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ECG data

Composite, with adjudications

The ECGMB22 data set is the final study ECG data set for Visit 2. There is 1 ECG Machine coded data set ECGC. The Visual Coded record from the ECG Reading Center in Minnesota is the ETLB record. Roughly 1 in every 5 ECG records were sent to be visually coded at Minnesota in Visit 2. About half of the visual coded records were sent for quality control purposes and the remainder sent because an algorithm determined these records needed visual coding. Of these roughly 3500 visual coded (ETLB) records, about one third were found to have some significant differences between the visual and machine coding. The ECG Visual Reading Center was requested to re-code the portions of the records where differences occurred. These are the adjudicated ECAB records.

The ECGMB22 data set utilizes all of the different ECG data sets to some extent. First, if there is only an ECGC record for a particular ID, the ECGC record for that ID is duplicated in the ECGMB22 data set. Second, if there is a Visual Coded record for an ID but there was no need for adjudication, the ECGC record for that ID is duplicated in the ECGMB22 data set. Lastly, when there is an ECAB adjudicated record, the ECGC record is written to the ECGMB22 data set with the exception that the adjudicated values overwrite the original ECGC values when machine coded value is not in substantial agreement with the visual coded value. Details of the criteria for agreement can be found in Section 2.1.2 of ARIC Manual #5. Thus, records with ECAB adjudicated values are the only records that are potentially different from the original ECGC records in the ECGMB22 data set.

Attached is a listing of variables contained in the ECGMB22 data set. Unless specifically requested otherwise, these variables should be used in official ARIC analyses, although the ECGC (Machine Coding) and ETLB (Visual Coding) records are also distributed.

The ECGMB22 data set was compared with the baseline ECG composite file (ECGMA03). Potential cases with ECG serial changes were selected by computer algorithm at CSCC. The ECG machine coding center also compared ECGC data with baseline ECG (ECGX02) to select potential cases with ECG serial changes by NOVA codes. The two serial changes listing were sent to the ECG Visual Reading Center for determination of serial changes using their algorithm. The result file is ESMA.

ECGMB01		*ECG Tech Code*
N	*Value*	*Description*
14303	Present	Text suppressed
2		Missing

ECGMB04		*Filter Setting*
N	*Value*	*Description*
14249	16	
56		Missing

ECGMB05		*Cart Code*
N	*Value*	*Description*
1229	01	
3823	05	
3693	07	
3110	08	
2450	09	

ECGMB06		*Recording Date*
N	*Value*	*Description*
14305	Range	01/04/1984 - 03/24/1993

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ECGMB07	Recording Time	
N	Value	Description
14305	Range	5:30 - 16:13

ECGMB07H	Recording Time - Hour	
N	Value	Description
14305	Range	5 - 16 (median=10 mean=9.9 std=1.4)

ECGMB07M	Recording Time - Minute	
N	Value	Description
14305	Range	0 - 59 (median=30 mean=29.5 std=17.5)

ECGMB08	Quality Grade (Noise/mm, Overall drift/mm, Beat to beat drift/mm)	
N	Value	Description
8523	1	
4306	2	
962	3	
249	4	
265	5	

ECGMB09	Minnesota Code L1 (Q-Q.S. Pattern I, aVL, V6)	
N	Value	Description
14205	0	No Minnesota Code Equivalent
4	11	Q/R amplitude ratio = 1/3, plus Q duration = 0.03 sec in lead I or V6
1	12	Q duration = 0.04 sec in lead I or V6.
2	13	Q duration = 0.04 sec, plus R amplitude = 3 mm in lead a VL
3	21	Q/R amplitude ratio = 1/3, plus Q duration = 0.02 and < 0.03 sec in lead I or V6
4	22	Q duration = 0.03 sec and < 0.04 sec lead I or V6
1	23	QS pattern in lead I. Do not code in the presence of 7-1-1.
1	28	Initial R amplitude decreasing to 2 mm or less in every beat (and absence of codes 3-2, 7-1-1, 7-2-1, or 7-3 between V5 and V6. (All beats in lead V5 must have an initial R > 2 mm.)
36	31	Q/R amplitude ratio = 1/5 and < 1/3, plus Q duration = 0.02 sec and < 0.03 sec in lead I or V6.
16	33	Q duration = 0.03 sec and < 0.04 sec, plus R amplitude = 3 mm in lead aVL.
32		Missing

