MILLIMAN REPORT

Potential Impacts on Costs and Premiums Related to the Elimination of Prior Authorization Requirements in Massachusetts

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I. EXECUTIVE SUMMARY

Purchasers of health insurance, including individuals and families, employers, and government agencies, expect payers[1] to manage the cost and quality of prescription drug and medical services delivered. To meet this expectation payers, monitor and manage utilization of services, treatments, and medications to ensure that health care resources are used appropriately, and evidence-based care is delivered at the right place, at the right time, and in the most appropriate setting.

Prior-authorization (PA) is one tool employed by commercial payers and managed care organizations or MCOs (hereafter collectively referred to as "plans") in the managed care industry to optimize the utilization of various high-dollar or potentially low-value services that are covered under typical comprehensive medical coverage. Services that could be over-utilized or misused, might not meet medical necessity criteria, are considered unsafe, or have alternative treatments available, are likely candidates for PA. Other services that are candidates for PA are those that are rare, but extremely expensive or where clinical safety is less certain.

Prior authorization can be an effective cost control tool depending on the scope of services subject to PA, as well as the stringency of the application of the authorization rules.[2,3] It can also help members avoid unnecessary risks and / or paying additional out-of-pocket cost sharing and improve health outcomes by ensuring that members are treated in accordance with the latest clinical guidelines and evidence-based medicine. Likewise, PA can improve community practice by ensuring that providers are meeting nationally and locally accepted evidence-based standards of medical practice.[4] However, PA can add to the administrative burden for healthcare providers and obtaining PA approval is often cited by providers as the primary reason for delays in care or the patient not seeking the treatment at all,[5] which can lead to increased long-term costs.[6]

Given that PA programs impact clinical care and can affect member and provider satisfaction, premiums, and member cost sharing, it is important that stakeholders understand the tradeoffs involved with limiting or eliminating PA, including the potential increase in healthcare costs associated with placing limitations on or even eliminating the use of PA. In the commercial market, increased costs impact insurance premiums and member cost sharing, while increased costs associated with limiting or eliminating the use of PA in Medicaid can impact a state's fiscal budget.[7]

The Massachusetts Association of Health Plans (MAHP) engaged Milliman to model the potential cost impacts that can result from generally[8] limiting or eliminating PA on the commercial and Medicaid markets in Massachusetts. The commercial market includes both self-insured and fully insured employer groups, the individual and small business ACA market, and the state's Group Insurance Commission which administers health insurance to the Commonwealth's employees, retirees, and dependents. For Medicaid, we considered enrollees under managed care plans (enrolled with an MCO) only and not fee-for-service enrollees.

Employers, who typically pay a large share of premiums under employer-sponsored health insurance programs, and some consumers in the individual market could see premium increases if the use of PA is either limited or eliminated. Likewise, commercially insured patients, who typically pay cost sharing (deductibles, copays, etc.), under their health plan, could see increases in their out-of-pocket costs as they would be paying cost sharing on, for example, potentially medically unnecessary services or on services with lower cost alternatives or more appropriate site of care. While cost sharing is limited in Medicaid, state Medicaid programs could see higher expenditures or capitation rates if PA criteria is limited or eliminated.

For this paper, we directly model the elimination of PA. Limitations of PA short of complete elimination could have impacts ranging from minimal to estimates closer to the costs of full elimination provided in this report. To understand the potential range of cost impacts resulting from eliminating PA in the commercial market, we analyze 2022 claims experience (trended to 2023 cost levels) including the member cost sharing portion, for a Massachusetts sample of commercial enrollees that purchased or were provided a typical major medical policy in 2022.[9] For Medicaid, we relied on 2020 Massachusetts Medicaid data from the Transformed Medicaid Statistical Information System (T-MSIS) monthly

[1] Third-party claims payers, such as commercial plans, Medicaid managed care organizations, Medicare advantage plans, federal and state governments. This paper focuses on commercial payers and MCOs.
[2] https://www.nihcr.org/wp-content/uploads/Altarum-Prior-Authorization-Review-November-2019.pdf
[3] https://www.gao.gov/assets/700/692138.pdf
[4] Massachusetts law requires that medical necessity guidelines be evidence-based. See General Law - Part I, Title XXII, Chapter 176O, Section 16 (malegislature.gov)
[5] https://www.hsgac.senate.gov/subcommittees/investigations/hearings/examining-health-care-denials-and-delays-in-medicare-advantage/
[6] https://www.ama-assn.org/system/files/2021-04/prior-authorization-survey.pdf
[7] In Massachusetts, Medicaid is ~30% of the state budget. https://budget.digital.mass.gov/govbudget/fy24/budbriefpdf/fy24_bb13_masshealth.pdf
[8] While there are ongoing discussions and proposals regarding prior authorization requirements, we do not model any specific proposal or legislation.
[9] Typical is defined as coverage that includes medical and pharmacy services and generally includes the essential health benefits (EHBs) as defined by the ACA. More information on EHBs can be found here: https://www.cms.gov/CCIIO/Resources/Data-Resources/ehb

claims files, a 100% dataset from CMS. It should be noted, that for the claims period analyzed, health plans in Massachusetts relaxed PA in some circumstances due to the COVID-19 pandemic.

Using PA code lists from plans in Massachusetts, we construct code lists with scopes characterized as "broad" (relatively more codes subject to PA review) and "narrow" (relatively fewer codes subject to PA review) to identify medical procedures and drugs that are subject to PA restrictions. We then apply a measure of program effectiveness, which is defined as the net percentage reduction in medical and prescription drug costs attributable to the PA program, to each of the scopes of services. Estimates of net effectiveness were based on data and information provided by Massachusetts plans. To calculate program effectiveness, we use a range of service denial rates provided by plans that provide commercial insurance, as well as managed Medicaid in Massachusetts.[10]

Finally, using a literature review, we estimate the "sentinel effect"[11] of eliminating PA. The "sentinel effect" is the increase in medical and prescription drug expense after PA is removed that is related to requests for authorizations that were previously unsubmitted when PA was in place because providers did not expect an approval. It is expected that these authorizations will be submitted once PA requirements are removed.

A summary of results can be found in Figures 1 and 2 below.[12]

Figure 1: Premium Impacts (PMPM) of PA Removal
Broad and Narrow
Commercial Market[13]

	% of Premium Impact					
	Broad PA List			Narrow PA List		
	Low Sentinel	Med Sentinel	High Sentinel	Low Sentinel	Med Sentinel	High Sentinel
Effectiveness	6.6%	6.6%	6.6%	5.1%	5.1%	5.1%
Sentinel	5.6%	11.2%	16.7%	4.1%	8.1%	12.2%
Total Impact	**12.1%**	**17.7%**	**23.3%**	**9.1%**	**13.2%**	**17.3%**
	$ PMPM Impact					
Effectiveness	$36.66	$36.66	$36.66	$28.48	$28.48	$28.48
Sentinel	$31.21	$62.42	$93.63	$22.71	$45.42	$68.13
Total Impact	**$67.86**	**$99.07**	**$130.28**	**$51.19**	**$73.90**	**$96.61**

Figure 2: Capitation Rate Impacts (PMPM) of PA Removal
Broad and Narrow
Medicaid Managed Care

	% of Capitation Impact					
	Broad PA List			Narrow PA List		
	Low Sentinel	Med Sentinel	High Sentinel	Low Sentinel	Med Sentinel	High Sentinel
Effectiveness	4.1%	4.1%	4.1%	2.1%	2.1%	2.1%
Sentinel	3.8%	7.6%	11.3%	1.7%	3.5%	5.2%
Total Impact	**7.9%**	**11.7%**	**15.5%**	**3.9%**	**5.6%**	**7.3%**
	$ PMPM Impact					
Effectiveness	$24.14	$24.14	$24.14	$12.27	$12.27	$12.27
Sentinel	$22.06	$44.12	$66.18	$10.20	$20.39	$30.59
Total Impact	**$46.20**	**$68.27**	**$90.33**	**$22.46**	**$32.66**	**$42.86**

The sentinel effect is additive because the impact of removing the effect of PA only accounts for this effect at a lower level of claims submission when PA was in effect. The sentinel effect accounts for the additional claims not contained in the calculation of effectiveness.

