structural interventions against physician burnout resident schedule

Christopher S Parshuram MBChB DPhil. staff physician Department of Critical Care Medicine senior scientist Child Health Evaluative Sciences Program. The Research Institute. Hospital for Sick Children. director Centre for Safety Research. professor Interdepartmental Division of Critical Care Medicine & Departments of Pediatrics & Health Policy, Management and Evaluation. faculty Patient Safety Centre, Faculty of Medicine, University of Toronto, Canada.
disclosures

Named inventor: Patent Bedside Paediatric Early Warning System. Owner the Hospital for Sick Children.

Shares: Bedside Clinical Systems - a clinical decision support company in part owned by the Hospital for Sick Children.
schedule?

Individual Effects

- crashes
- circadian rhythm disrupt
- sleep deprivation
- physical symptoms
- debt & exams

- work content
- workload
- environment/ culture
- staff support
- supervision
- reward
- recognition

personal

professional

stressors

mitigation

family

positive relationships

vacation

hobbies

schedule?
Patient safety, resident well-being and continuity of care with different resident duty schedules in the intensive care unit: a randomized trial

Christopher S. Parshuram MB ChB DPhil, Andre C.K.B. Amaral MD, Niall E. G. Ross Baker PhD, Edward E. Etchells MSc MD, Virginia Flintoft BN MSc, Lorelei Lingard PhD, Haresh Kirpalani BM MSc, Sangeeta Mehta MD, Har Damon C. Scales MD PhD, Thomas E. Stewart MD, Andrew R. Willan PhD, Jan O. Friedrich MD DPhil, Lorelei Lingard PhD, Haresh Kirpalani BM MSc, Sangeeta Mehta MD, Harvey Moldofsky MD, G. Ross Baker PhD, Edward E. Etchells MSc MD, Virginia Flintoft BN MSc, Lorelei Lingard PhD, Haresh Kirpalani BM MSc, Sangeeta Mehta MD, Harvey Moldofsky MD, G. Ross Baker PhD, Edward E. Etchells MSc MD, Virginia Flintoft BN MSc, Lorelei Lingard PhD, Haresh Kirpalani BM MSc, Sangeeta Mehta MD, Harvey Moldofsky MD, G. Ross Baker PhD, Edward E. Etchells MSc MD, Virginia Flintoft BN MSc, Lorelei Lingard PhD, Haresh Kirpalani BM MSc, Sangeeta Mehta MD, Harvey Moldofsky MD, G. Ross Baker PhD, Edward E. Etchells MSc MD, Virginia Flintoft BN MSc, Lorelei Lingard PhD, Haresh Kirpalani BM MSc, Sangeeta Mehta MD, Harvey Moldofsky MD, G. Ross Baker PhD, Edward E. Etchells MSc MD, Virginia Flintoft BN MSc, Lorelei Lingard PhD, Haresh Kirpalani BM MSc, Sangeeta Mehta MD, Harvey Moldofsky MD, G. Ross Baker PhD, Edward E. Etchells MSc MD, Virginia Flintoft BN MSc, Lorelei Lingard PhD, Haresh Kirpalani BM MSc, Sangeeta Mehta MD, Harvey Moldofsky MD, G. Ross Baker PhD, Edward E. Etchells MSc MD, Virginia Flintoft BN MSc, Lorelei Lingard PhD, Haresh Kirpalani BM MSc, Sangeeta Mehta MD, Harvey Moldofsky MD, G. Ross Baker PhD, Edward E. Etchells MSc MD, Virginia Flintoft BN MSc, Lorelei Lingard PhD, Haresh Kirpalani BM MSc, Sangeeta Mehta MD, Harvey Moldofsky MD, G. Ross Baker PhD, Edward E. Etchells MSc MD, Virginia Flintoft BN MSc, Lorelei Lingard PhD, Haresh Kirpalani BM MSc, Sangeeta Mehta MD, Harvey Moldofsky MD, G. Ross Baker PhD, Edward E. Etchells MSc MD, Virginia Flintoft BN MSc, Lorelei Lingard PhD, Haresh Kirpalani BM MSc, Sangeeta Mehta MD, Harvey Moldofsky MD, G. Ross Baker PhD, Edward E. Etchells MSc MD, Virginia Flintoft BN MSc, Lorelei Lingard PhD, Haresh Kirpalani BM