

## Data Impact Challenge

### Question 6c:

- What portion of older adults (65+) has been prescribed a benzodiazepine or other sedative hypnotics for insomnia, agitation or delirium? (Relates to CWC Geriatrics recommendation #2)
  - Team and list of all team member names:
    - Health Quality Innovation Collaborative:
      - Dr. Sanjeev Goel – Team Leader
      - Bogdan Pinzaru – eHealth Intern
      - Diana Malinovskaya – Analyst/Programmer
- (all team members have agreed to challenge rules through registration)

### **Describing the Data and Analysis**

- Data Custodian Organization(s) and data sources: Health Quality Innovation Collaborative (HQIC).
- List of Datasets Used (e.g. names of database and/or data origins): HQIC database, from specific medical clinics with complete data and Rostered and Active Patients.
- Nature and Size of Cohort (e.g. geographic area covered, number of patients included): Medical Clinics within the HQIC database, n = 7025 patients over 65 for 2013, n = 7527 patients for 2014, and n = 7668 for 2015 to present.
- Data timeframe: January 1st, 2013 to January 1st, 2014; January 1st, 2014 to January 1st, 2015; January 1st, 2015 to May 29th, 2015.

### **Methodology**

1. The data is stored on the custodian organizations server in MySQL databases.
2. Queries were developed to group and extract the respective numbers.
3. The first data extracted was the total number of patients over 65.
4. Then the team developed a query to relay the total number of patients that have been prescribed “\*PAM, ativan, rivotril, serax, and dalmane” and “imovane or zopiclone” for each time period and over 65.
5. The total counts were added to an excel spreadsheet.

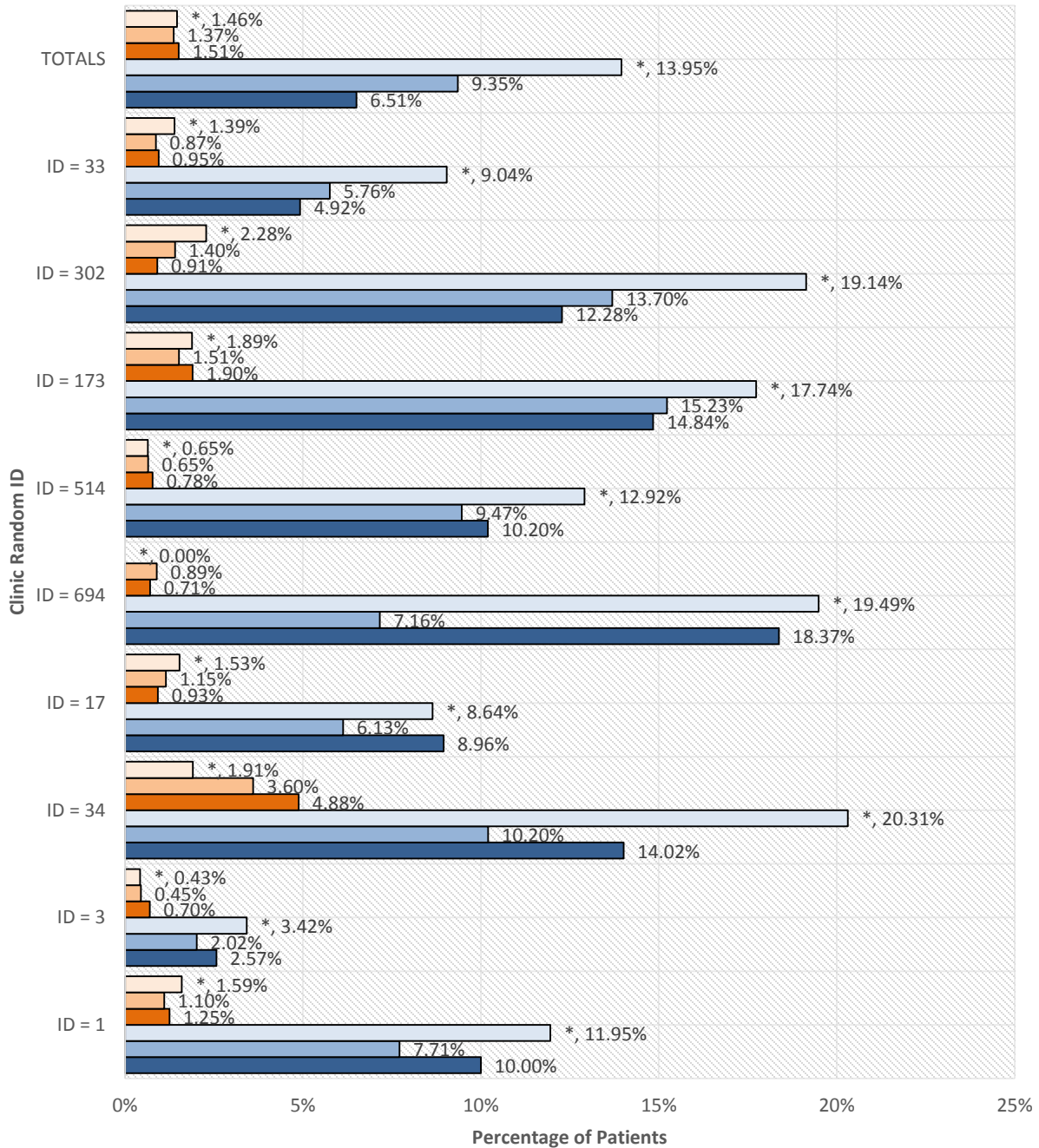
### **Describing the Findings**

	2013	2014	2015
• Numerator:	Benzodiazepine n = 457	n = 704	n = 535
	Imovane or Zopiclone n = 14	n = 15	n = 3
• Denominator:	n = 7025	n = 7527	n = 7668

- Findings: The overall ratio of patients over 65 who are using benzodiazepine or other sedatives is increasing from 6.51% in 2013 to 9.35% in 2014 with a predicted 13.96% (based on 6.98% for half a year) in 2015. Moreover, overall using imovane and zopiclone as a different class of sedatives that has been considered safer has been stabilizing from 1.51% in 2013, 1.37% for 2014, and a predicted 1.46% (based on 6.98% for half a year) in 2015. The data also indicates that half of the clinics have been making strides to decrease prescription of benzodiazepines to patients over. However, the prescription of imovane and zopiclone is considerably lower compared to benzodiazepines.
- Recommendation: Knowledge translation education is needed on the detrimental use of benzodiazepines on elderly to physicians. Furthermore, the reduction in benzodiazepine use can be done by increasing the use of imovane and zopiclone.
- Key Limitations: Certain limitations are associated with such a broad analysis. Some limitations include not understanding the diagnostic reasoning and whether other means of treatment have been used before using benzodiazepines. Furthermore, input errors cannot be accounted when conducting queries with such a massive database.
- Figure: Available on the next page.

## Percentage of Patients over 65 on Benzodiazepines, and Imovane or Zopiclone for 2013, 2014, and 2015\*

■ Imovane or Zopiclone 2015 (Predicted)   
 ■ Imovane or Zopiclone 2014   
 ■ Imovane or Zopiclone 2013  
■ Benzodiazepines 2015 (Predicted)   
 ■ Benzodiazepines 2014   
 ■ Benzodiazepines 2013



\* The values indicated by the asterisk are predicted values based on data for half a year.