

Basal Bolus Insulin Protocol

Presenters name: Diabetic Task Force

May 29, 2015



Basal Bolus Insulin Protocol

- ADA-AACE guidelines for non-critically ill patients is scheduled subcutaneous insulin with basal, nutritional, and correction components
- Society of Medicine also highly recommends hospitals implement a basal bolus model
- Lodi Health Implemented Basal Bolus Insulin (BBI) Protocol May 2014

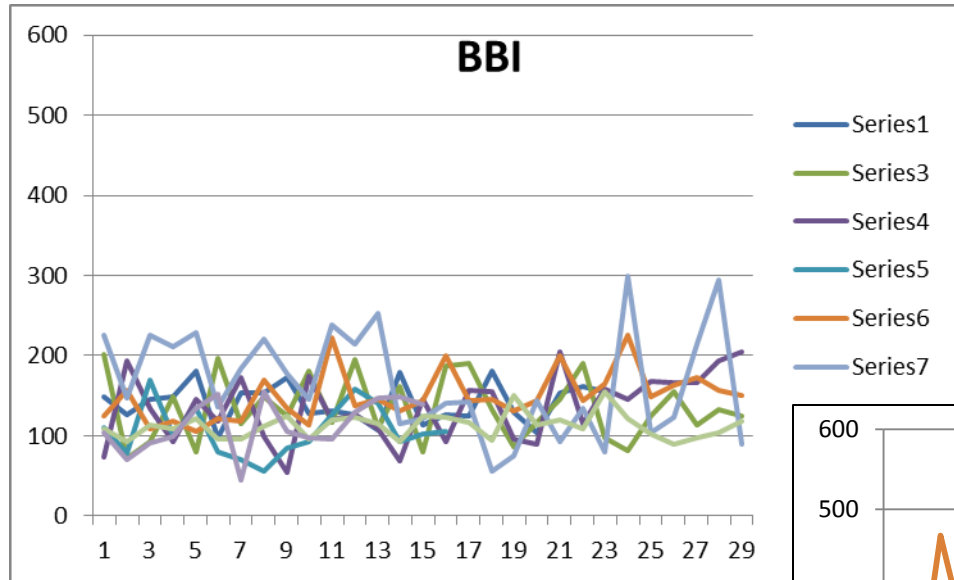
How are we doing?

- We did an audit of 50 patients/month for 5 months after BBI was implemented at Lodi Health.
- We put the patients into categories
 - Patients on BBI
 - Patients on Basal Insulin (Levemir or Lantus) plus Correctional Scale (low, medium, high) or Sliding Scale
 - Patients on Correctional Scale only
 - Patients on Sliding Scale only
- We looked at every finger stick blood sugar on each patient and sorted from the highest blood sugar (excluding the highest blood sugar if it was on admission) and the lowest blood sugar. We then averaged the patient's blood sugars

How are we doing?