MSc, Sangeeta Mehta MD, Harvey Moldofsky MD, G. Ross Baker PhD, Edward E. Etchells MSc MD, Virginia Flintoft BN MSc, Lorelei Lingard PhD, Haresh Kirpalani BM MSc, Sangeeta Mehta MD, Harvey Moldofsky MD, G. Ross Baker PhD, Edward E. Etchells MSc MD, Virginia Flintoft BN MSc, Lorelei Lingard PhD, Haresh Kirpalani BM MSc, Sangeeta Mehta MD, Harvey Moldofsky MD, G. Ross Baker PhD, Edward E. Etchells MSc MD, Virginia Flintoft BN MSc, Lorelei Lingard PhD, Haresh Kirpalani BM MSc, Sangeeta Mehta MD, Harvey Moldofsky MD, G. Ross Baker PhD, Edward E. Etchells MSc MD, Virginia Flintoft BN MSc, Lorelei Lingard PhD, Haresh Kirpalani BM MSc, Sangeeta Mehta MD, Harvey Moldofsky MD, G. Ross Baker PhD, Edward E. Etchells MSc MD, Virginia Flintoft BN MSc, Lorelei Lingard PhD, Haresh Kirpalani BM MSc, Sangeeta Mehta MD, Harvey Moldofsky MD, G. Ross Baker PhD, Edward E. Etchells MSc MD, Virginia Flintoft BN MSc, Lorelei Lingard PhD, Haresh Kirpalani BM MSc, Sangeeta Mehta MD, Harvey Moldofsky MD, G. Ross Baker PhD, Edward E. Etchells MSc MD, Virginia Flintoft BN MSc, Lorelei Lingard PhD, Haresh Kirpalani BM MSc, Sangeeta Mehta MD, Harvey Moldofsky MD, G. Ross Baker PhD, Edward E. Etchells MSc MD, Virginia Flintoft BN MSc, Lorelei Lingard PhD, Haresh Kirpalani BM MSc, Sangeeta Mehta MD, Harvey Moldofsky MD, G. Ross Baker PhD, Edward E. Etchells MSc MD, Virginia Flintoft BN MSc, Lorelei Lingard PhD, Haresh Kirpalani BM MSc, Sangeeta Mehta MD, Harvey Moldofsky MD, G. Ross Baker PhD, Edward E. Etchells MSc MD, Virginia Flintoft BN MSc, Lorelei Lingard PhD, Haresh Kirpalani BM MSc, Sangeeta Mehta MD, Harvey Moldofsky MD, G. Ross Baker PhD, Edward E. Etchells MSc MD, Virginia Flintoft BN MSc, Lorelei Lingard PhD, Haresh Kirpalani BM MSc, Sangeeta Mehta MD, Harvey Moldofsky MD, G. Ross Baker PhD, Edward E. Etchells MSc MD, Virginia Flintoft BN MSc, Lorelei Lingard PhD, Haresh Kirpalani BM MSc, Sangeeta Mehta MD, Harvey Moldofsky MD, G. Ross Baker PhD, Edward E. Etchells MSc MD, Virginia Flintoft BN MSc, Lorelei Lingard PhD, Haresh Kirpalani BM MSc, Sangeeta Mehta MD, Harvey Moldofsky MD, G. Ross Baker PhD, Edward E. Etchells MSc MD, Virginia Flintoft BN MSc, Lorelei Lingard PhD, Haresh Kirpalani BM MSc, Sangeeta Mehta MD, Harvey Moldofsky MD, G. Ross Baker PhD, Edward E. Etchells MSc MD, Virginia Flintoft BN MSc, Lorelei Lingard PhD, Haresh Kirpalani BM MSc, Sangeeta Mehta MD, Harvey Moldofsky MD, G. Ross Baker PhD, Edward E. Etchells MSc MD, Virginia Flintoft BN MSc, Lorelei Lingard PhD, Haresh Kirpalani BM MSc, Sangeeta Mehta MD, Harvey Moldofsky MD, G. Ross Baker PhD, Edward E. Etchells MSc MD, Virginia Flintoft BN MSc, Lorelei Lingard PhD, Haresh Kirpalani BM MSc, Sangeeta Mehta MD, Harvey Moldofsky MD, G. Ross Baker PhD, Edward E. Etchells MSc MD, Virginia Flintoft BN MSc, Lorelei Lingard PhD, Haresh Kirpalani BM MSc, Sangeeta Mehta MD, Harvey Moldofsky MD, G. Ross Baker PhD, Edward E. Etchells MSc MD, Virginia Flintoft BN MSc, Lorelei Lingard PhD, Haresh Kirpalani BM MSc, Sangeeta Mehta MD, Harvey Moldofsky MD, G. Ross Baker PhD, Edward E. Etchells MSc MD, Virginia Flintoft BN MSc, Lorelei Lingard PhD, Haresh Kirpalani BM MSc, Sangeeta Mehta MD, Harvey Moldofsky MD, G. Ross Baker PhD, Edward E. Etchells MSc MD, Virginia Flintoft BN MSc, Lorelei Lingard PhD, Haresh Kirpalani BM MSc, Sangeeta Mehta