



First Nations Health Authority  
Health through wellness

Health System Matrix  
2008/09 to 2014/15  
*Vancouver Island Regional Caucus*

November 6, 2018



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## Health System Matrix at FNHA

- The data shown today is a result of a data match between the First Nations Client File and the Health System Matrix (HSM), a provincial health service database.
- Through the HSM, we will be able to monitor and measure the impact of integration of primary and community care for First Nations in British Columbia (BC).
- The HSM database (2008/09 to 2014/15) provides observations of the performance of the health system for First Nations, including General Practitioner (GP) attachment, emergency department (ED) utilization and physician service utilization.



## What does the HSM tell us?

- First Nations were overrepresented in emergency departments (EDs) and were less likely to be attached to GPs. Non-attached First Nations were more likely to access ED services compared to attached First Nations.
- Rates were significantly lower among First Nations in Vancouver Island than Other Residents for visits to medical specialists outside of hospital, surgeons, oncology, and physical medicine & rehabilitation. First Nations utilized the services of GPs in hospital, medical specialists in hospital and anaesthesia at a higher rate.
- There was variability in rates among the sub regions.
- Findings support the prioritization of primary care services that are adequate, accessible and culturally safe – observations which are supported by the data showing over utilization of hospitals and EDs.



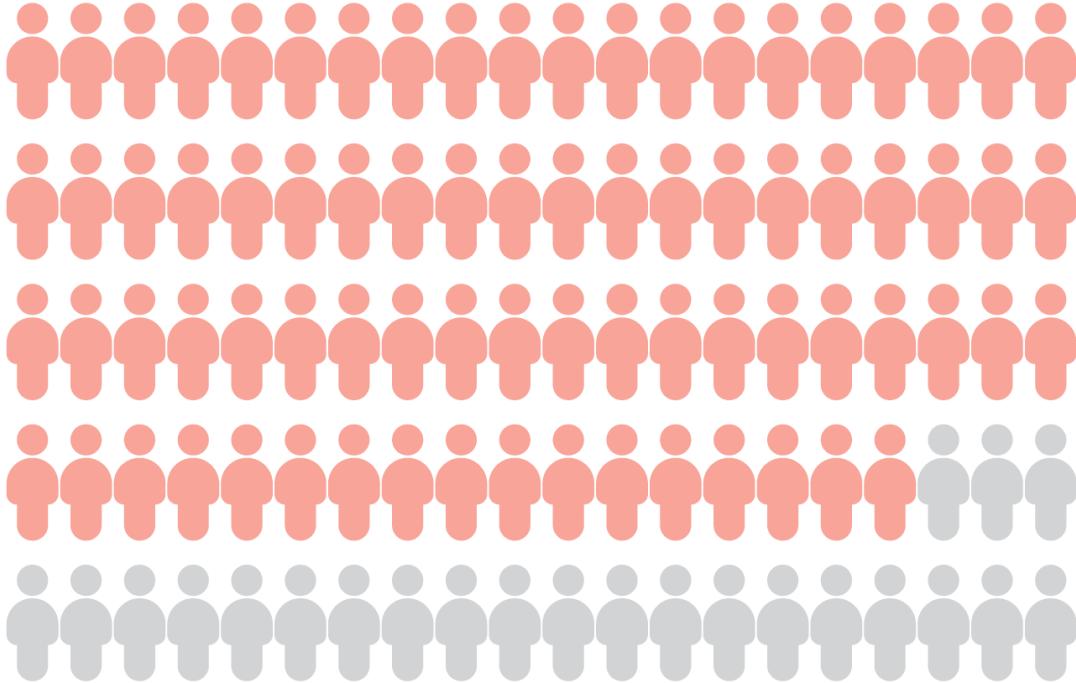
## Understanding the HSM

- Explores how publicly funded services are used, aggregated by population segments, age group, where persons live in the province, whether they have a regular family doctor, or other characteristics.
- Includes physician, hospital, residential care and home & community care services. Does not include First Nations community health services, population health services, nurse practitioners, and physicians on alternate payment plans.
- The HSM does not include information on who provided the services, or where and when they were provided.
- As it summarizes provincial services, the HSM does not capture those First Nations who may have only accessed their community's health services during the year or visited a physician paid on an alternate payment plan.



# Definitions

## User Rate



The use of health services is measured by the number of users in the total population; e.g. a rate of 77% for physician services means that 77 persons out of 100 visited a physician at least once during the year.

