

Evaluation of California's Permanent Disability Rating Schedule

Interim Report

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PREFACE

The RAND Institute for Civil Justice (ICJ) has been a key source of information and analysis for policymakers and stakeholders interested in the California workers' compensation system since the mid-1990s. In a series of studies for the California Commission on Health and Safety and Workers' Compensation (CHSWC) the ICJ has examined the adequacy of permanent partial disability (PPD) benefits, the workers' compensation court system, and medical fee schedules.

In this study, we focus on the system for evaluating permanent disabilities in California, the permanent disability rating schedule. The rating schedule, which is used to determine eligibility for PPD benefits as well as the amount of benefits, is at the center of legislative debates to reduce the costs of the workers' compensation system. We address several questions: Does the system ensure that the highest compensation goes to the most severely disabled individuals? Do injured workers with impairments to different parts of the body but similar employment outcomes receive similar compensation? Will different physicians evaluating the same injury produce similar ratings? And finally, how can the rating system be changed to improve outcomes for injured workers and employers in California?

This documented briefing is an interim report on study findings to date. The final report, expected in February 2004, will include additional analyses on ratings. The new findings will not change the results presented in this document, but they should improve the ability to make policy recommendations.

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***Evaluation of California's Permanent
Disability Rating Schedule:
Interim Report***

Robert T. Reville and Seth Seabury, RAND

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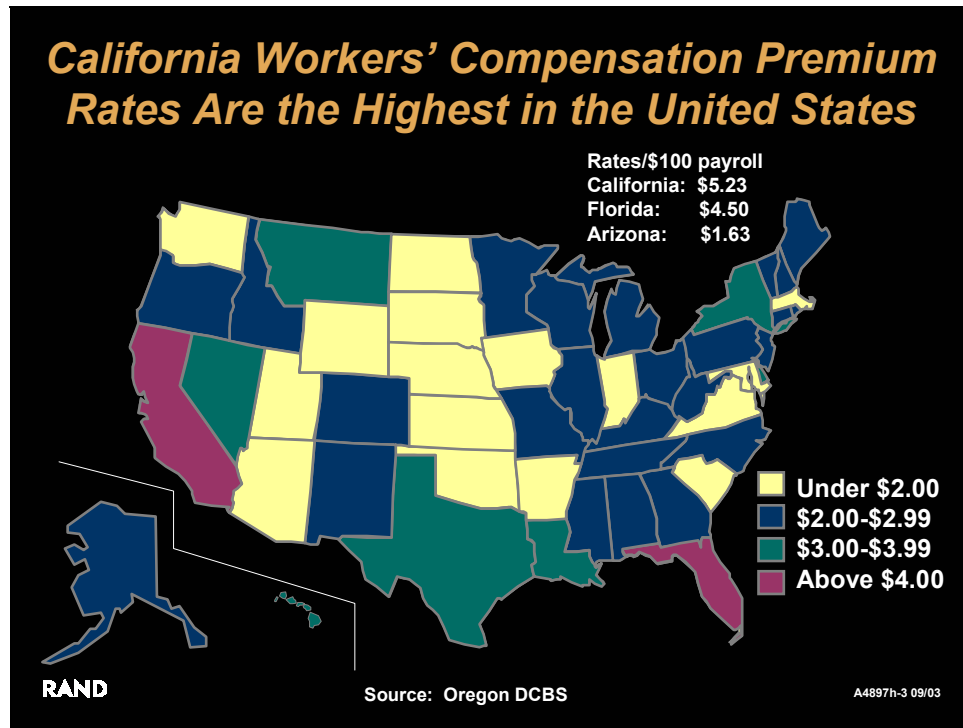
CHSWC Connects Research to Legislative Decisions

- **California Commission on Health and Safety and Workers' Compensation (CHSWC) is an employer-labor commission**
- **CHSWC has funded RAND research on**
 - **Permanent Partial Disability (PPD)**
 - **Medical fee schedules**
 - **Workers' compensation courts**
- **In each case, CHSWC research has helped inform the legislative process**

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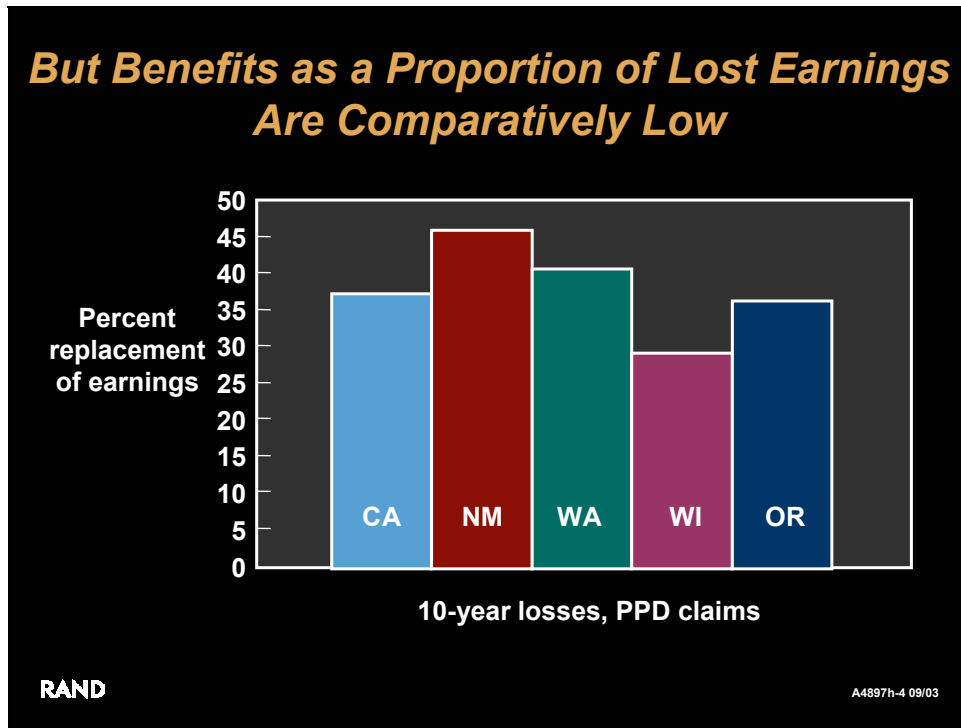
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Since 1996, the California Commission on Health and Safety and Workers' Compensation (CHSWC) has commissioned RAND to study many features of workers' compensation in California. RAND has examined permanent partial disability (PPD) benefits in California in several studies, with the first study in 1997 (Peterson et al., 1997) and with two additional studies (Reville et al., 2001; Reville et al., 2002b). These reports have focused on the adequacy of workers' compensation benefits. RAND has also examined the workers' compensation court system (Pace et al, 2002) and medical fee schedules (Wynn et al, 2003).



Workers' compensation in California is currently subject to enormous criticism. One of the chief concerns about the system is that it is simply too costly. A state-by-state comparison of data on average workers' compensation insurance 2002 premium rates per \$100 of payroll (weighted to control for industrial differences across states) provided by the Oregon Department of Consumer & Business Services (DCBS) show that California had the highest rates in the country (Reinke and Manley, 2003). Insured employers in California paid \$5.23 per \$100 of payroll for their workers' compensation insurance, more than 16 percent higher than the \$4.50 paid by employers in Florida, which had the second-highest rates. Not only was California the only state in which rates exceed \$5, Florida was the only other with rates exceeding \$4, and just 7 states had rates of \$3 or higher. Arizona, whose average rate of \$1.63 per \$100 of payroll was less than a third of the average rate in California, is highlighted for comparison. The DCBS comparison was based on California rates as of 1/1/2002. Since that time, California rates have risen rapidly. The California Workers' Compensation Insurance Rating Bureau (WCIRB) estimated rates for the 3rd quarter of 2003 at \$6.33/\$100 and projected that absent recently enacted reforms, rates for the 2004 policy year would be \$7.08/\$100,

a level never approached before in any state (WCIRB, 2003). These numbers illustrate that the workers' compensation system imposes severe costs on employers in California, more so than any other state.



Regrettably, the higher costs paid by California employers do not necessarily result in better outcomes for California's injured workers, according to research by RAND (Reville et al., 2002b). That study found that while average benefits paid for PPD were highest in California, California injured workers are far more likely to be out of work after their injury, and in the long run, the benefits could not compensate the resulting lower earnings.

Specifically, Californians with PPD claims lose more than 25 percent of their earnings from employment over the ten years after injury. In contrast, workers in Washington and Oregon lose less than 20 percent. These results are driven by poor return to work in California compared with the other states.

