

# Developing the Botswana Primary Care Guideline: an integrated, symptom-based primary care guideline for the adult patient in a resource-limited setting

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**Background:** Botswana's health care system is based on a primary care model. Various national guidelines exist for specific diseases. However, most of the guidelines address management at a tertiary level and often appear nonapplicable for the limited resources in primary care facilities. An integrated symptom-based guideline was developed so as to translate the Botswana national guidelines to those applicable in primary care. The Botswana Primary Care Guideline (BPCG) integrates the care of communicable diseases, including HIV/AIDS and noncommunicable diseases, by frontline primary health care workers.

**Methods:** The Department of Family Medicine, Faculty of Medicine, University of Botswana, together with guideline developers from the Knowledge Translation Unit (University of Cape Town) collaborated with the Ministry of Health to develop the guideline. Stakeholder groups were set up to review specific content of the guideline to ensure compliance with Botswana government policy and the essential drug list.

**Results:** Participants included clinicians, academics, patient advocacy groups, and policymakers from different disciplines, both private and public. Drug-related issues were identified as necessary for implementing recommendations of the guideline. There was consensus by working groups for updating the essential drug list for primary care and expansion of prescribing rights of trained nurse prescribers in primary care within their scope of practice. An integrated guideline incorporating common symptoms of diseases seen in the Botswana primary care setting was developed.

**Conclusion:** The development of the BPCG took a broad consultative approach with buy in from relevant stakeholders. It is anticipated that implementation of the BPCG will translate into better patient outcomes as similar projects elsewhere have done.

**Keywords:** Botswana, primary care, guidelines, development

## Introduction

There is a shortage of human resources in primary health care globally, with the situation worse in resource-limited countries.<sup>1,2</sup> The shortage of skilled health care workers (HCW) has led to task shifting in many primary care settings in an attempt to address the demands of care provision. Consequently, primary health care is nurse driven in many resource-limited countries.<sup>3,4</sup>

Although the approach of task shifting has advantages, where it is adopted, additional training, support and adequate supervision are essential for its success.<sup>5</sup>

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Given the broad scope of primary health care, training of primary HCW needs to address this scope, while maintaining patient safety and adhering to the principle of nonmaleficence that underpins the practice of medicine. Successes of the HIV/AIDS care scale-up in sub-Saharan Africa highlighted innovative strategies that addressed training of primary HCW so that they are empowered to assume roles traditionally reserved for higher level cadre HCW.<sup>6-9</sup> One innovative response to the need for HIV/AIDS scale-up in South Africa was providing primary HCW with training and implementing a symptom-based guideline that integrates HIV/AIDS care with the management of tuberculosis and other priority primary care diseases led by the Knowledge Translation Unit (KTU) of the University of Cape Town, Lung Institute.<sup>6</sup> The Practical Approach to Lung Health in South Africa Plus (PALSA Plus) was developed by adapting the World Health Organization (WHO)'s Practical Approach to Lung Health strategy.<sup>7</sup> PALSA Plus was later expanded to include common chronic diseases, such as diabetes and hypertension. The symptom-based guideline evolved to a more comprehensive guideline called Practical Approach to Care Kit Adult (PACK Adult<sup>®</sup>).<sup>8</sup> Several studies evaluating the utility of such interventions have reported improvement in health outcomes and health system strengthening.<sup>9-12</sup> Botswana has a primary health care-focused health system. Like many resource-limited countries, Botswana suffers from HCW shortage.<sup>13</sup> Various national guidelines exist for specific diseases in the Botswana health care for the many vertical programs. However, most of the guidelines address management at a tertiary level and are often difficult to implement, given the limited resources in primary care facilities. Anecdotal evidence suggests that unnecessary referral to higher levels of care is rife. This may be responsible for high patient load at secondary and tertiary centers and possibly increased patient dissatisfaction. The WHO's Package of Essential Noncommunicable (WHO PEN) diseases recommends primary care interventions for noncommunicable diseases in low-resource settings and has been embraced by the Botswana Ministry of Health (MOH) and other bodies.<sup>14,15</sup>

The establishment of the first medical school in Botswana in 2009 highlighted the need to transform the country's primary health care system to a model that supports undergraduate and postgraduate medical education. In an effort to contribute to this transformation, a technical working group tasked with developing a clinical guideline for the Botswana primary care setup was established. This included members of the Faculty of Medicine, University of Botswana, and the MOH.

