

NH PIM Report – April 2008

This report highlights potentially inappropriate medications (PIMs), as defined in the Beers Criteria¹, which CFMC identified from the collection of medication administration records (MARs) from January 2008. Approximately 32% of residents were receiving at least one PIM in their regularly scheduled medications. This is similar to the previous two reporting periods (July 2007 and October 2007), with 32% and 33%, respectively, of residents were receiving at least one PIM in their regularly scheduled medications.

Also incorporated into this report is information from monthly pharmacist reports and physician feedback related to PIMs. Pharmacist reports are incorporated as available. Individual facilities have been de-identified.

Methods

CFMC examined the medication records of nursing home residents in five facilities in February 2008. Of 370 medication records collected, 356 were usable for analysis (residents 65 years of age or older). Medications were separated by regularly scheduled and PRN, and PIMs were identified.

Results

Overall, approximately 32% of the 356 residents were receiving at least one PIM in their regularly scheduled medications, and 41% of the 356 residents had a PIM available for use PRN. Ipratropium is still the most frequently appearing regularly scheduled PIM. Amlodipine and bisacodyl are the second and third most frequent PIM for regularly scheduled medications. Iron at large daily doses, and tolterodine are the remaining top 5 PIMs for regularly scheduled medications. The PRN PIM rates are largely due to the use or allowed use of bisacodyl and ipratropium. Bisacodyl and ipratropium have been the two most frequent PRN PIMs in all prior data collection periods (July/August 2006, October 2006, January 2007, April 2007, July 2007, and October 2007) as well. Bisacodyl, ipratropium, and amiodarone have the potential for severe outcomes, as documented in the Beers Criteria², while amlodipine and iron have potential for less severe outcomes.

Individual facilities varied in their rate of regularly scheduled PIMs from approximately 23% to 37%. PRN PIM rates ranged from 27% to 57%. Figure 1 shows the rate of residents receiving at least one PIM, either as a regularly scheduled medication or available for use PRN.

¹ Fick, D., et al, "Updating the Beers Criteria for Potentially Inappropriate Medication Use in Older Adults" Arch Intern Med Vol 163, Dec 8/22 2003.

² Ibid.

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Figure 1. Percent of Residents With a PIM

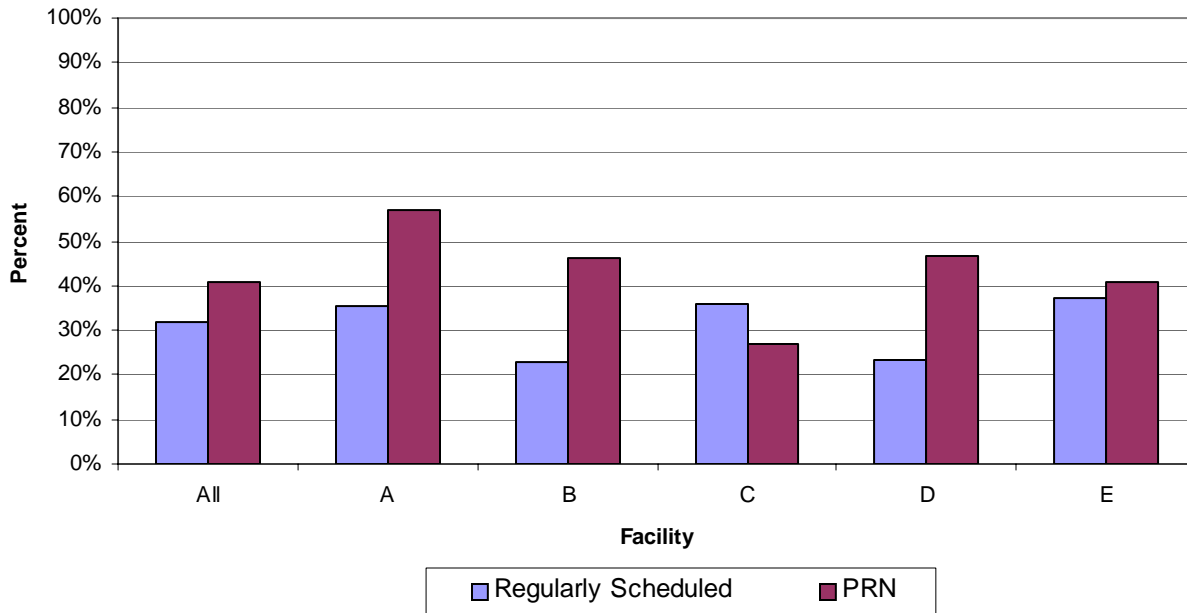


Figure 2 displays the percent of residents with at least one PIM in their regularly scheduled medications over all six data collection periods. Facility D has experienced significant improvement (a lower percentage) in the two most recent time periods. Facilities C and E have experienced a slight improvement. Facilities A and B have experienced a slight decline. Figure 3 displays the same information for PRN medications. Facilities C and D have shown some improvement for PRN medications. All other facilities have remained similar to the previous time period or experienced a slight decline.

