

Improving cardiovascular health in primary care in Saint Lucia through the HEARTS Initiative

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ABSTRACT

Objective. To improve blood pressure control and hypertension registry coverage at six demonstration sites in St Lucia.

Methods. From January 2020 to December 2021, St Lucia's Ministry of Health, with support of the Pan American Health Organization, implemented the HEARTS Technical Package in six primary health care facilities with six-monthly monitoring of blood pressure control and hypertension registry coverage. The modules included healthy-lifestyle counselling, evidence-based treatment protocols, access to essential medicines and technology, risk-based cardiovascular management, team-based care and systems for monitoring.

Results. Levels of blood pressure control at 6, 12, 18 and 24-months after the intervention were 37.1%, 28.9%, 33.9% and 36.5% respectively. Hypertension registry coverage increased by 17.8% (1 434 to 1 689) for patients accessing service. Implementing the monitoring for action initiative 12 to 15 months after the start of the intervention resulted in policy and operational changes, improved documentation, and provided accurate and reliable data.

Conclusions. The HEARTS initiative unearthed basic infrastructural challenges in blood pressure control. The essential elements for success were (1) buy in at all levels of the health sector; (2) addressing policy and operational changes; (3) accurate documentation and required analysis; (4) standardization of equipment and procedures and (5) regular monitoring and evaluation. Capacity building underpinned all changes.

Keywords

Hypertension; clinical protocols; arterial pressure; primary health care; Saint Lucia.

In Saint Lucia, cardiovascular disease (CVD) remains the primary cause of death accounting for 33.3% of total mortality (1). The prevalence of raised blood pressure defined as systolic blood pressure (SBP) of ≥ 140 mmHg and/or diastolic blood pressure (DBP) of ≥ 90 mmHg, in adults less than 70 years, is estimated to be 39.4% (2). Due to the asymptomatic and chronic nature of this condition, appropriate management remains difficult. Despite free access to medical visits in the public primary care clinics and subsidized drugs, hypertension control is suboptimal. Data from the national STEPS 2019 Behaviour

Risk Factor Survey conducted in a representative sample of Saint Lucians aged 18-69 years indicated that only 14.1% of respondents who were diagnosed with hypertension and taking therapy were controlled (2). The survey revealed that 50.4% of respondents are currently taking drugs for raised blood pressure among those diagnosed. In the survey, 5.3% (n=2964), had a history of cardiovascular disease (2).

The common risk factors that contribute significantly to poor cardiovascular health include levels of untreated high blood pressure, uncontrolled diabetes mellitus and elevated

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cholesterol levels. However, hypertension remains as the leading cause of cardiovascular disease and cause of premature death worldwide (3).

Hypertension control remains a global challenge with only 1 in 5 adults with hypertension being controlled (4). Canada has attained remarkable hypertension control rates (13% in the 1980s to 68% in 2013) through effective hypertension control initiatives (5). Similarly, the Standardized Hypertension Treatment and Prevention (SHTP) Project implemented in two polyclinics in Barbados in 2013 reported increased control rates of 14.5% within 18 months (6). Implementing the HEARTS Technical package has led to improved blood pressure control rates in countries (7).

To alleviate the morbidity and mortality associated with cardiovascular diseases and their risk factors, the Ministry of Health in collaboration with the Pan American Health Organization/World Health Organization (PAHO/WHO), implemented the HEARTS Technical Package in six primary care clinics in January 2020. The Package, derived from the SHTP, is a component of the Global HEARTS Initiative and aims to strengthen the treatment and control of hypertension with subsequent cardiovascular disease risk reduction and improved cardiovascular health (7).

HEARTS is not being implemented as a stand-alone programme but provides a structured framework for the improvement of the health care system through its various modules. Implementation commenced at demonstration sites with an anticipated horizontal scale up over the next four years. During implementation, emphasis has also been placed on identifying factors which support or hinder full implementation. The HEARTS Technical Package is being implemented in phases with each phase informing the implementation of the next phase.

This study reports on the implementation of the HEARTS Technical Package in Primary Care to improve cardiovascular health (increased blood pressure control and hypertension registry coverage) on the island of Saint Lucia.

