Supplementary Appendix

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Supplementary Methods

Criteria, ethical considerations and consent procedure: Mahatma Gandhi Vidyamandir Karmaveer Bhausaheb Hiray Dental College & Hospital (MGVKBHDC) in Nashik was designated as one of the primary health provision and disaster management centers for the 2015 Sinhast Kumbh Mela (14 July-25 September). The hospital has an outpatient facility where pilgrims and local people were provided care, information and a resting area throughout the event. Indians between the ages of 18 years and 90 years of all ethnicities, races and genders were included in the study. Subjects younger than 18 years or older than 90 years were excluded from participation. 494 consenting adults were seen in the week that MGVKBHDC was soliciting volunteers. We anticipated pilgrims and out-of-state consenting adults would be the largest group to volunteer to be enrolled in this study, allowing us to examine inhabitants from all over the county, but local Indians were also allowed to participate. MGVKBHDC institutional human subjects review committee approved our consent procedure, clinical data collection and the plan for communication of testing results with the subjects (Protocol number: MGVKBHDC/15-16/571). Bilingual physicians from MGVKBHDC explained the scope of the study and consent forms (in English or Hindi) to subjects who were interested in participating. Subjects were asked to sign the consent forms and then remain in a waiting area before active participation in the study. Participants were free to leave at any point during their screenings. MGVKBHDC primary care physicians, dentists, ophthalmologists, otolaryngologists and neurologists performed the health screenings in the order outlined in **Fig 1**, communicated the results to subjects and provided appropriate referrals to patients needing additional medical care. De-identified data was transferred to the Massachusetts Institute of Technology (MIT) investigators for analysis after approval of the protocol by the MIT Committee on the Use of Humans as Experimental Subjects (MIT COUHES protocol number: 1512338971).

Data collection: A unique registration number (1-494) linked to each subject was used to store and annotate data from screening kiosks.

Medical history and routine health screenings: Self-reported responses of subjects to a detailed computerized questionnaire that included geographic and demographic questions, questions about past medical history and current illnesses. A bilingual physician recorded the medications and symptoms reported by the subjects as well as their reports of family medical history. An Omron 10 series wireless upper arm monitor with cuff (Model: BP786N) was used to collect systolic and diastolic blood pressure following the manufacturer's instructions (Omron Electronics, USA). Temperatures were measured using a digital thermometer. Height and body weight were measured using a digital scale and were recorded for all subjects.

Technology-enabled screening devices:

Blood oxygen saturation: A CMS 50-DL Pulse Oximeter (Contec Medical Systems, USA) was used to measure blood oxygen saturation levels of hemoglobin based on photoplethysmographic pulses and pulse rate from subjects' right index fingertips [25].

ECG: The AliveCor Mobile ECG (AliveCor Inc, USA) is a single-channel cardiac event recorder consisting of a device and smartphone app that can record and review ECGs [17]. a 30-second rhythm strip (lead I) recording was uploaded wirelessly for interpretation via the AliveCor algorithm, and an ECG analysis that indicated heart rate and presence of possible atrial fibrillation was displayed on the mobile phone. Before each use, a physician cleaned the two electrodes with alcohol-based sanitizer and launched the app on the smartphone (Nexus5, LG, South Korea).

Tympanic membrane imaging: Inspection of the external ear canal and eardrum was performed using the iPhone5 LEDs and camera with the CellScope Oto phone adapter (CellScope Inc. USA) [20]. A disposable ear tip attached to the device canula was used for imaging each subject.

Oral imaging: A commercially available FDA-approved intraoral camera with software, SOPROCARE (SOPRO Acteon Imaging, France), that automatically segments and displays images of plaque, caries and periodontal diseases was used [18]. Panning 30-second videos of the buccal surfaces of the upper first molars (16, 26), the buccal surface of the upper laterals (12, 22), the buccal surface of first lower molars (36, 46), as well as incisal, buccal and lingual surfaces of all accessible teeth were collected. The housing of the camera stick was covered in a clear disposable plastic sheath (U-line, USA) and sterile disposable camera bag. Subjects and clinicians wore UV protective eyewear during oral imaging. Images and video were collected by each of the following modes: (A) only 405nm LEDs powered, (B) only 450nm LEDs powered, (C) only white

LEDs powered. A HP 620 Notebook (Hewlett Packard, USA), Windows 7, (Microsoft Corporation, USA) with preloaded SOPROCARE software was used to store images and videos. A specialized scale for assigning patient scores vs. conventional DMFT (number of decayed, missing and filled teeth in an individual and in a population) or the Russell's periodontal indices was used by dentist examining the data. The camera system uses standard white light and three blue LEDS that emit non-ionizing light at 450 nm wavelengths. Inflamed gingiva can be scored due to fluorescence from porphyrins in blood. Illumination of microbial plaque with blue light induces fluorescence due to the bacteria and porphyrin content of the plaque.

Optic nerve head photography: Non-mydriatic digital retinal imaging using the D-EYE (D-EYE Srl, USA) direct ophthalmoscopy adapter attached to iPhone5s camera was performed to capture video and still images of optic nerves of subjects [23].

