
**Office for Oregon Health
Policy and Research**



Changes in Access to Primary Care for Oregon Health Plan Beneficiaries and the Uninsured

*A Preliminary Report Based on Oregon Health & Science University
Emergency Department Data*

August 2003

Changes in Access to Primary Care for Oregon Health Plan Beneficiaries and the Uninsured

*A Preliminary Report Based on Oregon Health & Science University
Emergency Department Data*

Prepared by:

The Center for Policy and Research in Emergency Medicine
Oregon Health & Science University

Robert A Lowe, MD, MPH
K. John McConnell, PhD
Jodi Lapidus, PhD
Cody Weathers, BS
Annette Adams, MPH
Beverly Bauman, MD

Prepared for:

The Office for Oregon Health Policy & Research

Although the authors take full responsibility for the contents of this report, we wish to acknowledge support from two sources. Funding for this study was provided by the Office for Oregon Health Policy & Research through a Robert Wood Johnson Foundation State Coverage Initiatives Grant. The authors also appreciate the assistance of the Oregon Office of Medical Assistance Programs, Department of Human Services.

EXECUTIVE SUMMARY

Cutbacks in the Oregon Health Plan (OHP) have raised concerns about the impact on its beneficiaries. The standard measures of access and health status, based on surveys or prospective cohort studies, require both time and substantial resources. Given the urgent need for data-based information to shape policy, it is important to seek other methodologies that will provide such information to policy-makers as rapidly as possible. This project draws on literature demonstrating the usefulness of ascertaining emergency department (ED) utilization as a measure of access to primary care.

This report uses data from the Oregon Health and Science University (OHSU) ED to study access to care for OHP beneficiaries and uninsured Oregonians, comparing ED use in the first three months after the cutbacks, versus use one year previously. This is a preliminary report of a project that will eventually analyze a full year of data after the OHP changes. However, given the need to evaluate the impact of the OHP changes as soon as possible, this preliminary report has been prepared, looking at the first three months of data.

The results raise concerns about access to care for under-insured Oregonians. In brief:

- **For the first three months of the reduction in OHP benefits, there was a 20% decrease in OHSU emergency department visits by OHP beneficiaries, an 8% decrease in visits by commercially insured patients, and a 17% increase in visits by the uninsured.**
- **Among Oregon OHP beneficiaries using the OHSU ED, the proportion in the fee-for-service (“open card”) program rose substantially, probably reflecting the increased number of fee-for-service beneficiaries in OHSU’s service area.**
- **Among ED patients with behavioral health problems (alcohol, chemical dependency, or other mental health diagnoses), there was a substantial rise in visits by the uninsured.**

Although these results do not allow direct “cause-and-effect” conclusions about the impact of the OHP changes on access to care, the data raise substantial concerns about access to medical care for Oregonians. Whatever the causes of the changed patterns of ED use, the increased use of the ED by the uninsured, especially for behavioral health problems, points to an urgent need to provide access to care for this population.

INTRODUCTION

The Oregon Health Plan (OHP) has made a dramatic contribution to access to medical care for Oregonians, adding an “expansion group” of approximately 100,000 beneficiaries to the 300,000 previously covered by Medicaid. The result was a substantial improvement in several measures of access to care.

Unfortunately, Oregon’s current fiscal crisis is forcing cutbacks in the OHP. Beneficiaries in the expansion group face newly implemented premiums and co-payments; they also face a reduction in the scope of covered services – including elimination of outpatient behavioral health and chemical dependency coverage. Further benefit reductions appear to be forthcoming. Therefore, it becomes essential to evaluate the impact of these cuts on access to care and on health outcomes.

The standard measures of access and health status, based on surveys or prospective cohort studies, require both time and substantial resources. Given the urgent need for data to shape policy, it is important to seek other methodologies that will provide information to policy-makers as rapidly as possible. This project draws on literature demonstrating the usefulness of emergency department (ED) utilization rates as a measure of access to primary care.¹⁻¹⁰ The ultimate goal of the project is to study a representative sample of Oregon EDs, to determine whether there are changes in utilization after the OHP cutbacks compared to the same time period in the preceding year. This project will require at least a year of data after the March, 2003, change in the OHP, plus additional time to process and analyze the data. However, as a preliminary report, we have analyzed the data for the first three months after the OHP changes (March, April, and May, 2003)¹, comparing ED use to the same months a year previously, at one hospital, Oregon Health & Science University (OHSU).

The study to date has determined ED utilization for the following groups:

- Overall ED visits
- ED visits by OHP beneficiaries
- ED visits by uninsured patients
- For each payer group:
 - ED visits for behavioral health, alcohol and chemical dependency diagnoses

¹ Changes in the OHP were implemented over several months. However, the most dramatic changes occurred in February and March, 2003. Therefore, March was chosen as the start date for the “post-change” period.

-
- ED visits for problems that could probably have been treated in traditional primary care settings, were these accessible
 - ED visits for emergencies that were potentially preventable with timely access to primary care

These findings may help to inform policy about the impact of OHP cutbacks on access and health status, providing data of use to policy-makers in Oregon and in other states facing similar decisions.

METHODS

Overview

This study utilizes the association between access to primary care and utilization of the ED to study the impact of OHP changes on access to care. Specifically, the time series study design compares patterns of ED utilization before and after the OHP changes, to determine whether there are changes in the diagnostic mix and payer mix of ED patients.

Study subjects

All patients seen in the OHSU ED in March, April and May, 2002, were compared to all patients seen in March, April, and May, 2003. In addition, graphs were prepared showing monthly utilization patterns for the period from March 1, 2002 through May 31, 2003.

Key variables

The predictor variable was whether the ED visit occurred before, or after, the change in OHP policy.