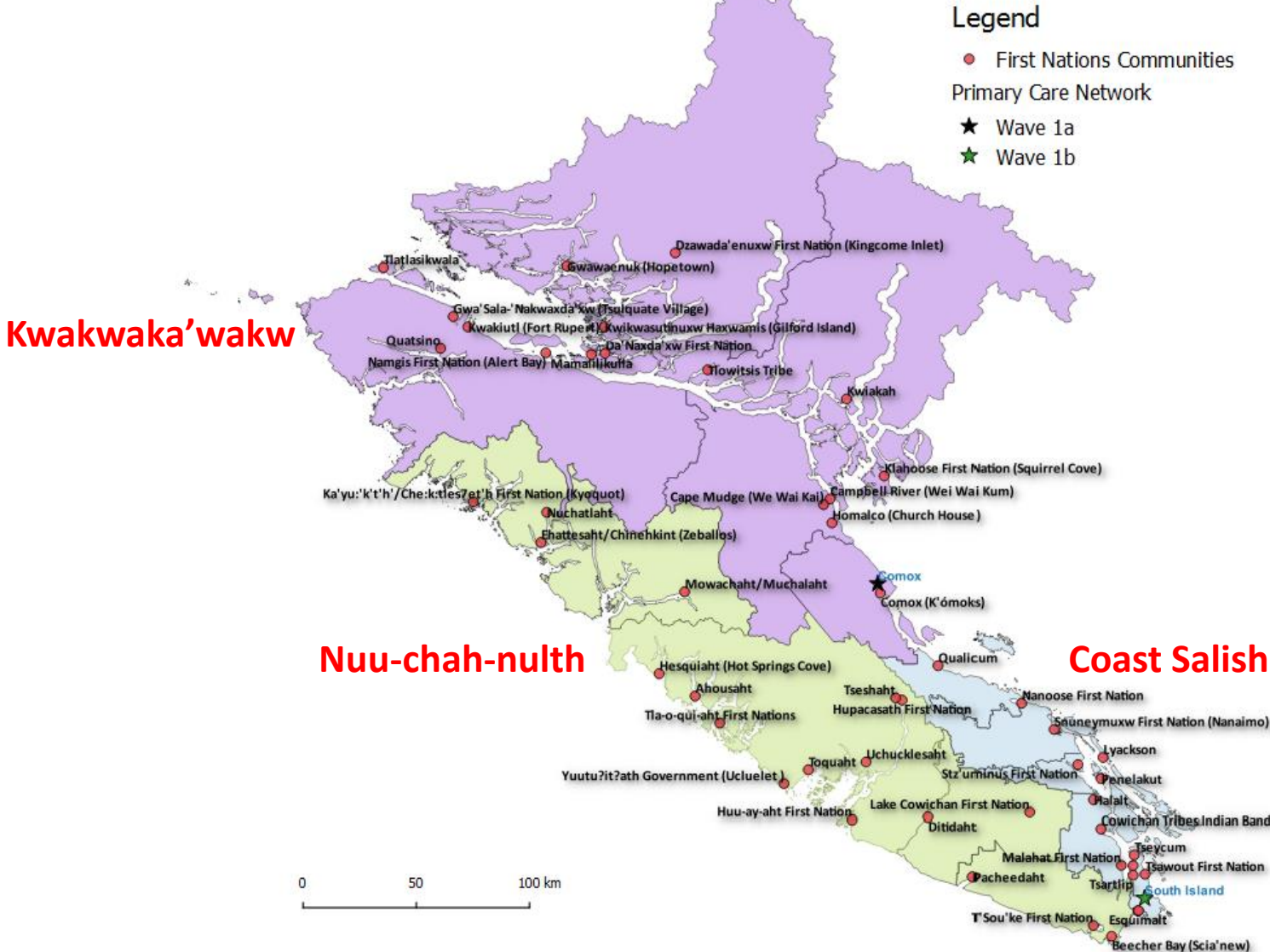


## Definitions

- **Prevalence Rate:** the same as the user rate, but prevalence refers to the number of persons with a specific health condition.
- **Cell Size:** the actual number of users or persons with a chronic condition that is used to calculate a rate. If a rate is based on a number of 10 or less, this rate is not shown to ensure confidentiality and privacy of individuals.
- **Rate Ratio:** First Nations user and prevalence rates may be different than Other Residents. One way of showing this is to calculate the First Nations rate / Other Resident rate.
  - E.g. A value of 2 means that the First Nations rate was twice the Other Resident rate, for example,  $80\% / 40\% = 2$
  - E.g. A value of 0.95 means that the First Nations rate was lower than the Other Resident rate.
- **Local Health Area (LHA):** a geographic division within a health authority.



# Vancouver Island Sub Regions







## Vancouver Island Sub Regions by LHAs

| Sub Regions and First Nations Communities   | LHA  |
|---|--|
| <p><b>Coast Salish (N=20,533; 61.6% of total First Nations population)</b><br/>                     Beecher Bay (Scia'new), Stz'uminus First Nation, Cowichan Tribes Indian Band, Esquimalt, Halalt, Homalco (Church House), Klahoose First Nation (Squirrel Cove), Lake Cowichan First Nation, Lyackson, Malahat First Nation, Nanoose First Nation, Pauquachin, Penelakut, Qualicum, Snuneymuxw First Nation (Nanaimo), Songhees First Nation, Tsartlip, Tsawout First Nation, Tseycum, T'Sou'ke First Nation</p> | Greater Victoria<br>Sooke<br>Saanich<br>Gulf Islands<br>Cowichan<br>Ladysmith<br>Nanaimo<br>Qualicum |
| <p><b>Kwakwaka'wakw (7,186; 21.6%)</b><br/>                     Campbell River (Wei Wai Kum), Cape Mudge (We Wai Kai), Comox (K'ómoks), Da'Naxda'xw First Nation, Gwa'Sala-'Nakwaxda'xw (Tsulquate Village), Gwawaenuk (Hopetown), Kwakiutl (Fort Rupert), Kwiakah, Kwikwasutinuxw Haxwamis (Gilford Island)<br/>                     Mamalilikulla, Namgis First Nation (Alert Bay), Quatsino<br/>                     Tlatlasikwala, Tlowitsis Tribe, Dzawada'enuxw First Nation (Kingcome Inlet)</p>             | Courtenay<br>Campbell River<br>Vancouver Island North  |
| <p><b>Nuu-chah-nulth (5,620; 16.9%)</b><br/>                     Ahousaht, Ditidaht, Ehattesaht/Chinehkint (Zeballos), Hesquiaht (Hot Springs Cove), Hupacasath First Nation, Huu-ay-aht First Nation, Ka'yu:'k't'h'/Che:k:tlés7et'h First Nation (Kyoquot), Mowachaht/Muchalaht, Nuchatlaht, Pacheedaht, Tla-o-qui-aht First Nations, Toquaht, Tseshaht, Uchucklesaht, Yuutu?it?ath Government (Ucluelet )</p>   | Lake Cowichan<br>Alberni<br>Vancouver Island West  |



