Workers' Comp

End-to-End Claim Insight: Identifying Risk Early to Protect Outcomes and Cost

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Part 1: Claim Insight

An employee strains a shoulder lifting inventory. On day one, the injury looks routine. The diagnosis is familiar, and the treatment plan feels straightforward. Nothing about the claim seems especially concerning.

By day 45, performance has shifted

- Physical therapy has stalled
- Prescription history signals rising risk
- Utilization review suggests surgery may be next

Engagement is slipping — an early indicator of prolonged duration and delayed return-to-work

What looked like an ordinary claim is now trending toward escalation: higher utilization, longer duration, and higher total cost.

Complexity typically builds in the margins, through small delays, missed signals, and incremental utilization that standard workflows do not always surface early.

Pre-Claim Risk Identification and Prevention Start With the Employer

Employers can reduce downstream claim complexity by starting upstream with an integrated risk management strategy that targets the work environment. Best-in-class programs go beyond lagging metrics and use leading indicators to identify which jobs, tasks, and environments drive the highest injury frequency and severity. They look for patterns in musculoskeletal strain, repetitive motion, lifting demands, and lost-time trends, then invest in controls like training, job design, conditioning, and safety programs that reduce exposure. When employers know where injuries are most likely to occur, they can redesign work and strengthen readiness before a claim ever begins. Best-in-class programs reduce downstream complexity by starting upstream with an employer risk strategy that targets the work environment.

Scientific literature supports ergonomic improvements as a credible way to reduce musculoskeletal symptoms, discomfort, work disability, and some forms of productivity loss. The strongest direct employer ROI estimates come from participatory ergonomics programs, where workers and managers jointly identify and implement fixes. The evidence for a single universal ROI number is not strong enough to claim one benchmark across all workplaces, but the best peer-reviewed studies show positive ROI ranges are achievable.[1]

Employer health and wellness programs can help reduce claim complexity by improving resilience before injury and recovery. It can lower the likelihood of injury, reduce comorbidities that slow healing, improve mental outlook and support earlier return to work.

Detecting Claim Risk Early

Workers’ compensation has traditionally improved outcomes managing complex claims once warning signs are undeniable. That work matters. The larger opportunity is earlier detection and intervention, while clinical direction and return to work remain highly influenceable.

By the time teams label a claim “complex,” many drivers of poor outcomes have been accumulating for weeks, months or even years. Delayed clinical progression, avoidable pharmacy risk, psychosocial barriers, low health literacy, comorbid conditions, and return-to-work tension can all push a claim off course, often before anyone escalates it. The next step is not only better escalation management. It is preventing claim complexity before it takes hold.

Life-of-claim risk modeling enables that shift. It moves programs beyond static front-end scoring to continuous detection as claims develop, using claim data, medical and pharmacy utilization, and managed care signals such as utilization review and provider activity. The objective is practical: surface risk early, refresh risk as the claim evolves, and route the right resources to the right cases before cost, duration, and disability compound.

Increasingly, that capability is powered by AI. Machine learning models can synthesize thousands of structured signals (e.g., injury type, diagnosis codes, utilization patterns, prior authorizations, network status, and time lags) and continuously update risk as new events occur. Large language models (LLMs) extend that visibility by extracting usable signals from unstructured information such as adjuster notes, nurse case notes, provider documentation, job descriptions, and communications so programs are not limited to what fits neatly into fields and codes. The result is a more complete, earlier view of emerging risk and a stronger ability to route claims to the right clinical and operational interventions before escalation becomes inevitable.

Risk Identification Is Necessary, but Not Sufficient

Too often, teams stop at a score, a flag, or an adjuster alert. Life-of-claim risk modeling creates value only when it activates a repeatable intervention playbook. Once teams identify elevated risk, they should match the response to the level of severity or complexity, with clear ownership, timelines, and measurable targets (e.g., functional progress, utilization, and return to work). Life-of-claim risk modeling matters only if it activates a repeatable intervention playbook.

Clinical intervention should lead that response. The right model does more than coordinate appointments or track utilization, it drives clinical direction, employee advocacy, support, and education. Clinical teams assess physical well-being, mental and behavioral health, comorbid conditions, and other social determinants of health. They surface what is blocking recovery (e.g., fear of reinjury, low confidence about returning to work, medication concerns, transportation barriers, and difficulty navigating care) and address those barriers early. A person-first

approach builds trust and engagement, strengthens health education, and combines care coordination with return-to-work planning and behavioral coaching grounded in cognitive behavioral principles.

Recovery rarely depends on medical treatment alone. Human factors often shape prolonged claims as much as clinical ones. Comorbid conditions, poor mental health, negative coping, and fear avoidance can delay improvement and increase the likelihood that a routine claim becomes a difficult one. Clinical intervention should go beyond coordination and incorporate behavioral insight.

Motivational interviewing gives case managers a structured way to uncover what is preventing progress. Cognitive behavioral coaching addresses fear, uncertainty, and avoidance behaviors that can prolong disability. Clear health education aligns the employee on treatment, medications, recovery expectations, and the return to work pathway. With the right case selection, this combination can reduce duration, improve return-to-work and lower the likelihood of litigation and extended disability.

Pharmacy Is an Early Signal and a High-Impact Control Point

Pharmacy data often reveals complexity sooner than the broader claim process does. If the complete prescription history, including out-of-network, physician-dispensed, high-cost topical, or retrospectively billed medications is not integrated into the full clinical assessment, claims organizations may overlook significant indicators that a claim is deviating from its intended trajectory. This is not just a visibility issue. It is an intervention issue.

