

Table S1. Mean and median annual waiting time (in minutes) in Emergency Department (ED), stratified by gender, age, and hospital.

	2017	2018	2019	2020	2021	2022	2023	2024
Gender								
Female	50 / 19 (54)	50 / 20 (58)	55 / 21 (63)	47 / 16 (51)	63 / 19 (62)	76 / 33 (82)	71 / 33 (84)	79 / 39 (91)
Male	49 / 19 (51)	48 / 20 (54)	51 / 21 (59)	47 / 18 (49)	62 / 21 (60)	76 / 33 (80)	69 / 31 (79)	77 / 36 (89)
Age								
<18	29 / 9 (27)	28 / 9 (30)	28 / 10 (31)	25 / 10 (26)	35 / 12 (31)	46 / 24 (50)	40 / 18 (45)	41 / 22 (47)
>=18-64	54 / 21 (59)	54 / 22 (63)	59 / 23 (69)	50 / 17 (55)	64 / 20 (65)	78 / 34 (88)	75 / 35 (90)	85 / 43 (101)
>=65-74	53 / 21 (54)	51 / 22 (57)	56 / 24 (65)	49 / 19 (53)	68 / 24 (67)	86 / 36 (91)	79 / 37 (94)	86 / 42 (103)
>=75-84	51 / 21 (52)	50 / 23 (57)	55 / 24 (63)	49 / 20 (52)	71 / 25 (69)	88 / 37 (92)	80 / 39 (94)	89 / 44 (109)
>=85	47 / 20 (49)	47 / 22 (52)	50 / 23 (57)	46 / 20 (48)	69 / 24 (65)	87 / 35 (88)	77 / 37 (90)	84 / 39 (99)
Hospital								
1 (Hub)	45 / 20 (47)	46 / 20 (47)	48 / 20 (53)	45 / 16 (46)	56 / 21 (61)	89 / 47 (93)	81 / 38 (93)	78 / 36 (91)
2	25 / 11 (20)	23 / 10 (18)	19 / 9 (16)	13 / 6 (10)	23 / 8 (16)	27 / 11 (21)	29 / 13 (27)	34 / 18 (35)
3	22 / 12 (25)	22 / 13 (26)	22 / 12 (26)	20 / 10 (23)	22 / 11 (24)	29 / 17 (34)	35 / 22 (39)	47 / 26 (51)
4	18 / 8 (17)	20 / 9 (18)	22 / 9 (19)	21 / 9 (17)	25 / 13 (20)	40 / 29 (28)	32 / 17 (32)	31 / 15 (27)
5	48 / 9 (20)	25 / 11 (26)	25 / 10 (25)	17 / 8 (15)	22 / 10 (21)	27 / 12 (27)	31 / 13 (32)	44 / 21 (50)
6	30 / 12 (33)	33 / 14 (36)	32 / 15 (37)	27 / 12 (28)	30 / 14 (31)	46 / 23 (50)	53 / 30 (59)	52 / 29 (62)
7	37 / 16 (41)	34 / 15 (36)	35 / 14 (35)	35 / 15 (36)	38 / 15 (38)	68 / 37 (81)	57 / 28 (61)	49 / 24 (52)
8	26 / 10 (29)	30 / 13 (33)	37 / 16 (41)	41 / 20 (44)	96 / 19 (34)	50 / 31 (45)	46 / 24 (49)	48 / 24 (52)
9	22 / 9 (22)	25 / 9 (26)	32 / 11 (32)	31 / 13 (29)	46 / 18 (49)	57 / 25 (67)	61 / 19 (77)	75 / 28 (94)
10	36 / 15 (35)	34 / 16 (36)	44 / 18 (49)	38 / 15 (38)	50 / 20 (52)	78 / 41 (92)	64 / 37 (73)	76 / 43 (92)
11	40 / 18 (44)	40 / 20 (46)	43 / 23 (51)	36 / 17 (41)	39 / 18 (42)	40 / 17 (45)	53 / 24 (66)	75 / 41 (93)
12	38 / 15 (44)	44 / 17 (53)	50 / 18 (64)	40 / 14 (43)	45 / 15 (49)	66 / 32 (79)	82 / 42 (99)	75 / 37 (89)
13 (Hub)	64 / 19 (76)	59 / 22 (76)	62 / 22 (82)	51 / 17 (57)	47 / 17 (50)	71 / 37 (79)	73 / 40 (83)	77 / 40 (90)
14 (Hub)	47 / 23 (64)	50 / 24 (69)	59 / 27 (85)	46 / 16 (61)	62 / 17 (84)	77 / 20 (111)	74 / 16 (116)	89 / 52 (117)
15	52 / 18 (59)	54 / 21 (67)	66 / 26 (82)	53 / 20 (62)	105 / 28 (83)	93 / 56 (86)	81 / 47 (88)	81 / 46 (87)
16 (Hub)	94 / 51 (89)	93 / 55 (94)	93 / 50 (93)	84 / 41 (96)	115 / 53 (132)	141 / 61 (156)	107 / 58 (129)	121 / 61 (169)

