

**Why the social determinants of health
matter to the practicing pharmacist**

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Thomas Buckley has nothing to
disclose for this presentation

Lecture Objectives

1. Describe why your address can predict your health outcomes
2. Explain the impact of social determinants on health inequality
3. Discuss the impact of social determinants on health literacy
4. Describe how community pharmacists have impacted community health

On average, which of the following conditions is the strongest predictor of your health?

- A. Whether or not you smoke
- B. What you eat
- C. Whether or not you are wealthy
- D. Whether or not you have health insurance
- E. How often you exercise

Ireland, Sweden, France, Spain, Portugal and the other western European nations all mandate by law paid holidays and vacations of 4 to 6 weeks.

How many days of paid vacation are mandated by law in the U.S.?

- A. None**
- B. 10**
- C. 12**

Where does the U.S. rank in the percentage of the population that smokes cigarettes?

(of the 30 OECD countries)

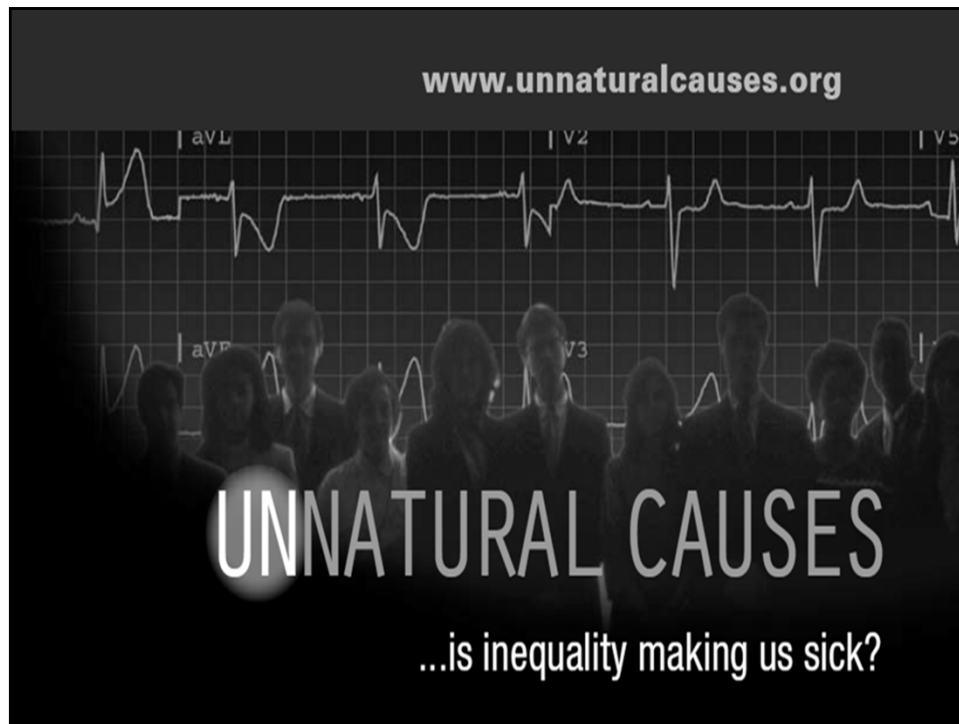
- A. #1 (highest smoking rates)**
- B. Top 5**
- C. Top 10**
- D. 11-20th place**
- E. Below 25 (lowest smoking rates)**

On average, how many more supermarkets are there in predominantly white neighborhoods compared to predominantly Black and Latino neighborhoods?

- A. About the same**
- B. 2 times as many**
- C. 4 times as many**
- D. 6 times as many**

Generally speaking, which group has the best overall health in the U.S.?

- A. Recent Latino immigrants**
- B. Native-born whites**
- C. Native-born Latinos**
- D. Native-born Asian Americans**



“Place Matters”

The Mystery: Why are zip code and street address good predictors of population health?

“Click here to enter your address and get your life expectancy!”

<http://www.calendow.org/news/your-zip-code-lifetime/>

(California address only – sponsored by The California Endowment)

What are the “social determinants of health”?

- WHO defines social determinants of health as “the conditions in which people are born, grow, work, live, and age, and the wider set of forces and systems shaping the conditions of daily life”
- Health inequities, “the unfair and avoidable differences in health between groups of people within countries and between countries” (WHO), stem from the social determinants of health and result in stark differences in health and health outcomes

What determines health?

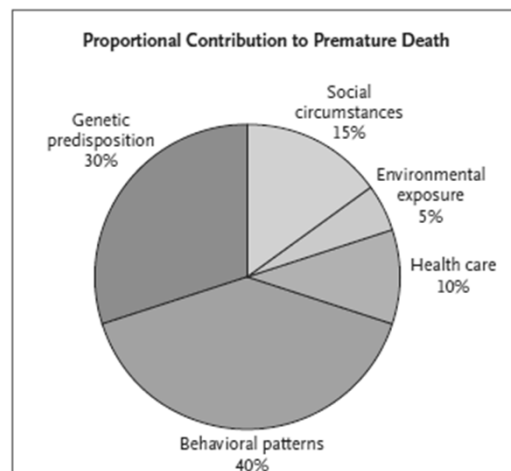


Figure 1. Determinants of Health and Their Contribution to Premature Death.

Adapted from McGinnis et al.¹⁰

Schroeder *NEJM* 2007



Health Care's Blind Side

- Physicians believe unmet social needs are directly leading to worse health for Americans — and that patients' social needs are as important to address as their medical conditions
- Physicians report that their patients frequently express health concerns caused by unmet social needs beyond their control
- **This is health care's blind side: *Within the current health care system, physicians do not have the time or sufficient staff support to address patients' social needs, even though these needs are as important to address as medical conditions.***

Healthy People 2020: 5 major areas to address SDOH

- **Economic Stability**
 - Poverty
 - Employment
 - Food Security
 - Housing Stability
- **Education**
 - High School Graduation
 - Enrollment in Higher Education
 - Language and Literacy
 - Early Childhood Education and Development
- **Social and Community Context**
 - Social Cohesion
 - Civic Participation
 - Discrimination
 - Incarceration
- **Health and Health Care**
 - Access to Health Care
 - Access to Primary Care
 - Health Literacy
- **Neighborhood and Built Environment**
 - Access to Healthy Foods
 - Quality of Housing
 - Crime and Violence
 - Environmental Conditions