METHODS

Prior to implementation, steering and technical committees were set up to ensure adequate oversight, monitoring and evaluation. Six demonstration sites were selected. In March 2019, a situational analysis to inform the readiness for implementation was conducted based on the framework of monitoring and evaluation recommended by PAHO/WHO. An implementation plan informed by the situational analysis was developed, and this guided the functioning of the oversight committee. The national standardized acceptable treatment protocol was defined. Amlodipine 5 mg and losartan 50 mg commenced as first line; the dosage was doubled as second line. Chlorthalidone 12.5 mg was added as third line and the dosage doubled as fourth line. If above target, the patient was referred to the next level of care. Baseline data on blood pressure control and hypertension registry coverage were collected in a quick and efficient manner.

The Ministry of Health, with support from PAHO/WHO, held an official launch in October 2019. Blended modular based training was done to increase reach and ensure standardization of practice. This included a face-to-face training and enrollment on the "Virtual Course on the implementation of the HEARTS

Technical Package in Primary Health Care." 42 out of 63 (67%) health care workers from the six demonstration sites enrolled in the virtual course. The virtual course included all six modules in its training material (healthy lifestyle counselling, evidence-based treatment protocols, access to essential medicines and technology, risk-based cardiovascular management, team-based care and systems for monitoring).

The face-to-face training, held for health care professionals island-wide, was attended by 64 health care workers. It included four of the modules in the HEARTS Technical Package (healthy-lifestyle counselling, evidence-based treatment protocols, risk-based cardiovascular management, and team-based care). Emphasis was also placed on the implementation of the national acceptable treatment protocol and taking accurate blood pressure measurements. The acceptable treatment protocol developed and utilized was in alignment with the World Health Organization (WHO) hypertension pharmacological treatment guidelines (8). The health care workers trained in both the face-to face and virtual trainings included primary care physicians, public health nurse supervisors, nurse practitioners and registered nurses, health educators, pharmacists, systems analysts and community health aides.

In January 2020, with the completion of the initial training activities the Ministry of Health commenced the implementation of all six modules in the HEARTS Technical Package through targeted interventions at the six public primary health care facilities, selected arbitrarily (Babonneau WC, Bellevue WC, Ciceron WC, Grand Riviere WC, La Croix WC and Richfond WC). These facilities provide primary health care services for an estimated 33 423 people. The interventions were as follows: adaptation of PAHO/WHO chronic disease passports to healthy lifestyle passports, utilization of the national standardized acceptable treatment protocol, cardiovascular-risk assessment, ensuring adequate physical infrastructure to support accurate recording of blood pressure, and establishment of recall mechanisms through a tracking tool. Some of the policies and operational changes supporting implementation of the interventions were: revitalization of the Community Outreach Programme, use of validated automated machines, weekly blood pressure measurement audits, and update of existing registries.

The proportion of registered patients with controlled blood pressure (SBP < 140 mmHg and DBP < 90 mmHg) within each six-month period, commencing from January 1, 2020, was monitored and reported on every six months for two years (i.e., blood pressure control). Additionally, the proportion of registered patients with hypertension compared to the estimated number of patients with hypertension in that district was calculated (i.e., hypertension registry coverage).

A rapid evaluation of the programme, as a part of the monitoring for action initiative, was conducted in November to December 2020 to assess the implementation of the six HEARTS modules by reviewing a sample of 60 patient files and interviews of 25 health workers.

RESULTS

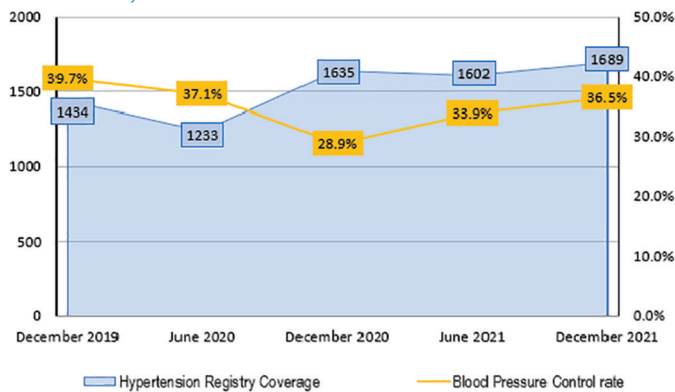
Sixteen of the 42 (38%) of the health care workers enrolled completed the course. During the reporting period, 2 829 persons attended the six health facilities for care (836 males, 1 993 females; 1: 2.4 ratio). The baseline data (December 2019)

showed levels of blood pressure control to be 39.7% (570/1 434). At 6, 12, 18 and 24-months into the intervention, control was 37.1% (458/1 233), 28.9% (473/1 635), 33.9% (543/1 602) and 36.5% (616/1 689) respectively (Figure 1). Hypertension registry coverage increased by 17.8% from 1 434 to 1 689 with highest coverage of patients with hypertension noted in December 2021 (n=1 689).

