Appendix: Supplementary Tables and Figures

Supp. Method 1

When 10% of the sample was completed, coders met to review coding discrepancies identified by the statistician. In these cases, coding pairs reviewed the institutional webpages to ensure that the names collected adhered to the inclusion criteria. This was repeated at 20% and 50% completion. Conflicts with regards to race or gender of an executive were flagged by the statistician and excluded from the analysis.

Supp. Method 2

**Perceived Race Coding**

Race is a social construct in which people are classified on the basis of physical traits (i.e. skin colour), culture, and ancestry, and this construction creates and maintains systems of power and oppression. (1, 2) When assessing perceived race in this study, we did not want to alter pre-existing, socially constructed biases by providing reviewers with guidelines to classify race. This is because we wanted reviewers to assess race as they normally would, approximating how racialized individuals would be perceived by a review committee for a leadership position. For this reason, coders were not asked to undergo unconscious bias training prior to the study.

When assigning leaders to a particular race category, reviewers did not have the option to classify leaders as biracial or multi-racial. Research demonstrates that observers tend to place biracial individuals into monoracial categories when asked to assess race. (3) In order to better understand the ways in which racialization may affect an individual’s ability to attain a leadership position, we wanted coders to have to choose whether a person appeared to be racialized or not. This is important in the context of biracial individuals because individuals who self-identify as biracial are often viewed by others as belonging to the race with the darker skin colour. (4, 5) As a result, biracial individuals who are partly white and partly another racial category are likely to experience the effects of racism.

In assessing a leader’s perceived race, coders were also asked to evaluate their name. Individuals are socialized to closely associate names with certain racial categories, which affects their perception of others. Evidence suggests that employers racially discriminate against individuals with non-White sounding names, offering this group fewer interview call-backs and job opportunities. (6, 7) In studies of perceived race, observers’ judgments of race differ based on a person’s name. (8, 9) For example, in a study of ‘racially ambiguous’ biracial subjects, observers were more likely to perceive race as ‘European’ if the subject was introduced with a White name, and conversely attributed race as ‘Asian’ if the subject had an Asian name. (9) Whether or not the attribution of name to a certain race is accurate, name-based bias is a manifestation of racism. We wanted to gain insight into how the race of healthcare leaders may be perceived, and therefore it was important for coders to evaluate name as well as physical appearance.

**Perceived Gender Coding**

Though the terms may overlap, sex refers to a person’s biological characteristics that differ between males and females, while gender encompasses the dynamic cultural, social, and behavioural elements of a person’s identity. (10) Gender is non-binary and extends beyond the traditional categories of man and woman. (11) For the purpose of our study, gender was coded in a false binary method because observers tend to outwardly perceive others as either ‘men’ or ‘women,’ though this method risks excluding gender-diverse people. (12) Despite this limitation, binary conceptions of gender may be important to study because they influence the degree to which individuals are perceived to possess the traits of successful leaders. (13, 14)
Supp. Method 3

In order to compare perceived race of the leadership with the race of the surrounding population, demographic data were collected from the 2016 Canadian Census. For the national and provincial levels, the working-age population was collected for: all Canadians, “Aboriginal identity” population, total “visible minority” population, and for each racialized category (South Asian, Chinese, Black, Filipino, Latin American, Arab, Southeast Asian, West Asian, Korean, Japanese, Visible Minority Not Included Elsewhere and Multiple Visible Minorities).(15)

We also compared the demographic composition of areas surrounding hospitals (for MB, ON, and QC) to hospital leadership composition. Working-age population demographics were unavailable at the census subdivision and forward sortation area level. As a result, total population data were used at the local level.

Geographic catchment areas were defined using three approaches: Forward Sortation Areas (FSAs), representing the first three letters of the postal codes where hospitals were located, FSAs of hospitals plus first order contiguous FSAs (i.e. every FSA that borders the FSA the hospital is included in), or census subdivisions (municipalities). These census geographies were attributed to each hospital using the postal codes extracted for each hospital. Postal codes were linked to census subdivisions using the Postal Code Conversion File.(16) When a hospital or hospital network had multiple postal codes listed, non-overlapping catchment populations were merged. All included areas were divided into quintiles of percent of the population that were racialized, and for each quintile the gap between percent racialized in the catchment area and the hospital leadership was calculated.
Supp. Figure 1: Inclusion Steps

