



## OFFICE OF THE ACTUARY

---

**Date:** March 28, 2018

**From:** Paul Spitalnic, ASA, MAAA  
Chief Actuary

**Subject:** Certification of Medicare Prior Authorization Model for Repetitive Scheduled Non-Emergent Ambulance Transport (RSNAT)

### **Certification**

I certify that expansion of the Medicare Prior Authorization Model for Repetitive Scheduled Non-Emergent Ambulance Transport (RSNAT) would reduce program spending. Specifically, savings from reduced utilization are projected to significantly exceed the administrative costs necessary to execute the prior authorization policy. The remainder of this memorandum summarizes the evidence and analysis supporting this certification.

### **Model Description**

RSNAT is defined as medically necessary non-emergent transportation by ambulance that occurs three or more times during a single 10-day period or at least once per week for 3 weeks or longer. RSNAT is most often used by Medicare beneficiaries needing dialysis treatment, and it is covered under Medicare Part B, on the condition that the beneficiary meet certain criteria—most notably, bed confinement—necessitating the level of service provided by an ambulance.

Operating under authority of section 1115A of the Social Security Act, the RSNAT model seeks to demonstrate that prior authorization of RSNAT services reduces program spending while maintaining or improving quality of care. The Center for Program Integrity is responsible for the model's operations, and the Center for Medicare and Medicaid Innovation is responsible for the model's evaluation and funding.

The prior authorization process requires ambulance suppliers to submit physician certification statements and supporting medical records to their Medicare administrative contractors (MACs) for verification of compliance with documentation and coverage rules (including medical necessity) before submission and payment of claims. Suppliers that garage ambulances in participating regions and that fail to obtain prior authorization for RSNAT services from their MACs are then subject to automatic prepayment review. Historically, prepayment review only applies to a small percentage of claims, nationwide. The certainty of automatic review under this model encourages suppliers in model states to request prior authorization despite not being technically required to do so.

The RSNAT model began in the states of New Jersey, Pennsylvania, and South Carolina on December 1, 2014 ("Phase 1 states"). Section 515(a) of the Medicare Access and CHIP Reauthorization Act of 2015 (MACRA) increased the geographic scope of the model by adding six areas as of January 1, 2016: North Carolina, Virginia, West Virginia, Maryland, Delaware, and the District of Columbia ("Phase 2 states"). The model is currently scheduled to end in all areas on December 1, 2018.

## MACRA

Section 515(b) of MACRA provides that, on or after January 1, 2017, the Secretary shall expand the model nationally to all states, commonwealths, possessions, and territories if the model meets the requirements described in paragraphs (1) through (3) of Section 1115A(c) of the Social Security Act:

- (1) the Secretary determines that such expansion is expected to—
  - (A) reduce spending under applicable title without reducing the quality of care; or
  - (B) improve the quality of patient care without increasing spending;
- (2) the Chief Actuary of the Centers for Medicare & Medicaid Services certifies that such expansion would reduce (or would not result in any increase in) net program spending under applicable titles; and
- (3) the Secretary determines that such expansion would not deny or limit the coverage or provision of benefits under the applicable title for applicable individuals. In determining which models or demonstration projects to expand under the preceding sentence, the Secretary shall focus on models and demonstration projects that improve the quality of patient care and reduce spending.

In accordance with the referenced statute, we were asked to consider a national expansion of the RSNAT model. Expansion would continue to focus on the population with end-stage renal disease (ESRD) but could potentially include several much rarer conditions for which evidence of the value of a prior authorization requirement is currently inconclusive.

### Evaluation Data and Analysis

In February 2018 CMS published an interim evaluation report of the model prepared by Mathematica Policy Research.<sup>1</sup> This first formal evaluation (based on data through the second quarter of 2016) found that the model's implementation resulted in significant immediate reductions in service use and spending for the ESRD population. The report noted that savings were similarly evident under a narrow microscope (RSNAT services only) or under broader measures including total ambulance or total Medicare Part A and Part B per capita spending. The Office of the Actuary's (OACT's) analysis of emerging ambulance claims data through 2017 corroborates the approximate magnitude of the initial spending reductions and indicates that savings are durable (that is, they follow a sustained level shift upon implementation through the end of 2017).

