WCIRB California™
Objective. Trusted. Integral.

WCIRB Actuarial Committee Meeting

March 21, 2023

ANTITRUST NOTICE

As members of the Workers' Compensation Insurance Rating Bureau of California (WCIRB) and their agents, you are bound, when involved in meetings, presentations, webinars or other activities of the WCIRB, to limit your actions (as well as discussions and virtual chats, other than social ones) to matters relating to the business of the WCIRB. Matters that do not relate directly to WCIRB business should be avoided. Members and their agents should particularly avoid discussions, chats or conduct that could be construed as intended to affect competition (or access to markets). Thus, as members and their agents, you should not discuss or pursue the business interests of individual insurers or others, including, in particular, the plans of individual members involving, or the possibility or desirability of (a) raising, lowering, or stabilizing prices (premiums or commissions); (b) doing business or refusing to do business with particular, or classes of, insurers, reinsurers, agents, brokers, or insureds, or in particular locales; or (c) potential actions that would affect the availability of products or service either generally or in specific markets or locales.

NOTICE & COPYRIGHT

This presentation was developed by the Workers' Compensation Insurance Rating Bureau of California (WCIRB) for informational purposes only. The WCIRB shall not be liable for any damages of any kind, whether direct, indirect, incidental, punitive or consequential, arising from the use, inability to use, or reliance upon information provided in this presentation.

Table of Contents/Agenda

WCIRB California™
Objective. Trusted. Integral.

01

Impact of Economic Slowdown on Pure Premium Rate Indications

Impact of the Economic Slowdown on Pure Premium Rate Indications

- Economic changes in 2020 were unprecedented in both scale and speed
- Subsequent changes in 2021 and 2022 were also historically large
  - Virtually all industries have been affected
    - Employment changes by industry vary substantially
    - Recent changes in the industrial mix and wage level distribution have had large and atypical impacts

- For pure premium ratemaking, atypical changes due solely to changing industrial mix should generally be excluded from projections

- WCIRB staff has estimated impacts of changing industrial mix and other factors for:
  - Claim Severity
  - Claim Frequency
  - Average Wage

Industry Mix

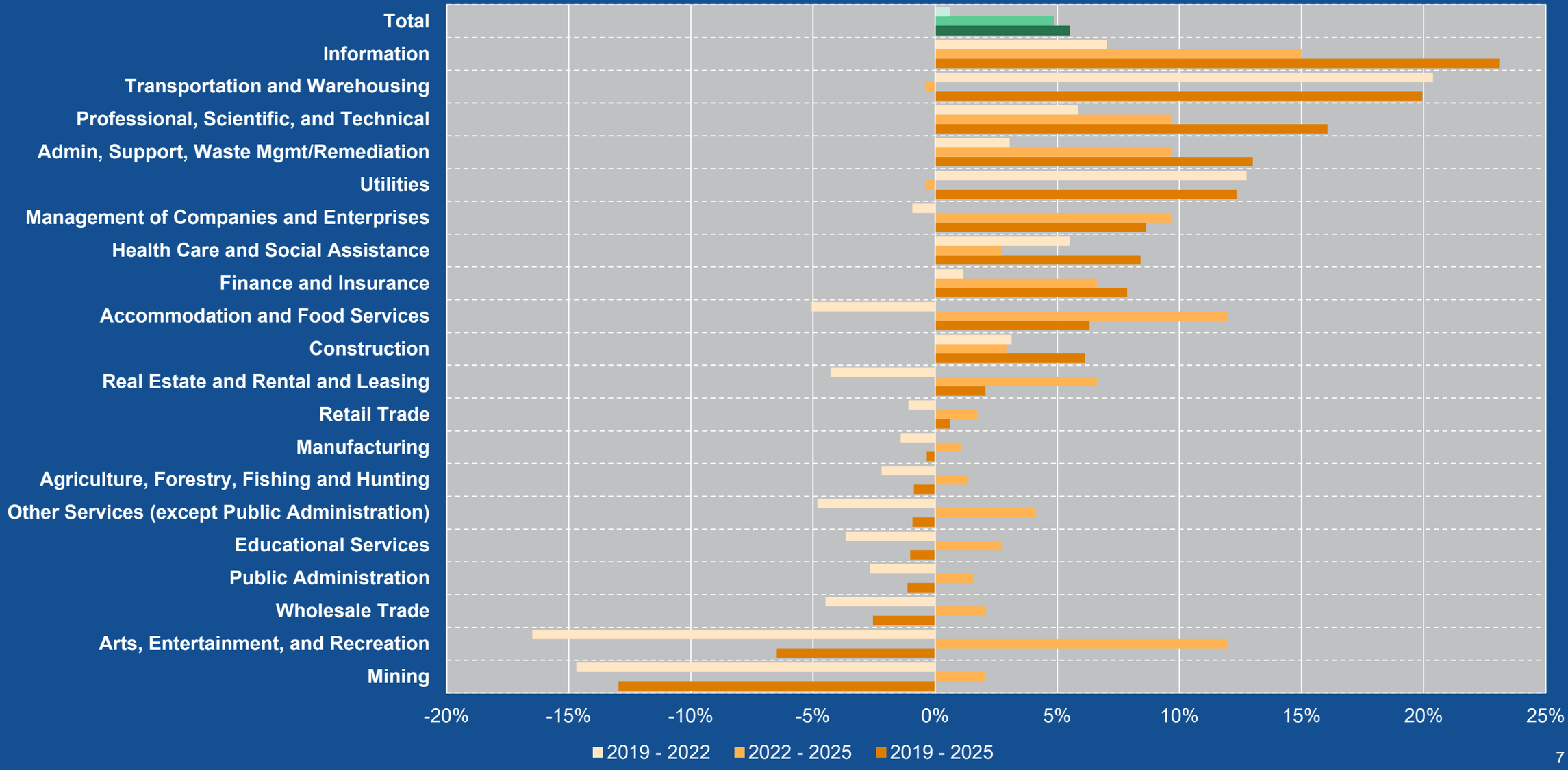
- Changes in industry mix often have direct and measurable impacts on claims cost measures
- Recent mix changes during the economic downturn, recovery, and forecast period have been very significant
- Levels of employment by industry have changed substantially over the past few years
  - Forecasts of employment levels have been volatile as well

Industry Share of Employment

Industry	Industry Share of Total Employment by Year							Percent Point Change from 2019					
	2019	2020	2021	2022	2023	2024	2025	2020	2021	2022	2023	2024	2025
Professional, Scientific, and Technical	7.5%	7.9%	7.9%	7.9%	7.9%	8.1%	8.2%	0.4%	0.4%	0.4%	0.4%	0.6%	0.7%
Information	3.1%	3.2%	3.3%	3.3%	3.3%	3.4%	3.7%	0.1%	0.2%	0.2%	0.2%	0.3%	0.5%
Transportation and Warehousing	3.6%	4.1%	4.3%	4.3%	4.3%	4.2%	4.1%	0.4%	0.6%	0.7%	0.7%	0.6%	0.5%
Admin, Support, Waste Mgmt/Remediation	6.4%	6.3%	6.5%	6.5%	6.5%	6.7%	6.8%	0.0%	0.2%	0.2%	0.2%	0.3%	0.5%
Health Care and Social Assistance	13.6%	14.4%	14.3%	14.2%	14.1%	13.9%	13.9%	0.8%	0.8%	0.7%	0.5%	0.3%	0.4%
Accommodation and Food Services	9.6%	7.7%	8.1%	9.0%	9.5%	9.8%	9.6%	-1.9%	-1.4%	-0.5%	-0.1%	0.3%	0.1%
Finance and Insurance	3.0%	3.2%	3.1%	3.0%	3.0%	3.0%	3.1%	0.2%	0.1%	0.0%	0.0%	0.0%	0.1%
Management of Companies and Enterprises	1.4%	1.5%	1.4%	1.4%	1.4%	1.4%	1.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Construction	5.0%	5.2%	5.1%	5.1%	4.9%	4.9%	5.0%	0.2%	0.2%	0.1%	-0.1%	-0.1%	0.0%
Utilities	0.3%	0.3%	0.3%	0.4%	0.3%	0.3%	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Mining	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Real Estate and Rental and Leasing	1.7%	1.7%	1.7%	1.6%	1.6%	1.6%	1.6%	0.0%	0.0%	-0.1%	-0.1%	-0.1%	-0.1%
Educational Services	2.1%	2.1%	2.1%	2.1%	2.0%	2.0%	2.0%	-0.1%	-0.1%	-0.1%	-0.1%	-0.1%	-0.1%
Agriculture, Forestry, Fishing and Hunting	2.4%	2.4%	2.4%	2.3%	2.3%	2.2%	2.2%	0.1%	0.0%	-0.1%	-0.1%	-0.1%	-0.1%
Other Services (except Public Administration)	3.2%	2.9%	2.9%	3.1%	3.1%	3.1%	3.0%	-0.4%	-0.3%	-0.2%	-0.1%	-0.2%	-0.2%
Arts, Entertainment, and Recreation	1.8%	1.3%	1.4%	1.5%	1.6%	1.7%	1.6%	-0.6%	-0.5%	-0.3%	-0.2%	-0.2%	-0.2%
Wholesale Trade	3.9%	3.9%	3.8%	3.7%	3.7%	3.7%	3.6%	0.0%	-0.1%	-0.2%	-0.2%	-0.2%	-0.3%
Manufacturing	7.4%	7.6%	7.4%	7.3%	7.2%	7.1%	7.0%	0.2%	0.0%	-0.2%	-0.2%	-0.4%	-0.4%
Retail Trade	9.3%	9.2%	9.4%	9.1%	9.1%	9.0%	8.9%	-0.1%	0.1%	-0.2%	-0.1%	-0.3%	-0.4%
Public Administration	14.5%	15.0%	14.4%	14.1%	13.9%	13.8%	13.6%	0.5%	-0.1%	-0.5%	-0.6%	-0.7%	-0.9%

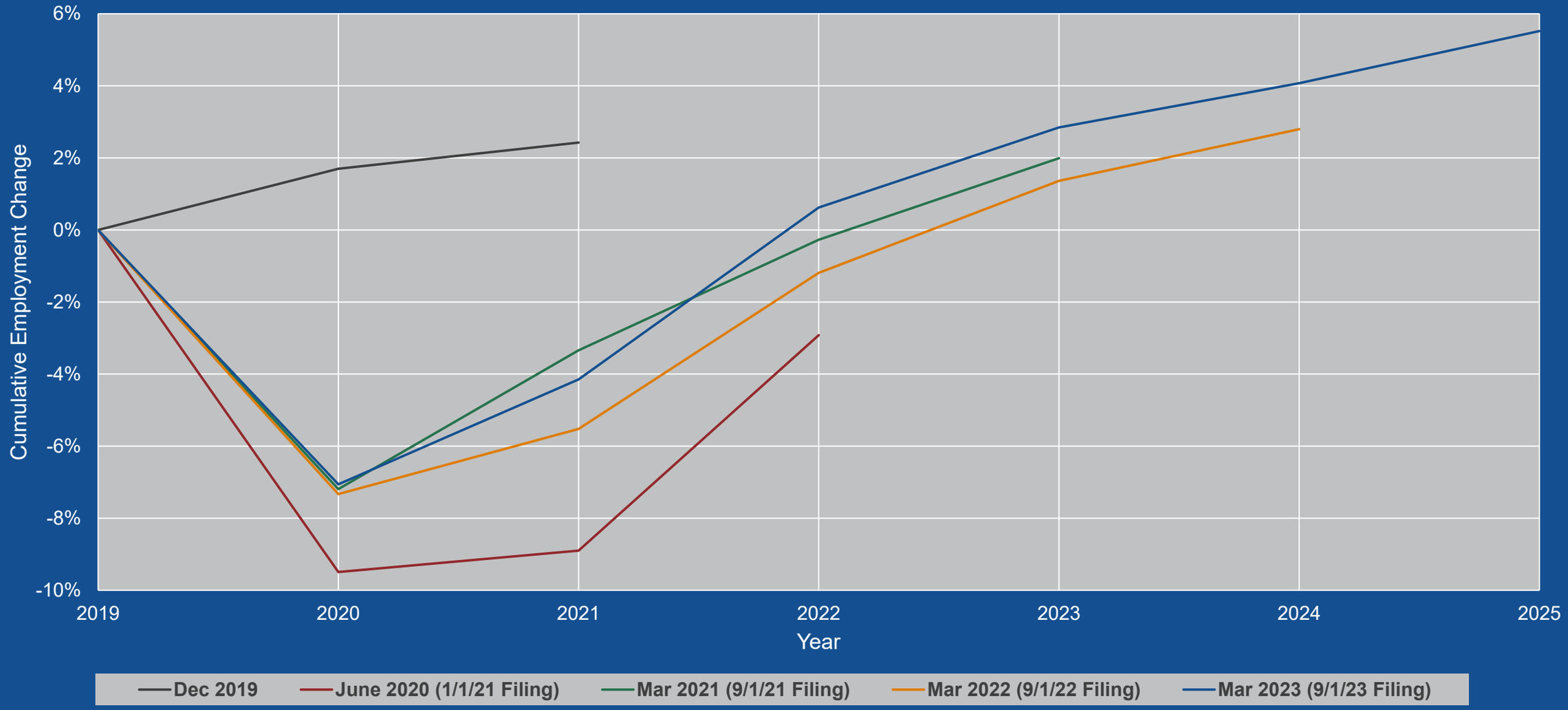
Source: March 2023 UCLA Forecast

Cumulative Changes in Employment by Industry



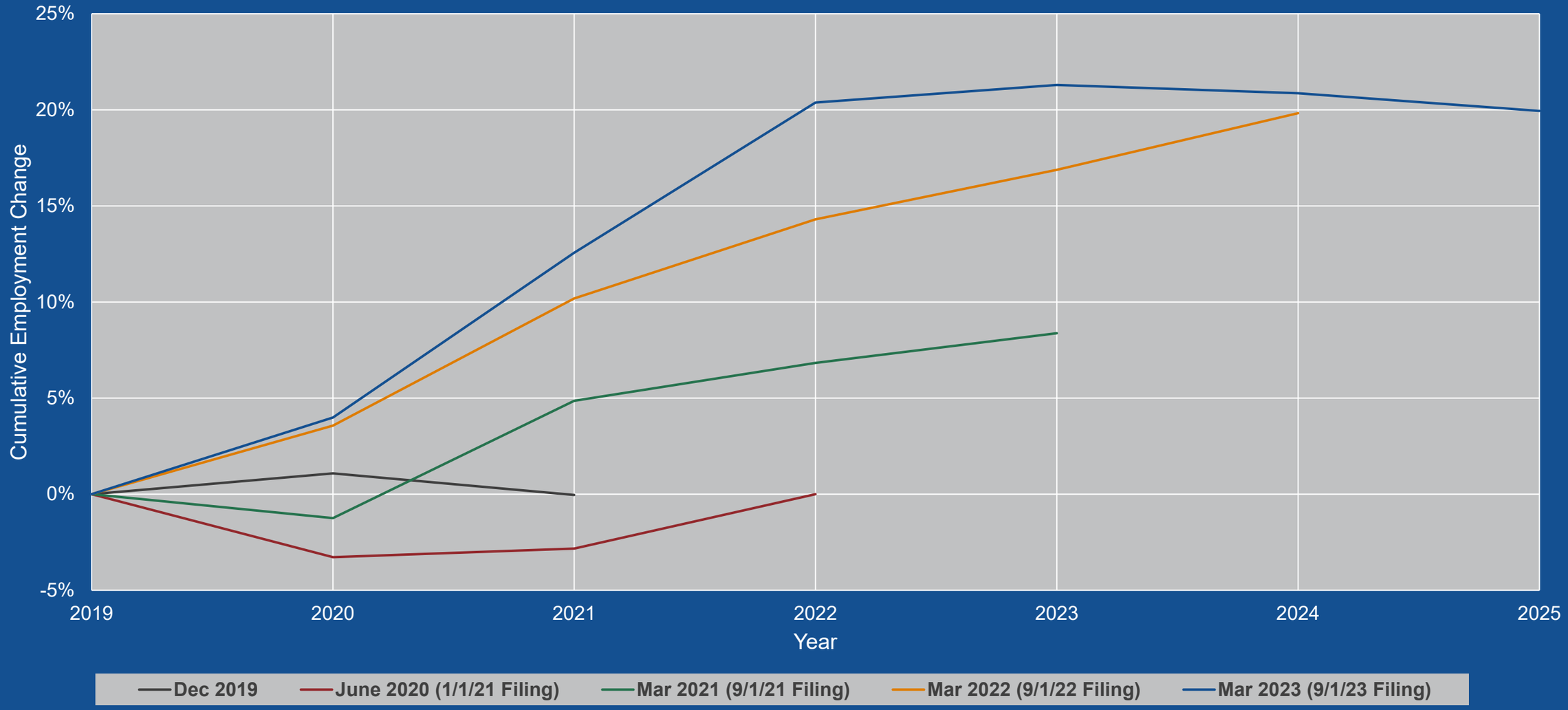
Source: March 2023 UCLA Forecast

Cumulative Employment Change by Forecast
All Industries



Source: December 2019 through March 2023 UCLA Forecasts

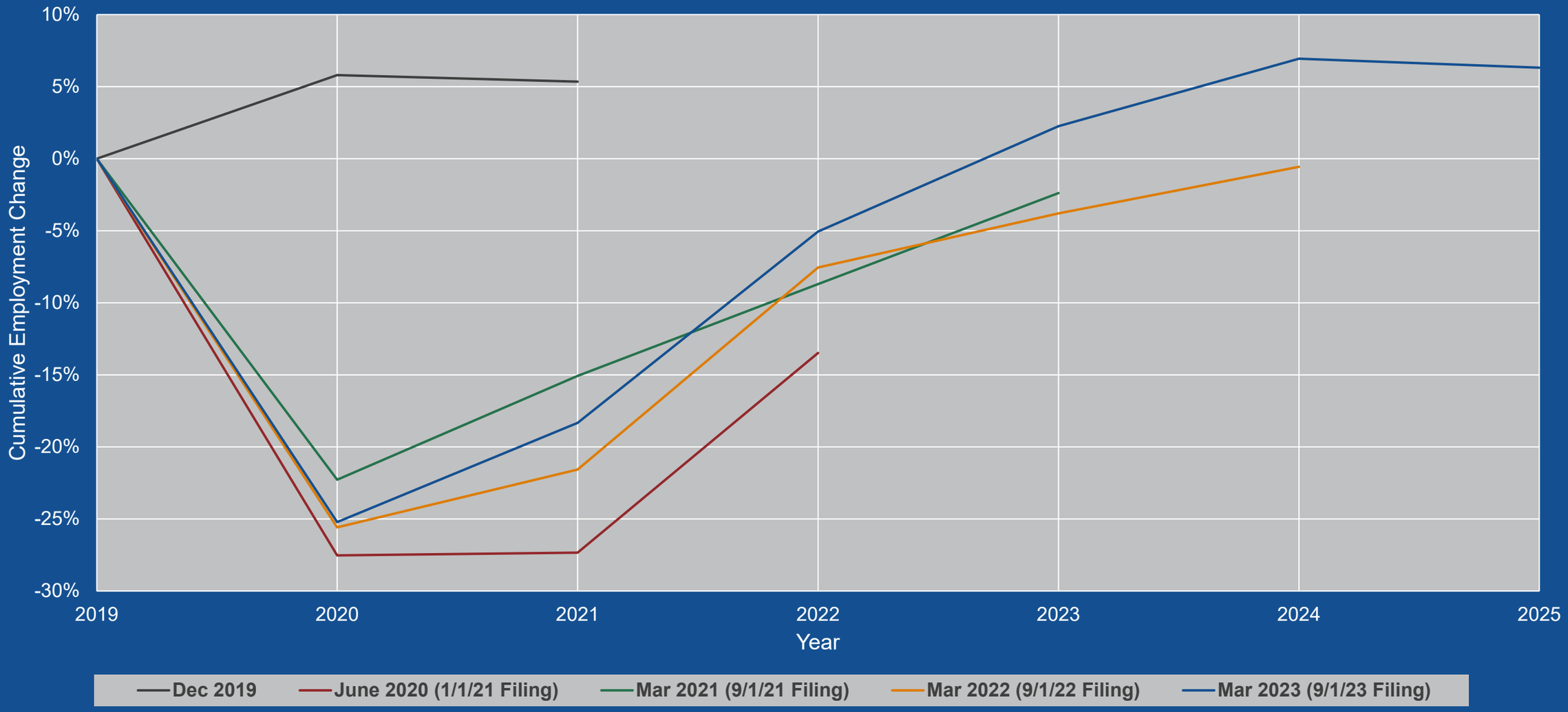
Cumulative Employment Change by Forecast
Transportation & Warehousing



WCIRB California™
Objective. Trusted. Integral.

Source: December 2019 through March 2023 UCLA Forecasts

Cumulative Employment Change by Forecast
Accommodation & Food Services



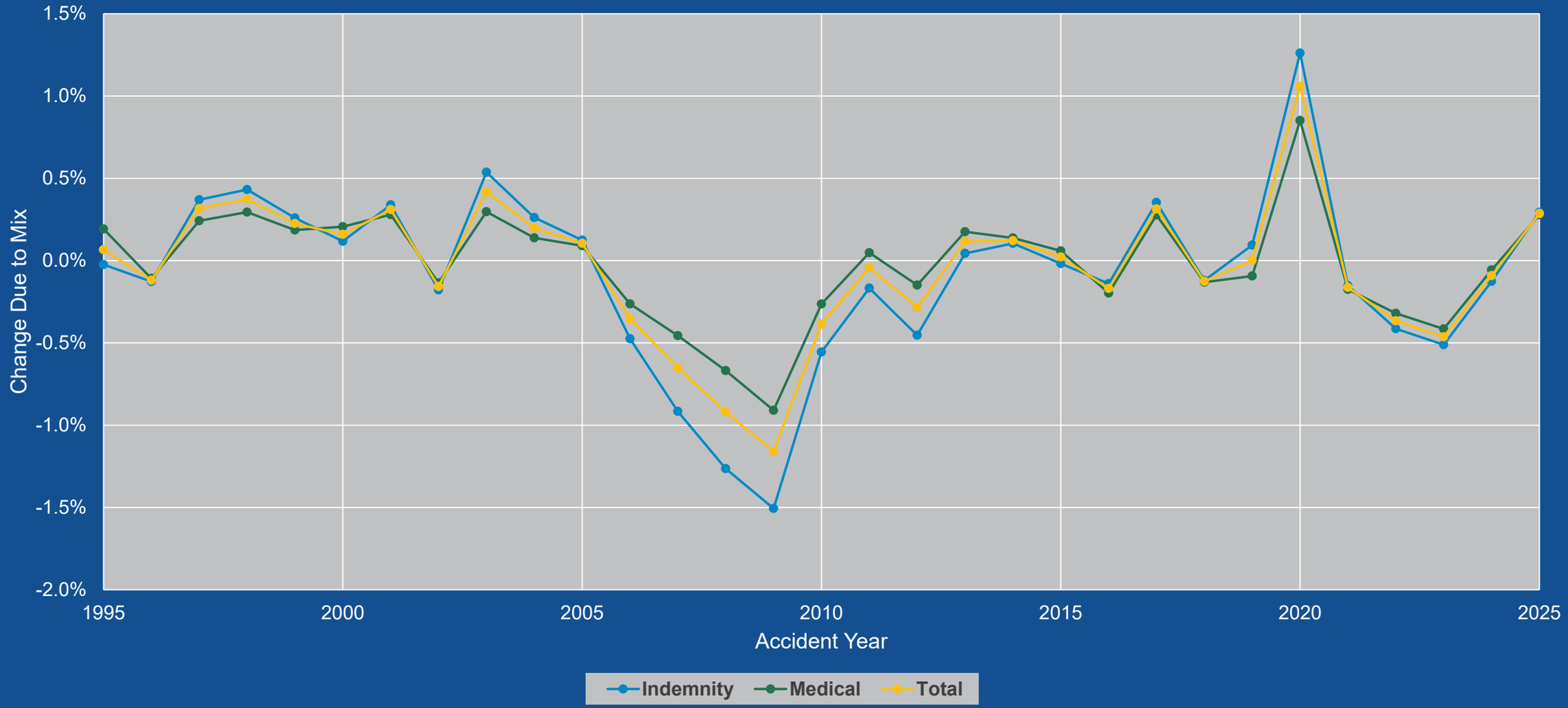
Source: December 2019 through March 2023 UCLA Forecasts

Claim Severity

- WCIRB has developed estimates of changes in claim frequency due to industrial mix
- Estimates are based on USR data, where available
- For future years, historic industry severity relativities are used and count distributions are adjusted using forecasts of employment changes
  - This method implicitly assumes that industry frequency and severity relativities will continue in the future

- These adjustments would be applied if unadjusted (i.e., not on-leveled) losses were used for severity trends

Change in Severity Due to Industrial Mix



WCIRB California™
Objective. Trusted. Integral.

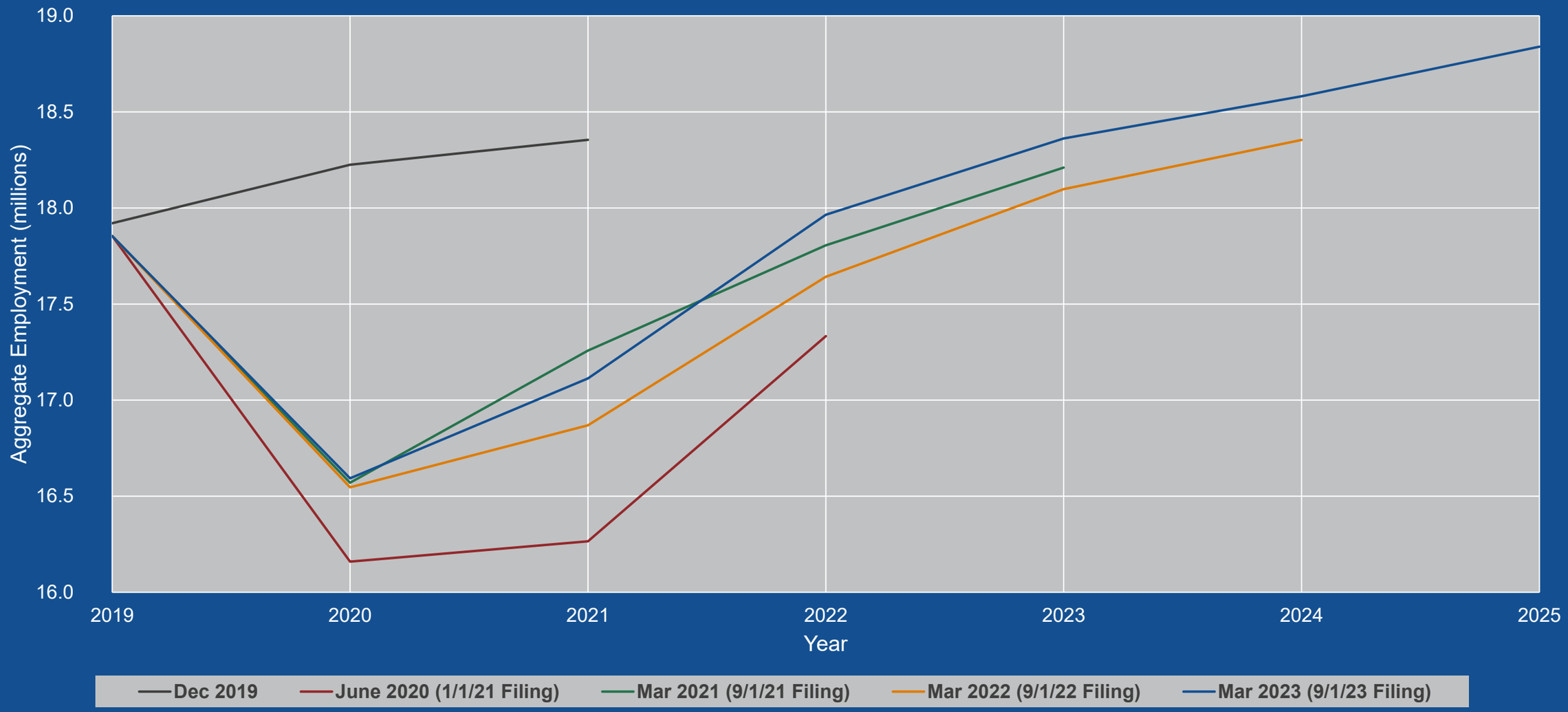
Source: UCLA Anderson Forecast and USR Data

Claim Frequency

- The WCIRB frequency model predicts frequency changes that are adjusted for industrial mix
  - No separate adjustment is required

- Model predicted frequency changes are dependent on changes in economic conditions
  - Economic Variables - First principal component decomposition of:
    - Changes in unemployment rate
    - Changes in aggregate employment

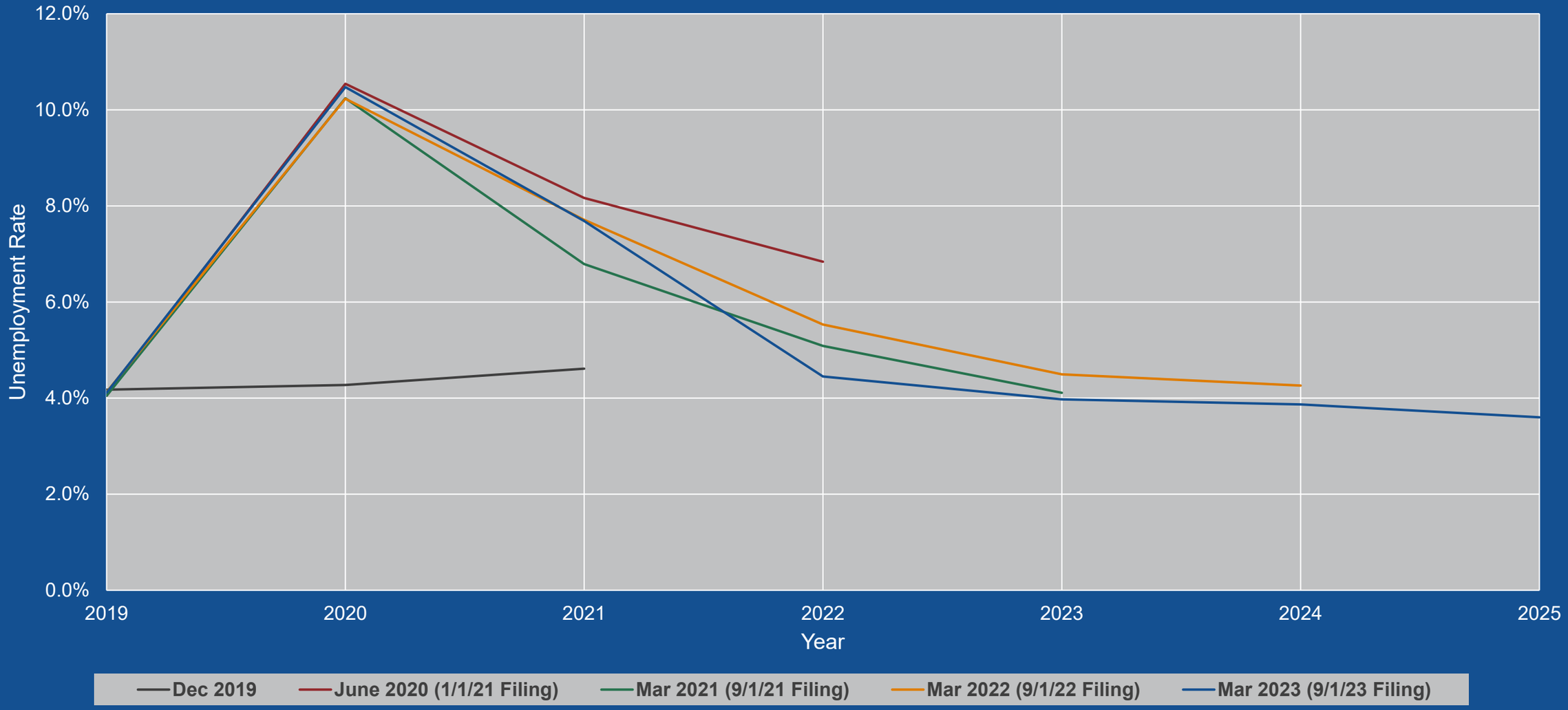
Aggregate Employment by Forecast



WCIRB California™
Objective. Trusted. Integral.

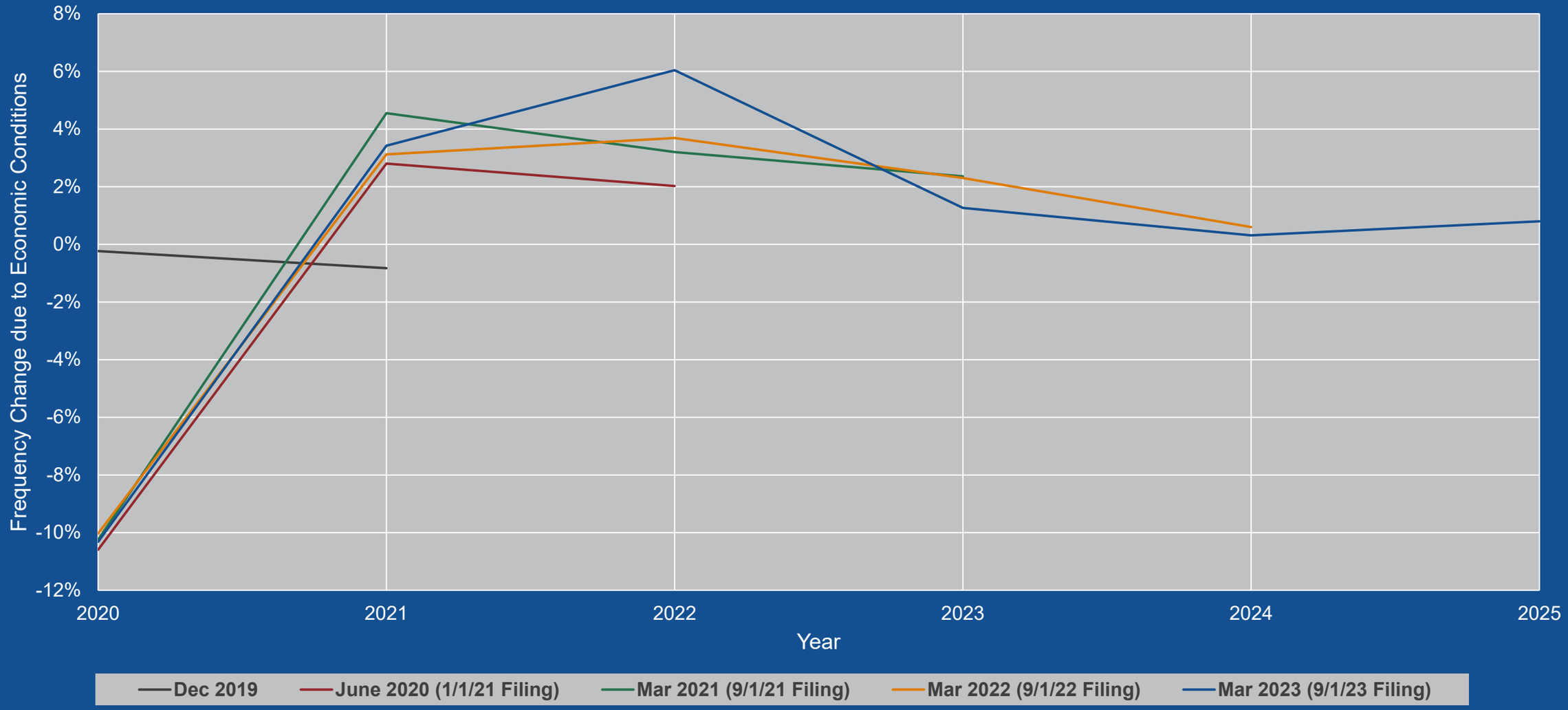
Source: December 2019 through March 2023 UCLA Forecasts

Unemployment Rate by Forecast



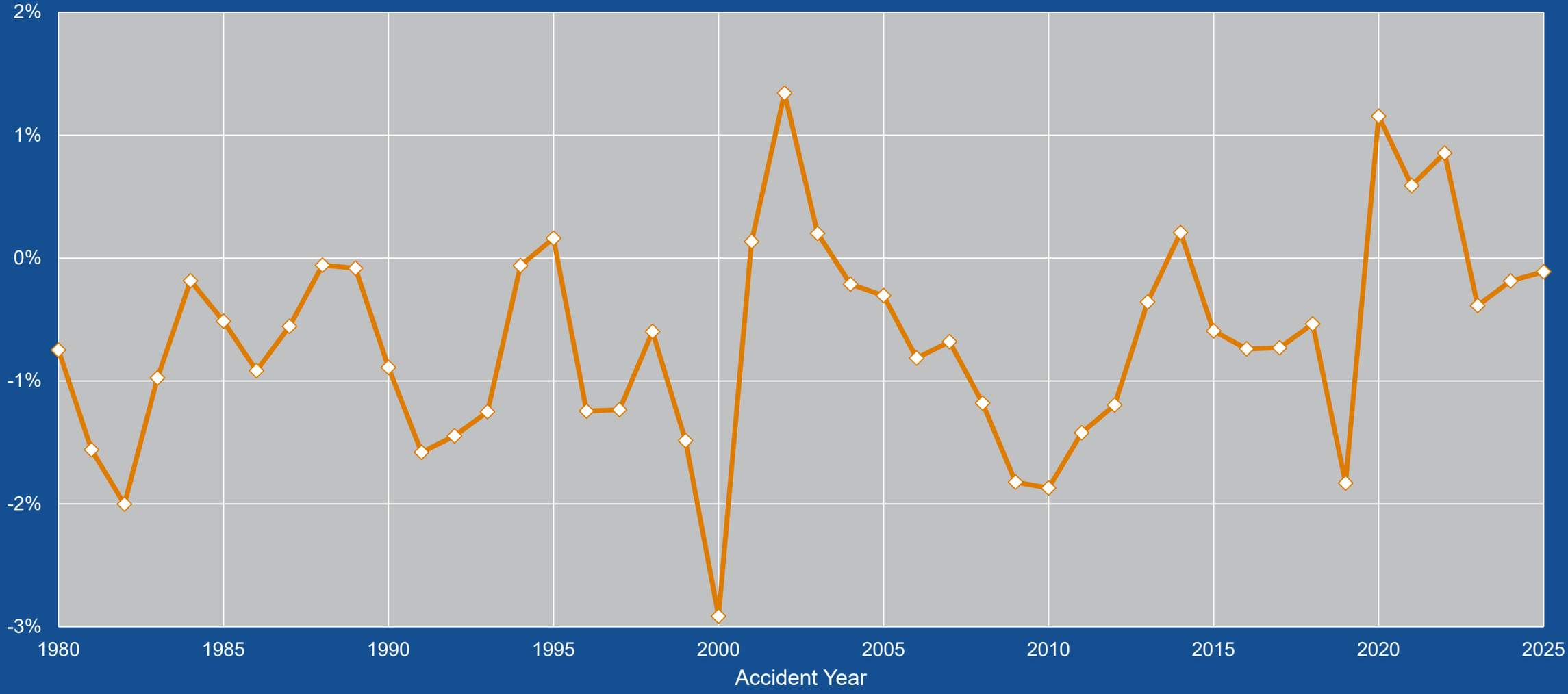
Source: December 2019 through March 2023 UCLA Forecasts

Modeled Frequency Change due to Economic Conditions by Forecast



Source: December 2019 through March 2023 UCLA Forecasts

Change in Frequency Due to Industrial Mix



WCIRB California™
Objective. Trusted. Integral.

