

Diabetes Self Management

Insulin Pump

Training Program

Pre-Pump Class



# The Diabetes Self – Management Insulin Pump Therapy Program

- Is part of a Nationally recognized program taught by CPT's
- Offers classes during the daytime in a three part series:
  - PRE-PUMP CLASS
  - SALINE START CLASS
  - INSULIN START CLASS
- One week and month MD follow-up

# PRE-PUMP CLASS

- What is pump therapy?
- Criteria for insulin pump use
- Why you are interested in pump therapy?
- Skills survey
- Intro to using pump blood sugar log sheets
- Hands on experience with pumps/infusion sets
- Handouts: DVDs and pump packets
- Consents / Contracts signed.

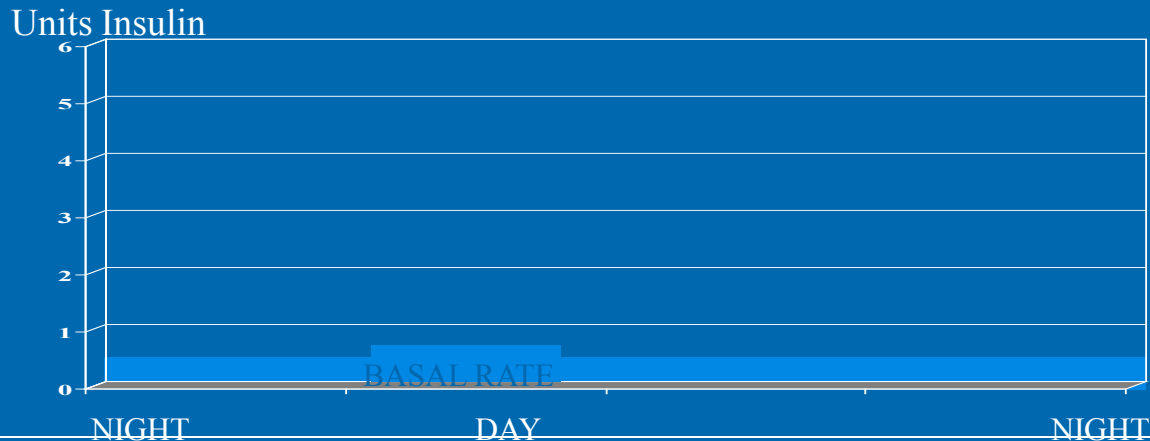
# Insulin Pump Therapy

## Should You Use an Insulin Pump?

- Goal is to keep blood sugar as close to normal as possible/prevent long term complications.
- Ask yourself these questions.
  - Why pump therapy?
  - What are you not getting now?
  - Do children become self conscious?
  - How will your child handle the pump away from home?
  - How do you know your child wants the pump?
  - What should a parent's job be with the pump?

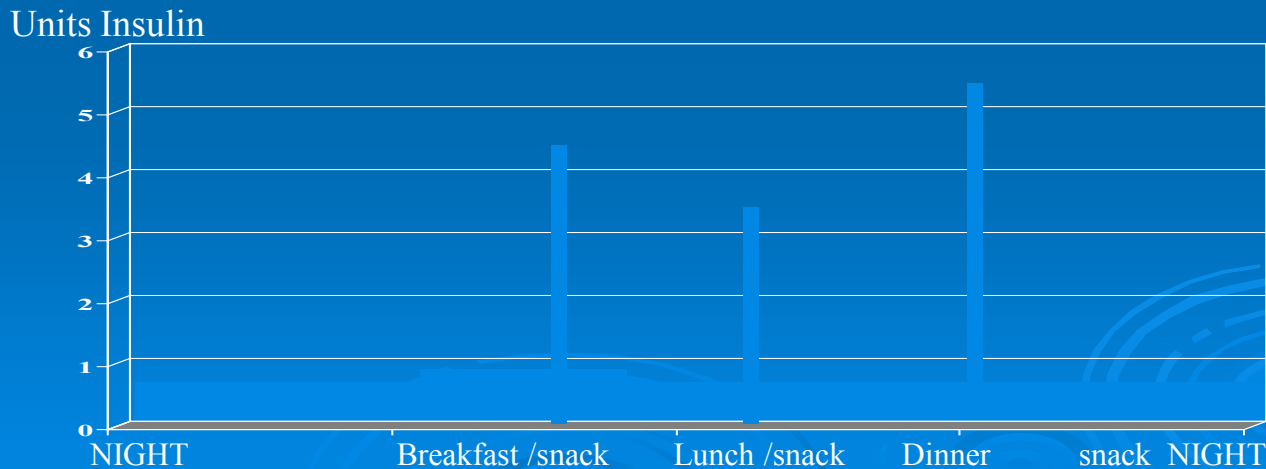
# How the pump works . . . . .