MD, Harvey Moldofsky MD, G. Ross Baker PhD, Edward E. Etchells MSc MD, Virginia Flintoft BN MSc, Lorelei Lingard PhD, Haresh Kirpalani BM MSc, Sangeeta Mehta MD, Harvey Moldofsky MD, G. Ross Baker PhD, Edward E. Etchells MSc MD, Virginia Flintoft BN MSc, Lorelei Lingard PhD, Haresh Kirpalani BM MSc, Sangeeta Mehta MD, Harvey Moldofsky MD, G. Ross Baker PhD, Edward E. Etchells MSc MD, Virginia Flintoft BN MSc, Lorelei Lingard PhD, Haresh Kirpalani BM MSc, Sangeeta Mehta MD, Harvey Moldofsky MD, G. Ross Baker PhD, Edward E. Etchells MSc MD, Virginia Flintoft BN MSc, Lorelei Lingard PhD, Haresh Kirpalani BM MSc, Sangeeta Mehta MD, Harvey Moldofsky MD, G. Ross Baker PhD, Edward E. Etchells MSc MD, Virginia Flintoft BN MSc, Lorelei Lingard PhD, Haresh Kirpalani BM MSc, Sangeeta Mehta MD, Harvey Moldofsky MD, G. Ross Baker PhD, Edward E. Etchells MSc MD, Virginia Flintoft BN MSc, Lorelei Lingard PhD, Haresh Kirpalani BM MSc, Sangeeta Mehta MD, Harvey Moldofsky MD, G. Ross Baker PhD, Edward E. Etchells MSc MD, Virginia Flintoft BN MSc, Lorelei Lingard PhD, Haresh Kirpalani BM MSc, Sangeeta Mehta MD, Harvey Moldofsky MD, G. Ross Baker PhD, Edward E. Etchells MSc MD, Virginia Flintoft BN MSc, Lorelei Lingard PhD, Haresh Kirpalani BM MSc, Sangeeta Mehta MD, Harvey Moldofsky MD, G. Ross Baker PhD, Edward E. Etchells MSc MD, Virginia Flintoft BN MSc, Lorelei Lingard PhD, Haresh Kirpalani BM MSc, Sangeeta Mehta MD, Harvey Moldofsky MD, G. Ross Baker PhD, Edward E. Etchells MSc MD, Virginia Flintoft BN MSc, Lorelei Lingard PhD, Haresh Kirpalani BM MSc, Sangeeta Mehta MD, Harvey Moldofsky MD, G. Ross Baker PhD, Edward E. Etchells MSc MD, Virginia Flintoft BN MSc, Lorelei Lingard PhD, Haresh Kirpalani BM MSc, Sangeeta Mehta MD, Harvey Moldofsky MD, G. Ross Baker PhD, Edward E. Etchells MSc MD, Virginia Flintoft BN MSc, Lorelei Lingard PhD, Haresh Kirpalani BM MSc, Sangeeta Mehta MD, Harvey Moldofsky MD, G. Ross Baker PhD, Edward E. Etchells MSc MD, Virginia Flintoft BN MSc, Lorelei Lingard PhD, Haresh Kirpalani BM MSc, Sangeeta Mehta MD, Harvey Moldofsky MD, G. Ross Baker PhD, Edward E. Etchells MSc MD, Virginia Flintoft BN MSc, Lorelei Lingard PhD, Haresh Kirpalani BM MSc, Sangeeta Mehta MD, Harvey Moldofsky MD, G. Ross Baker PhD, Edward E. Etchells MSc MD, Virginia Flintoft BN MSc, Lorelei Lingard PhD, Haresh Kirpalani BM MSc, Sangeeta Mehta MD, Harvey Moldofsky MD, G. Ross Baker PhD, Edward E. Etchells MSc MD, Virginia Flintoft BN MSc, Lorelei Lingard PhD, Haresh Kirpalani BM MSc, Sangeeta Mehta MD, Harvey Moldofsky MD, G. Ross Baker PhD, Edward E. Etchells MSc MD, Virginia Flintoft BN MSc, Lorelei Lingard PhD, Haresh Kirpalani BM MSc, Sangeeta Mehta MD, Harvey Moldofsky MD, G. Ross Baker PhD, Edward E. Etchells MSc MD, Virginia Flintoft BN MSc, Lorelei Lingard PhD, Haresh Kirpalani BM MSc, Sangeeta Mehta MD, Harvey Moldofsky MD, G. Ross Baker PhD, Edward E. Etchells MSc MD, Virginia Flintoft BN MSc, Lorelei Lingard PhD, Haresh Kirpalani BM MSc, Sangeet
The chart shows the percent of respondents across different categories of the number of symptoms rated as moderate or worse. The categories range from 'none' to '8', with the x-axis representing the number of symptoms and the y-axis showing the percent of respondents. The significant statistic is indicated with p=0.044.
Burnout inventory

