Annual Review of Experience for:

City of Boston

July 2016 – June 2017

Harvard Pilgrim Health Care

Harvard Pilgrim Health Care

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1. Report Background

1.1 Reporting Time Period

This report provides detailed data and analysis of City of Boston's performance, including membership, medical cost and utilization, and pharmacy cost and utilization.

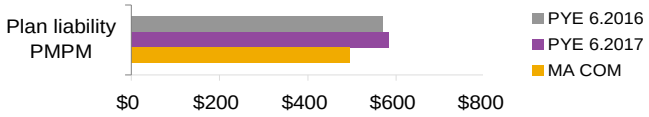
- Reporting period (services incurred) PYE 6.2017
- Runout period (paid through) August 2017 (current period).

1.2 Benchmarks

Unless noted otherwise, City of Boston's experience is compared to Harvard Pilgrim's commercial book of business (HPHC Plan) for the incurred period calendar year 2016.

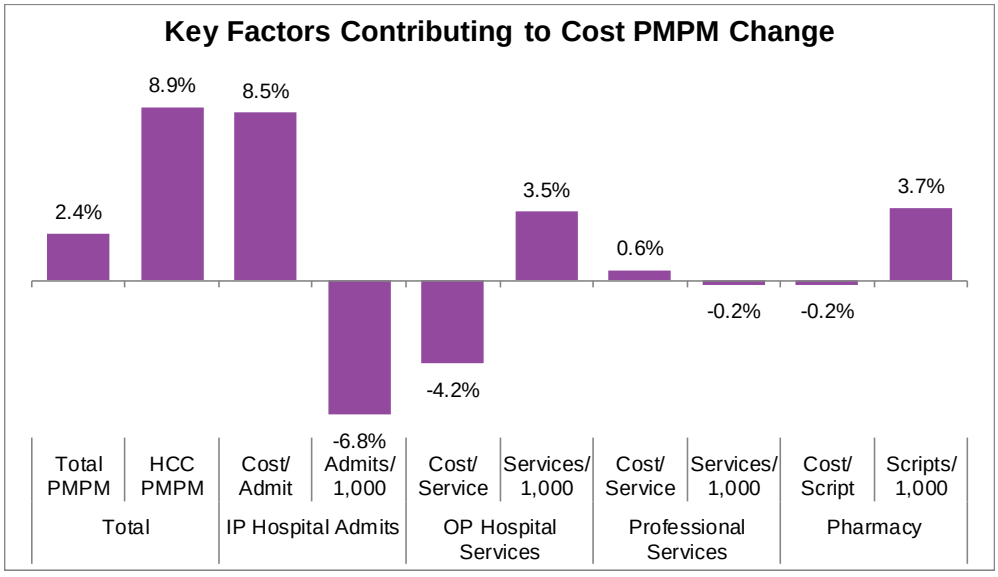
2. Summary of Findings

2.1 Summary of Experience



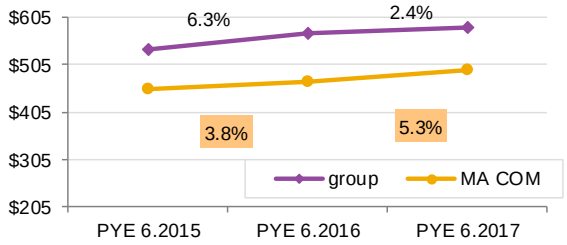
Total PMPM Costs	**$584.75**
Medical PMPM Costs	$484.67
Pharmacy PMPM Costs	$100.08
Total PMPM Cost Change v. Prior Period	2.4%

2.2 Key Factors Contributing to PMPM Change



The following graphs summarize key metrics for City of Boston, showing trends for three years and comparing to Harvard Pilgrim Plan benchmarks where appropriate.

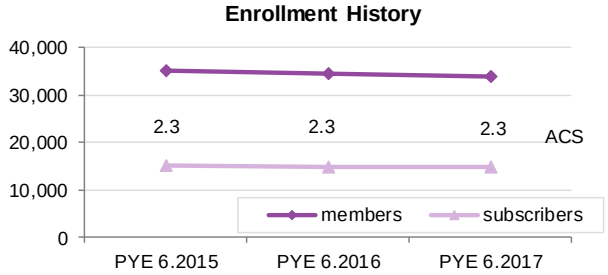
PMPM Claims Costs



The City of Boston's PMPM costs increased 2.4% from PYE 6.2016 to PYE 6.2017. The annualized trend from PYE 6.2015 to PYE 6.2017 was an increase of 4.4%.

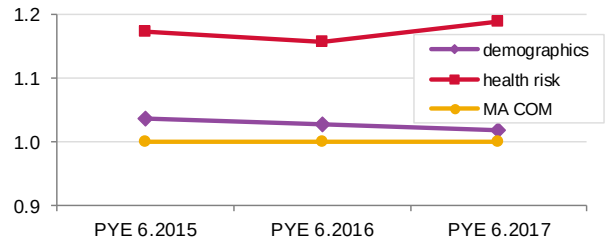
Boston's costs remain above the Plan average in PYE 6.2017.

Enrollment History



Membership has decreased slowly from PYE 6.2015 to PYE 6.2017. It has remained steady, which allows for reasonable comparisons between policy years.

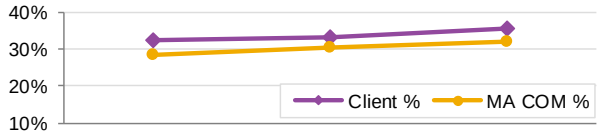
Risk Indicators

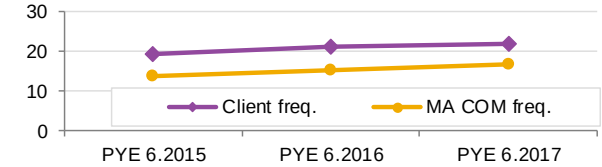


The demographic risk has slightly decreased from PYE 6.2015 to PYE 6.2017, while the health risk has risen over the same period. Both risk scores remain above the average of 1.0.

The health risk is higher than the demographic risk score, which indicates members are less healthy than their age and gender would indicate.

High Cost Claims: % of Total and Frequency

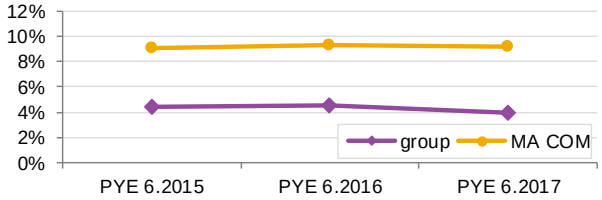




High cost claimants were responsible for a larger share of overall costs in PYE 6.2016 as in PYE 6.2017. The City of Boston's experience has been close to the Plan average for the past two years.

The frequency of high cost claimants increased slightly in PYE 6.2017 and is currently above the Plan benchmark in terms of frequency.

Member Cost Share



At only 3.9% the City of Boston's member liability is well below the Plan average of 9.2%.

3. Membership

The demographics of a population influence plan performance. To fully understand and evaluate claims costs, utilization experience, and trends it is important to review membership composition over time.

3.1 Key Membership Metrics

	PYE 6.2016	PYE 6.2017	Variance v. Prior	Present
Subscribers*	14,909	14,704	-1.4%	14,745
Spouses*	6,973	6,876	-1.4%	6,918
Children*	12,638	12,383	-2.0%	12,392
Total Members*	**34,520**	**33,963**	**-1.6%**	**34,055**
Average Monthly Subscribers	15,065	14,837	-1.5%	14,745
Average Monthly Enrollment	34,819	34,273	-1.6%	34,055

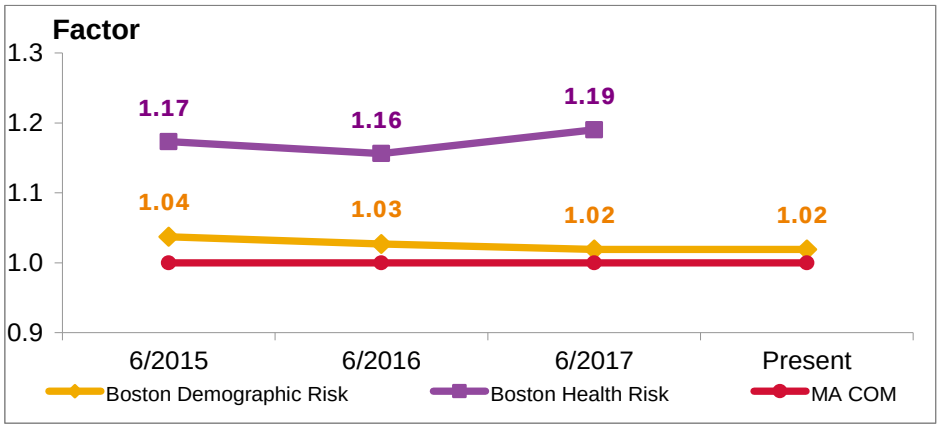
* Total number of members at end of period

The number of members in the current period was relatively consistent with membership in the prior period. A stable membership makes comparisons across time periods more valid.

Note that this measures only the average number of members in the reporting periods. Even if the total membership does not change materially, there still may be significant turnover of people as members come in and out of the plan.

Your Harvard Pilgrim analyst reviews your membership for changes throughout the year. If large differences are found, further analytic work is completed to understand the likely impacts on cost and utilization.

3.2 Demographic (Age/Gender) and Health (Relative Risk) Factors



With a demographic risk factor, somewhat less than the health risk score, the population's illness burden is greater than expected for their demographics. In other words, they are relatively unhealthy for their age.

The ***demographic (age/gender) factor*** is an actuarially determined index that identifies the overall cost characteristics of a group relative to the HPHC Plan population based on the group's demographic profile. Given a Plan index of 1.0, the factors calculated for a group estimate the cost percentage point differential expected for the group in relation to the Plan. For example, a group factor of 1.10 indicates the group is likely

to cost 10% more than Plan; a factor of 0.90 would indicate the group may cost 10% less than Plan. Similarly, changes in the age/gender factors over time would be expected to be reflected in both the group's own costs and its relativity to Plan.

The ***health (relative risk) factor*** is an index of the risk of resource utilization based on the diagnoses associated with the population in the period examined. The health risk details changes in a group's illness burden over time and its relation to the average illness burden of HPHC Plan.

3.3 Current Membership Profile

	Boston	MA COM	Industry
Members as of 8/2017	34,055	--	--
Subscribers as of 8/2017	14,745	--	--
Average Age	35.4	35.6	36.8
Demographics (Age/Gender)	1.02	1.00	1.13
Health Risk YE 6/2017	1.19	1.00	1.18
Average Contract Size	2.3	2.2	2.3
Average Family Size*	3.4	3.3	3.3
% Female Members	52.0%	51.8%	52.0%
% Women Aged 20 to 44	18.5%	19.4%	17.3%
% Individual Contracts	45.2%	48.0%	42.6%
Members 40 or Older	45.4%	45.6%	49.1%
Members 19 or Younger	27.0%	25.2%	25.2%

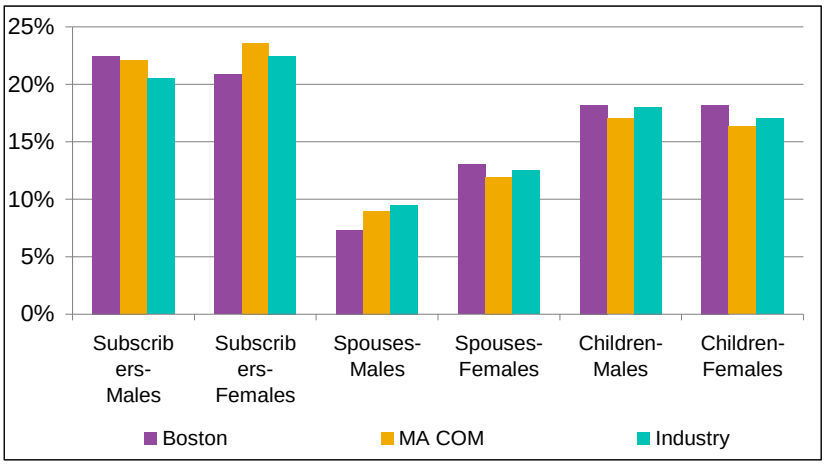
* all non-individual contracts

City of Boston covers more dependents per subscriber than average. A larger population of members will lead to higher total costs for Boston. Boston's employee contribution policy may be encouraging this. Boston may want to review its contribution policy and ensure that the proper incentives are in place.

The percentage of female members is similar to the average.

3.4 Current Membership Profile by Member Type and Gender

Member Type	Average Age	% of Members			MA COM--% of Members		
		Males	Females	Total	Males	Females	Total
Subscriber	48.2	22.5%	20.8%	**43.3%**	22.1%	23.6%	**45.7%**
Spouse	48.5	7.3%	13.0%	**20.3%**	9.0%	12.0%	**21.0%**
Dependent	13.1	18.2%	18.2%	**36.4%**	17.0%	16.3%	**33.3%**
Total	**35.4**	**48.0%**	**52.0%**	**100.0%**	**48.2%**	**51.8%**	**100.0%**



Of all female adults (employee or spouse) in the population, 62% are employees. Given that most of the female adults are employees, worksite communication efforts may be the most effective.