#### *Phase 1 States*

Phase 1 states were targeted because of exceptionally high baseline RSNAT utilization rates, and, unsurprisingly, they showed the greatest reduction in utilization and spending. For the Phase 1 state ESRD population, the evaluation report estimated statistically significant changes in per capita spending of  $-\$587$  per beneficiary per quarter (PBPQ) for RSNAT services and of  $-\$659$  PBPQ for total Medicare fee-for-service (FFS) Part A and Part B benefits.

#### *Phase 2 States*

The ESRD population in Phase 2 states also demonstrated statistically significant declines in RSNAT spending ( $-\$143$  PBPQ) and in total Medicare FFS expenditures ( $-\$260$  PBPQ). While this decrease in RSNAT spending amounts to only about one-quarter the savings estimated for Phase 1 states, areas in

---

<sup>1</sup> <https://innovation.cms.gov/Files/reports/rsnat-firstintevalrpt.pdf>

Phase 2 did not exhibit particularly high baseline ambulance spending and actually demonstrated an average RSNAT utilization rate that was approximately 30 percent lower than that for the rest of the FFS program outside of the model regions. The results from the Phase 2 region are therefore more indicative of the potential impact of a nationwide expansion than are those from the Phase 1 region.

Overall the evaluation report estimated that there was a reduction in RSNAT service expenditures of approximately \$171 million for ESRD beneficiaries in the period examined, including six quarters of intervention experience for the Phase 1 states and two quarters for the Phase 2 states. At a higher level, the report estimated a corresponding decrease in total Medicare FFS expenditures of \$210 million for ESRD beneficiaries.

#### *Non-ESRD Beneficiaries*

The report did not identify material changes in RSNAT utilization for beneficiaries outside of the ESRD population.

#### *Quality*

Mathematica's evaluation tracked a number of quality measures. Most measures showed no change or a small improvement, including statistically significant declines in emergency department utilization, unplanned hospital admissions, and hospitalization due to ESRD complications. However, the report also observed a statistically significant 15-percent increase in emergency dialysis utilization that was potentially indicative of missed or delayed maintenance dialysis.

On page xii of the executive summary, the report concluded that, despite stakeholder concern about quality and access, there was little evidence that the model caused a negative impact in those domains:

There is relatively little quantitative evidence at this stage to suggest a negative impact on quality of care or access to treatment; however, in focus groups, online surveys, and interviews, stakeholders expressed some concerns about the model's potential and perceived effects on quality and access.

#### **OACT Analysis**

To complement analysis from the evaluation report, we examined Medicare claims data from the Integrated Data Repository. Our analysis confirms that (i) for the ESRD population in intervention states, significant reductions in total ambulance spending persisted through 2017, and (ii) because Phase 2 states exhibited a closer baseline relationship to program-average utilization and spending, they provide a more credible basis for projecting the likely impact of potential expansion on the rest of the FFS program.

Phase 1 states began with much greater baseline ambulance spending; based on our analysis, average spending for the Phase 1 regions was over three times as high as the average per capita spending for the non-model FFS program in 2013. The evaluation report found roughly the same relationship for Phase 1 baseline RSNAT utilization and per capita spending (see pages 29 and 30 of the report).

Total average baseline ambulance spending for the Phase 2 regions was only about 16 percent higher than the all-other FFS average prior to the start of the second phase of the model. Further, the evaluation report noted that Phase 2 baseline RSNAT utilization and per capita spending were about 30 percent *below* the RSNAT utilization and per capita spending for the remainder of the FFS population outside of the model Phase 1 and Phase 2 regions.

To better understand the relationship between baseline ambulance spending and potential savings from the model, we analyzed individual Phase 2 regions. We then identified two subsets of Phase 2 that provided useful data points for observing model effects on subpopulations that more closely matched the baseline spending exhibited by the all-other FFS ESRD population for whom expansion effects are to be estimated. Table 1 below shows how ESRD per capita ambulance spending proceeded to change in 2017

(the third intervention year for Phase 1, the second for Phase 2) relative to the spending observed in the remainder of the ESRD FFS population over the same respective periods.