Source: UCLA Anderson Forecast and WCIRB Frequency Model

Average Wage

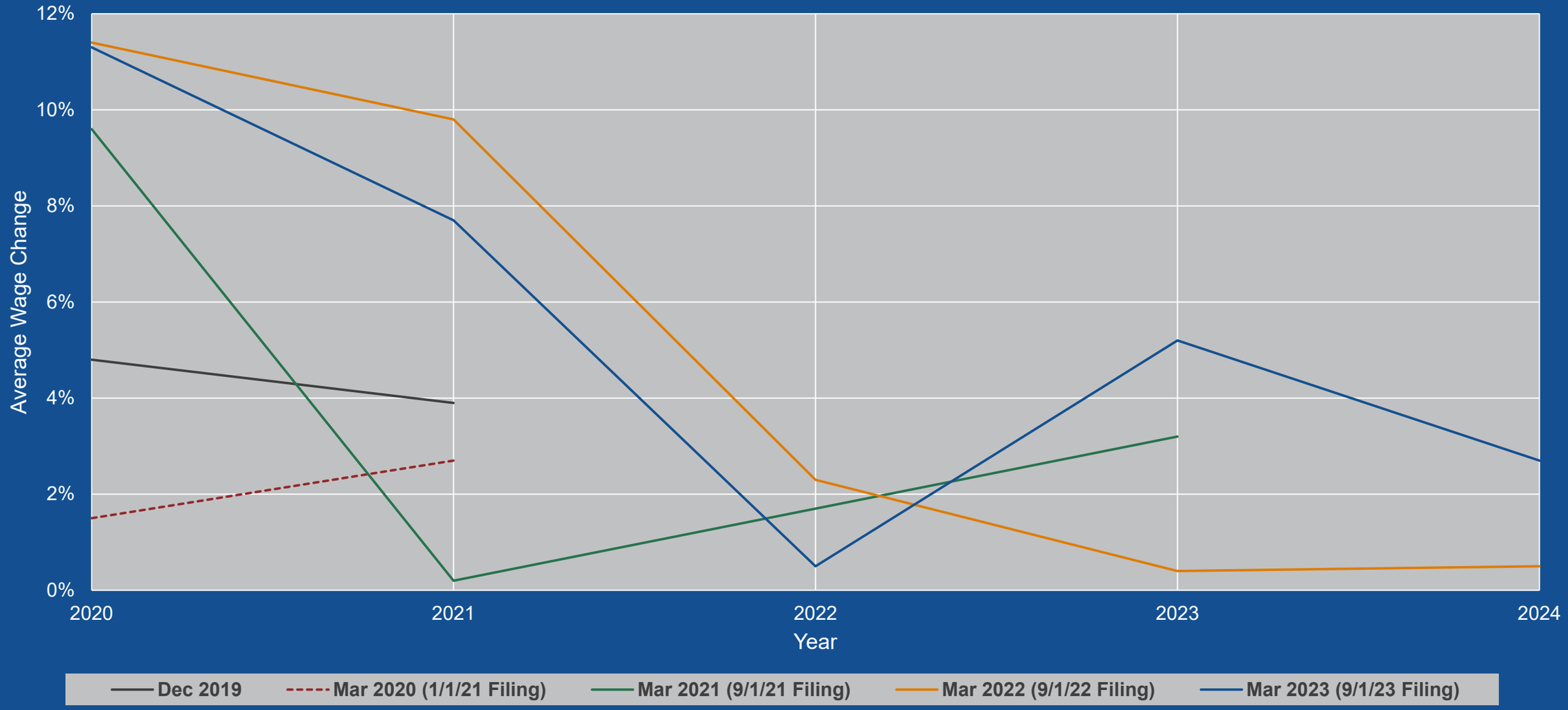
- Current forecasts of average wage changes are from March 2023 UCLA and November 2022 Department of Finance

- The averages of these wage forecasts are:

Source	2020	2021	2022	2023	2024	2025
Average	11.2%	7.6%	0.5%	4.3%	2.9%	2.7%
UCLA	11.3%	7.7%	0.5%	5.2%	2.7%	1.7%
DoF	11.1%	7.4%	0.5%	3.4%	3.0%	3.7%

- Forecasts and early historic estimates of these changes have been very volatile

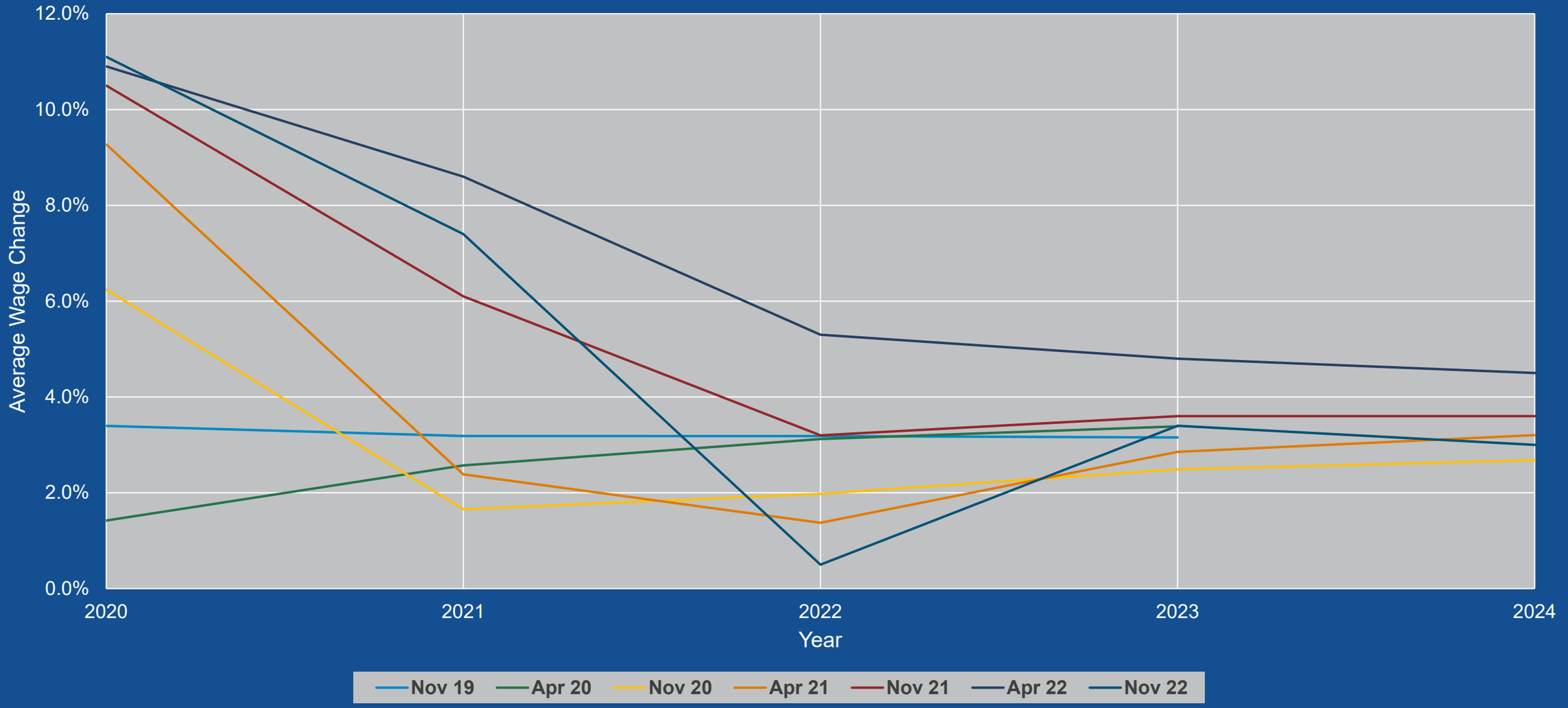
Annual Change in Average Wage by Forecast - UCLA



WCIRB California™
Objective. Trusted. Integral.

Source: December 2019 through March 2023 UCLA Forecasts

Annual Change in Average Wage by Forecast – Department of Finance



Source: November 2019 through November 2022 Department of Finance Forecasts

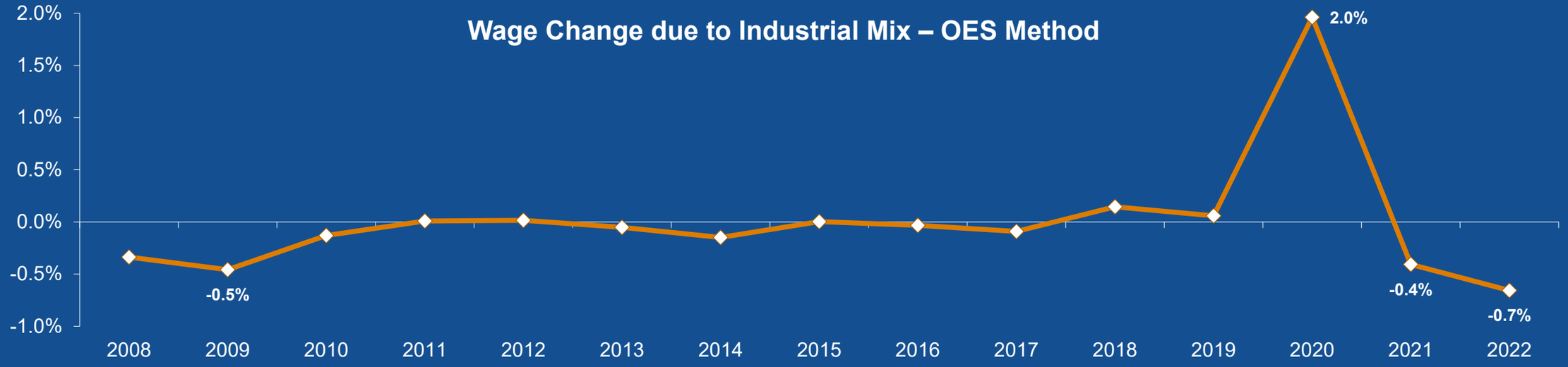
Mix Adjustments

- Staff has developed two estimates of the impact of changing industrial mix on wage changes
  1) Based on BLS OES data through year end 2022
  2) Based on BLS QCEW wage data through 2021 and current UCLA employment forecasts

- 2020, and to a lesser extent, 2021 estimates were artificially high due to uneven distribution of job losses by wage level
- In previous filings, 2022 - 2024 estimates were lowered by projected partial reversals of these impacts

Industrial Mix Impact on Average Wage – OES Method

- This estimate is a reasonableness check of the QCEW/UCLA Method
  - This data set excludes agricultural and government employees
  - Forecasts are not available



Source: Bureau of Labor Statistics Occupational Employment Statistics

Industrial Mix Impact on Average Wage – QCEW/UCLA Method

- This estimate uses observed industrial wage relativities from QCEW data through 2021
- These relativities are extended into the future with industrial mix determined by UCLA forecasts

WCIRB California™
Objective. Trusted. Integral.

Source: Bureau of Labor Statistics Quarterly Census of Employment and Wages and UCLA Anderson Forecast

2020 and 2021 Wage Level Mix Adjustments

- Observed average wage changes in 2020 and 2021 were abnormally high
- These wage changes were partly caused by changing distributions of employees at differing wage levels within industries
  - In 2020, employees at the lowest wage levels were most likely to be laid off
  - In 2021, employees entering or re-entering the workforce were largely able to bypass employment at the lowest wage level due to demand in the labor market
  - In both cases, the impact was that the observed change in the average wage was artificially high
- To account for this distortion, observed wage changes were adjusted using measured impacts from either the American Community Survey (ACS) or Current Population Survey (CPS)
- The impacts were derived by holding both industrial mix and industry/wage quartile wages constant while allowing the distribution of workers by wage level within industries to vary year to year
- Staff recommends continuing to use these measurements to adjust observed wage changes

Wage Level Distribution Impact in 2022 - 2025

- Staff investigated making an analogous adjustment for the observed 2022 wage change using CPS data
  - This data resulted in an overall 2022 wage change that was inconsistent with observed wage changes from other sources

Source	2020	2021	2022
UCLA	11.2%	7.6%	0.5%
ACS/CPS	9.9%	8.1%	8.0%

  - Additionally, the measured adjustment was directionally inconsistent with the small observed wage change in 2022 (i.e., the 0.5% change would be adjusted downward)
- For these reasons, staff does not recommend making this adjustment for the 2022 wage change

- In previous filings, the adjustments made to 2020 and 2021 were partially “unwound” over the forecast period
- There is growing consensus among economists that distributional shifts in wage level are unlikely to reverse
  - For this reason, staff recommends discontinuing the use of the unwinding adjustments

Potential Alternative Wage Mix Adjustment for 2022 Wage Change

WCIRB California™
Objective. Trusted. Integral.

Source: UCLA Anderson Forecast and BLS Current Employment Statistics

Selected and Recommended Average Wage Changes

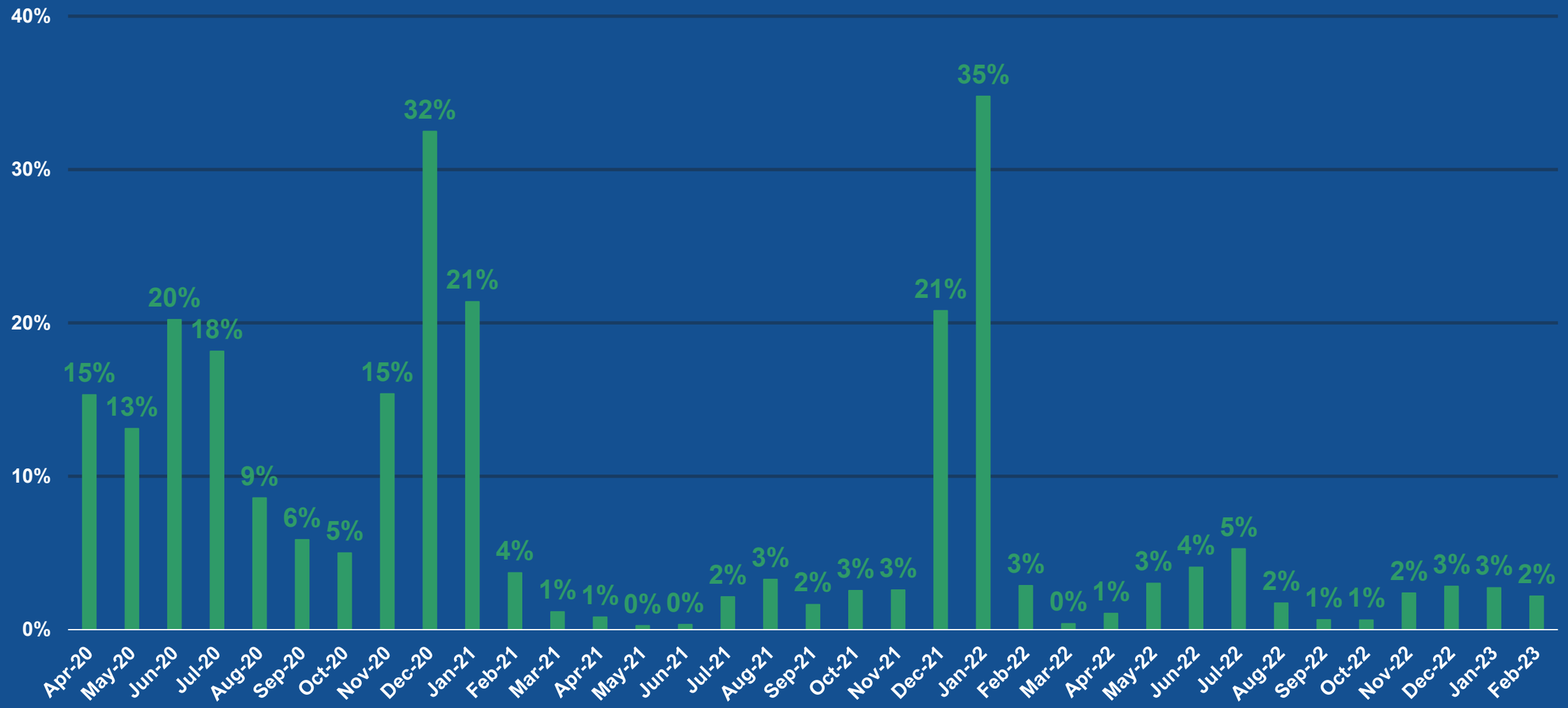
	Filing	2020	2021	2022	2023	2024	2025
Unadjusted	9/1/2021	9.6%	0.9%	1.8%	2.8%		
	9/1/2022	11.4%	8.0%	2.7%	2.0%	2.0%	
	9/1/2023	11.3%	7.7%	0.5%	4.3%	2.9%	2.7%
Industry Mix	9/1/2021	-1.9%	0.4%	0.0%	0.0%		
	9/1/2022	-1.8%	0.3%	0.5%	-0.3%	-0.1%	
	9/1/2023	-1.9%	0.5%	0.5%	0.3%	-0.3%	-0.7%
Wage Level	9/1/2021	-4.3%	1.4%	1.0%	0.4%		
	9/1/2022	-3.9%	-1.8%	1.6%	1.1%	0.5%	
	9/1/2023	-3.9%	-1.8%	0.0%	0.0%	0.0%	0.0%
Adjusted	9/1/2021	2.9%	2.8%	2.9%	3.2%		
	9/1/2022	5.1%	6.3%	4.9%	2.8%	2.5%	
	9/1/2023	4.9%	6.3%	1.0%	4.6%	2.6%	2.0%

02

COVID-19 Claim Diagnostics

COVID-19 Share of Indemnity Claims

As of March 7,2023

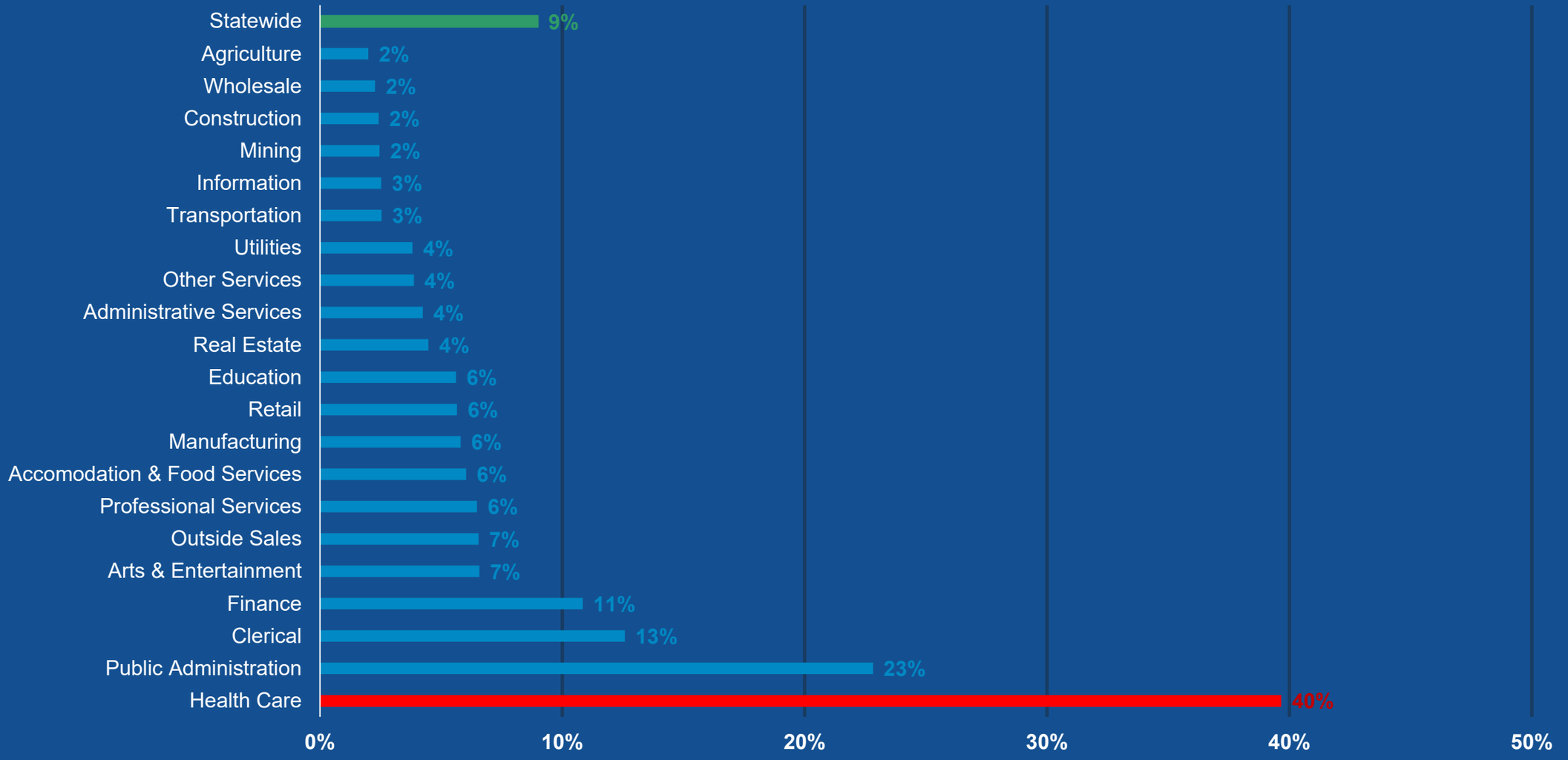


WCIRB California™
Objective. Trusted. Integral.

Source: SROI records from WCIRB indemnity transaction data with MTC dates through February 28,2023

COVID-19's Share of Indemnity Claims by Industry

As of March 7,2023



WCIRB California™
Objective. Trusted. Integral.

Source: FROI and SROI records from WCIRB indemnity transaction data for claims from April 2020 through February 2023

Industry Distribution of COVID-19 Indemnity Claims by Accident Quarter

As of March 7, 2023

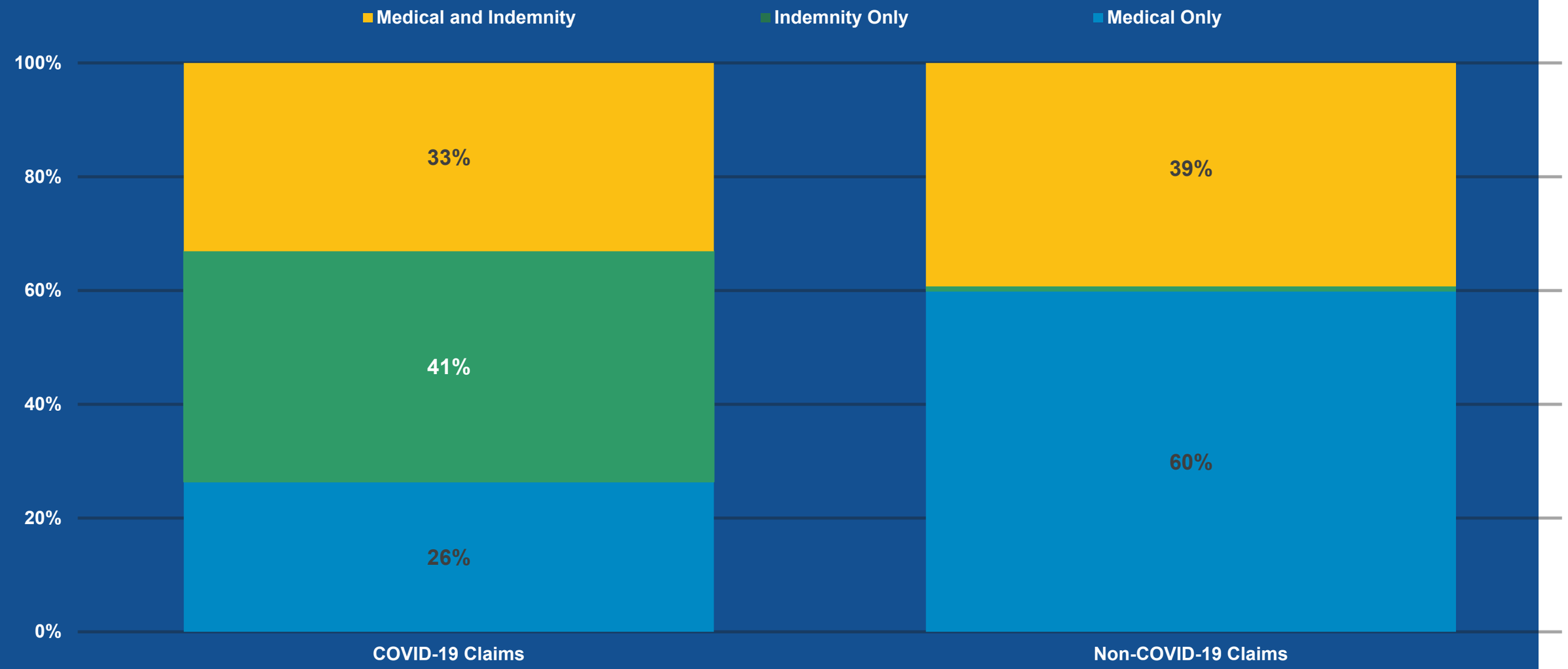
Industry	2020 Q2	2020 Q3	2020 Q4	2021 Q1	2021 Q2	2021 Q3	2021 Q4	2022 Q1	2022 Q2	2022 Q3	2022 Q4
Health Care	51%	56%	53%	55%	44%	50%	56%	60%	47%	54%	60%
Manufacturing	11%	8%	9%	9%	13%	11%	3%	6%	9%	9%	4%
Retail	7%	5%	7%	6%	7%	5%	8%	7%	7%	7%	5%
Clerical	5%	4%	6%	8%	8%	5%	7%	6%	8%	7%	14%
Accomodation & Food Services	4%	6%	4%	4%	3%	7%	12%	8%	9%	8%	4%
Administrative Services	4%	4%	2%	2%	1%	2%	1%	2%	0%	1%	0%
Construction	3%	3%	3%	4%	7%	5%	2%	2%	2%	1%	0%
Transportation	3%	5%	5%	2%	2%	2%	1%	1%	1%	1%	0%
Agriculture	3%	2%	0%	1%	1%	2%	0%	0%	0%	1%	0%
Wholesale	3%	2%	3%	2%	2%	1%	1%	1%	1%	1%	0%
Other Services	2%	1%	1%	1%	1%	1%	1%	0%	1%	1%	1%
Arts & Entertainment	1%	0%	0%	0%	1%	1%	2%	2%	3%	4%	3%
Outside Sales	1%	1%	1%	1%	0%	1%	1%	1%	1%	1%	1%
Real Estate	1%	1%	1%	1%	2%	2%	1%	1%	1%	1%	1%
Public Administration	1%	0%	1%	1%	5%	2%	1%	0%	0%	0%	1%
Professional Services	1%	1%	1%	1%	1%	1%	2%	2%	4%	1%	0%
Education	0%	1%	1%	1%	2%	1%	1%	1%	2%	0%	1%
Finance	0%	0%	0%	0%	0%	1%	0%	0%	2%	0%	1%
Information	0%	0%	1%	0%	0%	1%	0%	0%	1%	0%	1%
Mining	0%	0%	0%	0%	1%	0%	0%	0%	0%	0%	0%
Utilities	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Source: FROI and SROI records from WCIRB indemnity transaction data for claims from April 2020 through February 2023

Share of Claims by Type of Claim

Accident Year 2020 at 2nd Report Level

As of March 7, 2023



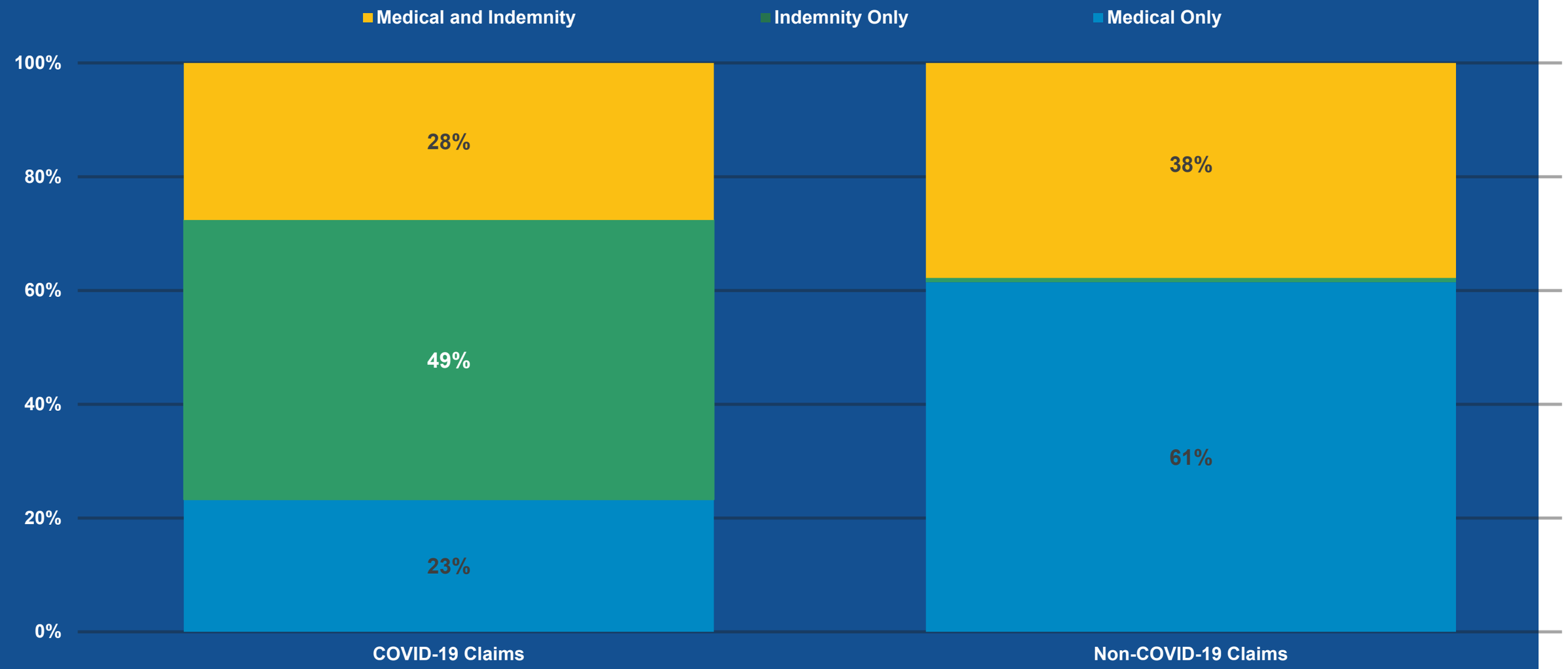
WCIRB California™
Objective. Trusted. Integral.

Source: AY 2020 claims from PY 2019 and 2020 USRs at second report with Accident Date of 4/1/2020 or later

Share of Claims by Type of Claim

Accident Year 2021 at 1st Report Level

As of August 9, 2022

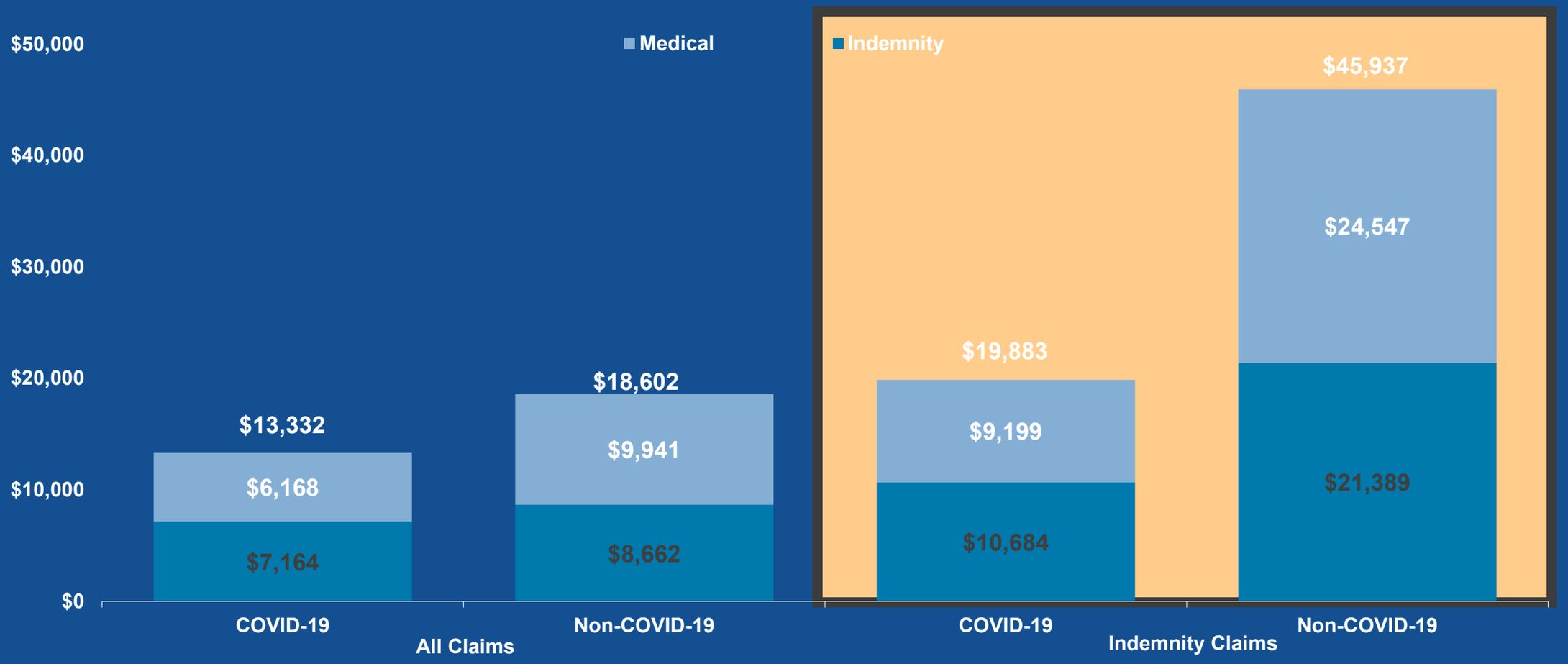


WCIRB California™
Objective. Trusted. Integral.

Source: AY 2021 claims from PY 2020 and 2021 USRs at first report with Accident Date of 1/1/2021 or later

Accident Year 2020 Incurred Severities

As of December 31, 2022

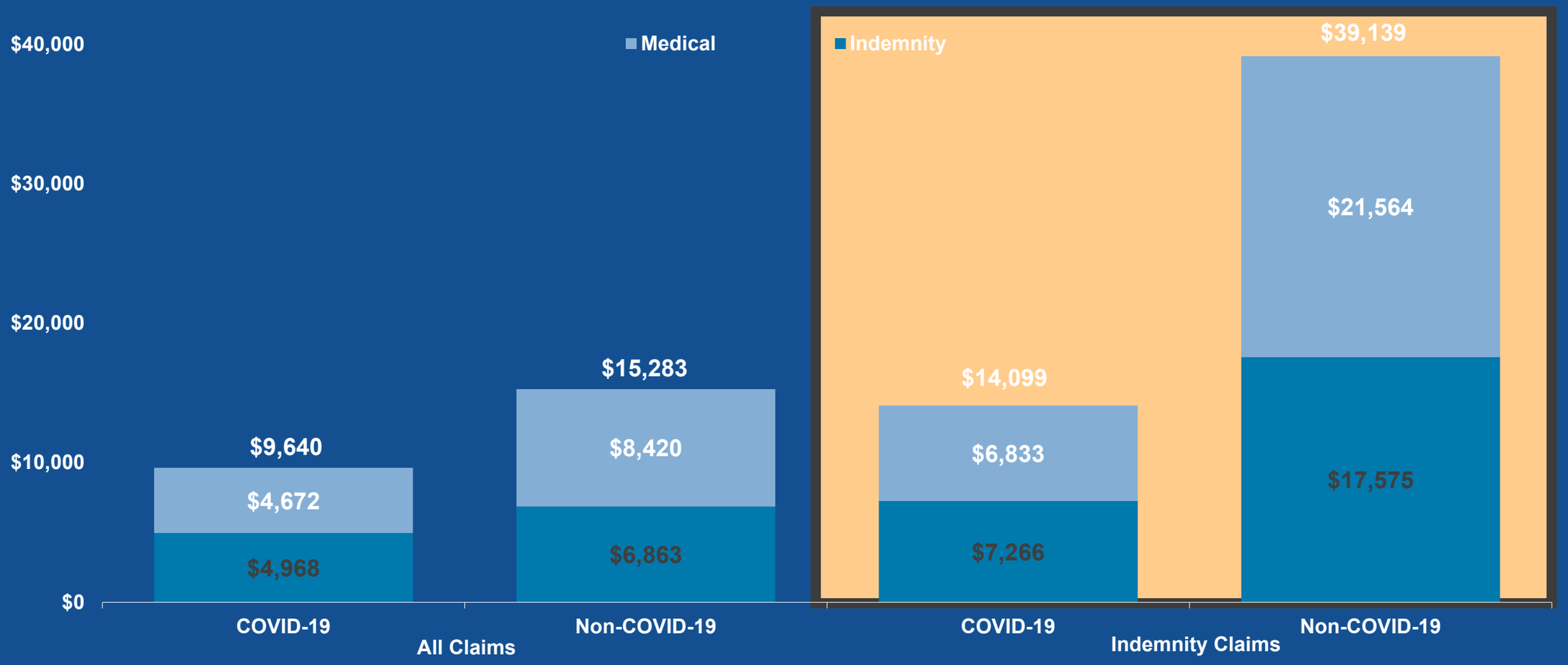


WCIRB California™
Objective. Trusted. Integral.