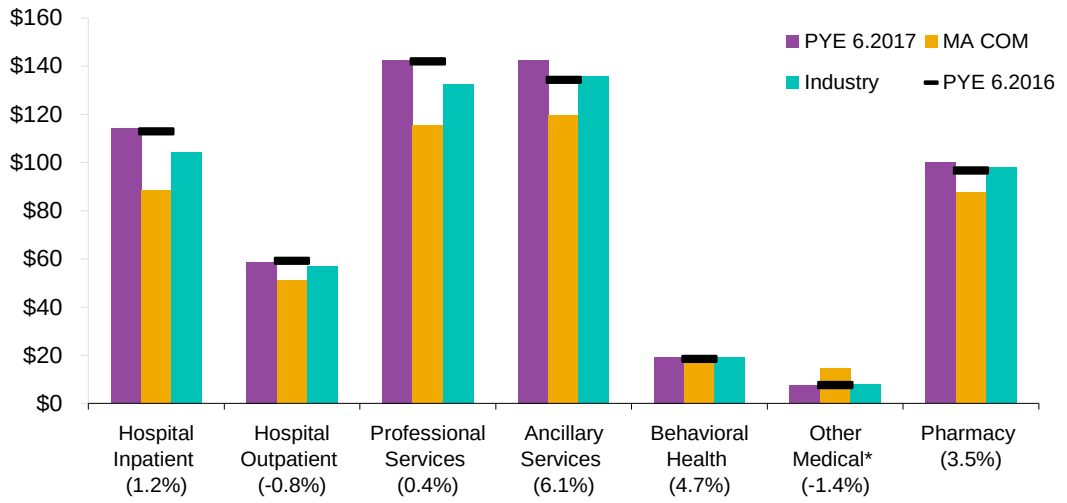
4. Cost and Utilization

This section provides information on costs and utilization in total and by service type. Evaluating changes in costs by different service types provides insight into which of these service types drive overall costs (inpatient, outpatient, pharmacy), and whether the increases are due to increases in cost (average cost per service) or utilization (services per member).

In addition, this section evaluates the types of diseases and conditions faced by the population and what percentage of costs goes to treat these diseases and conditions. This information indicates opportunities for disease and wellness initiatives.

4.1 Total Employer-paid Costs

	PYE 6.2016	PYE 6.2017	Cost Variance v. Prior	% Variance v. Prior	MA COM	% Variance v. Plan	Industry	% V v. Ir
Total Costs	$238,584,007	$240,494,499	$1,910,492	0.8%	-	-	-	
Total Costs PMPM	**$571.01**	**$584.75**	**$13.74**	**2.4%**	**$494.33**	**18.3%**	**$554.51**	
Total Medical Costs PMPM	$474.33	$484.67	$10.34	2.2%	$406.66	19.2%	$456.63	
Hospital Inpatient	$112.86	$114.18	$1.32	1.2%	$88.68	28.8%	$104.50	
Hospital Outpatient	$59.16	$58.68	($0.49)	-0.8%	$51.00	15.1%	$56.78	
Professional Services	$141.99	$142.52	$0.53	0.4%	$115.43	23.5%	$132.40	
Ancillary Services	$134.26	$142.48	$8.22	6.1%	$119.85	18.9%	$135.71	
Behavioral Health	$18.47	$19.34	$0.86	4.7%	$16.96	14.0%	$19.29	
Other Medical*	$7.58	$7.48	($0.10)	-1.4%	$14.74	-49.2%	$7.96	
Total Pharmacy Costs PMPM	$96.67	$100.08	$3.40	3.5%	$87.68	14.1%	$97.88	



** NOTE that Other Medical costs seem lower for Boston than the Plan average. This is because the Plan benchmark includes fully-insured as well as self-insured groups, and this line item includes some costs that may or may not exist for*

self-insured groups (Other Medical includes capitation, Other Provider Payments, Medical and Practice Management, MA Health Safety Net, and out-of-area access fees).

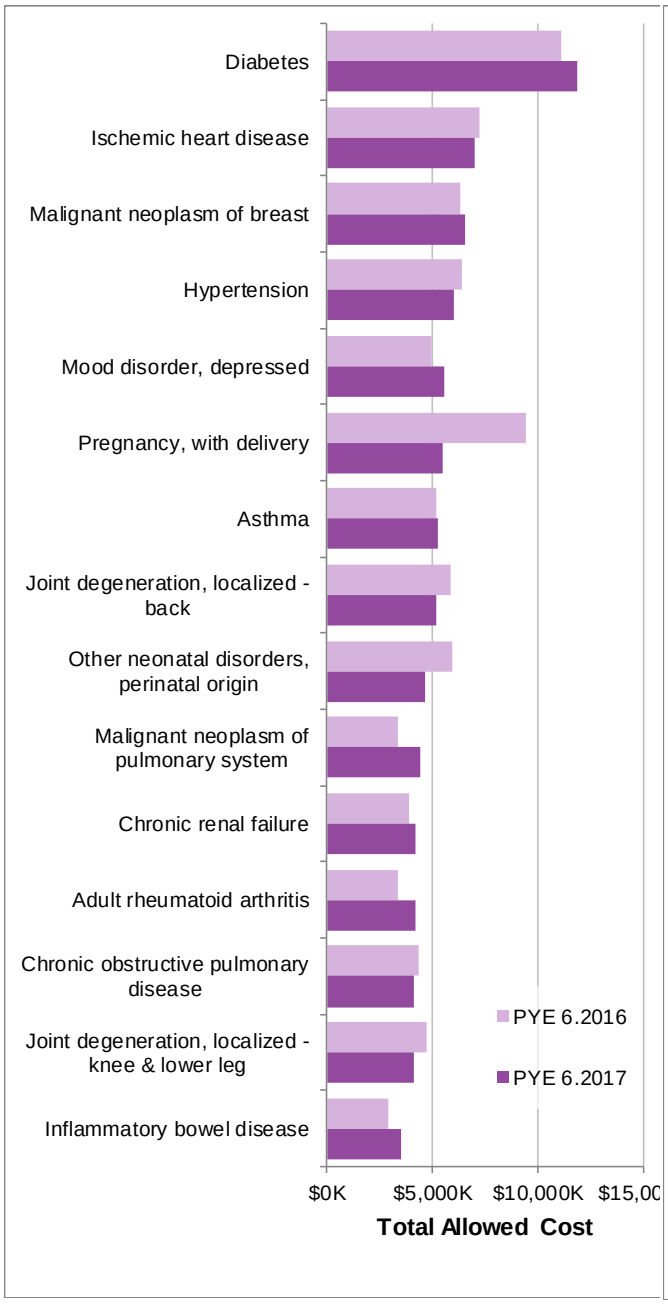
Total PMPM costs increased 2.4% in the current period. This increase was due to an increase in medical claims costs PMPM of 2.2% and an increase in pharmacy claims costs PMPM of 3.5%.

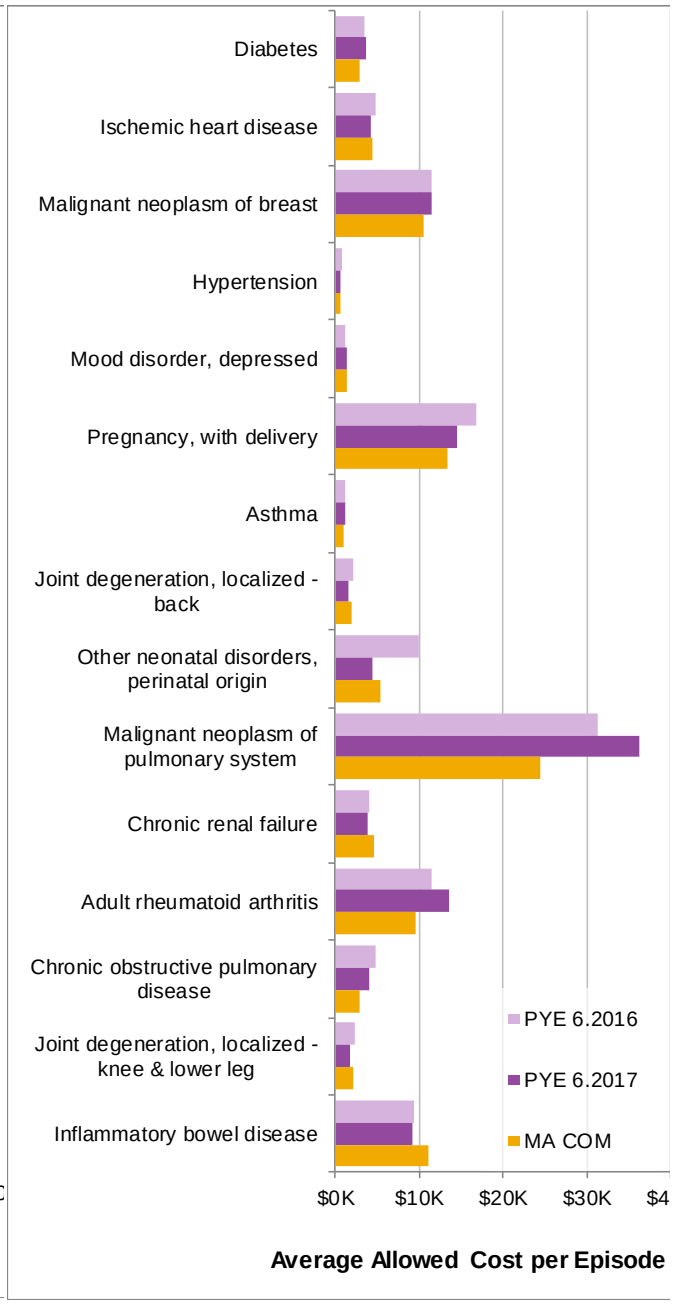
Total PMPM costs in the current period were greater than Plan average.

Note that variances of at least 20% in either direction are highlighted as follows: if at least 20% higher, the figure is shaded gold; if at least 20% lower, the figure is shaded green.

Differences between group and Plan, for both PMPM costs and percent change, may be driven by many different factors. Demographics, illness burden, geography, industry, plan design, catastrophic claims, and behavior patterns can all affect costs and trends. Random variation and chance are also strong forces for smaller populations (<5,000 members).

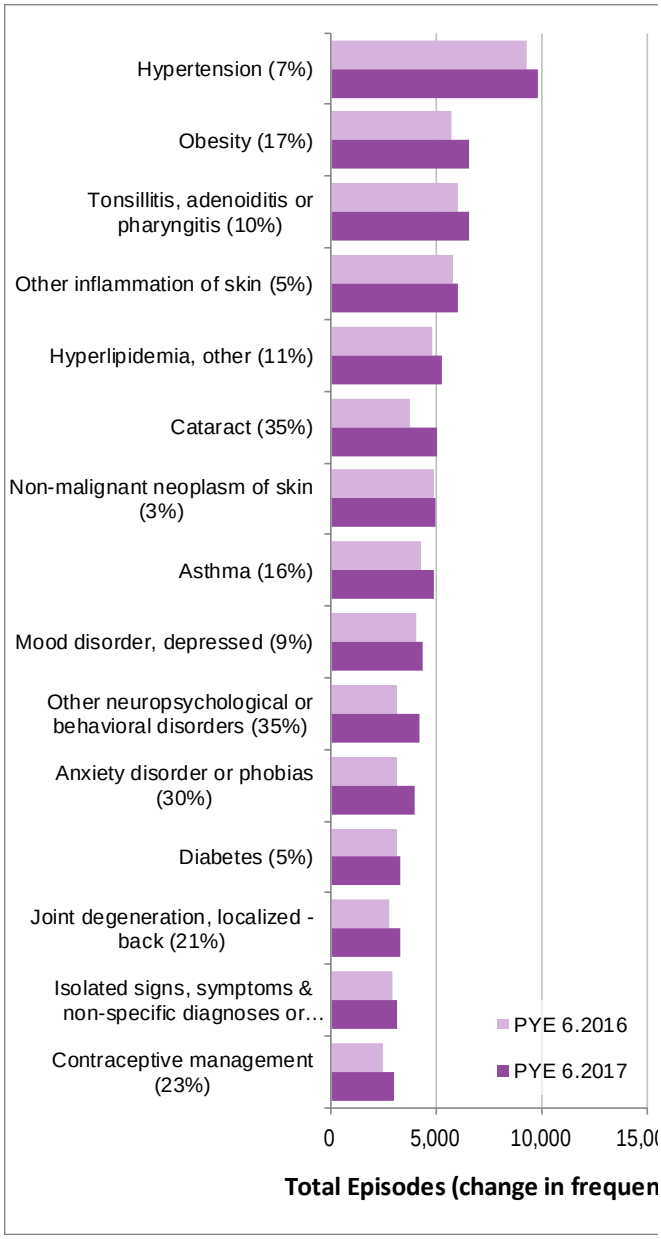
4.2 Top Clinical Conditions by Cost

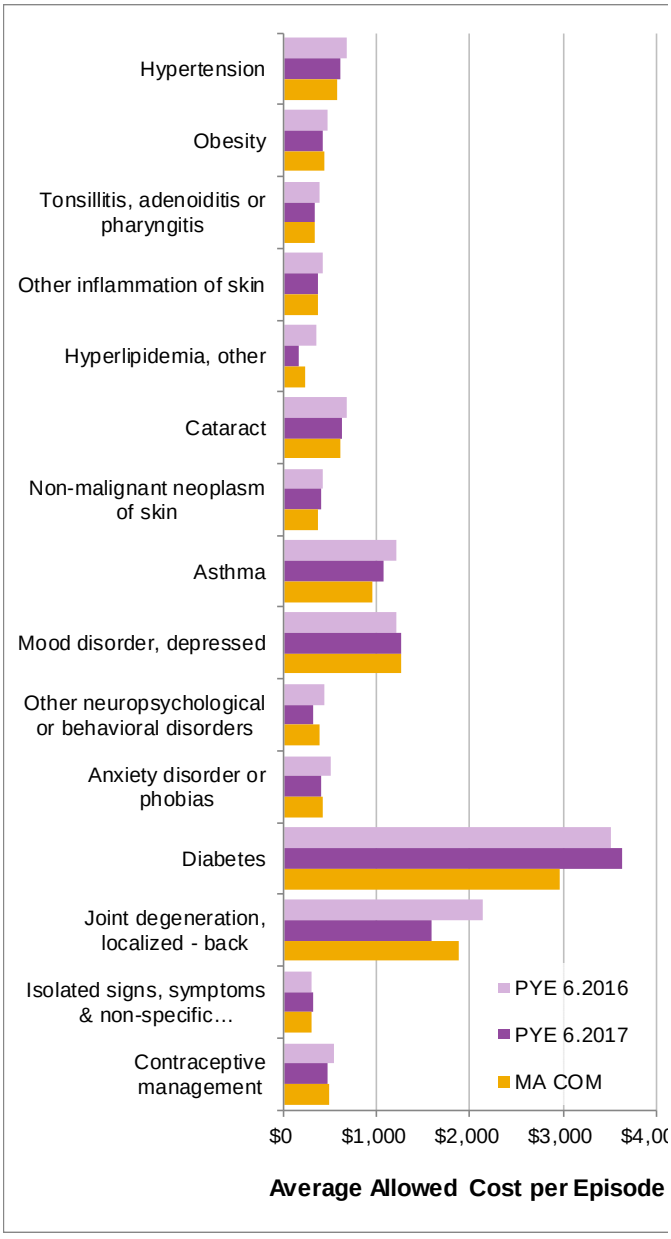




Besides the clinical conditions noted above, Boston had over $8,128,000 in allowed costs for routine/preventive care (well visits, eye exams, vaccinations, etc.).

