# Peri-operative Diabetic Care Monitoring and Support System

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## Abstract

*A computerized clinical guideline at the point of care is more efficient than a paper-based clinical guideline. Peri-operative diabetic care monitoring and support system were developed to enhance in-hospital care. It consisted of a computerized peri-operative diabetic blood sugar control guideline and diabetes alert monitoring system. The computerized peri-operative diabetic blood sugar control guideline was developed by diabetic center of Asan Medical Center, based on clinical data and existing paper-based clinical guidelines. The diabetes alert monitoring system was designed to monitor diabetic inpatients related data- hyperglycemia, hypoglycemia, abnormal hemoglobin A1C, inadequate anti-diabetic agents, etc. This system was managed by diabetes alert team in real-time. Effectiveness of this system and impact on improvement of diabetic care need more time.*

## Introduction

As increase of diabetic incidence and complications, various strategies for diabetes management have been designed. Standard guideline to be useful for decision support, it need to be integrated into the patient care process. The development of hospital-based diabetes decision support system was started to improve the quality and efficiency of care for diabetics in October 2008, was completed in July 2009. Medical information system of Asan Medical Center, the Korea's largest referral hospital with about 2,700 inpatient beds, is based on computerized physician order entry system and electronic medical record system. This study is introduced peri-operative process of our diabetes decision support system.

## Methods

A computerized guideline of diabetic blood sugar control was focused on diabetics who were slated to have an operation. It consisted of a text guideline about diabetic blood sugar control and a list of computerized prescriptions for diabetes management on a case by case basis. A diabetes alert monitoring system is classified into two ways according to making monitored inpatients list. The first way was inquired out automatically inpatients list that need diabetes management, based on clinical data in real-time by twenty rules. The rules categorized into 3 types; a patient who was unstable blood sugar level (hyperglycemia, hypoglycemia), a patient who was prescribed inadequate anti-diabetic agents (insulin, oral hypoglycemic agent), a diabetic who had an operation. The second way was shown monitored inpatients list by calls of the nurse in charge. Diabetes Alert Team that is composed of doctors in the diabetes center reviewed monitored inpatients list and gave attending doctors recommendations to correct their prescriptions for diabetes management in computerized physician order entry system.

## Results/Conclusion

The computerized peri-operative diabetic blood sugar control guideline for 3 months was used 10 medical departments. The computerized prescription in the guideline was used 26cases per day. During acting Diabetes alert monitoring system for 3 months, on average, the number of monitored inpatients was 43people per day (766cases per day), the number of inpatients who were abnormal blood sugar level was 36people per day (413cases per day) and the number of inpatients who were prescribed unsuitable anti-diabetic agents was 5people per day(59cases per day). It needs time to prove the overall effectiveness of system for the short period that acts diabetes decision support system. But by monitored inpatients that need suitable diabetes management, it appeared the need for diabetes alert monitoring system.

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