

**Research Assessment Exercise 2020**  
**Impact Case Study**

**University:** The Chinese University of Hong Kong (CUHK)

**Unit of Assessment (UoA):** 5

**Title of case study:** Preventing and managing cerebro-cardiovascular diseases (CCVD)

**(1) Summary of the impact** (indicative maximum 100 words)

The prevalence and mortality of cerebro-cardiovascular diseases (CCVD) are very high both globally and nationally. By motivating/facilitating public engagement and collaborating with healthcare services and non-governmental organisations, our team has made a significant impact on improving the cerebro-cardiovascular health of Chinese patients with or at risk of developing CCVD. Our innovative empowerment-based programmes were included in the revamped community-based CCVD services for these patients and their caregivers, and changed the focus of CCVD rehabilitation services and the hospital-community partnerships nationally and internationally. The evidence-based protocols we developed have also contributed significantly to reduced health service utilisation and improved health outcomes.

**(2) Underpinning research** (indicative maximum 500 words)

In 2005, our research team examined the psychosocial and physical factors predicting post-stroke social participation and community reintegration, which revealed that stroke survivors had insufficient knowledge about prevention and management of CCVD. Since then, we have secured US\$2.27 million competitive grants to look into the wellness-disease continuum of cerebro-cardiovascular health. Our team successfully conducted a series of studies, known as Nurse-facilitated Empowerment-based Patients' Self-care intervention (NEPS), to promote and optimise cerebro-cardiovascular and metabolic health for CCVD patients, and the public. Family caregivers of CCVD patients were also empowered to support sustainable community-based rehabilitation for patients in the transition from hospital to community care. Our research evidence has brought about benefits and practice improvements in CCVD care nationally and internationally.

**Controlling risk factors**

Lifestyle modification is crucial to reducing CCVD risk factors. Our clinical trial demonstrated that the low-dose lifestyle intervention we launched was effective in reducing body weight and depression in people with metabolic syndrome [3.1]. Our team also established the CU CHAMPION (Community Health and Medication-safety Promotion Inter-school Outreach Network), an inter-school, inter-faculty initiative to promote cerebro-cardiovascular health and examine the impacts of pharmacist-nurse interventions on medication management and well-being of hidden elders in CCVD prevention/treatment [3.2].

**Self-care empowerment and symptom management**

Self-efficacy has been extensively studied as a personal resource of people with CCVD. Based on our systematic review, and drawing on the concept of self-efficacy, the NEPS was developed to enhance self-management, goal setting and action planning for stroke survivors in the transition from hospital to community living [3.3]. Its promising effects on illness management led to improvements in a few hundred community-dwelling CCVD sufferers' self-efficacy, outcome expectation and satisfaction with self-management performance [3.4].

The NEPS also demonstrated that ongoing professional support through nurse-patient partnership could improve effectiveness, quality and continuity of care. This evidence-based intervention was adopted by a local rehabilitation society for service delivery through its hospital partnership. In addition, the NEPS protocol for supporting recovery of community-dwelling CCVD patients was developed and adopted to promote stroke rehabilitation service locally, and in a

province in mainland China.

### **Caregiver support**

Family plays an important role in supporting patients with CCVD in the community. Our systematic review also informed the effectiveness of self-management interventions on improving caregivers' mental well-being and reducing stroke survivors' residential care placements [3.5], and led to the development of a theory- and evidence-based psychoeducation intervention to support family caregivers in transitional care between hospital and community [3.6]. Our findings suggest that incorporating a strength-oriented psychoeducation programme into the current stroke rehabilitation protocol(s) can foster a successful rehabilitation of stroke survivors and their healthy transition from hospital care to taking care by their families at home/in the community. A protocol for "caring for (family) carers" in stroke rehabilitation was developed and applied to stroke nursing locally and nationally.