Facts of Social Determinants

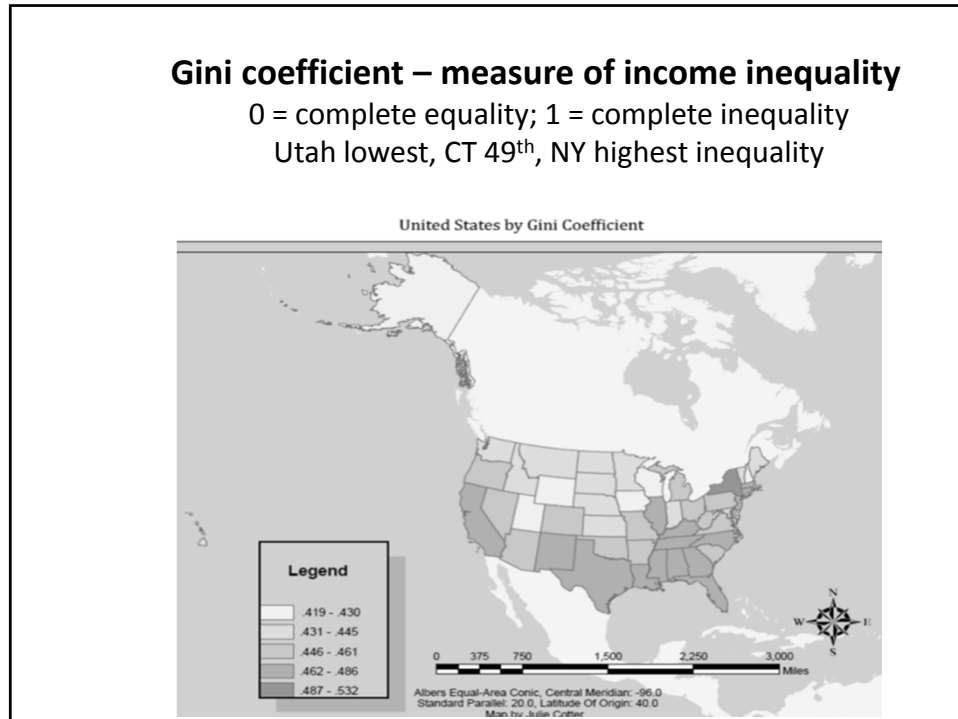
- **Income:**
 - Income inequality in U.S. increased between 1977-1999: income of richest 1% doubled; income of lowest 20% declined by 9%
 - Countries w/unequal income distribution have higher rates of infant mortality than countries w/more equitable income distribution
 - “Robin Hood Index” of 50 states: income inequality significantly related to level of homicide, assault, robbery

Social and Environmental Determinants of Health

Gini coefficient – measure of income inequality

0 = complete equality; 1 = complete inequality

Utah lowest, CT 49th, NY highest inequality



Wealth inequality by country

% total global personal wealth

1. United States — 41.6%
2. China — 10.5%
3. Japan — 8.9%
4. U.K. — 5.6%
5. Germany — 3.9%
6. France — 3.5%
7. Canada — 3.0%
8. Italy — 2.9%
9. Australia — 2.0%
10. South Korea — 1.6%

Wealth inequality

1. U.S.A. — 80.56
2. Sweden — 79.90
3. U.K. — 75.72
4. Indonesia — 73.61
5. Austria — 73.59
6. Germany — 73.34
7. Colombia — 73.18
8. Chile — 73.17
9. Brazil — 72.86
10. Mexico — 70.00

(100=perfect inequality, i.e. one person owns all the wealth)

Facts of Social Determinants

- **Education & employment:**
 - Ages 25-64: death rate for those w/less than 12 yrs education more than twice for those w/13 or more yrs of education
 - Infant mortality double for mothers w/less than high school education
 - Unemployment associated w/poorer outcomes:
 - Depression, suicide, alcoholism, sleep disturbances, GI distress, headache, CVD, musculoskeletal disorders

Social and Environmental Determinants of Health

Connection between education & health

- An additional 4 years education:
 - Lowers 5-yr mortality by 1.8 percentage points
 - Reduces heart disease risk by 2.2 percentage pts
 - Reduces risk of diabetes by 1.3 percentage pts
 - Reduces self-report of poor health by 6 pts
 - Reduces lost work days due to sickness by 2.3/yr
- Why???
- Increased education improves health behaviors
- Some behaviors reflect ***differential access to care***

National Bureau of Economic Research; Education and Health: Evaluating Theories and Evidence . 2010

