

# Supporting and enhancing elderly care in private aged homes—successful exemplar for an Interdisciplinary and Intersectoral Collaborative Model in Hong Kong

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## ABSTRACT

**Background.** It is estimated that senior citizens will account for 15% of the total Hong Kong population by 2016. With advancing age and increasing prevalence of chronic illnesses, majority being frail and vulnerable, continuous and rapid growth of long-term residential care is expected. In public hospitals, elderly patients constitute a large proportion of the patient load (over 50% of hospital admissions). To ensure post-hospital discharge community care for the institutionalised elderly, since 1999 the Hospital Authority has extended outreach geriatric medical and nursing services to private aged homes (PAHs). The underlying philosophy was that with empowerment of PAH carers and better-coordinated preventive and extended care, health outcomes of the elderly would be improved and burden on hospital service utilisation alleviated. The present study was launched so as to evaluate the effectiveness of such an extensive programme and provide information for further improvement.

**Methods.** This study applied a longitudinal design with subject as self-control. Subjects were followed up for a period of 12 months to see if they develop improved outcomes mainly in terms of: (1) goals attainment in specific care improvement areas; (2) hospital services utilisation and cost data; (3) satisfaction levels of PAH project nurses and PAH staff.

**Results.** A total of 366 subjects were recruited territory-wide. The initial Goal Attainment Scale (GAS) mean score was 38.4 (standard deviation [SD], 8.1); post GAS mean score was 55.6 (SD, 7.53) [mean GAS change, +17.23;  $p=0.000$ , paired  $t$ -test]. Overall there was an approximately 30% reduction in various aspects of hospital service utilisation; accident and emergency admissions: (pre) 756, (post) 530 ( $p=0.000$ , paired  $t$ -test); hospital admissions: (pre) 713, (post) 515 ( $p=0.000$ , paired  $t$ -test); unplanned readmissions: (pre) 211, (post) 150 ( $p=0.039$ , paired  $t$ -test); length of hospital stay (LOS): (pre) 16.12, (post) 10.59, 6 days shortened ( $p=0.000$ , paired  $t$ -test). Reduced hospital episodes and LOS (assuming HK\$3130 daily hospital bed costs) amounted to annual estimated savings of HK\$20 millions. Job satisfaction measurement of nurses showed that they had achieved a high level of satisfaction (scale ranged from point 2 to 5, mean score of 3.5 as satisfactory score), the overall satisfaction mean was 3.8 and SD 0.3. The eight top ranked achievements were: (1) contributions to patient care, (2) challenge “in my job”, (3) extent to

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which "I can use my skills", (4) value "placed on my work by my patients and/or their relatives", (5) contact that "I have with colleagues", (6) extent to which "My job is varied", (7) independent decision making that "I can exercise in my work", (8) feeling of worthwhile accomplishment that "I get from my work". From the service user's point of view, the PAH workers were also very satisfied with the nursing services provided in the outreach project.

**Conclusions.** Many residents in the PAHs were of infirmary level of care, with 83% on Comprehensive Social Security Assistance, which has great implications on health services utilisation. Despite concerns about trespass into private sector, coverage of these vulnerable groups was necessary. The study findings showed considerable burden alleviation from the public sector. This innovative service model to improve continuity of care for the elderly in PAHs was on the right track. The working environment in the community is complex and dynamic and requires nurses to exercise advanced practice and excel in their roles and functions.

