COMMONWEALTH OF MASSACHUSETTS
HEALTH POLICY COMMISSION

TECHNICAL APPENDIX B1
TRENDS IN SPENDING AND CARE DELIVERY

ADDENDUM TO 2018 COST TRENDS REPORT

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1 Summary

This section describes the Health Policy Commission's (HPC) approach to the analyses contained in **Chapter 2: "Overview of Trends in Spending and Care Delivery"** of the 2018 Cost Trends Report.

2 Total family premium and employee contribution to premium in Massachusetts by the firm's wage quartile

2.1 Data

The HPC used data from the Agency for Healthcare Research and Quality's Medical Expenditure Panel Survey (MEPS)—a set of large-scale surveys of families and individuals, their medical providers, and employers across the United States. Total family premium can be found in Table VIII.D.1, "Average total family premium (in dollars) per enrolled employee at private-sector establishments that offer health insurance by average wage quartiles and State: United States, 2017." Employee contribution can be found in Table VIII.D.2, "Average total employee contribution (in dollars) per enrolled employee for family coverage at private-sector establishments that offer health insurance by average wage quartiles and State: United States, 2017." For more information on these sources, see **Technical Appendix D: "Data Sources."**

3 Differences in utilization and spending for families of similar income but better or worse health status

3.1 Data

The HPC used data from the Center for Health Information and Analysis' Massachusetts Health Insurance Survey (MHIS) for 2014, 2015 and 2017. The MHIS provides information on health insurance coverage, health care access, use, and affordability for Massachusetts residents as part of CHIA's Continuing Study on Insurance Coverage, Underinsurance and Uninsurance.

3.2 Definitions

HPC restricted this analysis to single and family households with Health Connector or Commercial insurance. For those with Health Connector insurance, we restricted to those with a federal poverty level (FPL) from 139% and 299%. For those with commercial insurance, we restricted to those with a federal poverty level (FPL) from 139% and up. Seniors (ages 65+), those missing income data, the uninsured, those with a missing household type, household types of "Married couple, no children" or "Single parent with less than two children," and those with income levels that did not match the benefit level of their listed insurance type were excluded.

As out-of-pocket costs (OOP) were reported in ranges, range midpoints where used for quantitative analyses (e.g., "$200 to under $500" was converted to $350).

3.3 Analysis

All calculations were done using Stata 13's survey estimation commands and CHIA-provided sample weights. Calculations of health care spending were done separately for single and family households, and then volume weighted to create a representative figure.

4 Hospital price variation for oncology drugs

4.1 Data

The HPC used 2016 medical claims for Blue Cross Blue Shield and Tufts Health Plan from the All-Payer Claims Database for this analysis. Harvard Pilgrim Health Care claims were excluded due to data anomalies.

4.2 Analysis

Analysis was based on the 15 injectable chemotherapy drugs for which at least 10 hospitals billed more than 10 claims in 2016. These codes are listed in **4.3 Price and average units of included drugs**. The final data set consisted of 12,490 outpatient chemotherapy drug claims from 32 acute care hospitals in Massachusetts, including one cancer specialty hospital.

Because a single claim often includes multiple units of a drug administered at one time, and because the number of units per claim can vary for the same drug, we compared variation in price per unit of the drug, rather than price per claim. The claims in the data set accounted for 600,598 units of these drugs. For the drugs examined, the median price per claim across all hospitals was $203. The median price per unit was $16.36.

The data set contained 17 340B-eligible hospitals and 15 non-340B hospitals. The analysis of prices by 340B status by hospital excludes the two high-priced outliers.

4.3 Price and average units of included drugs

Drug Procedure Code	Drug Name	Median Price	Highest Price	Lowest Price	High: Low Ratio	Average Units per Claim
J9000	Doxorubicin HCl injection	$3.22	$6.09	$2.11	2.89	8.6
J9033	Bendamustine injection	$25.56	$50.49	$13.03	3.87	151.4
J9035	Bevacizumab injection	$77.24	$141.35	$70.23	2.01	45.8
J9041	Bortezomib injection	$46.71	$87.03	$41.45	2.10	28.9
J9045	Carboplatin injection	$3.65	$35.49	$3.06	11.59	10.4
J9060	Cisplatin 10 mg injection	$1.94	$12.28	$1.45	8.47	9.1
J9070	Cyclophosphamide 100 mg injection	$47.49	$93.62	$42.13	2.22	11.1
J9181	Etoposide injection	$0.69	$2.60	$0.46	5.68	17.3
J9190	Fluorouracil injection	$1.84	$10.65	$1.33	7.98	8.2
J9201	Gemcitabine HCl injection	$7.70	$37.81	$5.40	7.00	8.4
J9206	Irinotecan injection	$4.51	$13.67	$2.97	4.61	15.0
J9263	Oxaliplatin	$0.40	$7.95	$0.36	21.98	276.9
J9305	Pemetrexed injection	$62.58	$122.00	$42.63	2.86	75.9
J9310	Rituximab injection	$804.45	$1,494.36	$748.70	1.996	6.6
J9355	Trastuzumab injection	$91.15	$176.00	$87.36	2.01	38.3