Institute of Actuaries of Australia
ACCIDENT COMPENSATION SEMINAR
CHANGING TIMES – CONTINUING NEEDS 20 – 22 NOVEMBER 2011 • SOFITEL BRISBANE

Information interventions for injury recovery: a review

Dr Fiona Clay

Institute for Safety, Compensation and Recovery Research
Monash University

Acknowledgements

- Alex Collie
- Rod McClure
- Andrew Palagyi

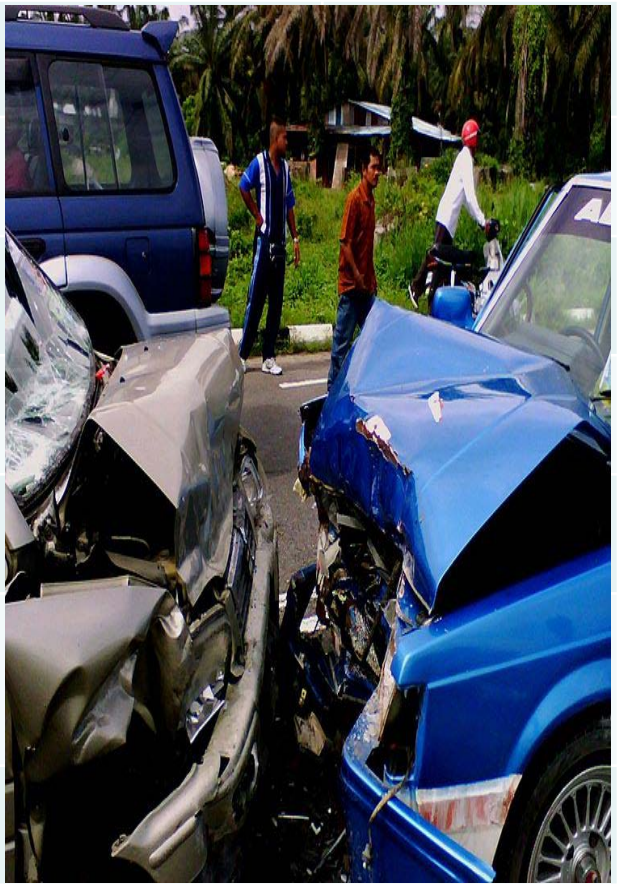
This review was commissioned and funded by the Motor Accidents Authority of NSW.

ISCRR
Institute for Safety, Compensation and Recovery Research

MONASH University
Injury Research Institute

Injury is a major public health problem.

- Loss of financial independence
- Develop / exacerbate mental health issues
- Reduced engagement in normal family roles
- Marital difficulties
- Strain on personal relationships
- Greater use of social services



Motor accident compensation claims in NSW

Source: MAA Annual report 2009-10 financial years.

Accident Year	Total claims	Estimated ultimate claims
2003/04	12,264	12,290
2004/05	11,711	11,757
2005/06	11,086	11,167
2006/07	10,582	10,729
2007/08	9,918	10,220
2008/09	10,927	11,732
2009/10	5,746	7,067
Total	72,234	74,962

Injuries are costly

Insurers regulated by the Motor Accidents Authority (NSW)