**Key words:** Advanced nursing roles, elders; Care delivery model; Community care; Continuity of care; Outcomes

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## INTRODUCTION

It is estimated that senior citizen of Hong Kong will account for 15% of the total population by 2016.<sup>1</sup> Although being old is not synonymous with illness and disability, medical advances cannot reduce disabilities accompanying extended lifespans, so that many elderly persons live with disablement resulting from age-related illness with or without the care of others.<sup>2-4</sup> In public hospital, elderly persons constitute a large proportion of the patient load, which accounts for over 52.1% of hospital admissions.<sup>5</sup>

With advancing age and prevalence of chronic illnesses in a population the majority of whom are frail and vulnerable, continuous and rapid growth of long-term residential care is expected. Over decades, the tradition of the older generation living under the same roof as their children has also been changing. Many elderly people therefore turn to institutional care of various kinds.<sup>6</sup> At the same time there was a strikingly large shortfall in the provision of infirmary beds. In fact, among all types of residential care, more than 50% was in private aged homes (PAHs).<sup>7</sup> Although we are facing similar global challenges in the health care industry all over the world, the 'booming of PAHs' here in Hong Kong is unique. The latest information from the Social Welfare

Department (SWD) shows that there are more than 700 PAHs providing approximately 45 000 places (personal communication). Moreover, there was no licensing requirement or legislation to control these PAHs before 1997, except the Code of Practice for Private Elderly Homes published by the SWD in October 1986.<sup>8</sup> The SWD conducted a territory-wide inspection of PAHs in 1997 and licensing requirements came into force in 2000, after a 3-year grace period. However, there have been a lot of concerns about their standards, particularly in relation to nursing, nutrition, and psychological care.

Coupled with the inability of family caregivers to cope with the level of nursing care required for older people in need of infirmary care, the frail elderly were pushed into PAHs and numerous local researchers stressed the threat of trapping the latter in a "no-care zone".<sup>9-15</sup>

In order to ensure post-hospital discharge community care for the institutionalised elderly, the Hospital Authority (HA) extended outreach geriatric medical and nursing services to PAHs since 1999. Nurses have taken up the forefront roles as the sentry and overall care coordinator to optimise elderly care. Such roles were fulfilled through nurse-led PAHs carer empowerment programmes and provision of

nursing professional support that includes detection of early signs of health problems and providing critical links during ad-hoc events in this programme.

Apart from constituting the major bulk of service workload (over 80% of session hours), nurses also had to liaise effectively among professional disciplines. The latter mainly consisted of doctors and allied health HA colleagues, between public (HA) and private sectors (PAHs and their Visiting Medical Officer), and between medical and welfare sectors. Whereas, the elderly residents of PAHs were the main targets, residents' relatives, PAH workers were also mobilised and supported by professional outreach medical and nursing team members. The underlying philosophy was that with empowerment of the PAH carers and better-coordinated preventive and extended care, health outcomes of the elderly would be improved and burdens on hospital service utilisation could also be alleviated. The present study was launched so as to evaluate the effectiveness of such an extensive programme and provide information for further improvement.

## METHODS

Due to the limitations of the real situation, a 70% service coverage and the existing diversity in service delivery models, the application of a more rigorous research design such as a randomised control trial or experimental study for the evaluation was hindered. The sample population was heterogeneous, having had various medical interventions, states of functional decline and mortality rates. Standard measurement tools such as the Barthel Index, the Katz Index of activities of daily living and the Mini-Mental State Examination, which had been used to evaluate geriatric services in acute care, are often unresponsive and irrelevant in long-term care.<sup>16</sup>

Therefore, the current study adopted a longitudinal design in which subjects were used as their own controls in order to capture the effectiveness of such an outreach service to the elderly in PAHs. In view of Goal Attainment Scale (GAS) being a more sensitive instrument for this particular patient group, which had been tested in the evaluation of care programmes for the frail elderly and in nursing home settings,<sup>16-18</sup> among the various outcome parameters selected as a multidimensional strategy in evaluation, it was used as the core measurement of effectiveness of nursing

intervention in the project. Gordon et al<sup>13</sup> stated that, "Multiple needs of elderly patients, which require a multi-disciplinary approach, equally require a multidimensional evaluation."

Goal Attainment Scale was a method of setting goals and measuring their attainment that allowed both a description of the intervention programme and an evaluation of its components without adding burdens in time and cost. The Scale had two features: a 5-point scale which allows for more dichotomous outcome, and a summary goal attainment score which allows reporting of overall achievement of goal in a specific area.

