WORKERS COMPENSATION: NEW DEVELOPMENTS IN DEVELOPMENT

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Overview of Presentation

- NCCI is modifying the loss development methodology used in class ratemaking (for filings effective 10-1-09 and subsequent).

- What is the current approach?

- What could be improved?

- What research was completed on the current and new methodology?

- How will the new methodology look?

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Current Loss Development Methodology in Class Ratemaking

- For each state, dollars of loss are currently organized into two loss development groupings: Serious and Non-Serious

- Indemnity and Medical are separately computed.

Serious
- Fatal
- Permanent Total
- Major PPD

Non-Serious
- Medical Only
- Temporary Total
- Minor PPD

* PPD – permanent partial disability

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Current Loss Development Methodology in Class Ratemaking

- NCCI Workers Compensation Statistical Plan data (WCSP) is used from 1st to 5th report. Policy Periods are valued @18, @30,….,@66 months.

- An arbitrary value, called the critical value (CV), is used to bifurcate permanent partial (PPD) claims into major and minor in each state's loss cost filing.

- Critical values vary significantly by state. The critical values currently range from [$20,000; $90,000].

- The medical loss development triangles do not differentiate serious and non-serious from 1st to 5th report….TOTAL medical dollars are used.

Application of the Critical Value (CV)

- If <u>indemnity</u> portion of PPD claim > CV, assign to major

- If <u>indemnity</u> portion of PPD claim < CV, assign to minor

- It is applied by considering only the <u>indemnity</u> portion of "paid + case" dollars for all claims at each report.

- The <u>medical</u> dollar amount is not a determinant.

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Issues with Current Methodology
Critical Value Crossover
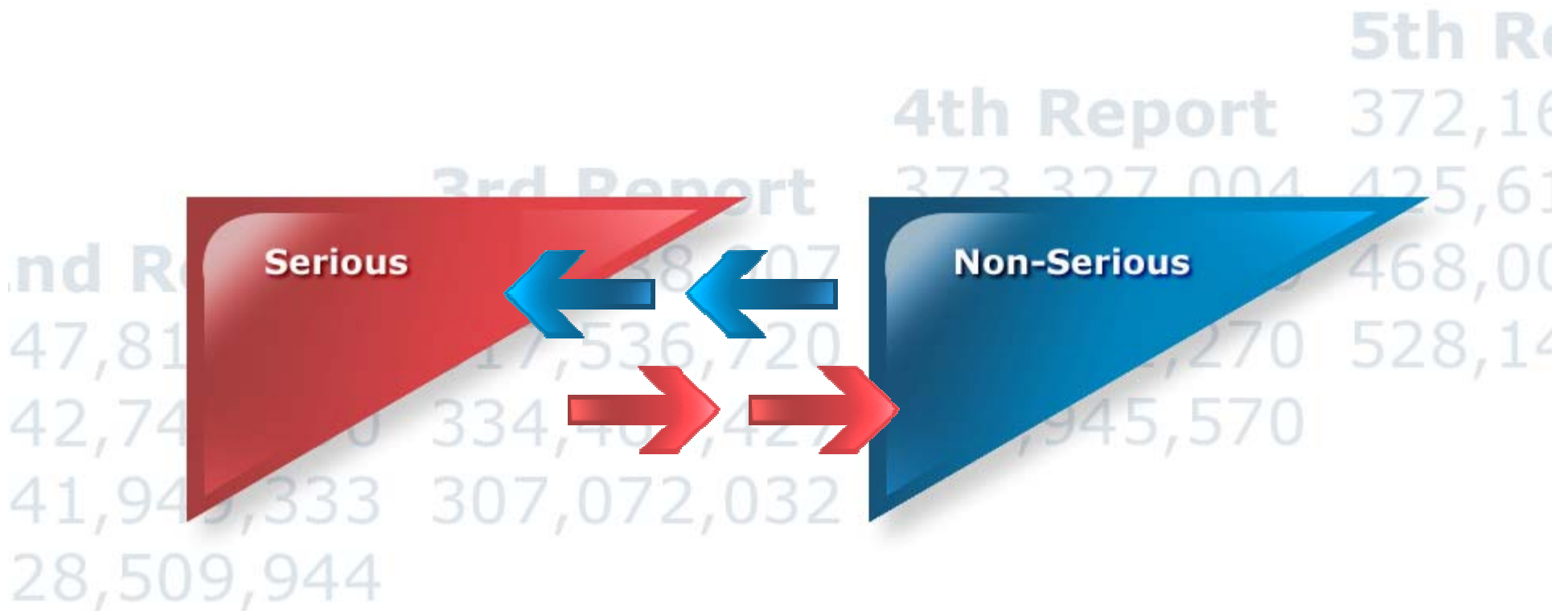
Claims frequently jump triangles at different reports as they cross the CV.