### **(3) References to the research** (indicative maximum of six references)

#### **Publications related to the underpinning research**

- 3.1 Wang Q, Chair SY, Wong EML. The effects of a lifestyle intervention program on physical outcomes, depression and quality of life in adults with metabolic syndrome: A randomised clinical trial. *Int J Cardiol.* 2017; 230: 461-467.
- 3.2 Lee VWY, Pang KKW, Hui KC, Kwok JCK, Leung SL, Yu DSF, Lee DTF. Medication adherence: Is it a hidden drug-related problem in hidden elderly? *Geriatr Gerontol Int.* 2013; 13(4): 978-985.
- 3.3 Sit JWH, Chair SY, Choi KC, Chan CWH, Lee DTF, Chan AWK, Cheung JLK, Tang SW, Chan PS, Taylor-Piliae RE. Do empowered stroke patients perform better at self-management and functional recovery after a stroke? A randomised controlled trial. *Clin Interv Aging.* 2016; 11:1441-1450.
- 3.4 Lo SHS, Chang AM, Chau JPC. Stroke self-management support improves survivors' self-efficacy and outcome expectation of self-management behaviours. *Stroke.* 2018; 49(3): 758-760.
- 3.5 Cheng HY, Chair SY, Chau JPC. The effectiveness of psychosocial interventions for stroke family caregivers and stroke survivors: A systematic review and meta-analysis. *Patient Educ Couns.* 2014; 95(1): 30-44.
- 3.6 Cheng HY, Chair SY, Chau JPC. Effectiveness of a strength-oriented psychoeducation on caregiving competence, problem-solving abilities, psychosocial outcomes and physical health among family caregivers of stroke survivors: A randomised controlled trial. *Int J Nurs Stud.* 2018; 87: 84-93.

### **(4) Details of the impact** (indicative maximum 750 words)

#### **Impact on CCVD risk reduction through public education and e-health platforms**

Since 2013, we have developed three e-health websites in traditional Chinese language to increase public awareness of CCVD risk and promote self-care empowerment (*Evidence-1*). The website materials were adopted by the Hospital Authority, HK, two non-governmental organisations (NGOs) and a local patient-support group. For websites 4.1 and 4.2 below, simplified Chinese versions were developed to facilitate their wider spreads in mainland China.

- 4.1 "CV Health Cerebro-cardiovascular Info Site" (75,565 hits/year): Local and mainland Chinese users regarded the information as useful in addressing patient needs for daily self-management.
- 4.2 "Caring for Yourself: Managing Your Diabetes" (22,937 hits/year): The website materials were adopted by HK public hospitals, and its hyperlink was added to a local hospital's webpage. The users found the website useful and user-friendly.
- 4.3 "Path to Vitality and Vibrancy": As an interactive platform operated by a charitable organisation to empower middle-agers for CCVD prevention/management, it recorded 10,994 hits and 815 visitors engaged in dialogues with nurses with very positive feedback.

Since 2017, seven health talks/training using the website materials have been conducted for 440 elders to clarify their misconceptions(*Evidence-2*).

The CU CHAMPION has served 13,778 elders since 2015 via 220 outreach sessions to promote cerebro-cardiovascular health and medication safety. 348 healthcare providers and 1,869 students were trained as volunteers to conduct health assessments, counselling and education. Most participants (>97%) were satisfied with the services. Our community partners commented that the services improved participants' health literacy and medication use(*Evidence-3*).

### **Impact on local and international CCVD prevention through evidence-based protocols guiding health and social care practice**

Our NEPS protocol for minor stroke care has been adopted by a US healthy community network for professionals and community members. The protocol has also been translated and adopted since 2010 by a local rehabilitation network for delivering services to minor/moderate stroke survivors in seven local public hospitals (serving >800,000 citizens). In 2017-18, >600 stroke survivors benefited from our health education(*Evidence-4*). Sustainable engagement with service providers was evidenced in a book chapter co-authored with network partners. In collaboration with a charitable organisation, two Thai radio broadcastings on stroke prevention/management (July-2015) have had an impact on CCVD knowledge/awareness among >10,000 Thais in HK.

A neighbourhood elderly centre of an NGO (serving 300 frail elders) has adopted our NEPS (since 2017) and caregiver protocols, resulting in 30% reduction of emergency department visits annually. The caregivers reported that the training enhanced their confidence in elderly care by 25%(*Evidence-5*).

A local hospital has adopted our NEPS protocol and related educational resources for specialty nurse training, and the materials were also made freely accessible to 25,000 nurses in HK since 2019. Positive user feedback was received(*Evidence-6*).

In 2019, the NEPS protocol has been adopted by 400 nurses (including nurse managers) from 19 hospitals and 5 community centres in a province in mainland China. 90% trainees/caregivers reported noticeable enhancement of caring skills/competence. Eight social media chat groups established by the trained nurses have provided continuous support to 456 stroke survivors/caregivers. The monthly hospital readmission rate and blood pressure of stroke survivors reduced by 2-10% and 20-25%, respectively. Average monthly healthcare costs on stroke survivors reduced by 4%, as reported by the hospitals(*Evidence-7*).

