Improving Conditions in Public Housing for Residents with Asthma

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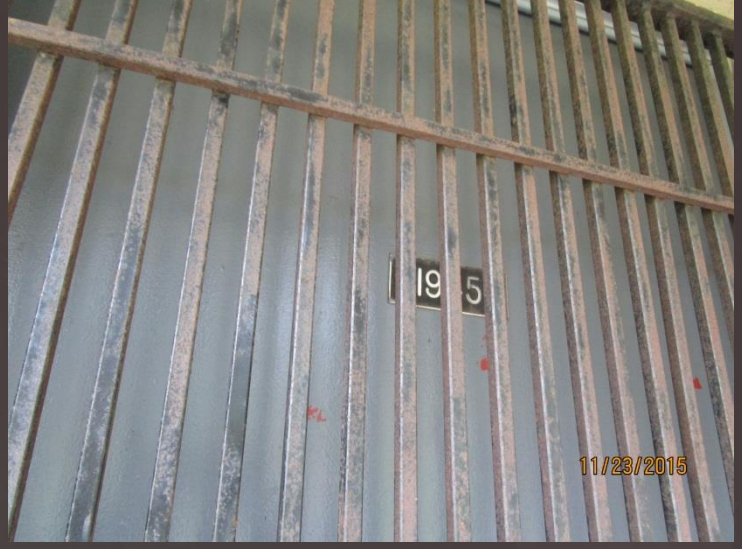
POPULATION HEALTH DIVISION
SAN FRANCISCO DEPARTMENT OF PUBLIC HEALTH
ENVIRONMENTAL HEALTH



Lead

Sanitation Issues


Sunnydale
Clubhouse

Pest Infestations

The Sunnydale Family Development of 772 units has pest treatments in at least 20 units per week.

Some of the worst infestations came from squatters living in adjacent vacant units.