4.3 Top Clinical Conditions by Number of Episodes





Hypertension continues to be the top clinical condition by episode in PYE 6.2017. It has increased 7% in frequency from the previous year.

Cost Sharing

	PYE 6.2016	PYE 6.2017	Variance v. Prior	MA COM	Variance v. Plan	Industry	Variance v. Industry
Total Costs PMPM	**$597.97**	**$608.57**	**1.8%**	**$544.43**	**11.8%**	**$594.33**	**2.4%**
Total Medical Costs PMPM	$487.95	$498.28	2.1%	$444.54	12.1%	$459.12	8.5%
Medical Cost Share	2.8%	2.7%	-0.1	8.5%	-5.8	5.6%	-2.9
Total Pharmacy Costs PMPM	$110.02	$110.29	0.2%	$99.89	10.4%	$110.42	-0.1%
Pharmacy Cost Share	12.1%	9.3%	-2.9	12.2%	-3.0	11.4%	-2.1
Total Percent Paid by Mem	**4.5%**	**3.9%**	**-0.6**	**9.2%**	**-5.3**	**6.7%**	**-2.8**

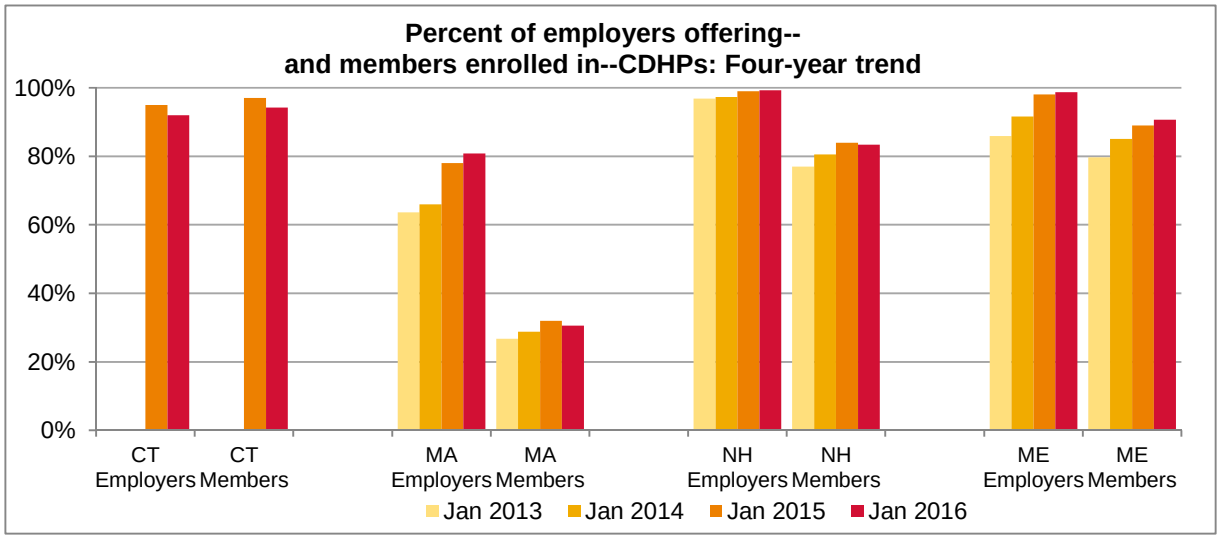
Decisions about future changes in cost sharing should reflect Boston's own claims experience. This approach will maximize both financial results as well as employee satisfaction with the benefit. If member cost sharing is too high, some members may be discouraged from seeking needed care. If member cost sharing is too low, members may utilize unnecessary services. The Harvard Pilgrim Plan average is one useful guide to how other employers meet this balance.

The decrease in member cost sharing shows the diminishing impact of copayments and deductibles over time if benefit changes do not keep pace with rising health care costs. The lower rate of cost sharing may indicate the need to consider benefit design changes.

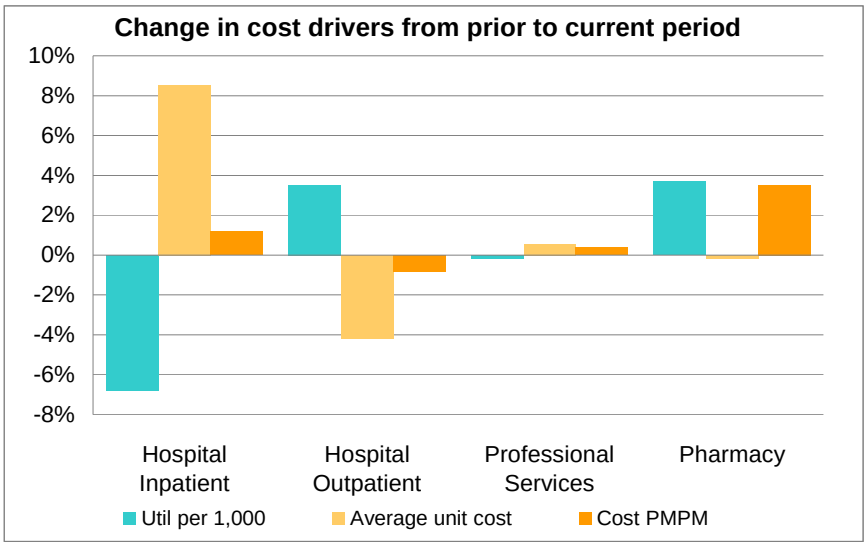
Member cost sharing in the current period was lower than Plan average. This indicates that the plan design is richer than the average plan in Harvard Pilgrim's book of business. Additional information on the distribution of plan designs in Harvard Pilgrim's book of business is available from your Account Executive.

The increase in total cost (employer + member) since last period was 1.8%, while the change in employer cost was 2.4%. The difference is known as leverage and is driven by benefit design and benefit changes. Leverage can be reduced or reversed to reduce employer cost change by increasing member cost sharing.

Massachusetts-based companies have not adopted plan designs with higher cost sharing at the same rate as have employers in other New England states or the rest of the country. This is due in part to the state's highly regulated market that limits the availability of deductible plans in excess of $2,000 Individual/$4,000 Family for HMO products. As a result, as of January 2016, while 81% of Harvard Pilgrim employers in Massachusetts now offer a consumer-driven health plan (CDHP), only 31% of members are enrolled in these products. As a comparison, 92% of Connecticut employers offer CDHPs with 94% of members enrolled. In New Hampshire, 99% of employers offer CDHPs with 83% of members enrolled. In Maine, 99% of employers offer CDHPs with 91% of members enrolled.



4.4 Changes in Cost and Utilization by Type of Service



Overall cost changes are driven by two elements: changes in cost (the average cost per service) and changes in utilization. Some of the factors impacting these include:

Cost	Utilization
• Provider contracts	• Member behavior
• Service mix	• Illness burden
• Medical inflation	• Service mix
• Technology	• Direct to consumer advertising

The increase in medical PMPM costs (excluding ancillary) was driven by an increase in average unit cost.

City of Boston's utilization of medical services is higher than HPHC Plan. Average cost per service is also higher than HPHC Plan.

The increase in pharmacy PMPM costs was driven by an increase in utilization.

City of Boston's utilization of pharmacy services is higher than HPHC Plan. City of Boston's average cost per script is higher than HPHC Plan.

4.5 Key Utilization Metrics

Category	Metric	PYE 6.2016	PYE 6.2017	Variance v. Prior	MA COM	Variance v. Plan	Industry	Varia Indu
Hospital Inpatient								
OB Admissions	admits/1,000	12.8	13.4	4.6%	11.6	15.5%	10.2	
Total Admissions	admits/1,000	78.2	72.9	-6.8%	61.6	18.4%	68.6	
Inpatient Days	days/1,000	436.1	386.0	-11.5%	267.5	44.3%	363.0	
Average Length of Stay	avg. days/admit	5.6	5.3	-5.0%	4.3	21.8%	5.3	
Inpatient Claimants	members/1,000	59.5	53.5	-10.1%	47.6	12.4%	50.9	

Category	Metric	PYE 6.2016	PYE 6.2017	Variance v. Prior	MA COM	Variance v. Plan	Industry	Varia Indu
Outpatient								
Office Visits for Well Care	visits/1,000	797.1	830.1	4.1%	810.5	2.4%	815.2	
Office Visits for Medical Care	visits/1,000	4,351.8	4,335.2	-0.4%	3,921.3	10.6%	4,279.0	
Emergency Room	visits/1,000	233.4	229.0	-1.9%	191.9	19.4%	203.4	
ER Claimants	members/1,000	171.2	164.5	-3.9%	139.4	17.9%	148.9	
Average ER Visits per ER Claimant	visits	1.4	1.4	2.1%	1.4	1.2%	1.4	
Surgical Outpatient Procedures	visits/1,000	471.5	483.9	2.6%	424.3	14.0%	446.0	
High End Radiology	services/1,000	384.3	394.2	2.6%	367.4	7.3%	403.9	

Category	Metric	PYE 6.2016	PYE 6.2017	Variance v. Prior	MA COM	Variance v. Plan	Industry	Varia Indu
Pharmacy								
Pharmacy Utilization	scripts/member/year	14.2	14.8	3.7%	13.6	8.4%	15.4	
Tier 1 Utilization	% of total scripts	78.8%	79.3%	+0.5	79.3%	+0.0	79.7%	
Generic Utilization	% of total scripts	86.5%	87.7%	+1.2	87.8%	-0.1	87.3%	
Mail Order Utilization	% of total scripts	6.3%	5.4%	-0.9	10.0%	-4.7	12.2%	

Changes in utilization for higher cost service categories or higher than average utilization of specific services may warrant a review of the benefit design and/or suggest opportunities for member education.

Harvard Pilgrim has a variety of utilization management services directed at both members and providers, including:[1]

- **Care management** of high cost claimants to ensure proper care coordination and appropriate utilization.
- **Provider incentives** to encourage appropriate utilization while maintaining a high standard of care.
- The NIA program, a **radiology benefit manager** that reviews the use of non-emergency, outpatient, advanced imaging services to verify that established clinical guidelines are followed.

Boston's utilization in the following areas was significantly above Plan: None of the categories.

[1] Additional information on these programs and initiatives is available from your Account Executive.

Boston's utilization of ER is higher than Plan. Member education and/or an increase in the ER copayment may impact ER utilization. Over-utilization of the ER contributes to higher costs as the average cost of an ER visit (facility charges only) is over twice that of an office visit.

The average number of visits per member using the ER is higher than Plan average. This indicates that a few individuals who visit the emergency room multiple times may be driving the ER rate, rather than a widespread utilization issue.

Boston's rate of preventive care visits is on par with or higher than Plan average. This is a positive finding, as members are proactively engaged in maintaining their health.

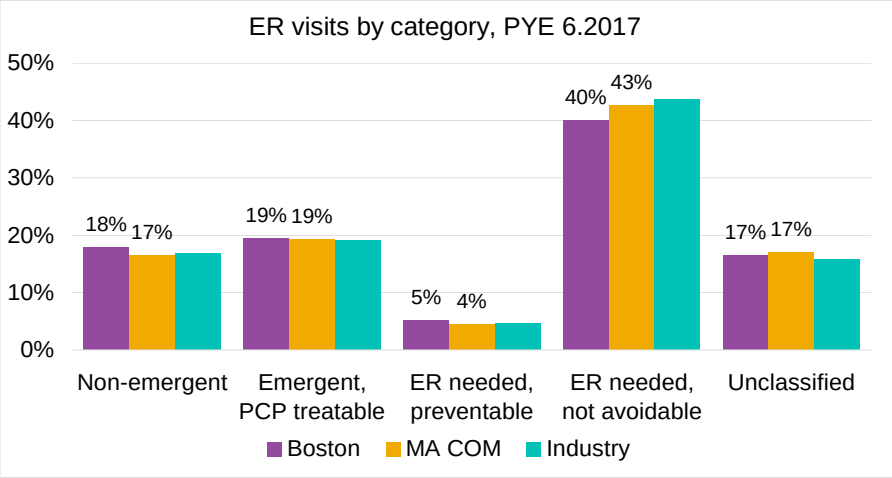
Pharmacy utilization is discussed in more detail in Section 5: Prescription Drugs.

4.6 Emergency Room Use

Emergency Room facility costs were over $3,651,000. This amount represented $8.88 on a PMPM basis, and 1.5% of total Plan liability.

