



# Global wealth disparities drive adherence to COVID-safe pathways in head and neck cancer surgery

COVIDSurg Collaborative\*

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Dear Editor

The COVID-19 pandemic has had profound impacts on safe healthcare delivery, particularly within surgical specialties<sup>1</sup>. There has been clear evidence of pulmonary complications and death associated with surgery following perioperative COVID infection<sup>2,3</sup>. Mitigation of COVID-related risk for patients depends upon several primary tenets of safe surgery, including implementation of appropriate COVID-secure treatment pathways<sup>4</sup>, provision of adequate testing for patients to ensure COVID-negative status and protection of staff members through suitable personal protective equipment (PPE). Following the initial peaks of SARS-CoV-2 infection, healthcare service provision was afforded time for preparation and reorganization before subsequent waves of infection. An ability to use this window of opportunity was dependent not only on strategic decision making but also national financial resources and healthcare capabilities.

Vaccines against the SARS-CoV-2 virus have demonstrated efficacy, however timely accessibility for healthcare workers, let alone the global population, remains inequitable<sup>5</sup>. The prioritization of healthcare workers alongside surgical patients is essential to impact perioperative mortality. Despite international roll-outs of vaccination, repeated waves of COVID-19 infection are apparent across all continents.

Utilizing an international survey of practice, distributed through an existing COVIDSurg head and neck (HN) collaborative, social media and international HN clinical networks, the authors sought to assess the extent to which COVID-safe HN cancer surgery and individual surgeon-specific protection were implemented between the initial stages of the pandemic (March–June 2020) and a subsequent period in February 2021 after well documented increases in COVID-19 incidence globally and an evolving, evidence-based understanding of the disease ([Supplementary material](#)).

Analysis of 213 responses from HN institutions situated in 39 countries ([Table S1](#)), demonstrated a clear disparity in the implementation of patient and staff COVID testing, in PPE usage, and in surgeon-level vaccination when classified by national wealth (World Bank national income classification) ([Table 1](#)).

Despite evidence of consistent international improvements since the early stages of the pandemic, by February 2021, centres in low- and low-middle-income countries were still significantly less likely to employ routine preoperative COVID testing (60 per cent) or PPE use (49 per cent) compared with global averages (89 and 62 per cent respectively).

Further evidence of significant global inequality was apparent in disparate vaccination access: less than one third of surgical staff in low- and low-middle-income countries received a first vaccine dose by spring 2021 (international average 68.4 (95 per cent c.i. 63.2 to 73.6) per cent).

HN centres in countries experiencing highest levels of population COVID incidence (25 or more per 100 000 population) in spring 2021 correlated to highest levels of testing, PPE use and vaccination ([Table S2](#)). However, there was an international trend towards reduction in PPE use over time, particularly pronounced in UK centres, and within hospitals designated as cold sites ([Table S3](#)). Although ongoing fluctuations in PPE availability may have influenced this pattern, growing ambivalence or over-reliance on testing and/or vaccination may also have contributed, such that the role of PPE in HN surgery is deemed less relevant by surgeons.

Reported COVID-19 infections amongst surgeons (16 per cent) within this survey are at least double those of conservative contemporaneous population-level estimates. In countries yet to receive nationwide vaccination, HN surgeons had even higher levels of prior COVID infection (26 per cent), highlighting further global wealth inequalities and populations with potentially greater latent need.

Whilst the authors recognize inherent limitations to these data, including the intrinsic bias associated with surveys, it is evident that global wealth inequality appears to drive disparities in access to critical elements of appropriate healthcare, risking both patient and staff safety.

HN surgery exemplifies many of the highest risks of surgery in general and remains critically reliant on COVID-secure pathways supported by robust testing, adequate PPE provision and vaccination. These data share yet another indicator of inequitable distribution of healthcare resource at a time when we are all reliant upon worldwide solutions.

