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| **Name of Policy:** | **Self-Administration of Subcutaneous Insulin with an Insulin Pump** |
| **Policy Number:** | 3364-133-104 |
| **Department:** | Pharmacy |
| **Approving Officer:** | Senior Hospital Administration |
| **Responsible Agent:** | Director of Acute Care Services |
| **Scope:** | The University of Toledo Medical Center |

THE UNIVERSITY OF TOLEDO MEDICAL CENTER

**Effective Date: 5/16/2023**
Initial Effective Date: 8/1/2015

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| _____ New policy proposal | __x__ Minor/technical revision of existing policy |
| _____ Major revision of existing policy | _____ Reaffirmation of existing policy |

## (A) Policy Statement

Patients may use their existing continuous subcutaneous insulin infusion (CSII) pump while in the hospital only under a provider's order and with twice-daily nursing assessments deeming the patient capable and competent of CSII self-management.

## (B) Purpose of Policy

1. To outline the circumstances in which patients with diabetes mellitus that have a preexisting CSII pump may continue its use while hospitalized and when it would be necessary to discontinue the patient's CSII pump.
2. To clarify the responsibilities of patients, nurses, pharmacists, and providers regarding the use of CSII pumps while in the hospital.
3. To assure safe and accurate administration and documentation of insulin for inpatients with an excising CSII pump.

## (C) Procedure

1. On admission, patients with a pre-existing CSII pump are identified. The brand of the pump, type/name of insulin used, and the basal rate of infusion must be documented in the medication history. A provider should be notified of the presence of the CSII pump.
2. Upon admission, the *nurse and/or provider* must assess the patient for indications and contraindications of CSII based on the below criteria.
    a. *Indications* for inpatient use of CSII pump include all of the following:
        i. Patient alert; oriented to person, place, and time
        ii. Patient is capable of self-managing the pump and knowledgeable about programming basic pump functions such as bolus dose, basal rate and suspend.
        iii. Nurse and/or provider believe the patient has the mental and physical capacity to use the pump completely and independently.
        iv. Have adequate CSII pump supplies including batteries, infusion sets, and reservoirs.
            1. Insulin brought from home will be sent to the inpatient pharmacy for verification and will be stored either within the pharmacy or in the patient's Pyxis drawer until needed or at patient discharged.
            2. The patient should provide insulin; however, if the patient cannot obtain insulin, the UTMC pharmacy may dispense insulin for the CSII pump.
        v. Patient or legal guardian must acknowledge and sign the CSII pump "Patient Agreement."
    b. *Contraindications* for CSII pump therapy which require the nurse to contact the provider and/or endocrinologist for discontinuation of the pump and warrants alternate insulin regimen for glycemic control include:
        i. Decreasing level of consciousness
        ii. Disorientation/confusion
        iii. Diabetic ketoacidosis
        iv. Impaired circulation or subcutaneous absorption
        v. Suicide risk
        **vi. Critically ill (ie sepsis, trauma) and/or need for intensive care (ie. SICU/MICU status)**

vii. Undergoing radiology tests (x-ray, ct-scans MRI), surgery or another reason deemed medically necessary
viii. Refusal or unwillingness to participate in self-care
ix. Change in the patient's condition that prohibits independence with pump self-management
x. Other reasons deemed inappropriate for CSII use by nursing or provider
xi. Unable to maintain adequate control of blood glucose
xii. Note: If at any time the patient meets one of the contraindications mentioned above, or if the pump is not functioning properly the nurse will notify the provider immediately and obtain orders to discontinue the pump and initiate alternative insulin therapy.