The NYU Center for Health and Public Service Research has developed an algorithm to help classify ER utilization. The algorithm was developed with the advice of a panel of ER and primary care physicians, and it is based on an examination of a sample of almost 6,000 full ER records. Based on this information, ER use diagnoses were classified into one of the following categories:

- ***Non-emergent*** – immediate medical care not required within 12 hours
- ***Emergent – Primary Care Treatable*** – treatment required within 12 hours, but care could have been provided effectively and safely in a primary care setting
- ***Emergent – ER Care Needed – Preventable/Avoidable*** – ER care required, but the emergent nature of the condition was potentially preventable/avoidable if timely and effective physician care had been received during the episode of illness (flare-ups of asthma, diabetes, etc.)
- ***Emergent – ER Care Needed – Not Preventable/Avoidable*** – ER care required and physician treatment could not have prevented the condition (trauma, appendicitis, heart attack, etc.)
  Note that this category also includes all injuries, mental health, and substance abuse claims.
- ***Unclassified*** – This category is for diagnoses that could not be categorized because there were too few in the sample size to make a determination as to whether they were emergent or not. In the original research, about 15% of records fell into this category.



Member education (for example, promotion of convenience care clinics or urgent care centers), plan design changes, and new care delivery models can all be helpful tools in reducing avoidable ER expense.

4.7 Distribution of Claims Costs

	PYE 6.2016		PYE 6.2017		MA COM	
Cost Range	% Members	% Costs	% Members	% Costs	% Members	% Costs
$0 - $999	34.5%	2.2%	34.3%	2.1%	43.7%	3.8%
$1,000 - $4,999	40.8%	15.5%	41.4%	15.3%	38.6%	18.0%
$5,000 - $19,999	18.1%	27.1%	17.5%	25.4%	13.0%	25.6%
$20,000 - $49,999	4.7%	22.0%	4.7%	21.6%	3.3%	20.4%
$50,000 - $99,999	1.3%	14.3%	1.4%	14.6%	1.0%	13.6%
$100,000+	0.7%	18.9%	0.7%	21.0%	0.5%	18.6%
Total	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**

Boston's distribution of costs and membership by cost level is consistent with the distribution in the prior year.

Boston's distribution of membership by cost level is consistent with the HPHC Plan average.

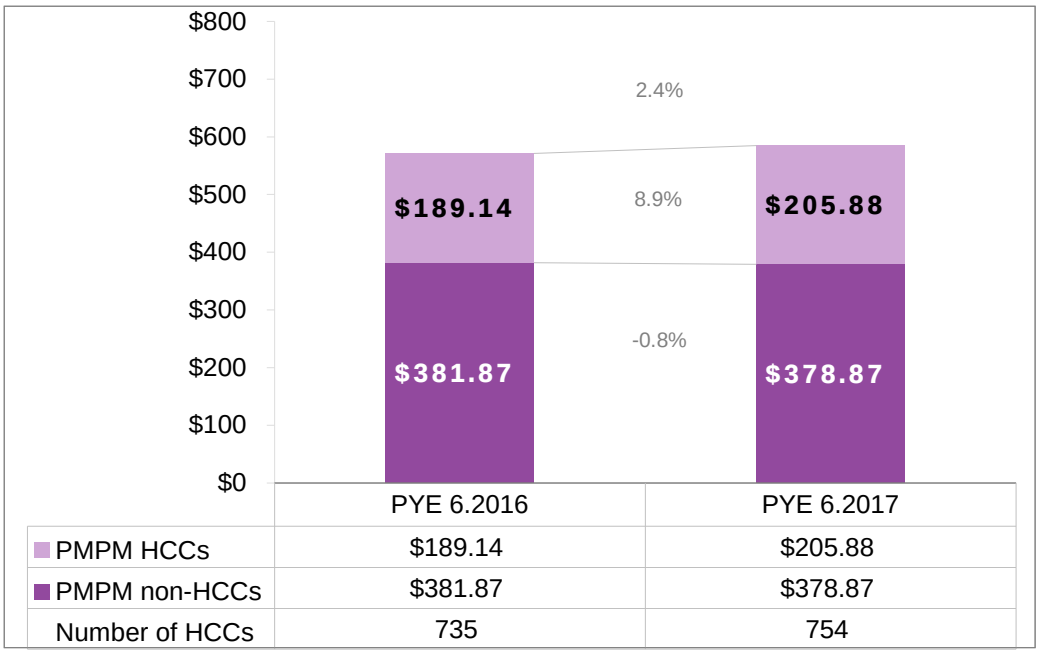
Boston's percent of members for $5,000 - $19,999 are above the HPHC average. Boston's percent of members for $0 - $999 are below the HPHC average.

Boston's cost distribution by cost range is similar to the HPHC average.

Members incurring the highest total costs are often primary candidates for care management. Your Account Executive can help you to identify care management opportunities that are likely to have the most favorable impact on your utilization.

4.8 High Cost Claimants (>$50,000)

	PYE 6.2016	PYE 6.2017	% Change PYE 6.2016-17	MA COM	Variance v. Plan	Industry	Variance Industr
Number of Claimants	735	754	2.6%	-	-	-	-
Total Large Claims Costs	$79,027,701	$84,673,994	7.1%	-	-	-	-
Average Cost per Claimant	$107,521	$112,300	4.4%	-	-	-	-
% of Total Claims Cost	**33.1%**	**35.5%**	**+2.4**	**32.1%**	**+3.5**	**34.2%**	**+1**
Frequency per 1,000	21.1	22.0	4.2%	16.7	31.7%	20.5	7.4
Claimants Currently Enrolled	669	703	5.1%	-	-	-	-



	PYE 6.2016	PYE 6.2017
PMPM HCCs	$189.14	$205.88
PMPM non-HCCs	$381.87	$378.87
Number of HCCs	735	754

High Cost Claimants are a key driver of a group's financial performance during a policy period. Changes in the impact of High Cost claimants—in terms of the percentage of total costs—is often the reason for changes in overall claims costs.

The percent of total claims cost and the frequency per 1,000 was higher in the current period than in the prior period.

The impact of high cost claimants on the group's costs was significantly higher than HPHC Plan.

4.9 High Cost Claimant Categories

Top 10 High Cost Claimant Categories	% of HCCs	% of Costs
Malignant neoplasm of breast	4.8%	5.2%
Malignant neoplasm of pulmonary system	2.9%	4.5%
Multiple sclerosis	4.8%	3.6%
Ischemic heart disease	4.5%	3.4%
Septicemia	2.4%	2.7%
Other neonatal disorders, perinatal origin	2.0%	2.6%
Adult rheumatoid arthritis	4.4%	2.6%
Leukemia	1.3%	2.6%
Inflammatory bowel disease	2.8%	2.3%
Other diseases of intestines & abdomen	0.1%	2.2%
Subtotal Top 10	**30.0%**	**31.6%**
All other	70.0%	68.4%
Total	**100.0%**	**100.0%**

The table above shows the key diagnostic groupings for the high cost claimants during the current period. 31.5% of the dollars (and 30.0% of the claimants) were spread across 10 key diagnostic categories, with Cancer treatments at the top of the list.

4.10 Costs by Member Type

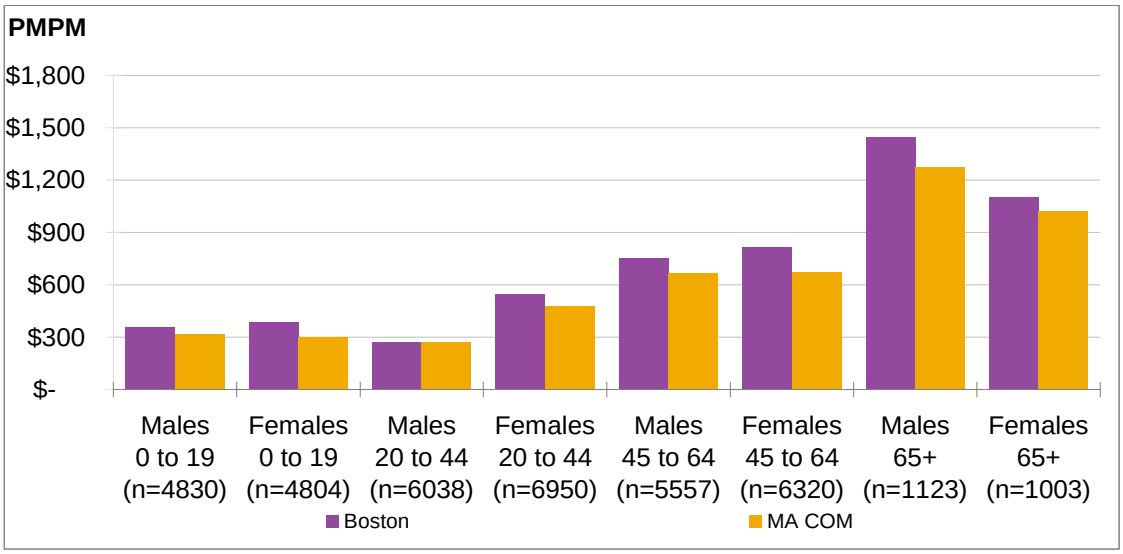
Member Type	Average Members	Total Costs PMPM	% of Costs	High Cost Claimants	MA COM Costs PMPM	MA COM % of Costs
Subscriber	14,837	$706.89	52.8%	449	$557.49	52.2%
Spouse	6,941	$696.69	24.4%	186	$638.45	26.8%
Dependent	12,495	$362.90	22.8%	119	$310.47	21.0%
Total	**34,273**	**$579.41**	**100.0%**	**754**	**$491.83**	**100.0%**

Boston's PMPM cost differs from HPHC Plan for all member types.

Boston's PMPM cost for Subscribers/ Spouses/ Dependents is higher than HPHC Plan.

The percentage of costs for Boston's Subscribers/ Spouses/ Dependents is consistent with HPHC Plan.

4.11 Costs by Age/Gender



Boston's PMPM costs for 1 age/gender bracket(s) (M Age 20-44) are consistent with HPHC Plan.

Boston's PMPM costs for 7 age/gender brackets (M Age 0-19; F Age 0-19; F Age 20-44; M Age 45-64; F Age 45-64; M Age 65+; F Age 65+) are higher than HPHC Plan.

4.12 Top Providers

Provider	PYE 6.2016 % Medical Costs	PYE 6.2017 Amount Paid	PYE 6.2017 % Medical Costs	MA COM % Medical Costs	Industry % Medical Costs
Beth Israel Deaconess Medical Center	8.6%	$16,316,919	8.4%	4.9%	5.1%
Brigham and Women's Hospital	7.5%	$13,494,627	6.9%	4.3%	4.6%
Mass General Hospital	5.0%	$9,693,931	5.0%	4.2%	4.1%
Children's Hospital Medical Center	2.8%	$6,828,242	3.5%	2.4%	2.1%
Dana-Farber Cancer Institute	1.8%	$5,532,927	2.8%	2.3%	2.2%
Brigham and Women's/Faulkner	2.4%	$4,970,356	2.6%	0.8%	1.0%
Boston Medical Center	2.4%	$4,733,537	2.4%	1.2%	0.9%
South Shore Hospital	2.6%	$4,118,635	2.1%	2.1%	2.5%
Tufts Medical Center	2.0%	$4,038,166	2.1%	1.1%	1.3%
Steward Saint Elizabeth's Medicine Center (	1.4%	$2,889,536	1.5%	0.5%	0.6%
Total Top Ten Providers	**36.4%**	**$72,616,876**	**37.4%**	**23.8%**	**24.5%**
All Other Providers	63.6%	$121,566,091	62.6%	76.2%	75.5%
Total	**100.0%**	**$194,182,966**	**100.0%**	**100.0%**	**100.0%**

Boston's distribution of costs among top providers was similar from the prior to current period.

Boston's distribution of costs among top providers was similar to the HPHC Plan average.

Providers' costs for the same services can vary dramatically by location. The type of facility also impacts the cost of care. Massachusetts (especially the Boston area) has a higher concentration of academic teaching hospitals than most other urban areas in the country. Harvard Pilgrim data show that in 2014, the average cost per admission at teaching hospitals compared to community hospitals was 18% higher in Massachusetts, 20% higher in New Hampshire, and 13% higher in Maine (with case mix adjustment).

5. Prescription Drugs

Prescription drug costs have been a significant driver of health care costs. This increase is attributable to many factors, including specialty medications that treat highly complicated conditions, new blockbuster drugs, aggressive marketing and advertising to consumers and providers, and patent expirations.

Harvard Pilgrim has implemented several programs to mitigate these increases, including:

- A **three-tier Premium (open) formulary** program to encourage the use of generic and lower cost drugs
- A **four-tier Premium (open) formulary** that provides more savings for lower cost generics
- A **four-tier Value (closed) formulary** that provides high-quality coverage with premium savings for employers and members
- A **five-tier Value (closed) formulary** which, like the four-tier formulary, provides high-quality coverage with more savings for lower-cost generics
- A **Mail Order Program** which reduces the overall cost of maintenance medications and frequently lowers cost share for members
- A **Choice90Rx Program** which allows members the convenience of purchasing a 90-day supply of maintenance medications at participating retail pharmacies while reducing overall medication cost and potentially increasing medication adherence
- A **Specialty Pharmacy** program to obtain very competitive prices for specialty medications (including injectables) with a personalized care and support for members to assist in their disease management
- An **Infertility Pharmacy** program designed to reduce the cost of infertility medications and provide 24-hour service for members who require additional education/assistance
- A strong **Utilization Management** program that offers prior authorizations, step edits, and quantity limitations, which promotes safe and effective treatment while reducing costs (for instance, Harvard Pilgrim's prior authorization for Immunobiologics across the pharmacy and medical drug benefits ensures that less expensive medications are utilized first under the pharmacy benefit prior to self-injectable medications such as Humira and Enbrel)
- A trailblazing **Compound Drug Management** program which yielded approximately $2M in savings in its first year and continues to ensure appropriate utilization

All programs work synergistically to promote wellness, encourage appropriate utilization, and demonstrate an impact on keeping drug cost trends down.

Our formularies and utilization management program are managed by HPHC Pharmacy Services, not our pharmacy benefit manager (PBM), and reviewed by our Pharmacy and Therapeutics Committee. This allows us to ensure not only that national guidelines are considered, but also that key local specialists are consulted to provide appropriate access to the most cost-effective therapies.

