Quality Improvement: Implementing a Diabetes Order Set

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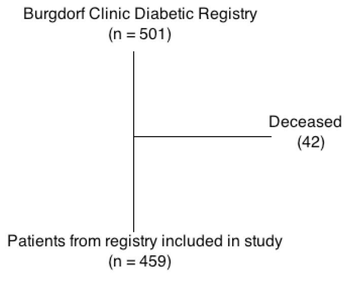
Introduction:

- Type 2 diabetes mellitus accounts for approximately 90-95% of all individuals diagnosed with diabetes.[1]
- Diabetic nephropathy is a complication seen in about 20-30% of patients with type 1 or type 2 diabetes mellitus.[2]
- Screening for diabetic nephropathy is essential for optimal care of patients with diabetes, with the most appropriate test being the urine microalbumin/creatinine ratio.[3]
- Screening tests for diabetic nephropathy are, however, not always ordered properly. Possible reasons may be lack of knowledge regarding screening and unfamiliarity with which test to order.[4]
- By implementing a standardized order set for providers to use through the electronic medical record, we may be able to address some of these gaps and increase the rate of screening for diabetic nephropathy.

Methods:

- A retrospective chart review of 459 patients with poorly controlled diabetes was performed to determine whether patients had an appropriate screening test done for diabetic nephropathy.
- These patients were from a diabetic registry at Burgdorf Health Center, which is a resident-run, inner city primary care clinic that predominantly manages an underserved population.



Diabetic registry was created in 2015, initially including patients with HbA1c greater than or equal to 9.0%

Results:

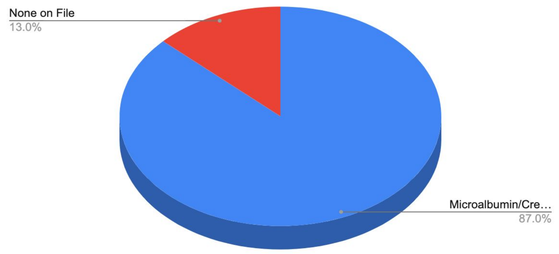


Figure 1. 59 out of the 459 patients (13%), did not have a urine microalbumin/creatinine ratio on file.

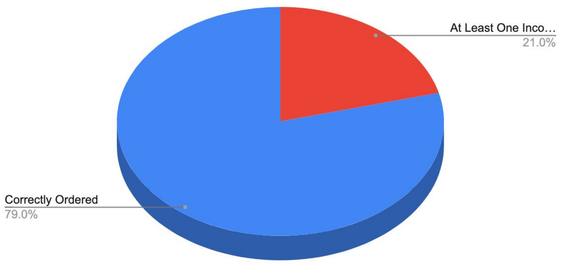


Figure 2. 98 out of the 459 patients (21%), had at least one incorrect order placed in screening for diabetic nephropathy.

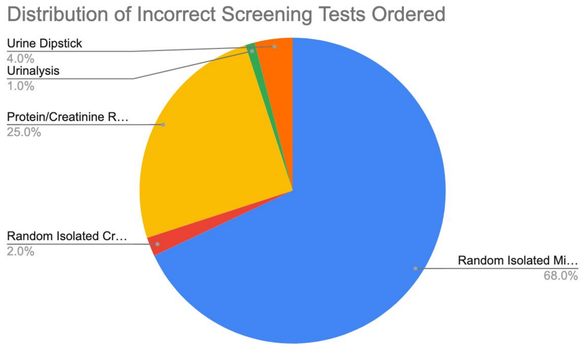
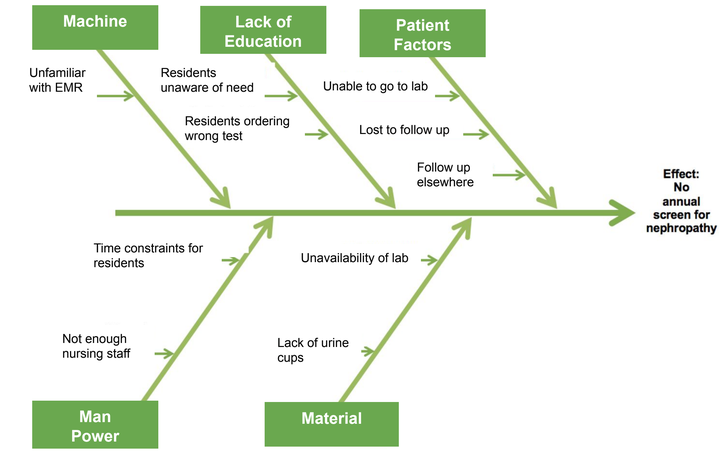


Figure 3. Of those 98 out of the 459 patients (21%) who had at least one incorrect order placed for screening diabetic nephropathy shown in Figure 2, 67 of those 98 patients (68%) had a random isolated microalbumin test ordered as opposed to a urine microalbumin/creatinine ratio.

Discussion:

- Limitations for both the absence of a proper screening test ordered on file and incorrect laboratory orders:



- Modifiable limitations should be addressed to properly and effectively manage specific health populations, especially in resident-run health centers.

Conclusions:

- Diabetic nephropathy is a preventable complication of diabetes.
- Ordering annual urine microalbumin/creatinine ratio in diabetic patients can screen for progression of kidney disease.[3]
- A standardized order set can make screening more efficient and easier for providers, thereby leading to better screening rates.
- Early intervention can decrease the rate of progression to chronic kidney disease and end-stage renal disease.

References:

[1] American diabetes association. (2005). Diagnosis and Classification of Diabetes Mellitus. *Diabetes care*, 28 (1): S37-S42.
[2] American diabetes association. (2004). Nephropathy in Diabetes. *Diabetes care*, 27 (suppl 1): S79-S83.
[3] Lambers Heerspink, H. J., Gansevoort, R. T., Brenner, B. M., Cooper, M. E., Parving, H. H., Shahinfar, S., & de Zeeuw, D. (2010). Comparison of Different Measures of Urinary Protein Excretion for Prediction of Renal Events. *Journal of the American Society of Nephrology : JASN*, *21*(8), 1355–1360.
[4] MacLean, C. D., MacCaskey, M., Littenberg, B. (2013). Improving Testing for Proteinuria in Diabetes Using Decision Support: Role of Laboratory Ordering Systems. *Laboratory Medicine*, Volume 44, Issue 4, 353–357.