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Predictive Modeling NEWS

# The New Enrollee Challenge: Don't Let a Lack of Data Cost You Money

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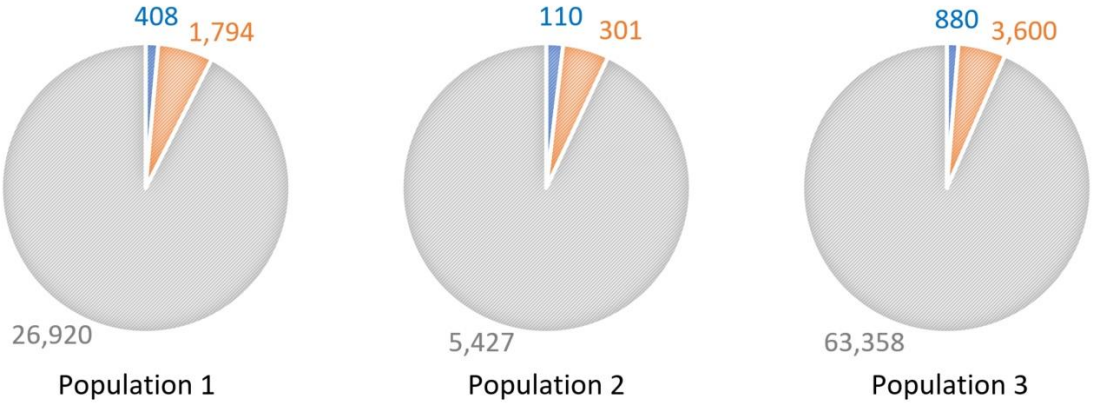
Most Medicaid and Medicare Advantage -- and some commercial -- plans enroll new members at the beginning of the calendar year, if not during other times throughout the year. New enrollees are often completely unknown entities; until their first office visit, hospital visit or prescription refill, there is very little information available about them. However, many of them are chronically sick, and early intervention can prevent unnecessary utilization. You are leaving money on the table by not identifying high-cost new enrollees.

**How Much of New Enrollee Cost Can Be Prevented?**

VitreosHealth has worked on multiple projects for various Medicare Advantage, Medicaid and commercial plans and Medicare Accountable Care Organizations -- with a combined population of close to 4 million lives. We typically obtain at least three years of data, which allows us to analyze persistent members – those continuously enrolled for two years or more -- and new enrollees. We have found that new enrollees can account for 20% to 40% of a plan's total membership each year, depending on the type of plan. Most employee plans are on the lower end of this range; ACOs and Medicare Advantage plans are in the middle of this range; and Medicaid populations experience the largest churn.

One of our Medicaid customer populations experienced 30,000 new members; 5% of these new members, or around 1,500 people, ended the year with a total cost that exceeded $5,000. In fact, these high-cost new enrollees had an average cost of $24,000 for the year. They accounted for 70% of the overall cost associated with new enrollees. Most importantly, 60% of their utilization was due to avoidable emergency room visits and ER admissions. When we saw this trend, we started wondering whether care managers would even have time to touch these high-cost new enrollees before they started racking up cost. Do these new enrollees have high-cost events immediately after enrolling? We found that only about 1% to 3% of new enrollees see high costs within the first 30 days of enrollment.



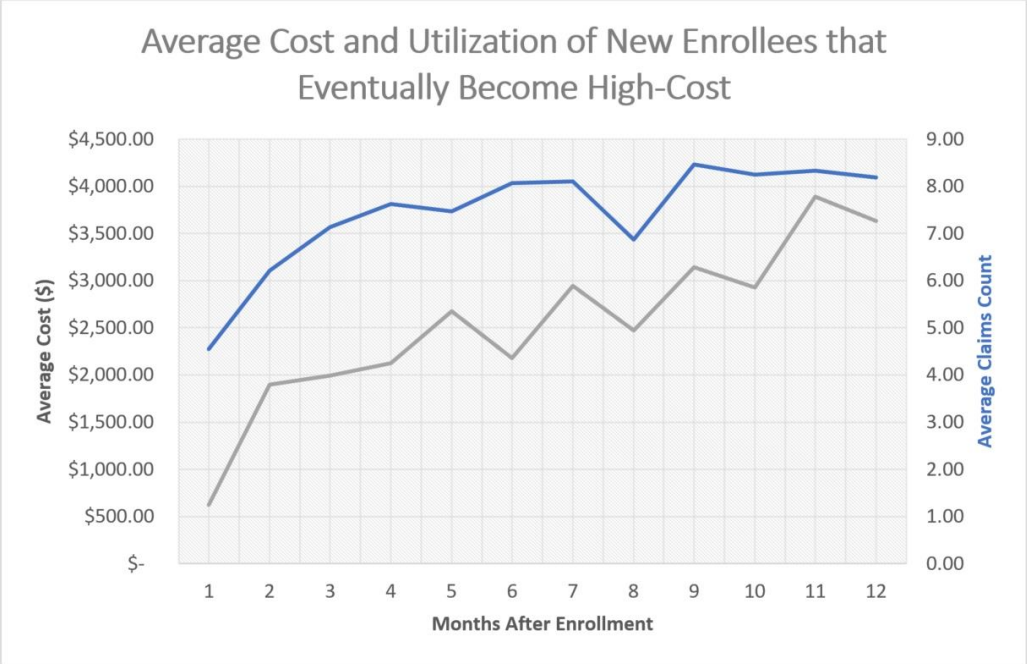
These graphs represent three different populations. The numbers in blue are how many new enrollees in each population had a high-cost event within the first 30 days after enrollment. The numbers in orange show how many new enrollees did not have a high-cost event immediately after enrollment. Members represented by grey are all other new enrollees. Members represented by orange – about 5.5% of these populations – are ideal candidates for cost containment through proactive care management.