Recent steps that we have taken to control costs include:

- Implementation of our **Value formulary** in January 2015. This formulary offers affordable coverage without impacting quality. As of 3/1/2016, 39% of our commercial members with a pharmacy benefit are utilizing this formulary.
- Selection of a **preferred Hepatitis C product,** Harvoni, which provides members with a clinically superior treatment choice while lowering overall health care spend. We will continue to carefully monitor this drug class as new Hepatitis C medications are introduced during 2016.
- Selection of a **preferred PCSK9 inhibitor product**, Repatha, which provides a new approach for treating elevated LDL cholesterol in select patients whose levels are not able to be controlled by current treatment options. In addition, we plan to monitor members' LDL reduction with this medication to ensure that results are similar to those observed in clinical trials.
- **Constant monitoring of the specialty pipeline** to ensure that we have management strategies for anticipated high-cost drugs entering the market

5.1 Cost & Utilization Metrics

	PYE 6.2016	PYE 6.2017	Variance v. Prior	MA COM	Variance v. Plan	Industry	Variance v. Industry
PMPM Cost	$96.67	$100.08	3.5%	$87.68	14.1%	$97.88	2.2%
Average Cost per Prescription	$81.54	$81.40	-0.2%	$77.27	5.3%	$76.28	6.7%
Utilization Per Member Per Year	14.2	14.8	3.7%	13.6	8.4%	15.4	-4.2%
% Utilization Tier 1	78.8%	79.3%	+0.5	79.3%	+0.0	79.7%	-0.4
% Costs Tier 1	18.8%	17.4%	-1.4	16.8%	+0.6	19.4%	-2.0
% Utilization Tier 2	12.1%	11.6%	-0.5	10.6%	+1.1	11.3%	+0.3
% Costs Tier 2	61.8%	60.2%	-1.6	49.6%	+10.5	59.0%	+1.1
% Utilization Tier 3	2.1%	1.9%	-0.1	2.3%	-0.4	2.1%	-0.2
% Costs Tier 3	14.5%	15.0%	+0.5	25.4%	-10.4	15.7%	-0.7
% Prescriptions Generic	86.5%	87.7%	+1.2	87.8%	-0.1	87.3%	+0.4
% Prescriptions Mail Order	6.3%	5.4%	-0.9	10.0%	-4.7	12.2%	-6.8

Generic utilization increased in the current period; however, it is lower than HPHC Plan. Although the market has seen price increases for several commonly used generics, generic medications overall continue to deliver significant savings over brand-name alternatives.

Mail order utilization decreased in the current period and is lower than HPHC Plan. Harvard Pilgrim's analysis shows that on average, each 90-day mail order supply of a brand-name drug saves 11% in cost as compared to three 30-day retail scripts.

Boston's average cost per prescription is similar to the Plan average.

Boston's average utilization of prescriptions is higher than Plan. While changes in benefit design may not reduce overall utilization, it can encourage both the utilization of lower tier drugs and the use of mail order. These changes in utilization help mitigate costs.

5.2 Top Therapeutic Classes

Therapeutic Class	Generally Prescribed for	PYE 6.2016 % Rx Costs	PYE 6.2017 Amount Paid	PYE 6.2017 % Rx Costs	MA COM % Rx Costs	Inc % C
Antivirals	Prevention/treatment of infections	12.3%	$5,015,667	12.2%	9.1%	
Autoimmune disorder drugs (including RA)	Rheumatoid arthritis and other autoimmune disorders	9.3%	$4,576,231	11.1%	13.0%	
Antidiabetic agents	High blood sugar	8.6%	$3,936,434	9.6%	8.7%	
Multiple sclerosis drugs	Multiple sclerosis	6.3%	$2,470,278	6.0%	7.1%	
Central nervous system drugs	Various/Central nervous system	5.4%	$2,263,425	5.5%	5.2%	
Cancer/Chemotherapy drugs	Cancer	4.2%	$2,120,736	5.2%	6.4%	
Anti-inflammatory drugs, respiratory	Control/management of asthma and allergies	4.4%	$1,866,097	4.5%	4.0%	
Stimulants	ADHD and other conditions	3.7%	$1,474,156	3.6%	4.2%	
Channel blockers (to widen blood vessels)	Heart disease	2.6%	$1,263,702	3.1%	1.9%	
Anticonvulsants	Seizures	2.9%	$1,248,754	3.0%	2.4%	
Total Top Ten Therapeutic Classes		**59.6%**	**$26,235,479**	**63.7%**	**61.8%**	
All Other Therapeutic Classes		40.4%	$14,923,606	36.3%	38.2%	
Total		**100.0%**	**$41,159,085**	**100.0%**	**100.0%**	**1**

Boston's top therapeutic classes by cost are relatively consistent with HPHC Plan.

Infertility drugs are not a major cost driver for Boston.

Miscellaneous Therapeutic Agents account for 17.1% of top pharmacy costs. This category includes new drugs for which there are no or few other drugs in the same class, such as treatments for rheumatoid arthritis and MS. Specialty drugs are often included in this classification. To address the generally high cost of these drugs, Harvard Pilgrim instituted a Specialty Pharmacy Program. The goal of this program is to reduce the cost of specialty medications and maximize member and provider satisfaction by offering personalized care and service excellence. The program includes: free overnight shipping and emergency same day delivery, via overnight mail or courier; around-the-clock telephone access to nurses and clinical pharmacists; and educational materials.

5.3 Top Prescription Drugs

Drug	Therapeutic Class	PYE 6.2016	PYE 6.2017		MA COM
		% Rx Costs	Amount Paid	% Rx Costs	% Rx Costs
HUMIRA PEN	Autoimmune disorder drugs (including RA)	3.0%	$2,031,915	4.9%	6.0%
ENBREL	Autoimmune disorder drugs (including RA)	2.8%	$1,227,503	3.0%	3.8%
HARVONI	Antivirals	4.3%	$1,076,022	2.6%	2.8%
TRUVADA	Antivirals	2.1%	$836,707	2.0%	1.4%
TECFIDERA	Multiple sclerosis drugs	2.2%	$785,929	1.9%	1.8%
LANTUS SOLOSTAR	Antidiabetic agents	1.8%	$717,995	1.7%	1.2%
GONAL-F RFF REDI-JECT	Infertility drugs	2.0%	$692,991	1.7%	1.7%
EPCLUSA	Antivirals	0.0%	$657,639	1.6%	0.4%
COPAXONE	Multiple sclerosis drugs	1.3%	$622,488	1.5%	2.0%
FLOVENT HFA	Anti-inflammatory drugs, respiratory	1.5%	$619,777	1.5%	1.0%
Total Top Ten Drugs		**21.0%**	**$9,268,967**	**22.5%**	**22.2%**
All Other Drugs		79.0%	$31,890,118	77.5%	77.8%
Total		**100.0%**	**$41,159,085**	**100.0%**	**100.0%**

Boston's prescription drug utilization by cost is relatively consistent with HPHC Plan.

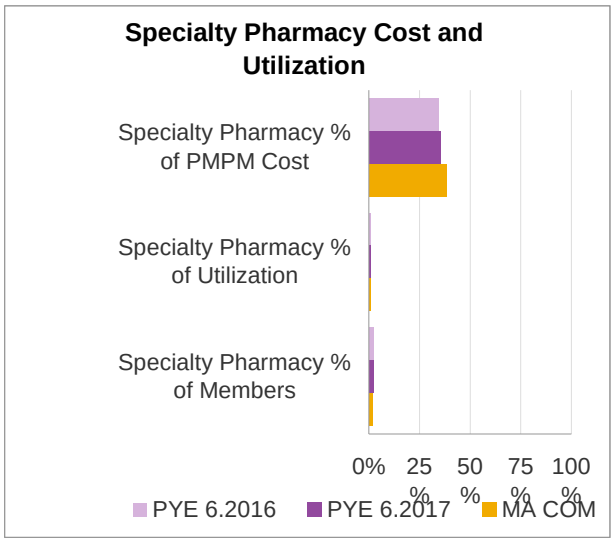
Boston's top drug utilization by costs is consistent with the top therapeutic classes.

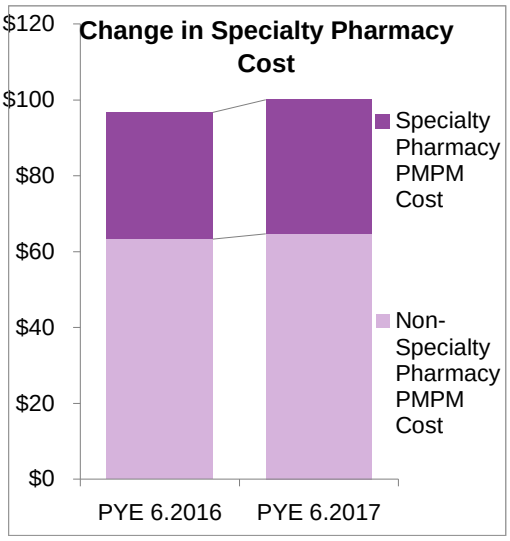
5.4 Specialty Pharmacy

Specialty Pharmacy accounted for 35.3% of total Pharmacy cost in PYE 6.2017. Specialty Pharmacy was a driver of overall Pharmacy cost.

Specialty Pharmacy	Therapeutic Class	Overall Rank		PYE 6.2016	PYE 6.2017		MA COM
		PYE 6.2016	PYE 6.2017	% Rx Costs	Amount Paid	% Rx Costs	% Rx Costs
HUMIRA PEN	Autoimmune disorder drugs (including RA)	2	1	3.0%	$2,031,915	4.9%	6.0%
ENBREL	Autoimmune disorder drugs (including RA)	3	2	2.8%	$1,227,503	3.0%	3.8%
HARVONI	Antivirals	1	3	4.3%	$1,076,022	2.6%	2.8%
TECFIDERA	Multiple sclerosis drugs	4	5	2.2%	$785,929	1.9%	1.8%
GONAL-F RFF REDI-JECT	Infertility drugs	6	7	2.0%	$692,991	1.7%	1.7%
EPCLUSA	Antivirals		8	0.0%	$657,639	1.6%	0.4%
COPAXONE	Multiple sclerosis drugs	11	9	1.3%	$622,488	1.5%	2.0%
GILENYA	Multiple sclerosis drugs	12	15	1.2%	$475,572	1.2%	0.9%
HUMIRA	Autoimmune disorder drugs (including RA)	8	18	1.8%	$381,552	0.9%	1.2%
REVLIMID	Cancer/Chemotherapy drugs	69	26	0.3%	$278,177	0.7%	1.0%
Total Top Ten Specialty Pharmacy				**19.0%**	**$8,229,789**	**20.0%**	**21.6%**
All other Specialty Pharmacy				4.7%	$2,001,050	4.9%	16.9%
Subtotal Specialty Pharmacy				**23.7%**	**$10,230,839**	**24.9%**	**38.5%**
Non-Specialty Pharmacy				76.3%	$30,928,247	75.1%	61.5%
Total Pharmacy				**100.0%**	**$41,159,085**	**100.0%**	**100.0%**

	PYE 6.2016	PYE 6.2017	Variance v. Prior	MA COM	Variance v. Plan	Industry	Variance v. Industry
Total Pharmacy Cost	**$40,393,686**	**$41,159,085**	1.9%	N/A	N/A	N/A	N/A
Non-Specialty Pharmacy	$26,451,642	$26,612,154	0.6%	N/A	N/A	N/A	N/A
Specialty Pharmacy	$13,942,044	$14,546,931	4.3%	N/A	N/A	N/A	N/A
PMPM Cost	**$96.67**	**$100.08**	3.5%	**$87.68**	14.1%	**$97.88**	2.2%
Non-Specialty Pharmacy PMPM Cost	$63.31	$64.71	2.2%	$53.89	20.1%	$64.36	0.5%
Specialty Pharmacy PMPM Cost	$33.37	$35.37	6.0%	$33.79	4.7%	$33.53	5.5%
Average Cost per Prescription	**$81.54**	**$81.40**	-0.2%	**$77.27**	5.3%	**$76.28**	6.7%
Non-Specialty Pharmacy	$53.80	$53.00	-1.5%	$47.85	10.8%	$50.51	4.9%
Specialty Pharmacy	$3,814.51	$4,087.36	7.2%	$3,949.52	3.5%	$3,722.32	9.8%
Utilization Per Member Per Year	**14.2**	**14.8**	3.7%	**13.6**	8.4%	**15.4**	-4.2%
Non-Specialty Pharmacy	14.1	14.7	3.7%	13.5	8.4%	15.3	-4.2%
Specialty Pharmacy	0.1	0.1	-1.1%	0.1	1.1%	0.1	-3.9%
Unique Members Utilizing Benefit	**28,809**	**28,304**	-1.8%	N/A	N/A	N/A	N/A
Specialty Pharmacy	636	624	-1.9%	N/A	N/A	N/A	N/A
Specialty Pharmacy % of PMPM Cost	34.5%	35.3%	+0.8	38.5%	-3.2	34.3%	+1.1
Specialty Pharmacy % of Utilization	0.7%	0.7%	-0.0	0.8%	-0.1	0.7%	+0.0
Specialty Pharmacy % of Members	2.2%	2.2%	-0.0	2.1%	+0.1	2.1%	+0.1


Specialty Pharmacy Cost and Utilization
Specialty Pharmacy % of PMPM Cost
Specialty Pharmacy % of Utilization
Specialty Pharmacy % of Members
0%
25 %
50 %
75 %
100 %
PYE 6.2016
PYE 6.2017
MA COM


Change in Specialty Pharmacy Cost
$120
$100
$80
$60
$40
$20
$0
Specialty Pharmacy PMPM Cost
Non-Specialty Pharmacy PMPM Cost
PYE 6.2016
PYE 6.2017

6. Prevention, Wellness, and Condition Management

Harvard Pilgrim Health Care is recognized as a thought leader in health and wellness. We deliver an approach that impacts the total cost of poor health and design innovative but fact-based interventions that maximize engagement, sustain behavior change, and achieve results.