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ECGMB10		Minnesota Code F1 (Q-Q.S. Pattern II, III, aVF)
N	*Value*	*Description*
14285	Range	0 - 36 (median=0 mean=0.7 std=4.4)
20		Missing

ECGMB11		Minnesota Code V1 (Q-Q.S. Pattern V1-V5)
N	*Value*	*Description*
14236	Range	0 - 32 (median=0 mean=0.2 std=2.5)
69		Missing

ECGMB12		Minnesota Code L4 (ST Junction & Segment Depression I, aVL, V6)
N	*Value*	*Description*
13965	0	No Minnesota Code Equivalent
70	2	STJ depression = 0.5 mm and < 1.0 mm and ST segment horizontal or downward sloping in any of leads I, aVL, or V6.
226	3	No STJ depression as much as 0.5 mm but ST segment downward sloping and segment or T-wave nadir = 0.5 mm below P-R baseline, in any of leads I, aVL, or V6.
2	4	STJ depression = 1.0 mm and ST segment upward sloping or U-shaped, in any of leads I, aVL, or V6.
11	12	STJ depression = 1.0 mm but < 2.0 mm, and ST segment horizontal or downward sloping in any of leads I, aVL, or V6.
31		Missing

ECGMB13		Minnesota Code F4 (ST Junction & Segment Depression II, III, aVF)
N	*Value*	*Description*
14162	0	No Minnesota Code Equivalent
22	2	STJ depression = 0.5 mm and < 1.0 mm and ST segment horizontal or downward sloping in any of leads I, aVL, or V6
94	3	No STJ depression as much as 0.5 mm but ST segment downward sloping and segment or T-wave nadir = 0.5 mm below P-R baseline, in any of leads I, aVL, or V6
5	4	STJ depression = 1.0 mm and ST segment upward sloping or U-shaped, in any of leads I, aVL, or V6
2	12	STJ depression = 1.0 mm but < 2.0 mm, and ST segment horizontal or downward sloping in any of leads I, aVL, or V6
20		Missing

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ECGMB14		Minnesota Code V4 (ST Junction & Segment Depression V1-V5)
N	*Value*	*Description*
14025	0	No Minnesota Code Equivalent
60	2	STJ depression = 0.5 mm and < 1.0 mm and ST segment horizontal or downward sloping in any of leads V1 - V5
121	3	No STJ depression as much as 0.5 mm, but ST segment downward sloping and segment or T-wave nadir = 0.5 mm below P-R baseline in any of leads V2 - V5
7	4	STJ depression = 1.0 mm and ST segment upward sloping or U-shaped in any of leads V1 - V5
5	11	STJ depression = 2.0 and ST segment horizontal or downward sloping in any of leads V1-V5
19	12	STJ depression = 2.0 and ST segment horizontal or downward sloping in any of leads V1 - V5
68		Missing

ECGMB15		Minnesota Code L5 (T Wave I, aVL, V6)
N	*Value*	*Description*
12646	0	No Minnesota Code Equivalent
11	1	T amplitude negative 5.0 mm or more in either of leads I, V6, or in lead aVL when R amplitude is = 5.0 mm
363	2	T amplitude negative or diphasic (positive-negative or negative-positive type) with negative phase at least 1.0 mm but not as deep as 5.0 mm in lead I or V6, or in lead aVL when R amplitude is = 5.0 mm
822	3	T amplitude zero (flat), or negative, or diphasic (negative-positive type only) with less than 1.0 mm negative phase in lead I or V6, or in lead aVL when R amplitude is = 5.0 mm
433	4	T amplitude positive and T/R amplitude ratio < 1/20 in any of leads I, aVL, V6; R wave amplitude must be = 10.0 mm.
30		Missing

ECGMB16		Minnesota Code F5 (T Wave II, III, aVF)
N	*Value*	*Description*
13746	0	No Minnesota Code Equivalent
127	2	T amplitude negative or diphasic with negative phase (negative-positive or positive-negative type) at least 1.0 mm but not as deep as 5.0 mm in lead II, or in lead aVF when QRS is mainly upright
303	3	T amplitude zero (flat), or negative, or diphasic (negative-positive type only) with less than 1.0 mm negative phase in lead II; not Coded in lead aVF
109	4	T amplitude positive and T/R amplitude ratio < 1/20 in lead II; R wave amplitude must be = 10.0 mm.
20		Missing

