SUPPORTING INFORMATION

Polychlorinated Biphenyls in Residential Dust: Sources of Variability

Todd P. Whitehead[1]*, F. Reber Brown[2], Catherine Metayer[1], June-Soo Park[2], Monique Does[1], Myrto X. Petreas[2], Patricia A. Buffler[1], Stephen M. Rappaport[1]

[1] University of California, Berkeley, School of Public Health, 50 University Hall, MC 7360, Berkeley, CA 94720, USA

[2] California Department of Toxic Substances Control, Environmental Chemistry Laboratory, 700 Heinz Ave., Berkeley, CA 94710, USA

Supporting Information includes 14 pages, 8 tables, and 2 figures.

Estimating indoor half-lives of PCBs

Based on β_{time}, a linear combination of the regression coefficients for the four time trends included in Model 2 (*i.e.*, $\beta_{time} = \beta_{time\text{-}reference} + x_{cases}*\beta_{time\text{-}cases} + x_{floor}*\beta_{time\text{-}floor} + x_{cons}*\beta_{time\text{-}construction}$), we estimated the indoor half-life of each PCB:

$$t_{1/2} = \frac{\ln(0.5)}{\beta_{time}}$$

For the population average (*i.e.*, for x_{cases} = 38%, x_{floor} = 45%, and x_{cons} = 39% of homes in the study population), for case households (*i.e.*, subbing x_{cases} =1), for households that installed flooring between sampling rounds (*i.e.*, subbing x_{floor} =1), and for households that did construction between sampling rounds (*i.e.*, subbing x_{cons} =1).

Supporting Information, Table S1. Description of analytical standards.

Standard	Timing of Spike	Purpose	Supplier	Product	Purity, %
$^{13}C_{12}$-labled PCB-28	Prior to extraction	Internal Standard	Wellington Laboratories	MBP-MXE	99
$^{13}C_{12}$-labled PCB-52	Prior to extraction	Internal Standard	Wellington Laboratories	MBP-MXE	99
$^{13}C_{12}$-labled PCB-101	Prior to extraction	Internal Standard	Wellington Laboratories	MBP-MXE	99
$^{13}C_{12}$-labled PCB-105	Prior to extraction	Internal Standard	Wellington Laboratories	MBP-MO	99
$^{13}C_{12}$-labled PCB-114	Prior to extraction	Internal Standard	Wellington Laboratories	MBP-MO	99
$^{13}C_{12}$-labled PCB-118	Prior to extraction	Internal Standard	Wellington Laboratories	MBP-MO	99
$^{13}C_{12}$-labled PCB-138	Prior to extraction	Internal Standard	Wellington Laboratories	MBP-MXE	99
$^{13}C_{12}$-labled PCB-153	Prior to extraction	Internal Standard	Wellington Laboratories	MBP-MXE	99
$^{13}C_{12}$-labled PCB-156	Prior to extraction	Internal Standard	Wellington Laboratories	MBP-MO	99
$^{13}C_{12}$-labled PCB-157	Prior to extraction	Internal Standard	Wellington Laboratories	MBP-MO	99
$^{13}C_{12}$-labled PCB-167	Prior to extraction	Internal Standard	Wellington Laboratories	MBP-MO	99
$^{13}C_{12}$-labled PCB-180	Prior to extraction	Internal Standard	Wellington Laboratories	MBP-MXE	99
$^{13}C_{12}$-labled PCB-189	Prior to extraction	Internal Standard	Wellington Laboratories	MBP-MO	99
$^{13}C_{12}$-labled PCB-194	Prior to extraction	Internal Standard	Cambridge Isotope Laboratories	EC-1418	99
$^{13}C_{12}$-labled PCB-209	Prior to extraction	Internal Standard	Wellington Laboratories	MBP-MXE	99
$^{13}C_{12}$-labled PCB-47	Prior to analysis	Recovery Standard	Cambridge Isotope Laboratories	EC-1434	99
$^{13}C_{12}$-labled PCB-128	Prior to analysis	Recovery Standard	Cambridge Isotope Laboratories	EC-1411	99
$^{13}C_{12}$-labled PCB-178	Prior to analysis	Recovery Standard	Cambridge Isotope Laboratories	EC-1417	99

Supporting Information, Table S2. Coefficient of variation between concentrations of selected PCBs in matched samples.

