

## Task Shifting for Cardiovascular Disease Management: What Can We Learn from other Models?

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Received: March 1, 2014

Revised: April 17, 2014

Accepted: April 22, 2014

Published online: June 10, 2014

### ABSTRACT

In the context of an aging population combined with increasing cardiovascular disease (CVD) burden there is a need for increasing access to prevention and health management. Ideally, primary healthcare physicians are the first point of contact and the main providers of healthcare for individuals with CVD. However, in low and middle-income countries, very few doctors are available and physician workforce disparities for rural and remote regions are substantial. Task shifting may provide a new and exciting opportunity for increasing access to CVD health management. Task shifting involves the rational redistribution of tasks among health workforce teams. For a task shifting model of care to function optimally several changes need to be made at the health policy and health systems level including integration of non-physician healthcare workers as part of a multi-disciplinary team with support from physicians, and consultation with regulatory bodies such as the medical and nursing councils. With such systems in place there are significant opportunities for major improvements in healthcare quality and outcomes for CVD management.

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**Key words:** Task shifting; Heart disease; Primary care; Secondary prevention

Joshi R, Santo K, Redfern J. Task Shifting for Cardiovascular Disease Management: What Can We Learn from other Models? *Journal of Cardiology and Therapy* 2014; 1(5): 88-91 Available from: URL: <http://www.ghrnet.org/index.php/jct/article/view/709>

### THE GLOBAL BURDEN OF CARDIOVASCULAR DISEASE

In 2010, 52.8 million deaths occurred globally, one quarter of which were attributable to cardiovascular diseases including coronary heart disease and stroke<sup>[1]</sup>. Of the 12.9 million deaths attributable to cardiovascular disease (CVD), 80% occurred in low and middle-income countries<sup>[2]</sup>. In these regions, CVD (including ischaemic heart disease, heart failure and stroke) has not only become the leading cause of disease burden, but also occurs at a much younger age, thereby contributing disproportionately to lost potential years of healthy life, as well as lost economic productivity. In high income countries, while mortality rates due to CVD have decreased over the years CVD continues to be a major burden of disease in terms of illness, disability and premature death, and the associated direct health care expenditure exceeding that for any other disease group<sup>[3]</sup>. Over the coming decades, the prevalence of CVD is expected to increase as the population ages, particularly given the importance of relationship with increased age and CVD risk. In the next 15 years, it is anticipated that global cost of CVD will be US \$1,044 billion, this includes direct healthcare costs and productivity loss from disability or premature death, or time loss from work because of illness or the need to seek health care<sup>[4]</sup>.

### THE ROLE OF HEALTH SERVICES TO PREVENT AND MANAGE CVD

In most countries, primary healthcare physicians are the first point of contact and the main providers of healthcare for individuals with CVD. In low and middle-income countries, very few doctors are available and physician workforce disparities for rural and remote regions are substantial<sup>[5-7]</sup>. In low income countries, 0.3 physicians

are available for every 1,000 population, compared to 1.2 physicians for every 1,000 population in low and middle-income countries, and 2.0 per 1,000 population in upper middle income countries. While physician availability is not a barrier in high income countries, the high costs of physicians and lack of time are the key constraints. Even within high income countries, some workforce disparities exist, with high physician-population ratio in major metropolitans and fewer physicians available in rural and remote regions.

## RE-ENGINEERING THE HEALTH WORKFORCE TO ENHANCE CVD MANAGEMENT

In the context of an aging population combined with increasing disease burden and reducing access to primary healthcare, there is a need to re-engineer the healthcare workforce that is structured around the consumer needs. ‘Task shifting’ describes a situation where a job normally performed by a physician is transferred to a health professional with a different level of education and training, or to a person specifically trained to perform a limited task only, without having formal medical education<sup>[8]</sup>. Task shifting involves the rational redistribution of tasks among health workforce teams (Figure 1). Specific tasks are shifted, where appropriate, from highly qualified physicians to non-physician healthcare workers with shorter training and fewer qualifications in order to make more efficient use of the available human resources for health. Task shifting is typically done in close collaboration with the medical profession<sup>[9]</sup> and is particularly well-suited to prevention.