- 2009/10 $760 million
- 2003/4 - 2009/10 $6.8 billion

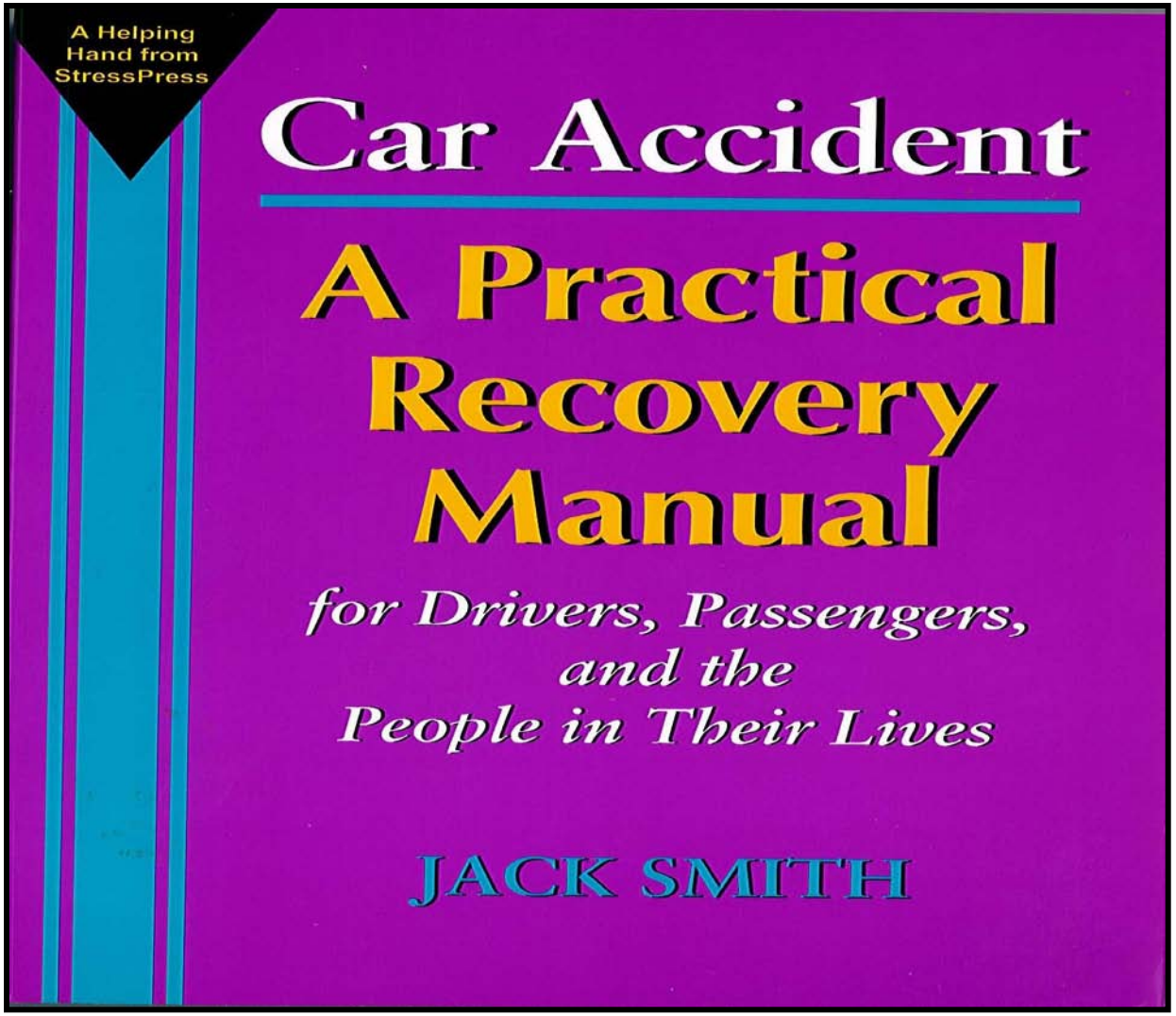
- Lifetime costs of new cases brain and spinal cord injury:
  2008 $10.5 billion

Impact of compensation systems

- Set policy regarding payment for treatment and wage replacement

- Outcomes
- Community expectations
- Source of frustration and stress
  - Policies and procedural issues
  - Lack of information
  - Lack of involvement
  - Poor communication

- Interface of healthcare system and injured person


A Helping Hand from StressPress
Car Accident
A Practical Recovery Manual
for Drivers, Passengers, and the People in Their Lives
JACK SMITH

Review specifications

Review the current literature on:

1. Providing injured people and the community information about injury recovery

2. Providing early intervention programs to improve outcomes following traumatic injury

Review questions

Q1 - Do public health strategies/campaigns improve outcomes following motor vehicle-related traumatic injury?