The insulin pump delivers insulin very similar to the way the normal pancreas does: a small amount of insulin throughout the day and a delivery of insulin “on demand” when you eat or other times you need extra insulin.



## **BASAL RATE:**

A continuous flow of insulin given throughout the day. This rate can be programmed to increase or decrease according to your individual needs. A properly set basal rate will keep your blood glucose (BG) within target range with no food or exercise.



## **BOLUS:**

A delivery of insulin you give each time you eat ( all meals and all snacks) or other times you need extra insulin.

# Rapid Insulin For Pump Therapy

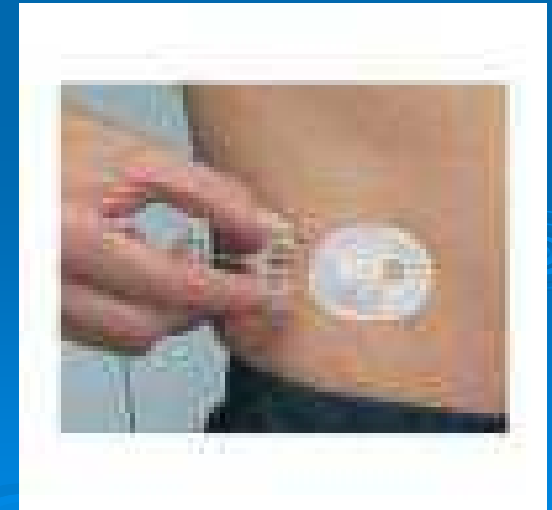
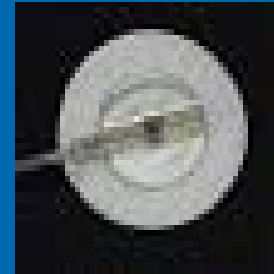
Rapid acting insulin is used in the pump

- Novolog, Humalog, Apidra
- Improved before meal glucose (preprandial)
- Improved after meal glucose (postprandial)
- Improved overnight glucose

