

# BURNOUT AMONG SENIOR MEDICAL STAFF WHAT ARE THE IMPLICATIONS?

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# Overview

- Burnout rates amongst Senior Doctors
- Statistics and biases
- Toxicology concepts – TD50
- Implications

# “Tired, worn-out and uncertain”:

Burnout in the New Zealand public hospital senior medical workforce

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# “Tired, worn-out and uncertain”:

This study examines the self-reported prevalence of burnout among senior doctors and dentists working at New Zealand’s 20 DHBs.

It is based on the findings of a survey, conducted in November 2015, of 3740 members of the Association of Salaried Medical Specialists (ASMS), of whom 1487 (40%) responded.

It is the first national study of its kind undertaken in New Zealand.

# Selection Bias

In survey sampling, the bias that results from an unrepresentative sample is called **selection bias**. Examples are

## **Undercoverage.**

- occurs when some members of the population are inadequately represented in the sample.
- often a problem with convenience samples.
  - ASMS members = approx. 90% of all Senior Doctors, but are they different to the rest?

## **Nonresponse bias.**

- individuals chosen for the sample are unwilling or unable to participate in the survey.
- the response rate can be very low.
  - 40% response rate considered good.

## **Voluntary response bias.**

- occurs when sample members are self-selected volunteers, as in voluntary samples.
- The resulting sample tends to over represent individuals who have strong opinions.
  - Voluntary survey – may have over represented the disgruntled



*“Excuse me,  
can you  
just take a  
few minutes  
to answer  
an online  
survey  
about your  
current  
situation”.*

# Burnout definitions

“factors influencing health status and contact with health services” and as a state of “vital exhaustion” encompassing both physical and emotional dimensions (ICD 10)

In the wider literature,

“a particular type of prolonged occupational stress” or “psychological strain representing a process of depleting personal coping resources”

# Why is burnout important in the medical setting?

Health risk of those suffering from burnout

Known correlations between burnout and

- the quality of care
- the risk of medical errors
- increasing staff turnover intentions.