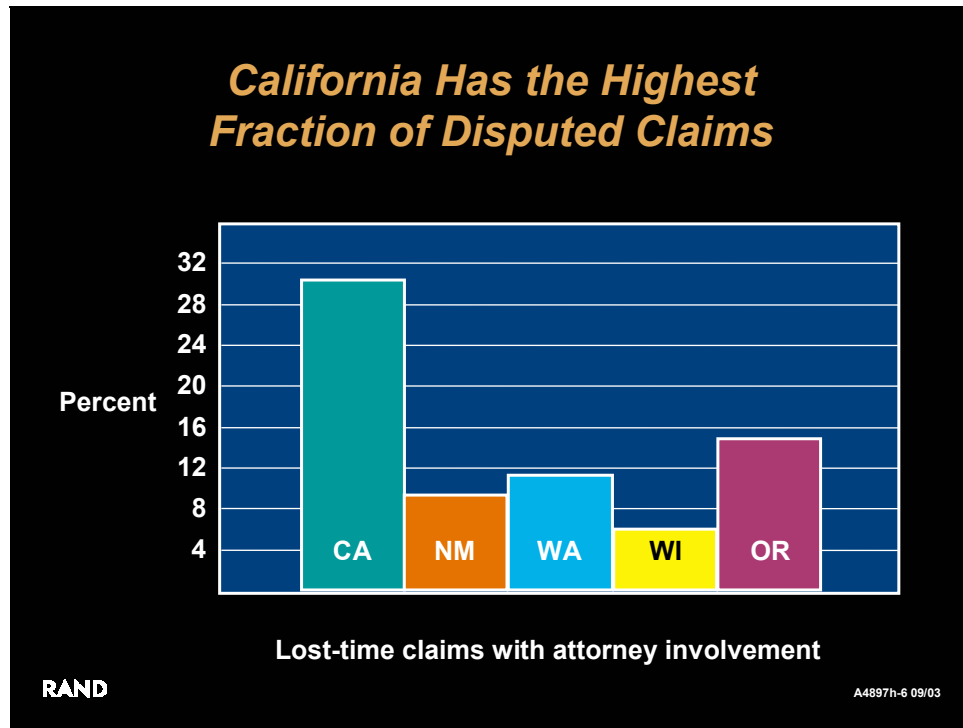
When lower return to work and higher earnings losses in California are taken into account, the fraction of lost wages replaced by benefits (the most widely accepted measure of benefit adequacy) is lower in California than in Washington, Oregon, and New Mexico – all of which are lower-cost states. This is illustrated in the figure above, and the data are summarized in Table 1.

In another illustration of poor return-to-work outcomes in California, a study by the Work Loss Data Institute (WLDI, 2003), ranking states by the duration of temporary total disability (TTD) benefits (with higher rankings indicating shorter time out of work), showed that California ranked 42 out of 44 jurisdictions.

These results highlight the fundamental problem with the California workers' compensation system; it fails both employers and injured workers. This leaves policymakers in California with a considerable challenge: finding ways to reduce the cost of workers' compensation for employers while improving the long-term economic prospects of California's injured workers.

Table 1
Ten-Year Earnings Losses and Replacement Rates, Five States, for PPD Claimants

	California	Washington	New Mexico	Wisconsin	Oregon
10-year losses (\$)	58,606	41,220	34,552	49,477	35,727
Potential earnings (\$)	229,472	250,251	167,106	222,055	194,923
Total benefits	21,822	16,734	15,824	14,452	13,914
Proportional wage loss	25.5%	16.5%	20.7%	22.3%	18.3%
Before-tax replacement	37.2%	40.6%	45.8%	29.2%	38.9%



One factor driving higher costs in California is the adversarial nature of the system. Reville et al. (forthcoming) show that in California 30 percent of workers with eight or more days out of work eventually hire an attorney to represent them – twice as many as in the next-highest state examined, Oregon. While attorneys provide valuable services to injured workers, workers’ compensation is an administrative system intended under the original bargain to provide benefits to injured workers expeditiously while reducing litigation. These results suggest that the system fails to deliver benefits in this manner.

The California system has long been considered one of the country’s most litigious (Berkowitz and Burton, 1987). The litigious nature of the system is problematic because litigation is costly and because it can place employers and injured workers at odds with each other. Conflict between injured workers and their employers is likely to reduce the chance that the injured worker returns to the at-injury employer, damaging long-term economic prospects.

This Study Focuses on the PPD Rating System—the Heart of Current Debates

- **PPD is at the center of controversy**
 - Over 90% of indemnity costs incurred on PPD claims
 - And 80% of medical costs
- **PPD ratings determine who gets PPD and how much**
 - Does the system work the way it should?
- **Does California’s approach lead to inconsistency?**
 - And does inconsistency encourage litigation?

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The PPD system is a key issue in the current debates over workers’ compensation. Data from the California Workers’ Compensation Rating Bureau (WCIRB, 2003a) show that over 90 percent of indemnity costs and approximately 80 percent of medical costs for California workers’ compensation were incurred on PPD claims.

Much of the controversy focuses on the PPD rating schedule. The rating schedule is used to convert the medical evaluation of an impairment into a quantitative measure of the severity of the disability. This measure, the disability rating, is then converted into a benefit amount based on the pre-injury wage. Higher ratings translate into higher benefits, reflecting the fact that we expect more-serious injuries to have a more-disabling effect on a person’s ability to work.

Critics of the PPD system often point to the rating system as driving litigation in California. As we discuss later in detail, the most controversial feature of the California system is the reliance on “subjective” criteria to measure disability. Detractors argue that the use of subjective criteria leads to excessive PPD claiming and an inappropriate distribution of benefits. Supporters of the system contend that California’s unique

approach to compensating disability better targets benefits to workers and that some disabilities, while real, cannot be objectively measured using medical criteria.

There are several important questions about the performance of the California rating system that we address in this study:

- Does the system ensure that the highest ratings (and therefore the most benefits) go to the most severely impaired individuals?
- Do individuals with different types of impairments but similar disability severity receive similar ratings?
- Will different physicians examining the same impairment provide assessments that lead to similar ratings?
- Are the inconsistencies in physician ratings substantial enough to provide parties with incentives to litigate (given the adversarial nature of the system)?

By addressing these questions we hope to (1) provide valuable information to policymakers about the performance of the rating schedule and (2) offer an empirically based set of guidelines for measuring the consequences of a permanently disabling workplace injury, which ultimately can provide a roadmap for revising the schedule.

NOTE: This briefing provides interim results in order to report to policymakers the directions of our findings. Final results will be available in February 2004.

Overview

- ➔ • Introduction to California PPD rating system
- Differences in ratings by impairment type and severity
- Consistency of ratings across physicians
- Conclusions

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The Disability Rating Is Designed to Simplify Benefit Delivery

- **Rating converts medical information to a number (0–100) that measures extent of disability**
 - **Can be converted to percent disability**
- **Ratings are used to**
 - **Determine eligibility for benefits**
 - **Target benefits to those with greatest loss of ability to compete in the labor market**
- **A good rating system should reduce disputes**

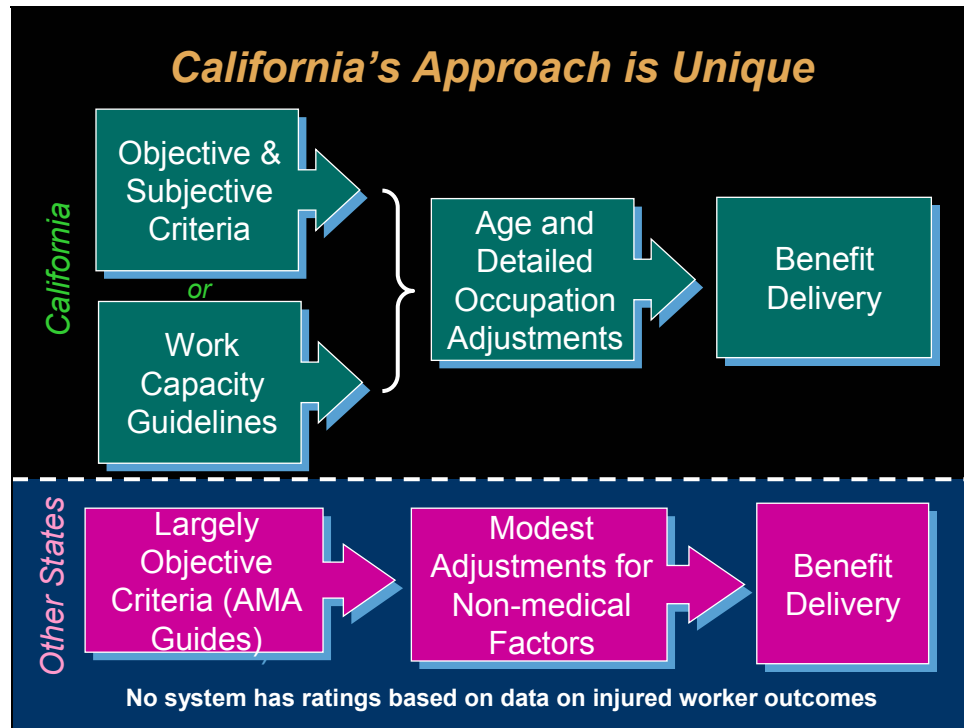
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The purpose of a rating system is to provide medical information in a structured manner in order to assign benefits administratively with minimal dispute.