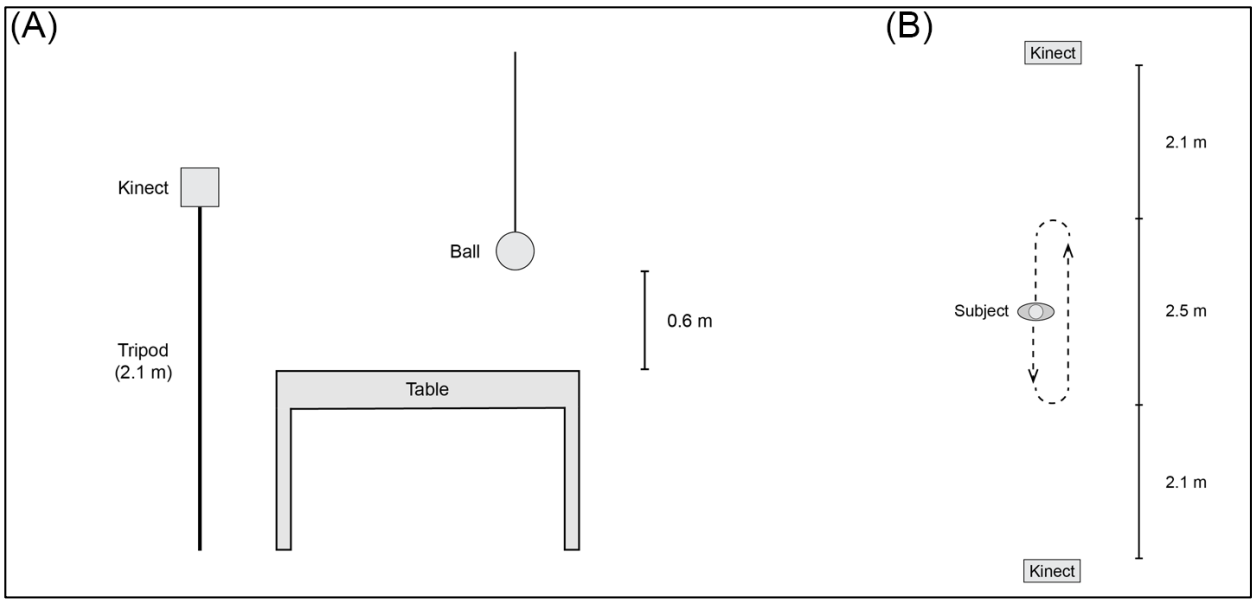
Gait and coordination analyses: The Microsoft Kinect (Microsoft Corporation, USA) sensor has an RGB camera, depth sensor and multi-array microphone, which provide full-body 3D motion capture, facial and voice recognition capabilities [19]. A 2D, depth and skeleton motion dataset of motor skills, hand-eye coordination, depth perception, neuromuscular stability of individual subjects was captured by the following protocol: a) finger-nose test with index finger touching a ball suspended from the ceiling two feet in front and then the nose: to identify tremors, incoordination, and dysmetria [26]; b) finger-count dexterity test to count to five using thumb touching fingertips: to detect slowness, tremors, and incoordination [27]; c) holding out hands steadily with palms facing down: to detect tremors and arm drift (upward, downward and lateral) [27], d) walking a distance of 2.5 meters in a straight line, turning around and walking back: to identify subjects who have posture abnormalities, tremors, imbalance (left/right), a penguin gait, or an asymmetric gait while walking [28]. Kinect sensors placed in front of and behind subjects were used to capture the walking in straight-line actions (**Supplementary Fig 1B**). For all other tests, one Kinect sensor was placed unobtrusively to the left or right of the subjects (**Supplementary Fig 1A**).

Data analyses: De-identified data assigned to unique subject IDs was split into five separate pools consisting of optic nerve, tympanic membrane, ear, oral and neurological videos for all study participants. BMI, blood pressure, resting heart rate and body temperature are routinely measured without sophisticated TES by most primary care providers and have been collectively annotated as "routine health screenings" throughout this study. Other imaging and smartphone-based tests have been designated as TES methods. Routine health screenings and responses to medical questionnaires were grouped together for computational analyses. Resting heart rate and temperature have clinically well-defined normal, high and low ranges. For BMI, numbers less than 19 were labeled low, between 19 and 25 were characterized as normal, and 25 and above were considered high [30]. For blood pressure, systolic pressure below 90 mmHg or diastolic pressure below 60 mmHg was considered low, systolic pressure between 90 and 140 mmHg and diastolic pressure between 60 and 90 mmHg was labeled normal, and systolic pressure above 140 mmHg or diastolic pressure above 90 mmHg was labeled high [31]. Blood oxygen levels of 90% or less were annotated low. The outputs from the AliveCor mobile app were readily used as annotations for ECG tests because they were labeled 'Normal' or 'Possible atrial fibrillation' [25].