# How Does Pump Therapy Work?

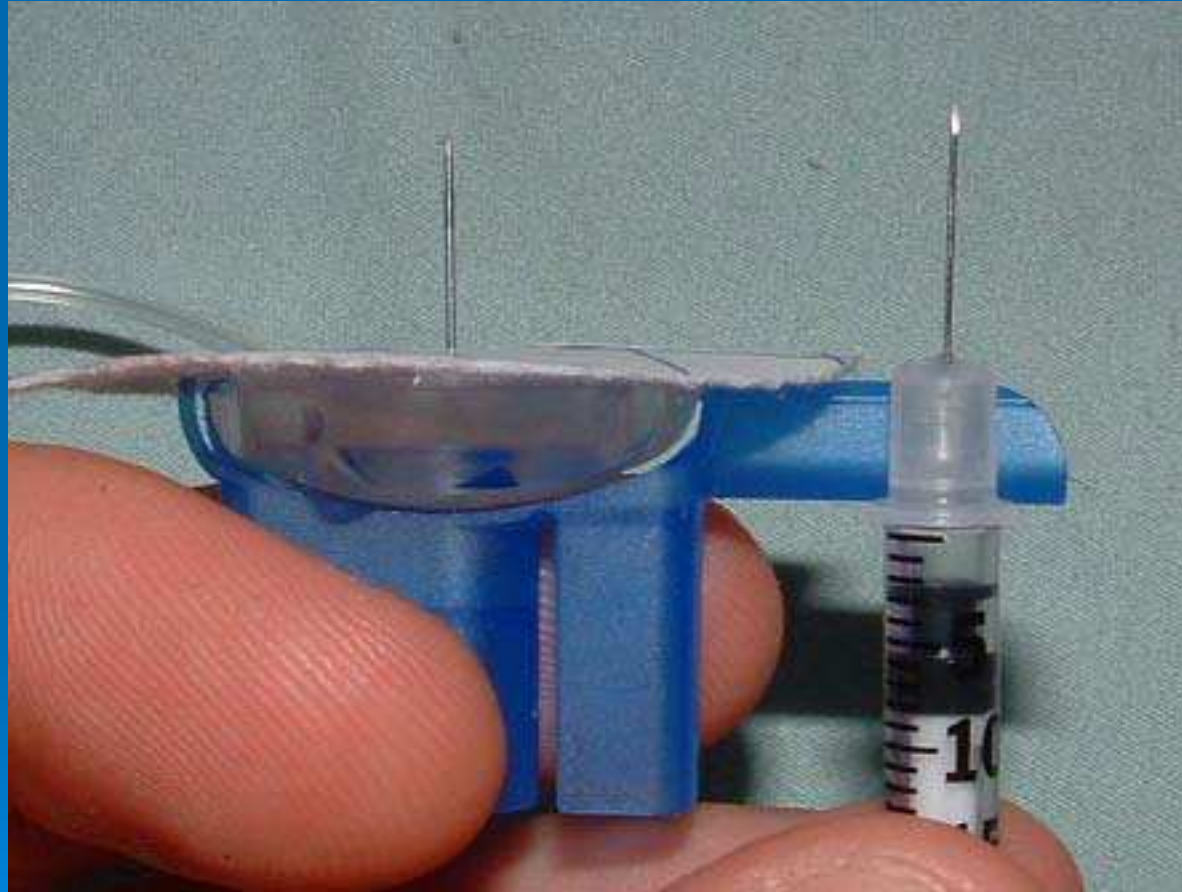
- *How is the pump made?*
- *How is the pump powered?*
- *How big is the pump?*
- *What is a pump reservoir/cartridge?*
- *What is an infusion set/pod?*
- *What does a cannula/catheter do?*
- *How do you do an insertion and where is it placed?*
- *How often do you change your infusion set/pod?*
- *What kind of warranty/upgrade do pumps have?*