To facilitate the core measurement, a panel of five members with diverse backgrounds and expertise developed a standardised menu for goal attainment scaling.<sup>19</sup> This was undertaken with reference to the guidelines and audit measures developed by The Royal College of Physicians and the British Geriatrics Society of London for long-term care of elderly. Within a specific goal area in the menu, the current description of the problem had to be recorded. If clinically relevant deterioration appeared plausible, the current description was scored as '-1'. If the problem was at its worst, the current level of functioning was scored as '-2'. If current condition was stable or achieved to the expected level with effective intervention or maintenance measures, it was recorded in the '0' category. If outcome achieved somewhat more than the expected level, it was recorded as '+1' while much more than expected as '+2'. Overall goal attainment score was then calculated by the statistical formula:  $GAS = 50 + C (\sum X_i)$ , whereas  $X_i$  = score of individual goal;  $C$  = constant varies with the number of goals set for that particular patient. If all goals were achieved in a particular patient, each  $X_i$  will equal 0. As any term multiplies by 0 equals 0, the patient score would be  $50 + 0 = 50$ . Subjects recruited were followed up for a period of 12 months to see if they developed improved outcomes in terms of the selected indicators until the goal was determined unachievable or the patient died.

Although GAS was used as a core measurement, in this study its application was not a replacement for other standard measures. Goal Attainment Scale does not measure pre- or post-treatment status; rather it quantifies treatment-induced change relative to expected outcome.<sup>18</sup> Thus, standard measurements of

pre- and post-treatment functional and physical status were also determined using the Barthel Index-20 (BI-20) modified by Collin et al in 1988<sup>17</sup> and Karnofsky scale developed by Karnofsky and Burchenal in 1949.<sup>20</sup> Effectiveness of service was also evaluated through other dimensions—Crude outcomes indicators (Multidisciplinary Outputs)—length of hospital stay (LOS); readmission rates; number of accident and emergency (A&E) visits; and satisfaction levels pertaining to PAH project nurses and staff.

## Sample

A power analysis was performed to estimate the optimal sample size. Since there was no previous local study conducted on this area and strict experimental controls were not feasible, the effect size was conservatively assumed to be small.<sup>21</sup> Sample size estimation, based on a paired *t*-test analysis, was performed. With a small effect size,  $\delta = 0.20$ ,  $\alpha = 0.05$ , 393 subjects were required to achieve a power of 0.80.<sup>22</sup>

A quota-proportionate sample from each cluster, according to the HA service catchment areas, was drawn. Inclusion criteria were: age  $\geq 65$  years PAH residents and one or more out of a group of pre-specified primary diagnoses. The latter included: cerebrovascular accident, cardiovascular disease, respiratory disease, and diabetes mellitus and at least one hospital admission in the previous 6 months. These diagnoses were based on two major local epidemiological studies to identify high-risk cases for unplanned readmission.<sup>23,24</sup>

## RESULTS

A total of 366 subjects were recruited territory-wide between April 2000 and July 2000; 240 (66%) were female. Based on original assumptions of a small effect size ( $\delta=0.20$ ), the reduced sample size yielded a power value down to 0.67, which increased the chance of a type II error. However, from the data collected on the core measurement of GAS, the effect size was large ( $\delta=2.12$ ), yielding a mean difference in the pre- and post-scores of 17.23 to be divided by the baseline standard deviation of 8.14. Consequently, the statistical power of the study still exceeded the conventional level of 0.80.<sup>25</sup>

Demographically the patients were frail and

vulnerable; their mean age was 81 (standard deviation [SD], 7) years, their mean number of co-morbidities was 3 (SD, 1) with a range of 1-8. Moreover, 52% were illiterate, 83% depended on Comprehensive Social Security Assistance (CSSA) [TABLE 1], 80% scored  $\leq 5$  (indicating frailty) in the Karnofsky Score and  $>60\%$  had a BI-20 of  $<4$  (indicating total dependency). Wilcoxon signed ranks test on Karnofsky and BI-20 scores ( $p=0.000$ ; TABLES 2 and 3) showed migrations to lower values, indicating progressive deterioration.