The rating converts relevant medical information for different impairments into a number between 0 and 100, which can be thought of as the percent disability. The scale can then be used to determine the level of benefits. Ratings determine both an individual's eligibility for benefits (where ratings greater than 0 are eligible for benefits) and the level of benefits received (with higher ratings reflecting eligibility for higher benefit amounts).

Our evaluation of PPD ratings examines the performance of the system along these three dimensions: determining eligibility, targeting benefits, and reducing disputes.



There are a number of approaches used by states to implement permanent impairment rating systems. The California system is unusual in that it attempts to produce a measure of disability that combines both severity and the effect of the impairment on work. The first step is the determination of the standard rating, which uses a medical report to measure the severity of impairment. California uses two methods to produce a numeric rating of the level of impairment – the objective/subjective index and the work capacity index.

- *Objective Factors* are physical or functional losses that are directly measurable, e.g., amputations or reduced range of motion of a joint. These may be combined with
- *Subjective Factors*, which are not “directly” observable or measurable; e.g., intermittent slight back pain or moderate pain in the wrist.

Or, evaluators may use

Work Capacity Guidelines, this approach describes a disabling condition as a proportionate loss of pre-injury capacity to perform a specific work function or group of functions. For example, an injured worker who has lost the capacity to bend, stoop, lift, push, pull, or climb rates at a 30% standard. Often that 30% standard is expressed as

“no heavy work.” Schedules exist for spine, pulmonary, abdominal, and cardiac impairments, and lower extremity impairments. While controversial, work capacity guidelines are sometimes also used for upper-extremity injury impairments.

Either one or both indexes may be used to produce a disability rating. When both are used, the approach resulting in the higher rating applies.

The subjective nature of these approaches is the focus of much of the criticism of the California system. For example, if a worker experienced constant, moderate pain upon repeated heavy lifting, even without an objective finding of loss of range of motion in the back or similar abnormality, the worker would receive a 15% rating.

In most other states, the “schedule” refers to benefits paid on certain impairments, typically to the extremities. Many other impairments in other states are referred to as “unscheduled,” and these are typically evaluated using the American Medical Association’s *Guides to the Evaluation of Permanent Impairment* (AMA Guides). In principal, there are costs and benefits to using the AMA Guides. On the one hand, the AMA Guides are limited in scope because they provide guidelines only for measuring impairment and say nothing about the extent that impairments limit work. However, the AMA Guides cover more-specific impairments at a greater level of detail than the California rating system, providing a more complete methodology for identifying differences across workers in the permanent impact of an injury. The translation by the AMA Guides of these differences into an overall scale of “impairment” is controversial.

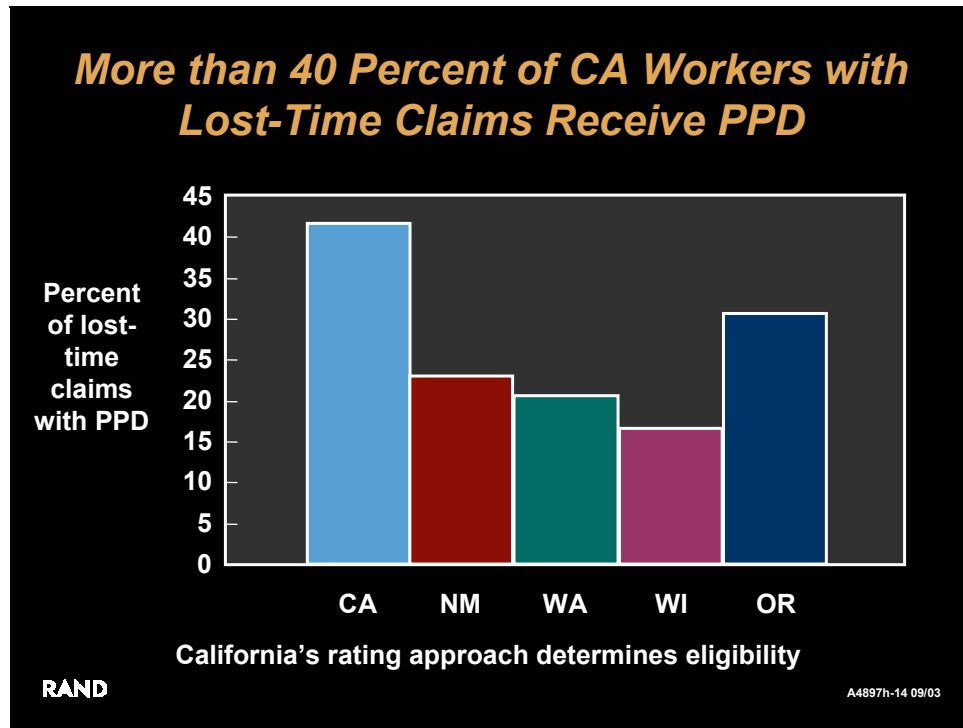
The use of subjective criteria and work capacity guidelines in evaluating impairment is not the only way in which California differs from other states. California’s system includes a comprehensive set of modifiers to adjust the ratings of impairments to reflect the type of work performed by the injured worker (at least at the time of injury). For example, a radio announcer would receive a higher rating for a throat impairment and a lower one for a shoulder impairment, whereas many manual laborers will receive a higher rating for a shoulder impairment and a lower one for a throat impairment. Adjustments are made for age. Ratings are adjusted up for workers

over age 39 and lowered for those under age 39. California is not the only system that makes these kinds of adjustments, but no other state has such an extensive system of occupational modifiers.

Regardless of whether a rating system is based on objective or subjective criteria, a key problem with every rating system is that none are based on empirical measures of how specific injuries impair the ability to work. Physicians may have the ability to rank impairments to the same body part as more or less severe, but comparisons across body parts (and perhaps measures of the extent of differences within body parts) are arbitrary. Additional adjustments for age and occupation may improve the ability of the rating to provide equitable benefits to different workers, but they have not been empirically validated either.

As we explain in detail in the next section, in this study we provide an empirical basis for assessing the function of the rating schedule. We evaluate the accuracy and equity of the ratings assigned to different impairments for different workers. This evaluation should allow us to identify some of the key equity problems with the system and make suggestions for reform.

This brings us to one final point that makes the California rating schedule unique. Unlike other states, the administrative director of the California Division of Workers' Compensation has the authority to modify the permanent disability rating schedule. The flexibility granted by this provision may be a great advantage because with the proper empirical guidelines it should be relatively easy to correct any observed inequities in the rating schedule.



The previous discussion illustrated that California allowed for a greater degree of subjectivity in the evaluation of disabilities than most other states. If the objective criteria are the same (or at least similar), then all else being equal, this must increase the number of injured workers who are eligible for PPD. Once again using data from Reville et al. (2002) and Reville et al. (forthcoming), we can demonstrate that this is indeed the case in California.

The chart above shows the fraction of claims with more than seven days lost time (i.e., the worker is eligible for temporary disability benefits in any state) in which some PPD benefits are paid in five states: California, New Mexico, Washington, Wisconsin, and Oregon. The results are striking; over 40 percent of lost-time claims in California are paid PPD benefits. The state with the next-highest frequency is Oregon, where just over 30 percent of all lost-time claims involve PPD. In Wisconsin, the figure is under 20 percent. This means that under the California Permanent Disability schedule, physicians find PPD in lost time cases more than twice as often as physicians evaluating workers under the Wisconsin system.

We cannot say how much of this disparity might be due to the California rating system. Differences in other factors, such as the industrial mix or the level of workplace safety, could explain at least part of the disparity. Still, it is likely that the rating system is at least one contributing factor to the high rate of PPD claiming in California.