# Variety of Infusions Sets





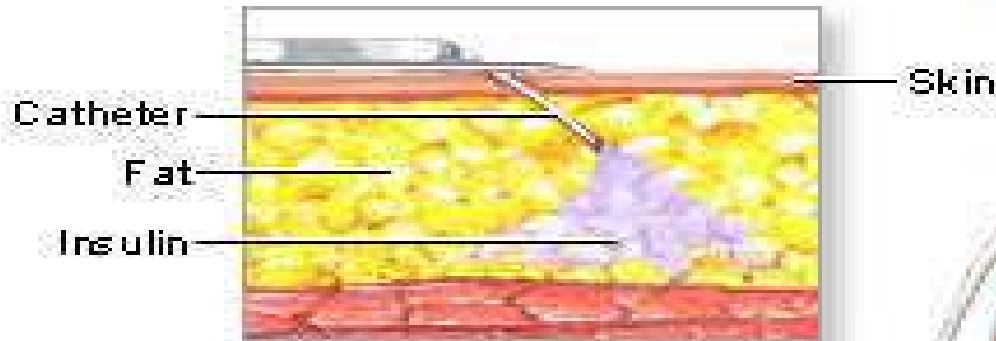
# Insertion needle size



# Example of size of cannula

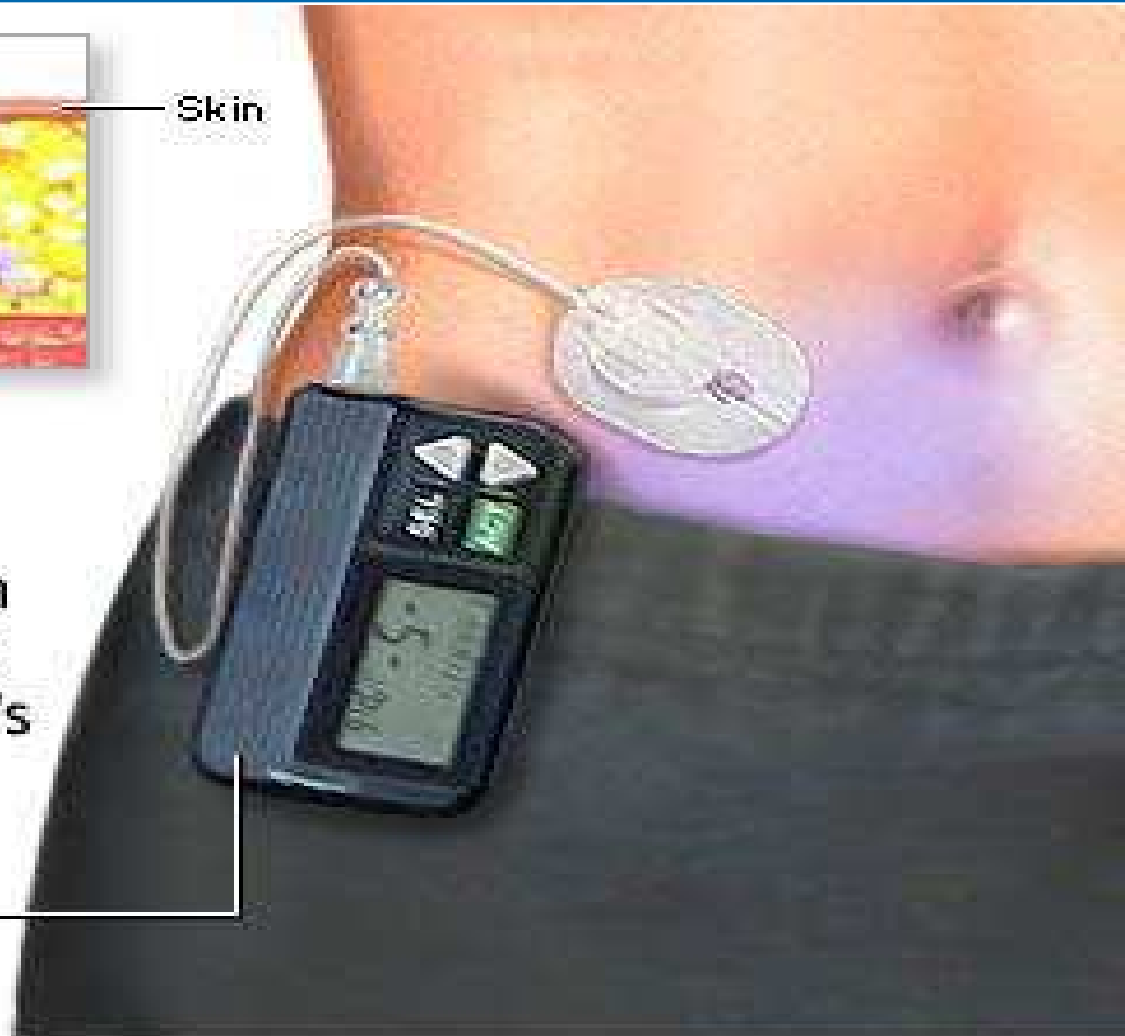


# How Does Pump Therapy Work?



An insulin pump administers insulin through a catheter in the abdominal fat to help control a person's blood sugar levels