PCB	Inter-batch quality control, NIST SRM 2585, *N*=14	Intra-batch quality control, duplicate samples, *N*=55 pairs	Inter-batch quality control, replicate samples, *N*=40	Repeat samples, Round 1 & Round 2, *N*=201 pairs
PCB-28	8	20	36	71
PCB-52	9	31	53	67
PCB-101	10	44	59	79
PCB-105	7	66	75	92
PCB-118	11	37	62	86
PCB-138	8	42	54	113
PCB-153	11	39	77	80
PCB-180	7	46	62	89

NIST SRM 2585 = National Institute of Standards and Technology Standard Reference Material 2585

Supporting Information, Table S3. Questions and responses used to create covariates for mixed-effects models.

Question	Possible Responses	Mixed-Effects Model Parameterization
Does your vacuum cleaner have a disposable bag?	Yes or No	1 if yes; 0 if no
In the last 12 months, on average, how often were the rugs and floors in this home usually vacuumed?	<1/month, 1-3/month, 1/week, >1/week	Not Included in Model
In the last 12 months, did all of the people who lived in this home usually take off their shoes when entering the home?	Yes or No	Not Included in Model
In the last 12 months, has anyone living in this house had a job… …as an airplane mechanic? …as an artist or art teacher? …as a cleaner or janitor? …as a construction worker or carpenter? …as a dentist or dental worker? …as a electrician, lineman, or cable puller? …as an engineer or environmental scientist? …as a farmer, farm worker, or ranch worker? …as a gardener, groundskeeper, landscaper, or nursery worker? …as a laboratory worker or lab science teacher? ...in manufacturing, assembly, industrial operations, or product repair? ...as a auto, truck, or bus mechanic? ...as a medical patient care worker? …as an agricultural packer? …as a painter or wallpaperer? …in pesticide handling, production, formulation, or mixing? …as a photographer, framer, or photography teacher? …as a teacher of preschool to 5th grade? …as a welder or joiner?	Yes or No	Not Included in Model
Is this residence best described as a single family residence? Is this residence best described as a duplex/townhouse? Is this residence best described as an apartment/condominium? Is this residence best described as a mobile home?	Yes or No	Not Included in Model
In what year was your home built?	Continuous	Years*10
About how many square feet is your residence (include all heated areas in the home or apartment that are suitable for year-round use)	Continuous	sf*500
How many rooms are there in your residence, excluding closets, crawl spaces, attics and basements?	Continuous	Not Included in Model
Is your residence mostly constructed of wood? Is your residence mostly constructed of mason/brick/cement? Is your residence mostly constructed of pre-fabricated panels?	Yes or No	Not Included in Model

Supporting Information, Table S3, continued. Questions and responses used to create covariates for mixed-effects models.

Question	Possible Responses	Mixed-Effects Model Parameterization
Does this residence have any type of electric cooling system such as air conditioning?	Yes or No	Not Included in Model
During the last 12 months, how often was at least one window open on a regular basis during the colder months? During the last 12 months, how often was at least one window open on a regular basis during the warmer months?	1/day, 1/week, few/month, few/year	Not Included in Model
Was carpeting installed during the time you have lived in this home? Was roofing installed during the time you have lived in this home? Were windows replaced during the time you have lived in this home?	Yes or No	Not Included in Model
Was flooring installed during the time you have lived in this home? Was construction done during the time you have lived in this home?	Yes or No	Number of years since Round 1 if no at Round 1 and yes at Round 2; otherwise 0
Is there a cat or dog living in this home?	Yes or No	Not Included in Model
Approximately what percentage of your home has carpet?	<25%, 25-49%, 50-74%, 75-100%	Not Included in Model
What is your household annual income?	<$15,000, $15-29,000, $30-44,000, $45-59,000, $60-74,000, ≥$75,000	Not Included in Model
Is mother Hispanic?	Yes or No	Not Included in Model
What is mother's race?	White or Caucasian, African American, Native American, Asian or Pacific Islander, Mixed or others	
What is mother's age (at the time of the first dust sampling)?	Continuous	Years*5
Was the index child diagnosed with leukemia?	Yes or No	Number of years since Round 1 if yes; 0 if no

Supporting Information, Table S4. Number of households that were unable or unwilling to answer a question from the questionnaire and the value used to replace the missing response in mixed-effects models.