There was a decrease in the overall blood pressure control rate by 10.8% in the first year of implementation (January to December 2020) and an increase of 7.5% in the control rate in the second year (January to December 2021). During the first six months of the programme there was a 2.6% decrease in the blood pressure control and a 14% decrease in hypertension registry coverage rates. Better control and registry coverage were observed in females when compared to males (Figure 2).

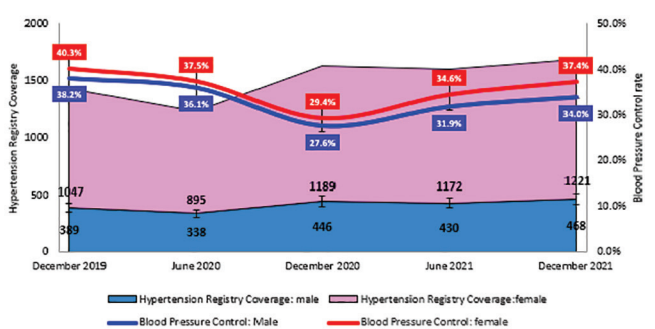
The programme expanded beyond the six demonstration sites with elements of it partially implemented in all 34 facilities, as some health care workers function at both the demonstrable and non-demonstrable sites. These elements include capacity building for health care workers, dissemination of training materials, presence of validated automated blood pressure machines and implementation of national standardized treatment protocols. The results of the rapid evaluation are shown in Table 1.

FIGURE 1. Distribution of blood pressure controlled rate and hypertension registry coverage at six demonstration sites, Saint Lucia, Dec 2019-Dec 2021



Source: St Lucia Health Information System (SLUHS), Ministry of Health, April 2022

FIGURE 2. Distribution of blood pressure controlled rate and hypertension registry coverage disaggregated by sex at six demonstration sites, Saint Lucia, Dec 2019-Dec 2021



Source: St Lucia Health Information System (SLUHS), Ministry of Health, April 2022

Implementing the monitoring for action initiative or rapid evaluation resulted in policy and operational changes, improved documentation, and the generation of accurate and reliable data. Effective March 2021, improvement measures were implemented based on the findings of the evaluation report. These improvement measures included the following: strengthening of the non-communicable disease (NCD) surveillance system; implementing an appointment system for controlled and uncontrolled hypertension at two of the six demonstration sites; carrying out capacity building in areas where deficiencies were noted; and disseminating communication materials.

Subsequently, there was an increase in the blood pressure control rates by 7.6% (January-December 2021). One of the strongest interventions implemented after the rapid evaluation was the strengthening of the NCD surveillance system. This was achieved through the hosting of monthly surveillance meetings where the data was reviewed and analyzed. The information garnered was used to inform decision making. The NCD registers were strengthened and recall mechanisms were developed. With a robust health information system, the functioning of the monitoring committee was enhanced through the development and dissemination of a cumulative total of 10 monthly surveillance bulletins, which informed continued structured improvements of new and existing interventions.

DISCUSSION

The implementation of the HEARTS Programme coincided with the most challenging emergency of the century, the COVID-19 pandemic, which impacted the first year of implementation resulting in decreased blood pressure control rates.

There was capacity building at all levels utilizing blended approaches. During the first year of implementation of the six modules, the knowledge gained did not translate into action. This was evidenced by the results of the rapid evaluation. The Drug Procurement unit encountered difficulty in sourcing the drugs and first line drugs were no longer available. Counselling was not carried out as intended as limited time was now spent with patients due to closure of some clinics and inadequate number of human resources. Many of the staff were deployed in the prevention of COVID-19. Mechanisms such as registers and tracking tools were not available for follow-up of clients as most of the wellness centres were converted to respiratory clinics. Clients were encouraged to engage in self-management techniques and return mainly for refill of prescriptions.

Barriers innate to health systems have generally negated the impact of implementation (9). The change in governance and leadership at the Ministry of Health, which was also compounded with the management of the COVID-19 pandemic, slowed the progress of the early implementation of the HEARTs initiative. The COVID-19 pandemic resulted in the lock down of the country and deployment of financial and human resources from the NCD and other programmes. These resulted in stock-outs of newly sourced antihypertensive medication and subsequent low compliance with the standardized treatment protocols.

