Table S1: Descriptive information for our sample versus the MESA and SHHS cohorts

	MESA		SHHS	
	Sample (*n*=296)	Cohort (*n*=2,068)	Sample (*n*=296)	Cohort (*n*=4,080)
Age (years)	69.4±8.8	69.6±9.2	67.5±10.0	68.3±10.5
Gender (number; %)				
• Female	154; 52.0%	1,105; 53.4%	154; 52.0%	2,219; 54.4%
• Male	142; 48.0%	963; 46.6%	142; 48.0%	1,861; 45.6%
Race/Ethnicity (number)				
• White/Caucasian	117; 39.5%	785; 38.0%	265; 89.5%	3587; 87.9%
• Chinese-American	31; 10.5%	236; 11.4%	-	-
• African American	76; 25.7%	567; 27.4%	15; 5.1%	256; 6.3%
• Hispanic	72; 24.3%	480; 23.2%	-	-
• Other	-	-	16; 5.4%	237; 5.8%
AHI (events/hour)	20.5±19.3	20.4±19.1	20.0±18.9	16.5±16.0
SDB severity per AHI (number; %)*				
• None	74; 25.0%	380; 20.0%	74; 25.0%	629; 23.7%
• Mild	74; 25.0%	599; 31.5%	74; 25.0%	960; 36.2%
• Moderate	74; 25.0%	472; 24.8%	74; 25.0%	637; 24.0%
• Severe	74; 25.0%	450; 23.7%	74; 25.0%	425; 16.0%
Epworth Sleepiness Scale (/24)	6.2±4.2	6.0±4.1	7.7±4.0	7.3±4.2
Stage 1 sleep during PSG (%)	14.9±10.0	14.4±9.1	5.7±3.7	5.8±4.0
Stage 2 sleep during PSG (%)	55.6±10.4	57.6±10.2	58.6±11.4	57.7±11.1
Stage 3/4 sleep during PSG (%)	11.1±8.8	10.1±9.0	15.6±11.1	15.9±11.0
REM sleep during PSG (%)	18.4±7.3	18.0±6.7	20.2±6.2	20.7±6.5

Data are provided as mean ± standard deviation unless otherwise indicated.

The sample sizes reflect the number of participants contributing to our sample, as well as the entire MESA and SHHS (Visit 2) cohort datasets available to us (note that for MESA, a subset of 2,068 from the total sample cohort size of 2,237 is available for use by commercial entities). Not all variables are complete for the entire sample; note that an AHI is available for 1,901 and 2,651 of the MESA commercial and SHHS cohorts, respectively. Race and ethnicity are reported as a composite variable, reflecting the data available from the original studies.

* Note that the AHI values in this table reflect the data downloaded from NSRR, whereas the AHI values in Table 1 was generated in Sleepware (see footnote, Table 1).

Table S2: Confusion matrix for epoch-by-epoch sleep staging in MESA – No OSA

		PSG sleep staging			
		CReSS applied to heart rate and airflow signals:			
		Wake	REM	Light Sleep	Deep Sleep
CReSS sleep staging	Wake	10587	185	1900	45
	REM	525	7612	1282	10
	Light sleep	3040	1483	27370	3279
	Deep Sleep	48	18	2339	3659
		CReSS applied to heart rate, airflow, and thoracic respiratory effort signals:			
		Wake	REM	Light Sleep	Deep Sleep
	Wake	11528	202	2028	34
	REM	342	7837	1018	11
	Light sleep	2310	1248	27795	3351
	Deep Sleep	20	11	2050	3597

Gray cells indicate the number of epochs of each PSG-scored sleep stage that were correctly identified by CReSS.

Table S3: Confusion matrix for epoch-by-epoch sleep staging in MESA – Mild OSA

		PSG sleep staging			
		CReSS applied to heart rate and airflow signals:			
		Wake	REM	Light Sleep	Deep Sleep
CReSS sleep staging	Wake	13173	213	1822	38
	REM	747	9156	1448	21
	Light sleep	3998	1845	31989	2508
	Deep Sleep	40	28	3535	3374
		CReSS applied to heart rate, airflow, and thoracic respiratory effort signals:			
		Wake	REM	Light Sleep	Deep Sleep
	Wake	13929	145	1901	33
	REM	630	9763	1345	25
	Light sleep	3387	1299	32166	2754
	Deep Sleep	12	35	3382	3129

Gray cells indicate the number of epochs of each PSG-scored sleep stage that were correctly identified by CReSS.