Source: WCIRB Aggregate Financial Data

Accident Year 2021 Incurred Severities

As of December 31, 2022

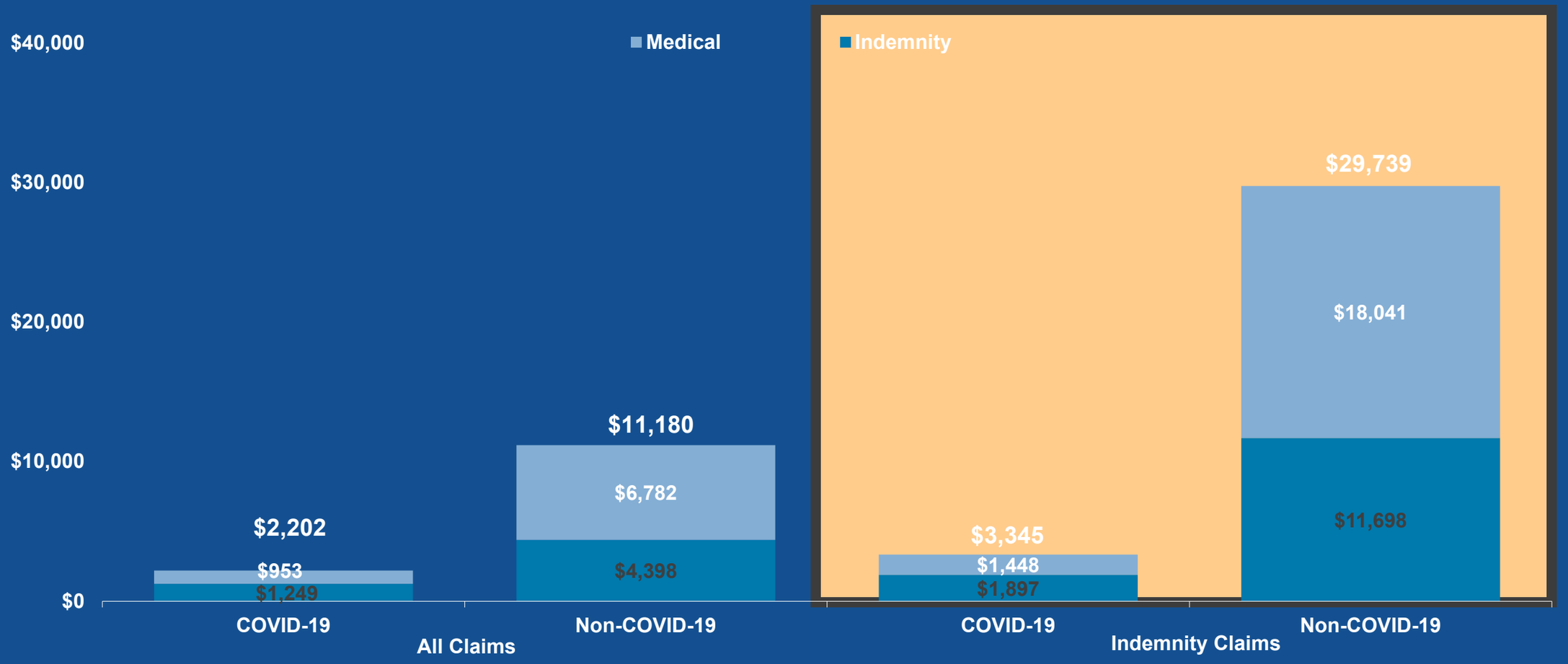


WCIRB California™
Objective. Trusted. Integral.

Source: WCIRB Aggregate Financial Data

Accident Year 2022 Incurred Severities

As of December 31, 2022



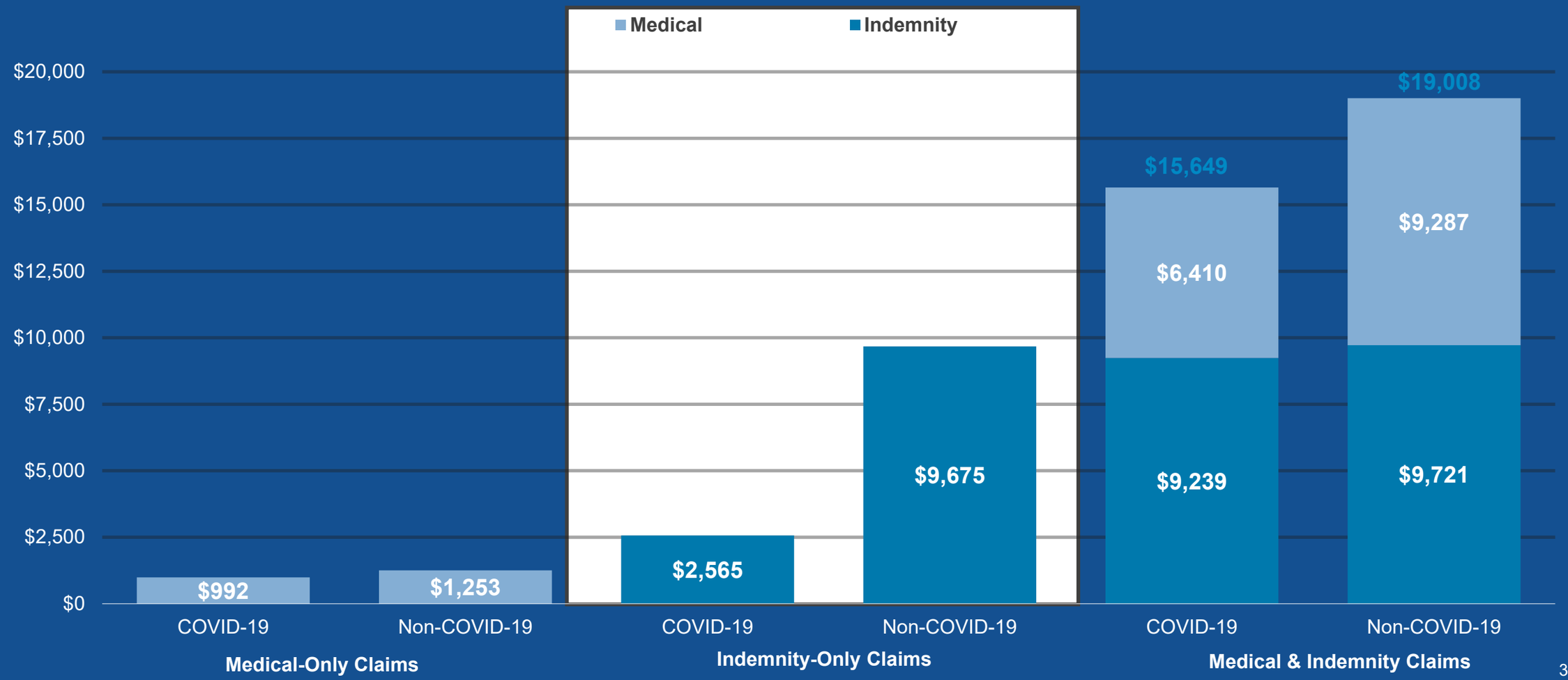
WCIRB California™
Objective. Trusted. Integral.

Source: WCIRB Aggregate Financial Data

Closed Claim Severity by Type of Claim

Accident Year 2020 at 2nd Report Level

As of March 7, 2023



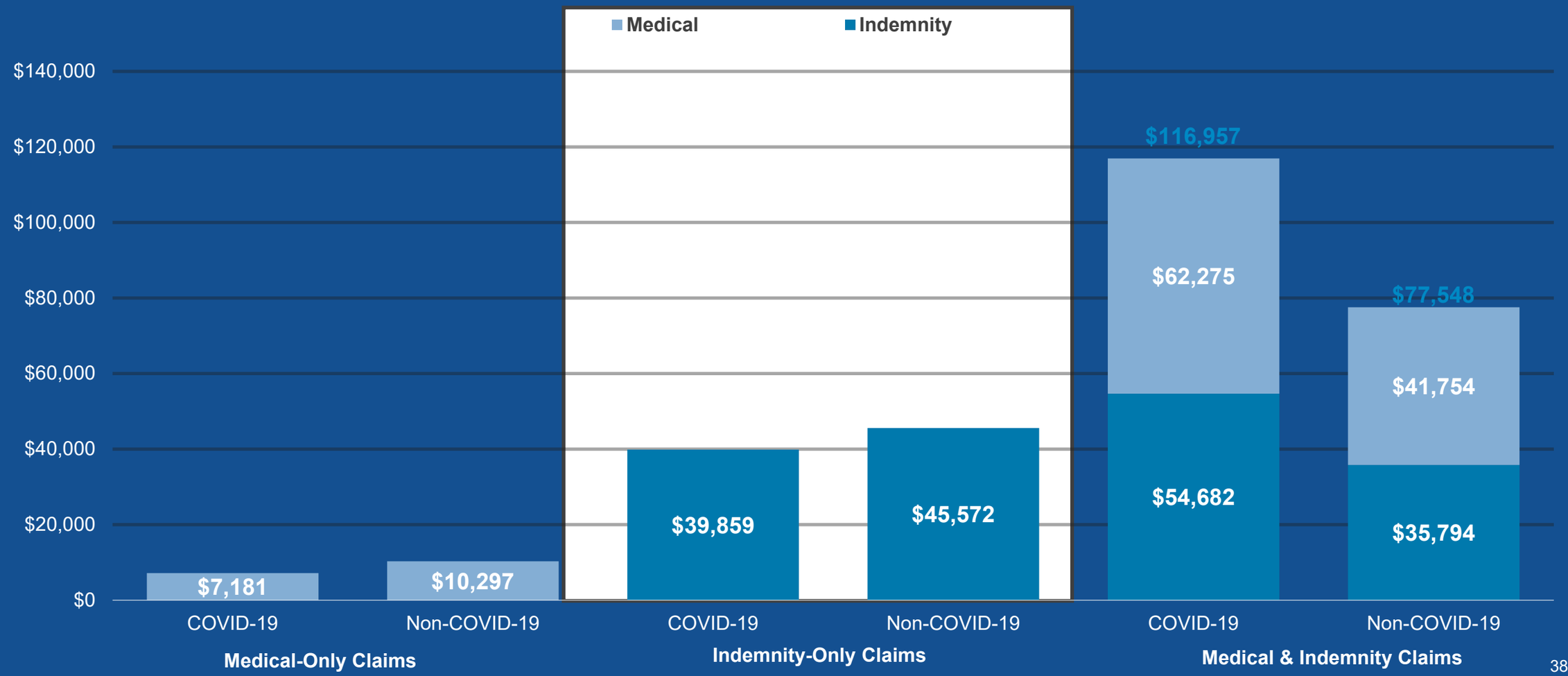
WCIRB California™
Objective. Trusted. Integral.

Source: AY 2020 claims from PY 2019 and 2020 USRs at second report with Accident Date of 4/1/2020 or later

Open Claim Severity by Type of Claim

Accident Year 2020 at 2nd Report Level

As of March 7, 2023



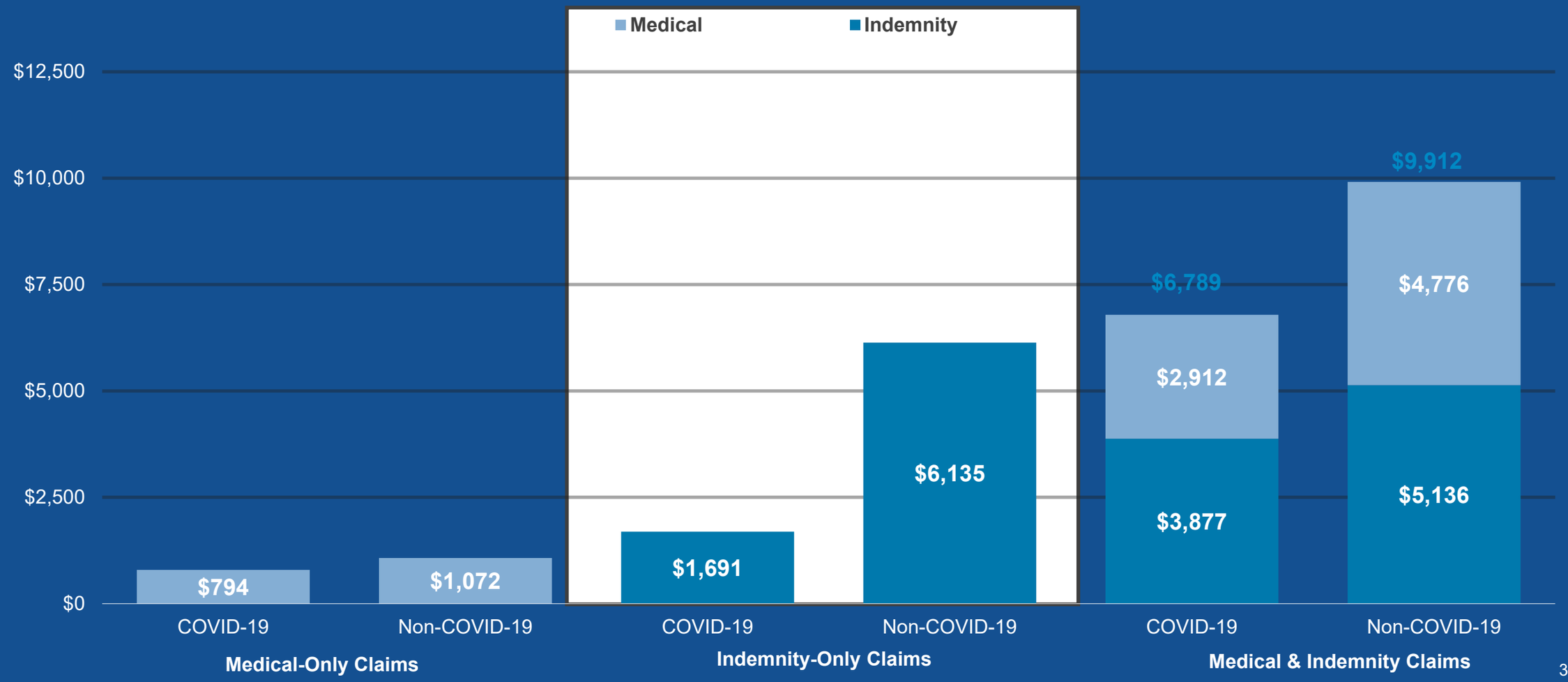
WCIRB California™
Objective. Trusted. Integral.

Source: AY 2020 claims from PY 2019 and 2020 USRs at second report with Accident Date of 4/1/2020 or later

Closed Claim Severity by Type of Claim

Accident Year 2021 at 1st Report Level

As of March 7, 2023



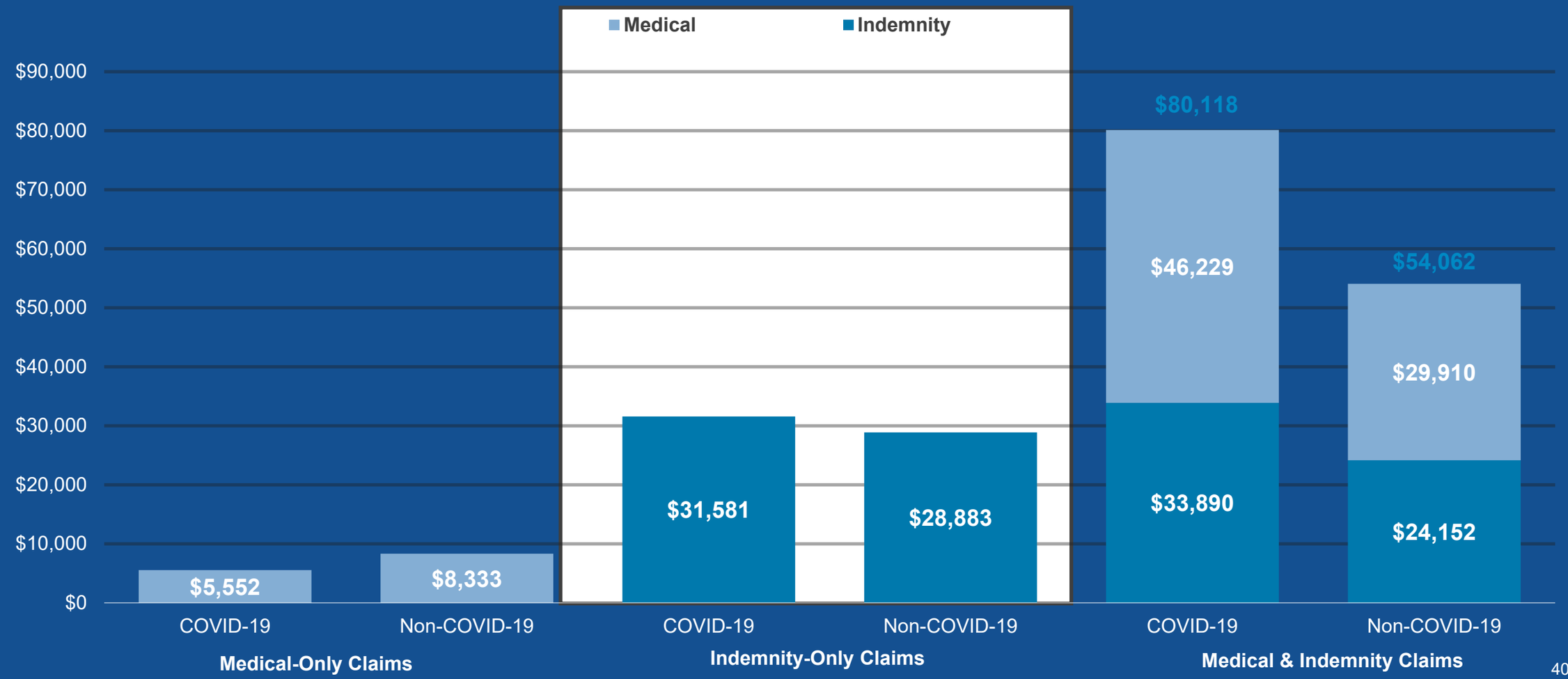
WCIRB California™
Objective. Trusted. Integral.

Source: AY 2021 claims from PY 2020 and 2021 USRs at first report with Accident Date of 1/1/2021 or later

Open Claim Severity by Type of Claim

Accident Year 2021 at 1st Report Level

As of March 7, 2023

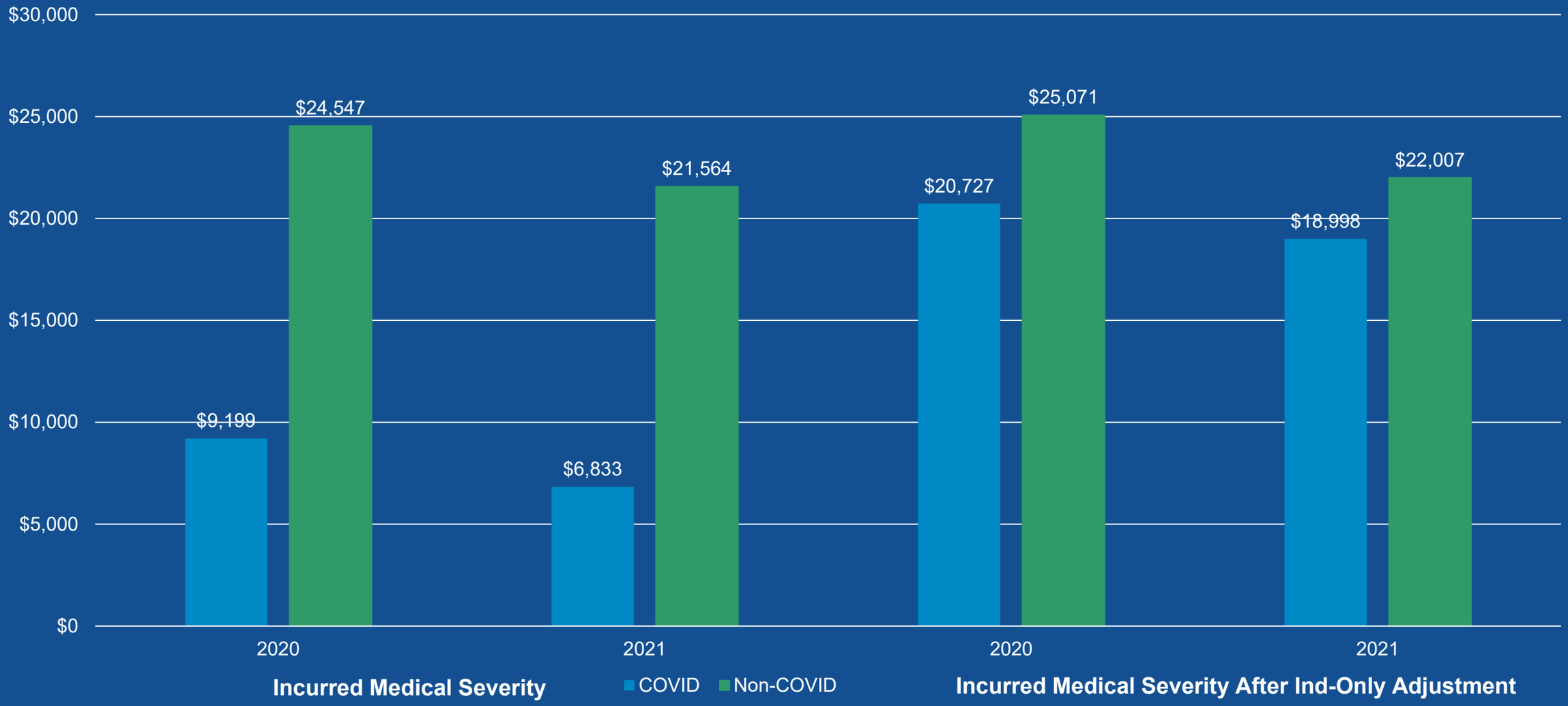


WCIRB California™
Objective. Trusted. Integral.

Source: AY 2021 claims from PY 2020 and 2021 USRs at first report with Accident Date of 1/1/2021 or later

Comparison of Incurred Medical Severity on COVID-19 and Non-COVID-19 Claims Adjusted for the Share of Indemnity-Only Claims

As of December 31, 2022



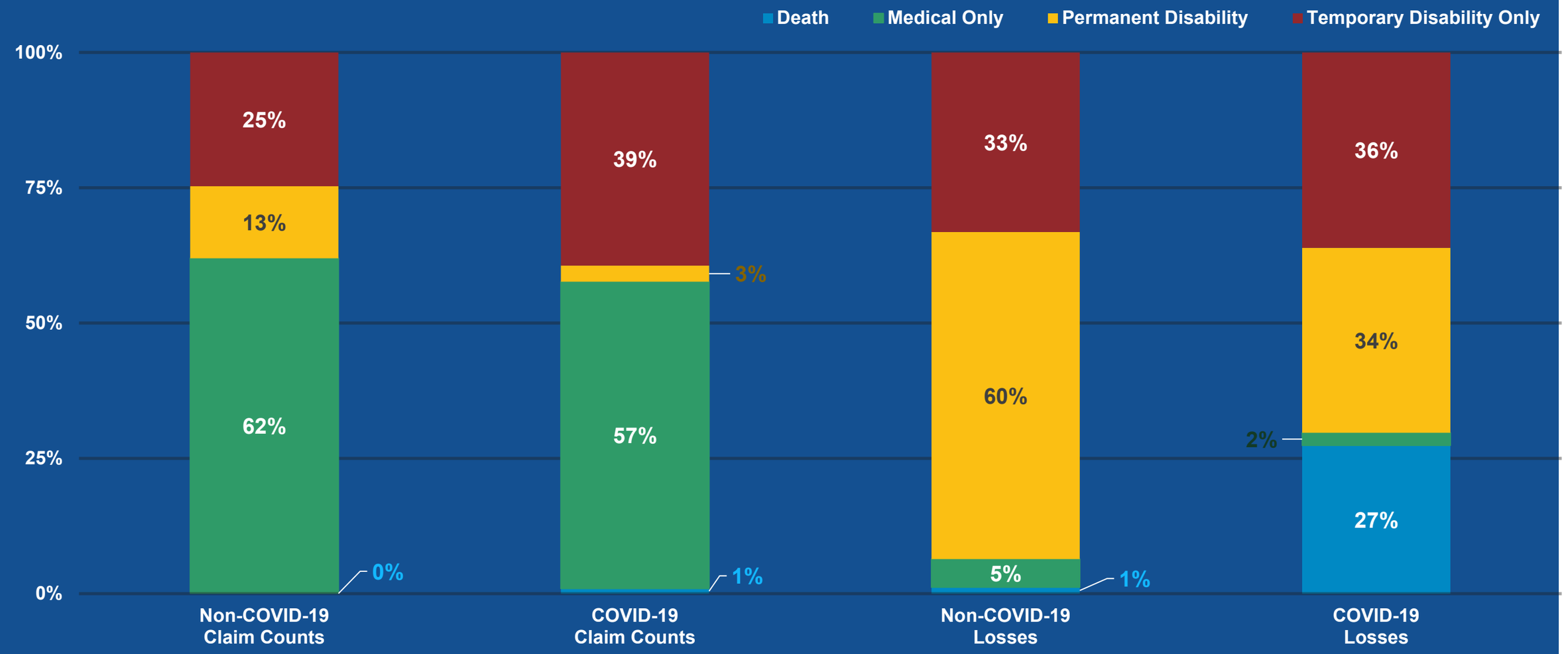
WCIRB California™
Objective. Trusted. Integral.

Source: WCIRB Aggregate Financial Data and Share of Indemnity-Only claims from AY 2020 and 2021 on PY 2019 and 2020 USRs at first report for claims with Accident Date of 4/1/2020 or later. Incurred medical severities are adjusted to estimate the incurred medical severity on indemnity claims with medical payments by dividing the incurred medical severity by (1 – estimated share of indemnity-only claims).

Distribution of Claims and Incurred Losses by Claim Type

Accident Year 2020

As of March 7, 2023



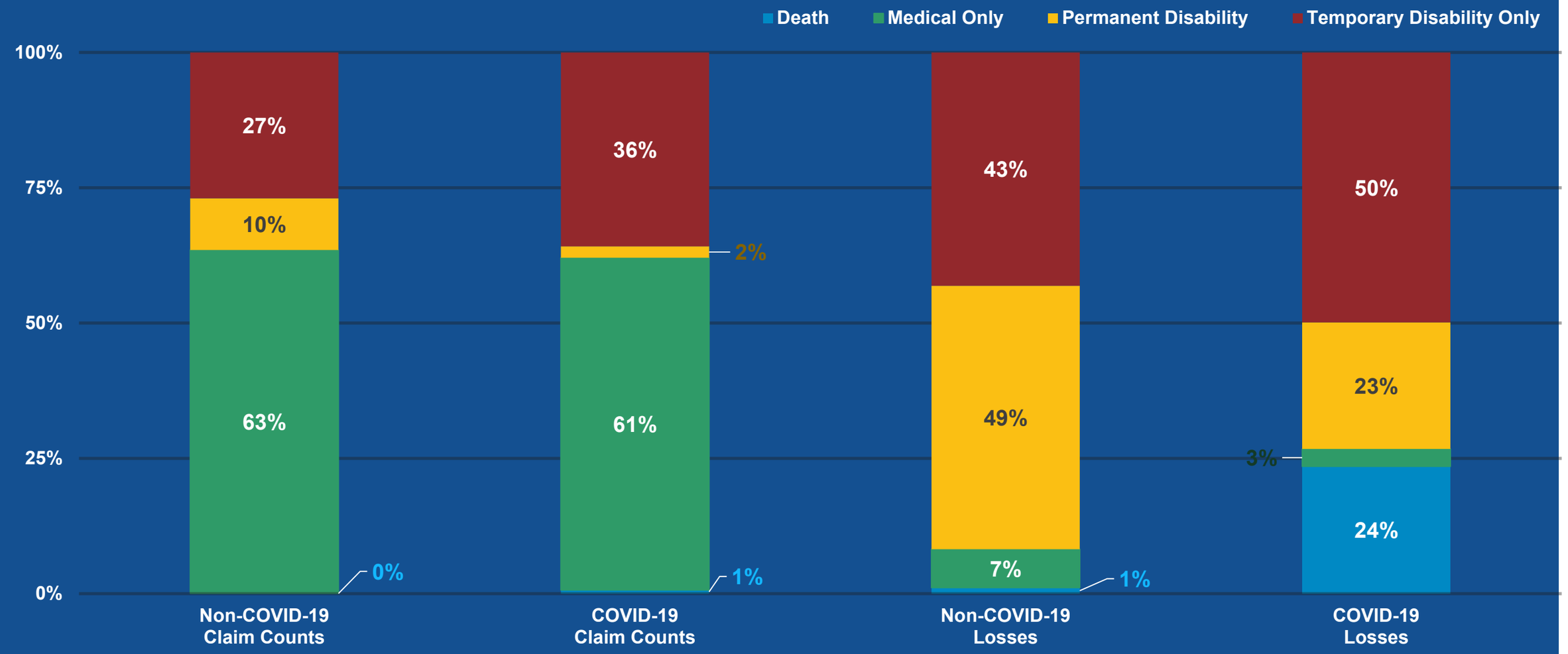
WCIRB California™
Objective. Trusted. Integral.

Source: AY 2020 claims from PY 2019 and 2020 USRs at second report with Accident Date of 4/1/2020 or later

Distribution of Claims and Incurred Losses by Claim Type

Accident Year 2021

As of March 7, 2023



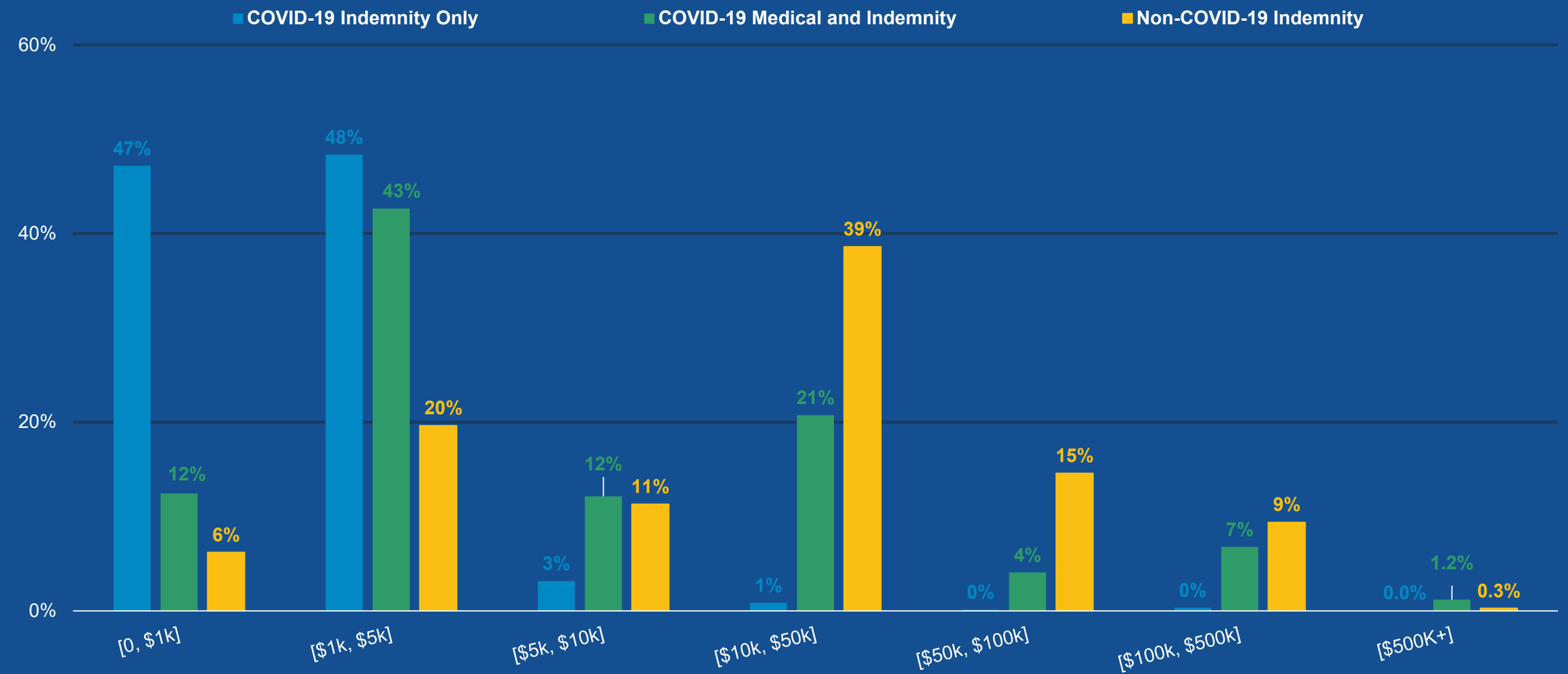
WCIRB California™
Objective. Trusted. Integral.

Source: AY 2021 claims from PY 2020 and 2021 USRs at first report with Accident Date of 1/1/2021 or later

Indemnity Claim Distribution by Incurred Loss Size

Accident Year 2020

As of March 7, 2023



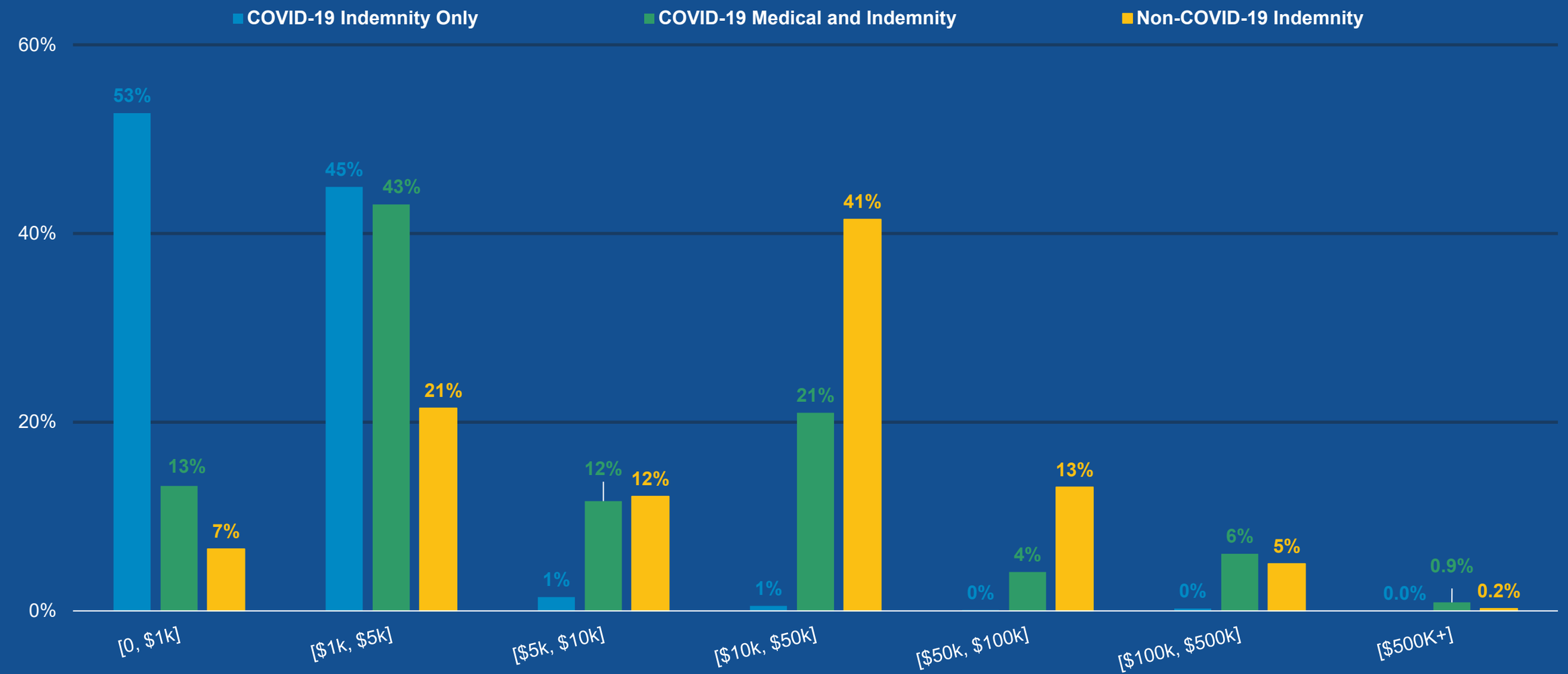
WCIRB California™
Objective. Trusted. Integral.

