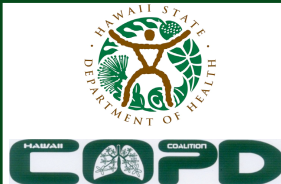


The Burden of COPD on Hawai'i: Recommendations for Future Intervention

**Earl Bradbury, MPH, MSW
Valerie Chang, JD
American College of Chest Physicians
Conference, 2010
October, 2010**



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**



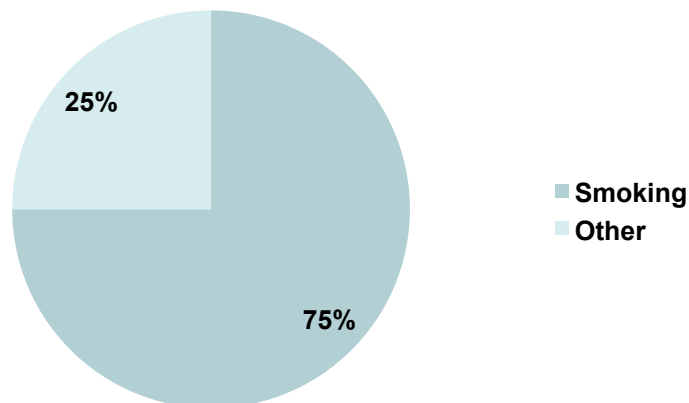
Why COPD?

- 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



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)
- Behavioral Risk Factor Surveillance Survey (BRFSS) (Three COPD specific Questions in 2008 and 2009 paid for by DOH-Tobacco Prevention and Education Program).
- Vital Statistics/death records (DOH-OHSM)
- Hawai'i Health Information Corporation (HHIC) public use data on COPD hospitalizations & ED visits



Methods – Data Analysis

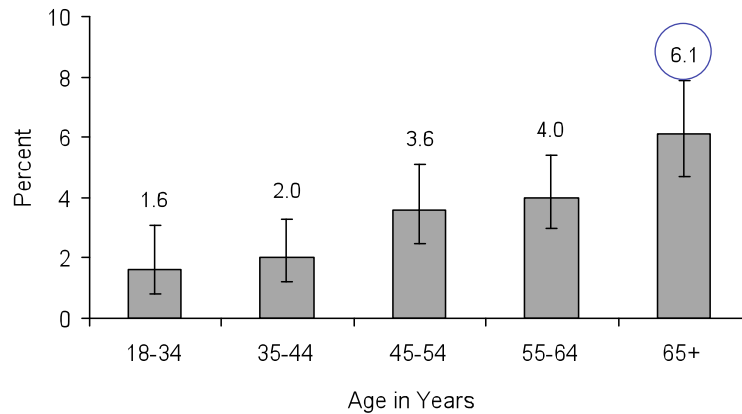
- SAS® 9.1.3 to analyze data from the 2008 BRFSS to provide information on the prevalence and comorbidity of COPD.
- SUDAAN® 10.0 for statistical analysis to account for sampling design of BRFSS survey.
- Multivariate logistic regression was used to obtain adjusted odds ratios and 95% confidence intervals.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



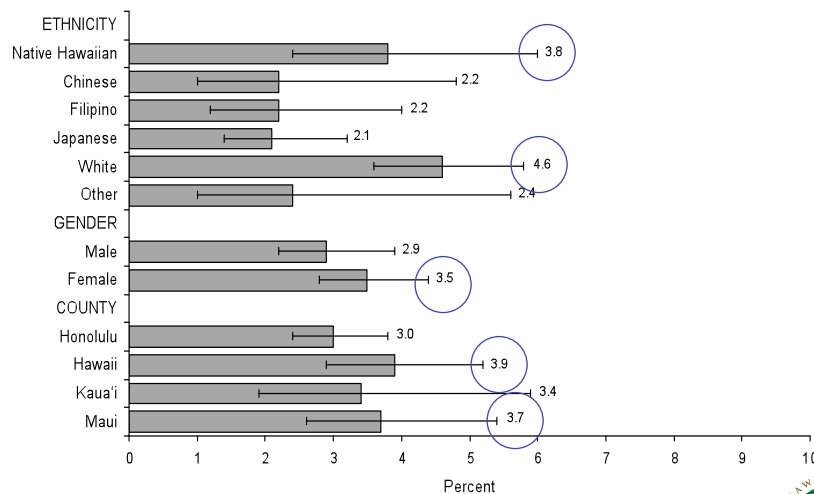
Overall Prevalence estimates from BRFSS and HHS

- 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.

