sTable 1. Candidate variables entered into genomic algorithm and their differences between the two cohort

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| --- | --- | --- | --- | --- |
| Variables | Details | Omega (n=272) | Sails (n=745) | p |
| age (mean (sd)) | Age as appears on screening form (in years)  |  54.31 (16.82) |  54.12 (16.34) |  0.869 |
| gender = 2 (%) | 1: male; 2: female |  133 ( 48.9)  |  380 (51.0)  |  0.600 |
| admtype (%) |  |   |   |  0.668 |
|  1 | Medical  |  246 ( 90.4)  |  655 (87.9)  |  |
|  2 | Surgical scheduled  |  8 ( 2.9)  |  23 ( 3.1)  |  |
|  3 | Surgical unscheduled |  15 ( 5.5)  |  54 ( 7.2)  |  |
|  4 | other |  3 ( 1.1)  |  13 ( 1.7)  |  |
| admitfrom (%) | Select the location where the patient was immediately prior to this ICU admission (OR, Recovery Room, ER, Floor, Another Special Care Unit, Another Hospital, Direct Admit, Step-down Unit). |   |   |  0.472 |
|  1 |  |  8 ( 2.9)  |  24 ( 3.2)  |  |
|  2 |  |  5 ( 1.8)  |  8 ( 1.1)  |  |
|  3 |  |  124 ( 45.6)  |  291 (39.1)  |  |
|  4 |  |  61 ( 22.4)  |  210 (28.2)  |  |
|  5 |  |  5 ( 1.8)  |  17 ( 2.3)  |  |
|  6 |  |  50 ( 18.4)  |  152 (20.4)  |  |
|  7 |  |  5 ( 1.8)  |  11 ( 1.5)  |  |
|  8 |  |  14 ( 5.1)  |  32 ( 4.3)  |  |
| reside (%) |  |   |   |  0.036 |
|  1 | Home independently  |  220 ( 80.9)  |  594 (79.8)  |  |
|  2 | Home w/ help (supervision, direction, or personal assistance)  |  35 ( 12.9)  |  72 ( 9.7)  |  |
|  3 | Home w/ professional help (nursing/nursing service)  |  0 ( 0.0)  |  14 ( 1.9)  |  |
|  4 | Intermediate care or rehab facility  |  3 ( 1.1)  |  18 ( 2.4)  |  |
|  5 | Skilled nursing facility  |  8 ( 2.9)  |  37 ( 5.0)  |  |
|  7 | Others |  6 ( 2.2)  |  9 ( 1.2)  |  |
| surgel = 1 (%) | Is the patientimmediately postoperativefromelective surgery? |  10 ( 3.7)  |  19 ( 2.6)  |  0.458 |
| icureadmit = 1 (%) | If item 8 is answered “yes”, was the readmission to the ICU within24 hours of a previous ICU discharge? |  11 ( 4.0)  |  29 ( 3.9)  |  1.000 |
| chrondial = 1 (%) | Is the patient onchronic dialysis orperitoneal dialysis? |  10 ( 3.7)  |  15 ( 2.0)  |  0.198 |
| aids = 1 (%) | Select (Yes) or (No). Enter (No) if HIV positive but without otherAIDS criteria. |  8 ( 2.9)  |  20 ( 2.7)  |  0.996 |
| leuk = 1 (%) | Leukemia (AML,CML, all lymphocyticleukemia, multiplemyeloma) |  10 ( 3.7)  |  43 ( 5.8)  |  0.241 |
| lymph = 1 (%) | Non-Hodgkin’sLymphoma |  5 ( 1.8)  |  10 ( 1.3)  |  0.774 |
| tumor = 1 (%) | Solid Tumor withmetastasis |  2 ( 0.7)  |  38 ( 5.1)  |  0.003 |
| immune = 1 (%) | Select (Yes) or (No) to indicate if the patient is immunocompromised secondary to chemotherapy, radiation therapy, use of anti-rejection drugs taken after organ transplant, or the daily use of high doses of steroids (0.3 mg Prednisone kg/day or equivalent therapy) within part of or the entire previous six months. |  25 ( 9.2)  |  118 (15.8)  |  0.009 |
| hepa = 1 (%) | Select (Yes) or (No) to indicate if the patient hasdecompensated cirrhosis (Hepatic Failure) as evidenced byone or more episodes of jaundice and ascites, uppergastrointestinal bleeding or hepatic encephalopathy orcomas. |  1 ( 0.4)  |  11 ( 1.5)  |  0.262 |
| cirr = 1 (%) | Select "1" (Yes) or "2" (No) to indicate if the patient hascirrhosis without the stigmata indicated above in 17. If thepatient has a functioning liver transplant, this chronic healthitem would not apply. |  12 ( 4.4)  |  38 ( 5.1)  |  0.772 |
| diab = 1 (%) | Diabetes Mellitus |  88 ( 32.4)  |  170 (22.8)  |  0.003 |
| hyper = 1 (%) | Hypertension |  131 ( 48.2)  |  356 (47.8)  |  0.986 |
| myocard = 1 (%) | Prior myocardialinfarction |  23 ( 8.5)  |  29 ( 3.9)  |  0.006 |
| heart = 1 (%) | Chronic heart failure |  19 ( 7.0)  |  48 ( 6.5)  |  0.872 |