The KTU's innovative tool, PACK Adult<sup>®</sup>, was identified as an appropriate guideline to adapt for Botswana as it encompassed principles of WHO PEN that the MOH intended to implement across primary care facilities in the country, as well as integrating care for both noncommunicable and communicable diseases. The development process followed an approach similar to the work of adapting PALSA in Malawi, whereby PALSA was adapted in order to support middle-cadre health care workers in that country.<sup>16</sup>

The need to implement the WHO PEN recommendations as well as the establishment of Botswana's first medical school prompted the development of the Botswana Primary Care Guideline (BPCG). This integrated symptom-based guideline that takes into account local primary care challenges was developed and adapted through collaboration between developers of PACK Adult<sup>®</sup>: the KTU, the Department of Family Medicine at the University of Botswana, and the Department of Noncommunicable Diseases in the Botswana MOH. The BPCG aims to aid primary HCW to recognize common presentations of diseases in adults presenting with symptoms in primary health care facilities and to commence management within their scope of practice. Additionally, the BPCG provides guidance for evidence-based management of chronic diseases while taking into account policy provisions for such management. We hereby describe the process that culminated in the production of the BPCG.

## Methods

Meetings were held with various stakeholders in the Botswana primary health care setting at which the proposal for developing the BPCG was presented. Two faculty members from the Department of Family Medicine, University of Botswana, underwent a week-long intensive training in Cape Town with South African PALSA Plus trainers. One guideline developer from KTU worked with a member of the Department of Family Medicine, University of Botswana, over a 1-year period, wherein consultative meetings were held with various clinicians and managers.

Existing treatment guidelines, protocols, and policy documents from the MOH were obtained and reviewed. Members of the Department of Noncommunicable Diseases at the MOH facilitated the process of collecting existing MOH treatment guidelines by contacting program officers and requesting copies of guidelines used in specific programs. Furthermore, various MOH departments were solicited for information regarding any unpublished and planned additions to recommendations of their program. The format of PACK

Adult<sup>®</sup> was used to organize the local treatment guidelines into an integrated manual.

Multidisciplinary working groups were set up to review content of specified pages of the developing guideline. Group members were purposefully selected based on their clinical responsibilities and experience. These working groups had four to eight members, including nurses, doctors, pharmacists, dietitians, laboratory technicians, policymakers, and representatives, from patient advocacy groups, where possible, who volunteered to participate. The group members were provided with specific pages to review in advance of the group's scheduled meetings. During the meetings, input from the group members was discussed, ending with consensus on what the final content should be. The working group meetings were conducted using a facilitator's guide developed by the guideline developers. The facilitator's guide drew attention to gaps identified in the review of documents retrieved for the local guideline development and also highlighted any apparent discrepancies. New recommendations for drugs not included in the Botswana essential drug list were presented to the National Standing Committee on Drugs (NASCOD). NASCOD is mandated to govern the use of drugs and related substances in Botswana. The submission to NASCOD included rationale and motivation based on current scientific evidence. The contents of the proposed guideline were taken back to the members of the various groups to check if they represented what was agreed upon.

## Results

The process of adapting the PACK Adult<sup>®</sup> leading to the development of the BPCG took a year to complete. A total of 67 participants from both the public and private health sectors were involved in the review process. These participants were organized into nine disease-specific working groups as presented in Table S1. The family medicine working group was the largest and covered general symptoms as shown in Table S2. The working group discussions lasted between 1 hour and 3 hours.

A total of ten Botswana MOH guidelines and policy documents were identified, retrieved, and reviewed (Table 1).

One hundred and one pages of the BPCG were produced, representing 68 symptoms, nine broad categories of chronic diseases, and general procedures for primary health care settings. The procedures included protocols for triage, tips for preventing occupational infection, protecting primary HCW's health and effective communication. An end-of-life page addressing the care of patients with incurable illnesses in primary care (which is not part of the original PACK Adult<sup>®</sup> guideline) was developed and added to the BPCG.

