



醫院管理局
HOSPITAL
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VIRTUAL WARD PROGRAMME



香港中文大學
The Chinese University of Hong Kong

FOR FRAIL OLDER PATIENTS AFTER DISCHARGE

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DOM (COMMUNITY CARE)
NEW TERRORIZES WEST CLUSTER
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VIRTUAL WARD

- An innovative community health care model in HK
- Nurse-led hospital-level care in patient's home
- 39 beds in the ward, serving ≥ 240 patients/yr.
- Multidisciplinary team collaboration to provide comprehensive & coordinated care

Aims:

- To reduce avoidable hospitalization
- To improve quality of life of patients & their family

Service offered to patient since Oct 2011:

In UCH(KEC), KH(KCC) & PMH (KWC)

TARGET GROUPS

- Living at home with Carer
- With high admission risk (*HARRPE ≥ 0.4)
- Chronic diseases requiring complex care
e.g. COPD, CHF, Renal failure, Cancer etc.

*HARRPE:

High **A**dmission **R**isk **R**eduction **P**rogram for the **E**lderly is to screen those high-risk elderly on the rate of unplanned readmission. The score is from 0 to 1;

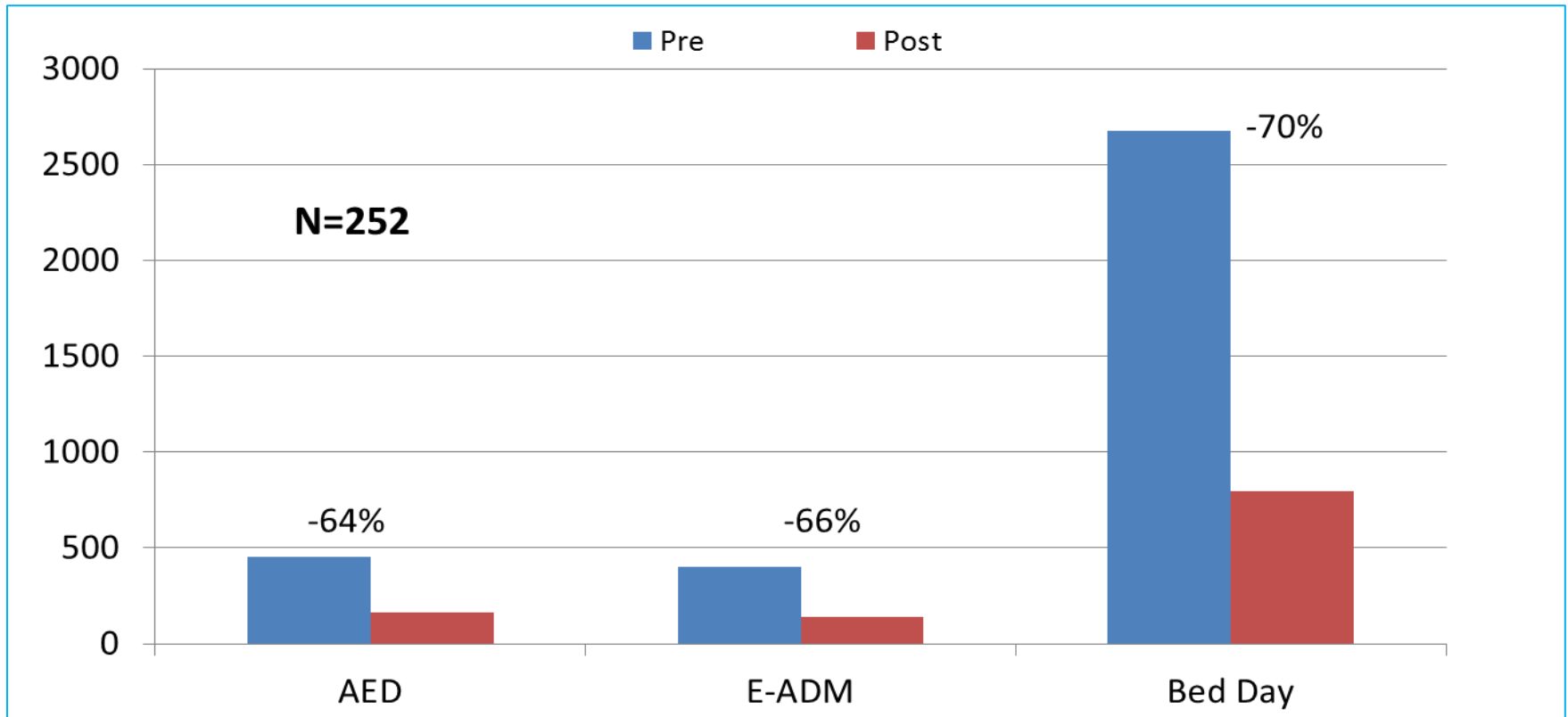
0.4 represents 40% of unplanned readmission rate.

