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# WCIRB Actuarial Committee Meeting

**March 19, 2018**

# Agenda

1. AC18-03-01: First Quarter 2018 Review of Diagnostics
2. AC17-04-04: New Drug Formulary
3. AC12-12-02: Review of Trending Methodology
4. AC18-03-03: Impact of SB 1160 & AB 1244 on Loss Development
5. AC17-12-03: On-Leveling for Wage Level Changes in Pure Premium Ratemaking
6. AC18-03-02: 12/31/2017 Experience – Review of Methodologies

# 01

# First Quarter 2018 Review of Diagnostics

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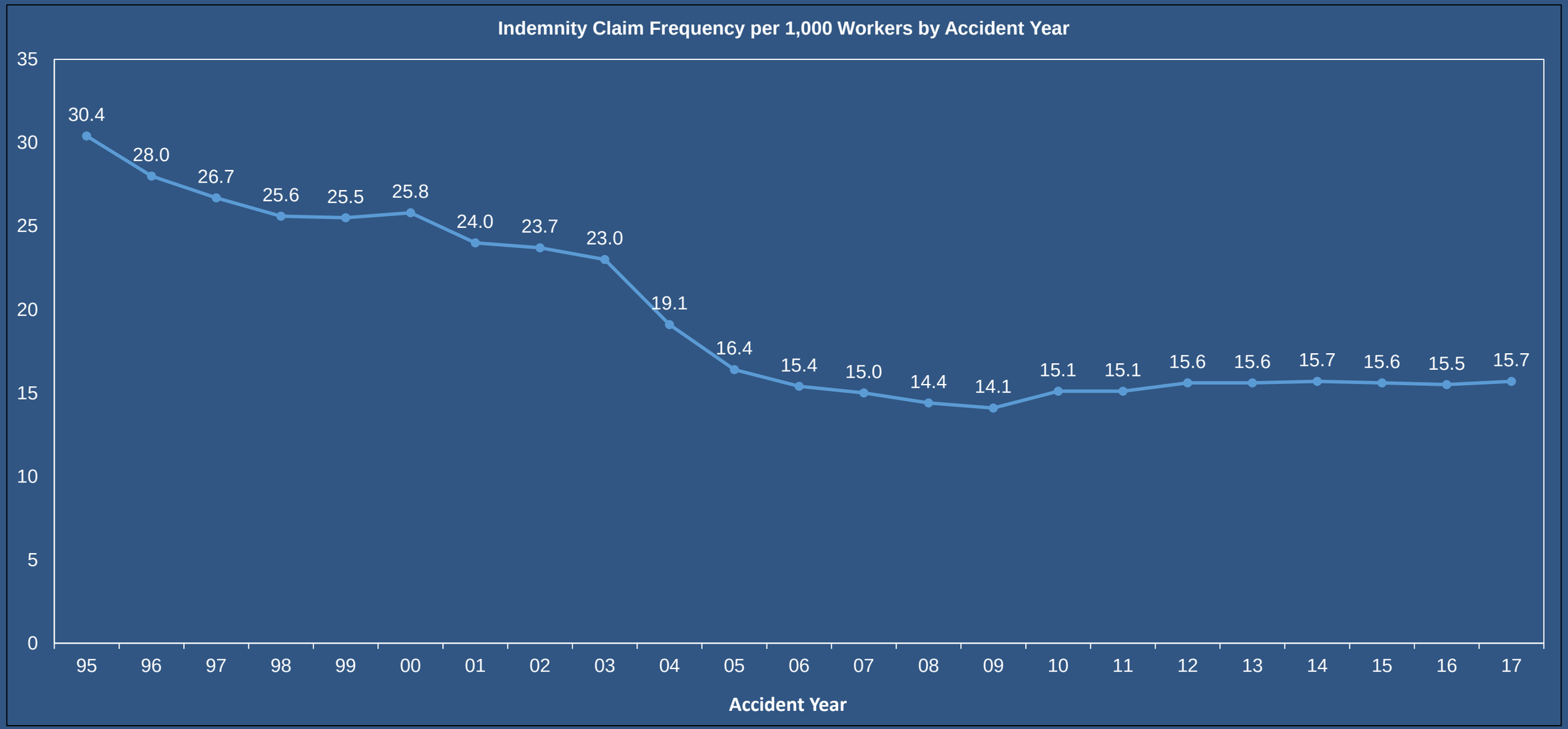
# Indemnity Claim Frequency (Exhibit C6; pg. IV-A-18)

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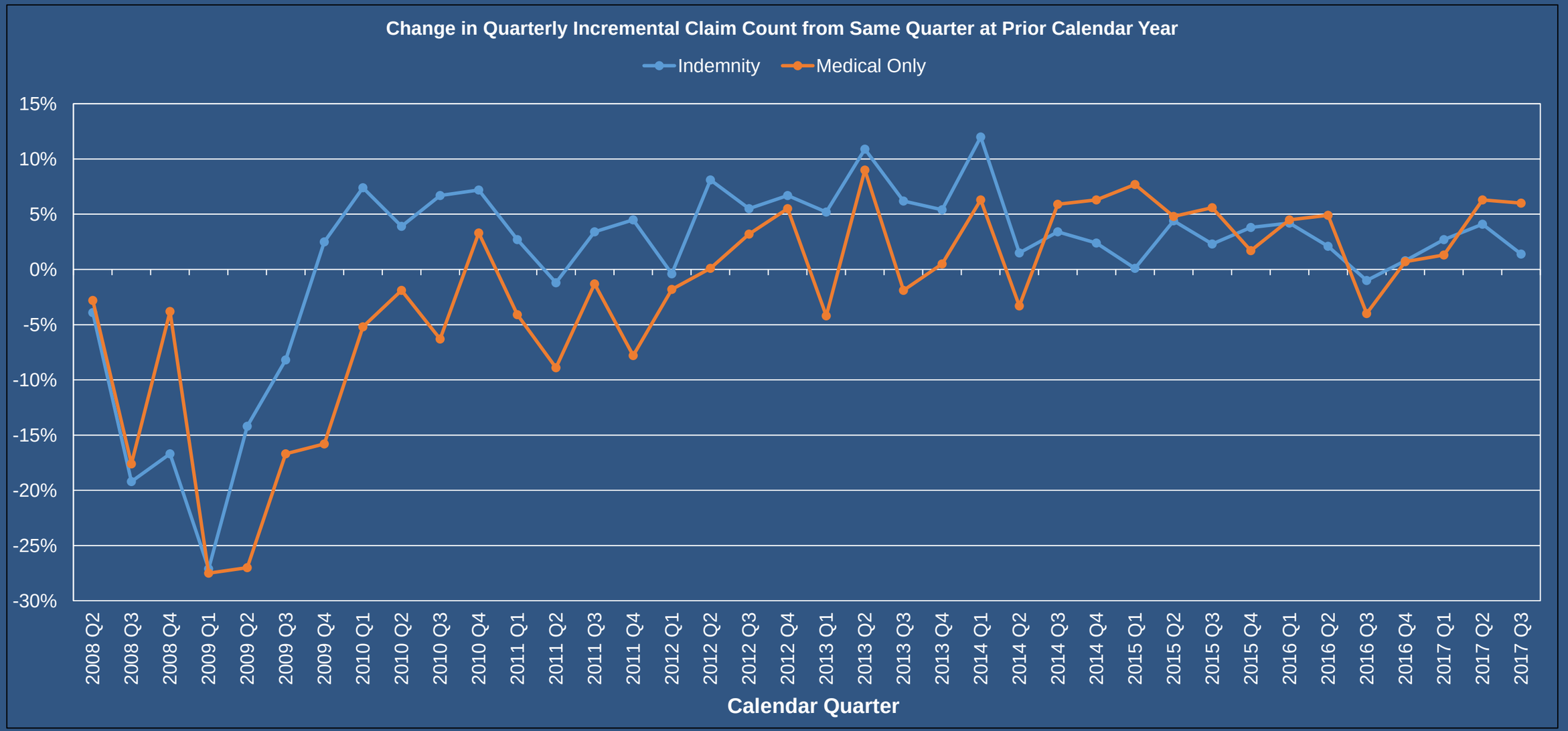
# Changes in Incremental Claim Counts (Exhibit C11; pg. IV A-21)

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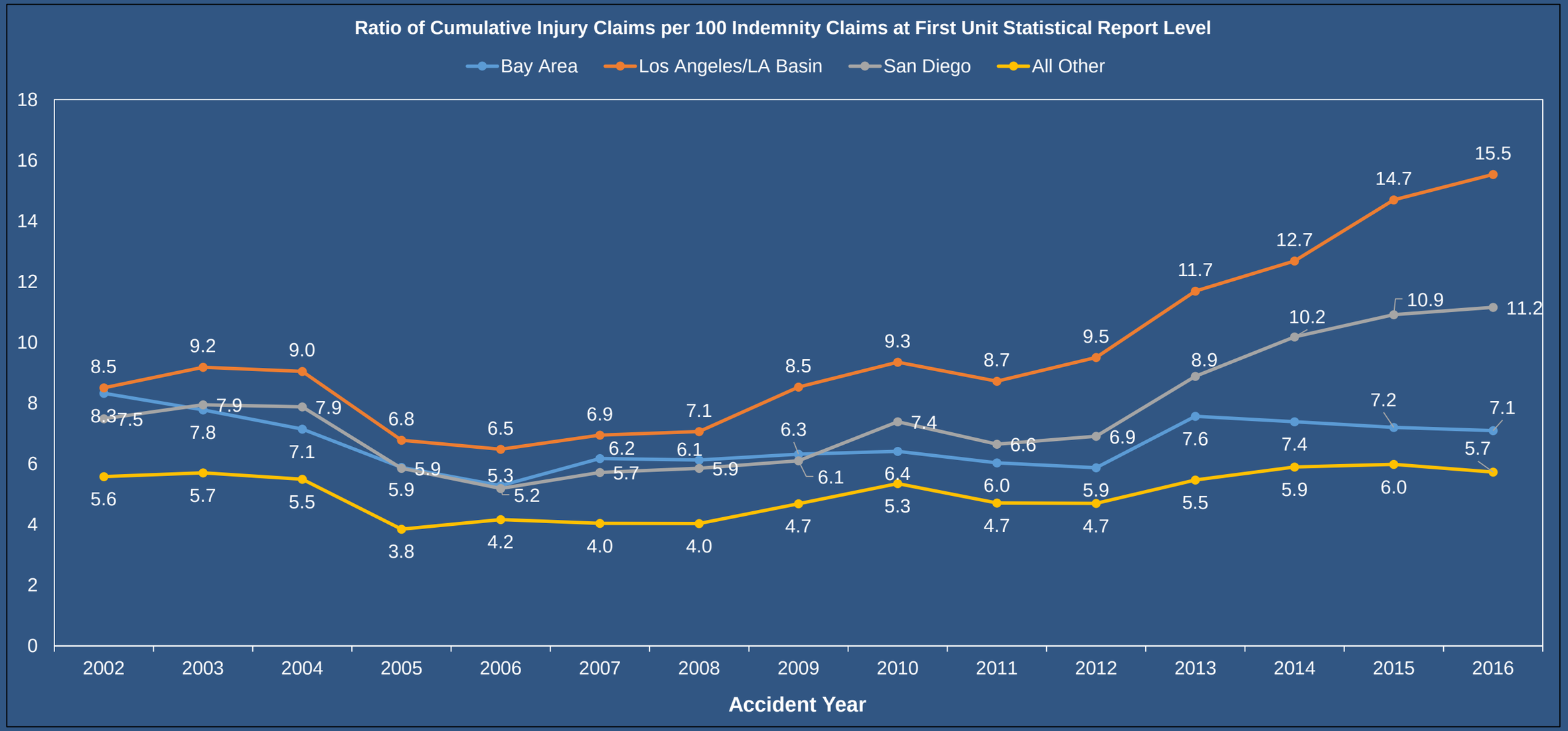
# Cumulative Injury Claim Count Ratios (Exhibit C17; pg. IV-A-23)

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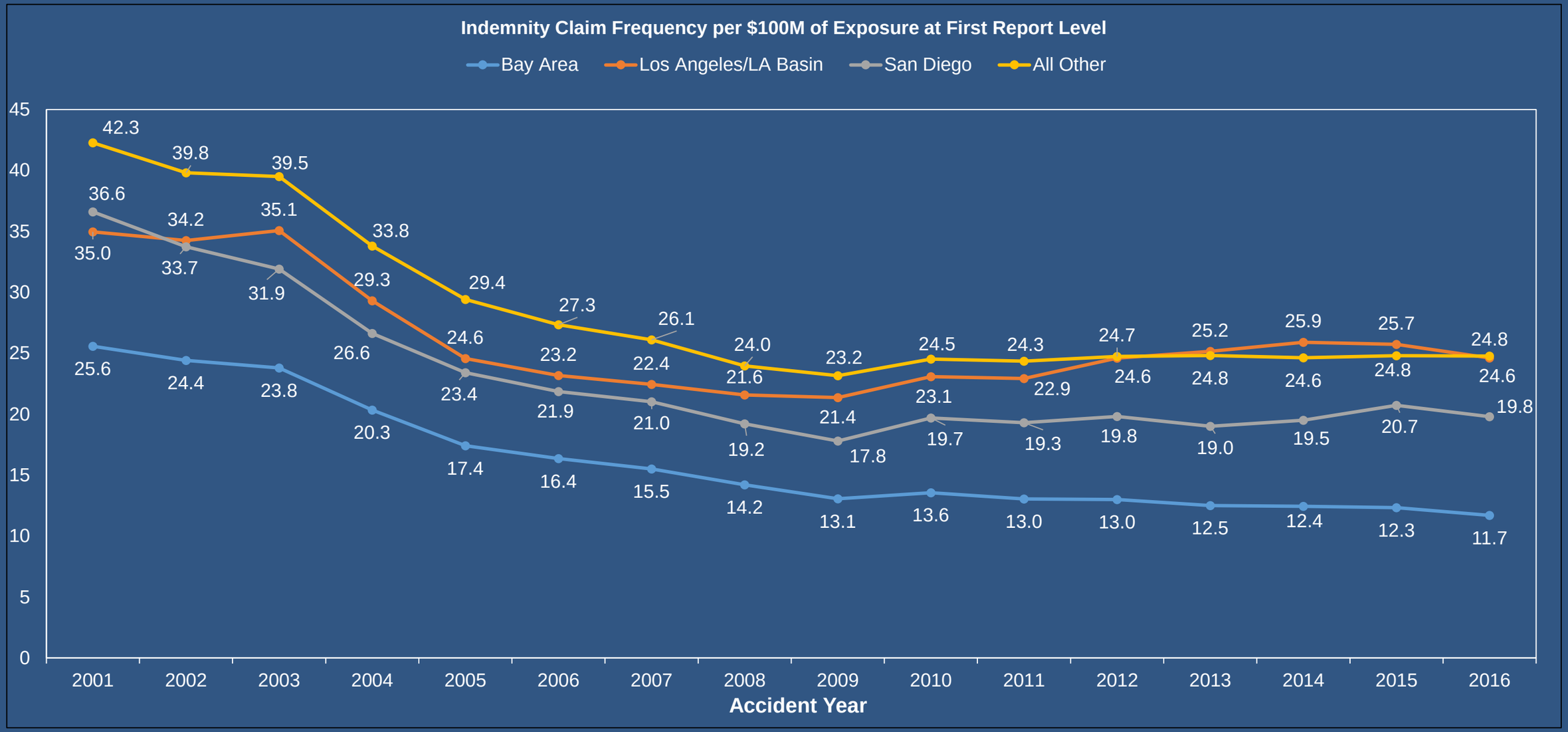
# Indemnity Claim Frequency
# (Exhibit C21; pgs. IV-A-25 and IV-A-26)

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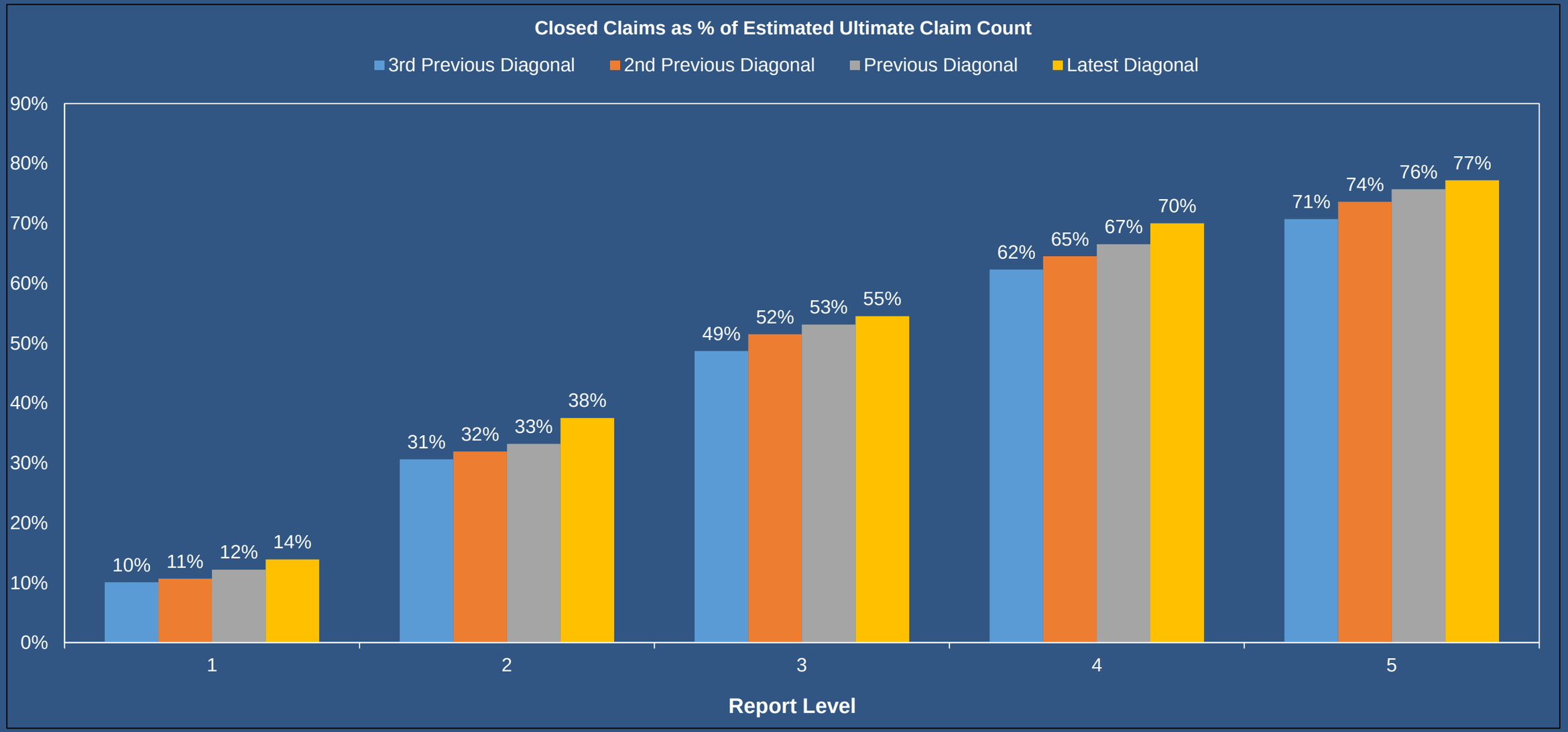
# Percent Closed – Permanent Indemnity (Exhibit C2.2; pg. IV-A-15)

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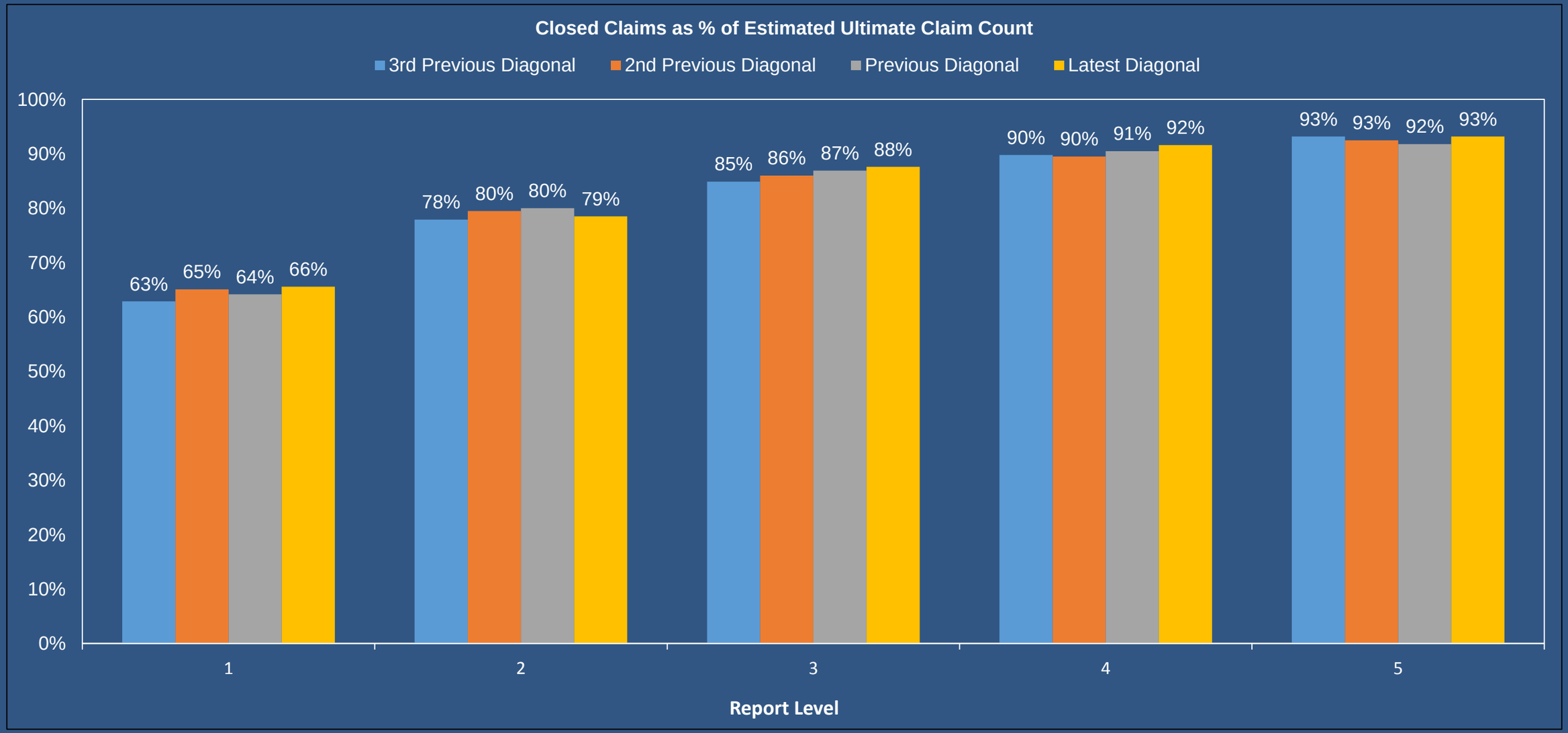
# Percent Closed – Temporary Indemnity (Exhibit C2.2; pg. IV-A-15)

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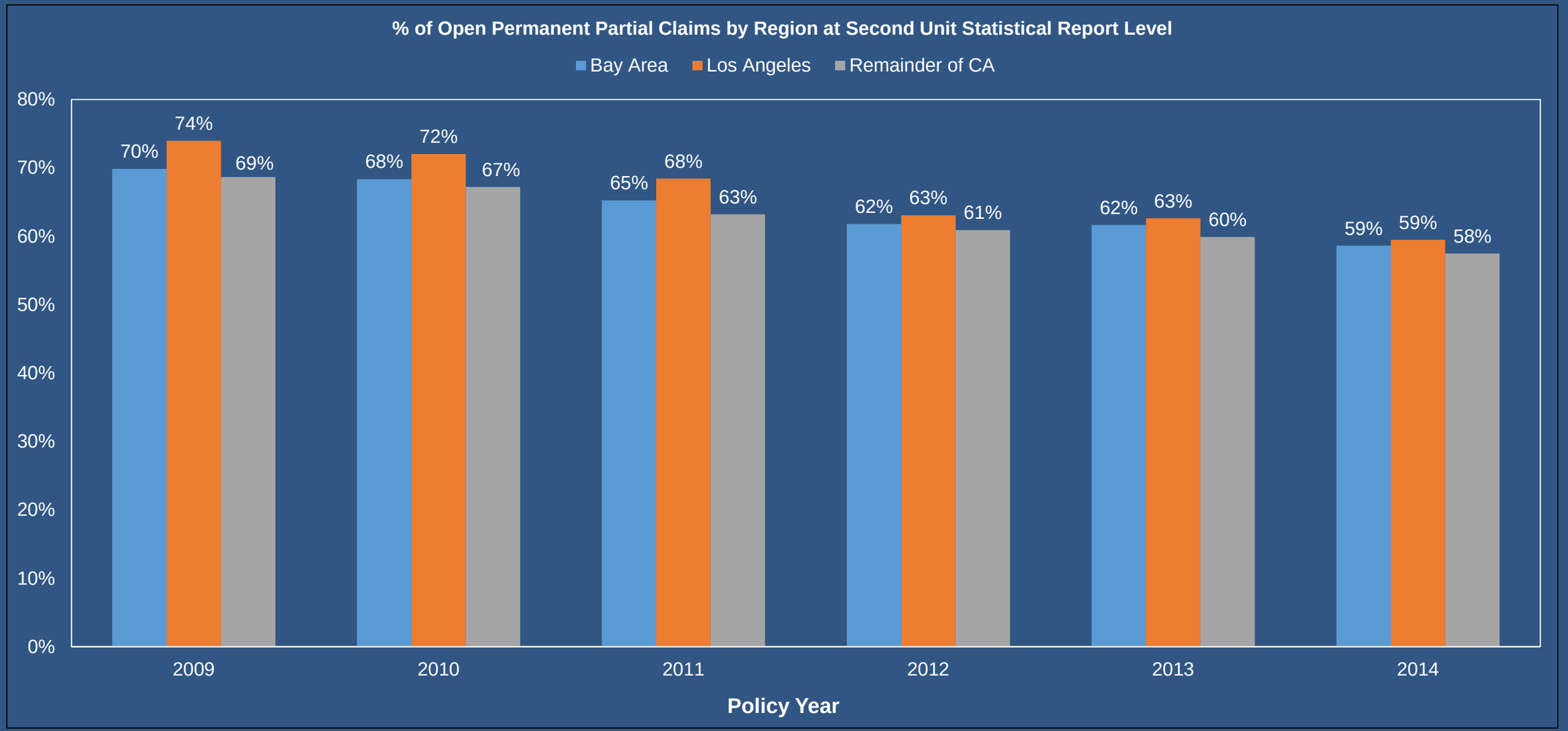
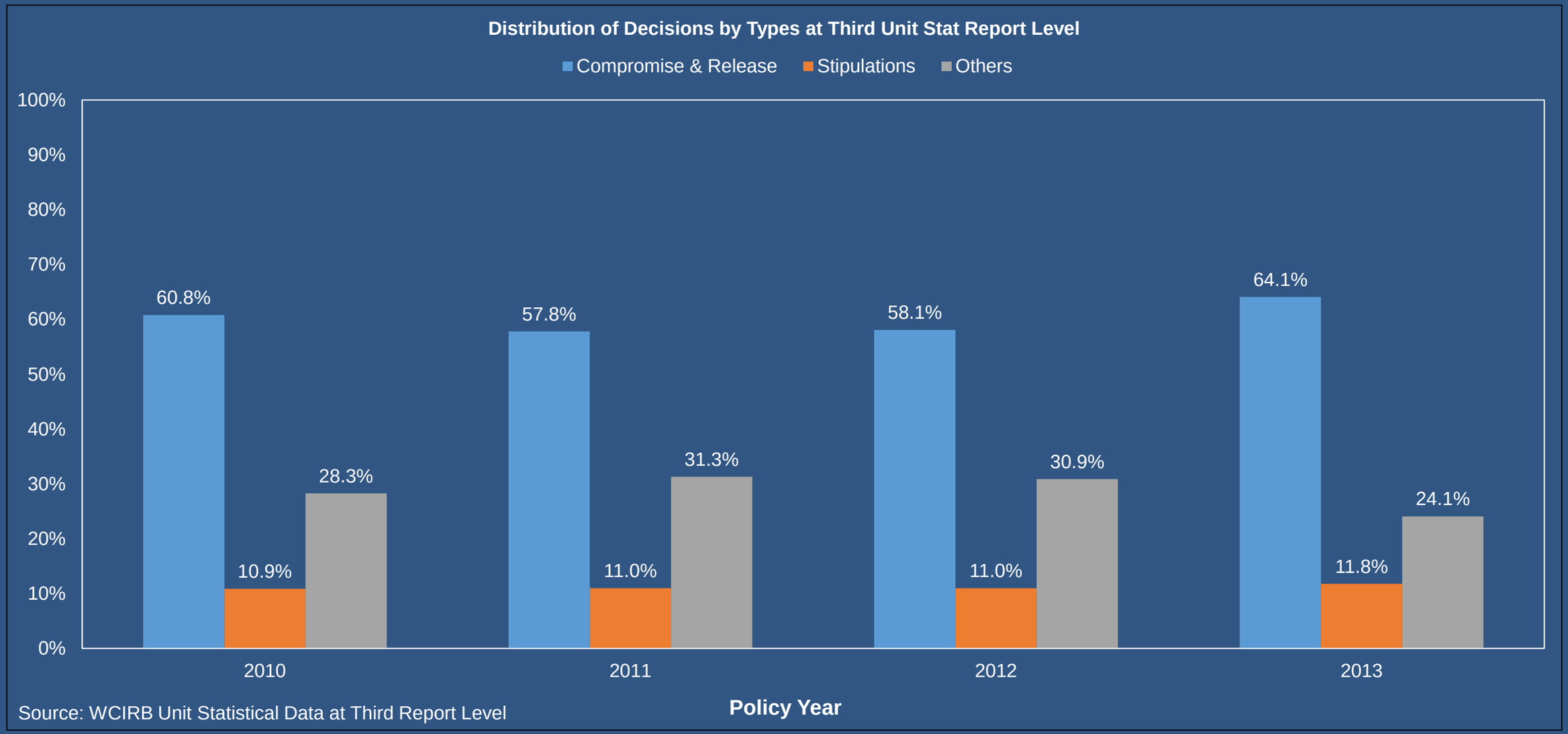
# Percentage of PPD Claims Open by Region (Exhibit M5; pg. IV A-4)