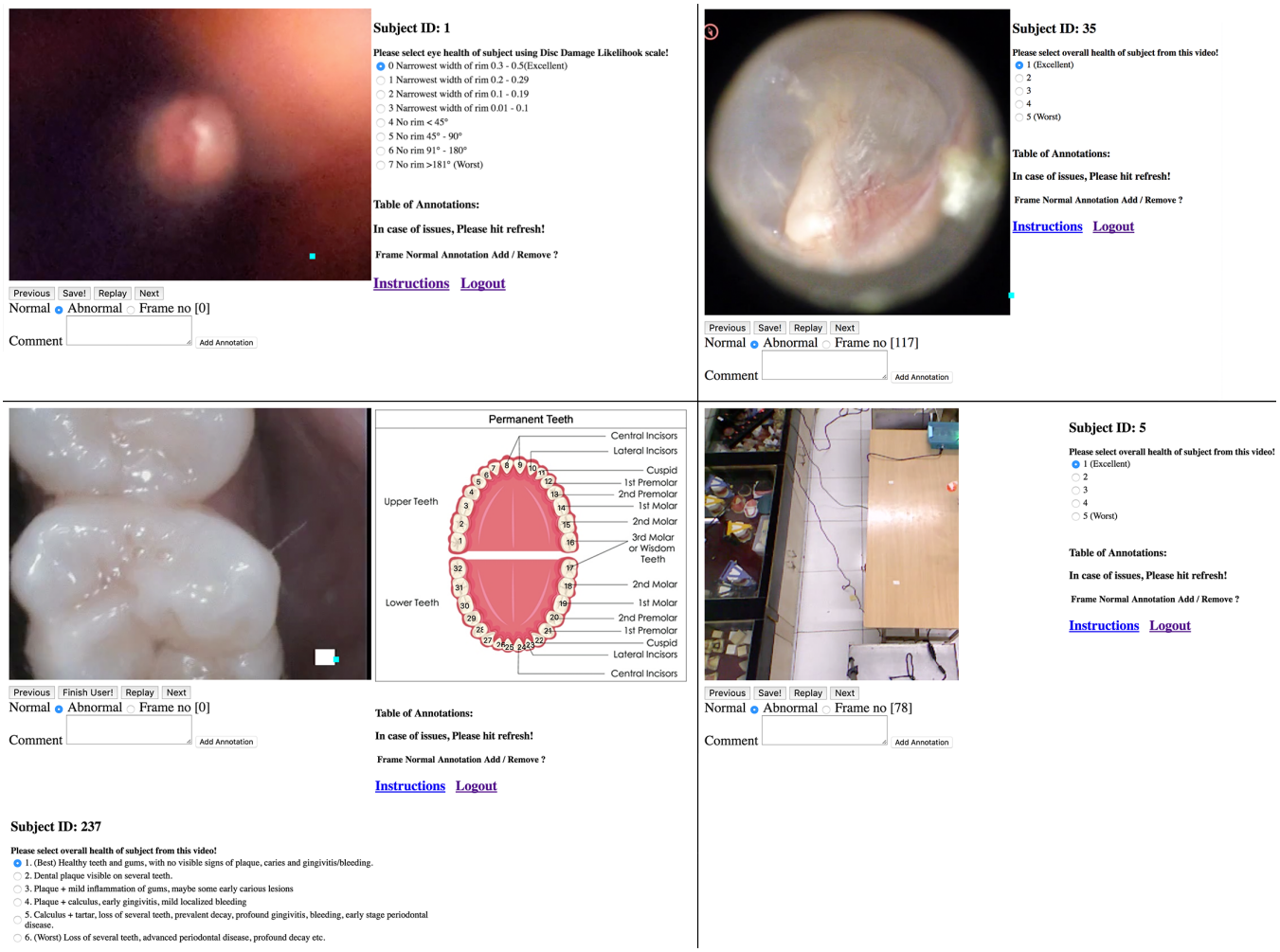
Videos captured by TES devices were categorized by patient ID and TES examination and displayed directly to expert physicians via a web-based examination portal conducted diagnostic feature annotation of de-identified images and videos. This password-protected secure interface was developed using web technologies (HTML, JavaScript, node.js) for this purpose and displayed an image or video for one patient at a time for a given examination. Annotators were able to mark specific features in the videos by drawing boxes around them that paused that specific frame, assign an overall score of 1 (best) to 5 (worst) for the entire video, and to write clinical features that were present for specific frames or the entire video (**Supplementary Fig 2**). A panel of at least three physicians for each type of examination was assembled and independently of each other remotely annotated the data facilitated by the web interface. Due to the greater quantity of Microsoft Kinect videos, three physician-trained raters annotated all the videos, and then an expert physician ratified their labels. The interface for optic nerve videos used a previously described Disc Damage Likelihood Scale (DDLS) scale for glaucoma screening [29]. The majority ratings for each subject were computed for all TES tests. For subjects with no majority rating, the lesser of the tied ratings was chosen to not overstate the prevalence of diagnosed illnesses. Results from each test were analyzed for cross-correlations with self-reported medical history responses, age and sex. Clinical findings for individuals who were tested at all six screening kiosks were also analyzed to generate population health profiles. Efficacy of routine health screenings vs. TES to identify at-risk or sick individuals examined during the study is discussed in the manuscript. Conditions outside the normal range identified by physicians for each TES test are as follows. Oral imaging: caries, missing teeth, periodontal disease;

tympanic membrane imaging: perforated eardrum, effusion; optic nerve head photography: width of optic rim 0.01-0.1; coordination analyses: abnormal finger-nose test.

