

**First steps in assessing metabolic risk: A Medical University of South Carolina  
Office of Continuing Medical Education & Diabetes Initiative of South Carolina  
practice improvement project.**

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## Abstract

South Carolina ranks 10th in the nation for diabetes prevalence and more than 66% of adults are either overweight or obese (1). A high waist circumference is associated with an increased risk for type 2 diabetes, dyslipidemia, and hypertension (2). Clinical guidelines indicate that waist circumference is the preferred assessment for metabolic risk (3). However, primary care providers in South Carolina do not routinely measure waist circumference when assessing metabolic risk in their patients (4).

Through educational and non-educational initiatives, primary care providers were informed of the importance of adding a waist circumference measurement to every patient visit for metabolic risk assessment, and were also given strategies for implementation. Commitment-to-change (CTC) forms were offered to all providers which included information about follow up and data collection.

During the study period, 69 primary care providers indicated that as a result of the study's educational interventions they would be willing to implement waist circumference measurements into their clinical practice. Twenty-three completed a CTC form. Only three participants implemented the change into practice. None provided measurable data. Barriers included staff education and compliance, lack of supportive practice resources, and difficulty changing the routine.

Findings indicate that the CTC form is not the best tool for facilitating practice changes and is best used for identifying behavior changes in the learning activity that can be translated into performance changes and measured using subjective data collection methods. To facilitate a change in practice that involves clinical operations, future educational and non-educational interventions should be systems-based and team-focused.

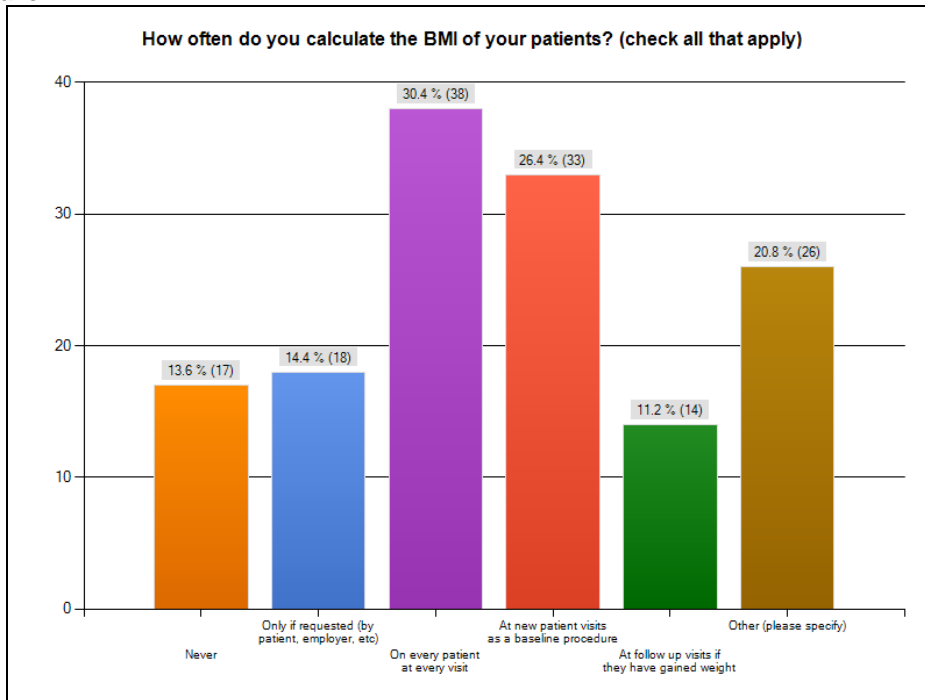
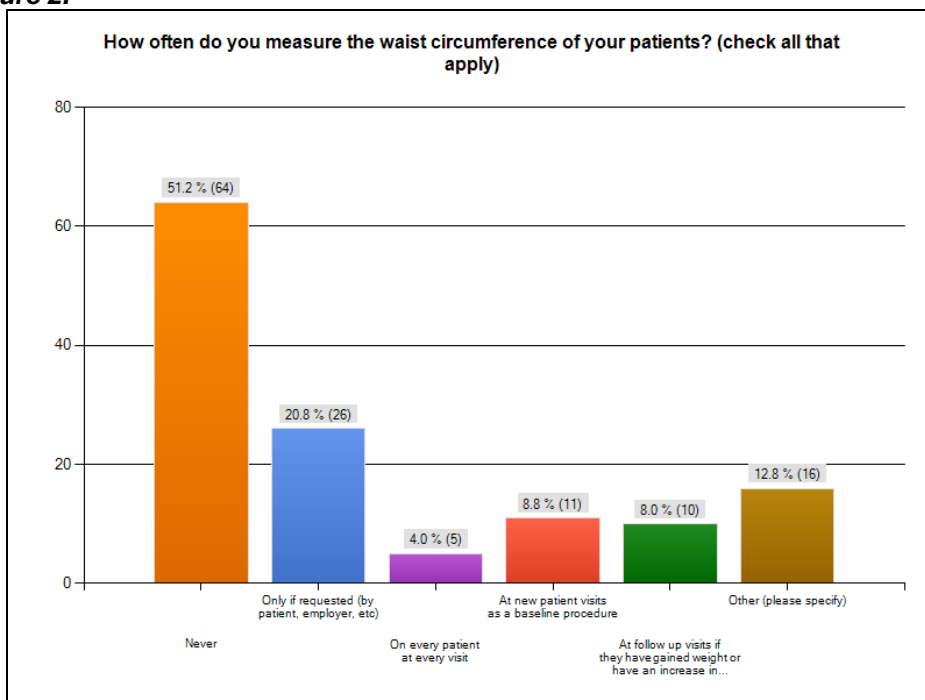
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South Carolina ranks 10th in the nation for diabetes prevalence and more than 66% of adults are either overweight or obese, having a body mass index (BMI) greater than 25 kg/m<sup>2</sup> (1). BMI is a clinically acceptable measure of a person's overall body fat but it does not indicate if the greater amount of fat is located at the belly. A high waist circumference is associated with an increased risk for type 2 diabetes, dyslipidemia, hypertension, and cardiovascular disease in patients with a BMI in a range between 25 and 34.9 kg/m<sup>2</sup> (2). Clinical guidelines and evidence-based research indicate that both BMI and waist circumference should be performed to effectively measure and manage metabolic risk (3, 4, 5, 6). Primary care physicians and healthcare providers in South Carolina do not routinely measure waist circumference for prevention of metabolic syndrome in their patients (7).