[10] Denial rates are a significant, but not the sole, driver of PA effectiveness. See considerations section in the main body of this report for more discussion related to factors influencing program effectiveness.
[11] Sentinel affect in general is the modification in behavior that occurs when subjects are aware they are being observed and measured.
[12] Please see the full report and Methodology section for sources, full development, and calculation methodology of these results.
[13] All results are applicable to the population modeled, which is broadly representative of a standard population with average age of 45 and covered by a typical large group major medical plan with an average AV of 85%. Results may differ for specific employers, individual purchasers, geographies or for younger or older populations.

Across the Massachusetts commercial market, we estimate a total annual impact to premiums of between $2.2-$5.6B and across the Medicaid market $0.4-$1.6B[14].

In addition, readers should also consider the following:

- Administrative Costs – While premium costs increase if limitations are placed on PAs, our research indicates that a plan's administrative costs related to PA would likely be lower, depending on the nature of the limitation. In the special cases where a PA is eliminated, it may allow a reduction in the staffing hours previously used to support that authorization. Since eliminating PA does not eliminate health plan requirements to manage cost and quality, administrative resources most likely would be redirected to retrospective audits. There may also be cost increases in other areas that offset these reductions. For example, it is likely plans will increase fraud, waste and abuse controls, monitoring of provider billing patterns, and / or payment integrity efforts. Plans may also have increased claims volume. Our analysis did not factor in these potential administrative cost changes. Therefore, the increases to premiums and capitation rates could be higher or lower than shown.

- Net Savings – Often PA results in a diversion of care from one course of treatment to another rather than a wholesale denial of a course of treatment. While the PA-approved treatment, if different from the original course of treatment, may still incur costs, there is often a net savings relative to the original course of care. When such PA programs are removed, the additional costs include the loss of these net savings rather than the full cost of treatment denied under the PA program. It is outside of the scope of this analysis to quantity in a detailed manner the impact of diversions of care as opposed to full denials for every service. Instead, we attempt to account for the average net savings by service category. We believe the general conservatism in our assumptions and methodology elsewhere is sufficient to arrive at a reasonable estimate of net savings.

- Value-Based Care (VBC) – Providers have different incentives under value-based payment (VBP) models than they would under a predominantly fee-for-service environment. Thus, any limitations placed on PA could have smaller effects on premiums, capitation rates, and cost sharing than shown in this analysis, particularly in delivery systems that are already efficient. That being said, the authors' experience is that the realignment of incentives in commercial and Medicaid VBP models has yet to result in a transformational change in behavior for providers. To date, a large percentage of commercial and Medicaid managed care members will not be covered in VBP models,[15] nor are the incentives sufficient to transform their delivery model.

The ultimate effect of eliminating PA on medical services and prescription drug utilization, which drives commercial premiums and Medicaid capitation rates, can be influenced by these considerations and others discussed in the body of this analysis.

The analysis in this report represents the opinion of the authors only.

This report is intended to inform stakeholders, which could include but is not limited to, employers, employees and other individual consumers, commercial plans, MassHealth, providers, lawmakers, and other policy makers about the range of potential financial impacts (i.e., changes in premiums, capitation rates under a managed Medicaid program and consumer cost sharing) of various changes to State laws intended to limit the plan practice of PA as a method of controlling costs. This report is technical in nature and readers with limited background in healthcare should consult a qualified professional when interpreting these results.

[14] Enrollment assumptions for total impact are from Enrollment in Health Insurance (chiamass.gov)
[15] https://hcp-lan.org/apm-measurement-effort/2020-2021-apm/2021-infographic/

II. BACKGROUND

Managed care plans use various processes known collectively as utilization management (UM) to improve patient outcomes, ensure efficacy and safety of medications, treatments, services, and procedures, and optimize the utilization of various high cost or potentially low-value services that are covered under typical major medical coverage. Likewise, prior authorization (PA) can increase the amount of care that the medical community adopts that is consistent with nationally and local-recognized evidence-based standards. UM usually encompasses prospective service review (i.e., prior to services being rendered), concurrent review (generally applicable to just inpatient hospital stays and occurring during the actual service period) and retrospective review (after claim is paid or service is rendered). In comparison to concurrent and retrospective review, however, prospective review can prevent unnecessary or harmful care from being delivered at the outset. Our analysis focuses on this front-end, prospective component of UM, which we refer to as prior authorization (PA). Services that are or could be over-utilized and misused, or services that do not meet medical necessity criteria, may raise safety concerns, or have alternative treatments available, are likely candidates for PA.

Typically, PA is characterized by requiring specific approval before a service is rendered or a drug is prescribed and there is a more involved administrative process of notification, documentation, and justification on the part of the ordering provider before a service is approved to be paid by the plan. Notification, documentation and approval or denial can be done telephonically or electronically through secure channels. Approval for a particular service can also be granted retrospectively but typically on exception basis. It is important to note, that the approval being requested is for plan payment to the provider. The approval or disapproval for payment of a particular service does not mean that the service cannot be provided.

Prior authorization can be an effective cost and quality control tool for plans depending on the services subject to PA, as well as the strictness of the application of the authorization rules. Controlling medical and prescription drug costs is an efficient way for plans to keep health insurance premium rates affordable for individuals, employers, and state Medicaid programs, as medical and prescription drug costs are the largest portion of costs underlying a typical major medical insurance policy. By identifying inappropriate, unnecessary, or ineffective services, PA can reduce financial and medical risk for plans and employers and help commercially insured individuals avoid additional out-of-pocket cost sharing on those services.

In addition to reducing costs, PA can be valuable in reducing variation in health care delivery through the use of evidence-based standards of determination. Stakeholders including provider groups, hospitals, state and federal agencies, professional societies and patient advocacy groups all have an interest in reducing non-evidence-based medicine as it can affect member outcomes adversely.

On the other hand, PA can add to the administrative burden for healthcare providers and is cited by providers as the primary reason for delays in care or for the patient not seeking the treatment.[16] In severe cases, (despite expedited review and approval processes being available), delayed or foregone treatment could ultimately increase costs if a member does not receive care until the condition worsens. Provider groups, such as the American Medical Association have criticized PA and multiple states, including Massachusetts, have proposed legislation seeking to limit PA practices of plans.[17] In the 2023-2024 legislative session, 37 bills have been filed by specialty societies, such as the Massachusetts Medical Society, Massachusetts Radiological Society, and the Massachusetts Psychiatric Association seeking to eliminate PA for specific services and treatments, as well as an omnibus bill, Senate Bill 1249 / House Bill 1143, which would eliminate PA requirements for all generic medications and any admission, service, treatment, procedure or medication with low denial rates or an evidence-base for treatment. In addition, the bill would eliminate the ability of plans to issue a PA denial based on an administrative or technical defect in the claim, such as an incomplete authorization request and would require a PA approval for a service or medication to remain approved for the duration of treatment, among other provisions. At the federal level, recent legislation seeking to place new requirements on Medicare Advantage plans using PA was estimated by the CBO to add $16 billion in costs over a 10-year period as a result of greater use of services.[18]

Prior authorization programs affect both member and provider satisfaction, as well as having clinical considerations. It is also important that stakeholders understand the potential cost impacts to eliminating the use of PA on commercial insurance premiums and member cost sharing, as well as state Medicaid program expenditures. Generally, PA reduces unnecessary utilization and shifts the mix of services utilized, both of which have the effect of reducing costs, all else equal. If PA is removed, it is expected that more services would be utilized and the mix of services would shift towards higher cost treatments, both of which would increase overall costs.

[16] https://www.ama-assn.org/system/files/2021-04/prior-authorization-survey.pdf
[17] https://www.ama-assn.org/practice-management/prior-authorization/what-prior-authorization
[18] https://www.cbo.gov/system/files/2022-09/hr3173_0.pdf

The Massachusetts Association of Health Plans (MAHP) engaged Milliman to model the cost impacts of limiting or eliminating PA on:

- Massachusetts employers - who generally pay a large portion of premium under employer sponsored plans
- Massachusetts consumers - either individual purchasers or employees, who pay a portion of the premium, as well as deductibles, coinsurance, and copays
- The Commonwealth of Massachusetts, which includes budget impacts to MassHealth (Massachusetts's Medicaid and Children's Health Insurance Program) and the State's obligations to comply with the Massachusetts' health care cost growth benchmark

This report is intended to inform stakeholders, which could include but is not limited to, employers, employees and other individual consumers, commercial plans, MassHealth, providers, lawmakers, and other policy makers about the range of potential financial impacts (i.e., changes in premiums, capitation rates under a managed Medicaid program and consumer cost sharing) of various changes to State laws intended to limit the plan practice of PA as a method of controlling costs. This report is technical in nature and readers with limited background in healthcare should consult a qualified professional when interpreting these results.