Figure 2. Trended Percent of Residents With Regularly Scheduled PIMs

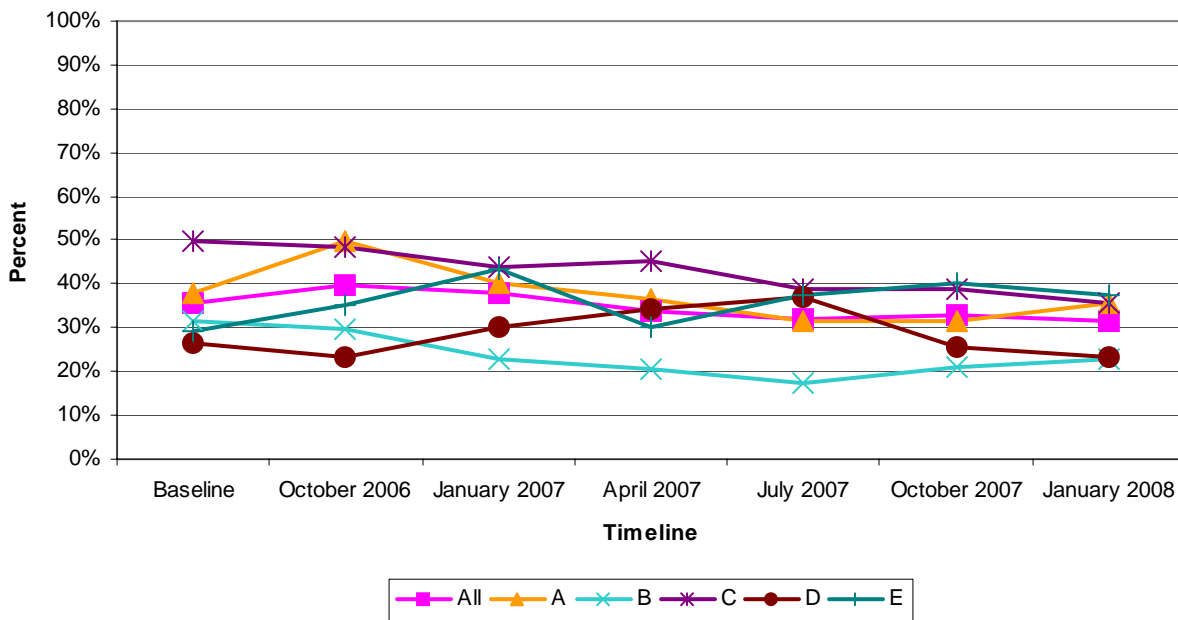


Figure 3. Trended Percent of Residents With PRN PIMs

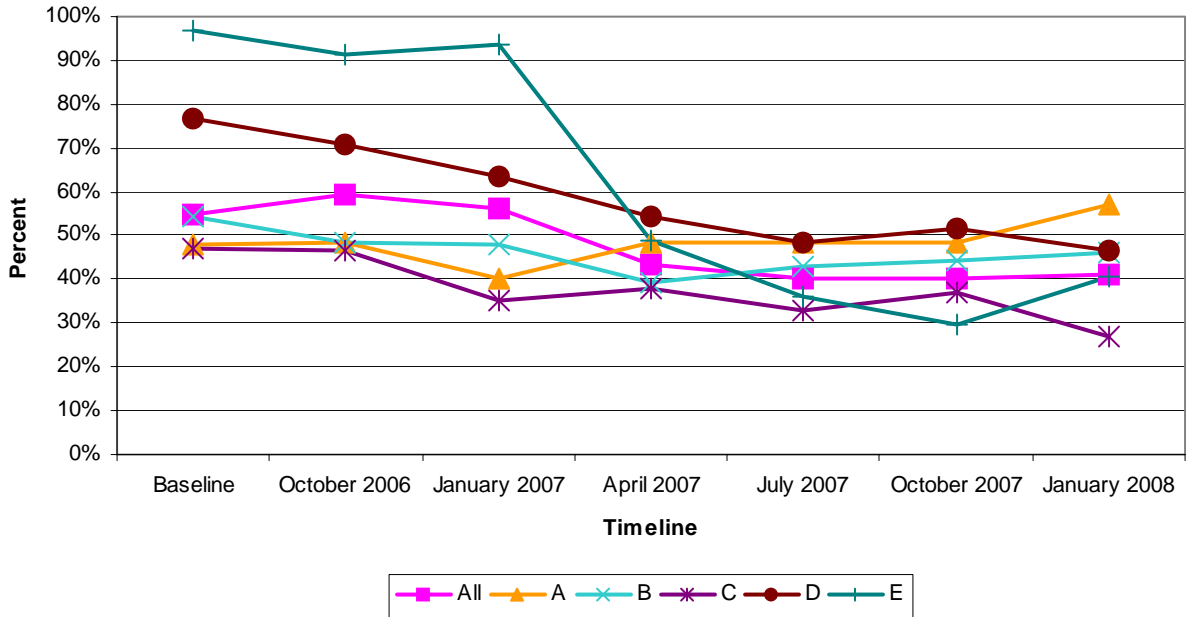


Figure 4 addresses how many PIMs each resident with at least one PIM was receiving. The majority of residents with at least one PIM were receiving only one PIM (67% in regularly