



Original Article: **Cardio Vascular Disease Risk Assessment by Medical Officers According to the Guidelines at Healthy Lifestyle Centers in Western and North Western Provinces and the Factors Affecting Implementation of Guidelines**

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Abstract

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Keywords: CVD risk assessment, Knowledge

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Introduction: Healthy Lifestyle Centers (HLC) were established in 2011 to carry out Cardiovascular Disease (CVD) Risk Assessments and follow up with patients. The capacity of primary care institutions (PCI) for CVD risk assessment has not been studied in the recent past.

Objective: To evaluate the existing CVD risk assessment guideline and assess its application process by Medical Officers (MOs) and facilities available at HLCs for CVD risk assessment.

Methodology: A descriptive study with three components was carried out. Component one – CVD risk assessment Guideline evaluated through Key informant interviews (KII); component two- assessment of the Knowledge and practices on CVD risk assessment of all MOs working in HLCs using a self-administered questionnaire and an observational checklist; component three- assessment of available facilities and resources

to carry out CVD risk assessment using a checklist.

Results and Discussion: The study was conducted in 141 HLCs accessible during the Covid period. Assessment of CVD risk assessment guidelines showed Problems in methodological standards and in the identification and summary of evidence. MOs need to gain Knowledge in screening those under 35 years, in reading the WHO/ISH Risk Prediction Chart and in advising on further management and follow-up. All HLCs have at least one medical officer, but there is a lack of nursing officers and health care assistants.

Conclusions and recommendations: There was a gap in Knowledge in screening criteria and management of those under 35 years of age. It is recommended to carry out training at national level every six months so all staff newly appointed to primary care could be trained. It is also recommended to appoint at least one nursing officer or a Public

Health Nursing Officer (PHNO) to an HLC.

Keywords: CVD risk assessment, Knowledge

Introduction and Justification

Reducing the rapidly rising burden of Noncommunicable Diseases (NCDs) in Sri Lanka is a national imperative [1]. Healthy Lifestyle Centers (HLC) were established in 2011 to conduct Cardiovascular Disease (CVD) Risk assessment using the WHO PEN protocol [2]. By March 2020, there were 1013 Healthy HLCs established in the country [1]. However, the annual participation in HLC for CVD risk assessment remains at 8 % of the target population, and male participation is only 25% of the total participants [3].

Steps survey 2021[4] shows that 34% of the population above 18 years has hypertension and 14.7% of the same population has raised fasting blood sugar. But less than 30% of them are aware of their risk factor status, throwing light on the importance of regular screening for NCDs. At present there is a primary care reorganizing taking place in Sri Lanka to gear them to tackle current health problems including NCDs [5].

The directorate of NCD has developed the national guideline for CVD risk Assessment based on the PEN package tools [6] and is conducting a training programmes physically as well as on line to train MOs [7]. In addition to the training package, the essential service package [8] is developed for primary care units. The package has identified essential equipment, and human resources needed for management of NCDs. Also, nineteen essential drugs were identified to treat NCDs at PCI [9].

People who underwent screening are given Personal Medical Records (PMR) to record their individual health status [15]. In the HLCs several registers and records such as participant register males and females [16,17] are used to document the details of the screened population.

Directorate of NCD has also developed guidelines on the management of common NCDs at the primary care level, including diabetes [10], hypertension [11], Obesity and overweight [12], hyperlipidemia [13] and chronic respiratory diseases [14]. There are three main methods of developing guidelines [19,20]: Peer groups, Delphi Technique and consensus conference. There is an interest in developing guidelines for many other chronic diseases as it encourages good practice and, thus, health gain [18]. However, these guidelines were never evaluated.

It would be timely to evaluate the CVD risk assessment guideline, PCI infrastructure availability, and the Knowledge and practices of MOs involved in NCD screening.

General Objective

To evaluate the existing CVD risk assessment guideline and to assess the process of its application by Medical officers, and to assess the Knowledge and practice of MOs working at HLCS and the assessment facilities available at HLCs in selected Primary Care Institute (PCI) of Western and North Western Provinces.