Mold

Blight & Stress

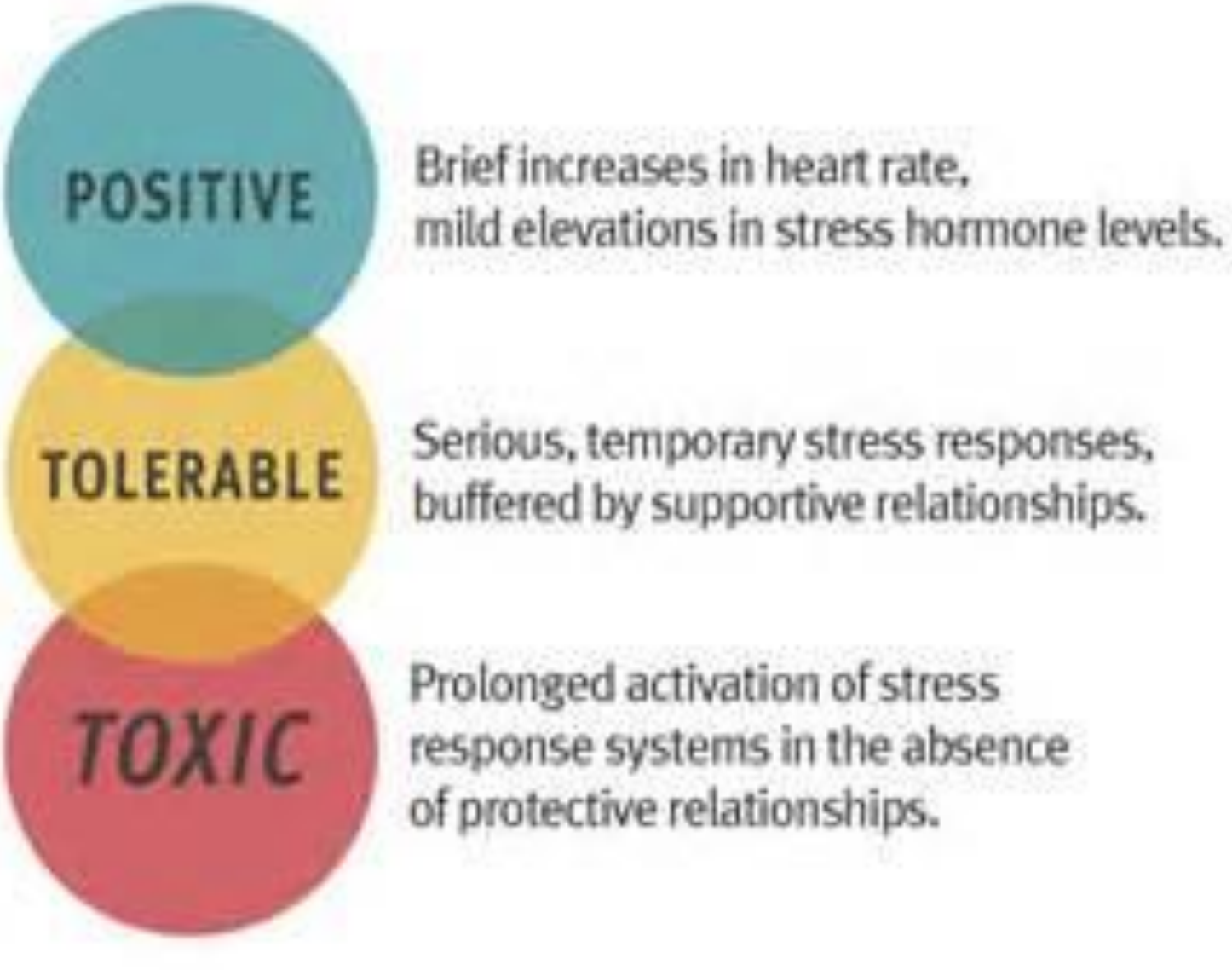

NORTH WASTE
SYSTEMS, INC.

The Asthma Connection?

- 2000 *Institute of Medicine Report* stated live cockroaches, proteins of dead cockroaches and frass all cause asthma attacks for those sensitive to cockroach allergens.
- 2008 *Inner City Asthma Study* found that >60% of inner city children were sensitive to cockroach allergens.

- 2011 *CDPH Statement on Building Dampness, Mold and Health,* "Human health studies have led to a consensus among scientists and medical experts that the presence in buildings of (a) visible water damage, (b) damp materials, (c) visible mold or (d) mold odor indicates an increased risk of respiratory disease for occupants."

What have we learned since those published findings?


POSITIVE
Brief increases in heart rate, mild elevations in stress hormone levels.
TOLERABLE
Serious, temporary stress responses, buffered by supportive relationships.
TOXIC
Prolonged activation of stress response systems in the absence of protective relationships.

Cien Saude Colet. 2008 Nov-Dec;13(6):1729-42.

Transdisciplinary research strategies for understanding socially patterned disease: the Asthma Coalition on Community, Environment, and Social Stress (ACCESS) project as a case study.

Wright RJ[1], Suglia SF, Levy J, Fortun K, Shields A, Subramanian S, Wright R.

Abstract

As we have seen a global increase in asthma in the past three decades it has also become clear that it is a socially patterned disease, based on demographic and socioeconomic indicators clustered by areas of residence. This trend is not readily explained by traditional genetic paradigms or physical environmental exposures when considered alone. This has led to consideration of the interplay among physical and psychosocial environmental hazards and the molecular and genetic determinants of risk (i.e., biomedical framing) within the broader socioenvironmental context including socioeconomic position as an upstream "cause of the causes" (i.e., ecological framing).