ANALYSIS PROCESS OVERVIEW

We used the following analysis process to arrive at the results in this paper:

1. Construct hypothetical but representative PA code lists from data contributed by Massachusetts health plans for both Medicaid and commercial business.
2. Apply the codes to Milliman data and flag claims data that contains services subject to PA.
3. Summarize this claims experience to understand the scope of costs subject to PA.
4. Using data contributed by health plans in Massachusetts, calculate the average effect (i.e., net reduction in costs) of PA programs on medical and prescription drug costs subject to PA.
5. Apply these effectiveness measures to claims subject to PA and recalculate implied premiums or capitation rates assuming effective PA is removed.
6. Using data summarized from publicly available studies, calculate an average "sentinel effect."
7. Apply the sentinel effect to costs, similar to Step 5.
8. Add together the effects of Steps 5 and 7 to arrive at a total potential impact (cost increase) of removing PA.

The remainder of this report follows the above outline.

III. MEDICAL AND DRUG ALLOWED COST RESULTS

We requested information from MAHP member plans operating in the Massachusetts commercial and managed Medicaid markets relating to medical and prescription drug claim codes, including Healthcare Common Procedure Coding System (HCPCS), Current Procedural Terminology (CPT), and National Drug Codes (NDCs). We use this information to identify services and drugs that are currently subject to PA.

The scope of services and associated procedure codes that are subject to PA vary by plan. To accommodate this variation, we construct two scenarios representing PA programs in Massachusetts characterized as either a broad or narrow scope of services. The broad list reflects codes commonly reviewed by plans with more comprehensive PA programs. The narrow PA list is a subset of broad and reflects only the codes more commonly reviewed by plans with less comprehensive PA lists. We also note considerable differences in the services reviewed between commercial and the managed Medicaid markets,[19] so we created separate broad and narrow lists for each market. Please note, that the broad and narrow lists do not represent any single plan operating in Massachusetts, but rather are composites that we believe are generally representative of practices in the commercial and Medicaid markets. Additionally, the hypothetical broad and narrow lists overlap considerably in terms of services that are included.

We then use these lists to identify the portion of allowed[20] claims cost in each service or benefit category that is subject to PA. We use calendar year 2022 claims experience from Milliman's proprietary database for commercial claims and use calendar year 2020 claims data from the Transformed Medicaid Statistical System (T-MSIS) for managed Medicaid, trended to 2023 claims levels. These costs represent composite, Massachusetts commercial and managed Medicaid benefit plans with average actuarial values of ~85% and 98%, respectively.[21] We map the broad and narrow scope code lists to the medical and prescription drug claims data and summarize the claims subject to PA below in Figures 3 and 4.

Figure 3: Summary of Benefit / Services Subject to PA
Commercial

Benefit / Service Categories	(a) Total Allowed Claims PMPM	(b) Claims Subject to Broad PA List PMPM	(c) Claims Subject to Narrow PA List PMPM	(d) = (b) / (a) Broad % of Total	(e) = (c) / (a) Narrow % of Total
Inpatient	$90.75	$71.09	$62.52	78.3%	68.9%
Outpatient Surgery	$72.62	$42.22	$19.24	58.1%	26.5%
Drugs in the Medical Benefit	$43.63	$31.80	$29.61	72.9%	67.9%
Other Outpatient	$41.36	$23.91	$5.45	57.8%	13.2%
Radiological Services	$28.18	$18.04	$15.71	64.0%	55.7%
Other Professional	$55.12	$17.37	$2.17	31.5%	3.9%
Physical / Occupational / Speech Therapies	$6.43	$6.04	$5.27	93.8%	81.9%
DME / Prosthetics / Medical Supplies	$10.14	$5.79	$3.83	57.1%	37.8%
Cardiovascular Services	$8.14	$5.09	$3.17	62.5%	38.9%
Ancillary Services	$27.77	$2.85	$1.78	10.3%	6.4%
Laboratory / Pathology	$22.55	$2.01	$1.17	8.9%	5.2%
Specialty Drugs	$85.67	$73.20	$67.66	85.4%	79.0%
Brand Drugs	$52.23	$8.03	$3.48	15.4%	6.7%
Generic Drugs	$22.73	$1.87	$0.12	8.2%	0.5%
Total Medical	$406.69	$226.20	$149.93	55.6%	36.9%
Total Drug	$160.63	$83.10	$71.25	51.7%	44.4%
Total	**$567.32**	**$309.30**	**$221.18**	**54.5%**	**39.0%**

[19] Employers purchasing coverage, state Medicaid agencies, and Medicare establish PA requirements based on the population served, clinical practice guidelines, peer-reviewed medical literature, and pharmacoeconomic studies which will result in variation in services subject to PA.

[20] Allowed amount is the total amount received by the provider from the payer and the member.

[21] Actuarial value is the average percentage of patient costs paid by the plan or (plan liability) / (total allowed cost)

Figures 3 and 4 illustrate the portion of medical and prescription drug allowed costs subject to a broad or narrow PA program, by benefit category, expressed as both PMPM amounts and percentages of total allowed costs for both commercial and Medicaid.

From Figure 3 (Commercial), we note the following:

- Under the broad scope PA scenario, $309 PMPM, or 54.5%, of authorized medical costs are subject to PAs of various types, as compared to $221 PMPM, or 39.0%, for the narrow scope PA scenario.[22] In previous work,[23] we have observed similar differences in broad versus narrow costs.
- For prescription drugs, about 52% of authorized allowed costs are subject to PA, driven heavily by specialty drugs, where 85% of costs were for drugs subject to PA under the broad scope PA scenario.
- A significant portion of costs subject to the broad and narrow scope PA programs (about 71% and 81% of allowed costs, respectively) are found in just the top three medical categories plus specialty drugs. This implies that any limitations to PA applied to these categories could have a larger impact on premiums than the remaining categories.

Figure 4: Summary of Benefit / Services Subject to PA
Medicaid Managed Care

Benefit / Service Categories	(a) Total Allowed Claims PMPM	(b) Claims Subject to Broad PA List PMPM	(c) Claims Subject to Narrow PA List PMPM	(d) = (b) / (a) Broad % of Total	(e) = (c) / (a) Narrow % of Total
Inpatient	$64.37	$9.81	$2.81	15.2%	4.4%
Outpatient	$136.62	$39.33	$17.57	28.8%	12.9%
Professional	$115.76	$56.41	$6.08	48.7%	5.3%
Ancillary	$2.25	$0.50	$0.31	22.1%	13.8%
Specialty Drugs	$77.90	$56.61	$45.76	72.7%	58.7%
Brand Drugs	$85.89	$25.86	$16.46	30.1%	19.2%
Generic Drugs	$42.18	$10.03	$2.78	23.8%	6.6%
Total Medical	$319.00	$106.05	$26.77	33.2%	8.4%
Total Drug	$205.97	$92.50	$65.00	44.9%	31.6%
Total	**$524.97**	**$198.55**	**$91.78**	**37.8%**	**17.5%**

From Figure 4 (Medicaid), we note the following:

- Under the broad scope PA scenario, $199 PMPM, or 37.8%, of authorized medical costs are subject to PAs of various types, as compared to $92 PMPM, or 17.5%, for the narrow scope PA scenario.
- For prescription drugs, about 45% of authorized allowed costs are subject to PA, driven heavily by specialty drugs, where 73% of costs were for drugs subject to PA under the broad scope PA scenario.
- Compared to commercial, a lower percent of medical services are flagged as subject to PA, with more of the claims subject to PA coming from prescription drugs.
- The Commonwealth of Massachusetts Medicaid program has various requirements related to PA that MCOs impact the list of service codes that are flagged.

