Supplementary Online Content

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eFigure 1. Flowchart of Sample
eTable 1. Unadjusted Index Hospitalizations Before or After Hospital Readmissions Reduction Program Implementation
eTable 2. Whether an Initial Hospitalization Resulted in an Emergency Department Revisit
eAppendix 1. Parallel Slopes Assumption
eFigure 2. Unadjusted Trends in Admissions Before Hospital Readmissions Reduction Program Implementation
eAppendix 2. Model
eAppendix 3. Robustness Checks
eTable 3. Whether an Emergency Department Revisit Resulted in a Readmission
eTable 4. Whether an Emergency Department Revisit Resulted in a Readmission for Conditions for Which Admission Is Potentially Nondiscretionary
eTable 5. Whether an Emergency Department Revisit Resulted in a Readmission, for Conditions for Which Admission Is Potentially Nondiscretionary Stratified by Condition
eTable 6. Whether an Emergency Department Revisit Resulted in a Readmission for Conditions for Which Admission Is More Variable
eReferences.

This supplementary material has been provided by the authors to give readers additional information about their work.
**eFigure 1. Flowchart of Sample**

Medicare patients 65+ admitted to a non-federal, acute-care hospital participating in HRRP (N=12,964,566)

- Died (N=513,031)
- Transferred to another acute-care facility (N=323,003)
- W/o at least 30 days post-discharge follow-up available (N=284,665)
- Left against medical advice (N=84,682)
- Admissions for primary psychiatric diagnoses (N=83,280)
- Admissions for rehabilitation (N=117,337) or cancer (N=567,699)
- Admitted for a condition later targeted by HRRP (N=1,076,801)
- Missing data (on service line) (N=1)

Index cohort (N=9,914,068)

Index cohort who revisit the ED within 30 days of discharge (N=2,111,412)

- Died (N=136,637) or transferred during ED revisit (N=44,106)
- ED revisit associated with procedure or diagnosis categories that are planned (N=63,2995)
- Rural hospital (N=65)

Final sample (N=1,906,498)
eTable 1. Unadjusted Index Hospitalizations Before or After Hospital Readmissions Reduction Program Implementation

|                                      | Total | Pre-HRRP implementation | Post-HRRP implementation |
|--------------------------------------|-------|-------------------------|--------------------------|
|                                      | HRRP-targeted condition | Non-HRRP targeted condition | HRRP-targeted condition | Non-HRRP targeted condition |
| # of index hospitalizations           | 1,087,679 | 8,274,773               | 650,734                  | 4,861,481                  | 436,945                  | 3,413,292 |
| ED Revisits (both admit-and-release and admitted) |       |                         |                          |                           |                           |             |
| Total                                | 290,553  | 1,820,804                | 175,767                  | 1,065,035                  | 114,786                  | 755,769     |
| Unplanned                            | 283,624  | 1,773,286                | 171,551                  | 1,036,487                  | 112,073                  | 736,799     |
| Readmissions of index hospitalizations |       |                         |                          |                           |                           |             |
| Total                                | 223,768  | 1,318,543                | 138,678                  | 792,853                    | 85,090                   | 525,690     |
| Unplanned                            | 210,034  | 1,211,373                | 130,183                  | 726,391                    | 79,851                   | 484,982     |
| Of readmissions, from the ED          |       |                         |                          |                           |                           |             |
| Total                                | 199,682  | 1,118,863                | 123,030                  | 665,807                    | 76,652                   | 453,056     |
| Unplanned                            | 192,988  | 1,073,119                | 118,953                  | 638,252                    | 74,035                   | 434,867     |

Abbreviations: ED = Emergency department; HRRP = Hospital Readmissions Reduction Program

Notes. Pre-HRRP implementation is Q1 2010-Q3 2012; post-HRRP implementation is Q4 2012-Q4 2014. All differences between index hospitalizations for HRRP-targeted conditions and non-targeted conditions are statistically significant (p<0.001).

