

Anxiety-Related Visits to Ontario Physicians Following September 11, 2001

Peter C Austin, PhD¹, Muhammad M Mamdani, PharmD, MA, MPH², Benjamin TB Chan, MD, MPH, MPA³, Elizabeth Lin, PhD⁴

Objective: To determine whether the climate of increased anxiety following the terrorist attacks of September 11, 2001, and the subsequent anthrax cases led to increased anxiety-related physician visits.

Method: We undertook a retrospective, population-based study of all Ontario residents. We identified physician visits using Ontario's universal health care insurance program. Interventional autoregressive integrated moving average (ARIMA) time series models were used to examine the impact of the terrorist attacks and anthrax infections on the rate of anxiety-related physician visits.

Results: Neither the terrorist attacks of September 11 ($P \geq 0.40$) nor the anthrax infections in October and November ($P \geq 0.14$) had a statistically significant impact on the rate of anxiety-related visits to physicians.

Conclusions: The climate of heightened anxiety did not result in increased demand for mental health services.

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Information on funding and support and author affiliations appears at the end of the article.

Clinical Implications

- A large-scale terrorist attack did not significantly affect the rate of anxiety-related physician visits.
- A prolonged threat owing to anthrax infections did not affect the rate of anxiety-related physician visits.
- A prolonged period of heightened anxiety did not result in increased demand for mental health services.

Limitations

- This study assessed only the use of mental health services and not the demand for mental health services.
- OHIP claims provide for only a single diagnostic code for each patient encounter. For patients presenting with multiple concerns, anxiety over the terrorist attacks may not have been documented, leading to undercounting.

Key Words: mental health, health services research, disaster, anxiety, health care utilization

The terrorist attacks of September 11, 2001, and the subsequent anthrax cases raised anxiety levels both inside and outside the US. Surveys report that 11% of Americans experienced insomnia in the days following the initial attacks (1) and that Manhattan residents suffered a significant burden of posttraumatic stress disorder and depression in the weeks af-

ter the tragedy (2). A Canadian survey reported that 1 in 4 individuals were "always or often stressed and overwhelmed" following the attacks (3). Past research suggests that insomnia can result from both local and distant disasters (4). An empirical review concluded that disasters contribute to increased psychopathology (5), the magnitude of which is proportional

to the number of casualties. This brief report examines whether this climate of anxiety led to increased anxiety-related physician visits after September 11, 2001, in the Canadian province of Ontario.

Methods

All 11.9 million Ontario residents have universal health insurance for essential medical services, with no deductibles or copayments. General practitioners and family physicians (GP-FPs) provide primary care and serve as gatekeepers to the health care system. Approximately 94% of GP-FPs submit claims data (either fee-for-service billings or utilization data) to the Ontario Health Insurance Plan (OHIP). Each claim has a fee code indicating the type of service provided and a mandatory diagnosis field indicating the physician's assessment of the main reason for the patient visit.

Defining anxiety-related visits presented several challenges. The most appropriate OHIP diagnostic code reflects the broad spectrum of anxiety disorder (originally encompassing anxiety neurosis, hysteria, or neurasthenia but subsequently modified in practice as the diagnostic definitions were refined). In our view, the lack of specificity within the anxiety disorders did not represent a major problem, since any of these disorders would meet our criteria. However, a more serious challenge was the potential lack of specificity between anxiety and other categories of psychiatric problems, the primary example being the depressive disorders. We assumed that the proportion of any misclassification would not change as a result of either September 11 or the subsequent anthrax events and that the OHIP diagnostic code would serve as a blunt, but acceptable, measure.

Another challenge was whether any effect would be general (for example, for all groups of patients across all relevant treatment procedures) or specific. To address this issue, we used 2 definitions of anxiety-related visit, based on billing codes, and also analyzed 2 different patient groupings.