# HSM Key Findings: Vancouver Island

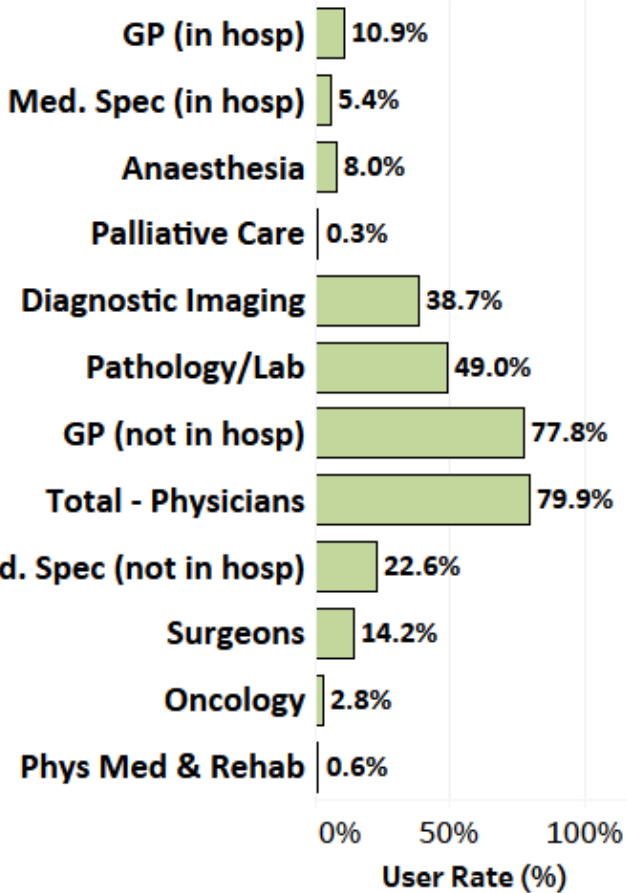


# Physician Services – Vancouver Island

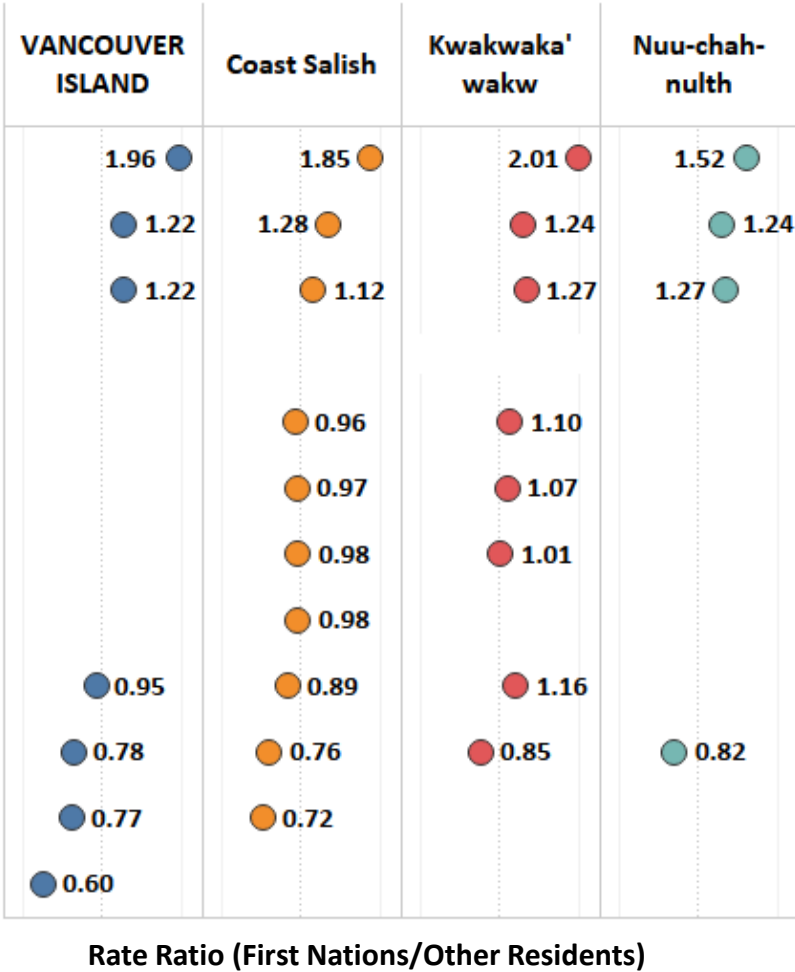
A/S User Rates, Vancouver Island, First Nations, 2014/15

First Nations rate **higher**

First Nations rate **lower**



User Rate Ratio (First Nations/Other Residents), by Sub Region, 2014/15





## Physician Services A/S User Rates, First Nations, by Sub Region, Vancouver Island, 2014/15

| Physician Service       | VANCOUVER ISLAND | Coast Salish | Kwakwaka'wakw | Nuu-chah-nulth |
|-------------------------|------------------|--------------|---------------|----------------|
| GP (in hosp)            | 10.9%            | 9.7%         | 13.7%         | 11.7%          |
| Med. Spec (in hosp)     | 5.4%             | 5.9%         | 3.8%          | 5.4%           |
| Anaesthesia             | 8.0%             | 7.2%         | 9.0%          | 9.2%           |
| Palliative Care         | 0.3%             | -            | -             | -              |
| Diagnostic Imaging      | 38.7%            | 36.7%        | 43.3%         | 39.8%          |
| Pathology/Lab           | 49.0%            | 48.2%        | 52.8%         | 46.7%          |
| GP (not in hosp)        | 77.8%            | 77.1%        | 80.3%         | 77.2%          |
| Total - Physicians      | 79.9%            | 79.1%        | 82.9%         | 79.0%          |
| Med. Spec (not in hosp) | 22.6%            | 21.6%        | 24.1%         | 23.7%          |
| Surgeons                | 14.2%            | 13.9%        | 15.6%         | 13.2%          |
| Oncology                | 2.8%             | 2.6%         | 3.9%          | 2.1%           |
| Phys Med & Rehab        | 0.6%             | 0.9%         | -             | -              |



*The majority of First Nations physician user rates were stable or decreased between 2008/09 – 2014/15*

**Trends in A/S User Rates by Service Line, First Nations, Vancouver Island, 2008/09 - 2014/15**

| Service Line                | 2008/09 | 2014/15 | AAC   | Trend |
|-----------------------------|---------|---------|-------|-------|
| Total - Physicians          | 82.7%   | 79.9%   | -0.6% |       |
| GP (not in hospital)        | 81.6%   | 77.8%   | -0.8% |       |
| Pathology/Laboratory        | 50.3%   | 49.0%   |       |       |
| Diagnostic Imaging          | 38.3%   | 38.7%   |       |       |
| Med. Spec (not in hospital) | 24.1%   | 22.6%   | -1.1% |       |
| Surgeons                    | 14.9%   | 14.2%   |       |       |
| GP (in hospital)            | 10.1%   | 10.9%   |       |       |
| Anaesthesia                 | 9.5%    | 8.0%    | -2.9% |       |
| Med. Spec (in hospital)     | 4.9%    | 5.4%    |       |       |
| Oncology                    | 2.3%    | 2.8%    |       |       |
| Phys Med & Rehab            | 0.6%    | 0.6%    |       |       |

Blue shading indicates significant decrease in rates between 2008/09 - 2014/15.