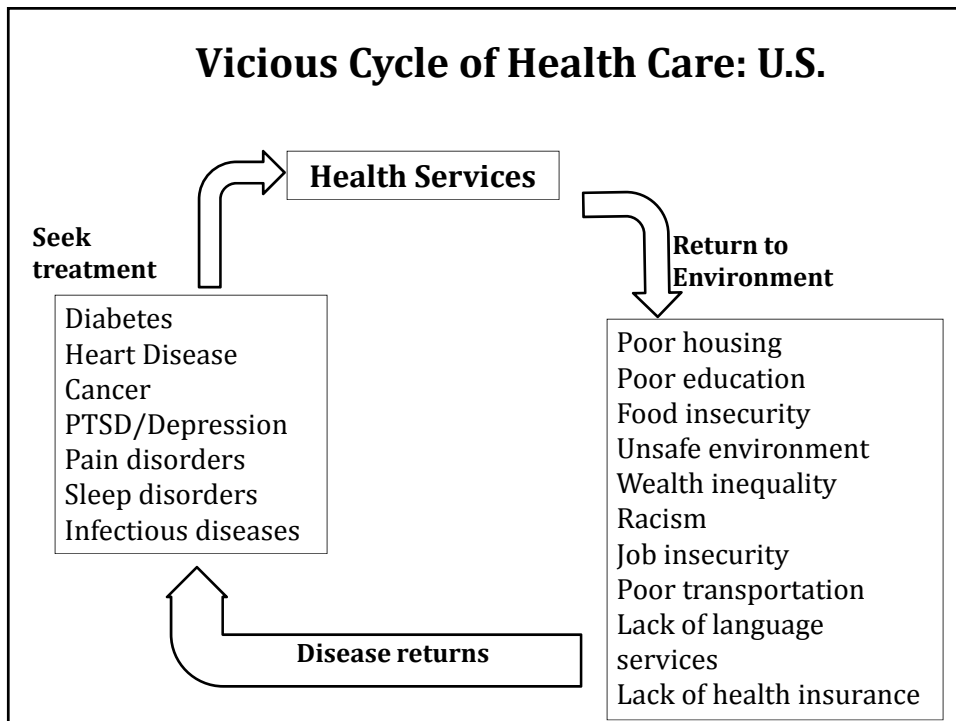
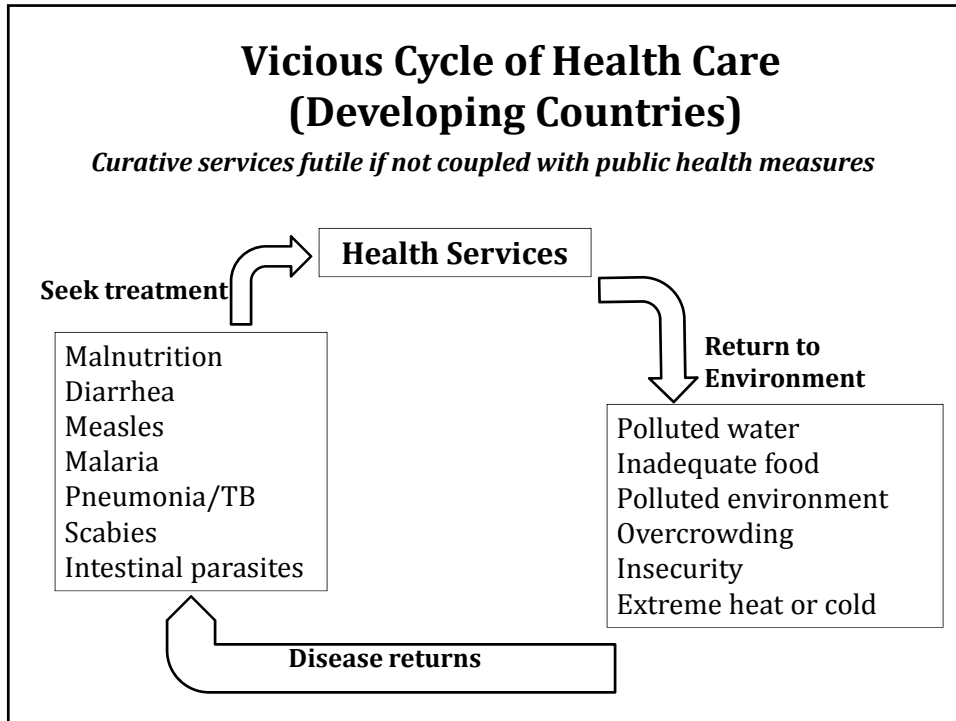
Facts of Social Determinants

- **Environment:**
 - Worldwide, ¼ preventable disease attributable to poor environmental quality
 - U.S.: air pollution associated w/50,000 premature deaths & up to \$50 billion health costs
- **Social Capital:**
 - Individuals lacking social ties: 2-3x risk of dying of all causes compared to those well-connected
 - Socially isolated: 4x greater rate of heart attack
 - ***Social connectedness stronger predictor of perceived quality of life than income or education level***

Social and Environmental Determinants of Health

Determinants of Health

- Conditions or factors associated with health
 - Characteristics of individual, community, state, national, or global
 - Person-environment interaction
 - Positive interactions = health or maintenance of health
 - Negative interactions = illness or decrement of health
- ***Blaming individuals for poor health or crediting for good health inappropriate***
 - May not be able to control determinants of health



Social Determinants 10 Tips for Better Health

(in addition to stop smoking, eat more fruits/veggies, etc.)

An “alternative” way to counsel patients about health determinants

- | | |
|--|--|
| 1. Don't be poor. If you can, stop. If you can't, try not to be poor for long. | 6. Be able to afford to go on vacation. |
| 2. Don't have poor parents. | 7. Practice not losing your job, and don't become unemployed. |
| 3. Own a car. | 8. Make sure you have benefits, especially if unemployed, sick or disabled. |
| 4. Don't work in a stressful, low-paying manual job. | 9. Don't live next to a busy major road, or polluting factory. |
| 5. Don't live in damp, low quality housing. | 10. Learn how to fill in complex housing forms before becoming homeless and destitute. |

Source: Centre for Social Justice, *Social Determinants Across the Lifespan*; www.socialjustice.org/subsites/conference/resources

How social determinants relate to health disparities

- 1. Context** for health or illness
– where we live, learn, work and play influences our health
- 2. Disparities** in health based on race, ethnicity, or class that raises questions about the fairness of those disparities

Health Equity vs Health Disparities

- Health equity: right of everyone to have “a fair and just opportunity to be as healthy as possible”
 - Requires moving obstacles, i.e. poverty, discrimination, fair pay, quality housing & education, safe environment
- Health disparities: the metric for assessing health equity, defined as “differences in health outcomes that are linked with social, economic and environmental disadvantage”

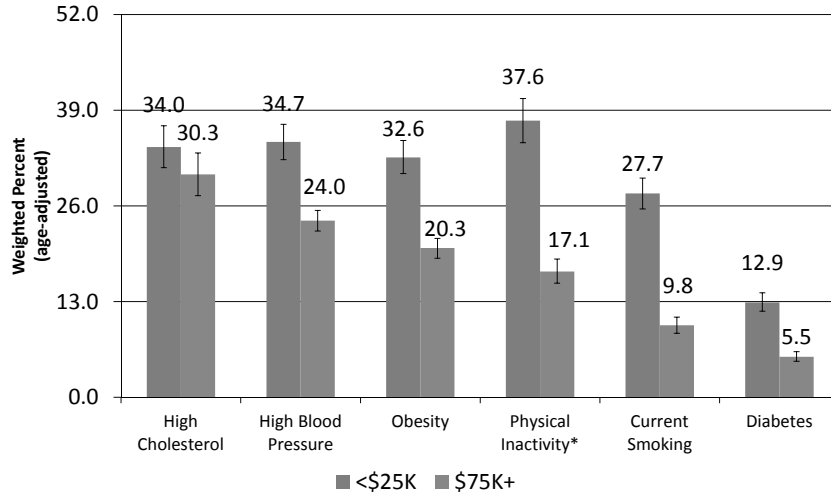
Braveman P. (6/22/17): A new definition of health equity to guide future efforts and measure progress. Health affairs blog.
Office of Minority Health (2011)

