

**Supplemental Table 1: Hypertension incidence by baseline demographic and health characteristics**

	Without hypertension, n=1250	With hypertension, n=203	
	n (%) or mean (SD)	n (%) or mean (SD)	p-value
<b>Sex</b>			0.0080
Female	816 (65.3 %)	113 (55.7%)	
Male	434 (34.7 %)	90 (44.3 %)	
<b>Age, years</b>	31.52 (12.87)	41.12 (14.89)	<0.0001
<b>Region</b>			0.2330
Arizona	360 (28.8 %)	48 (23.6%)	
Oklahoma	466 (37.3 %)	76 (37.4%)	
North and South Dakota	424 (33.9 %)	79 (38.9%)	
<b>Education</b>			0.4660
Less than high school	79 (6.3 %)	12 (5.9%)	
Some high school	399 (31.9 %)	55 (27.1%)	
High school diploma	426 (34.1 %)	71 (35.0%)	
Some college	346 (27.7 %)	65 (32.0%)	
<b>Smoking</b>			0.0350
Never	552 (44.2 %)	70 (34.5%)	
Former	234 (18.7 %)	45 (22.2%)	
Current	464 (37.1 %)	88 (43.3%)	
<b>Alcohol</b>			0.0120
Never	142 (11.4 %)	15 (7.4 %)	
Former	294 (23.5 %)	66 (32.5 %)	
Current	814 (65.1 %)	122 (60.1 %)	
<b>Diabetes status</b>			0.2370
Yes	46 (3.7 %)	8 (3.9%)	
No	1204 (96.3%)	195 (96.1%)	
<b>Fasting glucose</b>	92.06 (9.69)	94.94 (10.39)	0.0001
<b>BMI</b>	30.57 (7.54)	32.30 (7.42)	0.0020
<b>Urine creatinine</b>	1.60 (0.95)	1.52 (0.89)	0.2210
<b>Blood pressure</b>			
Systolic	114.19 (10.19)	123.70 (9.39)	<0.0001
Diastolic	72.69 (8.73)	78.32 (8.19)	<0.0001
<b>Pedometer steps</b>	6385.02 (3982.63)	6057.65 (4089.88)	0.2790
<b>Estimated glomerular filtration rate (eGFR)</b>	98.18 (21.68)	90.91 (20.79)	<0.0001

**Supplemental Table 2: Measures of arsenic toxicokinetics, according to participant demographics**

Percentile	Percent inorganic Arsenic			Percent MMA			Percent DMA			Total (N)
	25	50	75	25	50	75	25	50	75	
<b>Sex</b>										
Female	5.69	8.80	12.70	9.79	12.97	16.53	71.12	77.24	83.61	1175
Male	7.84	11.36	16.00	12.40	15.82	19.40	65.67	72.07	78.64	735
<b>Age</b>										
<18	7.70	11.37	15.90	12.78	16.11	19.93	64.54	72.17	77.92	225
18-<35	7.39	10.97	15.42	11.08	14.40	18.15	67.00	74.06	79.64	741
35-<50	6.20	9.43	13.44	10.11	13.21	16.98	69.25	76.64	83.07	596
>=50	4.34	7.08	10.96	9.48	13.08	16.98	73.04	79.47	84.56	348
<b>Region</b>										
Arizona	7.80	11.20	15.83	9.76	12.84	16.20	68.44	74.78	80.82	511
Oklahoma	5.47	8.30	12.26	10.42	13.93	18.08	70.34	76.77	83.28	713
Dakotas	6.47	10.16	14.81	11.52	14.87	18.72	67.00	74.40	80.85	686
<b>Education</b>										
Less than high school	6.94	11.04	14.26	10.03	14.06	18.18	68.40	74.62	80.11	114
Some high school	6.90	10.87	15.61	11.04	14.41	18.36	66.83	74.19	80.57	547
High school diploma	6.61	9.98	14.08	10.79	14.14	17.99	68.37	74.76	81.35	674
Some college	5.43	8.38	12.30	10.00	13.18	16.96	70.61	77.57	83.67	575
<b>Smoking status</b>										
Never	6.12	9.59	13.58	10.86	14.12	18.04	68.62	75.63	81.77	825
Former	5.83	9.12	14.09	9.67	13.02	16.98	69.32	76.67	83.78	393
Current	6.74	10.37	14.61	10.70	14.22	18.40	67.75	74.36	80.84	692
<b>Alcohol</b>										
Never	5.73	10.19	14.44	11.55	14.63	18.54	66.36	74.37	82.19	205
Former	5.75	8.80	12.41	10.00	13.78	17.28	70.79	76.96	83.33	489
Current	6.78	10.34	14.63	10.67	13.94	17.98	67.78	74.68	81.05	1216
<b>Diabetes status</b>										
Yes	6.14	9.38	13.44	10.65	12.72	15.52	7.09	7.70	8.32	78
No	6.38	9.89	14.10	10.53	13.99	17.95	68.18	75.24	81.79	1832
<b>Body Mass Index</b>										
<25	7.68	11.56	16.67	12.98	17.05	20.89	63.30	71.11	76.92	390
25-<30	6.06	9.79	14.22	10.58	14.75	18.25	67.63	74.92	81.52	514
≥30	6.42	10.28	14.82	11.90	13.72	17.23	68.55	75.39	80.11	1006

