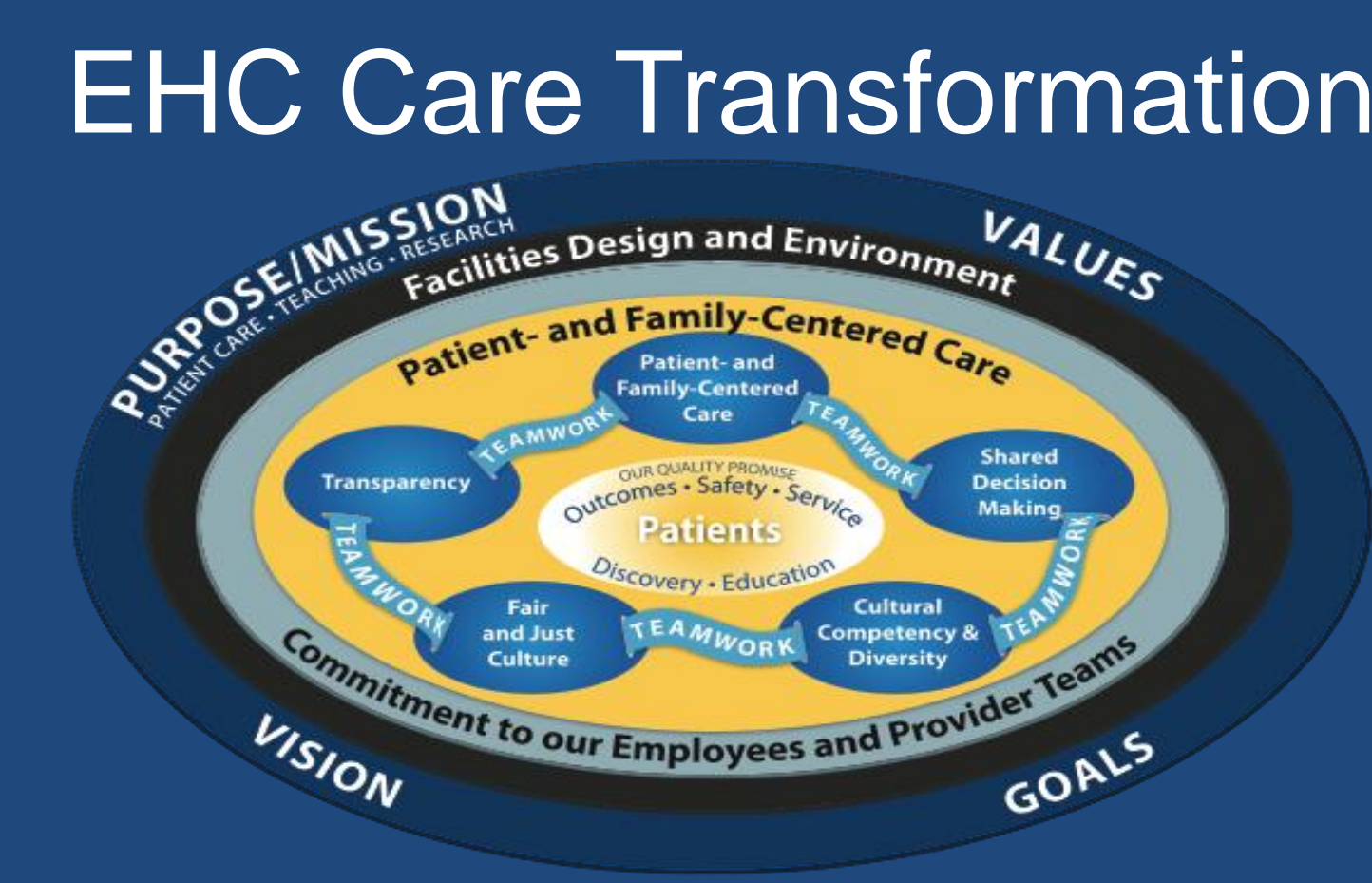# Blood Glucose Levels of Diabetic Patients in the Immediate Post Acute Hemodialysis Period: An Exploratory Study

EMORY HEALTHCARE

Nursing Services

EHC Care Transformation

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INTRODUCTION

➢ No published evidence of best practice for testing capillary glucose after acute hemodialys.

➢ Two different hospitals in single systems using two different practices.

➢ No community consensus

➢ Purpose: **establish the evidence** on which to base procedures for evaluating capillary blood glucose levels after hospitalized diabetic patients complete hemodialysis treatment.

➢ Secondary research questions were: 1) Are changes in blood glucose similar between patients with diagnosed Type I and Type II diabetes? And 2) Are changes in blood glucose different depending on the reasons for acute care hospitalization, e.g. sepsis vs. surgery, vs. other diagnosis?

METHODS

Predictor variables: type of diabetes; meds prior to dialysis; food prior to dialysis; length of dialysis; treatment; snack during dialysis; prior dialysis during same hospitalization.

Outcome variables: Glucose levels at 4 time points:

T1   30 minutes prior to the end of dialysis; sample taken from dialysis catheter/port

T2   At the end of dialysis; sample taken from dialysis catheter/port

T3   30 minutes after the end of dialysis; finger stick sample

T4   60 minutes after end of dialysis; finger stick sample

DISCUSSION

➢ From a clinical perspective, it makes most sense to test glucose when variability is greatest, i.e. 60 minutes post-dialysis, and nursing procedures are being revised to reflect these findings.