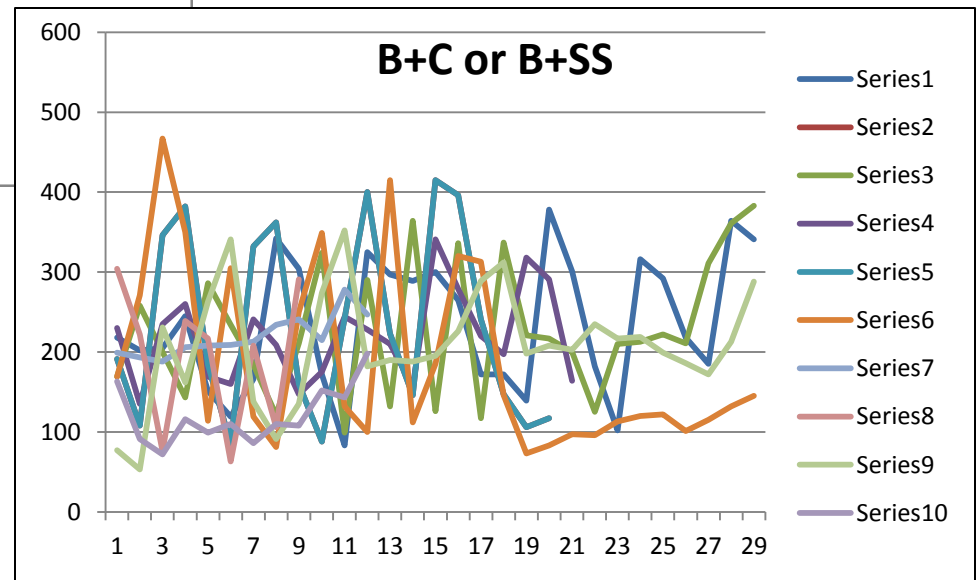
Method	Average Hi	Average Lo	Average FSBS
Basal Bolus Correctional Insulin Protocol	295	89	178
Basal Insulin plus Correctional or Sliding Scale	349	101	205
Correctional or Sliding Scale alone	275	110	179
Prior to May 2014	310	105	190

How are we doing?



Patient's receiving Basal Insulin and Correctional and Nutritional Insulin at meal times maintain a steady state of blood sugar levels

Patient's receiving Basal Insulin and Correctional Insulin or Sliding Scale only do not reach a steady state

