


Ten pathways – findings and suggestions

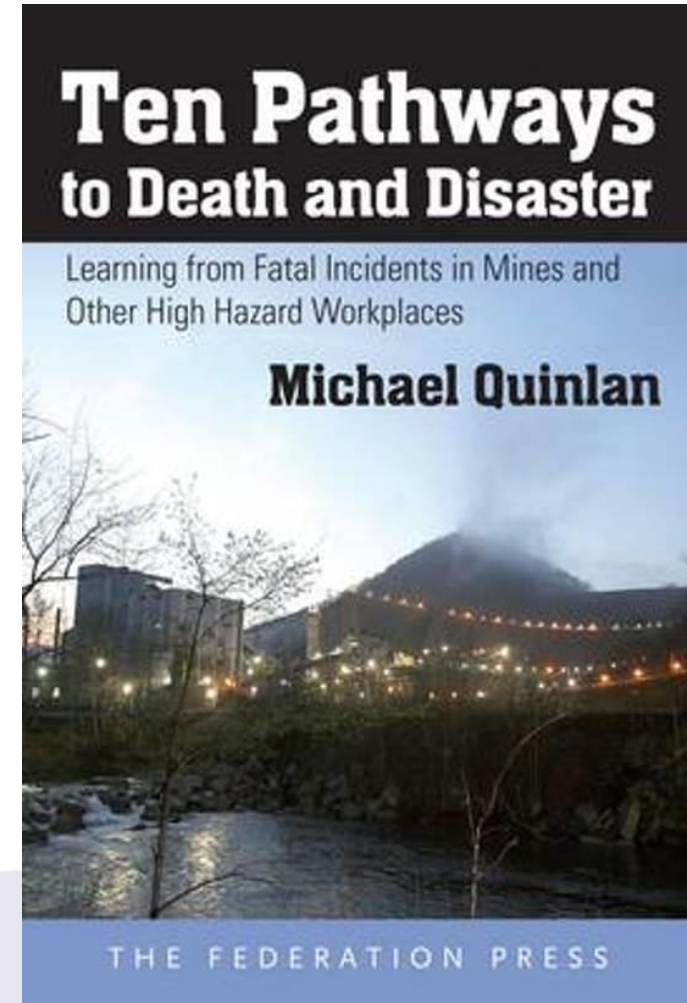
Associate Professor Marcus Cattani

Acknowledgments

- Tanya Bose – PhD Researcher
 - Dr Martin Ralph and Mr Peter Nissen – DEMIRS
 - Professor Michael Quinlan
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Introduction

- In 2014 Professor Michael Quinlan published Ten Pathways to Death and Disaster
- The Ten Pathways are the result of analysing serious incidents
 - Incidents had at least 5 Pathways
 - Some 8 or more Pathways
- Whilst the Ten Pathways do not predict incidents, they are a useful way for us to check our workplace based on factors which have been involved in an incident elsewhere.





Quinlan's Ten Pathways

The book details each Pathway in a chapter. In summary:

1. Design, engineering, technical and maintenance failures
2. Prior warning or causes for alarm ignored
3. Failures in risk assessment
4. Failures in management systems and hazard management plans
5. Failures in auditing
6. Economic pressures compromising safety
7. Failures in regulatory oversight and inspection
8. Workers and others expressing concern prior to the incident
9. Poor management – worker communication and trust
10. Emergency and rescue resources and procedures

What did we do?