All executives listed on hospital (from CIHI's top 200 list) or provincial/territorial ministry websites
\[ N = 3333 \]

Include only executives with a photograph available on the official website, a professional webpage (i.e. LinkedIn), or a media source.
\[ N = 3056 \]

Executives where a consensus was reached on White vs. racialized group \[ N = 2992 \]
Executives where a consensus was reached on specific racial category \[ N = 2946 \]
Executives where a consensus was reached on gender \[ N = 3022 \]

Supp. Table 1: Coder Race and Gender

| Coder Number Assigned | Gender\(^a\) | Race Category \(^{b,c}\) |
|-----------------------|-------------|--------------------------|
| 1                     | Female      | South East /East Asian   |
| 2                     | Female      | White                    |
| 3                     | Female      | South Asian              |
| 4                     | Female      | White                    |
| 5                     | Male        | Mixed Race (South Asian and White) |
| 6                     | Male        | Latinx                   |

\(a\) self-reported gender and race of coders (since this measure was possible to capture)
\(b\) race defined as per the CIHI recommended categories used in the study
\(c\) individuals were paired with the assigned number below and the assigned number above their own (i.e. coder 1 was paired with coders 2 and 6 while coder 2 was paired with coders 1 and 3); numbers were assigned intentionally to prevent two members of the same race to be paired during the coding process

Supp. Table 2: Study to census category mappings

| Study Category     | Canada Census Categories                        |
|--------------------|-----------------------------------------------|
| Indigenous         | Aboriginal identity                           |
| Black              | Visible minority: Black                       |
| South Asian        | Visible minority: South Asian                |
| Middle Eastern     | Visible minority: West Asian
|                    | Visible minority: Arab                       |
| Southeast / East Asian | Visible minority: Chinese  
                        | Visible minority: Japanese  
                        | Visible minority: Korean  
                        | Visible minority: Filipino  
                        | Visible minority: Southeast Asian |
|------------------------|--------------------------------------------------|
| Latinx                 | Visible minority: Latin American                 |
| White                  | Not a visible minority - Aboriginal identity     |
| Racialized             | Visible minority + Aboriginal identity           |
### Supp. Table 3: Inter-rater Reliability

| Variable                  | % Match Rate | Cohen’s Kappa |
|---------------------------|--------------|---------------|
| Perceived Race            | 96.4         | 0.81 (<0.001) |
| Black (overall)           | 99.6         | 0.88 (<0.001) |
| Indigenous (overall)      | 99.4         | 0.69 (<0.001) |
| Latinx (overall)          | 99.4         | 0.30 (<0.001) |
| Middle Eastern (overall)  | 98.7         | 0.60 (<0.001) |
| South Asian (overall)     | 98.3         | 0.75 (<0.001) |
| Southeast/East Asian (overall) | 99.5     | 0.86 (<0.001) |
| White (overall)           | 97.9         | 0.88 (<0.001) |
| Perceived Gender          | 98.9         | 0.98 (<0.001) |
### Supp. table 4: Perceived Race by Racial Categories