Waiting time: time from ED access to medical visit. All values are reported as mean/median (interquartile [IQR]).

The mean waiting time showed significant differences across years in all the reported categories of gender, age, and hospital (Kruskal-Wallis $p < 0.05$).

Table S2. Mean and median annual process time (in minutes) in Emergency Department (ED), stratified by gender, age, and hospital.

	2017	2018	2019	2020	2021	2022	2023	2024
Gender								
Female	188 / 107 (408)	192 / 109 (417)	207 / 116 (451)	216 / 118 (481)	250 / 125 (535)	301 / 122 (773)	330 / 122 (896)	359 / 122 (1007)
Male	182 / 101 (393)	185 / 105 (380)	201 / 111 (432)	222 / 118 (536)	248 / 126 (520)	297 / 123 (737)	318 / 121 (844)	348 / 123 (935)
Age								
<18	101 / 68 (110)	108 / 74 (116)	116 / 80 (121)	116 / 81 (125)	131 / 97 (137)	139 / 96 (142)	142 / 96 (134)	145 / 92 (134)
>=18-64	148 / 94 (135)	151 / 95 (140)	163 / 102 (148)	166 / 101 (153)	175 / 104 (154)	192 / 101 (163)	200 / 103 (162)	219 / 104 (171)
>=65-74	213 / 118 (162)	220 / 122 (170)	236 / 129 (179)	262 / 138 (198)	290 / 149 (216)	351 / 147 (238)	375 / 147 (234)	413 / 147 (241)
>=75-84	263 / 135 (182)	270 / 140 (188)	295 / 149 (202)	326 / 165 (231)	411 / 186 (278)	534 / 189 (346)	631 / 189 (365)	660 / 190 (371)
>=85	308 / 149 (189)	316 / 154 (197)	350 / 166 (215)	388 / 194 (255)	526 / 229 (369)	755 / 254 (608)	915 / 252 (746)	976 / 256 (800)
Hospital								
1 (Hub)	155 / 104 (140)	174 / 112 (149)	185 / 116 (156)	190 / 123 (171)	177 / 136 (170)	254 / 136 (215)	272 / 141 (216)	275 / 128 (203)
2	116 / 41 (121)	84 / 48 (112)	84 / 52 (108)	67 / 34 (87)	83 / 56 (102)	88 / 56 (106)	87 / 64 (106)	104 / 73 (127)
3	113 / 89 (102)	97 / 80 (109)	102 / 80 (110)	118 / 80 (134)	119 / 83 (128)	138 / 84 (120)	164 / 89 (119)	202 / 95 (131)
4	210 / 119 (141)	196 / 115 (138)	183 / 109 (127)	214 / 105 (135)	200 / 100 (136)	252 / 108 (139)	250 / 113 (143)	270 / 127 (158)
5	93 / 62 (101)	101 / 72 (104)	109 / 78 (110)	109 / 75 (103)	151 / 73 (104)	172 / 76 (113)	198 / 81 (128)	198 / 85 (144)
6	99 / 87 (125)	112 / 94 (135)	129 / 108 (136)	152 / 113 (154)	158 / 122 (160)	162 / 117 (153)	150 / 107 (145)	138 / 106 (133)
7	137 / 86 (116)	136 / 89 (117)	139 / 91 (117)	181 / 100 (138)	211 / 104 (150)	228 / 104 (174)	223 / 108 (165)	238 / 111 (164)
8	171 / 94 (127)	178 / 98 (133)	193 / 104 (145)	260 / 120 (172)	261 / 142 (187)	267 / 118 (184)	255 / 118 (186)	250 / 122 (179)
9	262 / 126 (190)	264 / 132 (197)	270 / 144 (212)	263 / 138 (196)	385 / 147 (224)	418 / 145 (218)	474 / 148 (231)	564 / 153 (290)
10	139 / 106 (137)	140 / 106 (139)	160 / 119 (160)	153 / 109 (147)	169 / 113 (148)	189 / 104 (161)	202 / 110 (153)	222 / 114 (156)
11	201 / 125 (181)	219 / 130 (182)	235 / 130 (183)	194 / 122 (166)	193 / 120 (158)	225 / 119 (159)	240 / 123 (164)	257 / 130 (184)
12	130 / 87 (127)	130 / 87 (123)	139 / 91 (128)	160 / 97 (141)	185 / 116 (156)	158 / 98 (150)	150 / 92 (132)	183 / 100 (136)
13 (Hub)	212 / 111 (140)	210 / 111 (143)	213 / 110 (149)	187 / 110 (149)	183 / 110 (142)	193 / 105 (152)	191 / 103 (145)	218 / 110 (153)
14 (Hub)	260 / 126 (140)	266 / 132 (147)	291 / 140 (156)	323 / 144 (166)	392 / 169 (222)	402 / 183 (248)	412 / 174 (235)	411 / 153 (248)
15	250 / 107 (155)	265 / 112 (172)	356 / 131 (210)	338 / 136 (212)	349 / 154 (258)	405 / 154 (283)	474 / 162 (328)	582 / 148 (331)
16 (Hub)	143 / 93 (179)	150 / 97 (191)	160 / 107 (201)	206 / 129 (261)	269 / 128 (286)	491 / 142 (357)	572 / 138 (337)	604 / 140 (316)