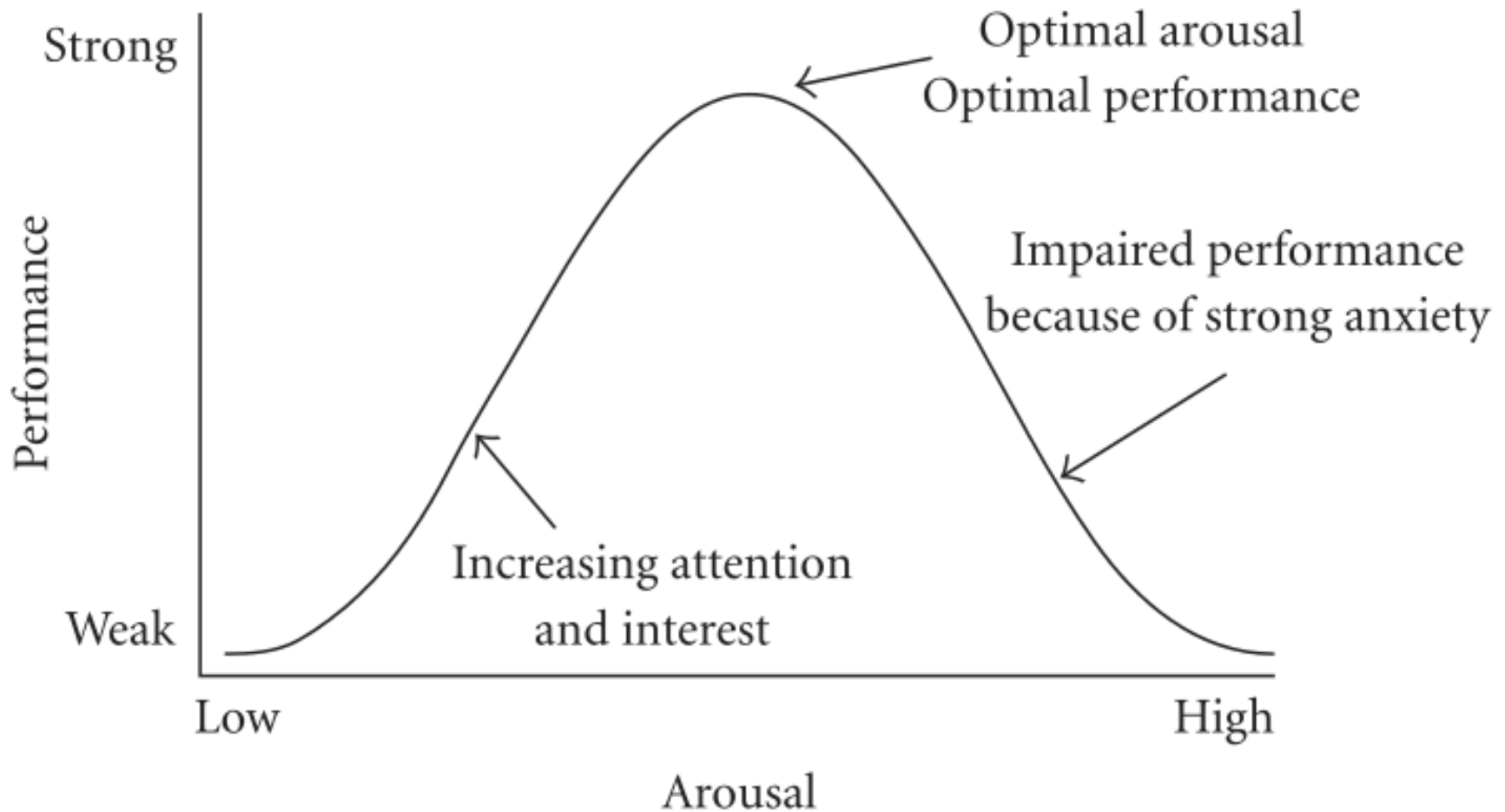
Doctors and health care workers

- more susceptible to burnout than other professions
- have higher rates compared with the general public



# Yerkes-Dodson Law

## Performance versus Stress level



# Factors associated with burnout in Healthcare workers

- stressful and emotionally demanding nature of health care provision
- typically unrelenting high workloads.
- long hours of work,
- presenteeism
- shift work and on-call duties
- feelings of low control
- frustrations with poor quality leadership

# COPENHAGEN BURNOUT INVENTORY (CBI)

The CBI was used in the Project on Burnout, Motivation, and Job Satisfaction (PUMA) study to measure the level of burnout in employees working in the human service sector.

The CBI is a screening measure with three categories:

**Personal Burnout** which is defined as “the degree of physical and psychological fatigue and exhaustion experienced by a person”.

**Work Burnout** which is defined as “the degree of physical and psychological fatigue and exhaustion that is perceived by the person as related to his/her own work”.

**Client/Customer Burnout** which is defined as “the degree of physical and psychological fatigue and exhaustion that is perceived by the person as related to his/her work with clients.”

# COPENHAGEN BURNOUT INVENTORY (CBI)

Employees who gained an average score of 50 or higher (range: 0 to 100) are likely to have burnout.

A positive response to the screen did not necessarily indicate that an employee had burnout.