For GAS, a total of 644 goals were selected with a mean of 3 per subject (range, 1-8 goals; SD, 1 goal). In order, the five most frequently selected were: pressure sore prevention, pressure sore management, nasogastric tube feeding (carer), medication (carer), and prevention of falls and accidents, which constituted 65% of all goals. The initial GAS mean score was 38 (SD, 8) while post-intervention 12th month GAS mean score was 56 (SD, 8). The improved GAS difference (+17) was statistically significant for the post-intervention score ( $p=0.000$ ,  $\alpha=0.05$ ; TABLE 4).

The specified roles and functions of the nurse, as the seamless care service facilitator and sentry to detect early health signs for appropriate intervention, were recognised by the PAH staff and job satisfaction measures of the nurses showed a high level was achieved (scale ranged from point 2 to 5, mean score of 3.5; SD=0.27). The eight top ranked achievements were: (1) contributions to patient care (mean, 4.1; SD, 0.5), (2) challenge "in my job" (mean, 4.1; SD, 0.4), (3) extent to which "I can use my skills" (mean, 4.1; SD, 0.3), (4) value "placed on my work by my patients and/or their relatives" (mean, 4.1; SD 0.5), (5) contact "I have with colleagues" (mean, 4.1; SD, 0.5), (6) extent to which "My job is varied" (mean, 4.1; SD, 0.3), (7) independent decision making that "I can exercise in my work" (mean, 4.1; SD, 0.4), (8) feeling of worthwhile accomplishment that "I get from my work" (mean, 4.0; SD, 0.4). Service users were also very satisfied with the nursing services provided in the outreach PAH project (with a satisfied score at 2.5; mean score, 3.2; SD, 0.6).

## DISCUSSION

Outcome measurements showed that service was effective in various dimensions, whilst the working environment in this setting was complex and dynamic. It encompassed different interfaces:

**TABLE 1**  
**Financial support status**

	Case types		
	All	Completed	Died
CSSA*	303 (83%)	193 (83%)	88 (89%)
Self + high disability allowance	14 (4%)	9 (4%)	3 (3%)
Relative	42 (11%)	28 (12%)	7 (7%)
Self	7 (2%)	3 (1%)	1 (1%)
<b>Total</b>	<b>366 (100%)</b>	<b>233 (100%)</b>	<b>99 (100%)</b>

\* CSSA denotes Comprehensive Social Security Assistance

**TABLE 2**  
**Wilcoxon signed ranks test on Karnofsky Index**

**All patients**

	No.	Mean Rank	Sum of Ranks
Karnofsky Score in the last month – Karnofsky Score in the first month			
Negative ranks*	102	69.57	7096.50
Positive ranks†	30	56.05	1681.50
Ties‡	233		
Total	365		

\* Karnofsky Score in the last month < Karnofsky Score in the first month

† Karnofsky Score in the last month > Karnofsky Score in the first month

‡ Karnofsky Score in the first month = Karnofsky Score in the last month

**Wilcoxon signed ranks test**

	Karnofsky Score in the last month – Karnofsky Score in the first month
Z	-6.296*
Asymp. sig. (2-tailed)	0.000

\* Based on positive ranks

**Patients who died**

	No.	Mean Rank	Sum of Ranks
Karnofsky Score in the last month – Karnofsky Score in the first month			
Negative ranks*	68	34.50	2346.00
Positive ranks†	0	0.00	0.00
Ties‡	31		
Total	99		

\* Karnofsky Score in the last month < Karnofsky Score in the first month

† Karnofsky Score in the last month > Karnofsky Score in the first month

‡ Karnofsky Score in the first month = Karnofsky Score in the last month

**Wilcoxon signed ranks test**

	Karnofsky Score in the last month – Karnofsky Score in the first month
Z	-7.289*
Asymp. sig. (2-tailed)	0.000

