Table 1. Survey participant demographic characteristics.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | **Facility** | | | | |  | |
|  | **A**, N = 991 | **B**, N = 211 | **C**, N = 591 | **D**, N = 781 | **E**, N = 471 | | **Overall**, N = 3041 | |
| **Position Type** |  |  |  |  |  | |  | |
| Clinical | 74 (75%) | 14 (67%) | 39 (66%) | 49 (63%) | 20 (43%) | | 196 (64%) | |
| Non-clinical | 25 (25%) | 7 (33%) | 20 (34%) | 29 (37%) | 27 (57%) | | 108 (36%) | |
| **Typical Shift** |  |  |  |  |  | |  | |
| Day Shift | 88 (89%) | 19 (90%) | 56 (95%) | 71 (91%) | 45 (96%) | | 279 (92%) | |
| Night Shift | 1 (1.0%) | 1 (4.8%) | 0 (0%) | 2 (2.6%) | 1 (2.1%) | | 5 (1.6%) | |
| Equal times on both shifts | 10 (10%) | 1 (4.8%) | 3 (5.1%) | 5 (6.4%) | 1 (2.1%) | | 20 (6.6%) | |
| **Facility Experience** |  |  |  |  |  | |  | |
| 0-2 years | 28 (28%) | 4 (19%) | 14 (24%) | 31 (40%) | 13 (28%) | | 90 (30%) | |
| 2-5 years | 30 (30%) | 8 (38%) | 12 (20%) | 13 (17%) | 14 (30%) | | 77 (25%) | |
| 5-8 years | 8 (8.1%) | 0 (0%) | 8 (14%) | 9 (12%) | 7 (15%) | | 32 (11%) | |
| > 8 years | 33 (33%) | 9 (43%) | 25 (42%) | 25 (32%) | 13 (28%) | | 105 (35%) | |
| **Healthcare Experience** |  |  |  |  |  | |  | |
| 0-2 years | 15 (15%) | 1 (4.8%) | 7 (12%) | 21 (27%) | 7 (15%) | | 51 (17%) | |
| 2-5 years | 26 (26%) | 5 (24%) | 11 (19%) | 11 (14%) | 14 (30%) | | 67 (22%) | |
| 5-8 years | 10 (10%) | 2 (9.5%) | 8 (14%) | 9 (12%) | 8 (17%) | | 37 (12%) | |
| > 8 years | 48 (48%) | 13 (62%) | 33 (56%) | 37 (47%) | 18 (38%) | | 149 (49%) | |
| **Total Facilities in Career** |  |  |  |  |  | |  | |
| 1 facility | 31 (31%) | 6 (29%) | 34 (58%) | 28 (36%) | 24 (51%) | | 123 (40%) | |
| 2-3 facilities | 44 (44%) | 9 (43%) | 16 (27%) | 20 (26%) | 17 (36%) | | 106 (35%) | |
| 4-5 facilities | 10 (10%) | 3 (14%) | 5 (8.5%) | 21 (27%) | 3 (6.4%) | | 42 (14%) | |
| > 5 facilities | 14 (14%) | 3 (14%) | 4 (6.8%) | 9 (12%) | 3 (6.4%) | | 33 (11%) | |
| 1n (%) |  |  |  |  |  | |  | |

Table 2. Survey participant experience with emergency codes.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | **Facility** | | | | |  |
|  | **A**, N = 991 | **B**, N = 211 | **C**, N = 591 | **D**, N = 781 | **E**, N = 471 | **Overall**, N = 3041 |
| **Knowledge of Code Activation Procedures** |  |  |  |  |  |  |