| vascular = 1 (%) | Peripheral vasculardisease |  12 ( 4.4)  |  36 ( 4.8)  |  0.910 |
| aestroke = 1 (%) | Prior stroke withsequelae |  10 ( 3.7)  |  20 ( 2.7)  |  0.536 |
| dementia = 1 (%) | Dementia |  10 ( 3.7)  |  27 ( 3.6)  |  1.000 |
| chrpulm = 1 (%) | Chronic pulmonarydisease |  36 ( 13.2)  |  130 (17.5)  |  0.128 |
| arthritis = 1 (%) | Arthritis |  19 ( 7.0)  |  73 ( 9.8)  |  0.205 |
| ulcer = 1 (%) | Peptic ulcer disease |  8 ( 2.9)  |  53 ( 7.1)  |  0.020 |
| vasol24 = 1 (%) | Select (Yes) or (No) to indicate if the pt has received anyvasopressors in the 24 hours prior to randomization. |  140 ( 51.5)  |  406 (54.6)  |  0.420 |
| templ (mean (sd)) | Enter the lowest temperatures in Centigrade or Fahrenheit. Add 1 degree Centigrade or 2 degreesFahrenheit if axillary temperatures. |  36.50 (1.07) |  36.56 (0.88) |  0.354 |
| temph (mean (sd)) | Enter the highest temperatures in Centigrade or Fahrenheit. Add 1 degree Centigrade or 2 degreesFahrenheit if axillary temperatures. |  38.12 (1.19) |  38.09 (0.96) |  0.639 |
| sysbpl (mean (sd)) | The lowest systolic blood pressure |  86.34 (17.34) |  85.38 (15.62) |  0.399 |
| sysbph (mean (sd)) | The highest systolic blood pressure |  145.08 (25.77) |  144.01 (25.79) |  0.559 |
| mapl (mean (sd)) | Lowest mean arterial pressure  |  59.49 (12.95) |  59.95 (11.27) |  0.585 |
| maph (mean (sd)) | highest mean arterial pressure |  96.24 (17.89) |  98.27 (17.96) |  0.113 |
| hratel (mean (sd)) | Low heart rate  |  85.08 (20.13) |  83.19 (18.11) |  0.152 |
| hrateh (mean (sd)) | High heart rate |  117.29 (20.95) |  118.37 (22.74) |  0.497 |
| respl (mean (sd)) | Low respiratory rate |  18.15 (5.98) |  17.42 (6.25) |  0.096 |
| resph (mean (sd)) | High respiratory rate |  32.91 (8.88) |  32.92 (8.50) |  0.994 |
| ventl = 1 (%) | Was patient ventilated when the lowestrespiratory rate occurred? |  247 ( 90.8)  |  689 (92.5)  |  0.458 |
| venth = 1 (%) | Was patient ventilated when the highestrespiratory rate occurred? |  237 ( 87.1)  |  635 (85.2)  |  0.506 |
| urineout\_0 (mean (sd)) | Enter the amount of urine output (ml) in the 24 hrs prior to randomization time. E.g., if time of randomization occurson 2/1/07 at 1400, then the urinary output listed should be from 1/31/07 at 1400 to 2/1/07 at 1400). If a large volumeof urine was inadvertently spilled or the urine was not measured, mark the field as “unknown”. A urine output value of zero indicates that data are available and thepatient produced no urine. |  1655.99 (1262.99) |  1604.72 (1236.42) |  0.562 |
| fluidout\_0 (mean (sd)) | Enter the total fluid intake (ml) in the 24 hrs prior to randomization. (See example in number 8). This total should INCLUDE urine output and a negative CVVH balance. |  2054.25 (2223.36) |  1880.83 (1394.46) |  0.141 |
| fluidin\_0 (mean (sd)) | Enter the total fluid intake (ml) in the 24 hrs prior to randomization. (See example in number 8). This total should include a positive CVVH balance. |  4752.95 (3335.14) |  4057.34 (2617.34) |  0.001 |
| hctl (mean (sd)) | Enter lowest % values rounded to the nearest whole number (e.g., "35", not " .35"). If only one value is present for 24-hour period, enter this value in the “only column”. |  29.55 (5.92) |  29.94 (6.14) |  0.360 |
| hcth (mean (sd)) | Enter highest % values rounded to the nearest whole number (e.g., "35", not " .35"). If only one value is present for 24-hour period, enter this value in the “only column”. |  31.65 (6.14) |  31.85 (6.54) |  0.658 |
| wbcl (mean (sd)) | Enter lowest as "00000" (e.g., a WBC of 14.2 should be entered as "14200").If only one value is present for 24-hour period, enter this value in the “only column”. | 11958.65 (9705.70) | 14148.16 (12238.23) |  0.008 |