Each ED visit during the target time periods was evaluated, using computerized billing data from OHSU, to ascertain:

- Payment class
- Presence of specified ICD9 code diagnoses, grouped to represent:
 - Chemical dependency
 - Alcohol-related
 - Other behavioral health diagnoses
- Classification of the visit according to the Billings classification system¹⁰, as probability that the principal diagnoses represented:

-
- Not an emergency
 - Emergency, primary care treatable
 - Emergency requiring ED care but potentially preventable or avoidable with reliable access to primary care
 - Emergency, neither primary care-treatable nor preventable

These data allowed us to determine the association between changes in OHP and the following outcomes:

- Total volume of ED visits
- Volume of ED visits by OHP patients
- Volume of ED visits by self-pay (uninsured) patients
- Volume of ED visits by patients with behavioral health problems (divided into chemical dependency, alcohol-related, and other behavioral health problems)
- Volume of visits for problems that had $\geq 75\%$ probability of being treatable in traditional primary care settings, were these available, according to the Billings classification system (categories [a] and [b] above)
- Volume of ambulatory care sensitive ED visits, i.e. diagnoses that had $\geq 75\%$ probability of being emergencies that were potentially preventable with early access to primary care
- Volume of visits for diagnoses that had $\geq 75\%$ probability of being unavoidable emergencies

DATA ANALYSIS

Analyses compared numbers of patients before and after the changes in OHP. Diagnostic categories (outcomes # 4 through 7 above) were also evaluated separately for OHP beneficiaries and for the uninsured.

The change in number of ED visits (and subcategories of ED visits) from March through May, 2002 (pre-change), to March through May, 2003 (post-change), was calculated as a percentage difference:

$$\% \text{ change} = \frac{\text{number of visits in 2003} - \text{number of visits in 2002}}{\text{number of visits in 2002}}$$

(which, when negative, represents a reduction in visits in 2003 compared to 2002). Confidence intervals (95%) for these estimates were calculated by considering the number of ED visits in each month to be analogous to a measure of monthly incidence.²

ED billing data do not allow calculation of *rates* of ED visits, only of *numbers* of ED visits. These numbers or counts do not distinguish between an increase in the number of ED visits per person per month by OHP beneficiaries, versus an increase in the number of OHP beneficiaries – each using the ED at the same rate as before. Without statewide data on ED use and OHP enrollment data, it is impossible to determine actual rates of ED use. Because of unavoidable lags in data processing by providers, by OHP’s participating managed care organizations, and by the state, it will be a number of months before such data become available. Even then, data on the number of uninsured Oregonians and on the number of Oregonians covered by other insurers will not be available.

Therefore, in order to reflect the degree to which changes in the number of OHP enrollees might be responsible for changes in the number of ED visits by OHP enrollees, we calculated “standardized ED visits,” dividing the number of ED visits by OHP enrollees to OHSU in each month by the number of OHP enrollees in the tri-county area (Clackamas, Multnomah, and Washington Counties) as of the first date of each month. This geographic area was selected because, during the 15 months of the study, 92% of visits to OHSU’s ED by OHP enrollees were by residents of the tri-county area. It is important to understand that these adjusted numbers do not represent ED utilization rates, because many OHP enrollees in the tri-county area who seek ED care are treated at EDs other than OHSU, and because 8% of OHP-funded visits to OHSU’s ED are by residents of other Oregon counties. Nevertheless, these standardized visit numbers are expected to adjust for changes in OHP enrollment. Unless there are substantial changes in OHP beneficiaries’ selection of OHSU versus other EDs, any changes in these standardized numbers should mirror changes in actual ED utilization rates. In order to compare standardized counts for March, April and May, 2002, with the same months of 2003, the mean number of visits per month for each three-month period was divided by the median number of enrollees on the first day of the three months. Relative rates are presented along with 95% confidence intervals (although, as noted above, the figures are not truly rates but rather adjusted or standardized counts). Although comparing ED use for OHP Standard versus OHP Plus beneficiaries is a goal of the project, these findings are not

² For purposes of this calculation, the numbers of person-months “at risk” for having an ED visit during those months was treated as equivalent in the two time periods. The difference in the numbers of ED visits made in the months before and after the change in OHP was then calculated using statistical methods appropriate for comparing incidence rates, and 95% confidence intervals were computed using exact methods. (This approach leads to a valid estimation of the confidence interval around the percentage change in the number of ED visits, even though it neglects the actual change in OHP enrollment over time.)

included in the present report because data on the number of OHP Standard and OHP Plus enrollees in the tri-county area are not yet available.

As described in the Results section below, not all ED visits could be classified using the Billings categories. Therefore, in comparing the Billings categories over time the proportion of ED visits was compared using the chi square test.

RESULTS

Figures 1A and 1B show the number of OHSU emergency department visits by payer class for each month from March, 2002, through May, 2003. In March through May, 2002, there were 4,624 visits by Oregon Health Plan health maintenance organization (HMO) and fee-for-service (FFS) beneficiaries combined, compared to 3,722 in the same months of 2003 (a reduction of 20%, 95% confidence interval 16% to 23%). Visits by commercially insured patients fell from 3377 to 3112, an 8% decrease in ED use (95% CI 3% to 12%). Dividing the commercially insured patients into subgroups, commercial managed care visits fell from 2,503 to 2,289 (9% decrease, 95% CI 3% to 14%), while commercial fee-for service visits were essentially unchanged (falling from 874 to 823, a statistically insignificant 6% decrease, 95% CI 14% decrease to 4% increase). Visits by Medicare beneficiaries were essentially unchanged (falling from 1,329 to 1,317, a statistically insignificant 1% decrease, 95% CI 8% decrease to 7% increase). In contrast, the number of visits by uninsured patients rose from 2,064 to 2,406 (17% increase, 95% CI 10% to 24%).