| No | 32 (32%) | 5 (24%) | 14 (24%) | 24 (31%) | 19 (40%) | 94 (31%) |
| Yes | 67 (68%) | 16 (76%) | 45 (76%) | 54 (69%) | 28 (60%) | 210 (69%) |
| **Witnessed Code Confusion** |  |  |  |  |  |  |
| No | 53 (54%) | 12 (57%) | 44 (75%) | 50 (64%) | 37 (79%) | 196 (64%) |
| Yes | 46 (46%) | 9 (43%) | 15 (25%) | 28 (36%) | 10 (21%) | 108 (36%) |
| **Worked at a Facility with Different Color Codes** |  |  |  |  |  |  |
| No | 55 (56%) | 14 (67%) | 44 (75%) | 50 (64%) | 34 (72%) | 197 (65%) |
| Yes | 31 (31%) | 5 (24%) | 12 (20%) | 22 (28%) | 10 (21%) | 80 (26%) |
| Maybe | 13 (13%) | 2 (9.5%) | 3 (5.1%) | 6 (7.7%) | 3 (6.4%) | 27 (8.9%) |
| **Code Type Preference** |  |  |  |  |  |  |
| Color Codes | 52 (53%) | 16 (76%) | 45 (76%) | 58 (74%) | 28 (60%) | 199 (65%) |
| Plain Language | 47 (47%) | 5 (24%) | 14 (24%) | 20 (26%) | 19 (40%) | 105 (35%) |
| **Code Exceptions for Plain Language** |  |  |  |  |  |  |
| No | 35 (35%) | 2 (9.5%) | 5 (8.5%) | 9 (12%) | 13 (28%) | 64 (21%) |
| Yes | 64 (65%) | 19 (90%) | 54 (92%) | 69 (88%) | 34 (72%) | 240 (79%) |
| **Training at Orientation** |  |  |  |  |  |  |
| No | 28 (28%) | 8 (38%) | 11 (19%) | 29 (37%) | 20 (43%) | 96 (32%) |
| Yes | 71 (72%) | 13 (62%) | 48 (81%) | 49 (63%) | 27 (57%) | 208 (68%) |
| **Training During Drills/Exercises** |  |  |  |  |  |  |
| No | 42 (42%) | 6 (29%) | 29 (49%) | 36 (46%) | 22 (47%) | 135 (44%) |
| Yes | 57 (58%) | 15 (71%) | 30 (51%) | 42 (54%) | 25 (53%) | 169 (56%) |
| **Annual Training** |  |  |  |  |  |  |
| No | 62 (63%) | 7 (33%) | 17 (29%) | 38 (49%) | 25 (53%) | 149 (49%) |
| Yes | 37 (37%) | 14 (67%) | 42 (71%) | 40 (51%) | 22 (47%) | 155 (51%) |
| **Time Since Last Training** |  |  |  |  |  |  |
| < 1 month | 23 (23%) | 4 (19%) | 6 (10%) | 11 (14%) | 7 (15%) | 51 (17%) |
| 1-6 months | 21 (21%) | 11 (52%) | 27 (46%) | 34 (44%) | 20 (43%) | 113 (37%) |
| 6-12 months | 25 (25%) | 5 (24%) | 18 (31%) | 20 (26%) | 15 (32%) | 83 (27%) |
| > 1 year | 30 (30%) | 1 (4.8%) | 8 (14%) | 13 (17%) | 5 (11%) | 57 (19%) |
| 1n (%) |  |  |  |  |  |  |

Table 3. Results of demographic characteristics bivariate analysis with code identification score and change in confidence score (N = 304). Significant p-values (< 0.05) are bolded.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  | **Code Identification Score (%)** | | |  | **Change in Confidence Score** | | |