CT Health Disparities Report - 2009

- Leading health indicators
 - Mortality
 - Birth outcomes
 - Chronic diseases
 - Infectious diseases
 - Injuries
 - Behavioral risks
 - Environmental and occupational health
 - Oral health
 - Access to care and the health care work force
- Social and economic indicators
- Most recent data at:
www.ct.gov/dph/healthdisparitiesdata



Modifiable Risk Factors among Adults (18+y) by Annual Household Income, Connecticut, 2011-2013



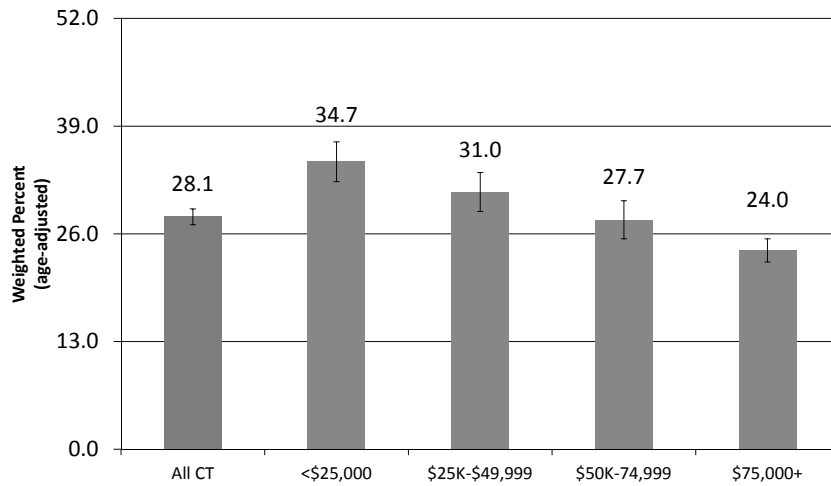
Source: CT DPH, BRFSS, 2011-2013 data.

*Participated in no physical activities in past month

Connecticut Department of Public Health
Keeping Connecticut Healthy

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Prevalence of High Blood Pressure by Annual Household Income (18+y), CT, 2011-2013

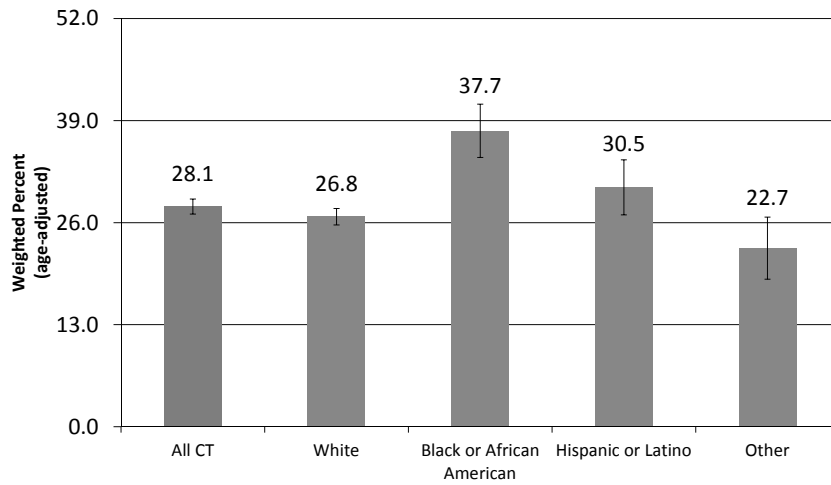


Source: CT DPH, BRFSS, 2011-2013 data.

Connecticut Department of Public Health
Keeping Connecticut Healthy

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Prevalence of High Blood Pressure by Race & Ethnicity, Adults (18+y), CT, 2011-2013

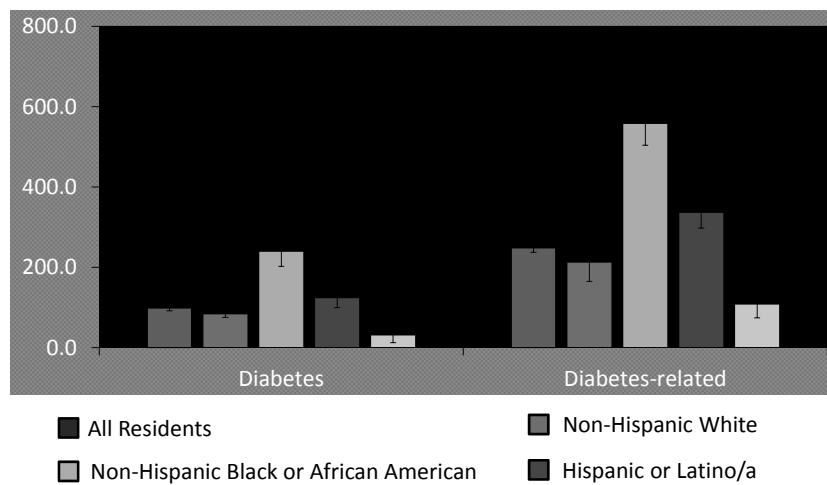


Source: CT DPH, BRFSS, 2011-2013 data.