scheduled medications, 79% in PRN medications). Some residents were receiving 2 PIMs (25% in regularly-scheduled medications, 16% in PRN medications). Few residents were receiving 3 or more PIMs (8% in regularly-scheduled medications, 6% in PRN medications).

Figure 4. Distribution of PIMs per Resident

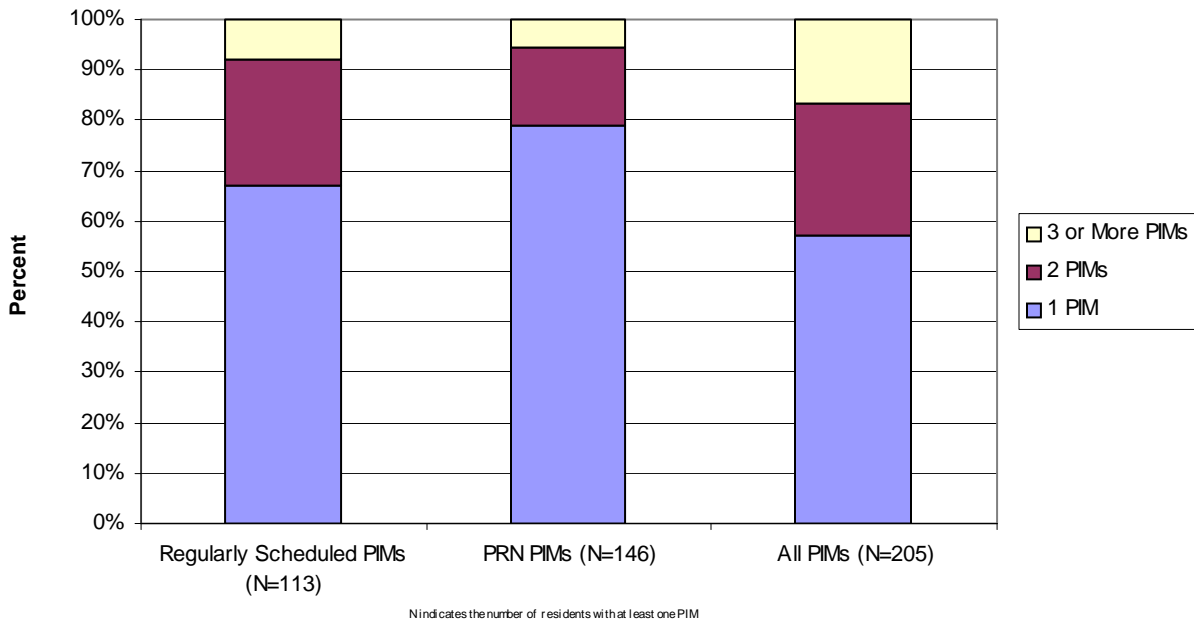
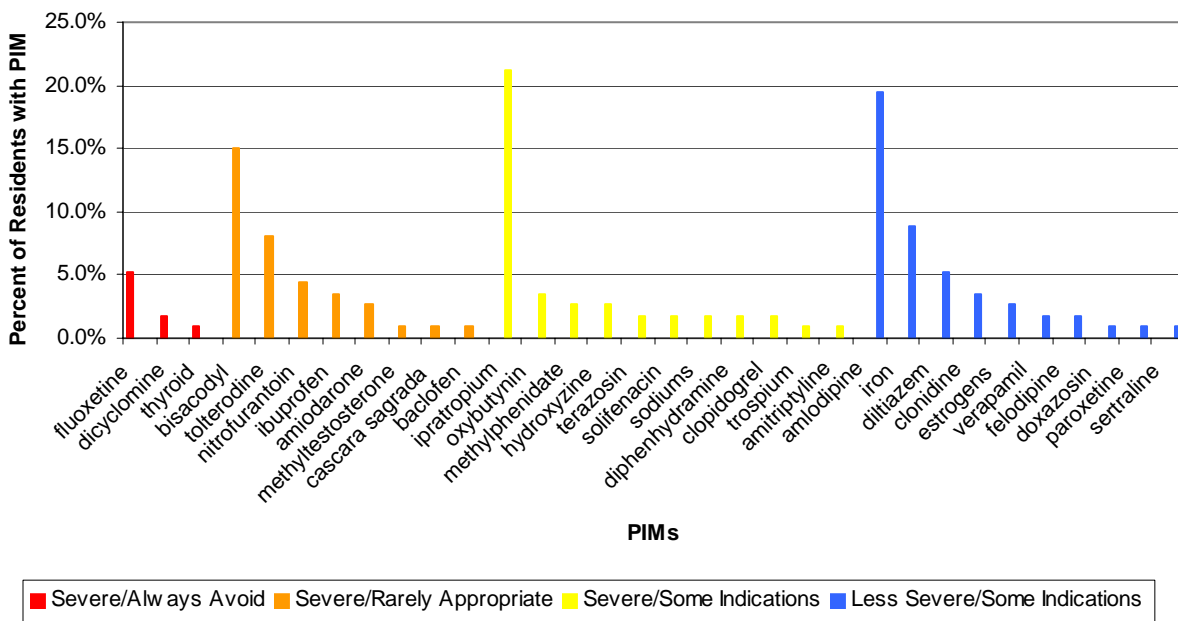


