Evaluating BP Outcomes among Hypertensive Clients Diagnosed by Private Clinics in Vietnam

Introduction

Hypertension is a significant contributor to cardiovascular disease (CVD)-related morbidity and mortality in Vietnam. Heart disease and stroke account for 28.7% of all deaths in Vietnam. Among Vietnamese adults aged 40 and older, 37% of men and 26% of women have elevated blood pressure (BP) or are currently taking medication for hypertension. Today, hypertension remains largely underdiagnosed in Vietnam, contributing to the country’s high CVD burden. An estimated 39% of people with hypertension are unaware of their status, and 79% of adults aged 30-69 years with elevated BP are not using medication.

Between 2015 and 2025, Vietnam’s National Non-Communicable Disease Program within the Ministry of Health aims to: reduce national hypertension prevalence to less than 30%; ensure 50% of cases are detected; and ensure 50% of those diagnosed are managed in accordance with National Guidelines.

Since 2012, PSI/Vietnam (PSI) has used social marketing and social franchising techniques to increase private sector contributions towards early detection and effective management of hypertension. In 2017, with support from the Healthy Communities project, PSI evaluated BP outcomes among a cohort of 326 adult clients recently diagnosed with hypertension by private clinics affiliated with PSI in Dong Nai and Thai Nguyen provinces. Providers at these clinics had participated in PSI’s provider behavior change initiative. This included attending a one-day participatory training, receiving practical job aides to help them comply with national CVD/hypertension guidelines, and receiving at least one onsite quality improvement (QI) audit to evaluate their clinical skills.

Study Objectives

PSI designed a BP Evaluation Study to document BP levels and retention in treatment among approximately 300 clients diagnosed with hypertension at private clinics trained by PSI. The evaluation was specifically designed to monitor the following key outcome indicators:

- Percent of clients diagnosed and treated at PSI-trained private clinics who have controlled BP levels (Systolic BP <140/ Diastolic BP <90) six months following their hypertension diagnosis.
- Percent of clients who returned to the clinic for management of hypertension at six months following their initial diagnosis.
Methodology

Sampling & Enrollment
PSI selected 25 private clinics (15 in Dong Nai and 10 in Thai Nguyen provinces) from the 87 clinics engaged in the Healthy Communities project as of February 2017. These clinics are staffed by a single provider trained and monitored by PSI. Only clinics reporting 20 or more new hypertension cases diagnosed each month were eligible to participate in the study. PSI’s QI Officers—who visit trained private clinics quarterly to conduct QI audits and provide additional onsite coaching—explained to private clinic providers how to select clients to participate in the study based on PSI’s eligibility criteria. To be included in the study, clients needed to be recently diagnosed for hypertension; 40 years of age or older; categorized as low-income status (individual monthly income <6 million VND); and providing consent to participate.

The study was designed with the aim of enrolling 340 clients, assuming a possible 20% client drop-out rate. By August 2017, providers at the 25 participating clinics had successfully enrolled 326 clients. The original goal of enrolling 340 clients was not met due to time constraints, as data needed to be collected and analyzed prior to the end of the first phase of the Healthy Communities project in June 2018.

Measurement and Data Collection
Data collection began in July 2017 following ethical approval by the Hanoi School of Public Health. Upon enrollment, client information and baseline BP levels were documented by private providers at participating clinics. Using a client enrollment form provided by PSI, providers asked clients to return to the clinic at three- and six-month intervals. BP levels were subsequently collected at 3 and 6 months, following enrollment when clients came in to receive additional treatment adherence and lifestyle counseling, as indicated.