# Settlement Type Distribution (Exhibit M6.1; pg. IV A-5)




Source: WCIRB Unit Statistical Data at Third Report Level

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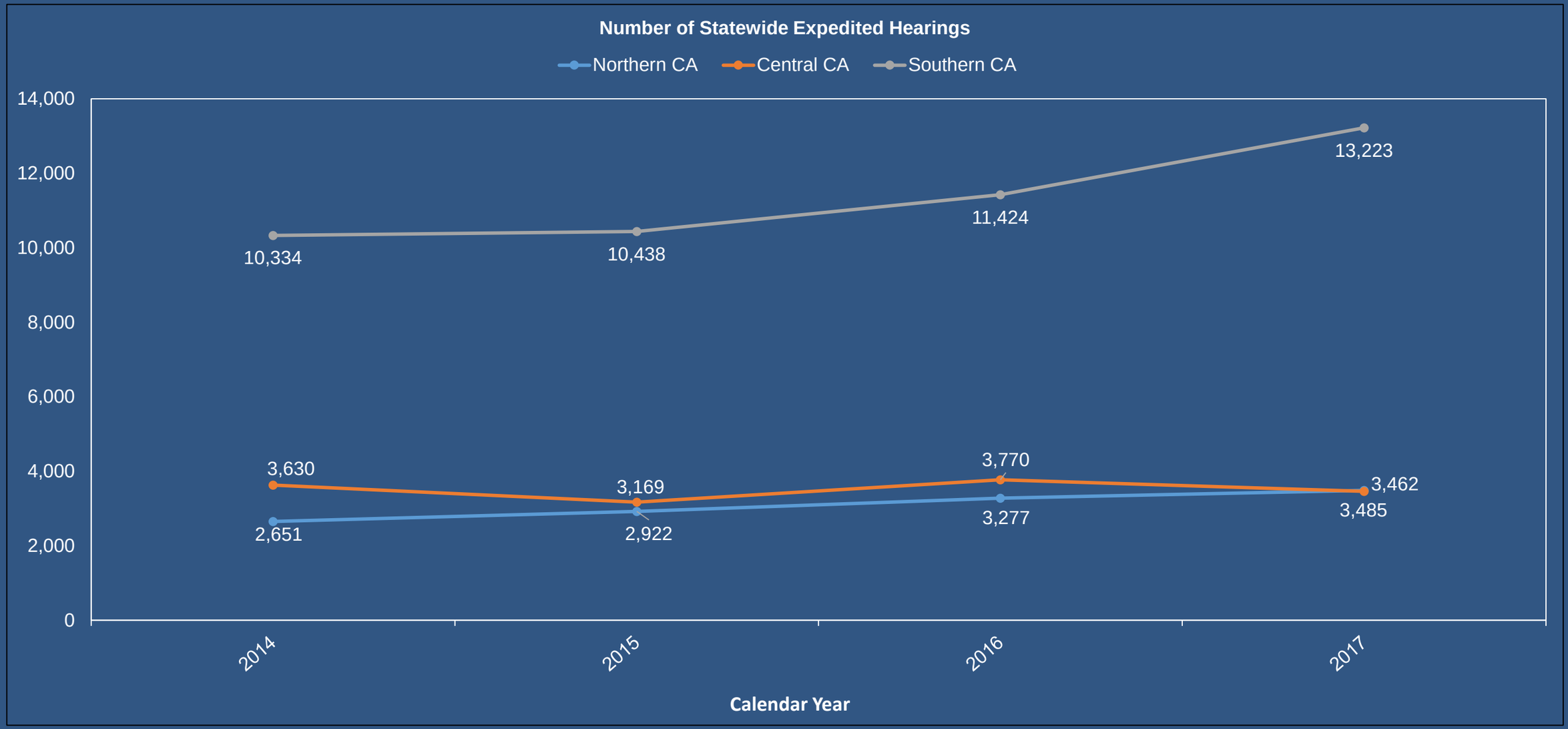
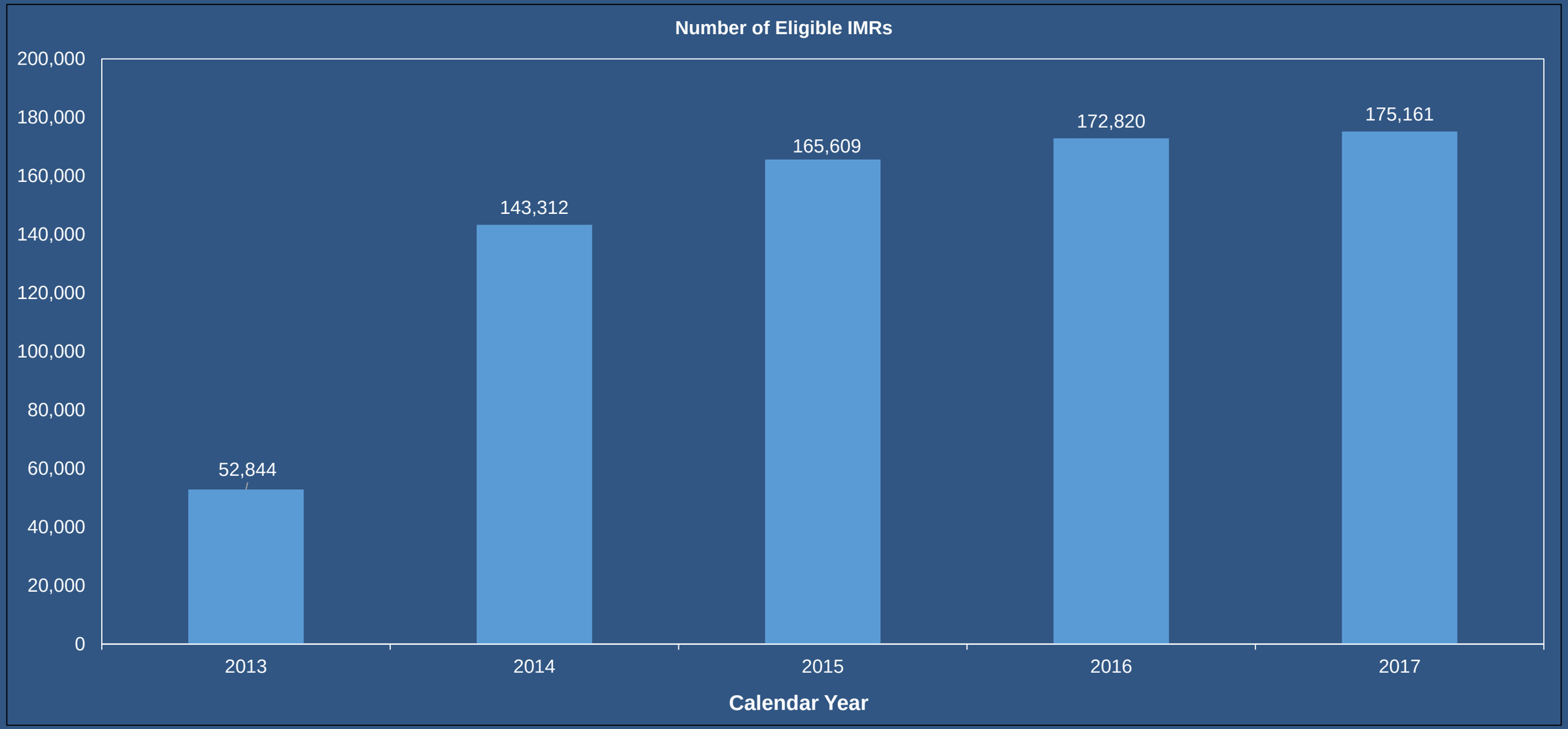
# Expedited Hearings
# (Exhibit M8.2; pg. IV-A-11)



# Independent Medical Review (Exhibit M14; pg. IV-A-14)

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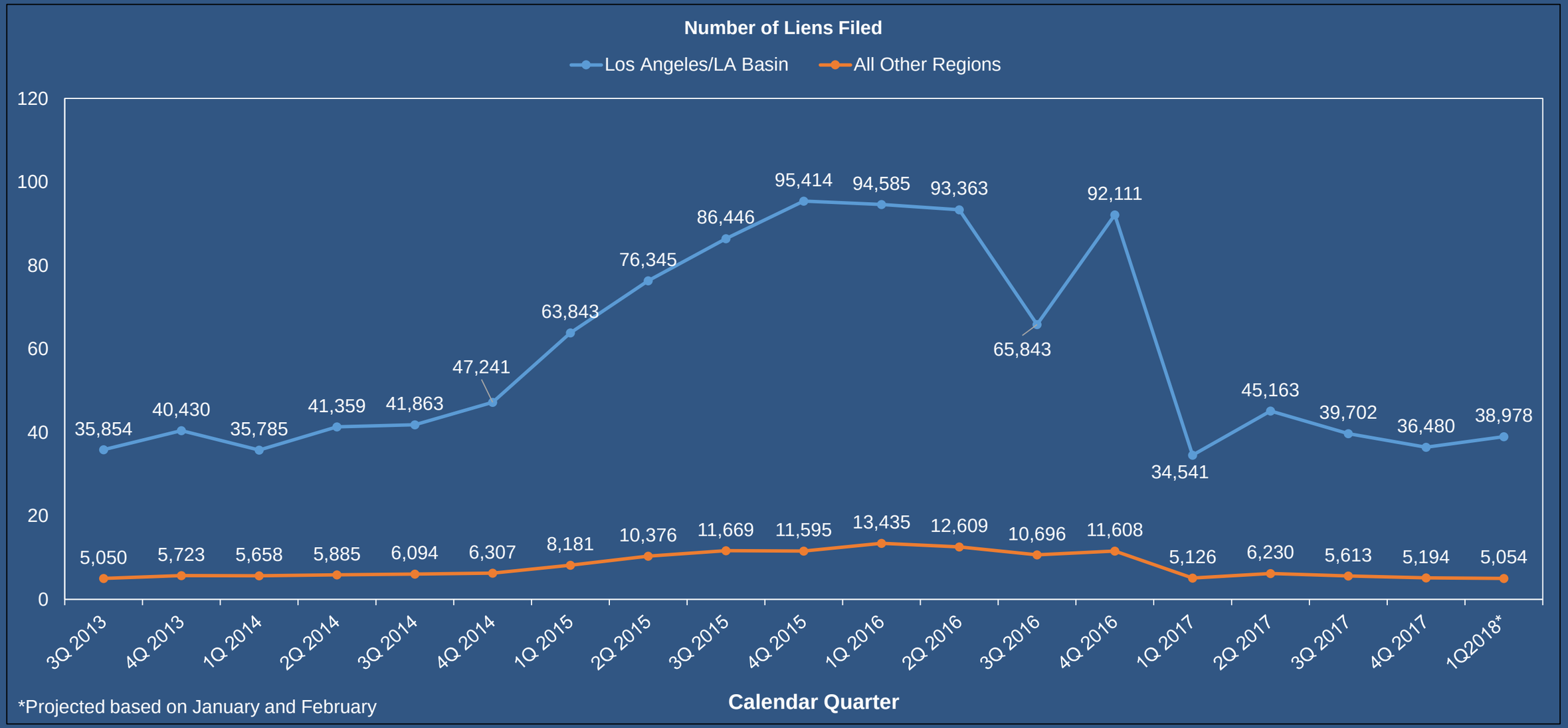
# Filed Lien Counts
# (Exhibit M9.2; pg. IV-A-13, Updated)

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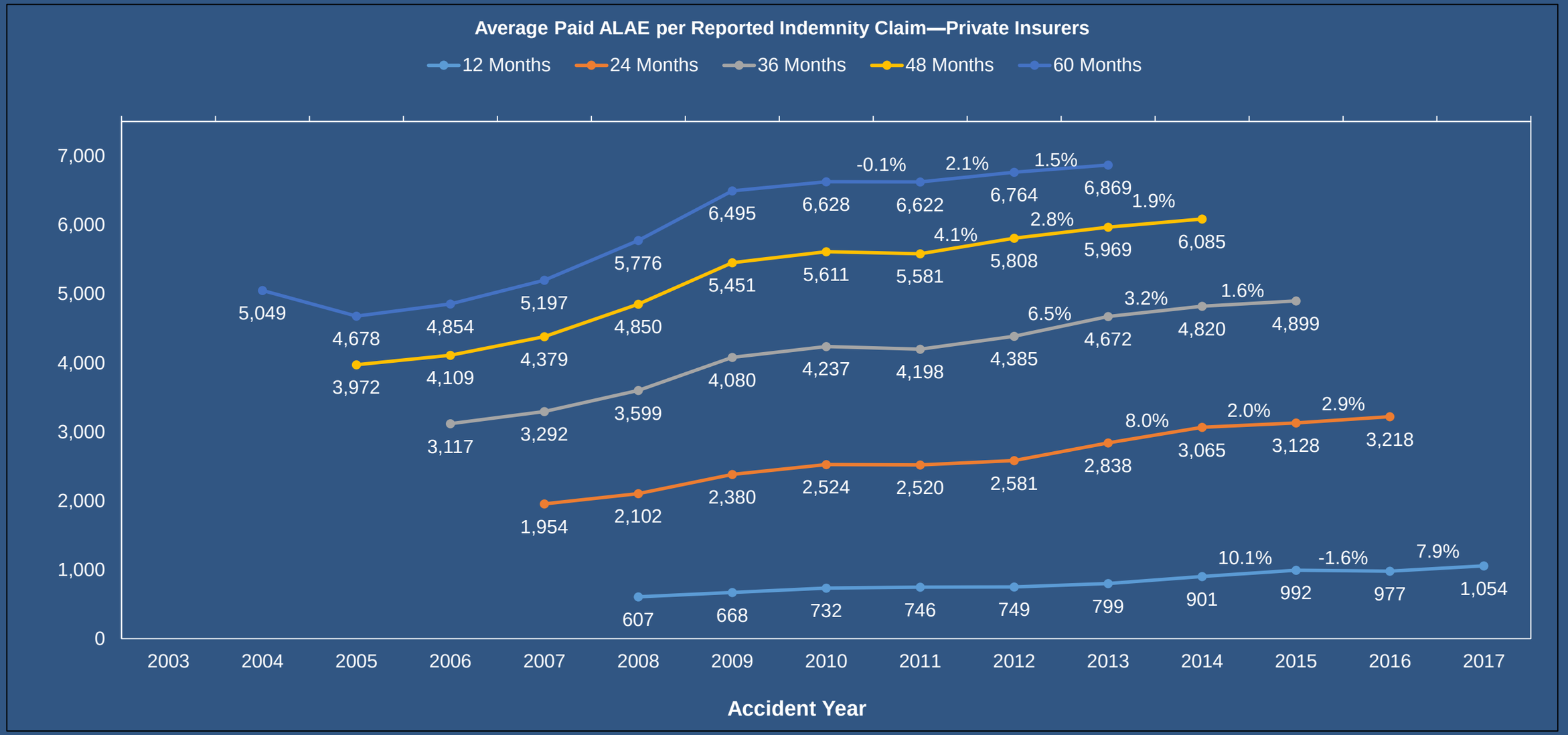
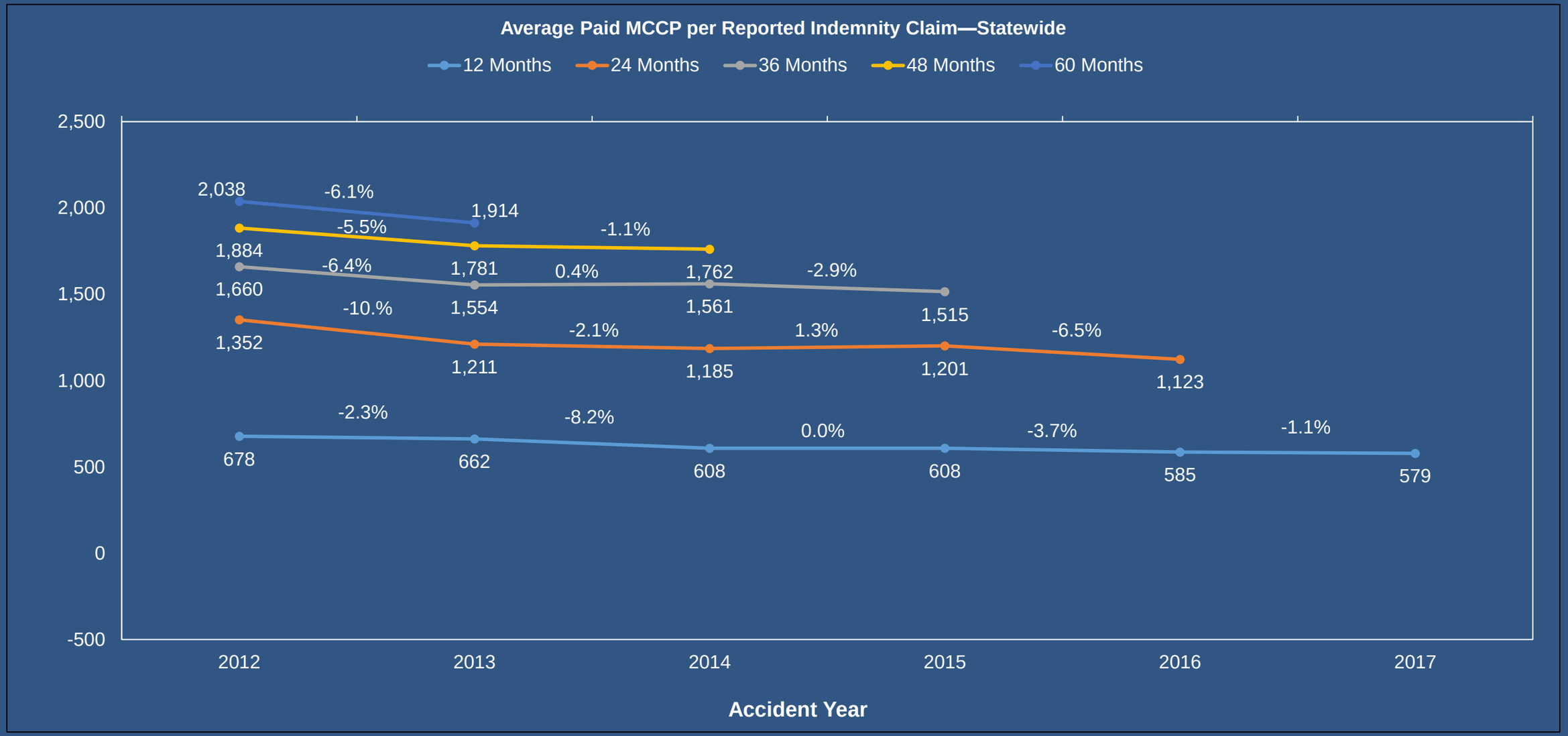
# Paid ALAE per Indemnity Claim—Private Insurers (Exhibit E5; Updated)



# Paid MCCP per Indemnity Claim – Statewide

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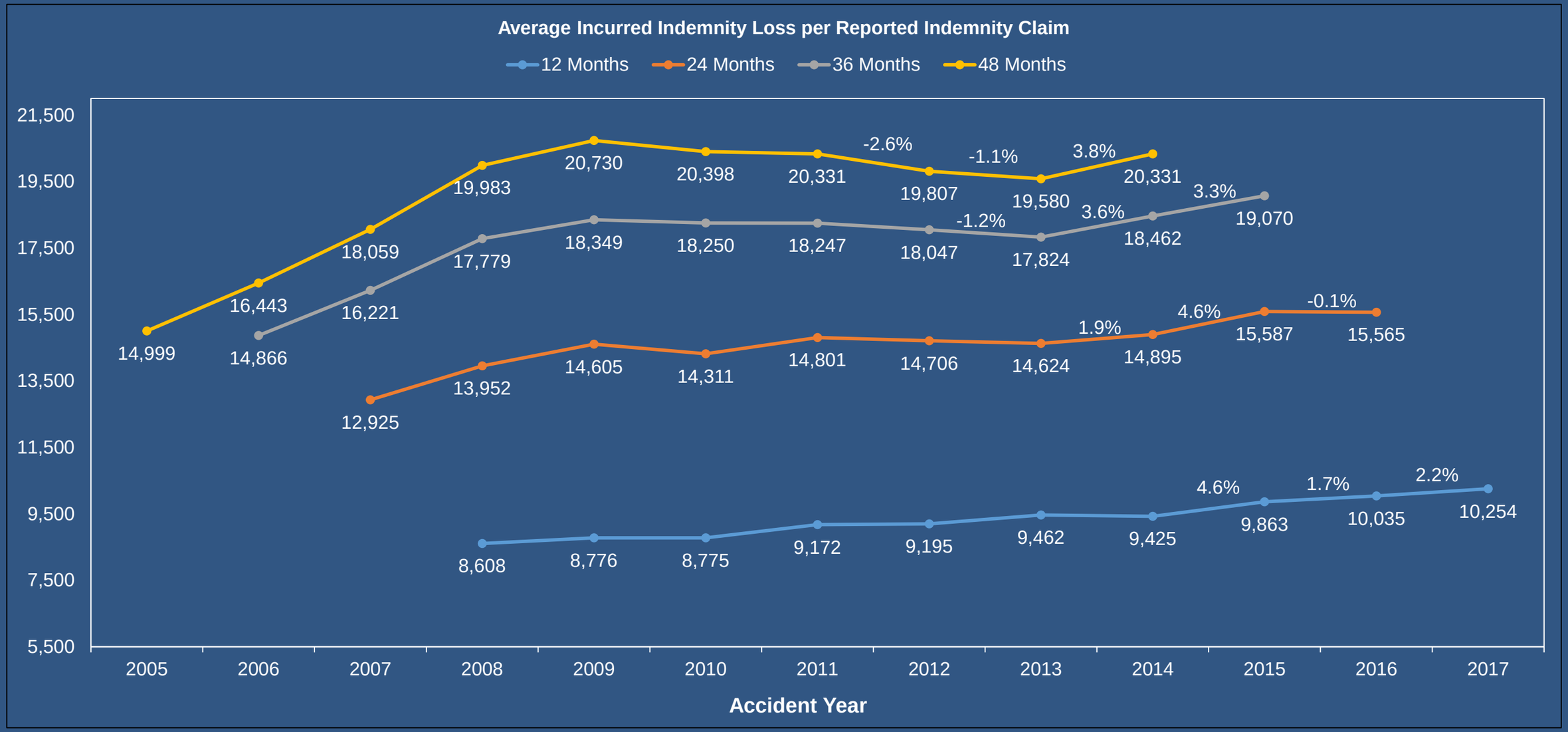
# Severity – Incurred Indemnity per Indemnity Claim (Exhibit S2.1; Updated)

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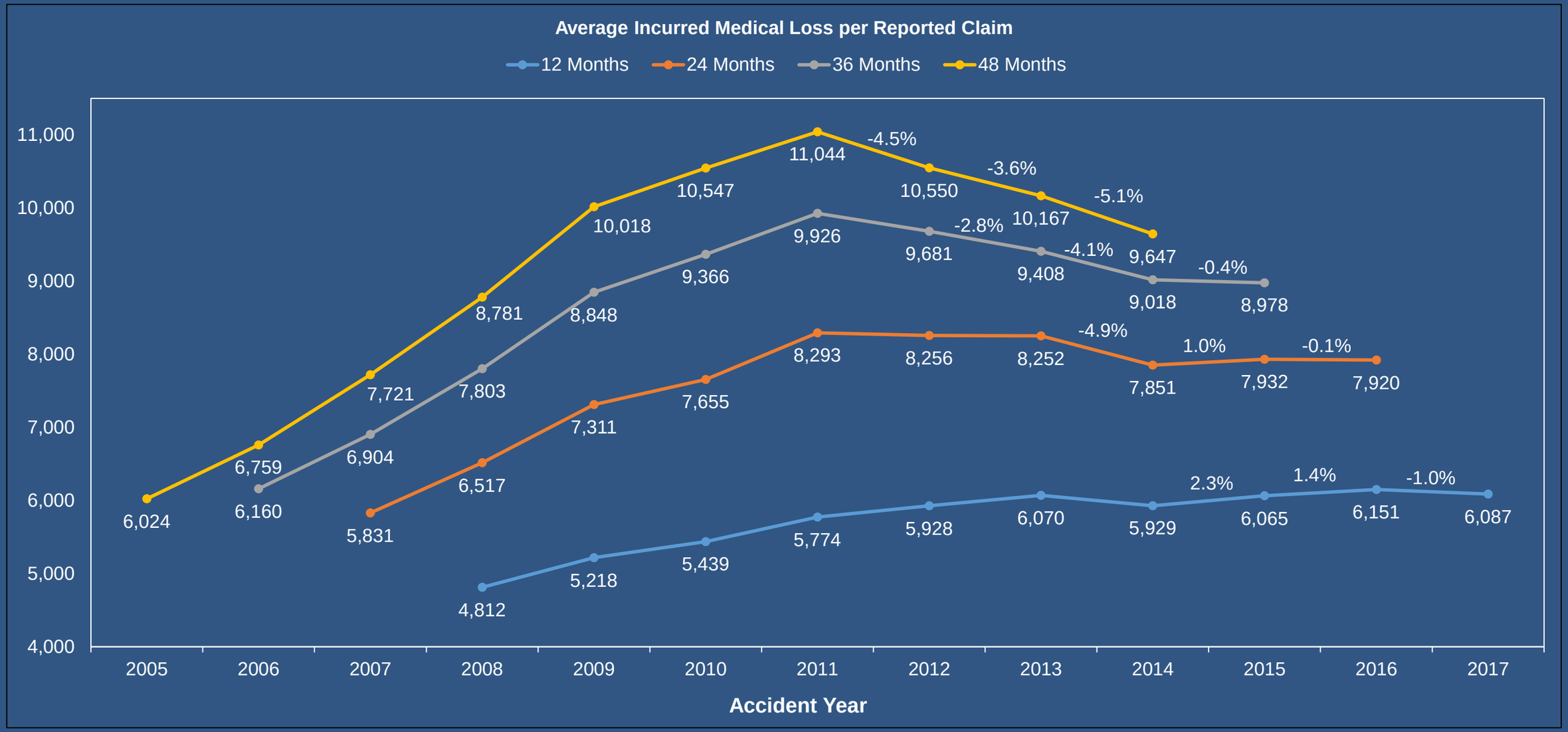
# Severity – Incurred Medical per Claim (Exhibit S2.2; Updated)

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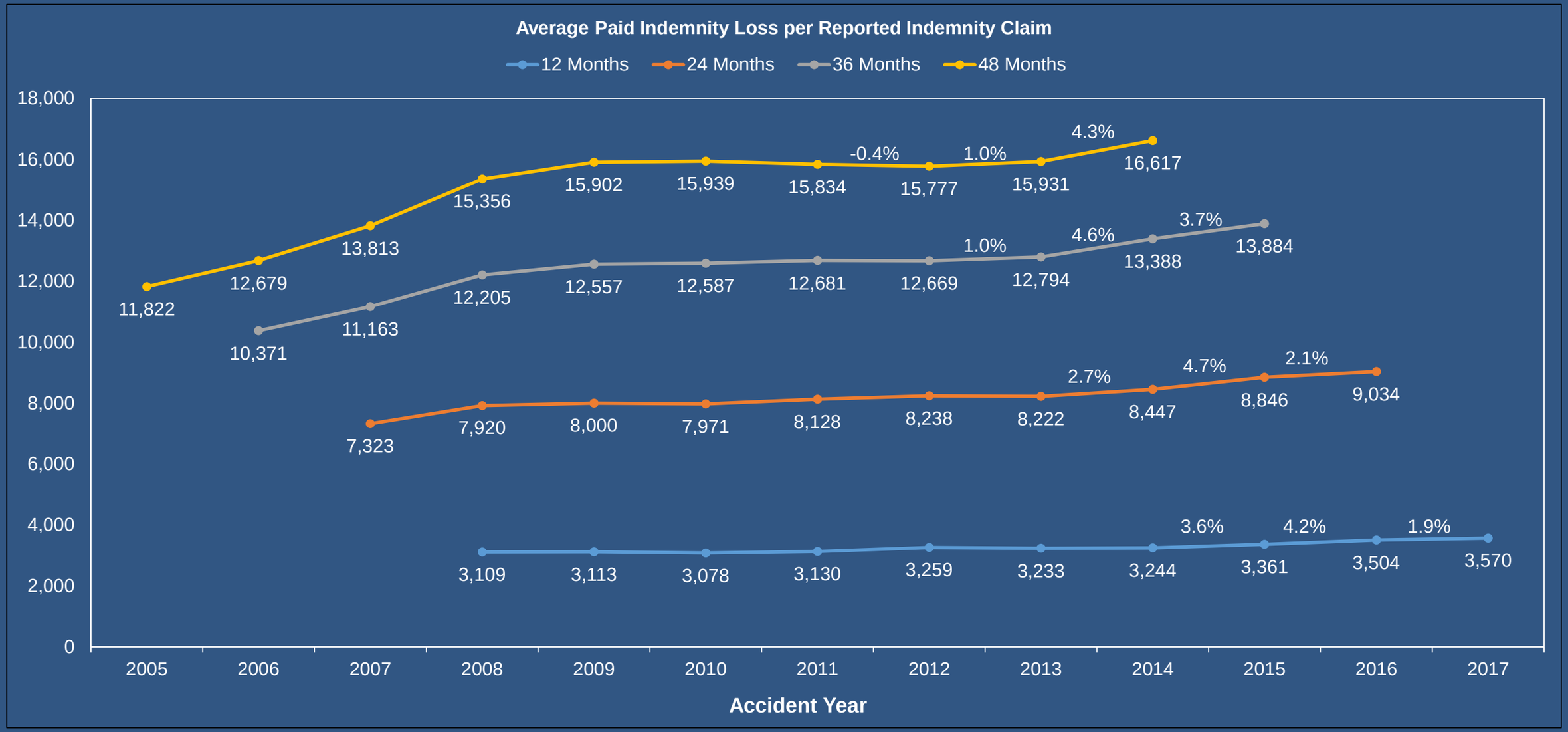
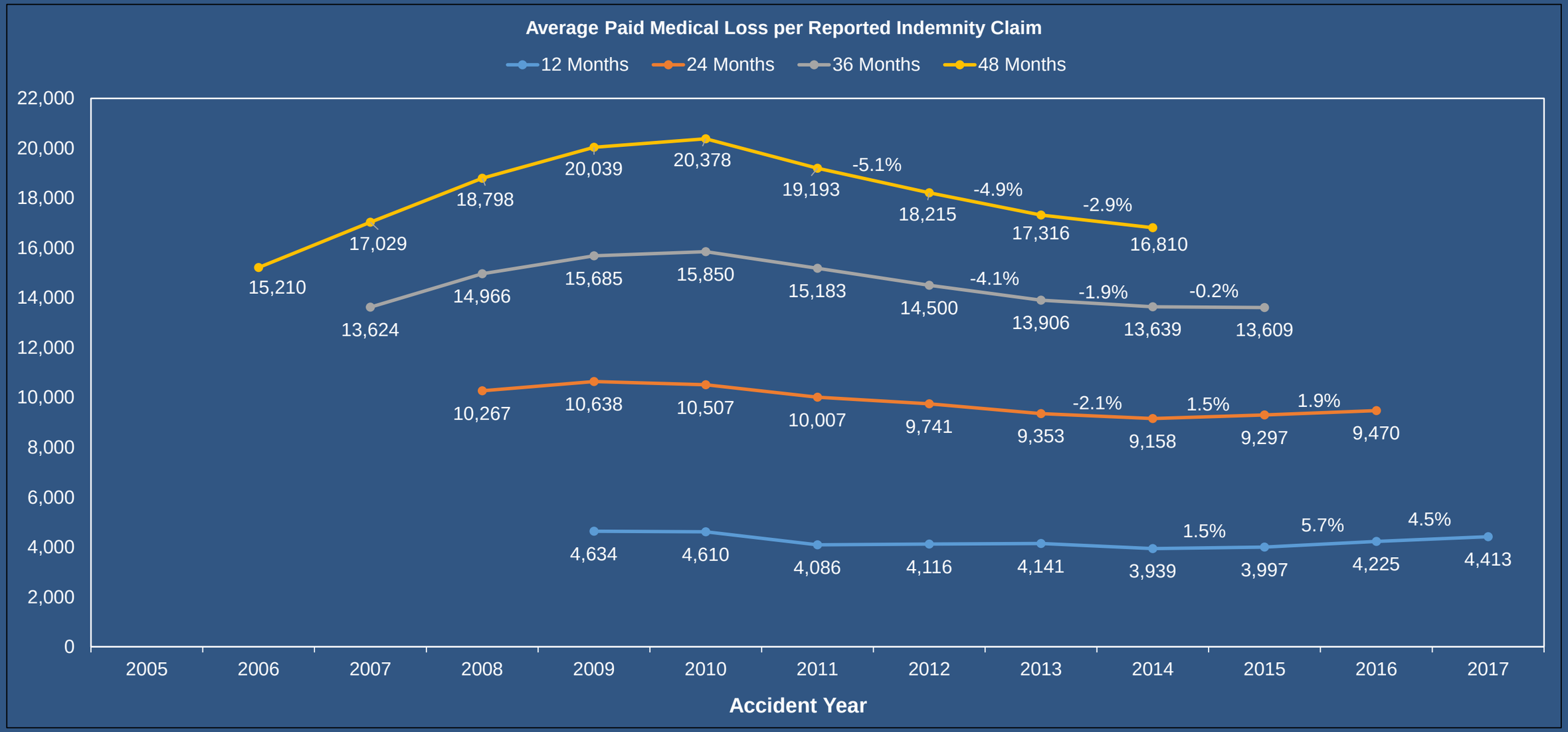
# Severity – Paid Indemnity per Indemnity Claim (Exhibit S4.1; Updated)