|  | **n (%)** | **Mean (SD)**1 | **F** | **p-value**2 |  | **Mean (SD)**1 | **F** | **p-value**2 |
| **Facility** |  |  | 33 | **<0.001** |  |  | 2 | **0.094** |
| A | 99 (33%) | 32.8 (14.8) |  |  |  | -0.90 (1.23) |  |  |
| B | 21 (6.9%) | 60.9 (19.8) |  |  |  | -0.29 (0.64) |  |  |
| C | 59 (19%) | 58.4 (17.4) |  |  |  | -1.03 (1.02) |  |  |
| D | 78 (26%) | 48.9 (15.5) |  |  |  | -0.77 (1.28) |  |  |
| E | 47 (15%) | 37.2 (16.6) |  |  |  | -1.02 (1.11) |  |  |
| **Position Type** |  |  | 1 | 0.3 |  |  | 0.82 | 0.4 |
| Clinical | 196 (64%) | 45.3 (19.4) |  |  |  | -0.91 (1.14) |  |  |
| Non-clinical | 108 (36%) | 43.0 (19.0) |  |  |  | -0.79 (1.22) |  |  |
| **Typical Shift** |  |  | 2.3 | 0.1 |  |  | 0.05 | >0.9 |
| Day Shift | 279 (92%) | 45.1 (19.3) |  |  |  | -0.87 (1.14) |  |  |
| Night Shift | 5 (1.6%) | 47.1 (17.2) |  |  |  | -0.80 (0.84) |  |  |
| Equal times on both shifts | 20 (6.6%) | 35.7 (17.5) |  |  |  | -0.80 (1.54) |  |  |
| **Facility Experience** |  |  | 3 | **0.031** |  |  | 0.31 | 0.8 |
| 0-2 years | 90 (30%) | 40.2 (17.2) |  |  |  | -0.94 (1.27) |  |  |
| 2-5 years | 77 (25%) | 43.9 (19.6) |  |  |  | -0.86 (1.13) |  |  |
| 5-8 years | 32 (11%) | 49.6 (18.1) |  |  |  | -0.72 (1.08) |  |  |
| > 8 years | 105 (35%) | 47.1 (20.4) |  |  |  | -0.86 (1.13) |  |  |
| **Healthcare Experience** |  |  | 3.8 | **0.011** |  |  | 0.83 | 0.5 |
| 0-2 years | 51 (17%) | 40.5 (15.8) |  |  |  | -1.08 (1.38) |  |  |
| 2-5 years | 67 (22%) | 40.3 (16.8) |  |  |  | -0.85 (1.12) |  |  |
| 5-8 years | 37 (12%) | 51.4 (21.5) |  |  |  | -0.70 (1.05) |  |  |
| > 8 years | 149 (49%) | 46.1 (20.2) |  |  |  | -0.85 (1.13) |  |  |
| **Total Facilities in Career** |  |  | 2.4 | **0.07** |  |  | 1.2 | 0.3 |
| 1 facility | 123 (40%) | 48.0 (19.5) |  |  |  | -0.92 (1.14) |  |  |
| 2-3 facilities | 106 (35%) | 42.3 (18.1) |  |  |  | -0.71 (1.19) |  |  |
| 4-5 facilities | 42 (14%) | 43.0 (20.7) |  |  |  | -0.95 (1.21) |  |  |
| > 5 facilities | 33 (11%) | 40.5 (19.0) |  |  |  | -1.09 (1.07) |  |  |
| 1Mean (Standard Deviation), 2One-way ANOVA | | | | | | | | |

Table 4. Results of experience with emergency codes bivariate analyses with code identification score and change in confidence score (N = 304). Significant p-values (< 0.05) are bolded.