[22] These percentages, while reasonable to convey the general magnitude of medical cost typically subject to PA, are understated as they represent the cost after the effect of the PA program.
[23] Potential impacts on commercial costs and premiums related to the elimination of prior authorization requirements (milliman.com)

The distributions for both commercial and Medicaid above suggest that significant portions of health care costs can be subject to PA. Moreover, limitations to, or eliminations of, PA programs will have varying effects on health care costs depending on a plan's current scope of services subject to PA and whether limitations on the use of PA are applied to all services or targeted to specific service categories. For example, the removal of PA requirements for medical or prescription drug costs that are currently heavily managed using PA (such as inpatient admissions, outpatient surgeries or specialty drugs) will have a greater impact on overall costs than eliminating PA programs on lower cost categories of care (such as therapies or generic drugs).

It should be noted that the above distribution of allowed claims costs that are currently subject to PA review in Massachusetts does not include any new, innovative, and likely expensive therapies that may otherwise be candidates for effective PA. As these innovations proliferate, a larger percentage of costs would likely be subject to PA than what is shown and any removal or limitation of PA will also have correspondingly larger impacts than shown.

IV. RANGE OF IMPACTS TO PREMIUMS AND MEMBER COST SHARING

We noted earlier that commercial premiums and capitation rates are likely to increase as a result of increasing utilization once PA is removed. We estimate the impact of removing PA on commercial premiums by calculating the increase in medical and prescription drug paid benefit expense (i.e., the portion of allowed claims for which the plan is responsible) by a measure of program effectiveness (shown in Table 5) and for a "sentinel effect," discussed further below. We increase benefit expense for this effect and then recalculate premiums.

For Medicaid, due to data limitations, we assume that the allowed claims also represent the MCO's liability (i.e., allowed claims are reasonably close to paid benefit expense) to calculate the impact of PA on Medicaid managed care capitation rates. Due to very low member cost sharing under Medicaid, this simplifying assumption will not change overall conclusions of our analysis.

The impact to commercial premiums or Medicaid managed care capitation rates when PA is removed will be comprised of two additive effects:

- ***Authorizations submitted –*** Requests for approval of services or drugs that are denied (with or without an alternative treatment path) when PA is active will no longer be denied or redirected when PA is removed.

- ***Authorizations previously unsubmitted*** – Under PA, requests for approval of various services may not be getting submitted as the provider is reasonably sure the request will be denied or redirected to another treatment path. Once PA is removed, these previously unsubmitted requests to have services covered will now will likely be performed. This phenomenon is referred to as a "sentinel effect," which we discuss in more detail below.

These effects are additive because the authorizations in each category are mutually exclusive. In the case of the authorizations currently (with PA in place) being submitted, the effect of these is contained within the claims data used for this analysis, since all plans in our database use PA. However, for the authorizations not currently being submitted, they are, by definition, excluded from our data and must be added to the impact of the first category.

We analyze each of these effects and discuss them separately. We also provide a combined impact at the end of this section.

IMPACT ON SUBMITTED AUTHORIZATIONS AND RELATED CLAIMS EXPENSE

We define "effectiveness" of PA as the net impact on submitted claims costs following the approval, denial, or redirection of a service or prescription drug undergoing PA. For example, a procedure requested in the inpatient setting could be redirected to the outpatient setting as a result of PA, which may result in lower costs, but not a full reduction in costs from the original requested service. Again, a particular specialty drug may be denied, but an alternative course of treatment may be approved, such that there is some net effect of the denial and the approval. An effectiveness rate in this analysis of 8% means that if PA had not been in place, medical or prescription drug utilization (and thus costs and, ultimately, premiums or capitation rates) would have been 8% higher.

We derive the best estimates for medical and pharmacy PA effectiveness from information and data supplied by plans that are members of MAHP. Overall effectiveness can vary from plan to plan, even when the scope of services is similar, due to varying clinical considerations, such as medical policy and clinical judgement, as well as the plan's resources and rigor applied to the PA process internally. We adjust for outlier values and calculate unweighted average effects across the plans that submitted data. The effectiveness of PA by benefit category from this plan survey data is shown in column (b) in Figures 5 and 6 below. Column (a) shows the paid benefit expense that is subject to PA under a broad scope definition for commercial and allowed benefit expense for Medicaid managed care. Similar tables (Figures 7 and 8) for narrow PA scope are shown in Appendix A.

Figure 5: Paid Benefit Expense Impacts of PA
Broad PA Scope
Commercial

Benefit / Service Category	(a) Costs Subject to Prior Authorization (PMPM)	(b) PA Effectiveness*	(c) = a / (1-b) – a $ Increase (PMPM)
Inpatient	$62.79	4%	$2.28
Outpatient Surgery	$34.02	7%	$2.56
Drugs in the Medical Benefit	$29.29	6%	$1.87
Radiological Services	$13.13	6%	$0.84
Phys. / Occ / Speech Therapies	$3.82	5%	$0.20
Cardiovascular Services	$3.93	15%	$0.69
DME / Prosthetics / Medical Supplies	$4.96	10%	$0.55
Pathology / Lab	$1.69	25%	$0.56
Other Professional	$13.52	5%	$0.71
Other Outpatient	$20.41	7%	$1.54
Ancillary Services	$2.31	7%	$0.17
Specialty Drugs	$70.11	20%	$17.53
Brand Drugs	$7.28	20%	$1.82
Generic Drugs	$1.13	15%	$0.20
Total	**$268.39**	**10.5%**	**$31.52**

**Source: MAHP member plans.*

Figure 6: Benefit Expense Impacts of PA
Broad PA Scope
Medicaid Managed Care

Benefit / Service Category	(a) Costs Subject to Prior Authorization	(b) PA Effectiveness*	(c) = a / (1-b) – a $ Increase
Inpatient	$9.81	5%	$0.46
Outpatient	$39.33	10%	$4.37
Professional	$56.41	7%	$4.25
Ancillary	$0.50	5%	$0.03
Specialty Drugs	$56.61	10%	$6.29
Brand Drugs	$25.86	15%	$4.56
Generic Drugs	$10.03	15%	$1.77
Total	**$198.55**	**9.9%**	**$21.73**

**Source: MAHP member plans.*

Since PA is a common industry practice, the claims data utilized for this analysis inherently contains the effects of these programs.[24] Therefore, in calculating the cost impacts of eliminating PA in column (c), we assume that PA is currently reducing costs covered by the percentage in column (b). Therefore, in Figures 5 through 8, we calculate values in column (c) by first grossing up the portion of benefit expense subject to PA (in column (a)) by a factor of 1 less the effectiveness rate and then subtracting the original portion subject to PA in column (a).

Using estimates from Figures 5 through 8, we calculate the potential increases to premium for commercial plans and potential increases to managed care capitation rates.

[24] The data also inherently contains the additional but unknown impact of suppression of submitted services due to the sentinel effect mentioned above. For additional discussion of sentinel effects and other key considerations and limitations of the data, see the "Sentinel Effect" section below.

Our analysis and results are based on a composite or typical plan with a composited broad (or narrow) scope of services. *The actual impact of removing or limiting a PA program will vary considerably between plans. Each plan's definition of services covered by their PA program will be unique, as will be the effectiveness of their specific program.* Even within a payer, it is possible that their definition of PA services and the stringency of their protocols may vary for each service category or line of business. While we present a range of possible impacts, actual outcomes could be less than or greater than these results.

Figure 9: Premium Impacts (PMPM) of PA Removal
Broad and Narrow Scope
Commercial

	Scenario 1: Broad PA Scope	Scenario 2: Narrow PA Scope
Total Paid Ben. Expense Modeled	$481.17	$481.17
Total Premium Modeled (86% Loss Ratio)	$559.50	$559.50
Benefit Expense Subject to PA (Figures 5 and 7)	$268.39	$195.30
Effectiveness of PA	10.5%	11.1%
Benefit Expense Increase	$31.52	$24.49
Premium Increase (86% Loss Ratio)	$36.66	$28.48
Recalculated Premium	$596.15	$587.97
Premium Increase %	**6.6%**	**5.1%**

Figure 10: Capitation Rate Impacts (PMPM) of PA Removal
Broad and Narrow Scope
Medicaid Managed Care

	Scenario 1: Broad PA Scope	Scenario 2: Narrow PA Scope
Total Allowed Expense Modeled	$525.01	$525.01
Total Capitation Modeled (90% Loss Ratio)	$583.34	$583.34
Allowed Expense Subject to PA (Figures 6 and 8)	$198.55	$91.78
Effectiveness of PA	9.9%	10.7%
Benefit Expense Increase	$21.73	$11.04
Capitation Increase (90% Loss Ratio)	$24.14	$12.27
Recalculated Capitation	$607.49	$595.61
Capitation Rate Increase %	**4.1%**	**2.1%**

As shown in Figure 9, we estimate PA removal could increase commercial premiums approximately $28 and $37 PMPM, or 5.1% and 6.6%, without considering the sentinel effect. Similarly, we estimate removal of PA could increase Medicaid capitation rates by between approximately $12 and $24 PMPM, or 2.1% to 4.1%, as shown in Figure 10.

