

Impact on hospital-wide antipsychotic prescribing practices through physician peer comparison letters

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Abstract

Peer comparison is a behavioral strategy that provides feedback to individuals on how they compare with others. It is used to improve health care quality, reduce inappropriate prescribing, and improve physician performance. There is very little data on peer comparison and the impact on system-wide prescribing practices, particularly with antipsychotics. To that end, the Maryland statewide pharmacy and therapeutics committee reviews hospital-level antipsychotic data for 5 facilities on a quarterly basis, including high doses and polypharmacy. One facility, Springfield Hospital Center, consistently stood out in 2016 as having higher rates of high doses of haloperidol, olanzapine, and quetiapine as well as patients receiving 3 or more antipsychotics. The pharmacist began to send out individual letters to the psychiatrists detailing their prescribing habits in these areas compared with other psychiatrists and the other state facilities. Over the course of 4 years, the percentage of patients on high doses of 3 antipsychotics substantially decreased. The percentage of patients on polypharmacy in the facility decreased, but not at the same rate as the other hospitals, leaving the facility even higher than the state average at the end of the 4-year period. Pharmacist-initiated physician peer comparison letters were associated with a considerable decrease in the prevalence of high-dose olanzapine, haloperidol, and quetiapine but did not appear to impact antipsychotic polypharmacy. This type of communication may be beneficial for stimulating system-wide changes in prescribing practices for high doses of antipsychotics; however, more individualized interventions are likely needed to reduce antipsychotic polypharmacy.

Keywords: peer comparison, antipsychotics, polypharmacy, high dose, prescribing

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Introduction

Peer comparison is the principle of providing feedback to individuals on how they compare with others.¹⁻³ This relies on the principle of relative social ranking, which states that people care about how they compare with others who are in close proximity or within the same group. Peer comparison is used to improve health care quality and physician performance and has had significant impacts on promoting

responsible prescribing of opioids and antibiotics.⁴⁻⁹ High doses of antipsychotics and antipsychotic polypharmacy are issues that have challenged psychiatry for decades and can have a negative impact on patients' quality of life and continuation of treatment. A single study¹⁰ was conducted that showed a reduction in quetiapine prescribing by Medicare primary care prescribers with peer comparison letters. However, no data exists on peer comparison and the impact on hospital-wide prescribing practices in relation to antipsychotic high doses or polypharmacy.

Practice Setting

Springfield Hospital Center (SHC) is one of 5 state-run psychiatric inpatient facilities that is overseen by the Maryland Department of Health (MDH). There is a



statewide pharmacy and therapeutics (P&T) committee, comprising pharmacy, medical, and nursing staff from each of the facilities, that meets monthly. This committee develops standardized guidelines regarding the use of specific medications and monitoring of medications as well as policies and procedures to be followed at MDH facilities.

The state P&T committee reviews antipsychotic data at the hospital level on a quarterly basis. These reports compare the facilities with one another as well as with a state average. Included in these reports are the rates of high doses of antipsychotics and patients prescribed 3 or more antipsychotics. High doses are presented as a percentage of all patients prescribed that antipsychotic in that facility and only include scheduled oral medications, not as-needed (PRN) orders or long-acting injectable antipsychotics. The threshold for what is considered a high dose was decided for each antipsychotic by the state P&T committee based on manufacturer recommendations and published literature regarding safety and efficacy.

Polypharmacy data is presented as a percentage of patients prescribed any scheduled antipsychotic in that facility regardless of the dose and includes both oral and long-acting injectable antipsychotics. This allows comparison of the number and percentages across facilities. This data is gathered only at a single point in time, so it often captures cross-titrations. Furthermore, due to the nature of the pharmacy system and the manual labor necessary for creating these reports, the data is not reviewed at state P&T for several months, so there is often a lag in feedback on prescribing habits.

Data Prior to Implementation of Peer Comparison

In 2016, SHC consistently stood out as having higher rates of 4 measurements: high doses of haloperidol (>35 mg/d), olanzapine (>30 mg/d), and quetiapine (>800 mg/d) and antipsychotic polypharmacy (≥ 3 scheduled antipsychotics). In September 2016, SHC's percentage of high-dose haloperidol was 28.36% compared with the state average of 15.04%. High-dose olanzapine was 28.57% of SHC patients, higher than the state average of 19.82%. High-dose quetiapine was 21.15% of SHC patients versus the state average of 13.90%. Finally, SHC's percentage of patients prescribed polypharmacy was 10.33% compared with the state average of 8.50%.