Figure 5 identifies the actual regularly scheduled medications identified as PIMs and the proportion of residents receiving each. For example, of the 113 residents receiving at least one PIM in their regularly scheduled medications, approximately 21% were receiving ipratropium, 20% were receiving amlodipine, and 15% were receiving bisacodyl. Also reflected in Figure 5 is the potential severity of outcome due to inappropriate use, as defined by the Beers Criteria³, and the usage recommendations from other researchers⁴. Fluoxetine and dicyclomine are indicated as severe/always avoid, as such, they may be good targets of intervention. The severe/rarely appropriate medications would also be good targets for intervention. Figure 6 reflects the proportion of PIMs discontinued and/or addressed by the pharmacist or physician as potentially inappropriate. For example, 13% of the residents identified with ipratropium as a PIM have either had this medication discontinued or the pharmacist and physician have communicated about this PIM.

Figure 5. Regularly Scheduled PIMs w/ Severity and Avoidance Categories



³ Ibid.

⁴ Zhan, C., et al, "Potentially Inappropriate Medication Use in the Community-Dwelling Elderly" *JAMA* Vol 286, No 22, Dec 12, 2001.

Figure 6. Regularly Scheduled PIMs Addressed

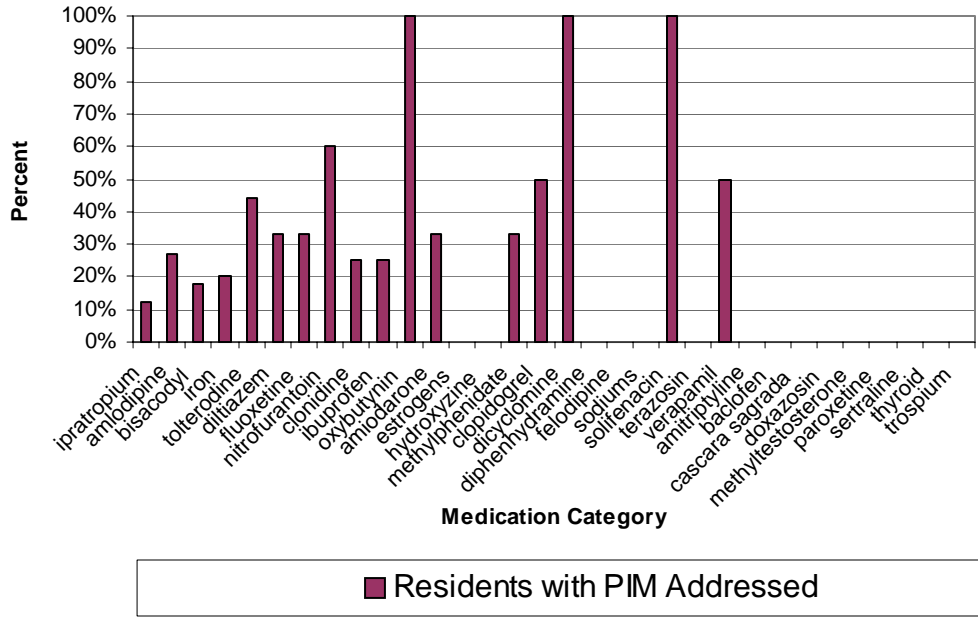


Figure 7 is similar to Figure 5 and Figure 8 is similar to Figure 6, but for PRN medications. Bisacodyl may or may not be inappropriate for PRN use, but it is still reflected in this table. Approximately 57% of the 146 residents receiving at least one PIM in their PRN medications were receiving bisacodyl and 31% were receiving ipratropium. While bisacodyl and ipratropium are the most frequent, hyoscyamine and propoxyphene have the potential for more severe outcomes.

Figure 7. PRN PIMs w/ Severity and Avoidance Categories

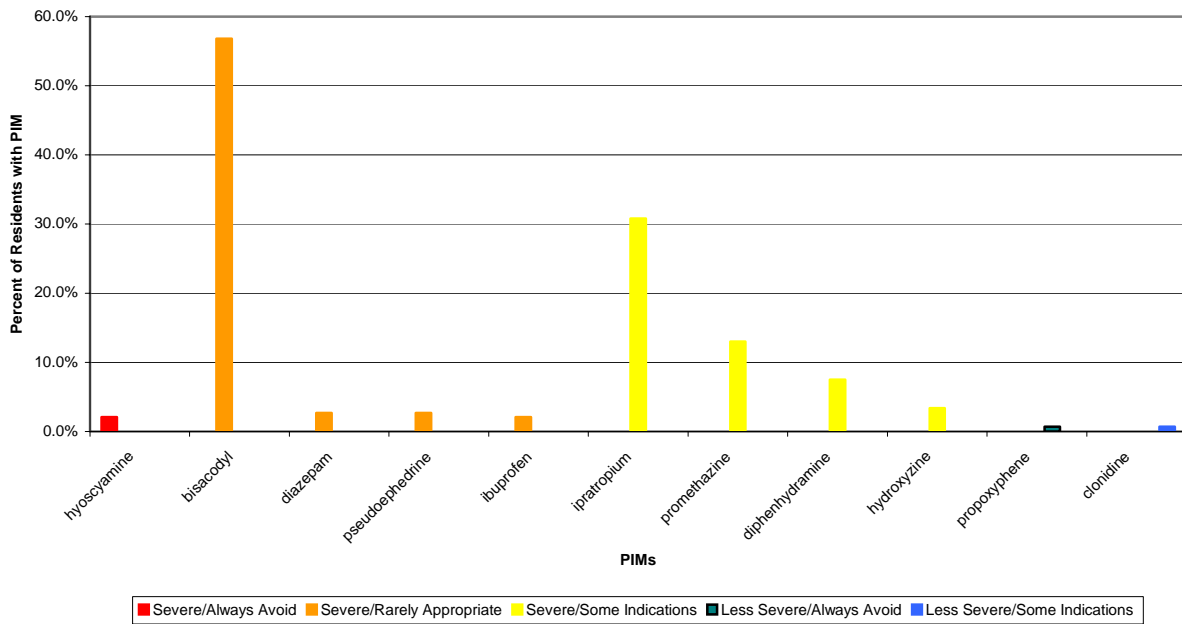
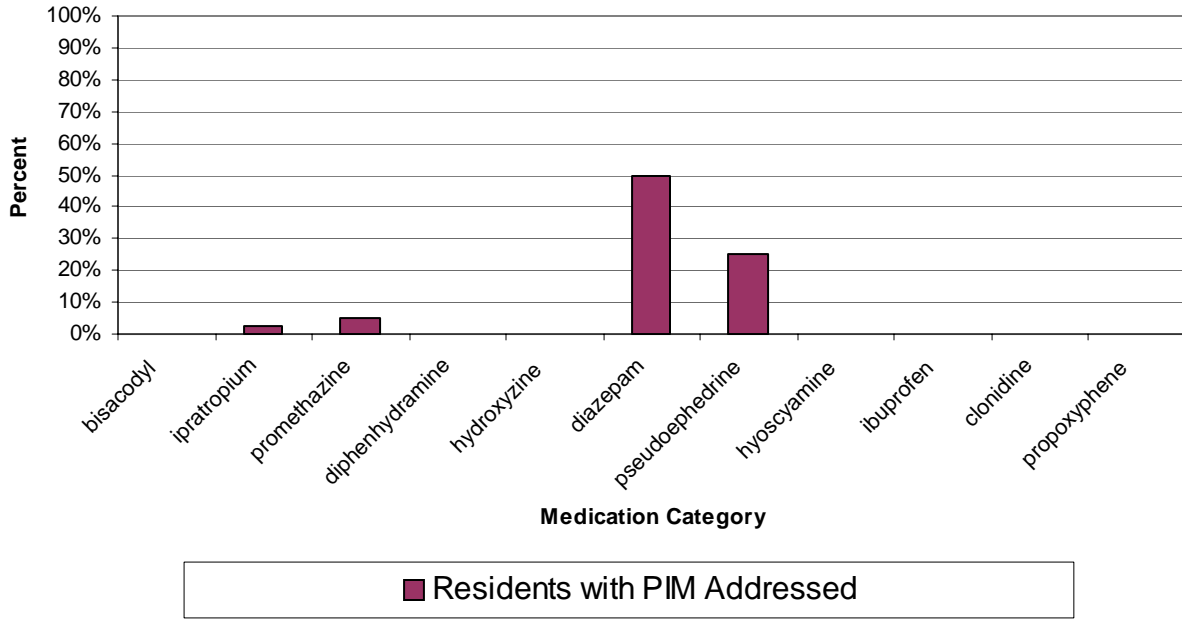