We recognize that other aspects of PA, and any limitations placed on the practice, will influence underlying benefit expense costs and result in premium or capitation rate increases once PA is removed. These aspects include the potential for decreased administrative costs related to PA for both provider and plan, alternate paths of care after denial of an authorization, and others. We discuss these in more detail in the "Considerations" section below. Rather than attempting to consider each of these impacts explicitly in this analysis, we broadly consider these effects through general conservatism in estimating effectiveness rates and by the use of ranges.

Moreover, the increases in utilization of services and the change in mix of services towards more costly treatments may not immediately manifest and when these do manifest, plans may or may not reflect these changes immediately or uniformly in commercial premiums. Likewise, impacts to Medicaid costs may not be immediately reflected in the setting of capitation rates. However, we believe ultimately as costs rise, this will need to be reflected in commercial premiums and Medicaid capitation rates or plans will incur ongoing financial losses.

Figure 11 shows the development of the estimated impacts to member cost sharing for commercial.[25] Note, that member cost sharing percentage increases will not match premium percentage increases as the distribution of member cost sharing on services subject to PA across benefit categories is not the same as the paid claims distribution used to develop premiums.

Figure 11: Impacts to Member Cost Sharing (PMPM) of PA Removal Broad and Narrow Scope Commercial

		Scenario 1: Broad PA Scope	Scenario 2: Narrow PA Scope
(a)	Allowed Costs Before PA	$567.32	$567.32
(b)	Benefit Expense Before PA	$481.17	$481.17
(c) = (a) – (b)	Cost Sharing	$86.15	$86.15
(d)	Allowed After PA	$602.35	$594.04
(e)	Paid After PA	$512.69	$505.66
(f) = (d) – (e)	Cost Sharing	$89.66	$88.38
(g) =(f) – (c)	**Change in Cost Sharing $**	**$3.51**	**$2.23**
(h) = (f) / (c)	**Change in Cost Sharing %**	**4.1%**	**2.6%**

Member cost sharing impacts reflect the lower proportion of costs paid by plan members, typically due to out-of-pocket maximums in the benefit plans. Note, we do not model the impact of cost sharing in Medicaid, as cost sharing is typically limited.

IMPACT OF UNSUBMITTED AUTHORIZATIONS AND RELATED CLAIMS EXPENSE (SENTINEL EFFECT)

The analysis in the immediately preceding section utilizes claims data reflecting provider behavior that has been influenced by the presence of PA. It has been demonstrated in other studies that the addition or removal of PA affects utilization patterns.[26,27,28,29] It is possible that a portion of claims for services that require PA were not submitted, leading to an overall lower level of costs in existing plan claims data. One possible explanation for this phenomenon is that providers may anticipate the requested service will be denied or directed to an alternative treatment path; therefore, they forgo requesting an authorization entirely and the resulting costs never materialize.

The effect of costs being suppressed to a lower level in the presence of PA is a specific instance of what is generally referred to as the "sentinel effect." This effect is the tendency for people to act differently when they know they are being observed and measured. In the case of PA, a sentinel effect occurs when the requirement to request a PA deters the provider from submitting the request in the first place. For example, the sentinel effect may happen when the provider anticipates the request will not meet the plan's medical necessity criteria, and thus the provider perceives the submission as wasted effort. The sentinel effect is also seen when a provider notifies a member that a course of treatment is not viable because of the existence of PA and redirects the member to alternative treatments. In some cases, this may result in the provider selecting an alternative service or alternative lower level of care, which will be reflected in the claims submission. Studies have shown a sentinel effect on various medical services and prescription drugs to be material and notably greater than the effect of the denials or redirection of care on already submitted claims, as previously quantified above.[30]

When PA is removed, there may be a period when utilization of a particular service might stay at previous levels, as providers have become accustomed to the PA criteria for approval resulting in a continued lower level of utilization. After some time, utilization may begin to increase as providers begin to perform procedures they previously would not have, knowing that they no longer will be denied. Utilization may also increase as providers new to the market do not get evidence-based feedback. While our estimates use assumptions from the literature to account for the ultimate sentinel effects, we did not account for this durational aspect in our analysis.

[25] Cost sharing impacts are not estimated for Medicaid due to data limitations. However, given Medicaid cost sharing is typically very small, we expect small, immaterial impacts.
[26] https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8822442/
[27] https://www.nejm.org/doi/10.1056/NEJM199506153322406?url_ver=Z39.88-2003&rfr_id=ori:rid:crossref.org&rfr_dat=cr_pub%20%200www.ncbi.nlm.nih.gov
[28] https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1885015/pdf/bcp0061-0341.pdf
[29] https://www.jmcp.org/doi/pdf/10.18553/jmcp.2014.20.5.447
[30] See Appendix B for references

To estimate the sentinel effect, we performed a literature review and analyzed studies related to the removal or addition of PA requirements on various services. We also considered a limited number of studies that did not relate to PA per se, but rather to other utilization management measures that would have a similar effect or provided insights into physician behavior in the presence or absence of various incentives. The list of studies we reviewed can be found Appendix B (Figure 12), along with the numerical results from each.

As seen in literature, summarized in Appendix B (Figure 12), the effect of the removal of PA or the general response of providers to changes in financial incentives is significant, ranging from 104% to 793% increase in the utilization of a particular service. However, for purposes of this analysis, we use a range based on our judgement, and we choose to apply a substantial discount to these estimates that is much more conservative than the average effect observed across all of these studies.

The reasons for this adjustment and the use of a range are:

- Many of the benefit (service) categories used in this analysis are not reflected directly in any of the available studies. For example, we found no studies that applied directly to inpatient admits and outpatient surgeries, two of the largest categories in this analysis.

- The studies in the literature review are performed on very specific services. The impact of PA on a specific service does not adequately represent the impact of the removal of PA on an entire service category (see any of Figures 3 through 6 for the service categories used).

  As an example, our literature review cites a study done by the Government Accountability Office (GAO) on power mobility equipment and non-emergency ambulance use, among others. The impact of PA implementation was to reduce by over half the number of services being utilized. This suggests that by removing PA, utilization would greater than double. Likewise, our literature review cites a study[31] noting decreases to imaging services, such as CT scans and MRI's of between 50% and 94% that correspondingly imply very large increases in utilization if PA were removed.

  In these cases, there were specific targeted approvals required under the PA programs that focused on these specific areas of overuse. It would not be reasonable assumption to take these magnitudes of decrease in utilization (or increases when PA is removed) and apply them generally across broad categories that likely do not contain the same degree of overuse or misuse across the entire broad category.

- Some of the studies included were performed outside the U.S. and application may be less appropriate for the U.S. market.

- The sentinel effect deals with human behavior and decision making, which can be hard to predict in specific situations and even harder to generalize across a broad range of situations.

For this reason, we use conservative estimates of 10%, 20% and 30% for the sentinel effect applied to the entire amount of benefit expense subject to PA (line (c) in the tables below).

Building on our analysis from Figures 9 and 10, we calculate an additive premium or capitation rate impact of the sentinel effect. Figures 13 and 14 below assume the broad PA scope. For brevity we include equivalent tables for the narrow scope in Appendix A (Figure 15 and 16).