# Severity – Paid Medical per Indemnity Claim (Exhibit S4.2; Updated)

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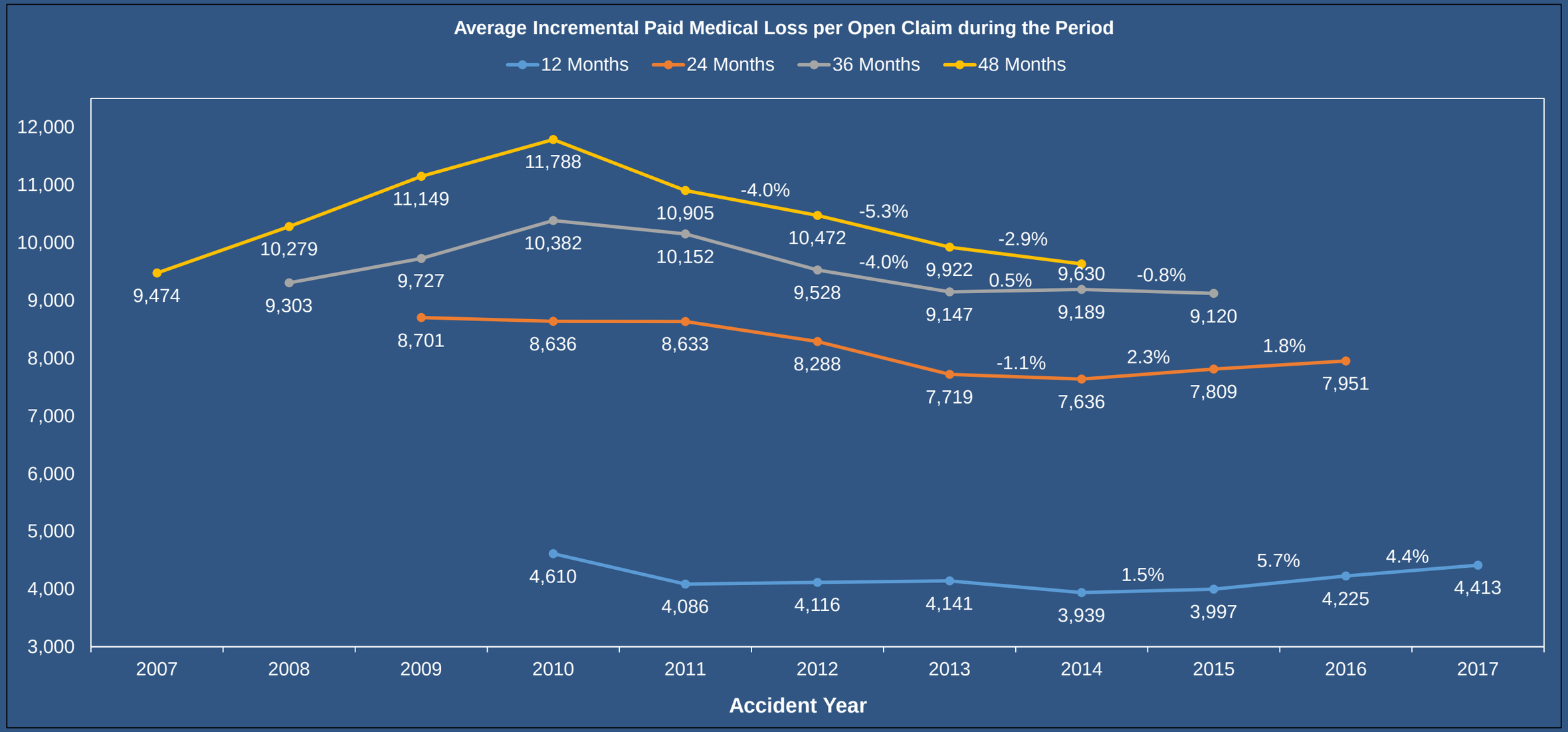
# Severity – Incremental Paid Medical per Open Claim During the Period (Exhibit S6.2; Updated)



# 02

# New Drug Formulary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# Summary of Presentation

- Background and Introduction
- Summary of the 2018 MTUS Drug Formulary
- Estimated Impact on Frictional Costs (UR & IMR)
- Estimated Impact on Pharmaceutical Costs

# Background

- AB 1124 requires the DWC to adopt an evidence-based drug formulary in the California workers' compensation system.

- Primary goals of the Formulary:
  - Regulate prescribing of opioids
  - Reduce frictional costs (from UR and IMR) in the system
  - Ensure medically necessary and timely medications for injured workers

- The new MTUS Drug Formulary became effective January 1.

# The MTUS Drug Formulary

- Structure:
  - ACOEM treatment guidelines – the backbone
  - MTUS Drug list – guides the prospective utilization review (UR) requirements (exempt & non-exempt)
  - Ancillary Formulary Rules (special fill, perioperative fill, physician dispensing, generic/brand selection, etc.)

- Applies to drugs dispensed after 1/1/2018 for all injuries

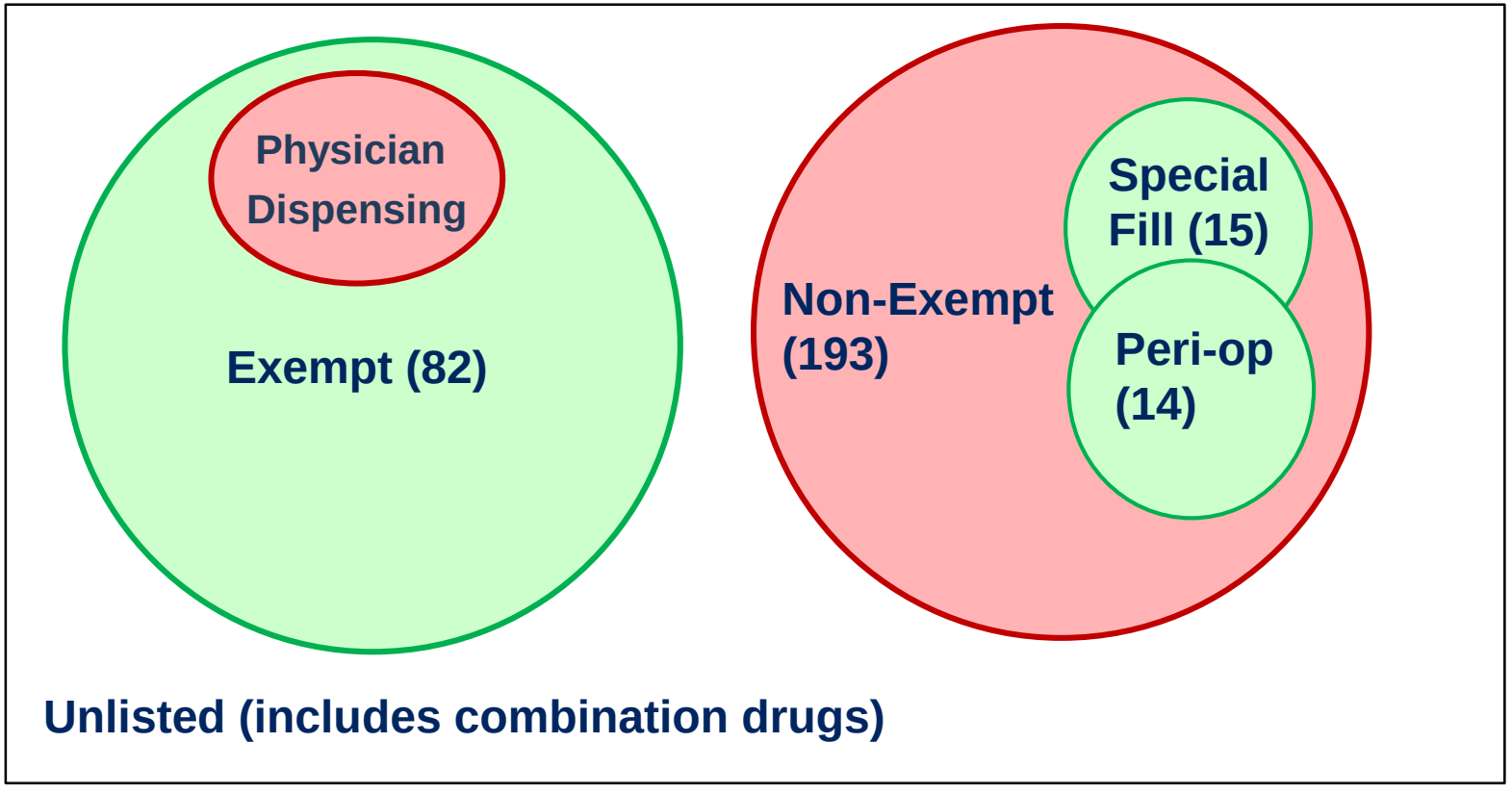
- SB 1160 restrictions on UR in the first 30 days linked to new formulary

Source: Medical Treatment Utilization Schedule – Drug Formulary presentation at the DWC Educational Conference 2018; New UR rules presentation at the same conference.

# Summary of the MTUS Drug Formulary

| | |
|---|---|
| Exempt drugs | No Prospective UR if use is consistent with MTUS |
| Non-Exempt drugs | Subject to UR, including all opioids and compounds |
| Unlisted drugs | Subject to UR, including combination drugs |
| Special fill policy | No Prospective UR on non-exempt drugs prescribed at single initial visit within 7 days of DOI |
| Perioperative fill policy | No Prospective UR on non-exempt drugs for post-surgery care (4 days before and 4 days after) |
| Physician dispensing | Subject to UR except on a one-time basis for “exempt drugs” and special fill & perioperative fill |
| Brand/Generic selection | Prospective authorization for brand-name drugs when a less costly generic equivalent exists |
| Compounds | Prospective authorization before dispensing |
| Off-label use | No Prospective UR if exempt drugs and the use follows MTUS |
| 45-day rule | Request for authorization to address treatment with non-exempt and unlisted drugs for injured workers (DOI <1/1/2018) |

# MTUS drug list (275 drug ingredients)



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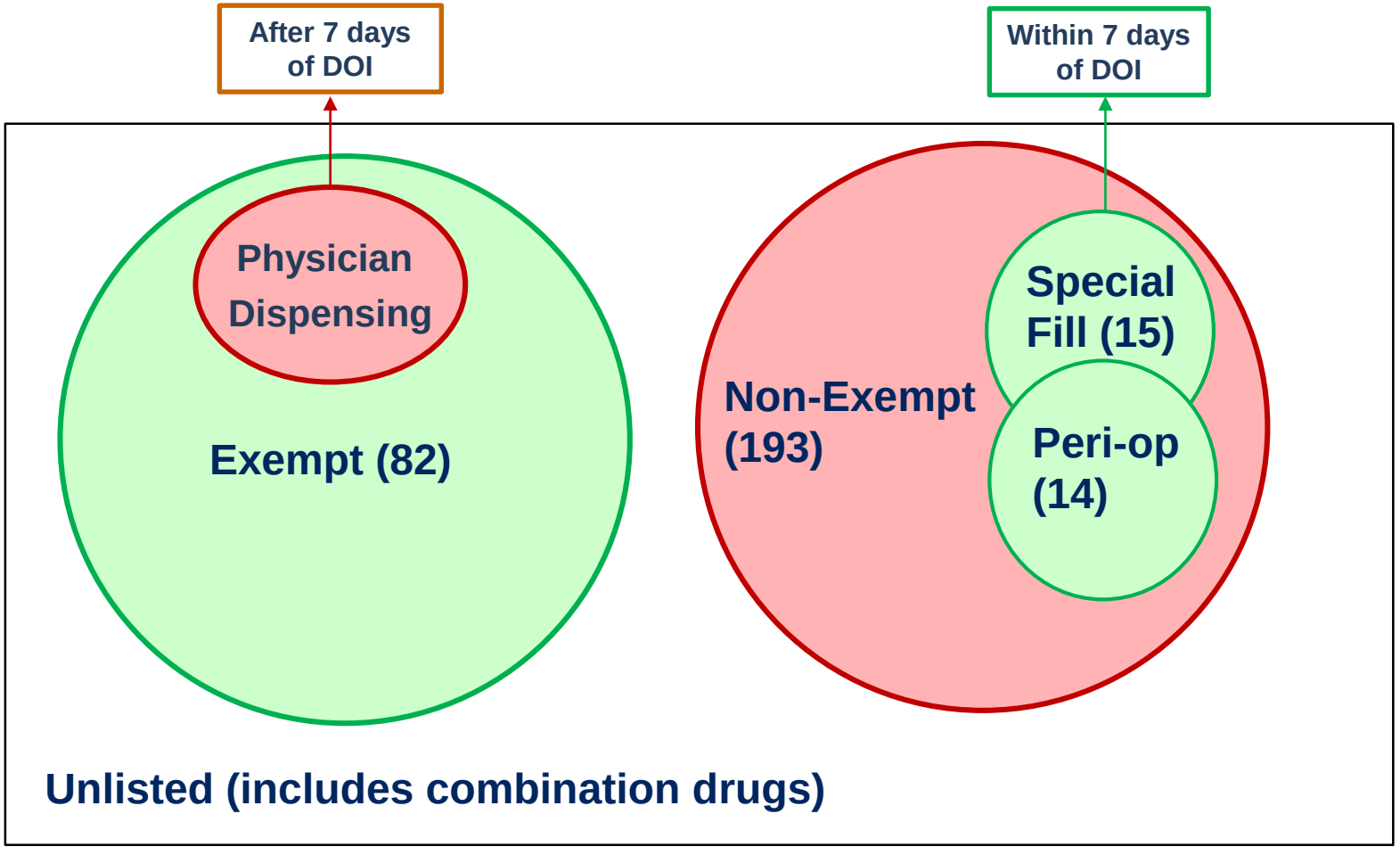

# Top 10 Drug Classes by Exemption Status in the MTUS Drug List

| Drug Class | Exempt | Non-Exempt |
|---|---|---|
| Dermatologicals | 6 | 34 |
| Analgesics - Anti-inflammatory | 18 | 8 |
| Ophthalmic Agents | 3 | 46 |
| Analgesics - Opioid | 0 | 28 |
| Antibiotics | 4 | 19 |
| Antidepressants | 5 | 4 |
| Antiasthmatic and Bronchodilator Agents | 2 | 16 |
| Anticonvulsants | 0 | 12 |
| Psychotherapeutic and Neurological Agents - Misc. (NDMA Receptor Antagonist) | 0 | 8 |
| Musculoskeletal Therapy Agents (Muscle Relaxants) | 0 | 9 |

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# WCIRB's Analysis of Cost Impact of New Formulary

- Impact on Frictional Costs (UR & IMR)

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- Potential Impact on Pharmaceutical Costs:
  - Pharmaceutical Costs Dropping Sharply (10.3% of Total Medical Paid in 2016, Medical Cost 43% of Loss and LAE)

# WCIRB's Analysis of Cost Impact of New Formulary

- Impact on Frictional Costs (UR & IMR)

- Potential Impact on Pharmaceutical Costs:
  - Pharmaceutical Costs Dropping Sharply (10.3% of Total Medical Paid in 2016, Medical Cost 43% of Loss and LAE)
  - Areas Likely Impacted:
    - Opioids
    - Compounded drugs
    - Physician-dispensed drugs
    - Brand name drugs
  - Quantifying the Current Cost of these Components
  - Estimating the Impact of the Formulary on these Components

# Approach for Estimating Impact on Frictional Costs

- Analyzed the MDC transactional data with:
  - Service dates: July 1, 2016 to June 30, 2017 as of Jan 7, 2018

- Used WCIRB's MDC data to evaluate the potential cost saving:

# Approach for Estimating Impact on Frictional Costs

- Analyzed the MDC transactional data with:
  - Service dates: July 1, 2016 to June 30, 2017 as of Jan 7, 2018

- Used WCIRB's MDC data to evaluate the potential cost saving:

**Mapping**

- Mapped the MTUS drug ingredients to NDCs in MDC transactional data

→ **Using GPI info (e.g., *Drug Class, Drug Name and Drug Name Ext*) for each NDC**

**Calculating Drug Spending**

- Identified and calculated costs of:
  - Exempt drugs: UR and not UR
  - Non-exempt drugs: UR and not UR
  - Unlisted: UR

→
- **Physician dispensing**
- **Special fill**
- **Perioperative fill**

↓

**Identifying claims with one or more major surgeries**

# Approach for Estimating Impact on Frictional Costs

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  - Unlisted: UR

→
- **Physician dispensing**
- **Special fill**
- **Perioperative fill**

↓

**Identifying claims with one or more major surgeries**

**Estimating Cost Reduction**

- Calculated share of pharmaceutical UR and IMR costs to Total Loss and LAE (under Formulary)

# Overview of the WCIRB MDC Pharmaceutical Data - Service dates 07/01/2016 to 06/30/2017

- 13,872 NDCs and about 1.4 million drug transactions matched to MTUS listed drug ingredients

# Overview of the WCIRB MDC Pharmaceutical Data - Service dates 07/01/2016 to 06/30/2017

- 13,872 NDCs and about 1.4 million drug transactions matched to MTUS listed drug ingredients

| Rank | Drug Group | % of Total Drug Payments | % Exempt | % Non-Exempt | % of Unlisted |
|---|---|---|---|---|---|
| 1 | Analgesics – opioid | 18.7% | 0.0% | 99.1% | 0.9% |
| 2 | Dermatologicals | 15.6% | 20.1% | 31.4% | 48.4% |
| 3 | Analgesics - anti-inflammatory | 15.0% | 89.6% | 5.5% | 4.8% |
| 4 | Anticonvulsants | 10.4% | 0.0% | 28.6% | 71.4% |
| 5 | Musculoskeletal therapy agents | 6.8% | 0.0% | 77.8% | 22.2% |
| 6 | Ulcer drugs | 5.7% | 0.0% | 0.0% | 100.0% |
| 7 | Antidepressants | 3.8% | 0.0% | 90.2% | 9.8% |
| 8 | Antipsychotics/anti-manic agents | 1.5% | 0.0% | 0.0% | 100.0% |
| 9 | Cardiovascular agents - misc. | 1.5% | 0.0% | 0.0% | 100.0% |
| 10 | Anti-asthmatic and bronchodilator agents | 1.4% | 10.0% | 43.2% | 46.8% |

# Share of Paid Pharmaceutical Transactions by Category and Service Date Relative to Date of Injury

## Service dates July 1, 2016 to June 30, 2017 as of Jan 7, 2018

| Drug formulary group | Within 7 days of DOI | | After 7 days of DOI | | Total | |
|---|---|---|---|---|---|---|
| | Subject to UR | Not Subject to UR | Subject to UR | Not Subject to UR | Subject to UR | Not Subject to UR |
| **Exempt** | 0.0% | 8.2% | 7.0% | 15.6% | 7.0% | 23.8% |
| **Non-Exempt** | 1.8% | **2.5%** | 41.4% | **0.9%** | 43.2% | 3.4% |
| **Unlisted** | 2.8% | 0.0% | 19.8% | 0.0% | 22.7% | 0.0% |
| **Total** | 4.6% | 10.7% | 68.2% | 16.5% | **72.8%** | **27.2%** |

# Share of Paid Pharmaceuticals by Category and Service Date Relative to Date of Injury

## Service dates July 1, 2016 to June 30, 2017 as of Jan 7, 2018

| Drug formulary group | Within 7 days of DOI | | After 7 days of DOI | | Total | |
|---|---|---|---|---|---|---|
| | Subject to UR | Not Subject to UR | Subject to UR | Not Subject to UR | Subject to UR | Not Subject to UR |
| **Exempt** | 0.0% | 2.7% | 5.5% | 9.0% | 5.5% | 11.7% |
| **Non-Exempt** | 0.5% | **0.5%** | 37.9% | **0.4%** | 38.4% | 0.9% |
| **Unlisted** | 1.7% | 0.0% | 41.8% | 0.0% | 43.5% | 0.0% |
| **Total** | 2.2% | 3.2% | 85.2% | 9.4% | **87.4%** | **12.6%** |

# Potential Impact of the MTUS Drug Formulary Estimated Reduction in UR costs

| | | |
|---|---|---|
| (1) | Medical Cost Containment Program (MCCP) Costs as a % of the Total Loss and LAE (WCIRB 1/1/18 Filing) | 3.2% |
| (2) | UR costs as a % of Total MCCP Costs (CWCI) | 53% |
| (3) | Pharmaceutical UR as a % of all UR (CWCI) | 43% |
| (4) | % of Pharmaceutical UR on Exempt Drugs (CWCI) | 22.5% |
| (5) | % Exempt Drugs Co-prescribed with Non-exempt Drugs (CWCI preliminary estimate) | 60% |
| (6) | % of Pharmaceutical UR on Non-Exempt drugs via special fill policy (CWCI) | 1.6% |
| (7) | % of Pharmaceutical UR on Non-Exempt drugs via perioperative fill policy (CWCI) | 1% |
| **(8)** | **Estimated Reduction in UR costs as % of Loss & LAE (1) X (2) X (3) X [(4)X[1-(5)] + (6) + (7)]** | **0.1%** |

# Impact of the MTUS Drug Formulary Estimated Reduction in IMR costs

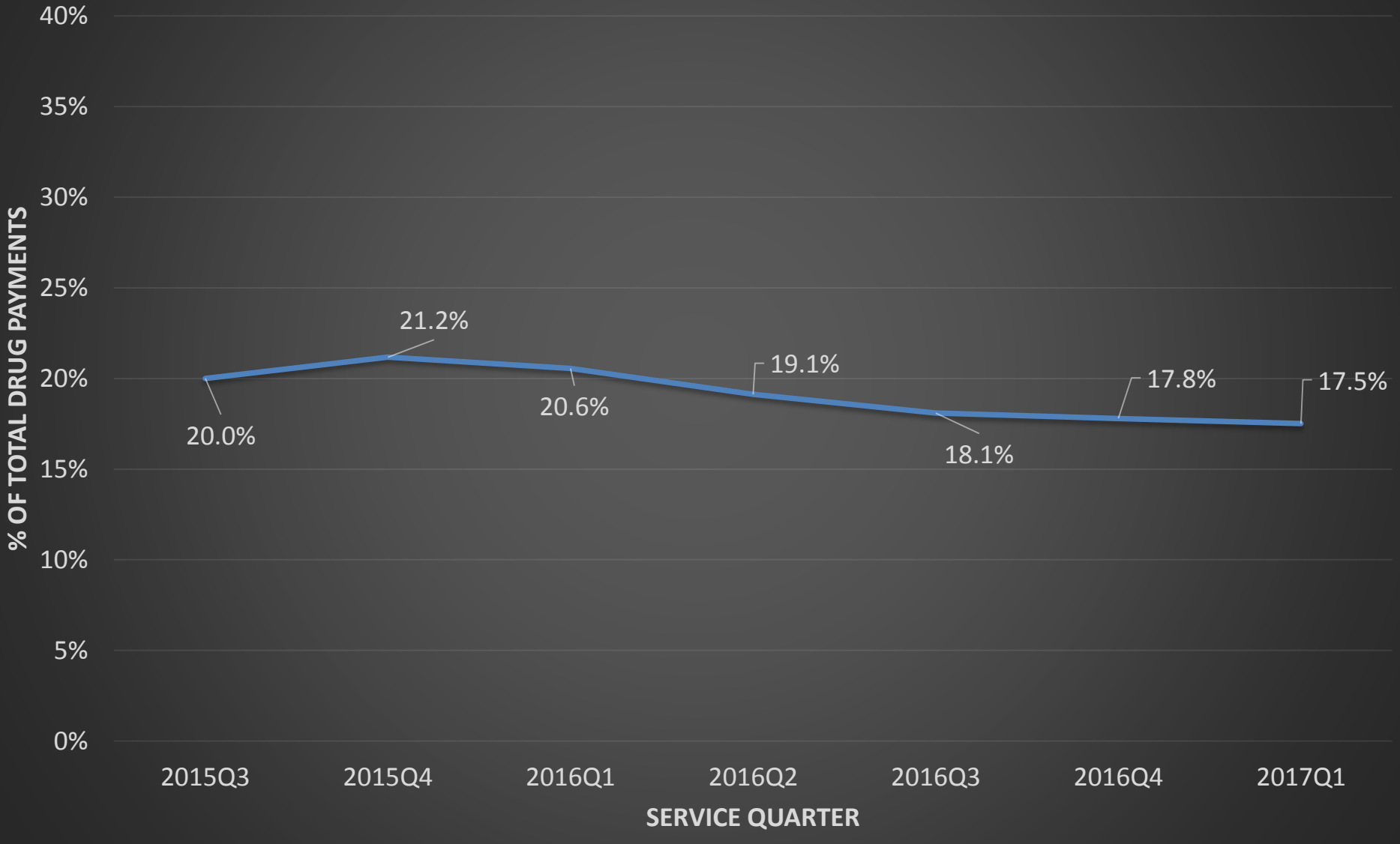
| | | |
|---|---|---|
| (1) | IMR costs as % of the Total Loss and LAE (WCIRB SB 863 Cost Monitoring) | 0.3% |
| (2) | Pharmaceutical IMR as a % of all IMR (CWCI) | 48% |
| (3) | % of Pharmaceutical IMR on Exempt drugs (CWCI) | 21.4% |
| (4) | % Exempt Drugs Co-prescribed with Non-exempt Drugs (CWCI preliminary estimate) | 60% |
| (5) | **Estimated Reduction in IMR costs as % of Loss & LAE (1) X (2) X (3)X [1-(4)]** | **0.01%** |

# Approach for Estimating Formulary Impact on Pharmaceutical Costs

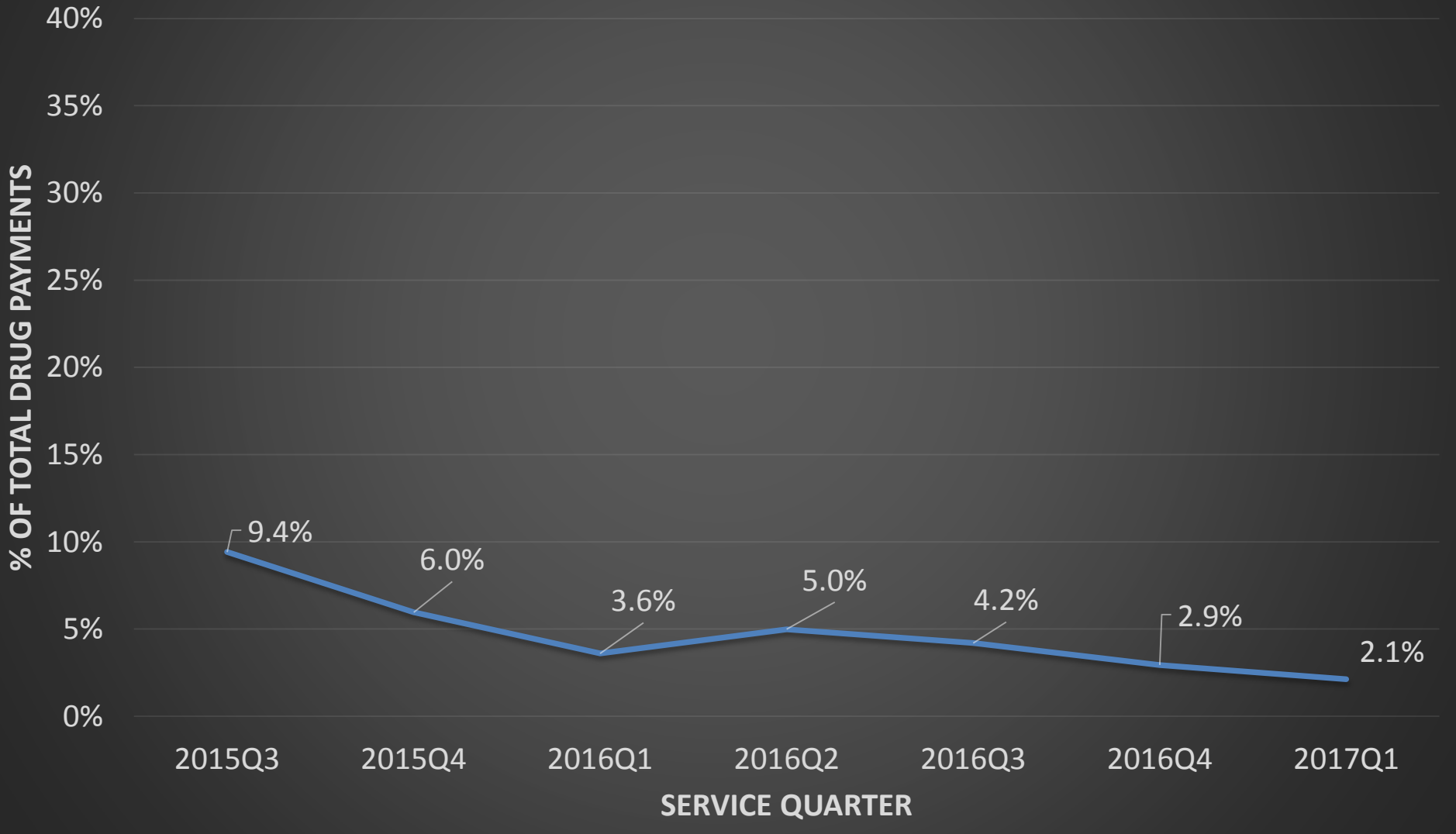
- Analyzed the MDC Transactional Data
  - Service dates: 3Q2015 through 2Q2017*
  - California zip codes (~77%)
- Validated Place of Service
  - Identified and validated the site of service with reported Place of Service codes to analyze costs of physician dispensing
- Estimated Cost of Various Drug Components Likely to be Impacted
  - Opioids (TG65)
  - Compound Drugs Excluding Opioids (TG96, TG98 or TG90 with any other drugs on the same bill)
  - Brand-name Drugs when a Generic Equivalent is Available
  - Physician-Dispensed Drugs
    - Exempt drugs > 7 days of DOI
    - Non-exempt drugs (excluding opioids, compounds, special fill and perioperative fill)