Source. Authors’ analysis of data from the Patient Discharge Data and Emergency Department and Ambulatory Surgery Data, Office of Statewide Health and Planning (OSHPD) (California), and the State Emergency Department Databases and the State Inpatient Databases from the Healthcare Cost and Utilization Project (New York and Florida)
### eTable 2. Whether an Initial Hospitalization Resulted in an Emergency Department Revisit

| Targeted condition | Pre-Implementation | Post-Implementation | Post-Pre Difference | Difference-in-difference |
|--------------------|--------------------|---------------------|---------------------|-------------------------|
|                    | 0.246 [0.245, 0.248] | 0.240 [0.239, 0.242] | -0.006*** [-0.008, -0.004] | -0.008*** [-0.010, -0.006] |
| Non-targeted condition | 0.222 [0.221, 0.223] | 0.224 [0.223, 0.225] | 0.002** [0.001, 0.004] |

*Notes.* Predicted probabilities and marginal effects calculated from a linear probability model with hospital fixed effects. The model controls for age, sex, race/ethnicity, Charlson comorbidity index, whether the ED revisit was on a weekend, patient’s condition at the index hospitalization and year. A negative difference or difference-in-difference indicates that ED revisits decreased post-implementation.

*Source.* Authors’ analysis of data from the Patient Discharge Data and Emergency Department and Ambulatory Surgery Data, Office of Statewide Health and Planning (OSHPD) (California), and the State Emergency Department Databases and the State Inpatient Databases from the Healthcare Cost and Utilization Project (New York and Florida)
**eAppendix 1. Parallel Slopes Assumption**

In order for difference-in-differences to work properly, we need to satisfy the parallel slopes assumption. Specifically, this states that during the baseline period, readmissions from the ED of recently-discharged patients should be similar for the two comparison groups (the “intervention” group, ie patients at the index hospitalization who have conditions targeted by HRRP, versus the “control” group, ie patients at the index hospitalization who have conditions that are not targeted by HRRP).

Below are the unadjusted trends in admission before HRRP implementation. These suggest that the parallel slopes assumption was met.

In addition, we empirically tested the parallel slopes assumption by narrowing the sample to the pre-period (ie limiting the sample to before HRRP implementation) and falsely creating a “post” indicator for January 1, 2011. The pre-period placebo test yielded a difference-in-difference estimate of -0.001 (95% CI: -0.007, 0.004, p=0.621), which suggests that the groups did not change in trends before and after the false post indicator of January 1, 2011.
**eFigure 2.** Unadjusted Trends in Admissions Before Hospital Readmissions Reduction Program Implementation

- **Admissions from the ED**
  - Time in Quarters Before HRRP Implementation
  - Targeted conditions
  - Non-targeted conditions

- **Admissions from the ED (ED Revisit: Admissions Typically Required)**
  - Time in Quarters Before HRRP Implementation
  - Non-targeted conditions
  - Targeted conditions

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Source. Authors’ analysis of data from the Patient Discharge Data and Emergency Department and Ambulatory Surgery Data, Office of Statewide Health and Planning (OSHPD) (California), and the State Emergency Department Databases and the State Inpatient Databases from the Healthcare Cost and Utilization Project (New York and Florida)
eAppendix 2. Model

For discharge $i$ in hospital $h$, we used linear regression with hospital clustered standard errors to model:

$$Y_{ih} = \alpha + \beta_1 \text{Post}_{ih} + \beta_2 \text{Target}_{ih} + \beta_3 \text{Post}_{ih} \times \text{Target}_{ih} + \beta_4 \text{Risk}_{ih} + \beta_5 \text{Hosp}_h + \beta_6 \text{State}_h + \beta_7 \text{Year},$$

where $Y$ is whether the patient was readmitted during the ED revisit; $Post$ is whether the ED revisit was after HRRP implementation; $Target$ is whether the patient’s initial hospitalization was for a condition targeted by HRRP; $Risk$ are patient risk adjustment factors, including: age, sex, race, Charlson comorbidity index, the readmission cohort (as defined by CMS), and whether the ED revisit was on a weekend; $Hosp$ are hospital characteristics, including academic status, size, urbanicity, and ownership; $State$ is the state in which the hospital is located; and $Year$ is the year the discharge patient revisited the ED. Age was by 5-year bands until age 85; all patients 85 years or older were grouped together. Academic status was either an accredited program in the Accreditation Council for Graduate Medical Education or Member of Council of Teaching Hospital of the Association of American Medical Colleges. Hospital size was based on quintiles of admission. Metropolitan or urban designation was based on the Rural-Urban Continuum Codes, which we further classified into whether the hospital was in a metropolitan or urban non-metropolitan area (as described in the paper, we excluded rural hospitals).
eAppendix 3. Robustness Checks

