

Evaluation of the Screening-to-Action Pathway Following Detection of Elevated Blood Pressure Among Adult Outpatient Attendees at Base Hospital Muthur, Sri Lanka: A Health Service Assessment

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Abstract—Opportunistic blood pressure screening in outpatient departments can identify patients who require further assessment, but the service benefit depends on whether abnormal findings lead to appropriate and documented clinical action. This descriptive cross-sectional health service assessment evaluated the blood pressure screening-to-action pathway among 136 adult attendees of the Outpatient Department of Base Hospital Muthur on a selected day in July 2026. Blood pressure was available for 135 participants. Elevated blood pressure was defined for screening analysis as systolic blood pressure ≥ 140 mmHg and/or diastolic blood pressure ≥ 90 mmHg and was not interpreted as a diagnosis of hypertension. Mean age was 41.8 ± 14.0 years and mean systolic/diastolic blood pressure was $130.5 \pm 21.8/75.4 \pm 12.7$ mmHg. Elevated blood pressure was identified in 38/135 participants (28.1%; 95% CI 21.2%–36.3%). The proportion increased from 12.3% among participants aged <40 years to 31.4% among those aged 40–59 years and 73.7% among those aged ≥ 60 years ($\chi^2=27.81$, $df=2$, $p<0.001$). Among participants with elevated blood pressure, 23/38 (60.5%; 95% CI 44.7%–74.4%) had a documented subsequent action, while 15/38 (39.5%) had no action documented in the available field. The findings demonstrate a potential detection-to-documentation/action gap and support standardization of repeat measurement, counselling, referral and follow-up documentation in the OPD.

Index Terms—blood pressure, outpatient department, screening, referral, quality of care, health services, medical administration, Sri Lanka.

I. INTRODUCTION

Hypertension is a major preventable contributor to cardiovascular morbidity and mortality. Global evidence demonstrates important gaps in awareness, treatment and control of hypertension, particularly in low- and middle-income settings [1]. Blood-pressure lowering is associated with substantial reductions in cardiovascular events and mortality [2]. These findings emphasize the value of identifying abnormal blood pressure and linking detection to appropriate clinical assessment and continuing care.

From a health-service perspective, a blood pressure reading is only the first step in a care pathway. The Chronic Care Model emphasizes organized delivery systems, decision support, clinical information systems and self-management support as components of effective long-term care [3]. Therefore, quality assessment of hypertension-related services should examine not only whether blood pressure is measured, but also whether abnormal results are

reassessed, documented, counselled, referred and followed up.

Outpatient departments provide an important opportunity for opportunistic screening because they encounter adults seeking care for a wide range of reasons. A screening programme, however, has limited service value if an abnormal finding is not translated into an appropriate action. In busy OPD settings, failures may occur at several points: repeat measurement may not be recorded, counselling may not be documented, referral may be unclear, or continuity of care may be lost after the patient leaves the OPD.

Base Hospital Muthur serves a diverse patient population in Trincomalee District. Evaluation of routine OPD screening information provided an opportunity to examine the pathway from blood pressure measurement to documented clinical action. The present assessment was therefore undertaken from a Medical Administration and service-quality perspective, with particular attention to the detection-to-action gap.

II. OBJECTIVES

The general objective was to evaluate the blood pressure screening-to-action pathway among adult patients attending the Outpatient Department of Base Hospital Muthur.

The specific objectives were to: (1) describe the demographic and blood pressure profile of adult OPD attendees; (2) determine the proportion with an elevated blood pressure screening result; (3) assess the distribution of elevated blood pressure according to age and sex; (4) determine the proportion of participants with elevated blood pressure who had a documented subsequent clinical action; and (5) identify potential gaps between detection and documented counselling, referral or follow-up.

III. METHODS

A. Study design and setting

A descriptive cross-sectional health service assessment was conducted at the Outpatient Department of Base Hospital Muthur, Trincomalee District, Sri Lanka.

B. Study period and participants

Data were collected on a selected day in July 2026. The study dataset contained 136 adult OPD attendee records selected through the study sampling process. One participant did not have a blood pressure value recorded; therefore, analyses involving blood pressure were based on 135 participants.

C. Data collected and operational definitions

The available dataset included age, sex, blood pressure, a combined field relating to known hypertension/comorbidity, and a field for referral, counselling or related clinical action. Direct personal identifiers were not used in the analysis or manuscript.