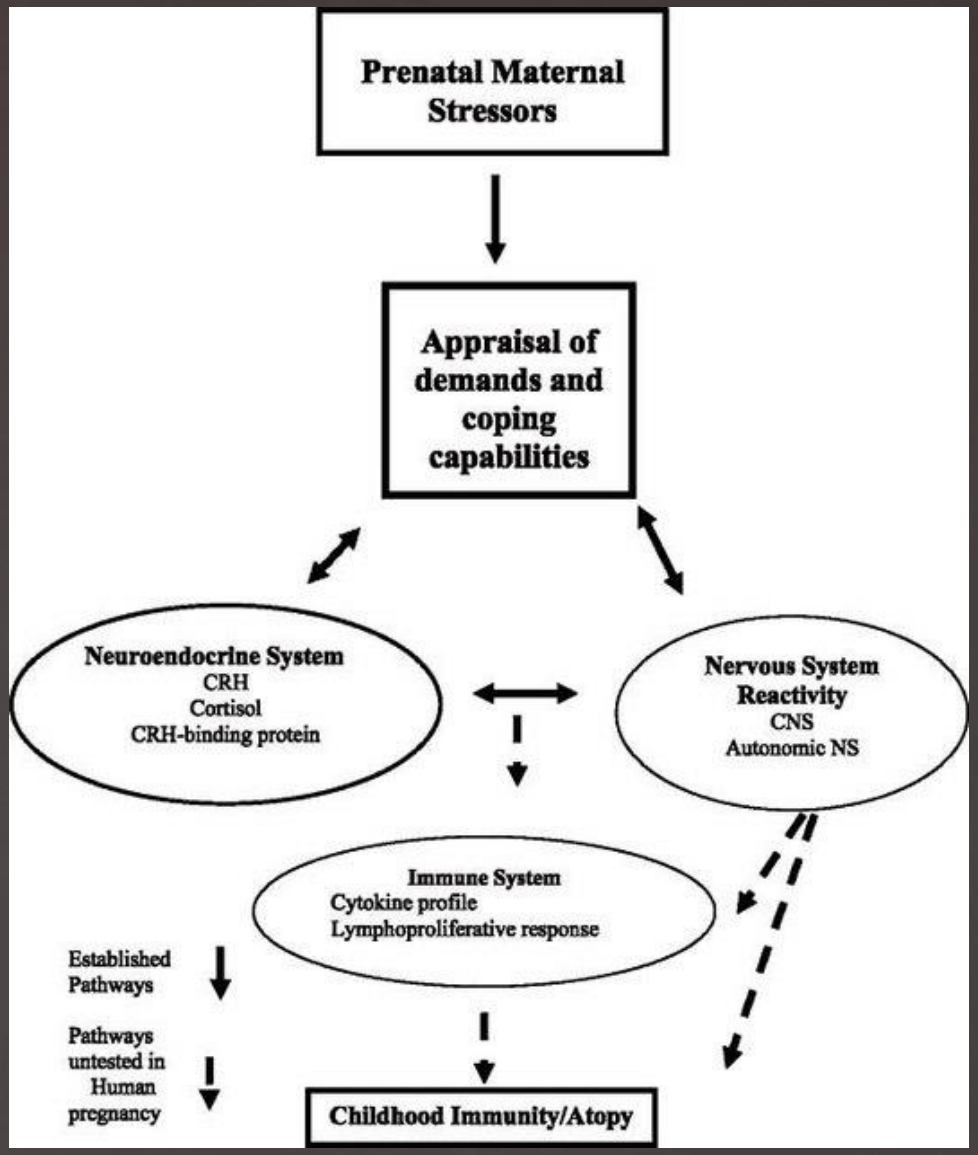
Transdisciplinary research strategies or programs that embrace this complexity through a shared conceptual framework that integrates diverse discipline-specific theories, models, measures, and analytical methods into ongoing asthma research may contribute most significantly toward furthering our understanding of socially patterned disease.

This paper provides an overview of a multilevel, multimethod longitudinal study, the Asthma Coalition on Community, Environment and Social Stress (ACCESS), as a case study to exemplify both the opportunities and challenges of transdisciplinary research on urban asthma expression in the United States.

Immunol Allergy Clin North Am. 2011 Feb;31(1):19-39. doi: 10.1016/j.iac.2010.09.011.

Epidemiology of stress and asthma: from constricting communities and fragile families to epigenetics.

Wright RJ[1].



Toxic Stress In Pregnancy And Infancy Causes Asthma: Dose Matters; published online March 4, 2016; JACI

Exposure to environmental toxins during pregnancy and/or early childhood can alter the normal course of lung development, resulting in changes that affect a child's risk of developing asthma. Lung growth progresses sequentially with specific functions and processes developing in a particular order, thus the effects of toxins on asthma risk depend on both timing and dose of exposure. Identifying important risk factors as early as possible in development that contribute to heightened asthma risk is critical so that interventions can be applied early to promote optimal lung development.

In *The Journal of Allergy and Clinical Immunology* (JACI), Lee and colleagues present the first prospective analyses considering the effects of both dose and timing of exposure to toxic stress in early life on asthma onset in children. These investigators followed 765 mother-infant pairs enrolled during pregnancy in the Asthma Coalition on Community, Environment, and Social Stress (ACCESS) project in urban Boston, MA to examine whether children born to mothers' experiencing a greater number of adverse life events during pregnancy as well as the child's first two years of life were more likely to develop asthma by age 6 years.

Pre- and postnatal maternal stress was measured using the Crisis in Family Systems-Revised (CRISYS-R) survey, which measures negative life events (NLEs) across a number of life domains including financial difficulties, relationship problems, safety in their homes and communities, and experiences of racism or discrimination.

While we all experience day to day difficulties, stress becomes toxic when we experience environmental demands that pile up and overwhelm our ability to cope and manage these challenges. A dose effect can therefore be seen when women experience difficulties across an increasing number of life domains. Mothers also reported whether a healthcare provider had diagnosed their children with asthma during follow up.