It is worth noting here that higher eligibility for PPD is not in itself a bad thing, as long as the injuries are not fraudulent. However, it does contribute to the cost of the PPD system, and helps lead to controversy. It is true that any method of measuring disability will include some amount of error: Some workers will be excluded who nonetheless suffer some loss of ability to compete in the labor market, and some workers will be included who do not. A more subjective system, like California's, errs on the side of including workers. Work by Biddle (1998) and Boden and Galizzi (1999) have noted that some workers with long-term temporary disability and no permanent partial disability benefits have considerable employment dislocation and long-term earnings losses after the temporary disability benefits end. A far higher fraction of California workers with long-term TTD receive PPD, which may mean that workers with long-term losses that would go uncompensated in other states are (partially) compensated in California. This point is controversial, however, because the broadness of the definition of PPD in California and the use of subjective criteria lead some to conclude that the additional compensation goes to workers with little disability and/or disability with questionable work causation.

In work being conducted in parallel to this project (Reville et al., forthcoming), we examine the long-term economic losses of workers in other states (New Mexico, Oregon, Washington, Wisconsin), who, we estimate, would receive PPD in California but not in their own states. These results will be available at the same time that the final report from this project is completed.

Overview

- Introduction to California PPD rating system
- ➔ • Differences in ratings by impairment type and severity
 - Earnings losses by disability rating
 - Earnings losses by impairment type
- Consistency of ratings across different physicians
- Conclusions

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Analytic Approach

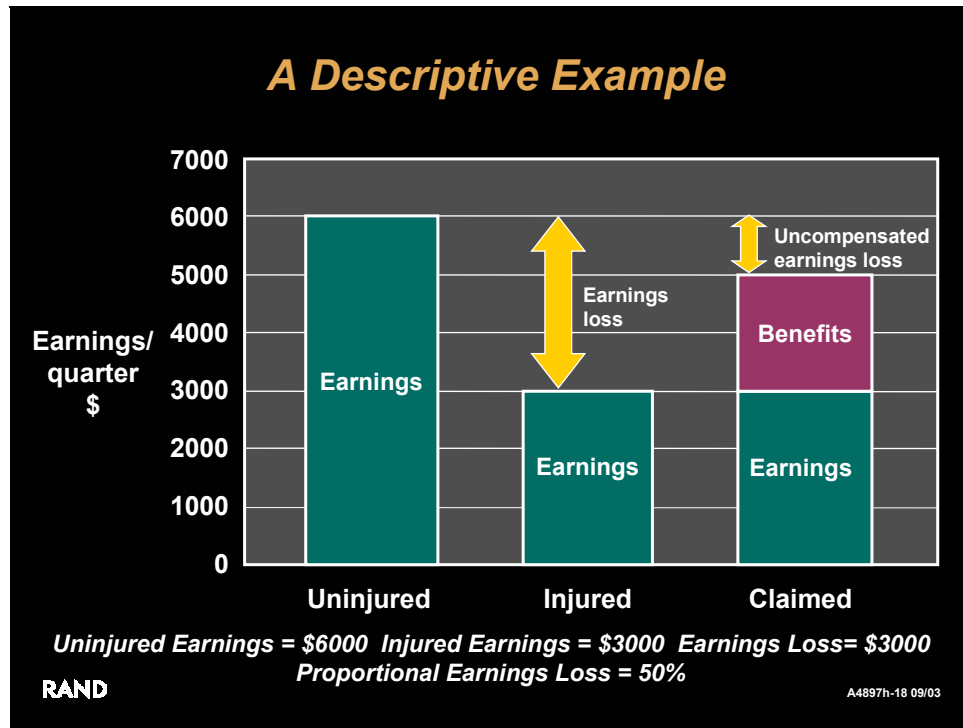
- **We used data on over 300,000 PPD ratings in California**
 - **All Disability Evaluation Unit (DEU) ratings from 1991–1997**
- **Matched to wage loss data and compared ratings with observed earnings outcomes**
- **Earnings loss and ratings are both measures of loss of ability to compete**
 - **If rating system functions appropriately, both measures should be similar**

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In this study, we use data on over 300,000 PPD ratings in California; all cases rated by the Disability Evaluation Unit (DEU) with an injury date between January 1, 1991, and April 1, 1997. Since several years of post-injury earnings must be observed to estimate earnings losses, injuries occurring after April 1, 1997, are not used. We are able to match most (over 69%) of the injured workers in this sample to both (1) similar workers and (2) to administrative data on wages from the Employment Development Department (EDD) to estimate the impact on earnings experienced by these workers. Thus, we are able to create a database that includes the type of impairment, disability rating, and the estimated earnings losses for 241,685 PPD claimants in California injured from January 1, 1991, to April 1, 1997.

Using these data, we can compare the disability ratings produced by the DEU to the observed earnings outcomes. In the past, disability rating systems lacked an empirical basis to support the ranking of impairments. In this study, earnings loss estimates provide a direct measure of how a permanent disability affects an individual's ability to compete in the labor market.

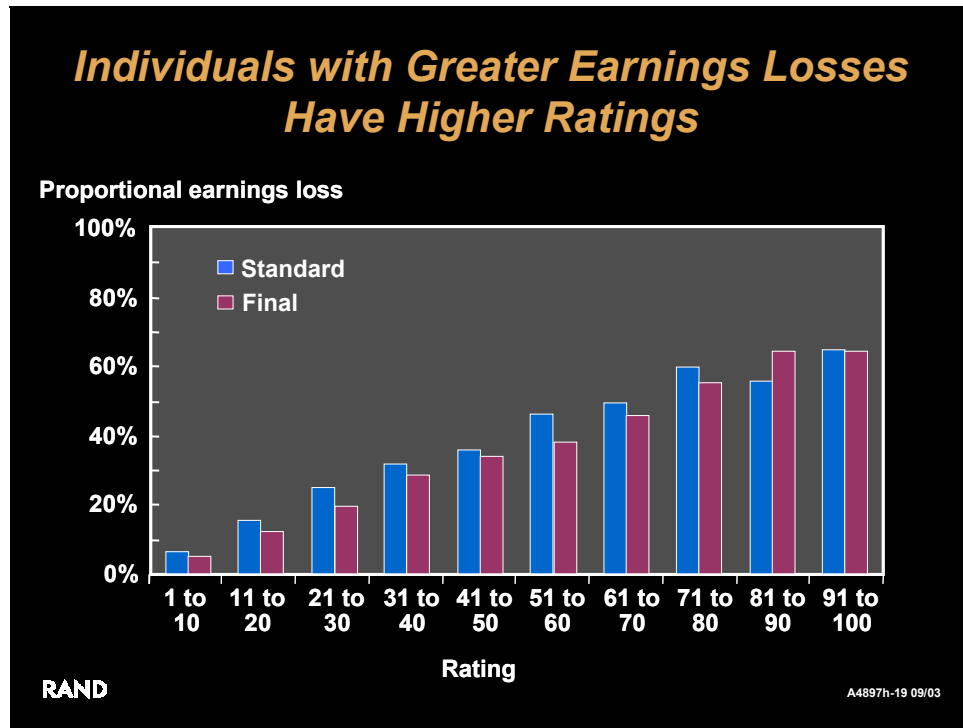


The focus of much of the PPD research by RAND has been on outcomes for workers with PPD claims. In particular, we have examined the earnings losses and return to work of PPD claimants, and the replacement of lost earnings by workers' compensation benefits. The methods are described in detail in Peterson et al. (1997) and Reville (1999).

Our procedure for estimating wage loss involves linking injured workers to a control group of workers at the same firm with similar pre-injury earnings. We then compare the earnings of the injured workers after the date of injury to the earnings of their (uninjured) control workers. The difference between the earnings of the control workers and the earnings of the injured worker is the estimated earnings losses. Dividing losses by the control group's earnings (representing what the injured worker would have received if he or she had never been injured) we obtain an estimate of *proportional earnings losses*.

In previous work in which we examined the adequacy of the system, we compared the earnings losses with the total benefits paid.

In this report, we will be using these methods to examine whether the California rating system provides an accurate method of targeting higher benefits to workers with higher wage losses related to more-severe disabilities.



We turn now to our main results.