**Table 1** Botswana national guidelines considered in the development of BPCG

Guideline title	Edition/date of publication	Total number of pages
Botswana Essential Drug List	Second/2012	36
Botswana Treatment Guideline	2007	363
Botswana National HIV and AIDS Treatment Guidelines	2012	196
Botswana National TB Program Manual	Seventh/2011	156
National Malaria Control Programme Guidelines for the diagnosis and treatment of Malaria in Botswana	2007	56
Management of Sexually Transmitted Infections – reference manual for health workers	2005	201
Safe Motherhood Nursing/ Midwifery Protocols for health posts	2008	
Guidelines for Antenatal Care and the Management of Obstetric Emergencies and Prevention of Mother to Child Transmission of HIV	2010	145
Mental Disorders – Chapter 63:02	2002	53
Botswana Integrated Management for HIV/AIDS and other illness-palliative care: symptom management and end-of-life care		53

**Abbreviations:** BPCG, Botswana Primary Care Guideline; TB, tuberculosis.

A total of 38 full color pictures were used to depict symptoms, such as skin disorders, genital symptoms, ear symptoms, and nail symptoms. In addition, 22 diagrams and drawings were used to illustrate concepts such as construction and use of a homemade spacer for the management of asthma and chronic obstructive pulmonary diseases. These illustrations were taken from the Division of Dermatology and the Ear Nose Throat Department, Groote Schuur Hospital, Cape Town, as well as from the MOH (Botswana) publications. The description of the construction and use of a homemade spacer came from the published work of Zar et al.<sup>17</sup>

## Discussion

The development of the BPCG illustrates an adaptation of an innovation aimed at improving primary care in developing countries. The project also demonstrates the feasibility of leveraging on work done regionally to address the challenges of primary HCW shortage in an African setting. It also highlights a valuable capacity building endeavor for a new southern African medical school. The benefit of adapting an existing tool over developing one de novo is that this is a more efficient way of developing a local program using a proved

template. This approach also is thought to be of benefit to global health as less time is spent on attempting to develop new innovations and more time spent on seeking ways to spread those already in place.<sup>18</sup>

The BPCG is a symptom-based guideline developed from clinical experiences, expert opinion, government policy, patient preferences, and scientific evidence. The PACK Adult<sup>®</sup> on which the BPCG was modeled is an innovative package that has been shown to improve patient outcomes as well as strengthening health systems.<sup>9-12</sup> The impact of the BPCG on delivering quality primary care in Botswana is yet to be realized. This impact will need to be assessed, and the research findings utilized to further develop the guideline. It is probable that the positive impact demonstrated in the South African experience will be equally apparent in Botswana. However, contextual differences between the two countries may account for possible differences in outcome measures when the BPCG is compared with PACK Adult<sup>®</sup>. Any lack of BPCG benefit in the Botswana context would need to be addressed through implementation science research efforts. The impact of the BPCG on clinical care in the Botswana primary care setting is likely to be influenced by the degree to which the guideline is implemented in these settings. There is a body of evidence indicating that guideline adherence is a complex process that depends on many actors and factors.<sup>19</sup> It is therefore important that the local setting should continue to be a focus of research efforts to unveil the specific actors and factors likely to influence a successful implementation and the sustainability of the BPCG.

The scope of PACK Adult<sup>®</sup> is such that it covers 40 common symptoms and 20 chronic conditions seen among adults attending primary care clinics in South Africa. This represents a fair coverage of morbidity in the South African primary care setting.<sup>20</sup> The scope of primary care morbidity in Botswana has not been reported in the literature and is poorly documented. It would seem that there is little difference between the South African and Botswana primary care disease profile. The development of the BPCG considered the potential differences and similarities in the primary care morbidity between the two countries and endeavored to give prominence to the peculiarities of the local milieu. The addition of the end-of-life page to the guideline was motivated by the participants involved in the review of the guideline and the MOH policymakers' recognition of this gap in the National Health Service. It is important to have regular reviews of the guideline, involving all relevant stakeholders, so that the guideline remains relevant.

The PACK Adult<sup>®</sup> package provides for onsite training (avoiding staff shortages), and HCW continue to see their patients and immediately apply the guideline. This approach is being considered for the implementation of the BPCG in view of its success in South Africa. The feasibility of the onsite training in Botswana is yet to be determined and is the subject of a pilot project at nine different primary care facilities.

