

East Tennessee State University

## Digital Commons @ East Tennessee State University

---

Appalachian Student Research Forum

2020 ASRF Presentations

---

### Monitoring Prediabetes Screening in Two Primary Care Clinics in Rural Appalachia: A Quality Improvement Project

Rebecca Teresa Clark  
*East Tennessee State University*

Christine Michelle Mullins  
*East Tennessee State University*

Jean Croce Hemphill  
*East Tennessee State University*

Follow this and additional works at: <https://dc.etsu.edu/asrf>

---

Clark, Rebecca Teresa; Mullins, Christine Michelle; and Hemphill, Jean Croce, "Monitoring Prediabetes Screening in Two Primary Care Clinics in Rural Appalachia: A Quality Improvement Project" (2020). *Appalachian Student Research Forum*. 12.  
<https://dc.etsu.edu/asrf/2020/presentations/12>

This Oral Presentation is brought to you for free and open access by the Events at Digital Commons @ East Tennessee State University. It has been accepted for inclusion in Appalachian Student Research Forum by an authorized administrator of Digital Commons @ East Tennessee State University. For more information, please contact [digilib@etsu.edu](mailto:digilib@etsu.edu).

## Introduction

- Prediabetes is a physiologic state of an elevated serum glucose without diagnosis of Type 2 Diabetes Mellitus (T2DM) and increases risk of developing T2DM.
- Exists when a person has an impaired fasting glucose (100-125 mg/dl), or impaired glucose tolerance (140-199 mg/dl) test result, or elevated hemoglobin A1c (5.7-6.4%) (Perreault, 2019)
- Is often considered as not a serious medical condition worth managing (Kandula et al., 2018)



## Background

- T2DM is a prevalent healthcare burden
- 415 million individuals are affected by T1DM and T2DM
- 90% of diabetes cases are T2DM
- T2DM increases morbidity and mortality with rising economic/healthcare burden
- T2DM is preventable in most cases
- ADA, CDC, and USPSTF recommend screening for prediabetes

### Prediabetes

- Risk increases with growing obesity rate
- 34% of the American population
- 50% of adults >65
- 90% remain undiagnosed
- 70% develop T2DM within 10 yrs if not managed appropriately
- 1 in 3 will develop T2DM, by 2050

(Tuso, 2014; Perreault, 2019)

## Objective

The purpose of this Quality Improvement Project was to evaluate a prediabetes screening initiated in two rural primary care clinics located in Southeastern Appalachia

### Aims of the project were threefold:

- Develop a site-wide educational initiative on prediabetes screening for providers and staff.
- Implement a screening/referral process for healthcare providers.
- Prevent or delay the onset of T2DM

Aims correlate with the Healthy People 2020 Objective D-16, on targeting prevention behaviors in those at risk for developing T2DM (Healthy People 2020, 2020)

## Methods

**Design** - Quality Improvement Project

**Setting** – Two rural primary care clinics that are Federally Qualified Health Center (FQHC)

**Sample** – Convenience sampling of aggregate data collected by healthcare providers, over a 6 week period

**Procedures** – Educational session with staff  
If patient met inclusion criteria, then was given a screening tool. Provider assessed screening tool score. If patient scored at risk for prediabetes, the provider was to offer evidence-based (EB) recommendations per ADA and CDC guidelines

**Instrument** – "Are You At Risk for Type 2 Diabetes" by the ADA (ADA, 2019)

**Human Subjects Protection** –Received exemption from the Internal Review Board of associated university. No identifiable human subjects risk

**Data Analysis** – Consisted of descriptive statistics of patient demographics, patient risk factors and EB treatment recommendations offered. Analyzed via SPSS version 25

## Results

### Patient Demographics and Risks:

- 420 patients eligible for screening
- 269 patients completed screening (64%)
- 196 female, 73 male (n=269) screened
- Prevalent age group was 18 - 40 (n=116)
- English speaking (n=242); Spanish (n=27)