Importantly, this study controlled for other factors that could be correlated with increased stress as well as asthma risk in children such as socioeconomic status, whether mothers smoked, and exposure to other environmental toxins such as household allergens or air pollutants.

The authors found that toxic stress occurring in both pregnancy and early infancy was associated with increased risk for asthma development in these children. Moreover, dose mattered. Children born to mothers experiencing difficulties over 5 or more life domains were two to three times more likely to develop asthma by the time they started school compared to children of women reporting the lowest levels of stress. Also, children born to women experiencing the greatest number of adverse events in both pregnancy and early infancy were at heightened risk for asthma – an association that particularly impacted girls.

These findings show that children are at increased risk of developing asthma when their mothers experience toxic levels of stress in the perinatal period. Clinicians should counsel pregnant women and young mothers on the role of psychological stress in this context, to raise awareness of the links between mothers' stress and health of the next generation. **The demonstration that dose matters is critical here. While it is not necessary to eliminate stress altogether, interventions focused on reducing stress levels in the prenatal and early postnatal periods may reduce asthma risk in children. Clinical trials examining stress reduction modalities are needed to see if we can indeed prevent asthma onset.**


09/14/2015

Environmental Health Perspectives,Issue 1 | January 2015 | Vol. 123

Indoor Environmental Exposures and Exacerbation of Asthma: An Update to the 2000 Review by the Institute of Medicine,

Watcharoot Kanchongkittiphon, Mark J. Mendell, Jonathan M. Gaffin, Grace Wang, and Wanda Phipatanakul

Objectives: The current review provides an updated summary of knowledge from the scientific literature on indoor exposures and exacerbation of asthma.

Methods: Peer-reviewed articles on indoor exposures and exacerbation of asthma were identified through PubMed from 2000 to 2013, from reference lists, and from authors' files. Articles focused on modifiable indoor exposures in relation to frequency or severity of exacerbation of asthma were selected for review. Research findings were reviewed and summarized with consideration of the strength of the evidence.

Results: Sixty-nine eligible articles were included. Major changed conclusions include: a causal relationship with exacerbation for indoor dampness-related agents (in children); associations with exacerbation for dampness-related agents (in adults), endotoxin, and ETS (in pre-school children); and limited or suggestive evidence for association with exacerbation for indoor culturable Penicillium or total fungi, NO2, rodents (nonoccupational), feather/down pillows (protective relative to synthetic bedding), and (regardless of specific sensitization) dust mite, cockroach, dog, and dampness-related agents.

Discussion: This review, incorporating evidence reported since 2000, increases the strength of evidence linking many indoor factors to the exacerbation of asthma. Conclusions should be considered provisional until more thorough examination of all available evidence.

Conclusion: Multiple indoor exposures, especially dampness-related agents, merit increased attention to prevent exacerbation of asthma, possibly even in non-sensitized individuals.

Science of the Total Environment,
Volume 553, 15 May 2016, pages 204-210

The first 2-year home environment in relation to the new onset and remission of asthmatic and allergic symptoms in 4246 preschool children,

Zhijin Lin, Dan Norback, Tingting Wang, Xin Zhang, Jingjin Shi, Haidong Kan, Zhuohui Zhao

A questionnaire survey was performed in a random cluster sample of 4246 preschool children in Urumqi, China. Information on the home environment (perceptions of odors and indicators of pollution sources) and children's health (wheeze, rhinitis and eczema) was collected for the first 2 years of life and the last year (before answering the questionnaire) from one of the parents or another guardian of the child. Associations between the home environment the first 2 years of life and new onset and remission of childhood symptoms were analyzed by multiple logistic regression.

Home environment factors reported for the first 2 years of life were consistently positively associated with new onset of symptoms and negatively associated with remission of symptoms.

Visible mold (OR 1.46, 95% CI 1.12–1.90), moldy odor (OR 2.15, 95% CI 1.45–3.18), air dryness (OR 1.31, 95% CI 1.08–1.59), stuffy odor (OR 1.25, 95% CI 1.01–1.54) and parental smoking (OR 1.36, 95% CI 1.13–1.65) were associated with new onset of symptoms. These factors were negatively associated with the remission of symptoms.

In conclusion, mold contamination at home (moldy odor/visible mold), poor indoor air quality (stuffy odor, air dryness) and exposure to environmental tobacco smoke (ETS) in the first 2 years of life can increase the incidence of asthmatic and allergic symptoms and decrease the remission from these symptoms in preschool children.

