Emergency department visits for non-traumatic oral health conditions

Description

- **Crude emergency department (ED) visits rate -** the total number of emergency department visits (not scheduled) for non-traumatic oral health conditions per population during a given year (fiscal or calendar) (usually expressed per 100,000).
- **Age-specific emergency department visits rate -** the total number of emergency department visits (not scheduled) for non-traumatic oral health conditions in a given age group per population in that age group during a given year (fiscal or calendar) (usually expressed per 100,000).
- **Age-standardized emergency department visits rate (SRATE) -** the number of emergency department visits (not scheduled) for non-traumatic oral health conditions per 100,000 population that would occur in the population if it had the same age distribution as the 2011 Canadian population.
- **Standardized morbidity ratio (SMR) -** the ratio of observed emergency department visits (not scheduled)for non-traumatic oral health conditions to the number expected if the population had the same age-specific emergency department visit rates as Ontario.

Specific indicators and method of calculation

Crude Rate

$$\frac{\text{total number of emergency department visits for non-traumatic oral health conditions}}{\text{total population}} \times 100{,}000$$

Age-specific rate

$$\frac{\text{total number of emergency department visits for non-traumatic oral health conditions in an age group}}{\text{total population in that age group}} \times 100{,}000$$

SRATE (See Resources: Standardization of Rates**)**

$$\frac{\text{sum of (age-specific emergency department visit rates for non-traumatic oral health conditions x 2011 Canadian population in that age group)}}{\text{sum of 2011 Canadian population}} \times 100{,}000$$

Standardized morbidity ratio (See Resources: Standardization of Rates**)**

$$\frac{\text{total number of emergency department visits for non-traumatic oral health conditions in the population}}{\text{sum of (Ontario age-specific rate x population in that age group)}} \times 100$$

Basic categories

- Age groups:
    - 0-11, 12-17, 18-24, 25-44, 45-64, 65+

      *Note: Public health units may choose to merge age categories due to small numbers, or change age categories depending on the specific analysis questions. Examples of other age categories:
        - Classify the youngest age group as 0 – 5 and 6 – 17.
        - Classify 'seniors/older' as ages 65-74 and 75+
- Sex: male, female and total. (Note: IntelliHEALTH also includes the categories: Other, (transsexual, hermaphrodite), not stated, unknown/NA, and unmatched. You may choose to combine these groups into an "other" category).
- Geographic areas of residence: Ontario, public health unit, Local Health Integration Networks (LHINs), municipality, and smaller areas of geography based on aggregated postal code.

Data sources
Numerator: Emergency Visits
Original source: National Ambulatory Care Reporting System (NACRS), Canadian Institute for Health Information (CIHI)
Distributed by: Ontario Ministry of Health and Long-Term Care (MOHLTC): IntelliHEALTH ONTARIO (IntelliHEALTH)
Suggested citation (see Data Citation Notes**):** Ambulatory Emergency External Cause [years], Ontario Ministry of Health and Long-Term Care, IntelliHEALTH ONTARIO, Date Extracted: [date].

Denominator: Population Estimates
Original source: Statistics Canada
Distributed by: Ontario Ministry of Health and Long-Term Care (MOHLTC): IntelliHEALTH ONTARIO (IntelliHEALTH)
Suggested citation (see Data Citation Notes**):** Population Estimates [years], Ontario Ministry of Health and Long-Term Care, IntelliHEALTH ONTARIO, Date Extracted: [date]

ICD codes

Recommended ICD10 groupings:

- All non-traumatic oral health conditions: K00–K14 (diseases of oral cavity, salivary glands and jaws)

Analysis check list

- The IntelliHEALTH licensing agreement does not require suppression of small cells, but caution should be used when reporting at a level that could identify individuals, (e.g. reporting at the postal code level by age and sex). Please note that privacy policies may vary by organization. Prior to releasing data, ensure adherence to the privacy policy of your organization.
- Aggregation (e.g., combining years, age groups, categories) should also be considered when small numbers result in unstable rates.
- An 'Ambulatory Visits User Guide' is available within IntelliHEALTH.
- Suggest using the "*all problem*" diagnosis codes within the "*Ambulatory Visits"* data package rather than the *"main problem*" diagnosis codes. The "main problem" data captures approximately 11% fewer oral health cases than "all problems" data (2012–2016).
- See Appendix below for detailed instructions on extracting oral health ambulatory care data from IntelliHEALTH.

Indicator Comments

- Emergency department visits for non-traumatic oral health conditions may be linked to lack of access to oral health services (1, 2)
- Those who attend emergency departments for non-traumatic oral health conditions are likely to receive treatment to manage symptoms rather than specialized treatment to address their underlying oral health care needs, or to be discharged without any treatment at all (1, 3)
- This indicator does not capture physicians' visits for oral health problems.
- APHEO recommends adopting the 2011 Canadian population to calculate age-standardized rates. See the Standardization of rates Core Indicator resource. Statistics Canada (4), Cancer Care Ontario (5) and Public Health Ontario have made this transition from the 1991 Canadian population. Rates standardized to the 2011 Canadian population should not be compared to rates age-standardized using other reference populations.