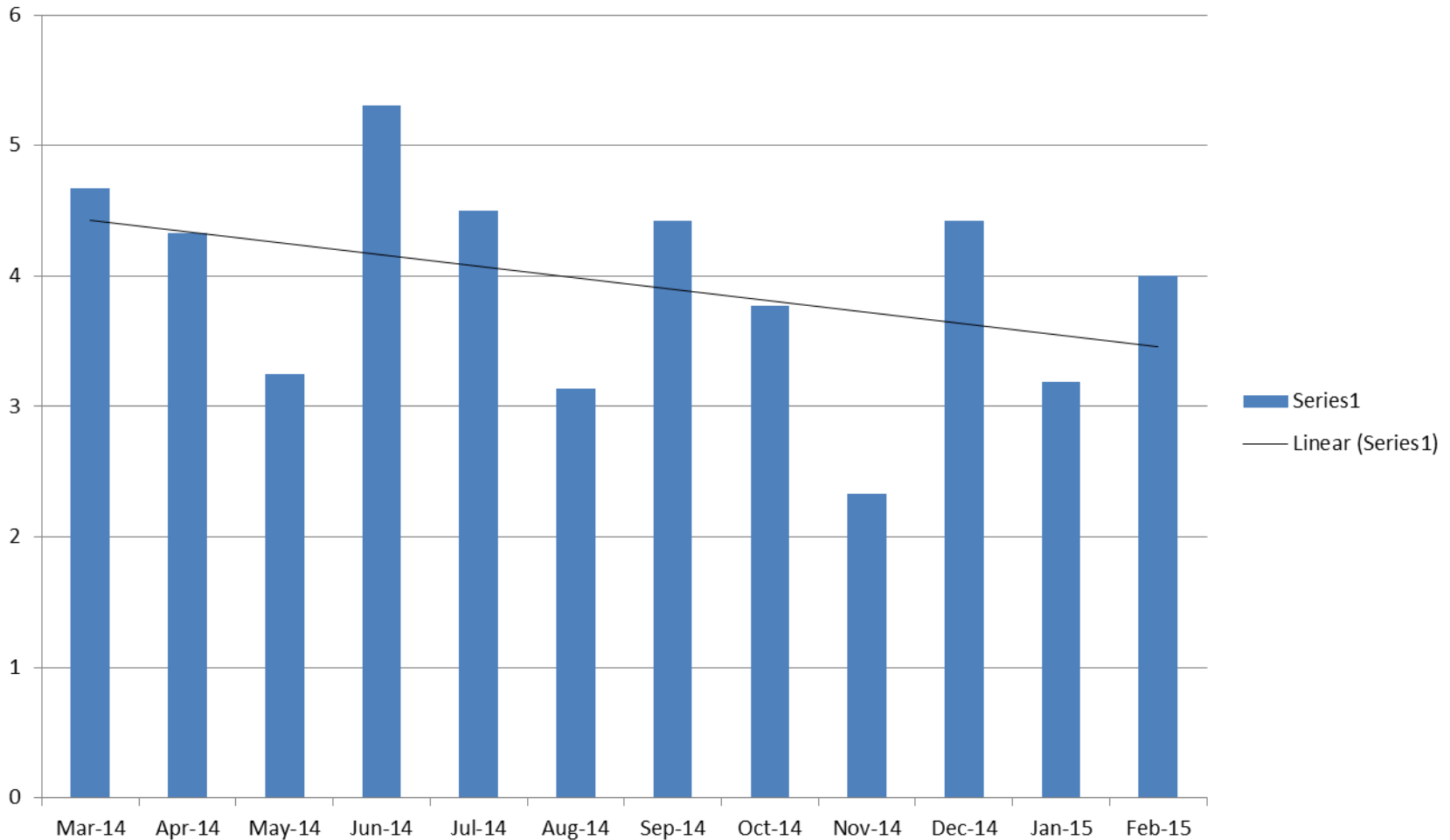


BBI= Basal Bolus Insulin

B+C= Basal Insulin plus Correctional

B+SS= Basal Insulin plus Sliding Scale

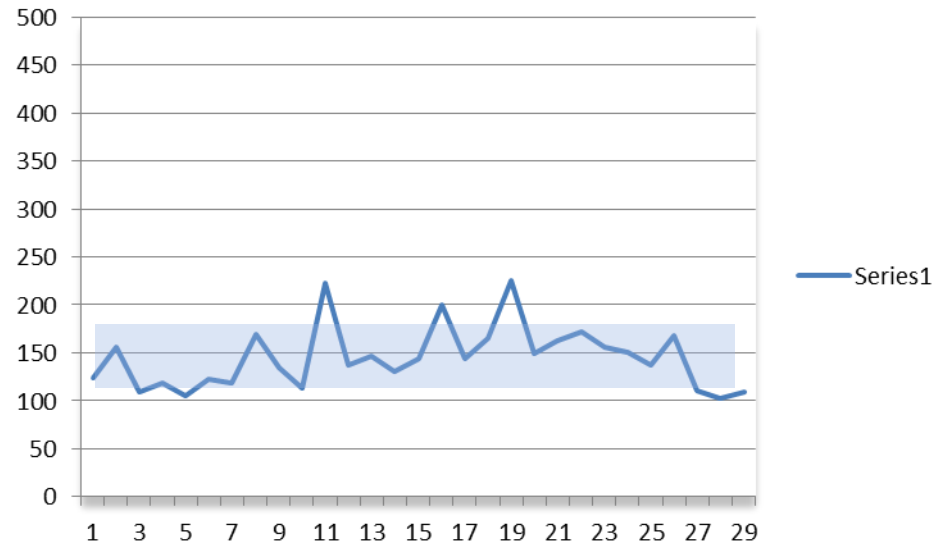
Average Length of Stay



Adjusting the Protocol

- Review Patient's FSBS

Feb 06,15	07:39	149	H
Feb 05,15	21:38	163	H
Feb 05,15	17:20	172	H
Feb 05,15	11:43	156	H
Feb 05,15	08:48	150	H
Feb 04,15	20:59	137	H
Feb 04,15	18:07	168	H
Feb 04,15	12:32	111	H



This patient is within range consistently. No adjustment needed.