A valid blood pressure record contained both systolic and diastolic measurements. For the purpose of screening analysis, elevated blood pressure was defined as systolic blood pressure ≥ 140 mmHg and/or diastolic blood pressure ≥ 90 mmHg. This threshold was used to identify an abnormal

Table I: Characteristics of adult OPD attendees

Characteristic	Result
Total participants	136
Age, mean $\pm$ SD (years)	41.8 $\pm$ 14.0
Female	79 (58.1%)
Male	56 (41.2%)
Sex not recorded	1 (0.7%)
Blood pressure measurement available	135 (99.3%)

Among the 135 participants with a valid blood pressure measurement, mean systolic blood pressure was 130.5 ± 21.8 mmHg and mean diastolic blood pressure was 75.4 ± 12.7 mmHg. Elevated blood pressure was identified in 38

Table II: Blood pressure screening findings

Measure	Result
Valid blood pressure records	135
Mean systolic BP, mmHg	130.5 $\pm$ 21.8
Mean diastolic BP, mmHg	75.4 $\pm$ 12.7
BP below 140/90 mmHg	97 (71.9%)
Elevated BP (SBP ≥ 140 and/or DBP ≥ 90 mmHg)	38 (28.1%)

screening result and was not interpreted as a definitive diagnosis of hypertension from a single encounter. Markedly elevated blood pressure was defined descriptively as systolic blood pressure ≥ 160 mmHg and/or diastolic blood pressure ≥ 100 mmHg.

A documented action was defined as any recorded counselling or advice, clinic or other referral, repeat blood pressure assessment, provision of a blood pressure monitoring chart, admission, or another stated follow-up action. A blank action field was classified only as 'no action documented'. It was not assumed that no clinical action had occurred.

D. Statistical analysis

Continuous variables were summarized using mean, standard deviation, median and range as appropriate. Categorical variables were summarized using frequencies and percentages. Wilson 95% confidence intervals were calculated for key proportions. Association between age group and elevated blood pressure was assessed using the chi-square test. Fisher's exact test was used to compare elevated blood pressure by sex because of the sample distribution. A two-sided p-value < 0.05 was considered statistically significant.

E. Administrative and ethical considerations

Formal ethical review was not obtained for this study. Administrative clearance was obtained from Base Hospital Muthur before data collection. Written informed consent was obtained from participants. Data were handled confidentially, and the analytical dataset used for reporting was anonymized.

IV. RESULTS

A total of 136 adult OPD attendees were included. Mean age was 41.8 ± 14.0 years. There were 79 females (58.1%), 56 males (41.2%) and one participant (0.7%) with sex not recorded. Blood pressure was available for 135 participants (99.3%).

participants (28.1%; 95% CI 21.2%–36.3%). Sixteen participants (11.9% of valid BP records) had markedly elevated blood pressure.

Markedly elevated BP (SBP ≥ 160 and/or DBP ≥ 100 mmHg)	16 (11.9%)
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Elevated blood pressure increased substantially with age. It was found in 8 of 65 participants aged <40 years (12.3%), 16 of 51 participants aged 40–59 years (31.4%), and 14 of 19

participants aged ≥ 60 years (73.7%). The association between age group and elevated blood pressure was statistically significant ($\chi^2=27.81$, $df=2$, $p<0.001$).

Table III: Elevated blood pressure according to age group

Age group	Valid BP, n	Elevated BP, n (%)	BP <140/90, n (%)
<40 years	65	8 (12.3%)	57 (87.7%)
40–59 years	51	16 (31.4%)	35 (68.6%)
≥60 years	19	14 (73.7%)	5 (26.3%)

Among participants with both sex and blood pressure recorded, elevated blood pressure was identified in 21 of 79 females (26.6%) and 17 of 55 males (30.9%). There was no

statistically significant association between sex and elevated blood pressure (Fisher's exact $p=0.697$).

Table IV: Elevated blood pressure according to sex

Sex	Valid BP, n	Elevated BP, n (%)
Female	79	21 (26.6%)
Male	55	17 (30.9%)

Of the 38 participants with elevated blood pressure, 23 (60.5%; 95% CI 44.7%–74.4%) had a documented subsequent action. Fifteen participants (39.5%) had no action

documented in the available field. This represents a potential documentation or service-action gap following detection of an elevated screening result.