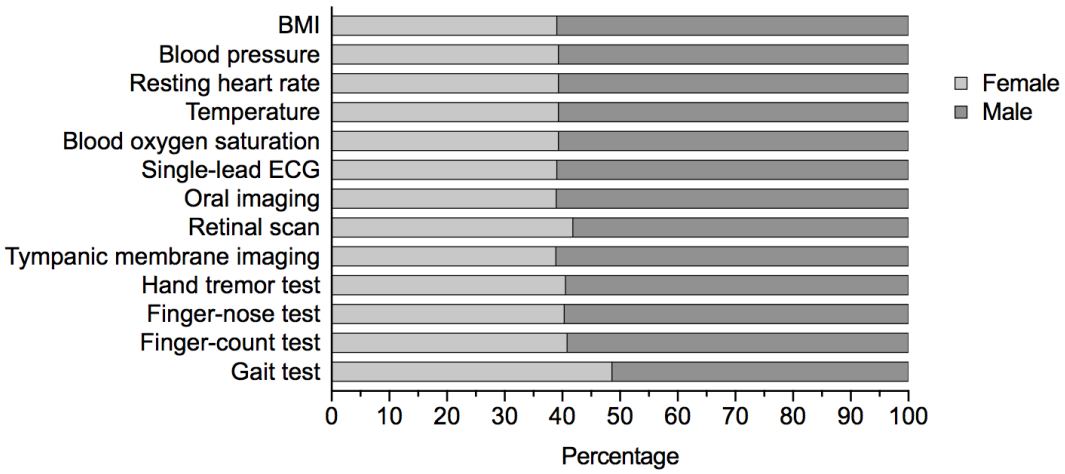
Statistical methods: Fisher's exact test was used to determine statistically significant correlations between diagnoses using TES or routine health screenings and number, age, sex and questionnaire responses of participating subjects. The significance threshold was set at $p < 0.05$. To determine in **Supplementary Table 7** whether high BMI was statistically more prevalent in one particular age cohort (out of a total of four age groups), we calculated four proportions representing the number of subjects in a specific age cohort who had high BMI compared to the total number of subjects in that age cohort. Each proportion was compared pairwise using Fisher's exact test, which reported *p*-values of 0.0014 and 0.0052 when comparing the proportion from the middle age cohort to the proportions from the young adult and old age cohorts, respectively. In **Supplementary Table 8** to determine that there is a statistically significant correlation between a subject being measured for high BMI and responding that they wear glasses, we calculated two proportions: 1) the number of subjects who had high BMI and said they wear glasses (115) compared to the total number of subjects with high BMI (196), and 2) the number of subjects who did not have high BMI and said they wear glasses (132) compared to the number of subjects who did not have high BMI regardless of whether they wear glasses (298). Fisher's exact test reported a p-value of 0.0024 when comparing these proportions, so we conclude that the correlation between high BMI and wearing glasses is significant. Analyses were performed on groups of subjects who completed each individual test to avoid considering subjects who did not have that test performed.



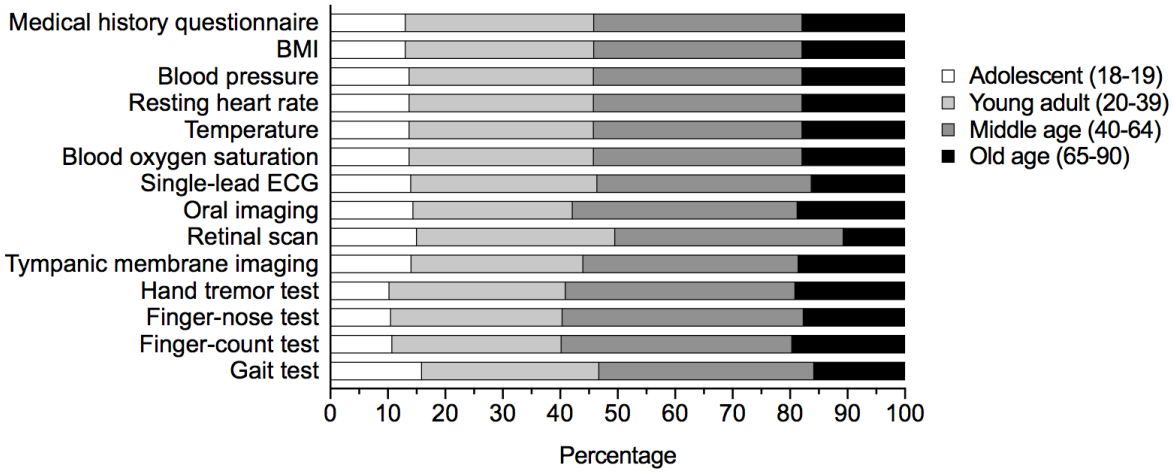
Supplementary Fig 1. Diagram of Microsoft Kinect placement for gait and coordination screening tests.
(A) Finger-nose test, from the side. Both the Kinect and ball are centered over the table with the patient facing the ball and the Kinect.
(B) Gait test, top-down. Both Kinects are 1 m off the ground and the subject walks in a straight line between them.



Supplementary Fig 2. Web interfaces for remote annotation used by physician experts for clinical evaluations.
Clockwise from top left: retinal scan, tympanic membrane imaging, gait and coordination tests, oral imaging



Supplementary Fig 3. Percentage of test populations of each gender.



Supplementary Fig 4. Percentage of test populations in each age cohort.
Age ranges for each cohort are in parentheses.

Supplementary Table 1. Test populations divided by gender and age cohorts.

	Adolescent (18-19)			Young adult (20-39)			Middle age (40-64)			Old age (65-90)		
	Female	Male	Total	Female	Male	Total	Female	Male	Total	Female	Male	Total
Medical history	39	26	65	64	88	152	73	115	188	17	72	89
Body mass index	39	26	65	64	88	152	73	115	188	17	72	89
Blood pressure	38	25	63	56	81	137	69	104	173	16	66	82
Resting heart rate	38	25	63	56	81	137	69	104	173	16	66	82
Temperature	38	25	63	56	81	137	69	104	173	16	66	82
Blood oxygen saturation	38	25	63	56	81	137	69	104	173	16	66	82
Single-lead electrocardiogram	36	25	61	58	81	139	60	100	160	14	56	70
Oral imaging	37	22	59	43	71	114	65	96	161	15	62	77
Retinal scan	37	23	60	61	79	140	63	97	160	8	36	44
Tympanic membrane imaging	30	9	39	35	52	87	49	80	129	12	57	69
Hand tremor test	24	8	32	41	55	96	50	75	125	12	48	60
Finger-nose test	24	8	32	37	54	91	50	78	128	12	42	54
Finger-count test	24	8	32	36	52	88	49	71	120	13	46	59
Gait test	30	4	34	33	33	66	34	46	80	7	27	34

Age ranges in years for each age cohort are in parentheses.