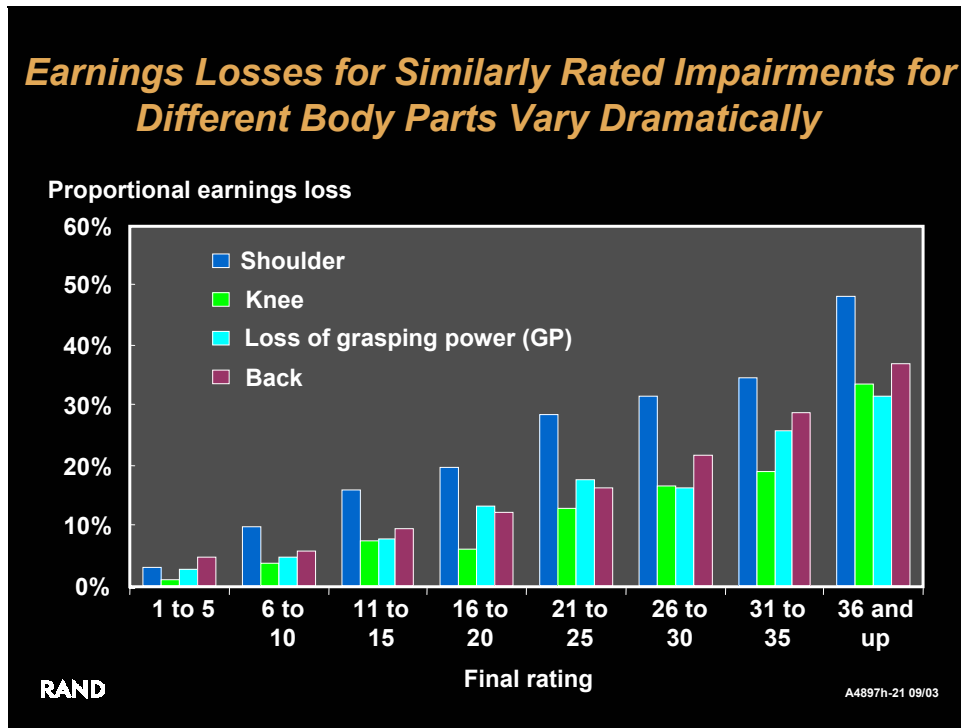
If the system performs adequately, then we would expect higher ratings to be associated with higher average earnings losses. As a first step in our analysis, we compare the three-year proportional earnings losses for all single-impairment, summary-rated injuries to the disability rating. *Summary ratings* are ratings based on medical reports by impartial, randomly assigned physicians and Agreed Medical Evaluators (AME). The figure matches proportional earnings losses to what we call the *standard rating*, which is essentially the measure of impairment, and the *final rating*, which includes all modifiers for age and occupation and all subjective add-ons. We focus only on single-impairment cases because cases involving multiple impairments have multiple standard and intermediate ratings (the final rating is computed for multiple impairment cases by applying a complicated formula to the different ratings). Finally, we estimate earnings losses for impairments with ratings in ranges of ten percentage points (i.e., 1 to 10, 11 to 20, etc.). Because of missing data, we have slightly different sample sizes for each rating. We have 70,895 observations with a standard rating; 68,192 with an intermediate rating; and 68,295 observations with a final rating.

The results show that, on average, all three ratings are increasing in the size of the proportional earnings losses. Impairments with a standard rating between 1 and 10 have proportional earnings losses of approximately 6 percent. Those with a standard rating from 41 to 50 have proportional earnings losses of approximately 36 percent. Impairments with the highest standard ratings, between 91 and 100, have proportional earnings losses equal to approximately 64 percent on average.

More generally, every group of impairments with higher standard ratings have higher proportional earnings losses except the standard ratings of 71 to 80 (which have proportional earnings losses of 59.3 percent on average) and those from 81 to 90 (which have average losses of approximately 55.4 percent).

Repeating the analysis with final ratings yields similar results, which is unsurprising since adjustments can be positive or negative (e.g., workers younger than 39 have their ratings adjusted downward, and workers older than 39 have theirs adjusted upward), and so the difference between the standard and final rating tends to be small on average. It is worth noting, however, that with final ratings, *every* group of higher ratings has higher average proportional earnings losses than all lower-rated groups.

Our analysis therefore suggests that, in the aggregate, the rating schedule accomplishes its goal of targeting higher benefits to more-severely rated impairments.



Targeting higher benefits to more severe impairments is only one objective of the rating schedule; another is to ensure that the ratings are distributed equitably between different types of impairments. From the results of Reville et al. (2002b), we know that there are substantial inequities between the ratings assigned to different upper extremity impairments. Here, we conduct a similar analysis using four major impairment categories: shoulder impairments (the largest specific upper-extremity impairment), knee impairments (the largest specific lower-extremity impairment), loss of grasping power (GP) and back impairments (specifically, impairments to the neck, spine or pelvis). Again, we limit the analysis to single-impairment, summary-rated cases and consider three-year proportional earnings losses. Here, we group impairments with final ratings from 1 to 5, 6 to 10, 11 to 15, and so on up to 35; all ratings over 35 are grouped together (over 85 percent of single-impairment claims have final ratings of 35 or below).

Two results are immediately apparent from the figure above. First, the proportional earnings losses for each impairment type increase with the rating for almost every range for each impairment. This again supports the notion that on

average the rating schedule ties higher benefits to more-serious impairments.

However, it is also apparent that there are clear disparities between the observed proportional earnings losses of different impairments that are given similar ratings.

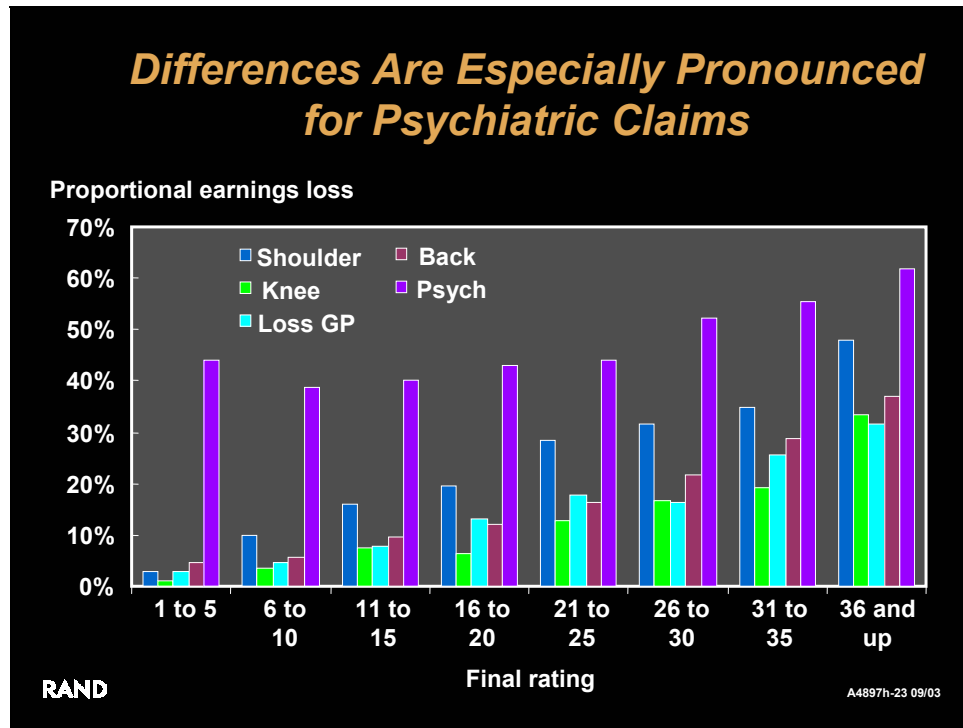
In the lowest rating range, between 1 to 5, back impairments have the highest estimated losses, about 4.6 percent, while knee impairments have the lowest, about 0.9 percent. For all other rating groups, however, shoulder impairments have substantially higher proportional earnings losses than all other impairments. Knee impairments have the lowest earnings losses on average, although impairments that involve the loss of grasping power have lower losses for the highest rating category.

These results provide a striking illustration of the impact of a lack of empirical bases for schedules. It is usually possible to show that between two individuals with the same impairment, one impairment is more severe than the other, and this is why within impairment type, each rating group has higher proportional wage losses than every lower rating group. However, it is far harder to compare severity across impairments with different body parts. Moreover, equally severe impairments for different body parts may have different impacts on earnings. Comparisons using wage losses allow us to provide a common standard of comparison.

A final note on sample sizes and statistical significance: The samples for each impairment type vary significantly, particularly for some rating groups. Back impairments are by far the most common in the California system, and we have over 1,500 cases involving back impairments in each rating group. Shoulder impairments have the smallest sample sizes here, with just 147 cases in the 26 to 30 group, 83 in the 31 to 35 group, and 85 in the 36 and up group. Thus, the standard errors for the shoulder impairments become relatively large in these groups.

