

## **Associations between state workers' compensation policies about wage replacement and medical benefits and length of work disability due to low-back pain**

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**Background:** Occupational low back pain (OLBP) is a leading cause of work disability which represents a substantial socioeconomic burden. Research evidence suggests that length of disability (LOD) due to OLBP is not only influenced by individual characteristics, but also by geographic-level factors, such as work disability compensation policy differences. The aim of this study was to examine the associations between state workers' compensation (WC) policies about wage replacement and medical benefits and LOD due to OLBP, controlling for potential differences in individual factors.

**Methods:** A retrospective cohort of OLBP claims with indemnity payments (2002-2008) were extracted from the administrative records of a large WC insurance company in the US. The main outcome was LOD days censored at 1-year. OLBP cases were identified using ICD-9 diagnosis codes referring to LBP. Individual-level variables included age, gender, tenure, industry type, injury severity, early opioid use, early MRI scanning, and lumbar surgery status. State-level variables (all states except North Dakota and Wyoming) included WC policies about wage replacement (waiting and retroactive periods) and medical benefits (initial treating physician choice, ability to change treating physician, and medical fee schedules) covering the study period. Multi-level modelling analysis was performed using SAS.

**Results:** After controlling for individual-level variables, we found significant cross-state variations in mean LOD, ranging from 17 to 50 days in South Dakota and Louisiana, respectively. We found significant associations between WC policy factors and mean LOD. An increase in waiting period and retroactive period by one day was associated with 4% and 0.5% increase in mean LOD, respectively. Limiting treating physician change and presence of a fee schedule were associated with 12% and 10% increase in mean LOD, respectively, but limiting initial treating physician choice was associated with decrease in mean LOD by 9%. These state-level variables accounted for 46% of the total state-level variance in LOD observed in the sample.

**Discussion:** This study found significant associations between state WC policies about wage replacement and medical benefits and LOD due to OLBP. The interpretations, strengths and limitations, and implications will be presented.

**Conclusion:** State WC policies about wage replacement, treating physician change (but not initial treating physician choice), and fee schedule may be counterproductive to short work disability duration in workers with LBP.