

# Per-Member-Per-Month Expenditure Value in Non-oncology: A Targeted Review and Opinion

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## Background

- The payer listing of new technology and healthcare decision-making in the United States (US) is often supported by budget impact information and economic burden-related value propositions.
- Economic evaluations as well as healthcare resource utilization (HCRU) studies often present outcomes using the per-member per-month (PMPM) expenditure, which applies a cost for each enrolled member of a health plan each month.
- A previous study<sup>1</sup> conducted by our colleagues investigated the factors affecting PMPM costs and showcased the variability of PMPM in the field of oncology.

## Objective

- The objective of this review was to examine the landscape and factors affecting PMPM costs in non-oncology indications.

## Methods

- A targeted literature search was conducted in PubMed to identify studies reporting PMPM costs in non-oncology indications. Studies published between 2012 and June 30, 2022, that included PMPM results were assessed to examine factors influencing their values.
- The outcomes of interest were incremental and mean PMPM. Details on the inclusion and exclusion criteria are presented in Table 1.

Table 1. PICOS used in the selection process

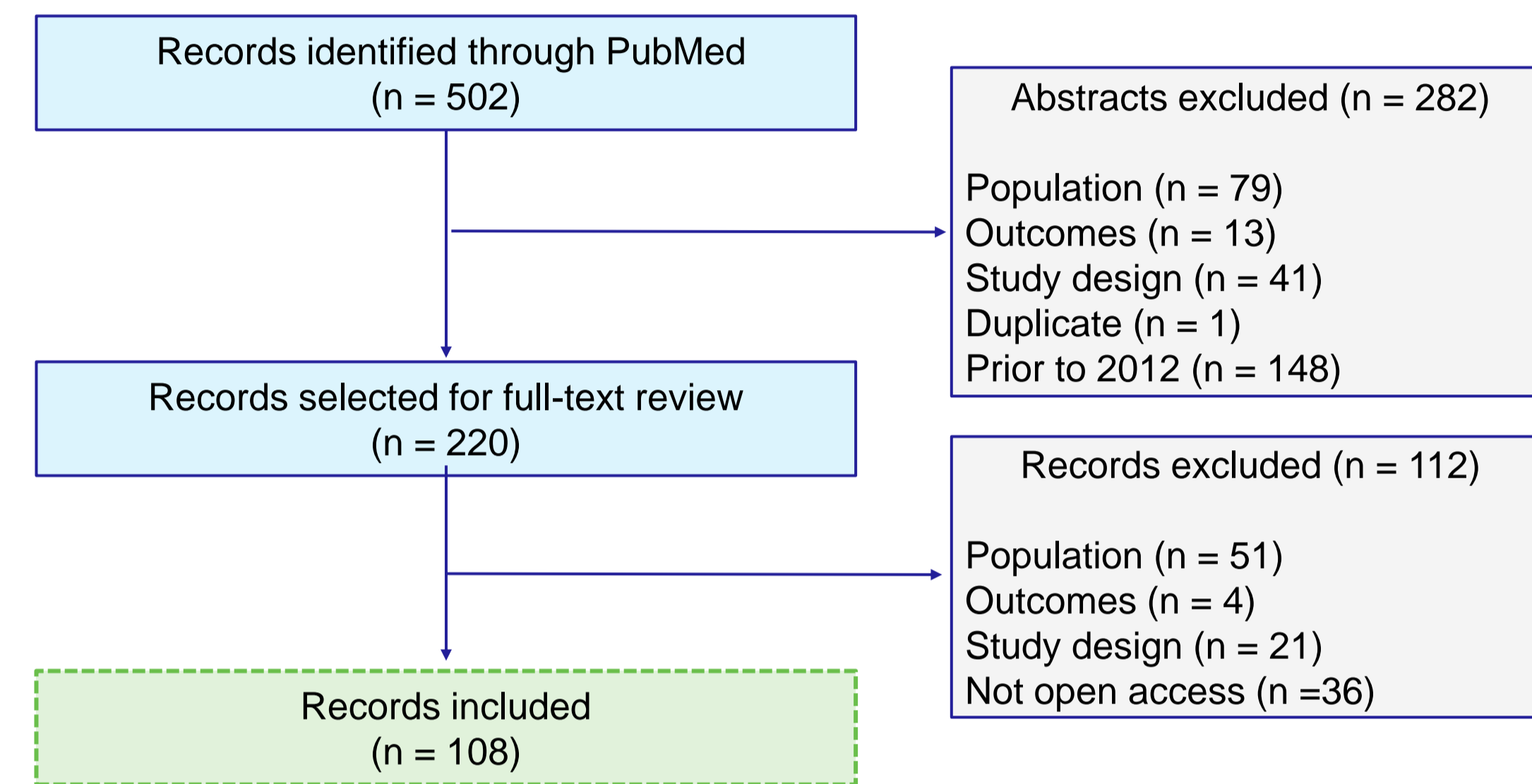
PICOS	Inclusion	Exclusion
Population	Patients diagnosed with any disease except cancer	Patients with cancer
Intervention and comparators	Not applicable	Not applicable
Outcomes measured	PMPM	Outcomes other than PMPM
Study design	<ul style="list-style-type: none"> <li>Prospective observational studies</li> <li>Retrospective studies</li> <li>Interventional studies</li> <li>Database analyses</li> <li>Registries</li> <li>Systemic reviews and meta-analyses</li> <li>Pooled analyses</li> </ul>	<ul style="list-style-type: none"> <li>Case reports</li> <li>Notes/comments/letters</li> <li>Non-human</li> <li>Case series</li> <li>Editorial</li> <li>Review</li> </ul>
Time limit	2012 to the present	Published before 2012