The statistical significance of the differences between earnings losses obviously varies depending on the comparison. Using backs as the comparison groups, we can say that the earning losses for knee impairments are significantly lower than for back injuries at the 5 percent level in three of the seven rating groups. The earnings losses for shoulder injuries are significantly higher than for back injuries at the 5 percent level for

three of the seven groups as well. The earnings losses for loss of grasping power injuries are not statistically significantly different from the earnings losses of back injuries in any of the seven rating groups.



Psychiatric impairments are particularly challenging for any rating system. Objective medical information is harder to obtain, and translating the medical information that exists into expected loss of ability to compete in the labor market requires information on the occupational implications of psychiatric conditions, which largely does not exist. Psychiatric claims also involve complex questions of causality that make them controversial in any workers' compensation system.

Psychiatric claims are often divided into those that arise in relation to a physical injury (e.g., depression related to loss of a limb) and those that are solely mental conditions arising from either chronic conditions or traumatic events. Mental conditions arising out of physical injuries, while often facing higher thresholds of causality and evidence to obtain compensation, are covered in all states. Strictly mental conditions, often called "stress claims," account for approximately 40% of PPD claims involving a psychiatric component, according to research conducted for this study. According to research done by the British Columbia Royal Commission (1999) and updated for this report, at least 13 U.S. states explicitly exclude all stress claims from

workers' compensation, while an additional 15 states exclude stress claims that do not arise out of a traumatic event.

This discussion highlights the complexity associated with workers' compensation for psychiatric impairments. Here, we focus only on single-impairment psychiatric claims, those that do not involve a physical injury and are often excluded from compensation in other states' workers' compensation systems. All groups, regardless of rating, have substantial earnings losses, exceeding 38 percent. Low-rated psychiatric impairments have higher earnings losses than many higher-rated psychiatric claims, and every rating group has higher losses than all but the highest rated claims in the other impairment types.

We should note that the sample sizes for psychological impairments are quite small, less than 100 in most of the rating groups and just 28 in the 1 to 5 group. Nevertheless, the earnings losses for psychiatric cases are significantly higher than the losses for back cases at the 5 percent level for all seven rating categories.

On Average, Ratings Match Losses Differently Across Impairments

Impairment	Rating Divided by Percent of Earnings Loss
Shoulder	0.88 (23rd out of 27)
Knee	1.77 (5th)
Loss of Grasping Power	1.42 (9th)
Back	1.27 (15th)
Psychiatric	0.58 (26th)



Compensation for knee impairments more than twice as high as comparable shoulder impairments

RAND

A4897h-25 09/03

Turning to a more formal investigation, we examine the ratio of final ratings over proportional earnings losses for the five impairments we studied earlier: shoulder, knee, loss of grasping power, back, and psychiatric impairments. For each of these impairments, we divide the percent disability, as defined by the rating, by the percent disability, as measured by percent wage loss. If ratings were equal to proportional wage losses, this ratio would be equal to 1.0 (which says nothing about the adequacy of benefits). We would at least expect the ratio to be approximately constant across impairment types. If the ratio differs across impairments, benefits are delivered differently for impairments of similar severity. For example, higher values of this ratio would be associated with higher benefits for an impairment relative to other impairments of similar severity.

Rather than being similar, the results show wide disparity in this ratio. Consistent with the previous results, shoulder impairments tend to have relatively low average ratings relative to average losses. Ratings for psychiatric impairments are even more disparate, 58 percent of the average proportional earnings loss, making them 26th out of the 27 impairments studied when ranked in descending order. The average

rating of shoulder impairments is 88 percent of the average proportional loss, ranking them 23rd overall. The average final rating for knee impairments is 177 percent of the average proportional earnings loss, making them the 5th-highest impairment type in terms of ratings divided by percent earnings loss. Loss of grasping power impairments have average ratings 142 percent of the average proportional losses, making them 9th overall.

Back impairments fit almost directly in the middle in terms of matching ratings to wage losses. With ratings that are 1.27 times losses, back impairments rank 15th out of 27 impairments.

On Average, Ratings Match Losses Differently Across Impairments

Wide Disparity Between Top 5 and Bottom 5

Top 5	Rating Divided by Percent Earnings Loss
Cosmetic disfigurement	3.18
Impaired motion in finger: 1 digit	1.93
Elbow	1.82
Loss of finger: 1 digit	1.78
Knee	1.77
Bottom 5	
Shoulder	0.88
Post-traumatic head syndrome	0.77
Impaired rib cage	0.74
Psychiatric	0.58
Hearing impairment	0.51

RAND

A4897h-26 09/03

In order to give a sense of the wide disparities in the ratio of ratings to losses, we also show the top five and bottom five impairments. The impairment with the highest average rating relative to average proportional losses overall is a cosmetic disfigurement, with an average rating equal to 318 percent of the proportional losses. Impaired motion in a single digit is the second highest, with elbow impairments next, followed by the loss of a single digit, and then the aforementioned knee impairment. Hearing impairments have the lowest average final ratings relative to average proportional losses, just over one-half. Psychiatric impairments are next lowest, followed by impaired rib cages, post-traumatic head syndrome (PTHS), and then shoulder impairments.

These results show a significant variation in the size of average ratings relative to average proportional losses. There may be important public policy reasons to pay some impairment categories at a higher rate than others, even when both have the same estimated loss of ability to compete in the labor market. For instance, higher ratings for cosmetic disfigurement may reflect a desire to provide compensation for the non-economic loss of having visible scarring. Lower ratings for psychiatric impairments

may be a response to the complex causality issues. However, the workers' compensation statute does not explicitly call for adjusting compensation for these kinds of issues. To make the system more transparent, the reasons for differences across impairment types should be clearly articulated. Between knees and shoulders, possible justifications for the wide differences in compensation are harder to articulate.

Overview

- Introduction to California PPD rating system
- Differences in ratings by impairment type and severity
- Consistency of ratings across different physicians
 - Variation in applicant and defense physician assessments
 - Consequences for injured workers
- Conclusions



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Analysis of Rating Consistency

- **Three kinds of ratings in the DEU data**
 - ***Applicant***: physician hired by injured worker
 - ***Defense***: physician hired by payer
 - ***Summary***: “neutral” physician
- **Do physicians’ or raters’ assessments differ systematically?**
 - **Wide disparity in ratings for the same injury encourages litigation over ratings**

RAND

A4897h-28 09/03

In this section, we consider the consistency of ratings. By studying rating consistency, we intend to learn how much variation there is in ratings based on which physician produces the medical report upon which the rating is based. In other words, we want to answer the following question: How different would a rating for the same injury based on the medical report of one physician be from that based on the medical report from another physician?

Rating inconsistency is a problem because the purpose of ratings is to provide information that allows benefit amounts to be determined with minimal dispute. However, if ratings can systematically differ across different doctors, then litigating parties have incentives to seek different ratings from sympathetic physicians. This can lead to litigation over the ratings themselves, which undermines their information content, and ultimately subverts their purpose.

To address this issue, we take advantage of the fact that there are three kinds of ratings in the DEU data: applicant, defense and summary ratings. A summary rating is the most common type of rating and is the one that we have focused on until now. A summary rating is typically based on a report by a “qualified medical examiner,” a

randomly assigned physician who can plausibly be considered neutral to either party or an Agreed Medical Evaluator selected by both parties. An applicant rating is a rating based on the medical report of a physician hired by the applicant (the injured worker); likewise, a defense rating is based on the report of a physician hired by the defense (the “payer,” the employer or insurer).

While a single summary rating is the most common case, in some cases we have applicant and defense ratings, or even all three ratings, for the same injury. With these cases, we can study the extent to which different physicians vary in their assessments of the same injury. We can ask whether these differences are systematic according to the type of physician (i.e., applicant, summary, or defense) or type of impairment. Note that it is likely that some selection is going on here – in other words, different types of cases likely involve different combinations of physicians.

One of the questions we wish to consider is whether the applicant and defense ratings differ systematically in either direction. We hypothesize that they will: Specifically, we expect, on average, that applicant ratings will be greater than summary ratings, and that summary ratings will be greater than defense ratings. We suspect that this relationship holds because of the simple fact that higher disability ratings lead to higher disability benefits. Thus, the applicant has an incentive to select a physician who will produce a higher rating while the defense has a symmetric incentive to select one who will produce a lower rating.