Q2 - Does targeted early intervention improve outcomes following motor vehicle- related traumatic injury?

Q3 - Are there public health strategies/campaigns or early interventions that improve outcomes in different populations that could be adopted for the traumatic injury population?

Rapid Review process

1. Systematic review process
2. *A priori* selection process
3. PICO format
4. Locate studies
5. Critically appraise quality
6. Synthesize the evidence
7. Make conclusions and recommendations

Search strategy

Published literature

- Medline, PsychINFO, Cochrane, Pubmed, INFORMIT
- Cochrane Injuries Group
- 1990-April 2011

Grey literature: 46 websites

- Compensation Authorities in Australia
- International Compensation Authorities
- Health Services in Australia
- Research Institutes and Injury Foundations

Clinical trial registers

- WHO International Clinical Trials Registry Platform
- Clinical Trials. gov (USA)
- Australian and New Zealand Clinical Trials Registry

Study selection criteria

Inclusion

- Interventions to include: information and assistance about injury recovery and/or the claims and legal process, or RTW and normal activity.
- Health and social outcomes
- Different models of vehicle-related compensation **IF** claims system is well described.
- Intervention delivered in first 6 months post injury

Exclusion

- Case studies
- Non intervention studies
- Clinical / pharmacological interventions
- Primary injury prevention
- Psycho-education interventions

Search terms

INJURY TERMS: [wounds and injuries, trauma*, whiplash, spinal, multiple trauma, stress] **OR**

MOTOR VEHICLE TERMS: [Automobile, Pedestrian, Motorcycle, Traffic Accidents] **AND**

INFORMATION-EDUCATION TERMS: [Mass media, Social Media, Pamphlet, Leaflet, Marketing, Social Marketing, Radio, Television , Publications, Information Dissemination, Health education, Health Promotion , Advertising, Video, Patient Education as Topic] **AND**

STUDY DESIGN TERMS: [Evaluation studies, Follow-up studies, Intervention studies, Program Evaluation, Prospective Studies, Randomised Controlled Trials, Controlled Clinical Trials, Cohort Studies, Single-Blind Method, Double-Blind Method, Comparative Study , Random Allocation]

INJURY MECHANISMS: [Violence, Assault, Falls, Sports, Work, Drowning, Burns] **(Q3 only)**

NHMRC additional levels of evidence and grades*

Level	Intervention
I	A systematic review of level II studies
II	A randomised controlled trial
III-1	A pseudo randomised controlled trial: (eg: alternate allocation)
III-2	A comparative study with concurrent controls
III-3	A comparative study without concurrent controls or unexposed groups
IV	Case series with either post-test or pre-test/post-test outcomes Descriptive only with no significance testing

Methodological Quality Assessment Criteria

1. Source population is well identified

2. Inclusion and exclusion criteria are described and appropriate.

3. The compensation system OR the health care system is appropriately described.

4. Follow-up is reported and attrition is < 40% or there are no major differences between dropouts and participants remaining in the analysis.

5. The interventions are sufficiently described as to allow reasonable replication.

6. Outcomes are defined and measurable.

7. Study design including the baseline sample size is appropriate to answer the study questions.

8. No other serious flaws were identified eg the use of inappropriate statistical tests

What we found

- 1800 references (3 research questions)
- Duplicates removed
- Screened for relevance
  - 59 articles - 58 primary studies
  - 8 systematic reviews or narrative reviews
  - 4 study protocols
  - 4 clinical trial registrations

- Peer reviewed vs. Grey literature

More than 75 outcomes

- Aspects of symptom frequency and severity
- Costs, cost effectiveness
- Mental and Physical health
- Quality of life
- Litigation, lawyer involvement, disputes
- Health service and medication utilization
- Employment status
- Satisfaction with or perceived usefulness' of the intervention
- Increased knowledge