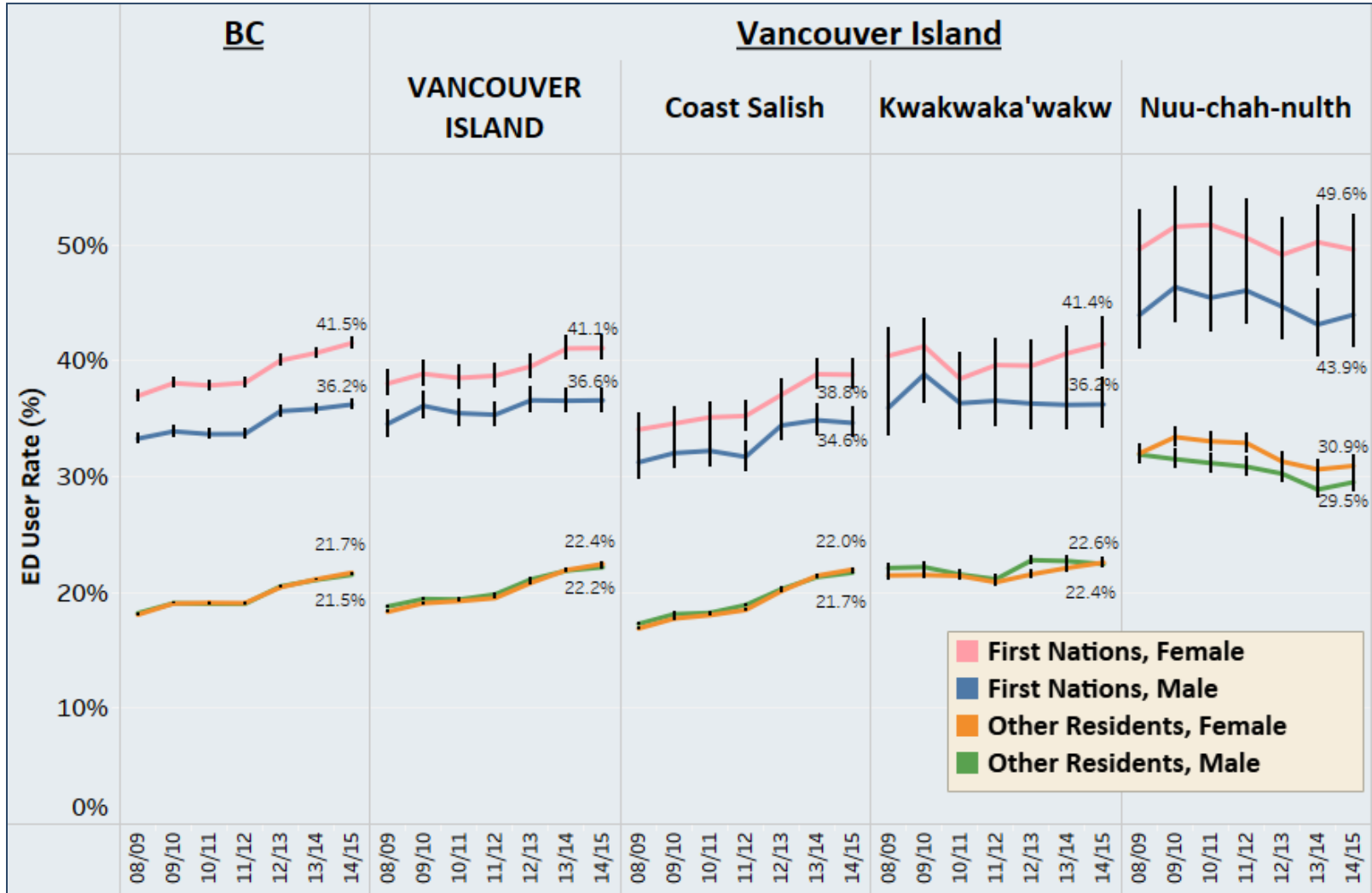
- First Nations physician utilization rates **declined** between 2008/09 and 2014/15 for:
  - Total physicians\*
  - GP not in hospital\*
  - Medical specialists not in hospital\*
  - Anaesthesia\*