Abbreviations: PICOS, population, intervention, comparators, outcomes and study design; PMPM, per member per month

## Results

- The search returned 502 records, of which 108 records<sup>2-109</sup> were eligible for inclusion. Almost all of the studies were conducted in the US (106); the other two studies were from Canada and Malaysia.

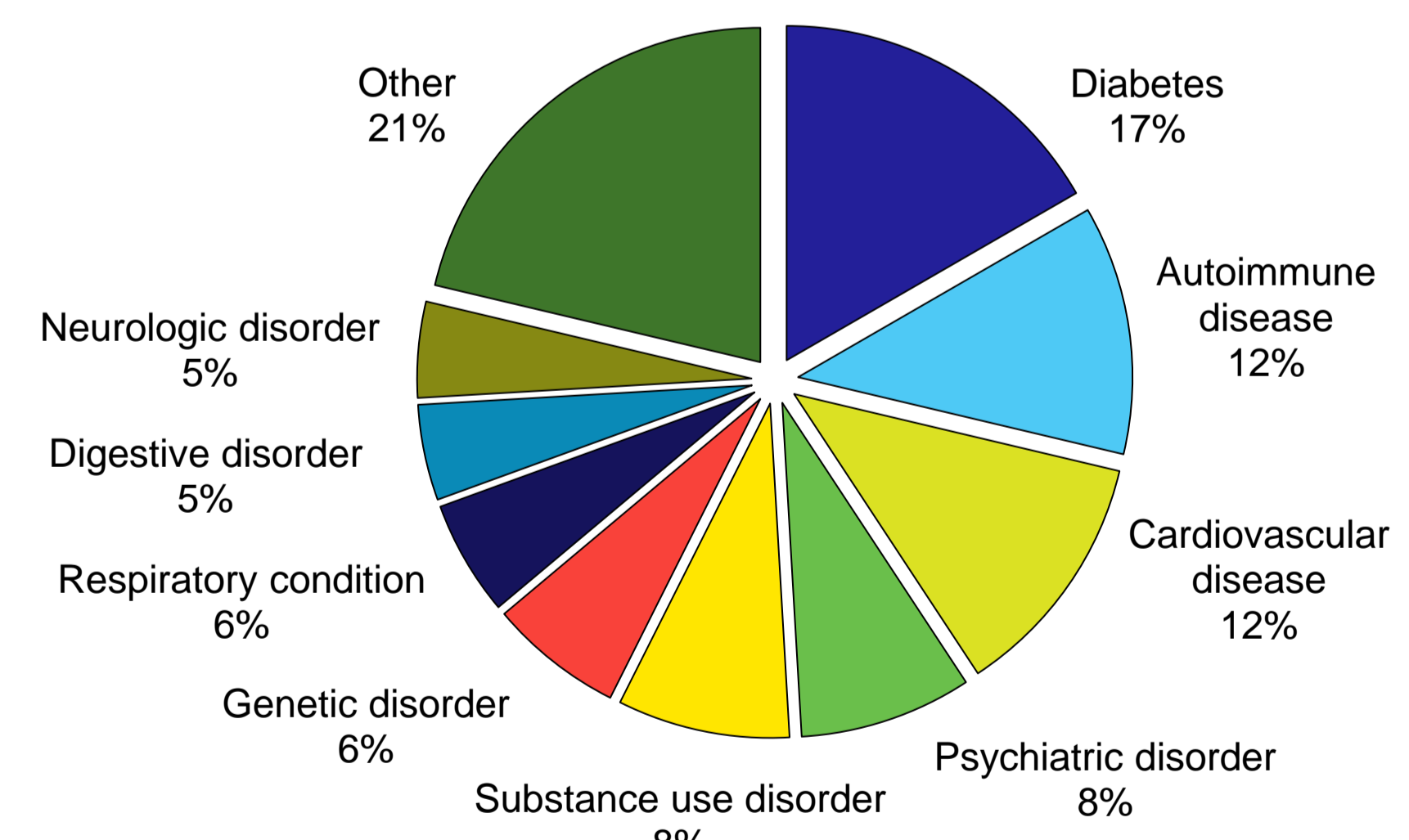
Figure 1. Literature flow diagram



### Trends in published literature

- Diabetes (17%) was the most studied condition, followed by cardiovascular and autoimmune diseases (12%) (Figure 2).
- Most economic evaluations were conducted from a commercial payer perspective (64%), followed by public payer (30%). Outcomes were typically modelled using a budget impact model (63%), with some investigators utilizing decision trees to analyze over short-term horizons (19%).
- The time horizon ranged from one month to 15 years.

