Sleep Apnea: Treatment and Research in the Veterans Health Administration

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Disorders Affecting Veterans’ Sleep Health

- PTSD → insomnia, nightmares
- TBI → hypersomnia
- Chronic pain → sleep fragmentation
- Sleep apnea → hypersomnia → hypertension → CAD, stroke, death
Definition of Obstructive Sleep Apnea

Recurrent collapse of the upper airway during sleep, resulting in:
- sleep fragmentation
- hypoxemia
Sleep Apnea Prevalence

• General adult population prevalence of OSA
  – 5-10% moderate-to-severe
  – 2-4% severe

• Estimated up to 4-fold higher prevalence in U.S. veteran population
Treatment of Obstructive Sleep Apnea

Treatment options include:

- **Positive airway pressure (CPAP)**
- Surgery
- Oral appliances
- Weight loss
Number of VA outpatient visits with sleep-disordered breathing codes

![Bar chart showing encounters and uniques from FY02 to FY12]
Examples of VA Sleep Apnea Research

- Observational cohort studies
- Comparative effectiveness research
- Health services research
Examples of VA Sleep Apnea Research

• Observational cohort studies
  • Very large, integrated health care network
  • Uniform electronic medical record

• Comparative effectiveness research
• Health services research
Observational Cohort Studies

• Obstructive sleep apnea present in 56% of stroke patients
• Only 9% of cases are diagnosed under usual care

Diagnosis and Treatment of Sleep Apnea in Cerebrovascular Disease (GoToSleep)
HSRD IIR 06-233, PI: Bravata (Indianapolis, IN)

• Prospective study of cardiovascular risk in sleep apnea
  • 2400 sleep apnea patients recruited from 3 VA sites over 4 years

Determining Risk of Vascular Events by Apnea Monitoring (DREAM)
CSRD IIR-S2406, PI: Yaggi (West Haven, CT)
Examples of VA Sleep Apnea Research

- Observational cohort studies
- Comparative effectiveness research
  - Only vested interest is finding the most effective therapy
- Health services research
Central Sleep Apnea in Heart Failure

- Central sleep apnea present in $\frac{1}{3}$ of heart failure patients
- Untreated sleep apnea increases heart failure mortality

There are three accepted therapies: CPAP, adaptive ventilation, and oxygen

*There have been no direct comparisons of these three treatment options!*

Oxygen versus PAP for treatment of sleep apnea in chronic heart failure (OPTIMAL-HF)

CSRD 101 CX000578, PI: Gottlieb (Boston, MA)
Examples of VA Sleep Apnea Research

• Observational cohort studies
• Comparative effectiveness research
• Health services research
  • Evaluating models of care
  • Assessing new technologies
  • Disseminating effective approaches
Health Services Research

Technology Assessment

Improving OSA Management via Wireless Telemonitoring
HSRD IIR 07-163, PI: Stepnowsky (San Diego, CA)
*Increased utilization by 15%*

Telemedicine Interventions for Obstructive Sleep Apnea
HSRD IIR 09-063, PI: Sparrow (Boston, MA)

Models of Care

Diagnosis and Treatment of Sleep Apnea in Cerebrovascular Disease (GoToSleep)
HSRD IIR 06-233, PI: Bravata (Indianapolis, IN)
*Increased rate of diagnosis 10-fold*

A Pilot Study of CPAP Adherence Promotion by “Peer Buddies” with Sleep Apnea
HSRD PPO 10-066, PI: Parthasarathy (Tucson, AZ)

Cost Effective Strategy to Evaluate Veterans with Sleep Apnea
HSRD IIR 04-021, PI: Kuna (Philadelphia, PA)
Laboratory-based polysomnography is the “gold standard” for the diagnosis of sleep apnea

- Accurate
- Expensive, inconvenient
Home Sleep Testing

• Simple, inexpensive
• Patient-centered
Cost Effective Strategy to Evaluate Veterans with Sleep Apnea
HSRD IIR 04-021, PI: Kuna
Implementation is Important!

- Quality Enhancement Research Initiative (QUERI)
  - Facilitate adoption of evidence-based treatments and models of care
- HSR&D Centers of Excellence
  - Center for Information Dissemination & Education Resources
  - Center for Organization, Leadership & Management Research
- VA Center for Innovation
  - Innovation competitions
  - “Entrepreneur in Residence”
- Veterans Engineering Resource Centers
“It may not help me, but if it might help another Vet someday, I’ll do it”