| wbch (mean (sd)) | Enter highest as "00000" (e.g., a WBC of 14.2 should be entered as "14200").If only one value is present for 24-hour period, enter this value in the “only column”. | 13773.73 (9906.71) | 15738.45 (12368.95) |  0.019 |
| plate (mean (sd)) | Enter only the lowest value during the 24 hours. Enter as "000" (e.g., a platelet count of 258,000 should be entered as "258"). |  192.55 (113.22) |  186.25 (124.63) |  0.467 |
| sodiuml (mean (sd)) | Enter lowest.If only one value present for 24-hour period, enter this value in the “only column”. |  137.52 (5.22) |  137.79 (5.43) |  0.468 |
| sodiumh (mean (sd)) | Enter highest.If only one value present for 24-hour period, enter this value in the “only column”. |  139.71 (5.03) |  139.60 (5.27) |  0.769 |
| potasl (mean (sd)) | Enter highest and lowest.If only one value present for 24-hour period, enter this value in the “only column”. |  3.82 (0.64) |  3.84 (0.62) |  0.672 |
| potash (mean (sd)) | Enter highest and lowest.If only one value present for 24-hour period, enter this value in the “only column”. |  4.30 (0.82) |  4.23 (0.72) |  0.186 |
| bun (mean (sd)) | Enter only highest value. |  30.64 (23.79) |  27.56 (20.26) |  0.041 |
| creatl (mean (sd)) | Enter highest and lowest. If only one value present for 24-hour period, enter this value in the “only column”.If only one value present for 24-hour period, enter this value in the “only column”. |  1.68 (1.58) |  1.37 (1.08) | <0.001 |
| creath (mean (sd)) | Enter highest and lowest. If only one value present for 24-hour period, enter this value in the “only column”.If only one value present for 24-hour period, enter this value in the “only column”. |  1.91 (1.75) |  1.53 (1.18) | <0.001 |
| glucl (mean (sd)) | Enter highest and lowest. If only one value present for 24-hour period, enter this value in the “only column”.If only one value present for 24-hour period, enter this value in the “only column”. |  113.53 (61.06) |  124.77 (48.78) |  0.003 |
| gluch (mean (sd)) | Enter highest and lowest. If only one value present for 24-hour period, enter this value in the “only column”.If only one value present for 24-hour period, enter this value in the “only column”. |  165.60 (81.87) |  167.08 (86.72) |  0.808 |
| albuml (mean (sd)) | Enter highest and lowest. If only one value present for 24-hour period, enter this value in the “only column”.If only one value present for 24-hour period, enter this value in the “only column”. |  2.28 (0.65) |  2.19 (0.64) |  0.063 |
| albumh (mean (sd)) | Enter highest and lowest. If only one value present for 24-hour period, enter this value in the “only column”.If only one value present for 24-hour period, enter this value in the “only column”. |  2.39 (0.76) |  2.27 (0.68) |  0.032 |
| bilih (mean (sd)) | Enter only highest value. |  1.64 (2.79) |  1.32 (1.80) |  0.044 |
| bicarbl (mean (sd)) | Enter only lowest value. |  21.08 (4.92) |  21.78 (5.52) |  0.067 |
| ck\_0 (mean (sd)) | Potassium |  NaN (NA) |  219.20 (406.96) |  NA |
| alt\_0 (mean (sd)) | ALT |  NaN (NA) |  36.30 (35.35) |  NA |
| ast (mean (sd)) | AST |  NaN (NA) |  51.86 (57.93) |  NA |
| crp\_0 (mean (sd)) | CRP |  NaN (NA) |  26.44 (31.10) |  NA |
| simv\_0 = NaN (%) | Ventilator mode (NaN indicates the mode was not used) |  262 ( 96.3)  |  0 ( 0.0)  | <0.001 |
| prvc\_0 = NaN (%) | Ventilator mode (NaN indicates the mode was not used) |  229 ( 84.2)  |  0 ( 0.0)  | <0.001 |
| pressup\_0 = NaN (%) | Ventilator mode (NaN indicates the mode was not used) |  249 ( 91.5)  |  0 ( 0.0)  | <0.001 |
| volassist\_0 = NaN (%) | Ventilator mode (NaN indicates the mode was not used) |  87 ( 32.0)  |  0 ( 0.0)  | <0.001 |
| pcirv\_0 = NaN (%) | Ventilator mode (NaN indicates the mode was not used) |  271 ( 99.6)  |  0 ( 0.0)  | <0.001 |