📄 **Protocol**:   **Protocol For Patients Requiring Blood Glucose Monitoring (Non-Emergent) After The Completion Of A Hemodialysis Treatment**

➢ The study has been extended to accrue sufficient numbers of treatments to confirm preliminary results

➢ Clinical staff felt empowered to change practice based on evidence they collected

METHODS

➢ Design: Prospective, exploratory study

➢ Setting: two acute hemodialysis units in the Southeast, one in an academic medical center and one in an academic community hospital.

➢ Sample:

➢ Inclusion criteria: adult diabetic hemodialysis patients with orders for glucose testing and coverage

➢ Exclusion criteria: critical care patient; intravenous insulin infusion running; TPN; unable to give informed consent

➢ Sample size calculated to determine effect size for larger study. Preliminary sample estimate = 100 treatments

RESULTS

Only the difference in glucose levels between T_3 and T_4 (within patient) was statistically significant (p= .0096)

VARIABILITY IN GLUCOSE LEVELS MOST STRIKING AT T_4
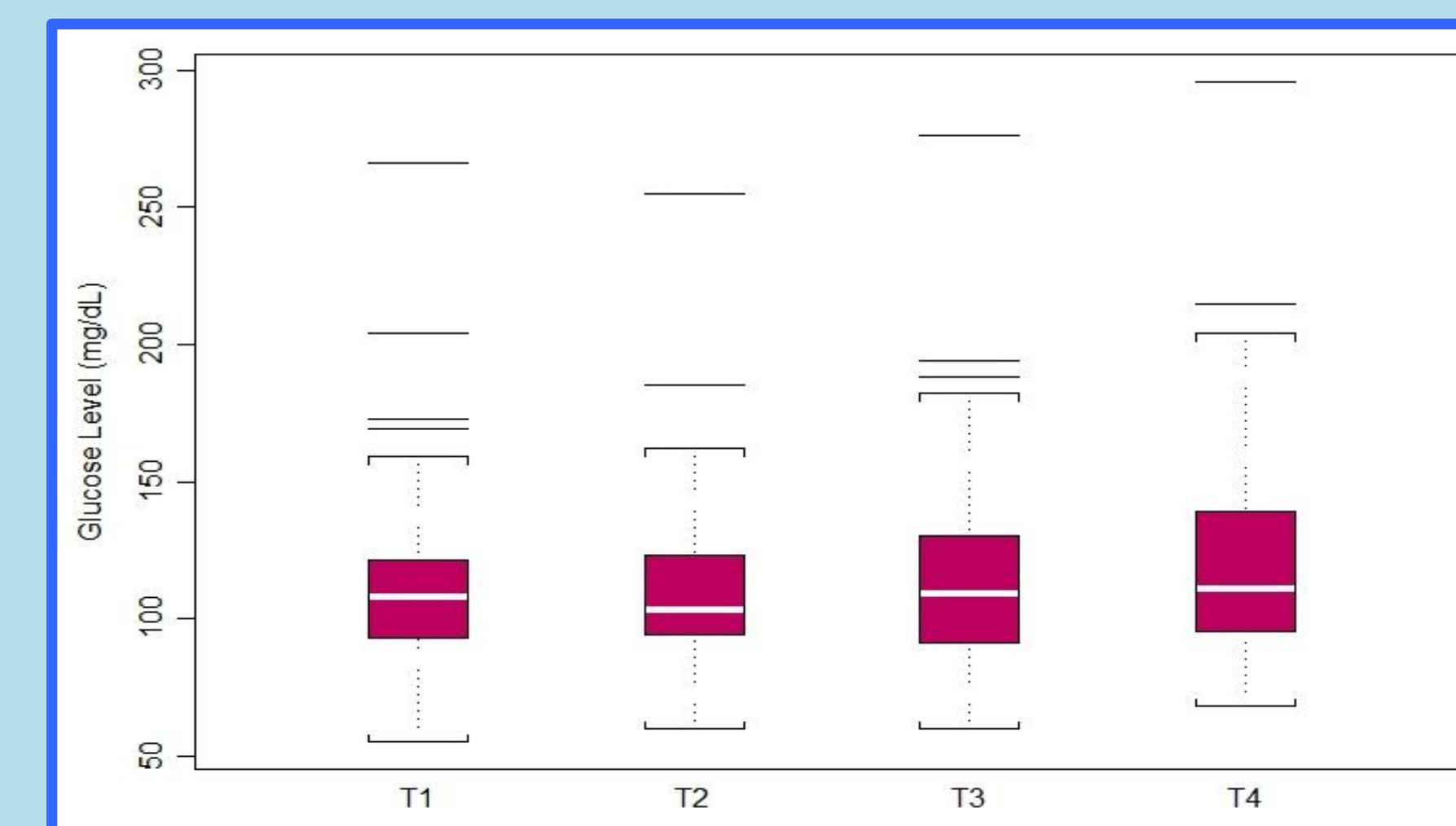
Additional findings: 1) Possible relationships between both insulin administration prior to treatment and length of treatment, on post-dialysis glucose levels. 2) Intra-patient correlations of treatments found each treatment is an independent event (r= 0.12) making treatments, not patients, the appropriate unit of analysis.

CONCLUSIONS

➢ Diabetic patients exhibit a wide range of glucose levels before, during, and after acute hemodialysis

➢ Testing post-dialysis glucose levels earlier than 60 minutes post-treatment may miss needs for additional medication

➢ Longer dialysis treatments and insulin dependency may directly affect post-dialysis glucose levels; more research is needed to confirm these findings

➢ With support, staff nurses are capable of conducting important clinically based research to establish evidence for practice