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  | **Code Identification Score (%)** | | | | |  | **Change in Confidence Score** | | |
|  | **n (%)** | **Mean (SD)**1 | | **F** | | **p-value**2 |  | **Mean (SD)**1 | **F** | **p-value**2 |
| **Knowledge of Code Activation Procedures** | |  | | 32 | | **<0.001** |  |  | 0.13 | 0.7 |
| No | 94 (31%) | 35.6 (14.6) | |  | |  |  | -0.90 (1.30) |  |  |
| Yes | 210 (69%) | 48.5 (19.8) | |  | |  |  | -0.85 (1.10) |  |  |
| **Witnessed Code Confusion** |  |  | | 0.07 | | 0.8 |  |  | 0.19 | 0.7 |
| No | 196 (64%) | 44.3 (18.4) | |  | |  |  | -0.85 (1.10) |  |  |
| Yes | 108 (36%) | 44.9 (20.8) | |  | |  |  | -0.91 (1.28) |  |  |
| **Worked at a Facility with Different Color Codes** | | | 2.6 | | 0.078 | |  |  | 1.7 | 0.2 | |
| No | 197 (65%) | 46.3 (19.2) | |  | |  |  | -0.80 (1.12) |  |  |
| Yes | 80 (26%) | 41.2 (19.5) | |  | |  |  | -0.93 (1.27) |  |  |
| Maybe | 27 (8.9%) | 41.0 (17.6) | |  | |  |  | -1.22 (1.09) |  |  |
| **Code Type Preference** |  |  | | 4.7 | | **0.031** |  |  | 0.5 | 0.5 |
| Color Codes | 199 (65%) | 46.2 (19.4) | |  | |  |  | -0.83 (1.14) |  |  |
| Plain Language | 105 (35%) | 41.2 (18.6) | |  | |  |  | -0.93 (1.21) |  |  |
| **Code Exceptions for Plain Language** | |  | | 18 | | **<0.001** |  |  | 0.8 | 0.4 |
| No | 64 (21%) | 35.6 (17.1) | |  | |  |  | -0.98 (1.40) |  |  |
| Yes | 240 (79%) | 46.9 (19.1) | |  | |  |  | -0.84 (1.10) |  |  |
| **Training at Orientation** |  |  | | 5.8 | | **0.017** |  |  | 0.49 | 0.5 |
| No | 96 (32%) | 40.6 (17.7) | |  | |  |  | -0.94 (1.19) |  |  |
| Yes | 208 (68%) | 46.3 (19.7) | |  | |  |  | -0.84 (1.16) |  |  |
| **Training During Drills/Exercises** |  |  | | 4.1 | | **0.044** |  |  | 2.5 | 0.12 |
| No | 135 (44%) | 42.0 (19.4) | |  | |  |  | -0.99 (1.23) |  |  |
| Yes | 169 (56%) | 46.5 (19.0) | |  | |  |  | -0.78 (1.10) |  |  |
| **Annual Training** |  |  | | 18 | | **<0.001** |  |  | 4.6 | **0.033** |
| No | 149 (49%) | 39.8 (17.2) | |  | |  |  | -1.01 (1.23) |  |  |
| Yes | 155 (51%) | 49.0 (20.1) | |  | |  |  | -0.73 (1.08) |  |  |
| **Time Since Last Training** |  |  | | 2.2 | | 0.093 |  |  | 1.4 | 0.2 |
| < 1 month | 51 (17%) | 43.7 (22.9) | |  | |  |  | -0.67 (1.11) |  |  |
| 1-6 months | 113 (37%) | 47.7 (19.6) | |  | |  |  | -0.80 (1.18) |  |  |
| 6-12 months | 83 (27%) | 43.6 (17.2) | |  | |  |  | -0.94 (1.10) |  |  |
| > 1 year | 57 (19%) | 40.1 (17.2) | |  | |  |  | -1.09 (1.26) |  |  |
| 1Mean (Standard Deviation), 2One-way ANOVA | | | | | | | | | | |

Table 5. Results of regression analyses for code identification score. Only variables significantly associated with code identification score (p-value ≤ 0.05) were included in the multivariate regression.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | **Univariate** | | |  | **Multivariate** | | |
|  | **Beta** | **95% CI**1 | **p-value** |  | **Beta** | **95% CI**1 | **p-value** |
