**Supplementary online content**

Bose S, Groat D, Dinglas VD et al. Association between unmet non-medication needs after hospital discharge and readmission or death among acute respiratory failure survivors: a multicenter prospective cohort study

**Supplementary tables**

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**eFigure S3:** Variable importance from random forest model predicting proportion of unmet needs.

**eTable S1:** Frequency of prescription for durable medical equipment (DME) and status at follow-up. (n=118)

|  |  |  |  |
| --- | --- | --- | --- |
| Durable Medical Equipment | Frequency | DME Status at Follow-up | |
| \*Unmet % | \*Used % |
| Oxygen | 40 | 12 | 85 |
| Walker | 31 | 23 | 74 |
| Non-invasive ventilation | 16 | 31 | 69 |
| Glucometer | 14 | 14 | 79 |
| Nebulizer | 13 | 8 | 85 |
| Commode | 12 | 50 | 33 |
| Shower chair | 12 | 42 | 42 |
| Wound care | 11 | 0 | 100 |
| Infusion pump: nutrition | 10 | 0 | 100 |
| Infusion pump: medications | 8 | 12 | 88 |
| Cane | 7 | 57 | 0 |
| Wheelchair | 4 | 25 | 75 |
| Hospital bed | 3 | 33 | 67 |
| Wound VAC (Vacuum Assisted Closure) device | 3 | 33 | 67 |
| Shower bar | 2 | 0 | 100 |
| Chairlift | 2 | 50 | 50 |
| Foley catheter | 2 | 0 | 100 |
| Crutches | 1 | 0 | 100 |
| Ramp for house | 1 | 0 | 100 |

**\*** *Unmet* were never delivered or not in process for delivery. *Used* if the patient reported using the equipment.

**eTable S2:** Reasons for unfilled durable medical equipment (DME) needs (n=118)

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| DME | Frequency | Reason DME was Unmet | | | | |
| Can’t Afford  % | Not Delivered % | Patient  Declined  % | Physician Cancelled  % | Other  % |
| Oxygen | 40 | 0 | 2 | 0 | 8 | 8 |
| Walker | 31 | 0 | 3 | 10 | 0 | 16 |
| Non-invasive ventilation | 16 | 0 | 19 | 0 | 0 | 12 |
| Glucometer | 14 | 0 | 0 | 0 | 0 | 21 |
| Nebulizer | 13 | 0 | 0 | 0 | 0 | 15 |
| Commode | 12 | 0 | 8 | 25 | 0 | 17 |
| Shower chair | 12 | 0 | 0 | 17 | 8 | 25 |
| Wound care | 11 | 0 | 0 | 0 | 0 | 0 |
| Infusion pump: nutrition | 10 | 0 | 0 | 0 | 0 | 0 |
| Infusion pump: medications | 8 | 0 | 0 | 0 | 0 | 12 |
| Cane | 7 | 0 | 14 | 0 | 0 | 57 |
| Wheelchair | 4 | 0 | 0 | 25 | 0 | 0 |
| Hospital bed | 3 | 0 | 0 | 0 | 0 | 0 |
| Wound Vac | 3 | 0 | 33 | 0 | 0 | 0 |
| Shower bar | 2 | 0 | 0 | 0 | 0 | 0 |
| Chairlift | 2 | 50 | 0 | 0 | 0 | 0 |
| Foley catheter | 2 | 0 | 0 | 0 | 0 | 0 |
| Crutches | 1 | 0 | 0 | 0 | 0 | 0 |
| Ramp for house | 1 | 0 | 0 | 0 | 0 | 0 |