Source: AY 2020 claims from PY 2019 and 2020 USRs at second report with Accident Date of 4/1/2020 or later

Indemnity Claim Distribution by Incurred Loss Size

Accident Year 2021

As of March 7, 2023

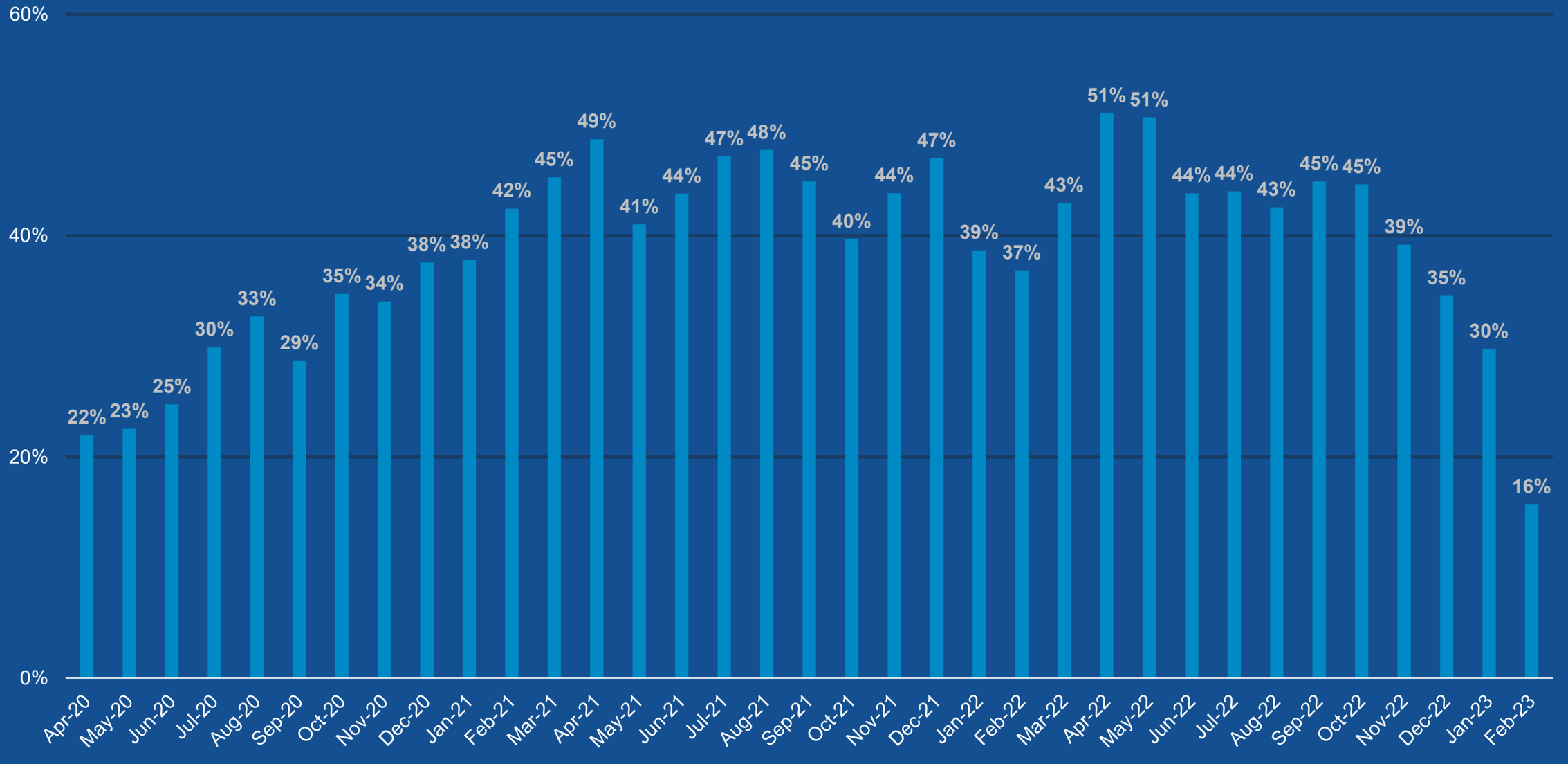


WCIRB California™
Objective. Trusted. Integral.

Source: AY 2020 claims from PY 2020 and 2021 USRs at first report with Accident Date of 1/1/2021 or later

COVID-19 Claim Denial Rates by Accident Month

As of March 7, 2023



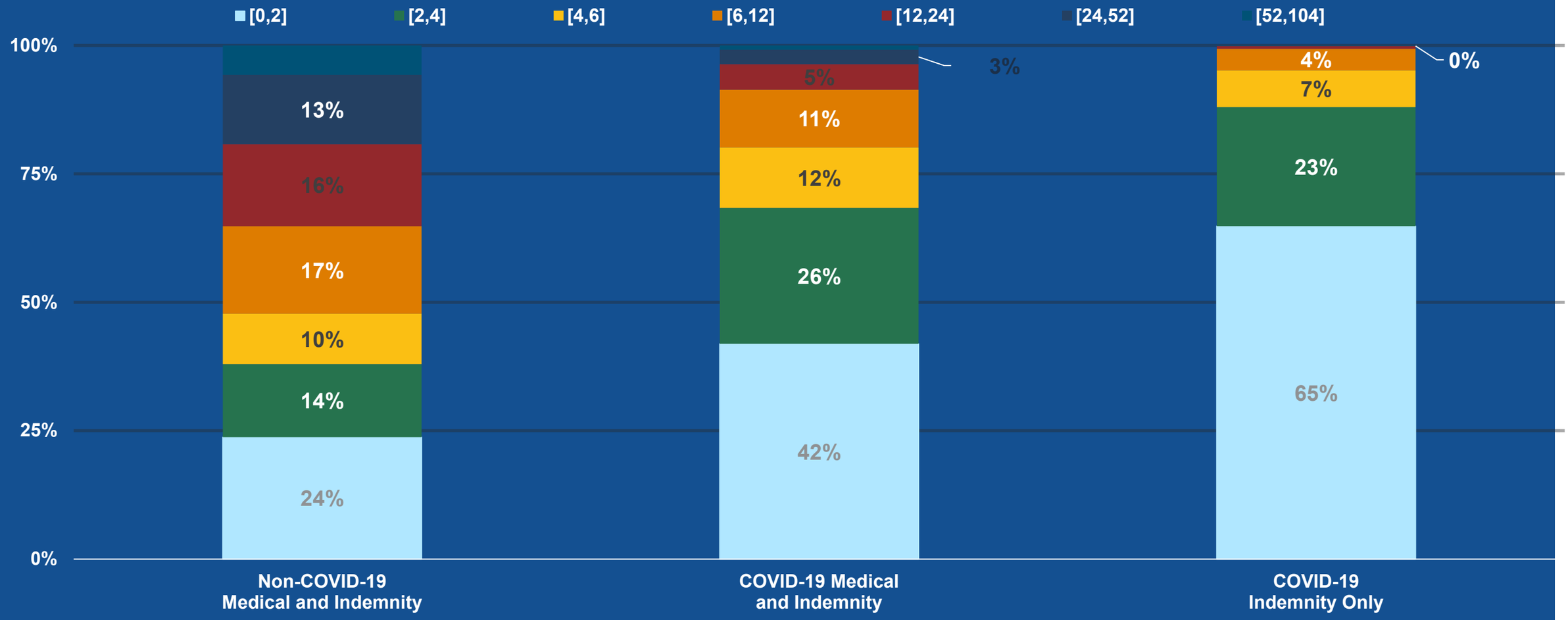
WCIRB California™
Objective. Trusted. Integral.

Source: FROI records from WCIRB indemnity transaction data for claims from April 2020 through February 2023

Weeks of Temporary Disability by Claim Type

Accident Year 2020
Closed Claims Only

As of March 7, 2023



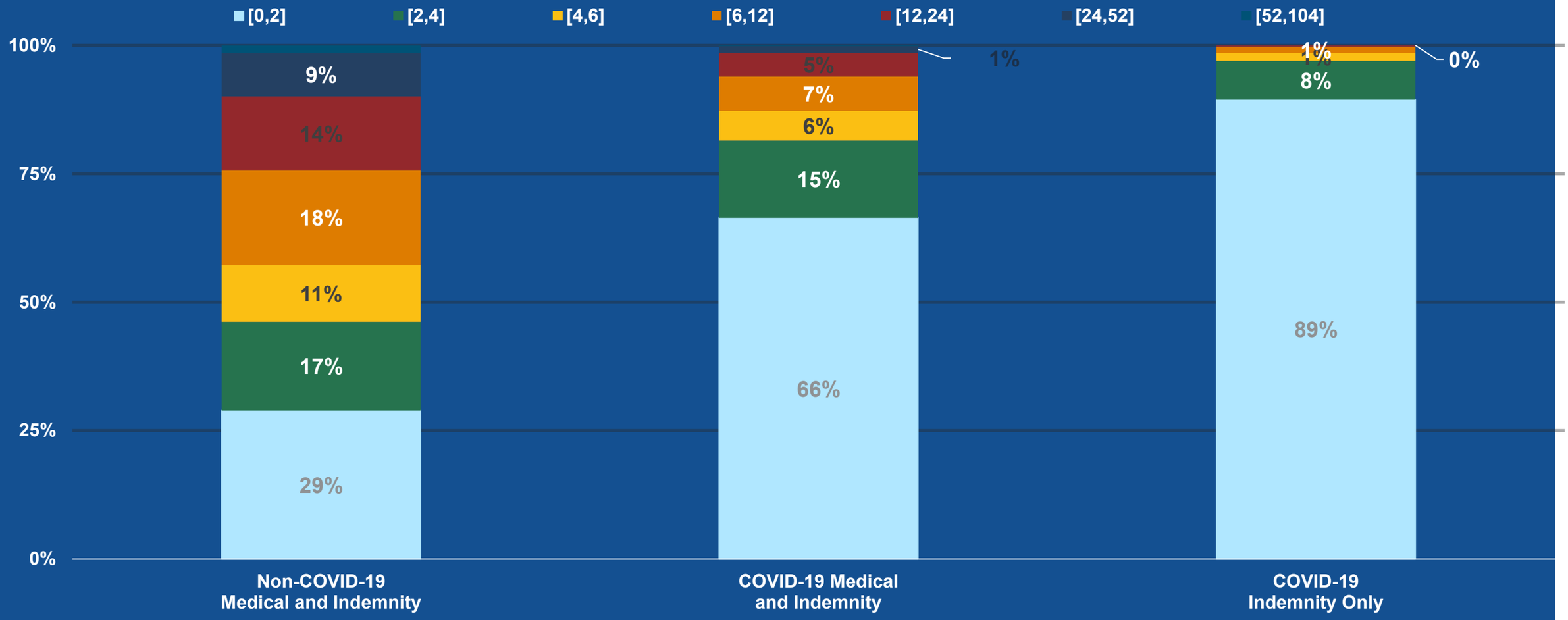
WCIRB California™
Objective. Trusted. Integral.

Source: Accident Year 2020 FROI and SROI records from WCIRB indemnity transaction data for claims from April 2020 through December 2020

Weeks of Temporary Disability by Claim Type

Accident Year 2021
Closed Claims Only

As of March 7, 2023

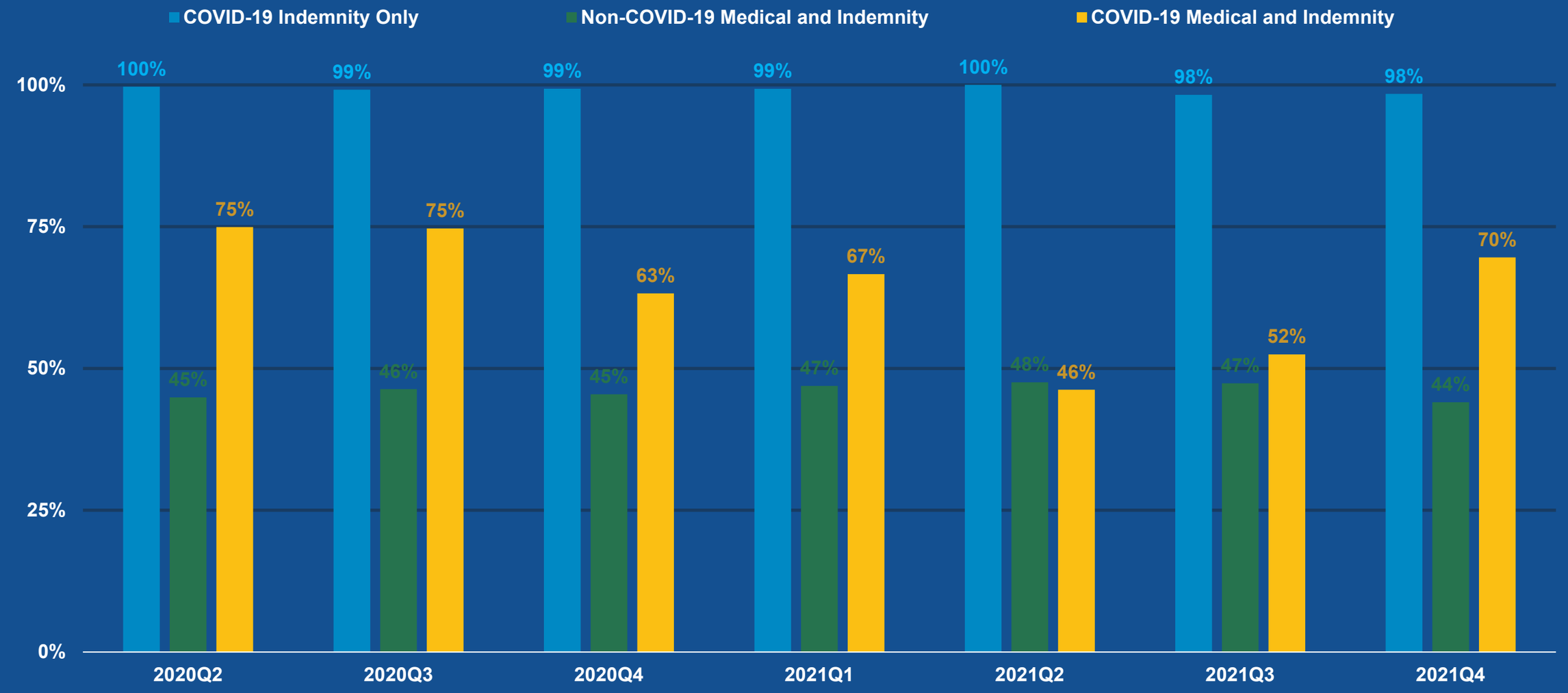


WCIRB California™
Objective. Trusted. Integral.

Source: Accident Year 2021 FROI and SROI records from WCIRB indemnity transaction data for claims from January 2021 through December 2021

Indemnity Claims Closing Rates at Report Level 1

As of March 7, 2023



WCIRB California™
Objective. Trusted. Integral.

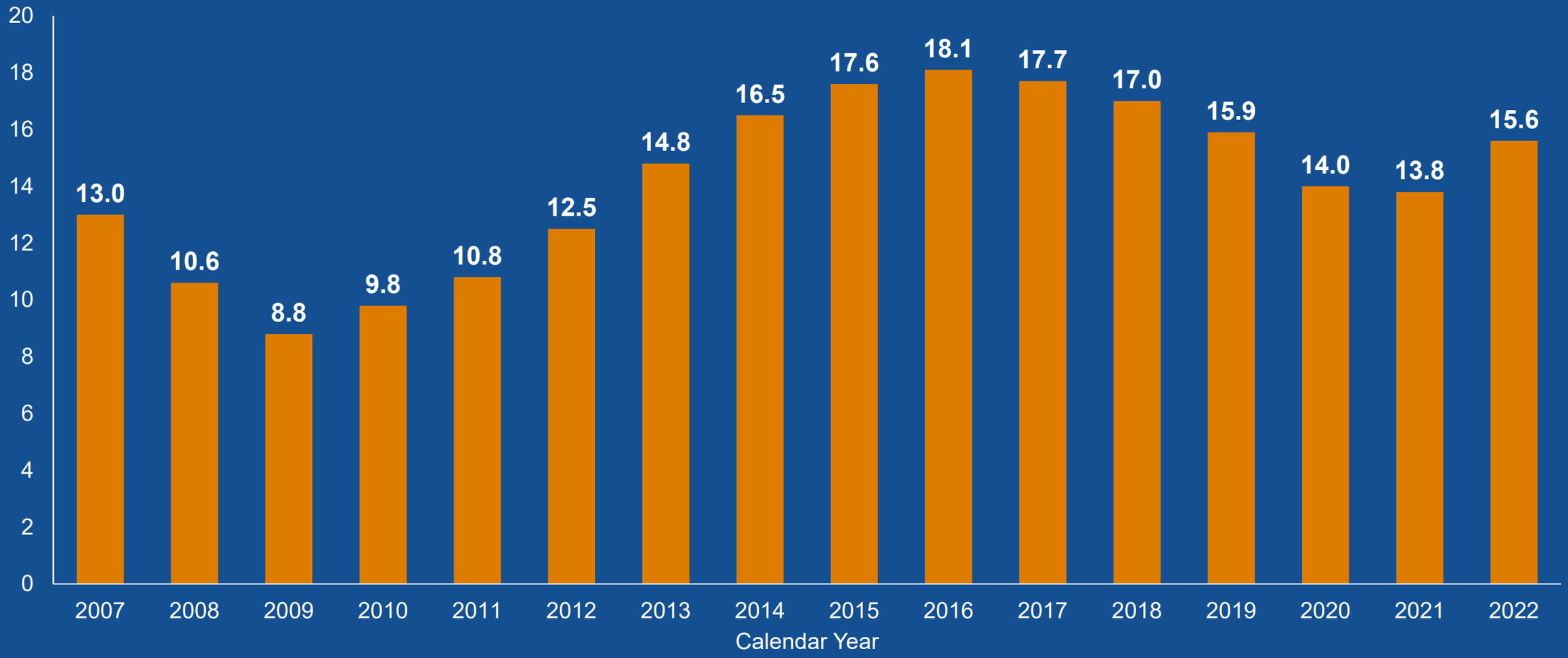
Source: AY 2020 and 2021 claims at first report from PY 2019 ,2020, 2021 USRs with Accident Date of 4/1/2020 or later

03

Pandemic Impact on Premium Measures

Insurer Written Premium (in $Billions)

As of December 31, 2022

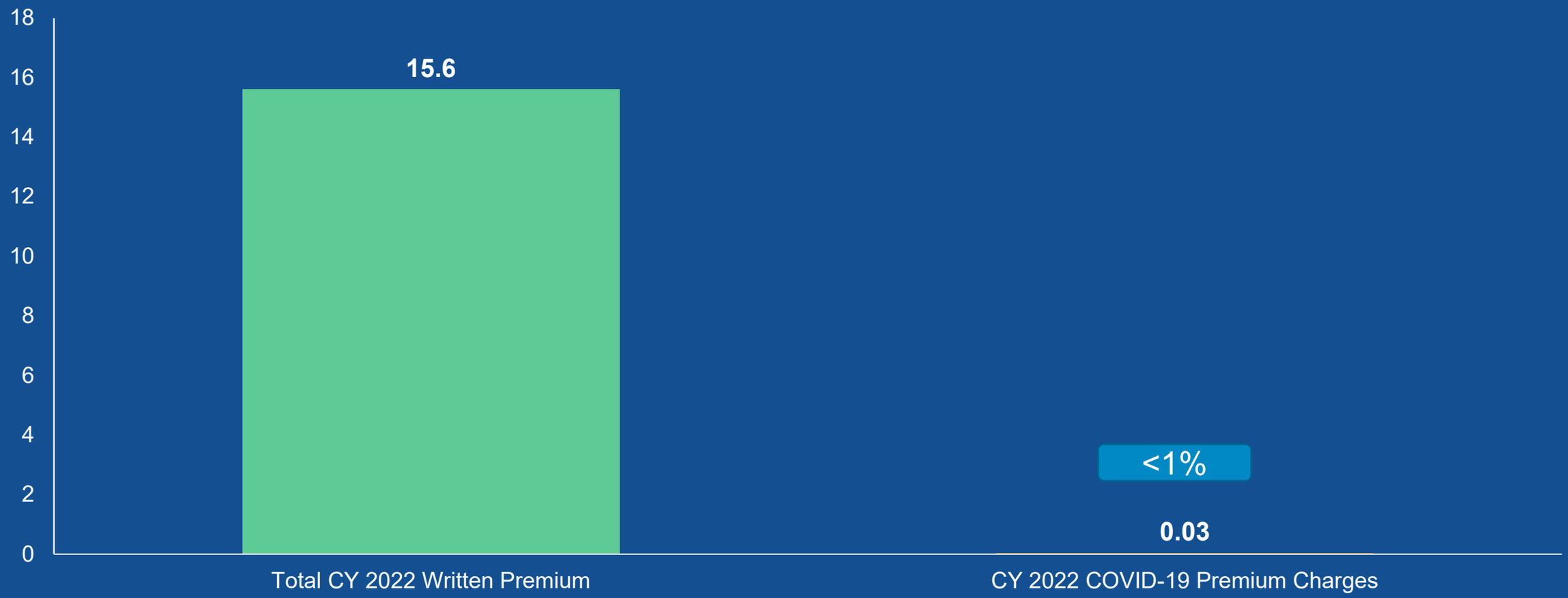


WCIRB California™
Objective. Trusted. Integral.

Source: WCIRB aggregate financial data

COVID-19 Premium Charges for Calendar Year 2022 ($Billions)

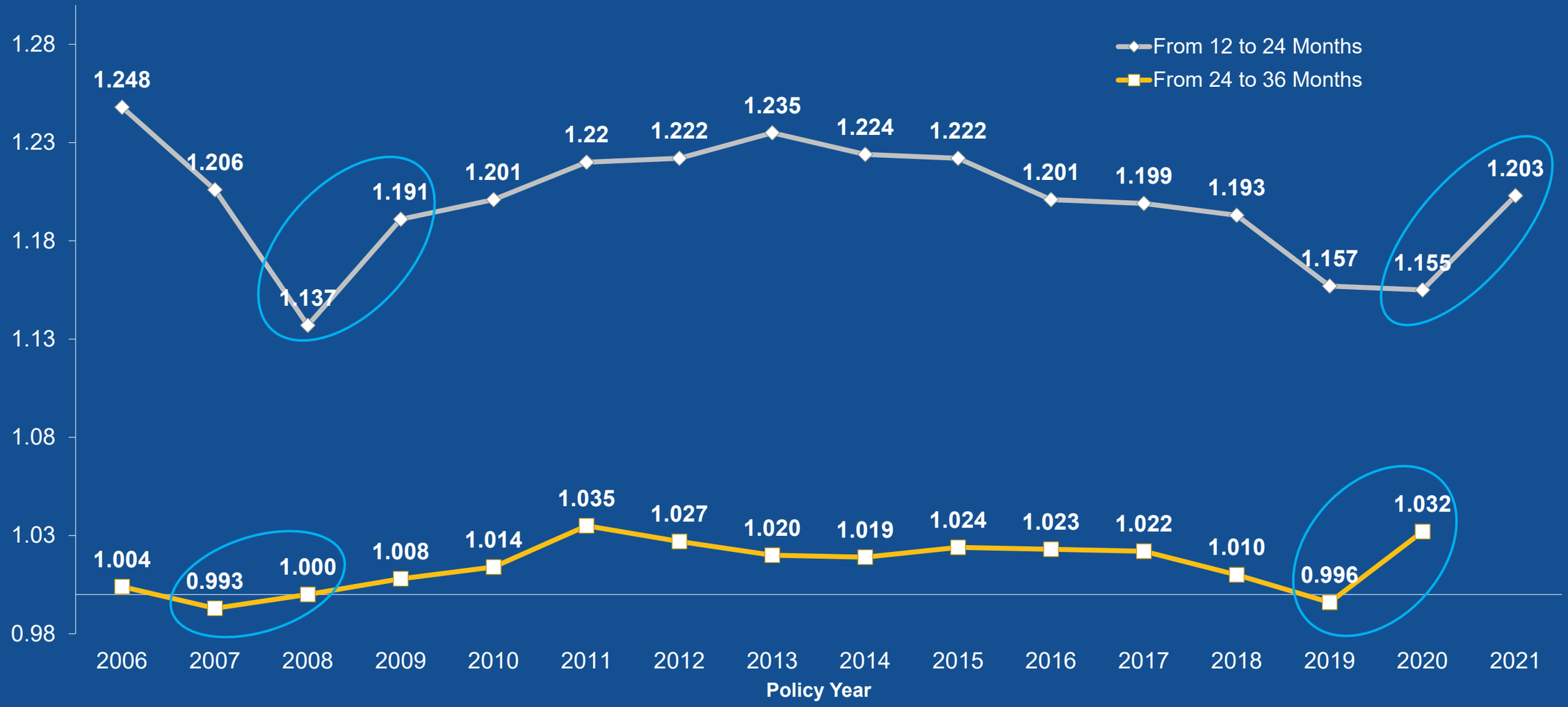
As of December 31, 2022



Source: WCIRB aggregate financial data

Development of Insurer Written Premium (Exhibit 1)

As of December 31, 2022

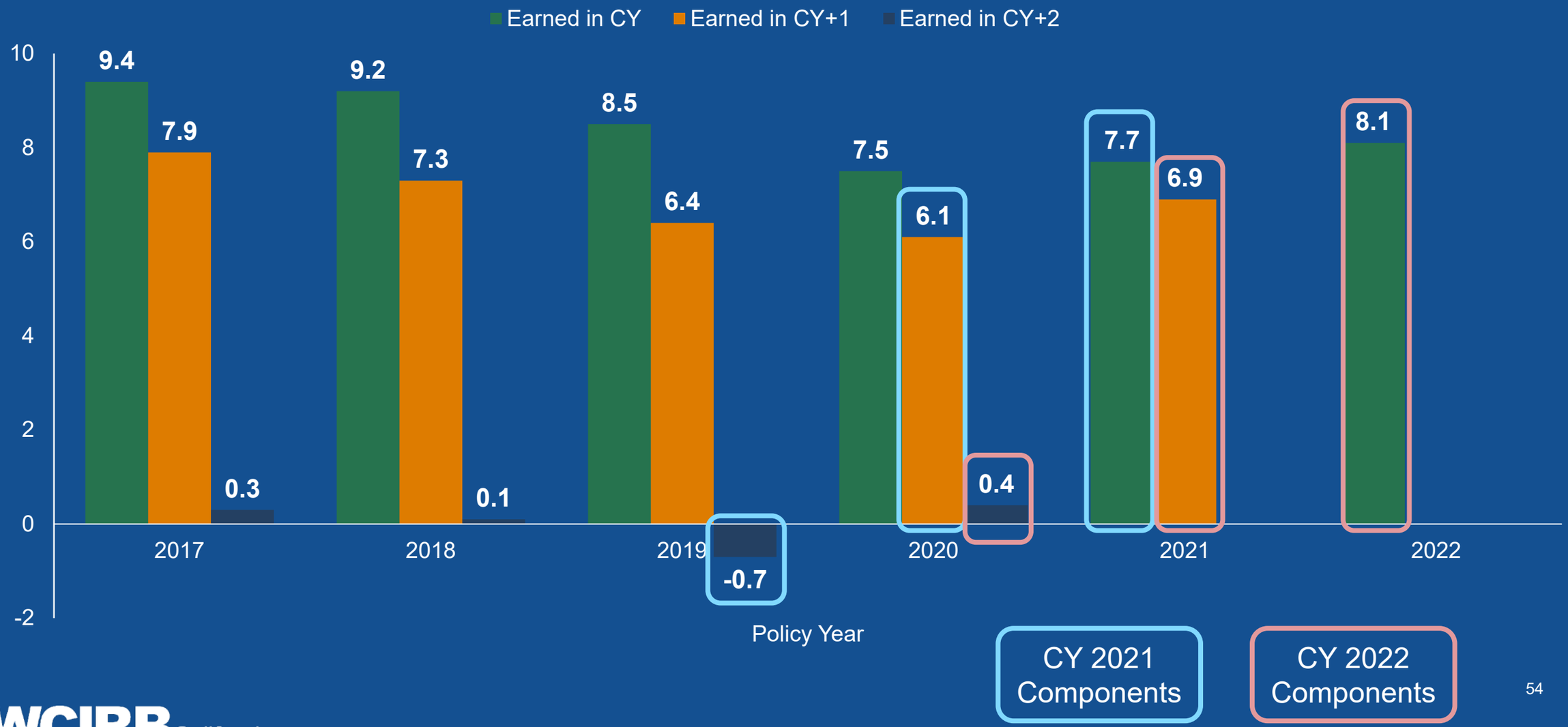


WCIRB California™
Objective. Trusted. Integral.

Source: WCIRB aggregate financial data

Insurer Earned Premium Policy Year Comparison (in $Billions)

As of December 31, 2022

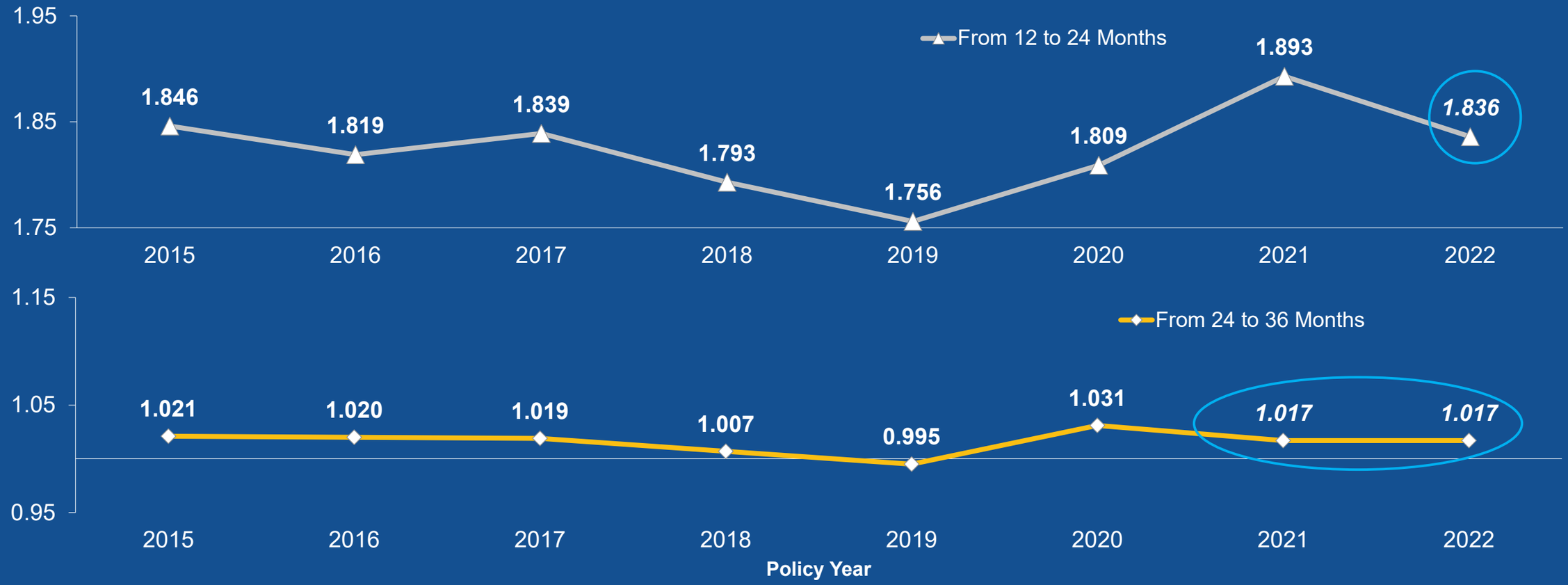


WCIRB California™
Objective. Trusted. Integral.

Source: WCIRB aggregate financial data

Earned Premium Development Factor Projection (Exhibit 3)

As of December 31, 2022



Selection: Average of Latest 4 Pre-pandemic Years (excluding PY 2019 and 2020)

WCIRB California™
Objective. Trusted. Integral.

Source: WCIRB aggregate financial data

Premium Adjustment Assumptions

- Develop PY premiums to 36 months using selected factors
- CY 2020 apportionment:
  - Reported 24-to 36-month premium for PY 2019 is -$70M
  - PY 2019 developed using pre-pandemic factor is $248M
  - Assumed estimated return premium amount (-$194M) impacts CY 2020 only since CY 2019 is pre-pandemic
- CY 2021 and 2022 apportioned from PYs based on reported distribution of earned premium between PY into CYs through 24 months (approximately 55%/45%)

Adjustment for Changes in Audit Premiums (Exhibit 3)

CY	Reported Earned Premium Before Audits (1)	Estimated Audit Premium (2)	Adjusted Earned Premium (3) = (1) + (2)	Reported Earned Premium (4)	Factor for Audit Premium Adjustment (5) = (3) / (4)
2020	$13,915	$39	$13,955	$14,096	0.990
2021	$13,766	$317	$14,084	$13,628	1.033
2022	$14,946	$249	$15,195	$15,309	0.993

$s are in Millions

04

Indemnity Claim Frequency Model

Background

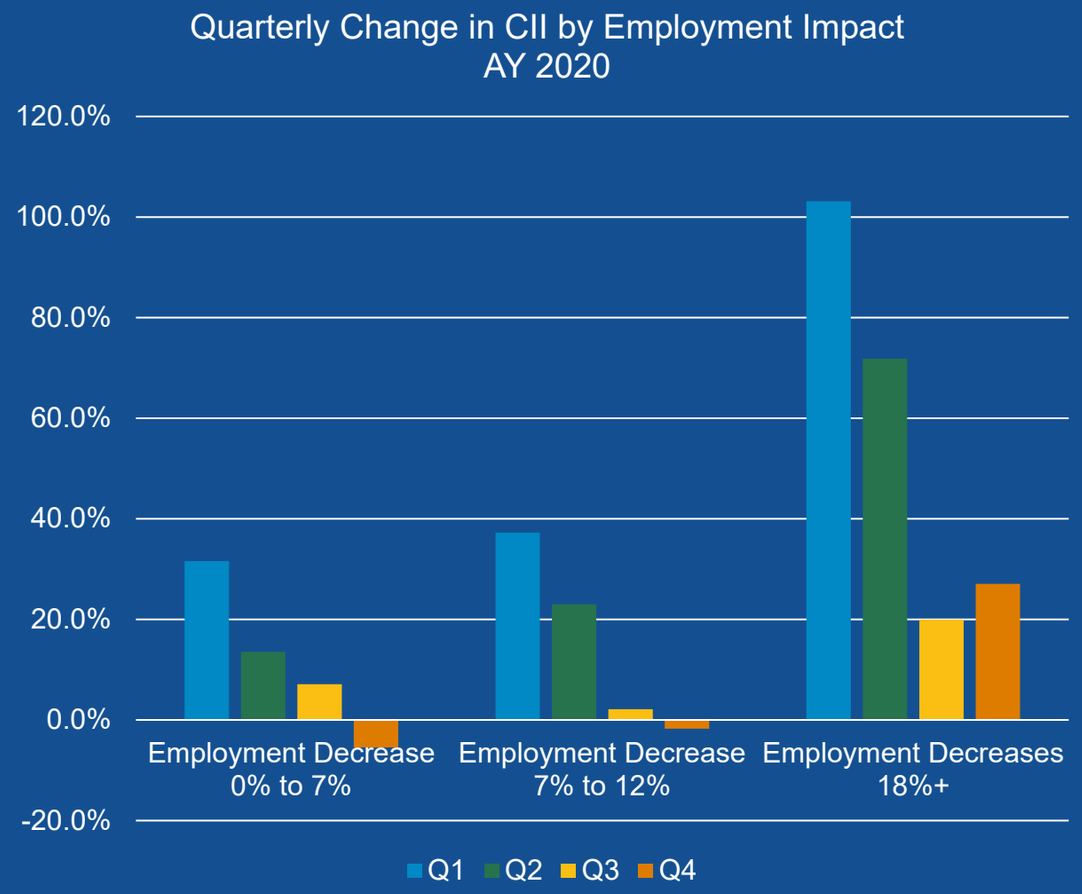
- For over a decade, the WCIRB Indemnity Claim Frequency Model has been used to project indemnity claim frequency for pure premium ratemaking
- In 2021, staff undertook a comprehensive review of the model and presented the results at the December Actuarial Committee meeting
- The Committee accepted the report as well as the following recommendations:
  - Consider incorporating a forecast of the cumulative injury index (CII), which had been used as a key explanatory variable in the model for many years
  - In conjunction with the forecast of the CII, also apply the full indicated constant term, instead of a tempered constant
- Due to the unusual relationship between the changes in cumulative and non-cumulative injury claims in AY 2020 and the long-term positive trend in the CII, the September 1, 2022 Pure Premium Rate Filing projection consistent with prior filings did not include a forecast of the CII and the tempered constant was applied

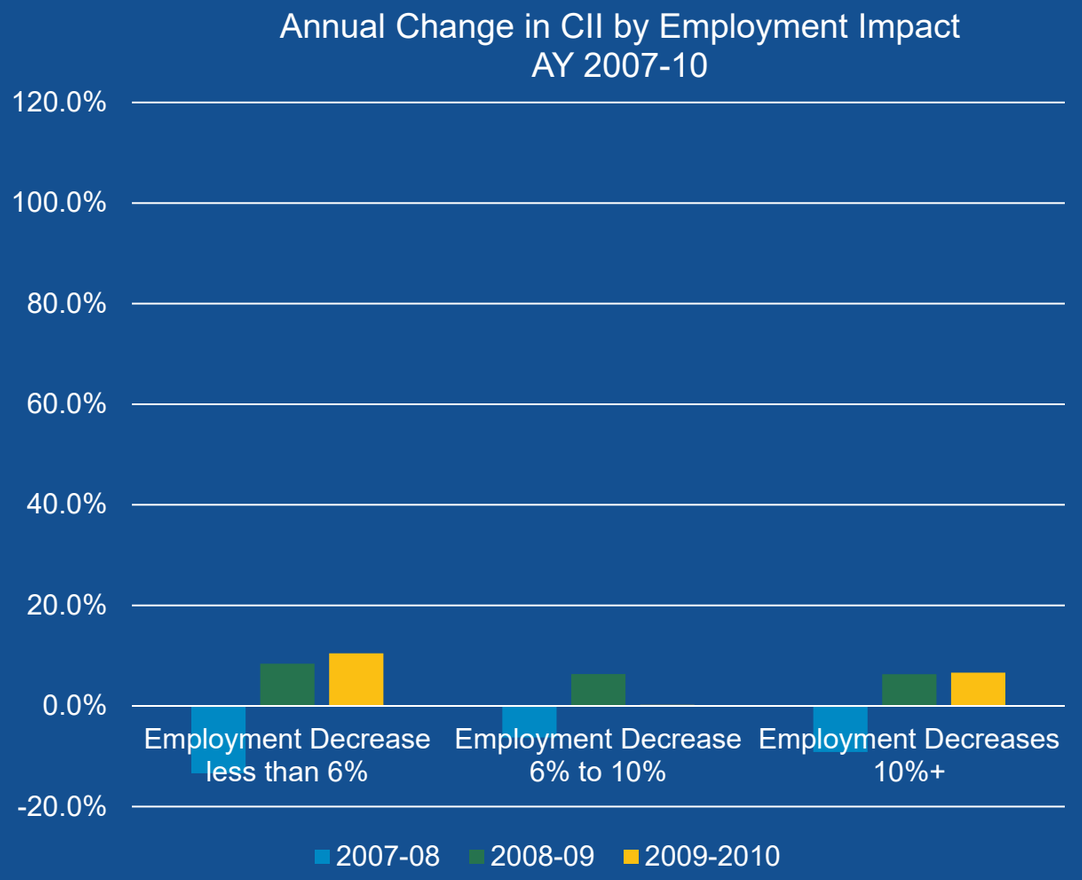
Key Questions for Assumptions

- Should we apply a time series forecast for the CII? If so, from which accident year should we start the forecast? If not, should we continue to temper the constant, partly to recognize the long-term trend in the CII?
- For AY 2022, should we rely on the model forecast or the 12-month measure of change in claim frequency based on aggregate claim and employment data?
- Should the regression include or exclude AYs 2020 and 2021?

