The Burden of COPD on Hawai‘i: Recommendations for Future Intervention

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What is COPD?

- Chronic Obstructive Pulmonary Disease (COPD) is a respiratory disorder largely caused by smoking.
- COPD is characterized by progressive, partially reversible, airway obstruction that impairs normal breathing.
- Over time, airways become permanently obstructed or blocked and gradually lose their ability to function.

Remember:
Chronic – means it won’t go away
Obstructive – means partly blocked
Pulmonary – means in the lungs
Disease – means sickness
Why COPD?

- COPD is a leading but under-recognized cause of morbidity and mortality nationally and globally, with 14 million Americans estimated to have undiagnosed COPD.

- COPD is the fourth leading cause of death in the U.S. and Hawai‘i

- COPD mortality is steadily increasing -- projected to be third leading cause of death by 2020.

Sources: Tinkelman & Corsello, 2003; Pauwels & Rabe, 2004; Buist et al, 200; National Heart, Lung, and Blood Institute, 2003; Jemal, Ward, Hao, and Thun, 2005

Risk Factors for COPD

- Smoking: 25%
- Other: 75%

Other: Genetic Factors, Inhalation Exposures/Pollutants, Aging, a History of Infections (Especially Respiratory Infections), Asthma, Sex, Socioeconomic Factors, & Co-morbidities

Sources: Mannino & Buist, 2007; Global Initiative on Chronic Obstructive Lung Disease (GOLD), 2009
Purpose for Burden Report

- To increase awareness of COPD burden in Hawai‘i and develop data-based interventions targeting those most at risk.
- To establish a baseline to direct future surveillance.
- To inform future interventions and guide policy to address COPD in Hawai‘i.

Data Sources for the COPD Burden Report

- Hawai‘i Health Survey (HHS) – Office of Health Status Monitoring (OHSM) (Three COPD specific questions in 2007 paid for by Hawai‘i COPD Coalition under grant from Talecris Biotherapeutics)
- Vital Statistics/death records (DOH-OHSM)
- Hawai‘i Health Information Corporation (HHIC) public use data on COPD hospitalizations & ED visits
Methods – Data Analysis

- SAS® 9.1.3 to analyze data from the 2008 BRFSS to provide information on the prevalence and comorbidity of COPD.
- SUDAAN® 10.0 for statistical analysis to account for sampling design of BRFSS survey.
- Multivariate logistic regression was used to obtain adjusted odds ratios and 95% confidence intervals.
- Age adjusted prevalence to the 2000 U.S. standard population.

Overall Prevalence estimates from BRFSS and HHS

- **BRFSS** estimated 3.2% or approximately 30,800 adults in the state of Hawai‘i with self-reported, doctor diagnosed COPD in 2008;

- **HHS** estimated 2.2% or approximately 21,559 adults in Hawai‘i with COPD in 2007.

- Surveillance on COPD needs to continue; the NHLBI estimates that there are 20-30,000 adults in Hawai‘i who have not yet been diagnosed.
Adult COPD Prevalence by Age, BRFSS, Hawai‘i 2008

![Graph showing COPD prevalence by age group.]

Adult COPD Prevalence by Selected Demographic Characteristics, BRFSS, Hawai‘i 2008

![Graph showing COPD prevalence by demographic characteristics.]
Adult COPD Prevalence by Socioeconomic Status, BRFSS, Hawai‘i 2008

Prevalence of Selected Chronic Health Conditions by COPD Status, BRFSS, Hawai‘i 2008

Adjusted Odds Ratios:

- Asthma: 10.3 (95% CI 7.0-15.1)
- Diabetes: 1.7 (95% CI 1.1-2.7)
- Heart Disease: 2.9 (95% CI 4.6-10.0)
- Chronic Disease: 6.8 (95% CI 1.7-3.8)
Prevalence of Body Mass Index by COPD Status, BRFSS, Hawai‘i 2008

Adjusted Odds Ratios:
Underweight: 2.6 (95% CI 1.0-6.7)
Obese: 1.2 (95% CI 0.7-2.1)

Prevalence of Adults Who Reported Smoking Tobacco by COPD Status, BRFSS, Hawai‘i 2008

Adjusted Odds Ratios:
Current Smoker: 3.4 (95% CI 2.0-5.8)
Former Smoker: 2.8 (95% CI 1.8-4.3)
Prevalence of Adults Who Reported Physical Disability or No Physical Activity by COPD Status, BRFSS, Hawai‘i 2008

Adjusted Odds Ratios:
- Disabled: 2.6 (95% CI 1.7-3.8)
- No Physical Activity: 1.5 (95% CI 0.9-2.3)

Prevalence of Adults Reporting Lack of Social Support or Dissatisfaction with Life by COPD Status, BRFSS, Hawai‘i 2008

Adjusted Odds Ratios:
- No emotional support: 1.7 (95% CI 0.9-3.1)
- Dissatisfied with Life: 2.4 (95% CI 1.2-48.8)
COSTS: Hospital Discharges & Emergency Department Visits

In 2008:
- 1,595 hospitalizations specifically for COPD = ~ $30 million for hospitals discharges
- 1,294 emergency department (ED) visits for COPD = ~ $3 million for ED discharges
- 1,134 admitted to the hospital via the ED = ~ $23 million in additional charges for those admitted to the hospital from the ED.