We were successful in getting approval for 30 out of 35 (86%) proposed changes to the Botswana essential drug list that were included in the BPCG. This may be an indication of a high degree of approval by policymakers of the content of the guideline. However, not all of the requests were endorsed by the regulatory body, and this seems to confirm the fact that policy and practice sometimes diverge from evidence-based recommendations.<sup>21</sup> Cost may be a limiting factor in the implementation of evidence-based interventions in health care settings especially in resource-constrained countries, such as Botswana. Although approval for requests for altering recommended drugs in Botswana was high, there has been a lag in implementing the policy change. The reason for such delay is unclear. The delay may be due to inertia in a system that has changed little over time. Another reason behind the delay may be attributed to the limited training program in our pilot project. If more HCW are trained, it may result in more demand for specific drug treatments and consequently lead to more orders for such drugs by pharmacists in primary care.

Tools that support clinical decision making such as patient decision aids and clinical practice guidelines base their formulation on up-to-date scientific evidence.<sup>22</sup> The effectiveness of evidence-based medicine has influenced the proliferation of organizations that develop evidence-based guidelines such as the Cochrane collaboration and the National Institute of Health and Excellence.<sup>23,24</sup> Although international guidelines from reputable organizations offer useful recommendations that may be applicable in the primary health care setting, their relevance to practice in the primary health care setting is often uncertain. A recent review of clinical practice guidelines reported that nearly two-thirds of publications cited to support primary care recommendations were of uncertain relevance to patients in primary health care.<sup>25</sup> This high level of uncertainty highlights an important opportunity for primary health care practitioners.

The extent to which international primary health care guidelines are applicable in the African primary health care setting is also worth evaluating. Context is important, and therefore, it is crucial for African primary care practitioners to get involved in developing relevant primary health care

guidelines to improve primary health care practice in the African context. However, this is not an easy task and would mean conducting high-quality research in the African primary health care setting that would inform clinical practice. Guideline developers must be conscious of the fact that the credibility of guidelines is based on their scientific value.<sup>26</sup> Therefore, African guideline developers should have access to locally relevant and high quality scientific data from which credible guidelines can be formulated. Capacity to do robust research in the African primary health care setting is evidenced by the publications in established African and international journals. The growing numbers of family medicine training programs across Africa attest to the commitment of improving primary care in the African setting. Research training is included in such training programs in line with the statement of consensus on family medicine in Africa.<sup>20</sup> Although primary health care research is gaining ground in the African setting, it is not clear how findings from this research activity are being harnessed into recommendations for practice. Synthesis of knowledge from local research would contribute to its translation into practice guidelines that may address the unique primary health care challenges in the African continent. Importing knowledge syntheses from contexts different from the African context to inform practice guidelines in Africa brings with it concerns about applicability. Applying evidence derived from somewhat different patients, interventions, or outcomes to the African situation is subject to the pitfalls of indirectness<sup>22,27</sup> and is likely to undermine the applicability of the evidence.<sup>22</sup> Cognizant of this challenge, researchers are increasingly calling for the use of culturally sensitive information in guideline development.<sup>28</sup> Evaluation of international clinical practice guidelines indicate that recommendations are based on evidence gathered mainly in well-resourced settings thus leading to uncertainty as to what extent the findings can be generalized across diverse sociocultural settings.<sup>29</sup> WHO guidelines for selected mental health disorders were regarded deficient, in terms of knowledge on existing cultural practices for improving mental health, by Ugandan mental health professionals.<sup>30</sup>

Clinical practice guideline development activities are scarcely reported from African settings and sometimes do not match the rigor of global guideline development standards.<sup>31</sup> Efforts to remedy the situation is beginning to take shape in Southern Africa with the establishment of the South African Guideline Excellence, a research collaboration aimed at improving the quality and reach of South African clinical practice guidelines. South African Guideline Excellence intends to use stakeholder-driven processes to provide tools

to assist in developing, adapting, adopting, contextualizing, and implementing primary health care guidelines.<sup>32,33</sup> Our own effort in developing the BPCG highlights the growing movement in Africa of establishing clinical practice guidelines that take into account the sociocultural understanding of the concepts of health and disease in Africa. We hope that this was achieved by including the multidisciplinary review groups and patient advocacy groups in the preparation of the BPCG.