Description of Service

After reviewing this data with SHC's P&T committee, it was decided that the pharmacist would generate peer comparison letters that would be sent to the individual

prescribers on a quarterly basis. These letters would show the differences between the facility and the state average and also indicate where each prescriber fell in relation to their peers in terms of high doses of haloperidol, quetiapine, and olanzapine and antipsychotic polypharmacy. Once the hospital-level data is presented at the state P&T committee, the pharmacist runs patient reports to identify those with an active order for a particular medication (ie, haloperidol, quetiapine, or olanzapine). Unfortunately, due to the limited capabilities of the pharmacy system, the pharmacist must evaluate the report by hand to exclude patients who are only prescribed the medication as a PRN and to calculate the patient's total daily dose. The data is then entered into a spreadsheet, and formulas, sorting, and filtering features are used to allow the pharmacist to evaluate the data by prescriber, dose, and patient unit. Additional reports are run to determine the patients who are prescribed 3 or more antipsychotics, which also requires similar manipulation by hand to distinguish scheduled versus PRN orders. Using this data, the pharmacist then creates the 2-page form letter that includes the overall deidentified prescribing habits of the facility's psychiatrists. Each nontrainee prescriber receives a confidential letter through interoffice mail with their individual details, namely, the number of patients under their care receiving high doses of each antipsychotic and polypharmacy. Individuals are unable to identify their peers based on the information but can observe where they rank in relation to their peers. Physicians were encouraged to reach out to the pharmacy for assistance in minimizing medications but no other interventions were made as part of this process. Overall statistics of state averages and SHC data are presented and reviewed at the next hospital P&T committee meeting.

Letters have been sent for the past 4 years (September 2016 through December 2020) for a total of 18 quarterly letters. A total of 29 nontrainee psychiatrists received the letters with each prescriber receiving an average of 7.76 letters (range 1 to 18). Of the original complement of 17 psychiatrists, 8 (53.33%) have been at the facility for the entirety of the peer comparison intervention, and 7 (46.67%) have moved on and been replaced by other psychiatrist prescribers. Due to the rotation of committee assignments, only 1 prescriber was a regular attendee of the facility's P&T committee; therefore, it is not believed that the review and discussion of these data at these meetings significantly contributed to the changes observed in prescribing habits. Data for all of 2016 are included for comparison purposes and to demonstrate that the changes in prescribing correlate with the start of peer comparison rather than due to normal fluctuations.

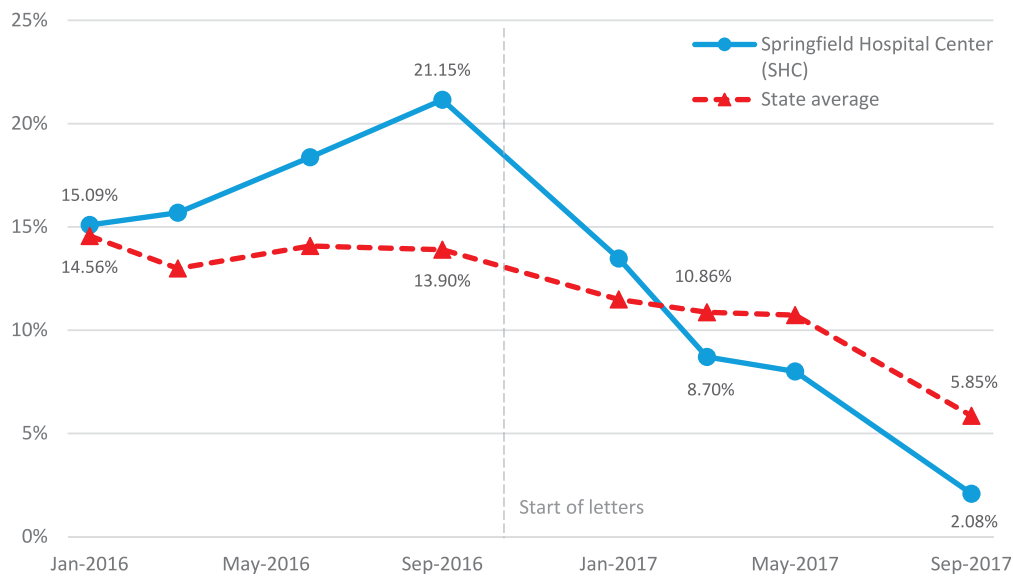


FIGURE 1: Changes in rates of high-dose quetiapine

Impact on Patient Care

High-Dose Quetiapine

There was a dramatic decrease in the percentage of patients prescribed high-dose quetiapine with just the first peer comparison letter, and it continued to trend downward from there (Figure 1). After only 1 year of letters, the hospital P&T committee decided to stop including quetiapine data because it was consistently below the state average. The pharmacist continues to monitor the frequency of high-dose quetiapine without including it in the letters, and SHC has remained below the state average with only a few instances of passing the state average. From 21.15% of SHC's quetiapine patients receiving a high dose before the start

of the letters (state average of 13.90%), there was 2.08% after the end of 1 year (state average of 5.85%).