Connecticut Department of Public Health
Keeping Connecticut Healthy

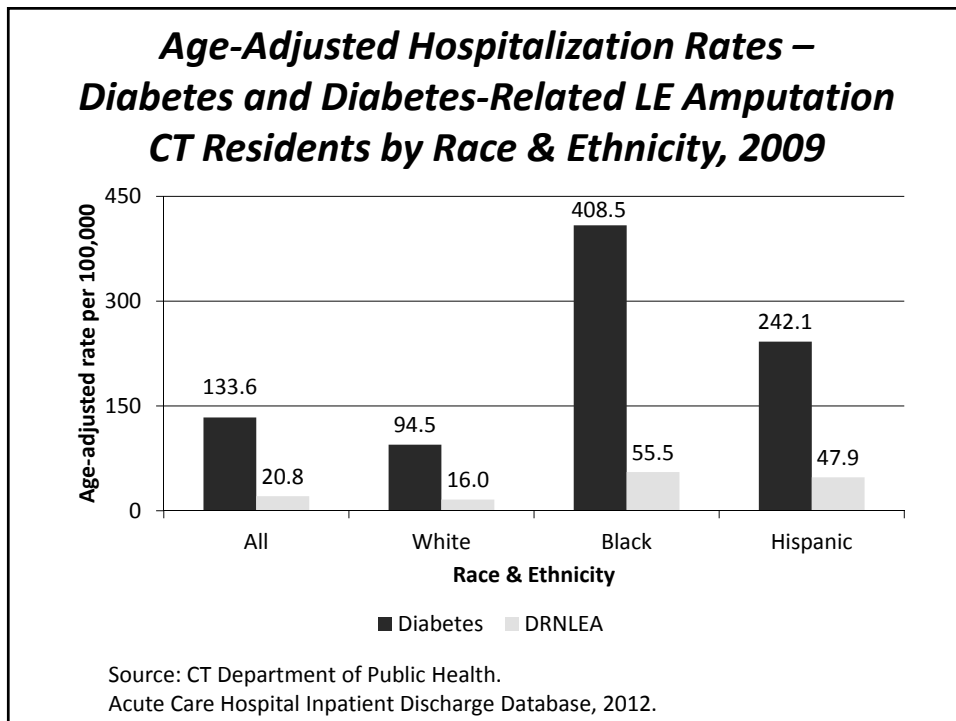
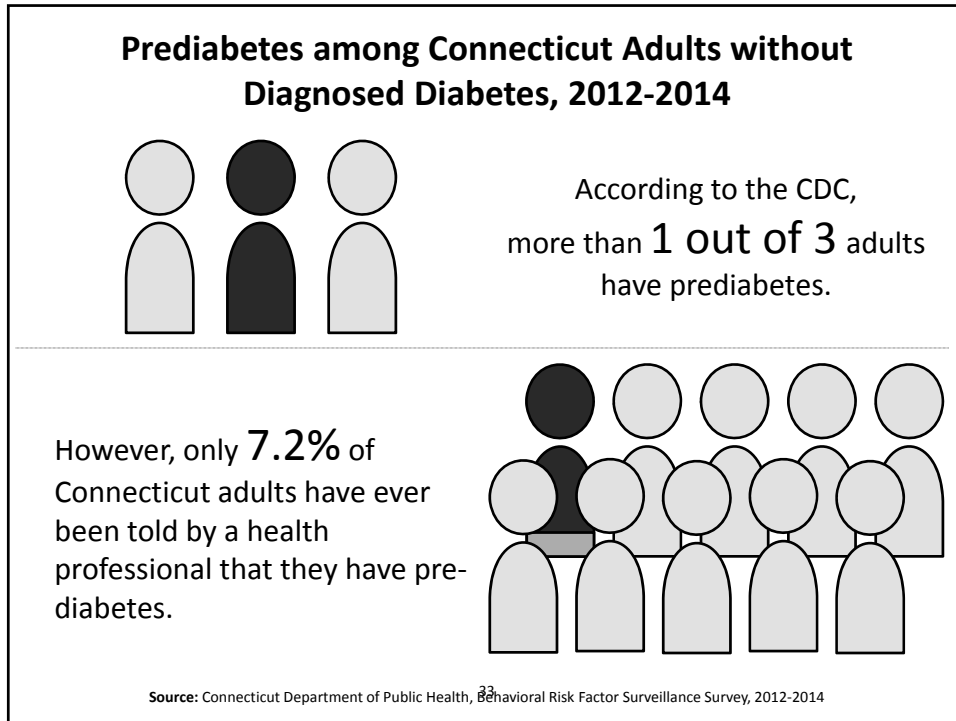
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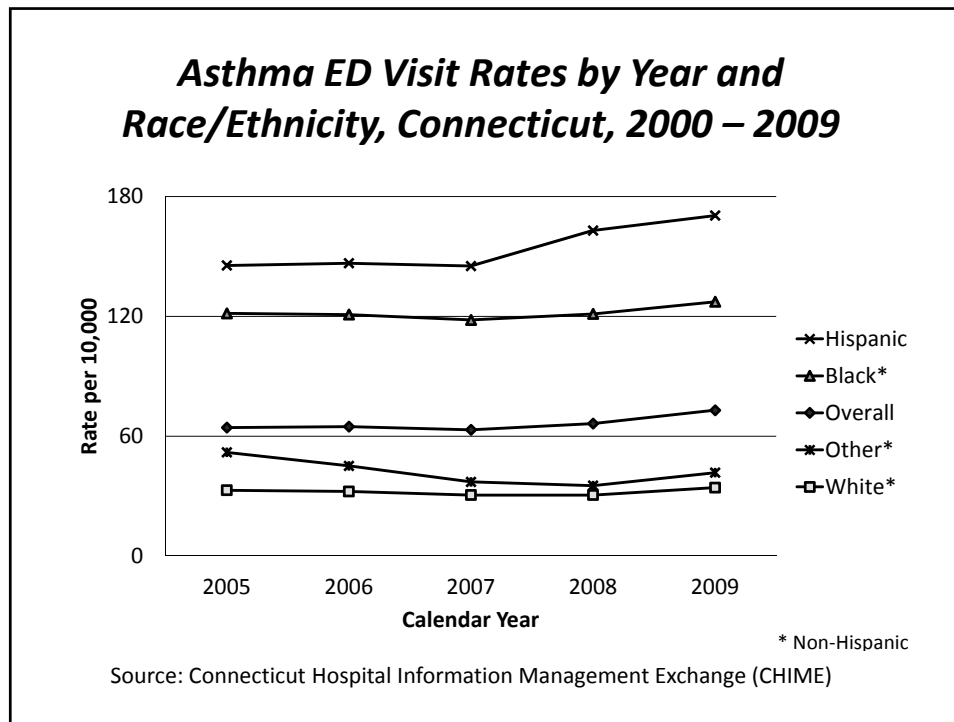
Age-adjusted Premature Mortality Rates (<75 years of age) per 100,000 population, CT Residents, 2008-2012



Source: Connecticut Department of Public Health, Vital Records Mortality Files, 2008-2012

