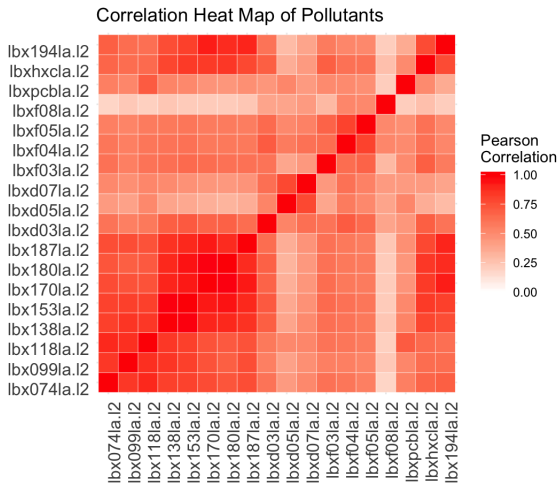# Discussion

08.24.2018

Overall Categories of Methods Covered

1. Dimensionality reduction
   - PCA, clustering, WQS
2. Empirical (data-driven) variable selection
   - Lasso etc, BKMR
3. Regularization (penalization) or shrinkage
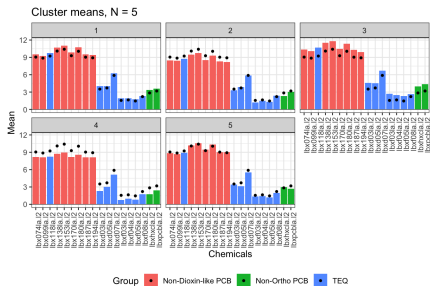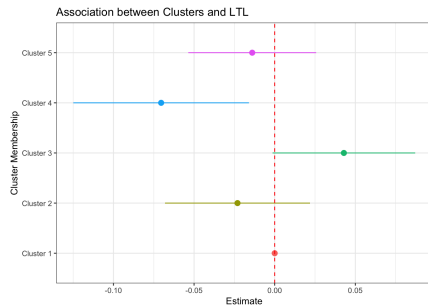   - Lasso etc, BKMR, WQS

Summary of Results

Correlation Heat Map of Pollutants

Percent difference (95% CI) in leukocyte telomere length per doubling of exposure (Model 2)

Metric	% Difference (95% CI)
Non-dioxin-like PCBs	3.80 (0.80, 6.90)
Non-ortho PCBs	4.31 (2.76, 5.88)
TEQ	5.76 (2.27, 9.37)

