

UNC

Hypertension and Quality Improvement

Examples from our experiences

CQI-UNC and Wilmington Joint Initiative for Improving Care in Diabetes

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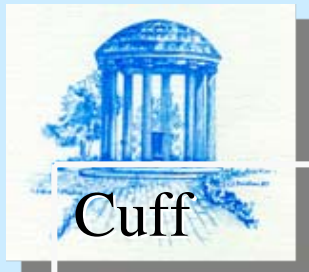
UNC



Hypertension Screening

- Blood pressure should be measured at every visit
- Patients found to have a systolic blood pressure ≥ 130 mmHg or diastolic blood pressure ≥ 80 mmHg should have blood pressure confirmed on a separate day
- Even one BP found to be above that should be considered hypertension

Measurement Accuracy



Cuff	Arm Circumference Range at Midpoint (cm)	Arm Circumference Range at Midpoint (inches)
Adult	27-34cm	Up to 13.38inches
Large Adult	35-44cm	13.7inches to 17.3 inches
Adult thigh cuff	45-52 cm	17.7inches to 20.4 inches

These guidelines are from a study in the journal, Circulation (1993;88:2460-2467), by Dorothee Perloff, MD; Carlene Grim, MSN, SpDN; John Flack, MD; Edward D. Frohlich, MD; Martha Hill, PhD, RN; Mary McDonald, MSPH, RN; and Bruce Z. Morgenstern, MD, Writing Group. (This table is adapted from <http://www.americanheart.org/presenter.jhtml?identifier=3000861>.)

***There is some overlapping of the recommended range for arm circumferences in order to limit the number of cuffs; the American Heart Association generally recommends that the larger cuff be used (if available) in borderline measurements.*



Proper Technique as recommended by JNC 7

- Sit quietly in a chair for 5 minutes
- Feet should be flat on the ground
- Arm should be resting a heart level
- Use proper fitting cuff (see measurements previous slide)
- Cuff should be deflated at a rate of 2-3 mmHg every second
- It should be repeated and the patient should be given written results with normal comparators



Continuous Quality Improvement

- CQI stresses removing “unintended variation”
- CQI looks at the processes and not at the people
- Current national blood pressure control rates are less than 50%. Some HMO studies have documented rates at <15% control

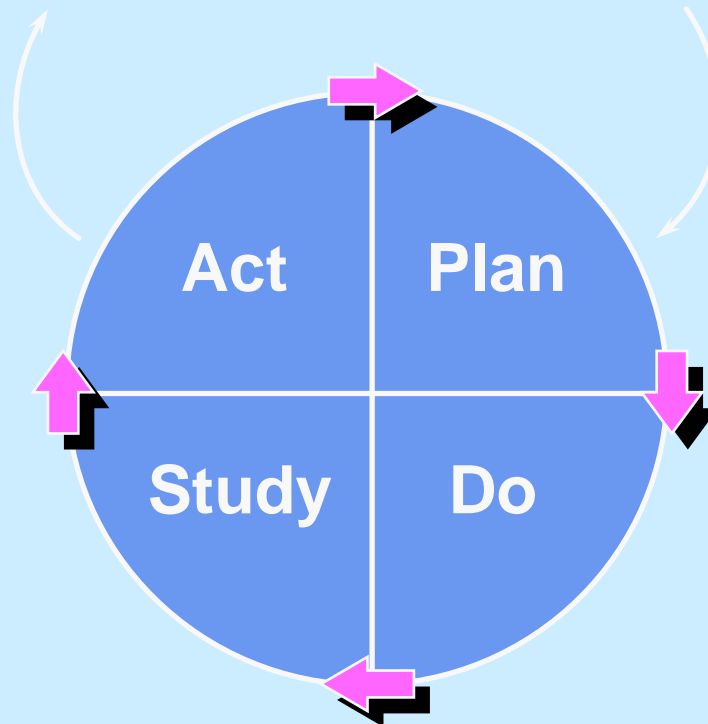


Model for Improvement

What are we trying to accomplish?

How will we know that a change is an improvement?

What change can we make that will result in improvement?





Changes...

- **Plan**

- What's your aim for this cycle?
- Predictions/Hypothesis
- Develop your plan to test the change: Who? What? When? Where?
- What will your measures be?