Adjusting the Protocol

Feb 17, 15	11:07	135	H
Feb 17, 15	09:44	187	H
Feb 17, 15	09:32	54	L
Feb 17, 15	07:48	72	
Feb 17, 15	05:34	77	
Feb 17, 15	05:06	60	L
Feb 16, 15	22:11	202	H
Feb 16, 15	17:07	185	H
Feb 16, 15	13:42	109	
Feb 16, 15	08:38	90	
Feb 16, 15	08:19	64	L

Patient's fasting blood sugars are too low. If fasting blood sugar is low, decrease basal dose. Go to Basal Bolus Protocol and select ADJUSTMENT order

Insulin - Basal Bolus Protocol

SUB-Q 0 DOSE PROTOCOL

<see Admin Crit>

Dose: 0 DOSE, Directions: PROTOCOL, PRN: N, Start: 04/14 1430, Stop: [dropdown]

Inst: [dropdown], Admin Criteria: [dropdown], Taper: [dropdown], Pending: N

0 DOSE PROTOCOL

Basal Bolus Protocol-STOP! USE ORDER SET

0 DOSE PROTOCOL

Transition from Insulin Drip to Basal Bolus Correction Protocol

0 DOSE PROTOCOL

Basal Bolus Protocol ADJUSTMENT order

If both fasting and preprandial blood sugars are high increase TDD.

If both fasting and preprandial blood sugars are low decrease TDD.

Adjust TDD 0.1 units/kg/day: (I)ncrease or (D)ecrease

If fasting blood sugar is high, increase basal dose.

If fasting blood sugar is low, decrease basal dose.

Change basal dose (Levemir) to units

Adjusting the Protocol

Feb 08,15	03:29	181	H		mg/dL	70-110
Feb 07,15	21:27	205	H		mg/dL	70-110
Feb 07,15	18:24	221	H		mg/dL	70-110
Feb 07,15	12:27	228	H		mg/dL	70-110
Feb 07,15	08:20	162	H		mg/dL	70-110
Feb 06,15	22:03	253	H		mg/dL	70-110
Feb 06,15	17:57	234	H		mg/dL	70-110
Feb 06,15	11:23	185	H		mg/dL	70-110
Feb 06,15	07:48	151	H		mg/dL	70-110
Feb 05,15	21:19	297	H		mg/dL	70-110
Feb 05,15	17:39	332	H		mg/dL	70-110
Feb 05,15	11:18	275	H		mg/dL	70-110
Feb 05,15	08:14	263	H		mg/dL	70-110

This patient is too high both fasting and preprandial. Total Daily Dose (TDD) needs to be adjusted. Pharmacy will recalculate TDD.

If both fasting and preprandial blood sugars are high increase TDD.

If both fasting and preprandial blood sugars are low decrease TDD.

Adjust TDD 0.1 units/kg/day: (I)increase or (D)decrease

Patient on Basal + Correctional Insulin

Feb 01,15	21:32	439	H
Feb 01,15	16:37	404	H
Feb 01,15	11:00	378	H
Feb 01,15	07:33	316	H
Jan 31,15	20:44	482	H
Jan 31,15	17:18	493	H
Jan 31,15	11:20	375	H
Jan 31,15	08:24	362	H
Jan 30,15	20:51	466	H
Jan 30,15	17:47	495	H
Jan 30,15	11:22	450	H
Jan 30,15	08:17	332	H
Jan 29,15	22:13	383	H

This patient was placed on Medium dose Correctional Scale and Lantus. The Lantus dose started at 5 units and was increased daily in 5 unit increments. He was never within normal limits. The patient's BMI was 52.4 kg/m². If he had been started on BBI he would have received $52.4 \times 0.6 = 31.44$ units of Total Insulin daily. 15 units would have been given as a basal dose and he would have received 5 units of Nutritional with each meal along with High correctional dosing.

In Summary

- BBI has proven to be effective in maintaining blood sugars within normal limits on a consistent basis if appropriately adjusted
- Approximately 50 % of patients with diabetes admitted to Lodi Health are on the Basal Bolus Protocol