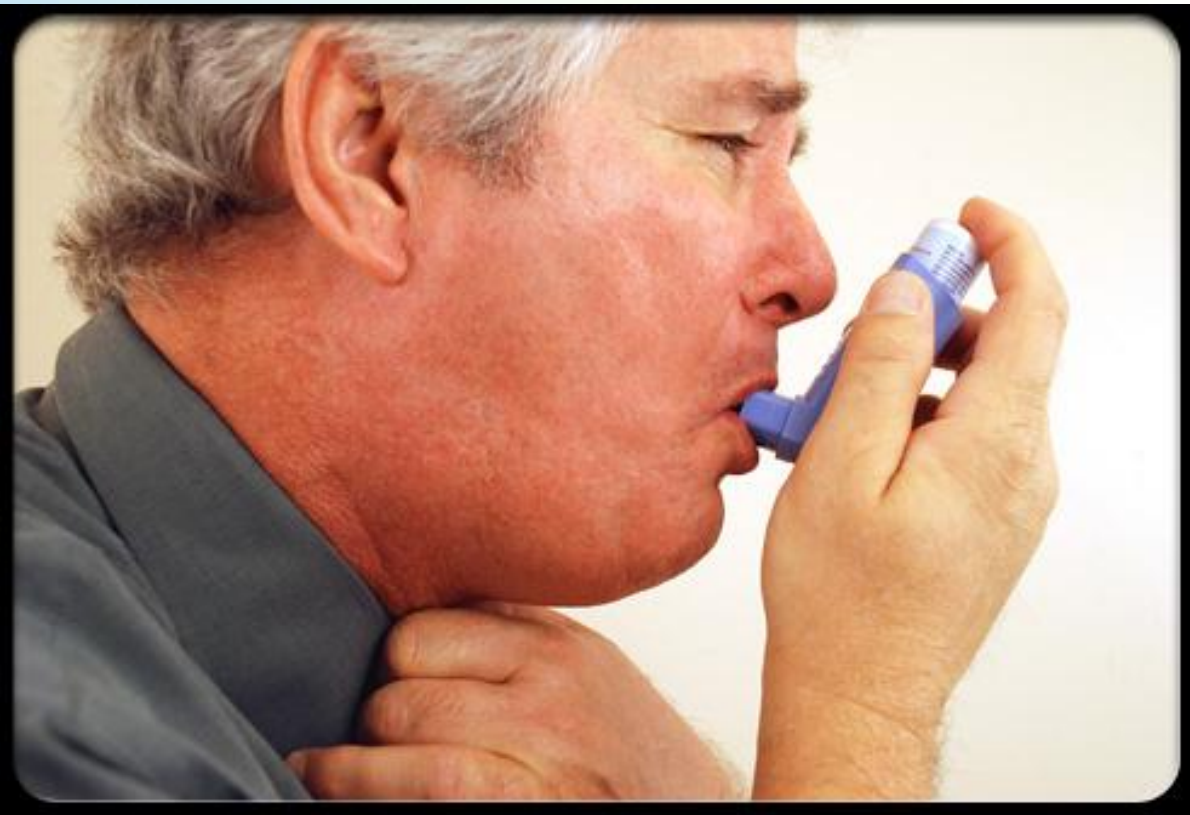




* Asthma and Older Adults



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Presentation to the Health Education Housing Meeting, 11/11/2015



* Asthma in Older Adults

* Problem

- * Population >65 years will grow from 40 million in 2005 to 86 million by 2050
- * 7% of those 65+ years diagnosed with asthma
- * Asthma rate for all ages in Louisville is 15% verses 13.5% nationally
- * Older adults with asthma are more likely to be under-diagnosed, undertreated, and hospitalized than younger asthmatics



*Research Goals

This longitudinal, descriptive study will:

1. Categorizing asthma in older adults,
2. Investigate the effects of these categorizations on asthma control over time,
3. Identify factors such as environmental exposures and type of living arrangements that impact asthma quality of life for older adults.