% respondents ‘high burnout’

Maslach Burnout sub-scale

EE Emotional Exhaustion
PA Personal Accomplishment
DP DePersonalization

1 = start, 2 = end rotation

N12
N16
N24

p=NS
Burnout inventory

No difference in burnout

Maslach Burnout sub-scale

EE = Emotional Exhaustion
PA = Personal Accomplishment
DP = DePersonalization

1 = start, 2 = end rotation

p = NS
High-level burnout

Residents with High degree of burnout by MBI domain

<table>
<thead>
<tr>
<th></th>
<th>rotation start (n=45)</th>
<th>end (n=41)</th>
<th>difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Emotional Exhaustion</td>
<td>51%</td>
<td>59%</td>
<td>+8%</td>
</tr>
<tr>
<td>Depersonalization</td>
<td>29%</td>
<td>39%</td>
<td>+10%</td>
</tr>
<tr>
<td>Personal Accomplishment</td>
<td>40%</td>
<td>56%</td>
<td>+16%</td>
</tr>
</tbody>
</table>

Modest numbers of individual residents tested, non-significant, but consistent increases across domains.

> 2 months in ICU may increase resident burnout.
interpretation

1. Baseline Emotional Exhaustion
   pre-existing /system issue

2. No difference between ICU schedules
   but low power to exclude important effect

3. ICU Environment > ICU Schedule
   2 months in ICU may increase burnout
   for sleepiness: working at night > schedule
the ICU environment

12-20% mortality
conflict & characters
burnout
moral distress
Prevalence and Factors of Intensive Care Unit Conflicts

The Conflicus Study

Élie Azoulay1, Jean-François Timsit2, Charles L. Sprung3, Marcio Soares4, Kateřina Rusinová5, Ariane Lafabrie1, Ricardo Abizanda6, Mia Svantesson7, Francesca Rubulotta8, Bara Ricou9, Dominique Benoît10, Daren Heyland11, Gavin Joynt12, Adrien François2, Paulo Azevedo-Maia13, Radoslaw Owczuk14, Julie Benbenishty3, Michael de Vita15, Andreas Valentin16, Akos Ksomas17, Simon Cohen18, Lidija Kompan19, Kwok Ho20, Fekri Abroug21, Anne Kaarlola22, Herwig Gerlach23, Theodoros Kyprianou24, Andrej Michalsen25, Sylvie Chevret26, and Benoît Schlemmer1, for the Conflicus Study Investigators and for the Ethics Section of the European Society of Intensive Care Medicine*.

