**Supplementary Table 1**. MRSA Patient Characteristics, Stratified by Classification and Severity, in Four Calgary Acute Care Facilities Between April 2011-March 2017.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Characteristic | **HA-MRSA Infection (N=325)** | **HA-MRSA Colonization (N=901)** | **p-value** | **CA-MRSA Infection (N=264)** | **CA-MRSA Colonization (N=940)** | **p-value** |
|  | N (%) | N (%) |  | N (%) | N (%) |  |
| Age (Mean, SD) | 66.6 (18.0) | 71.7 (16.7) | <0.001 | 52.1 (19.4) | 63.4 (20.6) | <0.001 |
| Category(19-45) | 45 (13.9) | 74 (8.2) | 0.003 | 106 (40.2) | 208 (22.1) | <0.001 |
| (46-64) | 79 (24.3) | 193 (21.4) | 0.280 | 90 (34.1) | 249 (26.5) | 0.015 |
| (65+) | 201 (61.9) | 634 (70.4) | 0.005 | 68 (25.8) | 483 (51.4) | <0.001 |
|  |  |  |  |  |  |  |
| Gender (% Male) | 190 (58.5) | 454 (50.4) | 0.012 | 173 (65.5) | 519 (55.2) | 0.003 |
|  |  |  |  |  |  |  |
| Select Comorbidity (Charlson) | N (%) | N (%) |  | N (%) | N (%) |  |
| Congestive Heart Failure | 34 (10.5) | 127 (14.1) | 0.100 | 10 (3.8) | 68 (7.2) | 0.047 |
| Dementia | 34 (10.5) | 124 (13.8) | 0.128 | 13 (4.9) | 60 (6.4) | 0.367 |
| Chronic Pulmonary Disease | 39 (12.0) | 109 (12.1) | 0.962 | 23 (8.3) | 67 (7.0) | 0.473 |
| Diabetes, complication | 62 (19.1) | 177 (19.6) | 0.845 | 21 (8.0) | 115 (12.2) | 0.057 |
|  |  |  |  |  |  |  |
| Charlson Score  (Mean, SD) | 1.7 (1.9) | 1.7 (1.8) | 1.000 | 0.7 (1.3) | 1.0 (1.6) | 0.005 |
| # of Comorbidities Index | N (%) | N (%) |  | N (%) | N (%) |  |
| 0 | 116 (35.7) | 310 (34.4) | 0.673 | 162 (61.4) | 521 (55.4) | 0.082 |
| 1 | 56 (17.2) | 179 (19.9) | 0.289 | 58 (22.0) | 170 (18.1) | 0.153 |
| 2 | 71 (21.9) | 182 (20.2) | 0.516 | 27 (10.2) | 126 (13.4) | 0.168 |
| 3 | 41 (12.6) | 113 (12.5) | 0.963 | 7 (2.7) | 60 (6.4) | 0.021 |
| 4+ | 41 (12.6) | 117 (13.0) | 0.854 | 10 (3.8) | 63 (6.7) | 0.081 |