*Grant Overview

- * 5 year, \$2.3 million study from the National Institute on Aging
- * Recruiting 200 study participants
- * Recruiting within Louisville Metropolitan area, special focus on west Louisville
- * Clinical exams, questionnaires, home assessment (incl. air quality monitoring)
- * Research focusing on VOC's as a trigger to asthma, very little research in this area
- * Want to understand how to better control asthma in elderly to be able to develop individuals plans of care.



* Inclusion and Exclusion Criteria

* Inclusion Criteria

- * Diagnosed with asthma
- * 60+ years of age
- * Non-smokers
- * No other lung disease

* Exclusion Criteria

- * Over 20 pack year history of smoking
- * Not able to sign consent form
- * Living in a skilled nursing facility

*Current status of study

February 2015

- Grant Approved

March 30, 2015

- Press conference to announce receiving the grant
- Receive over 90 unsolicited requests to be
 - study participant

May 2015

- Began having potential participants come to the UofL clinic for testing

June 2015

- Began conducting Environmental Home Assessment

Current

- Have tested 56 individuals in the clinic
- 35 enrolled in the study (awaiting results of additional testing for 6 individuals)
- 35 Environmental Home Assessments completed



*What is expected of participants?

* At the start of the study (\$150 gift card):

* Clinic visit:

- * 3-4 hours in the AM
- * Complete questionnaires
- * Pulmonary function testing - to make sure the volunteer meets standard criteria for asthma
- * Blood testing for Vitamin D and immunoglobulins (determine allergies)
- * Allergy testing
- * Sputum Testing
- * Home Environmental Assessment

9 month home visit (\$25 gift card)

- ✓ Medication check
- ✓ A few questionnaires
- ✓ Home lung testing

18 month home visit (\$25 gift card)

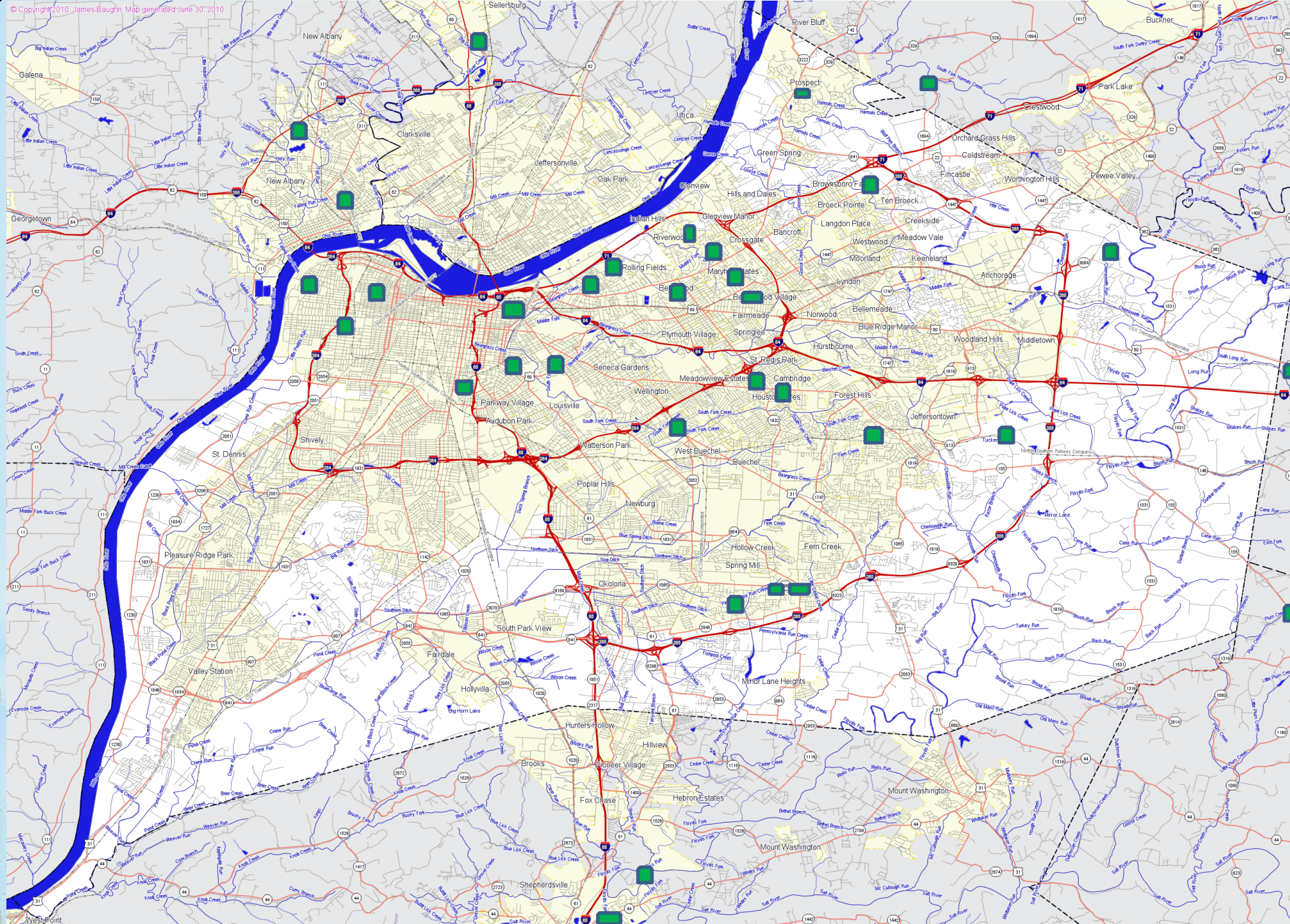
- ✓ Questionnaires
- ✓ Home Environmental Assessment

