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Research Letter

Variable impact of COVID-19 on urgent intervention in Ontario

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Dear Editor

The first wave of COVID-19 required restricted scheduled surgical, endoscopic, endovascular, and image-guided procedures[1–3]. At the same time, Canadians avoided the emergency department in an unprecedented manner[4]. Management algorithms for some acute diseases may also have shifted towards less invasive interventions (for example, non-operative treatment of appendicitis) because of concerns about resource allocation, COVID-19 transmission, and procedural risk among patients infected with the virus[5]. These factors and the potential for COVID-19 disease-related organ damage (such as microvascular complications) may have led to a rise in urgent intervention needs after the early decrease in the initial pandemic phase. This study aimed to define temporal trends in urgent invasive procedure rates during the first wave using a population-based time series analysis of administrative health data sets.

Weekly rates of urgent surgical, endoscopic, endovascular, and image-guided procedures among hospitalized patients were determined from 1 January 2020 to 1 September 2020. The start of the pandemic period (11 March 2020) was defined by the death of the first patient with COVID-19 disease in Ontario. The date chosen for the end of the first wave was 1 September 2020. A procedure rate ratio for each week was calculated relative to the corresponding time in 2019. The relative change in weekly procedure rates was considered for all procedures and by body system, based on the Canadian Institute for Health Information Classification of Health intervention codes.

A total of 10 129 fewer urgent procedures were performed in 2020. The weekly rate of urgent procedures fell below historical levels for 12 weeks, starting 11–17 March 2020 (rate ratio (RR) 0.87, 95 per cent c.i. 0.84 to 0.91) until 27 May to 2 June 2020 (RR 0.93, 0.89 to 0.98) (*Fig. 1a*). The nadir in urgent procedure rates occurred in the week of 1 April 2020 (RR 0.65, 0.62 to 0.68). No subsequent rebound rise above historical levels was observed. A reduction in urgent procedure rates occurred in all body systems; however, the duration, nadir, and absolute case volume of the reduction varied (*Fig. 1b–i* and *Table S1*). For example, urgent respiratory and nervous system procedure rates were affected differently: decreased for 13 weeks (nadir RR 0.59) and 4 weeks (nadir RR 0.75) respectively.

Efforts to prioritize only the most essential hospital services may have brought about reductions in unscheduled as well as scheduled procedures. In fact, the reduction in urgent procedures in Ontario aligned relatively closely with a Ministry of Health-mandated slow-down in scheduled surgical procedures (15 March to 19 May 2020). In addition, a reduction in emergency department presentations likely contributed to a reduced need for urgent hospital-based procedures. Fortunately, there was no spike in urgent procedures above historical levels (overall or by body system), but the volume of urgent interventions for complications of COVID-19 or adverse consequences of delayed non-COVID care have yet to be defined. Ongoing disease-specific research is needed to understand the consequences of emergency department avoidance, hospital care restrictions, and societal disparities in access to urgent care.

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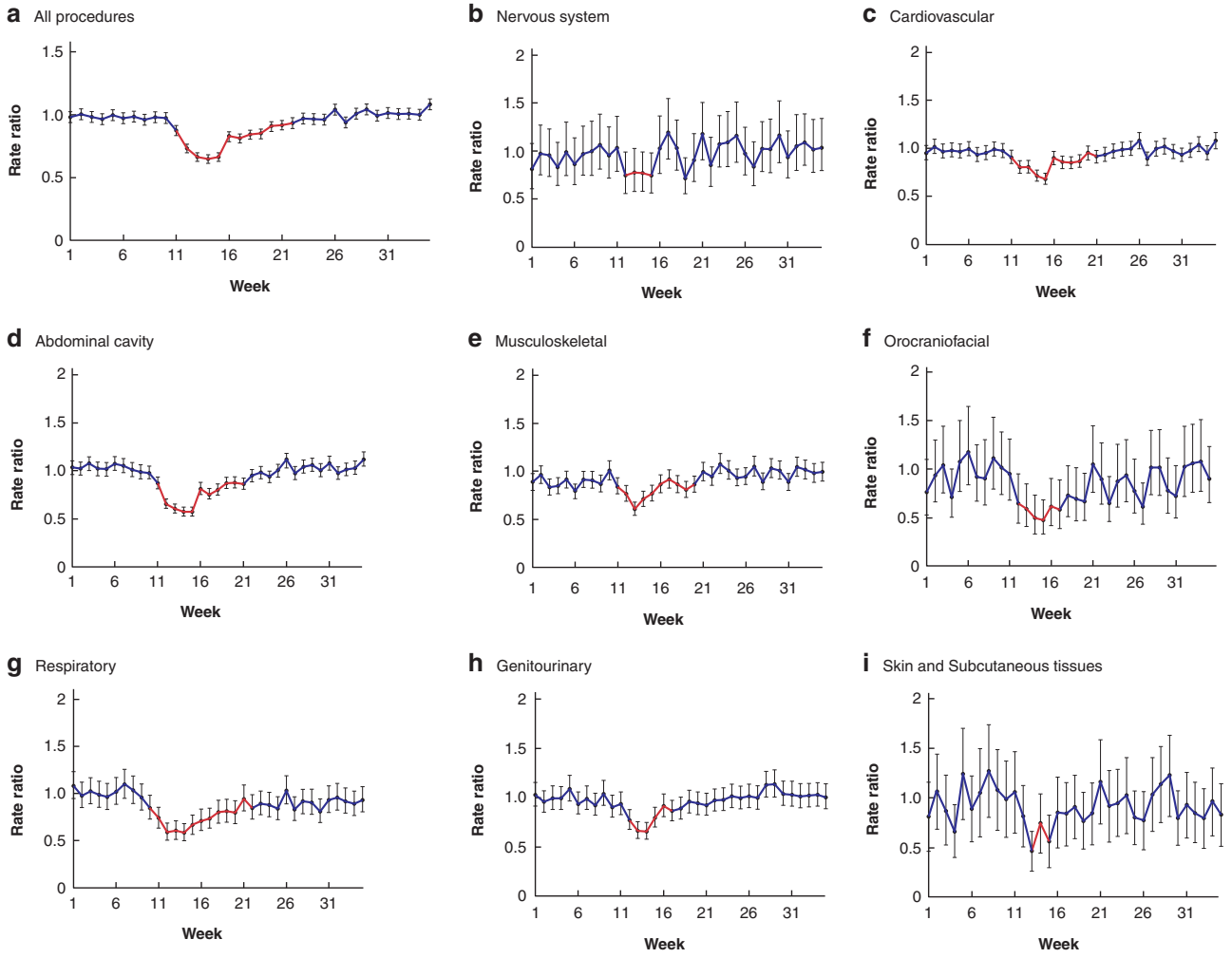

Fig. 1 Weekly urgent procedure rate ratios for 1 January to 1 September in 2020 relative to corresponding dates in 2019, overall and by body system

a All urgent procedures, **b** nervous system, **c** cardiovascular, **d** abdominal cavity, **e** musculoskeletal, **f** orocraniofacial, **g** respiratory, **h** genitourinary, and **i** skin and subcutaneous tissues. Rate ratios are shown with 95 per cent confidence intervals. Periods of COVID-related reduction in rate ratio below 1.0 are highlighted in red.

OHDP, its partners, or the Province of Ontario is intended or should be inferred.

Disclosure. The authors declare no conflict of interest.

Supplementary material

Supplementary material is available at *BJS* online.

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