This does not necessarily mean that physicians are intentionally giving a report that will produce a higher or lower rating. We suspect most physicians provide an honest assessment about their beliefs of the extent of disability. However, if some physicians have natural beliefs that tend to produce more-generous or more-conservative ratings, then we expect that they will be sought out by applicants or defendants, respectively. Thus, it can just be a matter of reputation rather than collusion; both sides simply choose doctors who tend to display beliefs about disability that are more favorable to them.

This model has implications for the interpretation of any difference that we observe between ratings. Specifically, it suggests that the difference we observe will be an upper bound on the true physician differences. If the applicant and defense choose physicians they believe will provide high and low ratings, respectively, then the difference in these ratings should be greater than that between the ratings of two randomly selected physicians (as long as the beliefs of the applicant and defense about the physicians are accurate). For the purposes of evaluating the California disability rating schedule, this difference is useful because it should inform us about the extent to which applicants and defendants are able to obtain favorable ratings in practice.

We should note here that it is important to distinguish inconsistency in ratings due to physician differences from other sources of inconsistency, most notably inconsistency due to differences by raters. The rating is produced by raters applying the formula to medical reports. Even though the applicant and defense ratings we are considering are for the same injury, they need not be done by the same raters. Rater inconsistency may be a serious problem with strong implications for the efficacy and equity of the rating system, but it is not our focus here. In the final report, we will have a more extensive discussion of inter-rater reliability.

There Are Significant Differences Between Physician Assessments

Average Ratings in Same Cases with Applicant and Defense Ratings

Applicant Rating	Defense Rating
35.98	26.85
Difference in applicant and defense ratings:	
	9.12 (+34%)
N = 17,638	

Note: All differences are statistically significant

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A4897h-31 09/03

First, let us consider the 17,638 observations in our sample in which there are both an applicant rating and a defense rating. In these cases, the average applicant rating is approximately 35.98, while the average defense rating is 26.85. The average ratings are relatively high, which most likely occurs because we observe multiple ratings in cases that are contested, and high-rated claims have higher stakes for both the defense and the applicants. The average difference between applicant and defense ratings in these cases is 9.12. This difference represents an approximate 34 percent increase on the defense rating and is statistically significant at even the 1 percent level. This result shows that ratings based on applicant physician medical reports are clearly higher than ratings based on defense physician medical reports, and by a significant margin.

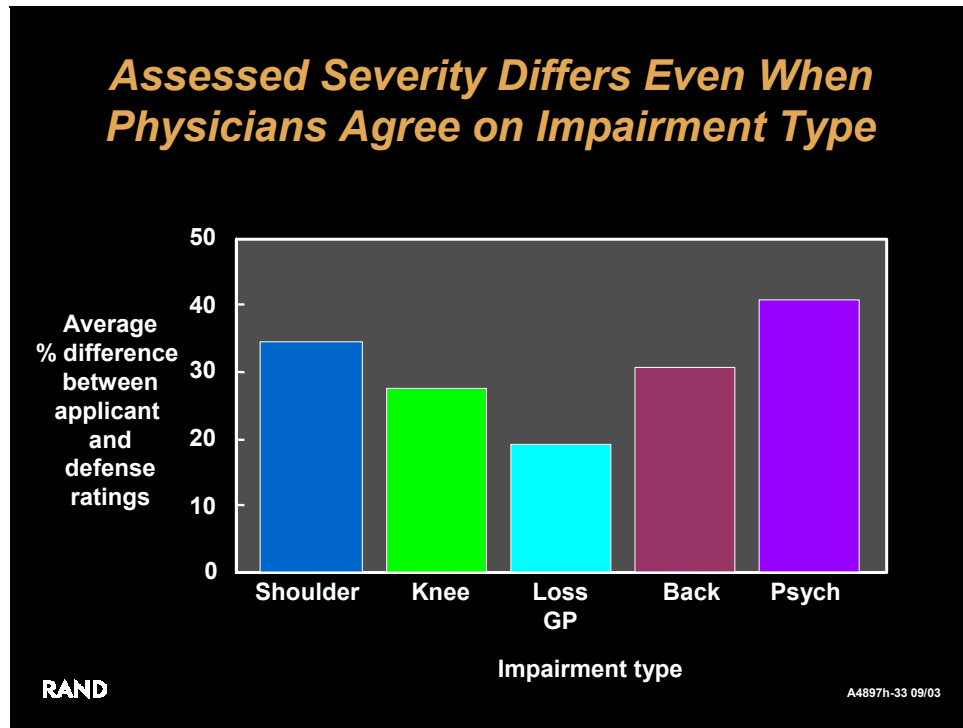
Summary Rating Is Closer to the Defense Rating on Average

Average Ratings in Same Cases with Applicant, Defense and Summary Ratings

Applicant Rating	Summary Rating	Defense Rating
37.07	30.43	28.29
Difference in applicant and summary ratings:		6.63 (+22%)
Difference in defense and summary ratings:		-2.15 -7%
N = 1,318		
Notes: All differences are statistically significant		

RAND A4897h-32 09/03

We now shift our attention to the 1,318 cases in which we have all three types of ratings for the same injury. Again, they tend to be relatively severe impairments, with an average summary rating of 30.43. The average applicant rating is 37.07, a 6.63 percentage point increase on the summary rating (a difference of about 22 percent). The average defense rating is 28.29, 2.15 percentage points or 7 percent lower than the summary rating. Both differences are statistically significant. In general, we find clear support for our initial hypothesis that the applicant rating is greater than the summary rating, which is in turn greater than the defense rating. It is interesting to note that the summary rating is closer to the defense rating on average, but there remains a significant difference between the defense and summary ratings as well.



There are frequent disputes about the nature of the specific impairment or whether there is a single or multiple impairment. We found substantial disagreement among applicant, defense, and summary ratings on this issue. But, here, we focus on the extent of disagreement about the severity of the impairment when there is agreement on the nature of the impairment. Is it still the case that applicant ratings are higher than defense ratings if the applicant and defense physicians agree on the number and types of impairments? We address this question by focusing on the sample of cases with applicant and defense ratings. We then compute the average difference between the two disability ratings (in percentage terms) for those cases when both applicant and defense physicians agree that the impairment is a shoulder, knee, loss of grasping power, back, or psychological impairment.

We can see that there remain significant differences in ratings even if the physicians agree on type. The applicant rating for shoulder impairments is approximately 35 percent higher than the defense rating. This is particularly surprising because shoulder impairments are typically considered more “objective” in their measurement. Knee and back impairments have similar differences of 28 and 31

percent, respectively. Loss of grasping power impairments have the smallest differences, 19 percent, while psychiatric impairments have the largest differences, approximately 40 percent. These results show that, on average, injured workers will receive substantially higher ratings if they can choose their physician regardless of what kind of impairment they might have.

What Is the Impact on Benefit Amounts?

- **With three ratings for the same injury (Applicant, Defense & Summary)**
 - **Worker is eligible for \$37,248 with summary rating**
 - **drop of \$4,322 with defense rating**
 - **increase of \$9,966 with applicant rating**
- **These differences provide incentives for litigation**

RAND

A4897h-34 09/03

Now that we have established that there are significant differences in applicant and defense ratings, we move on to consider what the implications are for the benefits received by injured workers. Specifically, we ask how much better off are injured workers if they receive the applicant rating as opposed to the summary or defense rating? To answer these questions, we simulate the amount of benefits workers would receive under each rating type assuming AB-749 is fully implemented as intended in 2006. We assume that workers earn enough to receive the maximum weekly benefit of \$230 if their rating is less than 70 percent and \$270 if their rating is 70 percent or above. In truth, workers receive two-thirds of their weekly wage subject to the cap, but we feel it is appropriate to use the maximum because weekly wage is missing for some of our data, and when weekly wage is not missing, over 60 percent of the workers receive the maximum (a figure that would likely climb to 75 or 80 percent if we adjusted the wage data for inflation).

If we look at just the applicant and defense ratings, we see that there is a substantial benefit to receiving the applicant rating. With the applicant rating, the injured worker would receive benefits for an additional 56.63 weeks on average,

totaling about \$14,071.94. When we look instead at the cases with all three ratings, we see that the injured worker receives benefits for 154 weeks on average with the summary rating, amounting to about \$37,248.84 in total benefits. If instead workers receive the defense rating, these numbers fall by 15.95 weeks and \$4,322.79. On the other hand, if the injured workers receive the applicant rating, they receive benefits for an additional 40.75 weeks on average, which amounts to an increase in average benefits of about \$9,966.71. The difference between summary rating and applicant rating is the most substantial on average, which is not surprising because the average defense rating was closer to the average summary rating. Still, it is clear that the ability to select the physician upon whose report the rating is based can have a significant impact on the benefits received by injured workers.