Figures 1A and 1B also show the categories of OHP beneficiaries. Fee-for-service OHP visits rose from 1,249 to 1,466 (17% increase, 95% CI 9% to 27%), while managed care fell from 3,375 to 2,256 (33% decrease, 95% CI 30% to 37%). As shown in Figure 2, when ED utilization is standardized based on the number of enrollees in the tri-county area, the pattern of decreasing ED use for OHP beneficiaries persists. For every 1,000 OHP beneficiaries, there were 9.7 ED visits/month in March through May, 2002 and 8.1 visits/month in the same months of 2003 (RR 0.83, 95% CI 0.77 to 0.90). Because the number of FFS beneficiaries rose from a median of 63,182 in March through May, 2002, to a median of 73,583 in March through May, 2003, standardizing the ED visits eliminates the apparent increase in ED use among OHP FFS beneficiaries.

Figure 3 shows changes in ED visits that listed a behavioral health diagnosis. During the 15 months of data accrual, among all patients coming to the OHSU ED, there were 2,318 visits with mental health diagnoses, 808 visits with alcohol-related diagnoses listed, and 382 visits with chemical dependency diagnoses. Alcohol-related visits increased from 158 in March-May, 2002 to 199 in March-May, 2003 (26% increase, 95% CI 2% to 56%). Chemical dependency visits rose from 54 to 79 (46% increase, 95% CI 2% to

111%). However, other mental health visits remained nearly constant (472 in 2002 versus 466 in 2003).

Of 54,922 total ED visits over the 15 month period, only 25,476 (46%) were for non-injury, non-behavioral health problems, had principal diagnoses that exist in the Billings algorithm, and were assigned probabilities by that algorithm that allowed them to be assigned to a category (i.e., $\geq 75\%$ probability of falling into one of the three categories). There was no significant change in the proportion of ED visits in each category between the two time periods.

Figures 4, 5, and 6 show ED visits by uninsured patients and by OHP beneficiaries for mental health (not including alcohol and chemical dependency problems), alcohol-related and chemical dependency diagnoses. For each condition, there was a small, statistically insignificant change in the number of ED visits among OHP beneficiaries, accompanied by a large, statistically significant rise in ED visits among the uninsured. For OHP beneficiaries, mental health visits fell from 194 to 171 (12% decrease, 95% CI 29% decrease to 9% increase); alcohol-related visits fell from 73 to 69 (5% decrease, 95% CI 33% decrease to 33% increase); and drug-related visits rose from 23 to 36 (57% increase, 95% CI 10% decrease to 176% increase). For uninsured patients, mental health visits rose from 75 to 103 (37% increase, 95% CI 1% to 87%); alcohol-related visits rose from 33 to 78 (136% increase, 95% CI 55% to 267%); and drug-related visits rose from 9 to 27 (200% increase, 95% CI 37% to 625%). However, when OHP FFS visits were examined separately from OHP managed care, there were rises in visits for each category. Mental health visits by fee-for-service patients rose from 67 to 101 (51% increase, 95% CI 10% to 108%); alcohol-related visits rose from 23 to 35 (52% increase *not* statistically significant, 95% CI 13% decrease to 170% increase); and drug-related visits rose from 10 to 26 (160% increase, 95% CI 23% to 504%).

There were no significant changes in the proportions of ED visits classified as primary-care treatable, potential avoidable emergency, or unavoidable emergency among either OHP beneficiaries or the uninsured.

DISCUSSION

This preliminary analysis of patients seeking care in the OHSU emergency department raises concerns about access to care for under-insured Oregonians. For the first three months of the reduction in OHP benefits, there was a 20% drop in emergency department visits by OHP beneficiaries, an 8% drop in use by commercially insured patients, and a 17% rise in visits by the uninsured. Among OHP beneficiaries using the OHSU ED, the proportion in the fee-for-service (“open card”) program rose substantially, consistent with the increased numbers of fee-for-service beneficiaries in the tri-county area. Among ED

patients with behavioral health problems (alcohol, chemical dependency, or other mental health diagnoses), there was a substantial rise in visits by the uninsured.

That patients are using the ED for lack of access to care elsewhere is no surprise to emergency medicine clinicians. OHSU's emergency department has recently treated patients such as the following:

- A man who had been on methadone maintenance for his narcotic dependence. He began using heroin after the OHP ceased covering his chemical dependency treatment. He came to the hospital with multiple skin abscesses.
- A woman who had been to two other providers seeking care for her depression but was told that they could not help her find treatment because she was on OHP.
- A six-year-old boy who had stuck himself with the discarded "works" – the needle used by a drug user – which he found while playing on the grounds outside a church. His mother delayed bringing him to the ED for several days because she was trying to find a primary care provider who would take her son's OHP card. (By the time he came to the ED, it was too late to provide preventive treatment against HIV infection.)
- A one-year-old child, covered by the OHP, who accidentally swallowed his mother's diabetes medication and was at risk for a life-threatening fall in his blood sugar. His care was delayed because of his mother's fear that she would have to pay out of pocket.
- An OHP beneficiary with a history of high blood pressure who lost his medication benefit and could not obtain his medications. He came to the ED with his blood pressure markedly elevated, in severe heart failure. He required hospitalization in the Medical Intensive Care Unit.

These examples are chosen because they illustrate several of the problems that OHP beneficiaries face. The first two cases illustrate the impact of loss of behavioral health benefits for the OHP Standard population. Case #3 illustrates problems finding a primary care provider who will accept OHP. Case #4 illustrates the impact of beneficiaries' and providers' confusion about the cutbacks because, in fact, there were no changes in coverage for children that would have reduced ambulance coverage. Given that pharmacy benefits for OHP Standard beneficiaries were only eliminated for two weeks in March, it is unclear whether Case #5 illustrates an impact of these cutbacks or another example of insufficient information about the cutbacks, with very tangible adverse effects on the patient and increased costs to the system.