Ontario Public Health Standards (OPHS): Requirements for programs, services and accountability

"The role of boards of health is to support and protect the physical and mental health and well-being, resiliency and social connectedness of the health unit population, with a focus on promoting the protective factors and addressing the risk factors associated with health outcomes. The Ontario Public Health Standards (OPHS) define the responsibilities of boards of health in an integrated health system and are informed by the core public health functions, which include assessment and surveillance, health promotion and policy development, health protection, disease prevention and emergency management. The boards of health are responsible for programs and services in all core functional areas as well as demonstrating accountability to the ministry, and monitoring and measuring effectiveness, impact and the success of their programs and services (6)."

This indicator relates to the following Ontario public health standards:

- Chronic disease prevention and well-being
- Healthy growth and development
- School health

health.gov.on.ca/en/pro/programs/publichealth/oph_standards/docs/protocols_guidelines/Ontario_Public_Health_Standards_2018_en.pdf

Corresponding Health Indicator(s) in Public Health Practice

Corresponding Health Indicators from Statistics Canada and CIHI

- None

Corresponding Indicator(s) from Other Sources

- Ontario Ministry of Health and Long-Term Care. Resource indicator standard. Emergency visits for non-traumatic dental problems. Available from: http://www.health.gov.on.ca/en/pro/programs/ris/docs/ed_visits_nontraumatic_dental_en.pdf

Definitions

- None

Cited References

(1) Quiñonez C, Gibson D, Jokovic A, Locker D. Emergency department visits for dental care of nontraumatic origin. Community Dent Oral Epidemiol. 2009;37:366-71. Available from: onlinelibrary.wiley.com/doi/10.1111/j.1600-0528.2009.00476.x/epdf.

(2) Singhal S, McLaren L, Quiñonez C. Trends in emergency department visits for non-traumatic dental conditions in Ontario from 2006 to 2014. Can J Public Health. 2017;108(3):e246-e250. Available from: journal.cpha.ca/index.php/cjph/article/viewFile/5950/3639

(3) Lee HH, Lewis CW, Saltzman B, Starks H. Visiting the emergency department for dental care: trends in utilization, 2001 to 2008. Am J Public Health. 2012;102(11):e77-83. Available from: ajph.aphapublications.org/doi/pdf/10.2105/AJPH.2012.300965.

(4) Ellison L. Updating the standard population and its effect on cancer incidence and mortality rates. Ottawa, ON: Statistics Canada; 2016. Available from: www.statcan.gc.ca/pub/82-624-x/2016001/article/14667-eng.pdf

(5) Cancer Care Ontario [Internet]. Updated reference population, age-standardized rates. Toronto, ON: Cancer Care Ontario; 2018. Available from: www.cancercareontario.ca/en/data-research/accessing-data/technical-information/updated-population-age-standardized-rates

(6) Ontario. Ministry of Health and Long-Term Care. Protecting and promoting the health of Ontarians. Ontario public health standards: Requirements and programs, services and accountability. Toronto, ON: Queen's Printer for Ontario; 2018. Available from: health.gov.on.ca/en/pro/programs/publichealth/oph_standards/docs/protocols_guidelines/Ontario_Public_Health_Standards_2018_en.pdf

Other References

(1) Bains, Namrata. Standardization of rates [Internet]. Toronto, ON: Association of Public Health Epidemiologists in Ontario; 2009. Available from: http://core.apheo.ca/resources/indicators/Standardization%20report_NamBains_FINALMarch16.pdf

Changes Made

- N/A

Acknowledgments

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Appendix: Extracting oral health ambulatory care data from IntelliHEALTH

1. Log into the Ministry of Health and Long-Term Care (MOHLTC) Go Secure server to access IntelliHEALTH Cognos.
2. Create a new report:
    - Click on the "+" sign at the bottom left of the screen.
    - Click on the "Report" icon when the dialog box appears
    - Select "Blank" template and click OK.
    - Click on the "+" sign in the middle of the screen to reveal the object options.
    - Select "List". Name the object and query in the pop-up window, if desired.
3. Select data source:
    - Click on the "+" sign near the top of the page in the left panel.
    - Select "IH Reports" folder➔"Packages"➔"Ambulatory Visits"➔Click on "Open" to access the NACRS reporting folder.
4. Select data items:
    - Click on the arrow beside "NACRS Reporting" to expand the fields and view data elements.
    - Patient PHU, year (e.g., calendar year), diagnostic codes (i.e., ICD10 variables), AM case type and NACRS key are required data elements. Select other data fields such as patient age, sex, LHIN or postal code as needed by double clicking on the data element (table 1).