**Table 1 – Difference-in-Difference Analysis for ESRD Per Capita Ambulance Spending in Model States Relative to All-Other FFS**

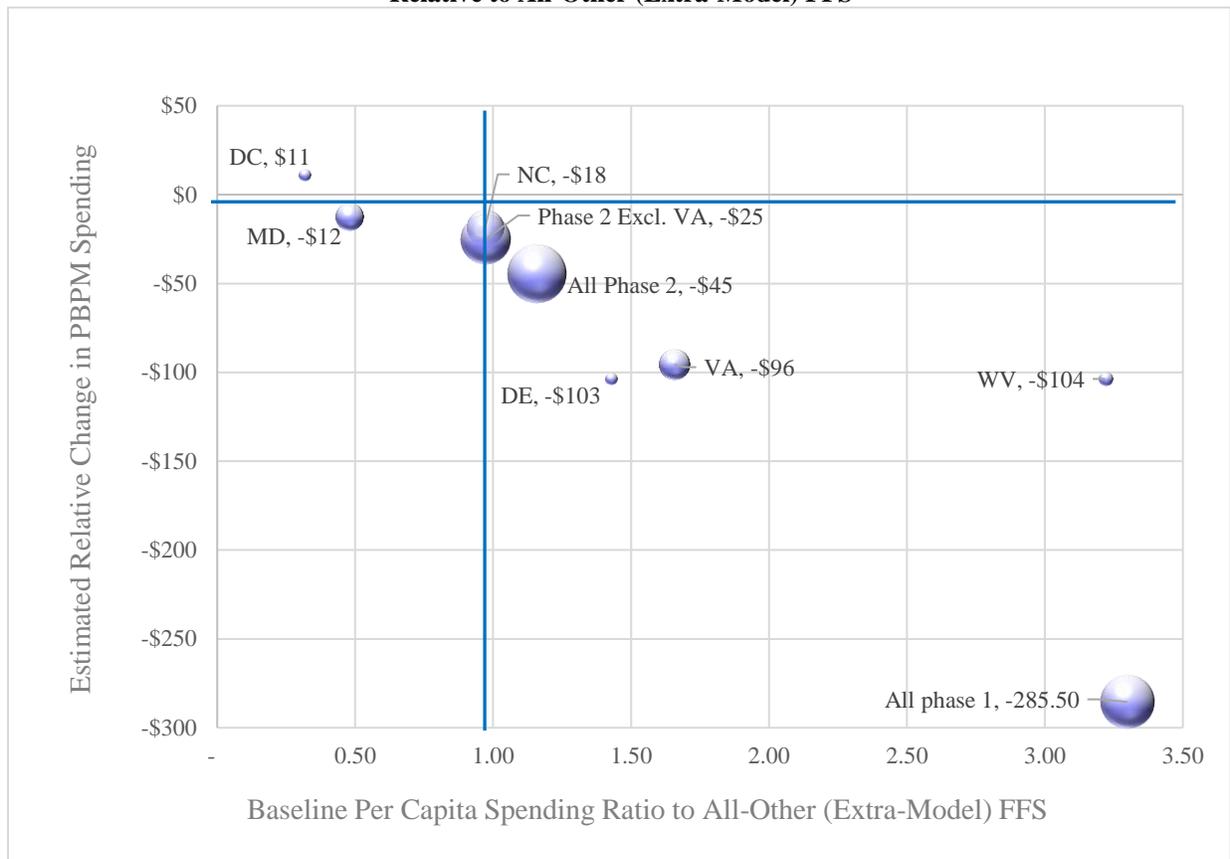
		Other FFS	Phase 1	Phase 2	Phase 2 Subgroups	
					Excl. VA	NC Only
ESRD Ambulance PBPM for 2017	(A) →	\$158	\$237	\$139	\$129	\$135
Base Year Preceding Model			CY2013	CY2015	CY2015	CY2015
Ratio to Other FFS Spend In Base Year	(B)		3.30	1.16	0.97	0.97
Ratio to Other FFS Spend in 2017	(C)		1.49	0.88	0.81	0.86
Percentage Point Change	(D)=(C-B)		-180%	-28%	-16%	-12%
Diff-in-Diff PBPM Impact in 2017	(E)=(A×D)		-\$285	-\$45	-\$25	-\$18

In 2017, Phase 1 states showed ESRD ambulance per-beneficiary-per-month (PBPM) spending that was about \$285 lower than the projected counterfactual spending implied by their 3.30 average spending ratio to the wider extra-model FFS population in 2013 (the last full pre-intervention calendar year). Phase 2 regions showed PBPM spending that was about \$45 lower than if they had maintained a 1.16 average spending ratio to the extra-model FFS population in 2015 (the last year prior to the second phase of the model).