Changes in the CII in AY 2020 were different than during the Great Recession (Industries Grouped by the Share of Employment Lost)

As of December 31, 2022



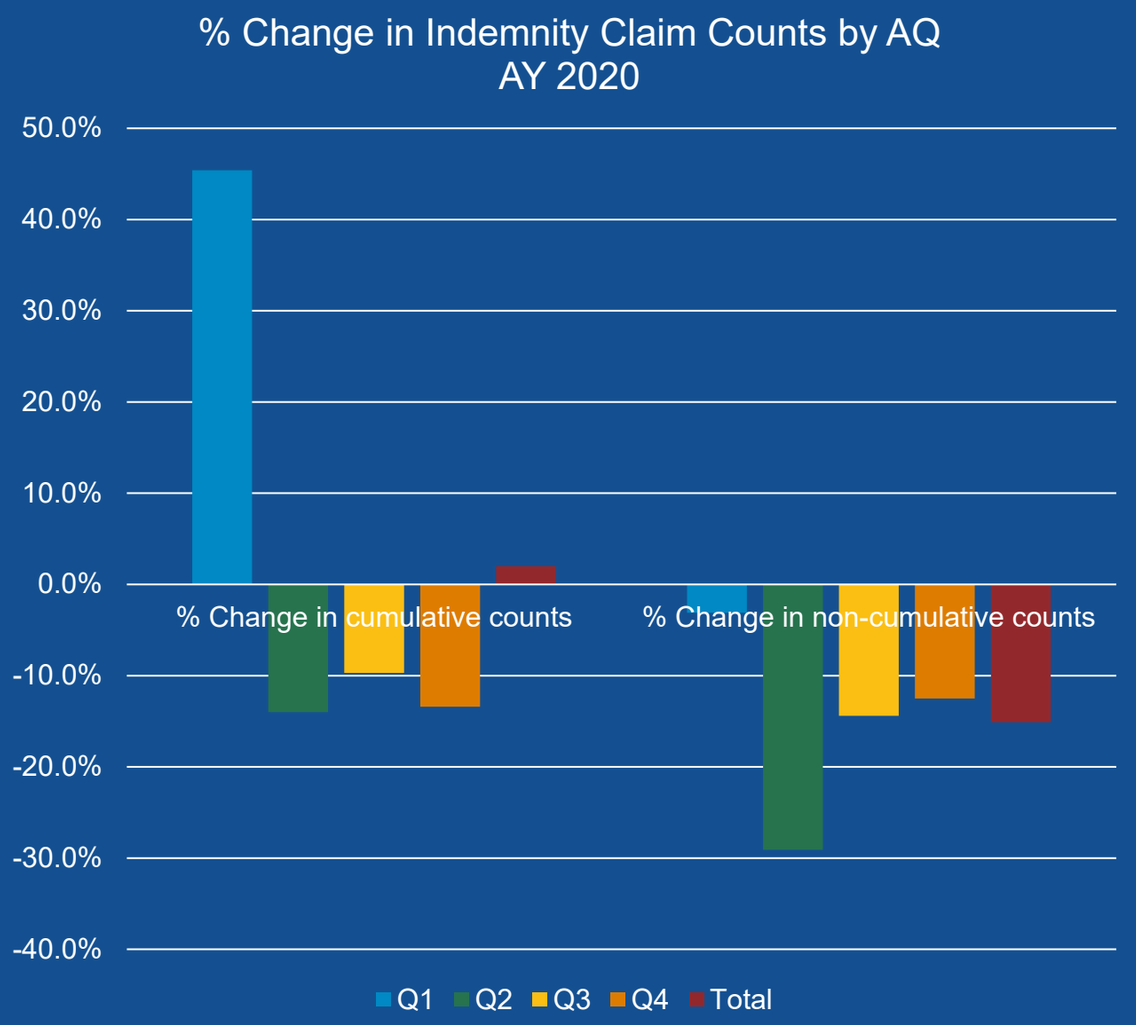


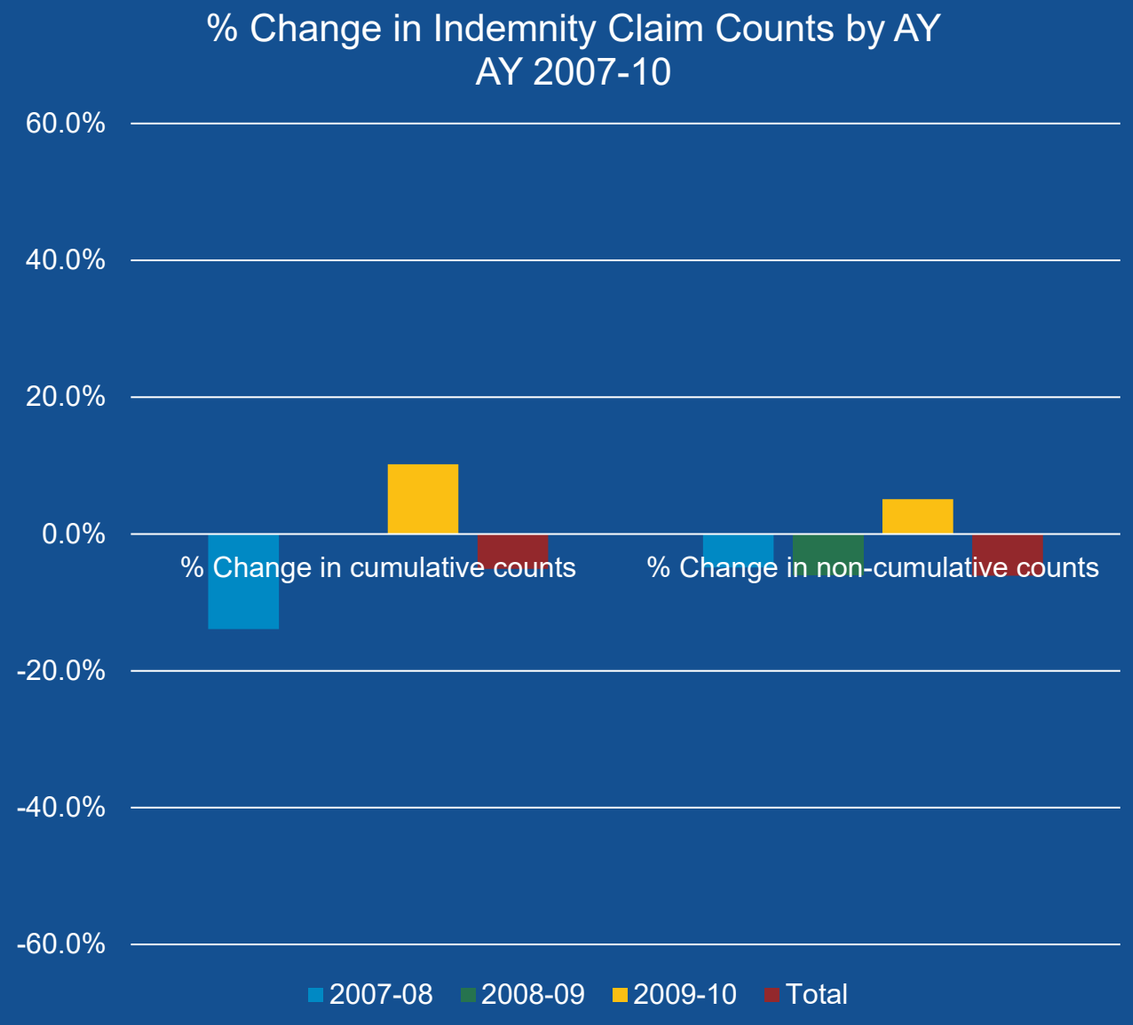
WCIRB California™
Objective. Trusted. Integral.

Source: WCIRB unit statistical data and UCLA Anderson Forecast

What drove the changes in the CII?

As of December 31, 2022

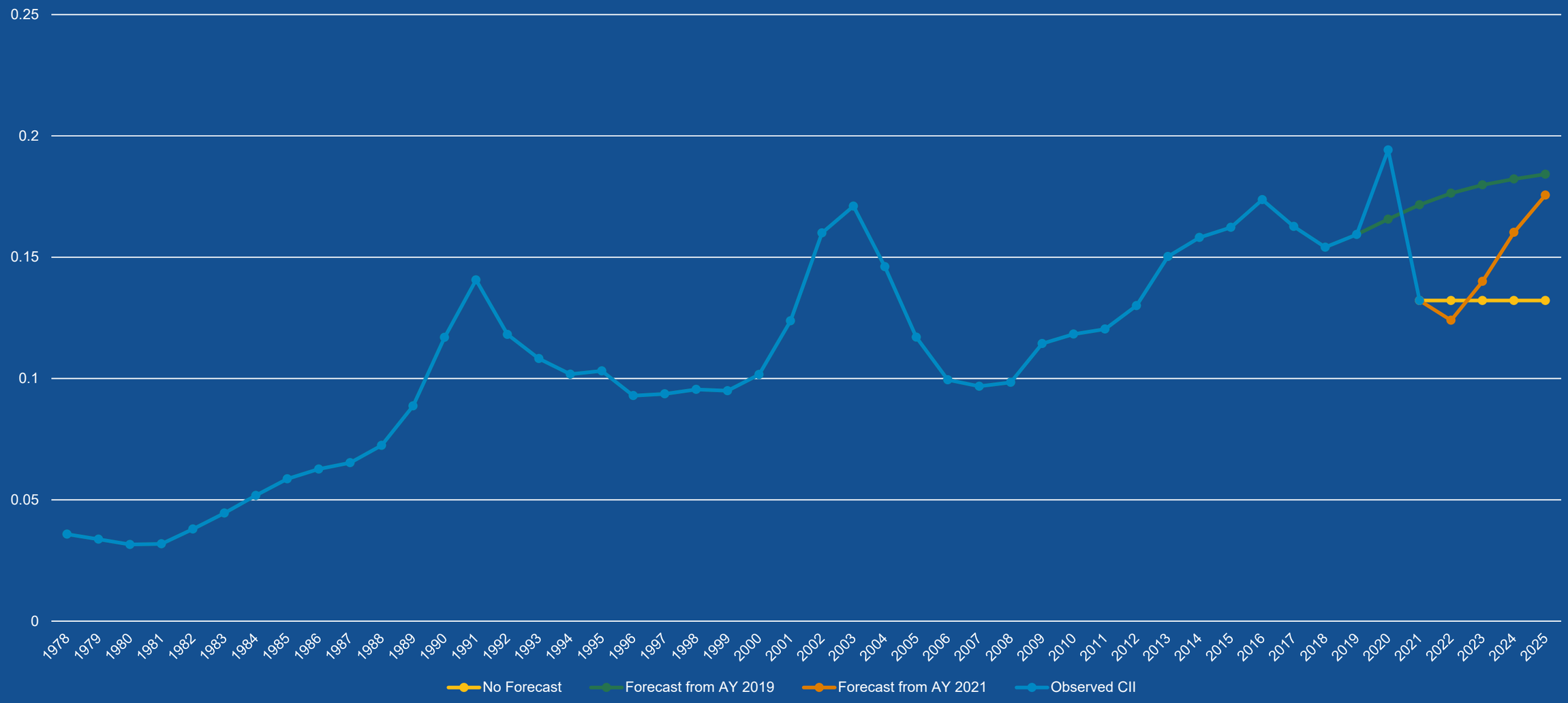




WCIRB California™
Objective. Trusted. Integral.

Source: WCIRB unit statistical data and UCLA Anderson Forecast

Should we forecast the CII?

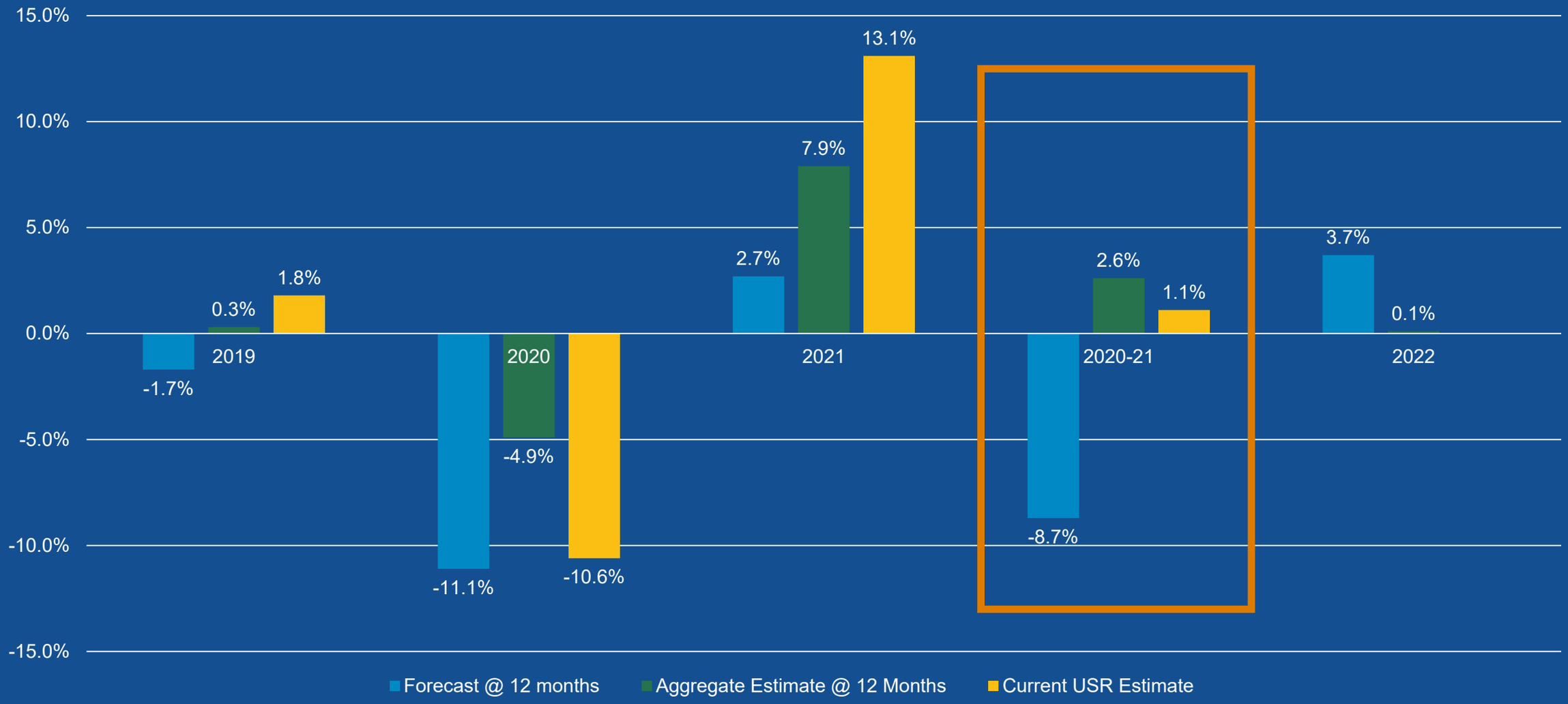


WCIRB California™
Objective. Trusted. Integral.

Source: WCIRB unit statistical data and Indemnity Claim Frequency Model

Comparison of Frequency Projections based on the Model Forecast and the Aggregate Experience at 12 Months

As of December 31 for each accident year



WCIRB California™
Objective. Trusted. Integral.

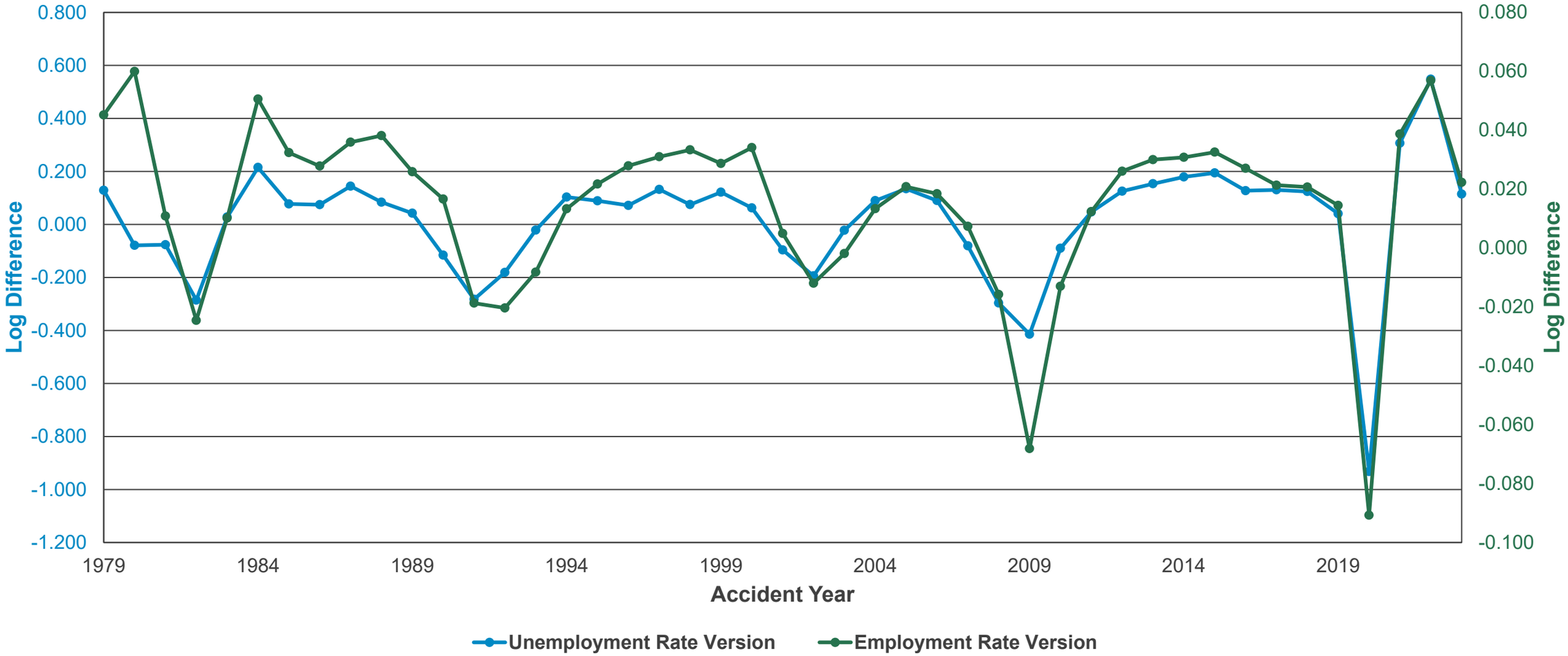
Source: WCIRB aggregate financial data, unit statistical data, and Indemnity Claim Frequency Model

Should we include or exclude AY 2020-21 from the regression?

- Economic variables (-.932 for AY 2020 and +.307 for AY 2021) are the two of the most extreme values observed in the entire history
- R^2 decreases from 0.439 to 0.332 when they are included
- Long term relationship between changes in frequency of cumulative and non-cumulative claims did not hold given the unusual dynamics

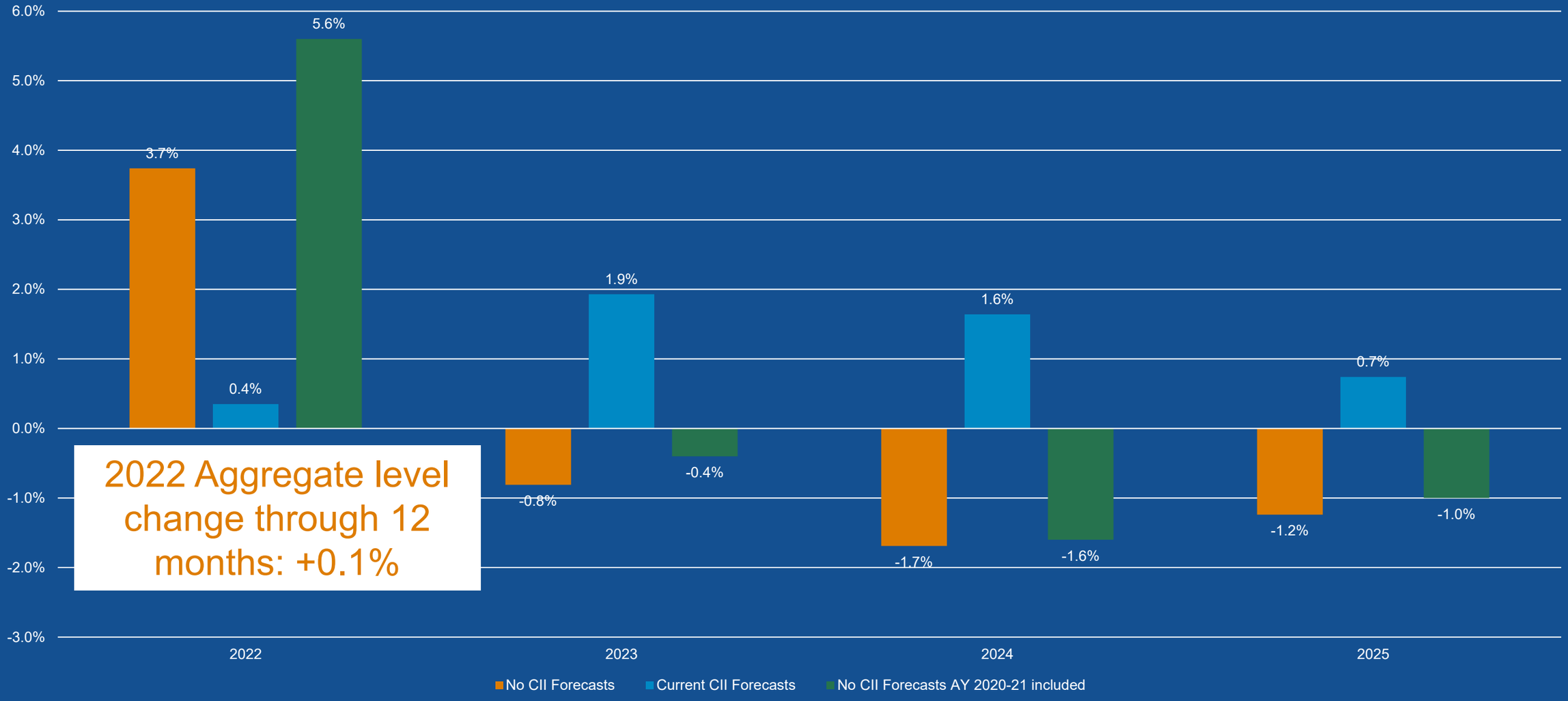
Economic Variables Under Consideration

As of December 31, 2022



Comparison of Projected Change in Frequency Based on CII Forecast and Model Constant Alternatives

As of December 31, 2022



2022 Aggregate level change through 12 months: +0.1%

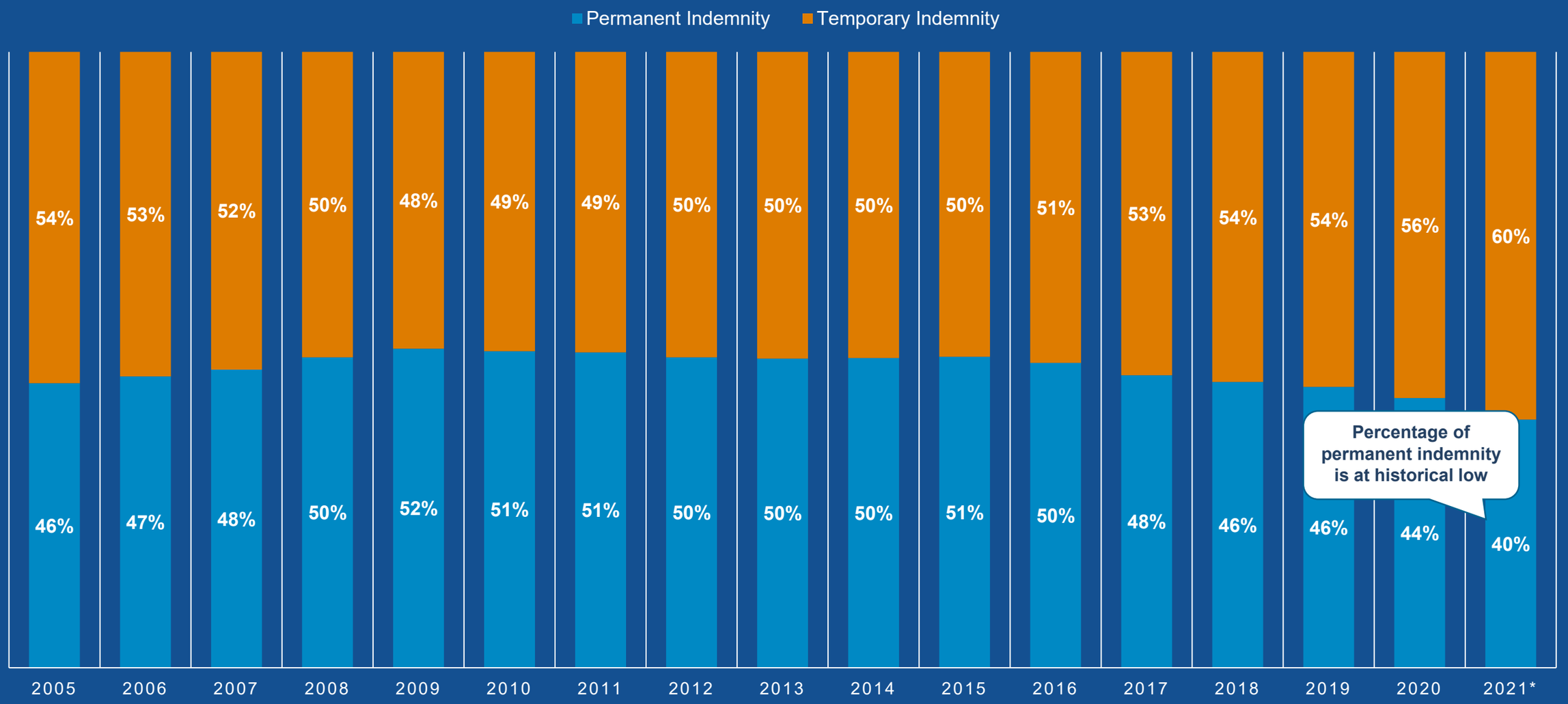
WCIRB California™
Objective. Trusted. Integral.

Source: WCIRB aggregate financial data, unit statistical data, and UCLA Anderson Forecast

05

First Quarter 2023 Review of Diagnostics

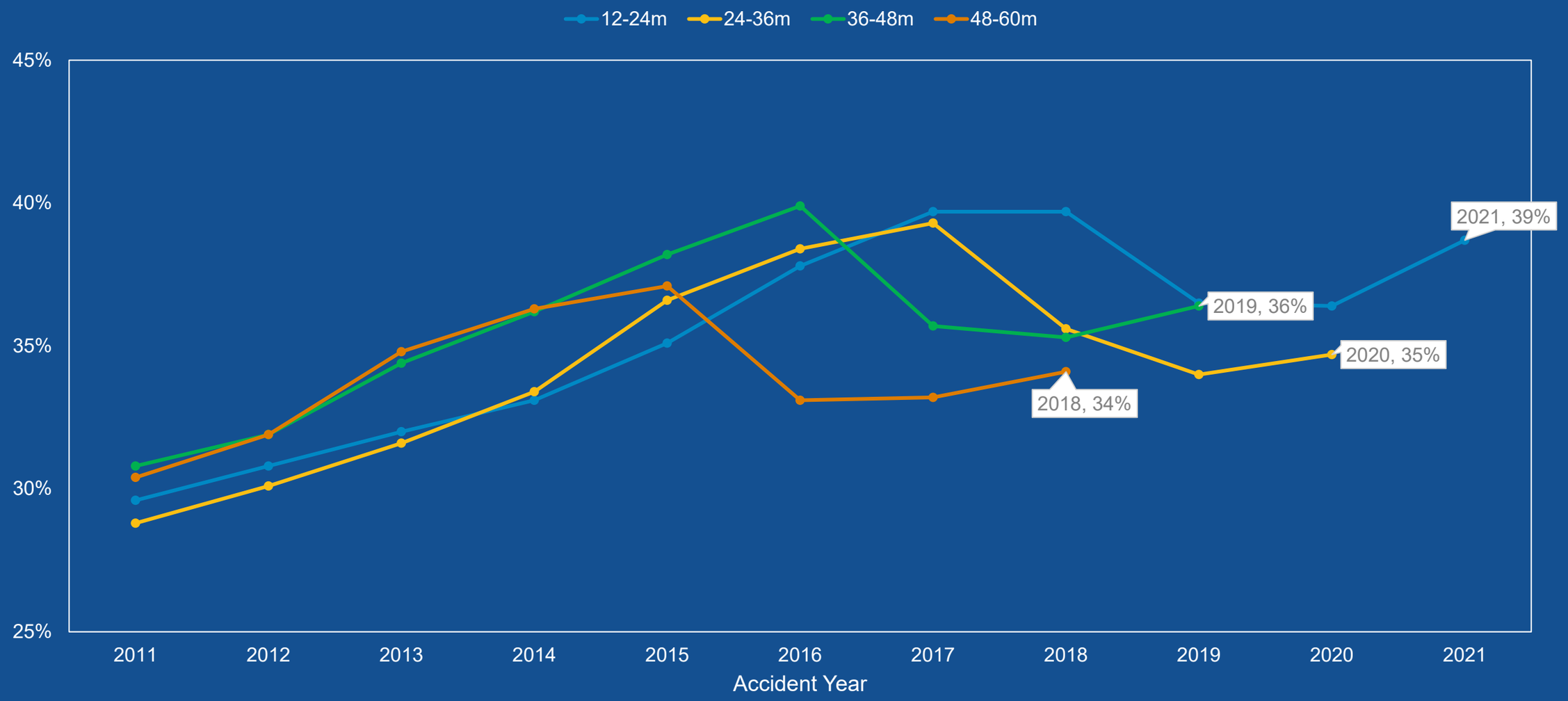
Distribution of Estimated Ultimate Number of Indemnity Claims by Injury Type (Exhibit M4)



WCIRB California™
Objective. Trusted. Integral.

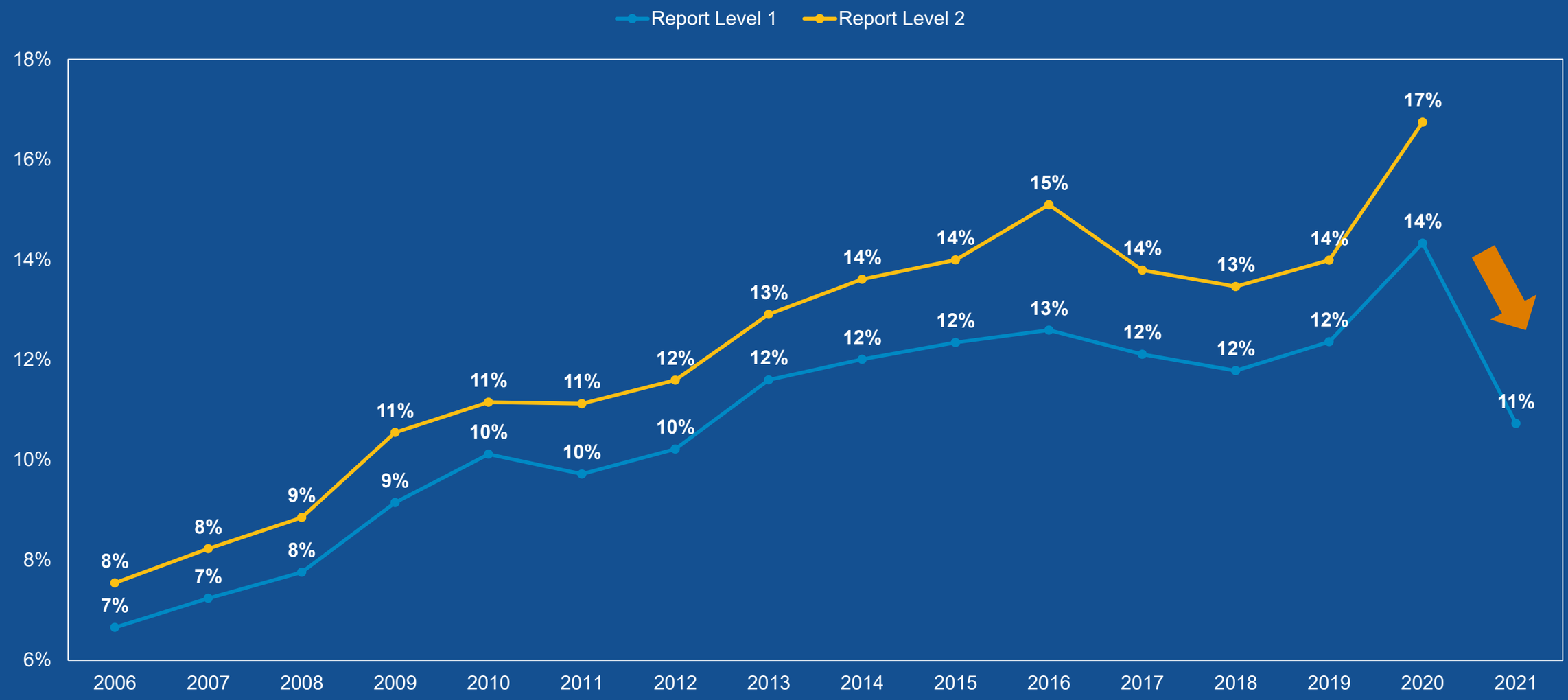
* Accident year 2021 experience is partial in that it only reflects experience from policy year 2020.
Source: WCIRB unit statistical data, excluding COVID-19 claims

Ratio of Incremental Closed Indemnity Claims to Prior Open Indemnity Claims (Exhibit C3.1)



Source: WCIRB quarterly calls for experience, excluding COVID-19 claims.

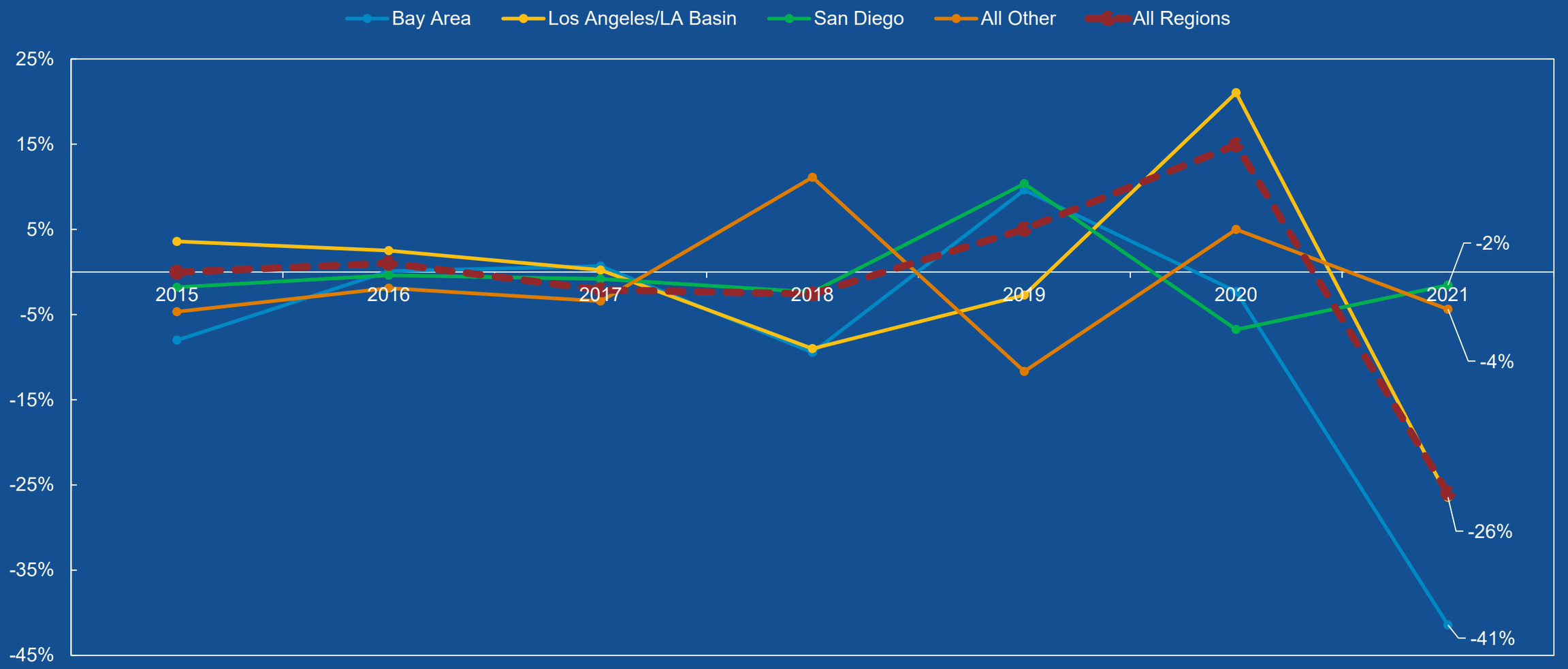
Cumulative Injury Share of Total Indemnity Claim Count (Exhibit C15)



WCIRB California™
Objective. Trusted. Integral.

Source: WCIRB Unit Statistical Data, excluding COVID-19 claims.