A clear implication of this inconsistency is that there are significant gains to be had by litigation for either side. If either the applicant or the payer is able to dispute a claim and receive a rating based on his or her own physician's medical report, then there is a substantial benefit in terms of higher or lower indemnity payments.

The total difference might be understated. Evaluating physicians also estimate the need for future medical treatment, an important component of many awards. A physician's bias toward higher or lower ratings is likely to correlate with generous or conservative estimates of future medical needs.

Unfortunately, our analysis cannot say how much of this observed inconsistency is due to the California rating schedule. If California adopted a more objective system (such as the AMA Guides), there might remain substantial differences across ratings by different physicians (e.g., see Boden, 2002). In general, we expect that any system that relies on advocacy to resolve claims will have some inconsistency in ratings.

Overview

- Introduction to California PPD rating system
- Differences in ratings by impairment type and severity
- Consistency of ratings across different physicians



- **Conclusions**

RAND

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Conclusions

- **Does the system target benefits appropriately to the most severely injured workers?**
 - **On average, yes—more severe impairments get higher ratings**
 - **But performance varies widely across different types of impairments**
- **Is there inconsistency in the rating system?**
 - **Yes—there are large differences in compensation depending on physician**
 - **Differences large enough to encourage disputes**

RAND

A4897h-37 09/03

One of the key questions we wanted to address with this study was whether or not the California permanent disability rating schedule targets benefits appropriately to workers. Our answer to this question appears to be a qualified yes. On average, we can say that workers with more severe impairments appear to receive higher ratings and, therefore, higher benefits. This appears to be true for workers within impairment type as well. However, the performance on average masks some serious issues of fairness with regard to how different impairments are compensated. We show, in fact, substantial and systematic variation in impairment severity as measured by proportional earnings losses for several types of impairments that have similar ratings.

Another question that we wished to answer was whether or not there is systematic inconsistency in ratings based on different physician medical reports, and whether or not this inconsistency provides incentives for litigation. On average, we found that there are substantial differences in the ratings produced using the evaluations of different physicians, and these differences can have a significant effect on the benefits received by injured workers.

How Can the System Be Improved?

- **Reduce disparities between impairment types**
 - **Consider reordering benefits in proportion to wage losses (or at least articulate reasons for the differences more clearly)**
- **Reduce inconsistency in the system**
 - **Consider ways to reduce the impact of subjective factors**
 - **Recognize that factors other than ratings can drive inconsistency**

RAND

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Our results suggest some changes that can improve the system. Because the research in this project is ongoing, we will report only recommendations that are general. More-detailed and more-developed recommendations will be provided in the final report.

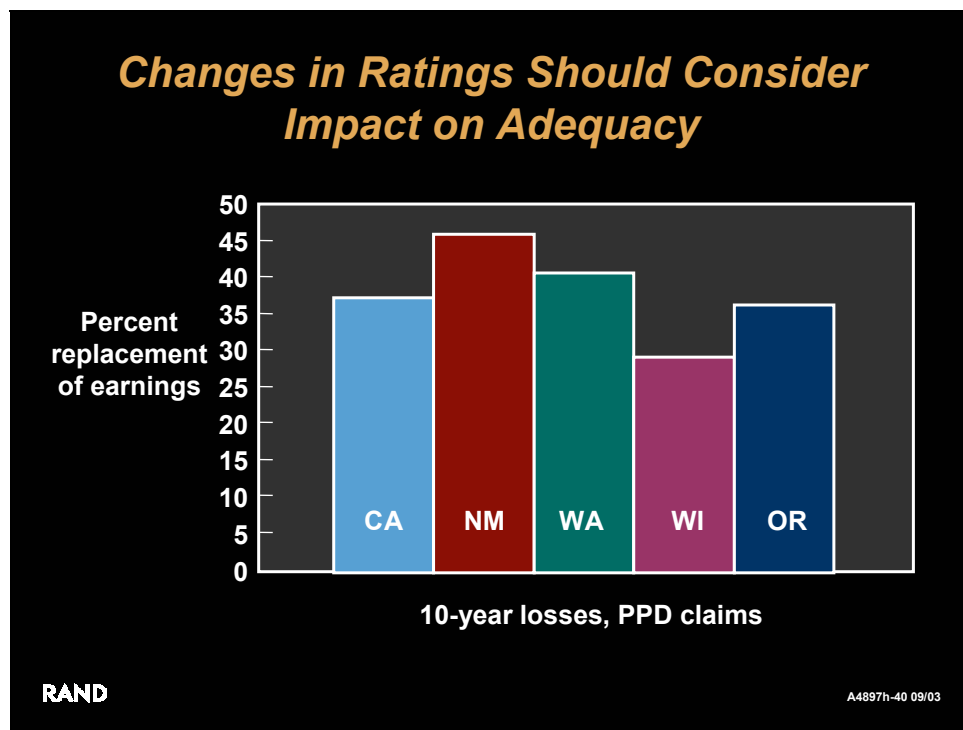
The rating schedule can be adjusted to reduce the disparities in compensation for different types of injuries. We show that, for example, on average, a worker with a shoulder impairment will receive much lower benefits than a worker with a knee impairment of equal or even lesser severity (as measured by proportional earnings losses). Reordering the ratings to be consistent with average proportional losses for a particular impairment can improve equity in the system.

We note that having ratings that are proportional to earnings losses can have additional benefits as well. It would improve transparency of the system if the ratings measured something concrete and verifiable. It also can form the basis of targets for improving the system by reducing wage losses through improved return to work. If the resulting improvements in return to work can be fed back into the rating system, then considerable savings can accrue to employers for improving return to work. For

example, California PPD claimants have 20% higher wage losses (as a proportion of income) than Oregon PPD claimants. If ratings were tied to earnings losses and California's employers improved return to work to be as good as Oregon's employers, the resulting reduction in permanent partial disability benefits would save over \$1 billion while at the same time improving outcomes for workers. This proposal will be developed further for the final report.

Another change that can improve the system is to increase the level of objectivity. From our results, it is clear that physicians are often unable to agree on the type or even the number of impairments, to say nothing of severity. A more objective system would be beneficial both in ensuring the appropriate level of benefits and by reducing incentives to litigate. The payoffs in choosing a doctor that will provide a favorable rating are so strong in the current system that it provides either party with clear incentives to litigate. If we could reduce the inconsistency in ratings by different physicians it should lower this payoff, and we would expect to see lower levels of costly litigation, something that would be beneficial to both workers and employers. It would also increase confidence in the system.

Moving to an objective system such as the AMA Guides will not by itself eliminate inconsistency. Additional methods to improve consistency, such as increased reliance on neutral doctors, should also be considered.



The adoption of a more objective system of evaluating disabilities will not come without costs. In particular, a system that relies on more-objective criteria will exclude some workers from compensation – workers that may experience substantial wage loss from impairments for which we do not have clear objective criteria and measurement tools. Given the poor return to work outcomes for California’s injured workers, policymakers should consider the impact on the workers of reducing or eliminating benefits to some workers who may have legitimate impairments that are difficult to detect given current medical technology and methodology.

How Can the System Be Improved?

- **Incorporate incentives for return to work**
 - **Consider a two-tier system that gives higher benefits to workers who are not offered the opportunity to return to the at-injury employer**
 - **Consider implementing additional return to work assistance**

RAND

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For this reason, we recommend that any movement toward a more objective rating system should also consider adoption of policies and programs that improve return to work.

One possibility is a two-tier system that provides higher benefits to workers who do not receive an offer of post-injury employment when they are medically able to return to work. This would provide employers with incentives to find appropriate employment for injured workers. A similar approach was previously used in the vocational rehabilitation program in California, which allowed employers to choose to either provide vocational rehabilitation or modified work. Extension of this approach to the payment of different levels of permanent disability benefits might lower employer costs at the same time improving outcomes for injured workers.

Other return to work programs should also be considered, including the implementation of the return to work (or some variation on that program) that was passed in AB749. That program provided subsidies to employers to make modification in the workplace, among other benefits, to make it easier for employers to return workers more quickly and more often to modified or alternate work on a temporary or

permanent basis (a system similar to those that have been adopted in Oregon and Washington).

Next Steps

- **The final report is targeted for release in February 2004**
- **Additional analyses will include:**
 - **Evaluation of occupational variants**
 - **Regional differences in inconsistency**
 - **Inter-rater inconsistency**
- **We will also include a more detailed comparison of California's system with those of other states and more-extensive policy recommendations**

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