Table 1. Required and optional data elements included in the extraction report

NACRS Reporting Folder	Item/data element
Time Period	• **CYear**
Case ID and HN Information	• **NACRS Key**
Patient Information	• **Patient PHU (or select 'Select PHU Code' from the 'Codes' subfolder)** • Patient LHIN (alternatively, select 'LHIN Code' from the 'Codes' subfolder) • Patient Postal Code • Age (yrs) • Patient sex

Problem Diagnosis (Dx) and External Cause Information	• **All problem**
	  ○ **All Dx Code (3 char)**
	  ○ **All Dx Code**
	  ○ All Dx

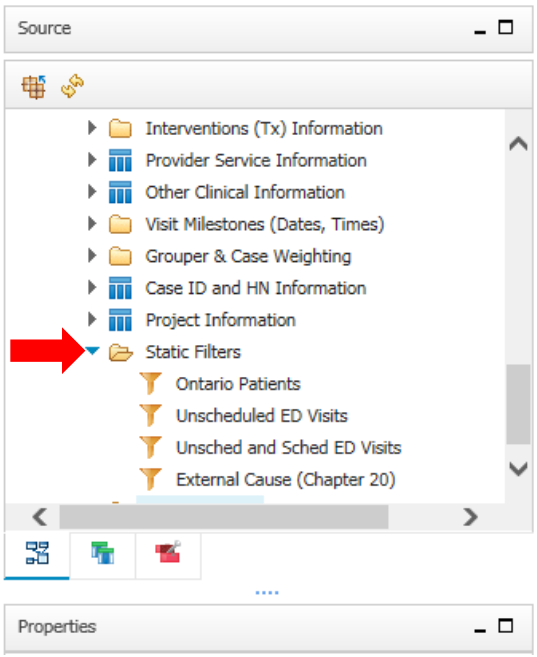
Visit Information	• **AM Case Type**

*Required data elements are in **bold text**

- It may be helpful to include a row number in the report in order to verify that all rows of data extracted in the report have been successfully exported to Excel:
    - Click on the "Tools" icon (hammer) on the left side of the page
    - Expand the "Textual" field
    - Drag and drop "Row number" to the left edge of the report page

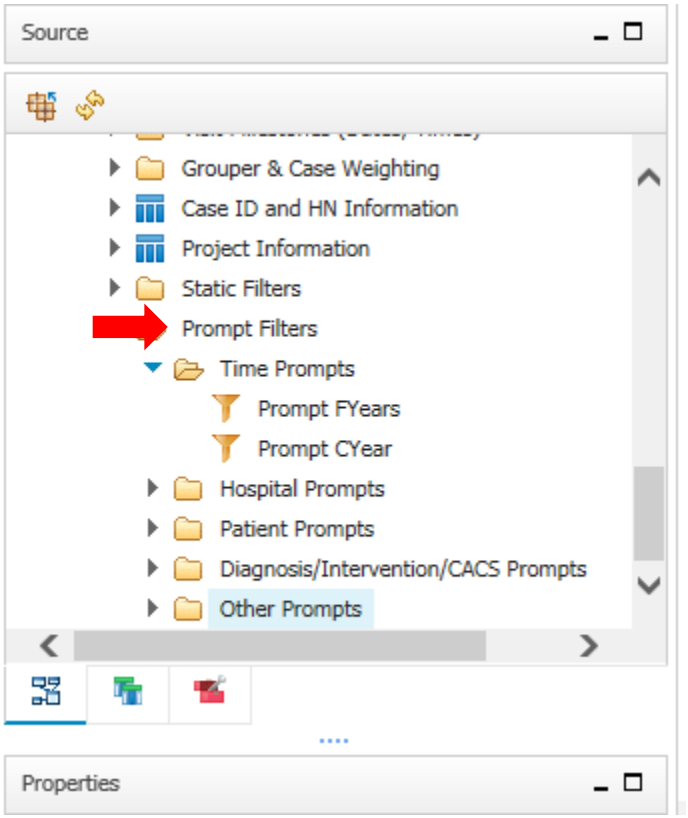
5. Create filters to extract cases that will be included in the indicator calculations
    - **Static filter (figure 1):** Double click on "Ontario Patients" to restrict the data extract to Ontario residents.

Figure 1. Static filter – Ontario Patients



- **Prompt filters (figure 2):**
    - Time Prompts: Select **"Prompt CYear"**. (A time prompt filter is advisable to allow extraction of data in manageable amounts.)
    - Patient Prompts: Select **"Prompt Patient PHU"** to allow filtering by PHU when running the report.
    - Other Prompts: Select **"Prompt AM case type"** to allow filtering by AM case type=Emergency when running the report.