\* Based on positive ranks

professional disciplines in the HA, between public (HA) and private sectors (PAHs and their Visiting Medical Officer), and between various medical/

welfare sectors. Effective communication and collaboration in these interfaces is indispensable for better-coordinated elderly care. Nurses had taken up

**TABLE 3**  
**Wilcoxon signed ranks test on Barthel Index**

<b>All patients</b>		No.	Mean rank	Sum of ranks
Barthel Score in the last month – Barthel Score in the first month	Negative ranks <sup>*</sup>	31	35.37	1096.50
	Positive ranks <sup>†</sup>	31	27.63	856.50
	Ties <sup>‡</sup>	302		
	Total	364		

\* Barthel Score in the last month < Barthel Score in the first month

† Barthel Score in the last month > Barthel Score in the first month

‡ Barthel Score in the first month = Barthel Score in the last month

#### **Wilcoxon signed ranks test**

	Barthel Score in the last month – Barthel Score in the first month
Z	-0.844*
Asymp. sig. (2-tailed)	0.399

\* Based on positive ranks

#### **Patients who died**

	No.	Mean rank	Sum of ranks
Barthel Score in the last month – Barthel Score in the first month	Negative ranks <sup>*</sup>	12	6.50
	Positive ranks <sup>†</sup>	0	0.00
	Ties <sup>‡</sup>	86	
	Total	98	

\* Barthel Score in the last month < Barthel Score in the first month

† Barthel Score in the last month > Barthel Score in the first month

‡ Barthel Score in the first month = Barthel Score in the last month

#### **Wilcoxon signed ranks test**

	Barthel Score in the last month – Barthel Score in the first month
Z	-3.065*
Asymp. sig. (2-tailed)	0.002

\* Based on positive ranks

a pivotal role to optimise elderly care through PAH carer empowerment programmes, and professional support. They could detect early signs of health problems and provided a critical link during ad-hoc events and problems. Better coordination appeared to show GAS improvements that could also bring about improvements in relevant crude outcome indicators. Overall, there was an approximately 30% reduction in utilisation of various hospital services—A&E admissions: (pre) 756, (post) 530 ( $p=0.000$ ); hospital admissions: (pre) 713, (post) 515 ( $p=0.000$ ); unplanned readmissions: (pre) 211, (post) 150 ( $p=0.039$ ), LOS: (pre) 16.12, (post) 10.59, 6 days shortened ( $p=0.000$ ; **TABLE 5**).

Many residents in PAHs were actually entitled infirmity level of care according to their financial status; 83% were on CSSA, which has great implications on health services utilisation. Notwithstanding the current debate on whether public services should trespass into the private sector, cover for these vulnerable groups was necessary to ensure their access to health services. This study showed PAHs clearly alleviate the public sector burden. Based on reduced numbers of hospital admissions and LOS alone, there was already a saving of HK\$20 millions per year (assuming HK\$3130 daily hospital bed costs for approximately 1% of the 70% of all PAHs sampled).

**TABLE 4**  
**Paired *t*-test analyses of Goal Attainment Scale (GAS) scores\***

Variable	Mean	No.	SD	Sig. (2-tailed)
Overall GAS 1	38.41	215	8.14	-
Overall GAS 2	55.64	-	7.53	-
Pair <i>t</i> -test	-	-	-	0.000 <sup>†</sup>

\* GAS statistical formula and interpretation:  $GAS = 50 + C(\sum X_i)$ , where  $X_i$  = score of individual goal, C = constant varies with the number of goals set for that particular patient. If all goals are achieved in a particular patient or he/she is already in an expected satisfactory level with only potential problem, each  $X_i$  will equal 0. As any term multiplies by 0 equals 0, the patient score will be  $50 + 0 = 50$