Table V: Screening-to-action performance among participants with elevated blood pressure

Indicator	n (%)
Elevated BP detected	38 (100.0%)
Documented action after elevated BP	23 (60.5%)
No action documented after elevated BP	15 (39.5%)
Markedly elevated BP	16 (42.1% of elevated BP cases)

V. DISCUSSION

The present assessment found very high completeness of blood pressure documentation within the assessed OPD dataset, with measurements available for 99.3% of participants. More than one-quarter of participants with valid measurements had an elevated blood pressure screening result. This is clinically and administratively relevant because the OPD may provide an opportunity to identify patients who would otherwise remain unrecognized until a later encounter.

The most striking pattern was the increase in elevated blood pressure with age. The proportion rose from 12.3% among participants younger than 40 years to 31.4% among those aged 40–59 years and 73.7% among participants aged 60 years or older. The association was statistically significant. This finding does not represent community prevalence because the sample was hospital-based and collected on a selected day; nevertheless, it supports particular attention to reliable blood pressure assessment and follow-up among older OPD attendees.

The main Medical Administration finding concerns what happened after an elevated reading was identified. A documented subsequent action was present in 60.5% of elevated-BP cases, whereas 39.5% had no action recorded in the available field. The latter should not be interpreted automatically as failure to provide care. Counselling, repeat measurement or referral may have occurred without being recorded. However, incomplete documentation is itself a service-quality problem because it weakens continuity of care, auditability and communication between providers.

A screening-to-action pathway is therefore more useful as a quality indicator than screening coverage alone. A standardized pathway could specify repeat measurement,

recognition of markedly elevated values, clinical assessment where indicated, patient counselling, referral destination, and documentation of the planned follow-up. The Chronic Care Model supports organized systems and information processes for long-term disease management [3]. WHO guidance similarly emphasizes structured treatment and follow-up once hypertension is appropriately diagnosed [4].

The absence of a significant sex difference in this small sample should also be interpreted cautiously. The study was not powered primarily to compare male and female subgroups. The age pattern and the documented-action gap are more directly useful for local service improvement than subgroup comparisons.

VI. ADMINISTRATIVE IMPLICATIONS AND RECOMMENDATIONS

The findings suggest that Base Hospital Muthur can build on the high level of blood pressure documentation by strengthening the next steps in the pathway. First, a simple OPD algorithm should specify when an elevated reading requires repeat measurement, further assessment, urgent escalation or routine follow-up. Second, the OPD record should include a standardized field for repeat blood pressure, counselling, referral destination and planned follow-up. Third, staff orientation should emphasize that documenting the action is part of patient safety and continuity of care. Finally, a repeat audit after implementation would allow the hospital to compare the documented-action rate with the current baseline of 60.5%.

VII. LIMITATIONS

This assessment has several limitations. It was conducted in a single hospital and was based on 136 attendees from a selected day in July 2026; therefore, the findings may not represent variations across different days, weeks, seasons or

patient populations. A single elevated blood pressure measurement cannot establish a diagnosis of hypertension. One participant did not have a blood pressure value recorded. The combined known-hypertension/comorbidity field contained heterogeneous information and was therefore not used for definitive analysis of previously diagnosed hypertension. In addition, the action field may under-record care that was actually provided but not documented. The results should consequently be interpreted primarily as a health-service and documentation assessment rather than as a prevalence study.

VIII. CONCLUSION

Blood pressure was documented for almost all adult OPD attendees in the assessed dataset. Elevated blood pressure was identified in 28.1% of participants with valid measurements and was substantially more frequent among older attendees. Among participants with elevated blood pressure, 60.5% had a documented subsequent action, while 39.5% had no action recorded in the available field. These findings identify a potentially important detection-to-documentation/action gap. Standardizing repeat measurement, counselling, referral and follow-up documentation may strengthen continuity, accountability and quality of outpatient care at Base Hospital Muthur.

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DECLARATIONS

Administrative clearance: Obtained from Base Hospital Muthur before data collection.

Ethical review: Formal ethical review was not obtained.

Informed consent: Written informed consent was obtained from participants.

Confidentiality: Data were handled confidentially and the analytical dataset used for reporting was anonymized.

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