

Safety Corner

What are the Do's and Don'ts in risk assessment?

Risk assessment methods vary widely among industries but many popular methods are actually ineffective, let alone technically flawed. There is a strong placebo effect: even an ineffective method would feel like it works, particular when it is easy to apply and easy to be accept by senior management. Unfortunately, the cheapest and easiest way to reduce the risk is usually useless, although expensive methods are not necessarily useful either. The following general Do's and Don'ts can serve as a checklist to avoid conducting a meaningless risk assessment.

The Do's

- Apply a structured method to ensure all reasonably foreseeable accident scenarios are systematically identified
- Involve front line staff and relevant parties in the scenario identification process
- Account for incidents and near-misses when building up accident scenarios
- List explicitly key assumptions and bases
- Develop application-specific database to support the risk models
- Apply Bayesian data update in handling generic data and plant-specific data
- Apply robust tools in assessing risks
- Conduct uncertainty analysis in characterising risk
- Conduct sensitivity analysis to understand the results
- Document risk assessment process
- Be open to evaluation through professional peer review
- Communicate the risks to stakeholders
- Continually seek reduction in uncertainty by systematically acquiring additional knowledge

The Don'ts

- Conduct a risk assessment using generic data unless it is a scoping study
- Leave scope narrowly focused with unclear boundary conditions
- Generate arbitrary, unsystematic and unclear scenarios
- Underestimate of the complexity of the system and data available
- Apply data with no supporting evidence
- Finalise the assessment report without going through any open review
- Incorrectly apply tools and techniques
- Present inconclusive outcome
- Ignore the uncertainty nature in data and models
- Apply expert judgment without any calibration or evidence
- Forget to communicate with stakeholders

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The Safety Corner is contributed by Ir Dr. Vincent Ho, who can be contacted at vsho@UCLA.edu