Question	Number Missing	Value Used
Was flooring installed during the time you have lived in this home?	1	0
Was construction done during the time you have lived in this home?	1	0
About how many square feet is your residence? (If respondent provided number of rooms, N_{Rooms})	20	$220*N_{Rooms}$
About how many square feet is your residence? (If respondent did not provide number of rooms)	2	2,000
In what year was your home built?	5	1972
What is mother's age?	0	NA
Does your vacuum cleaner have a disposable bag?	2	0

Supporting Information, Table S5. Variance explained by each factor considered for inclusion in the mixed-effects models.

Explanatory Factors	Total	PCB-28, %			PCB-52, %			PCB-101, %			PCB-105, %			PCB-118, %			PCB-138, %			PCB-153, %			PCB-180, %		
		BR	BH	WH	BR	BH	WH	BR	BH	WH	BR	BH	WH	BR	BH	WH	BR	BH	WH	BR	BH	WH	BR	BH	WH
Residential construction date [a, b]	1.92	67	14	0	56	10	0	68	18	-1	75	21	-6	68	23	0	78	29	0	68	19	0	83	20	-1
Surrounding population density [c]	0.39	21	2	2	19	-1	0	18	4	-2	23	4	-5	16	5	-2	24	-1	3	22	3	-2	23	2	-2
Flooring between rounds [a, b]	0.34	4	0	10	2	0	5	1	1	10	0	2	7	1	1	5	7	-24	31	1	1	8	1	-1	8
Residence has air conditioning [b, c]	0.34	1	3	0	-6	5	0	-6	7	0	-15	9	0	-8	10	0	2	12	0	-11	10	0	-7	7	0
Window replacement in residence [b, c]	0.32	27	3	0	17	1	0	19	1	0	18	1	-2	18	1	0	26	4	0	22	2	0	22	1	0
Residential square footage [a]	0.23	-10	4	0	-7	3	0	-8	6	0	-9	7	0	-7	7	0	-5	8	0	-9	6	0	-8	6	0
Number of rooms in residence [c]	0.21	-11	2	0	-6	1	0	-8	6	0	-10	7	0	-8	8	0	-6	9	0	-10	6	0	-7	5	0
Time between rounds [a]	0.21	2	-12	14	1	-5	10	0	-4	15	0	-2	13	1	-3	9	4	-50	50	1	-3	10	1	-7	17
Mother's age [a]	0.10	35	5	0	19	1	0	9	0	0	5	-1	0	7	-1	0	3	-1	0	6	-1	0	10	-1	0
Carpeting between rounds [b, c]	0.07	-2	-4	4	-2	1	2	-3	-1	8	-3	0	11	-2	-1	3	-6	-23	20	-2	-1	5	-3	-3	7
Vacuum has disposable bag [a, b]	0.07	-4	-1	1	-3	0	1	-6	0	7	-8	1	19	-7	0	7	-8	-1	4	-6	0	5	-10	2	5
Resident is electrician/lineman	0.06	4	0	0	4	1	0	2	1	1	3	0	5	3	0	2	2	0	0	2	0	0	1	0	0
Resident is agricultural packer	0.05	8	0	0	0	0	0	3	0	-1	2	0	-1	5	0	0	5	0	0	4	0	0	5	0	0
Carpet coverage [b]	0.05	2	-1	0	0	-1	0	2	-1	0	8	0	-1	9	0	0	8	0	0	5	-1	0	8	-1	0
Resident is teacher	0.03	0	2	0	0	0	0	0	0	0	0	1	-1	0	0	-1	0	0	0	0	1	0	0	2	0
Resident is welder/joiner	0.02	6	-1	1	4	-1	1	3	0	0	-2	-1	3	1	0	-1	3	-3	1	3	0	0	1	0	0
Resident is construction worker/carpenter	0.01	1	0	0	-1	1	-1	-1	2	-1	-1	1	-2	-1	1	-1	-2	2	0	-1	1	-1	0	0	0
Resident is laboratory worker/teacher	0.01	0	-1	0	0	0	0	0	0	-1	0	0	-2	-1	1	-1	-2	2	-1	-1	1	-1	-2	3	-1
Resident is gardener/groundskeeper/ landscaper/nursery worker	0.01	0	-1	0	0	0	0	0	1	-1	0	0	-2	0	0	-1	0	1	1	0	1	-1	0	0	0
Resident is artist/art teacher	0.00	-4	0	1	-1	-1	1	0	-1	3	0	-1	4	0	0	0	-1	-3	3	-1	0	1	0	0	1
Resident is cleaner/janitor	0.00	3	-2	1	0	0	0	0	0	-1	-1	1	-2	-1	1	-1	-4	2	0	0	0	-1	-2	1	-1
Resident is dentist/dental worker	0.00	0	0	0	0	0	0	0	0	-1	0	0	0	0	0	0	0	-2	1	0	0	-1	-1	1	0
Mother's race/ethnicity	0.00	32	5	0	7	1	0	2	0	0	-5	0	0	-3	0	0	-3	-1	0	-3	0	0	4	-2	0