Note: A tail factor is applied to serious @5th.   No tail factor is applied to non-serious.

What Could Be Improved?

- Our research revealed that there was a better way to determine whether a claim may develop (or not).

- Crossover diminishes predictive ability, both natural injury type crossover and CV crossover (refer to exhibit 1).

- The medical losses could be better differentiated in lieu of using total medical to enhance predictive ability.

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Data Element: Injured Part of Body (POB)

- New data elements were collected starting in 1996 with Unit Report Expansion (URE) and were available for research.

- POB provided a nice alternative to CV as more than 98% of the time it did not change across reports.

- Analyze the injured part of body (POB) to determine if it could provide value as a predictor of a claim's propensity to develop (or not develop).

- 55 unique parts of body are reported within the field.

- Data could be thin by POB within a state.

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Analysis of POB and Loss Development

- Observed average dollars of development per claim were computed on a CW basis as follows:

 $$\frac{\text{(Reported Losses @4th - Reported Losses @1}^{st})}{\text{Number of claims}}$$

- Exhibit 2 demonstrates the results by POB.

- Certain parts of body developed more relative to others.

- The percentage of open claims @ 5th report was also reviewed for temporary total & permanent partial.

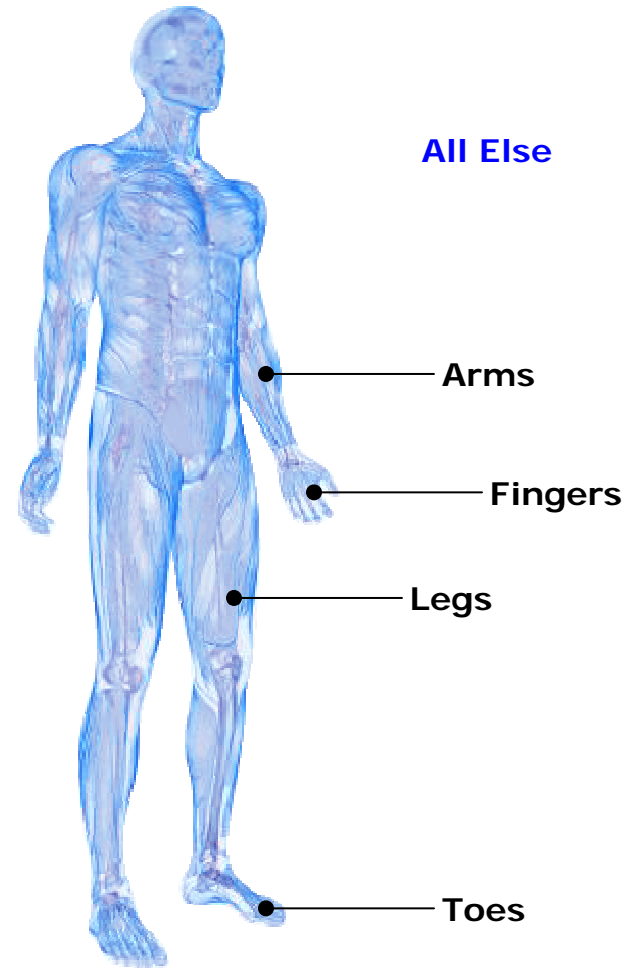- If it's still open @ 5th, it may develop higher.