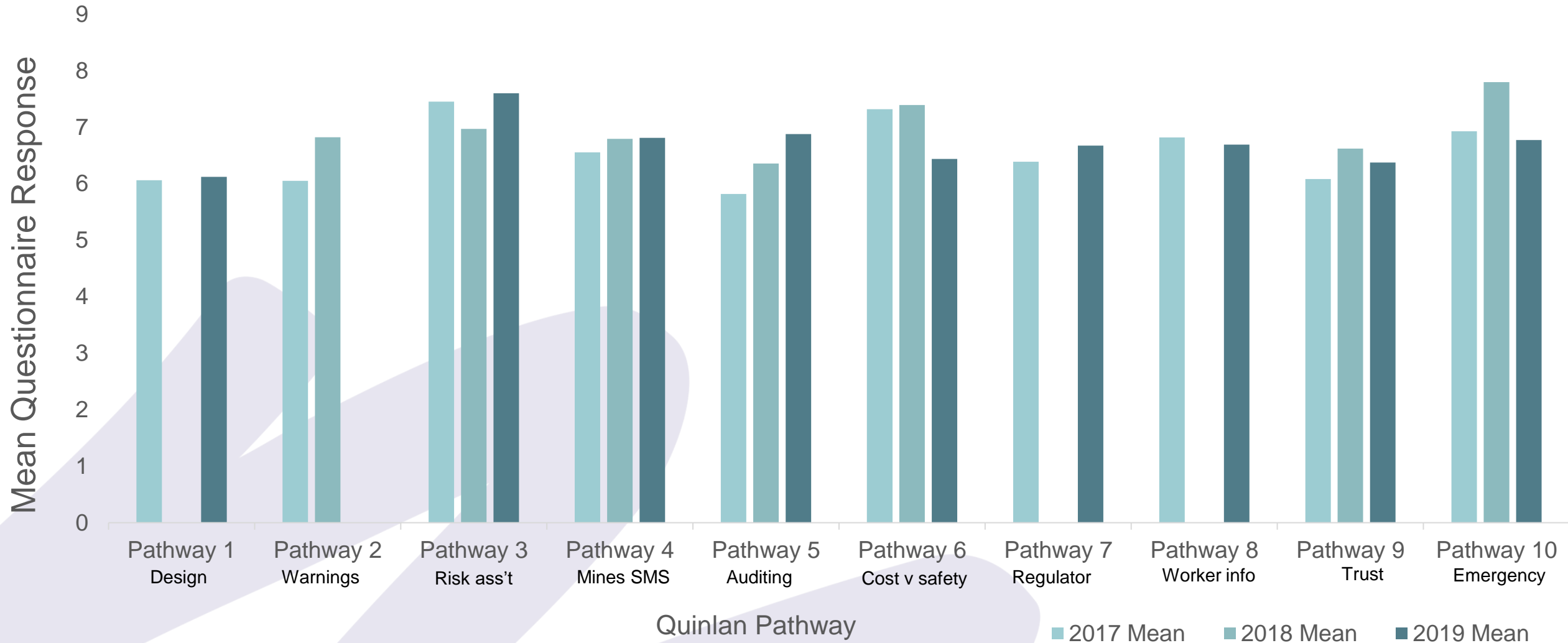
- Used the Quinlan Ten Pathways to create a questionnaire
- Administered at the Mines Safety Roadshows: 3000+ responses over 4 years
- Compared the questionnaire to actual fatal incidents in WA



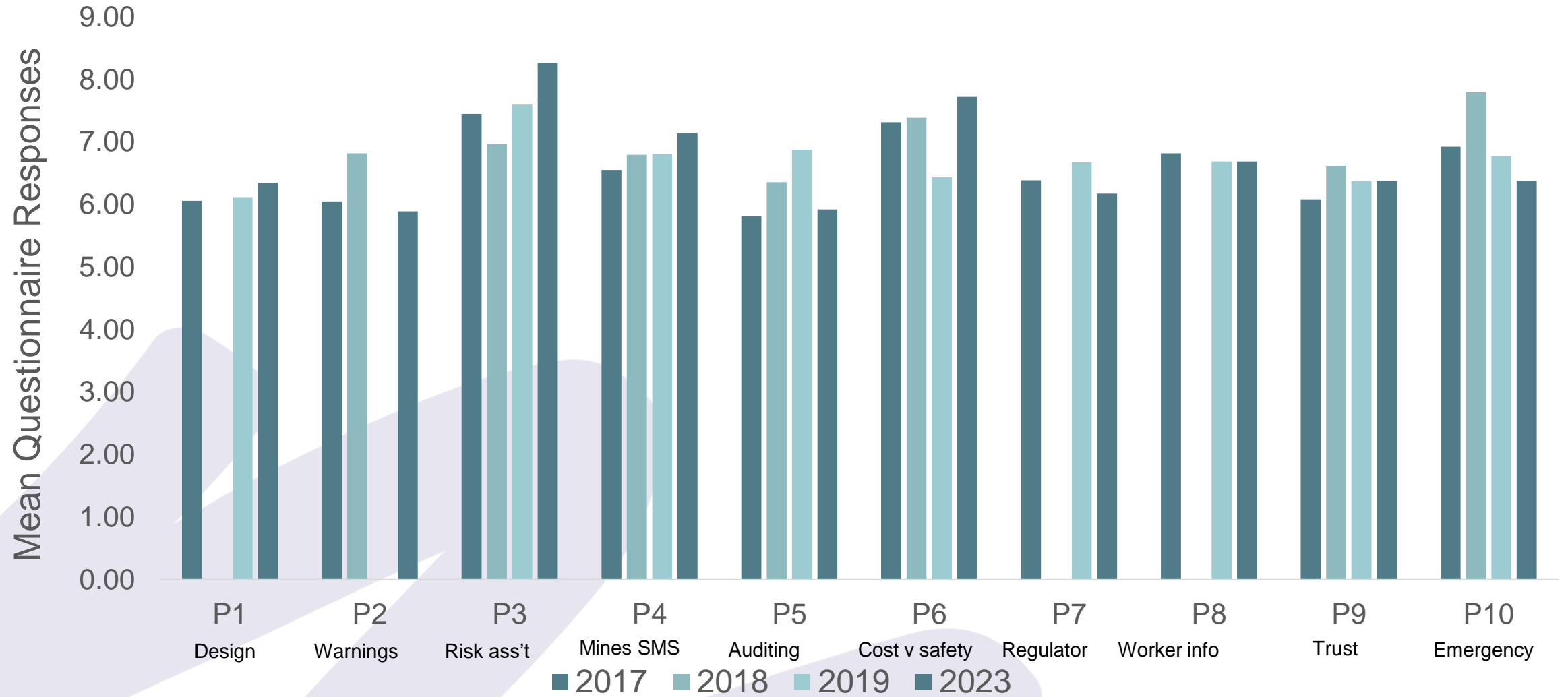
Jenke, T., Boylan, J., Beatty, S., Ralph, M., Chaplyn, A., Penney, G., Cattani, M. (2022). Fatality risk management: Applying Quinlan's Ten Pathways in Western Australia's mining industry. *Safety Science*, 146(Feb 2022)
<https://doi.org/10.1016/j.ssci.2021.105494>.