Specific Objectives

1. To evaluate the existing CVD Risk Assessment Guideline developed by the Ministry of Health (MoH).
2. To assess the Knowledge of CVD risk assessment of MOs working at HLCS

3. To assess the practice of MOs on CVD risk assessment, management and follow-up of clients presented to HLCs.
4. To describe the facilities and resources available for assessing CVD risk of clients in selected PCI of Western and North Western Provinces

Methodology

A descriptive cross sectional study was carried out in western and north western provinces. This study consisted of three components.

Component one

In this component, the available CVD risk assessment guideline was evaluated using a Key Interviewer Interview (KII) guide. A format developed by Shaneyfelt et al [21] was used to evaluate the CVD Risk assessment guideline. The format has three parts, as given below, and all responses were marked as 'yes' or 'no.'

1. Methodological standards for guideline development (10 questions)
2. Identification and summary of evidence (9 questions)

3. Adherence to methodological standards on the formulation of recommendations (5 questions)

Component two

Under this component, the Knowledge and practice of MOs in relation to CVD risk assessment was tested. Only one MO was selected using convenient sampling method from each selected PCI.

Data was collected by a self-administered questionnaire to assess the Knowledge on CVD risk assessment and an observational check list was used to assess the practice of MOs in the procedure of CVD risk assessment and follow up of clients.

Component three

All selected PMCI were assessed using a check list on the facilities and resources available at HLCs.

Results

Evaluation of the CVD risk assessment Guideline

Table I: Distribution of Agreement Scores when Assessing the CVD Risk Assessment

Area	Response	Agree	Disagree
A. Methodological standards	1. Purpose of the guideline specified	yes	
	2. Rationale and Importance of the Guidelines explained	yes	
	3. The participants in the guideline development process and their areas of expertise are specified.	yes	
	4. Targeted health problem or technology is clearly defined.	yes	
	5. Targeted patient population is defined	yes	
	6. Intended audience or users of the guidelines are specified.	yes	
	7. the principal preventive, diagnostic or therapeutic options are available to clinicians and patients are specified	yes	

Area	Response	Agree	Disagree
	8. the health outcomes are specified	yes	
	9. the method by which the guideline underwent external review is specified.		Yes
	10. An expiration Date or date of scheduled review is specified.		Yes
B. identification and summary of evidence	1. The method of identifying scientific evidence is specified		Yes
	2. The time period from which evidence is received is specified		Yes
	3. The method of data extraction is specified	yes	
	4. The method of grading or classifying scientific evidence is specified	yes	
	5. formal methods of combining evidence or expert evidence are used and described	yes	
	6. benefits and harms of specific health practice are specified		Yes
	7. benefits and harms are quantified		Yes
	8. the effect of healthcare costs from specific health practice is specified		Yes
	9. costs are quantified		Yes
C. Adherence to methodological standards on the formulation of recommendations	1. the role of value judgement used by the guideline developers in making recommendations is discussed	yes	
	2. the role of patient preferences is discussed	yes	
	3. recommendations are specific and apply to the stated goals of the guideline	yes	
	4. recommendations are graded according to the strength of the evidence	yes	
	5. flexibility in the recommendations are specified.	yes	

Problems were observed in methodological standards and in identification and summary of evidence. The main problems in methodological standards were there was no expiry date for the guideline and external reviews of guidelines not conducted (table 1). There are many areas

lagging under identification and summary of evidence. There was no formal method used to combine evidence or expert evidence.

Table 2 shows the distribution of knowledge scores among Medical Officers.