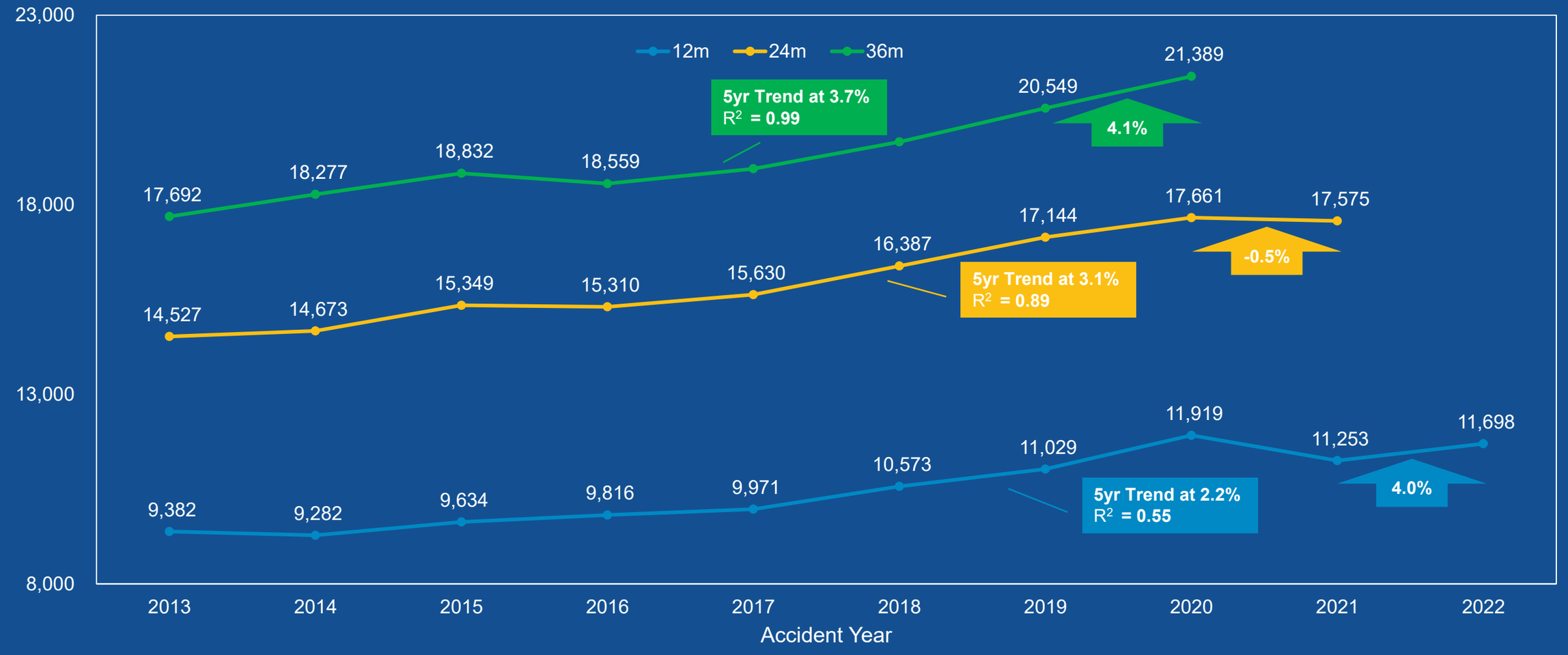
Annual Change of Cumulative Injury Claims per 100 Indemnity Claims (Exhibit C17)



WCIRB California™
Objective. Trusted. Integral.

Source: WCIRB Unit Statistical Data, excluding COVID-19 claims.

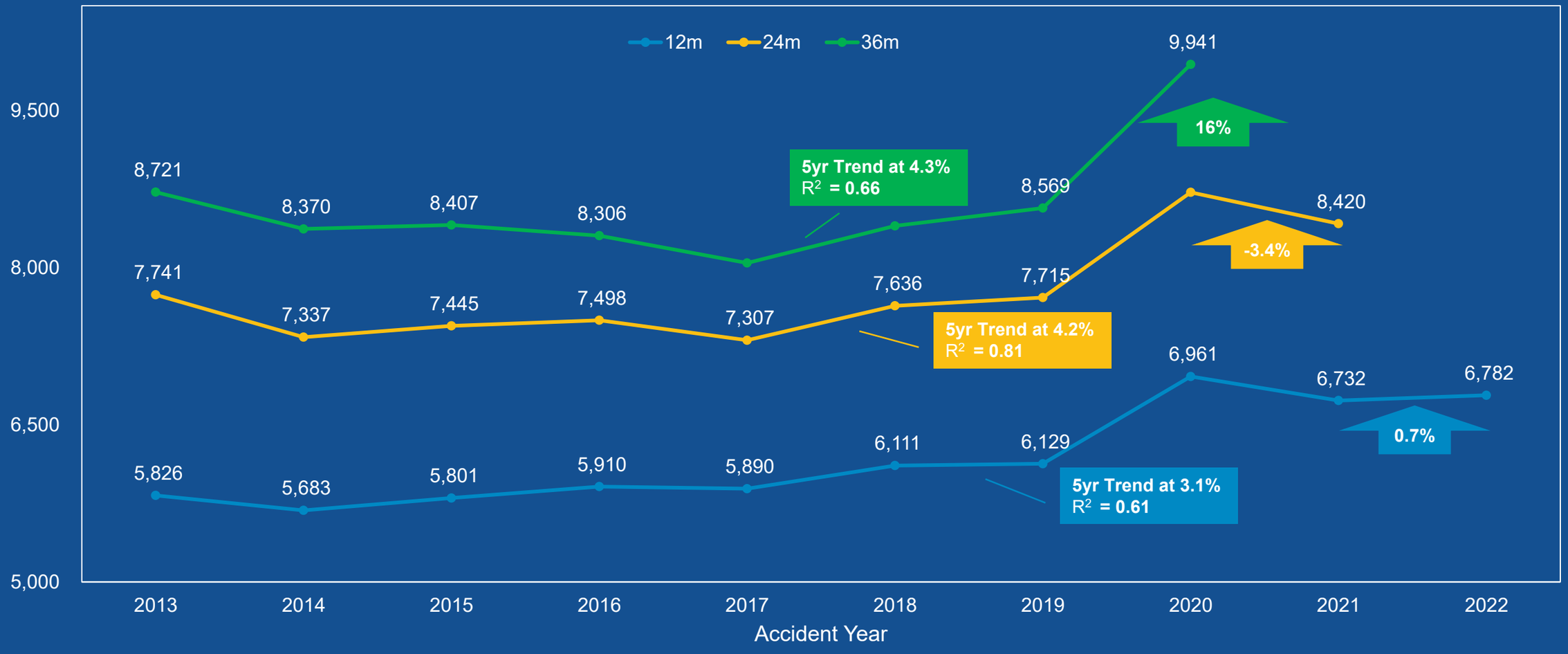
Average Incurred Indemnity Loss per Reported Indemnity Claim (Exhibit S2.1)



WCIRB California™
Objective. Trusted. Integral.

Source: WCIRB quarterly calls for experience, excluding COVID-19 claims.

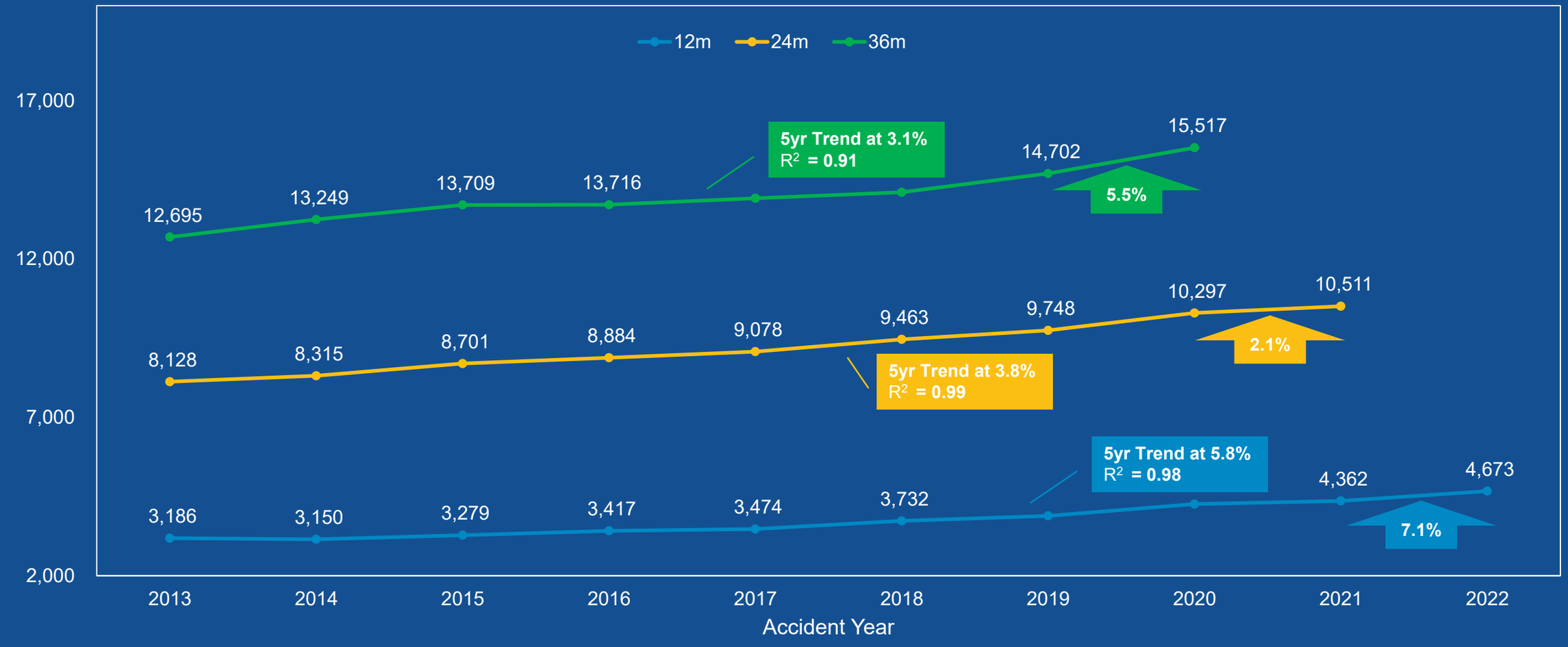
Average Incurred Medical Loss per Reported Claim (Exhibit S2.2)



WCIRB California™
Objective. Trusted. Integral.

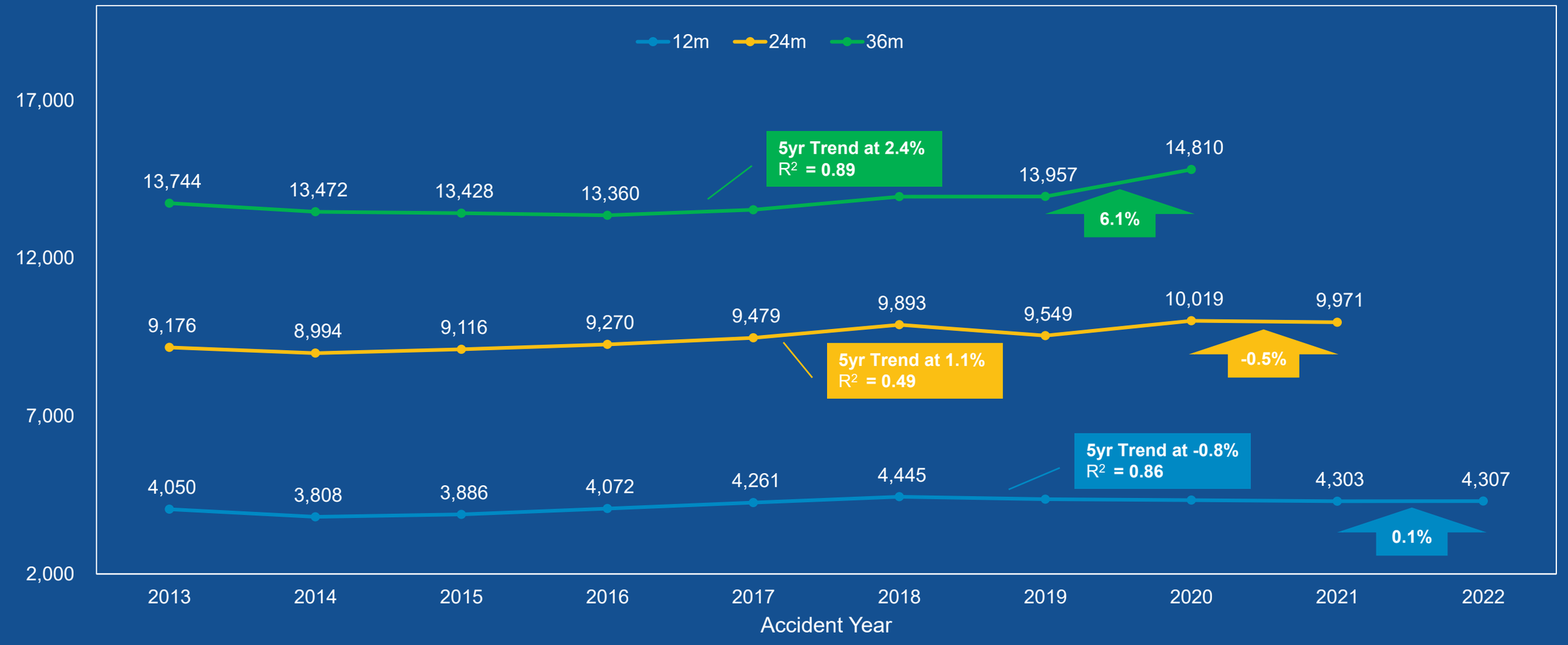
Source: WCIRB quarterly calls for experience, excluding COVID-19 claims.

Average Paid Indemnity Loss per Reported Indemnity Claim (Exhibit S4.1)



Source: WCIRB quarterly calls for experience, excluding COVID-19 claims.

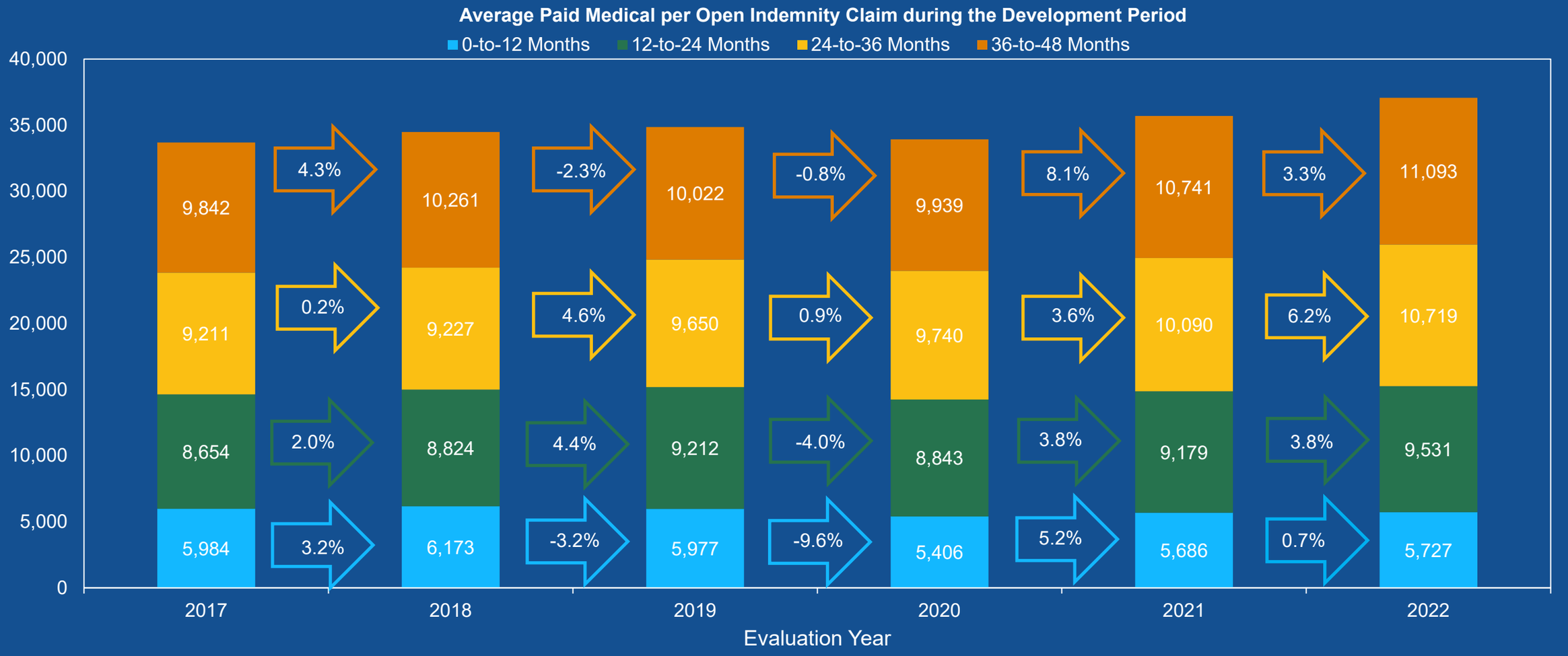
Average Paid Medical Loss per Reported Indemnity Claim (Exhibit S4.2)



WCIRB California™
Objective. Trusted. Integral.

Source: WCIRB quarterly calls for experience, excluding COVID-19 claims.

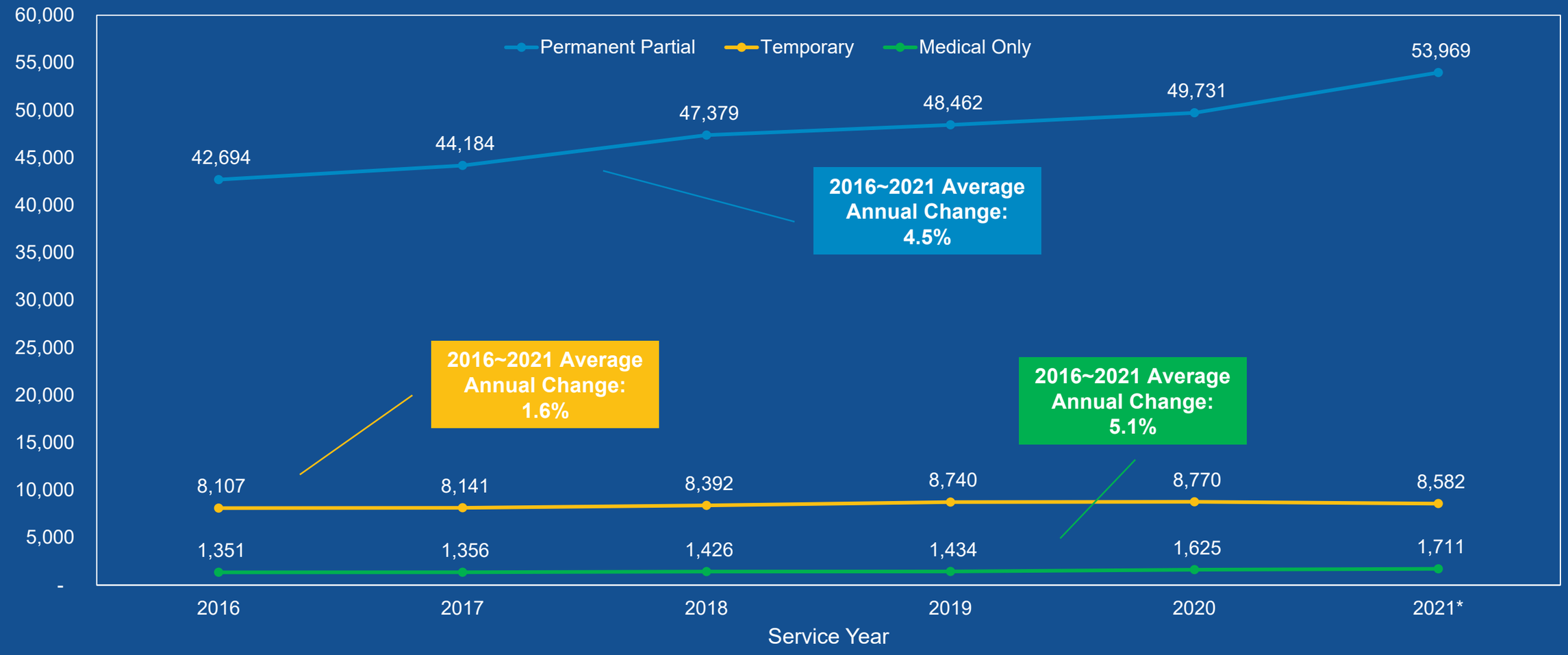
Severity – Incremental Paid Medical per Open Indemnity Claim During the Development Period (Exhibit S7)



WCIRB California™
Objective. Trusted. Integral.

Source: WCIRB accident year experience calls. Evaluation years 2020 through 2022 exclude COVID-19 claim experience.

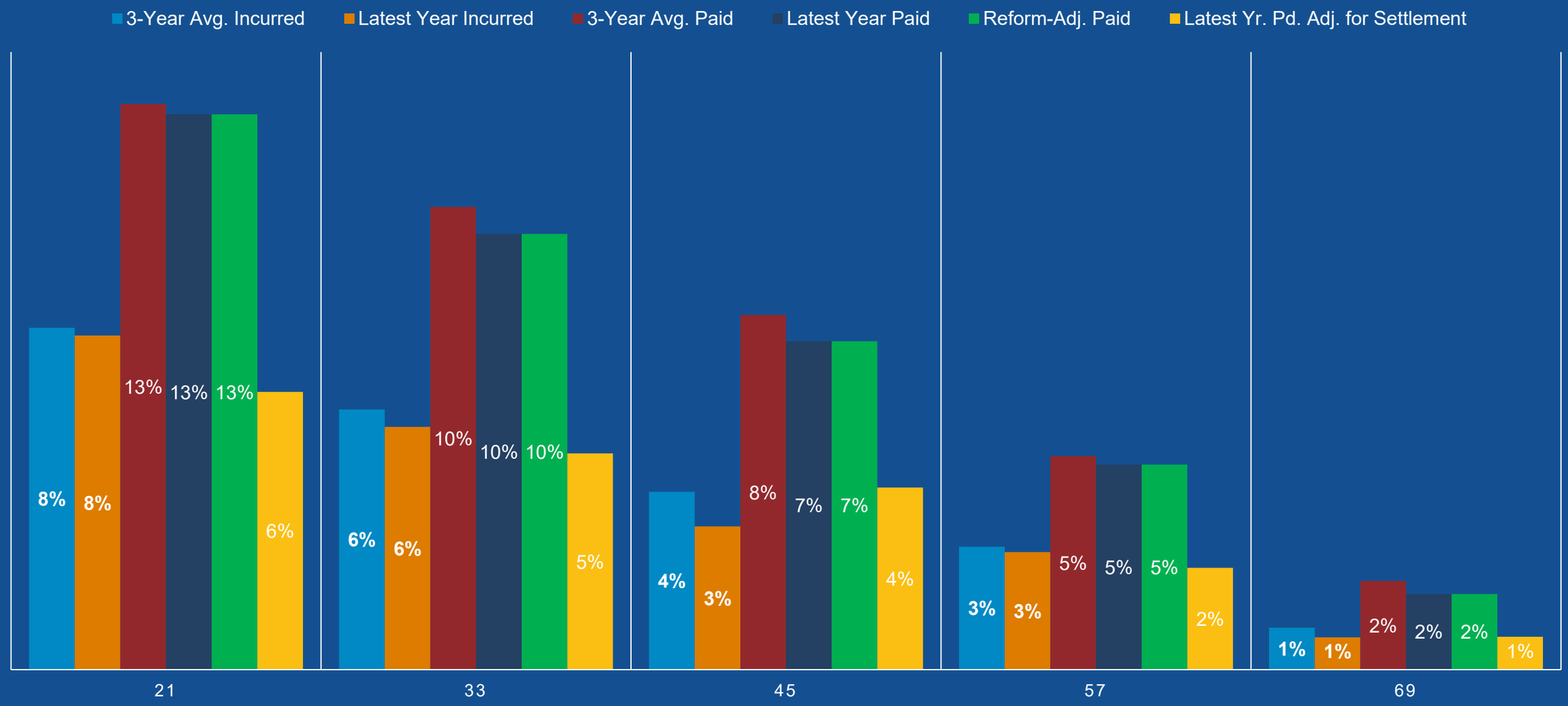
Ultimate On-Level Medical Loss Severity by Type (Exhibit S8)



* Accident year 2021 experience is partial in that it only reflects experience from policy year 2020.
Source: WCIRB Unit Statistical Data, excluding COVID-19 claims.

WCIRB California™
Objective. Trusted. Integral.

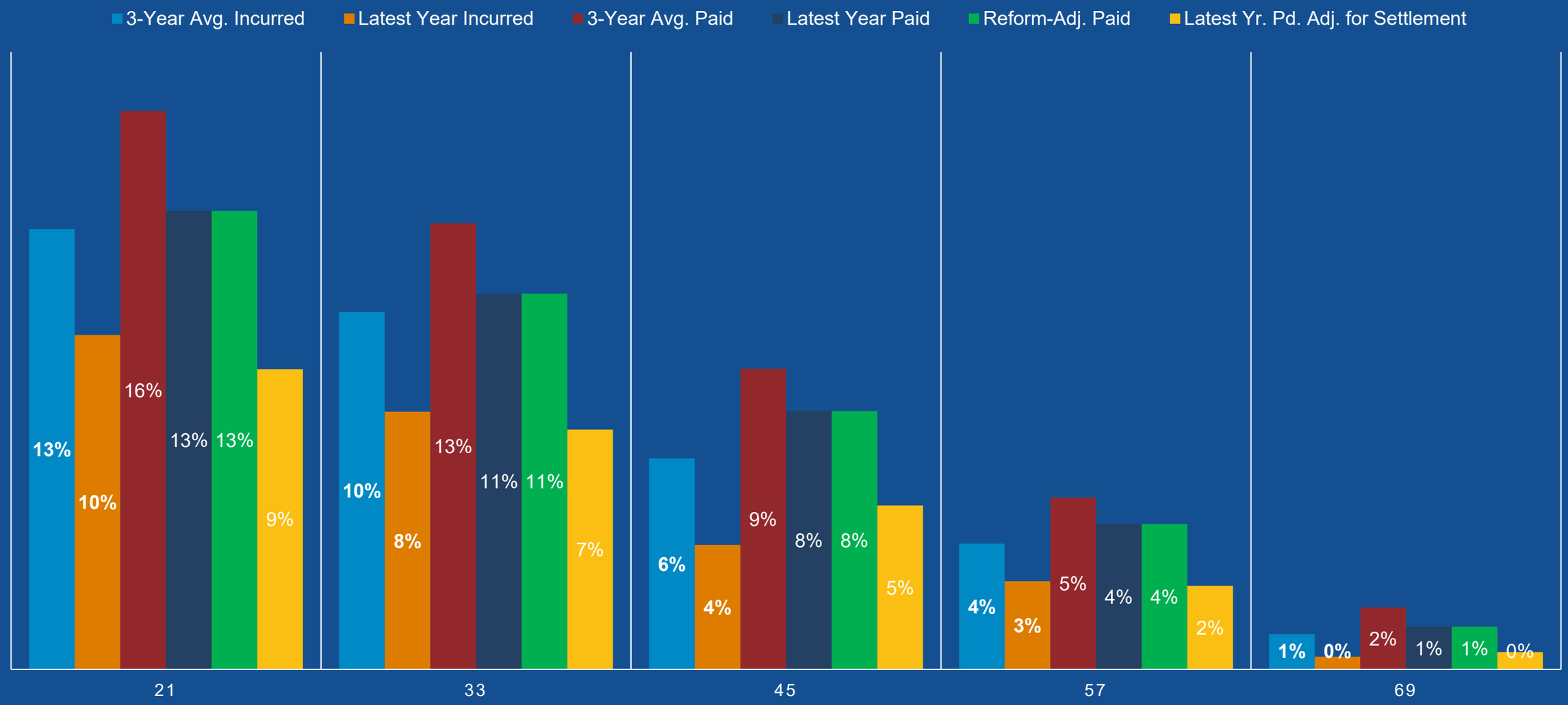
Comparison of Projected Indemnity Loss Ratios as of September 30, 2022 Accident Year 2016 Projected to 81 Months (Exhibit D6.1)



WCIRB California™
Objective. Trusted. Integral.

Source: WCIRB quarterly calls for experience, excluding COVID-19 claims

Comparison of Projected Medical Loss Ratios as of September 30, 2022
Accident Year 2016 Projected to 81 Months (Exhibit D6.1)



WCIRB California™
Objective. Trusted. Integral.

Source: WCIRB quarterly calls for experience, excluding COVID-19 claims

06

12/31/2022
Experience Review

Summary of 12/31/2022 Experience

- Almost 100% of market included; COVID-19 claims excluded
- Data is preliminary and continues to be reviewed and updated
- Economic projections based on December 2022 UCLA forecast
- Trending projection based on separate frequency and severity trends applied to 2021 and 2022
- Other methodologies are consistent with 9/1/2022 Filing
- Key insights:
  - Emerging loss development improved in 4Q 2022 compared to modest changes in prior quarters
  - Claim settlement rates stabilizing
  - AY 2022 frequency at flat at 12 months
  - AY 2022 indemnity severity up and medical severity down compared to 2021
- Preliminary projected loss ratio for 9/1/2023 to 9/1/2024 policies is 0.594
  - ~6 point decrease from 9/1/2022 Filing using 12/31/2021 data (0.655)
  - Decrease primarily attributable to trending projections

Source: WCIRB Aggregate Financial Data

Approximate Percentage Point Change in Loss Ratio Projection

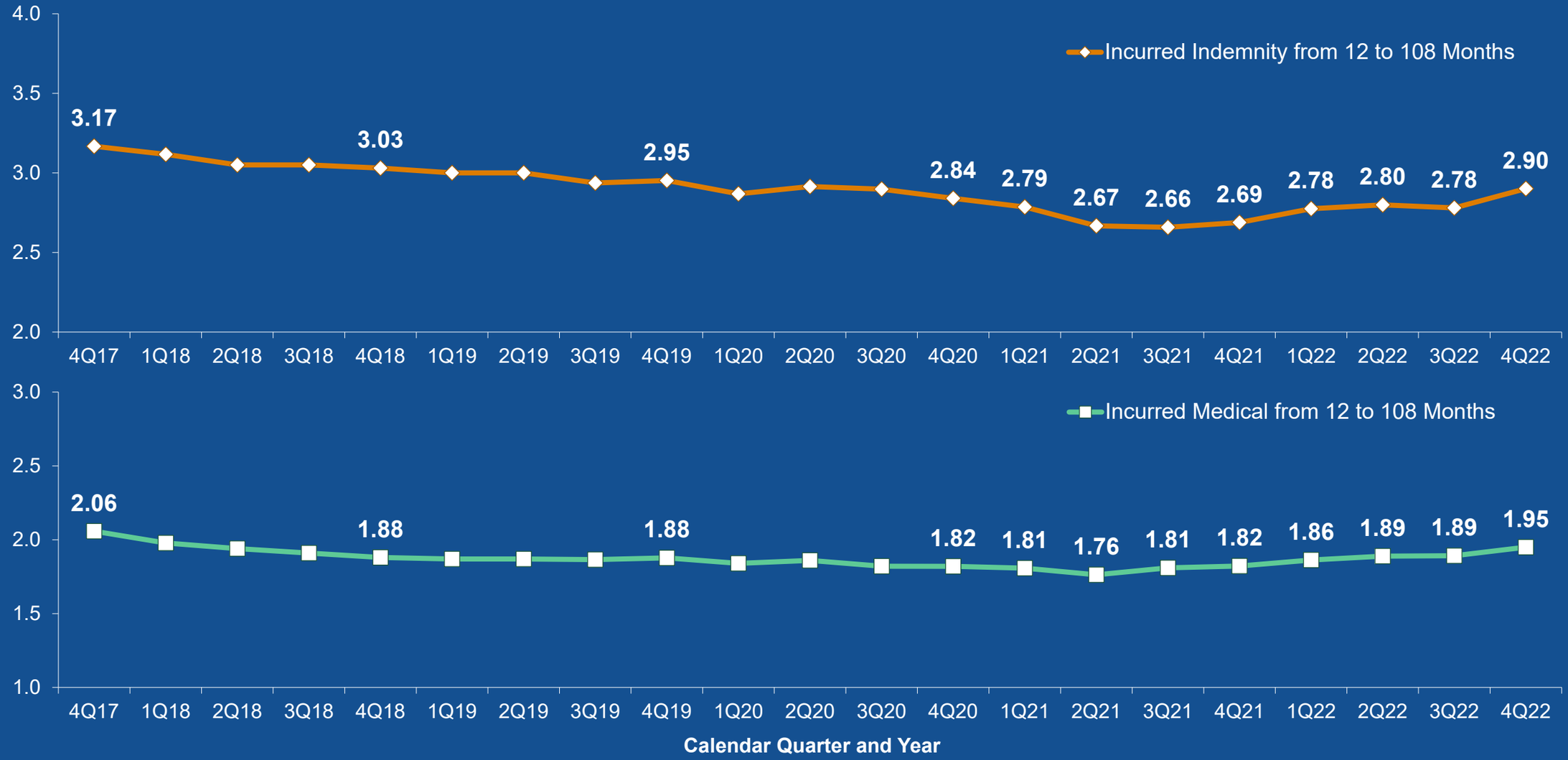
As of December 31, 2022

Factor	Change in From 9/1/2022 Filing	Change from 12/6/2022 Agenda
Loss Development Projection	-1.0	-1.0
Updated Wage Level Forecast	0.0	2.0
Updated Frequency Trends	-2.0	-2.0
Replace 2019 with 2022 in Trending	-1.0	-1.0
Trend Wage and Losses to 9/1/2024 Policy Period	-2.0	-2.0
Total to 3/21/2023 Agenda	**-6.0**	**-4.0**

Source: WCIRB Aggregate Financial Data

Cumulative Incurred Development from 12 to 108 Months

As of December 31, 2022

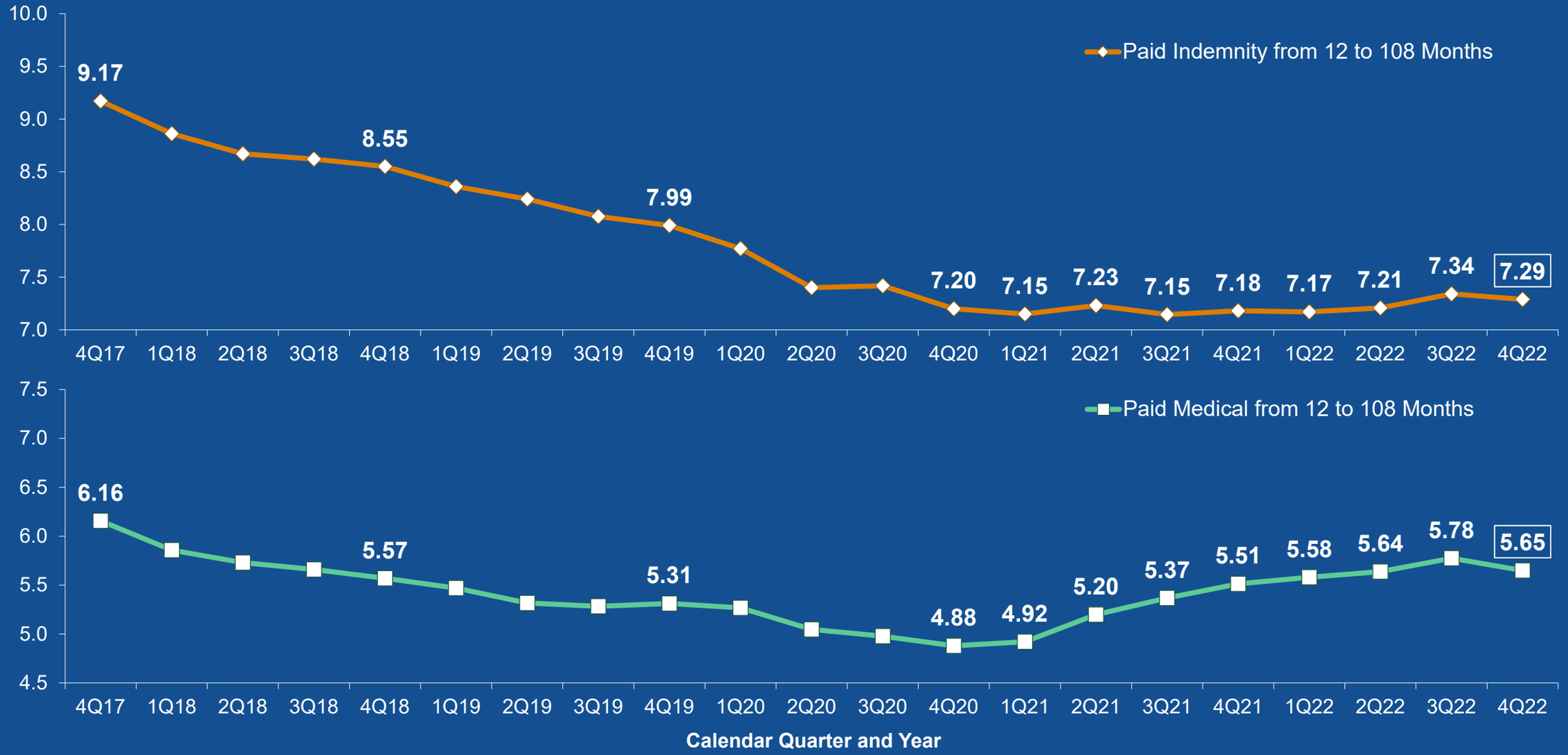


WCIRB California™
Objective. Trusted. Integral.