Figure 13: Premium Impacts (PMPM) due to Sentinel Effect
Broad Scope
Commercial

(a)	Total Paid Ben. Expense Modeled		$481.17	
(b)	Total Premium Modeled (86% Loss Ratio)		$559.50	
(c)	Paid Benefit Expense subject to PA		$268.39	
(d)	% Increase in Submitted Claims	**10%**	**20%**	**30%**
(e) = (c) * (d)	Paid Benefit Expense Increase	$26.84	$53.68	$80.52
(f) = (e) / .86	Premium Increase (86% Loss Ratio)	$31.21	$62.42	$93.63
(g) = (f) + (b)	Recalculated Premium	$590.71	$621.91	$653.12
(h) = (g) / (b) – 1	**Premium Increase %**	**5.6%**	**11.2%**	**16.7%**

[31] https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8822442/pdf/10.1177_2333392817732018.pdf

Figure 14: Capitation Rate Impacts (PMPM) due to Sentinel Effect Broad Scope Medicaid Managed Care				
(a)	Total Allowed Ben. Expense Modeled		$525.01	
(b)	Total Capitation Modeled (90% Loss Ratio)		$583.34	
(c)	Benefit Expense subject to PA		$198.55	
(d)	% Increase in Submitted Claims	**10%**	**20%**	**30%**
(e) = (c) * (d)	Benefit Expense Increase	$19.86	$39.71	$59.57
(f) = (e) / .90	Premium Increase (90% Loss Ratio)	$22.06	$44.12	$66.18
(g) = (f) + (b)	Recalculated Capitation	$605.41	$627.47	$649.53
(h) = (g) / (b) – 1	**Capitation Increase %**	**3.8%**	**7.6%**	**11.3%**

COMBINED IMPACTS

Using our best estimates of PA effectiveness and the corresponding impacts of removing PA on services currently being captured in our data from Figures 5 and 6, combined with the ranges of impacts for sentinel effects on potentially unsubmitted authorizations not contained in our data, Figures 17 and 18 show the total range of impact across two PA scopes (broad and narrow) and three sentinel effect estimates for commercial and Medicaid.

Figure 17: Overall Premium Impacts (PMPM) of PA Removal Broad and Narrow Scope Commercial							
	Total Paid Ben. Expense Modeled			$481.17			
(a)	Total Premium Modeled (86% Loss Ratio)			$559.50			
		Broad Scope PA			**Narrow Scope PA**		
(b)	Benefits subject to PA	$268.39			$195.30		
(c)	PA Effectiveness on Submitted Claims (Figure 5 and 7)	$31.52			$24.49		
(d)	Sentinel Effect	**10%**	**20%**	**30%**	**10%**	**20%**	**30%**
(e) = (d) x (b)	Sentinel Effect on Unsubmitted Claims (Figure 13 and 15)	$26.84	$53.68	$80.52	$19.53	$39.06	$58.59
(f) = (e) + (c)	Total Benefit Expense Increase	$58.36	$85.20	$112.04	$44.02	$63.55	$83.08
(g) = (f) / .86	Premium Increase (86% Loss Ratio)	$67.86	$99.07	$130.28	$51.19	$73.90	$96.61
(h) = (g) + (b)	Recalculated Premium	$627.36	$658.57	$689.78	$610.68	$633.39	$656.10
(j) = (h) / (a) -1	**Premium Increase %**	**12.1%**	**17.7%**	**23.3%**	**9.1%**	**13.2%**	**17.3%**

Figure 18: Overall Capitation Rate Impacts (PMPM) of PA Removal Broad and Narrow Scope Medicaid Managed Care							
	Total Allowed Expense Modeled			$525.01			
(a)	Total Capitation Modeled (90% Loss Ratio)			$583.34			
		Broad Scope PA			**Narrow Scope PA**		
(b)	Benefits subject to PA	$198.55			$91.78		
(c)	PA Effectiveness on Submitted Claims (Figure 6 and 8)	$21.73			$11.04		
(d)	Sentinel Effect	**10%**	**20%**	**30%**	**10%**	**20%**	**30%**
(e) = (d) x (b)	Sentinel Effect on Unsubmitted Claims (Figure 14 and 16)	$19.86	$39.71	$59.57	$9.18	$18.36	$27.53
(f) = (e) + (c)	Total Allowed Expense Increase	$41.58	$61.44	$81.29	$20.22	$29.39	$38.57
(g) = (f) / 0.9	Capitation Increase (90% Loss Ratio)	$46.20	$68.26	$90.32	$22.47	$32.66	$42.86
h = (g) + (b)	Recalculated Capitation	$629.55	$651.61	$673.67	$605.81	$616.00	$626.20
(j) = (f) / (a) -1	**Capitation Rate Increase %**	**7.9%**	**11.7%**	**15.5%**	**3.9%**	**5.6%**	**7.3%**

Overall, the elimination of PA in the commercial market under the broad scope PA scenario could result in commercial premium increases ranging from 12.1% to 23.3%. Under the narrow PA scenario, commercial premium increases range from 9.1% to 17.3%.

Similarly, the elimination of PA in Medicaid under the broad scope PA scenario could result in capitation rate increases ranging from 7.9% to 15.5%. Under the narrow PA scenario, capitation rate increases range from 3.9% to 7.3%.

V. CONSIDERATIONS

The information presented above estimates costs associated with eliminating PA based on variations in the scope of services subject to PA, averages of PA effectiveness across numerous plans, application of these effectiveness rates to broad service type categories and estimates of sentinel effects with material actuarial judgement applied. These are simplifications that, in our estimation, do not affect the magnitude of impacts of removing PA. However, calculating precise impacts to changes in PA programs can be challenging for various reasons that would otherwise complicate analysis of impacts. We consider some of these below.

KEY CONSIDERATIONS

Net Savings

Prior authorization often results in substituting one set of services for another. Examples of this include physical therapy in lieu of back surgery, a lower cost imaging in place of higher cost imaging, redirecting a service to an appropriate lower cost level of care or the use of a lower cost, therapeutically similar prescription drug first before going to a more expensive one (otherwise known as step therapy). Thus, a limitation or elimination of a particular PA rule may not result in an increase in claims for the full cost of that service, to the extent a lower cost service is subsequently utilized. For example, in an analysis of PA restrictions in Medicare, researchers calculated that PA policies resulted in a $112 per beneficiary-year reduction in prescription drug spending on drugs with PA, and a $16 per beneficiary-year increase in spending on unrestricted drugs.[32] It is outside the scope of this analysis to account directly for all of the various situations where a PA rule achieves a net savings as opposed to a full savings. Instead, plans submitting data for this study attempted to account for the net savings by service category in their estimates of effectiveness rates.

Plan and Provider Administrative Costs

PA programs have administrative costs associated with them that could be reduced if a smaller scope of services is considered under the program or if PA were eliminated altogether. Therefore, any increase in claim costs associated with eliminating PA programs is likely offset with at least some administrative expense savings. In certain cases, multiple departments may be involved in doing some form of PA or have some related cost to it (e.g., medical personnel versus IT staff). Likewise, provider costs for administering their side of the PA process would decrease, either improving financial performance for providers or serving to reduce physician compensation / fee schedules. If the latter were the case, there would be an additional net savings.

However, since eliminating PA does not eliminate health plan requirements to manage cost and quality, a portion of administrative resources would most likely be redirected to other programs to manage quality and cost. As a result, administrative costs could increase in other areas that offset the reductions noted above related to PA directly. For example, it is likely plans will increase retrospective reviews including fraud, waste and abuse controls and payment integrity efforts. These alternate activities in lieu of PA could also have some mitigating effects on costs increases shown herein.

Our analysis does not account for either plan or provider administrative costs, whether increases or decreases, that are associated with PA; therefore, impacts on premiums in this analysis could be overstated or understated depending on the net of effect of these changes.

OTHER CONSIDERATIONS

Purpose of Prior Authorizations

In our experience with plan clients, we note multiple purposes for the use of PA. Most noted the need for medical necessity review, mitigating the overuse or misuse of services, intervening with alternate treatment paths that are either more effective or equally effective but lower cost, identifying members that may benefit from care management and ensuring safety controls. Depending on the reason for the implementation of a PA rule and the nature of the limitation on the use of PA, the impact to premiums or capitation rates could vary. For example, if a blanket prohibition on PA was required on drugs on the medical benefit, the impact would be substantial, as these drugs are very high cost on a per service basis. On the other hand, limitations on PA related to physical therapy may be less impactful, not simply because it is lower cost per service, but also because the nature of PA, as it relates to physical therapy, is typically only regarding number of services or length of treatment, not a complete denial.