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ECGMB17		Minnesota Code V5 (T Wave V1-V5)
N	*Value*	*Description*
12852	0	No Minnesota Code Equivalent
31	1	T amplitude negative 5.0 mm or more in any of leads V2 - V5
532	2	T amplitude negative (flat), or diphasic (negative-positive or positive-negative type) with negative phase at least 1.0 mm but not as deep as 5.0 mm, in any of leads V2 - V5
399	3	T amplitude zero (flat), or negative, or diphasic (negative-positive type only) with less than 1.0 mm negative phase, in any of leads V3 - V5
426	4	T amplitude positive and T/R amplitude ratio < 1/20 in any of leads V3, V4, V5; R wave amplitude must be = 10.0 mm
65		Missing

ECGMB18		Minnesota Code L92 (ST Segment Elevation Anterolateral Site (Leads I, aVL, V6))
N	*Value*	*Description*
14271	0	No Minnesota Code Equivalent
2	2	ST segment elevation = 1.0 mm in any of leads I, aVL, V6
32		Missing

ECGMB19		Minnesota Code F92 (ST Segment Elevation Posterior (Inferior) Site (Leads II, III, aVF))
N	*Value*	*Description*
14278	0	No Minnesota Code Equivalent
7	2	ST segment elevation = 1.0 mm in any of leads II, III, aVF
20		Missing

ECGMB20		Minnesota Code V92 ((ST Segment Elevation Anterior Site (Leads V1, V2, V3, V4, V5))
N	*Value*	*Description*
14073	0	No Minnesota Code Equivalent
164	2	ST segment elevation = 1.0 mm in lead V5 or ST segment elevation = 2.0 mm in any of leads V1 - V4
68		Missing

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ECGMB21		Minnesota Code C2 (QRS Axis Deviation Codes)
N	Value	Description
11732	0	No Minnesota Code Equivalent
12	3	Right (optional code when 2-2 is not present). QRS axis from +90° through +119° in leads I, II, III. (The algebraic sum of major positive and major negative QRS waves must be zero or negative in I and positive in II and III.)
1576	11	
460	12	
469	21	Left. QRS axis from -30° through -90° in leads I, II, III. (The algebraic sum of major positive and major negative QRS waves must be zero or positive in I, negative in III, and zero or negative in II.)
29	22	Right. QRS axis from +120° through -150° in leads I, II, III. (The algebraic sum of major positive and major negative QRS waves must be negative in I, and zero or positive in III, and in I must be one-half or more of that in III.)
27		Missing

ECGMB22		Minnesota Code C3 (High Amplitude R Wave Codes)
N	Value	Description
13007	0	No Minnesota Code Equivalent
14	2	Right: R amplitude = 5.0 mm and R amplitude = S amplitude in the majority of beats in lead V1, when S amplitude is > R amplitude somewhere to the left on the chest of V1
280	12	
43	13	
386	14	
95	31	Left: R amplitude > 26 mm in either V5 or V6, or R amplitude > 20.0 mm in any of leads I, II, III, aVF, or R amplitude > 12.0 mm in lead aVL. (All criteria measured only on second to last complete normal beat.)
401	32	Right: R amplitude = 5.0 mm and R amplitude = S amplitude in the majority of beats in lead V1, when S amplitude is > R amplitude somewhere to the left on the chest of V1 (codes 7-3 and 3-2, if criteria for both are present).
79		Missing

ECGMB23		Minnesota Code C6 (A-V Conduction Defect Codes)
N	Value	Description
13532	0	No Minnesota Code Equivalent
437	3	P-R (P-Q) interval = 0.22 sec in the majority of beats in any of leads I, II, III, aVL, aVF
2	4	
261	5	Short P-R interval. P-R interval < 0.12 sec in all beats of any two of leads I, II, III, aVL, aVF
14	8	Artificial pacemaker.
1	41	Wolff-Parkinson-White Pattern (WPW), persistent. Sinus P-wave. P-R interval < 0.12 sec, plus QRS duration = 0.12 sec, plus R peak duration = 0.06 sec, coexisting in the same beat and present in the majority of beats in any of leads I, II, aVL, V4, V5, V6. (6-4-1 suppresses 1-2-3, 1-2-7, 1-2-8, 1-3-2, 1-3-6, all 3, 4, 5, 9-2, 9-4, 9-5 codes.)
58		Missing