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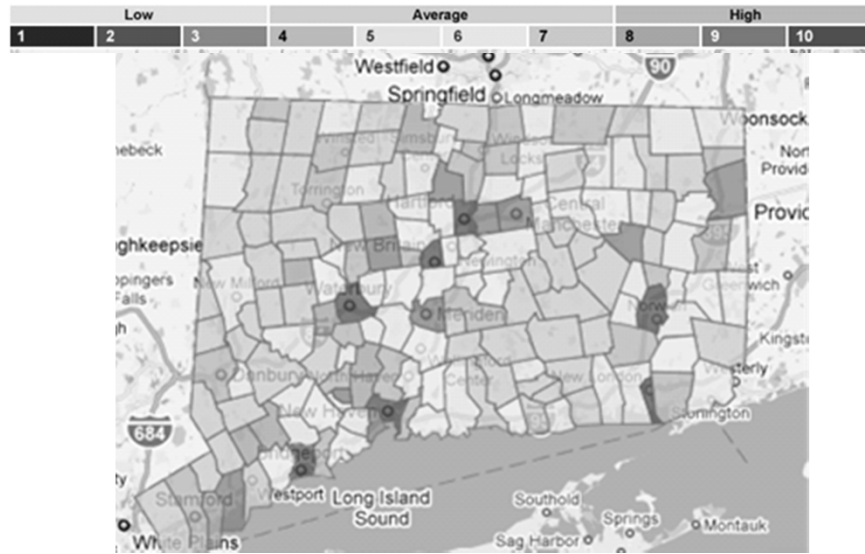


Disparities – local or national?

- CT has highest per capita income in U.S.
 - Does this affect health disparities?
- What local determinants of health could lead to these health disparities?
- CT's Health Equity Index: maps social determinants to health outcomes

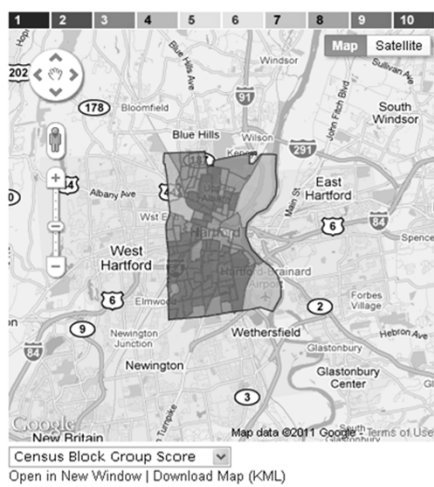
Town Scores

Social Determinants of Health in Connecticut Towns

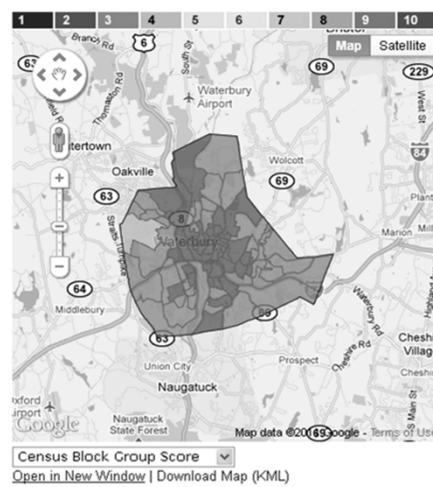


Compare Towns

Hartford: Social Determinants of Health



Waterbury: Social Determinants of Health



Side by side mapping

Bridgeport Infectious Disease compared to Employment

Infectious Disease

2 Low score

1 = LOW 10 = HIGH

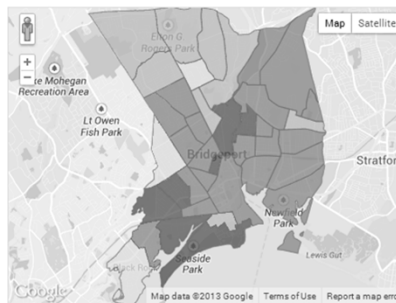


Infectious Disease for census block groups in Bridgeport KML

Employment

3 Low score

1 = LOW 10 = HIGH




Employment for census tracts in Bridgeport KML

Potential Solutions

- “Bringing Care to People Rather Than People to Care” (Richard Niederman, Editor, AJP, September 2015)
 - Placed-based care
 - Home, place of worship, barbershop, etc.
 - Use of community health workers
 - Use of telehealth/videoconferencing
 - Community-focused programs – “Community-based Participatory Approach”
 - Community-based participatory research (CBPR)


DPH-UCONN SOP Collaboration

- Expanding MTM-certified Pharmacists throughout the state to provide MTM services
- Developing a network of innovative community pharmacists focused on provision of services for underserved and vulnerable populations.
- Implemented a Community-system of care for hypertension which integrates pharmacists and CHWs into care team
 - CHWs performed BP outreach – car washes, barber shops, laundromats, churches
 - Linked identified HBP to immediate appt w/clinic PCP
 - Pharmacist identify clients in the community with uncontrolled HTN through database screening of nonadherence
 - Clinic & community pharmacists performed MTM w/CDTM HTN protocols with clinic MDs



Bridging Immunization Disparities: A Model for Pharmacist-Patient Engagement

Thomas Buckley¹, Angelo DeFazio², Jill St. Germain², Debbye Rosen³
1: University of Connecticut School of Pharmacy; 2: Arrow Prescription Center; 3: CT Dept of Public Health



INTRODUCTION

Racial and ethnic disparities in adult immunizations exist in the African American and Hispanic communities. Older Hispanic and African-American adults are much less likely to be vaccinated against influenza, pneumococcal disease and herpes zoster than their white counterparts. Barriers to adult immunization include not knowing immunizations are needed, misconceptions about vaccines, and lack of recommendations from health care providers. Community pharmacies located in urban settings can address the multiple factors attributed to low vaccination rates through unique patient engagement strategies.

CT pneumococcal vaccination age ≥ 65 years (BRFSS):


Pneum Vaccine	Yr 2007 %	Yr 2008 %	Yr 2009 %
White	63.3	64.8	67.5
Afr. Amer.	48	50	60.1
Hispanic	33.3	32.7	58.3

CT Pneum Disease Rate/100,000 (2009)

	Total
White	74.3
Afr. Amer.	93.0
Hispanic	57.7

Herpes Zoster Vaccination (NHIS 2008, age 60+)

	%
White	7.6
Afr. Amer.	2.5
Hispanic	2.1



"You'll Feel Better Because We Care"

PROJECT OBJECTIVE

- To demonstrate that a public-private partnership between the state university school of pharmacy, state department of public health and an urban community pharmacy can reduce racial and ethnic disparities in adult immunizations.