Two subgroups of Phase 2, with baseline spending roughly on par with the rest of the FFS population, showed incrementally smaller reductions in spending. The first subgroup, comprising five Phase 2 regions but excluding Virginia, showed a combined reduction in PBPM spending of about \$25 after implementation of prior authorization. The second subgroup, defined by the Phase 2 state of North Carolina, exhibited PBPM spending that was about \$18 lower. We did not observe any meaningful corresponding changes in ambulance spending for the non-ESRD populations in either phase of the model—a finding that bolsters the assumption that prior authorization was the main factor driving observed changes in RSNAT utilization and overall ambulance spending for the targeted ESRD populations.

Chart 1 below shows the relationship between baseline spending and intervention effects measured for the Phase 1 and Phase 2 subgroups described above, as well as for the remaining individual Phase 2 regions that entered the model in 2016. The chart plots the estimated changes in spending as a function of each subgroup’s baseline spending ratio to the all-other FFS average in the last full calendar year prior to entering the intervention. In other words, regions lying further to the right on the chart exhibited higher-than-average ESRD per capita ambulance spending before implementation of the model. The volume of each plot point sphere is representative of its relative ESRD beneficiary population size.

**Chart 1 – Estimated Changes in 2017 ESRD Ambulance PBPM Spending Relative to All-Other (Extra-Model) FFS**



Three Phase 2 states with significantly higher relative baseline spending showed similar reductions of between \$96 to \$104 PBPM in 2017. The single Phase 2 state near the non-model FFS average at baseline (North Carolina) showed smaller but meaningful savings of \$18 PMPM, an amount only slightly lower than the \$25 reduction in spending found for the subgroup that included all Phase 2 regions except Virginia. For the two regions with below-average baseline costs, changes were mixed. Changes observed at either end of the distribution—from the small sample sizes in the District of Columbia and West Virginia, for example—may be influenced by regression to the mean and possibly by statistical noise. Notwithstanding such limitations, data points at the center of the distribution are comparable to the intercept of the linear relationship roughly formed by the overall distribution, particularly when including the Phase 1 data point.

Our analysis implies that, while markets with spending significantly below the national average may not show net changes in spending, markets near or above the national average are likely to show materially increased savings proportional to the relative spending exhibited at baseline. Expansion to all remaining states would affect a range of markets with varying baseline RSNAT utilization rates and corresponding savings potentials, with significant savings likely in a subset of high-cost expansion markets and smaller effects likely in others.

The impacts observed for the Phase 2 subgroups provide a reasonable range for the potential effects of expansion on the remaining FFS population, provided that market conditions and Medicare payment policies do not change significantly between the baseline and expansion projection periods. For this last consideration, we note that Section 53108 of the Bipartisan Budget Act of 2018 (BBA) increased an existing longstanding payment reduction of 10 percent for ESRD RSNAT payments to 23 percent starting in the fourth quarter of 2018 (a net reduction of approximately 14.4 percent). The initial 10-percent

reduction, effective the fourth quarter of 2013, did not appear to reduce the supply of ambulance services, and it is reasonable to assume that services prevented by prior authorization are likely to be lower-severity, higher-margin cases; for these reasons, we assume that the incremental 14.4-percent reduction can be applied to proportionally reduce the savings potential exhibited by Phase 2 subgroups and that this application can be used as a basis for projecting the potential impacts for the expansion population in a future period that reflects the new lower payment policy.

