

Use of Personal Protective Equipment During COVID-19 by Regional Health Authority (2020)

Objective

To compare the use of masks, gloves and gowns during the COVID-19 pandemic up to the end of 2020 to use before the pandemic in each Regional Health Authority (RHA).

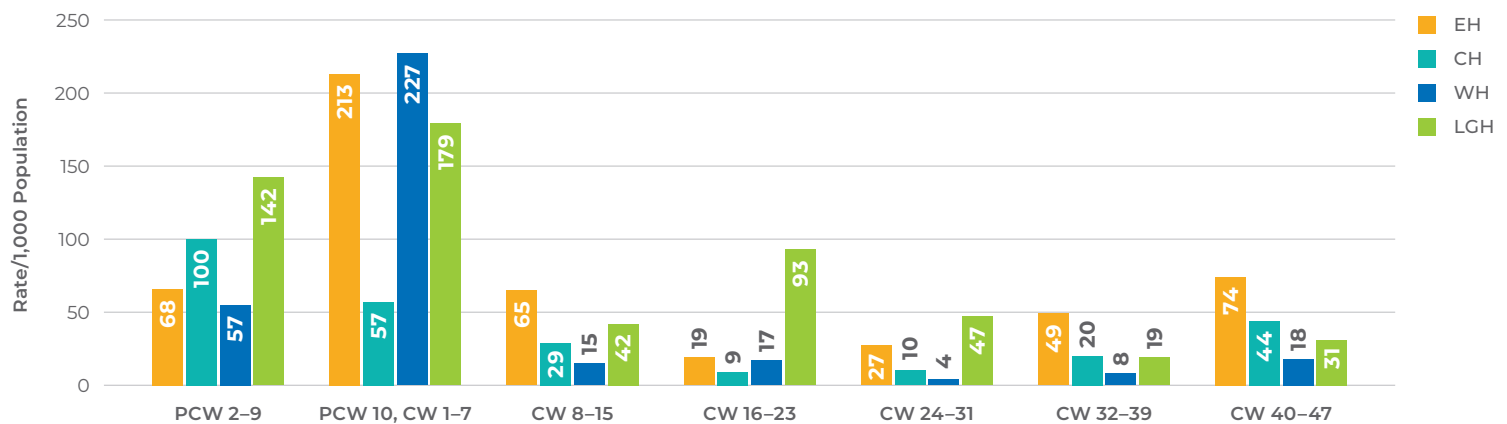
Practice Points

1. Substantial and sustained increase in the use of Personal Protective Equipment (PPE) occurred during the first 12 weeks of COVID-19, not only in Eastern Health (EH) exposed to a cluster of cases, but in the other RHAs with little exposure.
2. Eradication of COVID-19 in the community occurred within six weeks of the start of the pandemic. Since then, three small clusters of infection have occurred in the province despite frequent identification of travel-related cases in all four RHAs.
3. Electronic capture of distribution of each kind of PPE to the RHAs was initiated, together with estimates of PPE on hand given the prior burn rate of PPE, particularly as lack of PPE would be catastrophic for health care delivery should community transmission occur.

Methods

1. The daily dashboard provided by the NL Centre for Health Information (NLCHI) on PPE supplied from inventory to all departments in each RHA was analyzed. The average four-weekly supply was calculated for the eight weeks prior to COVID-19 (6 Jan – 8 Mar 2020) and compared to the supply.
2. From 9 Mar – 27 Dec 2020 (42 weeks), the four-weekly rate of PPE use/1,000 population was calculated to facilitate comparisons between RHAs.