We conducted several robustness checks. First, we examined alternative model specifications (logistic model and hospital fixed effects). Second, we modified the outcome to account for potential differences in care patterns. Specifically, we defined the outcome variable to be admission or transfer, or admission or observation stay. Observation stay information was available only for two of the three states in our study (Florida and New York). Third, previous research\(^1\)\(^-\)\(^3\) suggests that community factors, including availability of post-acute care, influence readmissions. Following previous research, we included additional covariates in our model for population size, unemployment, median household income, percent poverty, percent uninsured, percent of the population in deep poverty, population in nursing homes, percent non-English speaking population, percent vacant housing, educational attainment, number of nursing facilities per 100K, primary care providers per 100K, number of specialists per 100K, number of cardiologists per 100K, number of community health centers per 100K, the ratio of primary care physicians to specialists, the Medicare population per 100K, the number of federally-qualified health centers per 100K, and the number of hospital beds per 100K. Fourth, in the main analysis, we adjusted for changes in electronic transmission standards that increased the number of diagnosis codes and that may make patients appear more sick.\(^4\) We did this by adjusting our Charlson index so that they use only the first 9 secondary diagnosis codes. In the robustness check, we used all secondary diagnosis codes in calculating the Charlson index. Fifth, we added dummy variables for time (represented by separate variables for each month of the study period, except the first) to account for overall time trends. Note that we do not include this in the main analysis because only two states provided month. Sixth, we examined our exclusion of conditions later targeted by HRRP. Seventh, we conducted a falsification test where we examine readmission patterns for patients revisiting the ED 31 to 45 days after admission. Eighth, for conditions at the ED where admission is more variable, we exclude mood disorders.

The results from these robustness checks are below.
**eTable 3.** Whether an Emergency Department Revisit Resulted in a Readmission

a. **Linear probability model**

|                          | Main Analysis | Including Transfers | Community factors | Hospital FE | 31-45 days | Observation status | Comorbidities using all secondary diagnosis codes | Monthly time trends | Later targeted conditions | Including patients who die at the revisit |
|--------------------------|---------------|---------------------|-------------------|-------------|-------------|-------------------|-----------------------------------------------|-------------------|---------------------------|------------------------------------------|
| Post                     | -0.001 [-0.006, 0.005] | -0.001 [-0.006, 0.004] | 0.002 [-0.004, 0.007] | -0.001 [-0.005, 0.003] | -0.003 [-0.012, 0.007] | 0.001 [-0.005, 0.006] | 0.000 [-0.005, 0.006] | 0.010* [0.002, 0.019] | -0.001 [-0.006, 0.005] | -0.002 [-0.008, 0.003] |
| Applicable condition     | 0.064*** [0.060, 0.068] | 0.064*** [0.060, 0.068] | 0.064*** [0.059, 0.068] | 0.062*** [0.058, 0.065] | 0.057*** [0.050, 0.065] | 0.064*** [0.060, 0.068] | 0.06*** [0.057, 0.065] | 0.060*** [0.055, 0.065] | 0.000 [0.004, 0.006] | 0.072*** [0.067, 0.076] |
| Post x Applicable Condition | -0.009*** [-0.013, -0.004] | -0.009*** [-0.013, -0.004] | -0.009*** [-0.012, -0.004] | -0.007 [-0.016, -0.004] | -0.001 [-0.005, -0.004] | -0.009*** [-0.014, -0.005] | -0.009** [-0.015, -0.003] | -0.012*** [-0.017, -0.007] | -0.007* [-0.011, -0.002] |
| N                        | 1,906,498 | 1,942,786 | 1,906,498 | 1,906,498 | 432,504 | 1,906,498 | 1,906,498 | 1,236,545 | 1,841,233 | 2,020,615 |
| R2                       | 0.032 | 0.030 | 0.0369 | 0.0144 | 0.0315 | 0.0332 | 0.0364 | 0.0335 | 0.0327 | 0.0147 |
| R2 within                |                          |                          |                          |                          |                          |                          |                          |                          | 0.0174 |
| R2 between               |                          |                          |                          |                          |                          |                          |                          |                          | 0.0032 |