\*also seen with Other Residents



*First Nations were overrepresented in emergency departments*

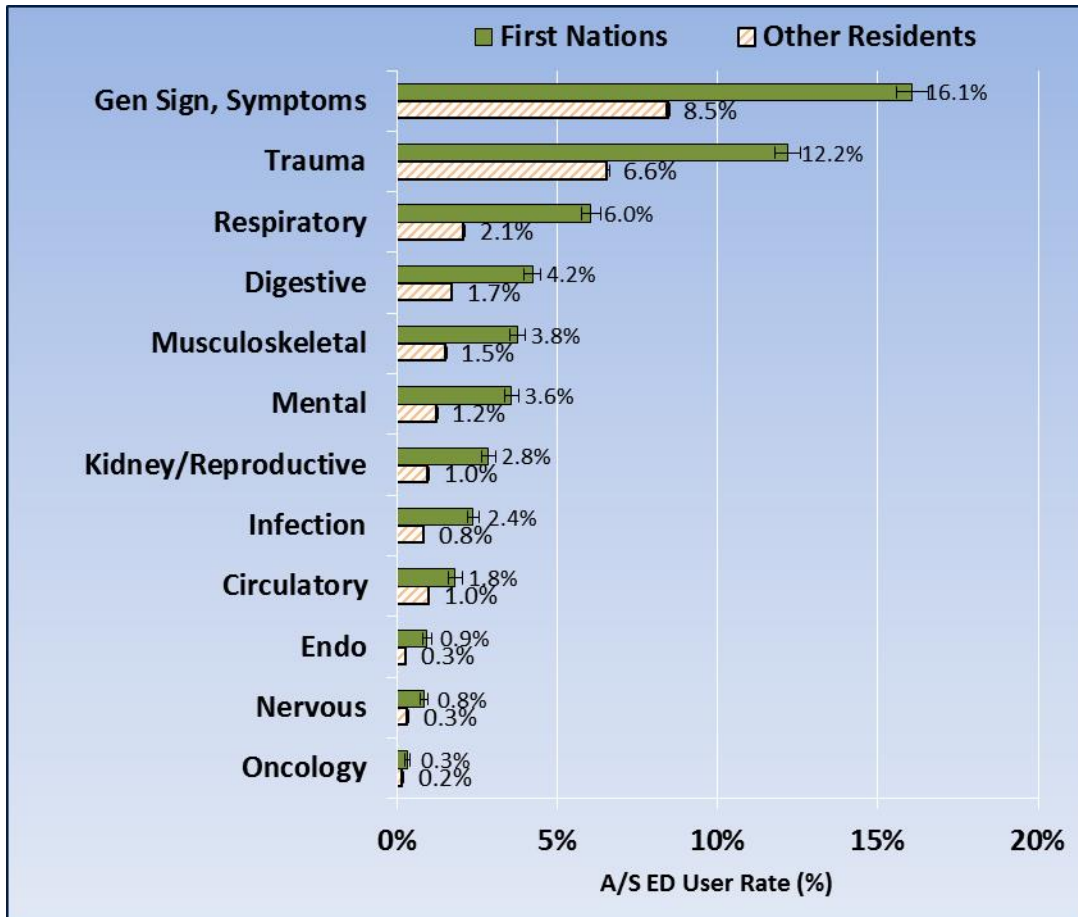
**A/S ED user rate trend by sub region and gender, First Nations & Other Residents**





*In all subspecialties, First Nations visited the ED more often*

**A/S ED subspecialty user rates, First Nations & Other Residents, 2014/15**



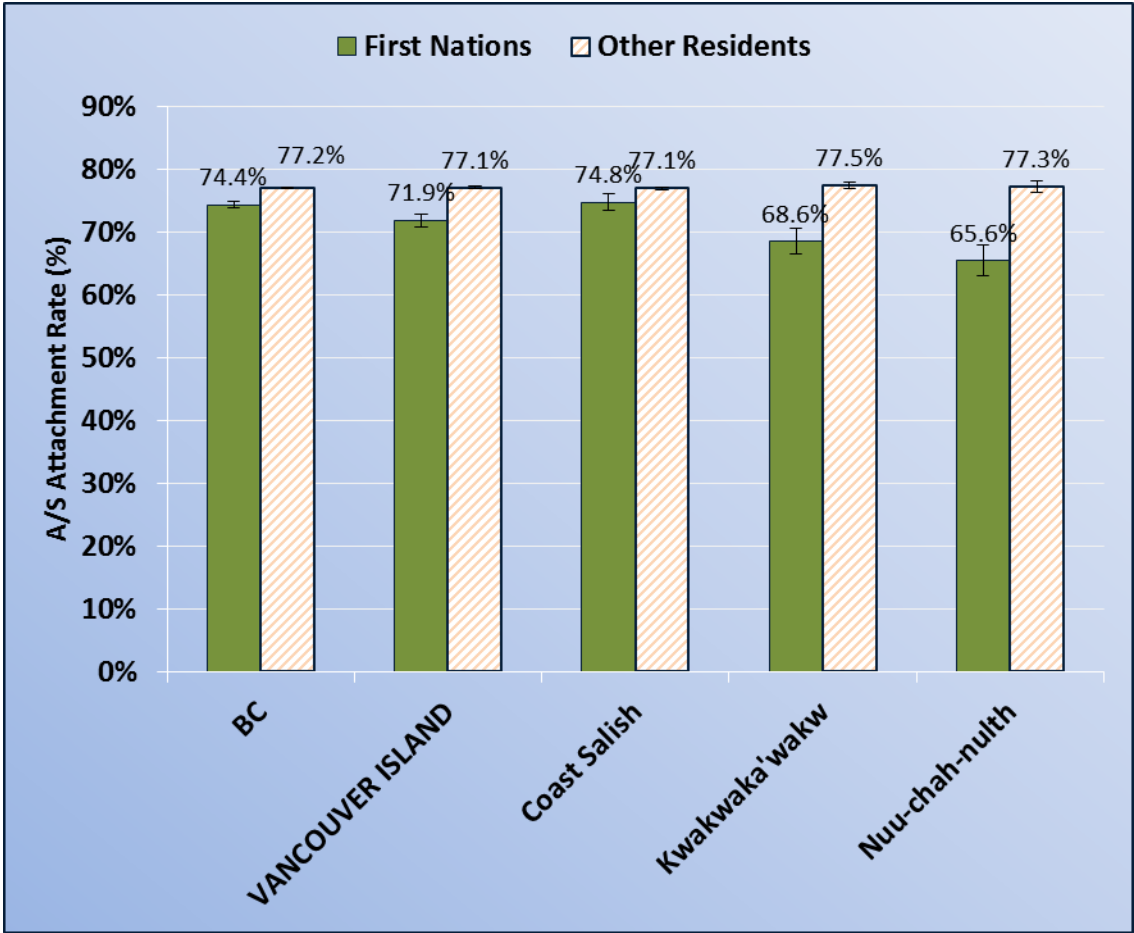
- In 2014/15, all First Nations subspecialty ED rates were significantly higher than the comparable rates of Other Residents.
- First Nations rates were typically two to three times higher, with the largest differences in **Endocrinology (3.4X), Kidney/Reproductive (2.9X), Mental (2.9X), and Respiratory (2.9X)** services