Figure 8. PRN PIMs Addressed



While it is important to have PRN medications, it is also interesting to note that most PRN PIMs were not administered at all or rarely administered. This is reflected in Figure 9. Bisacodyl, ipratropium, promethazine, diphenhydramine, hydroxyzine, diazepam, and hyoscyamine are the only PRN PIMs that were actually administered one or more days in January 2008. Bisacodyl, diphenhydramine and hyoscyamine have been administered to at least one person more than 11 days during the month.

Figure 9. Number of Days PRN PIM Taken

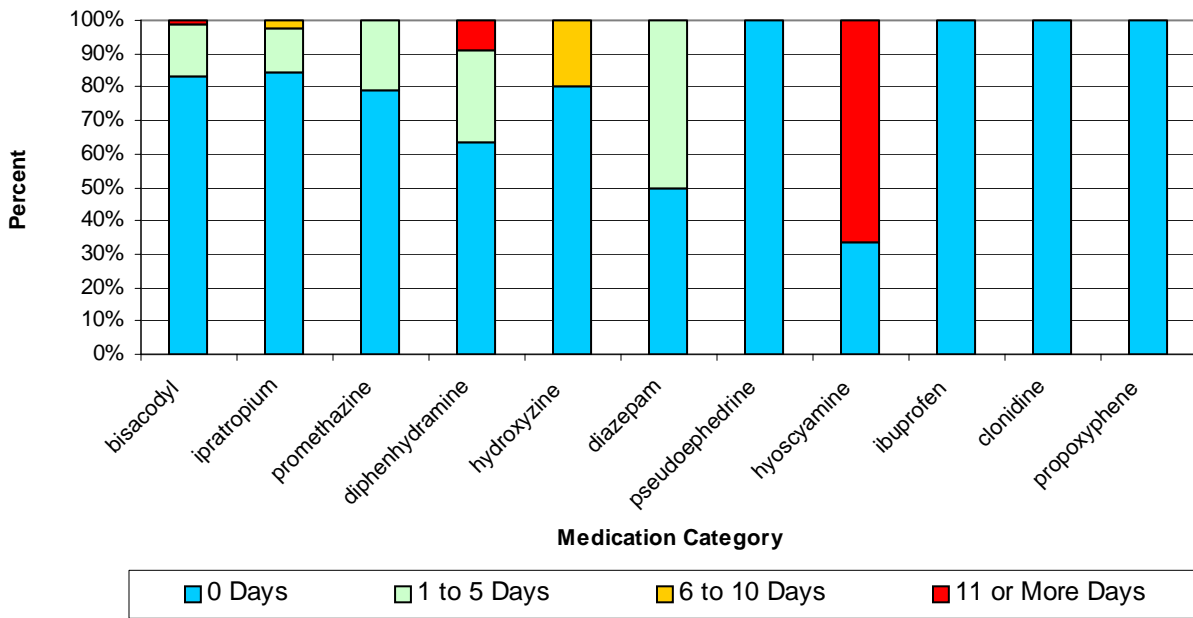


Figure 10 reflects the average number of medications listed on the MAR, while Figure 11 reflects the median number of medications, for all residents (not just those over 65 years of age). These numbers include all items on the MAR: alcoholic beverages, med pass, lotions/creams, vitamins, over-the-counter medications, and prescription medications. Thus, these numbers may be higher than what appears from other sources. For the extremes, there is at least one resident not receiving any medications and at least one resident receiving 38 regularly scheduled medications. The extremes have not changed much across reporting periods. Means and medians, 9 to 11 regularly-scheduled medications, are similar to the previous reporting period.