High-Dose Olanzapine

With olanzapine, there was not as dramatic and quick of a change as quetiapine, but there was a steady trend downward, finally passing below the state average in early 2020 (Figure 2). From 28.57% of SHC's olanzapine patients receiving a high dose before the start of the letters (state average of 19.82%), there was 10.53% at the end of 2020 (state average of 15.20%). It does appear that there was a slight increase in the frequency of high-dose

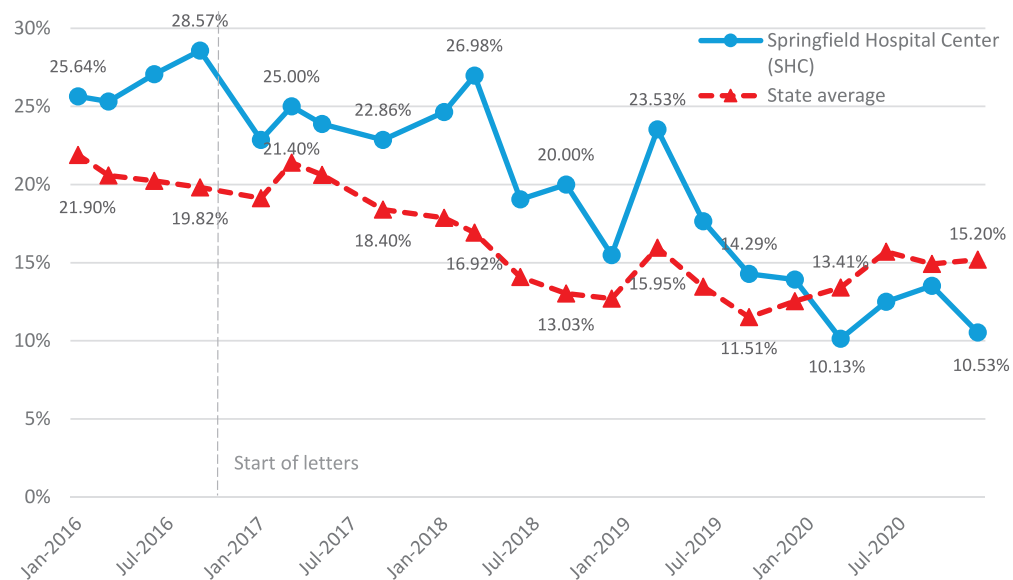


FIGURE 2: Changes in rates of high-dose olanzapine

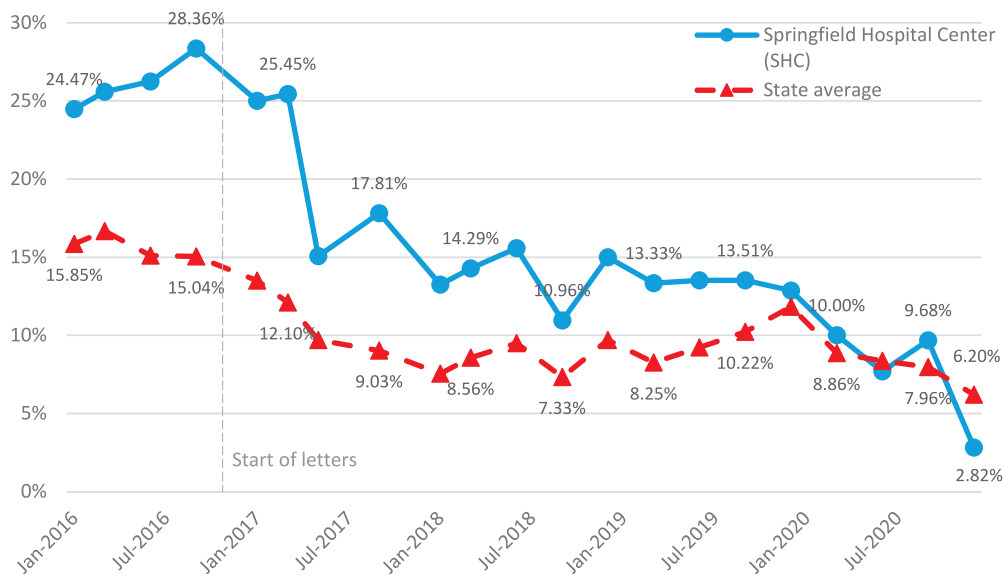


FIGURE 3: Changes in rates of high-dose haloperidol

olanzapine in the other MDH facilities, but the percentages in SHC remained below the state average.

