

# An Efficiency Study of Automated Office Blood Pressure Measurements “AOBP”

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## Background

- Automated Office Blood Pressure (AOBP) is not used as standard protocol for an initially elevated clinic BP in the majority of primary care environments due to general lack of awareness of the procedure and the assumption that it negatively affects clinic flow.
- AOBP performed on patients alone in the exam room reduces white-coat BP elevation and thereby decreases the need for more labor-intensive and costly out-of-office BP measurement.
- At our university, hospital-based, primary care clinic affiliated with the University of Utah, AOBP has been consistently implemented since February 2016, and we believe AOBP procedures can be performed in less than the 8 minutes required to complete three observed BP measurements.

## Objectives

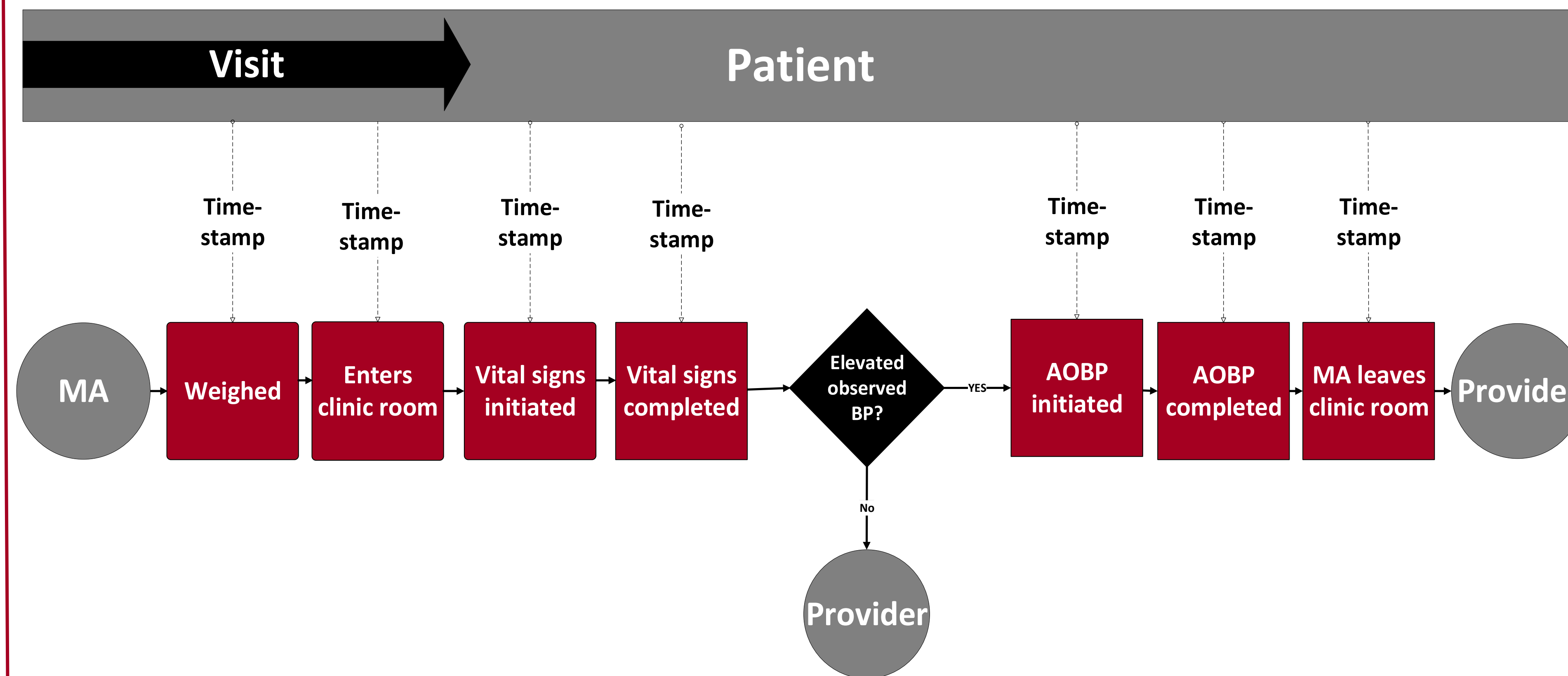
- To determine the time (in minutes) required for medical assistants (MAs) to initiate and complete AOBP measurements in a primary care setting.
- To observe MA activities during the performance of AOBP. No rest period was used for the AOBP measurements.

## Methods

- An official observer not previously known to the clinic staff collected time-stamp data on AOBP measurements performed by MAs during routine patient clinic visits to a university hospital-based primary care internal medicine clinic.
- Clinic MAs were not aware that AOBP time efficiency was the study focus. To maintain this subterfuge and mitigate Hawthorne effect, MAs were informed that the observer was completing a general time-flow study for the entire clinic visit.
- Time-stamps were collected at different points during the clinical visit (Figure 1).