Figure 2. Prompt filters



- **Custom filter (figures 3a, 3b and 3c):** Create a filter to select the ICD codes that will be included in the data extract.
    - Right-click on "All Dx Code (3 char)" in the list of objects in the "NACRS Reporting" pane to the left of the screen to access the filtering function (figure 3a).
    - Click on "Filter for report" to view the "Filter condition" pop-up window (figure 3b). (Alternatively, left-click on "All Dx Code (3 char)" column heading within the report to reveal the filter icon. Click on the down arrow beside the filter icon and select "Create Custom Filter" to view the "Filter condition" pop-up window (figure 3c)).
    - Complete the following in the pop-up window (figure 3b):
        - Select "Keep these values"
        - "Click on the word "Find" and enter "K" (upper case)
        - In the box below the "Find" field, use the SHIFT key to select values K00 though K14, inclusive.
        - Click the small "+" in the circle to add the values to the box on the right.
        - Click "OK".

“Figure 3a. Creating a custom filter

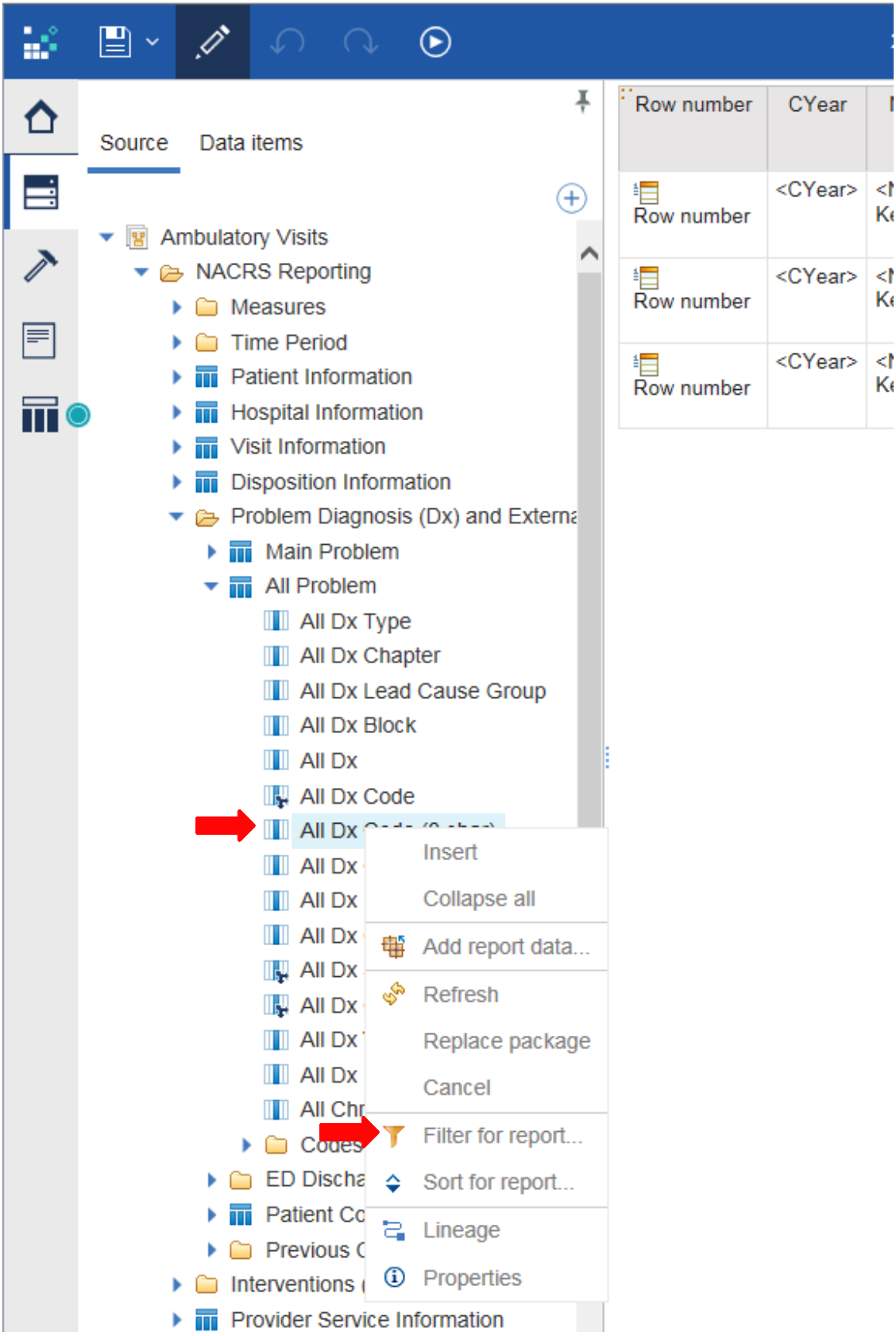


Figure 3b. Creating a custom filter: selecting ICD10 codes

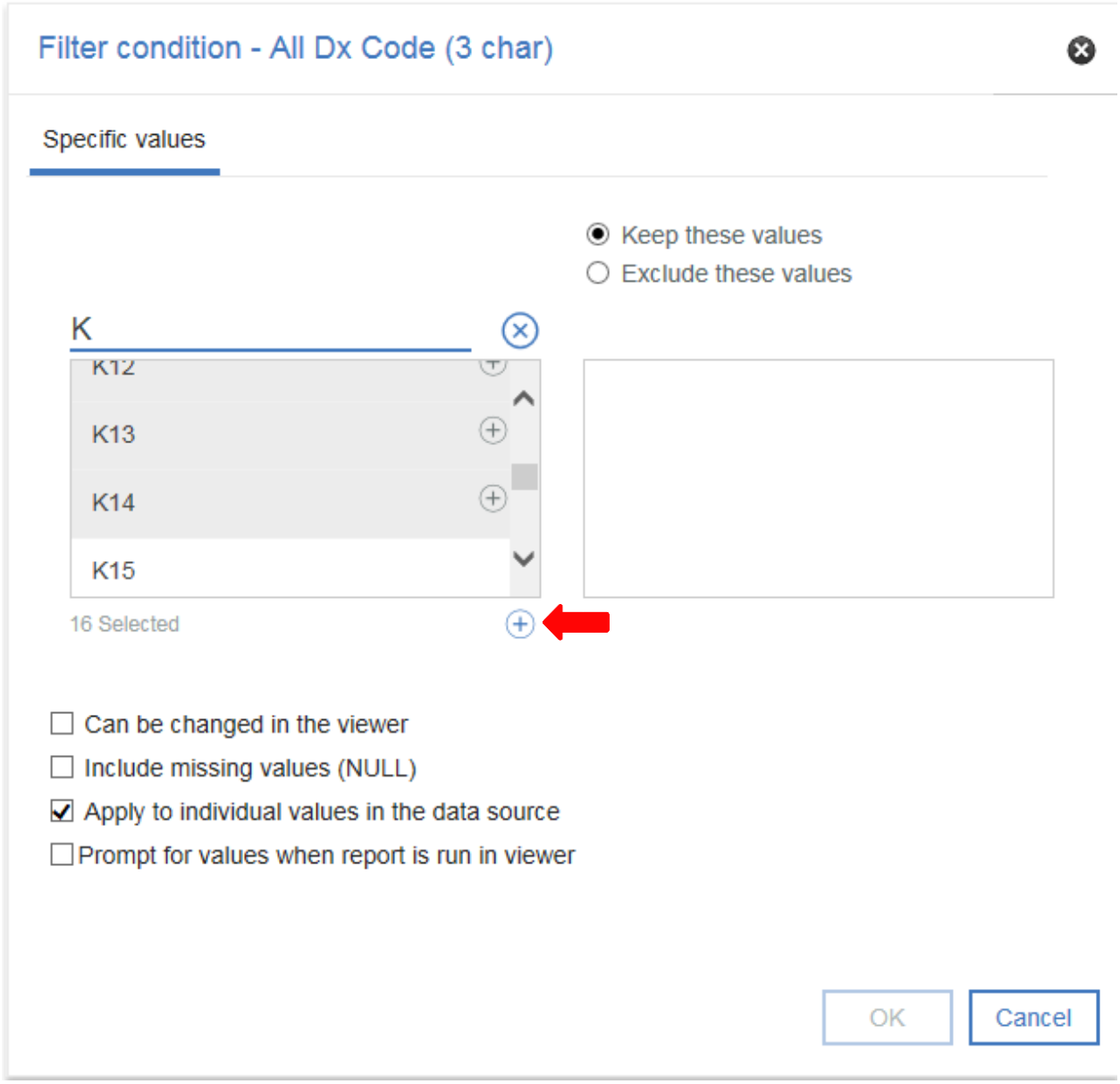
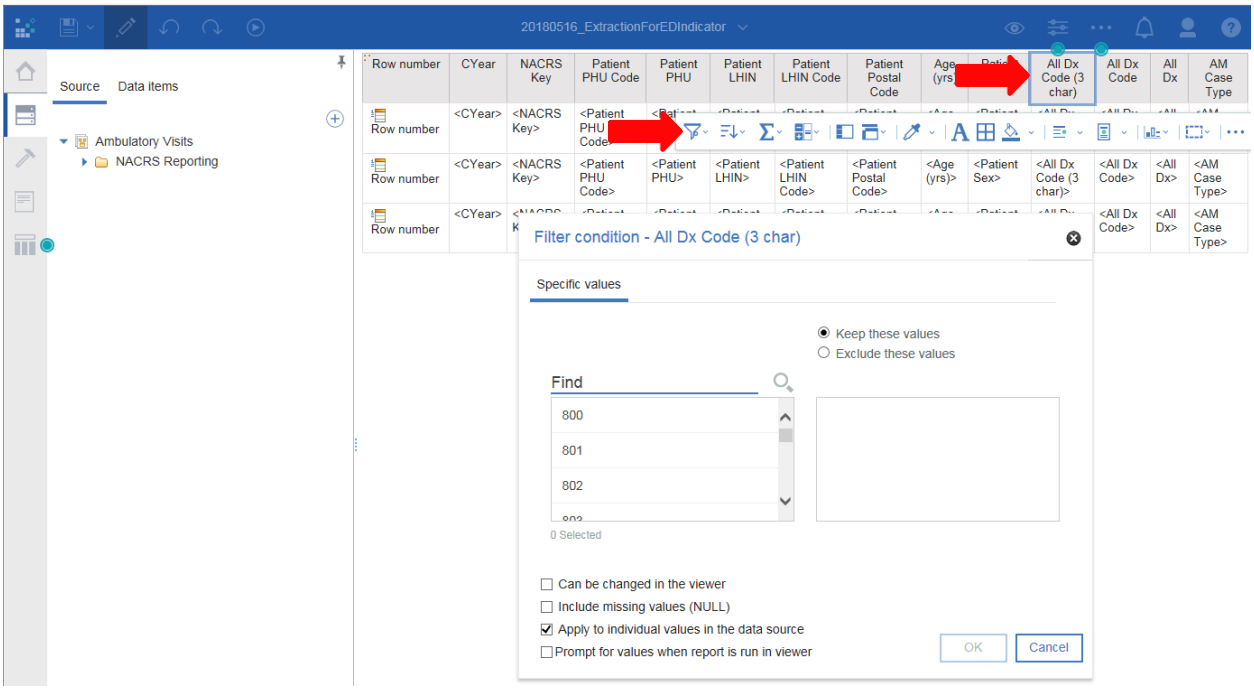