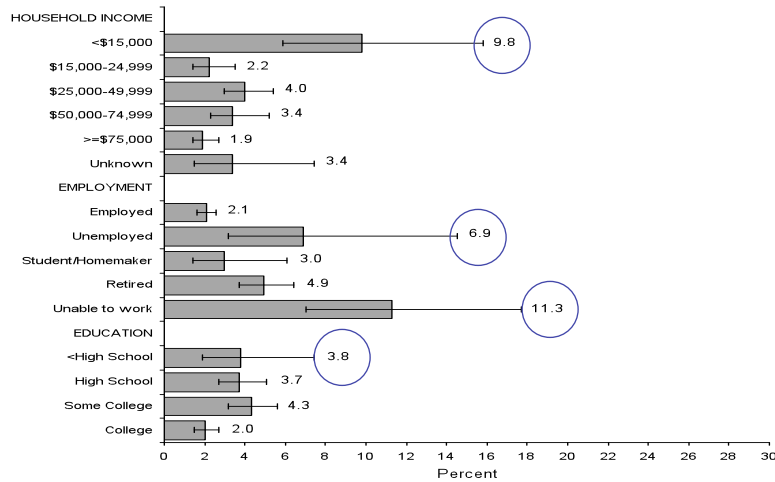
Adult COPD Prevalence by Age, BRFSS, Hawai'i 2008



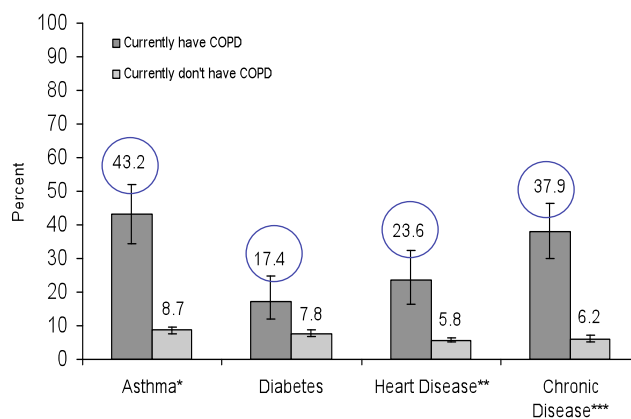
Adult COPD Prevalence by Selected Demographic Characteristics, BRFSS, Hawai'i 2008



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)

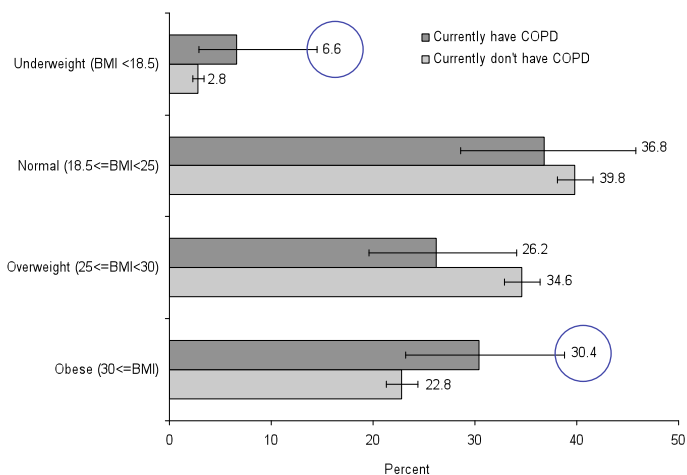
Diabetes: 1.7
(95% CI 1.1-2.7)