| **Facility** |  |  |  |  |  |  |  |
| A | — | — |  |  | — | — |  |
| B | 28.1 | 20.5, 35.7 | **<0.001** |  | 25.6 | 18.3, 33.0 | **<0.001** |
| C | 25.6 | 20.4, 30.8 | **<0.001** |  | 21.7 | 16.4, 27.0 | **<0.001** |
| D | 16.1 | 11.4, 20.9 | **<0.001** |  | 15.9 | 11.1, 20.8 | **<0.001** |
| E | 4.48 | -1.12, 10.1 | 0.12 |  | 3.92 | -1.46, 9.31 | 0.15 |
| **Position Type** | -2.35 | -6.87, 2.18 | 0.31 |  |  |  |  |
| **Typical Shift** |  |  |  |  |  |  |  |
| Day Shift | — | — |  |  | — | — |  |
| Night Shift | 2.06 | -14.9, 19.0 | 0.81 |  | 3.18 | -10.4, 16.8 | 0.65 |
| Equal times on both shifts | -9.37 | -18.1, -0.671 | **0.036** |  | -3.84 | -11.1, 3.42 | 0.3 |
| **Facility Experience** |  |  |  |  |  |  |  |
| 0-2 years | — | — |  |  | — | — |  |
| 2-5 years | 3.72 | -2.08, 9.52 | 0.21 |  | 5.85 | 0.028, 11.7 | **0.05** |
| 5-8 years | 9.39 | 1.70, 17.1 | **0.017** |  | 4.09 | -4.17, 12.3 | 0.33 |
| > 8 years | 6.98 | 1.62, 12.4 | **0.011** |  | 2.28 | -4.39, 8.95 | 0.5 |
| **Healthcare Experience** |  |  |  |  |  |  |  |
| 0-2 years | — | — |  |  | — | — |  |
| 2-5 years | -0.178 | -7.10, 6.74 | 0.96 |  | -3.66 | -10.7, 3.37 | 0.31 |
| 5-8 years | 10.9 | 2.84, 18.9 | **0.008** |  | 3.72 | -5.16, 12.6 | 0.41 |
| > 8 years | 5.59 | -0.447, 11.6 | 0.071 |  | 0.302 | -7.31, 7.91 | 0.94 |
| **Total Facilities in Career** |  |  |  |  |  |  |  |
| 1 facility | — | — |  |  | — | — |  |
| 2-3 facilities | -5.65 | -10.6, -0.682 | **0.027** |  | -2.36 | -6.76, 2.04 | 0.29 |
| 4-5 facilities | -4.94 | -11.6, 1.76 | 0.15 |  | -6.72 | -12.9, -0.579 | **0.033** |
| > 5 facilities | -7.49 | -14.8, -0.143 | **0.047** |  | -6.29 | -13.0, 0.411 | 0.067 |
| **Knowledge of Code Activation Procedures** | 12.8 | 8.37, 17.3 | **<0.001** |  | 9.07 | 5.01, 13.1 | **<0.001** |
| **Witnessed Code Confusion** | 0.629 | -3.90, 5.16 | 0.79 |  |  |  |  |
| **Worked at a Facility with Different Color Codes** |  |  |  |  |  |  |  |
| No | — | — |  |  | — | — |  |
| Yes | -5.18 | -10.2, -0.200 | **0.042** |  | -1.62 | -6.22, 2.98 | 0.49 |
| Maybe | -5.33 | -13.0, 2.37 | 0.18 |  | 0.726 | -5.84, 7.29 | 0.83 |
| **Code Type Preference** | -5.01 | -9.53, -0.482 | **0.031** |  | 0.435 | -3.36, 4.23 | 0.82 |
| **Code Exceptions for Plain Language** | 11.3 | 6.11, 16.4 | **<0.001** |  | 4.32 | -0.246, 8.89 | 0.065 |
| **Training at Orientation** | 5.67 | 1.05, 10.3 | **0.017** |  | 4.2 | 0.316, 8.09 | **0.035** |
| **Training During Drills/Exercises** | 4.48 | 0.147, 8.82 | **0.044** |  | 2.12 | -1.52, 5.76 | 0.26 |
| **Annual Training** | 9.15 | 4.94, 13.4 | **<0.001** |  | 0.781 | -3.01, 4.57 | 0.69 |
| **Time Since Last Training** |  |  |  |  |  |  |  |
| < 1 month | — | — |  |  |  |  |  |
| 1-6 months | 4.03 | -2.30, 10.4 | 0.21 |  |  |  |  |
| 6-12 months | -0.066 | -6.74, 6.61 | 0.98 |  |  |  |  |
| > 1 year | -3.6 | -10.8, 3.64 | 0.33 |  |  |  |  |
| 1CI = Confidence Interval |  |  |  |  |  |  |  |