## METHODS

A web-based needs assessment survey was designed for the purpose of identifying the practice gap(s) of primary care providers in South Carolina related to measuring waist circumference of patients for assessing metabolic risk. Five hundred surveys were deployed with 127 responses, showing a 25% response rate. Thirty-two percent of responders were physicians.

Only 28% responded they “never” calculate BMI or calculate BMI “only if requested” (Fig. 1), whereas 72% responded they “never” measure waist circumference or measure “only if requested” (Fig. 2), indicating a practice gap.

**Figure 1.****Figure 2.**

When the 72% of responders who answered negatively to measuring waist circumference were asked “Why”, the results indicated gaps in:

- Knowledge (“not a critical part of decision-making process” “did not think it was necessary” “I already measure BMI”),
- Competence (“not sure how to measure” “I think it makes the patient uncomfortable”)
- Performance (“my practice is too busy to add this process” “it is a new routine and difficult to incorporate into daily practice” “lack of resources, I don’t have a tape in the office”).

Objectives for this project were to:

- 1) Integrate a practice-wide process to directly affect identification of metabolic risk.
- 2) Incorporate a simple strategy that begins in a traditional CME conference or non-educational method, involves systems based practice, provides outcome measures and results in improved patient health.

Primary care providers were informed of the importance of adding a waist circumference measurement to every patient visit for metabolic risk assessment.

Educational initiatives included:

- Oral presentations
- Web-based slide presentation
- Instructional, graphic diagrams
- Numerous handouts referencing evidence-based literature

Non-educational initiatives included:

- Table-top exhibit (displayed at five medical conferences)
- Patient information materials
- Tape measures and practice support tools
- Waist circumference resource web-site
- Incentives for project participation and data submission

Commitment-to-change (CTC) forms were used as a reinforcement tool for recalling the intention to make the change in practice (8). CTC forms were offered to all providers which included information about follow up and data collection (Appendix A, B).

Prior to dissemination the data collection forms, measurement logs, and chart reminders were evaluated for efficacy and ease of use by a primary care nurse and an administrator.