Supplementary Table 2. Gender breakdown of self-reported medical history.

	Female (n=193)	Male (n=301)	Total (n=494)
Glasses	54.9	46.8	50.0
Dental	21.2	29.2	26.1
Swollen joints	25.4	25.2	25.3
Hearing	17.1	24.9	21.9
Family history of diabetes	22.3	18.3	19.8
Leg cramps	19.7	17.9	18.6
Family history of high blood pressure	21.2	12.6	16.0
Fatigue	15.5	15.6	15.6
Acidity	20.2	11.3	14.8
Tiredness	13.0	15.0	14.2
Tobacco addiction	1.6	17.6	11.3
Surgery	9.8	10.0	9.9
Difficulty walking	10.4	9.6	9.9
High blood pressure	10.4	8.0	8.9
Diabetes	6.7	8.6	7.9
Snore Loudly	4.7	9.3	7.5
High blood pressure treatment	7.3	5.6	6.3
Environmental allergies	8.3	4.3	5.9
Sleepiness	5.2	5.6	5.5
Medication allergies	6.2	4.7	5.3
Asthma	4.7	5.0	4.9
Smoking addiction	0.0	7.6	4.7
Family history of cardiac diseases	3.1	3.3	3.2
Family history of asthma	3.1	3.0	3.0
Thyroid	5.7	1.0	2.8
Self-medication	1.0	4.0	2.8
Jewelry allergies	6.2	0.0	2.4
Past skin infection	3.1	2.0	2.4
Family history of thyroid disease	2.1	2.3	2.2
Cardiac treatment	1.0	2.7	2.0
Stop breathing during sleep	1.0	2.3	1.8
Oral infection	1.6	2.0	1.8
Kidney disorder	2.1	1.3	1.6
Skin problem	1.0	2.0	1.6
Skin infection	0.5	2.0	1.4
Food allergies	1.6	1.3	1.4
Hyperactivity	2.1	1.0	1.4
Cardiovascular	0.5	1.7	1.2
Migraine	2.1	0.7	1.2
Low blood pressure	2.6	0.3	1.2
Family history of stroke	2.1	0.3	1.0
Past ear infection	0.5	1.0	0.8
Family history of eye disease	0.5	1.0	0.8
Heart attack	0.0	1.3	0.8
Material allergies	1.0	0.7	0.8
Anxiety	0.5	1.0	0.8
Injury in past 6 months	0.5	1.0	0.8
Family history of depression	1.0	0.3	0.6
Coronary bypass surgery	0.0	1.0	0.6
Attention deficit disorder	1.0	0.3	0.6
Drinking addiction	0.0	1.0	0.6
Eye treatment	0.5	0.3	0.4
Family history of skin disease	0.5	0.3	0.4
Memory loss	1.0	0.0	0.4
Ear treatment	0.5	0.3	0.4
Lung diseases	0.5	0.3	0.4
Family history of ear disease	0.0	0.7	0.4
Cancer	0.5	0.0	0.2
Sexually transmitted disease	0.0	0.3	0.2
Liver disease	0.5	0.0	0.2
Skin treatment	0.5	0.0	0.2
Past gastric infection	0.0	0.3	0.2
Depression	0.0	0.0	0.0
Sleep disorder treatment	0.0	0.0	0.0
Heart murmur	0.0	0.0	0.0
Past lung infection	0.0	0.0	0.0

Percentage of total population by gender who answered yes to each medical history question.

Supplementary Table 3. Age cohort breakdown of self-reported medical history.

	Adolescent (18-19)	Young adult (20-39)	Middle age (40-64)	Old age (65-90)
Glasses	11	21	47	21
Dental	3	22	53	22
Swollen joints	0	10	51	38
Hearing	1	7	50	42
Family history of diabetes	17	44	34	5
Leg cramps	0	15	47	38
Family history of high blood pressure	18	46	33	4
Fatigue	1	21	55	23
Acidity	5	30	47	18
Tiredness	3	21	53	23
Tobacco addiction	0	18	46	36
Surgery	8	18	37	37
Difficulty walking	0	2	49	49
High blood pressure	0	9	57	34
Diabetes	0	15	64	21
Snore Loudly	0	27	65	8
High blood pressure treatment	0	6	55	39
Environmental allergies	17	41	34	7
Sleepiness	4	7	63	26
Medication allergies	15	15	54	15
Asthma	0	4	67	29
Smoking addiction	0	9	52	39
Family history of cardiac diseases	6	38	38	19
Family history of asthma	13	13	67	7
Thyroid	0	14	64	21
Self-medication	0	29	50	21
Jewelry allergies	0	33	67	0
Past skin infection	8	25	50	17
Family history of thyroid disease	18	55	9	18
Cardiac treatment	0	20	40	40
Stop breathing during sleep	0	33	33	33
Oral infection	0	11	67	22
Kidney disorder	13	13	50	25
Skin problem	0	0	50	50
Skin infection	0	29	57	14
Food allergies	0	29	57	14
Hyperactivity	14	29	57	0
Cardiovascular	0	33	67	0
Migraine	17	83	0	0
Low blood pressure	17	17	67	0
Family history of stroke	20	60	20	0
Past ear infection	0	75	0	25
Family history of eye disease	0	75	25	0
Heart attack	0	25	25	50
Material allergies	0	75	25	0
Anxiety	0	50	50	0
Injury in past 6 months	25	0	75	0
Family history of depression	33	67	0	0
Coronary bypass surgery	0	0	33	67
Attention deficit disorder	0	0	100	0
Drinking addiction	0	0	67	33
Eye treatment	0	0	0	100
Family history of skin disease	0	50	50	0
Memory loss	0	0	50	50
Ear treatment	0	0	100	0
Lung diseases	0	0	50	50
Family history of ear disease	0	50	0	50
Cancer	0	0	100	0
Sexually transmitted disease	0	100	0	0
Liver disease	0	0	100	0
Skin treatment	0	100	0	0
Past gastric infection	0	0	100	0
Depression	0	0	0	0
Sleep disorder treatment	0	0	0	0
Heart murmur	0	0	0	0
Past lung infection	0	0	0	0