Questionnaire Responses from 2017 - 2019

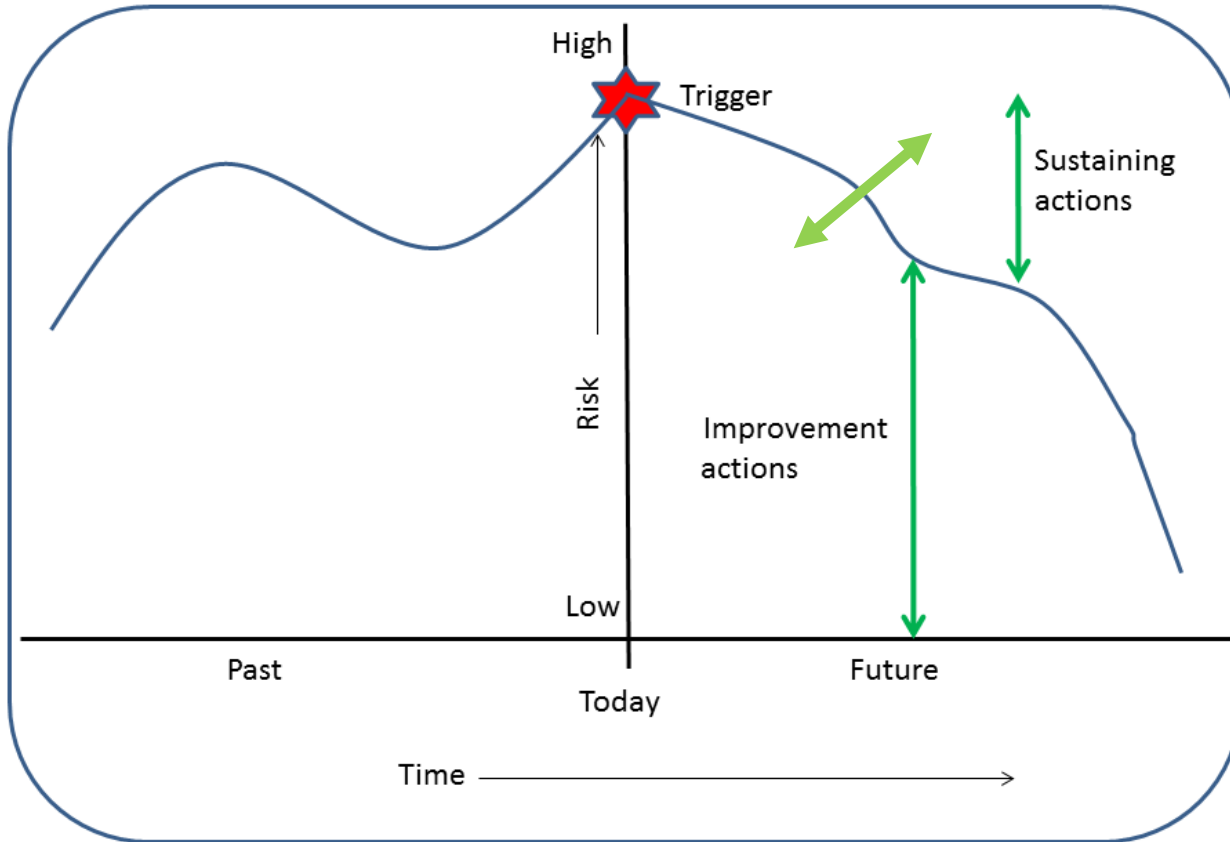
Average Response Value = 6.74



Comparison of 2023 data to previous DMIRS Roadshows



Risk management partners



Cattani, 2012

Define and explain the roles of each 'risk management' partner.