Table 1 Change in COVID-19 testing, personal protective equipment usage and COVID vaccination during the pandemic

| Measure of COVID-safe surgical pathway  | n*        | Percentage using preoperative COVID-19 testing† |                   |                    | P       | Percentage of centres with routine staff testing‡ |                   |                    | P       |
|---|-----------|---|-------------------|--------------------|---------|---|-------------------|--------------------|---------|
|   |           | Mar–Jun 2020                                    | Feb 2021          | Difference         |         | Mar–Jun 2020                                      | Feb 2021          | Difference         |         |
| <b>Global response</b>                  |           |   |                   |                    |         |   |                   |                    |         |
| All centres                             | 213 (100) | 76.3 (71.6, 81.0)                               | 88.6 (84.6, 92.6) | 12.4 (7.4, 17.4)   | <0.001¶ | 13.6 (9.9, 17.3)                                  | 29.4 (23.9, 34.9) | 15.8 (10.2, 21.4)  | <0.001¶ |
| <b>World Bank national income group</b> |           |   |                   |                    |         |   |                   |                    |         |
| High                                    | 156 (73)  | 78.1 (72.8, 83.4)                               | 94.8 (91.6, 98.0) | 16.8 (11, 22.6)    |         | 12.9 (8.7, 17.1)                                  | 37.8 (31, 44.6)   | 24.9 (18.2, 31.6)  |         |
| Upper middle                            | 27 (13)   | 84 (73.1, 94.9)                                 | 81.3 (67.2, 95.4) | -2.7 (-17.1, 11.7) |         | 26.9 (11.8, 42)                                   | 11.2 (0.9, 21.5)  | -15.8 (-28.4, 3.2) |         |
| Lower middle                            | 26 (12)   | 63.2 (47.6, 78.8)                               | 66.5 (50.2, 82.8) | 3.3 (-10.3, 16.9)  |         | 6.3 (0, 13.2)                                     | 3.1 (-2.4, 8.6)   | -3.1 (-7.1, 0.9)   |         |
| Low                                     | 4 (2)     | 43.8 (-0.3–87.9)                                | 43.8 (-5.7–93.3)  | 0 (-8–8)           |         | 5 (0, 14.8)                                       | 0 (0, 0)          | -5 (-14.8, 4.8)    |         |
| <b>Comparison</b>                       |           |   |                   |                    | <0.001# |   |                   |                    | <0.001# |

  

| Measure of COVID-safe surgical pathway  | n*        | Percentage of surgical procedures with PPE |                   |                    | P      | Estimated percentage of staff vaccinated§ |  | P       |
|---|-----------|--|-------------------|--------------------|--------|---|--|---------|
|   |           | Mar–Jun 2020                               | Feb 2021          | Difference         |        | Feb 2021                                  |  |         |
| <b>Global response</b>                  |           |  |                   |                    |        |   |  |         |
| All centres                             | 213 (100) | 68.4 (63.2, 73.6)                          | 62.2 (56.6, 67.8) | -6.2 (-10.2, 2.2)  | 0.120¶ | 68.4 (63.2, 73.6)                         |  | <0.001¶ |
| <b>World Bank national income group</b> |           |  |                   |                    |        |   |  |         |
| High                                    | 156 (73)  | 66.5 (60.3, 72.7)                          | 62.1 (55.6, 68.6) | -4.4 (-9.1, 0.3)   |        | 79.4 (74.3, 84.5)                         |  |         |
| Upper middle                            | 27 (13)   | 80.8 (68.6, 93)                            | 72.3 (58.0, 86.6) | -8.5 (-18.7, 1.7)  |        | 64.2 (45.9, 82.5)                         |  |         |
| Lower middle                            | 26 (12)   | 74 (60.2, 87.8)                            | 58.9 (41.8, 76.0) | -15.1 (-26.6, 3.6) |        | 37.2 (22.0, 52.4)                         |  |         |
| Low                                     | 4 (2)     | 25 (-24.0, 74.0)                           | 25 (-24.0, 74.0)  | 0 (0, 0)           |        | 0 (0, 0)                                  |  |         |
| <b>Comparison</b>                       |           |  |                   |                    | 0.005# |   |  | 0.001#  |

Values in parentheses are 95 per cent confidence intervals unless indicated otherwise; \*values in parentheses are percentages. †Within 72 hours of surgery. ‡Testing at least weekly. §At least one dose of SARS-CoV-2 vaccine. ¶P values test differences between March–June 2020 and Feb 2021. #P values test whether variance in estimates (between March–June 2020 and Feb 2021) is consistent between income groups. P ≤ 0.050 indicates significant difference by income group. PPE, personal protective equipment.

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## Supplementary material

Supplementary material is available at BJS Open online.

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