# Evaluation of Risk Factors Causing Delirium on the Acute Care for Elders (ACE) Units at Vancouver General Hospital (VGH)

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## BACKGROUND

- Delirium is an acute change in cognition, attention, & level of consciousness
- 11-24% of elderly adults present with delirium upon hospital admission; 5-35% will develop delirium during their stay
- Delirium has been associated with ↑ morbidity, mortality, length of hospital stay, & hospital costs
- Prospective trials have identified & validated risk factors associated with ↑ delirium risk (Table 1)

| Baseline factors | Precipitating factors |
|---|---|
| - Severe illness<br>- Vision impairment<br>- Baseline cognitive impairment<br>- Dehydration | - Use of physical restraints<br>- Malnutrition<br>- Burden of medication<br>- Use of bladder catheter<br>- Any iatrogenic event |

**Table 1: Validated characteristics**

## OBJECTIVES

- **Primary objective:**
  - To characterize the incidence of validated risk factors on the development of delirium
- **Secondary objectives:**
  - To evaluate the usage of a delirium pre-printed order form (PPO) that was instituted at VGH in 2007
  - To describe the pharmacological & non-pharmacological management of delirious patients

## METHODS

- Retrospective health record review of patients admitted to ACE units at VGH w/ the discharge diagnosis of delirium between Jan. 1st 2012 & Dec. 31st 2012 (Figure 1)
- **Inclusion criteria**:
  - Admitted to the internal medicine or hospitalist service
  - ≥70 years old
- **Exclusion criteria**:
  - Patients w/ delirium associated w/ substance abuse or withdrawal
  - Patients w/ delirium upon admission

### Definitions

ł Severe illness: any that would result in death or severe morbidity if left untreated
‡ High risk medication: sedatives, hypnotics, antihistamines, anticholinergics, narcotics, corticosteroids

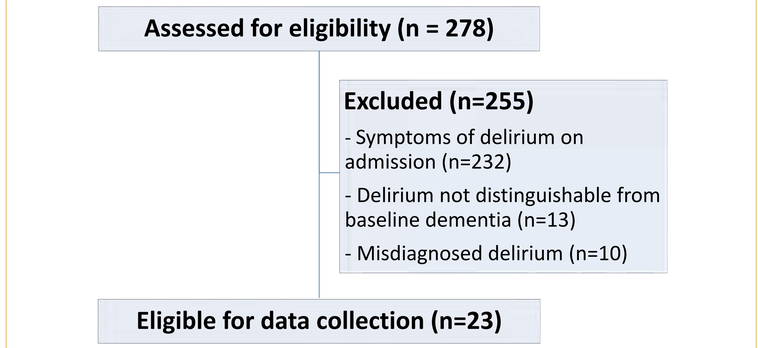


**Figure 1: Methodological flowchart**

| RESULTS | (n=23) |
|---|---|
| **Mean age in years (SD)** | 80 (6.87) |
| **Males, n (%)** | 12 (52) |
| **Primary reason for admission, n (%)** | |
| -Respiratory distress | 9 (39) |
| -Fall | 5 (22) |
| -Infectious process | 6 (26) |
| -Other | 3 (13) |
| **Number of comorbidities, median (range)** | 6 (2-13) |