Insulin pump



# SITES MUST BE ROTATED !



# Pump Management Involves a High Level of Diabetes care

- Family commitment
- Family learning
- Counting carbohydrates
- Calculating insulin doses
- Understanding rapid acting insulin
- Detailed record keeping



# Insulin therapy using the PUMP

## Pros

- Lifestyle flexibility - meals, snacks, exercise, sports, parties, sleeping in
- Insulin can be matched to daily schedule
- Easier sick day management
- Managing growth spurts
- Managing Dawn phenomenon
- Improved hypoglycemia awareness
- Dosing increments as small as .025 unit
- Improved exercise management
- Improved control (less roller coaster effect)
- More physiologic insulin delivery: basal/bolus
- Extended meal delivery/dual wave
- No injections in public

# Insulin therapy using the PUMP

## o Cons

- o It is not perfect
- o Visibility
- o Always being attached
- o If disconnection or no infusion -KETONE production in less than four hours
- o Greater cost than injections
- o Risk of infection at the injection sites
- o Increased monitoring
- o Allergies to tape skin, prep products
- o Excessive sweating causing lack of adhesion
- o Pump runs dry
- o Ignoring Alarms of hyper/hypoglycemia
- o School issues ----Who will bolus / trouble shoot

# Candidates for Pump Use

Candidates must be able to :

- Stay motivated to improve blood glucose control
- Cooperate and be responsible
- Self-monitor blood up to 6-8 times/day
- Count carbohydrates
- Give insulin based on blood glucose and food intake
- Understand risk factors for failure
- Make the most of financial resources
- Maintain Realistic goals for pumping insulin

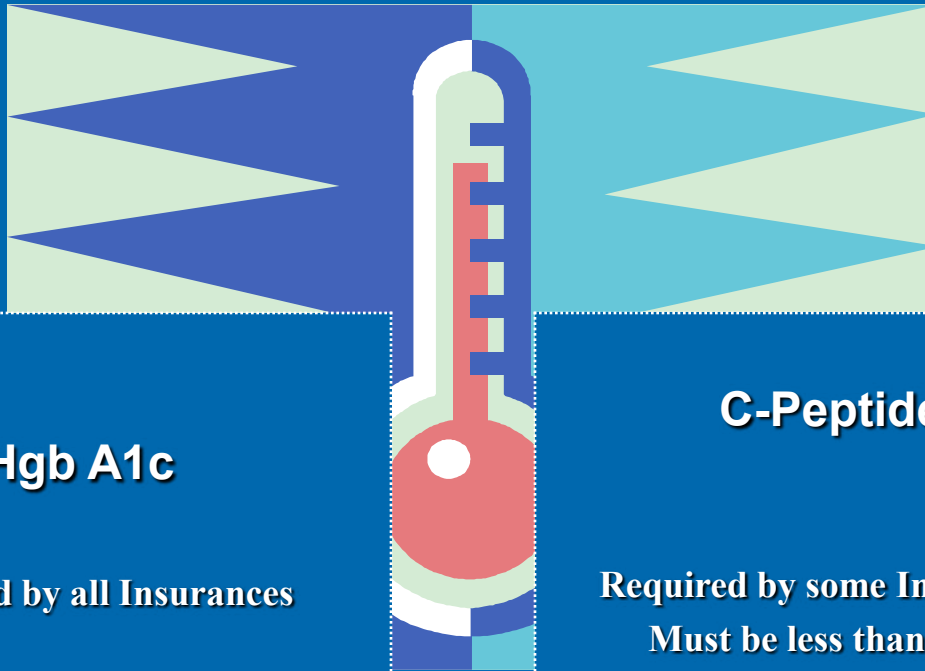




# “Red Flags” In Patient Selection

- *Frequently misses office visits*
- *Has poor problem solving skills*
- *Mistrusts health care providers*
- *Does not have time for intensive diabetes management...competing life demands*
- *Will not monitor BG levels or keep records*