(Source: HAHO 2006)

CARE IN VIRTUAL WARDS

- Hospital level care at patient's home
- Symptoms control, optimize function & coping
- Medical & nursing specialized assessment & investigations
- Patient / carer self-care empowerment
 - Ventilator care, domiciliary rehydration therapy
- Schedule /ad hoc doctor/ nurse visit/ Allied Health visit
- Telephone hotline, flexible & extended service hours
- Emergency drug kit
- Fast track clinic / direct clinical admission
- Report, ward round & case conference

Virtual Wards in KH(KCC), UCH (KEC) & KWC PMH Hospital Service Utilizations (Pre & post 90 days) (Apr. 2012 - 31 Mar. 2013)



N = 252	AED	E-ADM	Bed Day
Pre	451	403	2676
Post	164	138	794
Difference in %	-64%	-66%	-70%

VIRTUAL FIGURES



An evaluation of the impacts of 'Virtual Wards' on frail patients receiving community nursing service at home: A case-based mixed-method approach



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Joint Project



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Aims of the Study

- **To evaluate the impacts of Virtual Ward on frail patients in comparison with the usual community nursing service**
- **To explore the experiences of patients, carers and healthcare professionals with respect to the Virtual Ward service.**

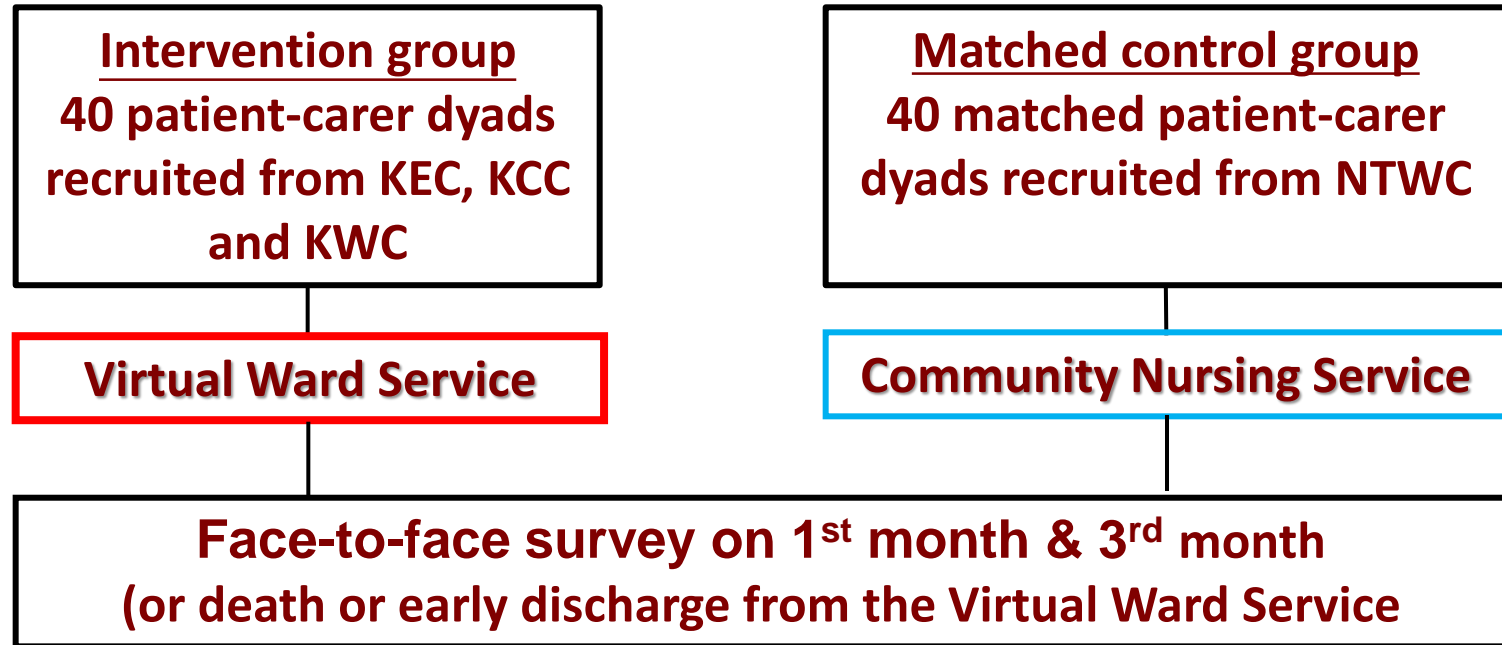
Study Design

A case-based mixed-method approach

1. The matched-control quasi-experimental study (3-month follow-up survey or till discharge from Virtual Ward or patient deceased)
2. The in-depth individual interviews (*in separate report*)

Note: a case = a patient-carer dyad

Matched-control Quasi-experimental Study