**Supplemental Table 3: Blood pressure measures by demographic characteristics at baseline (mm Hg)**

Percentile	Systolic blood pressure			Diastolic blood pressure			Total (n)
	25	50	75	25	50	75	
<b>Sex</b>							
Female	108	115	126	68	74	81	1175
Male	114	123	133	71	79	86	735
<b>Age</b>							
<18	107	113	119	61	69	76	225
18-35	108	115	125	68	75	81	741
35-50	111	120	131	73	79	86	596
>50	120	131	140	71	78	84	348
<b>Region</b>							
Arizona	109	116	126	69	76	83	511
Oklahoma	113	123	134	69	77	85	713
Dakotas	109	117	127	69	75	82	686
<b>Education</b>							
Less than high school	107	116	129	68	75.5	83	114
Some high school	108	115	126	66	73	80	547
High school diploma	112	121	131	71	77	84	674
Some college	111	120	132	71	77	85	575
<b>Smoking status</b>							
Never	109	117	128	68	76	83	825
Former	112	122	132	70	78	85	393
Current	110	118	129	69	76	83	692
<b>Alcohol</b>							
Never	108	116	128	65	72	80	205
Former	111	120	131	70	77	83	489
Current	110	118	129	70	77	84	1216
<b>Diabetes status</b>							
Yes	111.5	124.5	133.5	68.5	77.5	85.5	78
No	110	118	129	69	76	83	1832
<b>Body Mass Index</b>							
18-<25	106	112	122	64	71	78	376
25-<30	110	119	130	71	76	84	514
≥30	112	121	131	71	78	85	1006

**Supplemental Table 4. Changes in systolic blood pressure by quartiles of inorganic and methylated arsenic exposure, stratified by study center.**

	Model 1		Model 2		Model 4		Model 5	
	$\beta$	95% CI	$\beta$	95% CI	$\beta$	95% CI	$\beta$	95% CI
<b>Arizona</b>								
<b>1</b>	0.00	Referent	0.00	Referent	0.00	Referent	0.00	Referent
<b>2</b>	6.14	0.45, 11.83	4.98	0.01, 9.95	4.90	1.12, 8.69	4.88	0.12, 9.59
<b>3</b>	4.63	-1.75, 11.01	2.94	-2.06, 7.94	2.51	-1.04, 6.06	3.01	-1.72, 7.73
<b>4</b>	6.38	-0.19, 12.96	4.67	-0.20, 9.53	4.32	0.89, 7.76	4.33	-0.32, 8.97
<b>Oklahoma</b>								
<b>1</b>	0.00	Referent	0.00	Referent	0.00	Referent	0.00	Referent
<b>2</b>	0.88	-1.60, 3.36	-1.81	-3.83, 0.21	-2.03	-3.88, -0.17	-1.80	-3.87, 0.26
<b>3</b>	0.78	-2.70, 4.25	-0.88	-3.85, 2.08	-1.29	-3.45, 0.86	-0.97	-4.17
<b>4</b>	2.96	-1.29, 7.21	-0.71	-4.40, 2.99	-1.37	-4.30, 1.57	-0.67	-4.52, 3.18
<b>North and South Dakota</b>								
<b>1</b>	0.00	Referent	0.00	Referent	0.00	Referent	0.00	Referent
<b>2</b>	-3.31	-6.18, -0.43	-2.46	-6.15, 1.23	-2.92	-6.22, 0.38	-2.46	-6.15, 1.23
<b>3</b>	0.65	-2.64, 3.94	-0.10	-3.74, 3.54	-0.63	-3.53, 2.26	-0.13	-3.80, 3.53
<b>4</b>	-0.13	-3.69, 3.43	0.95	-3.24, 5.14	0.30	-3.06, 3.65	1.02	-3.11, 5.14

Models are generalized estimating equation linear regression models for systolic blood pressure, with exchangeable covariance conditional on family membership.