# What's Your Number?



## Hgb A1c

Required by all Insurances

Relates to average blood glucose  
(mg/dl)

## C-Peptide

Required by some Insurances  
Must be less than 0.5

Relates to how much insulin  
your pancreas is making

Insulin Pump Management Record for Harrison Ford 15 yo Paradigm 512



Correction Bolus: Blood Sugar-150/30 Carbohydrate Bolus: 1Unit(s) per15 Grams Carb

Date	12 MN	1 AM	2 AM	3 AM	4 AM	5 AM	6 AM	7 AM	8 AM	9 AM	10 AM	11 AM	12 PM	1 PM	2 PM	3 PM	4 PM	5 PM	6 PM	7 PM	8 PM	
Blood Sugar																						
Grms Carb																						
Carb Bolus																						
Correction Bolus																						
<b>Total Bolus</b>																						
Basal Rate																						
Other (See Key)																						

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Basal Rate																								
Other (See Key)																								

KEY: \*Site Change ^Set Change SI Syringe Injection E Exercise  
 KO Urine Ketones, Neg K1 Urine Ketones, Trace or Small K2 Uring Ketones, Mod or Large

OR our favorite hero  
Your NAME

# Insulin Pump Management Record for Peter Parker aka Spiderman -- 15 yo

**Correction Bolus: Blood Sugar-150/30      Carbohydrate Bolus: 1Unit(s) per 15 Grams Carb.**

Thursday 09-01-11 Date	12 MN	1 AM	2 AM	3 AM	4 AM	5 AM	6 AM	7 AM	8 AM	9 AM	10 AM	11 AM	12 PM	1 PM	2 PM	3 PM	4 PM	5 PM	6 PM	7 PM	8 PM	9 PM	10 PM
Blood Sugar			102			200			165			240		150				63	90/ 120			98	130
Grms Carb							60		30 (high fat)			67						90	/15			30	
Carb Bolus							4					4.4						6.0					
Correction Bolus							1.6					3.0						-2.9					
<b>Total Bolus</b>							5.6					7.4						3.1					
Basal Rate	0.8	→		1.2	→													0.7	→				
Other (See Key)													KO								E	E	→
																							Temp basal set 0.35 uh

KEY: \*Site Change ^Set Change SI Syringe Injection E Exercise

K0 Urine Ketones Neg      K1 Urine Ketones Trace or Small      K2 Urine Ketones Mod or Large