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Analysis of POB and Loss Development

- Exhibit 3 ranks the POB from the lowest % to the highest % of open claims @ 5th report.

- Several POB overlap in the two analyses.

- As class ratemaking is done by state, we started to lean toward grouping the POB to address thin data for a given POB.

- States have scheduled injuries with fixed dollar benefits for such POB as arms, fingers, toes, feet, etc.

- And so we arrived at the following straw man:

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Body Part Mapping

Head

Shoulders

Back

Trunk

Multiple

All Else

Arms

Fingers

Legs

Toes
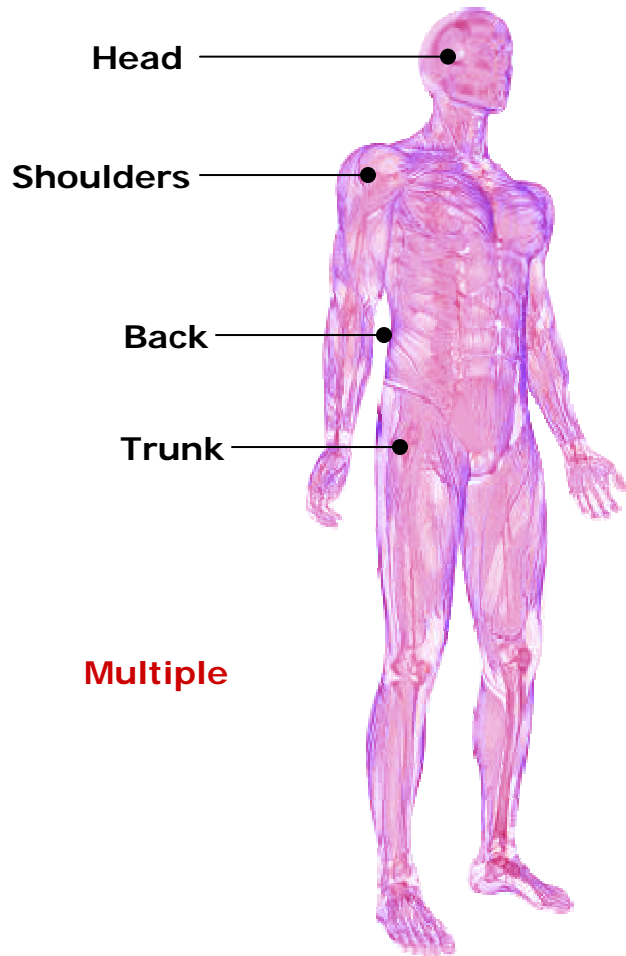
Likely-to-Develop (L)   **Not-Likely-to-Develop (N)**

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How Was Injury Type Considered?

- After the POB mapping, more work was performed.

- How could we test the POB mapping in conjunction with the injury type?

- How much did claims from each injury type develop?

- Was the average cost per case an indicator of the propensity for a claim to develop (or not)?

- How were we going to address the natural crossover of claims across injury types?

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The Answer Was to Lock-down the Claims for Computing Each Link Ratio

"L" Develops Much More Than "N"
Loss Development On A Fixed Set Of Claims
All Crossover Excluded
PY 1997 Countrywide: 1ST – 5TH LDF*

Injury type - POB	Indemnity	Medical
PP - L	1.387	1.183
PP - N	1.234	1.028
TT - L	1.522	1.170
TT - N	1.271	1.001

* For each link ratio (1-2, 2-3,etc.), the set of claims was the same at each report.

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Average Cost Per Case Was Not An Indicator Of Development

PY 1997 Countrywide: 1ST – 5TH LDF*
All Crossover Excluded

Injury type - POB	Indemnity	Medical
TT– L ≤ $26K	1.797	1.170
TT– L > $26K	1.226	1.168
TT– N ≤ $26K	1.373	1.014
TT– N > $26K	1.084	0.953

* For each link ratio (1-2, 2-3,etc.), the set of claims was the same at each report.