[32] https://www.nber.org/system/files/working_papers/w30878/w30878.pdf

Plans point to continued increases in unit prices for hospital and provider services and excessive increases in prescription drug costs as the primary challenges in keeping health care affordable for employers and consumers. Prior authorization mitigates unnecessary care (physicians themselves estimate that nearly a quarter of care is unnecessary[33]) and helps protect against potentially harmful care. Inappropriate care can be more than merely wasteful, it can be harmful, such as exposure to unnecessary radiation, missed diagnoses and false positives, and ineffective procedures and treatments, and decreases in health care affordability.

Value-Based Care Impacts

Impacts of eliminating PA might be smaller than they might otherwise be prior to the advent of value-based care and providers being at some degree of risk for utilization under these types of contracts. This is particularly true for systems or provider groups that are already efficient. Providers have different incentives under value-based care models than they would under a predominantly fee-for-service environment, and this may induce less over-utilization of services.

However, this is heavily dependent, at a minimum, on the nature of the risk-based contract and the precise incentives (or disincentives) involved. In some cases, the narrower PA lists we observed for some plans may be linked to situations where they have risk-based contracts with providers shifting the responsibility for utilization management onto the provider. That being said, the authors' experience is that the realignment of incentives in commercial and Medicaid VBP models has yet to result in a transformational change in behavior for providers. To date, a large percentage of commercial and Medicaid managed care members will not be covered in VBP models[34] nor are the incentives sufficient to transform their delivery model.

Medicaid Drug Rebate Program (MDRP) Implications

Due to the statutory rebate requirements of the MDRP, oftentimes the more expensive branded prescription drugs have a lower net cost to state Medicaid programs than their generic alternatives. States use a preferred drug list (PDL) to increase utilization of these lower net cost products, as well as negotiate supplemental rebates through PDL placement. States typically require a PA for non-preferred products and most states, including Massachusetts, require MCO to follow the state's PDL. Limiting or eliminating the use of PA in Medicaid would decrease the State's ability to maximize rebates and would shift utilization to products that do not have the lowest net cost to the State.

Impact on the Cost Growth Benchmark

Massachusetts was the first state in the nation to develop a health care expenditure target. With the passage of Chapter 224 of the Acts of 2012, plans and providers became subject to an annual target for the rate of growth in total health care expenditures. Set annually by the Health Policy Commission (Massachusetts' independent state agency charged with developing policy to reduce health care cost growth and improve the quality of patient care), the benchmark is set at 3.6% (the growth rate of potential state gross domestic product) for 2023. Total health care expenditures (THCE) is calculated on a per capita basis to control for increases in spending due to population growth and includes three components: 1.) all medical expenses paid to providers by private and public plans, including Medicare and Medicaid; 2.) all patient cost-sharing amounts; and 3.) the net cost of private insurance (e.g., admin expenses and operating margins for commercial plans). Limiting or eliminating the use of PA could impact plans' ability to keep THCE growth under the benchmark and could shift utilization to medications, services, and treatments with higher costs / or to sites of care with higher costs.

[33] https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0181970

[34] https://hcp-lan.org/apm-measurement-effort/2020-2021-apm/2021-infographic/

VI. METHODOLOGY

DATA SOURCES

For commercial claims, we relied on Milliman's 2022 Consolidated *Health Cost Guidelines* Sources Database (CHSD), limited to members from Massachusetts.

For managed Medicaid claims, we relied on 2020 data from T-MSIS Research Identifiable Files (RIF), limited to members in Massachusetts. T-MSIS contains detailed Medicaid claims and enrollment data for 100% of the Medicaid population. This dataset contains header and detail records for inpatient hospital services, long-term care services, other services, and pharmacy claims.

For both commercial and managed Medicaid, prescription drug costs and any effects do not include manufacturer rebates.

The T-MSIS data has several limitations which could impact our results:

- For Medicaid encounter claims, only utilization data is available. We estimated Medicaid managed care costs based on the average charge by service (DRG, procedure code, or NDC adjusted for days supply) in the Massachusetts fee-for-service Medicaid data.
- Limited information was reliably populated to group medical claims by detailed service category, so we only group medical claims based on major service category (inpatient, outpatient, professional, and other) based on the benefit type indicated in T-MSIS.
- Several fields of interest to the analysis may be less reliable than the propriety dataset used for modeling the impact on the commercial market. However, we generally believe the fields used are reliable for the scope of this analysis.
- The Medicaid data is older than our commercial dataset and may not properly align with current clinical standards for PA and new procedures and drugs.
- The COVID-19 pandemic had a material impact on Medicaid enrollment, utilization, and treatment patterns in 2020 and beyond; it is possible the utilization and cost patterns in 2020 may not reflect 2023.
- The T-MSIS RIF data is subject to redaction to protect PHI and data exports with fewer than 10 observations.

For our modeled PA population, we only include members subject to managed care (as indicated by T-MSIS enrollment) but include all claims available for those members.

PRIOR AUTHORIZATION SERVICES

We received a list of HCPCS, CPT, and NDC codes subject to each plan's commercial and Medicaid PA review program. We reviewed these lists to identify the commonalities and differences and to develop representative lists of codes subject to PA. We note considerable variation between plans, with some plans reviewing a significantly larger number of codes, and others focusing on a smaller set of services, which were often also reviewed by the broader scope plans. We also notice differences between commercial and managed Medicaid. Plans typically reviewed fewer medical services (HCPCS / CPTs) for managed Medicaid than commercial. However, Medicaid plans typically review a larger set of NDCs for pharmacy claims than for commercial, as MassHealth has a single preferred drug list (PDL), making PA more critical.

Accordingly, we made separate lists of codes subject to PA for commercial and Medicaid, and for each selected a representative set of services for both a plan with a broad and narrow PA program. The PA lists are not intended to reflect any specific plan, but rather a representative range of services for a typical plan based on the codes submitted by all plans.

In our claims datasets, we identify services that are subject to PA, assuming all services on the list are reviewed. For inpatient facility claims, HCPCS / CPT is typically not populated. We identify inpatient facility claims as subject to PA if the same member had a service (HCPCS / CPT) subject on or between their admit and discharge dates.

EFFECTIVENESS MEASURES

We also received post-appeal effectiveness rates by benefit / service category for MAHP plans' commercial and Medicaid PA programs. These reflect the net cost savings of PA denials, including an estimate of any offsetting ultimate costs from partial denial or care redirection. We reviewed the distribution of effectiveness measures by plan and service category. There is considerable variance in effectiveness of PA by service category. Prescription drugs and pathology / lab services show high effectiveness, while inpatient has the lowest effectiveness from the set of service categories. Effectiveness also varies for a specific service among different plans, although it generally fell into a relatively small range other than a few outliers. We developed a best estimate of PA effectiveness for each service category based on the average among plans.

We apply the effectiveness measures and sentinel effect to paid benefit expense for commercial. For Medicaid, due to data constraints and the relatively small member cost sharing, we applied the effectiveness and sentinel effects to allowed charges.

For commercial, we convert allowed charges into paid, by calculating an Actuarial Value (AV) ratio of allowed to paid based on historical data in the CHSD for commercial. A unique AV was calculated for each service category, preserving the uniqueness of each categories' estimates for paid quantities of reduced effectiveness and sentinel values with the removal of PA. Cost Sharing metrics were derived as the difference between allowed and paid estimates. To translate paid claims to premium, we assume commercial plans price to an 86% MLR. Massachusetts has a statutory minimum MLR of 88% after certain adjustments. We reviewed historical MLR data for Massachusetts plans to determine a pricing MLR of 86%.

We did not convert allowed claims to paid for Medicaid due to data limitations. We use allowed claims to represent the approximate liability for MCOs, due to limited cost sharing in Medicaid.

VII. CAVEATS

The report is intended to help quantify the potential range of impacts to commercial health insurance premiums and managed Medicaid capitation rates due to eliminating prior authorization programs. Other uses may be inappropriate. The results in this report represent estimates and actual results for any given payer could vary significantly. The estimates are intended to provide a framework in which to discuss potential impacts of proposed legislation or regulation of PA practices. It is not intended to provide pricing impacts nor be an estimate for any specific piece of legislation.