Total = Total variance (summed over 8 PCB models) explained by the explanatory factor (negative values indicate that the factor does not explain variance in PCB concentrations);
BR = Percent of between-region variance from the random-effects model (Model 1) explained by the explanatory factor;
BH = Percent of intra-regional between-home variance from the random-effects model (Model 1) explained by the explanatory factor;
WH = Percent of within-home variance over time from the random-effects model (Model 1) explained by explanatory factor.

[a] Explanatory factor (or its interaction with the time trend) was included in Model 2

[b] We hypothesized that this factor could influence the indoor half-lives of PCBs, so an interaction between the time trend and this factor was considered for inclusion in Model 2

[c] Factor did not explain additional variance when included in Model 2

Supporting Information Table S5 Cont'd. Variance explained by each factor considered for inclusion in the mixed-effects models.

Explanatory Factors	Total	PCB-28, %			PCB-52, %			PCB-101, %			PCB-105, %			PCB-118, %			PCB-138, %			PCB-153, %			PCB-180, %		
		BR	BH	WH	BR	BH	WH	BR	BH	WH	BR	BH	WH	WH	BR	BH	WH	BR	BH	BR	BH	WH	BH	WH	BR
Resident is auto/truck/bus mechanic	-0.01	0	-1	0	0	0	0	0	0	0	1	0	2	1	0	0	0	0	0	0	0	0	0	0	-1
Resident is photographer/framer/ photography teacher	-0.01	0	0	0	-1	-1	1	0	0	-1	0	0	-1	0	0	0	0	0	-1	1	1	-1	1	1	-1
Resident is employed in pesticide handling/production/formulation/mixing	-0.01	-2	0	0	-2	0	0	-2	1	0	-1	0	0	-2	0	1	-3	0	0	-2	0	0	-2	0	1
Case-control status [a, b, d]	-0.02	-4	-1	0	-3	0	0	0	-1	0	-2	-1	0	0	-1	0	0	-1	0	2	-1	0	10	1	0
Resident is in manufacturing/assembly/ industrial operations/product repair	-0.02	0	0	0	-1	0	-1	-1	0	-1	0	0	-1	0	0	-1	-2	1	-1	-1	0	-1	-1	1	-1
Resident is farmer/farm or ranch worker	-0.02	15	-1	0	6	-1	0	-1	0	-1	-2	0	-1	-3	1	-1	-1	0	0	-2	0	-1	-3	0	-1
Construction material is brick	-0.03	1	-1	0	1	-1	0	1	-1	0	1	-1	0	1	-1	0	0	-1	0	1	-1	0	-2	-1	0
Windows open every day, all year [b]	-0.03	-3	0	0	1	-1	0	0	-1	0	0	-1	0	0	-1	0	1	-1	0	1	-1	0	0	-1	0
Resident is engineer/envr. scientist	-0.03	-2	0	0	-2	0	0	-1	0	0	0	0	-1	0	0	0	-3	-1	0	0	0	0	-1	0	0
Construction between rounds [a, b]	-0.03	-2	-5	3	0	-1	0	0	0	0	0	0	-1	0	0	0	-2	-19	11	0	-1	0	-1	-2	1
Residents remove outdoor shoes [b]	-0.03	-1	-1	0	-1	-2	2	0	-1	2	-1	-1	3	0	-2	2	0	-4	2	0	0	0	0	-1	2
Cat or dog living at residence [b]	-0.04	-1	0	0	0	-1	0	0	-1	0	-1	0	0	-1	-1	0	0	-1	0	0	-1	0	1	-1	0
Resident is medical patient care worker	-0.04	-1	-1	0	-1	-1	0	-1	-1	0	0	0	0	0	-1	0	0	0	0	0	0	0	1	0	0
Residence is apartment/duplex	-0.04	-4	-1	0	-5	0	0	-4	0	0	-7	1	0	-5	1	0	-3	1	0	-4	0	0	-3	0	0
Resident is painter/wallpaperer	-0.05	-2	-1	0	-1	0	0	-2	0	0	-2	-1	2	-2	-1	1	-3	-2	1	-1	0	0	-2	-1	1
Roofing between rounds [b]	-0.06	-5	-4	2	-4	-1	1	-5	-1	3	-4	-1	2	-3	-1	1	-16	-11	9	-5	-1	2	-7	-1	2
Residence is apartment	-0.08	-4	-1	0	-6	0	0	-7	0	0	-5	0	0	-7	0	0	-3	-1	0	-4	0	0	0	-1	0
Vacuum frequency [b]	-0.09	1	0	0	-5	0	0	-6	0	-1	-10	1	-1	-11	1	1	-12	2	0	-10	0	0	-8	0	0
Residence is urban	-0.10	-2	-1	0	-7	0	0	-7	0	0	-9	0	0	-6	0	0	-5	-1	0	-5	0	0	-7	0	0
Household annual income	-0.21	0	-1	0	-22	1	0	-25	2	0	-29	3	-1	-25	3	0	-30	5	0	-29	3	0	-39	4	0

