

What Are Factors for Hospital Readmission After Enrolment into a Chronic Disease Management Program?

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Background

- Chronic disease management is a national health priority area¹. 60% of all deaths worldwide are due to chronic diseases² amounting to a huge burden on society
- Contemporary models of care like St Vincent's 'Restoring Health' use holistic and longer-term approaches to address this
- Understanding factors associated with hospital readmission would guide management strategies for chronic disease management programs (CDMPs)³

Aims

- Identify factors (both risk and protective) on CDMP enrolment that predict unplanned hospital readmission to St Vincent's at 1, 3 and 6 months.

Method

- Analysis of all routinely collected data of prospective patients enrolled into 'Restoring Health' for 2 years
- Factors analysed:

| Demographic Data | Psychosocial Data |
|------------------------------------|----------------------------------|
| Age, gender | Living arrangement |
| Locality | Carer availability, relationship |
| Country of birth | Marital status |
| Language, interpreter | |
| CDMP and Hospital Utilisation Data | |
| Professional disciplines involved | |
| No. of referrals made | |
| No. of CDMP service contacts | |
| No. of outpatient appointment DNAs | |

- Univariate predictors of hospital utilisation (ED presentation and hospital admission) at 1, 3 and 6 months identified first, then **multivariate binary logistic regression** was used to identify the most parsimonious model for predicting the outcomes.

Results/Analysis

- n=185
- All-cause emergency department and hospital admission rates were **54%** and **59%** respectively after 6-months post enrolment into 'Restoring Health'

The odds ratio (O.R.) for relevant predictive factors* for **emergency presentation** (1, 3 and 6 months):

| Factor | Sig. | O.R. | 95% C.I. |
|--------------------------------|-------|------|-------------|
| 1-month ED Presentation | | | |
| Divorced/Separated/Widowed | 0.02 | 2.5 | (1.1 – 5.3) |
| 3-month ED Presentation | | | |
| Divorced/Separated/Widowed | <0.01 | 3.2 | (1.6 – 6.5) |
| No. of referrals made | 0.02 | 1.2 | (1.0 – 1.3) |
| 6-month ED Presentation | | | |
| Divorced/Separated/Widowed | 0.02 | 2.3 | (1.1 – 4.6) |
| No. of referrals made | <0.01 | 1.2 | (1.1 – 1.4) |

The odds ratio for relevant predictive factors* for **inpatient hospital readmission** (1, 3 and 6 months):

| Factor | Sig. | O.R. | 95% C.I. |
|---------------------------------|-------|------|-------------|
| 1-month Inpt Readmission | | | |
| Divorced/Separated/Widowed | <0.01 | 3.3 | (1.6 – 7.0) |
| 3-month Inpt Readmission | | | |
| Divorced/Separated/Widowed | <0.01 | 2.6 | (1.3 – 5.1) |
| No. of referrals made | 0.04 | 1.1 | (1.0 – 1.3) |
| 6-month Inpt Readmission | | | |
| No. of referrals made | <0.01 | 1.2 | (1.1 – 1.4) |
| 1 or more outpatient DNAs | 0.02 | 2.5 | (1.2 – 5.2) |

*only statistically significant factors of the analyses have been shown

Discussion

- An important risk factor identified is being 'divorced, separated or widowed'
 - The risk is increased by 2 to 3 times
 - Social isolation may form an important contributing factor
- Another factor is the number of referrals-out made by the CDMP for each patient
 - Each **1** nursing or allied health referral made for a patient increased the re-presentation risk by about 1.2 times
 - This finding is reflective of the increasing client complexity with every additional nursing or allied health staff member involved
- Any patient who misses **1 or more** outpatient appointment has a 2.5-fold risk (for indicating 6-month inpatient readmission) compared with someone who attends their outpatient appointments.
 - Therefore, patient attendance at scheduled outpatient appointments is protective

Conclusions

- CDMPs need to assess a person's level of supports received. People who are more socially isolated face an increased risk of acute hospitalisation. Those who are more complex (as indirectly indicated through the number of allied health referrals made) are also at higher risk
- CDMPs need to monitor and understand reasons for outpatient non-attendances as this also indicates an increased risk for hospital readmission

References

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