However, a positive response did indicate that an employee may have symptoms of possible burnout and further investigation of symptoms by a mental-health professional might be warranted.

# Copenhagen Burnout Inventory (CBI).

## Scales, items and response frequencies.

### Response category and scoring:

- A Always or to a very high degree  
(Scoring 100)
- B Often or to a high degree  
(Scoring 75)
- C Sometimes or somewhat  
(Scoring 50)
- D Seldom or To a low degree  
(Scoring 25)
- E Never/ almost never or To a very low degree  
(Scoring 0)

### Personal burnout

- How often do you feel tired?
- How often are you physically exhausted?
- How often are you emotionally exhausted?
- How often do you think: "I can't take it anymore"?
- How often do you feel worn out?
- How often do you feel weak and susceptible to illness?

### Work related burnout

- Do you feel worn out at the end of the working day?
- Are you exhausted in the morning at the thought of another day at work?
- Do you feel that every working hour is tiring for you?
- Do you have enough energy for family and friends during leisure time?
- Is your work emotionally exhausting?
- Does your work frustrate you?
- Do you feel burnt out because of your work?

### Client-related burnout

- Do you find it hard to work with clients?
- Does it drain your energy to work with clients?
- Do you find it frustrating to work with clients?
- Do you feel that you give more than you get back when you work with clients?
- Are you tired of working with clients?
- Do you sometimes wonder how long you will be able to continue working with clients?