Figure 2. Included studies by field

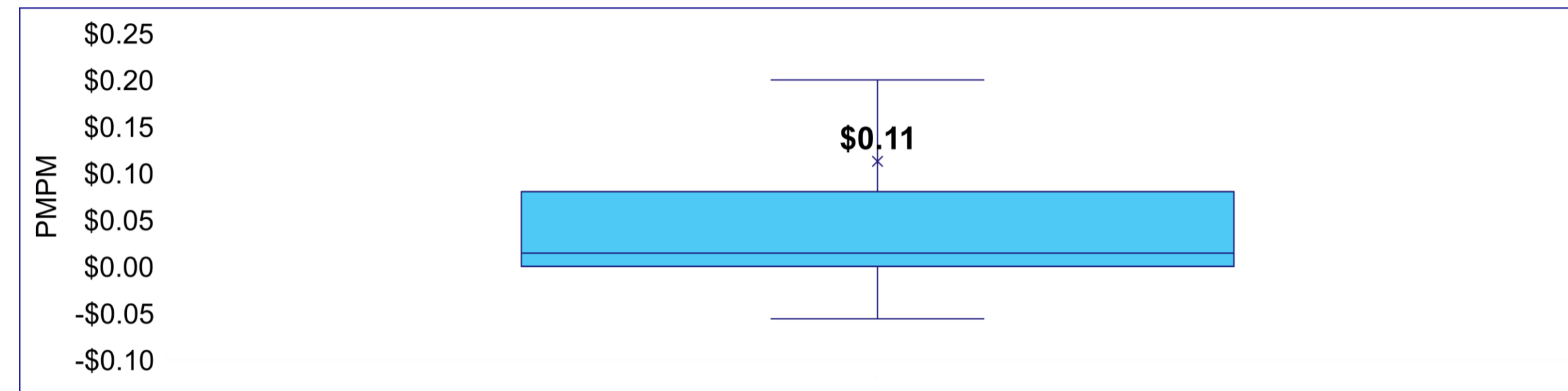


### Budget impact studies

- In budget impact studies of non-oncology, incremental PMPM values ranged from -\$3.13 to \$7.72 (negative values imply cost savings). The mean PMPM was \$0.83 and the median PMPM was \$0.015; in the sensitivity analyses, incremental PMPM costs were the most sensitive to market share uptake and drug prices.
- Over a one-year time horizon, incremental PMPM values ranged from -\$0.136 to \$1.83. The mean PMPM was \$0.11 and the median PMPM was \$0.014 (Figure 3).

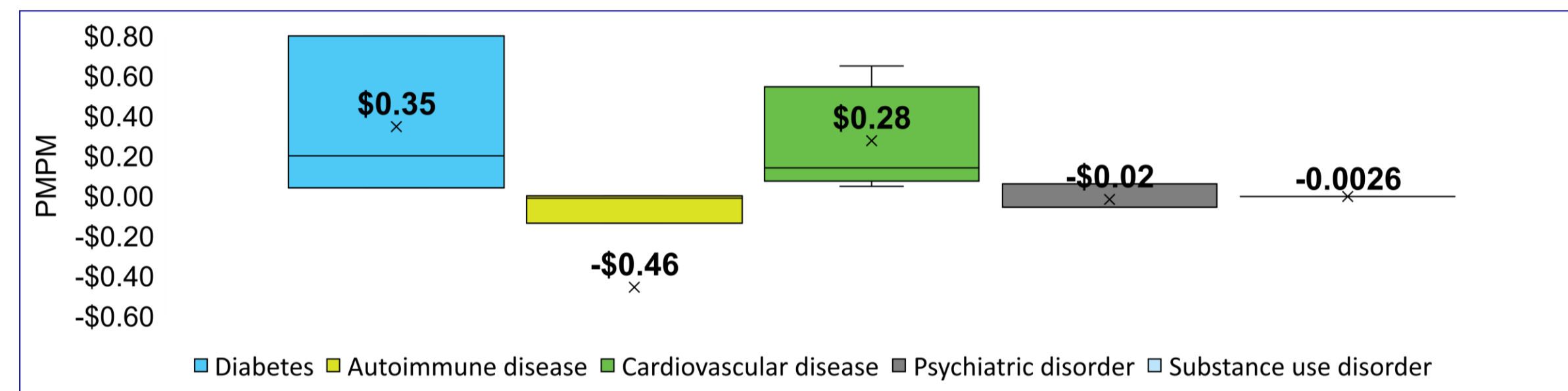
- Over a one-year time horizon, the greatest variation in incremental PMPM was reported in the field of diabetes (\$0.04 to \$0.80); the greatest cost savings was detected in the field of autoimmune diseases (mean PMPM of -\$0.46) (Figure 4).