Survey outcome instruments: more than 35

- Post-traumatic Diagnostic Scale
- Hospital Anxiety and Depression Scale
- World Health Organisation Quality of Life Measure
- Copenhagen Neck Functional Disability Scale
- Medical Outcomes Short Form 36
- Problem Checklist from the New York Head Injury Family Interview
- Galveston Orientation and Amnesia Test
- Visual Analogue Scale
- Community Integration Questionnaire
- Tampa Scale for Kinesophobia
- Pain Coping inventory
- Neck Disability Index
- Short Musculoskeletal Assessment

Question 2: Does targeted early intervention improve outcomes following vehicle related traumatic injury?

Early intervention: First 6 months post injury

Vehicle related trauma

Injuries

- Whiplash trauma (n=8)
- Traumatic brain injuries (n=7)
- Mild head injuries (n=4)
- Spinal cord injuries (n=4)
- Acute Stress disorder (n=4)
- Not well specified (n=7)

- Moderate to severe injury (n=3)

Target of intervention

- Adults (n=28)
- Health care provider (n=1)
- Parents or caregivers (n=5)

Participant follow-up

- 13-26 weeks (n=21)
- 12 months or more (n=9)
- Not reported (n=2)

Location of research: 7 countries

Mode of delivery

- Telephone (n=2)
- Video or DVD (n=2)
- Internet /videoconferencing (n=6)
- Paper based (n=10)
- In person education (n=12)
- More than one mode (n=4)

Impact on outcomes

- Positive impact (n=17)
- Negative impact (n=4)
- No effect (n=11)

Interventions delivered using Video or DVD

Brison (2005)

- **Intervention**: 20 minute educational video sent to the patients home following treatment for whiplash associated disorder
- **Control**: Usual care

- **Outcomes**: Pain frequency and severity, persistent symptoms
- Canada

Oliveira (2006)

- **Intervention**: 12 minute educational video viewed at the patients bedside for patients with acute cervical strain
- **Control**: Usual care

- USA, California
- Traffic mainly
- 66 outcomes !!

Interventions delivered via the Internet / video conferencing

Cox (2009)

- **Intervention**: Website for children "So you have been in an accident" and 4 page parents booklet emphasizing their role in their child's recovery
- **Control:** Usual care
- Injury including mild TBI
- **Outcomes**: Anxiety (child), intrusion and PTS (parents) Acceptability, Use

Wade (2010)

- **Intervention**: Cognitive behavioural skills building-therapist guided website intervention: Session 1 in person, Sessions 2-10 phone or video conference
- **Control**: Internet resources
- Moderate to severe TBI
- **Outcomes**: Executive function problem solving behaviour

Interventions delivered via the phone

Phillips (2001)

- **Intervention**: Nine week education on self care nurse led intervention delivered via video or phone
- **Control**: Usual care
- Spinal cord injury
- **Outcomes**: Quality of life, Depression. Days of hospitalization

Bombardier (2009)

- **Intervention**: 7 phone-based education, problem solving and behavioural activation sessions over 9 months plus mailed written information
- **Control**: Usual care
- Mild to severe TBI
- **Outcomes**: Depression, functional recovery

Interventions using In person or face to face education

May (2006)

- **Before and after study**
- Spinal cord injury educational program at a rehabilitation hospital designed to educate persons about self care

- Canada

- Knowledge
- Problem solving skills
- Perceived importance of education topics

Scholten-Peeters (2006)

- **Intervention 1**: Education and advice on graded activity given by GP's
- **Intervention 2**: Education, advice on graded activity and exercise therapy given by physiotherapists

- Netherlands
- **Outcomes**: Pain, Headache, Activities of Daily Living

Rebbeck (2006)

Implementation: 8hr education workshop about whiplash clinical practice guidelines

Dissemination: sent guidelines but with no education

- Physiotherapists, Australia

- **Outcomes**: Patient Disability, Cost of care, Functional rating, Patient satisfaction, Provider knowledge