Distribution of subjects, in percentages, who responded yes to a medical history question across age cohorts. Age ranges in years for each age cohort are in parentheses.

Supplementary Table 4. **Percentage of subjects in each age cohort who responded yes to a medical history question.**

	Adolescent (18-19)	Young adult (20-39)	Middle age (40-64)	Old age (65-90)
Glasses	43	34	62	57
Dental	6	18	36	33
Swollen joints	0	9	34	54
Hearing	2	5	29	51
Family history of diabetes	26	28	18	6
Leg cramps	0	9	23	39
Family history of high blood pressure	22	24	14	3
Fatigue	2	11	22	20
Acidity	6	14	18	15
Tiredness	3	10	20	18
Tobacco addiction	0	7	14	22
Surgery	6	6	10	20
Difficulty walking	0	1	13	27
High blood pressure	0	3	13	17
Diabetes	0	4	13	9
Snore Loudly	0	7	13	3
High blood pressure treatment	0	1	9	13
Environmental allergies	8	8	5	2
Sleepiness	2	1	9	8
Medication allergies	6	3	7	4
Asthma	0	1	9	8
Smoking addiction	0	1	6	10
Family history of cardiac diseases	2	4	3	3
Family history of asthma	3	1	5	1
Thyroid	0	1	5	3
Self-medication	0	3	4	3
Jewelry allergies	0	3	4	0
Past skin infection	2	2	3	2
Family history of thyroid disease	3	4	1	2
Cardiac treatment	0	1	2	4
Stop breathing during sleep	0	2	2	3
Oral infection	0	1	3	2
Kidney disorder	2	1	2	2
Skin problem	0	0	2	4
Skin infection	0	1	2	1
Food allergies	0	1	2	1
Hyperactivity	2	1	2	0
Cardiovascular	0	1	2	0
Migraine	2	3	0	0
Low blood pressure	2	0.7	2	0
Family history of stroke	2	2	1	0
Past ear infection	0	2	0	1
Family history of eye disease	0	2	0.5	0
Heart attack	0	0.7	0.5	2
Material allergies	0	2	0.5	0
Anxiety	0	1	1	0
Injury in past 6 months	2	0	2	0
Family history of depression	2	1	0	0
Coronary bypass surgery	0	0	0.5	2
Attention deficit disorder	0	0	2	0
Drinking addiction	0	0	1	1
Eye treatment	0	0	0	2
Family history of skin disease	0	0.7	0.5	0
Memory loss	0	0	0.5	1
Ear treatment	0	0	1	0
Lung diseases	0	0	0.5	1
Family history of ear disease	0	0.7	0	1
Cancer	0	0	0.5	0
Sexually transmitted disease	0	0.7	0	0
Liver disease	0	0	0.5	0
Skin treatment	0	0.7	0	0
Past gastric infection	0	0	0.5	0
Depression	0	0	0	0
Sleep disorder treatment	0	0	0	0
Heart murmur	0	0	0	0
Past lung infection	0	0	0	0

Age ranges in years for each age cohort are in parentheses.

Supplementary Table 5. Numbers of subjects in each age cohort identified by routine health screenings.

	Adolescent (18-19)			Young adult (20-39)			Middle age (40-64)			Old age (65-90)		
	Female	Male	Total	Female	Male	Total	Female	Male	Total	Female	Male	Total
High BMI	10	11	21	15	35	50	43	57	100	7	18	25
Low BMI	11	6	17	19	9	28	7	13	20	5	19	24
High BP	0	1	1	4	12	16	15	30	45	7	19	26
Low BP	1	0	1	2	0	2	0	1	1	0	0	0

Age ranges in years for each age cohort are in parentheses.

Supplementary Table 6. Percentages of subjects with each condition in our study and in each encompassing region from the National Family and Health Survey 4 (NFHS4).

	High BMI		Low BMI		High BP	
	Female	Male	Female	Male	Female	Male
Our study	38.9%	40.2%	21.8%	15.6%	14.5%	22.5%
NFHS4 India	20.7%	18.6%	22.9%	20.2%	8.8%	13.6%
NFHS4 Maharashtra	23.4%	23.8%	23.5%	19.1%	9.1%	15.9%
NFHS4 Nashik	22.9%	23.7%	25.8%	16.8%	5.7%	11%

Supplementary Table 7. Statistically significant prevalence of clinical conditions identified by routine health screenings across age cohorts.