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ECGMB24		*Minnesota Code C7 (Ventricular Conduction Defect)*
N	*Value*	*Description*
12608	0	No Minnesota Code Equivalent
85	1	
148	2	
191	3	Incomplete right bundle branch block. QRS duration < 0.12 sec in each of leads I, II, III, aVL, aVF, and R' > R in either of leads V1, V2
212	4	Intraventricular block. QRS duration = 0.12 sec in a majority of beats in any of leads I, II, III, aVL, aVF. (7-4 suppresses all 2, 3, 4, 5, 9-2, 9-4, 9-5 codes.)
261	5	R-R' pattern in either of leads V1, V2 with R' amplitude = R.
687	6	Incomplete left bundle branch block. (Do not code in the presence of any codable Q- or QS-wave.) QRS duration = 0.10 sec and < 0.12 in the majority of beats of each of leads I, aVL, and V5 or V6.
25	11	Complete left bundle branch block (LBBB). (Do not code in presence of 6-1, 6-4-1, 6-8, 8-2-1 or 8-2-2.) QRS duration = 0.12 sec in a majority of beats in any of leads I, II, III, aVL, aVF, plus R peak duration ≥ 0.06 sec in a majority of beats (of the same QRS pattern) in any of leads I, aVL, V5, V6. (7-1-1 suppresses 1-2-3, 1-2-7, 1- 2-8, 1-3-2, 1-3-6, all 2, 3, 4, 5, 9-2, 9-4, 9-5 codes. If any other codable Q-wave coexists with the LBBB pattern, code the Q and diminish the 7-1-1 code to a 7-4 code.)
18	21	Complete right bundle branch block (RBBB). (Do not code in the presence of 6-1, 6-4-1, 6-8, 8-2-1 or 8-2-2.) QRS duration = 0.12 sec in a majority of beats in any of leads I, II, III, aVL, aVF, plus: R' > R in V1 or V2; or QRS mainly upright, with R peak duration = 0.06 sec in V1 or V2; or S duration >R duration in all beats in lead I or II. (7-1 suppresses 1-2-3, 1-2-7, 1-2-8, 1-3-2, 1-3-6, all 2, 3, 4, 5, 9-2, 9-4, 9-5 codes.
70		Missing

ECGMB25		*Minnesota Code C91 (Low QRS Amplitude)*
N	*Value*	*Description*
14027	0	No Minnesota Code Equivalent
209	1	Low QRS amplitude. QRS peak-to-peak amplitude < 5 mm in all beats in each of leads I, II, III, or < 10 mm in all beats in each of leads V1 - V6. (Check calibration before coding.)
69		Missing

ECGMB26		*Minnesota Code C93 (P-Wave Amplitude > 2.5 MM In Any of Leads II, III, aVF in Majority of Beats)*
N	*Value*	*Description*
14223	0	No Minnesota Code Equivalent
21	3	P-wave amplitude = 2.5 mm in any of leads II, III, aVF, in a majority of beats.
61		Missing

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ECGMB27		Minnesota Code C94 (QRS Transition Zone)
N	*Value*	*Description*
5331	0	No Minnesota Code Equivalent
8066	1	QRS transition zone at V3 or to the right of V3 on the chest. (Do not code in the presence of 6-4-1, 7-1-1, 7-2-1 or 7-4.)
908	2	QRS transition zone at V4 or to the left of V4 on the chest. (Do not code in the presence of 6-4-1, 7-1-1, 7-2-1 or 7-4.)

ECGMB28		Minnesota Code C95 (T-Wave Amplitude)
N	*Value*	*Description*
14163	0	No Minnesota Code Equivalent
63	5	T-wave amplitude > 12 mm in any of leads I, II, III, aVL, aVF, V1, V2, V3, V4, V5, V6. (Do not code in the presence of 6-4-1, 7-1-1, 7-2-1 or 7-4.)
79		Missing

ECGMB29		Minnesota Code E7
N	*Value*	*Description*
8674	0	No Minnesota Code Equivalent
5631	7	QRS Duration > 90 MS OR Intrinscord Deflection V5 OR V6 > 50 MS

ECGMB30		CIIS Value
N	*Value*	*Description*
14222	Range	-20.17 - 52.95999 (median=3.44 mean=4.817 std=9.960)
83		Missing

ECGMB31		Heart Rate
N	*Value*	*Description*
14288	Range	0 - 161 (median=65 mean=65.8 std=10.3)
17		Missing

ECGMB32		Q Or QS Amplitude:I
N	*Value*	*Description*
14288	Range	0 - 477 (median=29 mean=37.9 std=44.6)
17		Missing

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ECGMB33		*Q Or QS Amplitude:III*
N	*Value*	*Description*
14286	Range	0 - 2222 (median=0 mean=79.7 std=159.8)
19		Missing