Heart Disease: 2.9
(95% CI 1.1-10.0)

Chronic Disease: 6.8
(95% CI 1.7-3.8)



Prevalence of Body Mass Index by COPD Status, BRFSS, Hawai'i 2008



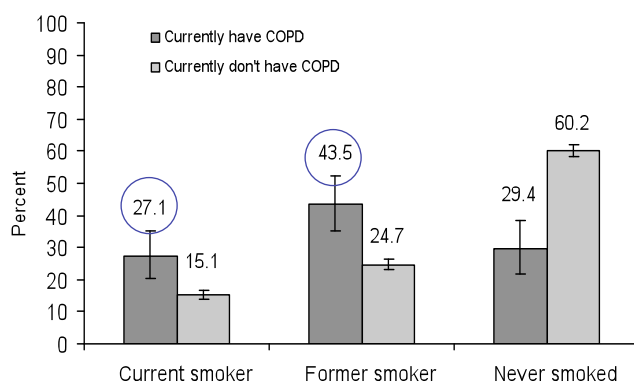
Adjusted Odds Ratios:

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



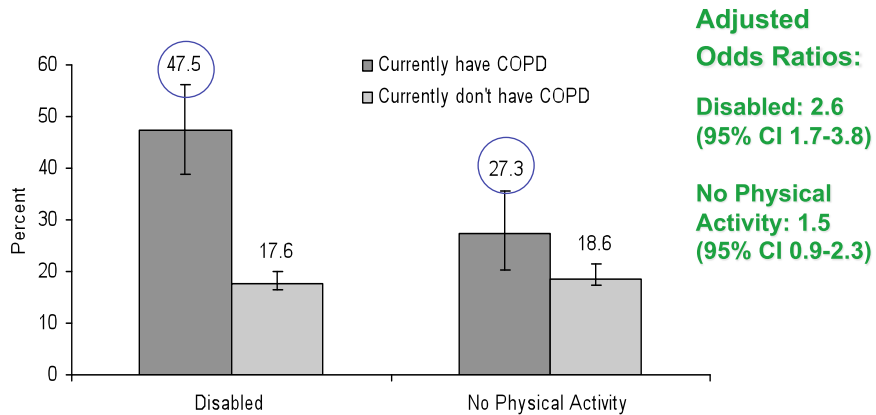
Adjusted Odds Ratios:

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



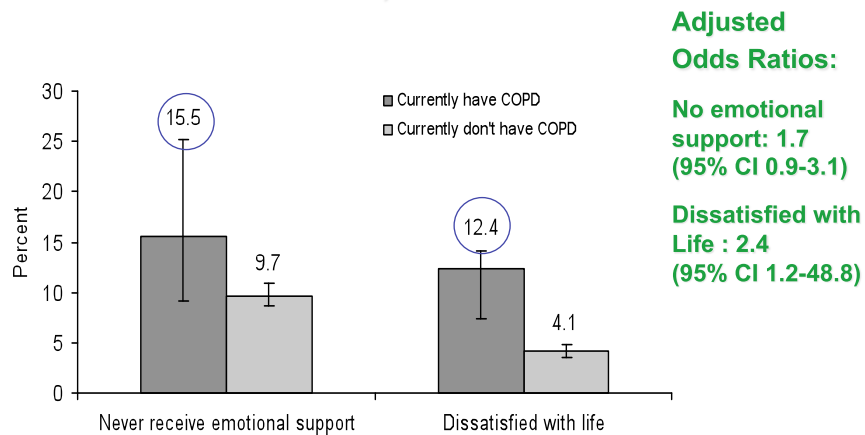
Adjusted Odds Ratios:

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)



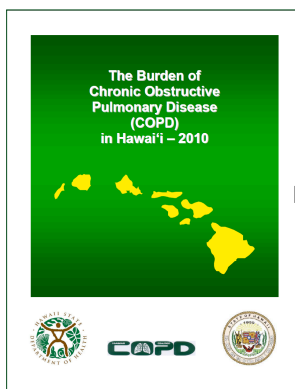
Conclusions:

- **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.**

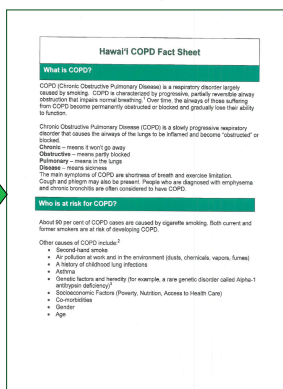


Data to Action

How do we frame
the data



to tell a compelling
story



to move people
to action?



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





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

Bradbury EL¹, Pobutsky AM¹, Reyes-Salvati F¹, Kromer Baker K¹, Enright P², and Chang V³

¹Hawai'i State Department of Health

²The University of Arizona

³Hawai'i COPD Coalition



INTRODUCTION

- Chronic Obstructive Pulmonary Disease (COPD) is the fourth leading cause of disease in the U.S.
- COPD mortality is steadily increasing – projected to be third leading cause of death by 2020
- COPD is the second leading cause of morbidity in the U.S.

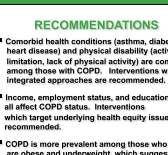
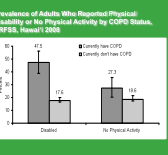
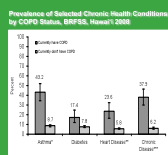
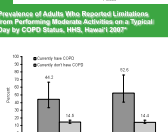
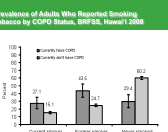
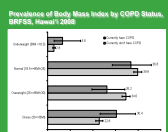
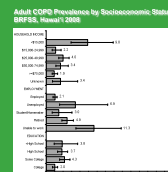
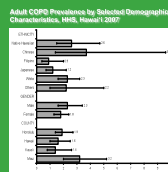
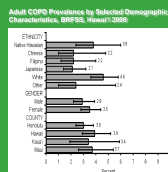
OBJECTIVE

To provide insight on the burden and impact of COPD among Hawai'i's residents, thereby allowing local communities to focus their resources and attention to where it is most needed.

DATA SOURCES & METHODS

- Estimates of the prevalence of COPD in Hawai'i are based on national surveys.
 - The **Behavioral Risk Factor Surveillance Survey (BRFSS)** is a cross-sectional telephone based survey conducted annually in each state in the U.S.
 - Question: Have you ever been told by a doctor or another health professional that you have chronic obstructive pulmonary disease, also called COPD, emphysema or chronic bronchitis?
 - Asked to: Adult participant randomly assigned when number of adults in randomly sampled telephoned household is more than one.
 - The **Hawai'i Health Survey (HHS)** is a telephone-based survey which provides population-based estimates of the health and demographics of the population of Hawai'i.
 - Question: Has anyone in the household ever been told by a physician or medical professional that they have chronic obstructive pulmonary disease, also called COPD, emphysema or chronic bronchitis?
 - Asked to: Adult member (respondent aged 15 years or older) of the household is asked questions relating to the household and each household member
- Multivariate logistic regression was used to obtain adjusted odds ratios and 95% confidence intervals. Age adjusted prevalence to the 2000 U.S. standard population. SUDAAN 8.0 was used to account for sampling design of surveys.

RESULTS



RECOMMENDATIONS

- Comorbid health conditions (asthma, diabetes, heart disease) and physical disability (activity limitation, lack of physical activity) are common among those with COPD. Interventions with integrated approaches are recommended.
- Income, employment status, and education level all affect COPD status. Interventions which target underlying health equity issues are recommended.
- COPD is more prevalent among those who are obese and underweight, which suggests more research into the impact of COPD on underweight.
- Those who smoke are more likely to have COPD, which suggests COPD intervention efforts which focus on tobacco cessation and prevention.