Table 2: Frequency Distribution of Correct and Wrong Answers for each Question in the Questionnaire

Question	Response	Correct answer (%)	Wrong answer WHOI (%)	Total
1. CVD risk assessment can be performed in,	a. A female aged 27 years with symptoms suggestive of diabetes mellitus	105(74.5)	36(25.5)	141(100.0)
	b. A 39-year-old male	141(100.0)	0(0.0)	141(100.0)
	c. A 46-year-old male with Ischemic Heart Disease	105(74.5)	36(25.5)	141(100.0)
	d. A 67-year-old female with peripheral vascular disease	99(70.2)	42 (29.8)	141(100.0)
2. Referral to a specialist clinic should be done when,	a. Total cholesterol level is ≥ 5 mmol/dl	120(85.1)	21(14.9)	141(100.0)
	b. Proteinuria is present	120(85.1)	21(14.9)	141(100.0)
	c. The client is less than 35 years of age with symptoms of diabetes	39(27.7)	102(72.3)	141(100.0)
	d. The Blood pressure is $>140/90$ mmHg	105(74.5)	36(25.5)	141(100.0)
3. The following is necessary to calculate the CVD risk	a. Family History of CVD	90(63.8)	51(36.2)	141(100.0)
	b. Body Mass Index	87(61.7)	51(36.2)	141(100.0)
	c. Fasting Blood Sugar level	126(89.4)	15(10.6)	141(100.0)
	d. Alcohol consumption	99(70.2)	42(29.8)	141(100.0)
4. Regarding the CVD risk	Risk of 10% to $<20\%$ denotes yellow areas of the WHO/ISH Risk Prediction Chart	21(14.9)	120(85.1)	141(100.0)

Question	Response	Correct answer (%)	Wrong answer WHOI (%)	Total
5. Regarding CVD risk	Review cardiovascular risk according to the guideline every 6 months in moderate risk patients	93(66.0)	48(34.0)	141(100.0)
6 When serum Cholesterol value is not available in a 45-year-old man, how do you assess the CVD risk	a. Take Serum cholesterol value as 5 mmol/dl and calculate CVD risk	108(76.6)	33(23.4)	141(100.0)
7. Cardiovascular Risk prediction charts should not be applied to	b. Patient with diabetes nephropathy	111(78.7)	30(21.3)	141(100.0)
	a. Patient with hypertension	132(93.6)	9(6.4)	141(100.0)
	b. Patient aged 45 years	135(95.7)	6(4.3)	141(100.0)
	c. Patient with a history of hyperlipidemia	138(97.9)	3(2.1)	141(100.0)
8. How often do you review a patient with a CVD risk of less than 10% and BP 120/80 mmHg	One year	105(74.5)	36(25.5)	144(100.0)
9. If a 37 year old person come to assess CVD risk what is the age category are you would use?	40-49 years	72(51.1)	69(48.9)	141(100.0)
10. Patient will be categorized as diabetes if he/she has,	a. FBS above 140mg/dl	81(57.4)	60(42.6)	141(100.0)

According to table 2, There seems to be lack of Knowledge in reading WHO/ISH Risk Prediction Chart. Also, awareness of referral criteria seems to be low.

The knowledge scores obtained showed no relationship with whether the MO followed training (mean score =16.1) or not (mean score =16.5). Also mean knowledge score of those who have followed training with

physical presence (mean =16.5) is high compared to the mean score of those who have followed training on line(mean=15.25) though not statistically significant.

Observational check list was used to assess the practices of MOO when assessing CVD risk. Table 3 shows the practice o medical officers.

Table 3: Distribution of Selected Practices among Medical Officers

Item	Carried out	
	Yes (%)	No (%)
Included following areas when taking history from the client		
Age	141(100.0)	0(0.0)
Gender	141(100.0)	0(0.0)
Symptoms suggestive of chest pain	112(79.4)	29(20.6)
Past medical history	141(100.0)	0(0.0)
Family history	141(100.0)	0(0.0)
Drug history	135(95.7)	6(4.3)
Smoking history	141(100.0)	0(0.0)
Areas covered in Examination		
Blood pressure	141(100.0)	0(0.0)
Height	141(100.0)	0(0.0)
Weight	141(100.0)	0(0.0)
BMI	141(100.0)	0(0.0)
Waist circumference	135(95.7)	6(4.3)
CVD Risk Assessment		
Did the CVD risk assessment	141(100.0)	0(0.0)

