Occupational WHS Risk Summary

Prepared for: Department of Energy, Mines, Industry Regulation and Safety (DEMIRS)
Source: Safe Work Australia - *Beta Occupational Hazards Dataset (2023)*
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Purpose: To identify high-risk occupations in Australia using hazard exposure, claim frequency, and employment scale. This analysis supports operational WHS targeting, inspections, education strategies, and resource prioritization.

I. Key Analytical Insights

1. High-Risk Occupations (Based on Claims and Hazards)

- "Other Construction and Mining Labourers" and "Other Cleaners" rank highest in incidence and frequency of serious claims.
- Prison Officers and Police face combined physical and psychosocial stressors, with Prison Officers scoring 68.18 on the psychosocial hazard index.
- Interestingly, risk-prone roles span manual labor, service, and public-facing sectors, not limited to enforcement.

2. Exposure to Physical Aggression

- Highest in Police, Prison Officers, and Social Workers.
- Public-facing health roles like Nurses and Psychiatrists also exhibit elevated conflict exposure.
- Aggression is not limited to blue-collar roles, highlighting the need for psychosocial hazard mitigation in white-collar occupations.

3. Emotional and Cognitive Stress in White-Collar Jobs

- Lawyers, health professionals, and educators report high exposure to time pressure, decision-making fatigue, and emotionally demanding situations.
- These roles often combine mental load with interpersonal conflict, contributing to complex risk environments.

4. Hazard Domain Analysis

- Physical hazards are highest in trades, laborers, and transport workers due to strenuous movement, environmental exposure, and repetitive strain.
- Psychosocial hazards cluster in healthcare, education, public service, and frontline customer support.
- Roles experiencing both hazard domains should be flagged for dual-risk intervention.

5. Composite WHS Risk Scoring

- A combined hazard index was developed to quantify total risk burden per occupation (scaled 0 to 1).
- High scorers include:
    - Construction & Emergency Labourers
    - Travel Attendants
    - Prison Officers
    - Electrical Distribution Workers

6. Serious Claim Rate vs. Exposure

- Not all high-claim roles are the most physically exposed.
- Example: Cafes and Restaurant Workers have moderate exposure but high claim frequency, indicating under recognized risk.

7. Medium-Risk, High-Impact Roles

- Many roles fall into the “Medium Risk / Critical Exposure” category; lower hazard scores but affecting thousands.
- These include:
    - Aged and Disabled Carers
    - Sales Assistants
    - Cleaners
- These occupations require proactive outreach despite not appearing in traditional “high-risk” rankings.

8. WHS Total Impact (Risk × Employment Size)

- A new metric was introduced:
    - WHS Total Impact = Composite Risk Score × Employment (000s)
- Critical Tier Occupations by total impact:
    - Aged Carers
    - Sales Assistants
    - Electricians
- These roles represent population-scale exposure, even if individual risk is moderate.

II. Operational Recommendations for WorkSafe WA

1. Inspection Targeting

- Use the WHS Risk x Exposure Matrix to flag occupations that fall under High Risk and Critical Exposure (e.g. Construction Labourers, Emergency Response Workers, Prison Officers).

- Prioritize these roles for field inspections, especially in sectors where claim rates and composite hazard scores are high.
- Incorporate the matrix into inspection planning tools and quarterly audit strategies.

2. Psychosocial Hazard Response

- Based on high scores in Time Pressure, Aggression, and Conflictual Contact, implement targeted psychosocial risk management strategies in healthcare, education, and customer service sectors.
- Develop inspector checklists focused on interpersonal violence, burnout risk, and emotional fatigue.
- Disseminate hazard alerts through organization channels.

3. Dual-Domain Risk Roles

- Occupations with high scores in both physical and psychosocial domains (e.g. Police, Cleaners, Disability Support Workers) require tailored interventions.
- Develop integrated guidance material for employers covering both domains, rather than treating them in isolation.

4. Under-Recognized High-Exposure Roles

- Occupations with moderate individual risk but high employment volume (e.g. Sales Assistants, Aged Care Workers) pose large-scale risks. These roles often fall into the “medium risk / critical exposure” tier.
- Integrate these groups into statewide WHS campaigns to ensure visibility.
- Engage with industry bodies for co-branded outreach efforts.