**eTable S3**: Frequency and unfilled rate of home health services at follow-up. (n = 134)

|  |  |  |  |
| --- | --- | --- | --- |
| Home Health Service | Frequency | Home Health Service Status at Follow-up | |
| \*Unmet % | Not Scheduled % |
| Nurse | 96 | 21 | 6 |
| Physical therapy | 84 | 45 | 21 |
| Occupational therapy | 63 | 49 | 25 |
| Wound care | 14 | 21 | 7 |
| Speech-language pathology | 13 | 54 | 38 |
| Oxygen | 12 | 25 | 8 |
| Infusion care | 10 | 20 | 20 |
| Evaluation | 7 | 57 | 14 |
| Education | 7 | 43 | 14 |
| Home health aide | 5 | 20 | 20 |
| Remote patient monitoring | 4 | 25 | 0 |
| Enteral Feeding | 4 | 25 | 25 |
| Social work | 3 | 100 | 33 |
| Respiratory therapy | 2 | 100 | 50 |
| Private nurse | 1 | 0 | 0 |

**\*** *Unmet* were missed or not scheduled.

**eTable S4:** Reasons for unmet home health services (HHS) needs. (n=134)

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Home Health Service | Frequency | Reason HHS Appointments were Unmet\* | | | | |
| Can’t  Afford  % | Pt  Refused  % | MD  Cancelled  % | Has  COVID  % | Other  % |
| Nurse | 96 | 0.0 | 2 | 0 | 7 | 86 |
| Physical therapy | 84 | 0.0 | 4 | 4 | 19 | 70 |
| Occupational therapy | 63 | 0.0 | 3 | 11 | 21 | 65 |
| Wound care | 14 | 0.0 | 7 | 0 | 0 | 93 |
| Speech-language pathology | 13 | 0.0 | 8 | 0 | 31 | 54 |
| Oxygen | 12 | 0.0 | 0 | 8 | 0 | 92 |
| Infusion care | 10 | 0.0 | 0 | 0 | 10 | 80 |
| Evaluation | 7 | 0.0 | 0 | 0 | 29 | 71 |
| Education | 7 | 0.0 | 0 | 0 | 14 | 71 |
| Home health aid | 5 | 0.0 | 0 | 0 | 0 | 80 |
| Remote patient monitoring | 4 | 0.0 | 0 | 0 | 0 | 100 |
| Enteral Feeding | 4 | 0.0 | 0 | 0 | 0 | 0 |
| Social worker consult | 3 | 0.0 | 0 | 0 | 67 | 33 |
| Respiratory therapy | 2 | 0.0 | 0 | 0 | 100 | 0 |
| Private nurse | 1 | 0.0 | 0 | 0 | 0 | 100 |

\* No HHS were unfilled because of patients’ decision to not follow through to avoid getting COVID