# PUMA study – validation CBI

Category	Personal Burnout	Work Burnout	Client/Customer Burnout
No. of respondents	1898	1910	1752
Mean score	35.9	33.0	30.9
% sample burnout	22.2%	19.7%	16.6%

# PUMA study

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Subgroups - scores			
Chief Drs	31.3	29.2	25.8
US pediatric HCW	34.2	37.0	20.3

# PUMA vs NZ Senior Doctors

Category	Personal Burnout	Work Burnout	Client/Customer Burnout
PUMA Mean score	35.9	33.0	30.9
PUMA % burnout	22.2%	19.7%	16.6%
Chief Drs	31.3	29.2	25.8
US pediatric HCW	34.2	37.0	20.3
ASMS mean score	47.4	44.0	29.5
ASMS % burnout	51.1%	42.1%	15.7%
Emergency med scores	50.2 56.9%	51.3	32.7



# Patient vs personal burnout by Speciality

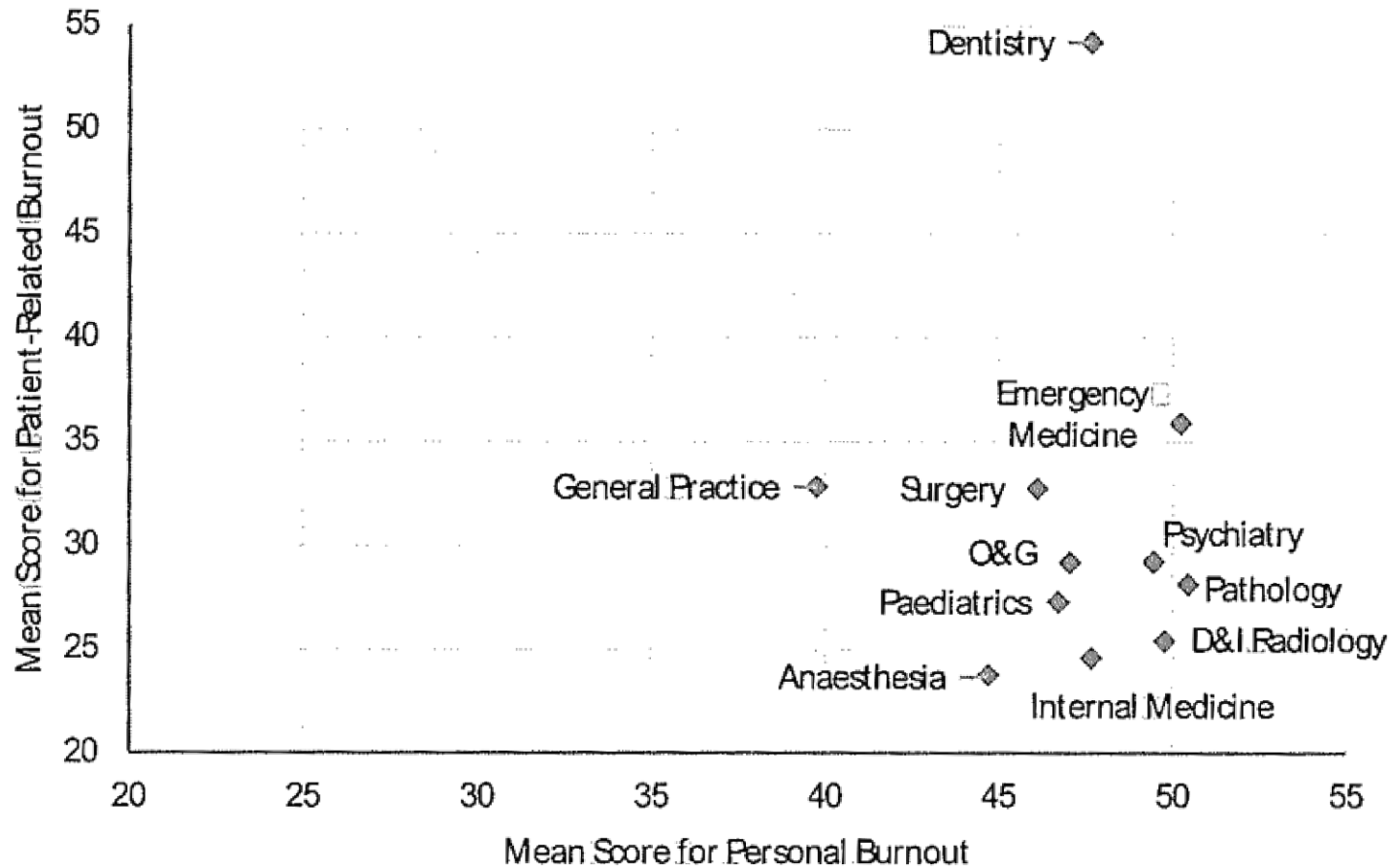


Figure 6: Mean patient-related and personal burnout by medical speciality

# Work vs Personal burnout by Speciality

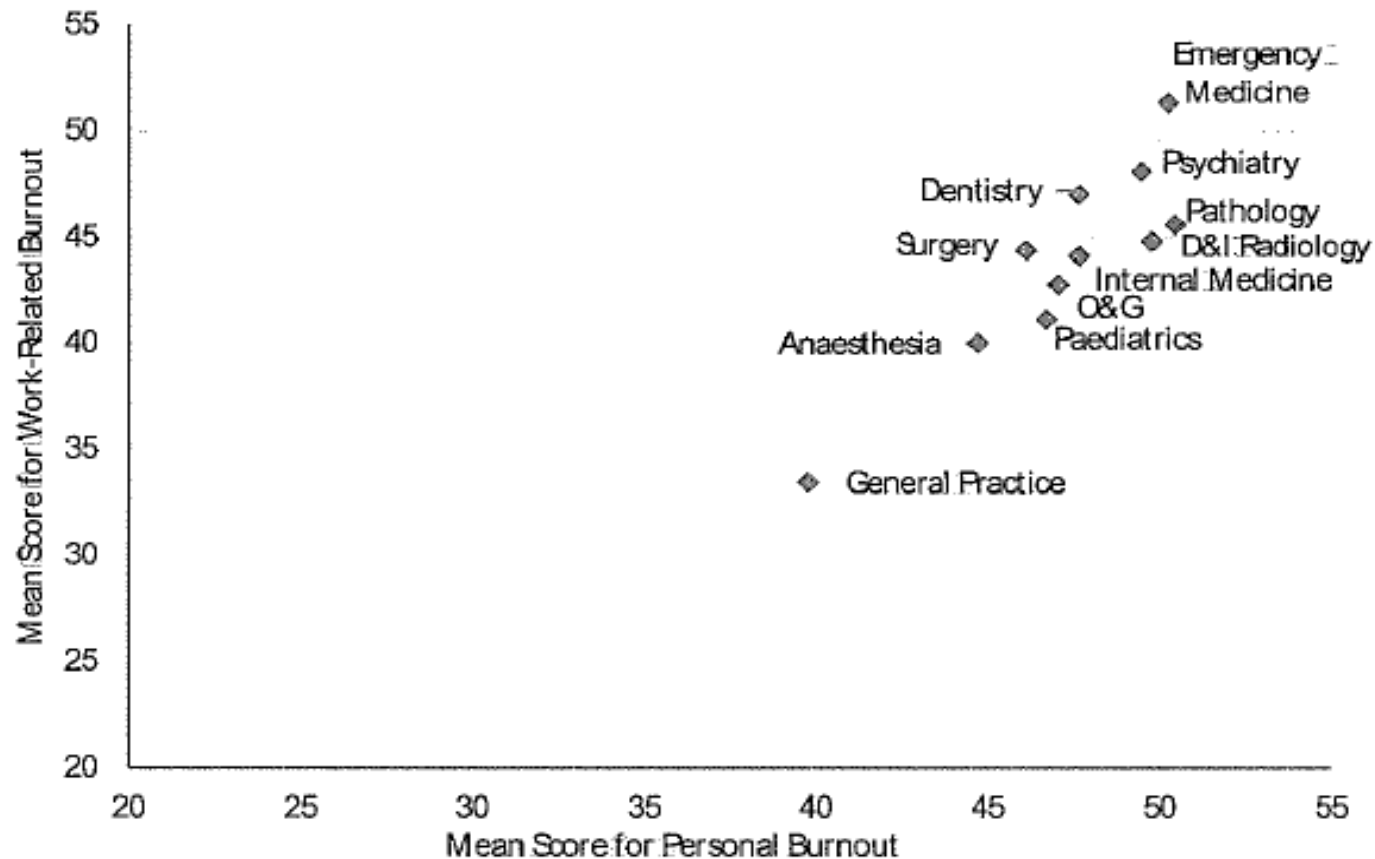


Figure 5: Mean work-related and personal burnout by medical speciality

# What is it about Emergency Medicine?

Research into levels of and contributing factors towards burnout in those working in emergency medicine, conclude that

- hours of work play a significant contributing factor
- **experience** and autonomy play a significant role in **ameliorating** perceptions of stress associated with working in EDs

# Breakdown by age / gender all spec

Those with a longer length of time working in the New Zealand public health system had significantly lower burnout scores ( $p < 0.001$ )