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Recap Of Decisions To This Point

- Eliminate the Critical Value.

- Dollars of loss organized into two loss development groupings by POB and Injury Type Combination: Likely-to-Develop (L) and Not-Likely-to-Develop (N).
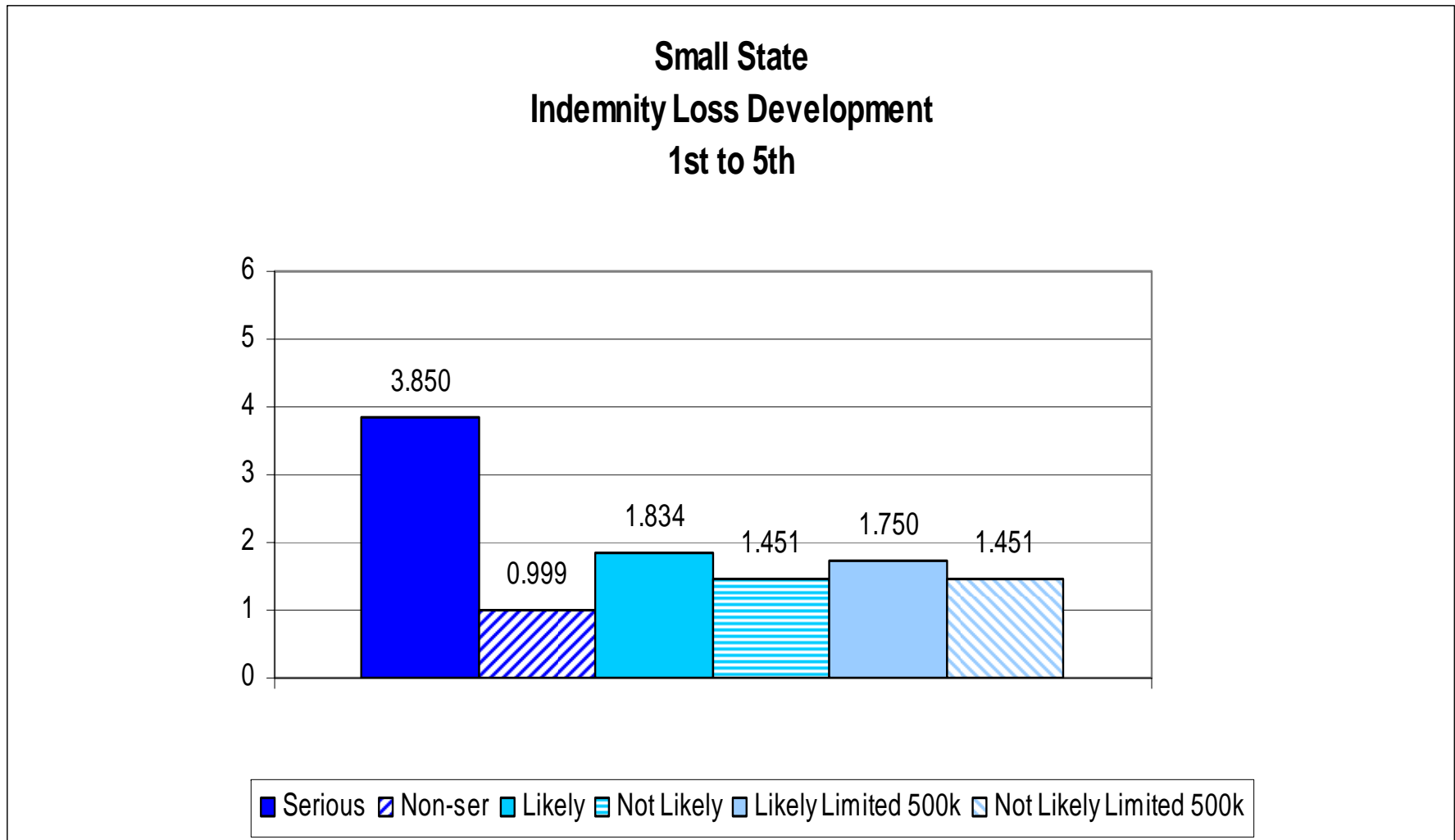
Likely-to-Develop
- Fatal
- Permanent Total
- Permanent Partial - L
- Temporary Total - L

Not-Likely to-Develop
- Medical Only
- Permanent Partial - N
- Temporary Total - N

- Indemnity and Medical are separately computed.