*Figure excludes missing and "other" specialties.*



*Attachment rates were lower among First Nations in Vancouver Island Region*

**A/S GP Attachment Rates by sub region, First Nations and Other Residents, All genders, 2014/15**



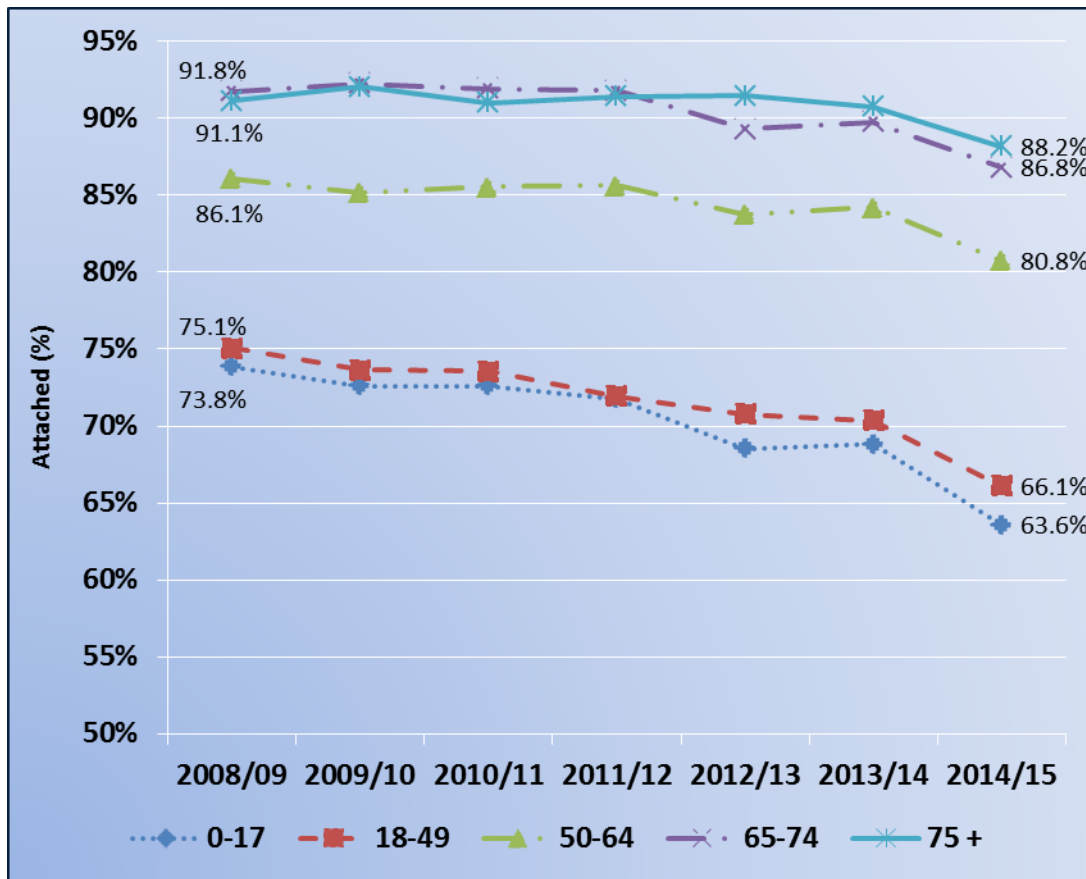
- First Nations GP attachment rates were lower in Vancouver Island compared to Other Residents.
- By gender, the pattern of lower First Nations attachment rates was seen generally in both females and males (data not shown).
- Attachment among First Nations varied by sub region, from 65.6% in Nuuchahnulth to 74.8% in Coast Salish.