- **Do**

- Perform your test/change
- Collect data

- **Study:**

- Analyze your data (quantitative and qualitative).
- Did the results fit your predictions?
- Did you encounter problems?
- What did you learn?

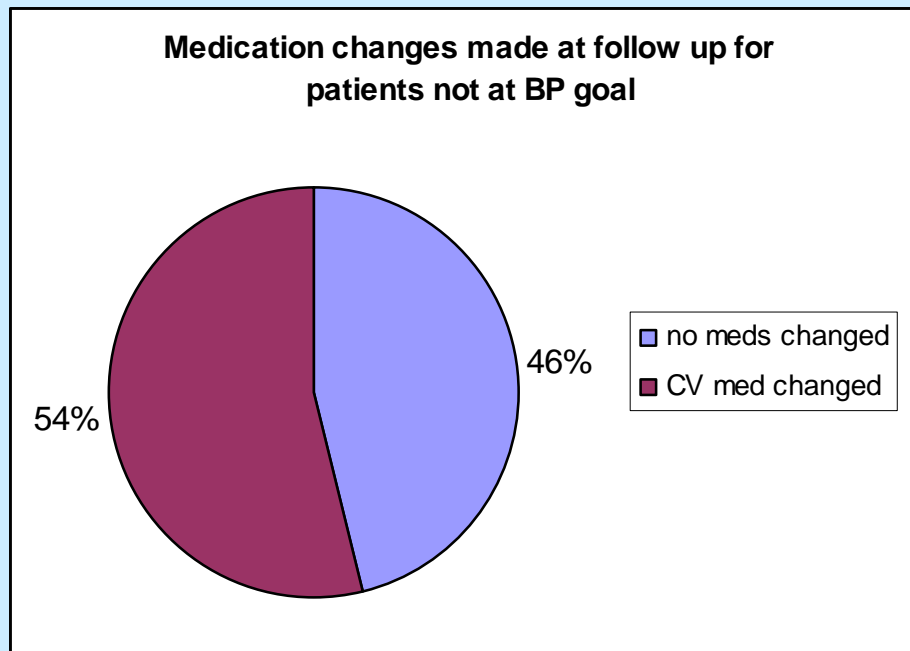
- **Act:**

- Should you expand size/scope of test or are you ready to implement the change?
- If not, what changes are needed for next PDSA cycle



UNC Residents HTN CQI Review (2006-2007)

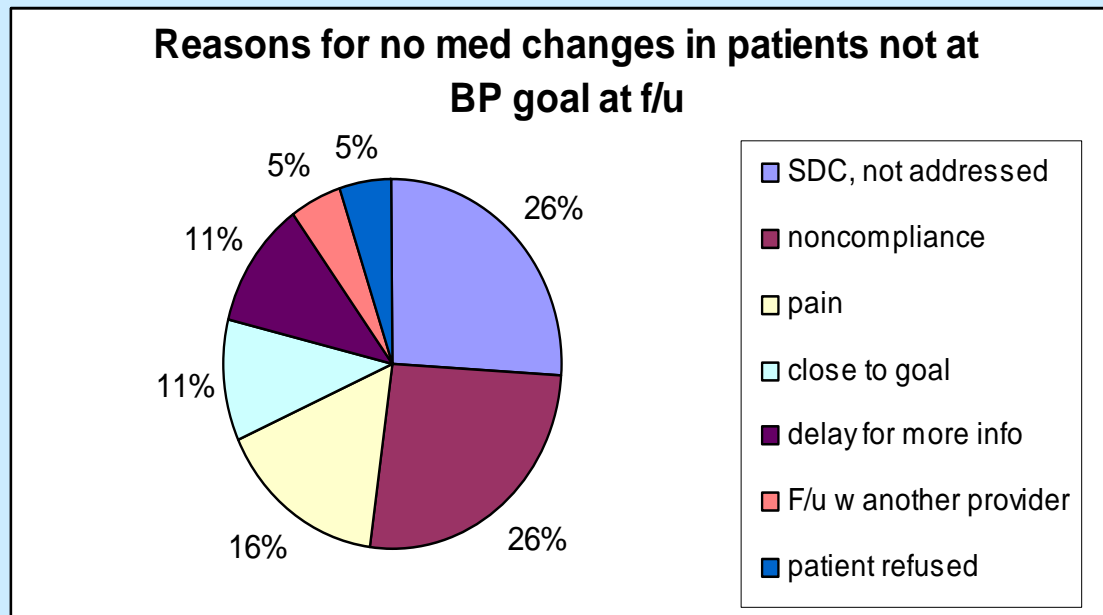
- 46% with blood pressure readings above goal at follow-up visits for HTN did not receive a medication intervention