We are also able to provide some supplies to reduce asthma triggers: allergen pillow protective covers



* Participants (n=35)

- * Most are female (n-22)
 - * Age:
 - * Range from 60-83 years
 - * Most are White
 - * 5 are African American; 1 American Indian
 - * Most are retired
 - * 10 are employed
 - * All have insurance
- * Education
 - * Most have college degree or some college
 - * 6 are HS graduates
 - * 2 have less than HS education
 - * Most own a home
 - * 6 rent



Location of Homes Assessed (to Nov 10, 2015)

Total of 35 homes assessed



* Home Environmental Assessment

* Monitoring

- * 84 volatile organic compounds
 - * Fine particulates
 - * Carbon dioxide
 - * Moisture in walls
 - * Temperature
 - * Relative humidity
-
- * Asthma Home Environmental Checklist
 - * Home pest monitoring (cockroaches, mice, rats)

* Indoor Air Quality—chemicals detect 90%+ times

Freon 22	Freon 11	Chloroform	Xylene
Freon 12	Methylene Chloride	Benzene	1,2,4 Trimethylbenzene
Chloromethane	Methyl Ethyl Ketone	Toluene	Acrolein
Acetone	Hexane	Ethylbenzene	2,2,4 Trimethylpentane

A total of 52 different chemicals detected in the home

*Indoor Air Quality—chemicals exceeding health standards

Freon 22	Freon 11	Chloroform	Xylene
Freon 12	Methylene Chloride	Benzene	1,2,4 Trimethylbenzene
Chloromethane	Methyl Ethyl Ketone	Toluene	Acrolein
Acetone	Hexane	Ethylbenzene	2,2,4 Trimethylpentane

Health standards based on EPA Reference Concentrations

*Health Risks from Indoor Air Toxins

Chemical	RfC	ppb	Health Risk
Freon 12	.01	3.83	Dizziness, drowsiness, confusion; tremor, unconsciousness, asphyxia, cardiac arrhythmias
Chloromethane	.09	0.76	Neurological (slurred speech, confusion), lethargic, liver, kidney and spleen toxicity
Freon 11	.11	0.29	central nervous system (CNS) with symptoms of alcohol-like intoxication, reduced coordination, lightheadedness, headaches, tremors, and convulsions
Chloroform	.02	0.23	Probable liver and kidney carcinogen, effects on the liver (hepatitis and jaundice), central nervous system effects, such as depression and irritability.
Benzene	.01	0.25	Known human carcinogen
Xylene	.1	0.86	depression of the central nervous system, with symptoms such as headache, dizziness, nausea and vomiting.
1,2,4 Trimethylbenzene	.0012	0.34	Depress central nervous system, nervousness, tension, and asthmatic bronchitis