* p<0.05, ** p<0.01, *** p<0.001

**Notes.** Linear probability model with robust clustered standard errors for the hospital. The model controls for age, sex, race/ethnicity, Charlson comorbidity index, whether the ED revisit was on a weekend, patient’s condition at the index hospitalization, hospital size, teaching status, metropolitan or urban designation, ownership status, state, and year. In addition, each of the sensitivity analyses includes the variables as described in the text.
### b. Logistic regression

|                        | Odds ratio     |
|------------------------|----------------|
| Post                   | 0.998          |
|                        | [0.974, 1.020] |
| Applicable condition   | 1.331***       |
|                        | [1.306, 1.356] |
| Post x Applicable Condition | 0.952***     |
|                        | [0.933, 0.972] |
| N                      | 1,906,498      |
| Pseudo-R2              | 0.0241         |

**Notes.** Logistic regression with robust clustered standard errors for the hospital. The model controls for age, sex, race/ethnicity, Charlson comorbidity index, whether the ED revisit was on a weekend, patient’s condition at the index hospitalization, hospital size, teaching status, metropolitan or urban designation, ownership status, state, and year. A difference-in-difference less than one indicates that readmissions from the ED decreased post-implementation for recently-discharged patients.

**Source.** Authors’ analysis of data from the Patient Discharge Data and Emergency Department and Ambulatory Surgery Data, Office of Statewide Health and Planning (OSHPD) (California), and the State Emergency Department Databases and the State Inpatient Databases from the Healthcare Cost and Utilization Project (New York and Florida)
**Table 4.** Whether an Emergency Department Revisit Resulted in a Readmission for Conditions for Which Admission Is Potentially Nondiscretionary

a. Linear probability model for all conditions where admission is potentially non-discretionary

|                      | Main Analysis | Including Transfers | Community factors | Hospital FE | 31-45 days | Observation status | Comorbidities using all secondary diagnosis codes | Monthly time trends | Later targeted conditions | Including patients who die at the revisit |
|----------------------|---------------|---------------------|-------------------|-------------|------------|-------------------|------------------------------------------|-------------------|---------------------------|------------------------------------------|
| Post                 | 0.002         | 0.002               | 0.003             | 0.002       | 0.007      | 0.003             | 0.003                                    | 0.006             | 0.002                     | 0.001                                    |
|                      | [-0.003, 0.007] | [-0.003, 0.007]     | [-0.002, 0.008]   | [-0.003, 0.007] | [-0.001, 0.016] | [-0.002, 0.008] | [-0.002, 0.008] | [-0.002, 0.015] | [-0.003, 0.007] | [-0.004, 0.006] |
| Applicable condition | 0.001         | 0.001               | 0.001             | 0.000       | 0.004      | 0.000             | 0.000                                    | -0.001            | 0.014***                  | -0.000                                   |
|                      | [-0.004, 0.005] | [-0.003, 0.006]     | [-0.003, 0.006]   | [-0.004, 0.005] | [-0.004, 0.012] | [-0.004, 0.005] | [-0.004, 0.005] | [-0.006, 0.005] | [-0.008, 0.020] | [-0.004, 0.004] |
| Post x Applicable Condition | -0.010***    | -0.011***           | -0.011***         | -0.008      | -0.010***  | -0.010***         | -0.010***                                | -0.012**          | 0.000                     | -0.010***                                |
|                      | [-0.015, -0.004] | [-0.016, -0.006]   | [-0.016, -0.006]  | [-0.016, -0.002] | [-0.015, -0.005] | [-0.015, -0.004] | [-0.015, -0.005] | [-0.006, 0.008] | [-0.015, -0.005] | [-0.015, -0.005] |
| N                    | 280,575       | 290,608             | 280,575           | 280,575     | 280,575    | 280,575           | 280,575                                  | 280,575           | 280,575                   | 280,575                                  |
| R2                   | 0.0248        | 0.0231              | 0.0289            | 0.0081      | 0.0213     | 0.0260            | 0.0257                                   | 0.0273            | 0.0214                    | 0.0136                                   |
| R2 within            |               |                     |                  | 0.0082      |            |                  |                                         |                  |                          |                                         |
| R2 between           |               |                     |                  | 0.0606      |            |                  |                                         |                  |                          |                                         |

*p<0.05, **p<0.01, ***p<0.001

Notes. Linear probability model with robust clustered standard errors for the hospital. The model controls for age, sex, race/ethnicity, Charlson comorbidity index, whether the ED revisit was on a weekend, patient’s condition at the index hospitalization, hospital size, teaching status, metropolitan or urban designation, ownership status, state, and year. In addition, each of the sensitivity analyses includes the variables as described above. A negative difference-in-difference indicates that readmissions from the ED decreased post-implementation for recently-discharged patients.