## Methods (continued)

Figure 1. Time-stamp measures during routine clinical visit

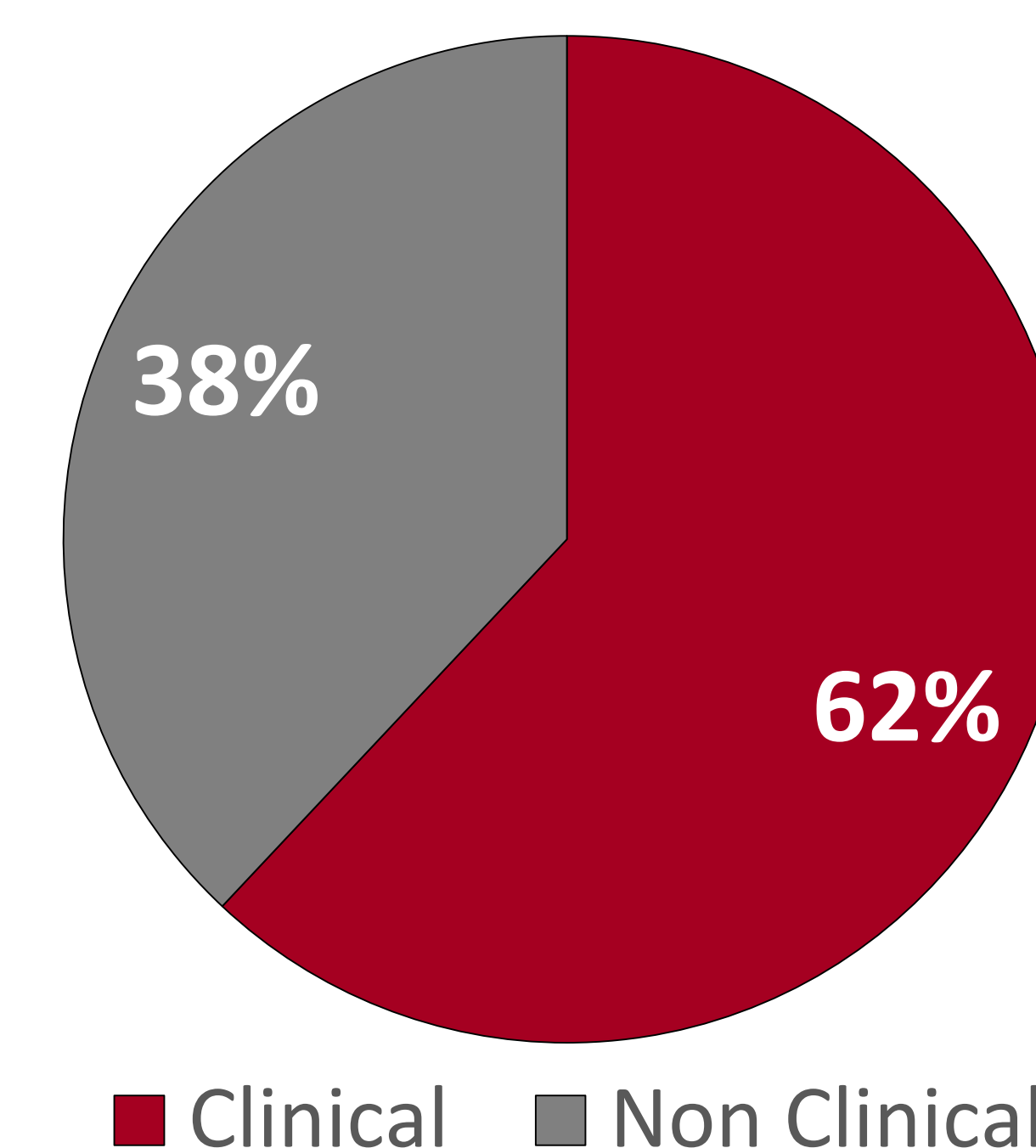


- MA activities during the AOBP procedure after leaving the room were also documented without MA awareness and dichotomized as “clinical” (i.e., performing usual clinic work) or “non-clinical” (i.e., non-clinic related conversation or computer activities).
- Each MA was observed until they had completed five AOBP procedures on patients with initially elevated observed BP.

## Results to Date

- Twenty-six patients were timed for AOBP procedures. Four MAs were observed, each performing five separate AOBP procedures. One MA was observed performing six AOBP procedures.
- AOBP performance averaged 3min and 42sec
- Range 2min and 38sec to 5min and 23sec

Figure 2. MAs activities during timed AOBP



## Discussion

- Our preliminary findings indicate that AOBP can be performed in less than 4 minutes, during which time MAs performed other important clinic duties.
- The current American Heart Association guidelines recommend taking two additional BP measurements at one-minute intervals and averaging the last two measurements to try to reduce white-coat BP elevation. Studies indicate that these measurements require 8-11 minutes to complete. Our results imply that AOBP would be more efficient, time wise, than the standard protocol.
- AOBP performed with the patient alone in the exam room could potentially enable the MA to have additional time to perform other clinic duties instead of measuring sequential BPs.

## Limitations

- Generalizability to other clinics is limited as observation was done at a single center setting with limited minority population.
- It is possible that MAs could have been aware of observation despite subterfuge efforts.
- Barriers to program implementation of AOBP included a temporary adjustment period for clinic staff to correctly use AOBP.

## Conclusions

AOBP time requirements compare favorably to the 8-11 minutes required to perform three guideline-quality observed BP measurements.

## Acknowledgments

This publication was in part supported by the Cooperative Agreement Number, 3U58DP004835, funded by the Centers for Disease Control and Prevention. Its contents are solely the responsibility of the authors and do not necessarily represent the official views of the Centers for Disease Control and Prevention or the Department of Health and Human Services. We express our gratitude to Dominick Ramirez, Shelbi Burgon, Kelsie Smith, Miriam Delgado, Jocelyn Jones, Medical Assistants, Maribel Cedillo, MS and our study participants.