***** Drug prescriptions in the transaction quarter subsequent to the service quarter were counted.

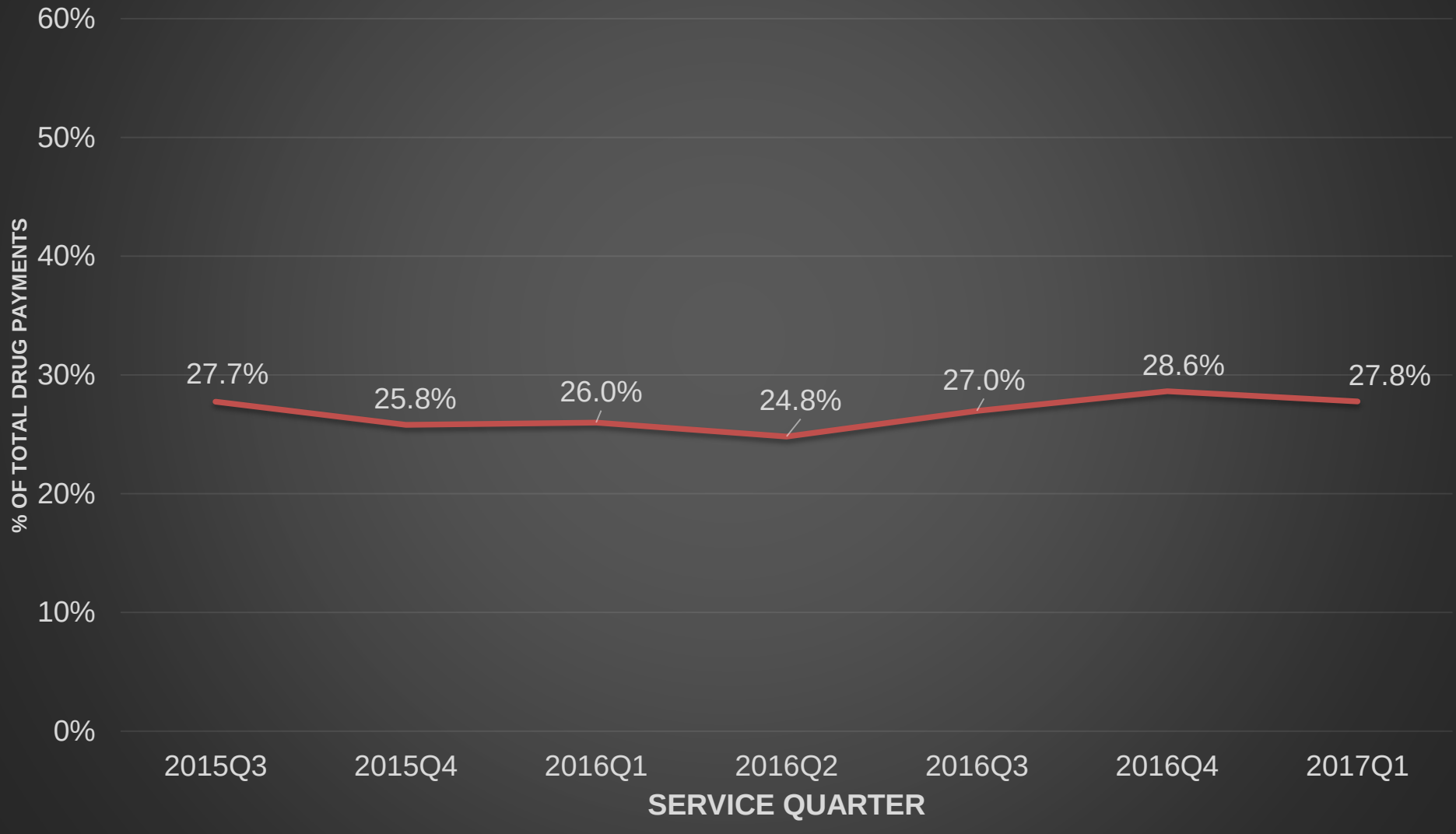
# Share of Opioid Payments to Total Drug Payments
# 3rd Quarter 2015 through 1st Quarter 2017*



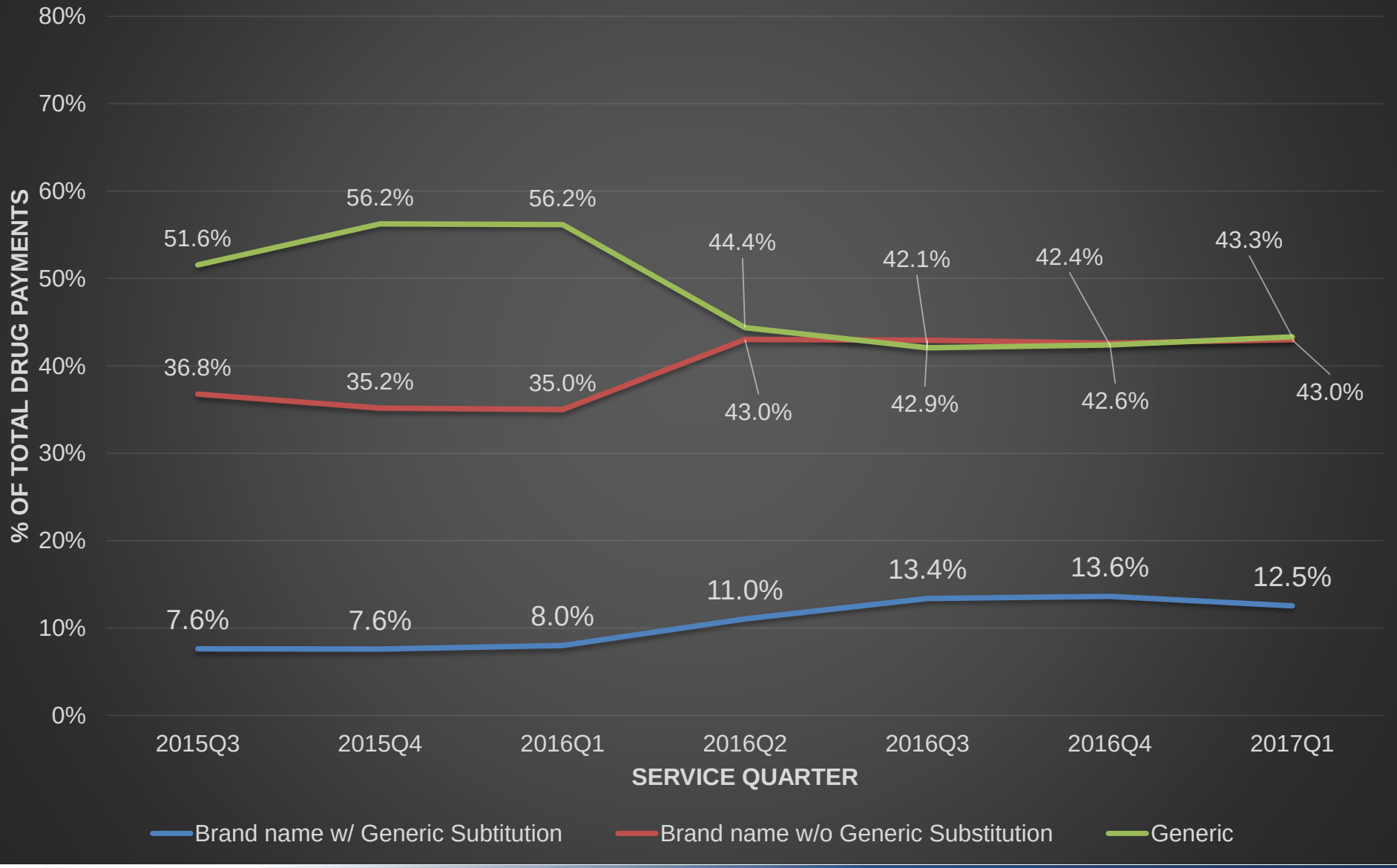
# Share of Compounds Payments to Total Drug Payments (Excluding opioids)



# Physician Share of Drugs Subject to UR to Total Drug Payments (Excluding opioids & compounds)



# Share of Generic vs. Brand Name Drug Payments to Total Drug Payments



# Summary of Share to Total Drug Payments by Prescribing Category in 1st Quarter 2017

| Prescribing Category | Share of Total Drug Payments |
|---|---|
| Opioids | 17.5% |
| Compounds | 2.1% |
| Physician-dispensed drugs subject to UR | 27.8% |
| Brand drugs with generic alternative | 12.5% |

# RAND Study on Economic Impact of the Formulary

- The DIR contracted with RAND to estimate the likely impact of the proposed Drug Formulary
- RAND analyzed the prescription drug utilization data from the WCIS, with some adjustments
- Adjustments were informed by a review of the literature on the effects of formularies on prescription drug utilization, as well as by RAND's expert opinion
- Sensitivity analyses to validate assumptions

# RAND Study Assumptions on Formulary Impact

| RAND's Module | RAND's Assumptions | WCIRB's Estimate of Current Share of Total Drug Costs |
|---|---|---|
| Physician dispensing of drugs subject to UR | • **20%** of prescriptions not written<br>• **40%** of prescriptions transitioned to pharmacy dispensing | 27.8% |

Source: Mulcahy A.W., Hollands S., Duffy E.L., Strong A., Wynn B.O. (2017). Modeling the Economic Impact of a California Workers' Compensation Formulary. RAND.

# RAND Study Assumptions on Formulary Impact

| RAND's Module | RAND's Assumptions | WCIRB's Estimate of Current Share of Total Drug Costs |
|---|---|---|
| Physician dispensing of drugs subject to UR | • **20%** of prescriptions not written<br>• **40%** of prescriptions transitioned to pharmacy dispensing | 27.8% |
| Generic substitution | **50%** brand name drugs transitioned to generic alternatives in the same active ingredient | 12.5% |

Source: Mulcahy A.W., Hollands S., Duffy E.L., Strong A., Wynn B.O. (2017). Modeling the Economic Impact of a California Workers' Compensation Formulary. RAND.

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| Generic substitution | **50%** brand name drugs transitioned to generic alternatives in the same active ingredient | 12.5% |
| Compounded drugs | A **20%** reduction in utilization (i.e., bill lines) | 2.1% |

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| Compounded drugs | A **20%** reduction in utilization (i.e., bill lines) | 2.1% |
| Exempt drugs | A **20%** increase in utilization (i.e., bill lines) | 17.2% |

Source: Mulcahy A.W., Hollands S., Duffy E.L., Strong A., Wynn B.O. (2017). Modeling the Economic Impact of a California Workers' Compensation Formulary. RAND.

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| Compounded drugs | A **20%** reduction in utilization (i.e., bill lines) | 2.1% |
| Exempt drugs | A **20%** increase in utilization (i.e., bill lines) | 17.2% |
| Prospective Review (PR) of non-exempt and unlisted drugs | An overall **26%** reduction in prescriptions:<br>• ~19% transitioned to exempt alternatives<br>• ~7% not written | 81.9% |

Source: Mulcahy A.W., Hollands S., Duffy E.L., Strong A., Wynn B.O. (2017). Modeling the Economic Impact of a California Workers' Compensation Formulary. RAND.

# RAND Study Assumptions on Formulary Impact

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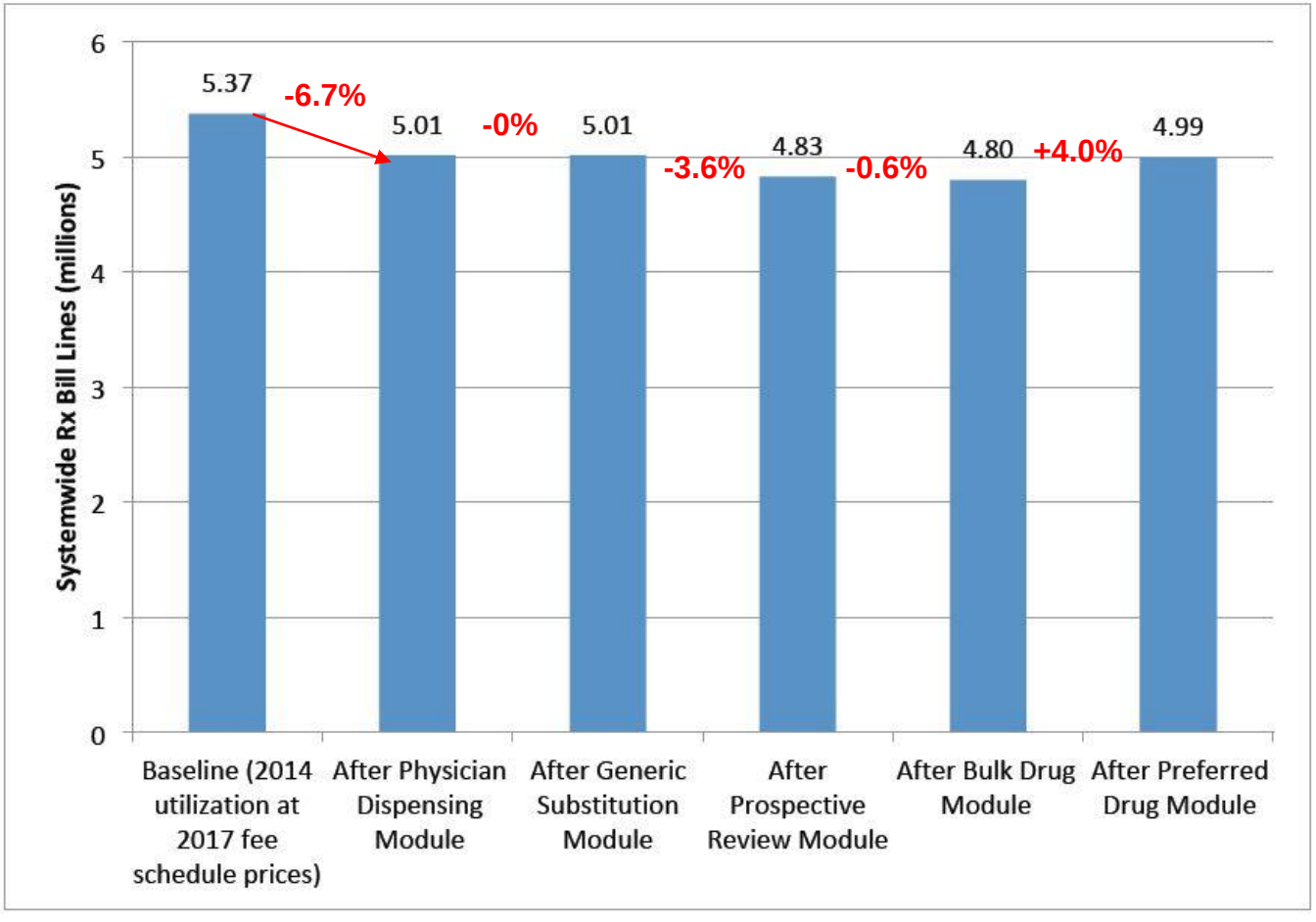
| Exempt drugs | A **20%** increase in utilization (i.e., bill lines) | 17.2% |
| Prospective Review (PR) of non-exempt and unlisted drugs | An overall **26%** reduction in prescriptions:<br>• ~19% transitioned to exempt alternatives<br>• ~7% not written | 81.9% |
| Opioids | A **27%** reduction in payments | 17.5% |

Source: Mulcahy A.W., Hollands S., Duffy E.L., Strong A., Wynn B.O. (2017). Modeling the Economic Impact of a California Workers' Compensation Formulary. RAND.

# RAND Projection of Potential Reduction in Drug Prescriptions From Implementation of Formulary

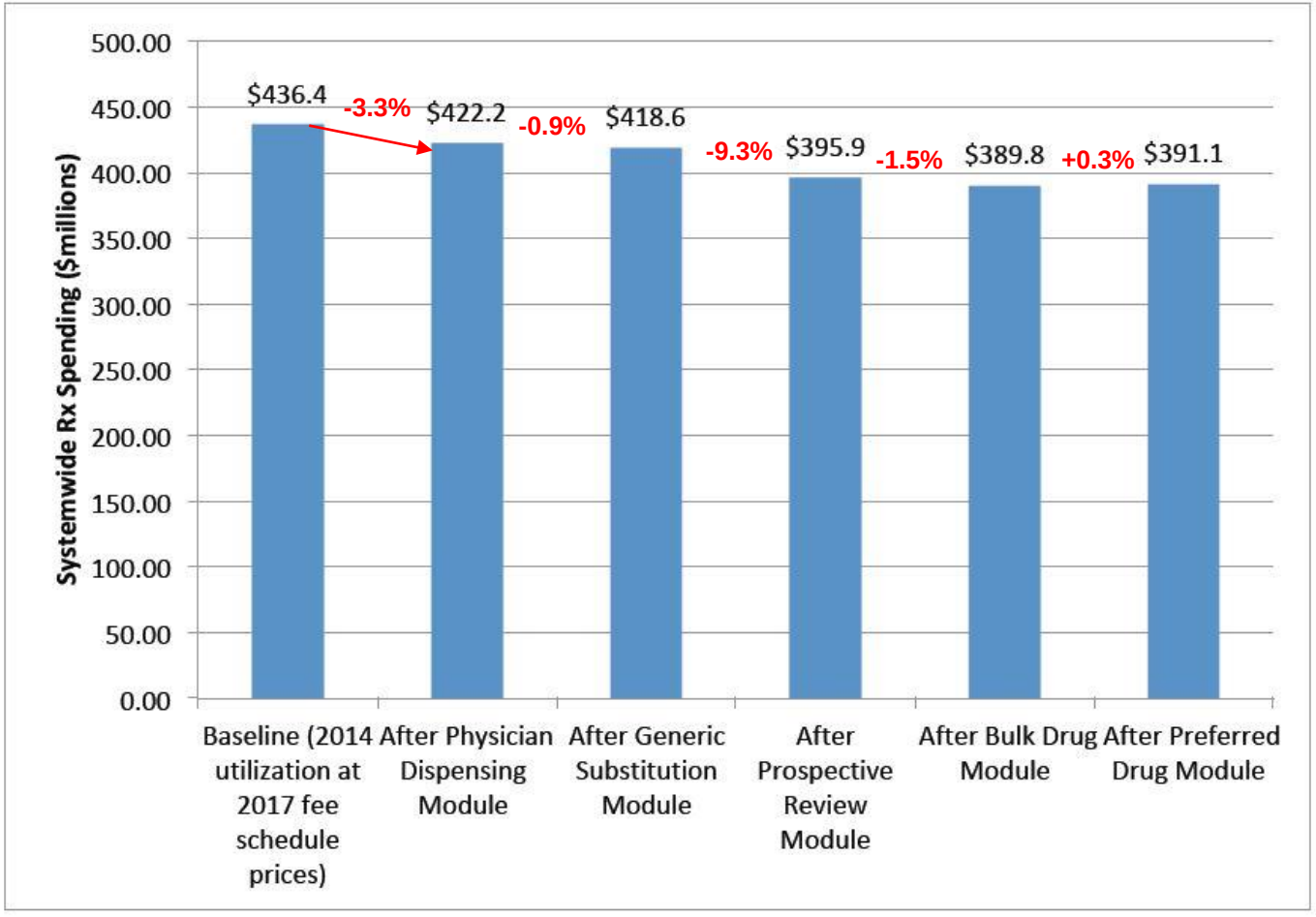
**Figure 5.1. Model Output by Step, 12-Month Utilization in Terms of Systemwide Prescription Bill Lines**




NOTE: RAND analysis of 2014 WCIS pharmacy and medical prescription bill data, subject to modeling steps and assumptions described above.

# RAND Projection of Potential Reduction in Drug Spending From Implementation of Formulary

**Figure 5.2. Model Output by Step, 12-Month Systemwide Prescription Drug Spending**




NOTE: RAND analysis of 2014 WCIS pharmacy and medical prescription bill data subject to modeling steps and assumptions described above.

# RAND Projection of Potential Reduction in Drug Spending From Implementation of Drug Formulary Overall Impacts on Drug Costs

- Prescriptions will Decrease by 7.1% (or by 381,000 fills)
- Drug spending will Decrease by 10.4% (or $45.4 million)

# 03

# Review of Trending Methodology

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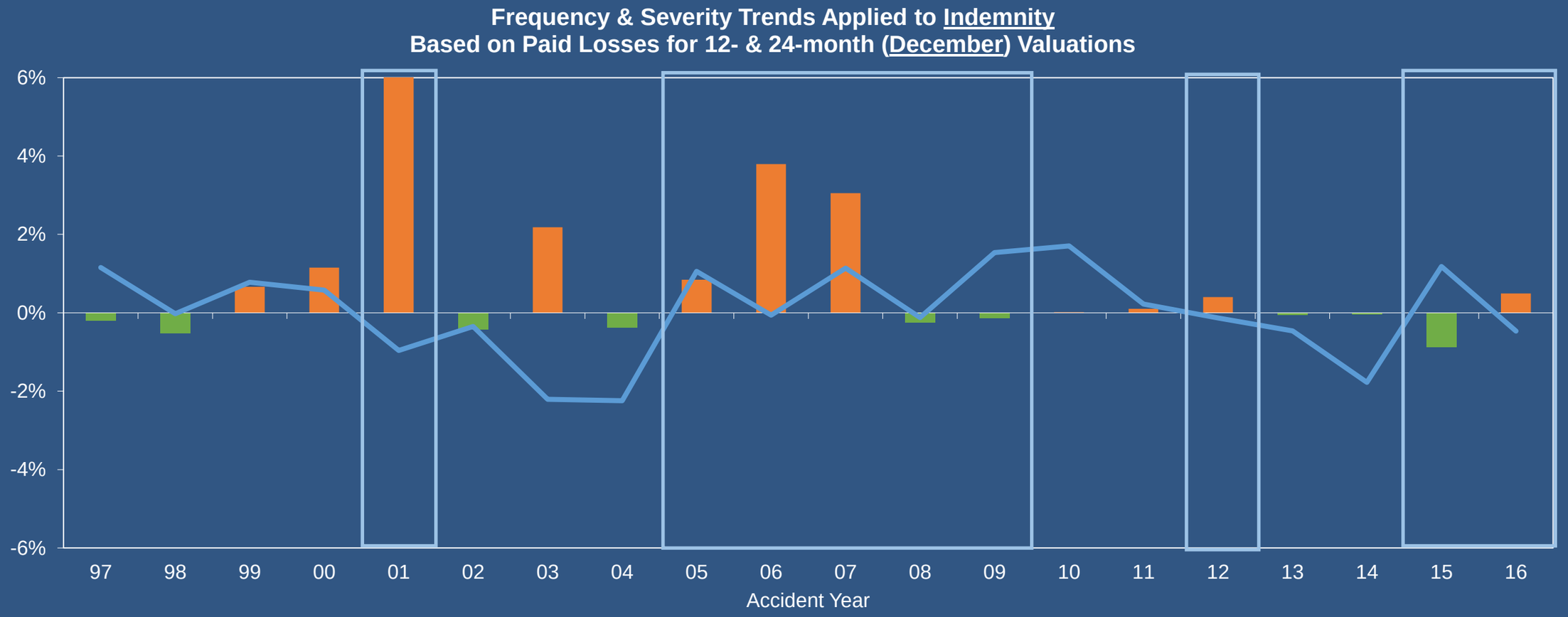
# Review of Trending Methodology – Background

- Trending methodology reviewed in-depth periodically since 2012
- Most recent review in August 2017
  - Frequency & severity trends continued to outperform loss ratio trend in most recent environment
  - Latest year method potentially more accurate than two-year average method
- Staff to review issues related to trending from latest year
  - May overstate trends during transitions
  - Relative immaturity (valued at 12 or 15 months in filings)

# Review of Trending Methodology – Data & Approach

- Projections for AYs 1996 to 2016 reviewed
- Each year developed from 12/24- or 15/27-month evaluations
  - Both incurred and paid development applied
- Frequency & severity and loss ratio methods reviewed
  - Frequency trend: Actual 12- or 15-month & frequency model
  - Severity trend: Longer-term average
  - Loss ratio trend: 5-year average
- “Actual emerged” loss ratio based on projection @3/31/17
- Focus on relative error between latest year and two-year average methods

# Relative Difference in Accuracy between Latest Year and Two-Year Average Trending Methods (Exhibit 2.1)

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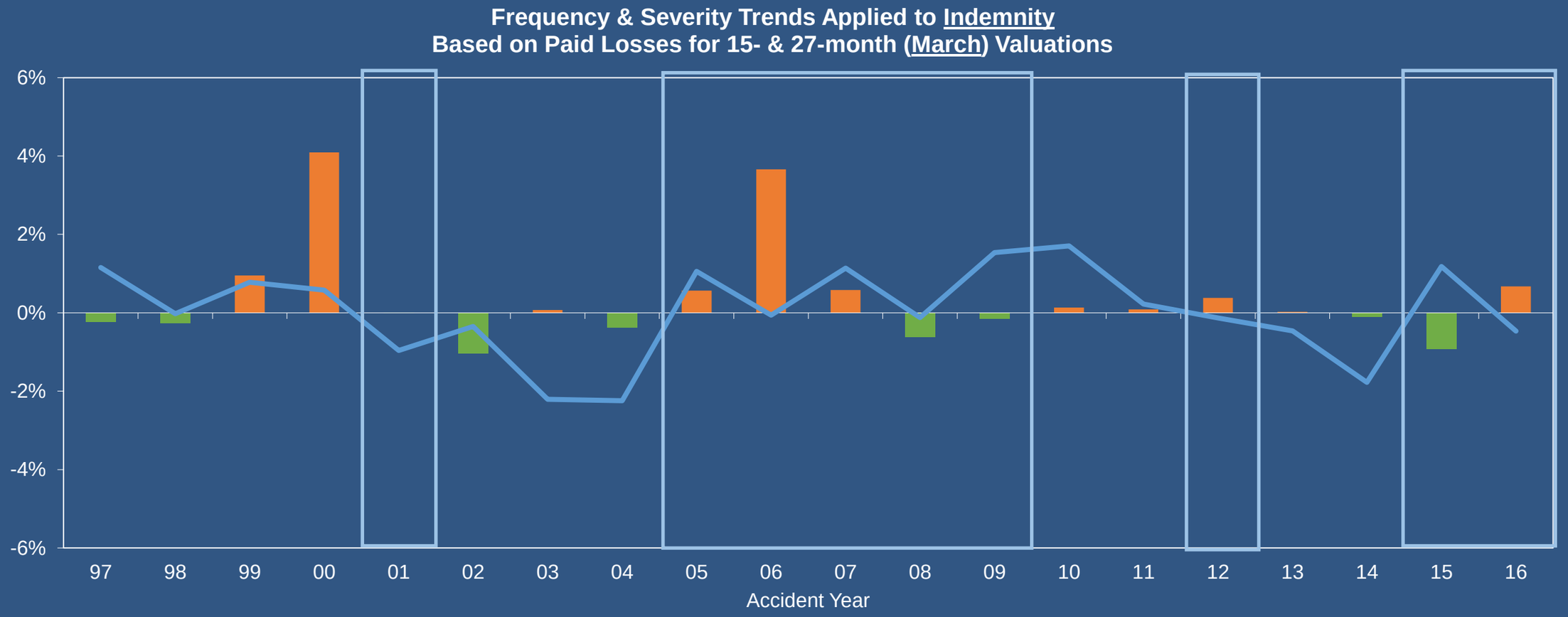
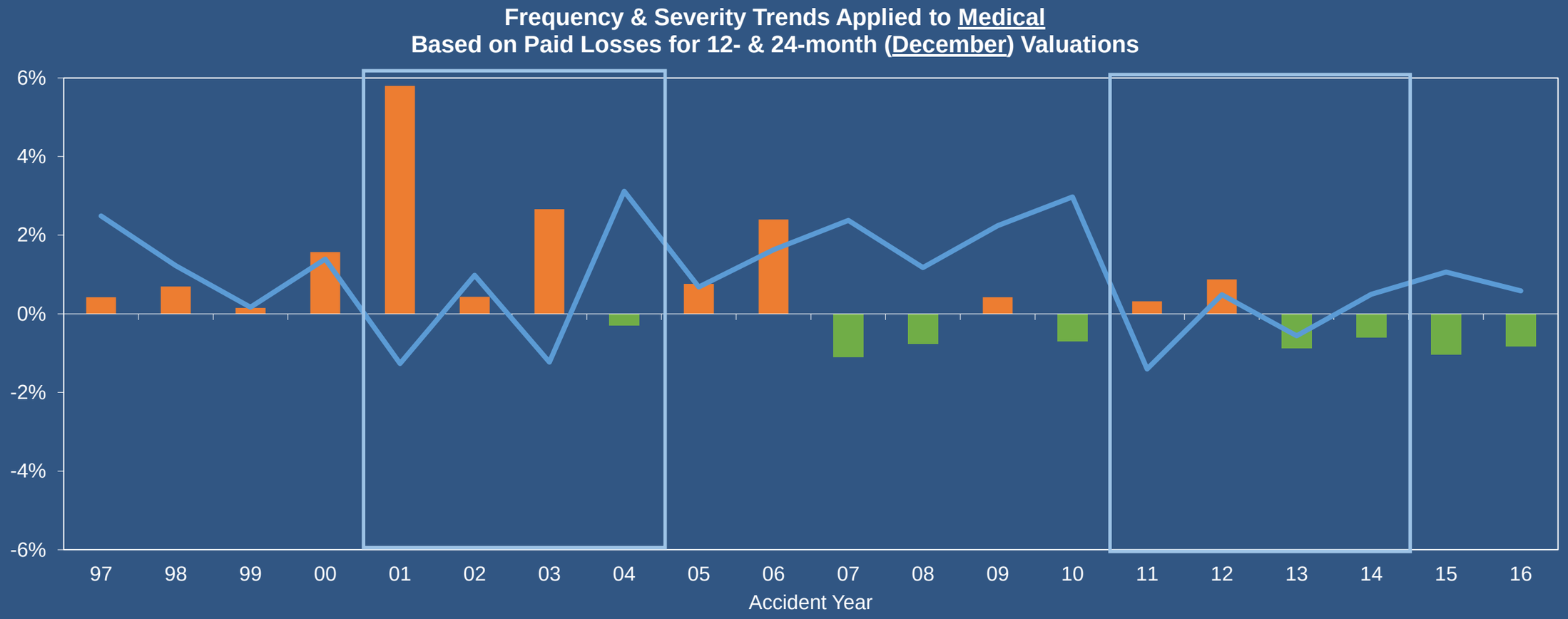
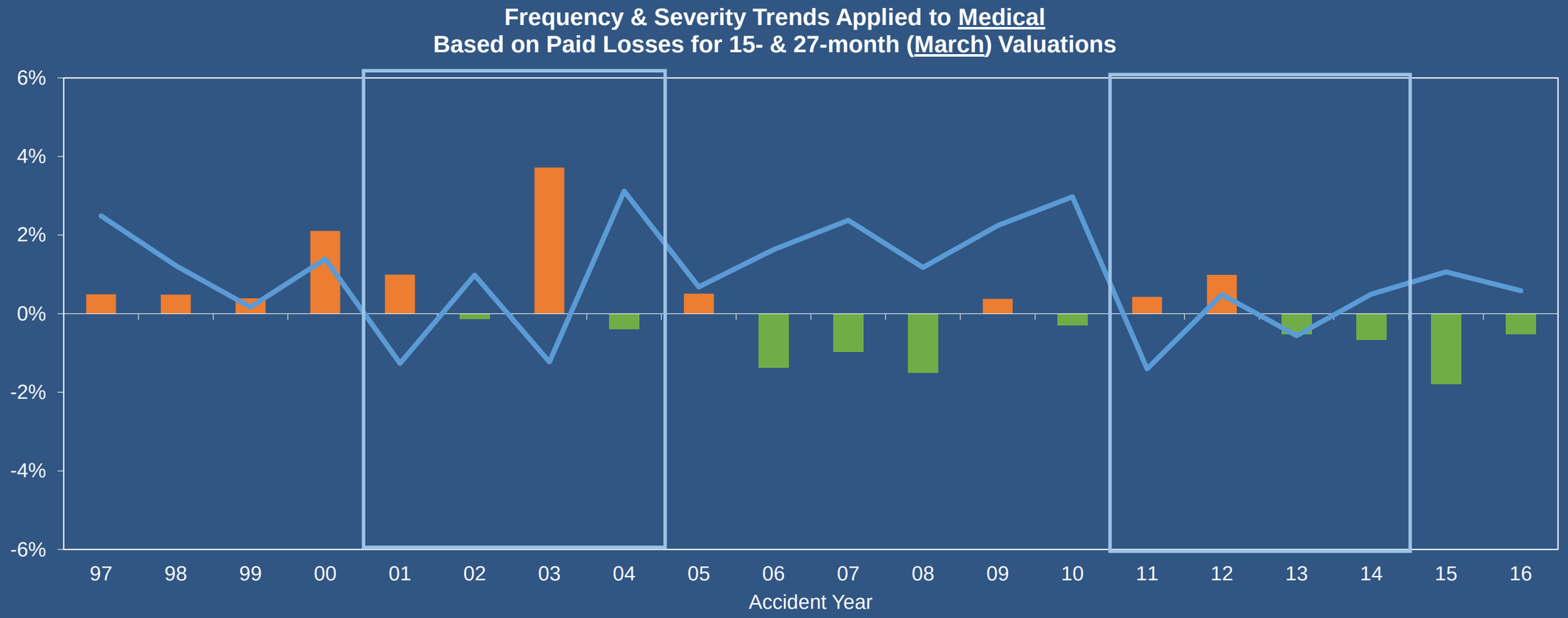
# Relative Difference in Accuracy between Latest Year and Two-Year Average Trending Methods (Exhibit 2.1)