*First Nations aged 65+ years had the highest attachment to GPs*

**Trend in Attachment Rate by Age Group, Vancouver Island, First Nations, 2008/09 – 2014/15**

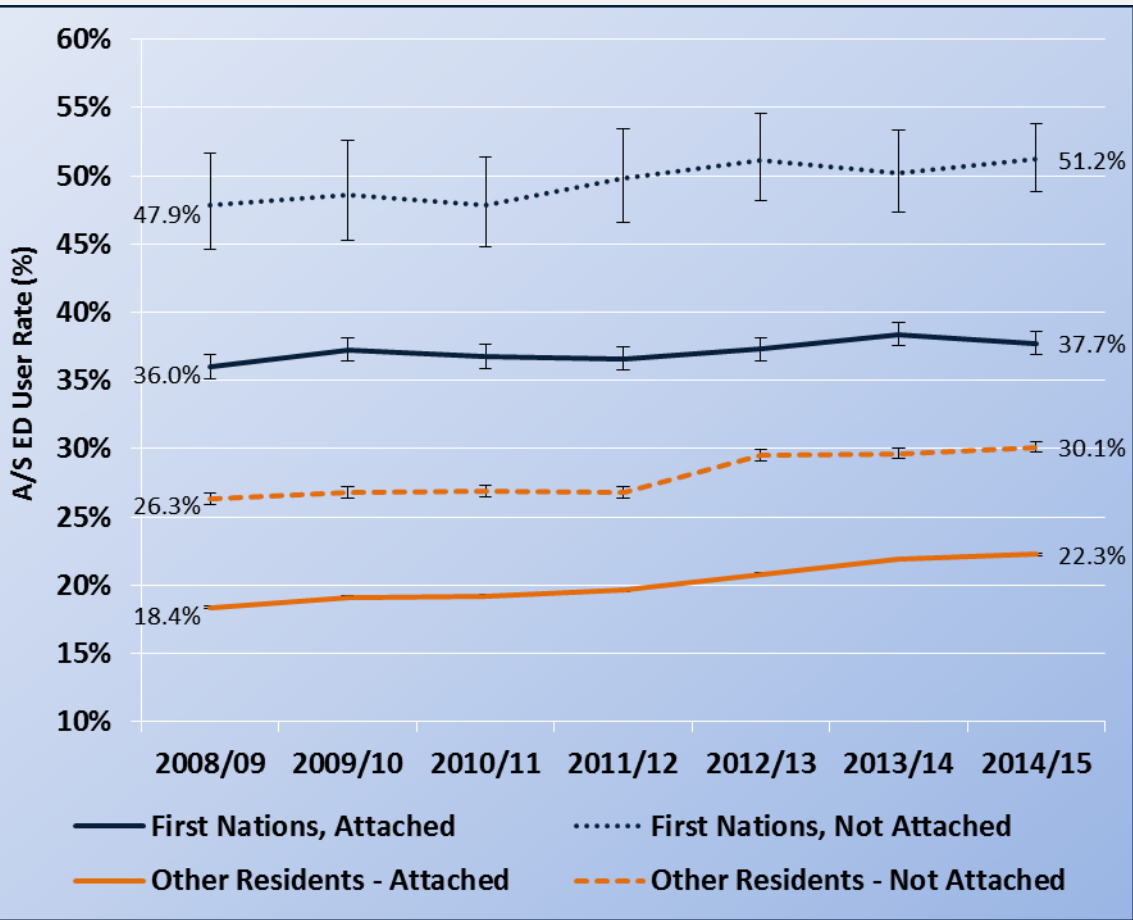


- Rate of attachment in the First Nations population increased across the life course, with the highest rates in the 65-74 and 75+ populations.
- In 2014/15, over **80%** of First Nations in Vancouver Island Region who were 50 years and older had continuity of physician care.
- Age-specific attachment rates decreased between 2008/09 and 2014/15 across all age groups except 75+ years where the rates were stable.



*First Nations had higher utilization of the ED whether they were attached to a GP or not*

**Trends in ED User Rates by GP Attachment**

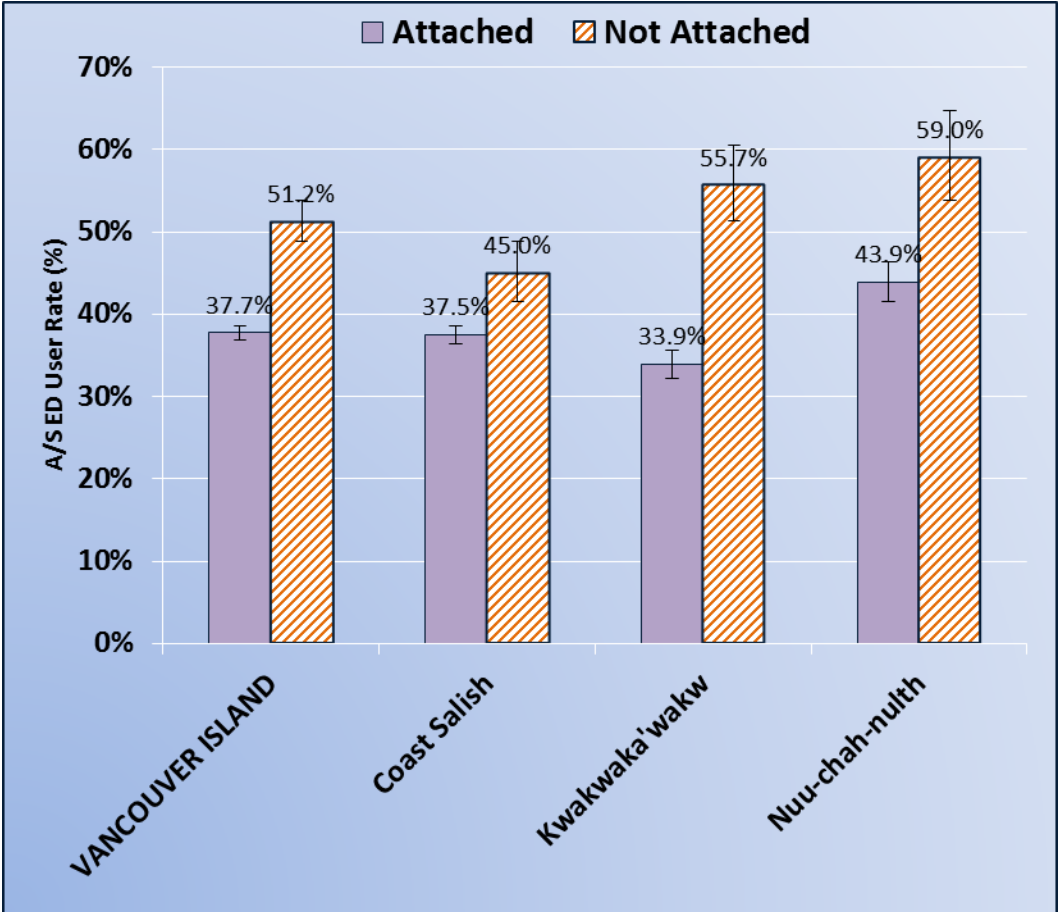


- Non-attached individuals had a higher rate of ED utilization compared to attached individuals.
- First Nations use of the ED remained stable over time for both attached and non-attached individuals
- First Nations females were more likely be users of physician services in the ED than First Nations males among attached individuals only (data not shown)



*Higher ED use by non-attached First Nations compared to attached First Nations was seen in all three sub regions*