Figure 3. Range of PMPM values in non-oncology\*



\*Over a one-year time horizon. X = mean value. Abbreviation: PMPM, per member per month

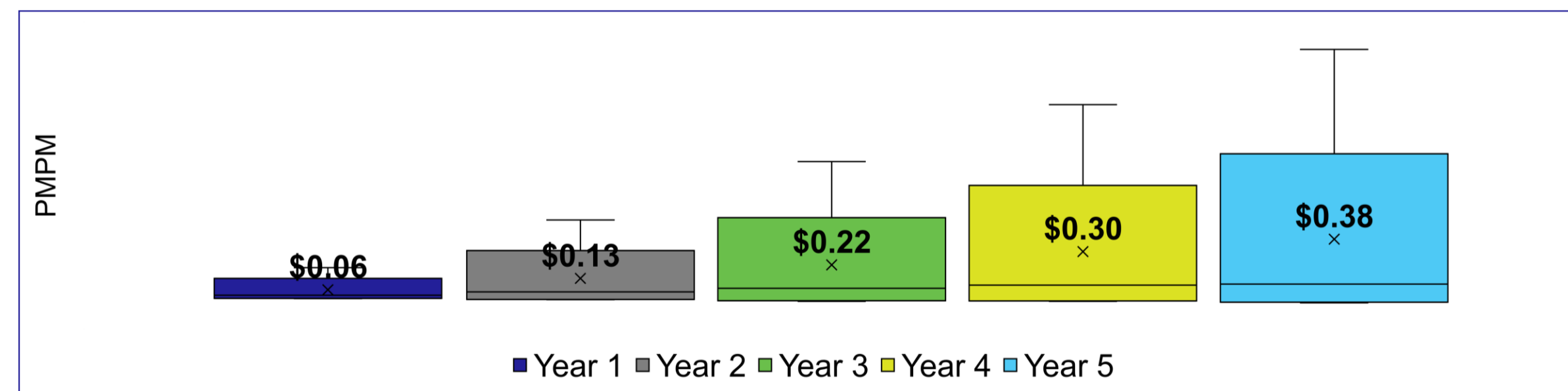
Figure 4. PMPM values in different disease fields\*



\*Over a one-year time horizon. The five fields chosen were those with the most included studies in the literature review. X = mean value. Abbreviation: PMPM, per member per month

- Studies typically compared scenarios with and without a specific intervention. However, in some budget impact analyses, the investigators would instead vary the market share while the intervention would remain the same.<sup>100</sup>
- Time frame had significant consequences on budget impact. Five studies reported PMPM in years 1 to 5 in non-oncology. The cumulative mean values in these studies showed an increasing trend in incremental PMPM: (year 1: \$0.06; year 2: \$0.13; year 3: \$0.22; year 4: \$0.30; year 5: \$0.38).

Figure 5. PMPM values over time



X = mean value. Abbreviation: PMPM, per member per month

- The evaluation of subgroups had consequences on budget impact. Crisaborole ointment (2%) was evaluated against two comparator products in patients with atopic dermatitis in the US<sup>24</sup>; subgroup analysis revealed that under similar conditions, different age groups had different incremental PMPMs.<sup>24</sup>

### HCRU studies

- In HCRU studies of non-oncology, the highest reported mean PMPM cost was \$25,517 for patients with spinal muscular atrophy. Pharmacy, inpatient, and outpatient costs were the main drivers of PMPM expenditures.

## Discussion and Recommendations

- This investigation uncovered improper methodology of PMPM calculations:
  - Not reporting the PMPM timeframe:** certain studies did not clearly provide a timeframe or used a database to extract cumulative PMPM data which weakens data comparability.
  - Not providing the intervention or intervention type:** certain studies reported PMPM for groups of patients without specifying the type of intervention.
- PMPM metrics cannot be validly evaluated without context; ideal reporting methods should provide the following components in addition to the PMPM value: **underlying disease, type of intervention and comparator, perspective, and timeframe.**

## Conclusions

- This targeted review of studies was the first to analyze PMPM expenditure in non-oncology; it showcased the variability of PMPM metrics and highlighted factors that affect results.
- PMPM costs varied significantly among studies with different indication and methodology. Therefore, PMPM estimates should be carefully interpreted based on perspective, study design, and disease area.
- Drug acquisition costs as well as market share were important drivers of PMPM costs.

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