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Loss Development Comparison
New Decisions Vs. Current Methodology

Small State
Indemnity Loss Development
1st to 5th

Legend: ■ Serious ▨ Non-ser ■ Likely ▤ Not Likely ■ Likely Limited 500k ▨ Not Likely Limited 500k

Values: 3.850, 0.999, 1.834, 1.451, 1.750, 1.451

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Loss Development Comparison
New Decisions Vs. Current Methodology

Small State
Medical Loss Development
1st to 5th

Chart values:
- Total: 1.663
- Likely: 2.150
- Not Likely: 1.188
- Likely Limited 500k: 1.966
- Not Likely Limited 500k: 1.177

Legend: ⊠ Total ⊟ Likely ⊟ Not Likely ⊟ Likely Limited 500k ☐ Not Likely Limited 500k

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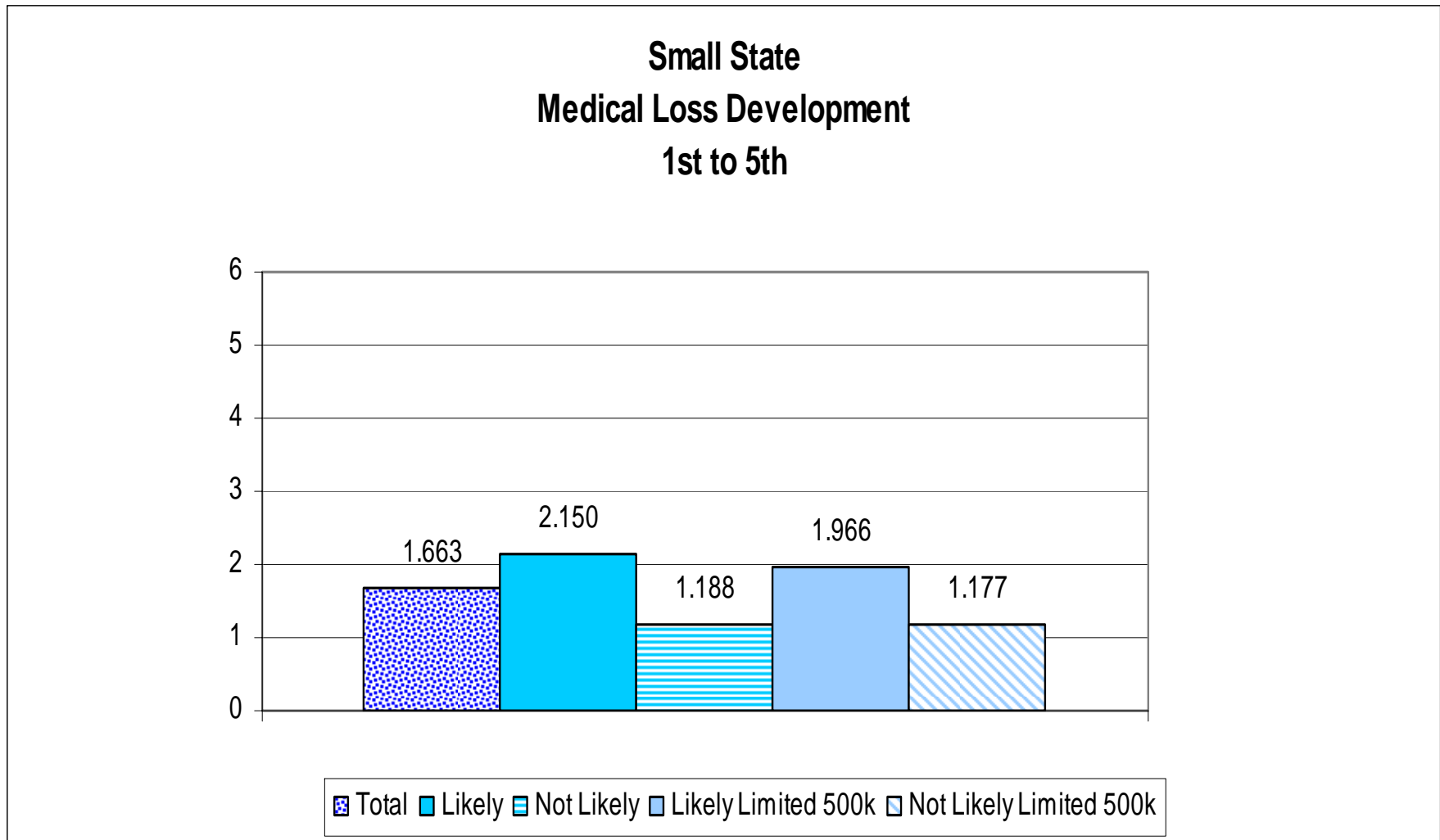
More Questions To Consider

