Association of Quetiapine Overuse Letters With Prescribing by Physician Peers of Targeted Recipients: A Secondary Analysis of a Randomized Clinical Trial

Physicians learn about new medical evidence from their peers. Interventions that can stem overuse in some physicians could therefore spur systemwide change through peer networks as physicians discuss new practice styles and learn from each other. One source of overuse is antipsychotic prescribing; these drugs are widely prescribed to people with dementia even though guidelines discourage this practice. A randomized clinical trial of antipsychotic overuse letters that were sent by the Centers for Medicare and Medicaid Services (CMS) to high prescribers of quetiapine reduced prescribing by targeted physicians by 16% over 2 years (NCT02467933). This study examines whether these letters led to changes in prescribing by peers of the original physicians, which would suggest that overuse interventions can have broader effects.

Methods | During April 2015 to August 2015, 5055 high-volume primary care physician (PCP) prescribers (“study PCPs”) of quetiapine were randomized to receive a series of 3 letters mailed from CMS about their prescribing patterns (treatment) or a pair of letters about a separate Medicare regulation (control). The treatment letters compared the PCP’s quetiapine prescribing with other PCPs and stated that they were under review by CMS.

We analyzed effects on peers who prescribed quetiapine in 2014 and worked with the original study PCPs. Peers were identified as other practitioners in study PCPs’ group practices or other practitioners who treated 11 or more patients in common with any study PCP (with each patient treated by both practitioners within 30 days). Peers linked to at least 1 study PCP in the original treatment group were considered treated while the remainder were controls. The institutional review boards of Columbia University and the National Bureau of Economic Research approved this study and waived informed consent given the retrospective nature of the analyses.

The prespecified primary outcome was quetiapine months supplied during 2015 and 2016, which was analyzed using multivariable linear regression with randomization-based inference to account for the interdependency of outcomes within peer networks. We adjusted for peers’ number of ties to original study PCPs because this determined the probability of being treated through peer networks. After adjustment, given the randomization of the original intervention, whether a peer worked with a treated or control PCP was random.

Results | There were 7563 peer practitioners who shared a group practice with original study PCPs (8989 who shared patients). Of these, 5582 group practice peers (73.8%) were PCPs and 632 (8.4%) had psychiatric specialization (5942 [66.1%] and 520 [6.2%] were not counted as treatment or control peers because they were not PCPs or not primary care practitioners within 30 days). Peers linked to at least 1 study practitioner within 30 days). Peers linked to at least 1 study PCP in the original treatment group were considered treated because this determined the probability of being treated through peer networks. After adjustment, given the randomization of the original intervention, whether a peer worked with a treated or control PCP was random.

Each point represents the average months of quetiapine supplied in each year per prescriber. Because peers linked to more original study PCPs are more likely to be considered treated, the averages for treatment and control groups are inverse probability of treatment weighted using the number of original study PCPs with whom peers were associated. Error bars indicate 95% confidence intervals. See the estimates in Figure 2 for error bars that account for interdependency across peers. The vertical line denotes the intervention start date and arrowheads denote when treatment letters were sent to prescribers.
Discussion | A series of letters targeting high quetiapine prescribers strongly encouraged recipients to reduce quetiapine prescribing. However, by multiple measures, we did not detect a significant change in prescribing among physicians working with letter recipients. This raises the question of whether other interventions that tend to deliver smaller effects on targeted practitioners, such as simple “nudge” messages, can spill over to other practitioners through peer networks.

The limitations of this study include that peers were measured imperfectly in administrative data and that associations could have been meaningful but too small to be detected. These results may not be generalizable to other interventions that could be more socially acceptable to share. Given the limited association of these overuse letters with prescribing by peers and the potential for alert fatigue, practitioners hoping to use similar messages to influence overuse should choose wisely as they consider which quality metrics to target.

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COMMENT & RESPONSE

Lead Exposure as a Confounding Factor in the Association of Air Pollution Exposure and Psychotic Experiences

To the Editor We read with interest the article by Newbury et al on the association of air pollution exposure and psychotic experiences during adolescence. We agree with the authors that the strong association between exposure to nitrogen oxides and psychotic experiences implicates road traffic. We hypothesize that exposure to the extensively studied and formerly ubiquitous developmental neurotoxin, tetraethyl lead, may be causally linked to psychotic disorders and may confound the observed association between nitrogen oxides and psychotic experiences. Lead gasoline was not completely banned in the United Kingdom until 1999. Prior to that, all individuals, including children and pregnant women, living close to major roads and in larger cities with substantial automobile traffic had considerable exposure to tetraethyl lead from car exhaust.

Prospective epidemiological studies suggest that higher than average prenatal lead levels may be associated with an increased likelihood of offspring developing schizophrenia. Prenatal and childhood exposure to lead is associated with persistent cognitive and behavioral problems including lower IQ and school performance, poorer executive functioning, poorer working memory, antisocial and delinquent behavior, and alterations in brain volume and chemistry. These symptoms are also more common in individuals who develop schizophrenia. High levels of acute lead exposure in adults have been associated with psychosis onset.