				More prevalent cohort		Less prevalent cohort	
Condition	More prevalent in	Than in	*p*-value	No. with condition (percentage)	No. in cohort	No. with condition (percentage)	No. in cohort
High BMI	Middle age	Young adult	0.0014	100 (59.5)	168	50 (32.9)	152
High BMI	Middle age	Old age	0.0052	100 (59.5)	168	25 (28.1)	89
High BP	Young adult	Adolescent	0.0147	16 (11.9)	135	1 (1.5)	65
High BP	Middle age	Adolescent	<0.0001	45 (26.2)	172	1 (1.5)	65
High BP	Middle age	Young adult	0.0023	45 (26)	172	16 (10.5)	152
High BP	Old age	Adolescent	<0.0001	26 (31.7)	82	1 (1.5)	65
High BP	Old age	Young adult	0.0006	52 (66.7)	82	16 (10.5)	152

Age ranges in years for each cohort: 18-19 for adolescents, 20-39 for young adults, 40-64 for middle age, and 65-90 for old age.

Supplementary Table 8. Number of subjects with a routine health screening condition and responded yes to a medical history question.

Condition	No. with condition	Glasses	Dental	Swollen joints	Hearing	FH diabetes	FH high BP	Tobacco	Difficulty walking	High BP	Diabetes	High BP Rx	Asthma	Smoking	FH cardiac	Cardiac Rx	Cardiovascular	Low BP	FH stroke	FH eye disease	Heart attack	Coronary bypass	Drinking	Eye treatment	Memory loss	Ear treatment	FH ear disease	Cancer
High BMI	196	115*	48	52	38	48*	41*	23	19	26*	18	17	9	3**	5	5	1	1	1	3	2	1	1	0	2	2	1	0
Low BMI	89	39	21	23	25	11	10	16*	12	4	6	4	4	9*	1	1	0	2	1	0	0	0	1	0	0	0	0	0
High BP	88	54	24	30*	25	19	11	11	14*	17*	15*	14*	2	4	4	4	3	0	0	1	2	1	0	1	1	1	1	0
Low BP	4	3	1	1	1	2	1	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Total populations reflect the number of subjects with the particular condition in that row. Multiple subjects were associated with more than one condition or questionnaire response.
* $p < 0.05$, subjects are more likely to have responded yes to the column's question and have the routine health screening abnormality.
** $p < 0.05$, subjects are less likely to have responded yes to the column's question and have the routine health screening abnormality.

Supplementary Table 9. Statistically significant correlations between routine health screening conditions and self-reported medical history.

			Subjects with routine screening condition		Subjects without routine screening condition	
Condition	Medical History	*p*-value	No. responded yes (percentage)	No. with condition	No. responded yes (percentage)	No. without condition
High BMI	Glasses	0.0024	115 (58.7)	196	132 (44.3)	298
High BMI	FH diabetes	0.0384	48 (24.5)	196	50 (16.8)	298
High BMI	FH High BP	0.0173	41 (20.9)	196	38 (12.8)	298
Low BMI	Tobacco addiction	0.0406	16 (18.0)	89	40 (9.9)	405
High BMI	High BP	0.0091	26 (13.3)	196	18 (6.0)	298
Low BMI	Smoking	0.0122	9 (10.1)	89	14 (3.5)	405
High BMI	Smoking	0.0077	3 (1.5)	196	20 (6.7)	298
High BP	Glasses	0.0251	60 (68.2)	88	179 (48.8)	367
High BP	Swollen joints	0.0425	30 (34.1)	88	89 (24.3)	367
High BP	Difficulty walking	0.0483	14 (15.9)	88	33 (9.0)	367
High BP	High BP	0.0006	17 (19.3)	88	24 (6.5)	367
High BP	Diabetes	0.0004	15 (17.0)	88	22 (6.0)	367
High BP	High BP Rx	0.0002	14 (15.9)	88	17 (4.6)	367

Supplementary Table 10. Numbers of subjects in each age cohort identified by technology-enabled screenings.

	Adolescent (18-19)			Young adult (20-39)			Middle age (40-64)			Old age (65-90)		
	Female	Male	Total	Female	Male	Total	Female	Male	Total	Female	Male	Total
Blood oxygen saturation	0	2	2	2	2	4	3	5	8	0	5	5
Single-lead ECG	0	1	1	0	0	0	0	0	0	0	0	0
Oral	17	5	22	22	30	52	55	65	120	15	51	66
Retinal	2	1	3	2	7	9	9	8	17	4	9	13
Tympanic membrane	0	0	0	1	2	3	4	0	4	0	2	2
Hand tremor test	0	0	0	0	0	0	0	0	0	0	0	0
Finger-nose test	0	0	0	0	0	0	0	2	2	0	1	1
Finger-count test	0	0	0	0	0	0	0	0	0	0	0	0
Gait test	0	0	0	0	1	1	0	1	1	1	2	3

Age ranges in years for each age cohort are in parentheses.

Supplementary Table 11. Distribution of unhealthy subjects by clinical condition identified in each technology-enabled screening test.

Test	Condition	No. with condition (percent)	No. screened by test
Oral	Carious	156 (38.0)	411
Oral	Missing tooth	115 (28.0)	411
Oral	Edentulous	35 (8.5)	411
Oral	Periodontal disease	61 (14.8)	411
Retinal	Width of rim 0.01-0.1	9 (2.2)	404
Tympanic membrane	Perforated eardrum	25 (7.7)	324
Tympanic membrane	Effusion	20 (6.2)	324
Finger-nose	Abnormal	3 (1.0)	305
Gait	Abnormal	5 (2.3)	214

Supplementary Table 12. Number of subjects identified with clinical conditions in two technology-enabled screening tests.