Some of the policies and operational changes defined in the implementation plan were also delayed as a result of the deployment of resources to the COVID-19 response. However, one positive change is the revitalization of the Community

TABLE 1. Results of assessment of 6 health facilities implementation process using monitoring framework for HEARTS Package, Saint Lucia, October 2020

| HEARTS modules | Healthy lifestyle counselling | | Evidence-based treatment protocol/access to medicines | Risk-based assessment | Team-based care and task shifting | Systems for monitoring | |
|---------------------|---|---|--|--------------------------------------|-----------------------------------|-------------------------------|------------------------|
| Components assessed | Presence of leaflets on modifiable risk factors | Distribution of healthy lifestyle passports to patients | Availability of 1 st line drugs on treatment protocol | Documentation of cardiovascular risk | Suitable physical infrastructure | Availability of tracking tool | BP target ^a |
| Babonneau WC | No | No | No | Yes | Yes | No | No |
| Bellevue WC | No | No | No | Yes | No | No | No |
| Ciceron WC | No | No | No | No | Yes | No | No |
| Grand Rivere WC | No | No | No | Yes | No | No | No |
| La Croix WC | No | No | No | No | No | No | Yes |
| Richfond WC | No | No | No | No | No | No | No |

BP, blood pressure; WC, wellness centre
^a 70% of patients with controlled BP

Outreach Programme. Community health aides visited and counselled families and encouraged their return to the wellness facilities. The aides informed the health team if they needed to do special outreach and identified clients who were out of medication. The inclusion of the family and community, an essential element in managing NCDs, accelerated the expansion of the Self-Management Programme within communities. However, key changes that are still required include the establishment of a tracking tool to reach out to persons non-compliant with their appointments.

A positive aspect of the programme was that capacity building was conducted for not only the six demonstration sites, but the public and private sectors. This decision was made due to the foresight in establishing the HEARTS Technical Package as a national intervention in the management of cardiovascular care by 2023. Additionally, given the limitation in human resources where at any given time, health care workers may be asked to provide coverage at different clinics, it was prudent to have all health workers trained. However, monitoring and evaluation of the programme only occurred at the demonstration sites.

Accelerated efforts are required to increase the number of persons with knowledge of their blood pressure readings (registry coverage) and the number of persons with controlled blood pressure.

Lessons learned include:

1. Periodic evaluation to inform systematization, the next phase of the continuous quality improvement cycle, is a recommended action.
2. Unexpected barriers such as emergencies and disasters can negatively impact implementation. Impacted interventions should be speedily adjusted, e.g., a change from an acceptable to a current treatment protocol.
3. The rapid evaluation played a pivotal role in identifying barriers, facilitators, and enablers that impacted the implementation. Addressing the key elements resulted in improved blood pressure control.

This report has some limitations. A major limitation is the data availability and accuracy as the data is not captured in a format to support data analysis and monitoring of indicators seamlessly. Only one indicator is currently used in the

monitoring of blood pressure control, as the current information system does not readily provide reports for following a cohort of patients attending clinics. The increase in the hypertension coverage may not have been solely due to the HEARTS Initiative but may have been impacted by other factors associated with the COVID-19 pandemic, including other clinics not being available for clinic management and private sector patients accessing public care because of limited financial resources.

The limitations identified with the Health Information Unit are being addressed. The information collected by the Unit is currently being modified to accurately measure additional indicators related to blood pressure control. The Hypertension Registry is currently being updated and health care workers are now more knowledgeable.

Conclusions

The HEARTS Initiative unearthed basic infrastructural challenges in blood pressure control. The essential elements for success were (1) buy in at all levels of the health sector; (2) addressing policy and operational changes; (3) accurate documentation and required analysis; (4) standardization of equipment and procedures and (5) regular monitoring and evaluation. Capacity building underpinned all changes.

Addressing these essential elements resulted in increases in blood pressure control and hypertension registry coverage from January to December 2021. The buy in of the programme resulted in a relatively high uptake in the capacity building sessions and as such they were readily available for training. The support, at the highest administrative level within the Ministry of Health, facilitated the availability of the required resources, and the policy and operational changes needed. Accurate documentation allowed for smooth data integration into the current Health Information System and prompt application of corrective actions during the implementation of the monitoring for action initiative. Standardization of equipment supported the accuracy of blood pressure readings. The increased frequency of the monitoring schedule resulted in timely corrective action.

The HEARTS Technical Package offers a framework for implementing the World Health Organization's Package of Essential Non-Communicable Disease Interventions (WHO PEN). The package presents a set of cost-effective interventions that represent the minimum standard for NCD management

in countries and will be useful in accelerating the country's response towards the achievement of the Sustainable Development Goal 3 by 2030.