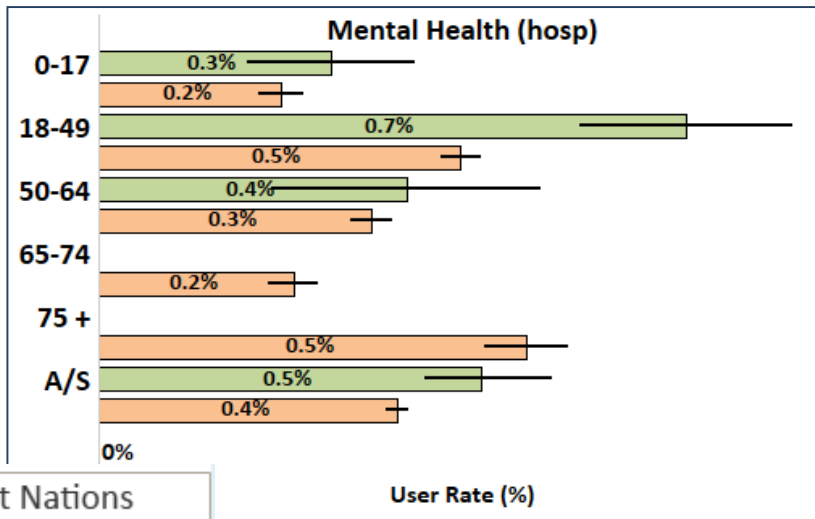
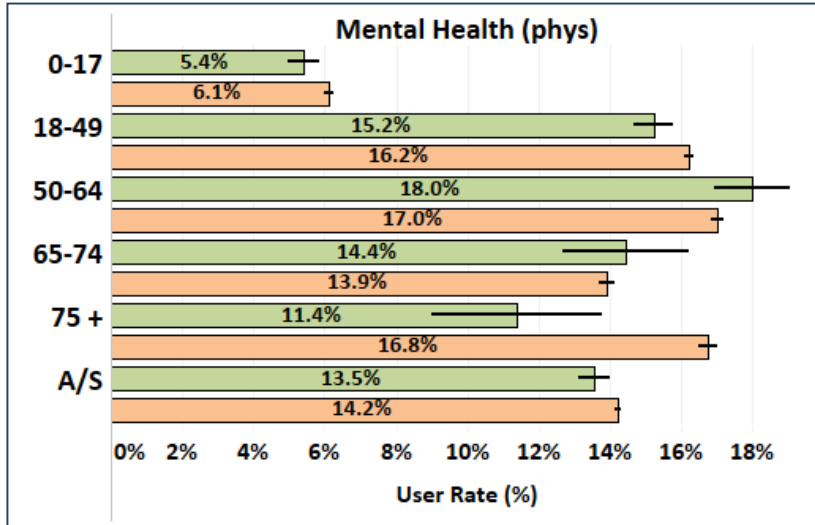
### A/S ED User Rates by GP Attachment & Region, First Nations, 2014/15



- Among those persons who had attachment to a physician, Kwakwaka'wakw sub region had the lowest rate of ED use at 33.9%
- First Nations non-attached ED user rates were significantly higher than attached in all sub regions, with the lowest disparity in Coast Salish (1.2X higher) and the largest in Kwakwaka'wakw (1.6X higher).



*First Nations rates of hospitalization for mental health reasons were elevated in 2014/15*



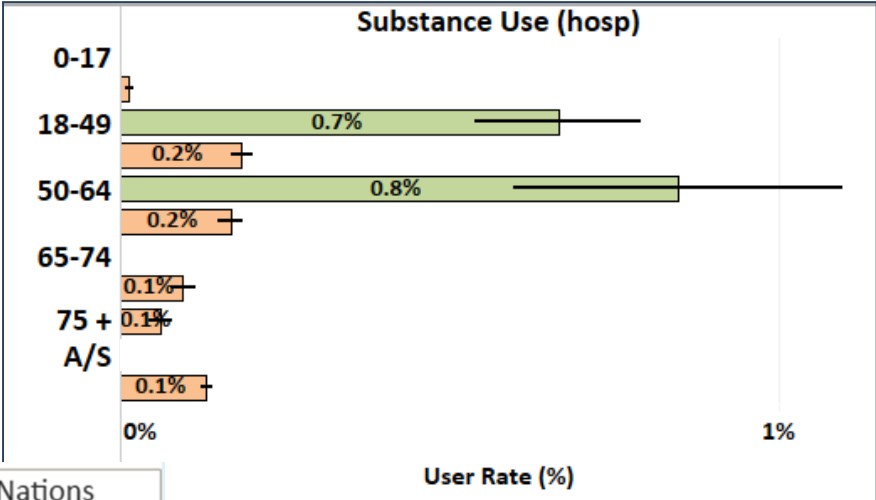
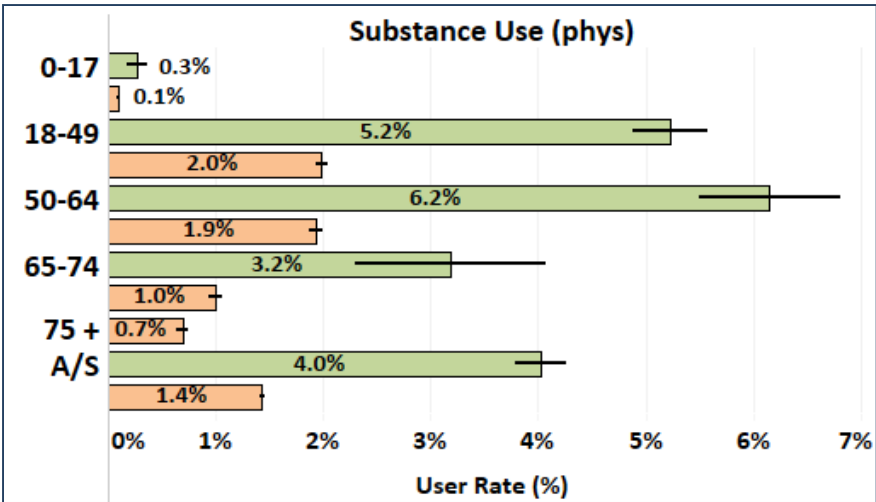
- In contrast to provincial data, First Nations mental health physician utilization was **lower** among the age groups <50 years and 75+ years, and overall compared to Other Residents.
- First Nations aged 18-49 years and overall were more likely to be hospitalized for mental health reasons compared to Other Residents.

*Note: insufficient data for First Nations 65-74 and 75+ years, mental health hospital services.*

■ First Nations  
 ■ Other Residents



*Both physician and hospital rates for substance use were elevated in First Nations compared to Other Residents*



- Substance use services showed a much greater disparity in rates between populations, when compared to mental health.

Across age groups:

- Physician rates were 2-3 times higher for First Nations compared to Other Residents
- Hospital user rates were 4-5 times higher for First Nations compared to Other Residents

*Note: insufficient data for First Nations 0-17 and 65+ years substance use hospital services.*

■ First Nations  
■ Other Residents



**For further information on this First Nations HSM database,  
please contact**

**Laurel Lemchuk-Favel**

**Director, Health Economics and Analytics, FNHA at:**

**[laurel.lemchuk-favel@fnha.ca](mailto:laurel.lemchuk-favel@fnha.ca)**

**236-993-7654**