

Table S1. Factors Associated with Achieving a Scene-to-ECG Interval ≤ 10 Minutes: Logistic Mixed-Effects Models with Multiple Imputation, Excluding ≥ 97.5 th Percentile Cases (≥ 34 Minutes) (n=1,699)

	Model 1			Model 2			Model 3			Model 4§		
	OR	95% CI	P value	OR	95% CI	P value	OR	95% CI	P value	OR	95% CI	P value
Cumulative number of ECG transmissions, by 100 cases	1.06	1.01–1.12	0.029	1.06	1.01–1.12	0.032	1.07	1.01–1.13	0.017	1.31	0.93–1.84	0.119
Sex, female	-	-	-	0.64	0.52–0.80	<0.001	0.65	0.52–0.80	<.0001	0.64	0.51–0.79	<0.001
Age, by 10 years	-	-	-	0.93	0.87–0.99	0.033	0.92	0.85–0.98	0.013	0.92	0.85–0.98	0.015
On-scene arrival time, nighttime*	-	-	-	-	-	-	0.72	0.58–0.88	0.002	0.71	0.58–0.88	0.001
Period†												
Period 2 vs Period 1	-	-	-	-	-	-	-	-	-	0.85	0.63–1.14	0.276
Period 3 vs Period 1	-	-	-	-	-	-	-	-	-	1.13	0.82–1.56	0.453
Period 4 vs Period 1	-	-	-	-	-	-	-	-	-	1.15	0.81–1.64	0.422
Cumulative number of ECG transmissions × period‡												
× Period 2	-	-	-	-	-	-	-	-	-	0.94	0.68–1.28	0.681
× Period 3	-	-	-	-	-	-	-	-	-	0.80	0.58–1.09	0.155
× Period 4	-	-	-	-	-	-	-	-	-	0.82	0.60–1.13	0.224

OR indicates Odds ratio.

*On-scene arrival time was categorized by the EMS on-scene arrival timestamp: Daytime, 09:00–17:59; Nighttime, 18:00–08:59 (spanning midnight to the following day).

†Period divides the 4-year study period into four 12-month intervals: Period 1 (Sep 2021–Aug 2022), Period 2 (Sep 2022–Aug 2023), Period 3 (Sep 2023–Aug 2024), and Period 4 (Sep 2024–Aug 2025).

‡× denotes an interaction term.

§Cumulative number was centered within period (deviation from the period mean) to estimate within-period associations.

Table S2. Factors Associated with Scene-to-ECG Interval: Linear Mixed-Effects Models with Multiple Imputation, Excluding ≥97.5th Percentile Cases (≥34 Minutes) (n=1,699)

	Model 1			Model 2			Model 3			Model 4§		
	Parameter estimates	95% CI	P value	Parameter estimates	95% CI	P value	Parameter estimates	95% CI	P value	Parameter estimates	95% CI	P value
Cumulative number of ECG transmission, by 100 cases	-0.19	-0.35 to -0.03	0.021	-0.19	-0.35 to -0.03	0.023	-0.21	-0.37 to -0.05	0.012	-0.69	-1.68 to 0.29	0.169
Sex, female	-	-	-	0.59	-0.01 to 1.19	0.054	0.57	-0.03 to 1.16	0.062	0.59	-0.01 to 1.19	0.052
Age, by 10 years	-	-	-	0.12	-0.08 to 0.31	0.248	0.15	-0.05 to 0.35	0.137	0.14	-0.06 to 0.34	0.158
On-scene arrival time, nighttime* Period†	-	-	-	-	-	-	0.91	0.34 to 1.48	0.002	0.93	0.35 to 1.50	0.002
Period 2 vs Period 1	-	-	-	-	-	-	-	-	-	0.13	-0.70 to 0.96	0.762
Period 3 vs Period 1	-	-	-	-	-	-	-	-	-	-0.44	-1.34 to 0.45	0.334
Period 4 vs Period 1	-	-	-	-	-	-	-	-	-	-0.92	-1.90 to 0.07	0.069
Cumulative number of ECG transmissions × period‡												
× Period 2	-	-	-	-	-	-	-	-	-	0.40	-0.49 to 1.29	0.377
× Period 3	-	-	-	-	-	-	-	-	-	0.61	-0.28 to 1.51	0.178
× Period 4	-	-	-	-	-	-	-	-	-	0.54	-0.37 to 1.45	0.243

*On-scene arrival time was categorized by the EMS on-scene arrival timestamp: Daytime, 09:00–17:59; Nighttime, 18:00–08:59 (spanning midnight to the following day).

†Period divides the 4-year study period into four 12-month intervals: Period 1 (Sep 2021–Aug 2022), Period 2 (Sep 2022–Aug 2023), Period 3 (Sep 2023–Aug 2024), and Period 4 (Sep 2024–Aug 2025).

‡× denotes an interaction term.