Paper based interventions

Ferrari (2005)

- **Intervention**: 1 page educational pamphlet based on the Whiplash book provided to patients at discharge from the ED
- **Control**: Usual care
- Canada
- **Outcomes**: Litigation, Medication and Therapy use, Work status and Activities of Daily Living

Turpin (2005)

- **Intervention**: 8 page self help booklet "response to traumatic injury" sent 6-8 weeks after the injury
- **Control**: Usual Care
- England
- Traffic-Work-Assault
- **Outcomes:** PTSD, Anxiety, Depression

More than one mode of intervention delivery

Kongsted (2008)

- **Intervention 1**: Personal patient education of 60 mins from specialist nurse at a home visit

- **Intervention 2**: Pamphlet focusing on reassurance and continuation of normal activities

Outcomes

- Recovery
- Pain
- Return to work
- Disability

- Denmark
- Whiplash injury

Methodological limitations

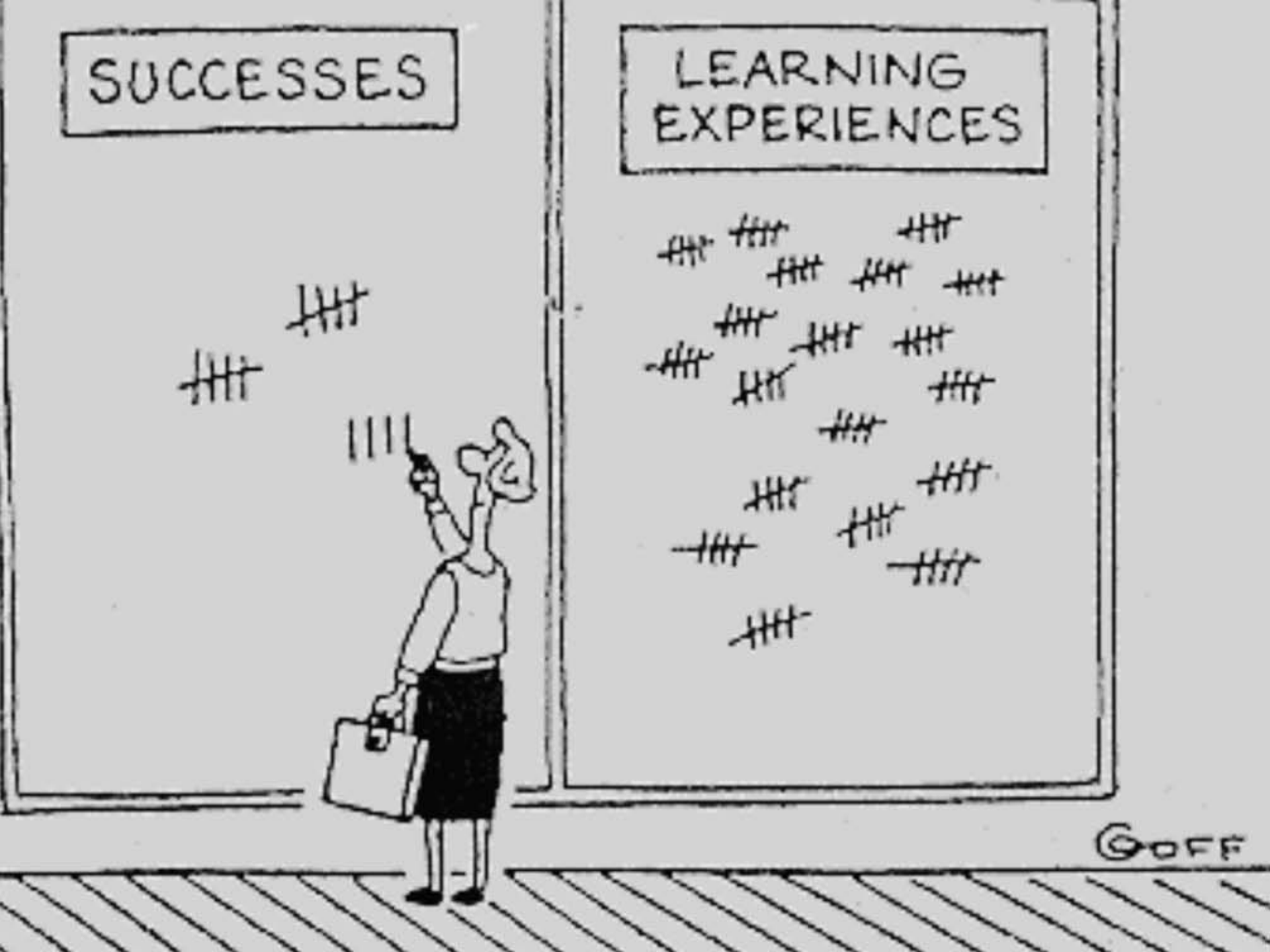
- Sample sizes
- Study attrition
- Type 1 error
- Lack of an appropriate control condition (eg: usual care).