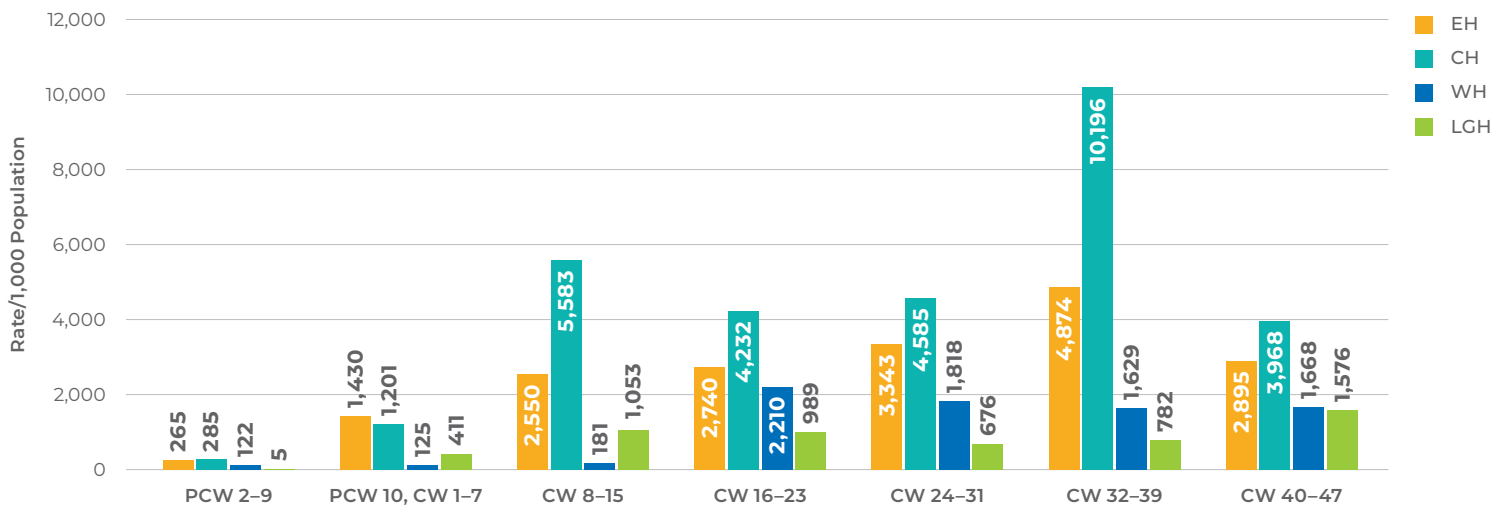
Results



PCW=Pre-COVID Week; CW=COVID Week

Figure 1. Quantity of N95 Masks/1,000 Population for the Eight Weeks Pre and the Six Eight-Week Blocks During COVID-19 by RHA

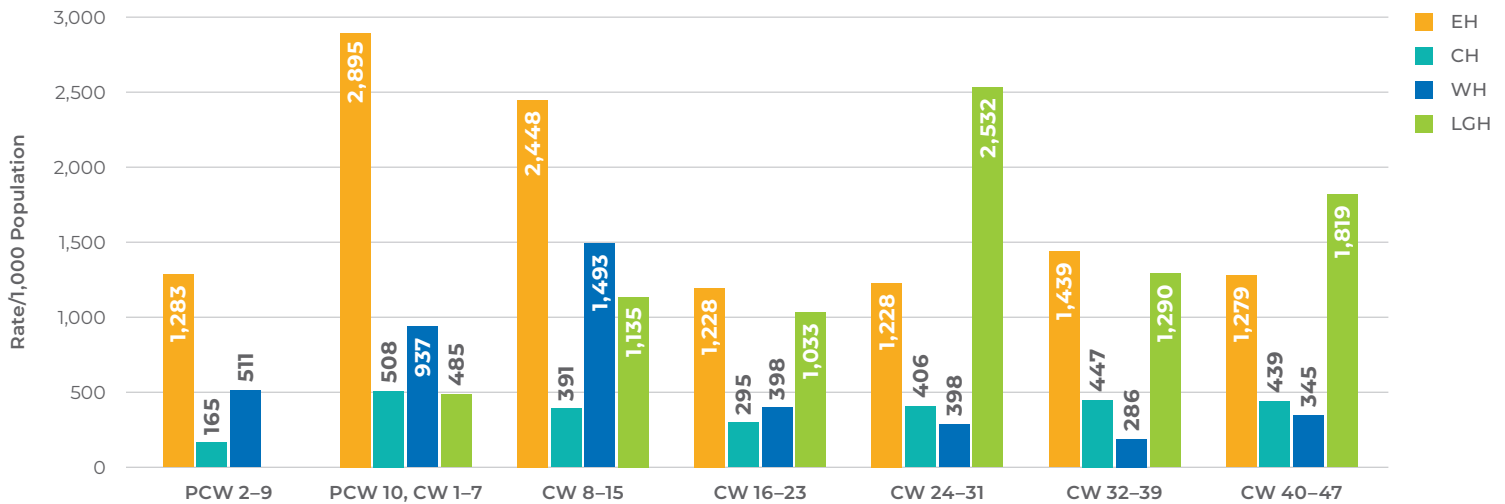
- In each region except Central Health (CH), there was a substantial increase in N95 mask use during COVID-19 first eight weeks. Subsequently, there was a substantial reduction below baseline in all four regions.