- Why were Fatal Claims assigned to the "L" grouping?

- Did any other WCSP data elements add value to discerning Likely-to Develop (L) and Not-Likely-to-Develop (N) patterns?

- Would closed claims be assigned to the "N" grouping?

- What about the movement of claims into other injury types?

- What analysis will allow us to make such decisions?

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Details Of The Analysis

- We first examined TT claims with "likely" body parts for several states and years to see if there was any indicator to further differentiate those that developed from those that did not.

- The analysis looked at all WCSP data elements.

- Besides body part, one other characteristic stood out: nearly all development was coming from claims that were open at 1st report.

- To test this further, Staff extracted data for all NCCI states for policy years 1999 - 2002 at each available report level from 1st through 6th.

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Details Of The Analysis

- Dollars of loss were compiled for each policy year and state as follows:
  - By injury type (Fa; PT; TT; PP and Mo) at each report level
  - By the claim status open (O) or closed (C) at first report and each subsequent report level
  - By the body part category "likely to develop" (L) and "not likely to develop" (N)
  - Losses were limited at $500,000.
  - Indemnity and medical aggregated separately.
  - States and years in URE format only

- The data was then aggregated countrywide for analysis, and the results are shown on Exhibits 4 – 7.

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Claims Were "Locked Down" at Each Report Level* To Examine True Development
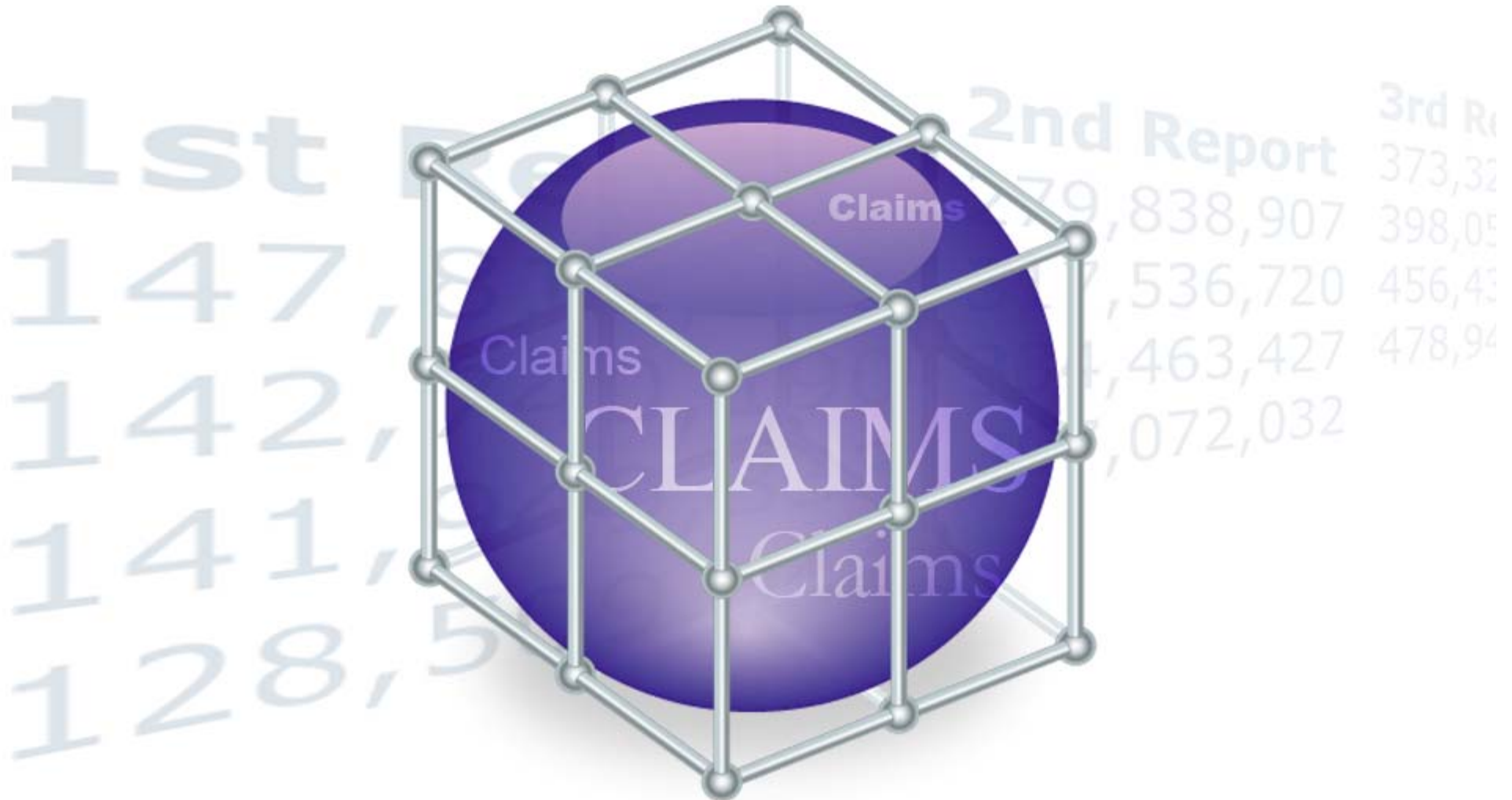
* Example: Claims locked @ 1st report were locked across all report levels through 5th or 6th report.