Project SUCCESS: Spirometry Urged Cessation Through Counseling, Education & Sustained Support



www.HawaiiCOPD.org, COPD.Hawaii@yahoo.com

Hawai'i COPD Coalition

www.HawaiiCOPD.org

Funded by Tobacco Prevention & Control Trust Fund through the Hawai'i Community Foundation



About Hawai'i COPD Coalition

Hawai'i COPD Coalition is 501(c)(3) non-profit Hawai'i corporation created in 2007 to provide services and support to Hawai'i's people affected by Chronic Obstructive Pulmonary Disease (COPD), through research, education and increasing public awareness.

The Executive Director is Valerie Chang, JD, the President is Francis M. Pottinger, PhD, 733 Bishop Street, Suite 1550, Honolulu, HI 96813.

Introduction

Chronic Obstructive Pulmonary Disease (COPD) is the fourth leading cause of death and second leading cause of disability in the US. It includes emphysema and chronic bronchitis. Over 30,000 Hawai'i adults report having COPD.

Collaborations & Achievements

- Worked with Hawai'i Department of Health to add population-based questions about COPD to statewide surveys for the first time in 2007.
- Encouraged Hawai'i Department of Health to continue collecting statewide data about COPD, 2007-2010.
- Championed Hawai'i legislature to pass joint concurrent resolution urging the Centers for Disease Control and Prevention to create a national COPD program.
- Collaborated with Hawai'i Department of Health on 2010 Burden of COPD in Hawai'i Report, to be available on-line and via other media.
- Worked with Hawai'i Department of Health to have Governor proclaim 2010 Year of the Lung in Hawai'i.
- Held over 30 lung health clinics throughout the state in two years, with additional clinics planned for the next three years.
- Holding fourth annual COPD Education Day September 11, 2010.
- Sponsors monthly COPD support group meetings on various topics.
- Presented session at 2009 ACCP Asthma & COPD Symposium on case-finding in a community setting.
- Collaborating on Hawai'i COPD Prevalence and Correlates poster for American Thoracic Society 2010.
- Working with Hawai'i Society for Respiratory Care to promote licensure of Hawai'i respiratory therapists.

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.

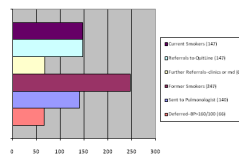
Part I: Screening — Patients complete a questionnaire, height, blood pressure are measured; smokers receive carbon monoxide testing, a brief intervention, motivational interviewing, smoking cessation resources, and referrals.

Part II: Lung Testing — Patients are screened using Vitalograph copd-60 which measures FEV1 and FEV6 compared with NHanes III. Patients with FEV1 < 70% predicted have airway obstruction confirmed using nnd EasyOne diagnostic spirometer®. Tests are interpreted by a pulmonologist and are referred for follow up.

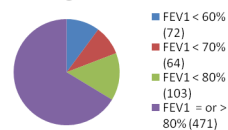
Part III: Follow-up — Smokers receive a 6-month follow-up call to evaluate cessation progress. Caller provides additional resources and referrals as necessary.

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 patients at risk for COPD, assisting in education, cessation, referrals, and resource distribution. Clinics have assisted smokers in successful quit attempts.



Lung Test Results



Board of Directors: Francis Pottinger, PhD, Lisa Johnson, RN, MPH, Valerie Chang, JD, Victoria Wang, MD, Lawrence Tsai, DDS, missing Robyn Akoyachi, CPA



MAHALO!!

**For more information:
Chronic Disease Management and Control
Branch
Hawai'i Department of Health
(808) 586- 4609**

**Burden report available at:
http://hawaii.gov/health/family-child-health/chronic-disease/copd/COPD_BurdenReport.pdf**



Acknowledgments:

Hawai'i State Department of Health:
Ann Pobutsky, Epidemiologist, Chronic Disease Management and Control Branch;

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Kathleen Baker, Statistician and Hawai'i Health Survey Coordinator;

Caryn Tottori, Statistician, Office Of Health Status Monitoring (Vital Statistics) Hawai'i;

Hawai'i COPD Coalition:
Valerie Chang