PSI supplied each provider with phone credits worth 300,000 VND ($13 USD) to call participants and encourage treatment adherence. For participants that were not reached by phone, a SMS reminder of their scheduled follow-up visit was sent. Participating clients received a 200,000 VND ($9 USD) cell phone credit at the three-month visit and a personal activity tracker device at six-months. Private providers participating in the study received a wall clock with the “Numbers that Matter” campaign logo to reinforce the importance of regular BP measurement for all clients seen at the clinic. PSI encouraged participating providers to adhere to hypertension diagnosis and treatment guidelines and study data collection requirements using telephone follow-up as well as the two onsite QI audit visits. PSI’s QI audit checklist is designed to assess provider compliance with hypertension management, conducting phone calls to clients encouraging treatment adherence, service quality, use and display of PSI materials, and record keeping using simulated client cases, direct observation and immediate feedback for providers.

Data Analysis
PSI’s Research Team analyzed the following BP outcome data collected from clients: 1) the number of clients enrolled; 2) the proportion of enrolled clients who were lost to follow-up at both three- and six-month points; and 3) the proportion of clients with hypertension controlled and those not controlled at three- and six-month visits. For clients who did not return for their six-month visit, only baseline and three-month measurements were analyzed. Additionally, categorical outcomes (i.e., BP controlled vs. BP
uncontrolled) were evaluated using the McNemar non-parametric test and were further stratified by urban/rural distinction, age, gender and number of CVD risk factors. QI audit scores for each provider were analyzed over time as provincial averages and by assessment area to determine whether compliance with hypertension management quality standards changed during the BP study period.

**Key Findings**

Out of 326 enrolled clients, 256 (82%) were retained throughout the study and returned for six-month BP measurements and care. Among the 256 clients diagnosed and retained in care six months following diagnosis, 32% had their BP controlled by the three-month visit and 75% had their BP controlled by the six-month visit. At three months post-diagnosis, no client’s BP was categorized as Stage 3 hypertension; 6% were Stage 2 and 63% were Stage 1. At six months, 25% of the clients who had not had their BP levels controlled had BP at Stage 1 levels. As summarized in Table 1, this represents a 100% reduction in the relative risk of both Stage 2 and Stage 3 hypertension after six months of hypertension care by a private provider affiliated with PSI.

While the average QI audit score at the end of the study was the same among providers assessed in both provinces (92%), the baseline QI audit scores were different and therefore relative improvement differed between the two provinces. Providers in Dong Nai improved compliance with key quality standards by 21 percentage points, from 70% to 91% average QI audit scores. Providers in Thai Nguyen improved compliance by only 10 percentage points during the study period, from 81% to 91%. Key areas that improved between the two rounds of QI audits were BP measurement procedures, medication prescription and counseling on treatment adherence as shown in Graph 1.

### Table 1. Blood Pressure Levels at 3- and 6- Month Follow Up Visits

<table>
<thead>
<tr>
<th>BP Levels (mmHg)</th>
<th>Baseline (326 Clients)</th>
<th>3M (256 Clients)</th>
<th>6M (256 Clients)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal</td>
<td>0</td>
<td>81 (32%)</td>
<td>192 (75%)</td>
</tr>
<tr>
<td>(Systolic &lt;140 or Diastolic &lt; 90)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stage 1</td>
<td>163 (64%)</td>
<td>160 (63%)</td>
<td>64 (25%)</td>
</tr>
<tr>
<td>(Systolic140-159 or Diastolic 90-99)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stage 2</td>
<td>71 (28%)</td>
<td>15 (6%)</td>
<td>0</td>
</tr>
<tr>
<td>(Systolic160-179 or Diastolic 100-109)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stage 3</td>
<td>22 (9%)</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>(Systolic &gt;180 or Diastolic &gt; 120)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

BP control results were higher in Dong Nai province where 93% of clients enrolled and retained at six months had BP controlled, whereas in Thai Nguyen, 46% of clients had BP controlled. Clients enrolled in the study in Thai Nguyen were more likely to have multiple CVD risks (94% had two or more) compared to clients enrolled in Dong Nai (61%). As summarized in Table 2, self-reported treatment adherence was also higher among clients enrolled and retained in Dong Nai (85%) compared to clients in Thai Nguyen (56%).