|                  | Ministries<sup>a</sup> | Centralized Hospital Systems<sup>b</sup> | Regional Hospital Systems<sup>c</sup> | Individual Hospital Systems<sup>d</sup> |
|------------------|------------------------|-----------------------------------------|----------------------------------------|------------------------------------------|
|                  | AB        | SK         | NS         | PE         | Total          | BC       | NB         | NL         | Total        | MB       | ON         | QC         | Total        |
| Total n          | 79        | 11         | 25         | 24         | 9               | 69       | 100        | 51         | 55           | 206      | 140        | 1526       | 2592         |
| White n (%)      | 77 (97.5) | 10 (90.9)  | 24 (96.0)  | 22 (91.7)  | 9 (100.0)      | 65 (94.2)| 79 (79.0)  | 51 (100.0) | 55 (100.0)   | 185 (89.8)| 131 (93.6)| 1363 (89.3)| 896 (96.8)  | 2390 (92.2) |
| Indigenous n (%) | 0 (0.0)   | 0 (0.0)    | 0 (0.0)    | <5         | 0 (0.0)        | <5         | 9 (9.0)    | 0 (0.0)    | 0 (0.0)      | 9 (4.4)  | <5         | 8 (0.5)    | 0 (0.0)      | 10 (0.4)    |
| Middle Eastern n (%) | 0 (0.0) | 0 (0.0)    | 0 (0.0)    | 0 (0.0)    | 0 (0.0)        | 0 (0.0)   | 0 (0.0)    | 0 (0.0)    | 0 (0.0)      | 0 (0.0)  | 0 (0.0)    | 22 (1.4)   | 10 (1.1)     | 32 (1.2)    |
| South Asian n (%) | 0 (0.0)   | 0 (0.0)    | 0 (0.0)    | 0 (0.0)    | 0 (0.0)        | 0 (0.0)   | 7 (7.0)    | 0 (0.0)    | 0 (0.0)      | 7 (3.4)  | <5         | 71 (4.7)   | <5          | 74 (2.9)    |
| Southeast or East Asian n (%) | 0 (0.0) | <5         | <5         | 0 (0.0)    | 0 (0.0)        | <5         | 5 (5.0)    | 0 (0.0)    | 0 (0.0)      | 5 (2.4)  | <5         | 31 (2.0)   | 6 (0.6)      | 41 (1.6)    |
| Black n (%)      | <5        | 0 (0.0)    | 0 (0.0)    | <5         | 0 (0.0)        | <5         | 0 (0.0)    | 0 (0.0)    | 0 (0.0)      | 0 (0.0)  | <5         | 29 (1.9)   | 12 (1.3)     | 42 (1.6)    |
| Latinx n (%)     | <5        | 0 (0.0)    | 0 (0.0)    | 0 (0.0)    | 0 (0.0)        | 0 (0.0)   | 0 (0.0)    | 0 (0.0)    | 0 (0.0)      | 0 (0.0)  | <5         | <5         | <5          | <5          |

**Legend**

- <sup>a</sup> leadership from provincial and territorial government ministries
- <sup>b</sup> provinces with one centralized hospital executive team, overseeing all provincial hospitals
- <sup>c</sup> provinces with a few regional hospital executive teams, overseeing hospitals in their regions
- <sup>d</sup> provinces with executive teams for each individual hospital or a hospital network
### Supp. Table 5: Size of executive team and effect on percent racialized by province

| Province                  | Actual % of leadership positions held by racialized people | Median % of leadership positions held by racialized people under repeated sampling<sup>a</sup> |
|---------------------------|------------------------------------------------------------|--------------------------------------------------------------------------------------------------|
| Alberta                   | --                                                         | --                                                                                                |
| Saskatchewan              | --                                                         | --                                                                                                |
| Nova Scotia               | --                                                         | --                                                                                                |
| Prince Edward Island      | 0.0%                                                       | 0%                                                                                                |
| British Columbia          | 23.3%                                                      | 22.7%                                                                                             |
| New Brunswick             | 0.0%                                                       | 0%                                                                                                |
| Newfoundland & Labrador   | 0.0%                                                       | 0%                                                                                                |
| Manitoba                  | 8.4%                                                       | 6.9%                                                                                              |
| Ontario                   | 12.7%                                                      | 12.5%                                                                                             |
| Quebec                    | 3.4%                                                       | 3.1%                                                                                              |

<sup>a</sup> Institution executive size was set to 10, and total executive team was sampled with replacement to obtain the 10 members. This was used to calculate % racialized at provincial level. The median % racialized is obtained by repeating this 1000 times.
Supp. Table 6: Association between Leadership Representation Gap and Neighbourhood Diversity

| Catchment Area                                      | Absolute Gap (%) in Representation across Catchment Area Quintiles of % racialized population |
|-----------------------------------------------------|---------------------------------------------------------------------------------------------|
|                                                     | Q1                                           | Q2                                           | Q3                                           | Q4                                           | Q5                                           |
| Forward Sortation Areaa (FSA)                       | 3.1 (p=0.002)                                | 5.2 (p=0.001)                                | 10.4 (p<0.001)                               | 25.4 (p<0.001)                               | 45.4 (p<0.001)                               |
| FSA + Neighboring FSAs                              | 2.3 (p=0.036)                                | 6.8 (p<0.001)                                | 14.7 (p<0.001)                               | 24.1 (p<0.001)                               | 39.2 (p<0.001)                               |
| Municipalityb                                       | 4.2 (p<0.001)                                | 6.9 (p<0.001)                                | 16.4 (p<0.001)                               | 28.3 (p<0.001)                               | 34.5 (p<0.001)                               |

a. A Forward Sortation Area (FSA) is a geographical region determined by the first three letters of a postal code
b. Municipality as determined by the Census Subdivision (CSD)
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