<sup>†</sup>  $p < 0.01$

**TABLE 5**  
**Pair *t*-test analysis of crude outcome indicators**

Crude outcome indicators	No. of case	Pair-sampled <i>t</i> -test of pre- and post-programme				p value
		Pre-programme		Post-programme		
		Count	Mean	Count	Mean	
Accident and emergency admission	233	756	3.24	530	2.27	0.000*
Emergency admission	233	613	2.63	416	1.79	0.000*
Clinical admission	233	100	0.43	99	0.42	0.960
Total hospital admission	233	713	3.06	515	2.21	0.000*
Unplanned readmission	233	211	0.91	150	0.64	0.039 <sup>†</sup>
Length of stay	233	-	16.12	-	10.59	0.000*

\*  $p < 0.01$

<sup>†</sup>  $p < 0.05$

It was hypothesised that if successful, the programme's benefits should also be reflected in the satisfaction levels of both service providers and receivers, and both predictions were fulfilled. It was not only the score that made sense, as examination of the content of the question items showed a high level of relevance to real clinical situations. Both in the feedback collected via a satisfaction questionnaire of face-to-face encounters with the investigator during field-visits and data-collection, the majority of PAH staff and owners expressed deep appreciation of the pragmatic support as well as the knowledge and skill enhancement brought about by outreach term nurses. The PAH staff most appreciated the enhancement of patient care knowledge by the HA nurses. Both nurses in-charge and other staff commented that the outreach services enhanced their growth and development and brought about higher staff satisfaction, higher levels of resident care, and improved public perception of their PAHs.

As reflected in the goals selected in the GAS measurement, largest part of the problem area was related to extensive long-term patient care resulting

from frailty and functional impairments. This pattern of care problem in GAS measurement revealed that the care of this group of frail elderly patients in the PAHs setting was by no means a simple issue. Fortunately, with the collaboration of Community Geriatrics Assessment Team, Community Nursing Service, and PAH workers, these long-term care goals were shown to be achieved very effectively and were supported by very rewarding and statistically significant improved post-intervention GAS scores. With the increased outreach support to PAHs, their services were enhanced as shown by their capability of taking care of complex and severely dependent elderly patients who actually were entitled to infirmary care. In addition, benefit through wider choices, lower costs, and greater flexibility was gained as a whole. Thus, health conditions were stabilised, whether or not they survived or continued their stay in the PAHs and even facilitated their discharge enabling them to go back home successfully.

While the existing health care system provides us with accessible, equitable, and affordable health care services, it is oriented towards curative services. Health promotion, prevention, continuity, and co-

ordination of services are weak. The present system tends to compartmentalise the needs of clients and fragment the provision of services. The problem is aggravated whenever persons transit between medical/welfare, public/private, and institutional/community care are due to system flaws that cannot be corrected instantly. The inadequate infirmary and residential facilities for frail elderly has pushed them into PAHs that were originally just residential homes for healthier subjects. Therefore, there exists a high risk of entrapment of these frail elderly in a 'no-care' zone. However, nurses with their special characteristics as holistic, cost-conscious, flexible, and yet also specialised training, are instantly ready to act as the 'adhesive agent'. In the process, they fill these gaps and as the 'catalyst' of improved outcomes and coordinated care.

Crude outcome indicators did show satisfactory results; the approximately 30% reduction in the utilisation of various aspects of hospital services were all statistically significant. Such an inference was further substantiated by the demographic profile of the sample, since the subjects were actually very frail and vulnerable patients, who were at high-risk cases for readmission according to local epidemiological studies.<sup>24,25</sup> One of these studies<sup>24</sup> stated that suboptimal medical judgement and discharge planning and poor discharge support accounted for 30% of the readmissions, which was approximately equivalent to the 30% reduction in hospital service utilisation encountered in this study. Development towards coordinated and continuous community oriented health care was no doubt a direct move.