# Relative Difference in Accuracy between Latest Year and Two-Year Average Trending Methods (Exhibit 2.2)



# Relative Difference in Accuracy between Latest Year and Two-Year Average Trending Methods (Exhibit 2.2)



# Summary by Claims Environment (Exhibit 3)

| Environment | Indemnity | | | Medical | | |
|---|---|---|---|---|---|---|
| | Two-Year Method More Accurate | Latest Year Method More Accurate | Avg. Relative Error* | Two-Year Method More Accurate | Latest Year Method More Accurate | Avg. Relative Error* |
| Post-Minniear[1] (1996-2000) | **75%** | 25% | +1.1% | **95%** | 5% | +0.9% |
| Reform Transition (2001-2004) | 38% | **63%** | +0.5% | **63%** | 38% | +0.5% |
| Post-Reform (2005-2008) | **69%** | 31% | +1.1% | 38% | **63%** | +0.1% |
| Recession (2009-2011) | **58%** | 42% | +0.1% | **83%** | 17% | +0.1% |
| SB 863 Transition (2012-2014) | 42% | **58%** | -0.1% | 50% | 50% | 0.0% |
| Post-SB 863 (2015-2016) | 25% | **75%** | -0.5% | 0% | **100%** | -1.0% |
| Total | **55%** | 45% | +0.5% | **61%** | 39% | +0.2% |

*Average Relative Error:
Positive (+) indicates two-year average method had better overall average error
Negative (-) indicates latest year method had better overall average error

[1] Minniear v. Mount San Antonio Community College District (1996)

# 04

# Impact of SB 1160 & AB 1244 on Loss Development

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# SB 1160 & AB 1244 Overview

- SB 1160 & AB 1244 enacted in 2016
- Include several provisions related to lien filings
  - Requires declaration under penalty of perjury filed with all new liens
  - Cannot assign liens to a third party
  - Stay on liens from indicted providers (AB 1244 provides consolidated process to resolve these liens)
- Effective on all liens filed after 1/1/2017
  - Declaration required for outstanding (post-1/1/2013) liens by 7/1/2017
  - Lien stay for indicted providers will also impact outstanding liens
- WCIRB prospectively estimated 10% reduction in future lien filings (-0.6% in total costs)
  - CDI reflected 40% reduction in 1/1/18 Filing decision based on emerging data

# Impact of Changes to Outstanding Liens on Development

- In July 2017, DWC dismissed approx. 292,000 liens with no declarations filed
- Some of these dismissed liens may have already been settled
- Thousands of liens from indicted providers also subject to stay and potential dismissal
- Should result in lower emerging paid medical development (as evidenced in 3Q & 4Q 2017)
- Incremental paid development is compared to prior cumulative payments with higher lien volumes
- If no adjustment is made, age-to-age factors may be distorted
- Adjustment approach is very similar to current adjustments for “date of service” changes (SB 863 & RBRVS)

# Age-to-Age Factor Adjustment

- Lien Dismissal Rate = Demand $ from Dismissed Liens / Demand $ from All Outstanding Liens, by AY
  - Both buckets reduced by 20% for settled liens (linked to MDC lien payments)
  - 18% to 26% of lien $ dismissed for 2010-2015
- Lien % of Medical Paid = Lien % of MDC Paid X (1.00 – 0.34), by Age
  - Adjusted to reflect 34% of medical payments not in MDC (settlements, etc.)
  - 10% to 14% of mid-term medical development is for liens
- Adjustment = Lien Dismissal Rate X Lien % of Medical Paid
- Applied to all medical payments made prior to 7/1/2017, age-to-age factors then re-computed
- Impact of adjustment will increase in subsequent quarters

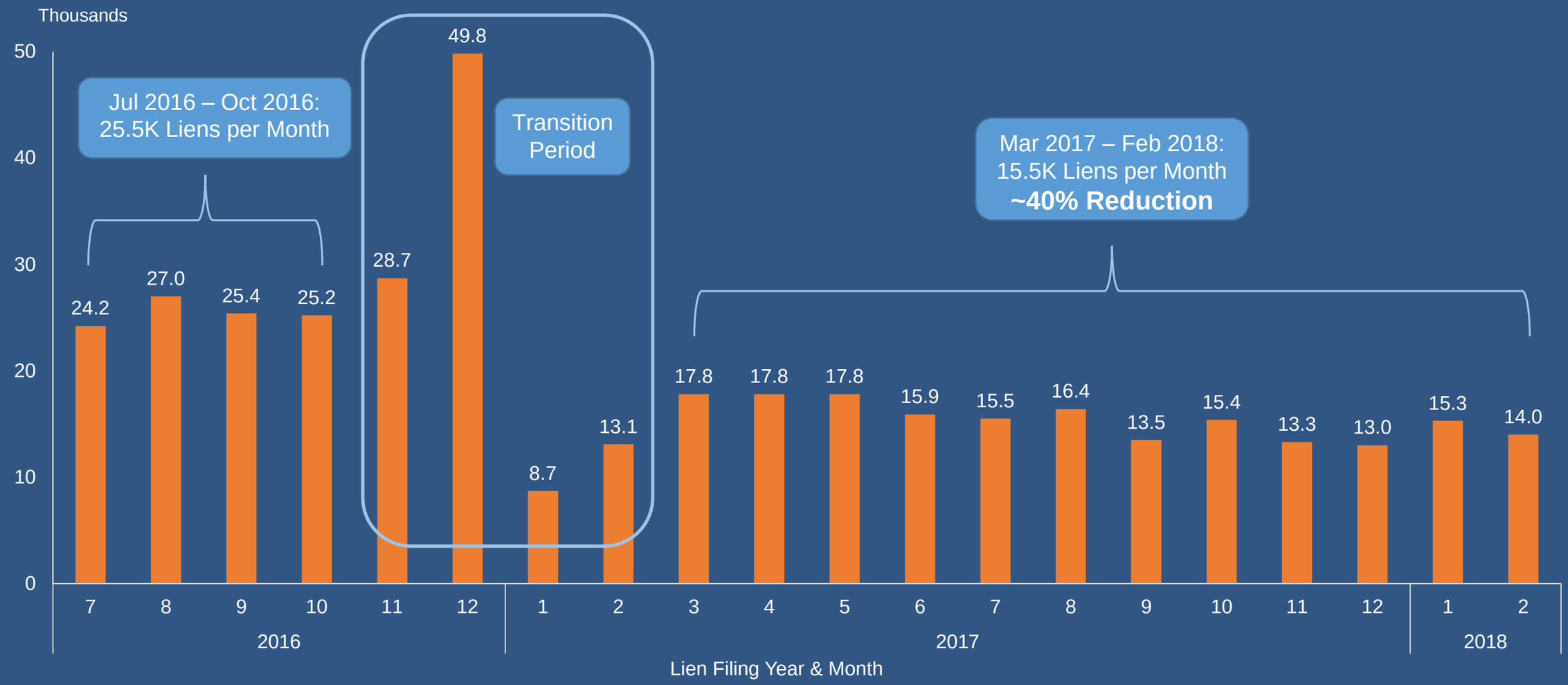
# Age-to-Age Paid Medical Factor Adjustment (Exhibit 3)

| AY | Age | Unadjusted Factor | Adjusted Factor | Impact |
|---|---|---|---|---|
| 2011 | 72-84 | 1.058 | 1.059 | 0.001 |
| 2012 | 60-72 | 1.087 | 1.088 | 0.001 |
| 2013 | 48-60 | 1.130 | 1.132 | 0.002 |
| 2014 | 36-48 | 1.226 | 1.228 | 0.002 |
| 2015 | 24-36 | 1.439 | 1.440 | 0.002 |
| 2016 | 12-24 | 2.480 | 2.480 | 0.000 |

# Impact of New Lien Filings on Development

- Lien costs do not impact development uniformly by age
  - Few liens paid in early and later development periods but significant in mid-term
- Applying uniform on-level factor to pre-SB 1160 years (2016 and prior) may not be appropriate
  - Ex.: Very few liens filed on 2016 claims by 12/31/16, so it is not really “pre-reform”
- Projected medical LDFs are from prior AYs which include significantly higher levels of liens
- Staff explored adjustment to cumulative LDFs to reflect differences by AY as well as the reduced future lien filings
- Approach is very similar to how paid indemnity is adjusted for PD changes, which has different impacts by maturity

# Recent Lien Filings




Source: DWC EAMS data.

# Cumulative Paid Medical Factor Adjustment (Exhibit 4)

| Age* | Age-to-240 Factor, All Medical Services A | Age-to-240 Factor, Excl. Liens B | Weighted Avg. Factor C = (60% x A) + (40% x B) | Adjustment to Paid Medical LDF D = C / A |
|---|---|---|---|---|
| 72 | 1.269 | 1.249 | 1.261 | 0.994 |
| 60 | 1.358 | 1.319 | 1.342 | 0.989 |
| 48 | 1.505 | 1.436 | 1.478 | 0.981 |
| 36 | 1.769 | 1.648 | 1.720 | 0.973 |
| 24 | 2.337 | 2.137 | 2.257 | 0.966 |
| 12 | 4.876 | 4.424 | 4.695 | 0.963 |

Source: WCIRB Medical Data Call data for the average of the latest three calendar years.

*Year-end evaluations were used, but adjustment would be pro-rated for other evaluations (15 months, etc.).

# Summary & Recommendations

- Impact of liens on paid medical development is significant
- Recent lien dismissals and reduced lien filings should impact both age-to-age and cumulative factors
- Staff recommends applying development adjustments to accident years 2012 to 2017 (12 to 72 months)
- On-level adjustments would not be applied for these periods so as not to double-count impact
- Liens also significantly impact ALAE development
  - Impact uncertain (data not relatively available)
  - Potentially apply cumulative impact on medical LDFs to paid ALAE LDFs
  - 4Q17 ALAE experience to be reviewed at next meeting

# Estimated Impact of SB 1160 Adjustments to Paid Medical Development

| Accident Year | Age at 12/31/17 | Impact of Lien Dismissals (Age-to-Age) | Impact of Future Lien Filings (40% Reduction) | Estimated Net Impact |
|---|---|---|---|---|
| 2012 | 72 | +0.3% | -0.6% | -0.3% |
| 2013 | 60 | +0.4% | -1.1% | -0.7% |
| 2014 | 48 | +0.6% | -1.9% | -1.3% |
| 2015 | 36 | +0.8% | -2.7% | -1.9% |
| 2016 | 24 | +0.9% | -3.4% | -2.5% |
| 2017 | 12 | +0.9% | -3.7% | -2.8% |

# 05

# On-Leveling for Wage Level Changes in Pure Premium Ratemaking

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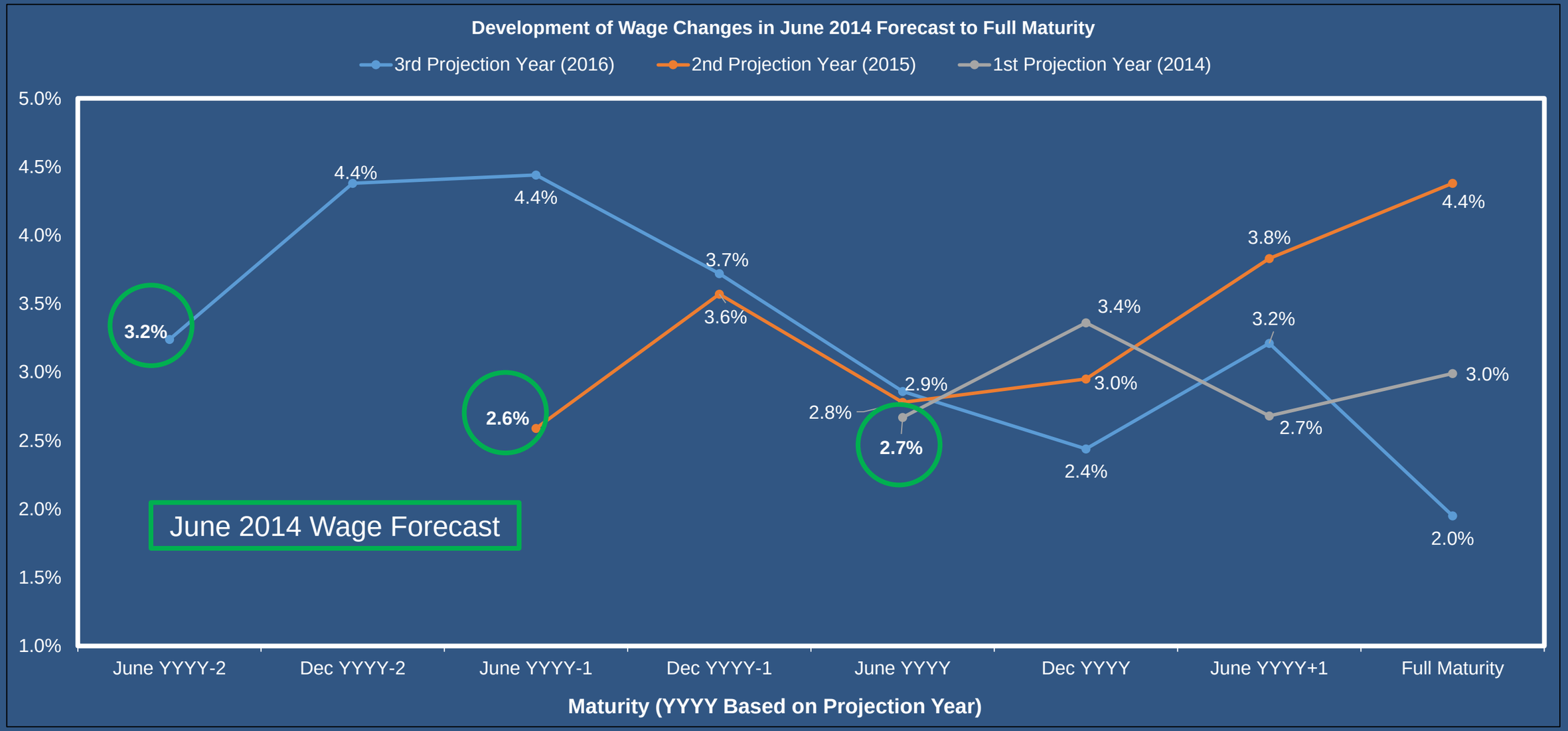
# On-leveling for Wage Changes - Background

- Prior to 2003: Based on information from DRI/McGraw Hill, now Global Insights
- May 28, 2003: Committee recommended use of UCLA wage series and forecast
  - UCLA comparable or superior to Global Insights in accuracy
  - UCLA adjusts for industrial mix and labor force in California
- December 6, 2017: Reviewed Occupational Employee Statistics (OES) wage series to be used for on-leveling
  - No change adopted since OES was not more accurate than UCLA and no forecasts of future growth is available
- Outstanding items:
  - UCLA wage forecast model
    - Investigate potential bias
    - Review overall forecast model accuracy
  - Review alternative wage forecast models

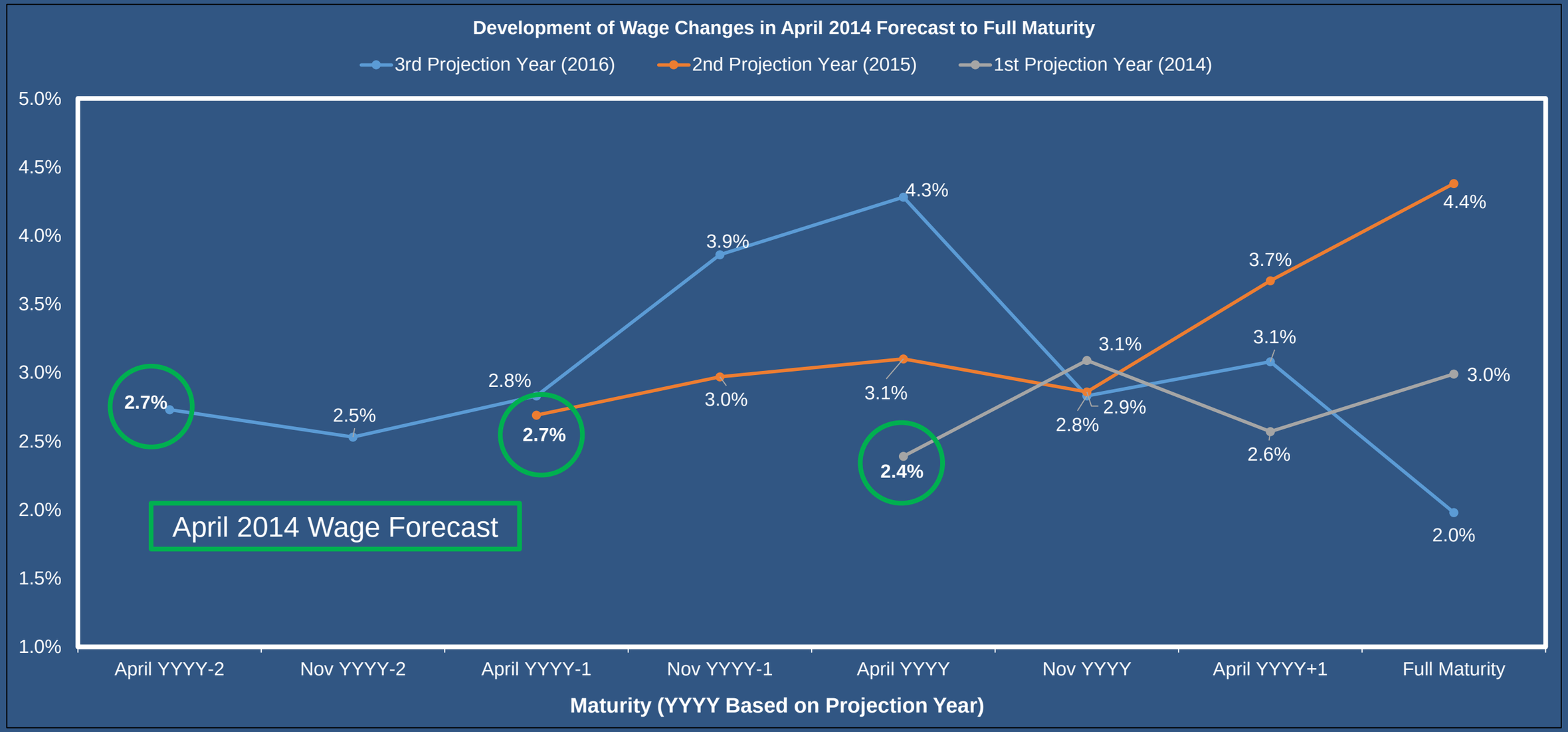
# Alternative Forecast Models Reviewed

- UCLA Wage Forecast Model
  - Current method
- California Department of Finance Wage Forecast Model
  - Updates released in April and November
  - Prepared for development of the State of California budget
- Blend of UCLA and California Department of Finance forecast models
  - Combining models increases overall economic information in forecast
  - Improves consistency

# UCLA Wage Forecast Model Example (Exhibit 1.1)



# California Department of Finance Wage Forecast Model Example (Exhibit 1.2)

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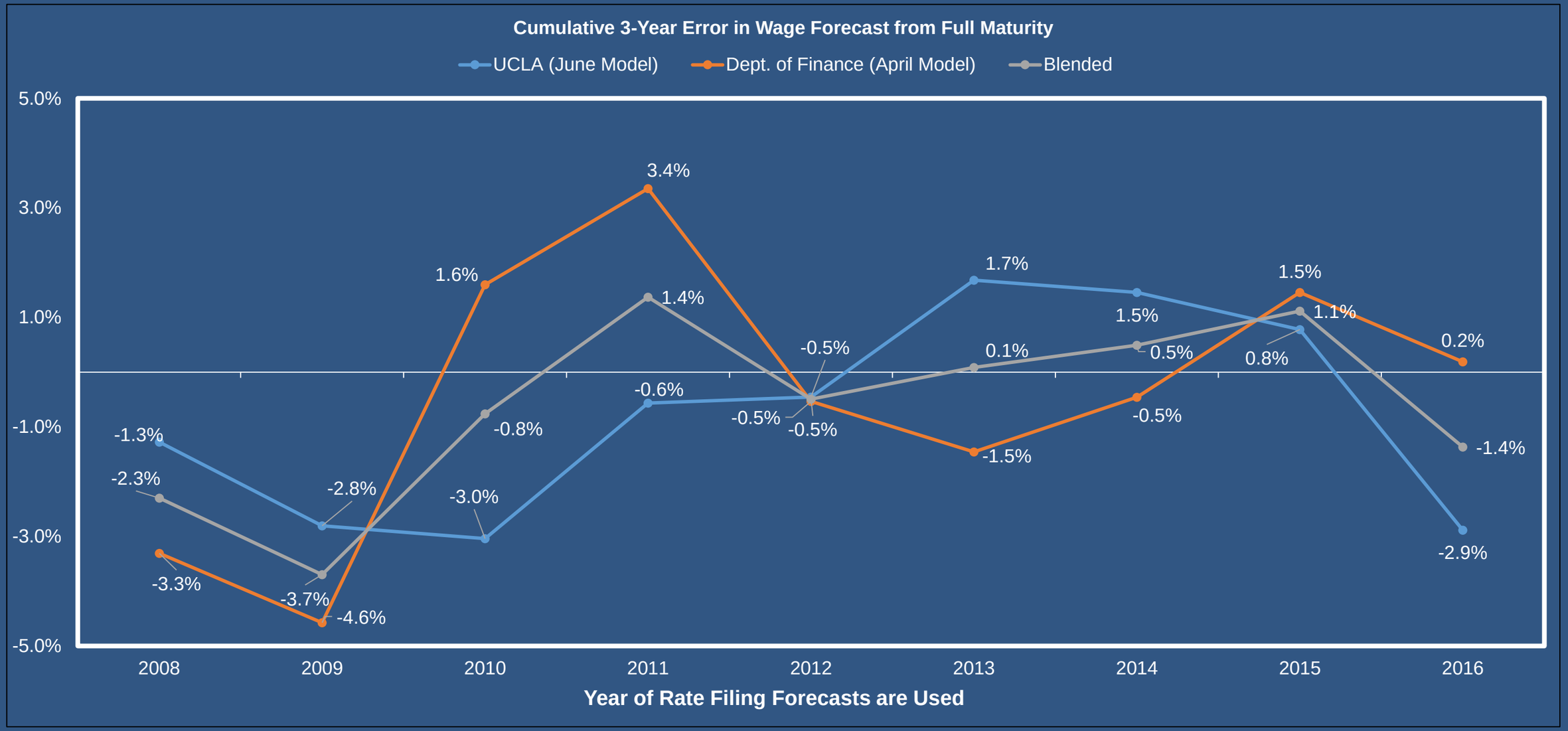
# Wage Forecast Bias (Exhibit 2)

| Forecast Bias | UCLA | | | | | | CA Dept. of Finance | | Blended | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 2013 to 2017 | | 2003 to 2012 | | 2003 to 2017 | | 2006 to 2017 | | 2006 to 2017 | |
| | Count | Avg % Error | Count | Avg % Error | Count | Avg % Error | Count | Avg % Error | Count | Avg % Error |
| Understated | 42% | +1.0% | 60% | +1.2% | **54%** | +1.2% | 41% | +1.0% | 49% | +0.8% |
| Overstated | **58%** | -1.6% | 40% | -1.0% | 46% | -1.3% | 59% | -1.2% | 51% | -1.3% |
| Overall Avg Error | | -0.5% | | +0.3% | | **0.0%** | | -0.3% | | -0.2% |

# Overall Wage Forecast Accuracy by Rate Filing

- Overall Wage Forecast Accuracy
  - Based on three-year cumulative error factor for corresponding forecast years
  - Individual forecast year errors generally offset to reduce overall error
- Forecast Models used for Annual Rate Filing
  - June UCLA and April California Department of Finance forecast models
- Forecast Models used for Mid-year Rate Filing
  - December UCLA and November California Department of Finance forecast models

# Wage Forecast Error by Annual Rate Filing (Exhibit 3)

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# Wage Forecast Performance by Rate Filing (Exhibit 3)

| Forecast Model | Annual Filing* | | | Mid-Year Filing** | | |
|---|---|---|---|---|---|---|
| | UCLA | Dept. of Finance | Blended | UCLA | Dept. of Finance | Blended |
| More Accurate | 5 | 4 | N/A | 4 | 6 | N/A |
| Average Error | -0.79% | -0.42% | -0.62% | 0.19% | -0.65% | -0.24% |
| Abs. Average Error | 1.66% | 1.88% | **1.30%** | 1.76% | 1.91% | **1.55%** |
| Std. Deviation | 1.75% | 2.33% | **1.55%** | 2.01% | 2.15% | **1.79%** |

*Total of 9 annual filings
**Total of 10 mid-year filings

# Summary of the Wage Forecast Model Review

- Wage Forecast Model Review
  - UCLA performs better during certain periods while the California Department of Finance model performs better during other periods
  - Both models are relatively unbiased in the long-term
- Blended Wage Forecast
  - Blends two sets of economic assumptions
  - Further reduces bias and forecast volatility
  - Improves overall forecast accuracy
- Staff recommends adopting the blended wage forecast model

# 06

# 12/31/2017 Experience – Review of Methodologies


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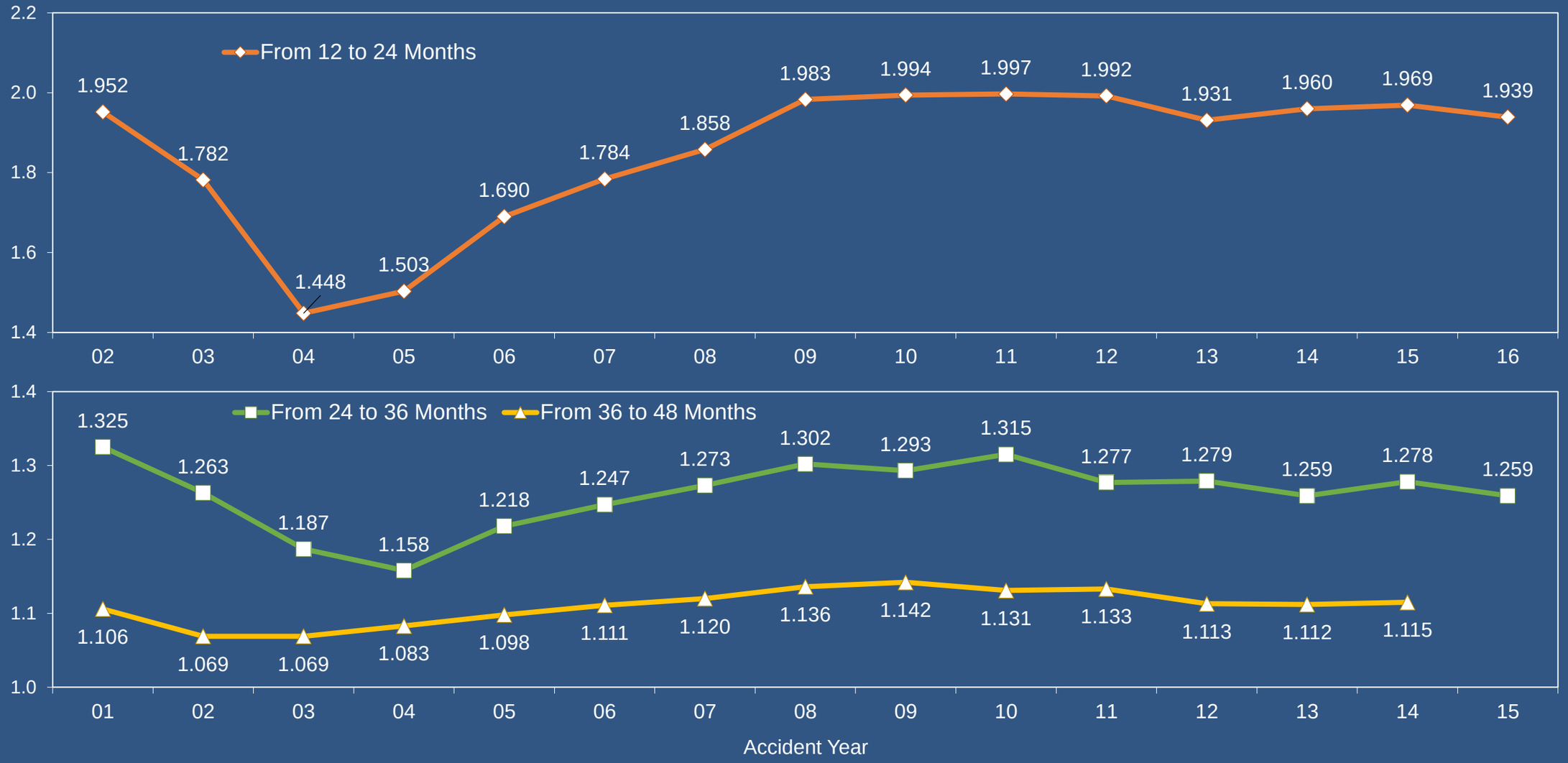
# Preliminary Summary of 12/31/2017 Experience