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We relied on claims data from Milliman's CHSD, as well as Transformed Medicaid Statistical Information System Research Identifiable Files. We also relied on information submitted by MAHP member plans, specifically the list of codes (CPT, NDC, and HCPCs) that are subject to PA and effectiveness measure by major benefit / service category. This information was reviewed for reasonableness but accepted without audit. To the extent the data and information relied upon is not accurate, or is not complete, the values and conclusions provided in this report may likewise be inaccurate or incomplete.

Models used in the preparation of our analysis were applied consistently with their intended use. We have reviewed the models, including their inputs, calculations, and outputs for consistency, reasonableness, and appropriateness to the intended purpose and in compliance with generally accepted actuarial practice and relevant actuarial standards of practice (ASOP). The models, including all input, calculations, and output may not be appropriate for any other purpose. Where we relied on models developed by others, we have made a reasonable effort to understand the intended purpose, general operation, dependencies, and sensitivities of those models. We relied on input, review, and validation by other experts in the development of our models.

The results of this report are technical in nature and are dependent upon specific assumptions and methods. No party should rely on these results without a thorough understanding of those assumptions and methods. Such an understanding may require consultation with qualified professionals.

Fritz S. Busch and Peter Fielek are members of the American Academy of Actuaries and meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion contained herein.

APPENDIX A

APPENDIX A

Figure 7: Paid Benefit Expense Impacts of PA Narrow PA Scope Commercial			
Benefit / Service Category	**(a) Costs Subject to Prior Authorization**	**(b) PA Effectiveness***	**(c) = a / (1-b) – a $ Increase**
Inpatient	$55.22	4%	$2.00
Outpatient Surgery	$15.50	7%	$1.17
Drugs in the Medical Benefit	$27.28	6%	$1.74
Radiological Services	$11.43	6%	$0.73
Phys. / Occ / Speech Therapies	$3.34	5%	$0.18
Cardiovascular Services	$2.45	15%	$0.43
DME / Prosthetics / Medical Supplies	$3.28	10%	$0.36
Pathology / Lab	$0.98	25%	$0.33
Other Professional	$1.69	5%	$0.09
Other Outpatient	$4.65	7%	$0.35
Ancillary Services	$1.44	7%	$0.11
Specialty Drugs	$64.81	20%	$16.20
Brand Drugs	$3.15	20%	$0.79
Generic Drugs	$0.07	15%	$0.01
Total	**$195.30**	**11.1%**	**$24.49**

Figure 8: Allowed Benefit Expense Impacts of PA Narrow PA Scope Medicaid Managed Care			
Benefit / Service Category	**(a) Costs Subject to Prior Authorization**	**(b) PA Effectiveness***	**(c) = a / (1-b) – a $ Increase**
	$2.81	5%	$0.13
Outpatient	$17.57	10%	$1.95
Professional	$6.08	7%	$0.46
Ancillary	$0.31	5%	$0.02
Specialty Drugs	$45.76	10%	$5.08
Brand Drugs	$16.46	15%	$2.91
Generic Drugs	$2.78	15%	$0.49
Total	**$91.78**	**10.7%**	**$11.04**

Figure 15: Premium Impacts (PMPM) due to Sentinel Effect Narrow Scope Commercial				
(a)	Total Paid Ben. Expense Modeled		$481.17	
(b)	Total Premium Modeled (86% Loss Ratio)		$559.50	
(c)	Paid Benefit Expense subject to PA		$195.30	
(d)	% Increase in Submitted Claims	**10%**	**20%**	**30%**
(e) = (c) * (d)	Paid Benefit Expense Increase	$19.53	$39.06	$58.59
(f) = (e) / .86	Premium Increase (86% Loss Ratio)	$22.71	$45.52	$68.13
(g) = (f) + (b)	Recalculated Premium	$582.21	$604.92	$627.63
(h) = (g) / (b) – 1	**Premium Increase %**	**4.1%**	**8.1%**	**12.2%**

APPENDIX A

Figure 16: Capitation Rate Impacts (PMPM) due to Sentinel Effect Narrow Scope Medicaid Managed Care				
(a)	Total Allowed Expense Modeled		$525.01	
(b)	Total Capitation Modeled (90% Loss Ratio)		$583.34	
(c)	Allowed Expense subject to PA		$91.78	
(d)	% claim Increase from Sentinel Effect	**10%**	**20%**	**30%**
(e) = (c) * (d)	Allowed Expense Increase	$9.18	$18.36	$27.53
(f) = (e) / .90	Capitation Increase (90% Loss Ratio)	$10.20	$20.39	$30.59
(g) = (f) + (b)	Recalculated Capitation	$593.54	$603.74	$613.94
(h) = (g) / (b) – 1	**Capitation Rate Increase %**	**1.7%**	**3.5%**	**5.2%**

APPENDIX B

APPENDIX B

Figure 12: Summary of Literature Quantifying the Sentinel Effect

Therapeutic Area	Implementation or Removal	Implied Increase*	Notes	Source
Opioids	PA Implementation	104%	Claims for long-acting opioid analgesics decreased by 4.1% after implementation of a prior authorization program in Massachusetts Medicaid.	https://www.jmcp.org/doi/pdf/10.18553/jmcp.2014.20.5.447
Cyclooxygenase-2 (COX-2) Specific Inhibitors	PA Implementation	293%	The cost per success (defined as no serious gastrointestinal event) for COX-2 specific inhibitors with PA was $278 versus $422 without PA.	https://www.jmcp.org/doi/epdf/10.18553/jmcp.2003.9.4.327?role=tab
Power Mobility	PA Implementation	129%	Compares average monthly expenditures for a PA demonstration program.	https://www.gao.gov/assets/700/692138.pdf
Non-Emergency Ambulance	PA Implementation	150%	Compares average monthly expenditures for a PA demonstration program.	https://www.gao.gov/assets/700/692138.pdf
Hyperbaric Oxygen Therapy	PA Implementation	220%	Compares average monthly expenditures for a PA demonstration program.	https://www.gao.gov/assets/700/692138.pdf
Home Health	PA Implementation	750%	Compares average monthly expenditures for a PA demonstration program.	https://www.gao.gov/assets/700/692138.pdf
Cefuroxime	PA Implementation	667%	Cefuroxime experienced an 85% relative reduction in the use of the drug during the PA period despite the request rejection rate of only 8%.	https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1885015/
Direct-Acting Oral Anticoagulants	Other	714%	DOACs' utilization and costs were much higher in Canadian provinces with more liberal mechanism of reimbursement. Utilization was as much as 86% higher than the national average in one province with more liberal mechanism of reimbursement.	https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5749525/
Parenteral Antimicrobials	PA Implementation	147%	Average monthly expenditures for parenteral antimicrobials during the 6 months immediately after full implementation of the PA requirement decreased by 32%, compared to the 6 months immediately before implementation.	https://pubmed.ncbi.nlm.nih.gov/9332517/
Celecoxib and etoricoxib	Removal of PA	615% and 793%	In Spain, celecoxib use increased 615% in terms of the daily doses per thousand inhabitants per day once the PA was removed. Similarly, etoricoxib experienced a relative increase of 793%.	https://onlinelibrary.wiley.com/doi/epdf/10.1111/jcpt.12490
Non-generic NSAIDs	PA Implementation	213%	Following the implementation of a PA program in Tennessee Medicaid, expenditures decreased by 53% following switching to generic NSAIDs, and there was a 19% overall NSAID use.	https://www.nejm.org/doi/10.1056/NEJM199506153322406?url_ver=Z39.88-2003&rfr_id=ori:rid:crossref.org&rfr_dat=cr_pub%20%200www.ncbi.nlm.nih.gov
CT and MRI	PA Implementation	200%	CT utilization decreased between 76 to 90% one year following implementation of a nondenial PA program, and decreased 52 to 88% five years following implementation. Similarly, MRI utilization decreased 86 to 94% after one year and between 50 to 75% after five years.	https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8822442/pdf/10.1177_2333392817732018.pdf
CT and MRI	Other	N/A	In a review of 459 CT and MRI examinations, 26% were not considered clinically appropriate.	https://www.jacr.org/article/S1546-1440(09)00589-4/fulltext

**For PA implementation, the decrease in utilization or cost is converted into an implied increase if PA were removed but using the following formula: 1/ (1-reduction).*

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