We examined all OHIP claims submitted by GP-FPs between January 1, 1993, and December 31, 2001, for consultations (including psychotherapy and counselling) with an OHIP diagnostic code of anxiety. For each week, we determined the age- and sex-adjusted rate of visits per 1000 residents. We used interventional autoregressive integrated moving average (ARIMA) time series models to examine the impact of the terrorist attacks of September 11 and the anthrax infections beginning on October 4 on the rate of anxiety-related physician visits. To evaluate whether the impact might be more transient, rather than moderate or severe, we repeated this analysis using the subset of billing codes that capture brief or intermediate assessments (that is, codes excluding visits involving more extended educational counselling or the core mental health service of psychotherapy). To assess whether

any impact might be more pronounced in new vs established patients, we repeated these 2 analyses, excluding patients who had any anxiety-related visits in the previous year. As a control, we examined visits to GP-FPs with a diagnosis of cystitis (that is, urinary tract infection).

Results

The 2 panels of Figure 1a and Figure 1b illustrate the weekly rates of anxiety-related visits to physicians. The analysis demonstrated that neither the terrorist attacks of September 11 ($P \geq 0.38$) nor the anthrax infections in October and November ($P \geq 0.13$) had a statistically significant impact on the rate of anxiety-related visits to physicians, regardless of whether psychotherapy and counselling were included. When we excluded patients who had had any such visits in the previous year, there was a statistically nonsignificant trend toward increased brief consultations (excluding psychotherapy and counselling) during the period in which the anthrax infections were occurring ($P = 0.0757$). For the control analysis, neither the events of September 11 nor the subsequent anthrax infections had an impact upon urinary tract infection-related visits to physicians ($P > 0.29$). Weeks containing statutory holidays, when physicians are less available, tended to have lower rates of physician visits than did adjacent weeks.

Discussion

In this study, we examined whether the climate of heightened anxiety following the terrorist attacks of September 11, 2001, and the subsequent anthrax infections led to increased anxiety-related visits to primary care physicians. We demonstrated that neither event was associated with an increased demand for mental health care services provided by primary care physicians.

This study has certain limitations. First, there is only a single diagnosis per claim submitted to OHIP. It is possible that patients presented with multiple health concerns, and yet only one of these was documented as the reason for the visit. However, it is unlikely that the proportion of anxiety-related visits captured would change following September 11. Second, we examined only visits to GP-FPs, rather than visits to core mental health services (such as visits to psychiatrists); GP-FPs serve as gatekeepers in the Canadian setting and hence, it is likely that an anxiety-related visit to a GP-FP would be necessary to initiate a referral to a psychiatrist. A further limitation is that we were unable to address unmet need attributable to possible decreased physician availability following the terrorist attacks. However, these limitations must be balanced by the comprehensiveness of the OHIP data, which document the physician services of over 94% of Ontarians.

Figure 1a Anxiety-related general practitioner–family practitioner visits (all visits)