## CONCLUSIONS

This study did provide evidence to suggest an alternative approach to health services delivery for the elderly people. Many residents in PAHs were actually entitled to an infirmary level of care; 83% were on CSSA, which has enormous implications for health services utilisation. This state of affairs therefore represents another form of support from the private sector, which would otherwise become an additional financial burden on the public sector. Based only on reduced hospital episodes and LOS, estimated savings amounted to HK\$20 millions annually, which provides evidence for the success of community partnerships. It also illustrates that promoting health in a community should not be

separated into public and private sectors. To be successful, the Secretary of the United Nations Kofi Annan has stated that the two should address these issues hand-in-hand.<sup>26</sup>

One of the main challenges to our health care system is to develop a framework for providing health care services, which can minimise and best manage the prevalence of chronic diseases and the burden of disability, whilst promoting lifelong health and wellness. This has to entail provision of treatment, care, and rehabilitation to the sick, injured, and disabled. It is likely that the next decade in health care will see continued emphasis on cost containment, integration of services, and efficiency through greater utilisation of primary care services. It has been suggested worldwide that public health strategies for prevention, health promotion, and health maintenance might minimise the social and economic effects of disability and dependence in the elderly.<sup>27</sup> Consequently, a new role has emerged within nursing practice at an advanced level; the sufficiently experienced nurse practitioner, who is academically and clinically educated and ethically aware, can serve as a primary care provider in a variety of community settings.

Under the existing licensing system, the governance of PAHs in respect of compliance with requirements stated in the Residential Care Homes (Elderly Persons) Regulations and Code of Practice of Residential Care Homes (Elderly Persons) resides with the SWD inspectors of the Licensing Office of Residential Care Homes for the Elderly. However, these regulations and codes focused mainly on generic dimensions (fire safety standards, manpower ratio, and staff employment records). There is a lack of focus on medical and nursing dimensions. Among all available inspectors in the SWD, there are only two with a nursing background, the rest are social workers overlooking more than 700 PAHs territory-wide in Hong Kong. If a PAH fails to comply with requirements as stated by SWD or highlighted by authority of an outreach nursing team, a verbal and written warning would be issued by SWD, resulting in a very delicate long-term mutual trust relationship. Enhancement and monitoring of the quality of care in PAHs could not be exercised in a formal and strict setting if it entailed supervision or auditing. It therefore relies solely on the subtle influence and nurtures a balanced but delicate relationship

between the outreach team and PAHs.

If they encountered problems with compliance or standard issues, PAH outreach teams could only communicate such issues through informal networking, usually between the medical team heads and SWD officials. These were successful in clusters with well-established informal linkage but not in clusters where such a relationship did not exist. It was commonly agreed by frontline staff that the assessment dimension and perspective of the SWD licensing office was quite socially oriented and that HA staff found it inadequate to ensure health care benefits for the elderly. Furthermore, compliance and standard issues are daily operational issues, so that only continuous reflection instead of notified inspection achieve satisfactory results. No matter if they are from Community Geriatrics Assessment Team or Community Nursing Service, outreach team nurses are the most familiar with the daily operation and actual situation in the PAHs, particularly with respect to a health service focus. The establishment of a mechanism to include nursing input in the licensing office and SWD is strongly recommended to ensure benefits to the health of PAH residents.

There is an urgent need to formulate a continuum for an integrative community support programme and long-term institutional care services, in accordance with the changing needs of the ageing population in Hong Kong. Nurses 'outreach to the community' and establish a 'partnership with the community' and enhance the 'hospital without walls' concept. This study has great significance and value in providing evidence to support such an alternative approach to health services delivery for the elderly. The service provided preventive measures and extended community care for vulnerable institutionalised elderly, which aimed at optimising health outcomes. The current study also provided substantial information to demonstrate its potential as a cost-effective approach compared to expensive hospital-oriented services.