Source: WCIRB Aggregate Financial Data

Cumulative Paid Development from 12 to 108 Months

As of December 31, 2022

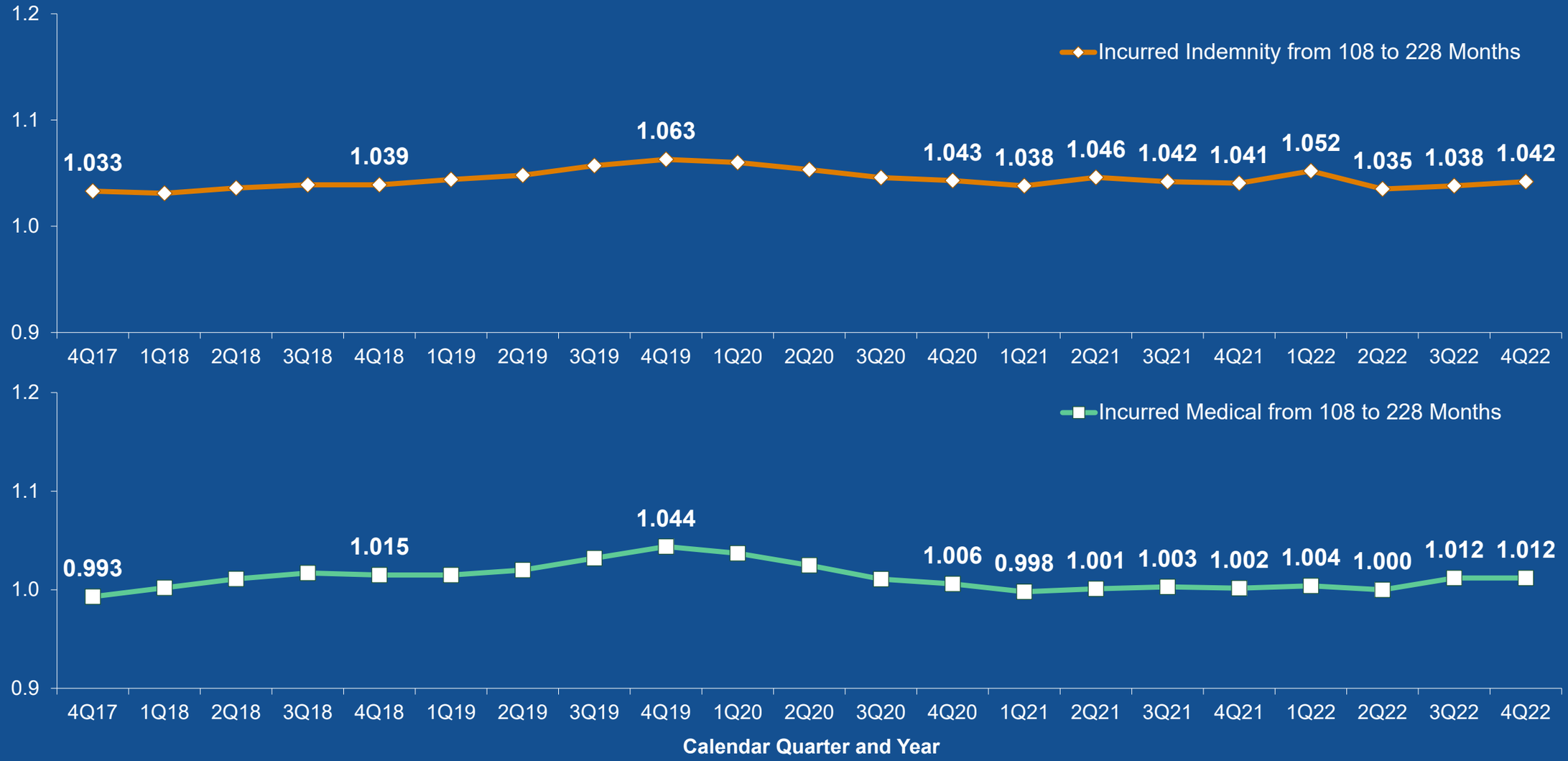


WCIRB California™
Objective. Trusted. Integral.

Source: WCIRB Aggregate Financial Data

Cumulative Incurred Development from 108 to 228 Months

As of December 31, 2022

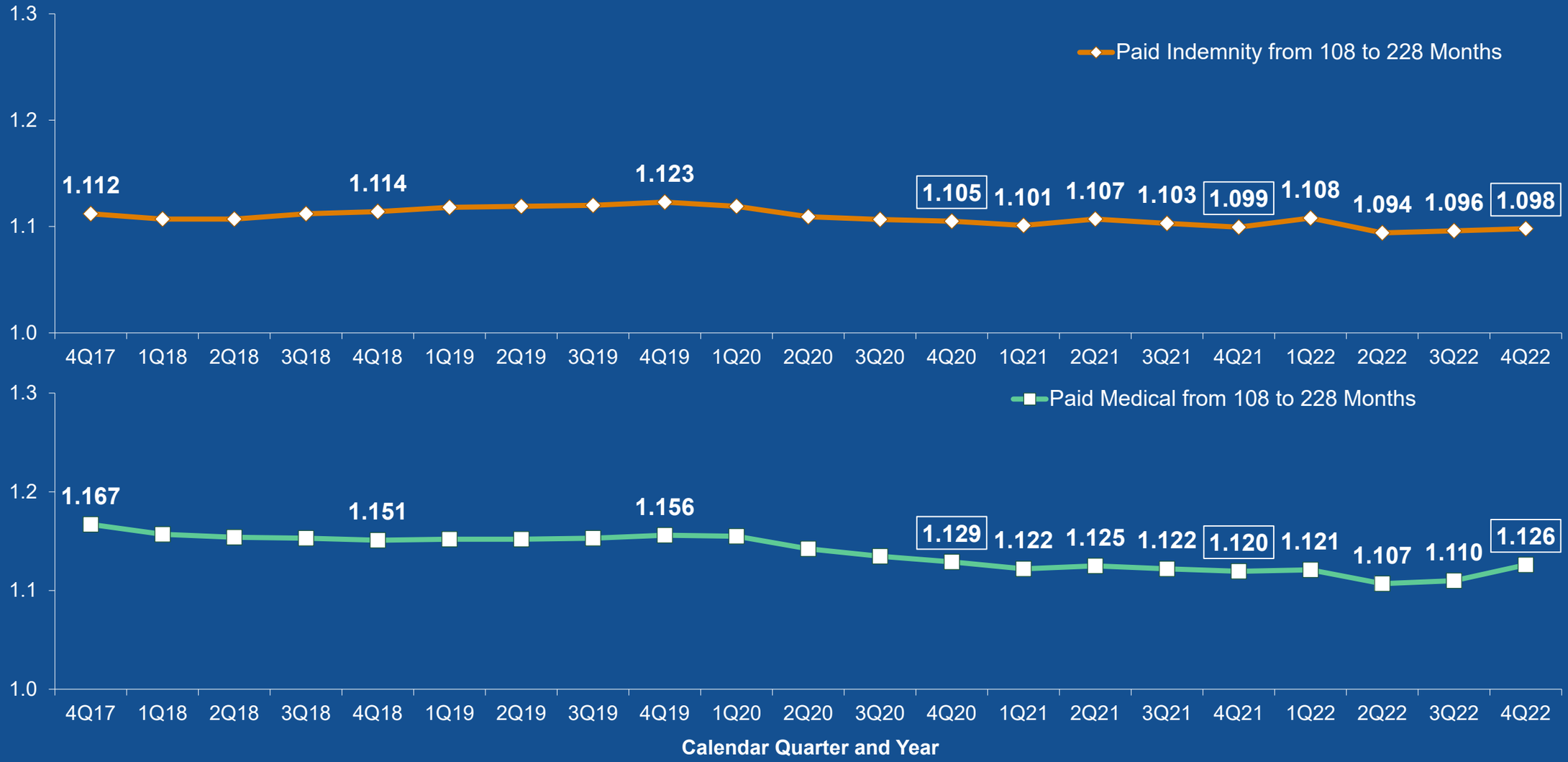


WCIRB California™
Objective. Trusted. Integral.

Source: WCIRB Aggregate Financial Data

Cumulative Paid Development from 108 to 228 Months

As of December 31, 2022

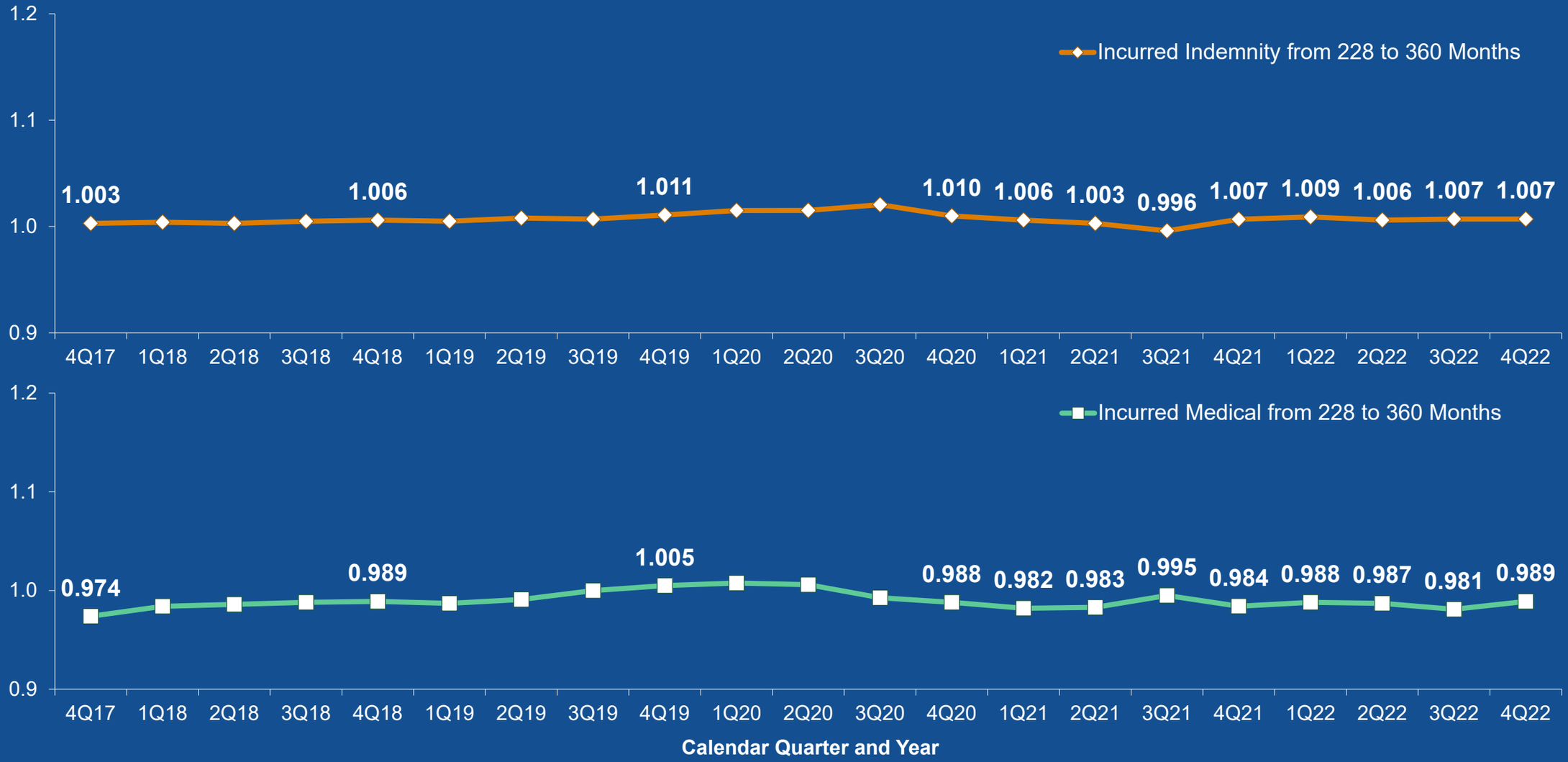


WCIRB California™
Objective. Trusted. Integral.

Source: WCIRB Aggregate Financial Data

Cumulative Incurred Development from 228 to 360 Months

As of December 31, 2022

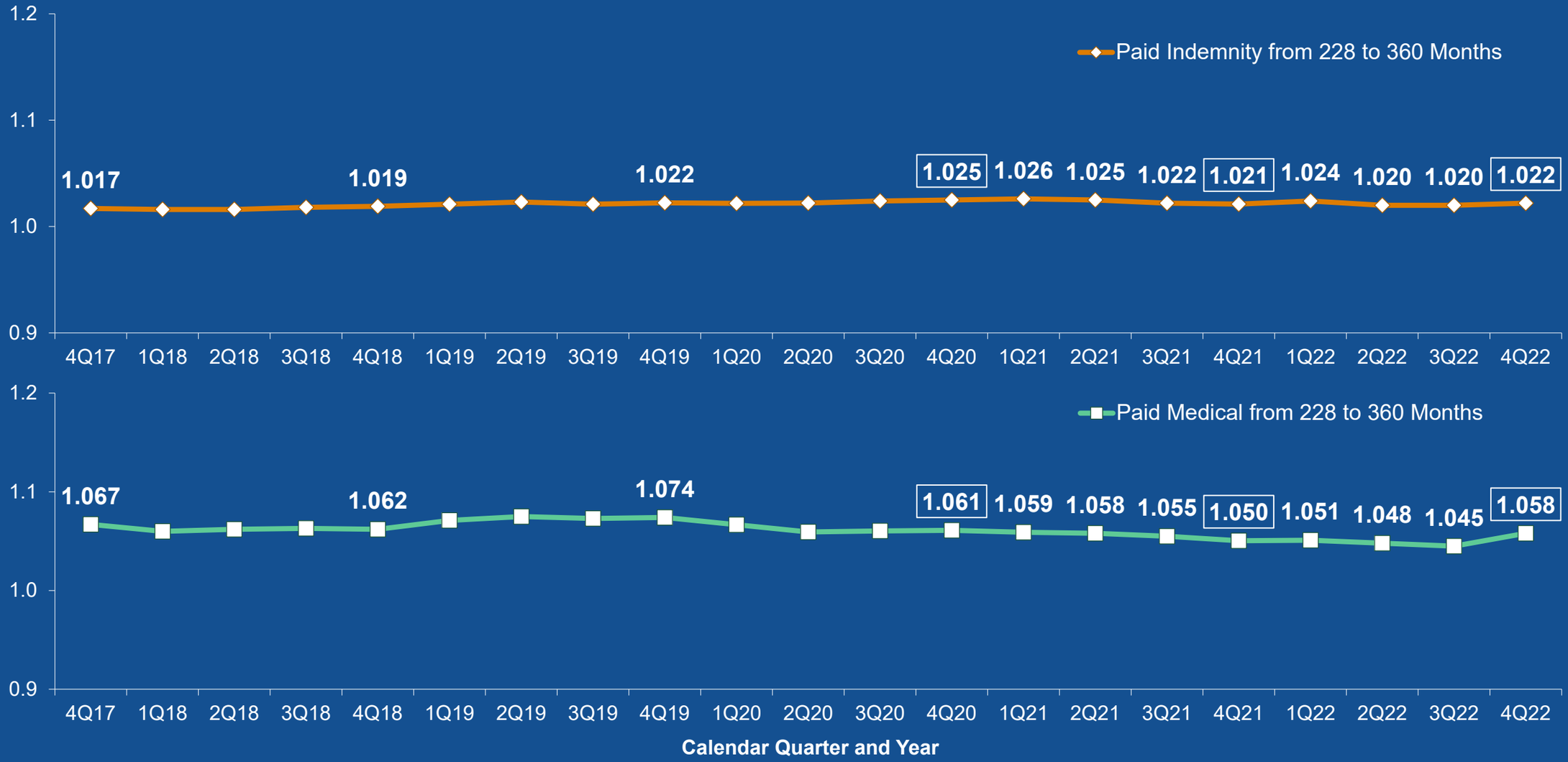


WCIRB California™
Objective. Trusted. Integral.

Source: WCIRB Aggregate Financial Data

Cumulative Paid Development from 228 to 360 Months

As of December 31, 2022



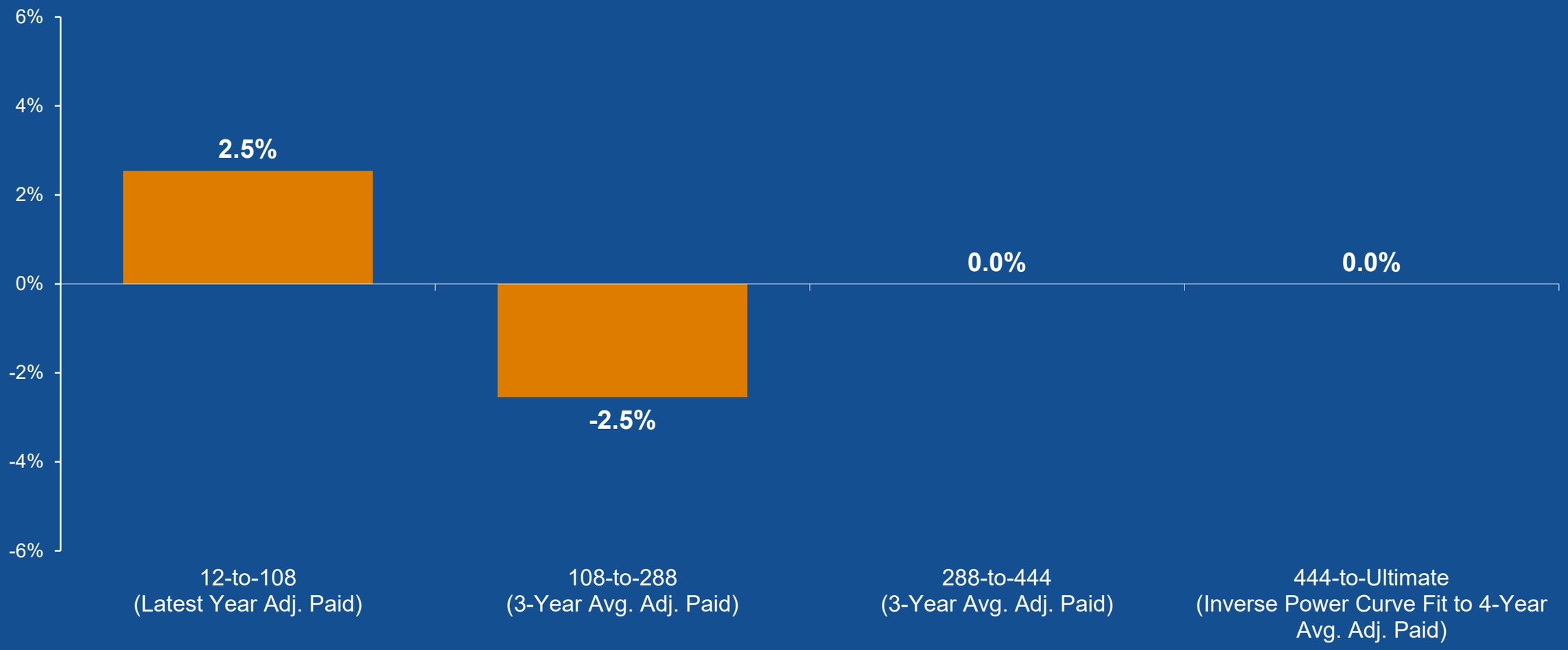
WCIRB California™
Objective. Trusted. Integral.

Source: WCIRB Aggregate Financial Data

Change in Projected Medical Development Factor for AY 2021

12/31/2021 to 12/31/2022 Experience

As of December 31, 2022

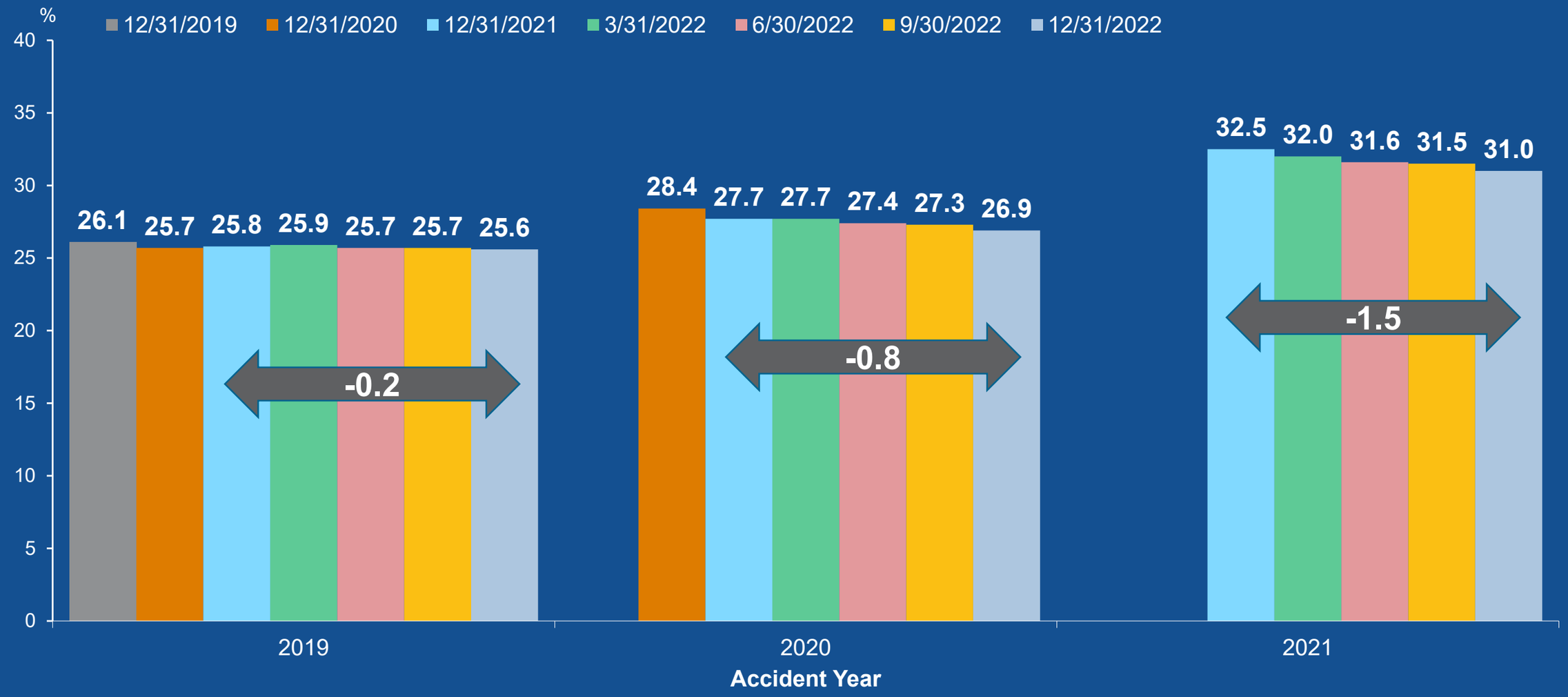


WCIRB California™
Objective. Trusted. Integral.

Source: WCIRB Aggregate Financial Data

Developed Indemnity Loss Ratios (Exhibit 3.1)

As of December 31, 2022



WCIRB California™
Objective. Trusted. Integral.

Note: All loss ratios are adjusted to the loss development methodology reflected in the Actuarial Committee Agenda and may not be comparable to the actual loss ratios projected at that time.
Source: WCIRB Aggregate Financial Data excluding COVID-19 claims

Developed Medical Loss Ratios (Exhibit 3.2)

As of December 31, 2022

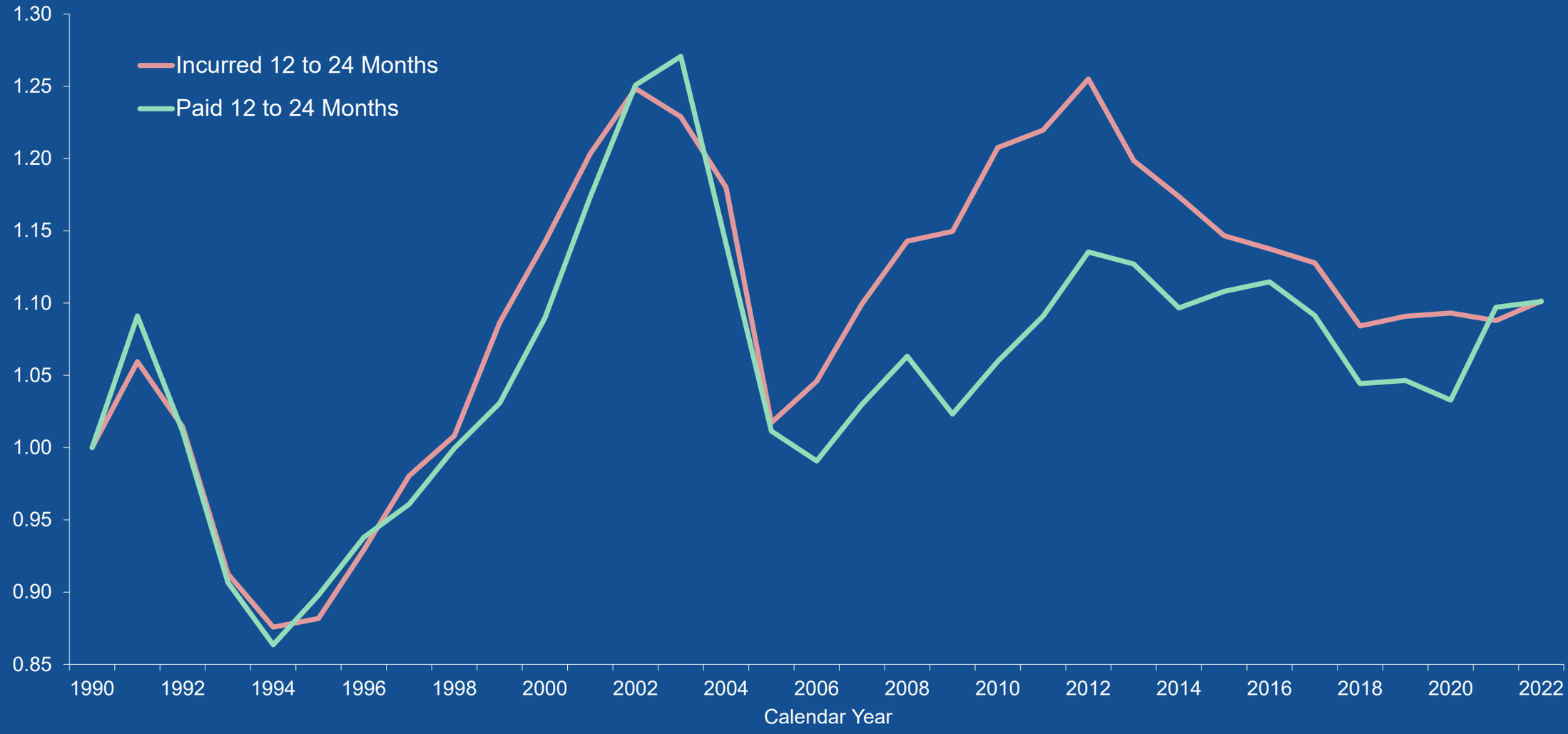
Note: All loss ratios are adjusted to the loss development methodology reflected in the Actuarial Committee Agenda and may not be comparable to the actual loss ratios projected at that time.
Source: WCIRB Aggregate Financial Data excluding COVID-19 claims

WCIRB California™
Objective. Trusted. Integral.

Medical Age-to-Age Factors Indexed to 1990

12 to 24 Months

As of December 31, 2022



WCIRB California™
Objective. Trusted. Integral.

Source: WCIRB aggregate financial data

Medical Age-to-Age Factors Indexed to 1990

48 to 60 Months

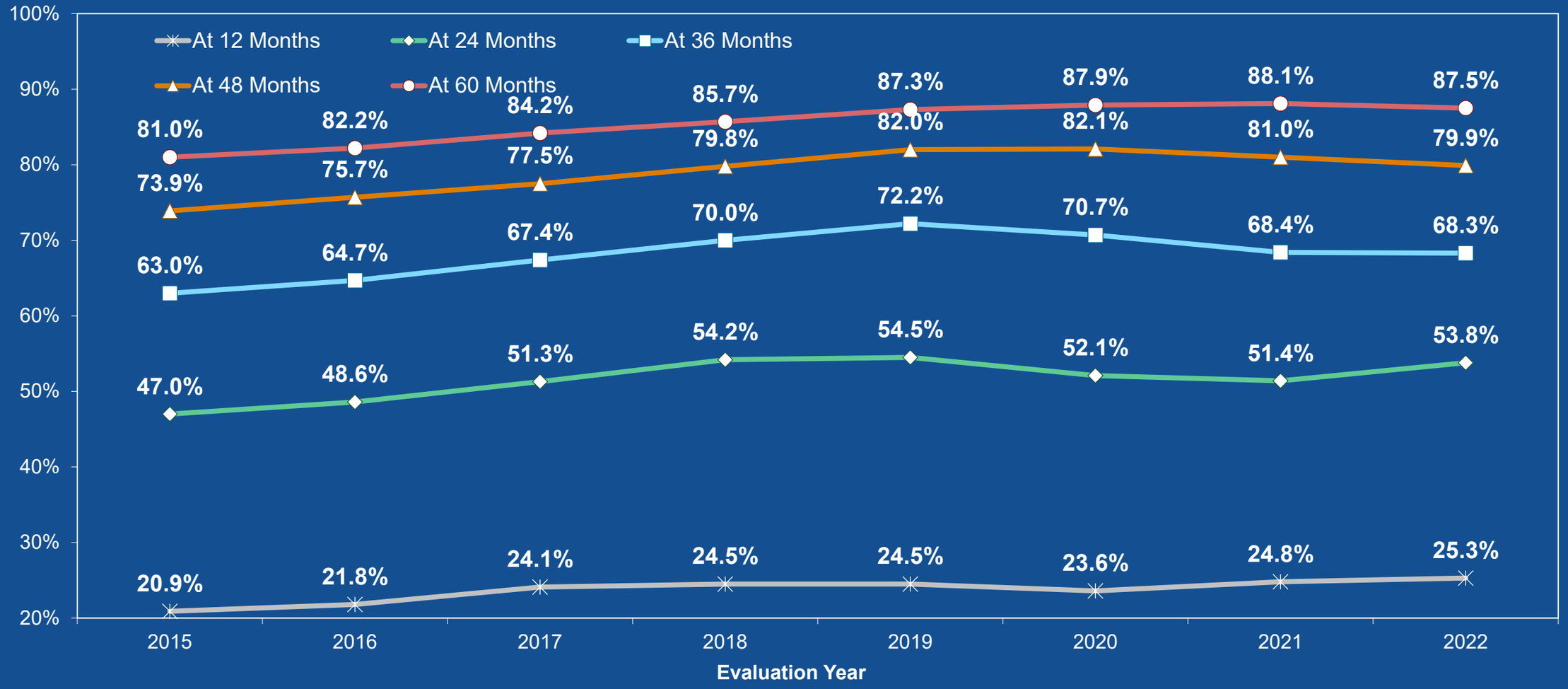
As of December 31, 2022

WCIRB California™
Objective. Trusted. Integral.

Source: WCIRB aggregate financial data

Estimated Ultimate Indemnity Claim Settlement Ratios (Exhibit 11.2)

As of December 31, 2022

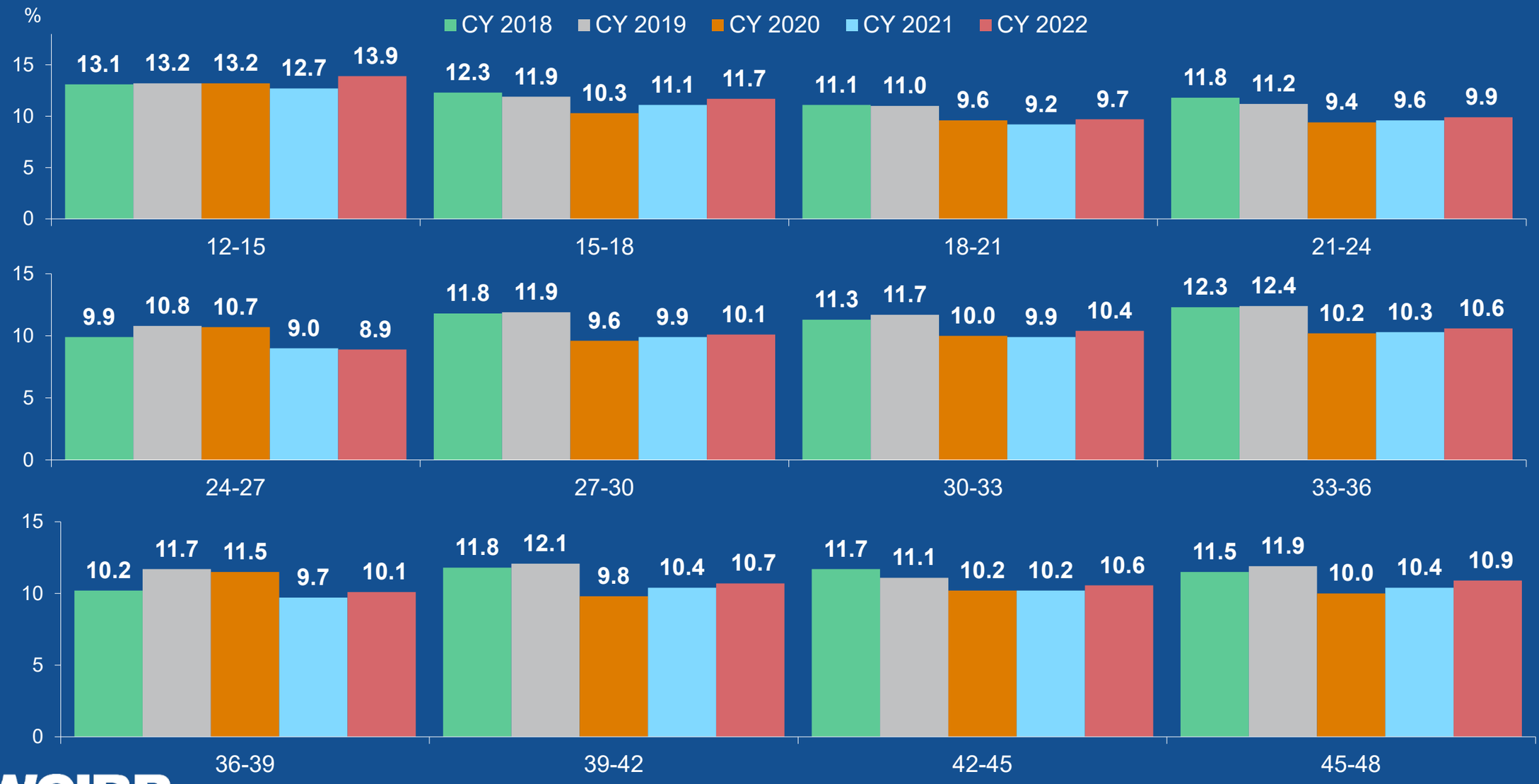


WCIRB California™
Objective. Trusted. Integral.

Source: WCIRB Aggregate Financial Data and projections excluding COVID-19 claims

Incremental Closed Indemnity Claims Compared to Prior Open Claims

As of December 31, 2022



WCIRB California™
Objective. Trusted. Integral.

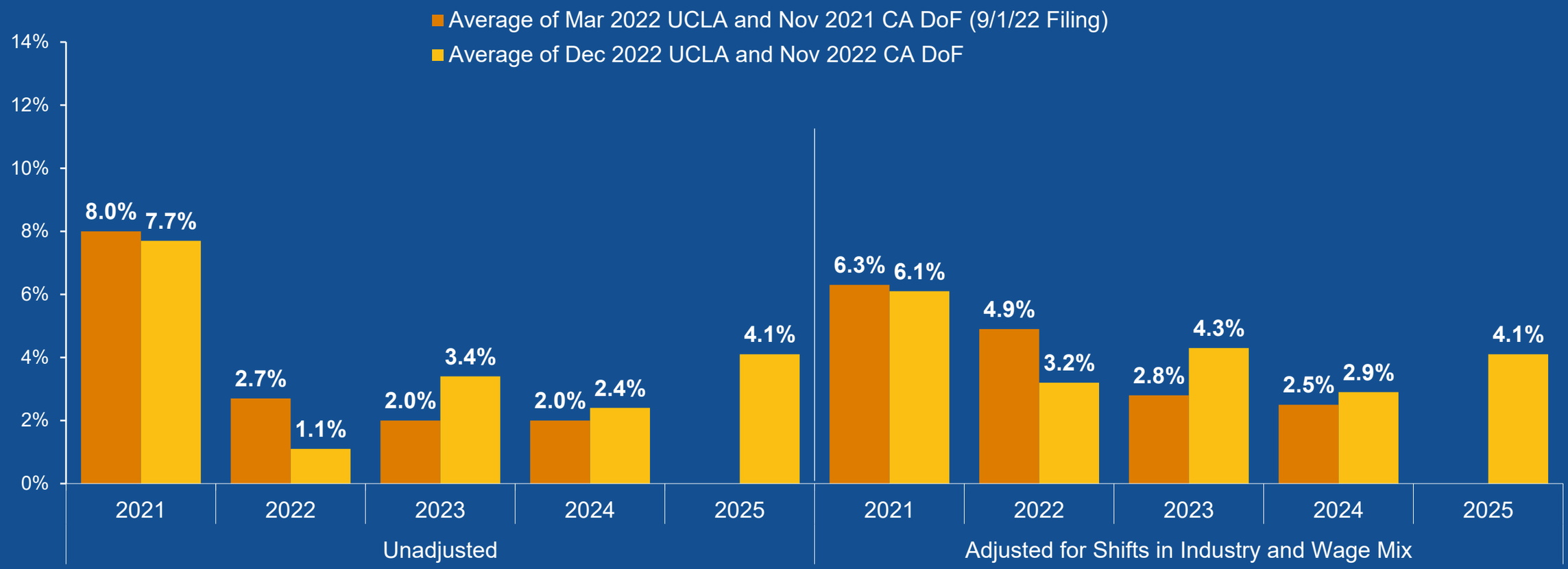
Source: WCIRB Aggregate Financial Data excluding COVID-19 claims

9/1/2023 Filing Loss Development Considerations

- Differences in paid and incurred development
  - Updated study to be reviewed at 4/13/23 meeting
- Continued appropriateness of reform and claim settlement adjustments

Average Wage Level Change Forecast (Exhibit 5.1)

As of September 2022



Average Annual Adjusted Wage Change Projection from 2021:

9/1/2022 Filing: **3.7%**

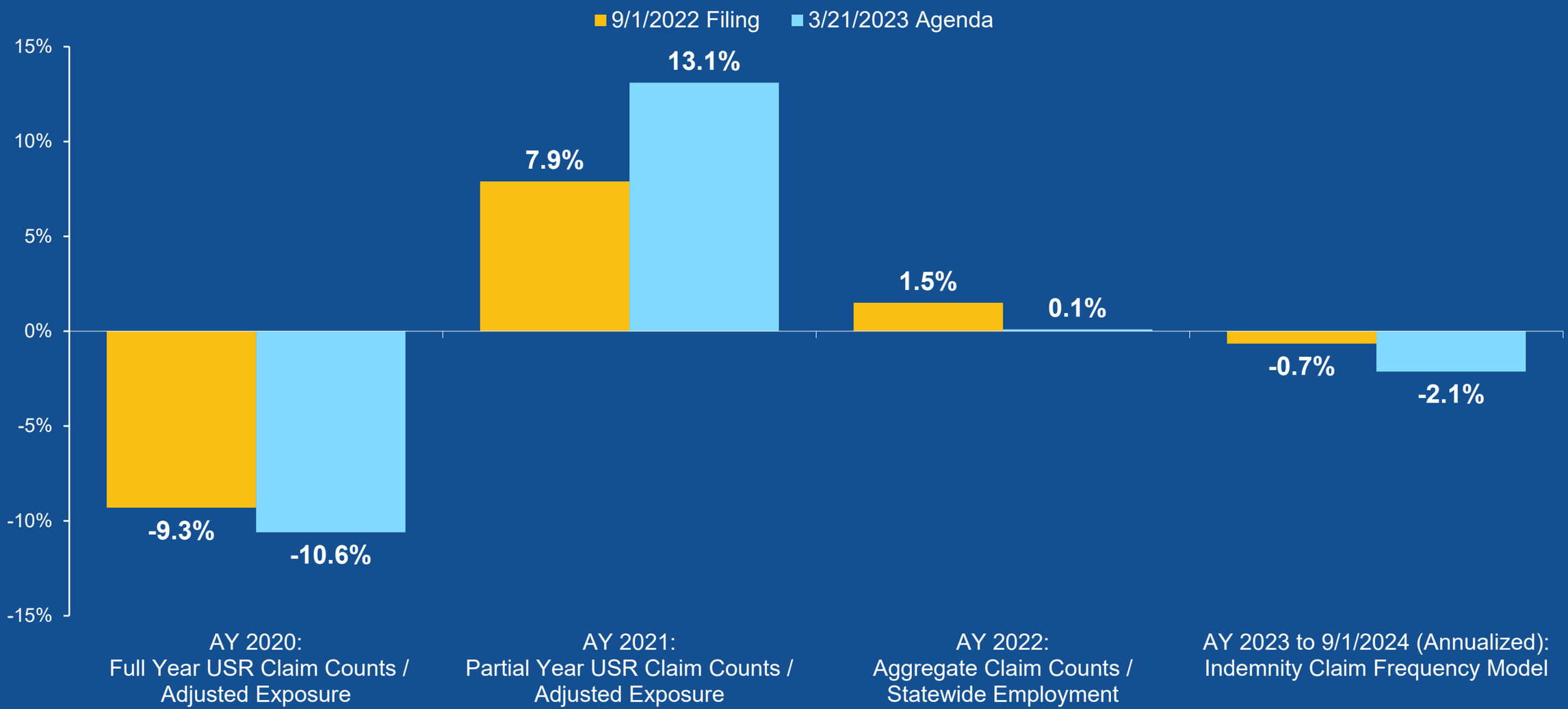
Updated Forecast: **3.5%**

WCIRB California™
Objective. Trusted. Integral.