*Sources of Chemicals of Health Concern

Chemical	Sources
Freon 12	Phased out 1996. Residual in outdoor air, residual aerosol? Asthma inhalers
Chloromethane	Refrigerant, air conditioning
Freon 11	Banned 1996. Residual in outdoor air, asthma inhalers
Chloroform	chlorinated tap water, bleach, solvent
Benzene	auto exhaust, gasoline, cigarette smoke, scented candles, scatter rugs, carpet glue
Xylene	water sealers, gasoline, auto exhaust, markers, paint, floor polish, cigarette smoke
1,2,4 Trimethylbenzene	gasoline, auto exhaust
Acrolein	cooking oil, animal fat, herbicide, cigarette smoke (ambient sources include burning coal, gasoline and oil)

* Outdoor Air Quality—chemicals detect 90%+ times

Freon 22	Freon 11	Chloroform	Xylene
Freon 12	Methylene Chloride	Benzene	1,2,4 Trimethylbenzene
Chloromethane	Methyl Ethyl Ketone	Toluene	Acrolein
Acetone	Hexane	Ethylbenzene	2,2,4 Trimethylpentane

The list is identical to those chemicals found in indoor air

*Influence of Outdoor Air Quality on Indoor Air

Chemical	Indoor/outdoor
Freon 22	6.64
Freon 12	6.65
Chloromethane	1.17
Acetone	4.79
Freon 11	1.14
Methylene Chloride	1.84
Methyl Ethyl Ketone	2.21
Hexane	6.33
Chloroform	5.75
Benzene	1.78
Toluene	4.45
Ethylbenzene	4.87
Xylene	9.55
Acrolein	4.29
1,2,4 Trimethylpentane	4.25

* Ratios less than 2 may be attributable to ambient air as source of contaminant

* Comparison of Chemicals of Concern West Louisville to Metro-wide Sampling

Chemical	Rubbertown (ppbv)	Metro Wide (ppbv)	% Detection Metro-wide
1,3 Butadiene	0.24	0.08	5%
Acrylonitrile	0.09	0.13	33%
Benzene	0.28	0.14	80%
Vinyl Chloride	ND	ND	0%
Chloroform	0.16	.04	50%
Acrolein	0.27	0.47	50%

There is not enough sampling Metro Wide to draw any conclusions.



* Recruitment strategies

- * 35 Enrolled to date; 6 awaiting MCT; 11 scheduled for Enrollment visits
- * Press Conference/CJ article/Radio
 - * Over 100 calls/emails
 - * 64 Positive phone screens
 - * 49 Enrollment visits scheduled
 - * 22 Enrolled to date
- * U of L Geriatrics/Family Medicine & Pulmonology Clinics
 - * 98 identified as potential participants
 - * 19 Enrollment visits scheduled
 - * 11 enrolled

- * Other Recruitment strategies
 - * Pulmonologist/Allergist offices
 - * Family Health Centers
 - * Posting flyers: Panera, Kroger, YMCA, Barber Shops
 - * Referrals from Institute of Sustainable Health & Optimal Aging
 - * Southeast Outlook Ad (no calls)
 - * Other Church Bulletins



* We need your help!

- * Help to recruit individuals to volunteer to participate

- * Must have a diagnosis of asthma

- * Must be 60 years of age or older

- * Cannot be a current smoker

- * Does not have any other lung disease

- * Study participants receive a total \$200 in gift cards, asthma trigger control supplies and test results

- * To qualify, contact:

- asthma@louisville.edu or 502/852-2273