Figure 3c. Creating a custom filter



6. Specify query properties: Auto group and summarize
    - Click on the “Query” icon to view the query (figure 4a)
    - Click on the icon beside the “Query1” to highlight Query1.
    - Click on the “Show properties” icon at the top right side of the page (figure 4b).
        - Select “No” beside “Auto group & summarize” (figure 4c).The “Summarization” function should be deactivated to ensure all relevant rows of data are extracted. NOTE: You can change the name of the query from “Query1” (e.g., to “Inclusions”) by typing the preferred name beside “Name” in the “Miscellaneous” section of the “Properties – Query” box.

Figure 4a. Query icon

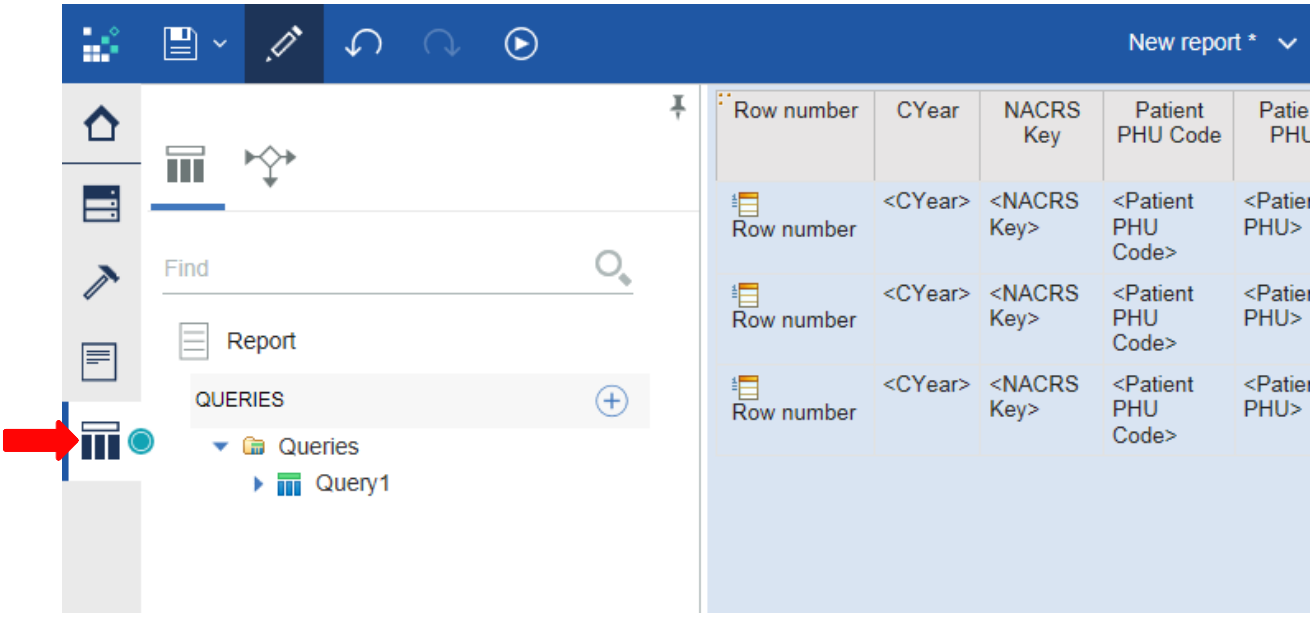


Figure 4b. Accessing the query properties box

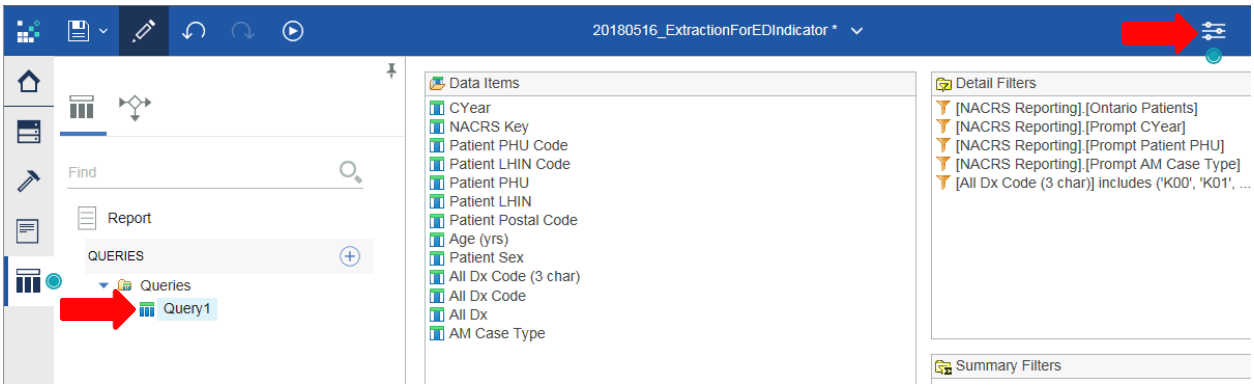
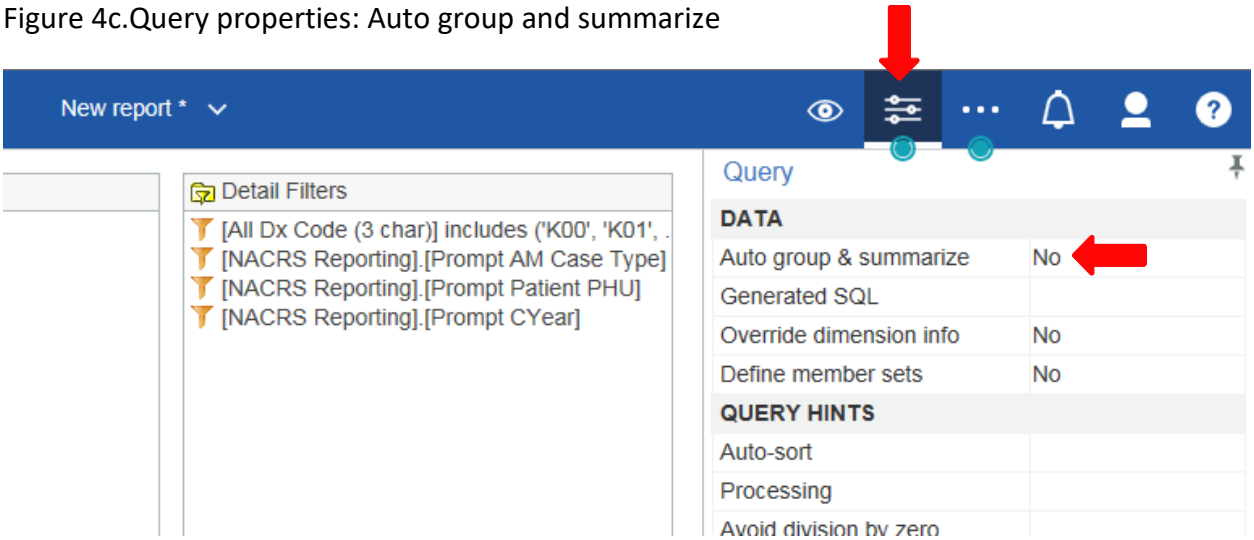