- *For employers:* we demonstrate the business and social value of improved/optimal health among employees and dependents and provide a road map to aid in achieving a culture of wellness
- *For members:* we support personalized and engaging approaches that promote physical, emotional, and spiritual health
- *For providers:* we offer tools, data, incentives, and partnership opportunities to support evidence-based medicine, reduce gaps and disparities in access to appropriate care, and promote the clinician-patient relationship.

6.1 Health Care Management Model: We focus on all our members

Healthy

- Service Campaigns
- Worksite Wellness Programs
- www.harvardpilgrim.org/wellness and other web-based tools
- Fitness Reimbursement and other discounts
- *BeyondHealth Online*

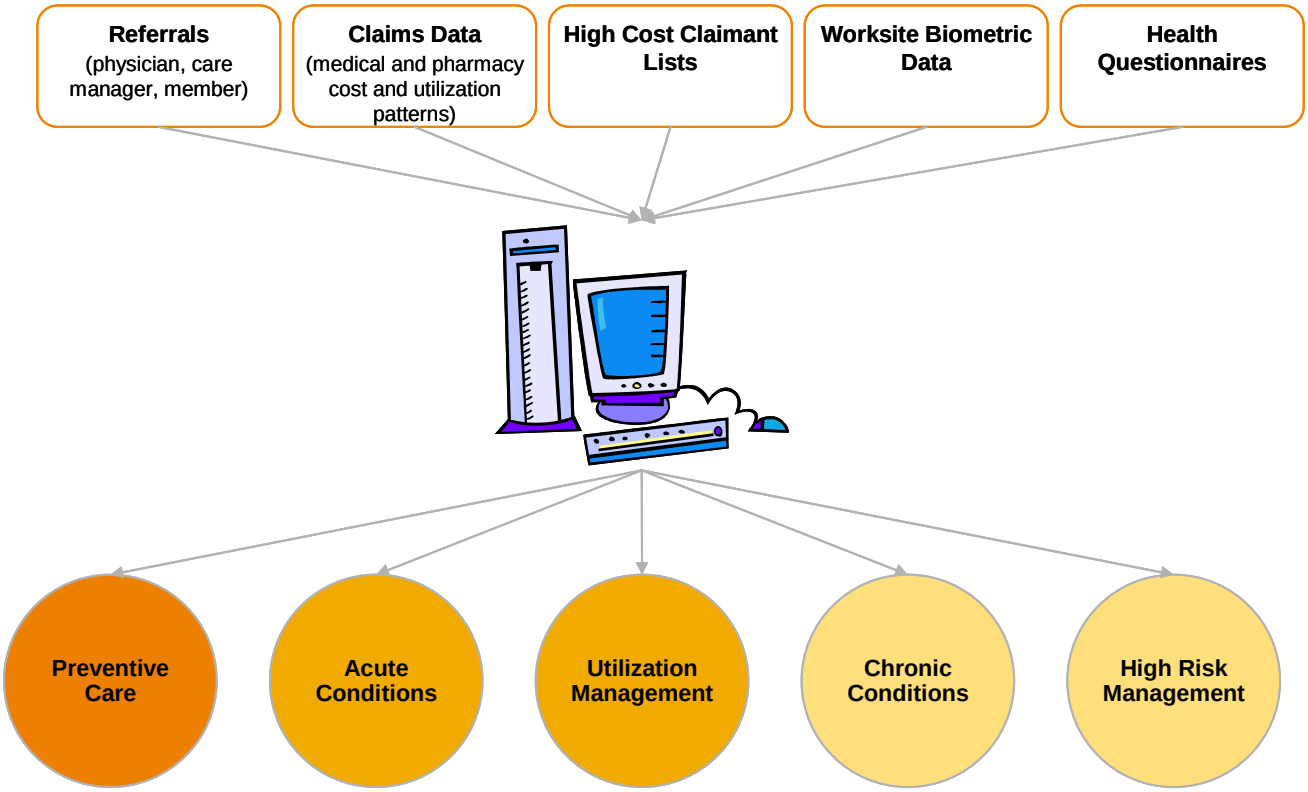
Staying Well

- Prevention Reminders
- Individualized Coaching – Prepared for Care, *DecisionAssist,* Lifestyle Management
- Health Questionnaire/Personal Health Assessment
- Targeted Outreach and Education

Living with Illness

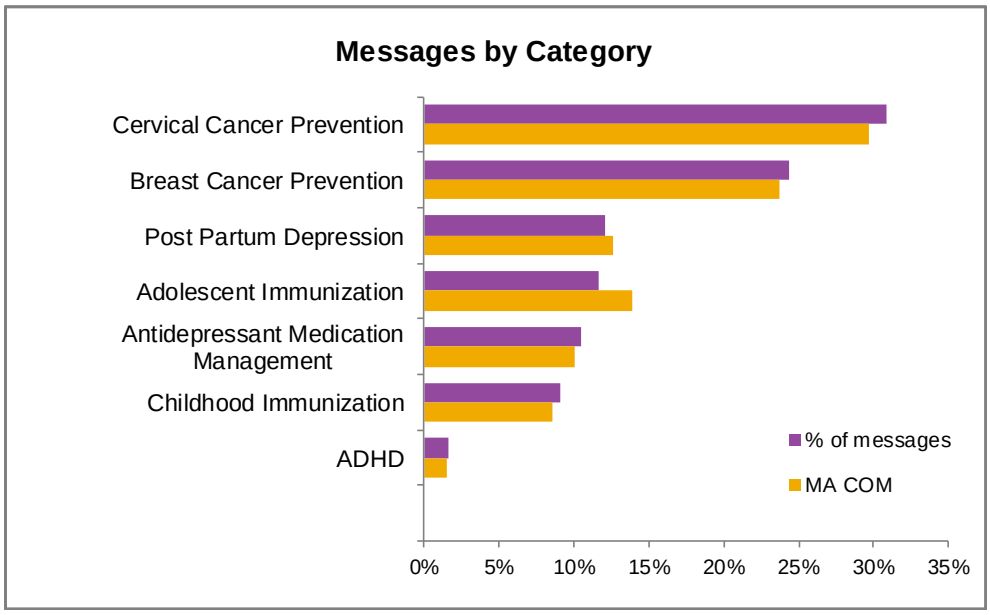
- Complex Care Management
- Focused, Condition and Disease Management
- Predictive Modeling
- Interventions for Care Gaps
- Care Integration
- Collaboration with Providers

6.2 Member Identification and Stratification Process



6.3 Staying Healthy: Self-care and screening communications

Program Overview: Harvard Pilgrim regularly performs outreach to ensure routine preventive care and to improve early detection of disease and subsequent outcomes. Our outreach programs include general member-wide health education as well as targeted messages that are directed to segments of our membership, based on age, gender and claims history. The goal of all of our member outreach efforts is to reach the highest number of members in ways that engage and motivate them to change their behavior or drive their physician's behavior.



5,238 messages were sent to members regarding health screening reminders. Those for Cervical Cancer screenings topped the list.

6.4 Staying Healthy: Lifestyle management

Program Overview:
Harvard Pilgrim's Personal Health Assessment (PHA) is an innovative, secure web tool that can assist members in creating a personal plan for optimal health.

Harvard Pilgrim offers resources and support to members after completing the PHA, including disease management programs, telephonic health coaching, secure messaging, and online support. Additionally, members who complete an online PHA immediately receive an easy-to-read Individual Profile that offers a comprehensive picture of the member's health status, identifies key risk factors, and provides actionable information on how to reduce risks by changing specific health behaviors in each health category.

6.4.1 Summary of activity: Lifestyle management

	Number	Percent	MA COM
Total eligible individuals	**28,048**	**100.0%**	**n/a**
Individuals completing Personal Health Assessment (PHA)	5	0.0%	0.9%
Individuals requesting Health Coaching (as % of those completing PHA)	7	140.0%	20.0%

Out of 28,048 eligible members 7 requested Health Coaching.

6.4.2 Goals set by engaged members

Members are identified for Lifestyle Management Coaching in multiple ways, including Personal Health Assessment (PHA) responses, claims-based algorithms, on-site biometric events, care and disease management referral, and self-referral. However, the coaching process always begins with the members completing our PHA to create a snapshot of their current status and identify areas to target for improvement.

In PYE 6.2017, 7 eligible members requested Health Coaching. Of those, 3 ultimately engaged with a Certified Lifestyle Management Coach. These members were invited by our coaches to set goals and participate in the program. Using motivational interviewing techniques, our coaches worked with each of these members to help them set realistic goals, identify barriers to change, and develop a tailored lifestyle management roadmap. Members responded very enthusiastically to this approach, setting multiple goals across the seven major areas of focus. Examples of goals set include:

Nutrition management:
- Increase soluble dietary fiber to approximately four servings/day within three months (Guideline: approximately 20g-30g of fiber per day)

Stress management:
- Strive to improve coping skills by incorporating mindfulness techniques within three months

Blood pressure control:
- Achieve target systolic blood pressure within three months

6.4.3 BeyondHealth Online

Harvard Pilgrim BeyondHealth offers comprehensive and strategic wellness programming that extends past the traditional focus of just diet and exercise, and actually gets at the root of behavior change.

Wellness programs for any group typically follow a basic workflow pattern—a series of core elements that occur in a repeating loop: assessment, analysis, identification, engagement, intervention, and the cycle begins again at assessment. Harvard Pilgrim offers expertise in customizing this core pattern to fit the diverse needs of its clients. We are able to coordinate multiple data sources (PHA, onsite programs), assess employer-specific data (utilization patterns, age/gender demographics, claims/pharmacy), and create targeted interventions that encompass the wealth of resources at hand, from Harvard Pilgrim programs, to the employer's own in-house services (Human Resources, Employee Assistance Program, etc.).

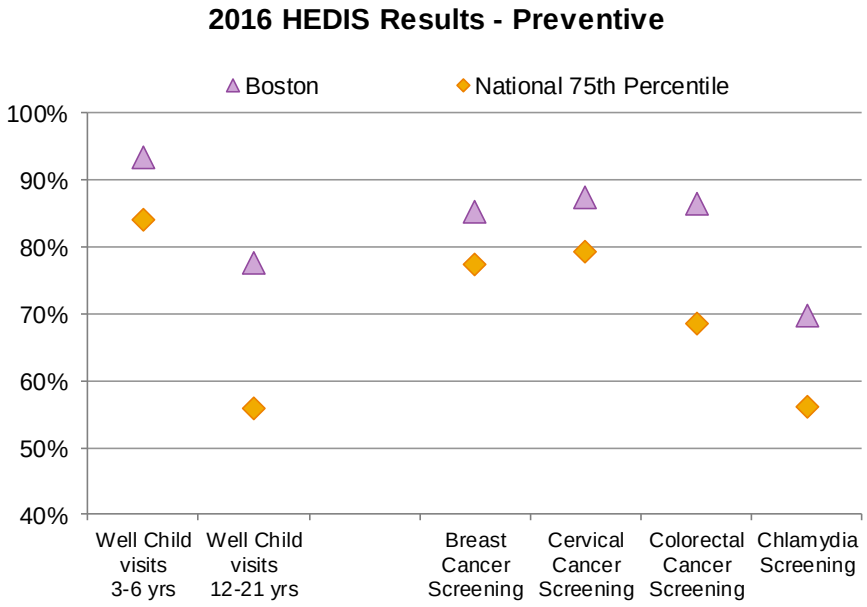
Our newly-enhanced wellness platform, BeyondHealth Online, incorporates personalized content, gamification, and mobile and wearable devices with evidence-based support tools for an engaging member wellness experience. Through BeyondHealth Online, members can engage in multi-week lifestyle management programs that empower them to take control of their own risks. Each program leverages educational content, activities, tools, trackers, social interactions, local resources and other program elements to achieve a weekly risk-modification goal. Selected programs are suggested to the member based on his/her assessed risk(s) on topics such as Nutrition, Weight Management, Physical Activity, Prevention (e.g., cardiovascular risk reduction), Stress Management (e.g., job stress, financial stress, social stress), Emotional Resiliency, Smoking Cessation, and much more. Our Nurse Care Managers are able to track the participation of members in these programs as well, ensuring integrated care across the continuum.

BeyondHealth Online also offers the capability for each employer to design the incentives-based program that works best to meet their needs, and allows for a great deal of flexibility in configuring a preferred reward strategy (raffle rewards, HSA or HRA contributions, etc.).

6.5 Staying Healthy: Wellness visits, screenings, and exercise

6.5.1 Outcome measures: HEDIS

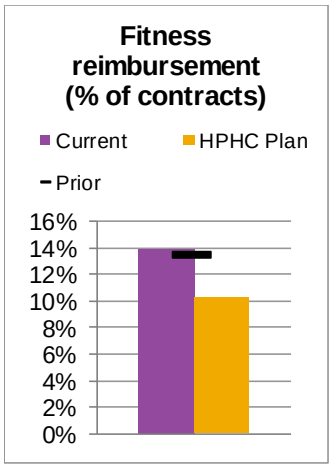
The Healthcare Effectiveness Data and Information Set (HEDIS) is a set of standardized performance measures designed by the National Committee on Quality Assurance. HEDIS measures allow employers and consumers to evaluate health care plan performance on important dimensions of care and service. The graph below shows HEDIS results related to pediatric health and early cancer prevention screenings for City of Boston benchmarked against the national 75th percentile.



Prevent care HEDIS results for the City of Boston are above the national 75th percentile in PYE 6.2017.