In preparing this report, we are aware of limitations of our data and analysis. The ideal analysis would look at *rates* of ED use for these conditions; however, denominators are

not readily available. Therefore, the most informative analysis is to look at absolute *numbers* in each group. However, this limitation would only bias the study results if there were dramatic shifts in the population residing in the catchment area of the study hospital over the short time period of the study. When ED utilization numbers were adjusted for numbers of beneficiaries in the tri-county area, the results were changed only slightly.

A second concern is that these data are from only one of over fifty emergency departments in Oregon. It is possible that experiences have been different elsewhere. The largest OHP managed care organization in the Portland area dropped OHP Standard coverage in March, leading to a large increase in fee-for-service beneficiaries in OHSU's service area. Some other Oregon communities also experienced loss of managed care coverage for OHP Standard; this pattern may or may not be typical statewide. However, this phenomenon would not affect the study's findings regarding uninsured patients, nor would it explain the difference in ED visits between OHP and uninsured patients for behavioral health diagnoses. To argue that these findings at OHSU were atypical of statewide patterns, one would have to argue that access to medical care is much better among patients served by other hospitals. We are seeking resources to expand this study to a representative group of Oregon EDs.

The third potential limitation of this study is that only three months of post-cutback data are presented. It is possible that instability introduced by the OHP changes will resolve, with improved access and reduced use of the ED by under-insured and uninsured Oregonians. However, the trend lines in Figures 1-6 do not appear to show flattening over time.

We are aware of two potential technical problems with the data. First, diagnoses of alcohol and drug use appear to be under-reported in the data. It is the impression of OHSU emergency physicians that more than 808 patients with alcohol-related problems and 382 patients with chemical dependency diagnoses were seen during this time period. In conversations with the administrative staff who abstract medical records for billing purposes, these staff confirm that alcohol and drug-related diagnoses may be omitted if other clinical conditions are also present and are more relevant for billing purposes. However, billing staff report that they have not changed their approach to coding diagnoses over the last two years, and they code all charts using the same approach, regardless of patient insurance type. Therefore, while billing practices may underestimate the numbers of behavioral health diagnoses, it is highly likely that the differences between insurance categories over time are real, rather than being related to billing practices.

The second technical problem is that there is the potential for data artifact due to the short interval between the ED visits studied and the date of this analysis. Insurance status in the

dataset is updated after payments are received. While payments are pending, it is possible that insurance status is mis-coded as uninsured or OHP FFS when, in fact, patients have OHP managed care. However, in analyses of behavioral health visits by payer class that are limited to “older” data, comparing March and April, 2002 with the same months of 2003 (and omitting May), results are similar to those presented.

Because of these potential limitations and technical issues, it will be important to continue this project over the coming year – collecting more data from OHSU and, we hope, from other Oregon EDs.

CONCLUSION

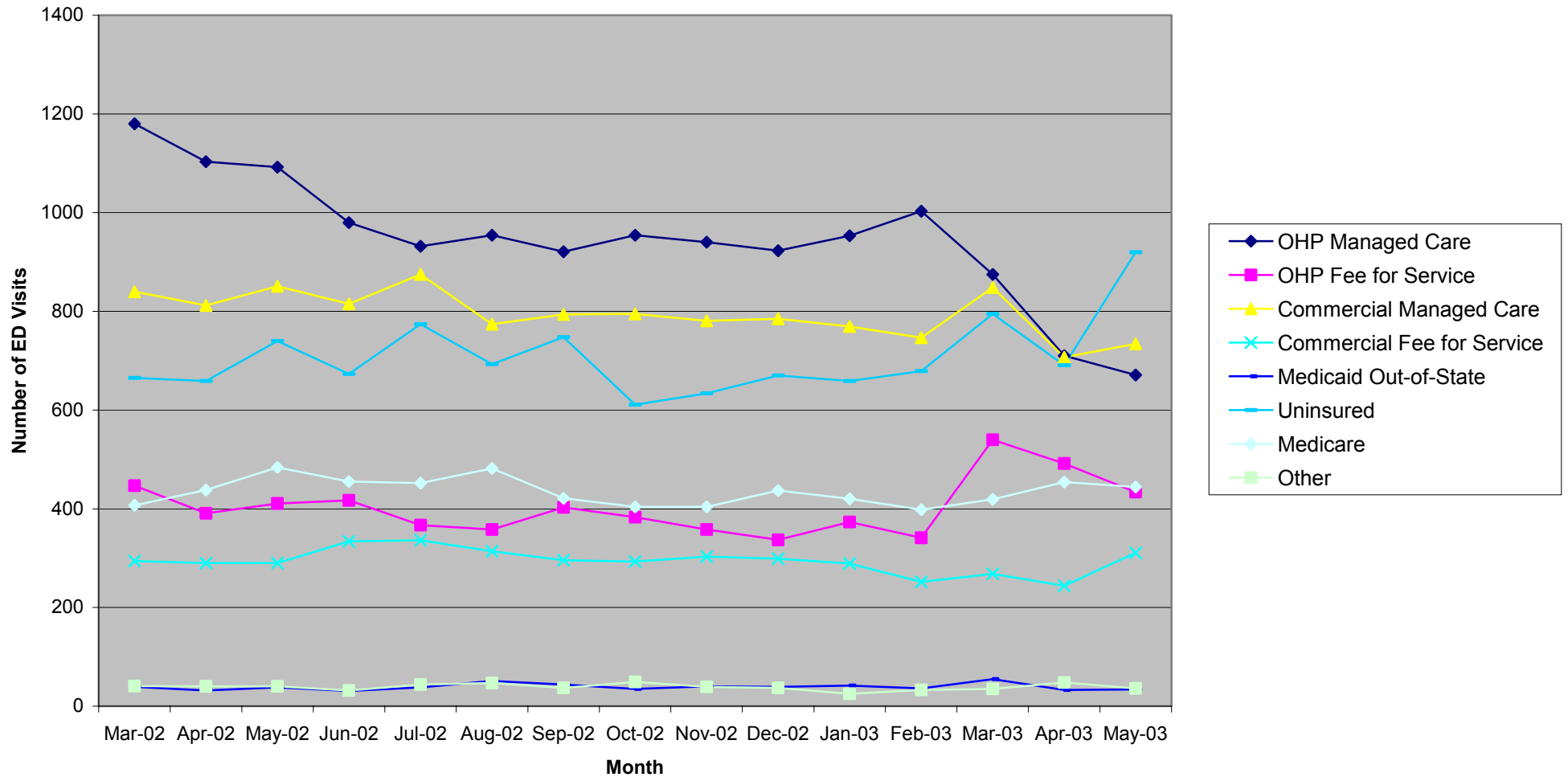
The rise in ED visits among the uninsured may be due to OHP cutbacks, but it may also be due to loss of commercial insurance or to decreased availability of non-ED “safety net” clinics serving uninsured patients. Whatever the cause of increased ED visits among uninsured patients, this finding points to a worrisome reduction in access to medical care for uninsured Oregonians.