Authors' contribution. SCP and PLW conceived and planned the interventions and interpreted the results. YG and SBG interpreted the results. MH collected and analyzed the data. All authors wrote the manuscript and reviewed and approved the final version.

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Conflicts of interests. None declared.

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Mejorar la salud cardiovascular en la atención primaria en Santa Lucía por medio de la iniciativa HEARTS

RESUMEN

Objetivo. Mejorar el control de la presión arterial y aumentar la cobertura del registro de la hipertensión en seis centros de referencia en Santa Lucía.

Métodos. Entre enero del 2020 y diciembre del 2021, el Ministerio de Salud de Santa Lucía, con el apoyo de la Organización Panamericana de la Salud, implementó el paquete técnico HEARTS en seis centros de atención primaria de salud acompañado de un seguimiento semestral del control de la presión arterial y la cobertura del registro de la hipertensión. Se incluyeron los siguientes módulos: asesoramiento sobre hábitos y estilos de vida saludables, protocolos clínicos basados en la evidencia, acceso a medicamentos y tecnologías esenciales, manejo de las enfermedades cardiovasculares basado en la estratificación del riesgo, trabajo basado en equipos multidisciplinarios y sistemas de monitoreo.

Resultados. Los niveles de control de la presión arterial a los 6, 12, 18 y 24 meses después de la intervención fueron de 37,1%, 28,9%, 33,9% y 36,5% respectivamente. La cobertura del registro de la hipertensión aumentó en 17,8% (de 1 434 a 1 689) para los pacientes que acceden al servicio. Con la implementación de la iniciativa de seguimiento entre los 12 y 15 meses después del inicio de la intervención se lograron cambios operativos y en las políticas, se mejoró la documentación y se obtuvieron datos rigurosos y fiables.

Conclusiones. La iniciativa HEARTS reveló los desafíos básicos relativos a la infraestructura que afronta el control de la presión arterial. Los factores principales que contribuyeron al éxito fueron: 1) la aceptación en todos los niveles del sector de la salud; 2) el abordaje de cambios políticos y operativos; 3) una documentación rigurosa y la ejecución de los análisis necesarios; 4) la estandarización de los equipos y procedimientos; y 5) la ejecución de labores de seguimiento y evaluación con regularidad. El fortalecimiento de la capacidad fue la base de todos los cambios.

Palabras clave

Hipertensión; protocolos clínicos; presión arterial; atención primaria de salud; Santa Lucía.

Melhorando a saúde cardiovascular na atenção primária em Santa Lúcia por meio da Iniciativa HEARTS

RESUMO

Objetivo. Melhorar o controle da pressão arterial e a cobertura do registro de hipertensão em seis locais-piloto em Santa Lúcia.

Métodos. De janeiro de 2020 a dezembro de 2021, o Ministério da Saúde de Santa Lúcia, com apoio da Organização Pan-Americana da Saúde, implementou o pacote técnico HEARTS em seis unidades básicas de saúde com monitoramento semestral do controle da pressão arterial e cobertura do registro de hipertensão. Os módulos incluíram aconselhamento sobre estilo de vida saudável, protocolos de tratamento baseados em evidências, acesso a medicamentos e tecnologias essenciais, manejo cardiovascular baseado em risco, cuidados em equipe e sistemas de monitoramento.

Resultados. Os níveis de controle da pressão arterial aos 6, 12, 18 e 24 meses após a intervenção foram de 37,1%, 28,9%, 33,9% e 36,5%, respectivamente. A cobertura do registro de hipertensão aumentou 17,8% (de 1 434 para 1 689) para pacientes que acessam o serviço. A implementação da iniciativa de monitoramento para ação, 12 a 15 meses após o início da intervenção, resultou em mudanças de política e operacionais, melhoria da documentação e fornecimento de dados exatos e confiáveis.

Conclusões. A iniciativa HEARTS revelou desafios básicos de infraestrutura para o controle da pressão arterial. Os elementos essenciais para o sucesso foram: (1) adesão em todos os níveis do setor de saúde; (2) abordagem das mudanças de política e operacionais; (3) documentação exata e análise necessária; (4) padronização de equipamentos e procedimentos; e (5) monitoramento e avaliação regulares. A capacitação foi a base de todas as mudanças.

Palavras-chave

Hipertensão; protocolos clínicos; pressão arterial; atenção primária à saúde; Santa Lúcia.