6.5.2 Exercise: Percentage of contracts using fitness benefit

It's a proven fact that people benefit from exercise. To encourage our members to get moving, Harvard Pilgrim offers an up to $150 fitness reimbursement program. This savings program provides an incentive for members to sign up for fitness clubs and stay fit through exercise. The following illustrates how City of Boston employees take advantage of the fitness reimbursement as compared to our entire membership eligible for the program:



Proportionally more Boston members have taken advantage of the fitness benefit than the HPHC Plan average; Boston's rate is 4 percentage points higher than the benchmark.

6.6 Getting Better: Acute Conditions and Utilization Management

Program Overview: Our Utilization Management (UM) staff use evidence-based guidelines and criteria to evaluate the medical necessity and clinical appropriateness of requested services, and facilitate fair and consistent UM decisions. All criteria are reviewed/updated at least annually to make certain they remain current and consistent with changing standards in medical care. All UM guidelines and criteria are made available to members and providers upon request.

- **Facility Management/Post Discharge and High Cost Claimant (HCC) Follow-up:** Skilled nursing and rehabilitation hospital telephonic or on-site reviews for medical necessity and care coordination by a Nurse Care Manager, post hospitalization discharge follow-up calls by a Nurse Care Manager, and High Cost Claimant outreach calls to members not previously identified by other measures
- **Physician Review:** Cases Review of authorizations for continuation of medical services
- **Utilization Management Reviews:** Approval/disapproval of authorization requests for inpatient admission and outpatient services such as homecare, physical therapy, occupational therapy, etc.
- **High Cost Claimant (HCC):** Total member expense >$50,000 in a rolling 12 months

Care Coordination/Care Management	Identified	Successful Interaction
Care Coordination	1,171	618

Harvard Pilgrim Health Care

Utilization Management Reviews	Total	% Approved	MA COM
Radiology	6,219	100%	97%
Outpatient Rehab	1,836	99%	98%
Sleep Studies	1,811	95%	96%
Inpatient	1,793	98%	98%
Home Care	832	96%	95%
Surgical Day	312	97%	95%
Skilled Nursing Facility/Rehab	288	94%	94%
Injectables	226	93%	94%
Infertility Treatment	215	90%	92%
Surgery General	208	93%	93%
Surgery Facial	91	95%	95%
Medical Equipment	87	92%	96%
Knee Surgery	68	100%	100%
Hysterectomy	50	100%	96%
Cholecystectomy Surgery	40	95%	98%
Hip Surgery	39	100%	100%
Sinus Surgery	36	94%	98%
Bladder Repair Surgery	23	100%	98%
Neurostimulators	7	100%	96%
Surgery Oral/Dental	7	86%	69%
Alternative Medicine	0	N/A	25%

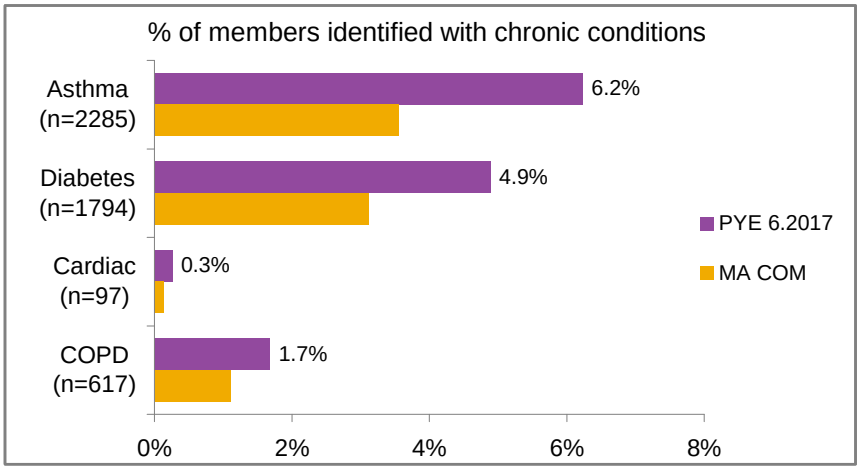
6.7 Living with Illness: Chronic Conditions

Program Overview: Harvard Pilgrim is a nationally recognized leader in disease management. Members are identified for participation in programs using a combination of provider referrals, self-referrals, computerized algorithms, disease-specific high-risk registries, claims analysis, high cost claimant lists, and predictive modeling programs.

This section highlights metrics for members with several common chronic conditions.

6.7.1 Percent of members identified with condition

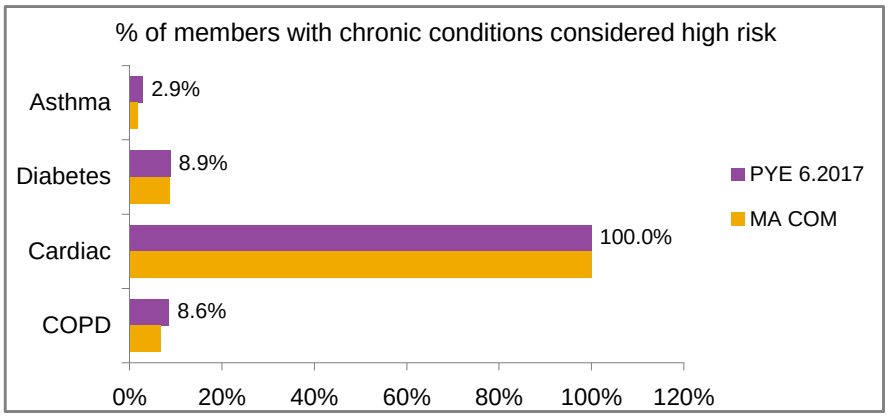
The graph below shows the percentage of City of Boston members identified with common chronic conditions.



Asthma is the common chronic condition that most City of Boston members have (2,285).

6.7.2 Percent of members identified as high risk

Of all members with each condition, some were identified as high risk using the methods described above. The graph below shows the percentage of members with each condition who were considered high risk.

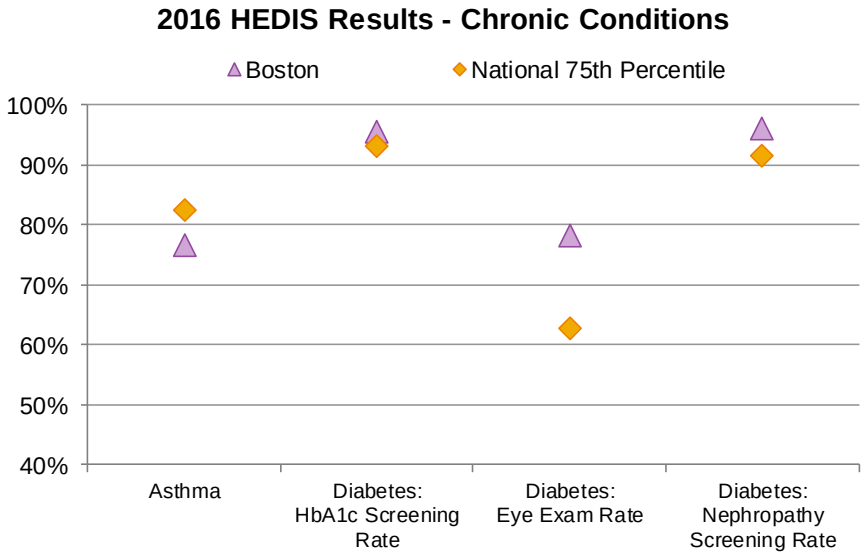


Though Cardiac is the condition with the fewest City of Boston members, those members are most likely to have their condition effect their health.

6.7.3 Program participation and level of engagement

	Total	Low-Moderate Risk		High Risk						
Condition	Total identified	Identified	Enrolled	Identified	% of total identified	Enrolled	Partici-pating	Completed	Outreach in process	MA COM
Asthma	2,285	2,218	2,041	67	2.9%	67	7 (10%)	20 (30%)	1 (1%)	42%
Diabetes	1,794	1,635	1,504	159	8.9%	159	5 (3%)	58 (36%)	6 (4%)	37%
Cardiac	97	0	0	97	100.0%	97	18 (19%)	44 (45%)	2 (2%)	49%
COPD	617	564	519	53	8.6%	53	9 (17%)	17 (32%)	2 (4%)	51%

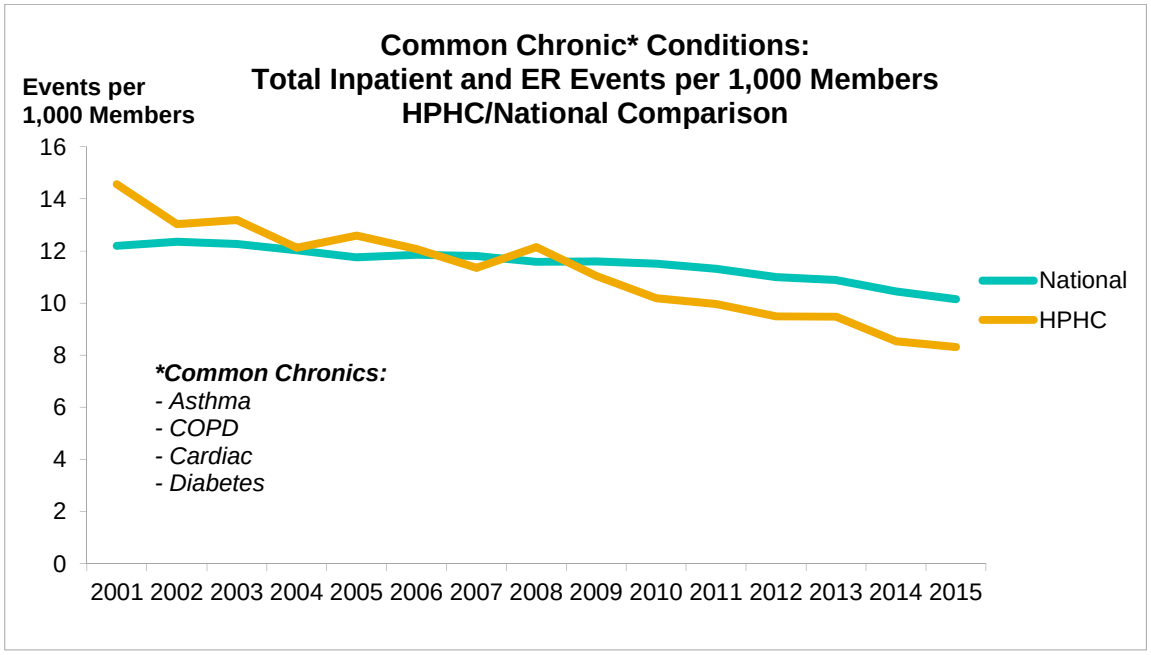
6.7.4 HEDIS metrics for chronic conditions



Asthma was the only HEDIS chronic condition below the national 75th percentile for the City of Boston.

6.7.5 Program-wide event rate analysis for chronic conditions

The Disease Management Purchasing Consortium compared Harvard Pilgrim's inpatient and emergency room visits (events) for chronic conditions to other health plans across the nation, including several New England plans. The graph below shows the multi-year comparison of Harvard Pilgrim-related events to the average of the other plans in the study. The results showed that Harvard Pilgrim outperformed the national average.

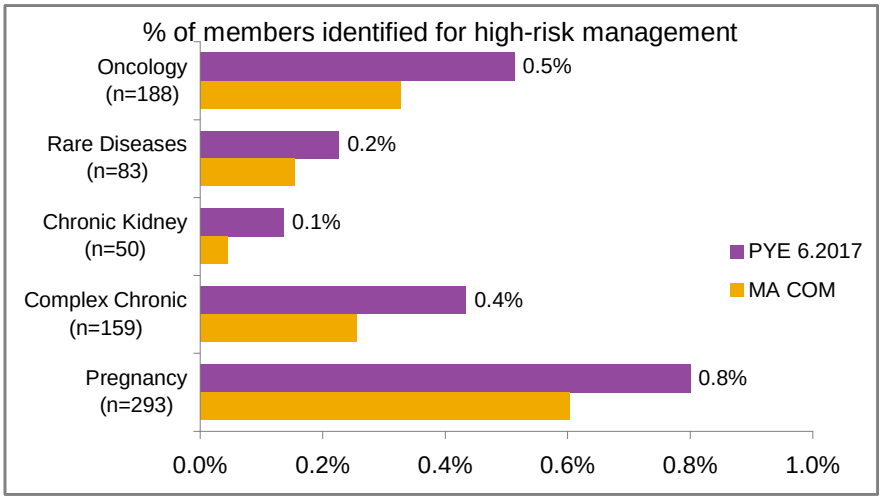


6.8 Living with Illness: High Risk Management

Program Overview: To help improve the quality of life for members with various diseases and increase their ability to manage their conditions in the least restrictive setting, Harvard Pilgrim offers specialty programs that include outreach by nurses, educational materials based on members' needs, and assistance from medical social workers. These programs share the following objectives:

- Coordination of care
- Health and quality of life via self-management
- Reduction of avoidable hospitalizations and emergency room visits
- Support of physician treatment plans through member education