### **Impact on community rehabilitation services**

#### ***Nurse-facilitated empowerment in symptom self-management***

The promising effect of NEPS raised much discussion in nurse-facilitated patient self-management on stroke transitional care and rehabilitation. Our self-management training booklets and DVDs were adopted by a local stroke association, and 540 DVDs were disseminated to its members in 2019. Four workshops were conducted for stroke survivors and caregivers (since 2014), who commented that the workshops enhanced their confidence and skills in addressing post-stroke challenges. This innovative approach were reported in the association's newsletters (2014), reaching >3,000 stroke survivors, caregivers and healthcare providers(*Evidence-8*).

### **Impact on policy for supporting family caregivers**

Our review evidence on CCVD management was adopted by an electronic evidence-based care sheet (2015) as a recommended "Best Practice". The evidence has been globally accessible online, and published in the textbook "Nursing Care-Plan". The evidence and instruments developed for caregivers informed clinical guideline development internationally, such as in Australia (2019), Germany (2018) and Korea (2017), and a meta-review of family intervention for chronic illnesses conducted by a national research institution in the UK (2017)(*Evidence-9*).

Our evidence on CCVD management and caring-for-carers informed policy-making through a national trauma care forum in Australia (2014), where 17 healthcare experts, government officials and stakeholders having dialogues to inform future actions and protocols to enhance CCVD caregivers' resilience and sustainability(*Evidence-10*).

(5) **Sources to corroborate the impact** (indicative maximum of 10 references)

**E-health platforms for CCVD risk factor reduction**

**5.1 Evidence-1:**

Users' feedback on e-health platforms "CV Health Cerebro-cardiovascular Info Site" (<http://cvhealth.nur.cuhk.edu.hk/>) (75,565 hits/year since 2013) and "Caring for Yourself: Managing your Diabetes" (<http://dmcare.nur.cuhk.edu.hk/>) (22,937 hits/year since 2013) via CUHK website and a local hospital's website.

**5.2 Evidence-2:**

A letter of appreciation on the health talks and caregiver training using the online/website materials indicating the impacts on clarifying health misconceptions and improving caregiving abilities.

**5.3 Evidence-3:**

Reports of the CU Champion initiatives (2015-16 to 2018-19).

**Protocols to guide health and social care practice in CCVD prevention and management**

**5.4 Evidence-4:** Internal communication of a local rehabilitation society (2017-2018).

**5.5 Evidence-5:** A letter of support from the collaborating NGO showing the impact of NEPS and caregiver protocols on improving caregivers' outcomes, and reducing healthcare service utilisation.

**5.6 Evidence-6:** The NEPS evidence-based protocol for supporting recovery of community-dwelling stroke survivors and caring for the caregivers, and its link in the Hospital Authority's website (supplemented with user feedback).

**5.7 Evidence-7:** Mainland participants' feedback on the training in and application of the NEPS evidence-based protocol for supporting recovery of community-dwelling stroke survivors and caring for the caregivers, and its impacts on healthcare services and patients' and family caregivers' outcomes.

**Evidence to inform community rehabilitation services**

**5.8 Evidence-8:** Nurse-facilitated support to community-dwelling stroke survivors' self-management.

Feedback from service users: (i) A letter of appreciation from the chairman of a local stroke association about the use of the DVDs in enhancing self-management among their members; (ii) feedback from stroke survivors who had participated in the community-based stroke self-management workshops (since 2014); and (iii) two articles published in the association's newsletters about the use of this innovative approach to enhance stroke self-management, and the stroke survivors' feedback.

**Evidence of policy for supporting family caregivers**

**5.9 Evidence-9:**

Clinical guidelines/standards and recommendations for supporting caregivers:

- Clinical Practice Guideline for Stroke Rehabilitation in Korea (2017) providing direction and standardisation for acute, subacute and chronic stroke rehabilitation in Korea.
- *Langfassung der Leitlinie "Pflegerische Angehörige von Erwachsenen"* 2018 (Long version of Clinical Practice Guideline "Caregivers of Adults"), issued by a medical association in Germany.
- Understanding the Social and Emotional Needs of Carers: Final Report 2019, prepared for a carer council in Australia.
- Meta-review of Evidence on Support for Carers (Health Services & Delivery Research), conducted by a national research institute in the UK.

**5.10 Evidence-10:**

For policy making: A national trauma care forum for structured stakeholder dialogues to inform future actions for enhancing caregivers' resilience and sustainability. Seventeen stakeholders in the forum were researchers and representatives from an Australian government department, health services/organisations, consumer advocacy, funding providers, and clinical practice organisations.