A New Methodology for Sleep Disorders Screening in Remote Areas

Requirements for Healthy Living

Excessive SLEEPINESS

- Attention deficiency
- Forgetfulness
- Irritability
- Decreased reaction time
- Decreased physical performance
- Sleep Debt
- Falling asleep at inappropriate places
The Costs of Fatigue...

- Sleep disorders, underlie 9.1% of work related injuries and 7.6% of non-work related motor vehicle accidents.
- Mining industry employs 2% of the Australian population.
- Costs to industry at least $100-200m / year.
- Fatigue related incidents cost the Australian economy between $2-4 billion a year.

Cost of Sleep Disorders in Australia

- Under-recognised \( \rightarrow \) under-diagnosed
- Estimated total cost associated with sleep disorders - AUD$36 billion per year (Deloitte Access Economics 2011)
- Sleep Disordered Breathing = AUD$21 billion
- Insomnia = AUD$10 billion
- Restless Limbs Syndrome = AUD$4 billion

Fatigue Facts...

- Increases sick time, absenteeism, rate of turnover.
- Increases tendency for risk-taking.
- At least 20% of fatal and 30% of serious vehicle accidents are related to fatigue.
- In the surface mining industry 60-65% of truck haulage accidents are directly related to operator fatigue.

Fatigue Management – it’s about prevention

- Resolving issues of shiftwork (rostering, hours of work).
- Implementing ‘blanket’ strategies to mitigate fatigue risk.
- Providing good health education and fatigue awareness programs.
- Providing pre-employment and regular medical examinations.
Obstructive Sleep Apnoea (OSA)

- Most serious sleep disorder
- Affects 24% of men and 9% of women
- More prevalent in 30 yr – 60 yr men, 45+ yr women

Estimated that 93% of women & 82% of men with moderate to severe sleep apnoea remain undiagnosed.


- Sleep disordered breathing
- Congestive heart failure
- Morbid obesity
- Diabetes
- Hypertension

SDB prevalence co-morbidities

Diagnostic Tests

- Polysomnography – supervised, in hospital/lab
- Ambulatory studies – unsupervised, at home
  - Airflow and respiratory variables

Diagnosed by in-hospital study
Polysomnogram - PSG

Network of health professionals
Local health clinicians prepare subject, issue devices, download data and email to experts
Full results & report returned 24-72 hours.
Physician consultation, treatment commencement and treatment monitoring via Telehealth

Sleep Disorders Screening model

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### Comparison ‘Old’ vs. ‘New’

<table>
<thead>
<tr>
<th></th>
<th>OLD</th>
<th>NEW</th>
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<tbody>
<tr>
<td>Cost of Tests &amp; Consultations</td>
<td>~ $3,000 (x 2)</td>
<td>$500</td>
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<tr>
<td>Travel costs</td>
<td>~ $2,000 (x 2)</td>
<td>NA</td>
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<tr>
<td>Time off work</td>
<td>+ + +</td>
<td>+</td>
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<tr>
<td>Time to diagnosis</td>
<td>weeks to months</td>
<td>&lt; 1 week</td>
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<tr>
<td>Time to commencement of treatment</td>
<td>weeks to months</td>
<td>1 – 2 weeks</td>
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<tr>
<td>Monitoring CPAP compliance</td>
<td>Yearly</td>
<td>Monthly (as required)</td>
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<tr>
<td>No. Subjects screened</td>
<td>+</td>
<td>+ + +</td>
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### Telehealth Sleep Screening - 2007 - 2012

<table>
<thead>
<tr>
<th>TASK</th>
<th>2007</th>
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<th>2012</th>
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<td>Video Conferencing</td>
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### Sleep and Telehealth

- Improved access to specialized clinicians
- E-education – to employees and clinicians
- E-monitoring of treatment compliance – permits prompt interventions and lowers fatigue risk

### Conclusion

- Undiagnosed and untreated sleep disorders significantly contributes to employee ill health and decreased productivity.
- Advances in sleep technology allow ambulatory screening
- Telehealth allows for cost effective and time efficient programs for screening and treatment pathways