Research consistently demonstrates that early pharmacy patterns serve as powerful predictors of claim complexity. A study published in the Journal of Occupational and Environmental Medicine found that injured employees who received opioid prescriptions within the first 90 days after injury had significantly longer disability duration than those who did not receive opioid.[2] The Workers' Compensation Research Institute has documented that claims involving longer-term opioid prescriptions have substantially higher medical costs and indemnity payments, with average claim costs three times higher than claims without opioids.[3]

Early identification of concerning pharmacy patterns enables timely risk mitigation when pharmacy benefit managers are strategically integrated with clinical services. When pharmacy partners identify high-risk medication patterns, they can trigger appropriate referrals to utilization review and case management teams. For instance, when pharmacy data identifies high-cost topical medications like Trubrexa or psychotropic medications being prescribed, case managers can engage with treating physicians to discuss appropriate alternatives and ensure the treatment plan aligns with evidence-based guidelines.

An integrated pharmacy strategy makes it possible to bring complete prescription history into the total claim risk profile and then act on it. That can include tighter opioid oversight, better prior authorization decisions, targeted medication tracking, pharmacist review, RxRN pharmacy nurse review, peer-to-peer review, weaning support and other clinically directed interventions. In workers' compensation, pharmacy is not just a cost management function, it is one of the earliest and most actionable risk identification channels that can trigger appropriate clinical oversight and drive improved recovery outcomes.

Psychosocial Screening in Physical Therapy

Physical therapy (PT) is often where claim complexity first becomes visible in practice. Missed visits, delayed functional gains, repeated authorizations, prolonged care episodes, and off-track progress are frequently among the earliest signs that recovery is not moving as expected. In too many models, programs position PT as a downstream service rather than a source of clinical intelligence. A stronger physical medicine strategy does more than provide access to therapy. It actively manages the quality, duration and direction of care while connecting

treatment progression to job function and safe return to work.

The field is pushing to standardize psychosocial screening during PT evaluations, reflecting stronger evidence and evolving practice guidelines on how psychological and social factors affect outcomes. Clinicians use tools such as SPARE, OREBRO and others to identify risk factors and guide treatment, though the field still struggles to integrate screening consistently.

Even when psychosocial screening is performed, the valuable information captured often remains dormant in progress notes or evaluation forms. Traditional review models typically don't flag these risk factors until a claim is already off track — after extended utilization, costs have accumulated, or duration has significantly exceeded guidelines. By then, the opportunity for early intervention has passed.

AI-powered screening presents a significant advancement by automatically analyzing PT documentation, from initial evaluations through progress notes, to identify psychosocial risk factors that human reviewers might miss or only discover retrospectively. Unlike traditional visit-based models that often wait until six weeks or more after care has started, AI can analyze notes at more clinically relevant intervals, such as every two weeks when progress notes are typically completed. This creates a more responsive system that can detect subtle changes in patient language, reported compliance, pain catastrophizing, fear-avoidance behaviors and other psychosocial factors that predict delayed recovery.

When risk models incorporate physical medicine data and AI-enhanced screening, they can flag claims where complexity first shows up in PT and prompt earlier clinical engagement, potentially redirecting the claim trajectory before it deteriorates.

Engage Earlier. Remove Barriers That Prolong Disability.

For years, the industry has managed difficult claims after complexity has already set in. The bigger opportunity is strengthening prevention strategies so routine claims do not escalate into costly, prolonged cases. This approach will shape the future of risk management.

Risk modeling creates value when it consistently drives action across the intervention ecosystem not when it predicts risk in the abstract. When risk models integrate data, they can see total risk as the claim matures, triage more precisely and intervene while there is still time to change the outcome.

The work then becomes turning insight into timely, coordinated action that supports recovery across the claim continuum, backed by analytics that validate impact on outcomes and total claim cost.

Technology will continue to improve visibility across the life of the claim, but technology is not the story. The story is what employers, claims organizations and clinical teams do with the information and how quickly they act on it.

Key Takeaways for Claims Leaders

1. **Claim complexity starts early, before labeled as “complex, and often within the first 30–60 days.** Small deviations in treatment, engagement, or utilization compound quickly into higher cost and longer duration
2. **Routine claims drive the greatest cost leakage.** Most escalation comes from ordinary claims that drift off course due to missed early signals, not from catastrophic injuries
3. **Upstream employer risk strategies reduce downstream claim complexity.** Ergonomics, job design, and wellness programs targeting high-risk tasks can meaningfully reduce injury severity, duration, and downstream utilization
4. **Life-of-claim risk modeling can positively influence outcomes.** Life-of-claim risk modeling, continuously refreshed as claims evolve, enables earlier, more precise intervention
5. **Pharmacy is one of the earliest and most actionable predictors of poor outcomes.** Early opioid use, psychotropic medications, and high-cost or out-of-network prescriptions strongly correlate with prolonged disability and higher total claim cost
6. **Physical therapy is often where complexity first becomes visible.** Missed visits, stalled functional progress, and prolonged care episodes signal emerging risk well before claims exceed guidelines
7. **AI expands visibility beyond traditional claim data.** Machine learning and large language models surface early risk signals from utilization patterns and unstructured clinical notes that manual review often misses
8. **Risk identification creates greater value when it triggers timely action.** Outcomes improve when insight is paired with coordinated clinical, pharmacy, and return-to-work interventions, delivered quickly and consistently

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