Table S4: Confusion matrix for epoch-by-epoch sleep staging in MESA – Moderate OSA

		PSG sleep staging			
		CReSS applied to heart rate and airflow signals:			
		Wake	REM	Light Sleep	Deep Sleep
	Wake	15895	335	1990	49
	REM	914	7406	1511	31
	Light sleep	4651	1655	29988	2715
	Deep Sleep	126	21	2090	2971
CReSS sleep staging		*CReSS applied to heart rate, airflow, and thoracic respiratory effort signals:*			
		Wake	REM	Light Sleep	Deep Sleep
	Wake	16849	160	1785	20
	REM	841	8054	1575	25
	Light sleep	3810	1198	30428	2924
	Deep Sleep	86	5	1791	2797

Gray cells indicate the number of epochs of each PSG-scored sleep stage that were correctly identified by CReSS.

Table S5: Confusion matrix for epoch-by-epoch sleep staging in MESA – Severe OSA

		PSG sleep staging			
		CReSS applied to heart rate and airflow signals:			
		Wake	REM	Light Sleep	Deep Sleep
	Wake	15869	210	1671	71
	REM	966	8101	1874	6
	Light sleep	7578	2021	36870	2769
	Deep Sleep	66	21	1838	2651
CReSS sleep staging		*CReSS applied to heart rate, airflow, and thoracic respiratory effort signals:*			
		Wake	REM	Light Sleep	Deep Sleep
	Wake	17181	91	1585	44
	REM	939	8736	2071	8
	Light sleep	6330	1520	36999	2958
	Deep Sleep	29	6	1598	2487

Gray cells indicate the number of epochs of each PSG-scored sleep stage that were correctly identified by CReSS.

Table S6: Confusion matrix for epoch-by-epoch sleep staging in SHHS – No OSA

		PSG sleep staging			
		CReSS applied to heart rate and airflow signals:			
		Wake	REM	Light Sleep	Deep Sleep
CReSS sleep staging	Wake	10822	227	1654	84
	REM	665	10236	1043	116
	Light sleep	4892	2934	30988	5627
	Deep Sleep	68	26	2269	5637
		CReSS applied to heart rate, airflow, and thoracic respiratory effort signals:			
		Wake	REM	Light Sleep	Deep Sleep
	Wake	11840	166	1427	56
	REM	437	11194	930	100
	Light sleep	4150	2056	31455	5522
	Deep Sleep	20	7	2142	5786

Gray cells indicate the number of epochs of each PSG-scored sleep stage that were correctly identified by CReSS.

Table S7: Confusion matrix for epoch-by-epoch sleep staging in SHHS – Mild OSA

		PSG sleep staging			
		CReSS applied to heart rate and airflow signals:			
		Wake	REM	Light Sleep	Deep Sleep
CReSS sleep staging	Wake	12225	317	1952	141
	REM	1146	12301	1688	17
	Light sleep	6052	3589	39298	6190
	Deep Sleep	110	28	3133	6041
		CReSS applied to heart rate, airflow, and thoracic respiratory effort signals:			
		Wake	REM	Light Sleep	Deep Sleep
	Wake	13325	154	1691	82
	REM	885	13373	1775	28
	Light sleep	5281	2692	39605	6053
	Deep Sleep	42	16	3000	6226

Gray cells indicate the number of epochs of each PSG-scored sleep stage that were correctly identified by CReSS.

Table S8: Confusion matrix for epoch-by-epoch sleep staging in SHHS – Moderate OSA

		PSG sleep staging			
		CReSS applied to heart rate and airflow signals:			
		Wake	REM	Light Sleep	Deep Sleep
	Wake	8116	221	1472	69
	REM	1045	6258	1177	59
	Light sleep	3805	2428	24772	4255
	Deep Sleep	187	60	2007	2866
CReSS sleep staging		*CReSS applied to heart rate, airflow, and thoracic respiratory effort signals:*			
		Wake	REM	Light Sleep	Deep Sleep
	Wake	9106	72	1151	32
	REM	763	7015	1207	56
	Light sleep	3194	1844	25183	4141
	Deep Sleep	90	36	1887	3020

Gray cells indicate the number of epochs of each PSG-scored sleep stage that were correctly identified by CReSS.

Table S9: Confusion matrix for epoch-by-epoch sleep staging in SHHS – Severe OSA

		PSG sleep staging			
		CReSS applied to heart rate and airflow signals:			
		Wake	REM	Light Sleep	Deep Sleep
	Wake	8791	177	1690	30
	REM	1153	4531	1026	59
	Light sleep	6170	2050	26190	2028
	Deep Sleep	146	47	1374	1344
CReSS sleep staging		*CReSS applied to heart rate, airflow, and thoracic respiratory effort signals:*			
		Wake	REM	Light Sleep	Deep Sleep
	Wake	9999	170	1297	27
	REM	832	5002	976	24
	Light sleep	5376	1600	26925	2143
	Deep Sleep	53	33	1082	1267

Gray cells indicate the number of epochs of each PSG-scored sleep stage that were correctly identified by CReSS.