Model 1: Adjusted only for arsenobetaine and log urine creatinine

Model 2: Further adjusted for age, sex, education, drinking status, smoking status, BMI, kidney function, diabetes status, physical activity, diet index, total daily caloric intake

Model 4: Model 2, without adjustment for urine creatinine

Model 5: Model 2, without adjustment for arsenobetaine

**Supplemental Table 5. Changes in diastolic blood pressure by quartiles of inorganic and methylated arsenic exposure, stratified by study center.**

	Model 1		Model 2		Model 4		Model 5	
	$\beta$	95% CI	$\beta$	95% CI	$\beta$	95% CI	$\beta$	95% CI
<b>Arizona</b>								
<b>1</b>	0.00	Referent	0.00	Referent	0.00	Referent	0.00	Referent
<b>2</b>	3.76	-1.26, 8.77	3.12	-0.74, 6.97	3.02	-0.21, 6.25	3.00	-0.82, 6.81
<b>3</b>	2.79	-2.26, 7.83	2.43	-1.73, 6.59	2.01	-1.67, 5.68	2.45	-1.61, 6.51
<b>4</b>	4.98	0.09, 9.86	4.65	0.89, 8.41	4.32	1.37, 7.27	4.37	0.66, 8.08
<b>Oklahoma</b>								
<b>1</b>	0.00	Referent	0.00	Referent	0.00	Referent	0.00	Referent
<b>2</b>	-0.83	-3.23, 1.56	-2.08	-4.41, 0.25	-1.91	-4.11, 0.29	-2.06	-4.33, 0.21
<b>3</b>	0.97	-1.70, 3.65	-0.35	-2.84, 2.14	0.05	-2.07, 2.16	-0.34	-2.82, 2.13
<b>4</b>	1.00	-1.87, 3.87	-0.50	-3.47, 2.48	0.21	-2.24, 2.65	-0.40	-3.26, 2.47
<b>North and South Dakota</b>								
<b>1</b>	0.00	Referent	0.00	Referent	0.00	Referent	0.00	Referent
<b>2</b>	-4.28	-6.08, -2.48	-3.59	-5.49, -1.69	-3.24	-4.99, -1.50	-3.59	-5.48, -1.70
<b>3</b>	-0.74	-2.89, 1.42	-0.61	-2.84, 1.61	0.03	-1.83, 1.90	-0.60	-2.85, 1.65
<b>4</b>	-0.36	-2.67, 1.94	0.87	-1.84, 3.59	1.79	-0.39, 3.97	0.91	-1.83, 3.66

Models are generalized estimating equation linear regression models for diastolic blood pressure, with exchangeable covariance conditional on family membership.

Model 1: Adjusted only for arsenobetaine and log urine creatinine

Model 2: Further adjusted for age, sex, education, drinking status, smoking status, BMI, kidney function, diabetes status, physical activity, diet index, total daily caloric intake

Model 4: Model 2, without adjustment for urine creatinine

Model 5: Model 2, without adjustment for arsenobetaine

**Supplemental Table 6: Incident hypertension risk ratios by quartiles of inorganic and methylated arsenic, stratified by study center**

	Model 1		Model 2		Model 4		Model 5	
	RR	95% CI	RR	95% CI	RR	95% CI	RR	95% CI
<b>Arizona</b>								
<b>1</b>	1.00	Referent	1.00	Referent	1.00	Referent	1.00	Referent
<b>2</b>	2.79	1.12, 6.98	2.53	1.08, 5.93	3.05	1.20, 7.78	2.53	1.06, 6.06
<b>3</b>	1.00	0.30, 3.30	0.71	0.20, 2.62	0.87	0.26, 2.90	0.72	0.19, 2.72
<b>4</b>	1.85	0.59, 5.81	1.25	0.34, 4.57	1.56	0.50, 4.90	1.23	0.34, 4.54
<b>Oklahoma</b>								
<b>1</b>	1.00	Referent	1.00	Referent	1.00	Referent	1.00	Referent
<b>2</b>	1.13	0.64, 1.98	1.38	0.72, 2.66	1.47	0.80, 2.71	1.37	0.70, 2.67
<b>3</b>	0.97	0.54, 1.77	0.81	0.53, 1.23	0.92	0.63, 1.34	0.83	0.52, 1.34
<b>4</b>	0.92	0.65, 1.30	1.06	0.65, 1.73	1.22	0.78, 1.91	1.11	0.64, 1.92
<b>North and South Dakota</b>								
<b>1</b>	1.00	Referent	1.00	Referent	1.00	Referent	1.00	Referent
<b>2</b>	1.03	0.59, 1.79	1.12	0.65, 1.94	1.25	0.70, 2.23	1.10	0.63, 1.93
<b>3</b>	1.61	0.82, 3.15	1.62	0.85, 3.09	1.84	0.98, 3.44	1.53	0.80, 2.90
<b>4</b>	1.20	0.48, 3.02	1.18	0.40, 3.47	1.27	0.49, 3.34	1.08	0.38, 3.06

