

## LETTERS TO THE EDITOR

## RESEARCH

# Emergency visits by older adults decreased during COVID-19 but increased in the oldest old

## INTRODUCTION

A significant concern during the coronavirus disease 2019 (COVID-19) pandemic has been that restrictions in the availability of health care and rehabilitation services may have an adverse effect on the health of vulnerable older persons, resulting in an increased need for emergency care. This multicenter study examined the influence of restrictions on the incidence of emergency department (ED) visits and hospitalizations among adults aged 70 and older during the pandemic in Finland.

## METHODS

Data were gathered from the discharge registers of three Finnish public hospitals: Central Finland Hospital, Mikkeli Central Hospital, and Tampere University Hospital. These hospitals cover a total catchment population of 900,000 citizens (140,000 of whom are aged 70 and older). ED visits and subsequent hospitalizations for patients aged 70 and older were collected for the years 2017 to 2020. Furthermore, diagnoses of visits were analyzed according to ICD-10 classification groups, and population data were obtained from Statistics Finland.<sup>1</sup>

Patients were stratified into age groups: 70–79 years, 80–89 years, and  $\geq 90$  years. The Poisson exact method was used to calculate incidences and 95% confidence intervals (CIs) of ED visits and hospitalizations. The year 2020 was compared to the reference years 2017–2019 by incidence rate ratios (IRRs), focusing on the changes in the incidence of ED visits and hospitalizations during the nationwide lockdown period (March 16 to June 1; including canceling or postponing of nonacute public health care visits and instructions to self-isolate for persons aged 70 and older) and during the period of regional restrictions (September onward; more restrained stepwise restrictions without self-isolation recommendations). Statistical analysis was performed using R 4.0.3 statistical software (R Core Team, Vienna, Austria 2020). Due to

the register-based study design, ethical committee approval was not obtained nor required.<sup>2</sup>

## RESULTS

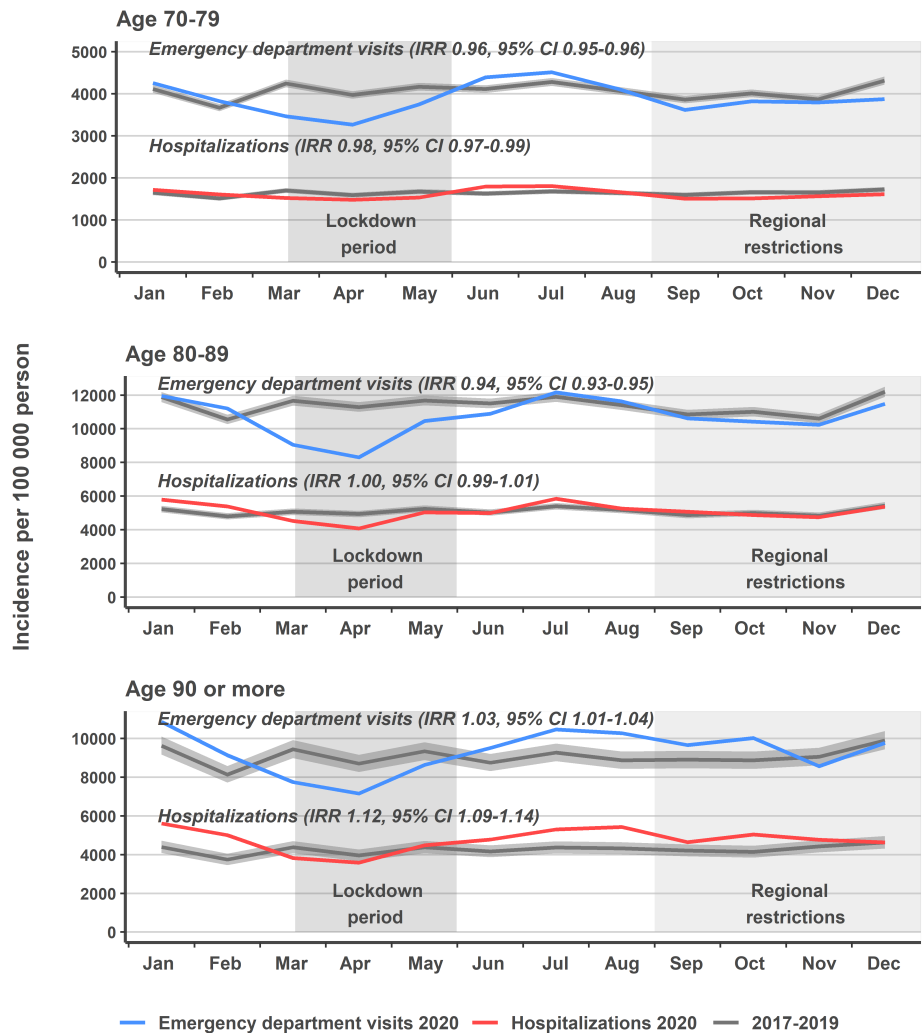
There were 240,629 ED visits and 104,254 hospitalizations among people aged 70 and older during the study period. Monthly incidences of ED visits decreased in all age groups during the lockdown period (Figure 1). The change was similar in all diagnosis groups. Changes in hospitalizations were, however, smaller.