Building on relationships

2011:

The Asthma Task Force and SF Department of the Environment (SFE) arranged for integrated pest management (IPM) training and resources that reduced SFHA reliance on pesticides.

2015:

SF Dept. of Public Health Children's Environmental Health Promotion Program, with help of SFE Environment NOW workers, offered proactive comprehensive home assessment to 203 Sunnydale families to identify and order abatement of prohibited public health nuisances (sanitation, pests, mold, lead hazards).

Project Goals

Improve current living conditions of resident families with young children by ordering correction of lead and other environmental health hazards identified during the home visit and teaching residents what they could do on their own to improve conditions.

Empower Sunnydale families to utilize City services and community resource agencies to access resources that address social determinants of health.

Work with Mercy Housing HOPE SF peer leaders to promote pest prevention and create a beautification campaign to build community.

Sunnydale Healthy Housing Project 2015

- Response to Sunnydale Community Task Force concerns
- SFHA provided mailing list of 187 families (with children up to age 6)
- Mailing offering a FREE environmental assessment
- Tri-lingual door-to-door outreach explaining services (each 187 families up to 3 x)
- Tenants are asked...
  - Damaged paint?
  - Cockroaches?
  - Rodent?
  - Bed bugs?
  - Heat?
  - Garbage?
  - Mold or moisture?
  - Noise?
  - Black dust?
  - Standing water?

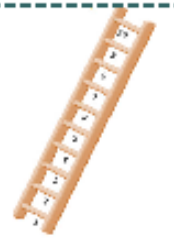
- Listen to wider breath of health concerns
  - Housing security
  - Food security
  - Employment security & equity
  - Transportation
  - Childcare
  - Nutrition and physical activity
  - Social support
  - Access to information
  - General health status
  - Own perception of standing in community
  - Resource needs

Think of this ladder as showing where people stand in the community.

At the top of the ladder are the people who are the best off.

At the bottom are the people who are the worst off.

Where would you place yourself on this ladder?



- Preliminary findings
  - Environmental hazards
    - Moisture, cockroach, paint, garbage
  - Other health concerns
    - Violence, 2nd hand smoke, employment
- DPH-CEHP actions
  - Notice of Violation to SFHA
    - Hearings
    - Penalties (?)
    - Tenants maybe held accountable (entry)
  - Letter of Tenant's Responsibilities
    - Community partners to reinforce
  - Resources for families
  - Referral to relevant City agencies (e.g., DBI)

Signature Video

http://tinyurl.com/healthyhomesenglish
http://tinyurl.com/healthyhomeschinese
http://tinyurl.com/healthyhomesspanish

Environment NOW door-to-door outreach

Sunnydale Healthy Homes Outreach Project Summary

Overview

SF Environment's grassroots outreach team, Environment Now, was contracted by the Department of Public Health (DPH) to perform outreach in the Sunnydale neighborhood, in order to let residents know about the code enforcement services provided by the Children's Environmental Health Promotion Program at DPH. The Environment Now outreach workers visited 187 residences identified by DPH and the Housing Authority as having young children in the home. At the doors, the outreach workers spoke to residents about the home evaluation services available to them, and asked them if they had environmental health hazards in the home, such as damaged paint, pests, mold, standing water, or other concerns. The outreach workers signed interested families up to receive home evaluations, and then passed along the intake forms to DPH to follow up.

Results

The Environment Now team visited 187 homes, knocking an average of three times at each door to produce a total of 158 conversations with residents. We reached approximately 84% of the residents at the assigned units. Of the residents reached through D2D outreach, 65% signed up for an assessment.

The D2D efforts of the team are illustrated in Chart I below and the tactics utilized along with their associated success rates are illustrated in Chart II below.

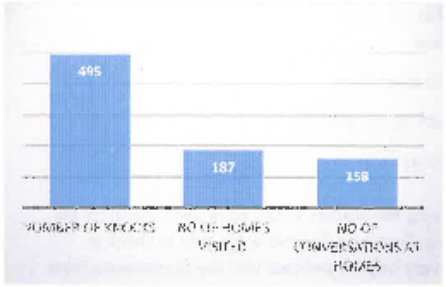


Chart I: D2D Efforts

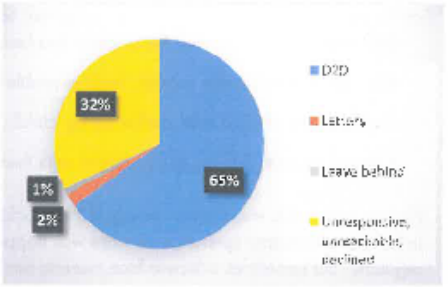


Chart II: Tactics and Success Rates

While most of the conversations were held in English, the multi-lingual skills of the Environment Now staff aided in producing 19% of the signed assessments. The languages used for this project are illustrated in the Chart III below.