METHODS

3 components of project:

1. Pharmacy staff education
 - Attributes of vaccine and disease
 - Methods to address health literacy issues including cultural barriers and vaccine misconceptions
2. Patient identification through eligibility criteria
 - Age 50-95 (initial screening), then
 - Prescription dispensed in past 6 months for: CHD, CAD, CHF, HIV, DM, COPD, asthma, arrhythmia, immunosuppression
3. Patient engagement strategies:
 - Mailed letter informing them of the project and their vaccine eligibility
 - Phone call with a follow-up call two weeks later
 - Communication at point of service in the pharmacy
 - Identified by a pop-up message to the pharmacy staff at time of prescription fill

❖ Marketing: bag stuffers, posters at local businesses and apartment complexes, and radio ads (Eng. & Spanish)

RESULTS

- 1700 patients identified by age and Rx within past 6 months
- Disease stratification resulted in 1200 eligible patients
- 400 patients randomized to mailing, phone, or point-of-service engagement strategy groups.
- 6-month post-engagement interventions:**
- Patients vaccinated: 118 (*new service for this pharmacy*)
- Vaccines administered: 139 (61% HZ, 29% pneumococcal)
- Ethnic distribution of patients vaccinated:
 - Hispanic 46%, AA 23%, White 31%
 - Percentage of patients vaccinated by engagement strategy:
 - Point of sale 84%, letter 10%, phone 6%
- Barriers identified :**
- Address phone changes, cost, language/cultural, lack of patient/physician vaccine communication, lack of appreciation for prevention, lack of vaccine records

IMPLICATIONS

- Engaging patients at point of sale and in community messaging with culturally and linguistically appropriate information increases immunization administration & adherence to other therapies.
- Patient engagement strategies enhance physician collaborations.
- Partnering state agencies, academia, and community pharmacies can optimize pharmacists' accessibility, public trust, and engagement strategies to reduce immunization health disparities.

Creating the Connecticut community pharmacy practice network through public-private partnerships

Thomas Buckley¹, Marina Sahaj¹, Mehul Dala², Monica Jensen¹, Lini Arroyo²
 1: University of Connecticut School of Pharmacy; 2: Connecticut Department of Public Health

Background	Methods	Methods continued	Results
<ul style="list-style-type: none"> New models of team-based care are needed to meet evolving health reform initiatives on state and federal levels. Programs addressing chronic diseases in state health departments and communities can build team relationships through public and private partnerships. <p>Purpose of project</p> <ul style="list-style-type: none"> This project demonstrates how a pilot initiative between the state health department, state university school of pharmacy, and community pharmacy created a population health strategy of a state-wide network of community pharmacies providing comprehensive medication management to underserved populations. Translating practice to policy includes identifying opportunities for sustainable financing of pharmacist services through continued engagement with parties involved in health reform implementation. <p>Performance Measures</p> <ul style="list-style-type: none"> Proportion of community pharmacists that promote medication-self-management of adults with diabetes & hypertension. Proportion of patients with hypertension or diabetes in adherence to medication regimens Decreased proportion of diabetes patients with A1c > 9% Proportion of hypertensive adults achieving blood pressure control 	<ul style="list-style-type: none"> Following the success of an urban immunization project with a community pharmacy, the state health department and school of pharmacy partnered on the state chronic disease plan. This partnership utilized community pharmacists as "healthcare extenders" in the provision of medication-self-management for adults with high blood pressure and/or diabetes. The state health department and university institutional review boards approved the project protocol. The school of pharmacy provided medication therapy management (MTM) certification in diabetes and hypertension to community pharmacists, developed protocols and documentation tools for the provision of MTM services, and provided continuous quality improvement and evaluation of the service. 	<ul style="list-style-type: none"> High-risk, underserved patients with hypertension and/or diabetes were identified through pharmacy database assessment, engaged through multiple outreach and point-of-service strategies, and consented to receive up to 4 encounters with the pharmacist over a 12 month period. Each year of the 5 year project, a cohort of 5-7 independently owned community pharmacies are added to project, creating a community pharmacy practice network that shares practical information such as: clinical pearls, workflow efficiencies, engagement techniques and utilizes school of pharmacy faculty as a clinical resource. 	<ul style="list-style-type: none"> Network consists of 18 pharmacies Project totals: 108 patients, 319 encounters Medication adherence: <ul style="list-style-type: none"> Modified Morisky (ADMS-5) improved 30% from baseline to final encounter 54% patients at least medium adherence Average FDC: 98.7%, 91% of patients had final FDC of at least 80% BP goal achieved by 58.9% of patients; 48% goal improvement from initial encounter A1c goal achieved by 68% of patients; 13% goal improvement from initial encounter Major policy workshop of key stakeholders resulted in published issue brief on benefits of pharmacist-provided medication management services and the challenges to sustainability <p>Conclusion</p> <ul style="list-style-type: none"> Public-private partnerships are vital to developing a community pharmacy network that can provide innovative clinical services to underserved communities. These partnerships are critical to the dissemination of information to policymakers on how best to integrate pharmacist services into health care teams to optimize medication outcomes.