Process time: time from medical visit to ED discharge. All values are reported as mean/median (interquartile [IQR]).

Mean process time showed significant differences across years in all the reported categories of gender, age, and hospital (Kruskal-Wallis $p < 0.05$).

Table S3. Demographic characteristics of Emergency Department (ED) accesses and organizational and structural changes among EDs of the Abruzzo Region, Italy, by period (2017-2020 and 2021-2024).

	2017-2020	2021-2024
Demographic characteristics of ED access		
Gender, n (%)		
Male	845,373 (44.6)	754,885 (45.2)
Female	841,603 (44.4)	742,383 (44.5)
Missing	206,729 (10.9)	172,592 (10.3)
Age, n (%)		
<18	207,201 (10.9)	223,207 (13.4)
>=18-64	867,972 (45.8)	774,605 (46.4)
>=65-74	208,888 (11.0)	188,515 (11.3)
>=75-84	219,038 (11.6)	186,037 (11.1)
>=85	183,877 (9.7)	124,904 (7.5)
Missing	206,729 (10.9)	172,592 (10.3)
Organizational and structural changes ^A		
Change/update of the facilities, n (%)	7 (43.8)	6 (37.5)
Change of the Director, n (%)	4 (25.0)	10 (62.5)
Change of the organizational model, n (%)	2 (12.5)	8 (50.0)

^A: Organizational and structural changes occurred during the study period were assessed among the 16 included EDs. The differences across years in sex distribution and age were all statistically significant ($p<0.05$).