**Table 2: Patient baseline characteristics**

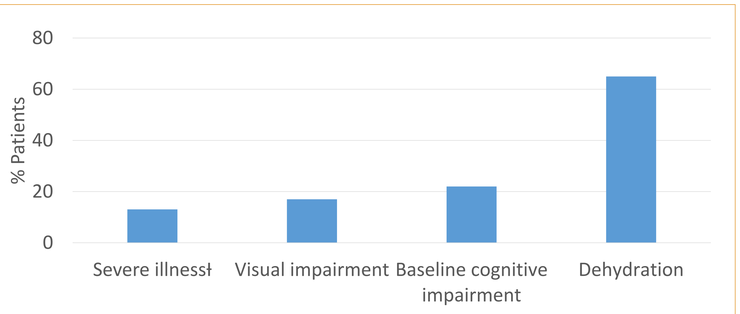


**Figure 2: Primary endpoint - validated characteristics on admission**

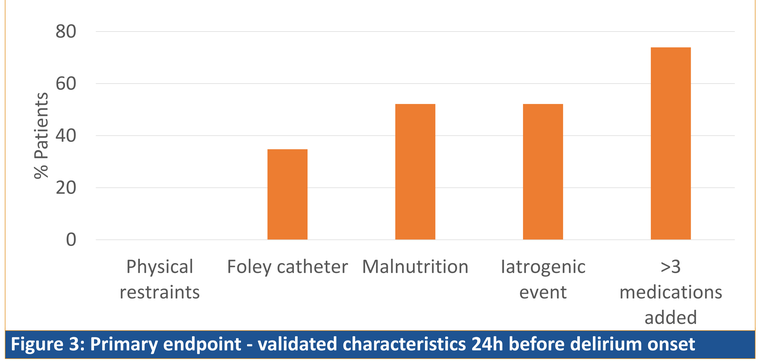


**Figure 3: Primary endpoint - validated characteristics 24h before delirium onset**

## Secondary endpoints

- 0% usage rate of delirium PPO
- Non-pharmacological measures:
  - Modification of high risk meds‡ (specialists 64% vs. CTU/hospitalists 33%)
  - Patient reorientation by nurse (specialists and CTU/hospitalists 100%)

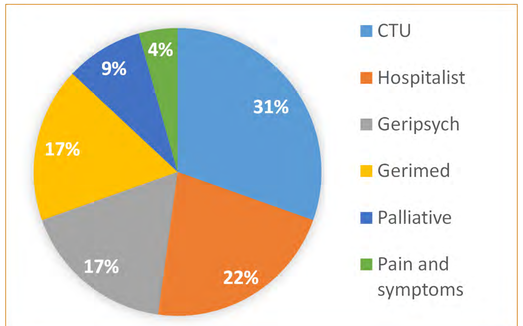


**Figure 4: Secondary endpoint – service treating delirium**

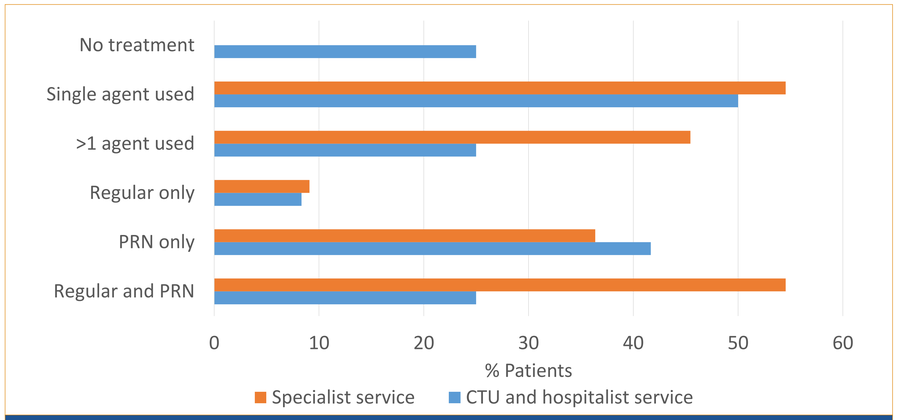


**Figure 5: Secondary endpoint – prescribed pharmacological regimens**

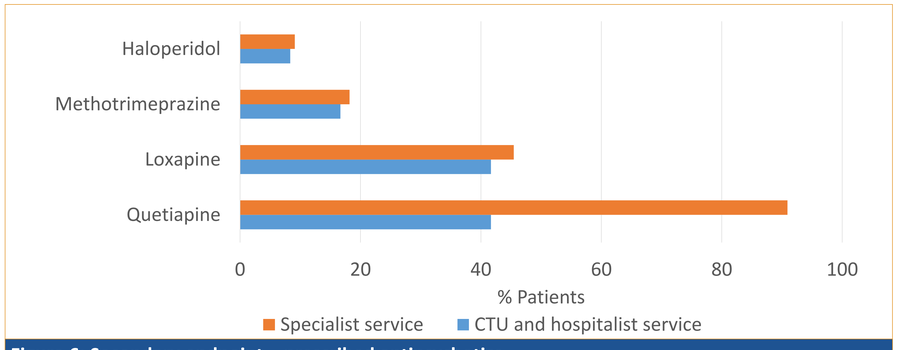


**Figure 6: Secondary endpoint – prescribed antipsychotics**

## CONCLUSIONS

- Overall lower than expected incidence of delirium developed after admission
- Our population showed variation in the incidence of validated risk factors
- Overall poor uptake of delirium PPO
- Increased uptake and improvements to PPO may decrease variation in prescribing regimens

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