Total = Total variance (summed over 8 PCB models) explained by the explanatory factor (negative values indicate that the factor does not explain variance in PCB concentrations);
BR = Percent of between-region variance from the random-effects model (Model 1) explained by the explanatory factor;
BH = Percent of intra-regional between-home variance from the random-effects model (Model 1) explained by the explanatory factor;
WH = Percent of within-home variance over time from the random-effects model (Model 1) explained by explanatory factor.

[a] Explanatory factor (or its interaction with the time trend) was included in Model 2

[b] We hypothesized that this factor could influence the indoor half-lives of PCBs, so an interaction between the time trend and this factor was considered for inclusion in Model 2

[c] Factor did not explain additional variance when included in Model 2

[d] For the purposes of discussion, an interaction between the time trend and case-control status was included in Model 2, despite the fact that this interaction did not explain additional variance in the model

Supporting Information, Table S6. Changes in estimated variance components for selected PCBs from the random-effects model[a] to the mixed-effects models.

PCB	Model 1; random-effects model; no explanatory variables			Model 2; mixed-effects model; all explanatory variables[b]					
	σ^2_{BR}	σ^2_{BH}	σ^2_{WH}	σ^2_{BR}	$\%_{BR}$	σ^2_{BH}	$\%_{BH}$	σ^2_{WH}	$\%_{WH}$
PCB-28	0.04	0.25	0.36	0.005	88	0.21	18	0.32	13
PCB-52	0.10	0.45	0.28	0.04	61	0.40	11	0.24	12
PCB-101	0.21	0.84	0.27	0.08	63	0.67	20	0.22	20
PCB-105	0.23	1.00	0.19	0.08	63	0.75	25	0.15	22
PCB-118	0.25	0.90	0.41	0.10	61	0.67	25	0.35	15
PCB-138	0.12	0.37	0.63	0.03	75	0.41	0	0.30	52
PCB-153	0.19	0.77	0.33	0.07	62	0.60	22	0.28	13
PCB-180	0.15	0.70	0.38	0.03	80	0.57	19	0.30	19