The 30-39-year age group had the highest burnout scores of all groups (mean=53,  $p < 0.001$ ), scores improving concurrent with increasing age.

Females 30-39-year age bracket (n=88) had very high personal burnout (70.5%).

## “Stress, burnout, and job dissatisfaction in mental health workers.”

Rossler, W. (2012). *Eur Arch Psychiatry Clin Neurosci* 262 Suppl 2: S65–69.

Notes while the medical profession has certain stressors reflecting the long hours of work and difficulties associated with challenging and emotionally draining patient-care situation, the impact of the organisational context of medicine cannot be ignored as a contributing factor in the propensity for this workforce to experience burnout.

“Stress, burnout, and job dissatisfaction  
in mental health workers.”

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“economic objectives have priority over medical values  
in health care. This is a perspective that conflicts with almost  
all values of importance during the training of physicians.

These factors contribute to a cycle of stress and reduced  
quality of care”

# 2016 Medscape Lifestyle Report

- Sharp rise in the rate of physician burnout in recent years.
- an increase in overall burnout percentages and severity ratings across all specialties compared with the 2015 report.
- Burnout percentages range from 40% to 55% across the 25 specialties (15,800 physicians) surveyed

# Basic Toxicology

## Dose-Response Curves

A dose-response relationship is represented by a dose-response curve.

The curve plotting the dose of the chemical versus the response in the test population,