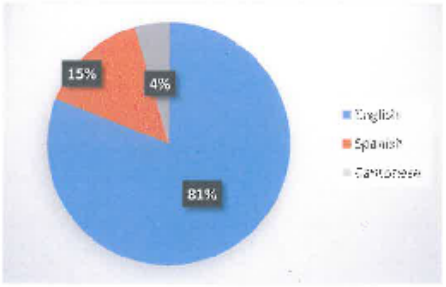


Chart III: Conversations by Language

Multiple notifications about code enforcement for client informed consent

City and County of San Francisco
DEPARTMENT OF PUBLIC HEALTH
ENVIRONMENTAL HEALTH

Edwin M. Lee, Mayor
Barbara A. Garcia, MPA, Director of Health
Richard J. Lee, MPH, CIH, REHS
Acting Environmental Health Director

Sunnydale Home Evaluation Service

Thank you for taking part of the free home evaluation program offered by the Children's Environmental Health Promotion Program to Sunnydale residents.

Next Steps:

Schedule a home evalution appointment

In the next 2 weeks Cynthia or David from our program will contact you to shedule a home evaluation.

Home evaluation

An inspector and health educator will go to your home to check for environmental hazards.

If hazards are found

that are the landlord's responsibility to fix, we will issue a Notice of Violation that requires the landlord to repair them.

that are within your control, we will provide you information on how to prevent the hazards, as well as give you resources.

Questions? Call us.
Cynthia: English & Español (415) 252-3932
David: English & 廣東話 (415)252-3929

CHILDREN'S ENVIRONMENTAL HEALTH PROMOTION PROGRAM
1390 Market Street, Suite 410, San Francisco, CA 94102
Phone 415-252-3898 | Fax 415-252-3889

Phone Intake by Health Educator

CEHP Sunnydale Home Visit Request Form

CEHP use
PID
LocID

Appointment date_____ Time_____ ❒am ❒pm Appt. with_____

Last name **First name**

Address **Zip code: 94134**

Telephone **Alternate telephone** **Best time to call** ❒am ❒pm **Email**

Preferred language ❒ English ❒ Mandarin ❒ Cantonese ❒ Español ❒ Other _____

Indicate the hazards the tenant reports in their unit and if it is minor, moderate or severe

Damaged paint	Mold or Moisture	No heat	Garbage problems	Mice or rats
❒ Minor	❒ Minor	❒ Minor	❒ Minor	❒ Minor
❒ Moderate	❒ Moderate	❒ Moderate	❒ Moderate	❒ Moderate
❒ Severe	❒ Severe	❒ Severe	❒ Severe	❒ Severe

Cockroaches	Bed Bugs	Noise	Black dust (traffic)	Standing water
❒ Minor	❒ Minor	❒ Minor	❒ Minor	❒ Minor
❒ Moderate	❒ Moderate	❒ Moderate	❒ Moderate	❒ Moderate
❒ Severe	❒ Severe	❒ Severe	❒ Severe	❒ Severe

Does the tenant worry about any other environmental conditions or health hazards affecting his/her family?

_____

_____

House

Time

Length of time at this address: _____

❒ Years ❒ Months

Pets

Do you have pets at home? ❒ Yes ❒ No

If yes, what type_____

Children

Lead

Total number of children under 18yrs? _____

Ages of children:_____

Mother is pregnant? ❒ Yes ❒ No

Have the children been tested for lead?

❒ Yes ❒ No BLL? ❒ Yes ❒ No

Asthma

Do any children have asthma/ upper respiratory problems?

❒ Yes ❒ No If yes, # of Children_____ ❒ Others

If yes, is the condition controlled? ❒ Yes ❒ No

Mattress size of bed where children w/ asthma sleep:

❒Crib ❒Twin ❒Full ❒Queen ❒King ❒CalKing

Notifications

Checklist:

- ❒ Inform family that we can refer them to legal agencies related to their housing rights. By law they are protected from housing retaliation and discrimination from the property owner as a result of participating in this project.
- ❒ Inform family that there will be a health educator and an inspector (maybe one more inspector depending on the concerns of family) going to the home visit; at least one adult family member must be present; and that the visit will take 1.5 hours.
- ❒ Remind the family that the home assessment can lead to health and/or building code violations issued to the property owner(s) and /or may be referred to the Department of Building Inspection.
- ❒ Inform the family their information will be kept confidential.
- ❒ Participation in this project is completely voluntary.

