + 0.3%
- August 2011 Class
  - Average pre-class hemoglobin A1c: 7.5%
  - Average post-class hemoglobin A1c: 7.5%
  - Difference in hemoglobin A1c: 0.0%
- September 2011 Class
  - Average pre-class hemoglobin A1c: 7.0%
  - Average post-class hemoglobin A1c: 6.9%
  - Difference in hemoglobin A1c: -0.1%
- October 2011 Class
  - Average pre-class hemoglobin A1c: 7.4%
  - Average post-class hemoglobin A1c: 7%
  - Difference in hemoglobin A1c: - 0.4%
- December 2011 Class
  - Average pre-class hemoglobin A1c: 8.0%
  - Average post-class hemoglobin A1c: 7.4%
  - Difference in hemoglobin A1c: -0.6%
- March 2012 Class
  - Average pre-class hemoglobin A1c: 7.2%
  - Average post-class hemoglobin A1c: 7.4%
  - Difference in hemoglobin A1c: + 0.2%
- Overall
  - Average pre-class hemoglobin A1c: 7.4%
  - Average post-class hemoglobin A1c: 7.3%
  - Difference in hemoglobin A1c: -0.1%

### Emergency Room Visits

- Pre-session (12 months prior to program):
  - 4 total
  - 2 diabetes related
- Post-session:
  - 1 total (diabetes related)

### Satisfaction Survey

- n=26 participants completed class
- n=17 (65%) completed evaluation forms
- Level of satisfaction with following statements
  - 5 point Likert scale: 1 being Do Not Agree and 5 being Strongly Agree
  - Round table discussion was helpful. (4-18%; 5-82%)
  - Handouts and visuals were helpful. (4-24%; 5-76%)
  - I learned at least one new skill for my insulin pump therapy. (2-6%; 4-18%; 5-76%)
  - What I learned will help me to manage insulin pump therapy. (4-29%; 5-71%)
  - My questions were answered. (4-12%; 5-88%)
  - I will put my survival kit together. (Yes/No)(Yes 100%)
  - I will recommend this class to others. (Yes/No)(Yes 100%)

### Limitations

- Relatively small sample size.
- Short time frame for impact on hemoglobinA1c and emergency room (ER) visits.
- Overall patient population included in sample were already complaint to insulin pump therapy.
- While majority of participants completed satisfaction survey, a limited number of participants in July 2011 class completed survey due to mailing of survey.

## CONCLUSIONS

- Small nonsignificant difference in hemoglobin A1c in pre- and post- session values.
- Patients did have a high level of satisfaction with program as demonstrated by results of satisfaction survey.
- All patients committed to putting together a survival kit upon completion of program.
- No increase in emergency room visits.
- Program will be continued with the goal of having all insulin pump therapy patients to complete program as well as further evaluation of hemoglobin A1c and data for additional patients will be gathered.