	Tympanic membrane	Retinal	Oral	Finger-nose	Gait
Low blood oxygen	1	1	13	0	1
Tympanic membrane		0	26	2	2
Retinal			8	0	0
Oral				2	4
Finger-nose					0

Supplementary Table 13. **Percentages of subjects identified with a clinical condition by a technology-enabled screening test and a routine health screening abnormality.**

Abnormality	High BMI	Low BMI	High BP	Low BP
Low blood oxygen	21.1	42.1*	10.5	5.3
Tympanic Membrane	31.0	31.0	31.7	0.0
Retinal	44.4	11.1	11.1	0.0
Oral	40.4	17.3	20.6	0.8
Finger-nose	0.0	33.3	0.0	0.0
Gait	20.0	40.0	20.0	0.0

* $p < 0.05$, subjects are more likely to have the routine health screening abnormality if they have the technology-enabled screening condition.

Supplementary Table 14. Statistically significant correlations between conditions identified by a technology-enabled screening test and self-reported medical history.

			Subjects with condition		Subjects without condition	
Abnormality	Medical History	*p*-value	No. responded yes (percentage)	No. with condition	No. responded yes (percentage)	No. without condition
Low blood oxygen	Smoking	0.0087	4 (21.1)	19	15 (3.4)	436
Tympanic Membrane	Hearing difficulty	0.0053	17 (40.5)	42	65 (23.0)	282
Retinal	Hearing difficulty	0.0500	4 (44.4)	9	65 (16.5)	395
Retinal	Difficulty walking	0.0298	3 (33.3)	9	30 (7.6)	395
Oral	Glasses	0.0195	145 (56.9)	255	70 (44.9)	156
Oral	Dental problems	0.0043	82 (32.2)	255	30 (19.2)	156
Oral	Swollen joints	0.0002	85 (33.3)	255	26 (16.7)	156
Oral	Hearing difficulty	0.0017	72 (28.2)	255	23 (14.7)	156
Oral	FH high BP	0.0172*	31 (12.2)	255	33 (21.2)	156
Oral	Difficulty walking	0.0089	36 (14.1)	255	9 (5.8)	156
Oral	High BP	0.0339	30 (11.8)	255	8 (5.1)	156
Oral	High BP Rx	0.0490	24 (9.4)	255	6 (3.8)	156
Oral	Cardiac Rx	0.0267	8 (3.1)	255	0 (0)	156
Finger-nose	Difficulty walking	0.0009	3 (100)	3	27 (8.99)	302
Finger-nose	Swollen joints	0.0159	3 (100)	3	80 (26.0)	302
Gait	Teeth problems	0.0179	4 (80.0)	5	53 (25.4)	209
Gait	Swollen joints	0.0159	4 (80.0)	5	45 (21.5)	209

Supplementary Table 15. Age cohort and gender of subjects identified with any routine health screening or any technology-enabled screening abnormality.

	Adolescent (18-19)		Young adult (20-39)		Middle age (40-64)		Old age (65-90)		
	Female	Male	Female	Male	Female	Male	Female	Male	Total (n=111)
Routine health screening condition	10	0	8	19	11	21	2	8	79
Technology-enabled screening abnormality	9	0	8	11	14	18	2	8	70
Total in age cohort	19	0	16	23	16	26	2	9	

Supplementary Table 16. Detailed results of technology-enabled screenings and routine health screenings of the 111 subjects who completed all tests.

	Questionnaire	High BMI	Low BMI	High BP	Low BP	ECG	Hypoxemia	TM	Retinal	Oral	Finger-nose	Gait
Normal routine, Normal TES												
	x											
	x											
	x											
	x											
Routine health screening condition, normal TES		x										
		x										
			x									
		x										
		x										
		x										
				x								
			x									
		x										
	x	x										
	x	x										
	x	x										
	x	x										
	x		x									
	x		x									
		x		x								
		x			x							
	x	x										
	x	x										
	x	x										
	x		x									
	x	x										
	x	x										
		x		x								
	x		x									
	x	x		x								
	x	x		x								
	x	x		x								
	x	x		x								
	x	x		x								
	x	x		x								
Normal routine health screening, Abnormal TES										x		
										x		
								x				
										x		
										x		
										x		
	x									x		
	x								x			
	x									x		
									x	x		
	x									x		
	x									x		
	x									x		
	x									x		
	x									x		
	x									x		
	x									x		
	x									x		
	x									x		
	x							x				
	x									x		x
	x						x		x	x		

Each row corresponds to a different individual whose age and gender have been anonymized
An x indicates that the subject was marked as abnormal in that row's test.
TM: Tympanic membrane.

Supplementary Table 17. **Detailed results of technology-enabled screenings and routine health screening of the 111 subjects who completed all tests.**

	Questionnaire	High BMI	Low BMI	High BP	Low BP	ECG	Hypoxemia	TM	Retinal	Oral	Finger-nose	Gait
Routine health screening condition, Abnormal TES			x							x		
			x							x		
		x		x				x				
	x			x						x		
	x	x						x				
	x	x					x					
			x					x		x		
	x	x								x		
	x	x								x		
			x					x		x		
	x	x								x		
			x					x		x		
	x			x						x		
	x	x								x		
	x			x						x		
	x			x						x		
	x	x								x		
	x	x								x		
	x		x							x		
	x			x						x		
	x	x								x		
	x	x								x		
	x	x								x		
	x			x						x		
	x		x					x				
	x	x						x				
	x	x								x		
	x		x							x		
	x		x							x		
	x	x		x						x		
	x	x						x		x		
	x		x	x						x		
	x	x						x				
	x	x								x		
	x		x							x		x
	x		x				x			x		x
	x		x	x				x		x		
	x	x		x				x		x		x

Each row corresponds to a different individual whose age and gender have been anonymized
An x indicates that the subject was marked as abnormal in that row's test.
TM: Tympanic membrane