Participants were assessed based on:

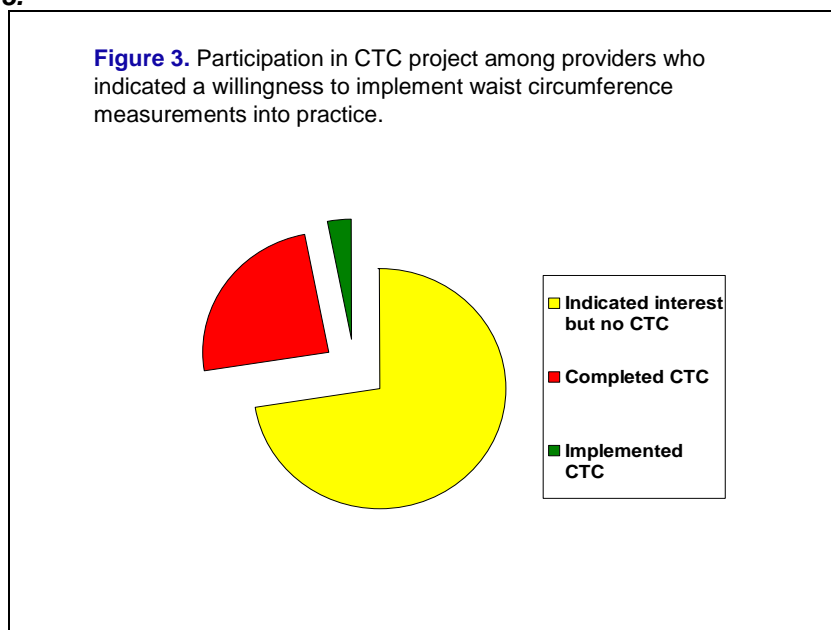
- Time from CTC completion to first contact.
- Time from CTC completion to receipt of educational support tools.
- Successful implementation of waist circumference measurement into practice.

## RESULTS

- During the study period, 69 healthcare providers (22 physicians) indicated that as a result of the study's educational interventions they would be willing to implement waist circumference measurements into their clinical practice. Twenty-three providers (7 physicians) completed a commitment to change form. (Fig 3).
- None of the support tools were utilized regardless of how soon they were received.

- Despite various incentives and multiple attempts to collect measurable data, only minimal subjective feedback was obtained.
- The expediency of initial contact between the study coordinators and the participants after the commitment-to-change (CTC) was irrelevant.
- Self-reported feedback of barriers to implementation included staff education and compliance, lack of supportive resources in the practice, and difficulty in making changes to the current practice routine.
- Two physicians and 1 nurse practitioner implemented the change into practice (Fig 3) and did so without incentives or other interventions from the study.

**Figure 3.**



#### WHAT DID WE LEARN?

- Using a CTC form in conjunction with traditional educational and non-educational interventions is not an effective strategy for achieving a systems-based change to improve patient health and collect measurable outcome data.

- To achieve a systems-based practice change, educational and non-educational interventions should have a systems-based design to meet the needs of all necessary members of the clinical practice team.
- In traditional educational and non-educational interventions, the CTC form may be most effective when used to identify behavior changes in the individual learner that can be translated into performance changes and measured using subjective data collection methods.

In addition, this project required that the measurement frequency was for every patient at every visit. This requirement may have been a barrier to some providers in participating in the project since some may feel that a baseline measurement is sufficient until other indicators, such as weight gain or increase in BMI, suggest a new waist measurement is taken (7). Also, some patients return to practice regularly for other clinical issues, such as monitoring blood pressure, and therefore taking a waist measurement at each visit would be unnecessary.

## SUMMARY

Expansion of this project will focus on systems-based, team-oriented educational and non-educational interventions and may include:

- practice-based academic detailing with introduction to newly developed enduring materials.
- use of medical student preceptorships in primary care practices to initiate the practice improvement project.



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doi: 10.1002/chp.20001



Office of Continuing Medical Education  
**"Commitment to Change"**

41<sup>st</sup> Annual OB/GYN Spring Symposium  
 March 22-24, 2010, Charleston, SC

Name: \_\_\_\_\_

Email address: \_\_\_\_\_

As a result of what I learned, I **commit to measuring waist circumference** of every patient at each visit to assess for metabolic risk. \_\_\_\_ YES \_\_\_\_ NO

If "no", please tell us why? \_\_\_\_\_

**Please print legibly** and return this form to the Conference Registration Desk. We will contact you soon by email to provide project support tools and again at three (3), six (6) and nine (9) months to request outcomes data from each three-month interval on:

- 1) Number of patient visits.
- 2) Number of waist circumference measurements taken
- 3) Number of waist circumference measurements a) between 35-39 inches and b) >40 inches.
- 4) Your feedback on any barriers (lack of weight management counseling skills, reimbursement issues, etc.) to implementing your proposed changes and the strategies you applied (or will apply) to overcome them successfully.