Clustering

Cluster means, N = 5

Mean

Chemicals

Group ● Non-Dioxin-like PCB ● Non-Ortho PCB ● TEQ

*Points indicate population means

Association between Clusters and LTL

Factor Analysis

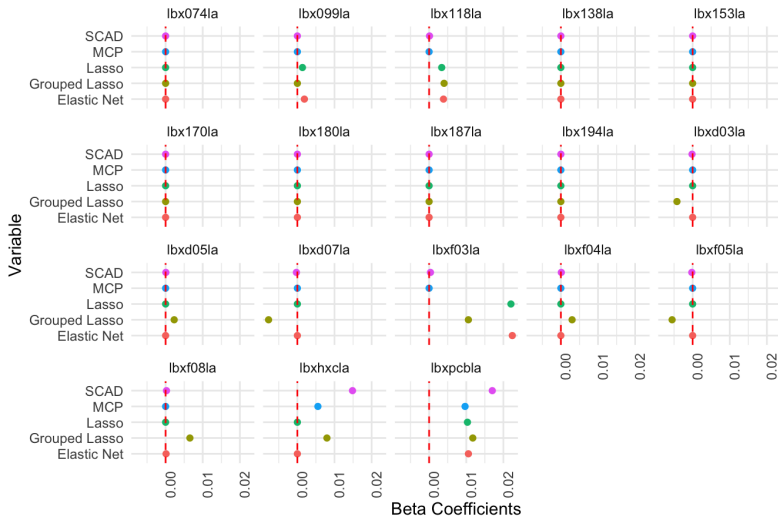Variable Loadings on All Factors
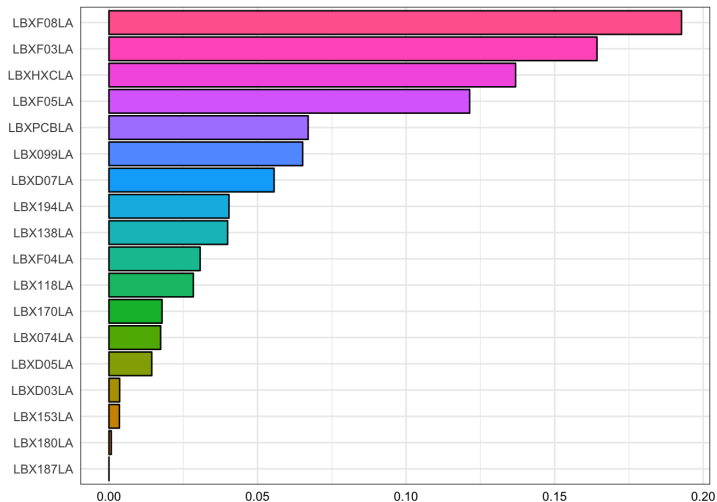
Association between Largest Factors and LTL
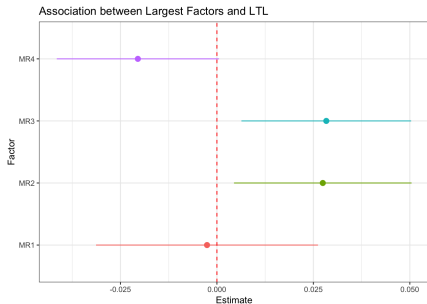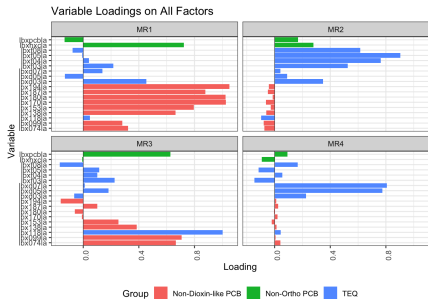
Variable Selection


Variable Selection Coefficients

Constrained WQS

β_{cWQS} (95% CI) = 0.019 (0.008, 0.029)

BKMR

Posterior Inclusion Probabilities

Variable	Group	Group PIP	Cond. PIP
PCB74			0.08
PCB99			0.13
PCB118			0.21
PCB138	Non-dioxin-like		0.10
PCB153	PCBs	0.39	0.11
PCB170			0.13
PCB180			0.09
PCB187			0.07
PCB194			0.08
PCB169	Non-Ortho		0.34
PCB126	PCBs	0.56	0.66
Dioxin1			0.41
Dioxin2	Dioxins	0.26	0.27
Dioxin3			0.32
Furan1			0.94
Furan2	Furans	0.88	0.01
Furan3			0.02
Furan4			0.02

BKMR (cont'd)
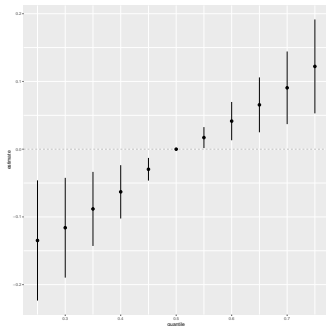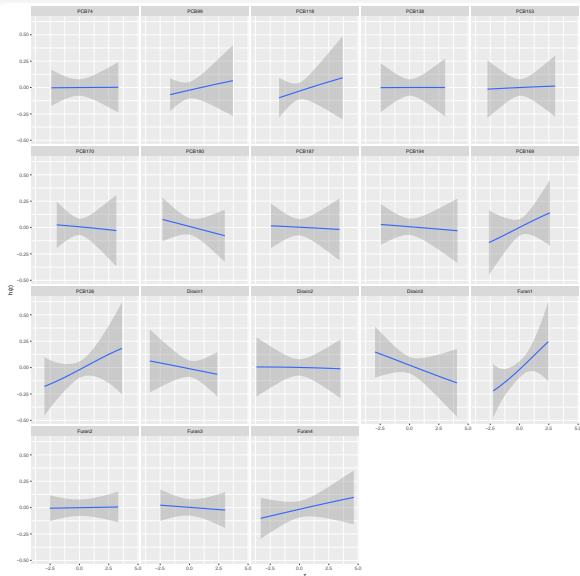
LBXHXCLA:	PCB-169
LBXPCBLA:	PCB-126
LBXF03LA:	Furan 1
LBXD07LA:	Dioxin 3

**Some evidence for interactions for Furan 1