Correctly mark in the CVD risk	141(100.0)	0(0.0)
Correctly classify the client according to the CVD risk	129(91.4)	12(8.6)
Correctly give instructions to the client regarding management	111((78.7)	30(21.3)
Correctly give instructions to the clients regarding follow up	111((78.7)	30(21.3)

As shown in Table 3, during the history taking only 79.4% have inquired about history of chest pain. During examinations all of them have checked blood pressure, height, weight and BMI while 95.7% measured the waist circumference.

All MOO (100%) correctly did the CVD risk assessment and marked it in the correct place. However, only 91.4% correctly classified the clients according to the CVD risk assessment charts. Only 78.7% of MOO correctly gave instructions to the clients regarding further management and follow up of their condition based on the risk level.

Table 4 shows the human resources availability to conduct HLCs.

Table 4: Human Resources availability to conduct Healthy Lifestyle Centers

Human Resource	Number available			
	Not available	one	two	>=Three
Medical Officer	0	80	24	37
Nursing Officer	78	8	55	0
Public Health Nursing officer	111	30	0	0
Health Care Assistant	8	86	47	0

According to table 4, all HLCs had at least one MO. However, 78 HLCs did not have a Nursing Officer(NO) and only 30 institutions had a Public Health Nursing Officer(PHNO). It was observed that eight

HLCs didn't have Health care Assistants (HCAs). .

Table 5 shows the availability of Records, Registers and guidelines.

Table 5: Availability of Records, Registers and Guidelines at Healthy Lifestyle Centers

Records, Registers and Guidelines	Availability	
	Yes (%)	No (%)
Personal Medical Record	141(100.0)	0(0.0)
Participant's register	133(94.3)	8(5.7)
CVD risk assessment guideline	133(94.3)	8(5.7)
Diabetes Management guideline	125(88.7)	16(11.3)
CVD Risk Assessment Chart	133(94.3)	8(5.7)

All HLCs have Personal Medical Records (table 5). Participant registers were available in 133 HLCs (94%). CVD risk assessment guideline and the CVD risk assessment charts were available in 94% of the HLCs .

All 141 HLCs has Blood Pressure machines while only 133 HLCs had cholesterol meters and glucometers.

Discussion

This research had to be carried out during the Covid epidemic as the epidemic was reported immediately after commencing the data collection. During this period many HLCs were not open and there was no screening taking place. Also, some primary care institutions were converted to intermediate care centers. In addition, due to travel restrictions, it was not advisable to

visit the stations for the research. 141 primary care institutions which had fully or partially functioning HLCs were visited for the study. As this research did not cover participation at HLCs, it was possible to conduct the research fully in the 141 functioning HLCs.

In the methodological standards the lack of an expiry date for the guideline was identified as an issue. When policies or guidelines are developed, it is important to identify an expiry date after which new policies or guidelines need to be developed based on Knowledge at that time.

MOs showed lack of Knowledge in handling those under 35 years of age and on referral criteria. This needs to be covered in the future trainings.

It is shown that those who had followed online training on CVD risk assessment had less Knowledge compared to others who have followed the course physically. The skills of MOs in clinical examination was 100%. All 141 MOs did the CVD risk assessment correctly and also marked it correctly.

Although medical officers were available in all PCIs nursing officers were not available in 78 PCIs. In eight HLCs the participants registers, and CVD risk assessment guidelines and charts were not available.

Conclusions

1. The CVD guideline lacked methodological standards and identification and summary of evidence.
2. There is a gap in Knowledge in screening criteria and management of those under 35 years of age.
3. There is lack of a NOs in many PCIs.

Recommendations

1. It is recommended to carry out training at national level for MOs every six months.
2. It is recommended to appoint at least one NO or a PHNO to a HLC.

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