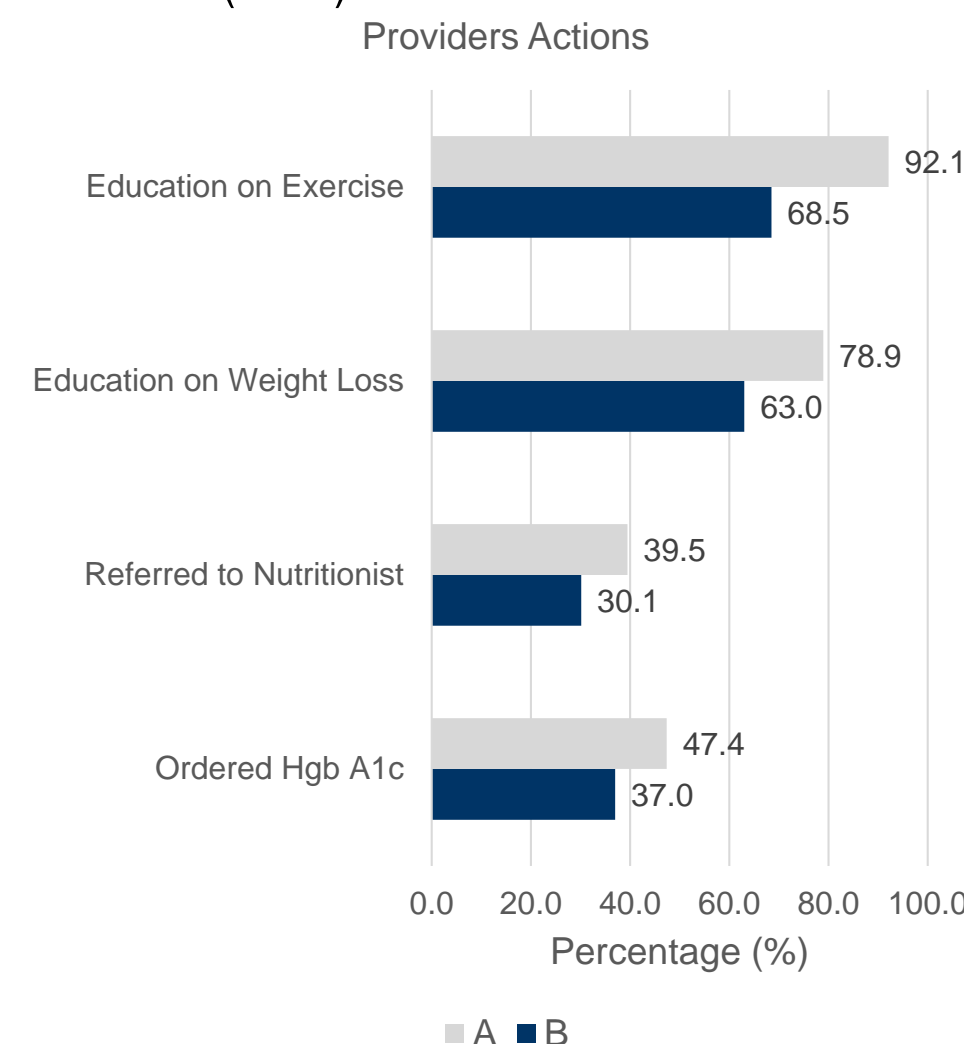
### Patient reported risk factors on those scoring at risk for prediabetes:

- 42.0% (n=113) personal history of hypertension
- 40.5% (n=109) family history of T2DM
- 27.1% (n=70) being physically active
- 81.4% (n=219) being overweight

- 111 (41.3%) patients scored at risk for prediabetes
- Age range with the highest risk was 60 years and older 38% (n=42)

### Healthcare Provider Actions:

- Obtained a Hgb A1c 40.5% (n=45)
- Referral to Registered Dietician 33.3% (n=37)
- Education on 5%-7% weight loss 68.5% (n=76)
- Education on 150 minutes of exercise/week 76.6% (n=85)



## Conclusions and Implications

- Percentage of patients found to be at risk is higher than reported in the literature.
- Neither clinic achieved 100% screening rate of patients that fit inclusion criteria.
- Older age did increase risk for prediabetes.
- Being overweight/obese was not the highest the risk for prediabetes, differing from the literature.
- Providers offered higher rates of education on weight loss and exercise rather than recommending/referring patients to the registered dietician.
- Interprofessional practice is essential for quality improvement projects.
- Sustainability and consistency are essential in reducing risk of developing T2DM.
- Advanced practice nurses are essential for health promotion and disease prevention.
- Providing the appropriate tool and resources - helps prevent chronic disease and reduce morbidity.
- Set benchmarks for future efforts to educate and measure provider successes.

## Contact information

Rebecca Clark  
828-434-0850  
clarkrt@etsu.edu

Christine Mullins  
423-439-4664  
mullinscm@etsu.edu

Jean Hemphill  
423-439-4603  
hemphillj@etsu.edu

## References

- American Diabetes Association. (2019). *Are You At Risk for Type 2 Diabetes?* Retrieved from <http://diabetes.org/are-you-at-risk/diabetes-risk-test>
- Healthy People 2020. (2020). Healthy People 2020: diabetes Objectives. Retrieved from <https://www.healthypeople.gov/2020>
- Kandula, N., Moran, M., Tang, J., & O'Brien, M. (2018). Preventing diabetes in primary care: Perspectives about diagnosing and treating diabetes. *Clinical Diabetes*, 36(1), 59-67.
- Perreault, L. (2019). Prediabetes. *NCBI Bookshelf*, 1-22. Retrieved from <https://ncbi.nlm.nih.gov/iris-edu>
- Tuso, P. (2014). Prediabetes and lifestyle modification. Tome to prevent a preventable disease. *The Permanente Journal*, 18(3), 88-93.