Task shifting to non-physician healthcare workers provides an opportunity for regular follow-up to promote adherence to medications, this is particularly useful in the context of chronic conditions such as CVD (Figure 1). Allied health personnel such as

nurses, and pharmacists can support patients with adherence to drugs as a result of regular interaction thereby, allowing reinforcement of messages about medication adherence and identifying potential medication issues that affect adherence and persistence (Figure 1). At the same time, allied health professionals such as dieticians and physiotherapists are well trained to assess and manage lifelong behaviour change in terms of CVD risk factors. Task-shifting can also assist with home based rehabilitation of patients after a cardiovascular event<sup>[10]</sup>.

## EFFECTIVE MODELS OF CARE: EXAMPLES FROM AROUND THE WORLD

Task shifting has been used for several decades for various conditions such as maternal and child health<sup>[11,12]</sup>, infectious diseases<sup>[13]</sup> and more recently for HIV/AIDS. A Cochrane review assessing the performance of non-physician healthcare workers on maternal and child health indicated that task shifting had a benefit in promoting immunisation, breastfeeding, improving tuberculosis and HIV outcomes and reducing childhood morbidity and mortality when compared to usual care<sup>[14,15]</sup>. A systematic review of task shifting for HIV care in Africa showed that task shifting offered cost-effective and high quality care to more patients than a physician-centred model<sup>[15]</sup>. Task shifting can potentially result in cost and physician time savings without compromising the quality of care or health outcomes for patients<sup>[16-19]</sup>. A study from Uganda reporting the impact of task shifting on the costs of antiretroviral therapy and physician supply found that the estimated annual mean costs of follow-up per patient were US \$31.68 for physician follow-up, US \$24.58 for nurse follow-up and US \$10.50 for pharmacist follow-up<sup>[20]</sup>. It is also potentially an efficient way of reorganising the workforce by ensuring better specialisation of tasks, allowing physicians to focus on the jobs that cannot be otherwise delegated.

High income countries like the United Kingdom, United States of America and Australia have somewhat re-engineered their workforce for better efficiency of health care. For example, tasks such as taking blood samples, which were performed by physicians several decades ago, have been shifted to non-physician healthcare workers like phlebotomists who specialise in taking blood samples, thereby freeing up physician time to do other important tasks involved in patient management. Nurse practitioners in these countries are increasingly adopting many aspects of healthcare delivery that were traditionally the domain of physicians. Several studies involving management of patients by nurses have demonstrated to be effective in lowering blood glucose, blood lipids, blood pressure and smoking cessation<sup>[21-23]</sup>.

Another well placed group of professionals are Pharmacists. A number of randomised control trials involving pharmacists have been associated with improvements in adherence to medications; which in some studies have demonstrated improvements in blood pressure and lipids<sup>[24-28]</sup>. Several meta-analysis of task shifting to pharmacists have demonstrated increase in medication adherence, medication persistence, and clinically meaningful reductions in risk factors such as high blood pressure<sup>[29,30]</sup> and lipids<sup>[31]</sup>.

Novel technologies, such as those that utilise e-health (eg, using smart phones, mobile telephones and the Internet) can aid non-physician healthcare workers in training and providing them with clinical decision support in the community. A cluster randomised trial conducted to assess whether community-based care delivered by lay people could replace clinic-based HIV care demonstrated that community-based ART care was augmented with clinical decision