Details Of The Analysis

- For all 5 injury types, the loss dollars were segregated into the following 4 subcategories and loss development factors (LDFs) were computed:

    – LO = "likely" body part and claim open at 1st.

    – LC = "likely" body part and claim closed at 1st.

    – NO = "not-likely" body part and claim open at 1st.

    – NC = "not-likely" body part and claim closed at 1st.

- Exhibit 4 shows the resulting LDFs for policy years 1999 and 2000. The other years had similar results. No tail factor was applied to "likely" grouping.

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Results Of The Analysis

- For temporary total (TT), permanent partial (PP), and medical-only (Mo):

  – Losses from claims in the "likely" (L) body part categories consistently develop more than its "not likely" (N) counterpart.

  – Claims that were open (O) at 1st report develop much more than the closed (C) claims do.

  – Thus, the combination of the "likely" (L) body part and the open (O) at 1st report claim categories generate the highest LDFs.

  – Although not included in the exhibit, this differentiation held for claims locked down at subsequent report levels as well, using claim status at 1st.

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Results Of The Analysis

- Note the magnitude of the LDFs for the combination of the "likely" (L) body part and the closed (C) claim categories.

- Focus on the arrows on exhibit 4 for Temporary Total (TTLC) and the Permanent Partial (PPLC) rows.

- The (LC) loss development pattern aligns better with the current "not likely" (N) LDF pattern for both injury types.

- Look at Exhibit 5, Option 1.

- It shows that by moving the (LC) dollars into the "not likely" (N) group for PP and TT, there is a greater differentiation in the LDFs. The "likely" LDF increases and the "not likely" decreases.