High-Dose Haloperidol

For high-dose haloperidol, there was again a steady decrease with only a few times that SHC passed below the state average in 2020 (Figure 3). From 28.36% of SHC’s haloperidol patients receiving a high dose before the letters (state average of 15.04%), there was 2.82% at the end of 2020 (state average of 6.20%).

Antipsychotic Polypharmacy

Unfortunately, peer comparison letters did not have the same effect on antipsychotic polypharmacy (Figure 4). Although there was a significant decrease during the first year of letters, this fluctuated over time and began to climb back to previous frequencies in 2020 while the state data remained somewhat consistent. From 10.33% of SHC’s patients receiving antipsychotic polypharmacy before the letters (state average of 8.5%), there was 9.48% at the end of 2020 (state average of 6.24%).

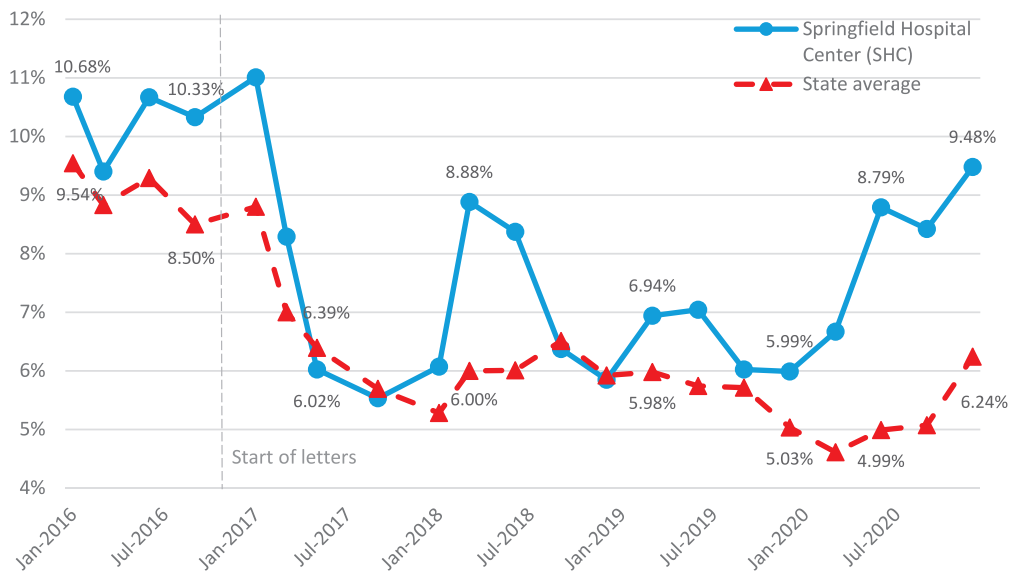


FIGURE 4: Changes in rates of antipsychotic polypharmacy

Discussion

Peer comparison gives individual prescribers access to data that allows them to evaluate themselves in relation to their colleagues in a readily available and easy-to-interpret format. In 1 hospital, peer comparison letters were an effective motivational tool for decreasing the frequency of high doses of 3 particular antipsychotics throughout the hospital. However, it appears that a more direct and individualized intervention is required to impact prescribing of antipsychotic polypharmacy, likely with specific, targeted recommendations by patient. Reasons for this could be prescriber turnover and changes in prescribing habits with physicians that are new to the system and the severity of the patients. It could possibly be some sort of alert fatigue as individuals have gotten used to seeing the peer comparison letters. Or it could be that decreases in the rates of high-dose antipsychotics has led to an increased rate of polypharmacy with lower doses although separate (unpublished) evaluation has not confirmed this.

Of course, there are limitations to this data and evaluation of the results. The data is gathered from a single point in time and so does not account for cross-titrations, patient transfer, physician transfer, or physician turnover. The delay in the presentation of data to state P&T can make it difficult to quickly intervene, especially in terms of antipsychotic polypharmacy. Peer comparison letters did not include literature support or clinical rationale for dose thresholds and the risks of polypharmacy, which could increase their impact on prescribing habits. Furthermore, this does not account for any interventions being applied at other MDH facilities, but as far as the author is aware, no other facility was employing peer comparison. Additional opportunities exist to determine what other prescribing habits could be influenced with peer comparison and applying the same strategy to those measures.

Conclusion

In conclusion, peer comparison can significantly impact prescribing practices on a hospital level, particularly in regards to high doses of antipsychotics, but it appears that more targeted and direct recommendations are

needed to decrease antipsychotic polypharmacy on an individual patient level.

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