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Creating Community-Clinical Linkages to Reduce Disparities in Hypertension Identification and Control

Thomas Buckley¹, Mehul Dala², Monica Jensen², Frank Boskello³, Laks Pudipeddi⁴
 1: University of Connecticut School of Pharmacy; 2: Connecticut Department of Public Health; 3: Optimus Health Care; 4: Bridgeport Pharmacy


Background	Methods	Methods continued	Findings
<ul style="list-style-type: none"> Hypertension is highly prevalent, underdiagnosed, and insufficiently controlled, particularly in disadvantaged populations, contributing to preventable mortality and morbidity. Strengthening links between primary care and community assets addresses gaps for patients who don't seek or follow up on care. Models that encourage a community system of care approach to hypertension need to be developed, tested, sustained and spread. <p>Purpose of project</p> <ul style="list-style-type: none"> Develop and test a comprehensive community system of care for the identification and treatment of persons with undiagnosed or uncontrolled hypertension. Use rapid Plan-Do-Study-Act (PDSA) cycles to develop, test and optimize community-clinical linkages involved in the identification of individuals with undiagnosed or uncontrolled hypertension Connect individuals to clinical and community resources and support them in achieving control of their hypertension. <div style="text-align: center;"> <p>Target audience served</p> <ul style="list-style-type: none"> Black and African American residents of specific neighborhoods in Bridgeport and Shelton, Connecticut. These communities have large medical and ethnic minority populations and poverty rates (18.3%) that are higher than the state average (10.2%). African American adults in Connecticut have significantly higher rates of high blood pressure and two significantly higher death rates from heart disease and stroke than the overall Connecticut population. </div>	<p>This project has four major components supporting the overall goals. The workflow diagram describes the relationship between various components:</p> <ol style="list-style-type: none"> Community outreach and health system link: CHWs conducted targeted setting-based outreach (e.g. to barber shops, auto repair shops, bookstores and churches) mediated through existing trust-based relationships (e.g. pastor homes) in faith-based organizations. <ul style="list-style-type: none"> CHW provides education and BP screenings to identify individuals requiring follow up treatment or care for hypertension. Individuals referred to the community health clinic team or to their own PCP if appropriate. Team-based care with pharmacist & CHW: <ul style="list-style-type: none"> Clinic pharmacist integrated into care team with uncontrolled hypertension patients. Coordination with community pharmacists to identify medication adherence concerns. Clinic pharmacist coordinates delivery of MTM services in partnership with community pharmacists. CHW is contact between clients, pharmacists and providers. Collaborative practice protocols between PCP and pharmacist improves efficiency of care, communication, and documentation skills. Health coach-coordinated self-blood pressure monitoring: clinic health coach receives referral from care team, trains patients on self-blood pressure monitoring, offers clinical support, follows up with care team. 	<p>Community Health Worker Screenings</p> <p>Medication Therapy Management</p> <p>Physician/Pharmacist Collaborative Practice Protocol</p>	<p>This project is assessing a well-developed and active community referral network in the Bridgeport area to enhance community and clinical linkages. Results for the 4 month project period:</p> <ul style="list-style-type: none"> CHWs screened 625 undiagnosed participants, 36% referred with potential hypertension. Of those screened, 25% did not have a primary care provider 51% with BP above normal were linked to a PCP for follow-up Medication therapy outcomes of 40 participants seen by pharmacist: 12% had adherence or other drug-related problems, 85% had improved BP readings, 14% reached goal BP <p>Implications for OMI Research</p> <ul style="list-style-type: none"> Implementation challenges included hiring CHWs from the community, establishing pharmacist/physician protocols, and communication barriers in the community pharmacy setting due to limited provider relationships, patient engagement and follow up. The initial project in 2 cities will inform efforts to disseminate the model throughout the state. Integrating and coordinating care efforts, and refining data to link referrals and patient outcomes with the state health information exchange, is expected to improve clinical outcomes, and bridge community/public health/community care resources to promote health equity in Connecticut.

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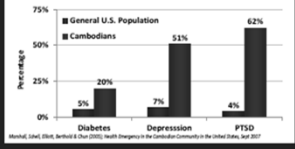
Partnering Pharmacists with Community Health Workers to Deliver Culturally Appropriate Medication Management to an Immigrant Community

Thomas Buckley,¹ Mary Scully,² Theany Kuoach²
¹University of Connecticut School of Pharmacy, ²Khmer Health Advocates






Introduction:
Health status as a result of the Cambodian genocide

- Chronic illness related to trauma increases that the genocide continues 33 years after the Khmer Rouge were overthrown.
- Cambodian patients have higher rates of health conditions such as diabetes, stroke, depression and PTSD.



Meador, Leland, Bhatt, Barbell & Chen (2012). Health Disparities in the Cambodian Community in the United States. April 2012

RESULTS

- > Total of 96 eligible patients (53 in CT, 43 in CA)
- > 2.8 visits/patient in CT, and 1.6 visits/patient in CA
- > Average number of medications/patient: 10.3
- > Average number of conditions/patient: 6.6
- > Medication-related problems: 6.3/patient; 93% resolved with less than 4 hours of MTM
- > Patients' therapy goals achieved increased from 69% to 93%
- > Inappropriate medication use decreased 34.5%
- > Depression screening improved 25%, adherence improved 23%
- > \$3,032/patient/year saved in health utilization costs;
- > \$6 saved for every \$1 spent on program (ROI)
- > Patients who did not receive MTM services had 1.75 times more hospital visits, 4.7 times more hospital days, and 1.5 times more emergency department visits than MTM patients

OBJECTIVES


To measure the effectiveness of delivering culturally and linguistically appropriate medication therapy management (MTM) services provided by pharmacists and community health workers (CHWs), trained to use telemedicine, to elderly Cambodian Americans.

IMPLICATIONS

- > Pharmacists, when working with Cambodian American CHWs, can provide culturally and linguistically appropriate MTM that can improve patient medication outcomes and reduce total healthcare costs.
- > The application of new technologies allows for the provision of MTM to be available to high risk isolated patient populations.
- > These findings are compatible with current health care delivery reforms, especially the patient-centered medical home.

METHODS

1. Community dwelling residents age 50+ with at least 1 chronic condition and 3 chronic medications had multiple MTM visits with credentialed pharmacists and CHWs over a 6-9 month period.
2. Face-to-face encounters occurred with patients in Connecticut, while patients in California had a CHW with them and the pharmacist linked via high-definition videoconference link.
3. Patients were screened at the time of their first and last visit for medication adherence behavior with the Modified Morisky Survey, depression with the Hopkins Systems Checklist, and beliefs with the Beliefs about Medication Questionnaire.
4. Medication related problems identified and resolved, therapy goals achieved, and total health avoidance costs were measured for the time period of the project.



Cambodian American Medical Home Program (CAMHP)

This project was funded by a grant from the Center for Technology and Aging to the Connecticut Pharmacists Foundation

“To achieve greatness, start with where you are at, use what you have, and do what you can”

-- Arthur Ashe, legendary tennis champion and founder of the Arthur Ashe Institute for Urban Health

Thank you!

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