Further analyses conducted over the next twelve months will enrich our understanding of the impact of the OHP cutbacks. However, we believe that existing data raise substantial enough concerns about the impact of the cutbacks that it would be irresponsible to delay action for “definitive results.” There is an urgent need to provide access to primary care, behavioral health care, and hospital-based care for uninsured and under-insured Oregonians.

REFERENCES

1. Weinick RM, Billings J, Burstin HR. What is the role of primary care in emergency department overcrowding? *Presented at the Council on the Economic Impact of Health System Change*. 2002.
2. Baker DW, Stevens CD, Brook RH. Determinants of emergency department use: are race and ethnicity important? *Ann Emerg Med*. Dec 1996;28(6):677-682.
3. Dinkevich EI, Cunningham SJ, Crain EF. Parental perceptions of access to care and quality of care for inner-city children with asthma. *Journal of Asthma*. 1998;35(1):63-71.
4. Cunningham PJ, Clancy CM, Cohen JW, Wilets M. The use of hospital emergency departments for nonurgent health problems: A national perspective. *Medical Care and Research Review*. 1995;52(4):453-474.
5. Bindman AB, Grumbach K, Osmond D, et al. Preventable hospitalizations and access to health care. *JAMA*. 1995;274(4):305-311.
6. Gill JM. Improving access to care for the uninsured: lessons from across the nation. *Del Med J*. Dec 2001;73(12):467-470.
7. Malone RE. Heavy users of emergency services: Social construction of a policy problem. *Social Science & Medicine*. 1995;40(4):469-477.
8. Markson LE, Houchens R, Fanning TR, Turner BJ. Repeated emergency department use by HIV-infected persons: effect of clinic accessibility and expertise in HIV care. *Journal of Acquired Immune Deficiency Syndromes & Human Retrovirology*. 1998;17(1):35-41.
9. Richardson LD, Hwang U. Access to care: a review of the emergency medicine literature. *Acad Emerg Med*. Nov 2001;8(11):1030-1036.
10. Billings J, Parikh N, Mijanovich T. Emergency room use: The New York story. Commonwealth Fund Issue Brief. 2000 (November).