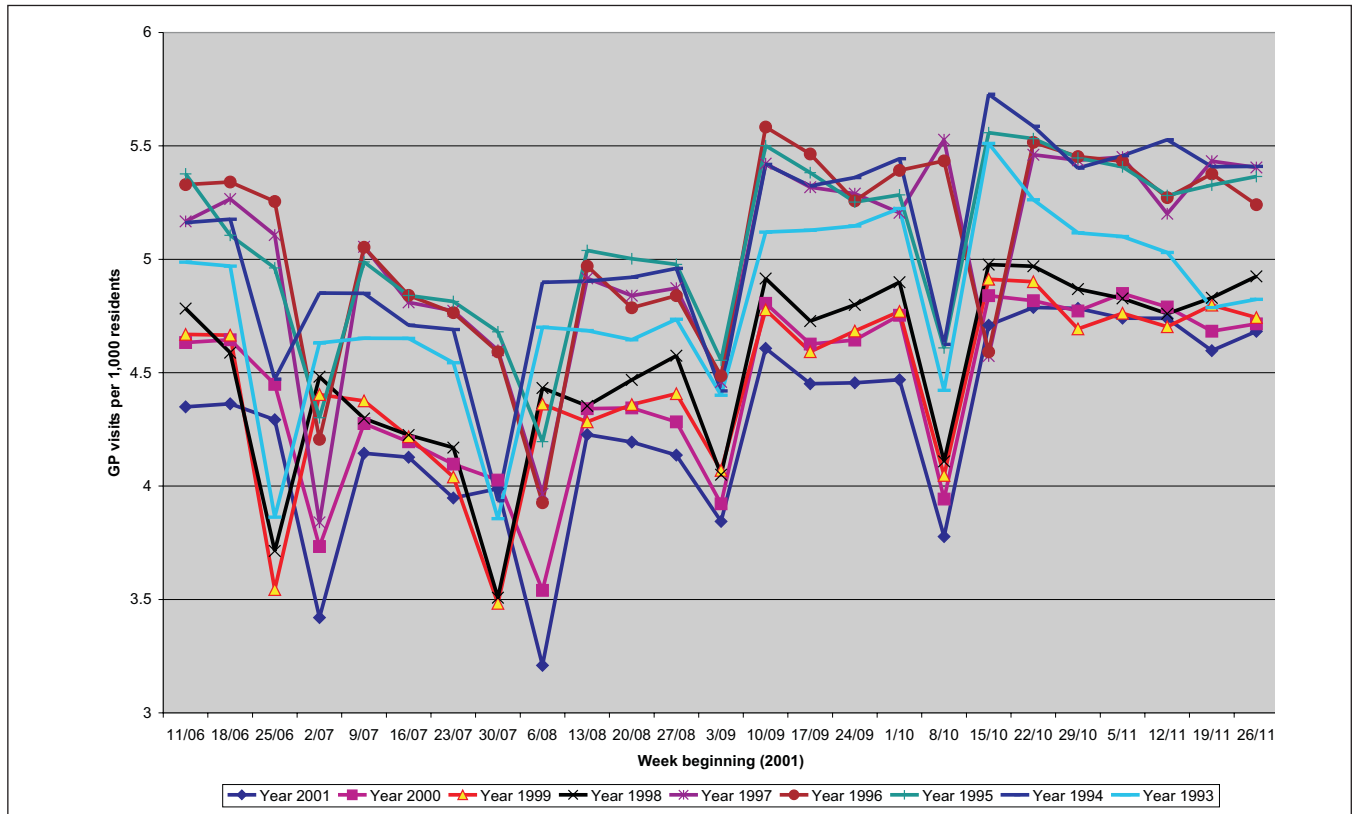
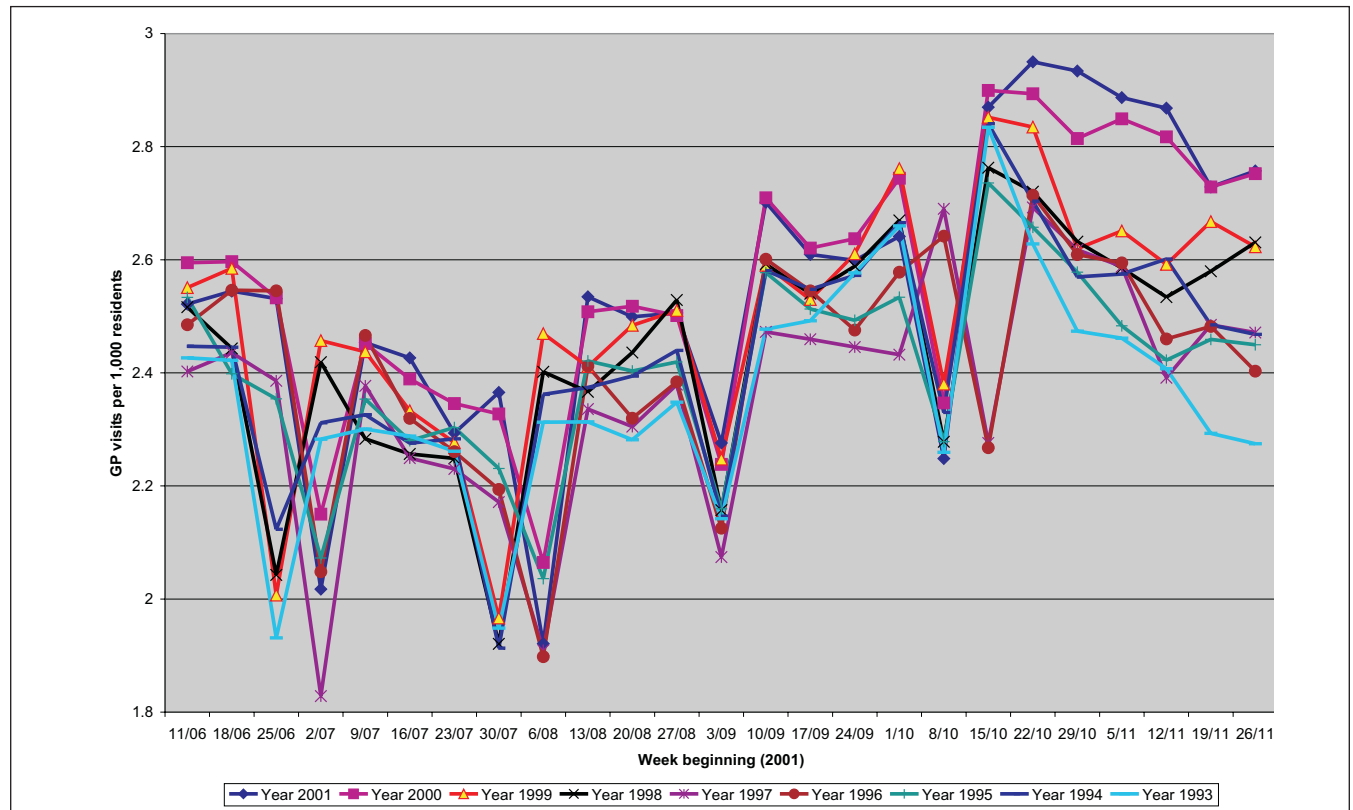