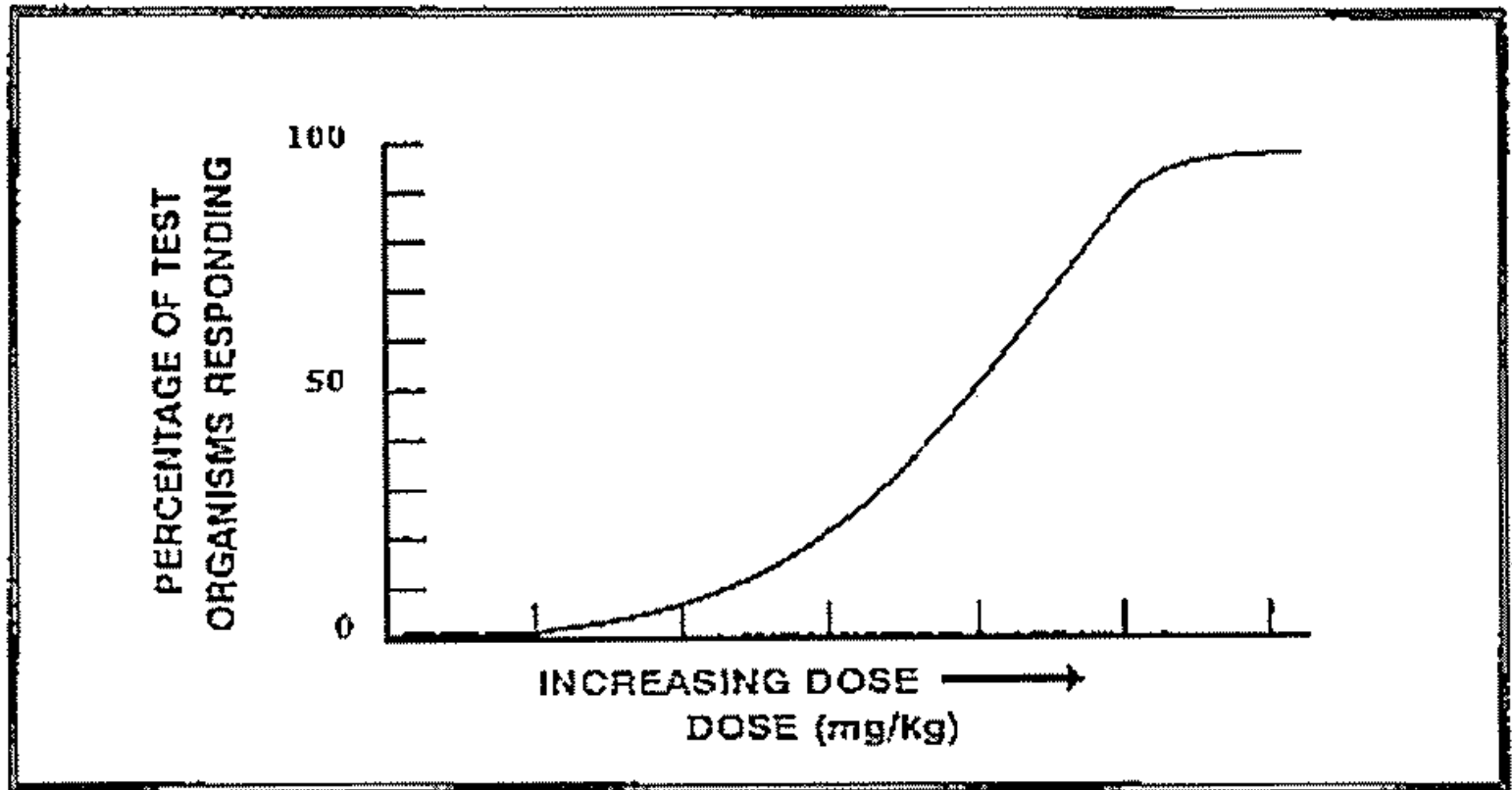
a "cumulative percentage" of animals in the test population that exhibits the specific health effect.

Values for "cumulative percentage" are indicated on the "y" axis of the graph.

As the dose increases, the percentage of the affected population increases.