| aprv\_0 = NaN (%) | Ventilator mode (NaN indicates the mode was not used) |  264 ( 97.1)  |  0 ( 0.0)  | <0.001 |
| ventoth\_0 = NaN (%) | Ventilator mode (NaN indicates the mode was not used) |  268 ( 98.5)  |  0 ( 0.0)  | <0.001 |
| hfov\_0 = NaN (%) | Ventilator mode (NaN indicates the mode was not used) |  272 (100.0)  |  0 ( 0.0)  | <0.001 |
| tidal\_0 (mean (sd)) | Enter the corrected inspired tidal volume: inspired tidal volume (ml) set on the ventilator minus any additional tidal volume added to correct for has compression and ventilator tube expansion (this should = the tidal volume called for by the protocol; this will not = the volume set on the ventilator unless the ventilator makes automatic adjustments for gas compression/tube expansion).Puritan-Bennett 7200’s and some other ventilators make this correction automatically (for these vents, the value set on the vent = the calculated delivered tidal volume). |  428.50 (89.31) |  413.46 (87.01) |  0.025 |
| setrate\_0 (mean (sd)) | Enter the rate set on the ventilator if the patient is on SIMV, SIMV with Pressure Support, Assist/Control, or Pressure Control mode. (This is the minimum rate set on the ventilator, not the patient rate). |  21.09 (7.39) |  21.96 (7.32) |  0.112 |
| resp\_0 (mean (sd)) | Enter the total respiratory rate, which may exceed the Set Rate above if the patient is making additional inspiratory efforts. |  25.21 (7.18) |  25.09 (7.15) |  0.814 |
| minvent\_0 (mean (sd)) | Enter the total minute ventilation in liters per minute. This value is available from a digital report on the ventilator. |  10.99 (3.03) |  10.77 (3.15) |  0.346 |
| peep\_0 (mean (sd)) | Enter the PEEP applied on the ventilator in cmH2O.This is the external or applied PEEP, not the total PEEP, auto-PEEP, or intrinsic PEEP. |  8.61 (3.41) |  9.20 (3.80) |  0.024 |
| fio2\_0 (mean (sd)) | Enter FiO2 prior to randomization. |  0.56 (0.18) |  0.56 (0.19) |  0.614 |
| SpO2\_0 (mean (sd)) | Enter SpO2 prior to randomization. |  95.68 (3.69) |  95.98 (3.51) |  0.234 |
| pplat\_0 (mean (sd)) | Enter the value for plateau pressure measurement in cm H20.The plateau pressure measurement should be made with a 0.5 second inspiratory pause. |  23.06 (5.19) |  23.49 (6.60) |  0.422 |
| pip\_0 (mean (sd)) | Enter the peak inspiratory airway pressure (cmH2O).This should be obtained while the patient is relaxed, not coughing or moving in bed. |  27.60 (8.40) |  27.28 (8.56) |  0.608 |
| meanair\_0 (mean (sd)) | Enter the mean airway pressure (cmH2O).This should be obtained while the patient is relaxed, not coughing or moving in bed. |  14.19 (4.35) |  14.99 (4.91) |  0.024 |
| status (%) |  |   |   |  0.172 |
|  1 | Select “home with UAB” if the patient is home with unassistedbreathing at any time up through day 90. “Home” is defined as the place the patient lived prior to study hospital admission (i.e., pt living in a nursing home→admitted to study hospital and enrolled into study→DC’d back to nursing home on UAB. The nursing home would qualify as “home on UAB”. Pts previously living at home who are discharged to a rehab facility on UAB from study hospital would NOT qualify as being “home on UAB”.) |  196 ( 72.1)  |  497 (66.7)  |  |
|  2 | Select “Dead…” if the patient died prior to discharge home with unassisted breathing or died prior to achieving unassisted breathing at home for 48 hours. |  59 ( 21.7)  |  205 (27.5)  |  |
|  3 | Select “Other” if neither condition above applies. E.g., if the patient went home on assisted breathing and has not achieved unassisted breathing for 48 hours, continues on assisted breathing, or has been transferred to another facility, other than home, on unassisted breathing. |  17 ( 6.2)  |  43 ( 5.8)  |  |