

Optimizing the Care, Safety and Wellness of Patients With Known Diabetes Through Laboratory Medicine and a 5-Stage Multidisciplinary Clinical Care Pathway



Zulekha Hospital Dubai | Dubai, United Arab Emirates

KEY PARTNERS/STAKEHOLDERS

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The prevalence of Diabetes Mellitus has rapidly increased over the past four decades, making it a major global healthcare challenge. Diabetes is a metabolic disorder characterized by inadequate blood glucose control, resulting in dysregulated blood glucose levels. Most cases are Type II diabetes, and may initially start with the development of insulin resistance, which begins insidiously and is associated with aging and obesity. There is an opportunity and a significant need for improving the management of these patients to stem or avoid long-term health risks.

Hyperglycemia has significant detrimental impact to multiple body organs and tissues, including the heart, the vasculature, kidneys, eyes, immune system and peripheral nerves. Diabetes is the leading cause of chronic kidney failure, a significant contributor to heart disease and a leading cause of blindness. Diabetic peripheral neuropathy developing from small nerve damage results in unrelenting pain and disrupted sensation, leading to ulcerations particularly of the heel and feet. Infections are both more common and more difficult to resolve.

Persistent hyperglycemia hastens the development of complications and need for intervention. Uncontrolled diabetics are at greatest risk.

Zulekha Hospital Dubai recognized the need to improve outcomes for patients who were known diabetics and formed a multidisciplinary team to create an enhanced clinical pathway to improve management of these patients. Using the international guidelines, the team developed a 5-stage approach designed to optimize diabetic care. This facilitated better early detection of preventable diabetic complications by collaborating across departments and undertaking interventions as needed. The clinical care pathway was implemented for all patients seen in the diabetic clinic on Jan. 1, 2021.

Significant benefits resulted, including increased patient engagement – which is essential for effective diabetic management – reduced patient morbidity and decreased overall healthcare costs.

There were several important impacts on patient management, intervention and outcomes. Management of glycemetic levels was improved for all monitored patients. This was measured using glycosylated hemoglobin, HbA1c, a blood measure that provides an accurate reflection of the average blood glucose across the past 90 days. Compared to the baseline levels, there was a collective decrease of 11.5% in HbA1c levels, indicating improved glycemetic control.

Diabetic patients became more engaged with a 30% increase in patient participation in the serial targeted and routine laboratory testing, from 70% at the start to 100% after program initiation. Implementation of the pathway enhanced the earlier detection of diabetic complications, including diabetic nephropathy (11% to 19%), retinopathy (6% to 14%) and neuropathy (14% to 36%).

Significantly, diabetic foot infections were detected earlier, resulting in no amputations being required following the start of the initiative. The team realized a 4.5-fold improvement (13.8 to 3.1) in cardiovascular risk scores, which mitigated long-term risk and associated diabetic complications.

Not only were the patients more engaged, but they spread the word to other patients not involved in the program. This enhanced the value of the program and increased the hospital's reputation throughout the community. This led Dr. Zia Ur Rahman Shah to comment, "repeated feedback across patient surveys and word of mouth of diabetic patients have consistently reinforced positive patient experiences, which have enhanced our health system's reputation and referrals."

The improved patient management led to both increased clinician satisfaction and clinical confidence, according to Dr. Magdy Allam, head of the endocrinology department.

"Implementation of the Zulekha Hospital diabetic pathway has not only been successful for our patients but has had a positive effect on our entire endocrinology department," Dr. Allam said. "The team is proud of our work and outcomes, as our diabetic patients receive the best possible care."

Dr. Mohamed Elshafei, a specialist neurologist, agreed that the program had a significant impact on clinical confidence.

"The increased detection rate of neuropathy in diabetic patients ... increased my confidence in preventing a further chain of potential complications, including diabetic foot infection, as neuropathy usually presents first in the chain," Dr. Elshafei said.

This program was additionally effective at reducing hospital admissions. Prior to implementing the pathway, 4% of diabetic patients required an admission for management of an episode of moderate to severe hyperglycemia, including one patient who was admitted with diabetic ketoacidosis, a severe complication of uncontrolled blood glucose. In follow-up 10 months after implementation of the pathway, no hospital admissions were required for diabetic patients due to hyperglycemia. This led to a reduction in healthcare costs, leading Dr. Sharmila C. Jadhav to note that "closely monitoring diabetic patients ... had a considerable impact on mitigating preventable adverse outcomes, with less morbidity and mortality resulting from missed early diagnosis." Dr. Jadhav continued, "Collectively, this saves costs for the patient and the overall health ecosystem, including payers."

By recognizing the need for better management of diabetic patients and developing and implementing a program addressing this need that demonstrated measurable improvements in patient care and outcomes, Zulekha Hospital Dubai was recognized by the UNIVANTS of Healthcare Excellence program.

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