# Dose Response Curve



Graph 1  
Hypothetical Dose-Response Curve

# TD50 - Median Toxic Dose

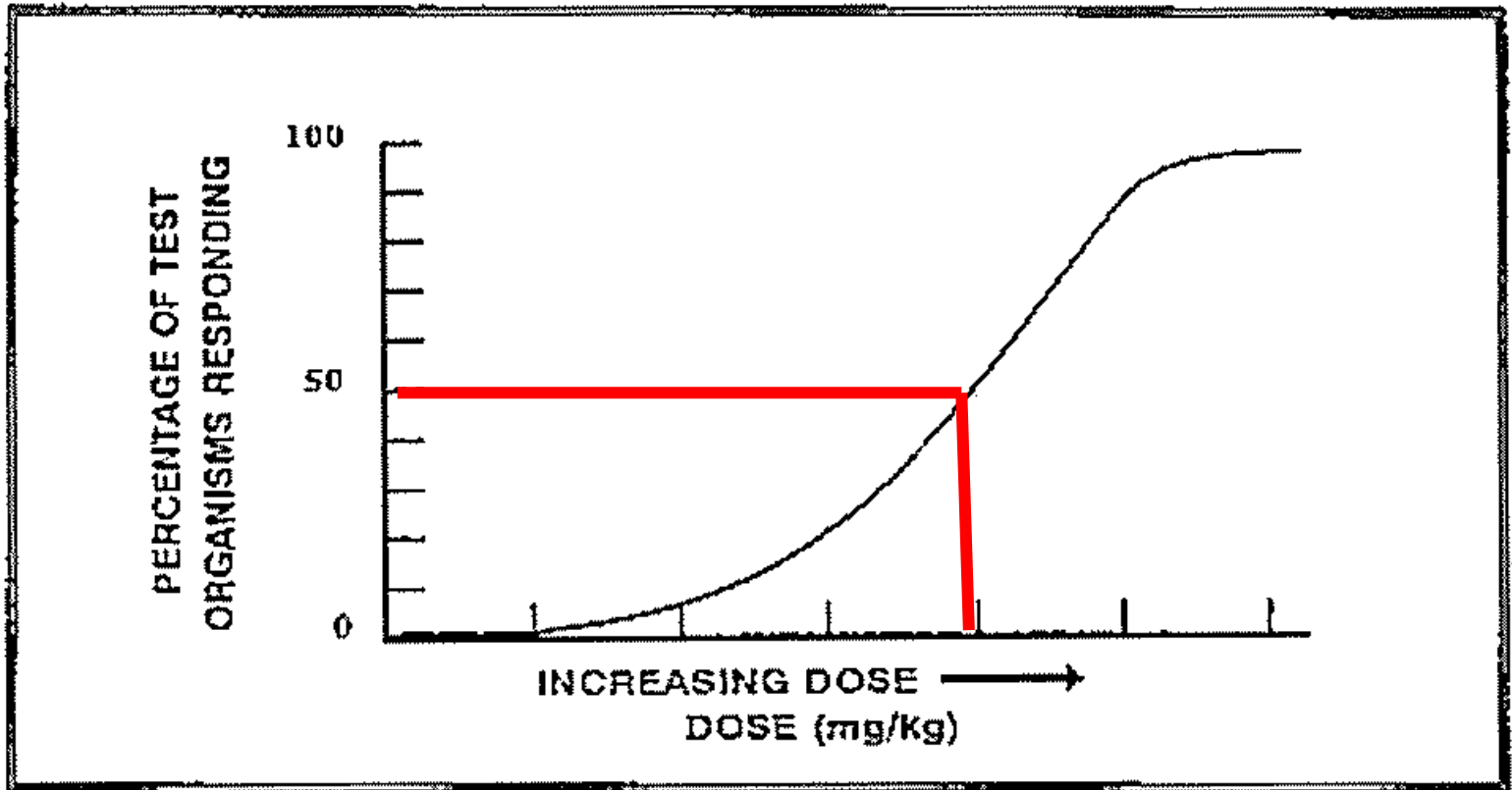
Dose-response curves provide valuable information regarding the potency of the compound.

The curves are used to determine the TD50 – Median Toxic Dose

TD 50 Dose at which 50% of exposed organisms show evidence of toxicity

Also the LD 50 – dose at which  $\frac{1}{2}$  of subjects die

# TD50



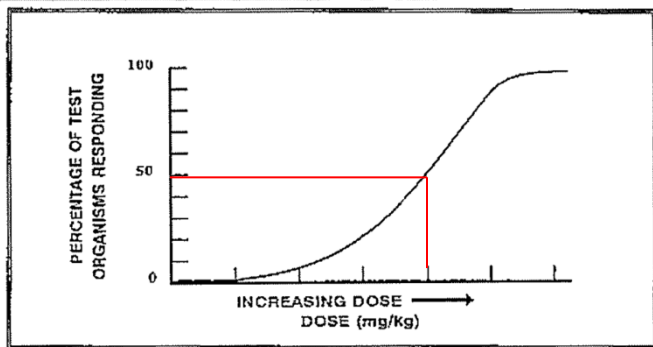
Graph 1  
Hypothetical Dose-Response Curve

# Putting it together

Emergency departments

## A toxic environment

Observable harm in >50% of  
Emergency Senior Doctors



Graph 1  
Hypothetical Dose-Response Curve

Factors associated with burnout in  
Healthcare workers

- stressful and emotionally demanding nature of health care provision
- typically unrelenting high workloads.
- long hours of work,
- presenteeism
- shift work and on-call duties
- feelings of low control
- frustrations with poor quality leadership

# Current approach – faulty individual

Support unwell colleagues

Providing resilience training and Employee Assistance Programs

# Self Care



**Managing your emotions & response after a critical event**

*Recognise a stressful situation—seek help rather than trying to manage the stress yourself*

*Seek help if you need it (informally or formally) i.e. EAP (available to all) & MPS (for medical staff)*

*Anyone can request a debrief—this may not occur on the day and will be followed up for a suitable time.*

*Be aware that its not always the big things that get to you.*

# Interventions to prevent and reduce physician burnout: a systematic review and meta-analysis

Prof Colin P West x Colin P West

## **Affiliations**

Division of General Internal Medicine and Division of Biomedical Statistics and Informatics, Mayo Clinic, Rochester, MN, US