**eTable S5**: Frequency of unmet follow-up medical appointments (FUA) by medical specialty and status at follow-up. (n = 189)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Follow-up Medical Appointment | Frequency | Status of FUA at Follow-up | | | |
| \*Unmet  % | Scheduled  before  discharge % | Scheduled  after  discharge % | One or  More  Visits % |
| **Physician** |  |  |  |  |  |
| Primary Care Provider | 138 | 13 | 42 | 46 | 57 |
| Cardiologist | 67 | 9 | 76 | 15 | 39 |
| Pulmonologist | 51 | 7 | 73 | 20 | 31 |
| Heme/Oncologist | 33 | 15 | 58 | 27 | 36 |
| Nephrologist | 17 | 12 | 47 | 41 | 24 |
| General Surgery | 14 | 7 | 64 | 29 | 21 |
| Cardiothoracic Surgeon | 13 | 0 | 85 | 15 | 38 |
| Infectious Disease | 13 | 7 | 85 | 8 | 31 |
| Sleep Medicine | 13 | 31 | 54 | 15 | 8 |
| Urologist | 11 | 9 | 82 | 9 | 36 |
| Hepatologist | 10 | 20 | 80 | 0 | 30 |
| Gastroenterologist | 9 | 11 | 67 | 22 | 22 |
| Internal/Family Medicine | 9 | 11 | 56 | 33 | 33 |
| Psychiatrist | 5 | 0 | 80 | 20 | 40 |
| Vascular Surgery | 4 | 0 | 100 | 0 | 0 |
| Endocrinologist | 4 | 0 | 75 | 25 | 0 |
| Orthopedic Surgeon | 4 | 0 | 75 | 25 | 25 |
| Neurologist | 4 | 50 | 50 | 0 | 0 |
| Ear, Nose, Throat | 4 | 50 | 25 | 25 | 0 |
| Plastic Surgery | 3 | 33 | 67 | 0 | 0 |
| Radiology | 3 | 0 | 67 | 33 | 0 |
| Dermatologist | 2 | 0 | 100 | 0 | 50 |
| Rheumatologist | 2 | 0 | 100 | 0 | 50 |
| Thoracic Surgeon | 2 | 0 | 100 | 0 | 0 |
| Addiction Medicine | 2 | 50 | 50 | 0 | 50 |
| Electrophysiologist | 2 | 50 | 50 | 0 | 50 |
| Psychiatrist | 2 | 0 | 50 | 50 | 100 |
| OB/GYN | 1 | 0 | 100 | 0 | 0 |
| Neurosurgery | 1 | 100 | 0 | 0 | 0 |
| **Laboratory/Imaging/Dialysis** |  |  |  |  |  |
| Laboratory | 46 | 21 | 46 | 33 | 52 |
| Imaging | 25 | 24 | 52 | 24 | 20 |
| Anticoagulation Clinic | 7 | 14 | 57 | 29 | 71 |
| Dialysis | 1 | 0 | 100 | 0 | 100 |
| **Rehabilitation and Support Services** |  |  |  |  |  |
| Physical Therapy | 9 | 22 | 22 | 56 | 22 |
| Cardiac Registered Nurse | 8 | 0 | 88 | 12 | 12 |
| Cardiac Rehabilitation | 7 | 43 | 43 | 14 | 0 |
| COVID-19 Related | 7 | 14 | 43 | 43 | 43 |
| Physical Medicine/Rehab | 7 | 0 | 100 | 0 | 0 |
| Speech-Language Pathology | 7 | 57 | 14 | 29 | 29 |
| After Care Clinic | 6 | 0 | 83 | 17 | 50 |
| Drug Use | 6 | 67 | 33 | 0 | 17 |
| Occupational Therapy | 5 | 80 | 0 | 20 | 20 |
| Nutrition | 3 | 33 | 67 | 0 | 0 |
| Pulmonology Rehab | 3 | 67 | 33 | 0 | 33 |
| Registered Nurse | 2 | 0 | 100 | 0 | 50 |
| Alcohol Use | 2 | 50 | 0 | 50 | 0 |
| Tobacco Use | 2 | 100 | 0 | 0 | 0 |
| Social Worker | 1 | 0 | 100 | 0 | 0 |
| Psychologist | 1 | 100 | 0 | 0 | 0 |
| Therapist | 1 | 100 | 0 | 0 | 0 |

\* *Unmet* FUA needs: Appointments were never scheduled, hence no visit occurred.

**eTable S6:** Estimates of top four variables identified from random forest model predictive of unmet discharge needs. Variables were included in a Poisson multivariate regression model for unmet discharge needs.

|  |  |  |  |
| --- | --- | --- | --- |
| Variable | Odds Ratio | 95% CI | p-value |
| Hospital Length of Stay | 1.015 | 1.006 to 1.025 | 0.002 |
| APACHE II Severity of Illness Score | 0.983 | 0.959 to 1.009 | 0.200 |
| Multidimensional Scale Perceived Social Support Score | 1.000 | 0.986 to 1.015 | 0.998 |
| Age | 1.016 | 1.002 to 1.030 | 0.022 |

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**eFigure S1:** Covariate balancing for unmet non-medication discharge needs.

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**eFigure S2:** Timing of follow-up and constituents of primary outcome. Outcomes on the left of the follow-up occurred before the follow-up assessment of discharge needs. There were 18% (35/195) of outcomes that occurred before 28 days, of which 12% (23/195) occurred before the follow-up assessment.

Table

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**eFigure S3:** Variable importance from random forest model predicting proportion of unmet needs.