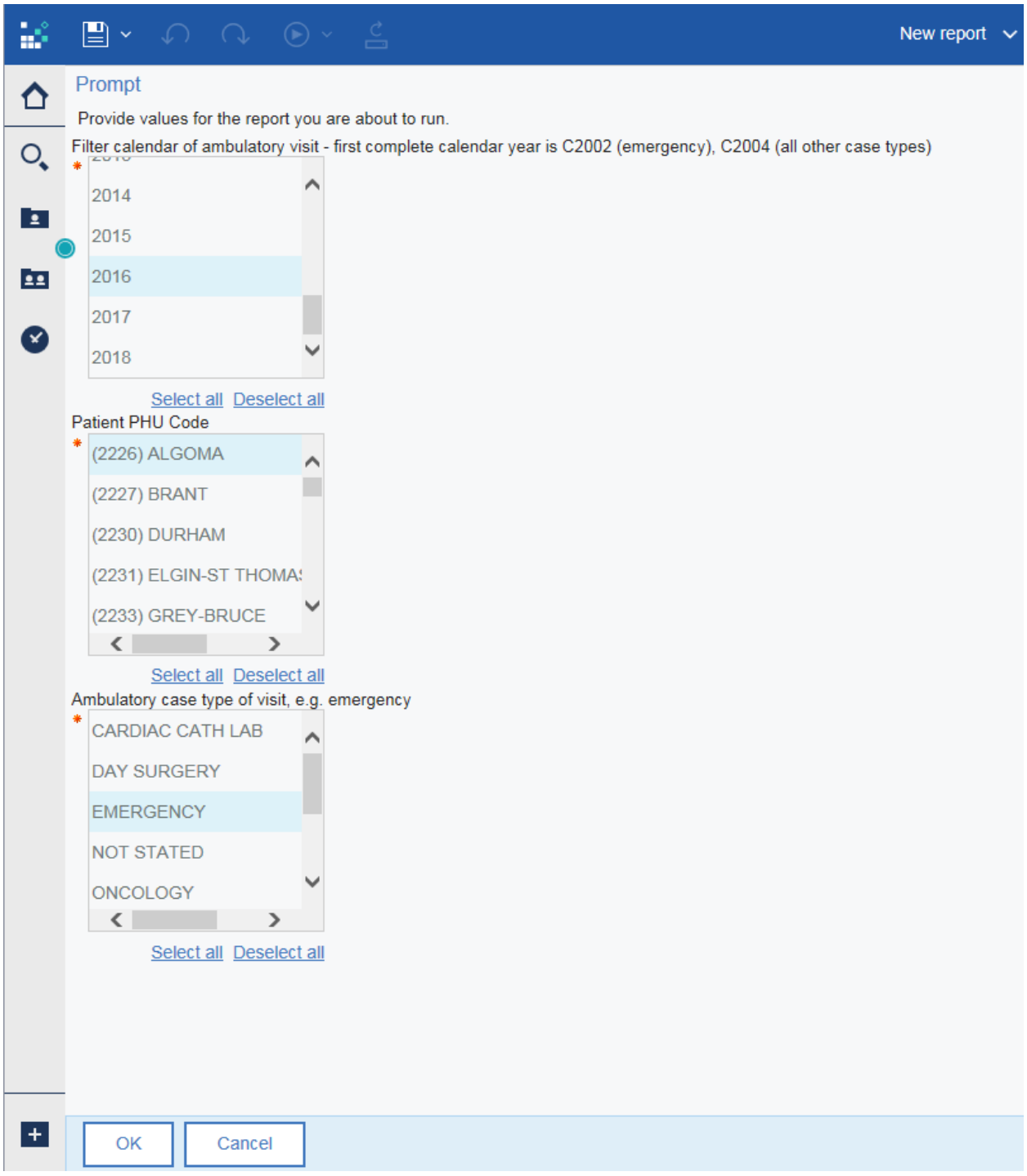
Figure 4c.Query properties: Auto group and summarize



7. Run the report (figure 5). Select:
    - Calendar year
    - PHU
    - AM Case Type=Emergency

    Note: Because the data extract will contain many rows, it is advisable to extract data in small amounts (e.g., by calendar year) and to combine years using statistical software such as STATA or SAS.

Figure 5. Running the IntelliHEALTH report



8. Distinct counts: when using the “all problem diagnosis” data, a patient may be diagnosed with more than one non-traumatic oral health condition during any one emergency department visit. Use statistical software to remove duplicates based on NACRS key before

calculating rates for specific indicators. For example, to determine the distinct number of people who visited the emergency department with at least one non-traumatic oral health condition (i.e., K00 to K14), using:

- Stata (variable name=anydental):

```
bysort anydental NACRS_Key : gen distinct_ anydental = _n == 1 if anydental ==1
count if distinct_ anydental ==1
```

- SAS (data set name=anydental):

```
proc sort data=anydental nodupkey;
    by NACRS_key;
run;
```

Alternatively, IntelliHEALTH can create cross-tabulation tables and sum across distinct counts (# AM Visits (D)) to determine the number of distinct visits. (Note: because the column total is a distinct count, it may be smaller than the sum of the cells within the column).