**Figure 1A:
Payer Mix by Month (OHSU ED)**



**Figure 1B:
Payer Mix by Month (OHSU ED)**

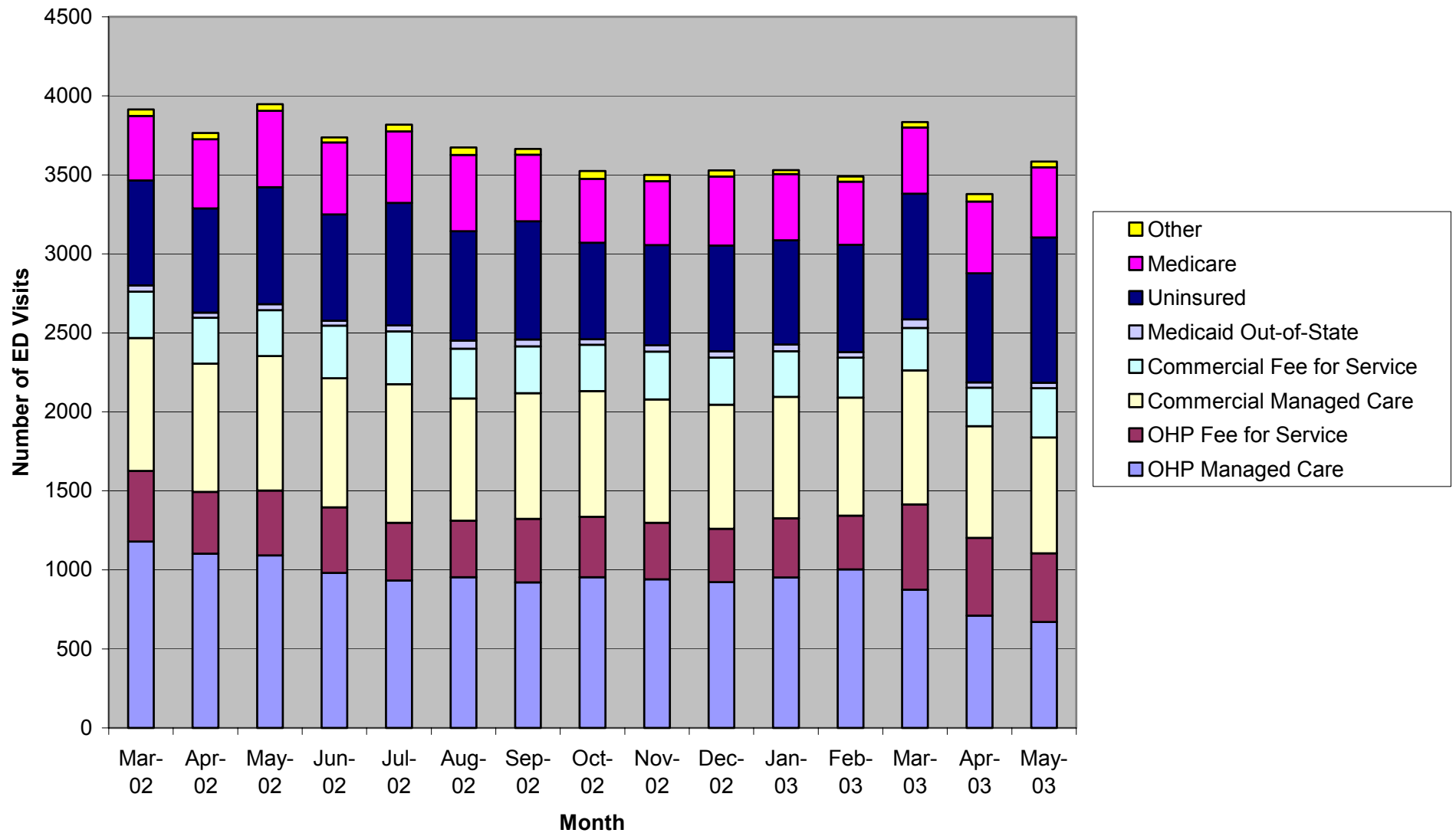
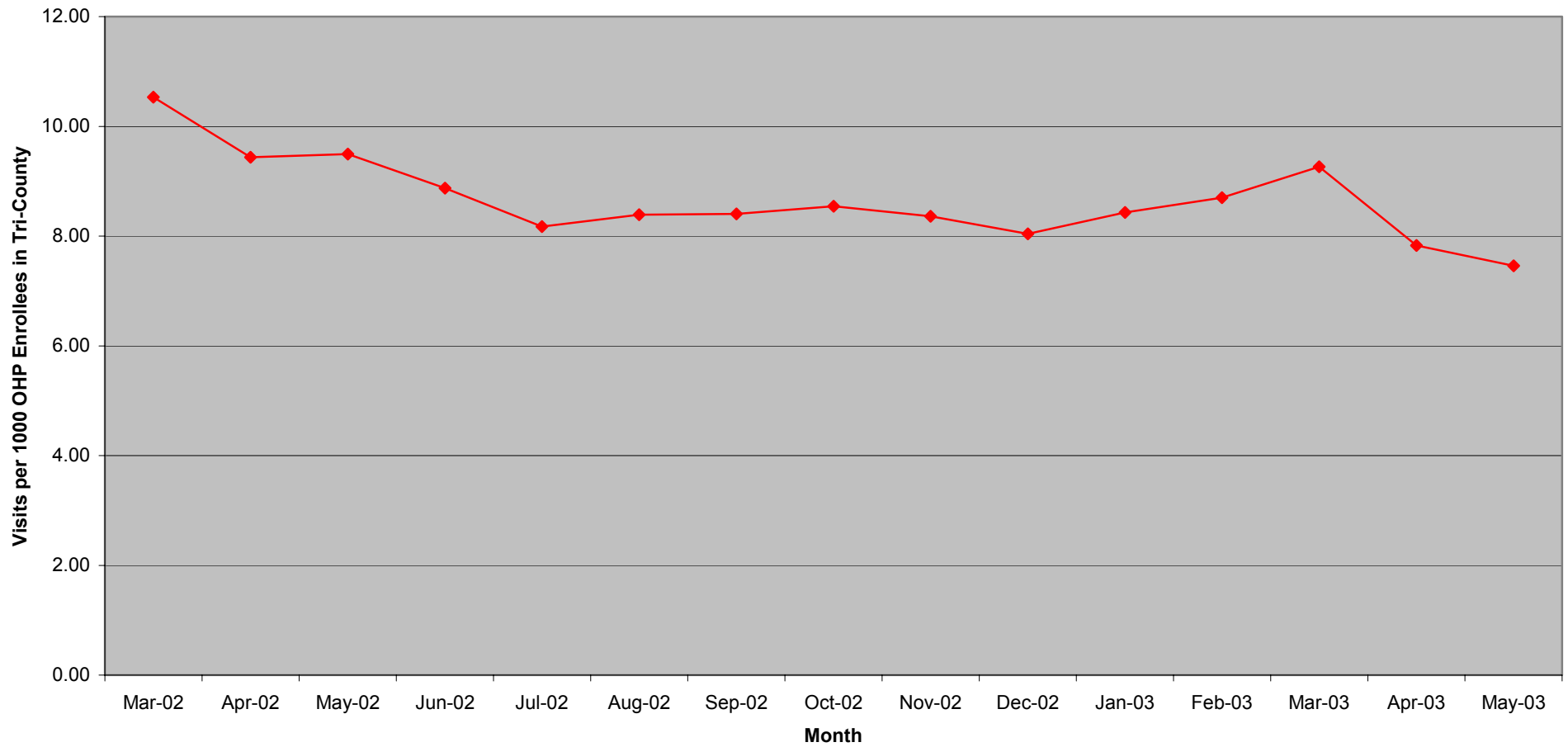


Figure 2:
Standardized ED Visits for OHP Beneficiaries (OHSU)