5. Cross-Sector Coordination

- Coordinate strategic response across sectors contributing most to total WHS impact (Construction, Retail, Healthcare, Public Safety).
- Develop sector-specific dashboards for inspectors and compliance teams.
- Establish working groups or cross-agency task forces to align education, inspection, and regulatory priorities.

6. Risk Tier Integration into Compliance Systems

- Integrate the composite risk score and WHS impact tier into internal systems used for inspection scheduling and policy development.
- Use tiers to trigger automatic risk alerts or pre-inspection risk ratings at the occupation level.

7. Education and Guidance Materials

- Focus educational initiatives on hazard themes with the broadest reach: psychosocial fatigue, manual exertion, and public aggression.
- Develop modular guidance packages aligned with occupation clusters (e.g., “Frontline Retail Pack”, “Care Sector Safety Toolkit”) that can be rapidly distributed across industry.

8. Monitoring and Evaluation

- Create an annual update cycle for WHS Total Impact scores as new employment and claims data become available.
- Include “silent risk” occupations in evaluation frameworks to ensure they are not overlooked due to lower per-person severity.

9. Stakeholder Engagement

- Use data insights to inform targeted engagement with unions, employer associations, and sector leaders.
- Share findings in quarterly forums or WHS roundtables to drive shared accountability.

10. Future Data Infrastructure

- Consider aligning DEMIRS’ internal WHS systems with the data structures used in this project (e.g., separation of physical and psychosocial hazard domains, integration of employment data into risk matrices) as this can support automation and long-term insight generation.

III. Methodology Summary

- Cleaned and categorized hazard indicators into physical and psychosocial domains.
- Calculated mean exposure scores, composite risk scores, and developed WHS tiers.
- Applied SQL-style queries to extract sector-specific insights and ranked results.
- Integrated employment data to model workforce-level WHS exposure.
- Developed Power BI dashboard overview for stakeholder-driven interaction and reporting.

IV. Future Work

While the current dashboard provides a general overview of occupational WHS risk across Australian industries, future development should focus on tailoring views and insights for specific user groups within WorkSafe WA. Customising dashboards to match

stakeholder roles will improve decision-making efficiency, operational alignment, and targeted communication.

1. Inspector-Focused View

Purpose: Enable frontline inspectors to quickly identify target occupations based on claim severity and hazard exposure.

Derived From:

- Which occupations are at highest risk of workplace injury or harm?
- Which roles experience the most severe physical and psychosocial exposures?

Proposed Features:

- A ranked inspection list sorted by WHS risk tier and claim frequency
- Quick filters by industry or ANZSCO group
- Inspection flags for “high risk + high exposure” combinations
- Embedded links to relevant codes of practice or compliance checklists

2. Educator and Outreach View

Purpose: Support the development of targeted education campaigns and training materials based on the most prevalent risk types across large workforce segments.

Derived From:

- Which occupations are most exposed to physical aggression?
- Which roles are exposed to common hazard themes that affect many workers?

Proposed Features:

- Filters by dominant hazard type (e.g., time pressure, aggression, manual handling)
- Summary counts of occupations facing overlapping hazards
- Visual content ready for integration into WHS toolkits and awareness campaigns

3. Executive and Policy Planner View

Purpose: Provide high-level overviews that support strategic WHS planning, budget allocation, and ministerial briefings.

Derived From:

- What is the total workforce impact of WHS risk by occupation?
- Which sectors have the highest risk exposure when accounting for population size?

Proposed Features:

- Workforce-wide risk summaries by ANZSCO major group and industry sector
- Occupation-by-impact heatmaps for policy prioritisation

- Total WHS burden calculations (risk x employment)
- Export-ready dashboards for reporting cycles and briefing documents

Future dashboard enhancements will move beyond general analytics to provide audience-specific insights, aligned with the core functions of inspection, education, and strategic oversight. These views will improve internal coordination, enable faster data-driven decisions, and reinforce DEMIRS' commitment to evidence-based regulation and public safety.