- Approximately 100% of market reflected
- Same methodologies as 1/1/18 Filing
  - Updated indemnity severity trend to 0% given 2017 emergence
- SB 1160 impact not yet reflected in medical development or on-level adjustments
- Projected loss ratio for July 1, 2018 to December 31, 2018 policy period: 0.591
- 3.7 point decease from 12/6/17 Agenda (0.628 based on 9/30/17 data)
- 5.0 point decrease from Amended 1/1/18 Filing (0.641 based on 6/30/17 data)

# Approximate Change in Loss Ratio Projection

| Factor | Approx. Change in Percentage Points | |
|---|---|---|
| | From Amended 1/1/18 Filing | From 12/6/17 Agenda |
| Lower Loss Development | -4.0 | -2.0 |
| Inclusion of 2017 Accident Year | -1.0 | -1.0 |
| Updated UCLA Forecast | +0.5 | 0.0 |
| Updated Frequency Trends | +0.5 | +0.5 |
| Updated Indemnity Severity Trend | -0.5 | -0.5 |
| Trend to July 1, 2018 Policy Period | -0.5 | -0.5 |
| **Total (to 3/19/18 Agenda)** | **-5.0** | **-3.5** |
| Loss Development Adjusted for SB 1160 | -1.0 | -1.0 |
| **Updated Total** | **-6.0** | **-4.5** |

# Incurred Indemnity Development (Exhibit 2.1.1)

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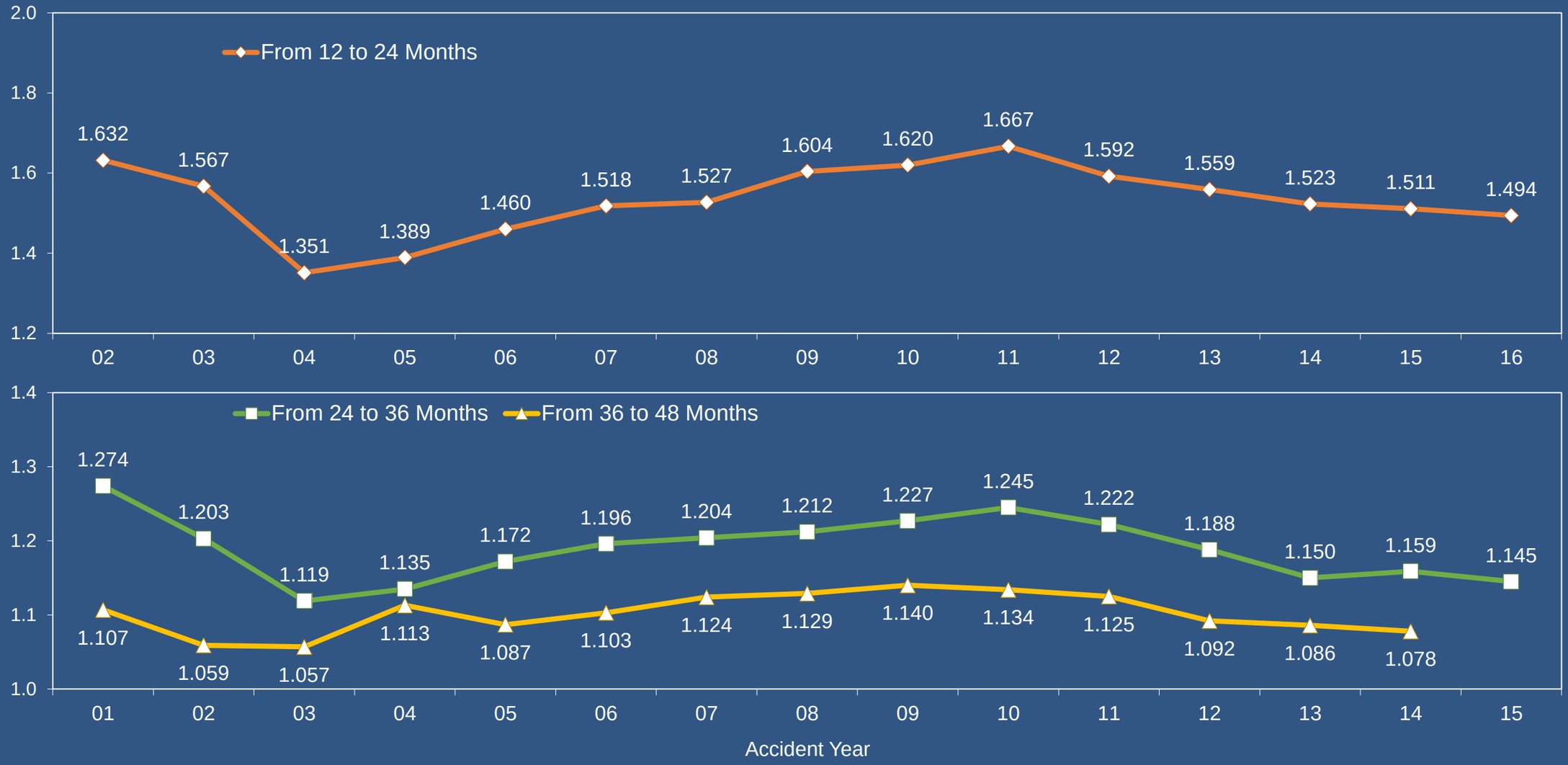
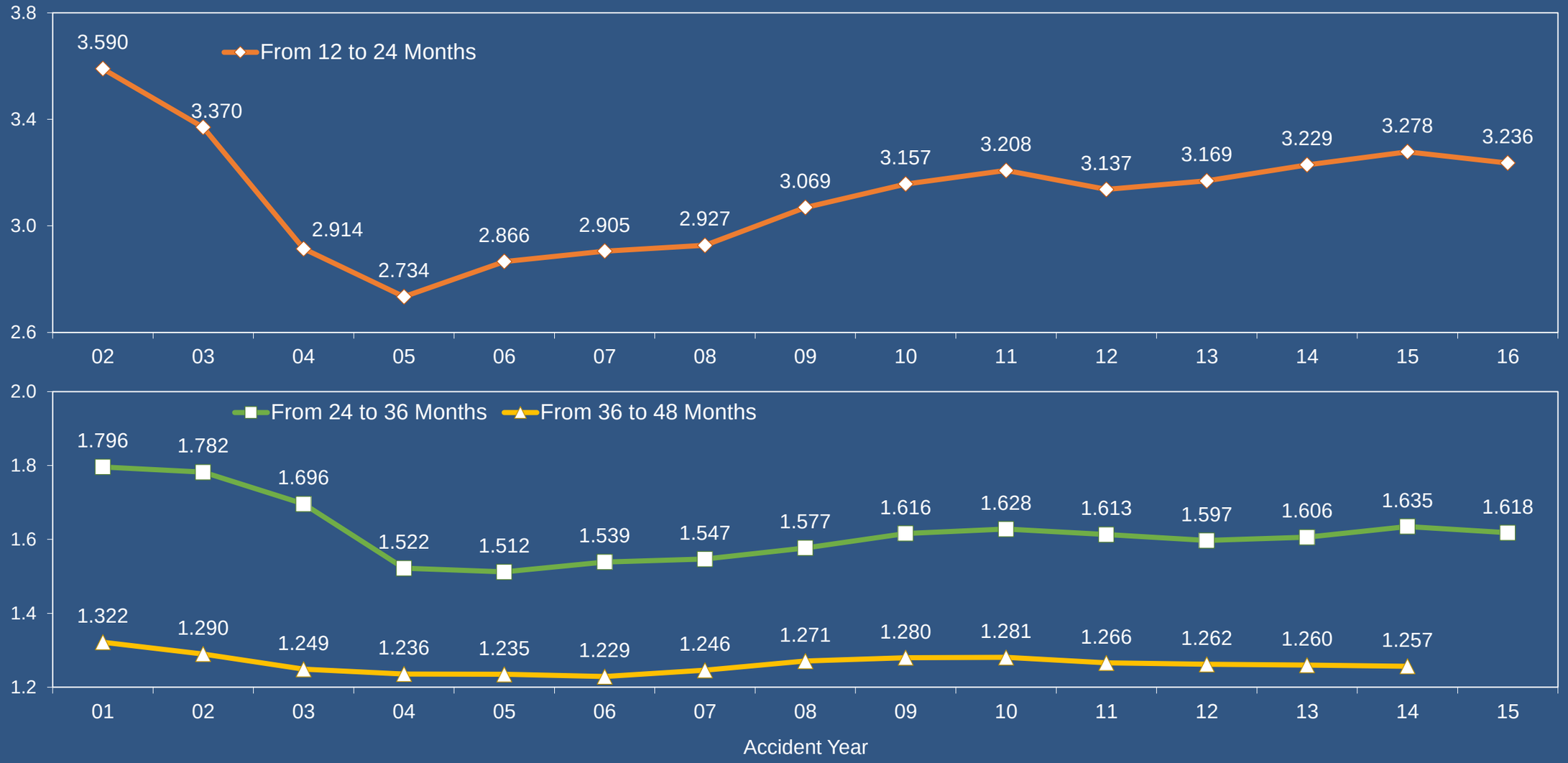
# Incurred Medical Development (Exhibit 2.1.2)

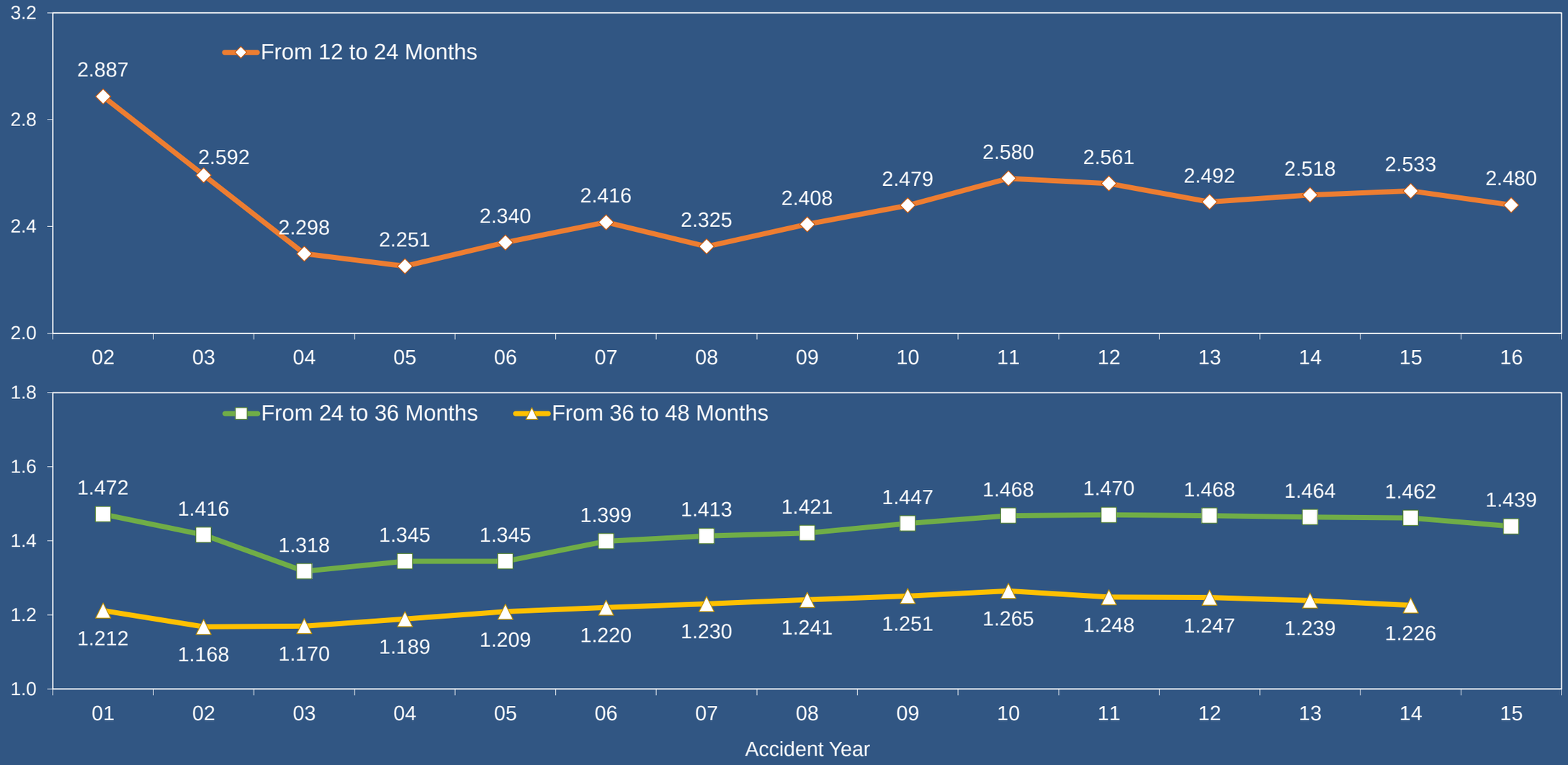



Note: MCCP development is included in incurred medical loss development for 2011 and prior.

# Paid Indemnity Development (Exhibit 2.3.1)



# Paid Medical Development (Exhibit 2.4.2)




Note: MCCP development is included in paid medical loss development for 2011 and prior.

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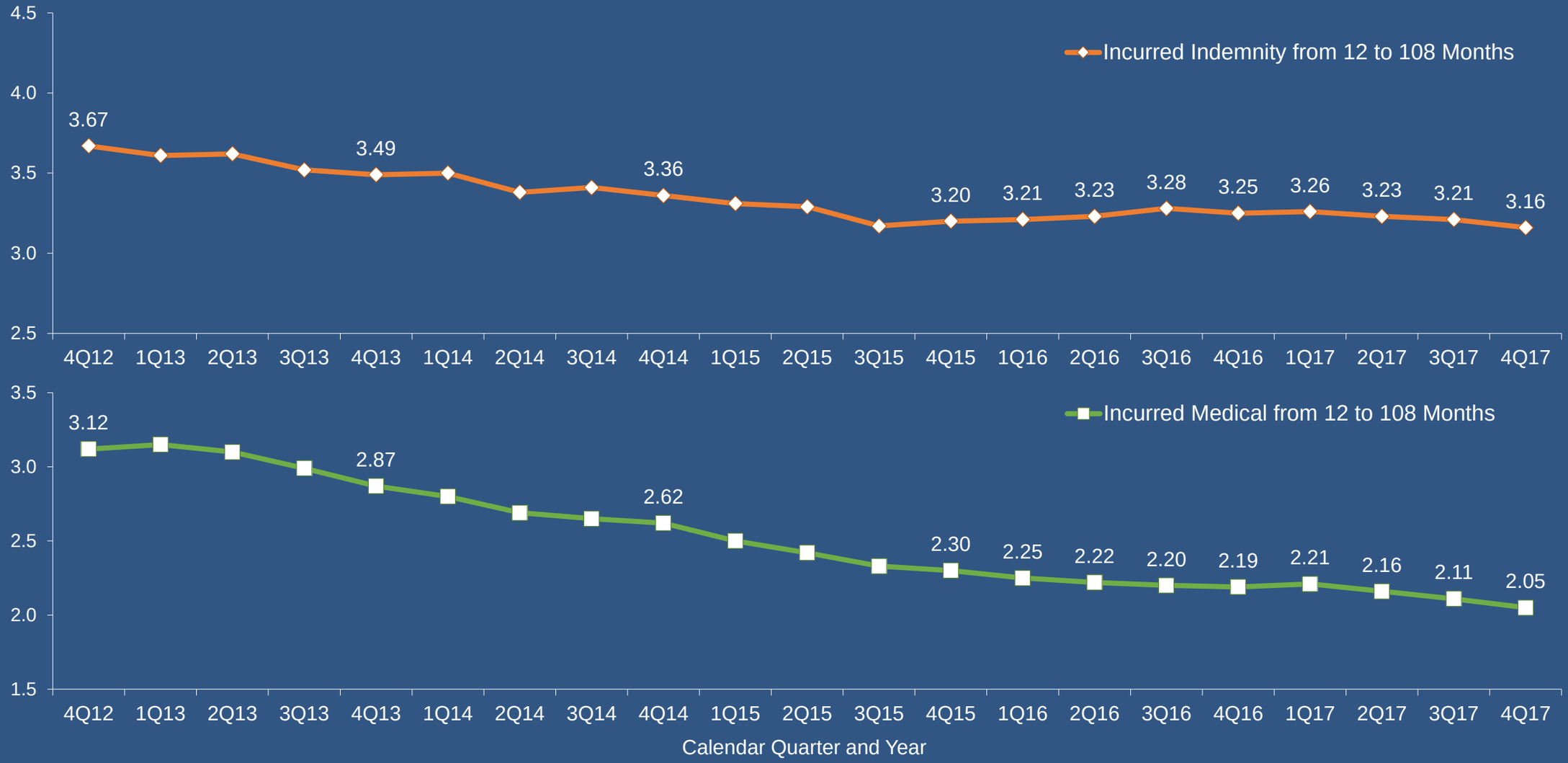
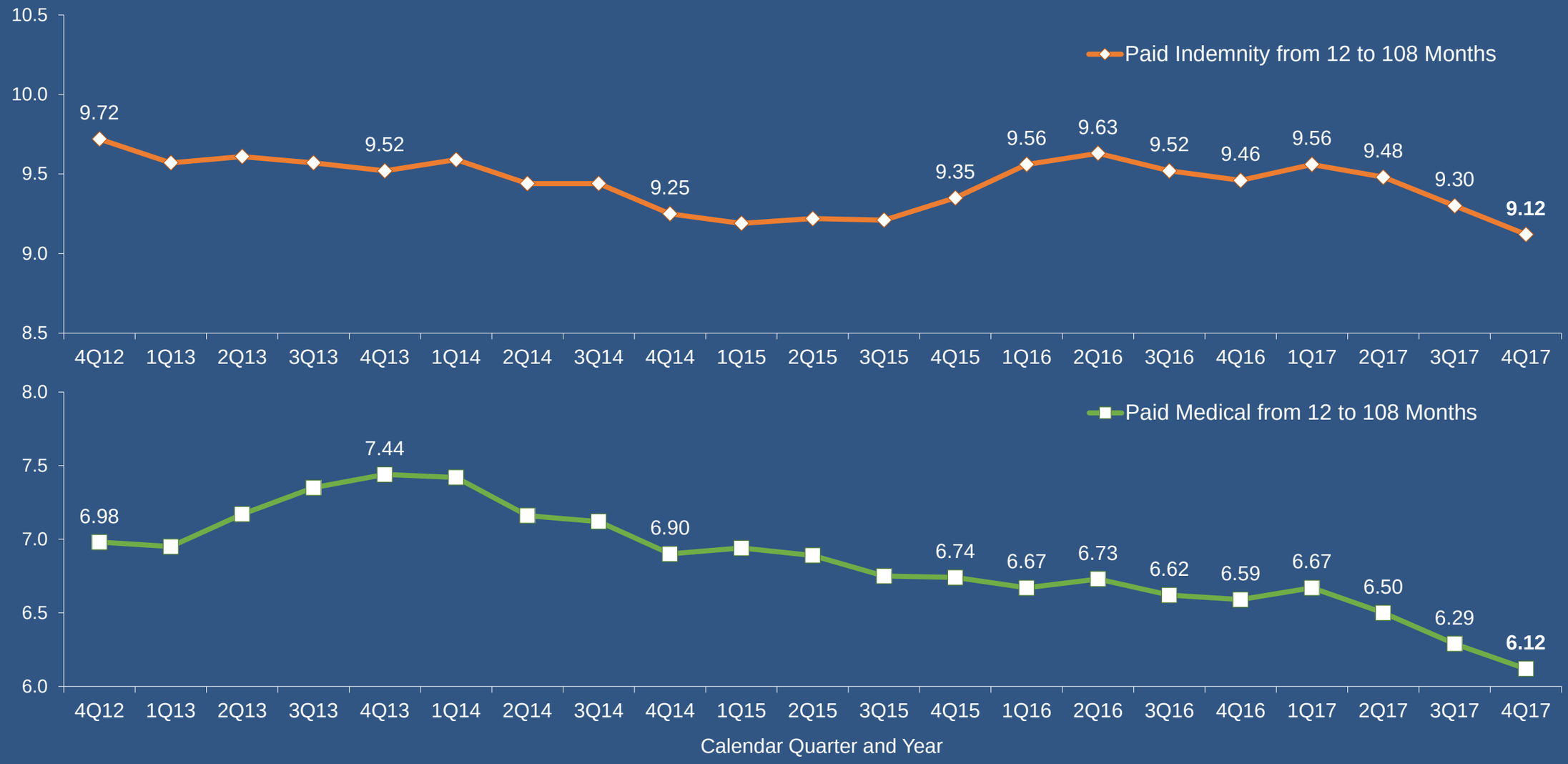
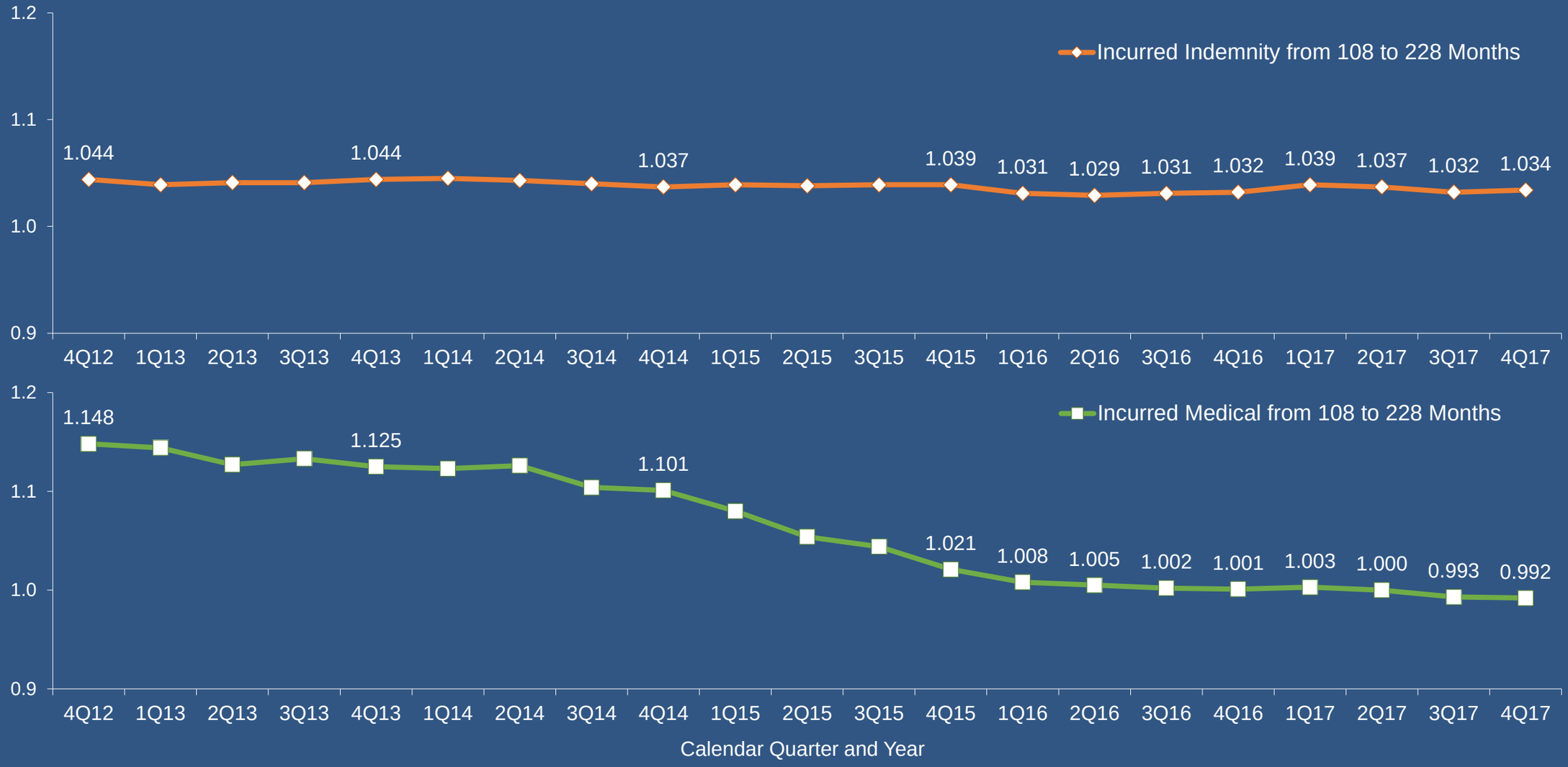
# Cumulative Incurred Development from 12 to 108 Months



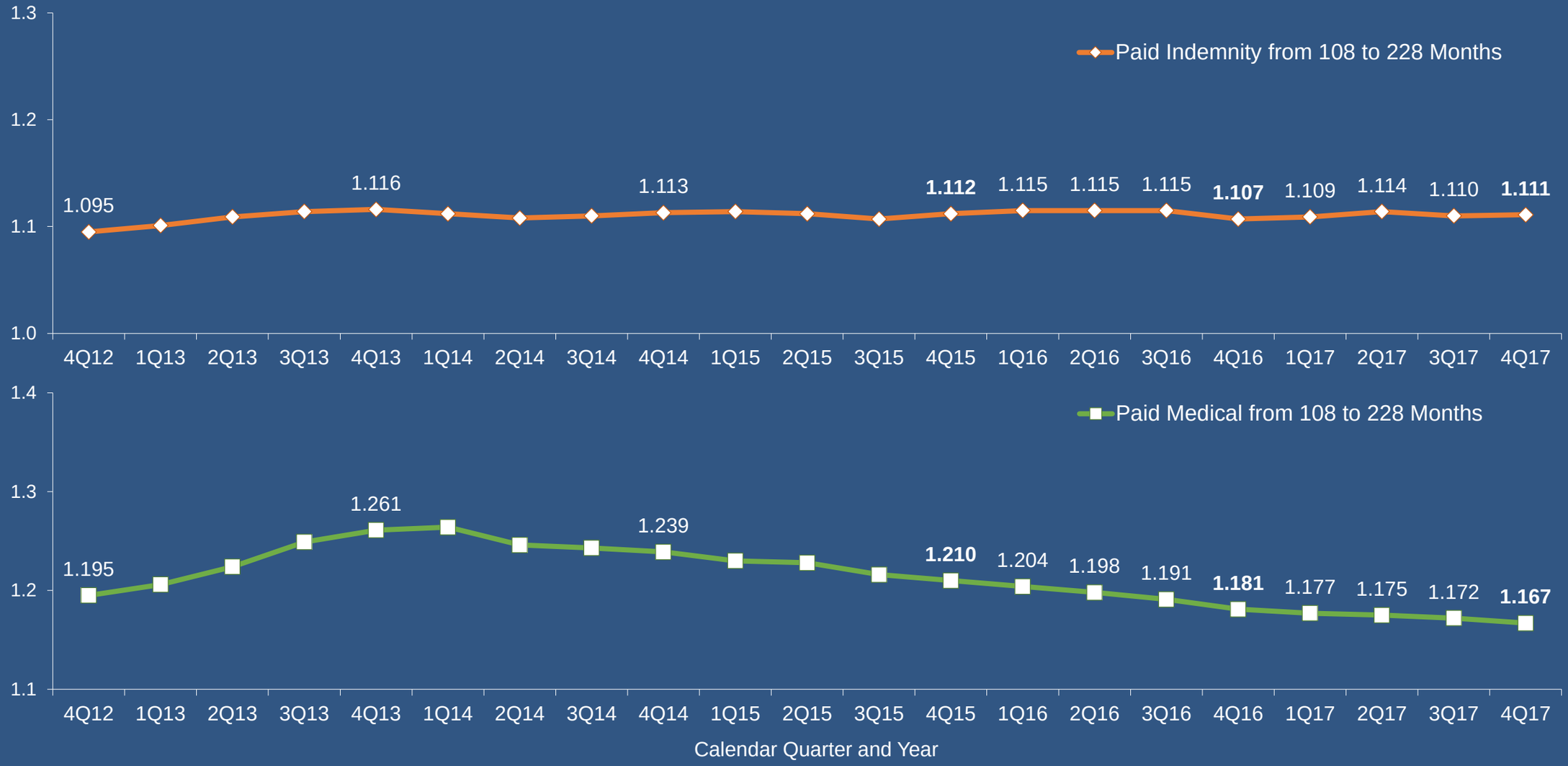
# Cumulative Paid Development from 12 to 108 Months