Heterogeneity

1. interventions (different modes, administration, durations, intensities)
2. outcome measures
3. injury populations

Failure to

1. adequately define source target and study populations
2. report on co-interventions
3. to monitor / report on compliance
4. to report on compensation and health insurance system


SUCCESSES
LEARNING EXPERIENCES
GOFF

Review

Successes

- Comprehensive search
- Peer reviewed and grey literature
- Synthesis and quality appraisal

Learning experiences

- Heterogeneous literature
- Articles of relevance
- Grey Literature
- Publication Bias

Relevance to the Australian compensation setting

- 8 countries
  - UK, USA, Canada, Australia
  - Denmark, Netherlands, Sweden, France
- Social and demographic differences to Australia
- Personal injury compensation and healthcare arrangements

What other reviews say?

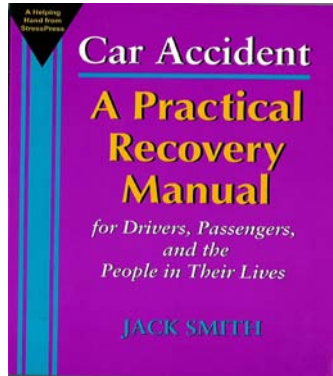
- **Information – education following neck pain**
  - Unequivocal findings
  - Multimodal strategy
- **Information provision following poly-trauma**
  - timing of information
  - type of information
  - mode of delivery.
  - different phases of recovery

Where to from here?

Challenges and Key messages

- State of knowledge
- Ensuring compliance
- Contrast between interventions
- Studies of compensation systems
- Cost effectiveness studies

- Health Literacy
- Mode of delivery preferences
- Injury severity
- Coping style-self efficacy
- Quantity vs quality
- Information alone or ?



Conclusions: -Review questions

Q1 - Do public health strategies/campaigns improve outcomes following motor vehicle-related traumatic injury?

Q2 - Does targeted early intervention improve outcomes following motor vehicle- related traumatic injury?

Q3 - Are there public health strategies/campaigns or early interventions that improve outcomes in different populations that could be adopted for the traumatic injury population?

Conclusions: Strong evidence

Interventions involving

- legislative or regulatory reform
- Information based on debriefing for post traumatic stress

Conclusions: Equivocal evidence

1. More than one interactive session with a care provider.
2. Cohorts at increased risk of a poor outcome.
3. Interventions delivered via the telephone **OR** video / DVD

Conclusions: Evidence gaps

- Public health strategies to promote injury recovery

Interventions for

- culturally and linguistically diverse populations
- caregivers
- health care providers

- focusing on providing information on the claims and legal process

Research Studies

- cost effectiveness
- impact of cultural / health literacy factors on compliance
- different modes of intervention delivery

- Large-scale randomised controlled trials.