ED diagnoses where admission is potentially non-discretionary are: septicemia, AMI, acute cerebrovascular disease, and congestive heart failure.

Source. Authors’ analysis of data from the Patient Discharge Data and Emergency Department and Ambulatory Surgery Data, Office of Statewide Health and Planning (OSHPD) (California), and the State Emergency Department Databases and the State Inpatient Databases from the Healthcare Cost and Utilization Project (New York and Florida)
### Logistic regression

|                          | Odds ratio     |
|--------------------------|----------------|
| Post                     | 1.04 [0.92, 1.16] |
| Applicable condition     | 0.99 [0.93, 1.06]  |
| Post x Applicable Condition | 0.90** [0.84, 0.97] |
| N                        | 280,575        |
| Pseudo-R2                | 0.0529         |

*p<0.05, **p<0.01, ***p<0.001

**Notes.** Logistic regression with robust clustered standard errors for the hospital. The model controls for age, sex, race/ethnicity, Charlson comorbidity index, whether the ED revisit was on a weekend, patient’s condition at the index hospitalization, hospital size, teaching status, metropolitan or urban designation, ownership status, state, and year. A difference-in-difference less than one indicates that readmissions from the ED decreased post-implementation for recently-discharged patients.

**Source.** Authors’ analysis of data from the Patient Discharge Data and Emergency Department and Ambulatory Surgery Data, Office of Statewide Health and Planning (OSHPD) (California), and the State Emergency Department Databases and the State Inpatient Databases from the Healthcare Cost and Utilization Project (New York and Florida)
etTable 5. Whether an Emergency Department Revisit Resulted in a Readmission, for Conditions for Which Admission Is Potentially Nondiscretionary Stratified by Conditiona

a. Presenting in ED with CHF

i. Linear Probability Model

|                  | Main Analysis | Including Transfers | Community factors | Hospital FE | 31-45 days | Observation status | Comorbidities using all secondary diagnosis codes | Monthl y time trends | Later targeted conditions | Including patients who die at the revisit |
|------------------|---------------|---------------------|-------------------|-------------|------------|-------------------|------------------------------------------------|---------------------|--------------------------|----------------------------------------|
| Post             | 0.002 [-0.008, 0.013] | 0.002 [-0.008, 0.012] | 0.003 [-0.007, 0.014] | 0.002 [-0.008, 0.013] | 0.010 [-0.007, 0.014] | 0.002 [-0.008, 0.012] | 0.005 [-0.013, 0.023] | 0.002 [-0.009, 0.013] | 0.002 [-0.008, 0.012] |
| Applicable condition | 0.011*** [0.005, 0.018] | 0.011*** [0.005, 0.017] | 0.011** [0.004, 0.017] | 0.009** [0.003, 0.014] | 0.008 [-0.003, 0.020] | 0.011*** [0.005, 0.017] | 0.012*** [0.005, 0.018] | 0.011* [0.003, 0.020] | 0.012* [0.002, 0.021] | 0.011** [0.005, 0.017] |
| Post x Applicable Condition | -0.012** [-0.020, -0.004] | -0.011** [-0.019, -0.004] | -0.011** [-0.019, -0.003] | -0.009** [-0.017, -0.002] | -0.002 [-0.017, -0.014] | -0.012** [-0.020, -0.004] | -0.010 [-0.022, -0.001] | -0.001 [-0.013, -0.010] | -0.011** [-0.018, -0.004] |
| N                | 123,981       | 127,017             | 123,981           | 123,981     | 28,621     | 123,981           | 123,981                     | 78,101              | 91,139                   | 130,854                  |
| R2               | 0.037         | 0.0353              | 0.044             | 0.0021      | 0.0373     | 0.0403            | 0.0372                     | 0.0352              | 0.0344                   | 0.0348                   |
| R2 within        |               |                     |                   |             |            |                   |                             |                    |                          |                          |
| R2 between       |               |                     |                   |             |            |                   |                             |                    |                          | 0.0002                   |

*p<0.05, **p<0.01, ***p<0.001
### ii. Logistic regression

|                               | Odds ratio       |
|-------------------------------|------------------|
| Post                          | 1.007 [-.883, 1.148] |
| Applicable condition          | 1.123** [1.051, 1.200] |
| Post x Applicable Condition   | 0.895** [0.826, 0.971] |
| N                             | 123,871          |
| Pseudo-R2                     | 0.0506           |