As a result of what I learned, I **commit to making the following changes** in my practice:

\_\_\_\_\_  
 \_\_\_\_\_

**Please print legibly** and return this form to the Conference Registration Desk. We will contact you soon by email to provide project support tools and again at three (3), six (6) and nine (9) months to request outcomes data from each three-month interval on:

- 1) Your feedback on any barriers (lack of weight management counseling skills, reimbursement issues, etc.) to implementing your proposed changes and the strategies you applied (or will apply) to overcome them successfully.

*Your answers to these questions will demonstrate the efficacy of this CME activity, as reflected in your successful application of new knowledge and skills to improve patient care in your practice.*



*To thank you for your commitment to change, your name will be entered into a drawing for **one free registration** to attend the 2011 42<sup>nd</sup> Annual OB/GYN Spring Symposium!*

# Waist CTC Form

Hello,

Thank you for completing our previous survey regarding waist circumference measurements for prevention of metabolic syndrome. You indicated that you would like to be contacted with additional information and support tools for adding waist circumference measurement to your practice. To help us tailor future communications to you regarding waist circumference, please answer a few short questions before being directed to educational resources and tools to help you get started with implementing waist circumference measurements into your practice.

If you have any questions concerning this effort, please contact the MUSC Office of CME toll free at 1-866-637-6835 and press option #1 or you can call directly at 1-843-876-1925.

Sincerely,

Robert Malcolm, MD  
Associate Dean  
MUSC Office of Continuing Medical Education

In patients with a BMI in a range between 25 and 34.5 kg/m<sup>2</sup> a waist circumference >35" in women and >40" in men is associated with a high risk for type 2 diabetes, dyslipidemia, hypertension, and CVD.

In obese patients with >35 BMI with metabolic complications, changes in waist circumference are useful predictors of changes in CVD risk factors.

Increased waist circumference can also be a marker for increased metabolic risk even in persons of normal weight and normal BMI (18.5- 24.9).

Adding waist circumference measurements to your practice is an important step in the prevention of metabolic disease among normal and overweight patients. It can also help in the prevention and management of obesity.

**\* 1. I commit to measuring waist circumference of every patient at each visit to assess for metabolic risk.**

☐ Yes

☐ No

The MUSC Office of CME would like to thank you for your commitment to changing your current practice to add waist circumference measurements on every patient for assessment of metabolic risk. Your email address has been entered into a drawing for a free registration to a 2011 MUSC CME Conference! The winner will be notified by email.

We would like to follow up with you in 8 weeks to collect information about how this implementation is going for you.

**2. May we contact you in 8 weeks to follow up on your progress?**

☐ yes

☐ no

## Waist CTC Form

**3. We would also like to collect some data in order to measure your successful implementation of waist circumference measurements into your practice. To accomplish this, we ask that you audit one (1) day's total charts PRIOR to starting the waist measures using a Daily Measurement form (which we will provide to you) to provide baseline data for your current practice. We will ask that you follow this same procedure in 8 weeks to provide follow up data on how your practice has changed by implementing the waist measurements. The form is simple and has been approved by a family practice nurse and an internal medicine practice administrator for ease of implementation.**

**To thank you for your time and effort at collecting and sharing this data with us, upon receipt of the 8-week data we will ship you a toolkit which includes the MUSC ART of Healthy Cooking cookbook, obesity-related educational materials and support tools to share with your staff and your patients, and a voucher for \$50 off a 2011 MUSC CME conference!**

**Will you agree to collect and share data on your successful implementation of waist circumference measurements?**

☐ Yes

☐ No

☐ Maybe

**4. At the end of this survey you will be redirected to our special website to access helpful educational resources and tools for implementing waist circumference measurements into practice.**

**Here you will also find the Daily Waist Measurement Tracking form for conducting the one-day chart audit. Please follow the instructions on the form for collecting and sharing the data. If you have questions our contact information is also located on the form.**

**So we may follow up with you directly, please provide the following information:**

Name	<input type="text"/>
E-mail	<input type="text"/>
Alt E-mail (nurse or assistant)	<input type="text"/>
I don't want to share this information (please type Yes)	<input type="text"/>

# Waist CTC Form

## 5. Do you use electronic medical records?

☐ Yes

☐ No

## 6. What is your area of practice?

## 7. You are a:

☐ MD/DO

☐ PA

☐ NP

☐ Other (please specify)

Thank you for completing this questionnaire. If you have any questions concerning this effort, please contact Tina Kehoe or Pamela Benjamin in the Office of CME toll free at 1-866-637-6835 and press option #1 or directly at 1-843-876-1925.