Resident HTN CQI

- 26% of elevated BP not addressed were patients seen in our walk in clinic (SDC or same day clinic)





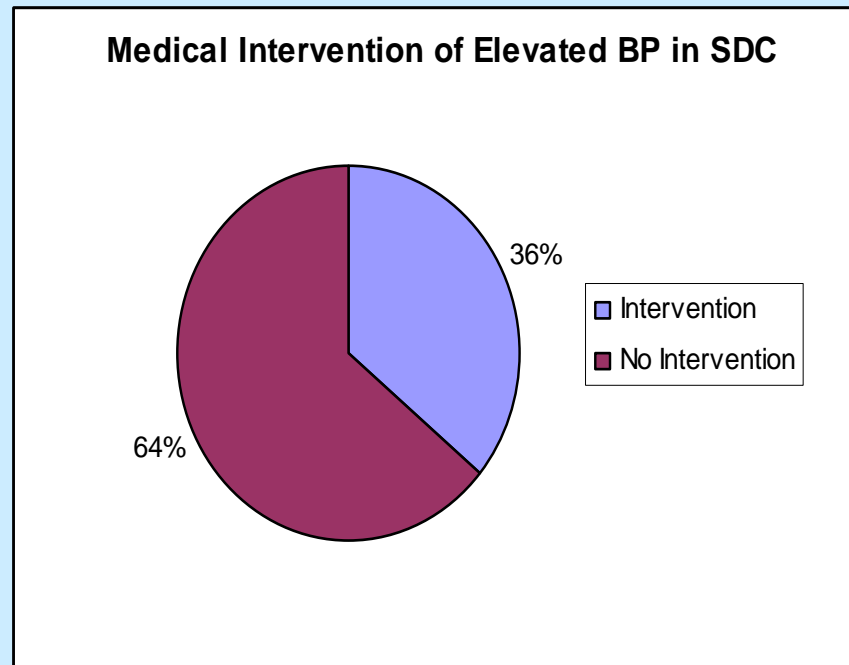
PLAN and DO: Chart Review

1. Was uncontrolled HTN, (SBP \geq 160 and/or DBP \geq 95) addressed at visit.
2. If BP medications were not titrated or added, did the physician cite a reason for not intervening to improve BP control?
3. Did the physician arrange appropriate follow-up if medication intervention was not made?