*p<0.05, **p<0.01, ***p<0.001

### b. Presenting with septicemia, AMI, acute cerebrovascular disease

|                               | Main Analysis   | Including Transfers | Community factors | Hospital FE | 31-45 days | Observation status | Comorbidities using all secondary diagnosis codes | Monthly time trends | Later targeted conditions | Including patients who die at the revisit |
|-------------------------------|-----------------|---------------------|-------------------|-------------|------------|-------------------|-----------------------------------------------|-------------------|--------------------------|------------------------------------------|
| Post                          | 0.002 [-0.003, 0.006] | 0.001 [-0.003, 0.006] | 0.002 [-0.002, 0.007] | 0.001 [-0.004, 0.007] | 0.001 [-0.007, 0.010] | 0.002 [-0.003, 0.006] | 0.001 [-0.003, 0.006] | 0.007 [-0.000, 0.013] | 0.000 [-0.004, 0.004] | 0.001 [-0.003, 0.004] |
| Applicable condition          | -0.008*** [-0.013, -0.004] | -0.007*** [-0.011, -0.003] | -0.008*** [-0.012, -0.004] | -0.009*** [-0.013, -0.011] | 0.003 [-0.005, 0.011] | -0.008*** [-0.012, -0.003] | -0.009*** [-0.013, -0.004] | -0.009*** [-0.015, -0.004] | 0.003 [-0.002, 0.007] | -0.008*** [-0.011, -0.004] |
| Post x Applicable Condition   | -0.001 [-0.007, 0.004] | -0.001 [-0.006, 0.003] | -0.002 [-0.007, 0.004] | -0.001 [-0.006, 0.004] | -0.009 [-0.018, 0.000] | -0.001 [-0.007, 0.004] | -0.001 [-0.007, 0.004] | -0.002 [-0.009, 0.005] | 0.002 [-0.004, 0.008] | -0.000 [-0.005, 0.004] |
| N                             | 156,594         | 163,591             | 156,594           | 156,594     | 35,689     | 156,594           | 156,594                       | 110,100                  | 184,505                  | 198,396                   |

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R2 0.0222 0.0142 0.0104 0.0222 0.0223 0.0240 0.0163 0.0161
R2 within 0.0140
R2 between 0.0351

*p<0.05, **p<0.01, ***p<0.001

### i. Logistic regression

|                         | Odds ratio               |
|-------------------------|--------------------------|
| Post                    | 1.082                    |
|                         | [0.873, 1.342]           |
| Applicable condition    | 0.735***                 |
|                         | [0.623, 0.867]           |
| Post x Applicable Condition | 0.962                  |
|                         | [0.803, 1.152]           |
| N                       | 156,594                  |
| Pseudo-R2               | 0.0675                   |

*p<0.05, **p<0.01, ***p<0.001

**Notes.** Linear probability model or logistic regression model with robust clustered standard errors for the hospital. The model controls for age, sex, race/ethnicity, Charlson comorbidity index, whether the ED revisit was on a weekend, patient’s condition at the index hospitalization, hospital size, teaching status, metropolitan or urban designation, ownership status, state, and year. In addition, each of the sensitivity analyses includes the variables as described above. A negative difference-in-difference indicates that readmissions from the ED decreased post-implementation for recently-discharged patients.

* ED diagnoses where admission is potentially non-discretionary are: septicemia, AMI, acute cerebrovascular disease, and congestive heart failure.1.
**eTable 6. Whether an Emergency Department Revisit Resulted in a Readmission for Conditions for Which Admission Is More Variable**