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More Results Of The Analysis

- On Exhibit 4, the (L) or (N) body parts do not discern loss development patterns for Fatal claims as it does for other injury types.

- So Exhibit 6 was compiled to look deeper into loss development for fatalities.

- The top of Exhibit 6 shows most fatal claims do not develop when reported as fatal @ 1st report, and remaining fatal at the latest report.

- However, the center of Exhibit 6 shows a lot of upward development for claims which emerged as fatalities at later reports.

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More Decisions Were Made

- Implement the following recommendations:
  - Move TT and PP "likely" body part claims that are <u>closed at 1st</u> into "not likely".
  - Move claims that are <u>Fatal at 1st</u> into "not likely" group.
  - Keep all PT claims in the "likely" group (exhibit 7).
  - Keep all (Mo) claims in the "not likely" group.

- Note Option 2 (including crossover) at the very bottom of Exhibit 5 includes recommendations.

- Claims that close at 2nd and subsequent reports do not shift categories (simplifies approach).

- Staff will assign claims using body part at 1st .

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New Methodology- Final Proposal

- Triangles will be expanded to 10th report over time.

- Individual claim amounts will be limited at $500,000.

Likely-to-Develop (L)

Fatal @2nd & subs. report

Permanent Total: All

*Permanent Partial: L and (Open @ 1st)

*Temporary Total: L and (Open @ 1st)

Not-Likely-to-Develop (N)

Fatal @ 1st report

Medical Only: All

Permanent Partial: NL or (Closed @ 1st)

Temporary Total: NL or (Closed @ 1st)

* PP- L and TT- L claims arising @ 2nd and subsequent reports will be considered open @ 1st.

Advantages Of The Recommendation

- It improves the predictive nature of LDFs for both the "likely" and "not likely" groupings.

- It should improve class equity.

- Reduces crossover considerably (does not eliminate it).

- It will allow NCCI to observe actual loss development out to 10th report.

- Limiting of large claims at $500,000 should provide more stability.

Appendix

- Exhibits 1 - 8

- Current Tail Factor

Current Tail Factor

SERIOUS DEVELOPMENT   **Large State**
TO ULTIMATE
Unlimited Medical
(using 2-year average development)

FIRST REPORT 1/3-12/3	(1) Incurred Losses	(2) Development 1:5	(3) Amendment Factor	(4) Modified Losses (1)x((2)x(3))
Fatal	3,769,846	1.362	1.008	5,175,999
Permanent Total	56,418,886	1.362	1.008	77,463,130
Major	92,132,869	1.362	1.008	126,498,429
Minor	202,853,463	1.362	1.008	278,517,805
Temporary Total	520,564,524	1.362	1.008	714,735,091
Medical Only	161,960,455	1.362	1.008	222,371,705
Contract Medical	43,345	1.362	1.008	59,513

SECOND REPORT 1/2-12/2	(5) Incurred Losses	(6) Development 2:5	(7) Amendment Factor	(8) Modified Losses (5)x((6)x(7))
Fatal	4,270,256	1.165	0.973	4,842,470
Permanent Total	91,136,323	1.165	0.973	103,348,590
Major	185,339,531	1.165	0.973	210,175,028
Minor	248,061,494	1.165	0.973	281,301,734
Temporary Total	507,060,323	1.165	0.973	575,006,406
Medical Only	152,090,873	1.165	0.973	172,471,050
Contract Medical	1,764	1.165	0.973	2,000

CALCULATION OF SERIOUS FIFTH-TO-ULTIMATE

(9) Combined Serious Losses	527,503,646
(10) Combined Non-Serious Losses	2,244,465,304
(11) Combined Total Losses	2,771,968,950
(12) Financial Data Fifth-to-Ultimate Development Factors	1.289
(13) Fifth-to-Ultimate Loss Development $(13) = ((12)-1)x(11)$	801,099,027
(14) Fifth-to-Ultimate Serious Loss Development Factors $(14) = ((9)+(13))/(9)$	2.519

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