The greatest difference in ED visits was seen among older adults in the 80–89 age group with a decrease of 20% compared with the reference years (IRR 0.80, CI 0.78–0.82 for March to May 2020), whereas among the 70–79 and the  $\geq 90$  year age groups, the decreases were 15% (IRR 0.85, CI 0.83–0.87) and 14% (IRR 0.86, CI 0.82–0.90), respectively. During regional restrictions due to the second COVID-19 wave, there was a slighter decrease in the incidence of ED visits in the 70–79 and 80–89 year age groups. After the end of the lockdown, ED visits and hospitalizations in the  $\geq 90$  year age group remained at a higher level until November, resulting in a greater annual use of ED and hospital care in 2020 compared with 2017–2019 (IRR 1.03, CI 1.01–1.04, and IRR 1.12, CI 1.09–1.14, respectively).

The greatest decrease in ED visits was observed in the respiratory diseases, where the incidence of ED visits remained low throughout the year (IRR 0.66, CI 0.65–0.67).

Among the 70–79 and 80–89 year age groups, the incidence of ED visits due to traumas decreased during lockdown but slowly recovered thereafter. In the  $\geq 90$  year age group, no such decrease was seen, and the incidence increased after the lockdown and remained high for the rest of the year with a total annual increase of 15% in 2020 when compared with the reference years (IRR 1.15, CI 1.11–1.19). In the 70–79 (IRR 1.00, CI 0.98–1.01) and 80–89 (IRR 1.03, CI 1.01–1.05) year age groups, the annual incidence of traumas remained close to the reference levels.

**FIGURE 1** Monthly incidences of emergency department visits and hospitalizations in the three age groups. Green line shows the incidence in 2020, and the gray line shows the incidence in the reference years along with the 95% confidence interval. ED, emergency department; IRR, incidence rate ratio; CI, confidence interval



## DISCUSSION

This study confirms the concerns that the treatment backlog caused by the suspension of health care during the COVID-19 pandemic may result in an increased need for emergency care and hospitalizations among the older population. The prominent decrease in ED visits due to respiratory diseases is in line with previous studies<sup>3-7</sup> and suggests that the restrictions have been effective in protecting older people who are at risk for severe infection and death from hospitalization during the pandemic.<sup>8</sup> However, it seems that this protection has come at the cost of increased traumas, especially among the older population. These older adults may have been more dependent on physiotherapy and rehabilitation to maintain their ability to move due to the high risk of sarcopenia.<sup>9</sup> Indeed, the COVID-19 pandemic has been shown to decrease mobility and increase frailty before injury in patients with hip fractures.<sup>10</sup> These results emphasize the importance of ensuring essential services is provided to counteract the adverse consequences of immobility when restrictions are applied.

## ACKNOWLEDGMENTS

### CONFLICT OF INTEREST


The authors have no conflict of interest.

### AUTHOR CONTRIBUTIONS

Coordination of study conduction was performed by Mikko Uimonen. Study design was developed by Mikko Uimonen, Ilari Kuitunen, Ville Ponkilainen, and Ville M. Mattila. Data collection was performed by Mikko Uimonen, Ilari Kuitunen, and Ville Ponkilainen. Statistical analysis was performed by Mikko Uimonen. Data interpretation was performed by all authors. Esa Jämsen acted as the clinical consultant for this study. Mikko Uimonen prepared the manuscript. Critical review of the manuscript was done by Ilari Kuitunen, Ville Ponkilainen, Esa Jämsen, and Ville M. Mattila. All authors approved the final draft.

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## Teaching geriatrics during the COVID-19 pandemic: Aquifer Geriatrics to the rescue

### INTRODUCTION

The COVID-19 pandemic disrupted medical education and challenged medical educators to transform learning from traditional in-person to virtual.<sup>1</sup> Aquifer, a nonprofit organization that specializes in web-based healthcare education, responded to this crisis by offering access to its courses to health professions schools at no cost from mid-March to June 2020. At the end of this period, programs could continue their access via paid subscription.

Aquifer Geriatrics (AG), the national online curriculum endorsed by the American Geriatrics Society, began as web-Geriatrics Education Modules (GEMs), a series of online modules created by the geriatrics educators'

community through funding by the Reynolds Foundation.<sup>2</sup> AG currently hosts 27 evidence-based, peer-reviewed case-based modules and aims to standardize geriatrics education and bridge curricular gaps.<sup>3</sup> They are designed for diverse learners including medical students, residents, fellows, and interprofessional trainees, and to use in a variety of pedagogies such as self-directed learning, flipped classrooms, and "bootcamp" sessions.

Our aim is to evaluate the impact of this unique program offered during the pandemic by analyzing the change in the number of AG case completions around the time of the pandemic, as well as overall change in the number and type of health profession programs having access to AG.