6.8.1 Percent of members identified

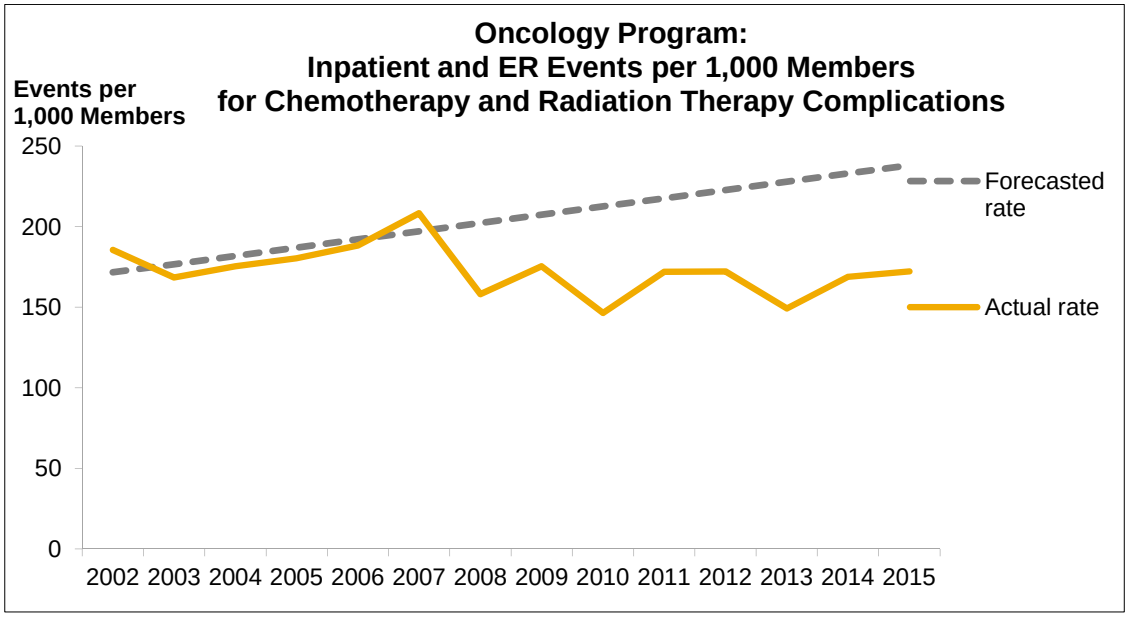


6.8.2 Program participation and level of engagement

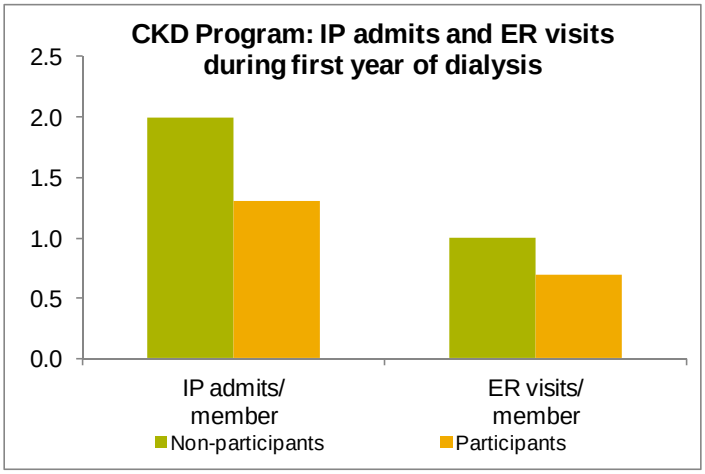
	Total			*High Risk*				
Program	**Total identified**	**Identified**	**% of total identified**	**Enrolled**	**Partici-pating**	**Completed**	**Outreach in process**	**MA COM**
Oncology	188	188	100.0%	188	10 (5%)	68 (36%)	7 (4%)	40%
Rare Diseases	83	83	100.0%	83	5 (6%)	27 (33%)	12 (14%)	41%
Chronic Kidney	50	50	100.0%	50	2 (4%)	22 (44%)	2 (4%)	45%
Complex Chronic	159	159	100.0%	159	7 (4%)	47 (30%)	5 (3%)	34%
Pregnancy	293	293	100.0%	293	1 (0%)	16 (5%)	2 (1%)	4%

6.8.3 Program-wide event rate analysis for specialty conditions

Disease Management (DM) programs focus on certain conditions with low prevalence but high cost and utilization. Harvard Pilgrim manages members with cancer in our Oncology disease management program, which was initiated in 2007. The graph below illustrates reductions in inpatient and emergency room utilization due to managing patients' chemotherapy/radiation therapy complications.



Another DM program offered by Harvard Pilgrim is the **Chronic Kidney Disease (CKD) program,** which started in 2006 to manage members with CKD or end-stage renal disease (ESRD) after the onset of their CKD-related chronic outpatient dialysis. The graph below illustrates reduced inpatient (IP) and emergency room (ER) utilization of the participants as compared to the non-participants during the first year after CKD-related outpatient dialysis began (35% and 30% lower utilization, respectively). The reduced utilization translated into medical cost savings of $2.8 million. This finding has been audited and validated by Al Lewis, DMPC.



Six rare diseases— Crohn's disease, lupus, multiple sclerosis, Parkinson's disease, rheumatoid arthritis, and ulcerative colitis—are managed by our **Rare Disease Management program,** brought in-house as of February 2013. (Members with other complex diseases receive support through our complex care disease management program.)

6.9 Gaps in Care Identified and Number and Types of Goals Met

The identification of gaps in care is fundamental to our medical management and disease management approach. The ultimate goals are the proactive identification of members at risk for complex, costly, or long-term health care services; and the facilitation of efficient and appropriate medical management, monitoring, and coordination of care across the health care continuum.

Our **gaps in care technology** is applied broadly. It includes disease management and predictive modeling, as well as prevention (e.g., overdue screenings), medication compliance (such as overdue Rx refills), appropriate monitoring (e.g., overdue lab testing), and appropriate follow-up (for example, post-discharge appointments).

When gaps are identified, an outreach to the member is triggered. The frequency and mode of messaging will depend upon the program and on the nature of the gap. We utilize multiple communication vehicles, including written communication (postcard or letter reminders), secure push email and direct live outreach from a nurse care manager or health coach. Ongoing outreach occurs based upon participant acuity and can be escalated if the gap is not addressed. We also use care gap methodology to inform physicians of pertinent treatment plan issues.

7. Definitions

Eligible Members

Eligible members include all members who are appropriate for enrollment in Specialty Care/Disease Management programs. For Fully-Insured employer groups, members whose primary care physicians are part of Atrius (Harvard Vanguard Medical Associates, Dedham Medical Associates, Granite Medical, Southboro Medical Group & South Shore Medical Center) are not eligible for SC/DM programs. For Self-Insured employer groups, members are only eligible if the group elects to purchase the specific SC/DM program.

SC/DM Identified Members

Identified members include all members identified through claims history for potential enrollment in Specialty Care/Disease Management programs.

SC/DM Managed Members

Managed members include all members identified and enrolled in Specialty Care/Disease Management programs.

Specialty Care/Disease Management (SC/DM) Programs - Detailed Descriptions

Harvard Pilgrim telephonic outreach programs staffed by nurse care managers designed to interact with members whose medical care needs fall within the scope of traditional SC/DM programs.

Chronic Kidney Disease(SM) Program

Harvard Pilgrim's Chronic Kidney Disease program relies on proactive member identification, customized care planning, and coordinated care. Program components include telephonic outreach and hospital follow-up; development of a management plan to coordinate care among multiple providers; referral to a Social Worker; on-site visits to dialysis centers; feedback to providers and co-management with mental health providers as appropriate; and a member education toolbox that includes self-care strategies about dietary management and fluid restrictions.

HeartBeats(SM) Program

Harvard Pilgrim's HeartBeats cardiac disease management program is designed to improve the quality of life for members with cardiac conditions that can be impacted by adherence to proper treatment regimens and behavioral change, such as Coronary Artery Disease (CAD) and Congestive Heart Failure (CHF). Members are identified for outreach using condition-specific algorithms developed by Harvard Pilgrim and the program emphasizes assessment, member and practitioner education, treatment compliance, and coordination of care.

Complex Care Disease Management Program

Our complex care disease management program supports Harvard Pilgrim members most at risk for hospitalization due to multiple health conditions or diagnoses. These members represent less than one percent of any group's membership yet can account for up to 30 percent of all medical costs. By intervening early, specially trained nurse care managers help to coordinate the care of members whose treatment is often fragmented and unmanaged. Since its inception in 2001, this program has dramatically decreased the number of inpatient days for members receiving extensive medical services.

Healthy Pregnancy (SM) Program

Harvard Pilgrim's Pregnancy Care Management Program identifies members for early intervention using a claims based algorithm. Healthy Pregnancy Management includes: educational mailings

regarding healthy behavior (nutrition, smoking cessation, substance use, domestic violence, etc.); telephonic outreach to members who respond to mailings, self-refer, or are referred by their healthcare provider; and post-partum education and support including telephonic outreach two to four weeks postpartum.

High-Risk Pregnancy Management includes all aspects of the Healthy Pregnancy Management as described above along with additional coordination of care for high-risk members: This coordination includes: monthly telephonic outreach; clinical assessment of health status and co-morbidities related to high-risk pregnancy; development of management plan to coordinate care between multiple providers; social worker support; management of benefits; and co-management with mental health providers.

Oncology(SM) Program

Harvard Pilgrim's Oncology Care Management Program is designed to provide members with access to our oncology care managers, who work to ensure that members receive the most appropriate services. Members undergoing active chemotherapy and/or radiation treatment are eligible for this program. It offers a member-centered care plan that addresses both clinical and psychosocial issues, including support for family members.

Rare Disease Management Program

Harvard Pilgrim's rare disease program is focused on providing support services to members with complex, chronic conditions. This interactive health management program combines personalized content, specialized education, disease specific assessment tools and interaction with specially trained nurse care managers, to effectively deliver improved quality of life while reducing healthcare costs and improving outcomes to our members.

Currently the program offers support for members with the following progressive and chronic conditions: multiple sclerosis, lupus, rheumatoid arthritis, Parkinson's disease, Crohn's disease and colitis.

High Risk Asthma Program

Harvard Pilgrim's *High Risk Asthma Program* is designed to help improve the quality of life for members with Asthma through member engagement to increase their ability to manage their condition, and to prevent secondary complications. The program is open to members of all ages with this specific diagnosis. Each member is assigned to an Asthma Nurse Care Manager who works collaboratively with the member and their caregivers to ensure the most appropriate plan of care. The program empowers members through education while reducing overall costs. The program includes: proactive member identification, coordination of care, member education and practitioner collaboration.

High Risk Chronic Obstructive Pulmonary Disorder Program

Harvard Pilgrim's *High Risk Chronic Obstructive Pulmonary Disease (COPD) Program* is designed to support and educate members about ways to slow disease progression and minimize effects on quality of life. The program assists members through engagement to reach their maximum potential by proactively managing their symptoms. Education will focus on ways to minimize symptoms, deal with anxiety, breathe more efficiently, conserve energy and protect from infections. The program includes: proactive member identification, coordination of care, member education and practitioner collaboration.

High Risk Diabetes Program

Harvard Pilgrim's *High Risk Diabetes Program* is designed to help improve the quality of life through member engagement, to increase their ability to manage their condition, and to prevent or delay secondary complications. The program is open to members of all ages with this specific diagnosis. Each member is assigned to a Diabetes Nurse Care Manager who works collaboratively with the member and their caregivers to ensure the most appropriate plan of care. The program empowers members through education while reducing overall costs. The program includes: proactive member identification, coordination of care, member education and practitioner collaboration.

General Care Management

Nurse care manager outreach to members with episodic care coordination needs. This includes post-hospitalization follow-up, working with members receiving home care, living in skilled nursing or rehabilitation facilities, and often involves referrals to clinical pharmacists or other clinical specialists.

Utilization Management

Utilization Management at Harvard Pilgrim Health Care includes programs designed to evaluate the appropriateness, medical need and efficiency of health care services. These programs include a preauthorization program, a radiology program and a drug & pharmacy review program.

NCQA Quality Dividend Calculator

The 2008 Quality Dividend Calculator estimates the absenteeism, lost productivity and related expenses that result from a specific set of chronic conditions: asthma, diabetes, heart disease, depression, and others. The model is designed to show how different health plans will affect your employees' absenteeism and productivity, based on their performance in managing employee health. It is able to compare the performance of Harvard Pilgrim management to various benchmarks.

Harvard Pilgrim compared its results to the national average of NCQA accredited health plans in three specific condition categories: asthma, diabetes, and heart disease. The annual savings per condition represents the difference between Harvard Pilgrim's results and the national average for that specific condition.

8. Appendix A: Selected prevention guidelines

Type of screening	Population(s) targeted	Recommended schedule
Adult		
Breast cancer	Women 20 and older	• Clinical breast exam and self-exam instruction, **plus:** ▪ *Age 40-49:* mammography at discretion of clinician/patient ▪ *Age 50-69:* annual mammography ▪ *Age 70+:* mammography at clinician/patient discretion
Cervical cancer	Women 21 and older, or earlier if sexually active	• First Pap test and pelvic exam by age 21, or 3 years after first sexual intercourse ▪ *Up to age 64:* every 1-3 years, depending on risk factors ▪ *Age 65+:* every 1-3 years at clinician discretion
Colorectal cancer	All adults	• *Age 18-49:* Not routine except for high-risk patients • *Age 50+ (after age 80 at clinician/patient discretion):* ▪ Colonoscopy at age 50 and then every 10 years, **or** ▪ Fetal occult blood test (FOBT) plus sigmoidoscopy every 5 years, **or** ▪ Sigmoidoscopy every 5 years, **or** ▪ Double-contrast barium enema every 5 years, **or** ▪ Annual FOBT
Testicular and prostate cancer	Adult men	• *Age 18-39:* Clinical testicular exam and self-exam instruction • *Age 40-49:* Digital rectal exam (DRE) for patients at high risk of prostate cancer; PSA screening in high-risk patients at clinician/patient discretion • *Age 50+:* DRE; PSA screening at clinician/patient discretion
Infectious disease screening	Not routine; only for those at risk	• For sexually transmitted infections, various screenings (chlamydia, gonorrhea, syphilis, and HPV) ▪ If 26 or younger and not vaccinated with HPV vaccine, counseling re vaccine schedule • For HIV, routine/annual testing of patients at increased risk • For Hepatitis C, periodic testing of high-risk patients • For TB, tuberculin skin testing of high-risk patients
Pediatric		
Well child visit	All children	• *Infants up to age 1:* Visits at 1-2 weeks, and at 1, 2, 4, 6, 9, and 12 months • *Children 1-4:* Visits at 15, 18, and 24 months, and 3 and 4 years • *Age 5 and up:* Annual visit