**Figure 3:
Behavioral Health Visits (OHSU ED)**

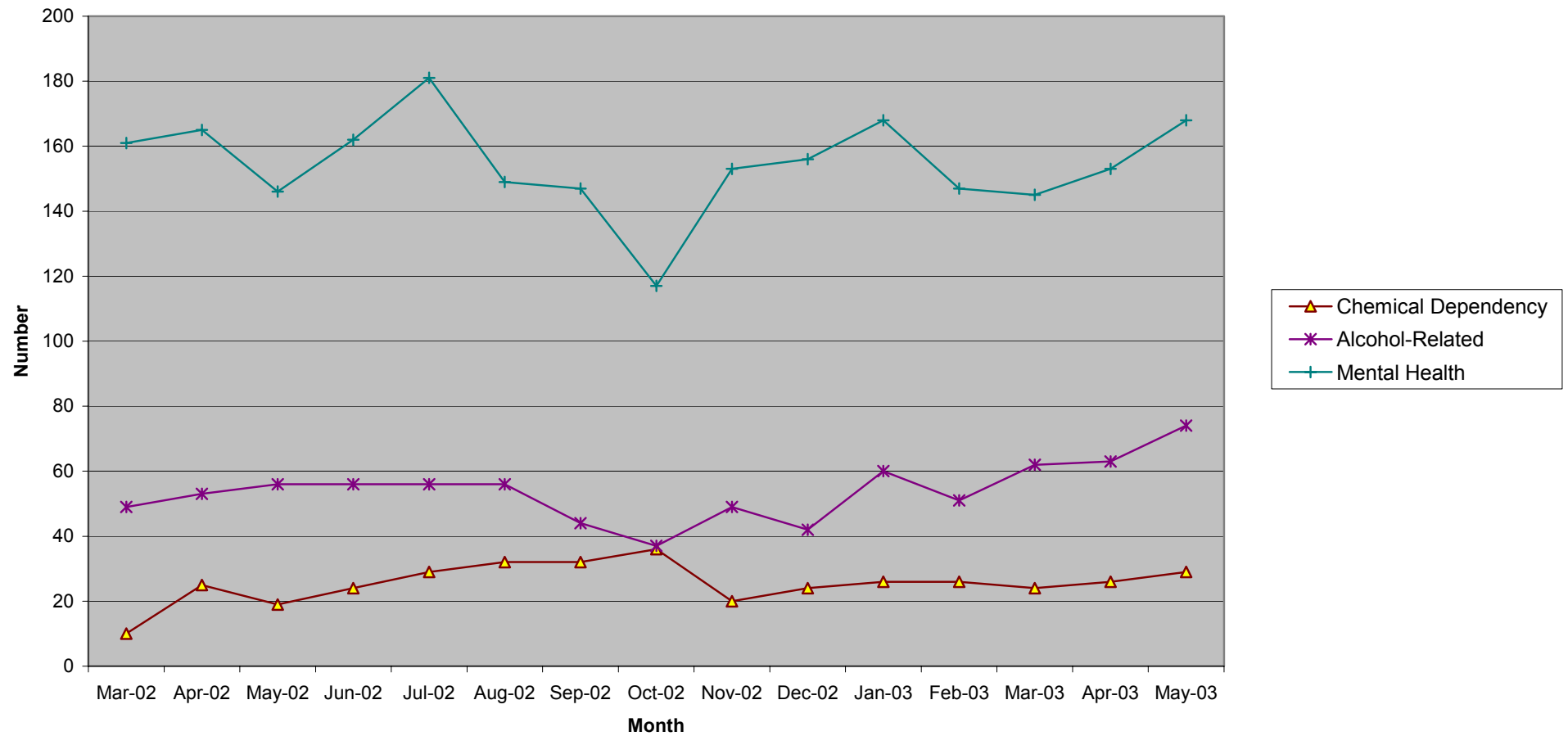


Figure 4:
Mental Health Visits by Uninsured and Oregon Health Plan Beneficiaries (OHSU ED)