## Conclusion

The BPCG was developed through adapting a successful South African primary care guideline. The BPCG development took a broad consultative and multidisciplinary approach with relevant stakeholders in Botswana and collaboration with guideline developers in South Africa. Although differences in the health care systems of South Africa and Botswana exist, the disease profile and geographic and cultural similarities of the two countries may have facilitated the adaptation process. The success of developing the BPCG shows that primary care innovations such as PACE Adult<sup>®</sup> are generalizable to settings outside the country of origin and have potential to address global primary health care issues. It is anticipated that implementation of the BPCG will translate into better patient outcomes in the Botswana primary health care system. Processes described here for the development of the BPCG may be applicable to other resource-constrained settings. Local players familiar with the local settings, including patient advocacy groups, should be engaged at all levels of the guideline development to build capacity and to ensure that the guideline captures sociocultural aspects of health and disease, to remain relevant and accepted.

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mepinetwork: <http://mepinetwork.org/posters.html>. The actual paper, however, has never been published.

## Author contributions

BMT wrote the first draft of the article. VS and ON contributed in writing and editing the article. All authors contributed toward data analysis, drafting and critically revising the paper and agree to be accountable for all aspects of the work.

## Disclosure

The authors report no conflicts of interest in this work.

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## Supplementary materials

**Table S1** Characteristics of working groups

Group	Members' discipline (n)	BPCG section
Mental health	Psychiatrist (2) Psychiatric nurse (3) Registered nurse (1) Policymaker (1) Pharmacist (1) Family physician (1) Community mental health team member (1) Family physician (1)	Mental health act Depression and anxiety diagnosis Depression and anxiety routine care Substance abuse diagnosis and routine care Psychosis and/or mania; diagnosis and routine care Dementia diagnosis and routine care Traumatized/abused patient Aggressive/violent patient Suicidal patient
Chronic diseases of lifestyle	Physician – accident and emergency (1) Dietitian (1) Pharmacist (1) Registered nurse (1) Diabetes educator (1) Patient advocacy member (1) Family nurse practitioner (1) Public health specialist (1) Physician – internal medicine (1) Family physician (1)	Cardiovascular disease risk diagnosis Cardiovascular disease risk routine care Diabetes diagnosis Diabetes routine care Hypertension diagnosis Hypertension routine care Heart failure routine care Stroke routine care Ischemic heart diseases diagnosis Ischemic heart diseases routine care Peripheral vascular disease diagnosis and routine care Chest pain
Sexual reproductive health	Midwife (2) Medical officer (2) Policymaker (2) Family physician (1)	Contraception Contraception routine care The pregnant woman Routine antenatal care Postnatal care Menopause diagnosis and routine care Sexual problems Abnormal vaginal bleeding Genital symptoms End of life routine care
End of life	Policymaker (1) Public health specialist (1) Medical officer (1) Patient advocacy (1) Family physician (1)	
Chronic respiratory diseases	Physician – internal medicine (2) Medical officer (1) Registered nurse (1) Public health specialist (1) Family medicine registrar (1) Pharmacist (1) Family physician (1)	Asthma and COPD diagnosis Asthma routine care COPD routine care Wheeze/tight chest Cough and/or difficulty breathing
TB	Public health specialist (2) Physician – internal medicine (1) Medical officer (1) Family physician (1)	TB diagnosis TB routine care
HIV/AIDS	Physician – infectious diseases (2) Public health specialist (1) Family physician (2)	HIV diagnosis HIV routine care

**Abbreviations:** BPCG, Botswana Primary Care Guideline; COPD, chronic obstructive pulmonary disease; TB, tuberculosis.

**Table S2** Characteristics of the family medicine working group

Group members' discipline (n)	BPCG section/topic
Family physician (7)	Epilepsy diagnosis and routine care
Family medicine registrar (10)	Chronic arthritis diagnosis and routine care Gout diagnosis and routine care
Family nurse practitioner (1)	Difficulty sleeping
Public health specialist (1)	Nail symptoms and skin symptoms
	Bites and burns
	Injured patient
	Foot, leg, arms, and neck symptoms
	Back pain, joint symptoms, and body/general pain
	Urinary symptoms and anal symptoms
	Constipation, diarrhea, vomiting, and abdominal pain
	Breast symptoms
	Mouth, ear, nose, and throat symptoms
	Face symptoms and headache
	Dizziness and collapse
	Weakness and/or tiredness
	Lymphadenopathy
	Weight loss
	Seizures/fits, the unconscious patient
Public health specialist (2)	Fever
Medical officer (1)	

**Abbreviation:** BPCG, Botswana Primary Care Guideline.

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