

Virtual Wards

Study	DHALLA 2014 ⁸³
Study type	RCT; parallel-group randomised trial.
Number of studies (number of participants)	1 (n=1923); 'High-risk population' randomised into 2 groups (ratio 1:1): Virtual Ward (n=963) or Usual Care (n=960).
Countries and setting	General internal medicine wards of 4 participating hospitals in Toronto, Canada.
Duration of study	Between June 2010 to May 2013.
Stratum	Admission avoidance.
Subgroup analysis within study	n/a
Inclusion criteria	Aged ≥18 years; being discharged from the general internal medicine ward of any of the 4 participating hospitals; at high risk of re-admission (as determined by LACE [length of stay, acuity of admission, comorbidities, and emergency department visits in the previous 6 months] score ≥10), and resided within the boundaries of the Toronto Central Local Health Integration Network.
Exclusion criteria	Being discharged to a rehabilitation or complex continuing care facility, if neither they nor anyone they could designate could speak English, if they had been previously enrolled in the study, or if they did not wish to participate.
Recruitment/selection of patients	Patients randomised when discharge was imminent or immediately after discharge. 30143 patients were assessed for eligibility at the 4 hospitals. Of the 6559 eligible patients, 1932 were randomly assigned to one of the two groups. The randomisation list was stratified by discharge site and homelessness.
Age, gender and ethnicity	Usual Care (n=960) = Age – Mean (SD): 71.3 years (16.0). Gender (M/F): 1/1. Ethnicity: no information given. Virtual Ward (n=963) = Age – Mean (SD): 71.2 years (16.1). Gender (M/F): 1/1. Ethnicity: no information given.
Further population details	No important differences between the two groups in terms of demographics. Reason for hospitalisation: 10% heart failure; 90% other.
Extra comments	
Indirectness of population	No indirectness.
Interventions	(n=963) Intervention 1: Virtual ward- in addition to receiving usual care, patients assigned to the virtual ward group were admitted to the virtual ward on the day they were discharged home. They were contacted by a team member the next day, provided with written information about the services available. Patients could call the relevant member of the team during business hours; or call was sent to the VW physician's pager after hours. Team consisted of care coordinators, part-time pharmacist, part-time nurse, full-time physician, clerical assistant. Most of the staff worked for the Toronto Central Community Care Access Centre. The team met every morning to discuss newly admitted and current patients and to design and execute individualised care plans. Patients could be assessed by phone, at home, in a clinic at the hospital where the VW team was based, or alternative location (for example, GP office). Patients were discharged from VW when the team believed they were ready for discharge or when it was clear that they were unwilling to further engage with the team.

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	<p>(n=960) Intervention 2- Usual care: typewritten structured discharge summary given to patient at time of discharge and also sent to GP, a prescription when indicated, counselling from the resident physician or other members of the health care team, arrangements for homecare as needed, and recommendations or appointments for follow-up care with the patient's primary care and specialist physicians. Follow-up at a post-discharge clinic was not a routine practice at any of the hospitals but could have been arranged at the discretion of the discharging physicians.</p> <p>Concurrent medication/care: both received usual care but VW group received extra VW team support.</p> <p>Retrospective analysis of data by authors indicated that VW team provided high intensity of care. Patients were discussed at the MDT meetings an average of 6.3x (SD=2.1) and received an average of 2.8 home visits (SD=0.95). This does not include potential extra care provided by home care contractors or physicians not associated with VW. The mean length of stay in VW was 35.5days (SD=27.0).</p>
Funding	Canadian Institutes of Health Research, the Ontario Ministry of Health and Long-Term Care, the Green Shield Canada Foundation, the University of Toronto Department of Medicine, and the Academic Funding Plan Innovation Fund.
<p>RESULTS (NUMBERS ANALYSED) AND RISK OF BIAS FOR COMPARISON: VIRTUAL WARD versus USUAL CARE.</p> <p>Protocol outcome 1: Mortality (at 30 days) reported as number/total number. (%). - Actual outcome: Death; Group 1: n=40/958 (4.2); Group 2: n=47/955 (4.9); Risk of bias: All domain - high, Selection - high, Blinding - low, Incomplete outcome data - Low, Outcome reporting - Low, Measurement - Low, Crossover - Low, Subgroups - Low; Indirectness of outcome: No indirectness</p> <p>Protocol outcome 2: Readmission (at 30 days). - Actual outcome: readmission; Group 1: n=182/961 (18.9), Group 2: n=204/958 (21.3); Risk of bias: All domain - high, Selection - high, Blinding - low, Incomplete outcome data - Low, Outcome reporting - Low, Measurement - Low, Crossover - Low, Subgroups - Low; Indirectness of outcome: No indirectness</p> <p>Protocol outcome 3: ED visits (at 30 days). - Actual outcome: ED visits; Group 1: n=270/961 (28.1), Group 2: n=284/959 (29.6); Risk of bias: All domain - high, Selection - high, Blinding - low, Incomplete outcome data - Low, Outcome reporting - Low, Measurement - Low, Crossover - Low, Subgroups - Low; Indirectness of outcome: No indirectness</p> <p>Note: outcomes closest to discharge reported that is, 30 days. Paper also reports the same outcomes at 90 days, 6 months, and 1 year.</p>	
Protocol outcomes not reported by the study	Avoidable adverse events, quality of life, patient and/or carer satisfaction, length of stay, number of unnecessary admissions, reduced GP presentations.