Figure 10. Average Number of Medications per Resident

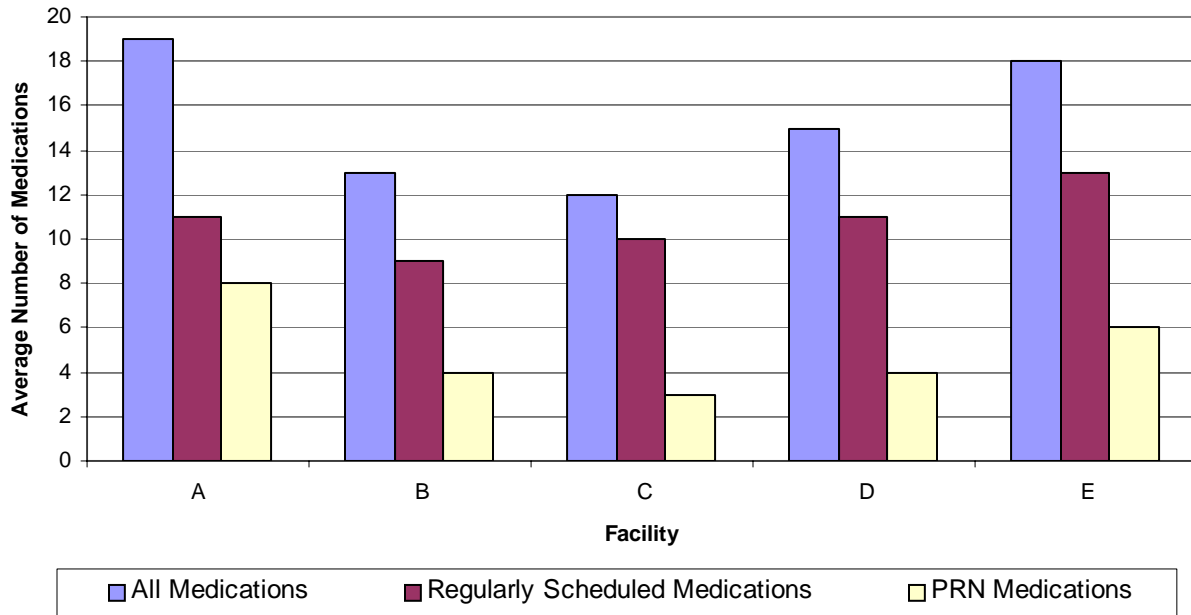
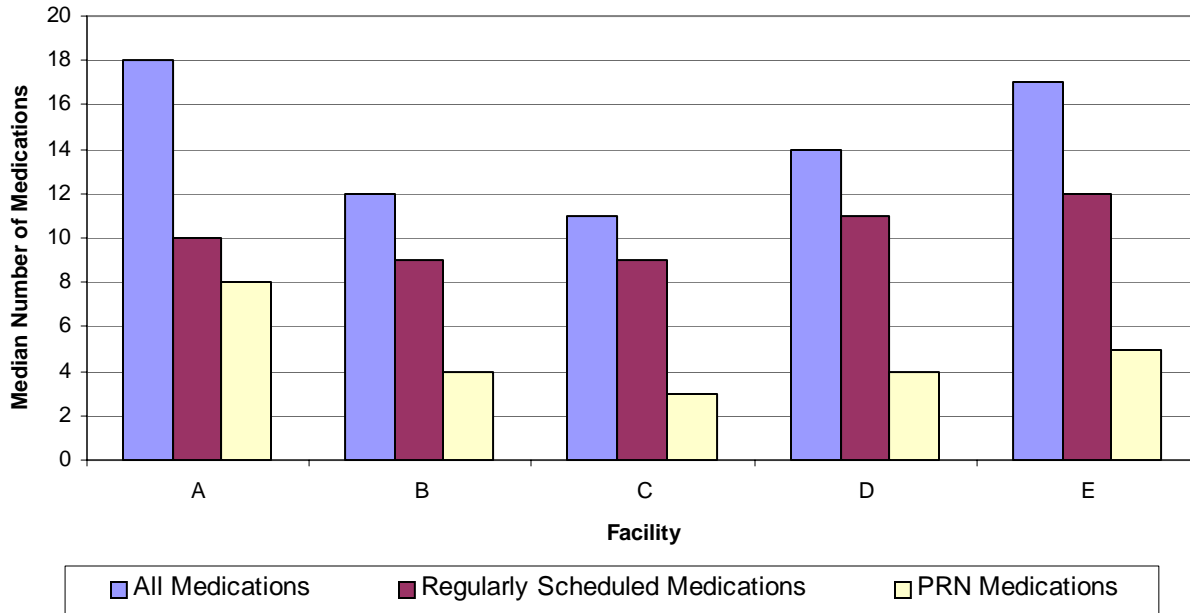
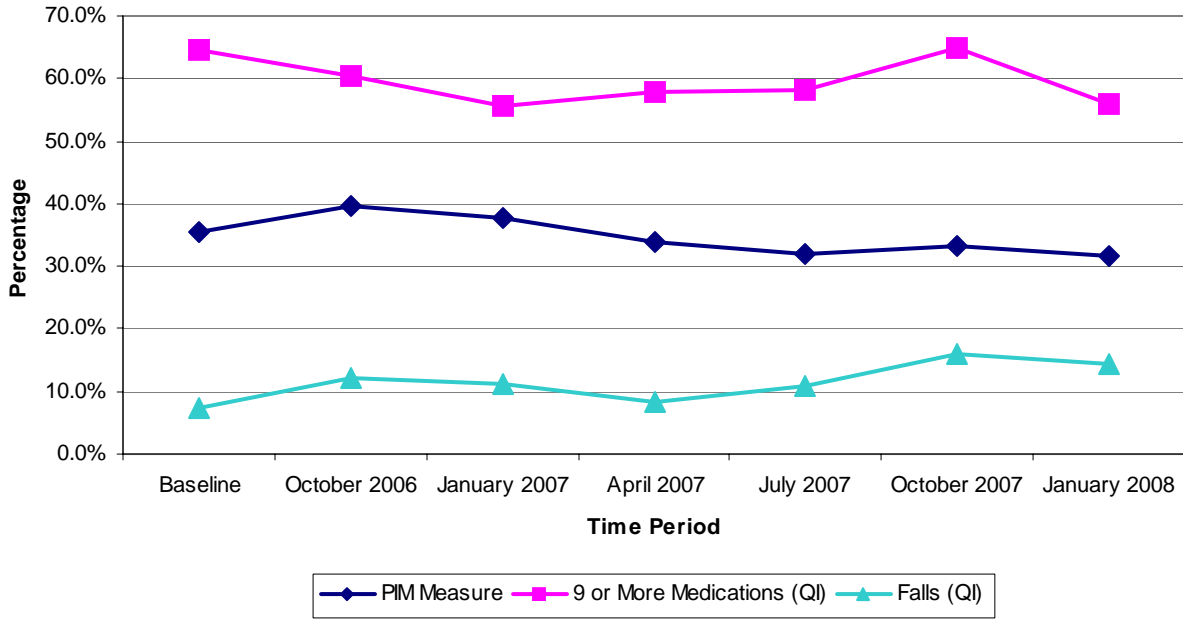