# Since 1970's

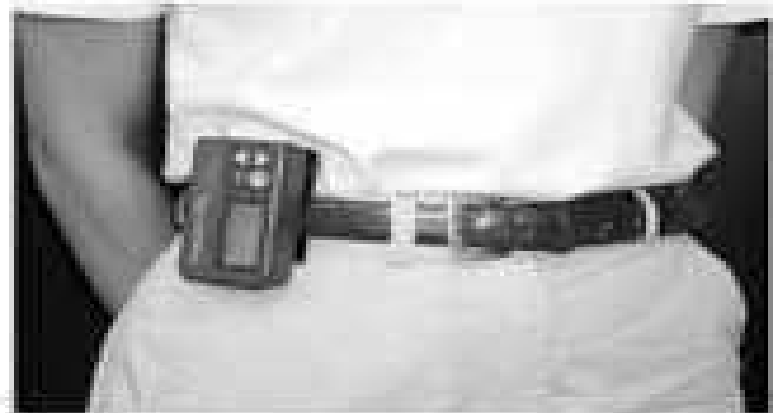
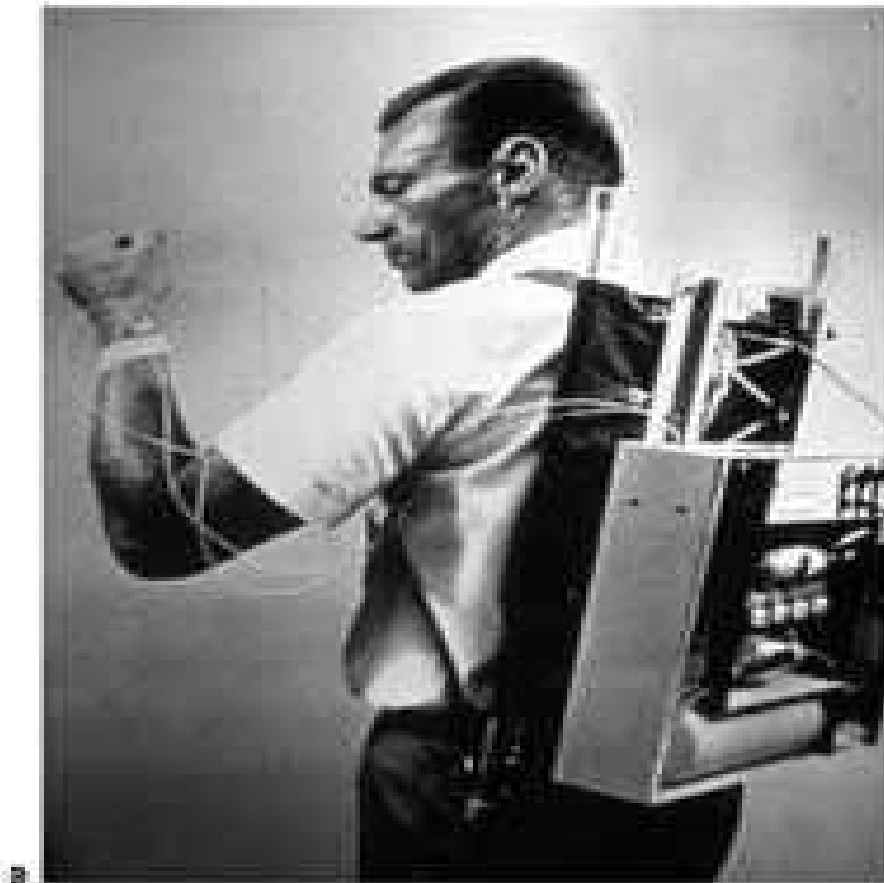


Figure 1. Insulin pumps: a. Early design by Arnold Kadish, MD. b. Early portable pump. c. Modern pump.

# Pumps Currently Available

- Animas : One-Touch Ping
- Medtronic Mini Med: Paradigm
- Omnipod

# The Animas Insulin Pump One Touch Ping



# Medtronic Mini-med Paradiagm pump Revel





# OmniPod

## Tubeless Insulin Management System



# Changing Perspective: Today

## Real time continuous glucose monitoring systems

Dexcom



Medtronic



# Insulin Pump Therapy Contract

To do well with insulin pump therapy you must:

- Understand blood sugar goals
- Test blood sugar frequently
- Know carbohydrate counting
- Get regular physical activity
- Keep good insulin pump management records
- Adjust insulin doses with your Endocrinology Team
- Follow up with Insulin Pump therapy team as scheduled
- Send insulin pump management records routinely (see handout)
- Understand that pump therapy may be stopped by MD as clinically indicated or if above is not followed



# Authorization Release of Information

# SO...What's Next?

1. **Skill Survey Sheets reviewed: call if skill help is needed**
2. **Choose one or two Pumps**  
**Call Insulin Pump Office to finalize choice 205-638-9546.**
3. **Call Pump companies to order**
4. **Call Insulin Pump Office to schedule training when shipping date known.**

**How to contact us!**

**Office Phone**

**(205) 638-9546**

**Fax (205) 638-7005**

**Lin Lewis, MSN, RN, CPT, CDE**

**V. Joye Taylor, MS, RD, CPT, CDE**

**Certified Insulin Pump Trainers**