PCW=Pre-COVID Week; CW=COVID Week

Figure 2. Quantity of Other Masks/Shields/1,000 Population for the Eight Weeks Pre and the Six Eight-Week Blocks During COVID-19 by RHA

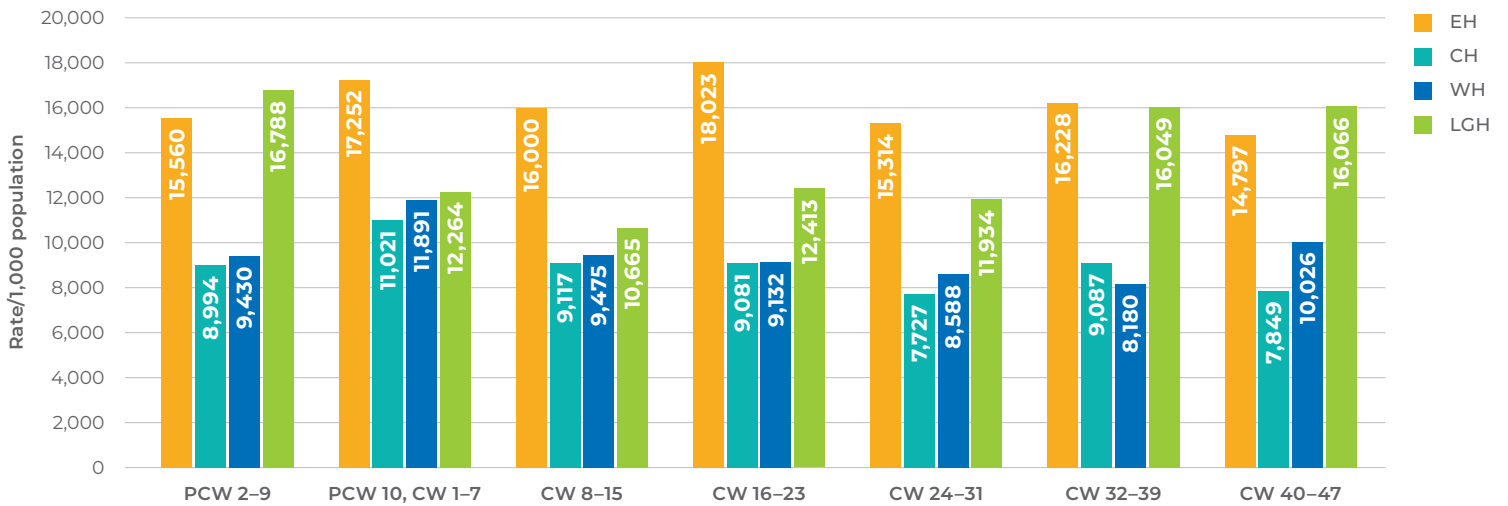
- There were massive increases in the supply of other masks/shields in all four RHAs, particularly in CH.



PCW=Pre-COVID Week; CW=COVID Week

Figure 3. Quantity of 12-Inch Gloves/1,000 Population for the Eight Weeks Pre and the Six Eight-Week Blocks During COVID-19 by RHA