### Table 2. Self-Reported Treatment Adherence Among Retained Clients

<table>
<thead>
<tr>
<th>% Client response to the question “Do you sometimes forget to take your BP medication?”</th>
<th>Dong Nai (157 clients)</th>
<th>Thai Nguyen (99 clients)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>23 (15%)</td>
<td>44 (44%)</td>
</tr>
<tr>
<td>No</td>
<td>134 (85%)</td>
<td>55 (56%)</td>
</tr>
</tbody>
</table>

### Graph 1. Quality Improvement Audit Scores among Participating Clinics by Component
Conclusions

This evaluation highlights the potential for private clinic providers at the primary level to contribute to national hypertension program goals by effectively managing hypertension among their clients. Private providers who received PSI training, job aides and post-training QI audits were found complying with 91% of hypertension quality and reporting standards at the conclusion of the study, and in Dong Nai province, providers improved QI audit scores by 21 percentage points between the two audits. Eighty-two percent of all clients diagnosed and enrolled in the study by private clinics were retained in care six months post-diagnosis. Of these, 75% had BP levels below 140/90, the WHO threshold for normal BP levels. A limitation of this study was the absence of a control group to compare health outcomes. Nevertheless, these are promising results relative to global standards – only 25% to 40% of patients with hypertension who receive anti-hypertensive drug treatment manage to attain desired BP levels. In addition, there was an observed positive correlation between provider QI scores and client BP outcomes. The province where providers improved the most in QI audit scores during the study period is the same province where clients diagnosed and retained in care were most likely to have BP levels controlled six months post-diagnosis. These results support additional investment in engaging private clinics to improve access to quality hypertension management care among low-income and underserved communities in Vietnam. Participatory training, provider job aides and post-training onsite coaching can improve provider compliance with quality standards and reduce client hypertension and CVD risks. In addition to provider inputs, modest, non-monetary incentives for clients (e.g., cell phone ‘top up’ credit, personal activity tracker device, etc.) may improve retention in care and treatment adherence among hypertensive clients.

Next Steps

- Disseminate and publish BP evaluation results.
- Analyze, document and disseminate qualitative insights from in-depth interviews with study clients to inform and develop social and behavior change campaign (SBCC) messages and additional provider behavior change tools to improve treatment adherence among clients with hypertension.
- Collaborate with Vietnam’s Ministry of Health, the National Heart Institute, and other various stakeholders to make PSI’s hypertension provider behavior change tool kit accessible for use in public as well as private sectors of Vietnam.

References


About PSI

PSI makes it easier for people in the developing world to lead healthier lives and plan families they desire by marketing affordable products and services. In Vietnam, PSI has increased private sector contributions to numerous health issues since 2005 including hypertension, malaria, reproductive health, water/sanitation/hygiene (WASH), tuberculosis, nutrition and HIV/AIDS.

About Healthy Communities

PSI has partnered with biopharmaceutical company Pfizer Inc. to develop Healthy Communities, a US $1.75 million collaboration to help reduce the barriers that limit hypertension detection, screening, and treatment adherence in Vietnam and Myanmar since February 2017. The partnership aims to incubate sustainable and scalable treatment models and understand how best to support patients and providers.

Acknowledgements (PSI unless otherwise noted)

Authors
Nguyen Quoc Tuan
Josselyn Neukom
Lia Fleming
Dr. Tran Quoc Bao (MoH)

Research Team
Nguyen Quoc Tuan
Ngo Quy Tung
Tang Viet Luu

Reviewers
Cat Normile
Dr. Heather White
Dr. Parmjot Bains (Pfizer)

Suggested citation:

For more information please contact:
Population Services International in Vietnam
11th Floor, VINAFOR Building
127 Lo Duc Street, Hanoi
Phone: +84-24-39446326 | Email: psi@psi.org.vn