Study the results

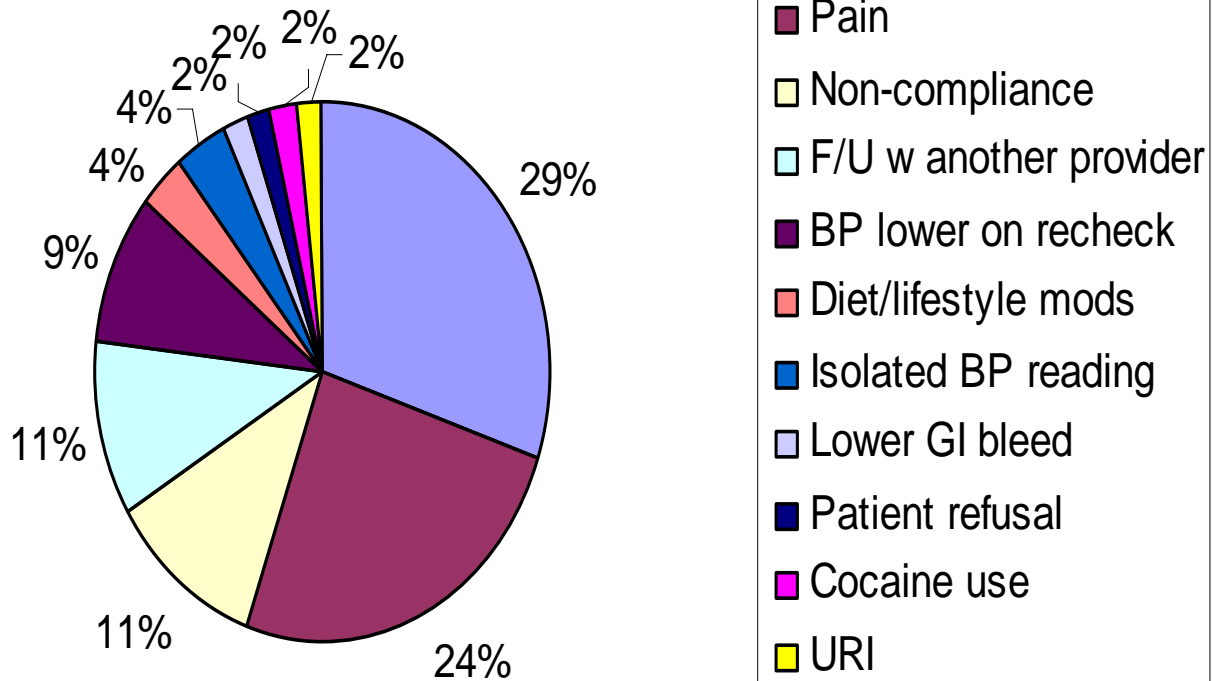
- 87 patients identified in SDC who had $SBP \geq 160$ and/or $DBP \geq 95$
- 33/87 addressed with intervention





Study the results

Reasons for no medical intervention of elevated blood pressure





Act

- How can we improve?
 - Have nurse inform MD if patient has BP >160/95
 - Educate residents that they should be addressing BP and provide an algorithm that will be posted in the workroom
 - Remeasure (Review charts to see if improvement in % of uncontrolled BP with interventions)

Applying to your practice....

Problem: Blood pressure control in diabetics



- Measure control rates in the practice (baseline)
- Look at rates of ACE or ARB use in the practice (baseline)
- Look at where blood pressures are checked and how blood pressures are checked (process)
- How do abnormal readings get communicated between doctors and nurses? (process)



Removing Variation: Measurement of BP

- JNC recommends using a manual sphygmomanometer
- What is used in your practice?
- Who checks the blood pressure?
- Where does the blood pressure get checked?
- Does the patient get five minutes to sit?
- Does the pulse/pain/problem get checked first?
- Is the arm elevated?
- Is there easy access to multiple sized cuffs and does the staff get regular retraining and do the machines get calibrated regularly?



Removing Variation: Treatment

- Are providers approaching treatment in similar way?
- Do you have protocols?
 - We have examples of algorithms we use



Intervention/ Acting on the information

- How to persuade the physician to act on the information?
 - It doesn't work when we rely on docs to “just do it”
- Should the nurses initiate the action by communicating an abnormal reading ($\geq 130/80$) to the physician and to the patient?
 - Flag, highlight, verbal
 - Customize to your practice
- How to encourage the patient to be a partner in the plan of treatment?
 - Written action plan? Empathy? Cheap and QD drugs?



Analyzing and Interpreting Data

- Measure
 - Nurse Flags
 - Physician Responses to abnormal BP
 - Patient Blood Pressure Control Rates
 - Percent of patients on ACE inhibitor or ARB or document exception
- Get feedback from all persons involved in PROCESS (front desk staff, patients, etc)



Analyze the Effect of the Intervention

- Did it work?
- Do you have better control rates?
- Do you have a higher percent of patients on ACE or ARBs?
- If not, were there processes that could be smoother?
- Talk to all participants in the process to look for easier ways of making it work and give feedback to all group members



Barriers to improvement... things that I have learned

- Don't be afraid to change!
- Listen to your nurses and front desk staff and each other
 - Some of our best changes came from our front desk staff
- Don't feel like you have to make a huge change
 - Test small first, then expand
 - Find a few docs and nurses willing to make changes, measure to see if effective, then spread to entire clinic
 - You cannot be sure a change will result in an improvement, in fact it may result in unintended consequences of making things worse!