![Graph showing prevalence and factors of Intensive Care Unit Conflicts]

7358 (80.9%) questionnaires

323 (81.4%) ICUs | 24 countries

5268 = 71.6% reported ≥1 conflict
burnout

47% French Intensivists  Embriaco 2007
30% Paediatric Intensivists  Levi 2004
14% Paediatric Intensivists  Fields 2005
33% French ICU Nurses  Poncet 2007

historical levels ~ versus population level
more recent levels higher ...
High Level of Burnout in Intensivists
Prevalence and Associated Factors

Nathalie Embriaco¹, Elie Azoulay², Karine Barrau³, Nancy Kentish⁴, Frédéric Pochard⁵, Anderson Loundou⁶, and Laurent Papazian¹

¹Medical Intensive Care Unit, Hôpital Sainte-Marguerite Teaching Hospital, Université de la Méditerranée, Marseille, France; ²Medical Intensive Care Unit, Saint Louis Teaching Hospital, Paris, France; ³Laboratoire de Santé Publique, Faculté de Médecine, Marseille, France; ⁴Département de Sociologie, Université Victor Segalen, Bordeaux, France; and ⁵Maison des Adolescents, Cochin-Port Royal Teaching Hospital, Paris, France

cross-sectional, 198 French ICUs
978 physician respondents, 38% trainees (fellows, interns)
59+/- 12 hours worked / week
24% symptoms of depression
46.5% high degree of burnout
higher MBI scores

independently associated :

1. female sex
2. the number of night shifts per month
3. a longer period of time from the last nonworking week,
4. night shift before the survey (the cause or as done more often?)
5. conflict with another colleague intensivist (the cause or effect?)
6. conflict with (a) nurse (the cause or effect?)

& Protective: relationship quality with chief nurses & nurses

& NOT severity of illness of patient factors, or worked hours.
Moral Distress in PICU and Neonatal ICU Practitioners: A Cross-Sectional Evaluation

Charles Philip Larson, MD, FRCP©; Karen D. Dryden-Palmer, RN, PhD©; Cathy Gibbons, MBChBAO, MRCPI©; Christopher S. Parshuram, MBChB, DPhil, FR.

moral distress & depersonalization
$r^2 = 0.27; p< 0.001$

apparent paradox?
mechanism?
epiphenomenon?
structural interventions?

1. baseline issue - and conference rationale
2. understand the origins of the problem
3. schedule interventions limited effect....
   larger scale studies needed :)
4. mitigate moral distress
5. individual mindfulness (trainees/ faculty)
6. professional self-respect
7. fatigue risk management (org. mindfulness)
Stressors and Mitigation:

- Crashes
- Circadian rhythm disrupt
- Sleep deprivation
- Physical symptoms
- Debt

Personal Effects:

- Sleep
- Family
- Positive relationships
- Vacation
- Hobbies
- Fatigue risk management
- Staff support
- Supervision
- Reward & recognition

Professional Work Content:

- Work content
- Workload
- Environment/culture

The diagram illustrates the interplay between personal and professional stressors, along with strategies for mitigating these stressors and enhancing well-being.
thank you
chris@sickkids.ca
Fellowship training, workload, fatigue and physical stress: a prospective observational study

Christopher S. Parshuram, Sonny Dhanani, Joel A. Kirsh, Peter N. Cox

See related article page 975

11 ICU fellows
35 overnight duty periods = 24h
40 pages
no sleep 1 in 7 nights
most responsible in-house 8-9h
6.3km walked
ketonuria 1 in 5 mornings
half of 48 weeks 55-60h / week
> regulation does not protect