Figure 11. Median Number of Medications per Resident



Changes to medications can affect other measures (qualitative and/or quantitative) upon which facilities base decisions. Some of these may be staff satisfaction, resident satisfaction, frequency of falls, frequency of negative behaviors, etc. The CMS tracks and reports 34 measures in the Facility Quality Measure/Indicator Report that is based on MDS data. One measure, the use of 9 or more different medications, would seem to tie directly to this project. Also, since many of the PIMs have the potential for anticholinergic side effects, the prevalence of falls measure may be related. Figure 12 displays an aggregate of all 5 participating facilities on these two quality measures/indicators as well as our PIM measure. In aggregate, it appears that strong relationships do not exist between PIMs and these two other measures.

Figure 12. QM-QI Results -- All Facilities



Also, in this reporting period, the physician information located on the MARs was analyzed. The five participating facilities work with an average of nine physicians. On average, approximately 27% of residents treated by each physician are receiving at least one PIM.

The Prescription Drug Plan (PDP) information was also located and analyzed. The Part D enrollment database provided by the CMS was the data source. The 365 residents in the five participating facilities are enrolled in 6 Medicare Advantage and 15 stand-alone PDP providers; however, 35% of the residents were unable to be matched to a PDP. This confirms the huge diversity in this new Medicare benefit. The most prevalent PDPs are: Evercare, AARP, Kaiser Permanente, SilverScript and Secure Horizons.