Source: UCLA Anderson School of Business and California Department of Finance Forecasts

Estimated Intra-Class Indemnity Claim Frequency Changes (Exhibit 12)

As of December 31, 2022

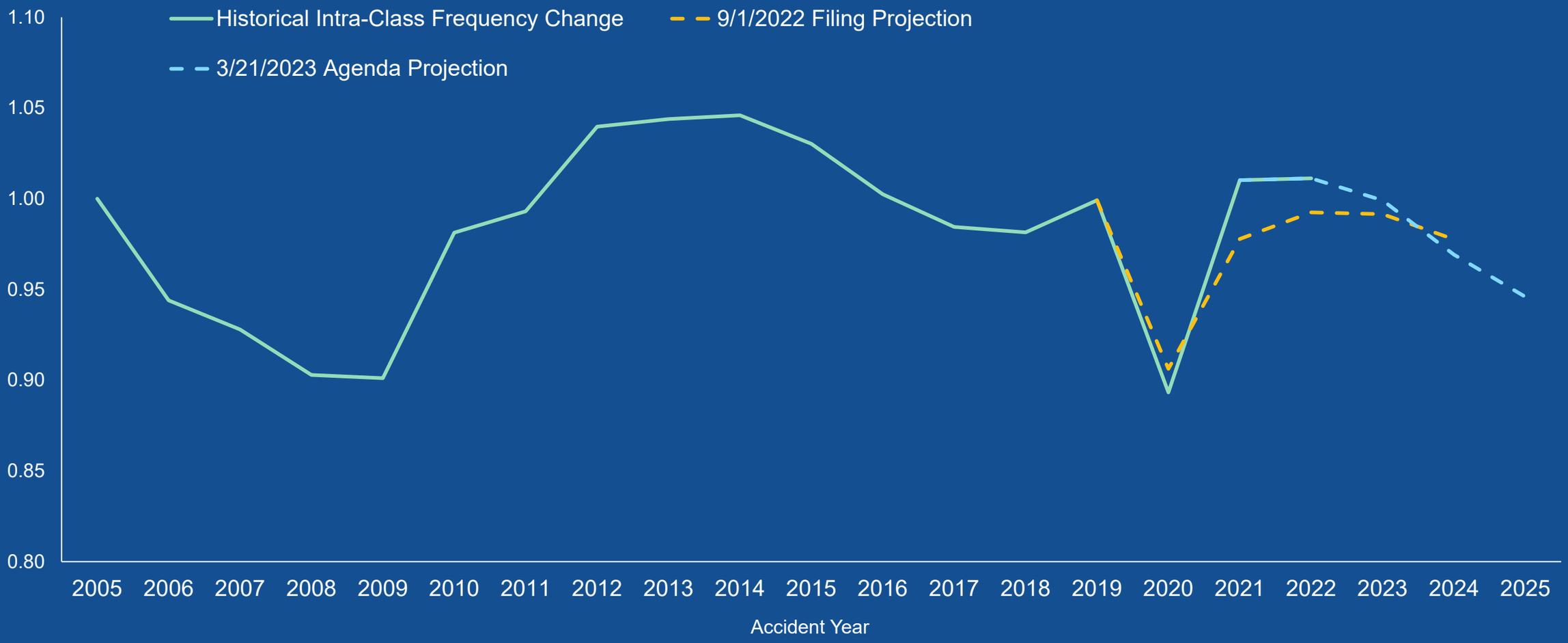


WCIRB California™
Objective. Trusted. Integral.

Source: WCIRB Unit Statistical Data, Aggregate Financial Data and UCLA Anderson Forecast, excluding COVID-19 claims

Indemnity Claim Frequency Indexed to 2005

As of December 31, 2022

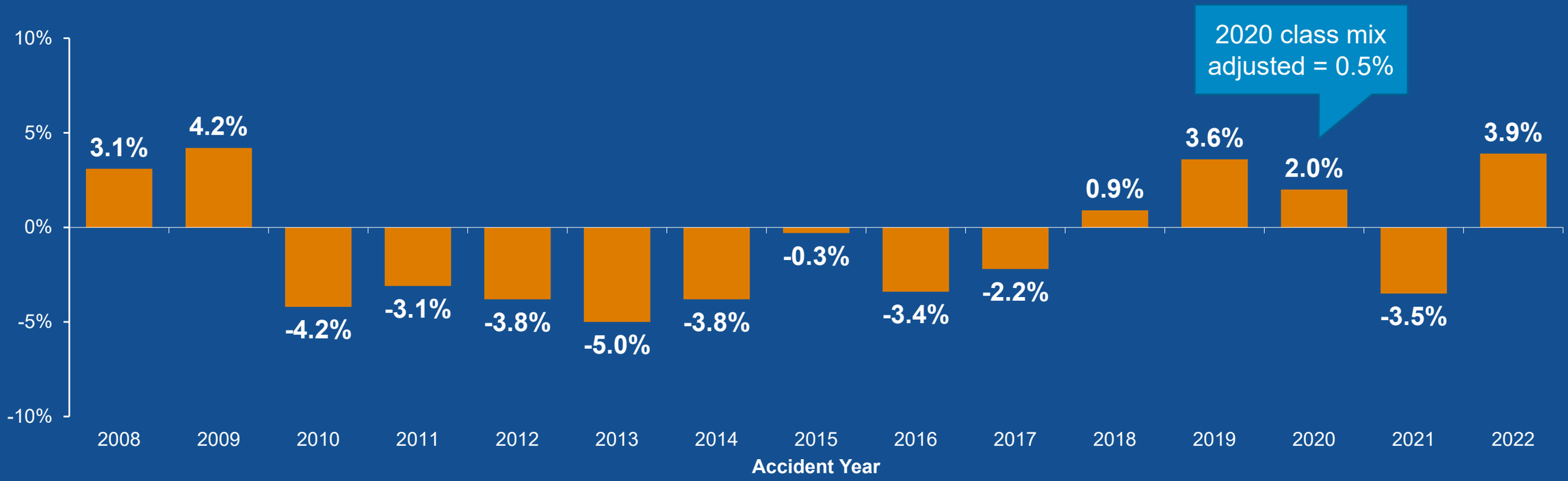


WCIRB California™
Objective. Trusted. Integral.

Source: WCIRB Unit Statistical Data, Aggregate Financial Data and Indemnity Claim Frequency Model, excluding COVID-19 claims

Projected Changes in On-Level Indemnity Severity (Exhibit 6.2)

As of December 31, 2022



Annual Exponential Trend Based on:

1990 to 2022: 0.8%

2005 to 2022: -1.2%

2018 to 2022: 1.0%

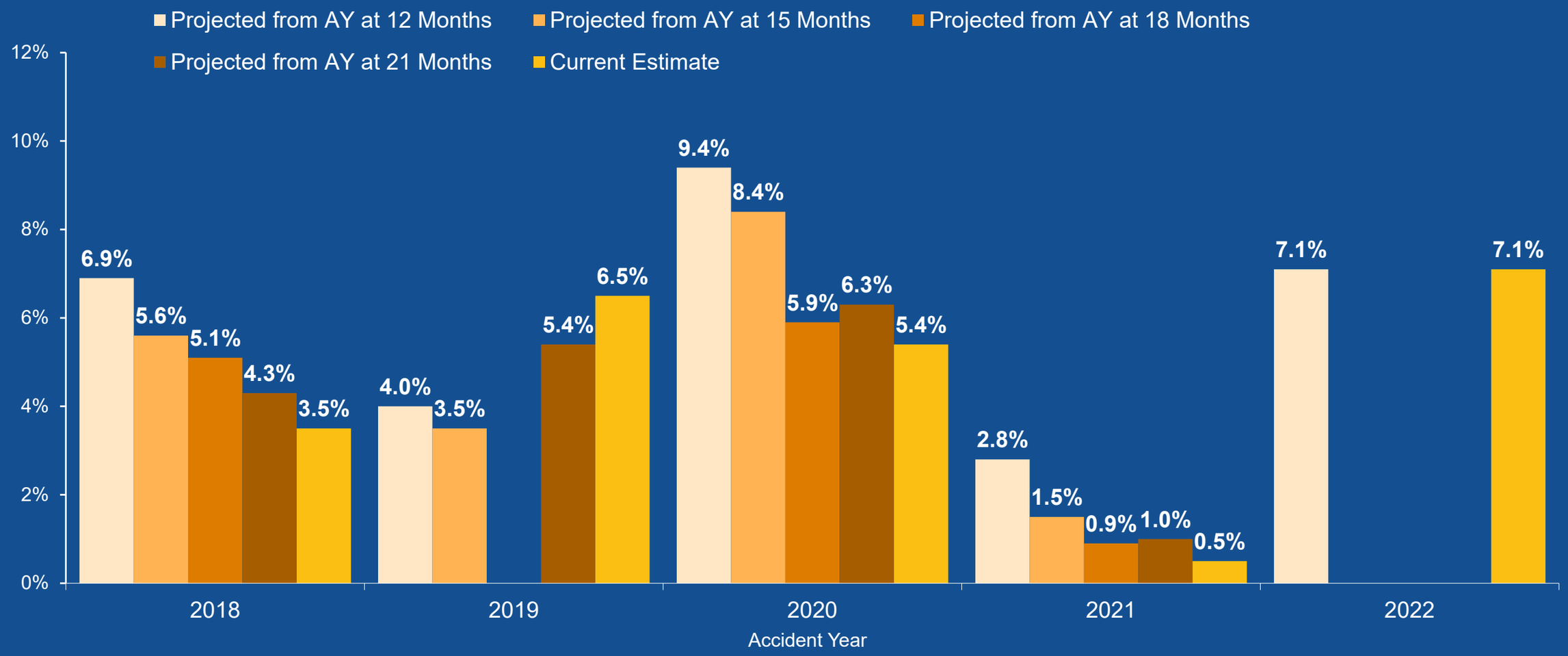
9/1/2022 Filing Selected: 1.0%

WCIRB California™
Objective. Trusted. Integral.

Source: WCIRB Aggregate Financial Data excluding COVID-19 claims and projections

Indemnity Severity Changes Projected from Early Evaluations Compared to Current

As of December 31, 2022

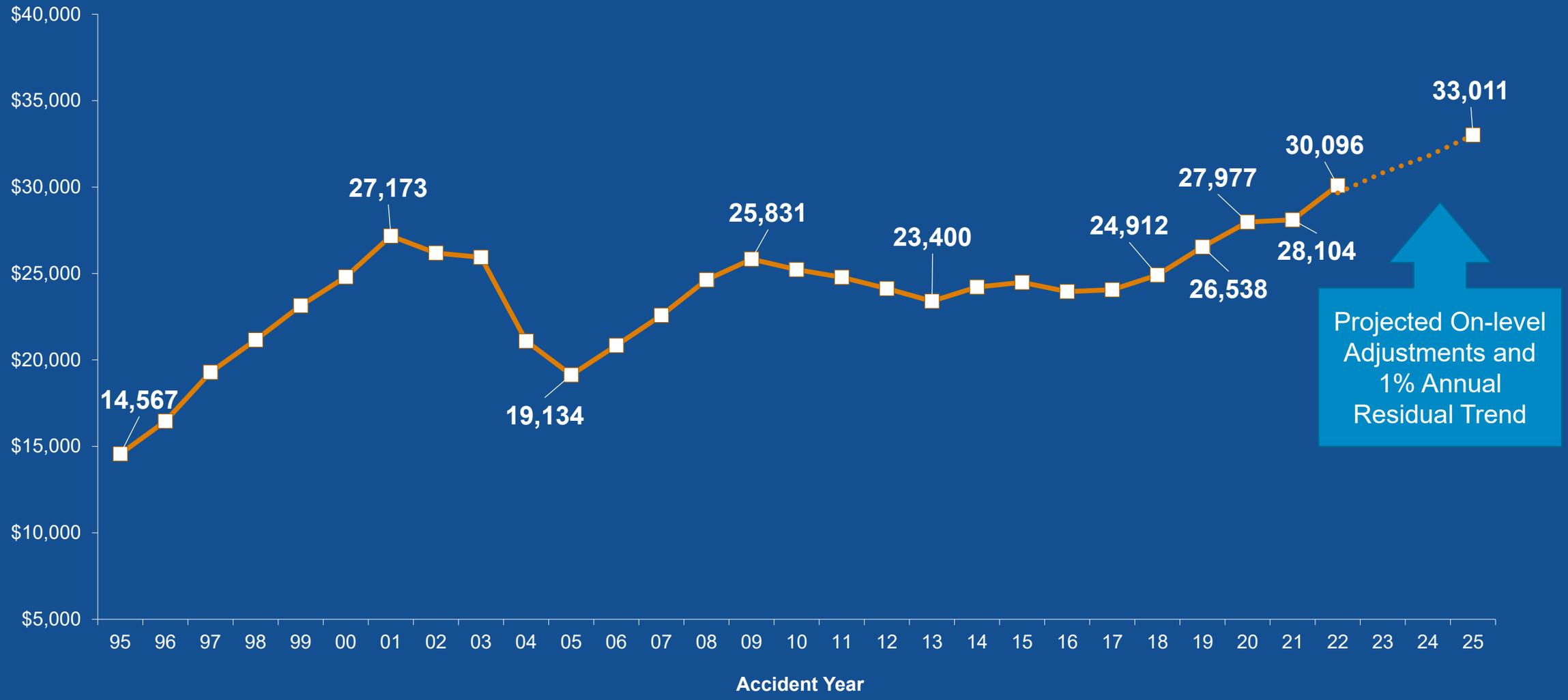


WCIRB California™
Objective. Trusted. Integral.

Source: WCIRB Aggregate Financial Data excluding COVID-19 claims

Ultimate Indemnity per Indemnity Claim

As of December 31, 2022

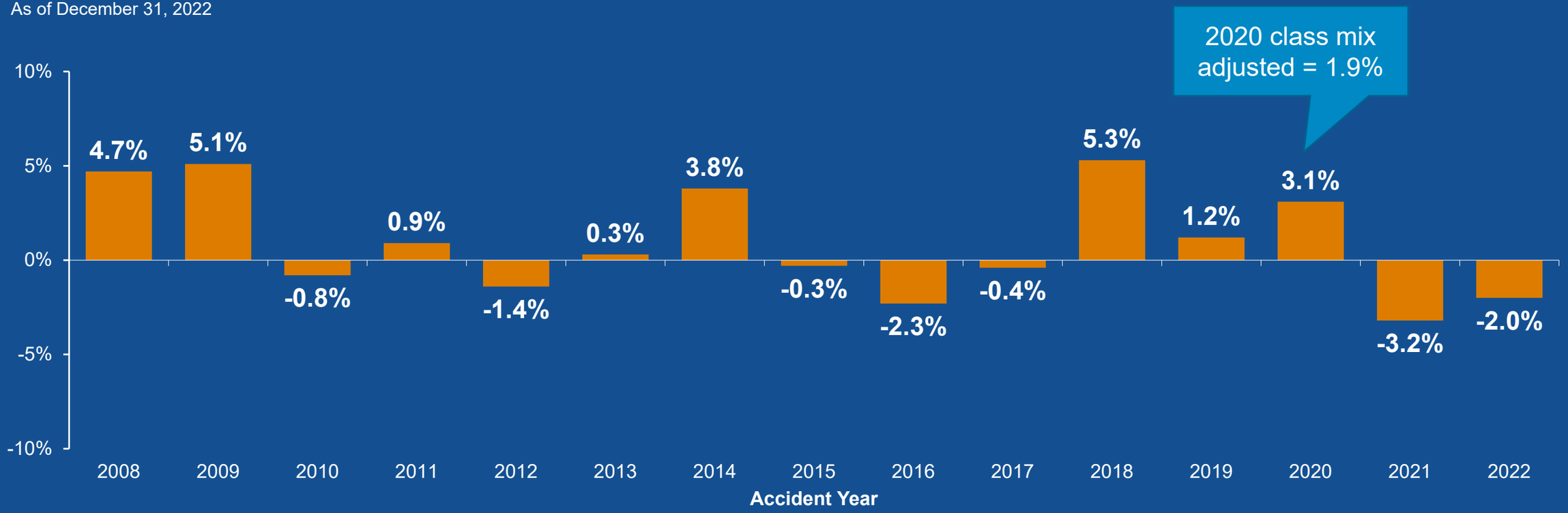


WCIRB California™
Objective. Trusted. Integral.

Source: WCIRB Aggregate Financial Data excluding COVID-19 claims and projections

Projected Changes in On-Level Medical Severity (Exhibit 6.4)

As of December 31, 2022



Annual Exponential Trend Based on:

1990 to 2022 (including MCCP): 4.6%

2005 to 2022: 1.3%

2018 to 2022: -0.2%

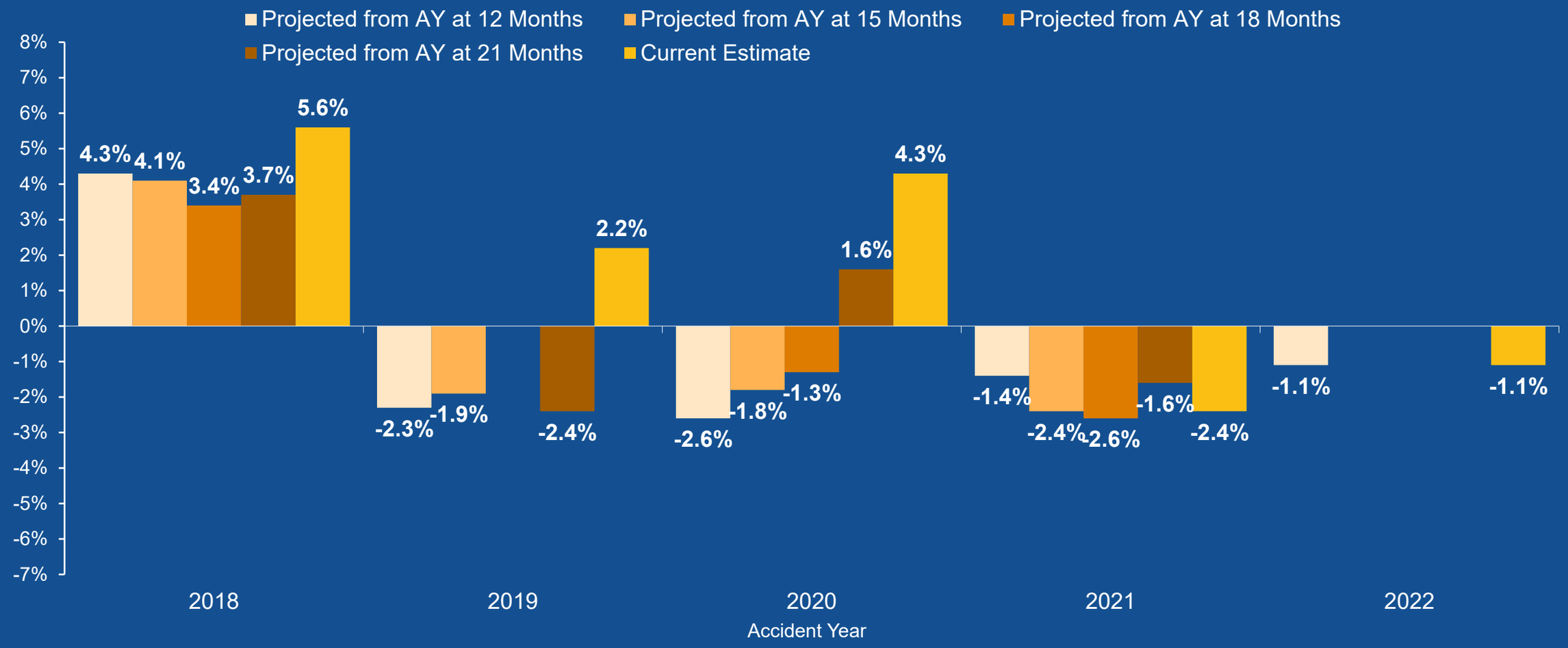
9/1/2022 Filing Selected: 1.5%

WCIRB California™
Objective. Trusted. Integral.

Source: WCIRB Aggregate Financial Data excluding COVID-19 claims and projections. MCCP costs are excluded from accident years 2011 and prior.

Medical Severity Changes Projected from Early Evaluations Compared to Current

As of December 31, 2022

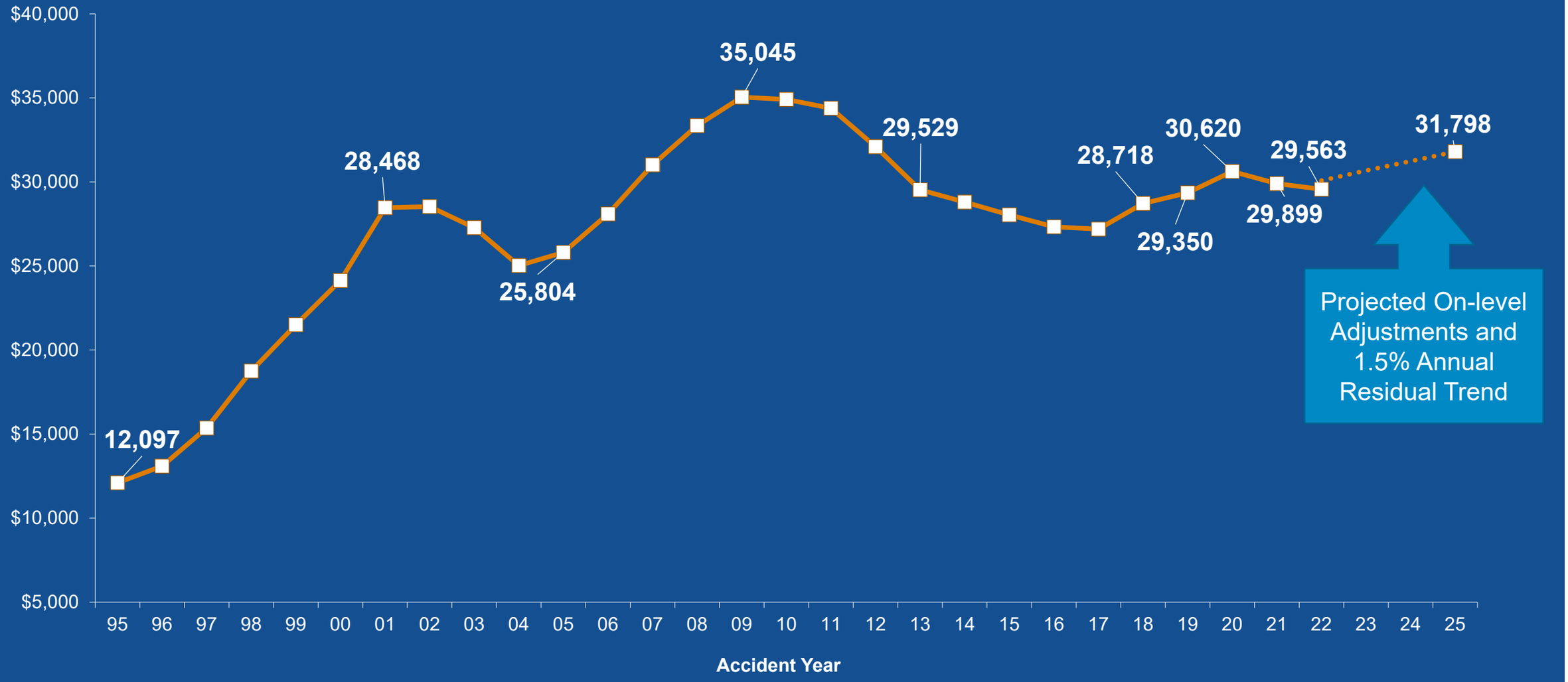


WCIRB California™
Objective. Trusted. Integral.

Source: WCIRB Aggregate Financial Data excluding COVID-19 claims

Ultimate Medical per Indemnity Claim

As of December 31, 2022

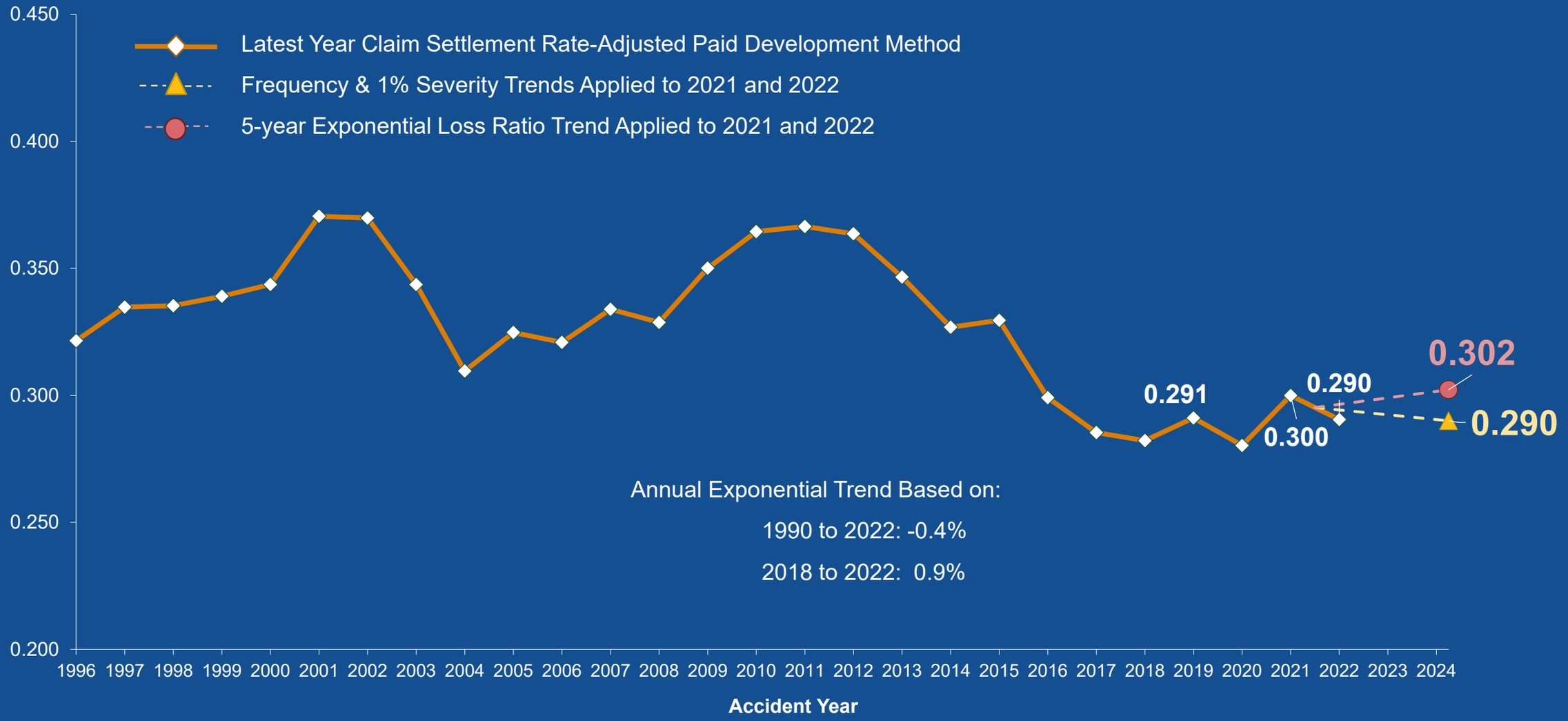


WCIRB California™
Objective. Trusted. Integral.

Source: WCIRB Aggregate Financial Data excluding COVID-19 claims and projections.

Projected On-Level Indemnity Loss Ratios

As of December 31, 2022

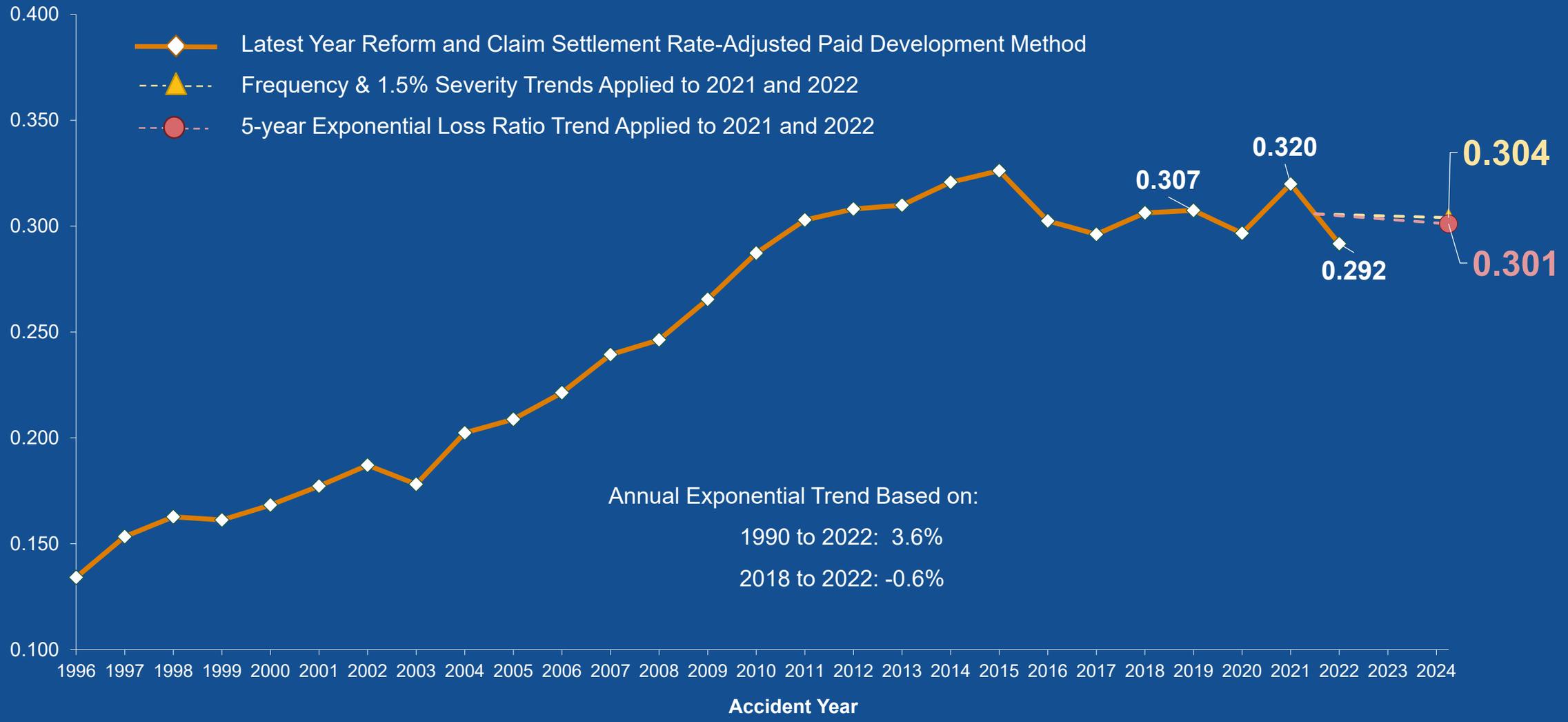


WCIRB California™
Objective. Trusted. Integral.

Source: WCIRB Aggregate Financial Data excluding COVID-19 claims and projections

Projected On-Level Medical Loss Ratios

As of December 31, 2022



WCIRB California™
Objective. Trusted. Integral.

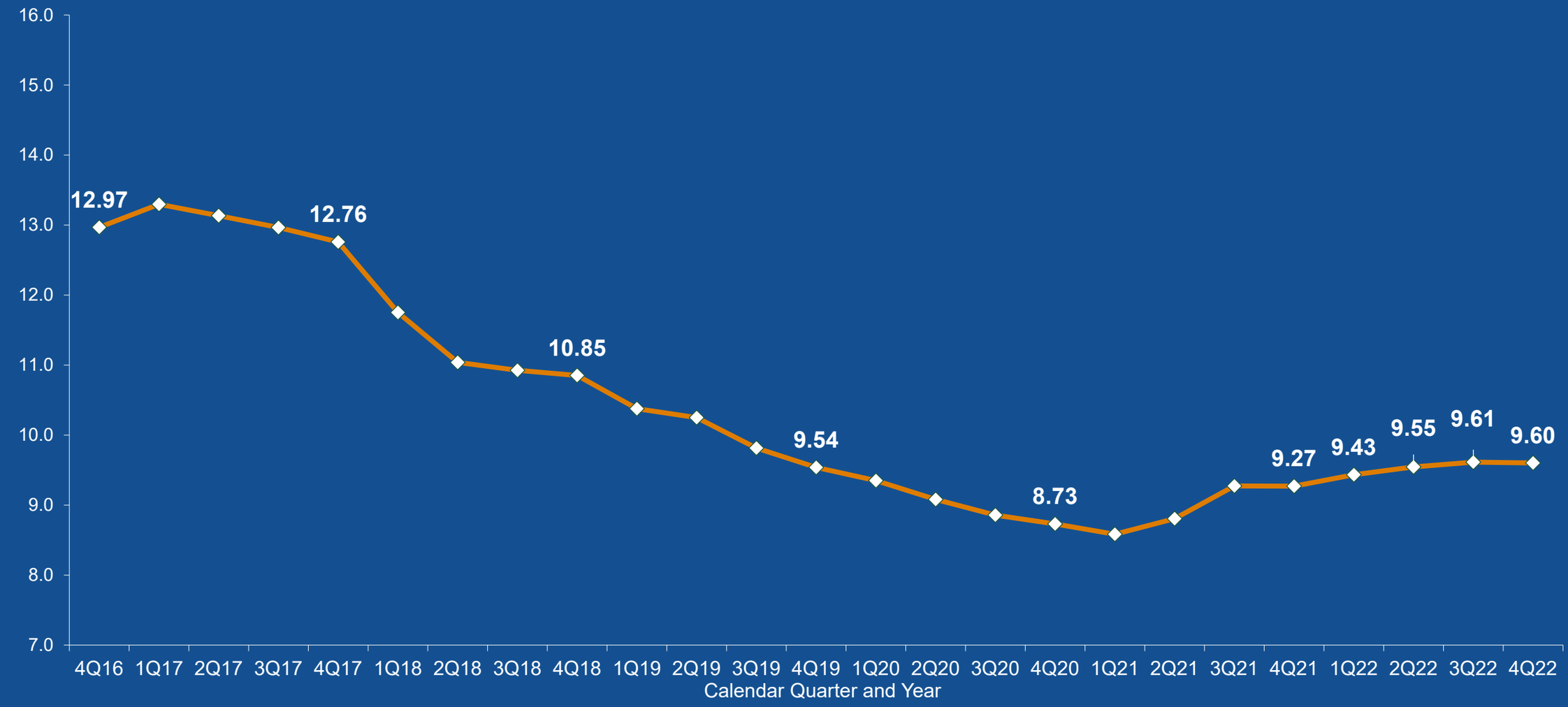
Source: WCIRB Aggregate Financial Data excluding COVID-19 claims and projections

9/1/2023 Trending Considerations

- Impact of economy on average wage, class mix, frequency model forecasts
- Appropriate post-pandemic frequency and severity trends

Cumulative Paid ALAE Development from 12 to 90 Months

As of December 31, 2022



WCIRB California™
Objective. Trusted. Integral.

Source: WCIRB Aggregate Financial Data excluding COVID-19 claims and MCCP.

wcirb.com

WCIRB California™
Objective. Trusted. Integral.

1901 Harrison Street, 17th Floor
Oakland, CA 94612
888.CA.WCIRB (888.229.2472)