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## CHALLENGES AND OPPORTUNITIES FOR TREATING DIABETIC PATIENTS WITH INSULIN?

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Initiating insulin therapy and subsequent intensification is very challenging for primary care physicians. Evidence for this is the 3-7 year lag period before insulin is started in patients who have failed two or more oral anti-diabetes drugs at which time the baseline HbA1c level averages 9.3%. Less than half of patients with HbA1c levels >8.0% are even started on insulin. Once started, the regimen is intensified in only approximately one-third, and in another third, insulin is discontinued. The mean HbA1c level in patients who take insulin is 8.5%. A major barrier for appropriate insulin treatment is time constraints for physicians who routinely have only 10-15 minutes at each patient visit and then only see them every 3 months or so. The senior author has taught house staff, nurses, nurse practitioners, physician assistants and clinical pharmacists how to adjust insulin doses for nearly 50 years. We have computerized these principles into insulin dose adjustment algorithms. The system works in one of 2 ways. At a patient visit, their glucose meter is downloaded into a computer containing the Mellitus Health program. Within 15 seconds, a report is generated containing: a) a scattergram of glucose values; b) a listing of each glucose value organized into pre- and post-prandial values for each meal and before bed; c) an analysis of these values; and d) recommendations for insulin dose adjustments that the physician can accept, modify or ignore. The second way involves remote glucose monitoring in which certain meters can transfer their values via a smartphone app to Mellitus Health's secure, HIPAA approved server. At specified intervals, reports are generated and sent to the patient's physician who (or his/her staff) contact the patient with any dose adjustments. Subsequent reports are automatically based on these new doses. The remote glucose monitoring approach is currently being evaluated in patients taking insulin for at least 6 months with baseline HbA1c levels  $\geq 8.0\%$  in a safety net clinic. Preliminary results in 14 patients who have been treated for at least 3 months reveal a 1.5% decrease in HbA1c levels from 9.9% to 8.4%. These computerized algorithms will facilitate insulin dose adjustments by removing the time constraints of primary care physicians and improve diabetes control in their patients.