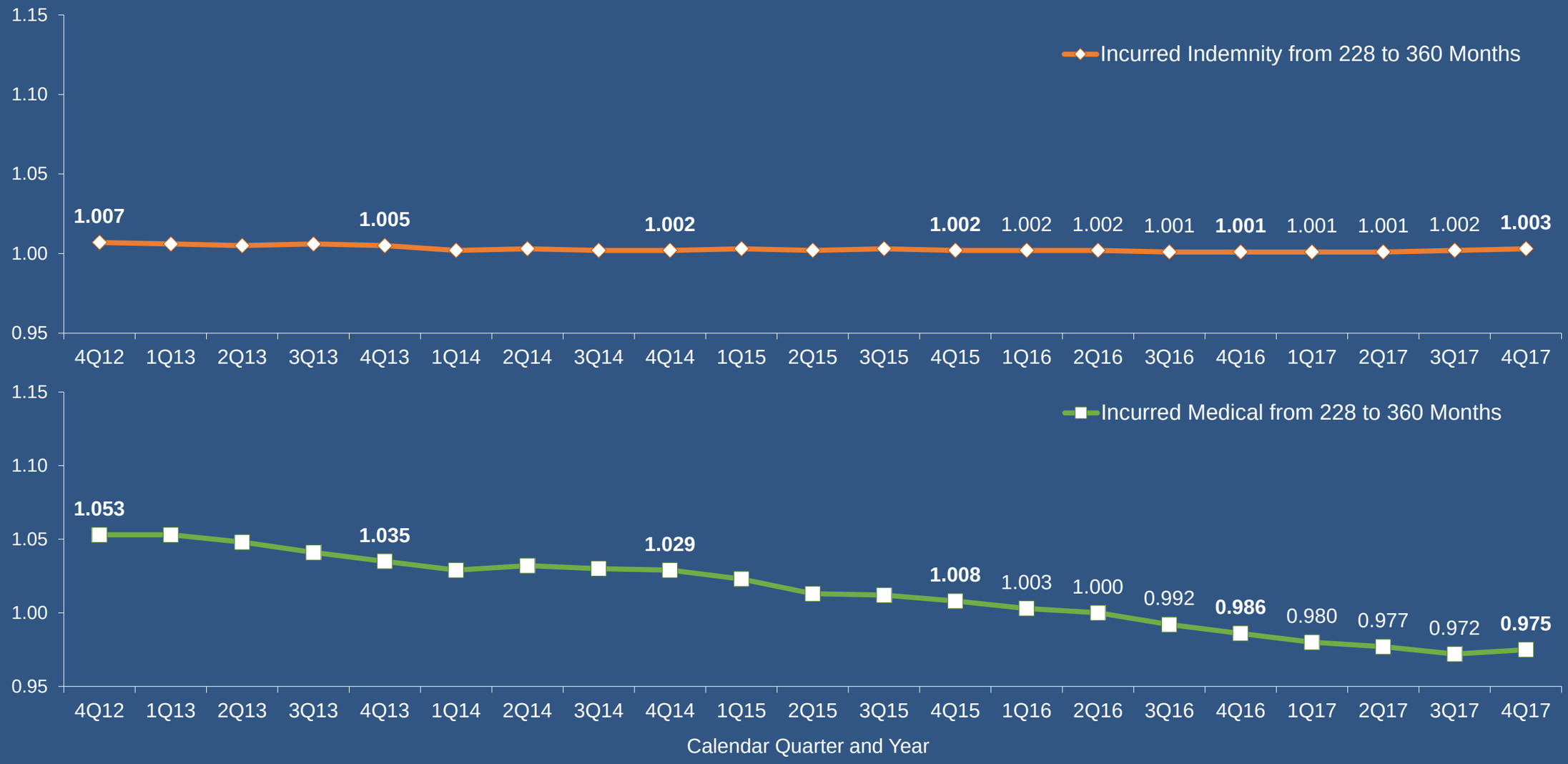
# Cumulative Incurred Development from 108 to 228 Months



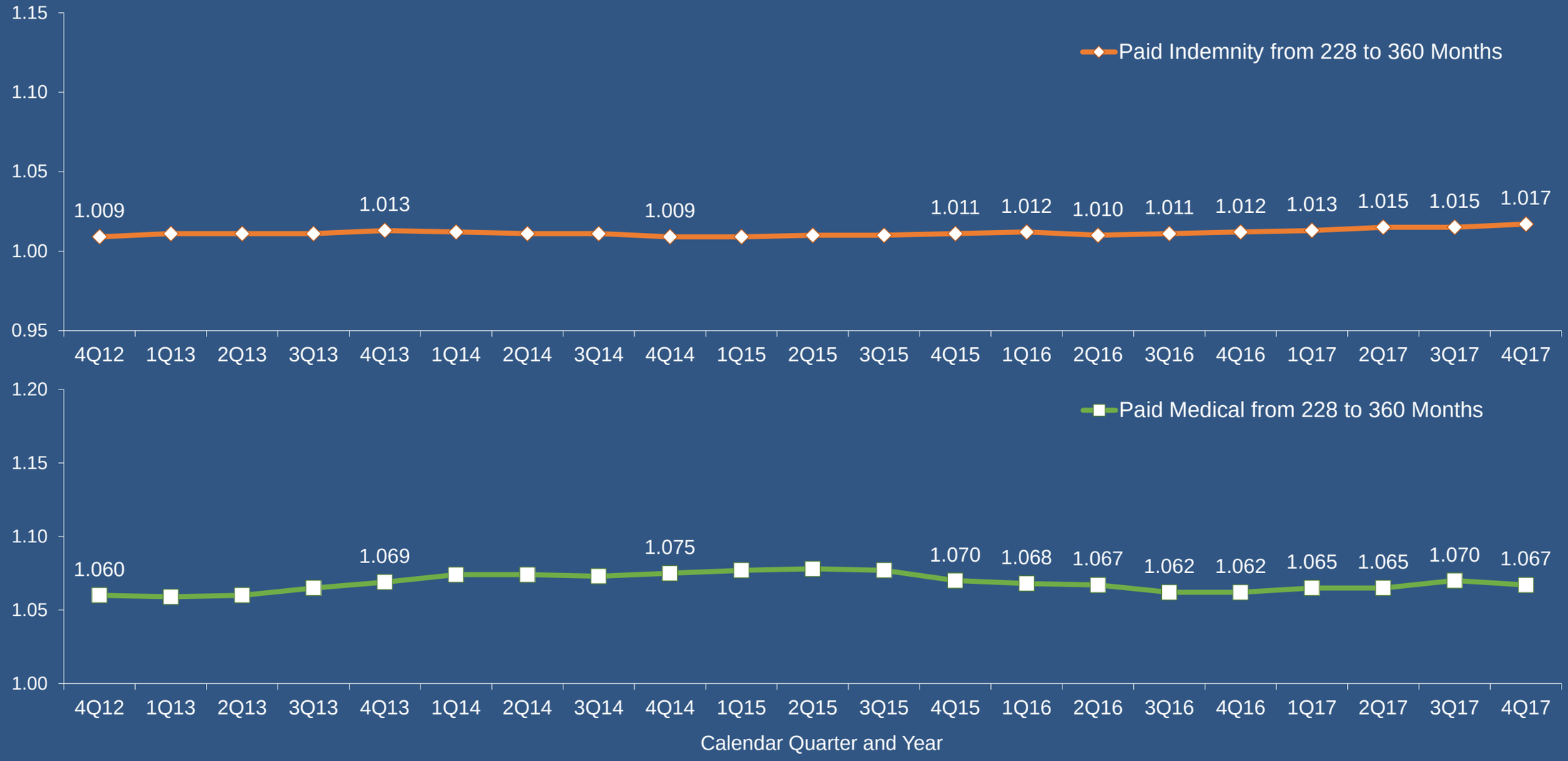
# Cumulative Paid Development from 108 to 228 Months



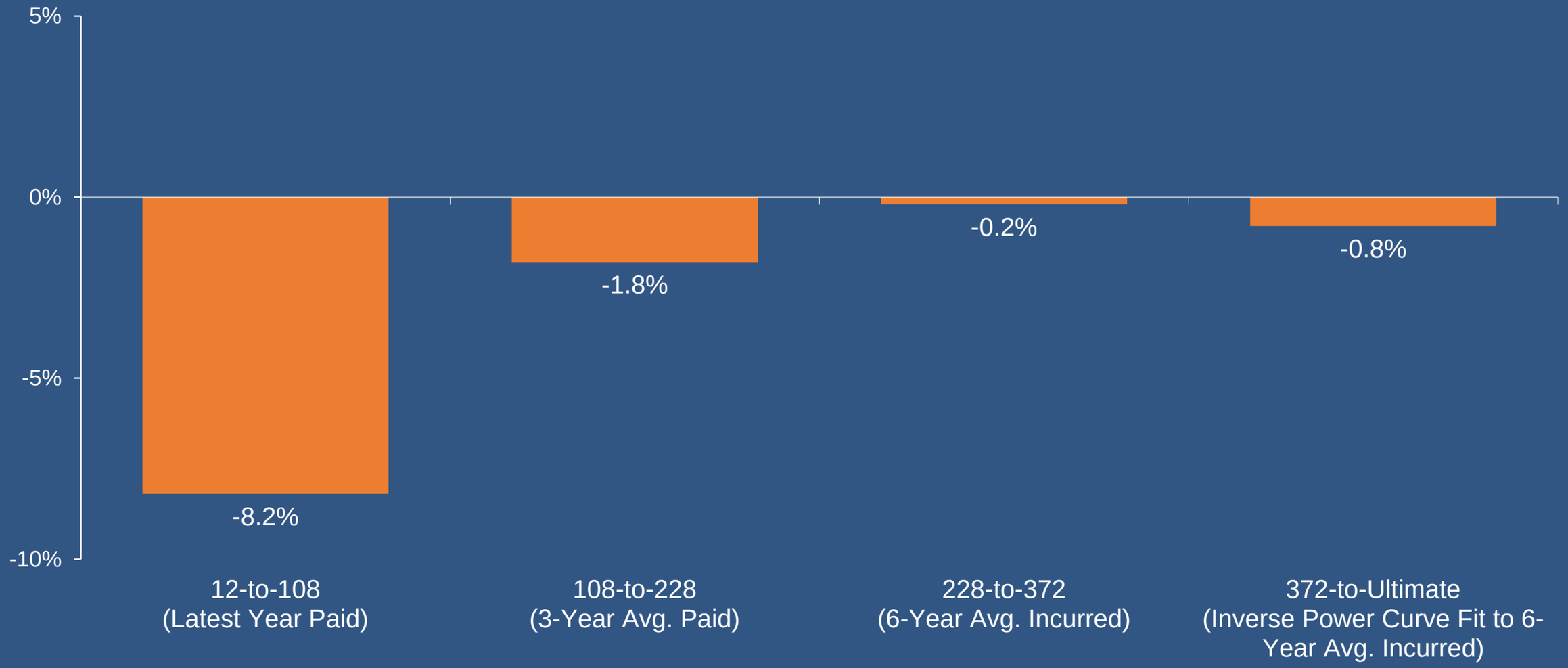
# Cumulative Incurred Development from 228 to 360 Months



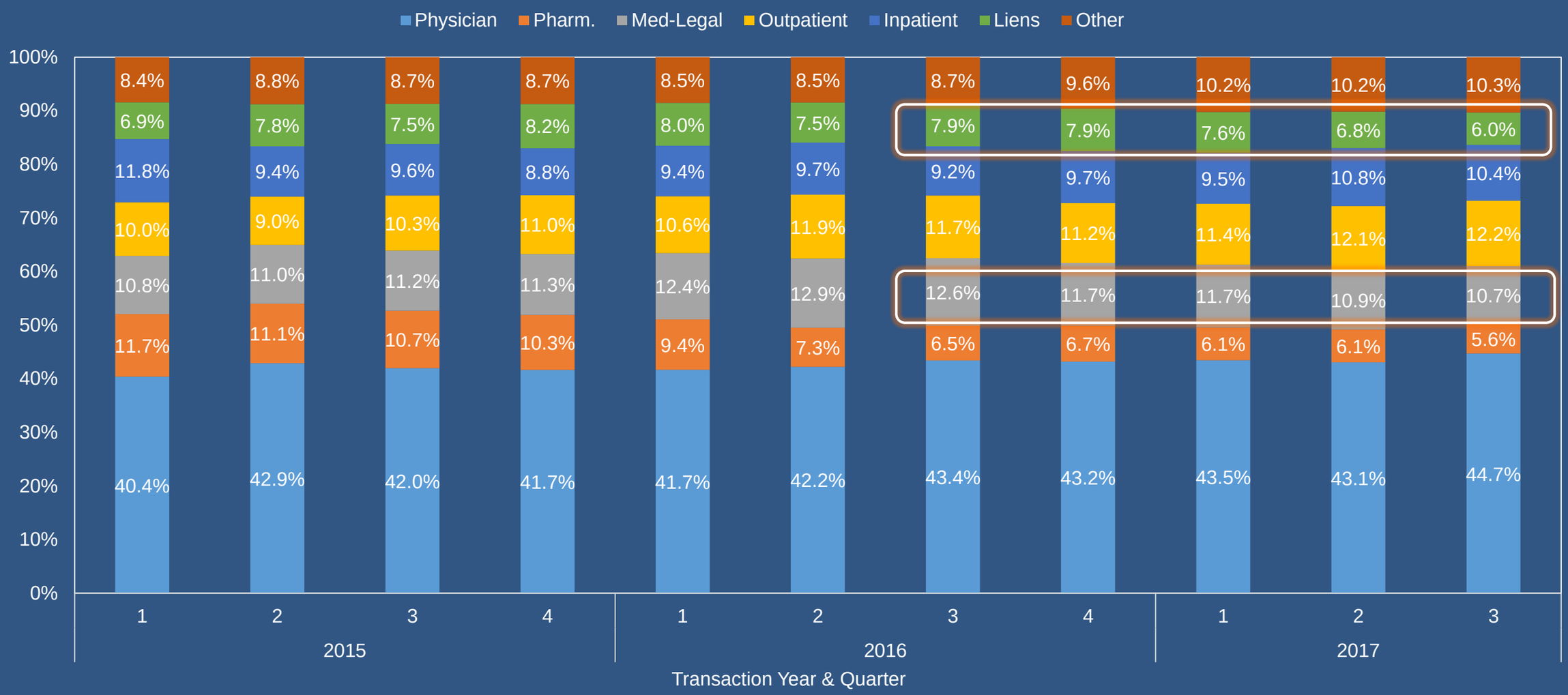
# Cumulative Paid Development from 228 to 360 Months



# Change in Projected Medical Development Factor 6/30/17 to 12/31/17 Experience



# Proportion of Medical Paid by Category




Source: WCIRB Medical Data Call

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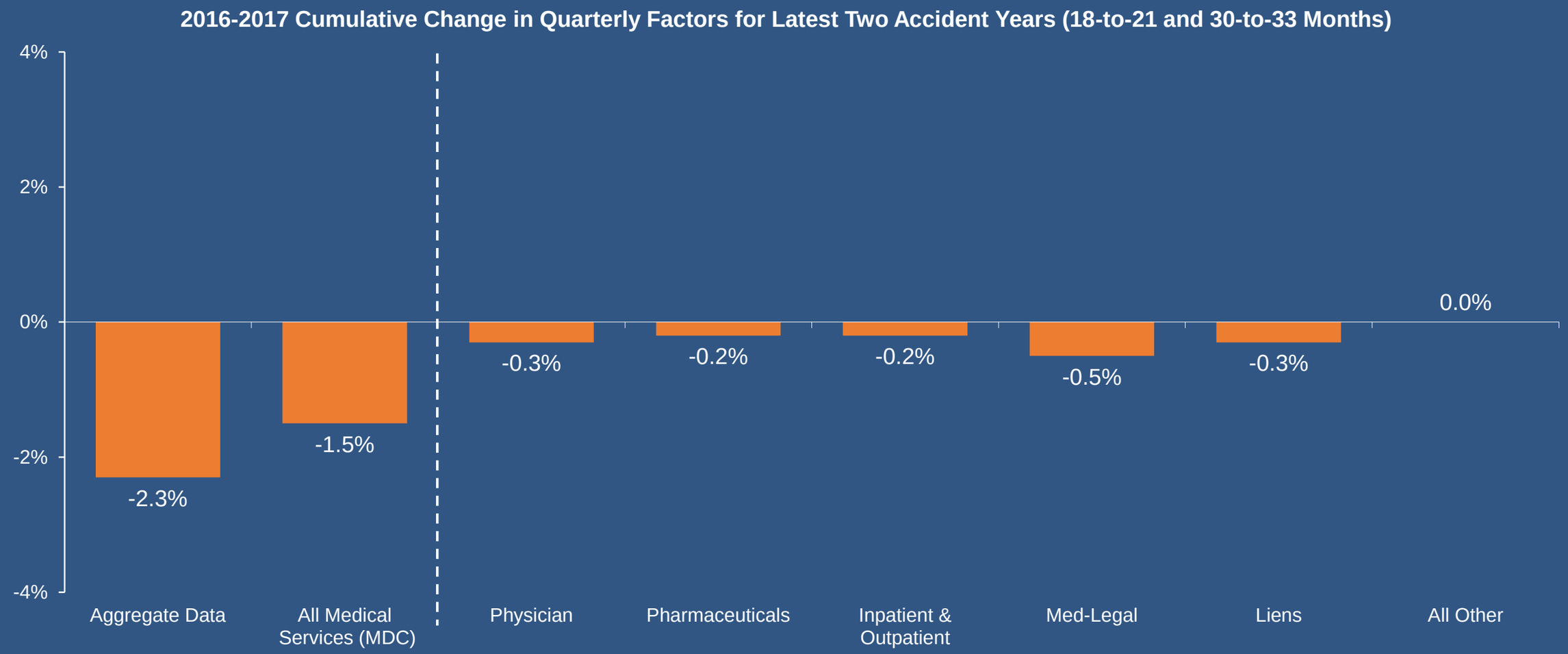
# Change in 3Q17 Paid Medical Development Factors by Category




Source: WCIRB Medical Data Call

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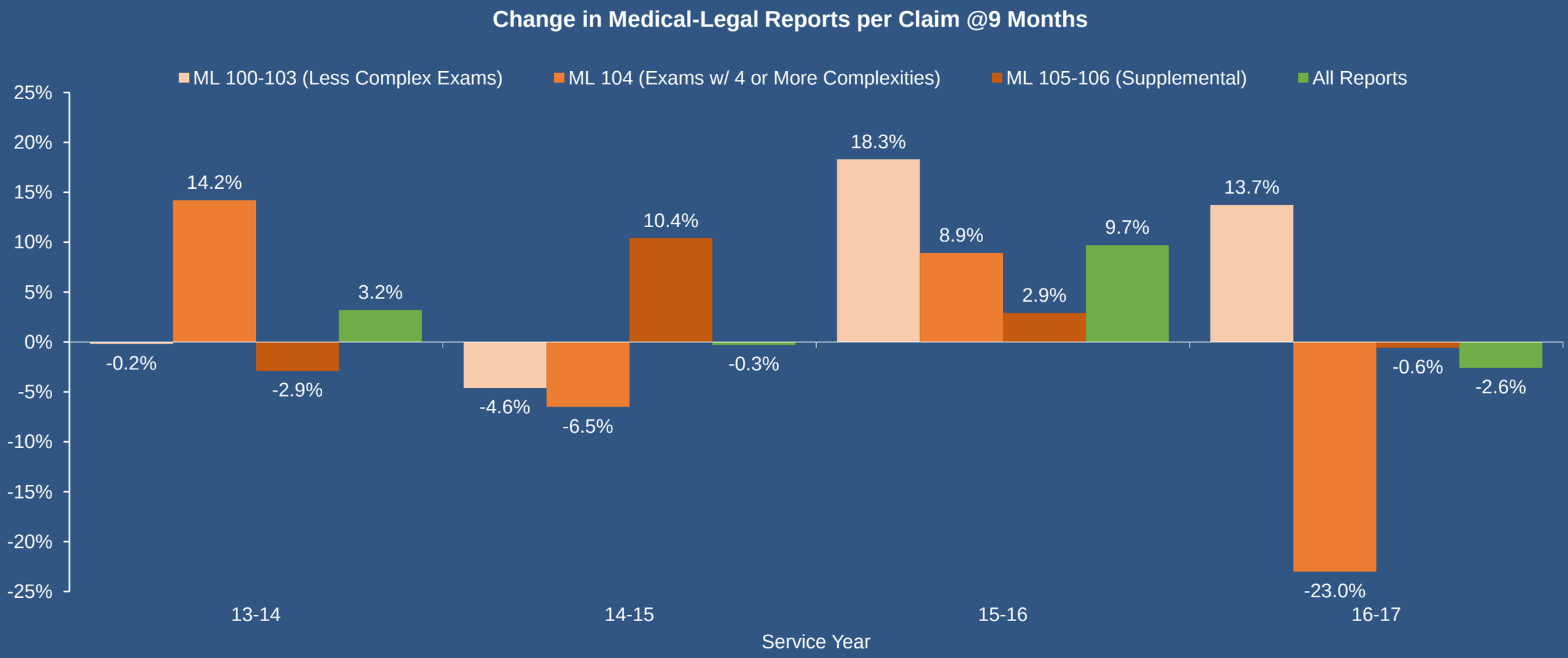
# Change in Medical-Legal Costs




Source: WCIRB Medical Data Call

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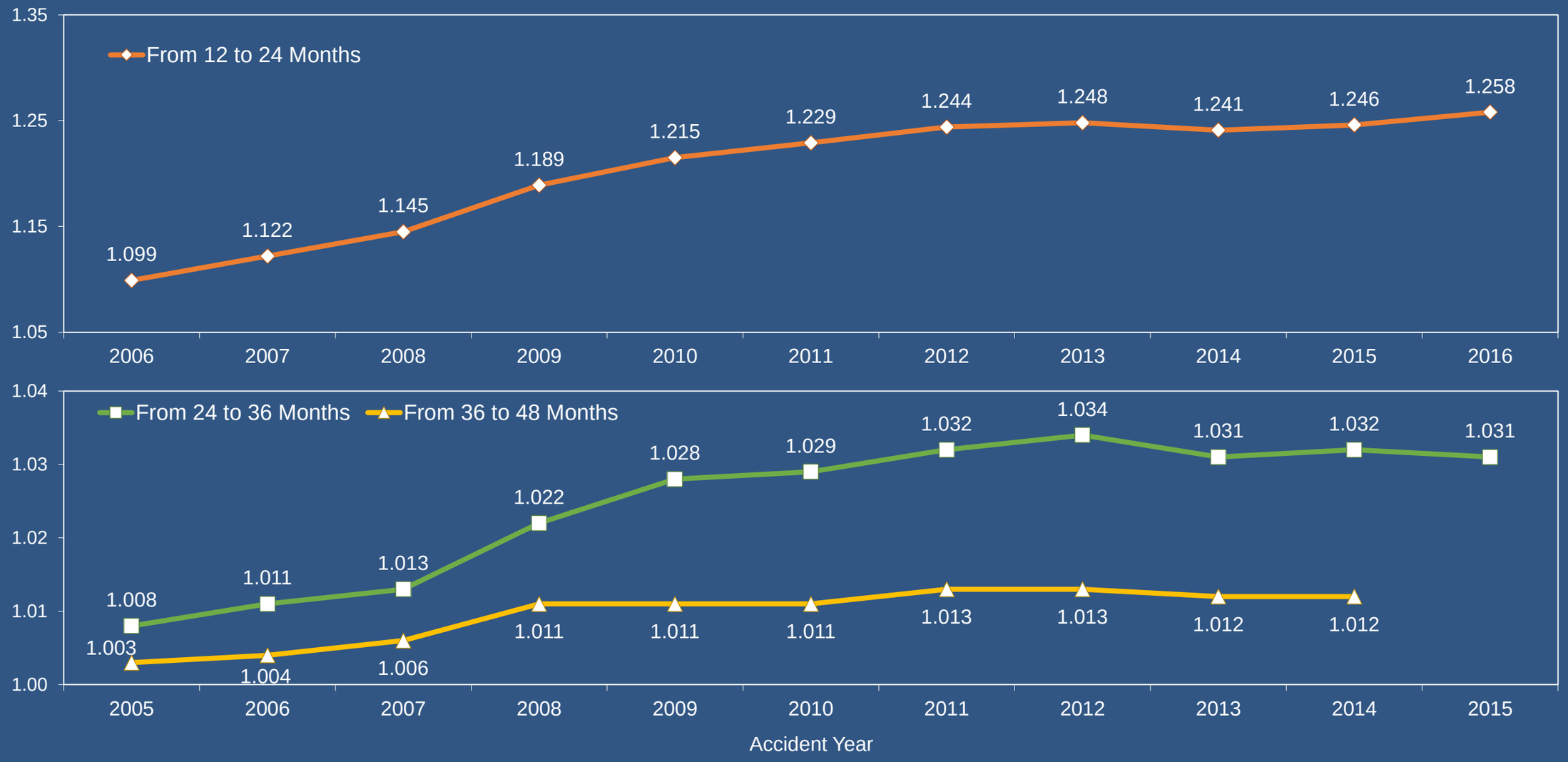
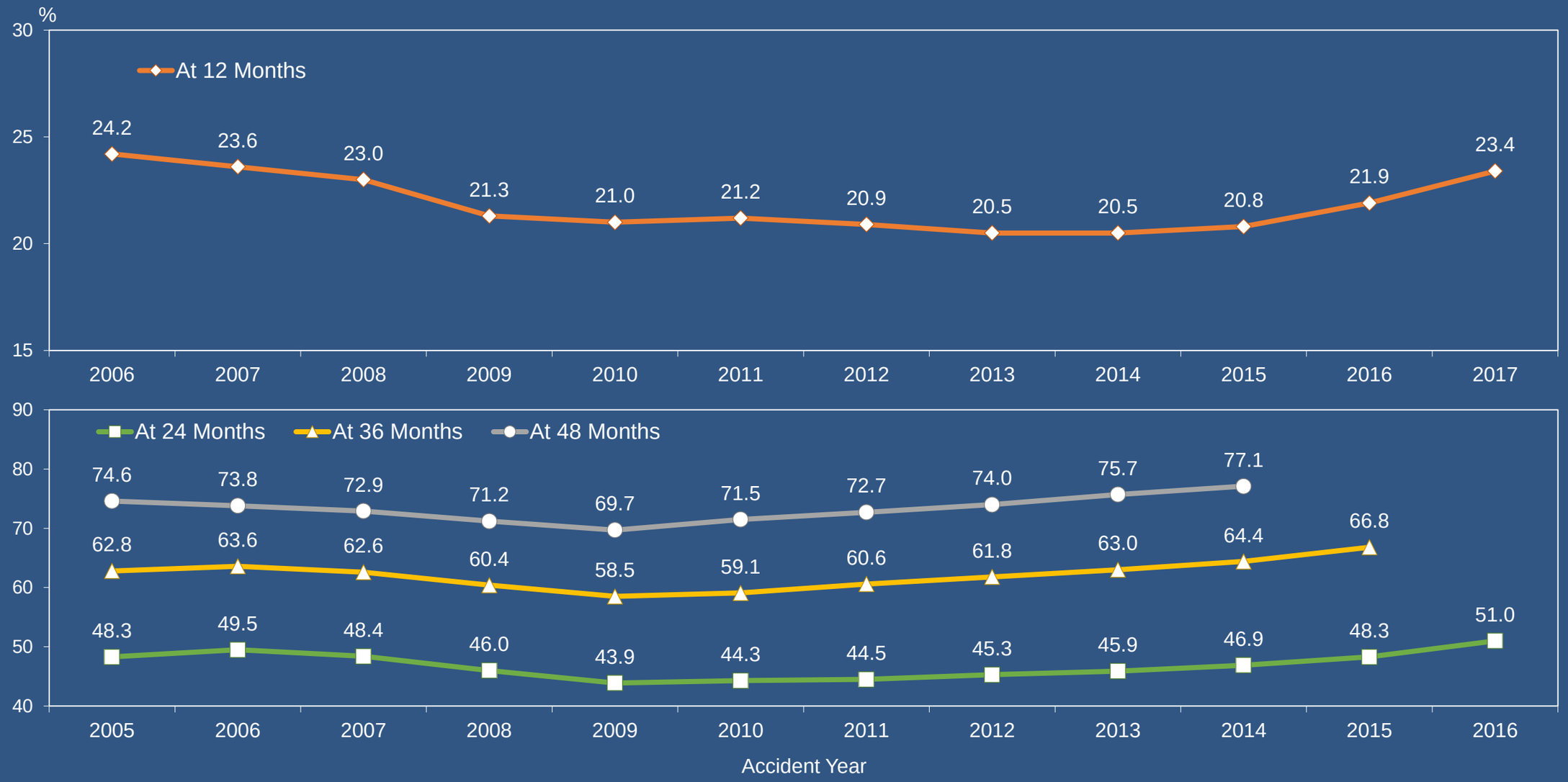
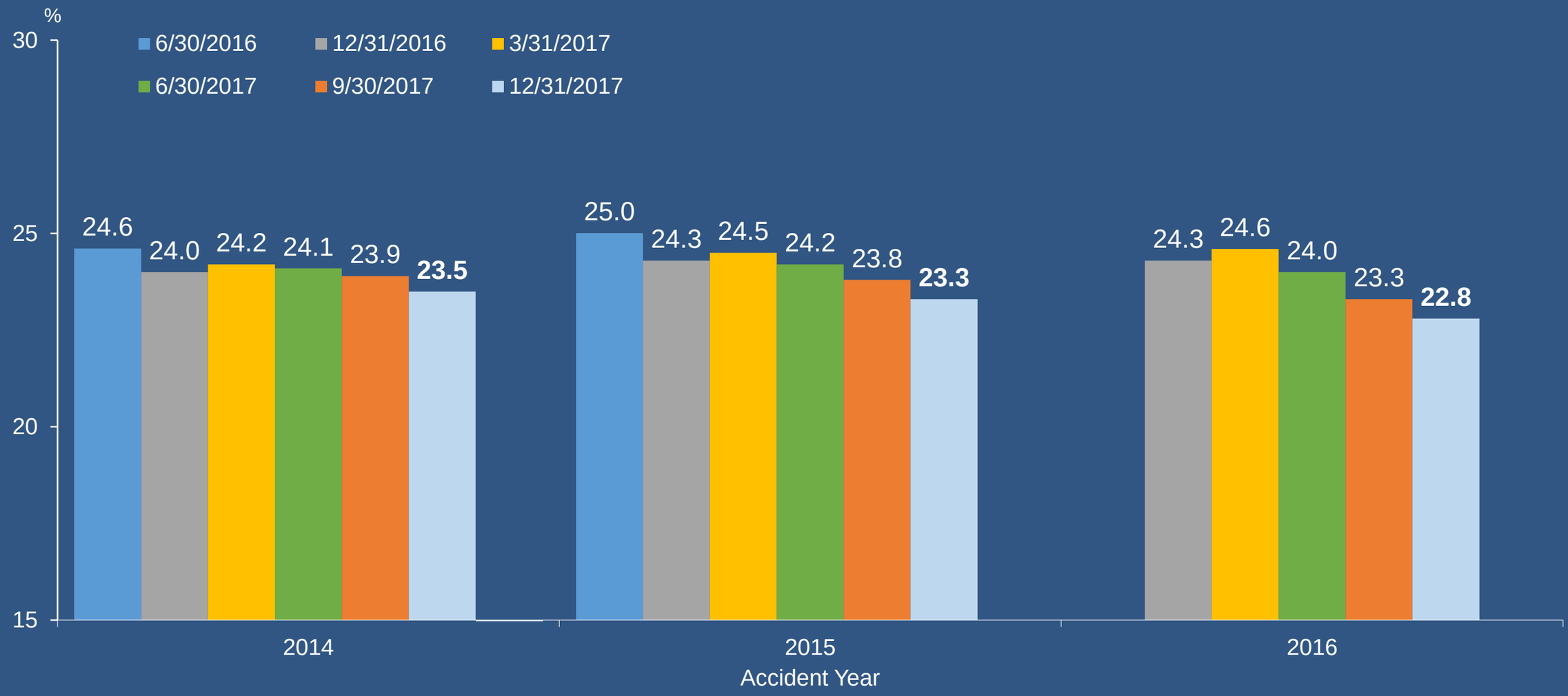
# Indemnity Claim Count Development (Exhibit 10.1)



# Ultimate Indemnity Claim Settlement Ratios (Exhibit 11.2)



# Projected Ultimate Indemnity Loss Ratios (Exhibit 3.1)




Note: All loss ratios are adjusted to the loss development methodology reflected in the 3/19/2018 Agenda and may not be comparable to the actual loss ratios projected at that time.