§Cumulative number was centered within period (deviation from the period mean) to estimate within-period associations.

Table S3. Factors Associated with Achieving a Scene-to-ECG Interval ≤ 10 Minutes: Logistic Mixed-Effects Models with Multiple Imputation (Complete Case) (n=1,741)

	Model 1			Model 2			Model 3			Model 4§		
	OR	95% CI	P value	OR	95% CI	P value	OR	95% CI	P value	OR	95% CI	P value
Cumulative number of ECG transmissions, by 100 cases	1.07	1.01–1.13	0.029	1.07	1.01–1.14	0.028	1.08	1.02–1.15	0.014	1.33	0.95–1.87	0.101
Sex, female	-	-	-	0.66	0.53–0.81	0.000	0.66	0.53–0.82	0.000	0.65	0.52–0.81	<.0001
Age, by 10 years	-	-	-	0.92	0.86–0.99	0.023	0.91	0.85–0.98	0.009	0.91	0.85–0.98	0.011
On-scene arrival time, nighttime*	-	-	-	-	-	-	0.71	0.58–0.88	0.001	0.71	0.58–0.88	0.001
Period†												
Period 2 vs Period 1	-	-	-	-	-	-	-	-	-	0.84	0.63–1.14	0.263
Period 3 vs Period 1	-	-	-	-	-	-	-	-	-	1.16	0.84–1.59	0.372
Period 4 vs Period 1	-	-	-	-	-	-	-	-	-	1.17	0.82–1.66	0.382
Cumulative number of ECG transmissions $\times$ period‡												
$\times$ Period 2	-	-	-	-	-	-	-	-	-	0.93	0.68–1.27	0.646
$\times$ Period 3	-	-	-	-	-	-	-	-	-	0.79	0.58–1.07	0.130
$\times$ Period 4	-	-	-	-	-	-	-	-	-	0.81	0.59–1.11	0.190

OR indicates Odds ratio.

*On-scene arrival time was categorized by the EMS on-scene arrival timestamp: Daytime, 09:00–17:59; Nighttime, 18:00–08:59 (spanning midnight to the following day).

†Period divides the 4-year study period into four 12-month intervals: Period 1 (Sep 2021–Aug 2022), Period 2 (Sep 2022–Aug 2023), Period 3 (Sep 2023–Aug 2024), and Period 4 (Sep 2024–Aug 2025).

‡ $\times$ denotes an interaction term.

§Cumulative number was centered within period (deviation from the period mean) to estimate within-period associations.

Table S4. Factors Associated with Scene-to-ECG Interval: Linear Mixed-Effects Models with Multiple Imputation (Complete Case) (n=1,741)

	Model 1			Model 2			Model 3			Model 4§		
	Parameter estimates	95% CI	P value	Parameter estimates	95% CI	P value	Parameter estimates	95% CI	P value	Parameter estimates	95% CI	P value
Cumulative number of ECG transmission, by 100 cases	-0.29	-0.51 to -0.07	0.011	-0.28	-0.50 to -0.06	0.013	-0.31	-0.53 to -0.09	0.006	-1.13	-2.39 to 0.12	0.075
Sex, female	-	-	-	0.12	-0.63 to 0.88	0.754	0.09	-0.67 to 0.84	0.820	0.16	-0.60 to 0.91	0.685
Age, by 10 years	-	-	-	0.26	0.01 to 0.51	0.040	0.31	0.06 to 0.56	0.016	0.30	0.05 to 0.55	0.018
On-scene arrival time, nighttime*	-	-	-	-	-	-	1.27	0.55 to 1.99	0.001	1.28	0.56 to 2.00	0.001
Period†												
Period 2 vs Period 1	-	-	-	-	-	-	-	-	-	0.30	-0.75 to 1.34	0.578
Period 3 vs Period 1	-	-	-	-	-	-	-	-	-	-0.76	-1.89 to 0.37	0.188
Period 4 vs Period 1	-	-	-	-	-	-	-	-	-	-0.74	-2.39 to 1.12	0.239
Cumulative number of ECG transmissions × period‡												
× Period 2	-	-	-	-	-	-	-	-	-	0.49	-0.63 to 1.61	0.391
× Period 3	-	-	-	-	-	-	-	-	-	0.91	-0.22 to 2.04	0.114
× Period 4	-	-	-	-	-	-	-	-	-	0.90	-0.25 to 2.05	0.125

*On-scene arrival time was categorized by the EMS on-scene arrival timestamp: Daytime, 09:00–17:59; Nighttime, 18:00–08:59 (spanning midnight to the following day).

†Period divides the 4-year study period into four 12-month intervals: Period 1 (Sep 2021–Aug 2022), Period 2 (Sep 2022–Aug 2023), Period 3 (Sep 2023–Aug 2024), and Period 4 (Sep 2024–Aug 2025).

‡× denotes an interaction term.

§Cumulative number was centered within period (deviation from the period mean) to estimate within-period associations.