3. A *provider's order* is required for the patient to self-administer insulin via a CSII pump using the order set "Adult Subcutaneous Insulin Pump Management"
   a. Continuation of pump therapy during hospitalization
   b. Type of insulin to be used in the pump
   c. Basal rate(s)
   d. Bolus doses to be used for meals or correction of hyperglycemia
   e. Frequency of glucose monitoring
   f. Plan of treatment for hypoglycemia
4. A *provider* must document the following information in the patient's chart upon admission:
   a. Patient agreement form (located on the MAR after order has been placed or in Z drive [pharmacy → inpatient→ internal medicine → insulin pump → "ContinuousInsulinPumpPatientAgreement.HENZ"]
   b. Insulin Pump & Insulin Regimen (also documented via patient's Bedside Insulin Pump Blood Glucose Record book (located on the MAR after order has been placed or in Z drive [pharmacy → inpatient → internal medicine → insulin pump → "UTMC Bedside Insulin Pump Blood Sugar Record HENZ"]
      i. Make and model of CSII pump
      ii. Type of insulin
      iii. Basal rate
      iv. Bolus insulin doses (number of doses and units given)
      v. Any supplemental insulin given by injection
      vi. Change in infusion site
      vii. Time the insulin pump is suspended or removed, such as for procedures or showering, and time when the pump is reconnected
5. Upon *pharmacist* verification the responsible pharmacist will enter an i-Vent that will include:
   a. Type of insulin to be used in the pump
   b. Basal rate(s)
   c. Bolus doses to be used for meals or correction of hyperglycemia
   d. Frequency of glucose monitoring
   e. Plan of treatment for hypoglycemia
   f. Managing provider
6. The *patient* will manage the insulin pump as outlined below:
   a. The patient must document their insulin pump settings (basal rate) and any bolus doses of insulin self-administered in the **"Bedside Insulin Pump Blood Glucose Record"** book (located on the MAR), which should be kept at the patient's bedside.
   b. The patient is completely responsible for pump operation: programming basal rate, setting and administering bolus doses, changing pump batteries if needed, preparing, and replacing infusion sets, and troubleshooting pump alarms.
   c. Patient responsible for changing infusion set and filling new syringe (reservoir/cartridge) with insulin as needed and communicate this to nursing staff.
   d. Patient will ensure proper disposal of sharps in designated containers.
7. The *nurse* will monitor the patient as outlined below:
   a. Patient reassessments done at the beginning of each 12-hour shift to ensure patient meets inclusion criteria as stated above.
   b. All basal rates and bolus doses administered by the patient will be documented in the bedside insulin pump blood glucose record and **reported to the nurse for documentation into the medical record.**
   c. Should the CSII pump need to be discontinued, nursing will be responsible for suspending and disconnecting the pump.
   **d.** Blood glucose monitoring needs to be done before each meal, at bedtime, and as needed for suspected hypoglycemia or hyperglycemia. **All monitoring will be done with the hospital's blood glucose monitoring system.**

8. Upon order for discontinuation of CSII pump by a *provider*
    a. Suspend (stop) the pump and remove the catheter from the insertion site
    b. Remove the infusion set (tubing) from pump
    c. Secure the pump or give pump to patient's family for safekeeping and document accordingly
    d. Document rationale for discontinuation of CSII pump in the patient medical record

**Definitions**

**Continuous subcutaneous insulin infusion (CSII) pump:** a microcomputer device with a syringe of insulin within the pager sized device that delivers short acting insulin continuously through the subcutaneous tissue.

**Continuous subcutaneous insulin infusion (CSII):** a method of 24-hour insulin delivery, using rapid acting insulin, by basal and bolus doses with the purpose of maintaining blood glucose control

**Basal rate:** a small amount of insulin delivered continuously 24-hours a day in order to keep the blood glucose stable. Multiple basal rates can be programmed based on insulin needs such as during sleep and pre-dawn hours.

**Bolus insulin:** an amount of insulin given before a meal for mealtime insulin needs.

**Supplemental insulin:** an amount of insulin given to correct hyperglycemia that is in addition to basal and/or mealtime insulin.

**Filling Instruction Links**

- **https://www.omnipod.com/sites/default/files/Omnipod-5_Quick-Start-Guide.pdf**
- **https://www.medtronicdiabetes.com/customer-support/device-settings-and-features/sd512-712/filling-your-reservoir**

**References**

Dalton MF, Klipfel L, Charmichael K. Safety Issues: Use of Continuous Subcutaneous Insulin Infusion (CSII) Pumps in Hospitalized Patients. Hosp Pharm 2006;41:956-969.

Leonhardi BJ, Boyle ME, Beer KA, Seifert KM, Bailey M, Miller-Cage V, et al. Use of continuous subcutaneous insulin infusion (insulin pump) therapy in the hospital: a review of one institution's experience. J Diabetes Sci Technol. 2008 Nov;2(6):948-62.

| **Approved by:** | | **Review/Revision Date:** |
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| | | 3/2023<br>3/2023 |
| /s/<br>Lindsey Eitniear PharmD, BCPS, AAHIVP<br>Director of Pharmacy | 05/16/2023<br>Date | |
| /s/<br>Russell Smith, PharmD, MBA, BCPS<br>Senior Hospital Administrator | 05/16/2023<br>Date | |
| *Review/Revision Completed By:*<br>*Pharmacy* | | **Next Review Date: 3/1/2026** |
| **Policies Superseded by This Policy:** | | |