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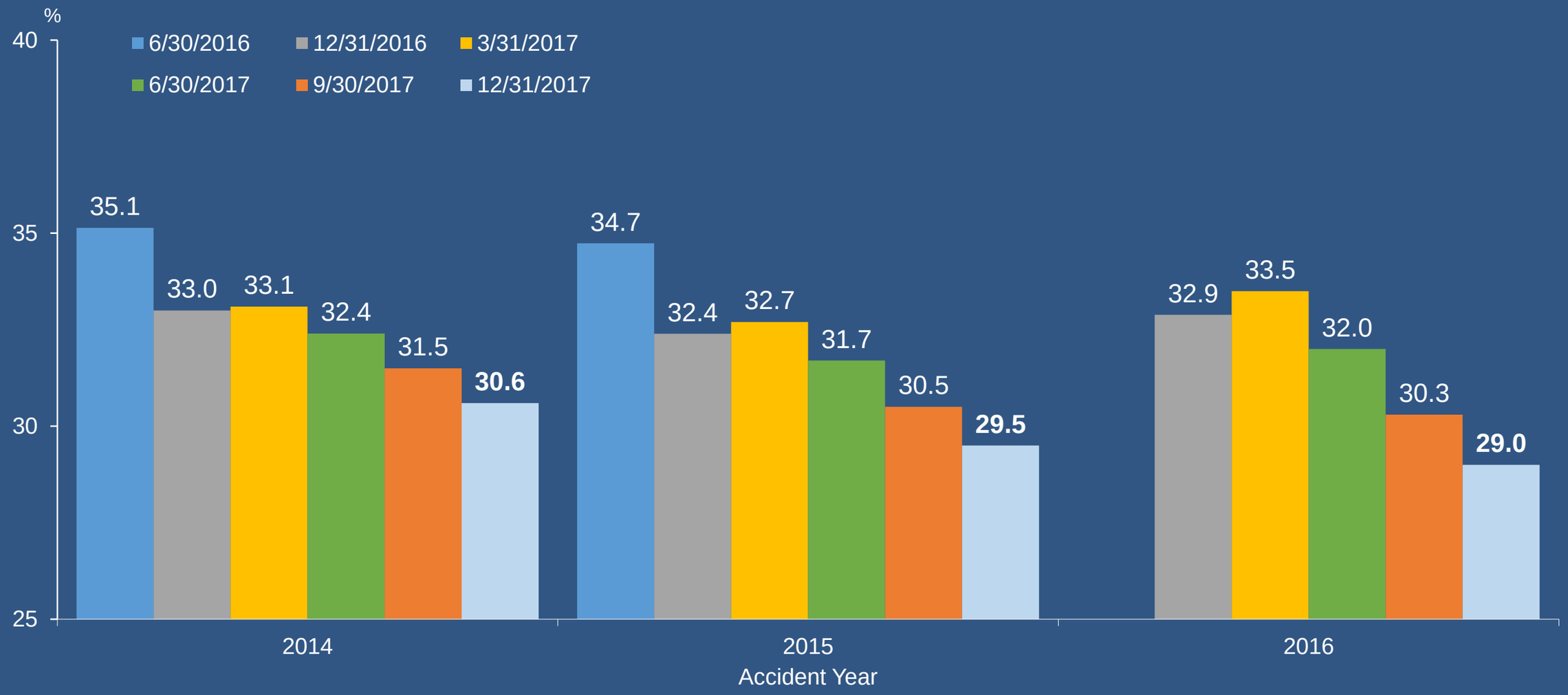
# Projected Ultimate Medical Loss Ratios (Exhibit 3.2)




Note: All loss ratios are adjusted to the loss development methodology reflected in the 3/19/2018 Agenda and may not be comparable to the actual loss ratios projected at that time.

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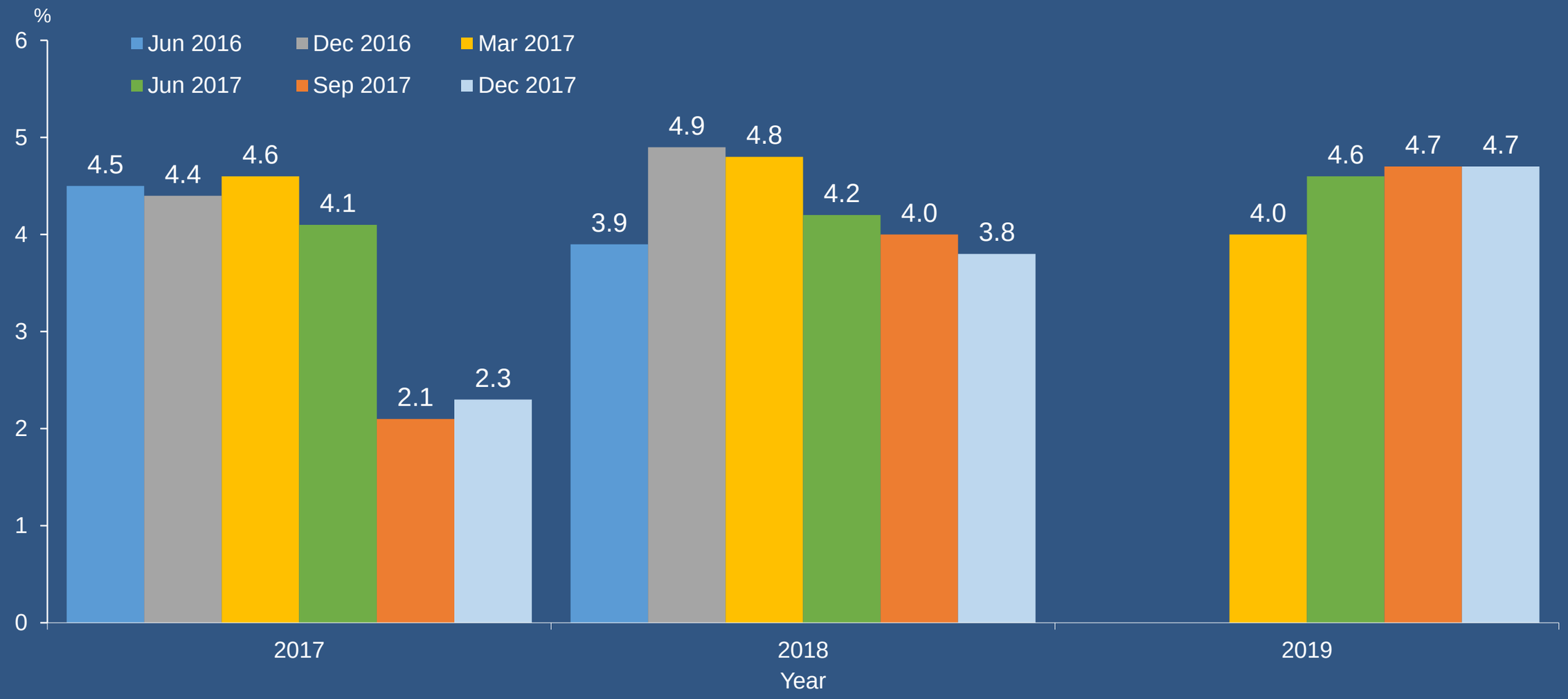
# Forecast Wage Level Changes (Exhibit 5.1)




Source: BLS historical wage changes and UCLA forecasts.

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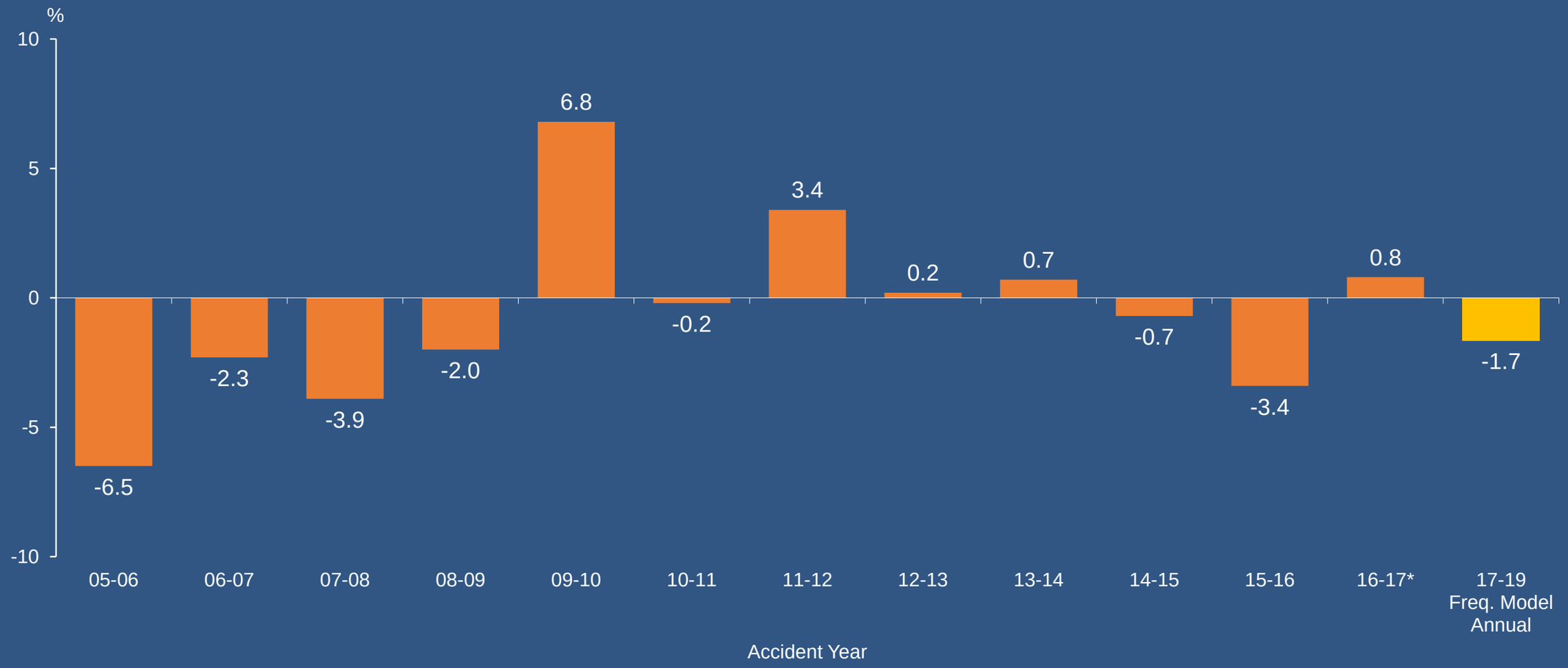
# Projected Changes in Indemnity Claim Frequency (Exhibits 6.1 & 12)




* Based on changes in reported aggregate indemnity claim counts as of 12/31/2017 compared to changes in statewide employment. All other estimates based on unit statistical indemnity claims compared to reported insured payroll.

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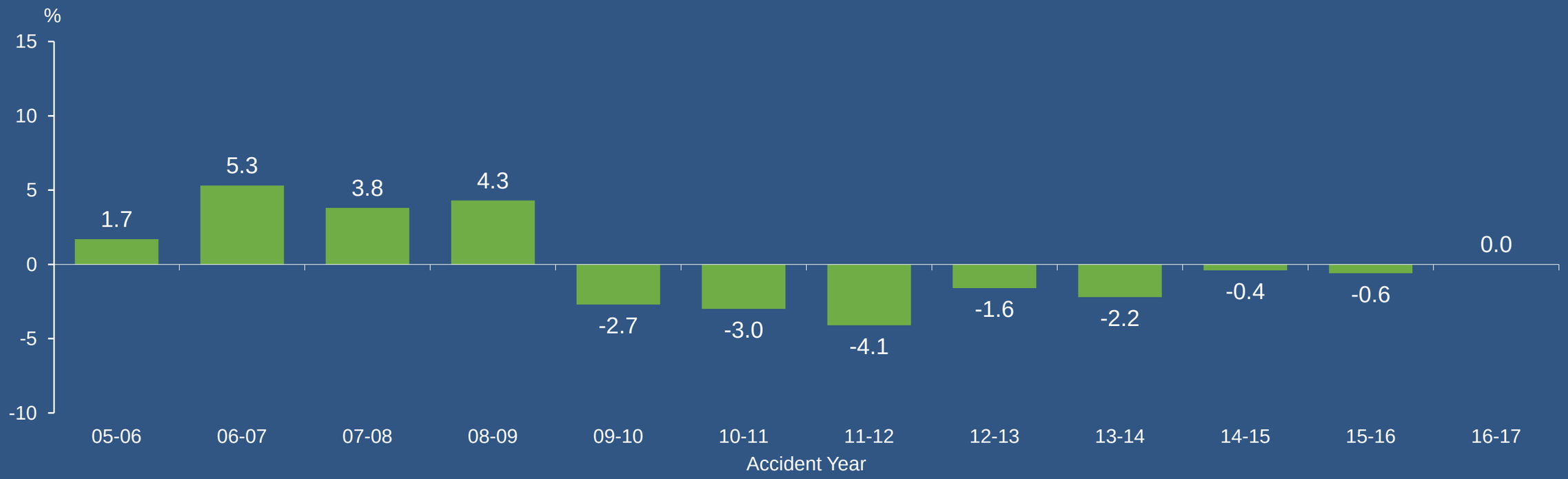
# Projected Changes in On-Level Indemnity Severity (Exhibit 6.2)




**Annual Exponential Trend Based on:**

**2005 to 2017: -0.5%**

**2012 to 2017: -1.0%**

**Agenda Selected: 0.0%**

Source: WCIRB projections as of 12/31/2017.

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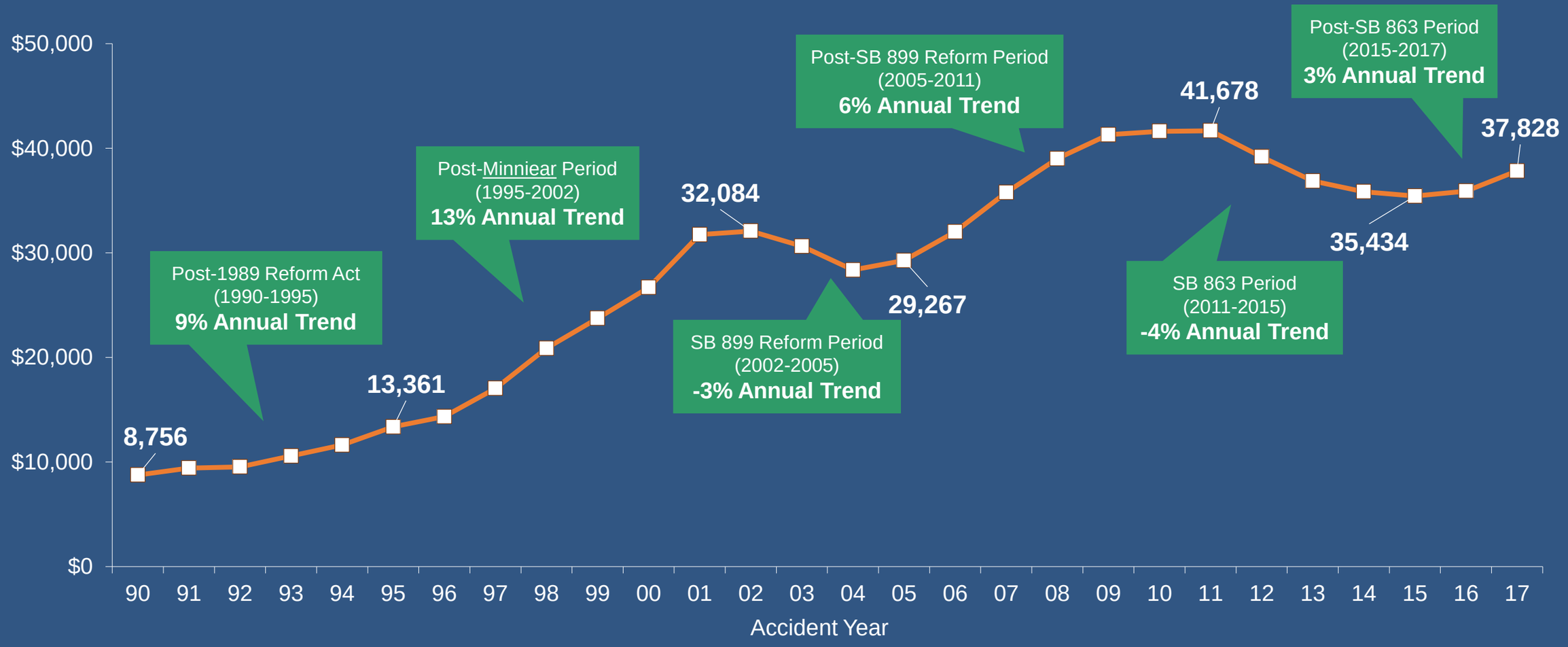
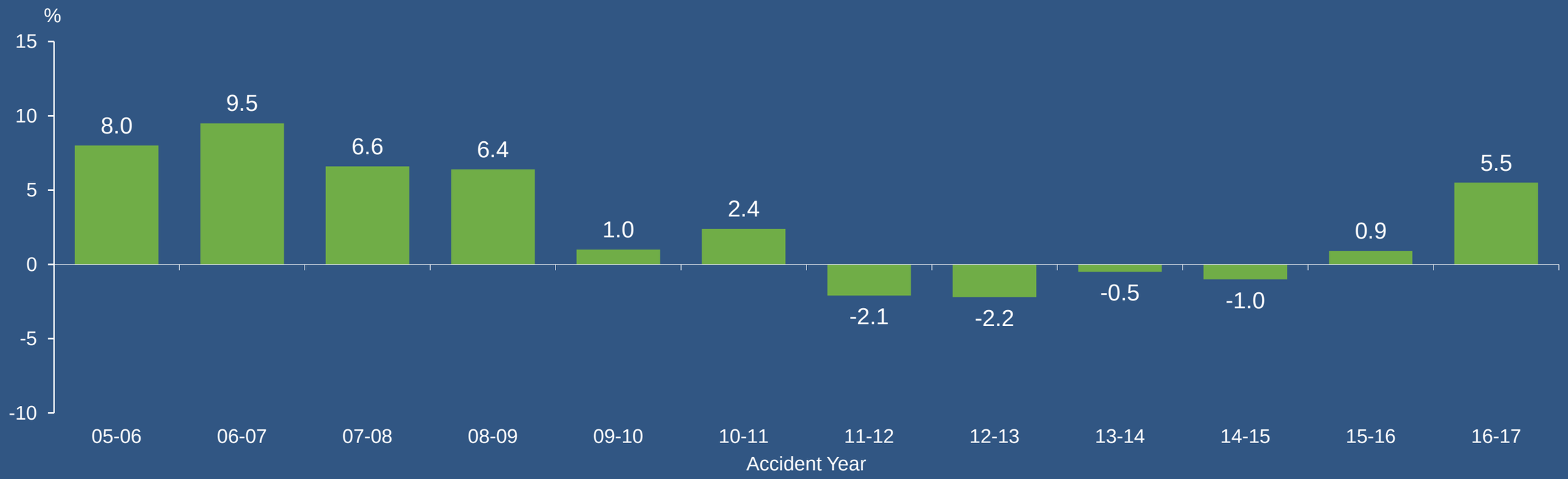
# Ultimate Medical per Indemnity Claim (Exhibits 6.3 & 6.4)




Source: WCIRB projections as of 12/31/2017. Includes MCCP costs in all years for consistency.

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




**Annual Exponential Trend Based on:**

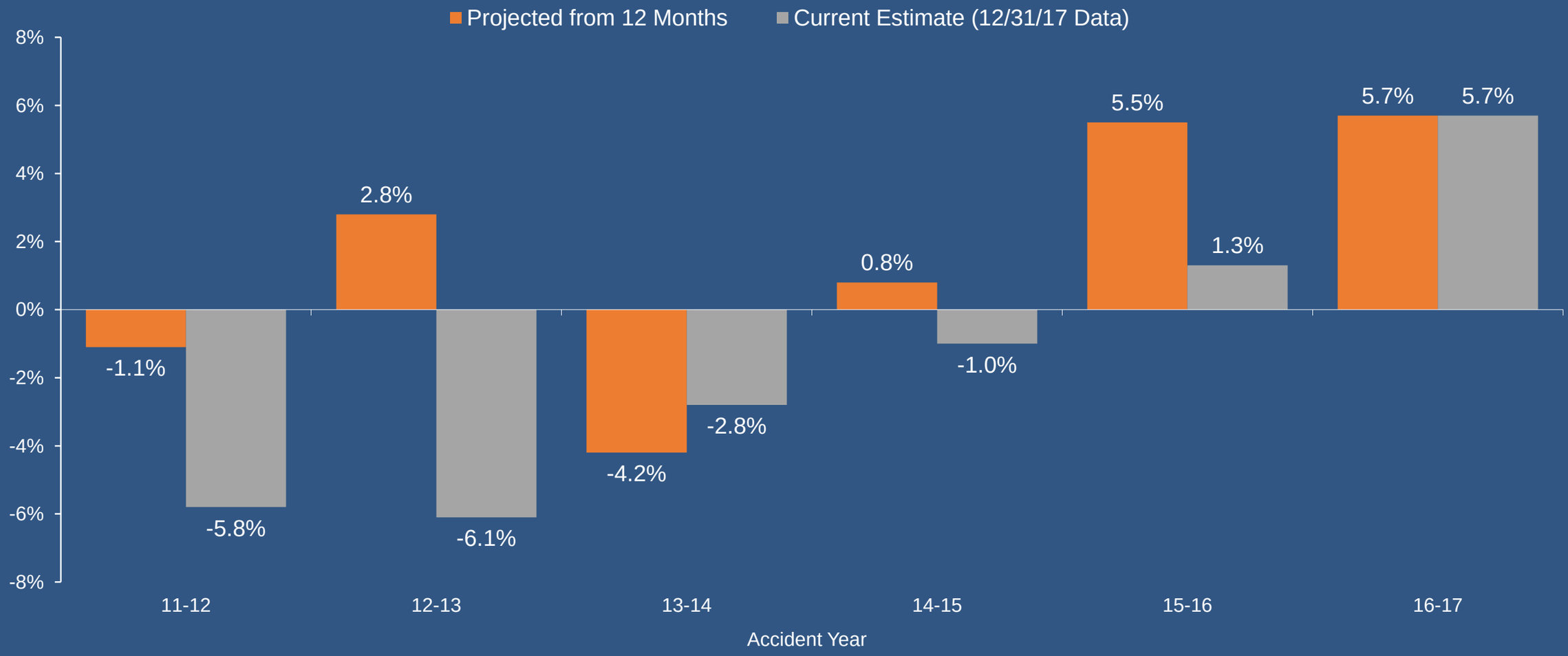
**2005 to 2017: +2.0%**

**2012 to 2017: +0.3%**

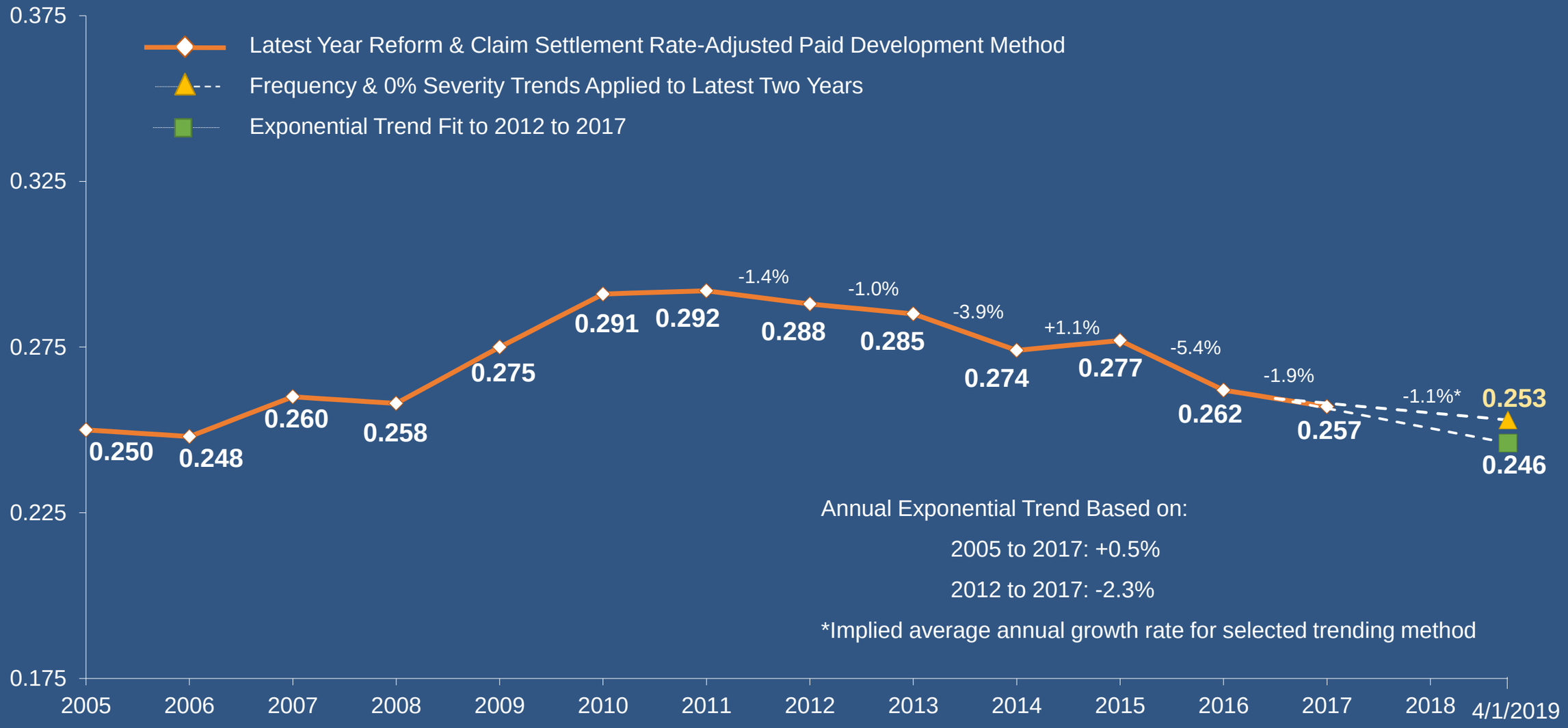
**Agenda Selected: 3.0%**

Source: WCIRB projections as of 12/31/2017. Excludes MCCP costs.

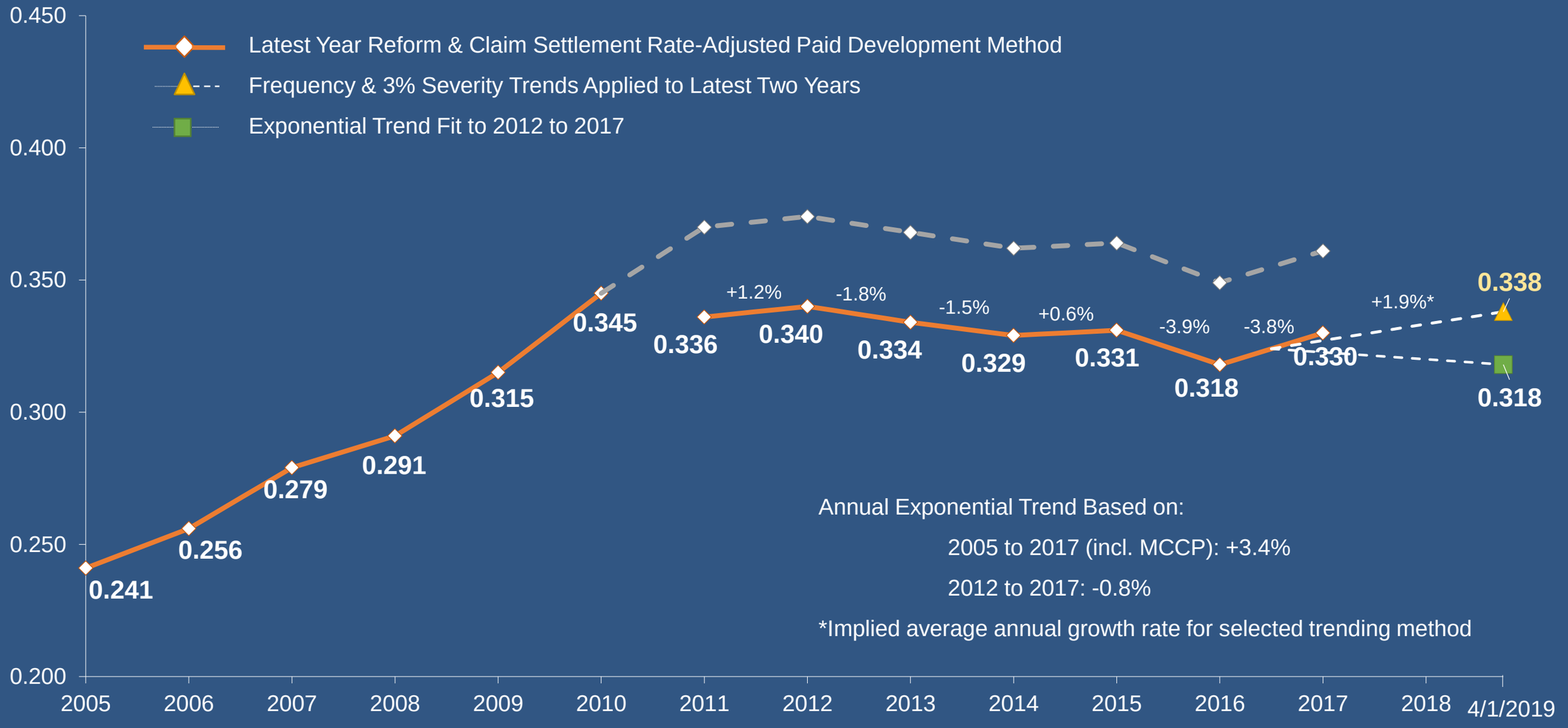
# Comparison of Projections of Ultimate Medical Severity Changes



# Projected On-Level Indemnity Loss Ratios (Exhibit 7.1)



# Projected On-level Medical Loss Ratios (Exhibit 7.3)

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1221 Broadway, Suite 900
Oakland, CA 94612
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