Matching criteria:

1. disease type of the patient
2. frailty level of the patient
3. gender of the patient
4. age of the patient (± 5 years)
5. the carer's relationship with the patient

Outcome Measures

Patients

1.Changes in health service utilizations

- no. of AED attendance
- no. of unplanned hospital admission
- no. of hospital bed days

2.Changes in quality of life

- Quality-of-Life Concerns in the End of Life Questionnaire (mQOLC-E) (Chan & Pang, 2008)

3.Level of satisfaction with the service

- A researcher-developed satisfaction questionnaire

Carers

1.Changes in level of anxiety and depression

- Hospital Anxiety and Depression Scale (HADS) (Zigmond & Snaith, 1983)

2.Changes in difficulties in handling common problems as a family carer

- Caregiver Assessment Scale (CAS) (Mackenzie, Holroyd, & Lui, 1998)

3.Changes in burden in taking care of the patient

- Caregiver Strain Index (CSI) (Robinson, 1983)

4.Level of satisfaction with the service

- A researcher-developed satisfaction questionnaire

Hospital Service Utilization¹

Hospital service	N	Intervention group	Control group	p-value ¹
		Mean±SD	Mean±SD	
Length of hospitalization via clinical admission in the past 90 days (Days)	39	-1.21 ± 7.78	-3.00 ± 12.46	0.62
Number of admissions via clinical admission in the past 90 days	39	-0.56 ± 1.64	-0.21 ± 1.03	0.26
Length of hospitalization via emergency admission in the past 90 days (Days)	39	-11.62 ± 17.91	-4.38 ± 26.41	0.14
Number of admissions via emergency admission in the past 90 days	39	-1.41 ± 1.23	-0.77 ± 1.31	0.049*
Number of A&E attendance in the past 90 days	39	-1.51 ± 1.25	-1.08 ± 1.48	0.29