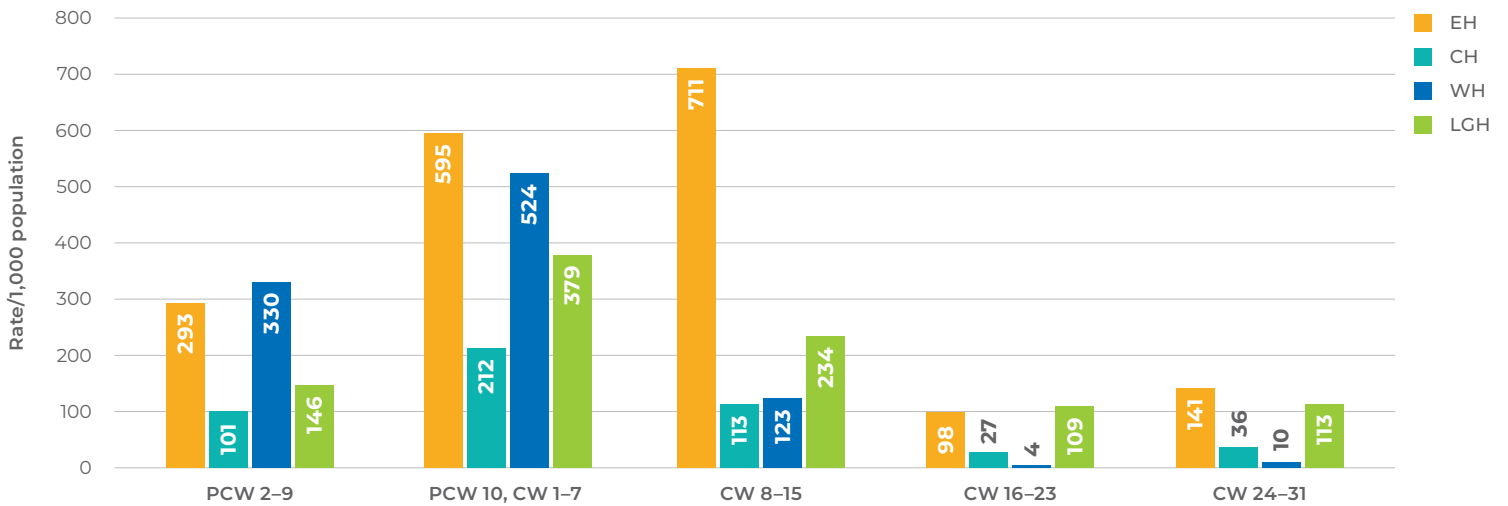
- There was an initial surge in supply of 12-inch gloves in the first 16 weeks of the pandemic. In EH and Western Health (WH), the supply returned to baseline thereafter, stayed high in CH and surged in Labrador-Grenfell Health (LGH) in the later weeks.



PCW=Pre-COVID Week; CW=COVID Week

Figure 4. Quantity of 9-Inch Gloves/1,000 Population for the Eight Weeks Pre and the Six Eight-Week Blocks During COVID-19 by RHA

- Massive quantities of 9-inch gloves were supplied in all regions before and during the pandemic, and a surge in supply during COVID-19 was not evident.



PCW=Pre-COVID Week; CW=COVID Week

Figure 5. Quantity of Gowns/1,000 Population for the Eight Weeks Pre and the Six Eight-Week Blocks During COVID-19 by RHA

- In all regions, there was an initial surge in supply in gowns that lasted 8-16 weeks. Subsequently, the supply was below the baseline use.

Table 1. Average Daily Usage for Past 14 Days During Second Wave of COVID-19 (17 Feb – 3 Mar 2021), and Days on Hand on 3 Mar 2021 in NL

| PPE | Per Day Usage (14-day average) | Days on Hand (using 14-day average) |
|-----------------------------|--------------------------------|-------------------------------------|
| N95 | | |
| N95 1860 | 280 | 157 |
| N95 1860S | 335 | 110 |
| N95 KC46727 Regular | 256 | 52 |
| N95 KC46727 Small | 242 | 40 |
| Shields | | |
| Full Face Shield | 551 | 2,324 |
| Mask Earloop w/ Shield | 4,384 | 81 |
| Mask Tie-on w/ Shield | 1,368 | 121 |
| Other Masks | | |
| Level 1 | 1,236 | 1,272 |
| Level 3 | 2,486 | 54 |
| 12-inch Gloves | | |
| 12-inch Glove Small | 6,014 | 217 |
| 12-inch Glove Medium | 9,136 | 391 |
| 12-inch Glove Large | 5,321 | 404 |
| 12-inch Glove Extra Large | 1,068 | 374 |
| 9-inch Gloves | | |
| 9-inch Glove Small | 26,886 | 73 |
| 9-inch Glove Medium | 79,700 | 44 |
| 9-inch Glove Large | 32,886 | 141 |
| 9-inch in Glove Extra Large | 6,429 | 259 |

- Days on hand using the past 14-day average during the second wave of COVID-19 was good for most PPE, except for three of nine types of masks most commonly used, and 9-inch medium gloves. Nearly 80,000 of these gloves were provided daily!

Conclusions

1. Real-time daily capture of data on PPE, electronic calculation of days on hand of each type of PPE, and graphic representation of the data facilitated management of the PPE supply.
2. Translation of data with actionable information is critical for decision-makers, particularly for decisions on buying PPE during a pandemic with limited suppliers.
3. Limitations exist in the information, particularly as the recording of data is that of supply rather than use, and the multiplicity of inventories across regions, using different definitions of supply, is not integrated.