## References

1. *Hong Kong Populations 2000*. Hong Kong SAR: Census and Statistics Department; 2000.
2. Chan C. Social welfare. In: Choi PK, Ho LS, editors. *The other Hong Kong report 1993*. Hong Kong: Chinese University Press; 1993:237-63.
3. Crimmins EM. Mixed trends in population health among older adults. *J Gerontol B Psychol Sci Soc Sci* 1996;51:S223-5.
4. Tallis R. Biological ageing, illness in old age and geriatrics services. *Journal of Hong Kong Geriatrics Society* 1993;4:4-11.
5. *Hospital Authority statistical report 2001/2002*. Hong Kong: Information Support Unit, Hospital Authority; 2002.
6. Deloitte & Touché Consulting Group. Study of the Needs of Elderly People in Hong Kong for Residential Care and Community Support Services. *Consultancy study*. Deloitte & Touché Consulting Group; 1996.
7. Kwan AY. Community needs for social development—training untrained staff of private elderly homes in Hong Kong. *Hong Kong Journal of Gerontology* 1988;2:28-33.
8. *Code of practice for private elderly homes*. Hong Kong SAR: Social Welfare Department; 1986.
9. Ngan R. The availability of informal support networks to the Chinese elderly in Hong Kong and its implications for practice. *Hong Kong Journal of Gerontology* 1990;4:19-27.
10. Chow NW. The Chinese family and support of the elderly in Hong Kong. *Gerontologist* 1983;23:584-8.
11. Leung E. The problem of residential nursing care for the elderly in Hong Kong. *Hong Kong Journal of Gerontology* 1992;6:13-9.
12. Ngan R, Cheng I. The caring dilemma: stress and needs of caregivers for the Chinese frail elderly. *Hong Kong Journal of Gerontology* 1992;6:34-41.
13. Gordon JE, Powell C, Rockwood K. Goal attainment scaling as a measure of clinically important change in nursing-home patients. *Age Ageing* 1999;28:275-81.
14. Ngan R, Leung E, Kwan A, Yeung D, Chong A. Long term care needs, patterns and impact of the elderly in Hong Kong. *Hong Kong Journal of Gerontology* 1997;11:22-7.
15. Yeung S. The community care policy of services for the elderly in Hong Kong: a critique. *Hong Kong Journal of Gerontology* 1992;6:8-12.
16. Woo J, Ho SC, Lau J, Yuen YK. Age and marital status are major factors associated with institutionalisation in elderly Hong Kong Chinese. *J Epidemiol Community Health* 1994;48:306-9.
17. Collin C, Wade DT, Davies S, Horne V. The Barthel ADL Index: a reliability study. *Int Disabil Stud* 1988;10:61-3.
18. Rockwood K, Stolee P, Fox RA. Use of goal attainment scaling in measuring clinically important change in the frail elderly. *J Clin Epidemiol* 1993;46:1113-8.
19. Yip AM, Gorman MC, Stadnyk K, Mills WG, MacPherson KM, Rockwood K. A standardized menu for Goal Attainment Scaling in the care of frail elders. *Gerontologist* 1998;38:735-42.
20. O'Toole DM, Golden AM. Evaluating cancer patients for rehabilitation potential. *West J Med* 1991;155:384-7.
21. Polit DF, Sherman RE. Statistical power in nursing research. *Nurs Res* 1990;39:365-9.
22. Cohen J. *Statistical power analysis for the behavioural science*. 2nd ed. New York: Academic Press; 1977.
23. Kwok T, Lau E, Woo J, Luk JK, Wong E, Sham A, et al. Hospital readmission among older medical patients in Hong Kong. *J R Coll Physicians London* 1999;33:153-6.
24. Chu LW, Pei CK. *Final report: risk factors for early unplanned readmission in elderly medical patients in Hong Kong*. Hong Kong: Health Services Research Committee Grant; 1999.
25. Portney LG, Watkins MP. *Foundation of clinical research—applications to practice*. Connecticut: Appleton & Lange; 1993.
26. Lee LM. The health status and ageing population and the health strategy in China. Proceedings of the 10th Annual Congress of Gerontology; 30 November 2002. Hong Kong: Hong Kong Association of Gerontology; 2002.
27. World Health Organization. *Health of the elderly—report of a WHO Expert Committee*. Technical Report Series 779. Geneva: WHO; 1989.