Source: Hawai'i Health Information Corporation (HHIC)

Conclusions:
- Overall prevalence is 3.2% according to the BRFSS and 2.2% according to the HHS.
- Comorbid health conditions (asthma, diabetes, heart disease) and physical disability (activity limitation, lack of physical activity) are common among those with COPD.
- Income, employment status, and education level all affect COPD status. Interventions which target underlying health equity issues are recommended.
- Those with COPD are more likely to also be obese or underweight, which suggests more research into the impact of COPD on underweight.
- Those with COPD are more likely to be current/former smokers, which suggests COPD intervention efforts which focus on tobacco cessation and prevention.
Data to Action

How do we frame the data

The Burden of Chronic Obstructive Pulmonary Disease (COPD) in Hawai'i – 2010

Photo Source: NHLBI, DHHS, Chronic Obstructive Pulmonary Disease Data Fact Sheet

Data to Action - Current Steps

Providers:

- Community-based data collection = True burden of COPD
- COPD & tobacco Knowledge, Attitudes, Practices surveys for providers and patients = Increase knowledge and identify gaps
- Presentations at conferences (ATS, Chest) = Information sharing and outreach

Public & Communities:

- Fact Sheets = Increase literacy with focus on tobacco cessation
- **Twitter** and **Facebook** COPD updates = Outreach to new audiences
Data to Action - Next Steps?

Pending Collaboration with Community Stakeholders:

Emergency Departments:
- Screening Decision Tree = Better initial diagnosis & cost savings

Public/Communities:
- County/Island specific FAQ documents
- Spirometry screening trainings for older adults and current/former smokers

Data to Action – More Steps

Pending Collaboration with Community Stakeholders:

Public/Communities (continued):
- Educate public on community resources for COPD
- Develop and maintain resources for COPD patients including pulmonary rehabilitation programs

Healthcare Providers
- Train healthcare providers in COPD diagnosis
- Share information about spirometry reimbursement
- Keep healthcare providers informed about latest COPD treatments, including smoking cessation
- Get more pulmonary specialists to serve Hawai‘i
Introduction

- Chronic Obstructive Pulmonary Disease (COPD) is the fourth leading cause of death in the U.S.
- COPD mortality is steadily increasing — projected to be the third leading cause of death by 2030.
- COPD is the second leading cause of morbidity in the U.S.

Objectives:

To increase awareness about lung health and identify those at risk for COPD. Additionally, to see if lung testing (spirometry), counseling, education, and support groups help move smokers closer to cessation.

Personnel:

Staff includes a pharmacist, respiratory therapists, registered nurses, medical/nursing students and health educators.

Part I: Screening — Patients complete a questionnaire, height, blood pressure are measured; smokers receive carbon monoxide testing, a brief intervention, motivational interviewing, smoking cessation resources, and referrals.

Part II: Lung Testing — Patients are screened using Vitalograph copd-6® which measures FEV1 and FEV6 compared with NHanes III. Patients with FEV1 < 70% predicted have airway obstruction confirmed using ndd EasyOne diagnostic spirometer®. Tests are interpreted by a pulmonologist and are referred for follow up.

Part III: Follow-up — Smokers receive a 6-month follow-up call to evaluate cessation progress. Caller provides additional resources and referrals as necessary.

Results:

136 of 765 participants were found to have low lung function. Nearly 20% of participants were current smokers and over 30% were former smokers. All smokers were referred to the Hawai'i Quitline for additional services. Preliminary cessation rates reported 58% quit smoking in first month, 46% for three months and 25% remained quit for 6 months.

Conclusion:

Community-based case finding helps identify participants at risk for COPD, assisting in education, cessation, referrals, and resource distribution. Clinics have assisted smokers in successful quit attempts.

About Hawai'i COPD Coalition

Hawai'i COPD Coalition is Hawai'i's non-profit/HIPAA corporation established in 2007 to provide services and support to Hawai'i's people affected by Chronic Obstructive Pulmonary Disease (COPD), through research, education and prevention of public awareness.

The Coalition Director is Nancy Ong, PhD, the President is Nancy M. Pettinger, PhD, 750 Bishop Street, Suite 1538, Honolulu, HI 96813.

Collaborations & Achievements

- Worked with Hawai'i Department of Health in to develop education based guidelines about COPD to estimate a survey for the first time in 2003.
- Organized Hawai'i Department of Health to confirm collecting nationwide data about COPD, 2007-2010.
- Championed Hawai'i Legislation to view paid consultation mandate covering the Centers for Disease Control and Prevention, in creating a national COPD program.
- Collaborated with Hawai'i Department of Health in 2010 Rules of COPD in Hawai'i Report, is available online and via other media.
- Worked with Hawai'i Department of Health in Hawai'i Health Prevalent, 2011, to collect data on COPD.
- Held over 150 lung health screenings throughout the state in two years, with additional screenings planned for the next three years.
- Receiving annual COPD Education Day, September 15, 2010.
- Sponsorship of COPE support group meetings of various locations (Kailua, Waikiki, etc.);
- Presented sessions at 2010 ACPA Americas & COPD Symposium on case studies for community settings.
- Collaborating on Hawai'i COPD Prevention and Cessation project for American Thoracic Society 2010.
- Working with Hawai'i Society for Respiratory Care to promote awareness of Hawai'i respiratory therapists.

Lung Test Results

- FEV1 < 60% (72)
- FEV1 < 70% (64)
- FEV1 < 80% (53)
- FEV1 < 90% (61)

Conclusion:

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MAHALO!!

For more information:
Chronic Disease Management and Control Branch
Hawaiʻi Department of Health
(808) 586-4609

Burden report available at:

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