σ^2_{BR} = Between-region variance.
σ^2_{BH} = Intra-regional between-home variance.
σ^2_{WH} = Within-home variance over time.
$\%_{BR}$ = Percent of between-region variance from the random-effects model (Model 1) explained by the variables included in the mixed-effects model (Model 2).
$\%_{BH}$ = Percent of intra-regional between-home variance from the random-effects model (Model 1) explained by the variables included in the mixed-effects model (Model 2).
$\%_{WH}$ = Percent of within-home variance over time from the random-effects model (Model 1) explained by the variables included in the mixed-effects model (Model 2).
[a] In this table, Models 1 and 2 were fit for 448 observations including 403 samples collected from 202 homes during repeat sample collections and 45 duplicate samples; excluding 139 observations without covariate data (40 inter-batch quality control replicates and 87 samples with 10 duplicates from homes that were sampled during Round 1 only).
[b] Fixed effects included in model 2 are residential construction date, residential square footage, mother's age, vacuum-cleaner type, and time between sampling rounds for four groups (*i.e.*, for case households, for households that installed flooring between sampling rounds, for households that did construction between sampling rounds, and for all other households).

Supporting Information, Table S7. Spearman rank correlation (r_s) between PCB concentrations in dust samples collected during two sampling rounds, stratified by the interval of time between rounds.

PCB	3-5 years between rounds		6-8 years between rounds	
	N	r_s	*N*	r_s
PCB-28	139	0.51	62	0.61
PCB-52	139	0.60	62	0.66
PCB-101	139	0.65	62	0.72
PCB-105	139	0.68	62	0.71
PCB-118	139	0.70	62	0.71
PCB-138	139	0.55	62	0.71
PCB-153	139	0.62	62	0.69
PCB-180	139	0.57	62	0.68

Supporting Information Table S8. Indoor half-lives of selected PCBs based on regression estimates from Model 2[a]

Group	PCB-28	PCB-52	PCB-101	PCB-105	PCB-118	PCB-138	PCB-153	PCB-180
All households (population average)[b]	12	16	15	18	15	5	17	11
Case households[c]	12	10	9	9	9	4	11	10
Households that installed flooring between sampling rounds[d]	8	11	9	9	9	4	9	8
Households that did construction between sampling rounds[e]	18	40	47	68	59	7	39	26

[a] Indoor half-life, $t_{1/2} = \frac{\ln(0.5)}{\beta_{time}}$

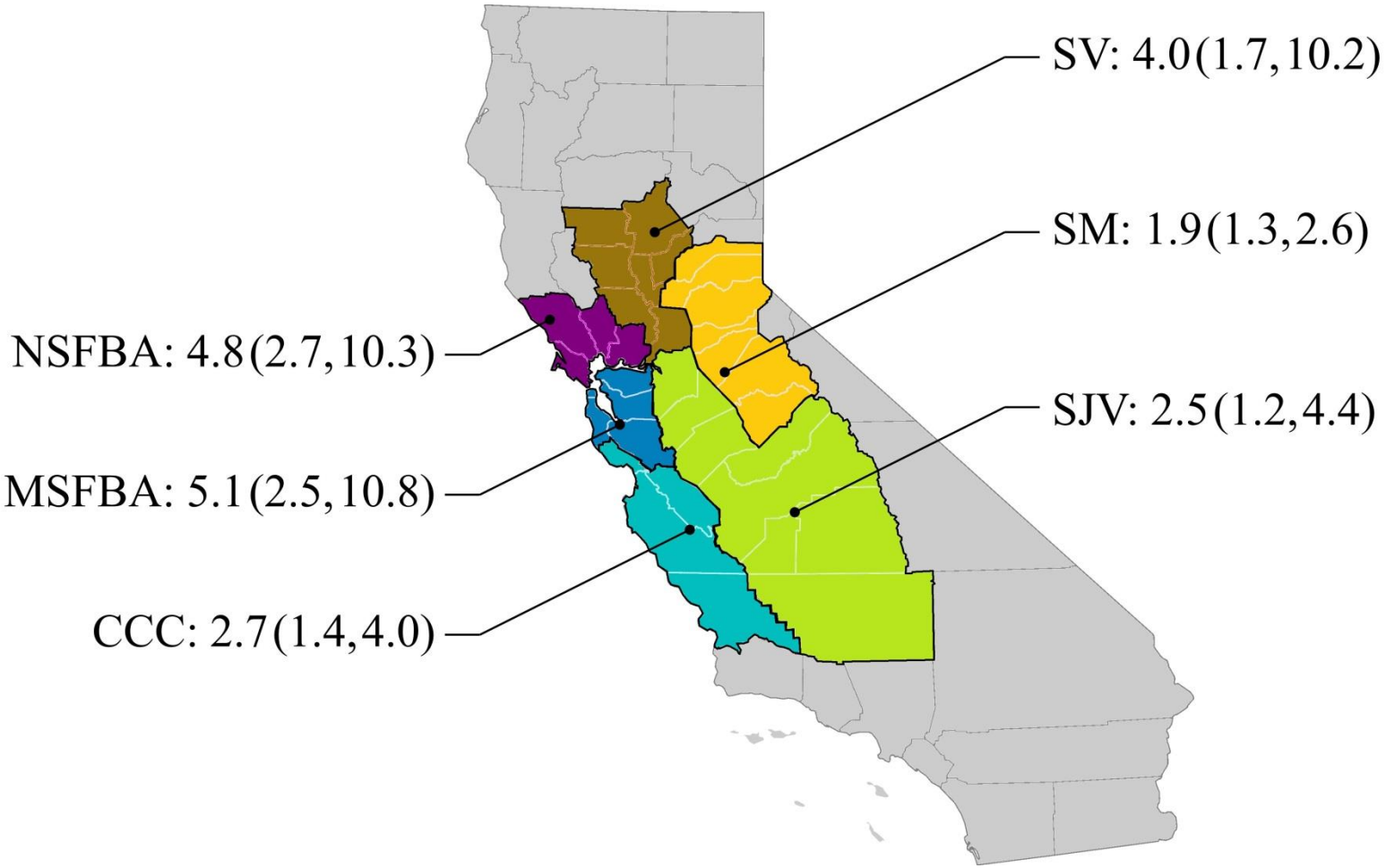
[b] $\beta_{time} = 1.00 * \beta_{time-reference} + 0.38 * \beta_{time-cases} + 0.45 * \beta_{time-floor} + 0.39 * \beta_{time-construction}$;
where $\beta_{time\text{-}reference}$, $\beta_{time\text{-}cases}$, $\beta_{time\text{-}floor}$, and $\beta_{time\text{-}construction}$ are the regression coefficients for the four time trends included in Model 2 and 38%, 45%, and 39% are the proportion of case households, households that installed flooring between sampling rounds, and households that did construction between sampling rounds in the study population, respectively.