Models are generalized estimating equation Poisson regression models for incident hypertension (defined as SBP  $\geq$ 140 mm Hg, DBP  $\geq$ 90 mm Hg, or taking hypertension medication), with exchangeable covariance conditional on family membership

Model 1: Adjusted only for arsenobetaine and log urine creatinine

Model 2: Further adjusted for age, sex, education, drinking status, smoking status, BMI, kidney function, diabetes status, physical activity, diet index, total daily caloric intake

Model 4: Model 2, without adjustment for urine creatinine

Model 5: Model 2, without adjustment for arsenobetaine

**Supplemental Table 7: Changes in systolic and diastolic blood pressure by quartiles of inorganic and methylated arsenic, stratified by baseline diabetes status**

	Model 1		Model 3		Model 4		Model 5	
	$\beta$	95% CI	$\beta$	95% CI	$\beta$	95% CI	$\beta$	95% CI
<b>Systolic blood pressure among those with diabetes at baseline</b>								
<b>1</b>	0.00	Referent	0.00	Referent	0.00	Referent	0.00	Referent
<b>2</b>	2.43	-5.90, 10.75	15.06	-0.72, 30.85	1.34	-9.90, 12.59	-26.57	-43.83, -9.30
<b>3</b>	3.21	-7.52, 13.95	35.18	17.69, 52.68	-2.08	-9.60, 5.44	-31.72	-48.59, -14.85
<b>4</b>	-3.46	-15.13, 8.22	10.43	-6.75, 27.61	6.08	-5.24, 17.41	-42.60	-74.02, -11.18
<b>Systolic blood pressure among those without diabetes at baseline</b>								
<b>1</b>	0.00	Referent	0.00	Referent	0.00	Referent	0.00	Referent
<b>2</b>	-1.07	-2.96, 0.82	-0.71	-2.40, 0.98	-0.84	-2.43, 0.74	-0.75	-2.44, 0.93
<b>3</b>	-1.08	-3.34, 1.19	-0.64	-2.60, 1.33	-0.79	-2.35, 0.78	-0.76	-2.73, 1.22
<b>4</b>	-0.55	-2.99, 1.88	0.20	-1.98, 2.38	-0.01	-1.75, 1.73	-0.01	-2.21, 2.18
<b>Diastolic blood pressure among those with diabetes at baseline</b>								
<b>1</b>	0.00	Referent	0.00	Referent	0.00	Referent	0.00	Referent
<b>2</b>	-3.12	-9.28, 3.04	3.62	-4.01, 11.26	-0.78	-9.17, 7.60	4.00	-3.94, 11.94
<b>3</b>	0.90	-5.11, 6.92	6.91	-0.71, 14.53	2.60	-4.35, 9.56	6.82	-1.25, 14.89
<b>4</b>	1.75	-5.79, 9.29	19.09	10.57, 27.62	16.23	8.23, 24.24	20.78	11.72, 29.84
<b>Diastolic blood pressure among those without diabetes at baseline</b>								
<b>1</b>	0.00	Referent	0.00	Referent	0.00	Referent	0.00	Referent
<b>2</b>	-1.41	-3.04, 0.23	-1.41	-2.81, -0.01	-1.24	-2.55, 0.07	-1.48	-2.86, -0.10
<b>3</b>	0.14	-1.60, 1.87	-0.21	-1.73, 1.32	0.19	-1.09, 1.48	-0.29	-1.83, 1.25
<b>4</b>	0.66	-1.06, 2.39	0.64	-1.10, 2.38	1.34	-0.02, 2.69	0.49	-1.25, 2.23

Models are generalized estimating equation linear regression models for systolic blood pressure, with exchangeable covariance conditional on family membership.

Model 1: Adjusted only for arsenobetaine and log urine creatinine

Model 3: Further adjusted for age, sex, education, drinking status, smoking status, BMI, kidney function, physical activity, diet index, total daily caloric intake, and site

Model 4: Model 3, without adjustment for urine creatinine

Model 5: Model 3, without adjustment for arsenobetaine