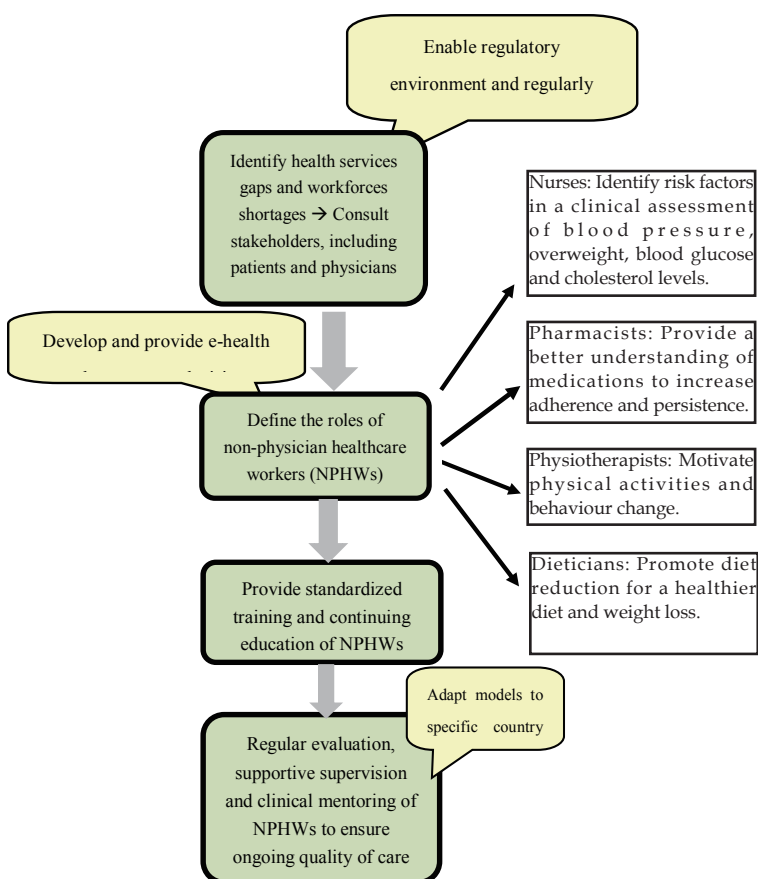


Figure 1 Overview of task-shifting model.

support tools<sup>[32]</sup>. Similarly, pharmacists and nurse practitioners can be trained and equipped with decision support tools to screen patients at high-risk of CVD and refer them to their physicians for further management.

## FUTURE DEVELOPMENT AND RESEARCH

Task shifting alone will not solve the problem of CVD control and management. Re-engineering the health workforce will need to be implemented along with changes in the health system including provision of a training package for non-physician healthcare workers in these new skills, providing disease specific screening and management protocols and in some situations, giving the ability to prescribe from a restricted list of medications, in consultation with physicians, where available. The World Health Organisation has recently published guidelines regarding the rational distribution of tasks to help overcome shortages in the medical workforce and a summary of the practical requirements of these recommendations is provided in figure 1<sup>[33]</sup>. Essentially, the practical considerations of a task shifting model include the needs for adequate training, quality assurance measures, human resources and a reorganisation of care in an framework that is adaptable to local need (Figure 1).

Research is needed to understand issues relating to quality of healthcare provided, patient acceptability and concerns over safety, effectiveness, and health outcomes. Given that non-physician healthcare workers are seen as a potentially low-cost and sustainable option for the management of CVD, future studies should also incorporate cost-effectiveness analyses and process evaluation to explore acceptability of this model of care. By expanding the role given to health workers in managing chronic illness we need to better understand for instance how patients might balance potential concerns over safety and efficacy with factors such as lower costs and improved availability and access, as well as culturally appropriate care.

## CONCLUSION

In the context of an aging population combined with increasing disease burden and reducing access to primary healthcare, task shifting may provide a new and exciting opportunity for increasing access to CVD health management. For a task shifting model of care to function optimally several changes need to be made at the health policy and health systems level including integration of non-physician healthcare workers as part of a multi-disciplinary team with support from physicians, and consultation with regulatory bodies such as the medical and nursing councils. With such systems in place there are significant opportunities for major improvements in healthcare quality and outcomes for CVD management.

## CONFLICT OF INTERESTS

There are no conflicts of interest with regard to the present study.

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