- Lancet
- Published: 28 September 2016
- Publication stage: In Press Corrected Proof
- DOI: [http://dx.doi.org/10.1016/S0140-6736\(16\)31279-X](http://dx.doi.org/10.1016/S0140-6736(16)31279-X)

# Interventions to prevent and reduce physician burnout: systematic review and meta-analysis

- 15 randomized controlled trials,
  - 3 involved structural interventions
    - shortened attending rotation length,
    - clinical work process modifications,
    - shortened resident shifts
  - 12 were based on individual-focused interventions
    - facilitated small group curricula,
    - stress management and self-care training,
    - communication skills training,
    - a "belonging" intervention
- 37 cohort studies,
  - 17 involved structural interventions
    - US duty hour requirements and practice delivery changes
  - 20 involved individual-focused interventions
    - facilitated and non-facilitated small group curricula,
    - stress management,
    - self-care training,
    - communication skills training,
    - mindfulness-based approaches



# systematic review and meta-analysis

- Five of the randomized controlled trials and nine cohort studies reported differences in overall burnout.
- Significant absolute reduction in burnout from 54% to 44% (difference, 10%; 95% confidence interval [CI], 5% - 14%;  $P < .0001$ ;  $I^2 = 15\%$ ).
- The authors note that structural or organizational interventions were more effective than individual-focused ones ( $P = .03$ ;  $I^2 = 79\%$ ).

# Recognise toxic environment

Admit organisational causation

Stop victim blaming

Solely providing resilience training and Employee Assistance is an inadequate organisational response  
= victim blaming

Work on preventing harm

Evidence emerging to show that structural /organisation approaches are more effective

Burnout as a KPI

# Address underlying systemic causes

Unrelenting high workloads

Staffing numbers and funding

Inexperience

Value experienced staff

Rostering to best practice guidelines

Reduce unnecessary shift work related circadian disruption

Feelings of low control

Promote real staff engagement

Frustrations with poor quality leadership

Political engagement

# Core Crown Health Expenses

Day to day spending on health by the crown

- Does not include build or purchase of assets

2009/2010 = 6.67% of GDP

2016/2017 = 6.26% of GDP

If maintained at 2009/2010 levels, spending on health would be \$1.08 billion higher in 2016/2017

Does not consider increased population, aging, increasing comorbidities

Sourced from Treasury figures

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# Rostering - evidence based best practice

1. Clockwise shift rotation patterns to be adopted, with simple and predictable scheduling templates recommended where possible.
2. Number of consecutive night shifts should be optimally one or two but no more than three.
3. Shifts should ideally be 8 hours with 10 hour shifts as a maximum. 12 hour shifts not recommended due to high risk factors. End of shift handovers should be incorporated into this shift time.
4. Recuperation time should be at least 24 hours following one or more night shifts, but optimally three days of recuperation time is required to overcome sleep disruption.
5. Self scheduling is recognised as an important tool in reducing stress in ED workers
6. Naps are recommended as a tool to increase alertness during shifts (especially if shifts longer than 8 hours).
7. Contingent factors such as age and pregnancy should be taken into consideration when scheduling night shifts.

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Encouraging staff to take on leadership roles  
Political engagement

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# Physician Well-Being: Approach Summary

Colin P. West, MD, PhD. Professor of Medicine, Medical Education, and Biostatistics Mayo Clinic

	Individual	Organizational
Workload	Part-time status	Productivity targets Duty Hour Requirements Integrated career development
Work Efficiency/ Support	Efficiency/Skills Training	EMR (+/-?) Staff support
Work-Life Integration/ Balance	Self-care Mindfulness	Meeting schedules Off-hours clinics Curricula during work hours Financial support/counselling
Autonomy/ Flexibility/ Control	Stress management/Resiliency Mindfulness Engagement	Physician Engagement
Meaning	Positive psychology Reflection/self-awareness Mindfulness Small group approaches	Core values Protect time with patients Promote community Work/learning climate

# Recognising a toxic environment gives an urgent mandate to change

Known correlations between burnout and

- the quality of care
- the risk of medical errors
- increasing staff turnover intentions.

Provides an urgent mandate for change

- for ourselves,
- for our chosen speciality
- for our patients
- for the community we serve.