ECGMB34		*Q Or QS Amplitude:V5*
N	*Value*	*Description*
14274	Range	0 - 1213 (median=20 mean=35.8 std=51.7)
31		Missing

ECGMB35		*Q Or QS Amplitude:V6*
N	*Value*	*Description*
14280	Range	0 - 728 (median=35 mean=45.0 std=49.2)
25		Missing

ECGMB36		*R Amplitude:I*
N	*Value*	*Description*
14288	Range	0 - 2722 (median=773 mean=808.2 std=335.4)
17		Missing

ECGMB37		*R Amplitude:III*
N	*Value*	*Description*
14286	Range	0 - 2553 (median=184 mean=293.7 std=288.2)
19		Missing

ECGMB38		*R Amplitude:aVL*
N	*Value*	*Description*
14281	Range	0 - 2756 (median=448 mean=500.2 std=341.8)
24		Missing

ECGMB39		*R Amplitude:V2*
N	*Value*	*Description*
14259	Range	0 - 4181 (median=428 mean=486.3 std=311.1)
46		Missing

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ECGMB40		R Amplitude:V5
N	*Value*	*Description*
14274	Range	0 - 6015 (median=1317 mean=1372.1 std=498.3)
31		Missing

ECGMB41		R Amplitude:V6
N	*Value*	*Description*
14280	Range	27 - 4794 (median=1043 mean=1090.0 std=395.5)
25		Missing

ECGMB42		S Amplitude:I
N	*Value*	*Description*
14288	Range	-953 - 0 (median=-31 mean=-68.5 std=93.6)
17		Missing

ECGMB43		S Amplitude:III
N	*Value*	*Description*
14286	Range	-3061 - 0 (median=-125 mean=-278.6 std=362.0)
19		Missing

ECGMB44		S Amplitude:V1
N	*Value*	*Description*
14275	Range	-4342 - 0 (median=-770 mean=-809.0 std=461.9)
30		Missing

ECGMB45		S Amplitude:V2
N	*Value*	*Description*
14259	Range	-5731 - 0 (median=-1007 mean=-1071.9 std=549.2)
46		Missing

ECGMB46		S Amplitude:V5
N	*Value*	*Description*
14274	Range	-1970 - 0 (median=-174 mean=-213.7 std=197.8)
31		Missing

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ECGMB47		*S Amplitude:V6*
N	*Value*	*Description*
14280	Range	-1153 - 0 (median=-29 mean=-73.0 std=107.2)
25		Missing

ECGMB48		*T negative Amplitude:aVL*
N	*Value*	*Description*
14281	Range	-680 - 0 (median=0 mean=-9.9 std=35.6)
24		Missing

ECGMB49		*T negative Amplitude:aVF*
N	*Value*	*Description*
14287	Range	-434 - 0 (median=0 mean=-4.6 std=21.6)
18		Missing

ECGMB50		*T negative Amplitude:V6*
N	*Value*	*Description*
14280	Range	-1049 - 0 (median=0 mean=-7.7 std=40.3)
25		Missing

ECGMB51		*T positive Amplitude:aVR*
N	*Value*	*Description*
14288	Range	0 - 520 (median=0 mean=2.4 std=19.0)
17		Missing

ECGMB52		*T positive Amplitude:V1*
N	*Value*	*Description*
14275	Range	0 - 1139 (median=41 mean=105.0 std=133.6)
30		Missing

ECGMB53		*T positive Amplitude:V6*
N	*Value*	*Description*
14280	Range	0 - 1216 (median=194 mean=200.7 std=122.5)
25		Missing

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ECGMB54		*QRS Interval*
N	*Value*	*Description*
14305	Range	56 - 233 (median=97 mean=98.7 std=12.9)

ECGMB55		*V2 ECG Sent To Minn*
N	*Value*	*Description*
11428	0	
2877	1	

ECGMB56		*V2 ECG Abnormal Sent*
N	*Value*	*Description*
12767	0	
1538	1	

ECGMB58		*V2 - Not Significant - Random Sample*
N	*Value*	*Description*
13025	0	
1280	1	

ECGMBCY		*Contact Year*
N	*Value*	*Description*
14305	4	

ECGMBFLG		*ECGMB Record Present*
N	*Value*	*Description*
14305	1	

ID		*Aric ID (Cir)*
N	*Value*	*Description*
14305	Present	Text suppressed