Version 1: Feb. 9, 2015

PLANNER: Sunnydale HV

May 2015

Friday · LUZ	Tuesday · Joe	Friday · Sarah	Thursday Amanda	Thursday · Karen
5/22	5/26	5/22	5/21	5/28
10am 1880 Sunnydale CAR 017 DL	10am 41 Brookdale C.017 DL	10am SPN 84 Brookdale C. 017 CM	10am 1932 Sunnydale C. 129 CM	9am 122 Blythedale C.114 CM
11:15am 42 Blythedale DL	11am 1935 Sunnydale No show DL	11am 1947 Sunnydale CM	11am 281 Blythedale CM	10am 48 Blythedale CM

What is IPM?

An effective and environmentally sensitive approach to pest management that relies on a combination of common-sense practices, based on the life cycles of pests and their interaction with the environment.

US EPA: Goal to manage pest damage by the most economical means, and with the least possible hazard to people, property, and the environment, including, but not limited to, the judicious use of pesticides.


Raid


Raid
Roach Gel
Easy Way to Apply Bait
•Starts working in hours
•Kills all common household roaches
•For hard to reach places
CAUTION

Goals of an IPM team approach:

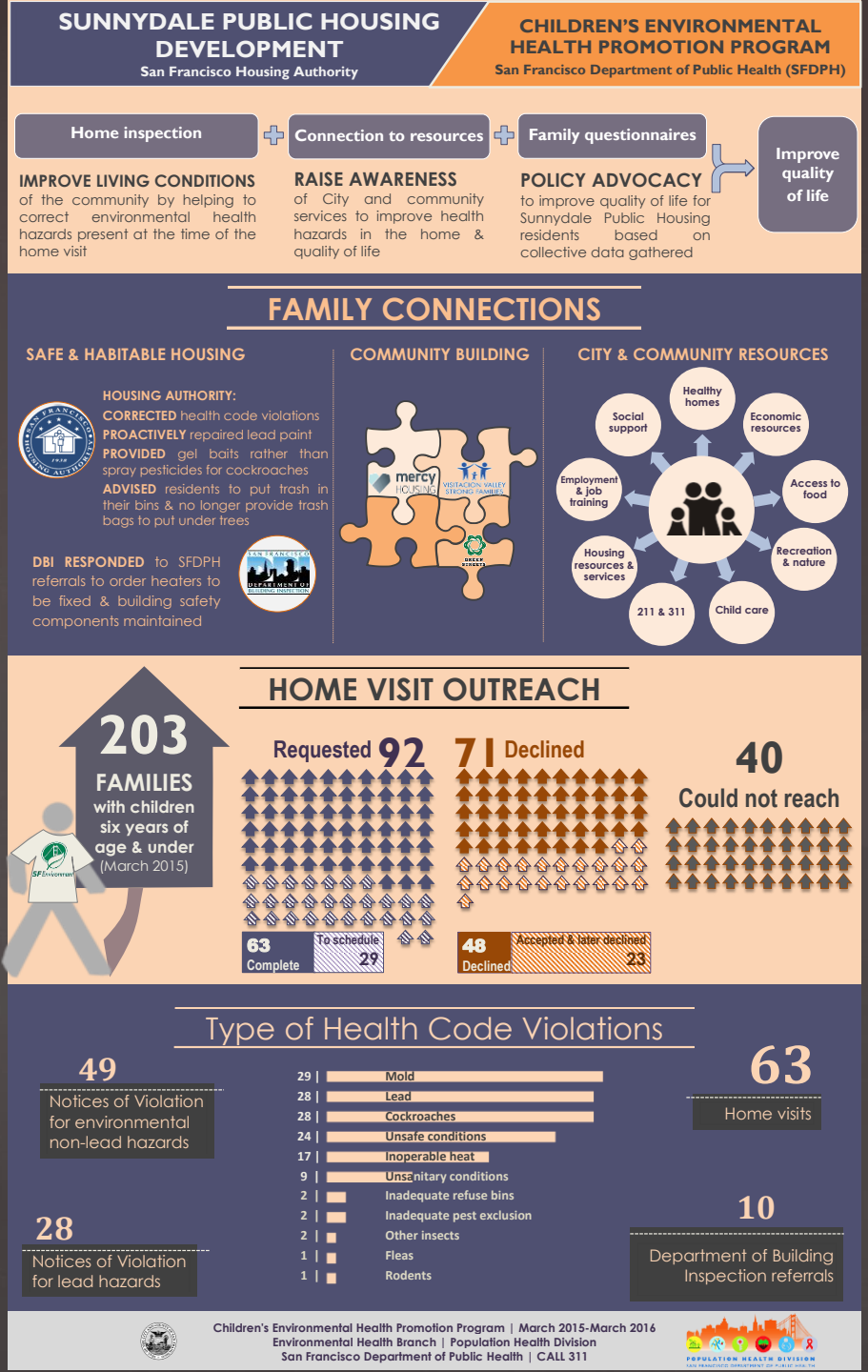
- An inspection and monitoring system that finds pests
- A reporting system that identifies areas of improvement
- Units that are prepared to get a least-toxic treatment
- Communication that empowers all
- Fewer pests and a healthier environment