Graduate Certificates

- OHS professional and specialist streams
- Leadership in Mining Workplace Safety

ECU Safety Journey short courses on risk management



Improving performance

1. Design, engineering, technical and maintenance failures
 - Ensure all stakeholders (i.e. all leaders, engineering, employees) are aware of their roles and responsibilities
 - Risk management partnerships
2. Prior warning or causes for alarm ignored
 - Strongly encourage/incentivize/monitor high potential incident reporting
 - Educate people in investigation skills and investigate HPI's as if they are actual
3. Failures in risk assessment
 - Use the risk register as your “bible”
 - Involve all stakeholders in the development and review of risk registers and assessments
4. Failures in management systems and hazard management plans
 - “Customisation and implementation”: every system is different
 - Effectiveness of control is critical: how are you monitoring?
5. Failures in auditing
 - Internal and external mines safety management system audit
 - Conduct your own Ten Pathways questionnaire, to identify priorities

Incident investigation skills



- Practical course based on research and good practice
- Materials integrated with Graduate Certificate

IMPROVE YOUR WORKPLACE INCIDENT INVESTIGATION SKILLS

Learn essential skills to conduct effective incident investigations, including ICAM analysis, to help prevent future incidents.

In this course we will guide you through our incident investigators toolbox, the ICAM analysis process and how to communicate the investigation findings.

All successful participants will receive a certificate of attendance and a university certificate which can be used towards a unit in the Graduate Certificate in Occupational Health and Safety.

The course is delivered both online, in a flexible mode where you can study at your own pace, and face-to-face, facilitated by our industry partner, Elect Training.

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MORE INFORMATION

For more details, including available sessions, pricing and to enquire about group bookings, visit ecu.edu.au/short-courses/medical-health-sciences/workplace-incident-investigation

School of
Medical & Health Sciences



Management systems

“If your (an organisation’s) paperwork is an accurate reflection of what is actually happening it can be really beneficial to you in legal proceedings”

and

“Most organisations that are successfully prosecuted or that are badly criticised in judicial inquiry is because they fail to comply with their own systems. So in many ways your paperwork is your biggest source of legal liability”.

Greg Smith in Risky Conversations

Conduct your own Ten Pathways survey

- The existing survey was across multiple organisations
- You can use the questionnaire to survey a specific part of your organisation
- This will significantly improve the definition and prioritisation of pathways within your organisation
- If you have >100 participants, we will benchmark to similar organisations
- Please contact us! You can use the survey





Improving performance

6. Economic pressures compromising safety
 - Cost benefit analysis of safe vs unsafe: engage leaders
 - Care is needed with incentives
7. Failures in regulatory oversight and inspection
 - Ensure obligations register is live and managed
 - Ensure the Statutory Positions holders have a relationship with Regulator
8. Workers and others expressing concern prior to the incident
 - Consultation, Coordination, Cooperation! Participation of employees
 - Develop effective HSR's and Committee
9. Poor management – worker communication and trust
 - Review leadership approach
 - Organisational culture – ILO Zero Harm – Seven rules
10. Emergency and rescue resources and procedures
 - Develop business, site, team emergency plans: Practice regularly!
 - Support the local emergency response: people and equipment
 - Train all leaders in AIIMS or equivalent

Incentives

“We conclude that if incentives continue to be used as a motivation strategy for financial and business performance, safety – particularly as it relates to major accident prevention – must also be incentivised in this way.”

Maslen and Hopkins (2014)

Do incentives work? A qualitative study of managers' motivations in hazardous industries

Safety Science (70) 419-428

Industry perception of legislation

- WA Government asked for research of industry perception of new laws.
- Survey being developed to ask people to comment
 - What do they know about the new legislation?
 - Are penalties for serious injuries a good idea?
 - What do you think about the deterrent effect of industrial manslaughter?
- Benchmark survey to be repeated in ~a few years time



Dust exposure

- International Sampling Comparison Group
- New ways to monitor exposure to dust being tested and validated on mines sites
- Hosts needed for ongoing research

ILO – Vision Zero Fund




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Catastrophic injury risk factors

- Significant issues with serious and catastrophic injuries concerned with psychosocial wellbeing (ie suicide)
 - Regulator has asked for research to assist decision making
 - Reviewing literature of work and non-work risk factors
 - Developing a model to assist decision making
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Summary

- Ten Pathways questionnaire identified trends across the mining industry, but the results have not changed significantly
 - Each organisation should review their specific effectiveness
 - Share ideas to improve their priorities
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Thank you