¹ Wilcoxon Signed Ranks Test

* p-value < 0.05, ** p-value < 0.01, *** p-value < 0.005

Hospital Service Utilization²

Hospital service	N	Intervention group	Control group	p-value ¹
		Mean±SD	Mean±SD	
Length of hospitalization via clinical admission in the past 90 days (Days)	24	-1.75 ± 6.70	-3.33 ± 1.71	0.50
Number of admissions via clinical admission in the past 90 days	24	-0.50 ± 1.64	-0.21 ± 0.78	0.80
Length of hospitalization via emergency admission in the past 90 days (Days)	24	-12.54 ± 21.74	0.13 ± 25.12	0.12
Number of admissions via emergency admission in the past 90 days	24	-1.54 ± 1.22	-0.67 ± 1.49	0.038*
Number of A&E attendance in the past 90 days	24	-1.63 ± 1.24	-1.25 ± 1.59	0.50

¹ Wilcoxon Signed Ranks Test

* p-value < 0.05, ** p-value < 0.01, *** p-value < 0.005

QoL Scores of Patients ¹

mQOLC-E Dimension ¹	N	Intervention group	Control group	p-value ²
		Mean±SD	Mean±SD	
Overall mQOLC-E	18	0.60 ± 0.56	0.07 ± 0.56	0.02*
Physical discomfort	22	0.67 ± 0.92	0.20 ± 0.96	0.17
Food-related concerns	22	0.82 ± 0.87	-0.14 ± 0.95	0.006**
Care and support	21	0.43 ± 0.46	0.12 ± 0.59	0.09
Negative emotions	20	0.73 ± 0.74	0.02 ± 1.03	0.004***
Existential distress	20	0.72 ± 1.06	0.15 ± 0.81	0.06
Value of life	19	0.22 ± 0.85	-0.01 ± 0.40	0.23

¹ Scores range from 1 = 'the least satisfaction' to 4 = 'the most satisfaction towards the condition'

² Wilcoxon Signed Ranks Test

* p-value < 0.05, ** p-value < 0.01, *** p-value < 0.005

Psychosocial Characteristics & Satisfaction of Carers

Psychological characteristics	N	Intervention group	Control group	p-value ⁵
		Mean±SD	Mean±SD	
HADS Depression ¹	31	0.19 ± 2.29	-0.55 ± 2.55	0.48
HADS Anxiety ¹	31	-2.00 ± 3.48	-1.09 ± 3.02	0.19
Caregiver Assessment Scale (CAS-C) ²	31	-6.36 ± 9.84	-3.68 ± 10.17	0.25
Caregiver Strain Index (CSI-C) ³	31	-2.26 ± 3.52	-2.06 ± 2.74	0.94
Satisfaction to the medical service ⁴	31	1.06 ± 2.21	0.42 ± 2.39	0.11

¹ Scores of depression and anxiety range from 0 to 21 with higher scores indicating more depression and anxiety respectively

² CAS-C total score ranges from 0 to 57 with higher scores indicating greater needs

³ CSI-C total score ranges from 0 to 13 with higher scores indicating higher levels of strain

⁴ Scores range from 1 to 10 with higher scores indicating higher satisfaction

⁵ Wilcoxon Signed Ranks Test

* p-value < 0.05, ** p-value < 0.01, *** p-value < 0.005

IMPLICATIONS & RECOMMENDATIONS

- Meeting service needs of patients and carers
- Extending VW service to other clusters
- Further studies to VW service
- A reference for future innovations of healthcare models
- Training on palliative care, EoL & advanced communication skills



SUCCESS ELEMENTS IDENTIFIED

- Targeting patients
- Comprehensive, intensive, coordinated & timely home care
- Multi-disciplinary healthcare team
- Flexible working schedule & extended service hours.
- Effective communication



CONCLUSION

- Concept of ‘Virtual Ward’
 - New community care model
 - Effective innovative approach
 - Reduce unplanned hospital admissions
 - Improve patient’s quality of life
 - Patients/carers – very satisfied
- Support adoption of the ‘Virtual Ward’ in HK





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Thank you

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