BACKGROUND: Pyrethroid insecticides are the most commonly used residential insecticides in the U.S.

OBJECTIVES: To assess human exposure via biomonitoring to pyrethroid insecticides in a representative sample of the general U.S. population >or= 6 years of age.

CONCLUSIONS: Pyrethroid insecticide exposure in the U.S. population is widespread, and the presence of its metabolites in the urine of U.S. residents indicates that children may have higher exposures than adolescents and adults.

Citation: Environ Health Perspect. 2010 Jun;118(6):742-8. Epub 2010 Feb 3, *Urinary concentrations of metabolites of pyrethroid insecticides in the general U.S. population: National Health and Nutrition Examination Survey (NHANES) 1999-2002.*



Established partnership with Mercy Housing HOPE SF peer leaders to promote pest prevention

Established partnership with Visitation Valley Strong Families Diaper Bank to offer Diaper Genie to Sunnyvale clients

Made16 referrals for asthma education to BVHP HERC (now part of Rafiki Coalition).

I don't have cockroaches anymore!

The gels and baits are working. I used them myself.

The moldy ceiling got repaired.

This resident inspired Beautification Campaign

Our Sunnydale Making Sunnydale Great

Community ~ Health ~ Beautification

Join us at the community beautification kick off event

Saturday, November 7th, 2015 at 10am – 3pm

1654 Sunnydale Avenue

Music by DJ K.K. Baby

Free food, fun activities, and giveaways for all!

Susu mai ma tala mai aao i le tatou
Community Beautification Kickoff event

Aso To'ana'i Novema 7, 2015 10:00am – 3:00pm

1654 Sunnydale Avenue

Musica DJ K.K. Baby | Meaai, ta'aloga fiafia, ma isi polokalama e atina'e ai le fa'amamaina o le tatou lotoa o Sunnydale!

Acompáñenos a celebrar el comienzo del embellecimiento de Sunnydale

Sábado, 7 de noviembre del 2015 de 10 am – 3 pm

Avenida Sunnydale #1654

Música por DJ K.K. Baby

Comida gratis, actividades divertidas y regalos para todos!

請齊來參與啟動「美化 *Sunnydale* 公共房屋計劃」慶典

日期/時間：*2015* 年*11*月*7*日（星期六），*10* 時 至 *3* 時

地點：*1654 Sunnydale Avenue*

音樂：*DJ K.K. Baby*

免費食物、遊戲活動、及禮物！


SHINE
SAVE
The
Bees
SD
SFHA


LET
SUNDALE
SHINE


TRUCK


Sunnydale Health & Wellness Center

Policy changes achieved

- Change of waste management services so that two bins per unit collected at back door vs. curbside; no one told to leave trash bags under a tree.
- Property management handing out safe and effective cockroach gels and baits vs. cans of Raid spray.
- Housing Authority investment in a contract with an IPM vendor for comprehensive pest assessment in all units of Sunnydale and Potrero Hill complexes
- Housing Authority initiative for comprehensive assessment of lead hazards and mold hazards in all units system-wide with young children.

Mercy Housing HOPE SF peer leaders working with CEHP Health Educator David Lo to distribute healthy housing tools to residents who used our services

Lessons Learned

Community health involves relationship-building between stakeholders as a foundation to all other interventions.

It is important to put all participants' perceptions of the problem on the table at the front end, in order to reach consensus about relevant solutions.

It is also crucial, once solutions are proposed and accepted, to have milestones to achieve, and an evaluation mechanism to track progress towards goals.

Contact:

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www.sfgov.org/asthma