[c] $\beta_{time} = 1.00 * \beta_{time-reference} + 1.00 * \beta_{time-cases} + 0.45 * \beta_{time-floor} + 0.39 * \beta_{time-construction}$

[d] $\beta_{time} = 1.00 * \beta_{time-reference} + 0.38 * \beta_{time-cases} + 1.00 * \beta_{time-floor} + 0.39 * \beta_{time-construction}$

[e] $\beta_{time} = 1.00 * \beta_{time-reference} + 0.38 * \beta_{time-cases} + 0.45 * \beta_{time-floor} + 1.00 * \beta_{time-construction}$

Figure S1. Regional variability in median (interquartile range) PCB-153 concentrations (ng/g) in dust samples collected from 288 residences in the California Childhood Leukemia Study from 2001-2007.



BLUE = the metropolitan San Francisco Bay Area (MSFBA, includes Alameda, Contra Costa, Santa Clara, San Francisco, and San Mateo counties); PURPLE = the northern San Francisco Bay Area (NSFBA, includes Marin, Napa, Solano, and Sonoma counties); BROWN = the Sacramento Valley (SV, includes Butte, Colusa, Glenn, Sacramento, Sutter, Yolo, and Yuba counties); ORANGE = the Sierra Mountains (SM, includes Amador, Calaveras, El Dorado, Mariposa, Nevada, Placer, and Tuolumne counties); GREEN = the San Joaquin Valley (SJV, includes Fresno, Kern, Kings, Madera, Merced, San Joaquin, Stanislaus, Tulare counties); TEAL = the California central coast (CCC, includes Monterey, San Benito, San Luis Obispo, and Santa Cruz counties).

Figure S2. Within-home and between-home variability in PCB-153 concentrations in dust collected from 201 residences in the California Childhood Leukemia Study. Each arrow represents concentrations measured in one home during the two sampling rounds; arrows pointing down represent a decrease in concentration from Round 1 to Round 2; arrows pointing up represent an increase. The vertical scale is plotted on the log (base 5) scale. Homes are sorted by their Round 1 PCB-153 concentration, from left to right.