**a. Linear probability model**

|                  | Main Analysis | Including Transfers | Community factors | Hospital FE | 31-45 days | Observaton status | Comorbidities using all secondary diagnosis codes | Monthly time trends | Later targeted conditions | Including patients who die at the revisit | Excluding pts presentin with mood disorders |
|------------------|---------------|---------------------|-------------------|-------------|------------|-------------------|-----------------------------------------------|-------------------|--------------------------|-------------------------------------------|--------------------------------------------|
| Post             | 0.011         | 0.009               | 0.014*            | 0.008       | -0.004     | 0.011             | 0.011                                         | 0.014             | 0.014                    | 0.004                                    | 0.009                                      |
|                  | [-0.004, 0.024] | [0.000, 0.023]     | [0.005, 0.022]   | [-0.005, 0.022] | [-0.027, 0.019] | [-0.003, 0.025] | [-0.009, 0.036] | [-0.009, 0.017] | [0.000, 0.023] | [0.000, 0.023] |
| Applicable condition | 0.020***     | 0.021***            | 0.023***          | 0.024***    | 0.009      | 0.022***          | 0.021**                                      | 0.013             | 0.008                    | 0.068                                    | 0.025***                                   |
|                  | [0.009, 0.031] | [0.001, 0.033]     | [0.012, 0.034]   | [0.014, 0.035] | [-0.013, 0.032] | [0.011, 0.033] | [0.010, 0.027] | [0.058, 0.079] | [0.014, 0.037] | [0.009, 0.032] |
| Post x Applicable Condition | -0.008       | -0.008              | -0.010            | -0.006      | 0.003      | -0.005            | -0.007                                       | -0.007            | -0.009                   | -0.009                                   | -0.009                                     |
|                  | [-0.021, 0.004] | [-0.021, 0.004]   | [-0.022, 0.003]  | [-0.019, 0.006] | [-0.024, 0.029] | [-0.018, 0.008] | [-0.023, 0.010] | [-0.018, 0.004] | [-0.021, 0.004] | [-0.022, 0.004] |
| N                | 194,344       | 196,629             | 194,344           | 194,344     | 50,878     | 194,344           | 194,344                                      | 122,402           | 212,951                  | 196,479                                  | 190,194                                   |
| R2               | 0.0551        | 0.0532              | 0.0690            | 0.0178      | 0.0544     | 0.0601            | 0.0610                                       | 0.0593            | 0.0647                   | 0.0384                                   | 0.0550                                    |
| R2 within        |               |                     |                   |             | 0.0242     |                   |                                               |                   |                          |                                         |                                           |
| R2 between       |               |                     |                   |             | 0.0098     |                   |                                               |                   |                          |                                         |                                           |

*p<0.05, **p<0.01, ***p<0.001

**Notes.** Linear probability model with robust clustered standard errors for the hospital. The model controls for age, sex, race/ethnicity, Charlson comorbidity index, whether the ED revisit was on a weekend, patient’s condition at the index hospitalization, hospital size, teaching status, metropolitan or urban designation, ownership status, state, and year. In addition, each of the sensitivity analyses includes the variables as described above. A negative difference-in-difference indicates that readmissions from the ED decreased post-implementaiton for recently-discharged patients.

*a Discretionary ED diagnoses are five ED diagnoses for which patient admissions to the hospital are more variable: mood disorders, nespecific chest pain, skin and soft tissue infections, urinary tract infections, and COPD.*

**Source.** Authors’ analysis of data from the Patient Discharge Data and Emergency Department and Ambulatory Surgery Data, Office of Statewide Health and Planning (OSHPD) (California), and the State Emergency Department Databases and the State Inpatient Databases from the Healthcare Cost and Utilization Project (New York and Florida)
### b. Logistic regression

|                              | Odds ratio   |
|------------------------------|--------------|
| Post                         | 1.05         |
|                              | [0.98, 1.11] |
| Applicable condition         | **1.10***    |
|                              | [1.05, 1.15] |
| Post x Applicable Condition  | 0.98         |
|                              | [0.92, 1.03] |
| N                            | 194,344      |
| Pseudo-R2                    | 0.0446       |

*p<0.05, **p<0.01, ***p<0.001

**Notes.** Logistic regression with robust clustered standard errors for the hospital. The model controls for age, sex, race/ethnicity, Charlson comorbidity index, whether the ED revisit was on a weekend, patient’s condition at the index hospitalization, hospital size, teaching status, metropolitan or urban designation, ownership status, state, and year. A difference-in-difference less than one indicates that readmissions from the ED decreased post-implementation for recently-discharged patients.

*These are five ED diagnoses for which patient admissions to the hospital are highly variable: mood disorders, nonspecific chest pain, skin and soft tissue infections, urinary tract infections, and COPD.

**Source.** Authors’ analysis of data from the Patient Discharge Data and Emergency Department and Ambulatory Surgery Data, Office of Statewide Health and Planning (OSHPD) (California), and the State Emergency Department Databases and the State Inpatient Databases from the Healthcare Cost and Utilization Project (New York and Florida)
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