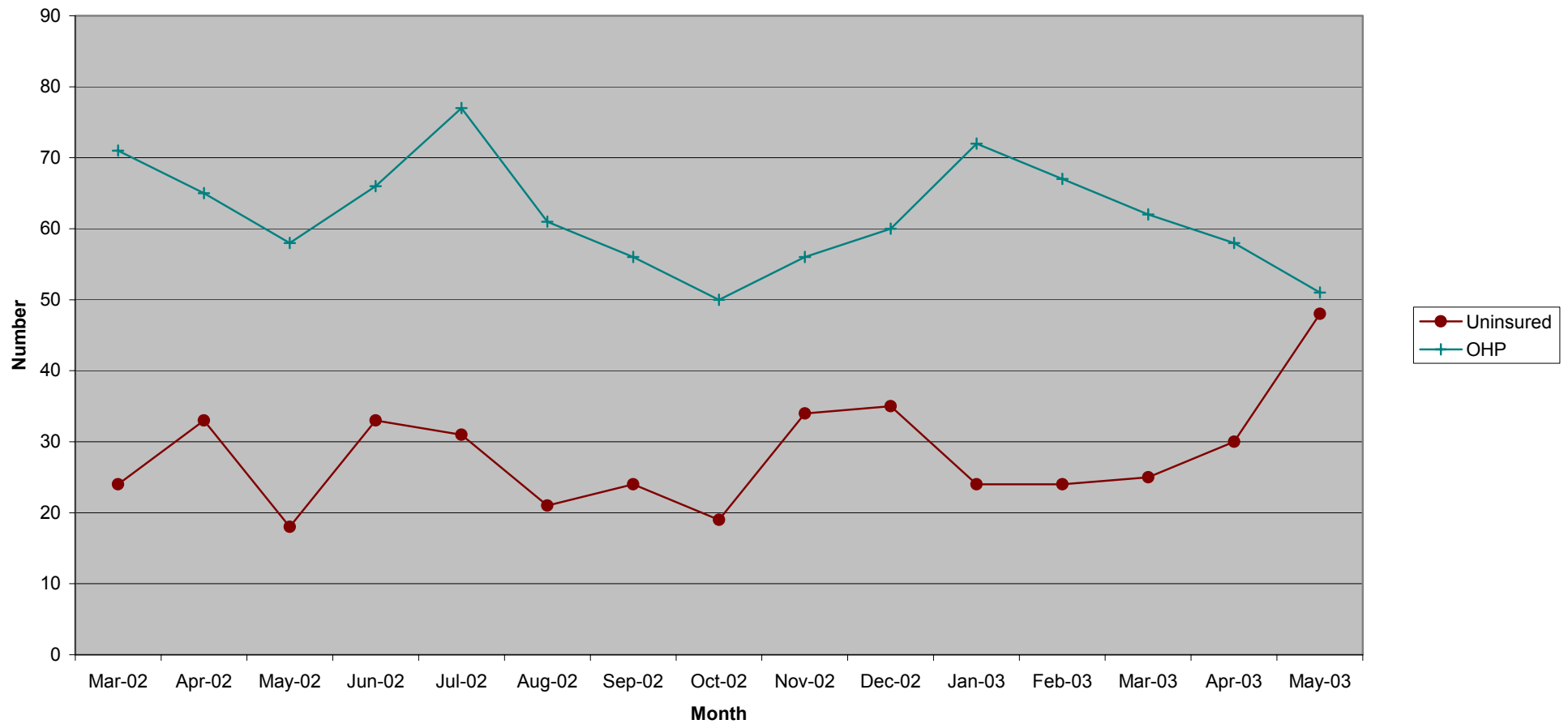


Figure 5:
Alcohol-Related Visits by Uninsured and Oregon Health Plan Beneficiaries (OHSU ED)

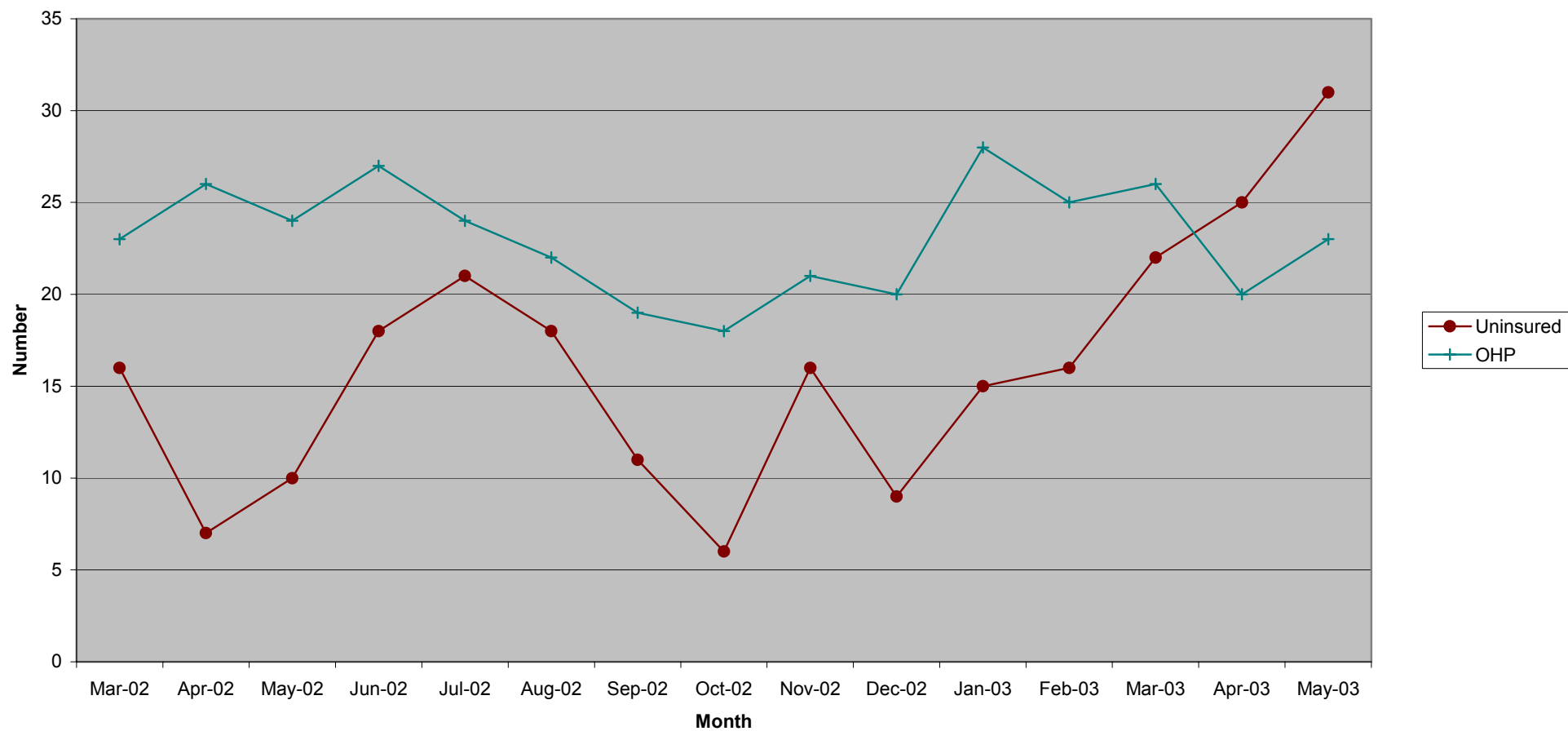


Figure 6:
Drug-Related ED Visits by Uninsured and Oregon Health Plan Beneficiaries (OHSU ED)