**Can We Identify These Members Early Enough to Intervene and Prevent Unnecessary and Avoidable High Utilization?**

When we started digging into this question further, we came up with three additional questions that helped us form our new enrollee methodology.

[1] ***At what point in the year does the new enrollee become high-cost?*** In other words, in which month does a new enrollee's cost exceed $5,000? If the high-cost events happen within a few months of enrollment, logistically, it's tough to have a lasting impact quickly. On the other hand, if they happen later in the year, care managers have a manageable window of time to connect and intervene. We found that, on average, high-cost enrollees cross a total spend of $5,000 after three to four months. In the population described above, on average, new enrollees became high-cost in the fourth month after enrollment. Interestingly, they started utilizing services, like office visits and prescription refills, from the very first month.

[2] ***Is there a pattern to the cost curve?*** We wondered if the costs were front-loaded. That would imply that we are too late and the high-cost events have already happened. In that case, would it still make sense to intervene? We found out that new enrollee costs are not front-loaded, and their costs do not flatten out. In fact, costs associated with new enrollees continue to go up. In well-managed plans, where there is active member engagement, this cost tends to plateau even for critically ill patients. In the plan described above, the cost continued to rise to $20,000 over the year. This means that if we intervene early, it is still possible to avoid unnecessary high costs through the year. We found most members with chronic conditions had significant gaps in care based on best evidence care guidelines. As the intervention was delayed, the number of gaps increased and so did the cost of care.




Average claims count for new enrollees is represented in blue, while average cost is represented in grey. These patients do not have front-loaded costs. Their high-cost events do not happen immediately after enrollment. Both costs and claims started to plateau until proactive care management was introduced. This plan started seeing the effects of care management at the seventh month after enrollment.

[3] ***Is it possible to predict these high-cost patients?*** Since these new enrollees start utilizing services in the first month, it is possible to consume the information contained in these claims and attempt to predict which of these enrollees would be high-cost in a timely manner. VitreosHealth developed a Medicaid and Medicare predictive model specific to each of our customer's populations and used Propensity Scoring. This technique allows us to match new enrollees to perpetual members within the same health plan and predict outcomes and utilization.

Using the initial claims -- or even pre-authorization requests that come in earlier than claims -- we can identify specific indicators, such as age, gender, chronic conditions, medications and social determinants, and the initial pattern of utilization. The model is then able to predict which new enrollees are likely to be high-cost based on historical data of other members.

Furthermore, if a risk assessment is performed upon enrollment or shortly thereafter, it provides even more valuable information on chronic and non-chronic conditions, last known vitals and other clinical and non-clinical information -- further increasing the accuracy of our model.

We used a variety of predictive modeling approaches to test out this hypothesis. Based on the data contained in the first few claims, we obtained a precision of 29% to predict future high-cost patients within the first couple of months of claims. Our analysis showed that targeting the top 20% of highest-risk new enrollees in the first two to three months has the potential of reducing avoidable costs by 35%.

**In Conclusion**

Most Medicare, Medicaid and commercial plans struggle with cost containment of new enrollees. New enrollees on average account for 20% of population and 15% of new costs. Most health plans have no cost containment strategies to target new enrollees. They assume that because they do not have prior history, they cannot know which of these members are risky. They also assume that the risky members would immediately undergo costly procedures, some of them unnecessary, but they would not be able to intervene in time. Vitreos has shown that not only is it possible to predict which new enrollees are risky, but that early intervention has the potential of cutting down on these avoidable and unnecessary events. Furthermore, by obtaining very early episode records, such as pre-authorization records, it is possible to get a better profile of the patient even earlier than waiting for the first set of claims.

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