Figure 1b Anxiety-related GP–FP visits (excluding psychotherapy and counselling)



In summary, we demonstrated that, despite a trend in a subgroup of patients toward increased physician visits for noncore mental health services during the weeks in which anthrax infections were occurring, there was no statistically significant increase overall in anxiety-related visits to physicians in the weeks following either the events of September 11 or the initial anthrax infection in early October 2001. This is compatible with earlier research showing that the terrorists attacks of September 11, 2001, did not have an impact upon the use of psychoactive medication by elderly residents of Ontario (6) and that, apart from New York, most areas of the US displayed distress levels within normal ranges 2 months following the events of September 11 (7). Despite evidence of widespread anxiety in Canada (3), there was no evidence that this anxiety led to increased anxiety-related physician visits.

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¹Scientist, Institute for Clinical Evaluative Sciences, Toronto, Ontario; Assistant Professor, Department of Public Health Sciences, University of Toronto, Toronto, Ontario.

²Scientist, Institute for Clinical Evaluative Sciences, Toronto, Ontario.

³Senior Scientist, Institute for Clinical Evaluative Sciences, Toronto, Ontario.

⁴Adjunct Scientist, Institute for Clinical Evaluative Sciences, Toronto, Ontario; Research Scientist, Centre for Addiction and Mental Health, Toronto, Ontario.

Address for correspondence: Dr P Austin, Institute for Clinical Evaluative Sciences, G1 06, 2075 Bayview Avenue, Toronto, ON M4N 3M5
e-mail: peter.austin@ices.on.ca

Résumé : Consultations des médecins ontariens liées à l'anxiété après le 11 septembre 2001

Objectif : Déterminer si le climat d'anxiété accrue par suite des attaques terroristes du 11 septembre 1991 et les cas d'anthrax subséquents ont entraîné un plus grand nombre de consultations des médecins liées à l'anxiété.

Méthode : Nous avons entrepris une étude rétrospective de la population de tous les résidents de l'Ontario. Nous avons relevé les consultations des médecins à l'aide du programme d'assurance-maladie universelle de l'Ontario. Les modèles en série chronologique de la moyenne mobile intégrée autorégressive interventionnelle (ARIMA) ont servi à examiner l'effet des attaques terroristes et des infections à l'anthrax sur le taux des consultations des médecins liées à l'anxiété.

Résultats : Ni les attaques terroristes du 11 septembre ($P = 0,40$) ni les infections à l'anthrax en octobre et en novembre ($P = 0,14$) n'ont eu un effet statistiquement significatif sur le taux des consultations des médecins liées à l'anxiété.

Conclusions : Le climat d'anxiété accrue n'a pas entraîné de demande plus forte de services de santé mentale.