**Supplementary Table 2**. MRSA Hospital Outcome Characteristics, Stratified by Classification and Severity, in Four Calgary Acute Care Facilities Between April 2011-March 2017.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Characteristic | **HA-MRSA Infection (N=325)** | **HA-MRSA Colonization (N=901)** | **p-value** | **CA-MRSA Infection (N=264)** | **CA-MRSA Colonization (N=940)** | **p-value** |
| Median LOS (IQR) | 43 (70) | 30 (60) |  | 9 (14) | 7 (12) |  |
| Range | 3-398 | 3-422 |  | 1 - 187 | 1-168 |  |
|  |  |  |  |  |  |  |
| # of Prior Hospitalizations in 1 year | N (%) | N (%) |  | N (%) | N (%) |  |
| 0 | 58 (17.9) | 133 (14.8) | 0.187 | 104 (39.9) | 239 (25.4) | <0.001 |
| 1 | 111 (34.2) | 298 (33.1) | 0.719 | 118 (44.7) | 532 (56.6) | <0.001 |
| 2 | 67 (20.6) | 238 (26.4) | 0.038 | 25 (9.5) | 92 (9.8) | 0.089 |
| 3 | 48 (14.8) | 105 (11.7) | 0.148 | 14 (5.3) | 40 (4.3) | 0.490 |
| 4+ | 41 (12.5) | 127 (14.0) | 0.499 | 2 (1.1) | 37 (3.9) | 0.024 |
|  |  |  |  |  |  |  |
| Disposition of Index |  |  |  |  |  |  |
| - Discharge/Transfer | 284 (83.4) | 826 (89.7) | 0.003 | 310 (92.0) | 892 (92.8) | 0.660 |
| - Death | 54 (16.6) | 93 (10.3) | 0.003 | 21 (8.0) | 68 (7.2) | 0.660 |
|  |  |  |  |  |  |  |
| Top 5 Most Responsible Diagnoses | CHF (18, 5.5%) | CHF (42, 4.7%) |  | *S. aureus* Sepsis  (27, 10.2%) | COPD with acute exacerbation (29, 3.1%) |  |
|  | Rehabilitation Care  (16, 4.9%) | COPD with LRTI  (39, 4.3%) |  | Cellulitis of Lower Limb  (14, 5.3%) | CHF (28, 3.0%) |  |
|  | Infection after procedure (12, 3.7%) | Rehabilitation Care (38, 4.2%) |  | Abscess, carbuncle, furuncle of limb  (13, 4.9%) | COPD with acute LRTI (25, 2.7%) |  |
|  | *S.aureus* Sepsis (8, 2.5%) | UTI (33, 3.7%) |  | Cellulitis of other parts of limb  (10, 3.8%) | UTI (25, 2.7%) |  |
|  | COPD with LRTI  (8, 2.5%) | Delirium on Dementia  (26, 2.9%) |  | Cutaneous abscess, furuncle and carbuncle of trunk (7, 2.7%) | Sepsis, unspecified  (23, 2.5%) |  |
|  |  |  |  |  |  |  |

**Supplementary Table 3.** Identified Sampling Rationale Behind Incident HA-MRSA and CA-MRSA Cases between April 2011-March 2017.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Severity and Classification** | | | |
|  | **Hospital Acquired** | | **Community Acquired** | |
| Sampling Reason | **Infection** | **Colonization** | **Infection** | **Colonization** |
| Clearing Protocol | 1 | 0 | 1 | 7 |
| Clinical Isolate\*\* | 315 | 108 | 249 | 61 |
| Cluster Investigation | 0 | 2 | 0 | 0 |
| Other | 3 | 60 | 2 | 44 |
| Prevalence Survey | 0 | 8 | 0 | 1 |
| Roommate | 0 | 76 | 0 | 0 |
|  |  |  |  |  |
| Admission Screening | 0 | 30 | 0 | 36 |
| * Nasal | 0 | 17 | 0 | 30 |
| * Rectal | 0 | 11 | 0 | 3 |
| * Others (e.g. Wound) | 0 | 2 | 0 | 3 |
|  |  |  |  |  |
| Follow-up Screening | 1 | 50 | 2 | 58 |
| * Nasal | 0 | 26 | 0 | 42 |
| * Rectal | 0 | 19 | 0 | 15 |
| * Others (e.g. Wound) | 1 | 5 | 2 | 1 |
|  |  |  |  |  |
| Screen-Admit Facility | 1 | 106 | 3 | 145 |
| * Nasal | 0 | 74 | 0 | 106 |
| * Rectal | 0 | 30 | 0 | 38 |
| * Others (e.g. Wound) | 1 | 2 | 3 | 1 |
|  |  |  |  |  |
| Screen-Admit Unit | 4 | 460 | 7 | 586 |
| * Nasal | 1 | 297 | 0 | 452 |
| * Rectal | 0 | 161 | 0 | 130 |
| * Others (e.g. Wound) | 3 | 2 | 7 | 4 |
|  |  |  |  |  |
| Screen-Discharge Facility | 0 | 1 | 0 | 2 |
| Total | **325** | **901** | **264** | **940** |

\*\* Clinical isolate denotes obtained culture ordered by a physician as a result of some clinical indication or a suspicion.

Rationales related to screening programs were further stratified by swab sites (nasal, rectal, and others)****

**Figure 1.**

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**Figure 2.**