An additional consideration for the impact of expansion is the expected trajectory of Phase 1 and Phase 2 states at baseline, assuming that the model concludes as planned at the end of 2018. It is possible that these states could either remain at lower utilization rates or revert back to higher utilization if providers increased the supply of unwarranted services and beneficiaries returned to prior patterns of elevated utilization. A range of possible overall impacts can be constructed by joining the price-adjusted ranges of potential trajectories for Phase 1 and 2 populations with the price-adjusted range that is provided by analyzing Phase 2 states for potential expansion effects on the all-other FFS population. Table 2 below details the assumptions and impacts producing low, middle, and high estimates for expansion savings.

**Table 2 – Range of Estimated Potential Annual Gross Impacts for RSNAT Model Expansion**  
*Before Accounting for Projected Cost of Expansion of \$38.1m in First Year / \$28.6m in Following Years*

	<b>All-Other FFS</b>	<b>Phase 1</b>	<b>Phase 2</b>	<b>Total</b>
2017 ESRD Months	3,598,000	402,000	469,000	<b>4,469,000</b>
2017 PBPM Estimated Spending Change		-\$285	-\$45	
Total Estimated Historical 2017 Impact		-\$115,000,000	-\$21,000,000	<b>-\$136,000,000</b>
PBPM Impact Adjusted for BBA Price Cut		-\$244	-\$38	
<i><b>High Estimate</b> Assume (i) Expansion Savings Mimic <u>Phase 2</u> &amp; (ii) Expansion Preserves <u>100%</u> of Phase 1&amp;2 Savings</i>				
Assumed Adjusted PBPM Impact	-\$38	-\$244	-\$38	
Projected Annual Impact of Expansion	-\$137,000,000	-\$98,000,000	-\$18,000,000	<b>-\$253,000,000</b>
<i><b>Mid Estimate</b> Assume (i) Expansion Mimics <u>Phase 2 excl. VA</u> &amp; (ii) Expansion Preserves <u>50%</u> of Phase 1&amp;2 Savings</i>				
Assumed Adjusted PBPM Impact	-\$22	-\$122	-\$19	
Projected Annual Impact of Expansion	-\$78,000,000	-\$49,000,000	-\$9,000,000	<b>-\$136,000,000</b>
<i><b>Low Estimate</b> Assume (i) Expansion Mimics <u>NC</u> &amp; (ii) Expansion Has <u>0%</u> Effect on Phase 1&amp;2 Future Spending</i>				
Assumed Adjusted BPM Impact	-\$16	\$0	\$0	
Projected Annual Impact of Expansion	-\$57,000,000	\$0	\$0	<b>-\$57,000,000</b>

The low estimate likely understates the total annual impact of expansion, mainly because Phase 1 and Phase 2 states would either (i) experience at least some reversion to the higher utilization rates that were seen in recent historical base years if the model ended, or (ii) demonstrate that sustained recurring savings could be achieved by a temporary (and therefore cost-limited) prior authorization policy. Certification of expansion savings is warranted given that this conservative annual savings estimate significantly exceeds the anticipated annual cost of expansion (estimated at \$38.1 million in the first expansion year and \$28.6 million per year in subsequent years).

While certification assumes full expansion (meaning that some non-ESRD beneficiaries are incorporated), anticipated savings are based solely on evidence for the ESRD population. Hence, certification would similarly pertain if the policy were narrowed to remove one or more other (non-ESRD) subpopulations included in the model test. We note that the cost of implementing expansion would be marginally less if it were to only include the ESRD population; maximizing the net savings to the program would consequently depend on avoiding investment in administering prior authorization for non-ESRD subgroups unless evidence (for example a future model evaluation report focusing on such subpopulations) demonstrated a comparable or greater reduction in spending.

### *Observations on Quality*

While the demonstration seeks to more accurately enforce policy regarding eligibility for Medicare benefits, sufficient access to maintenance dialysis and high patient adherence remain important factors that determine the value of care and quality of outcomes for the ESRD population. In a study on ESRD adherence, Chan *et al.*<sup>2</sup> estimated that forgoing maintenance dialysis increased the risk factors for a number of adverse events, including the following:

- Hospitalization by a factor of 3.98;
- Emergency department utilization by a factor of 2.00; and
- ICU-CCU admission by a factor of 3.89.

The study found transportation problems to be only one of many factors (including, for example, inclement weather, holidays, and mental health problems) that are associated with patients missing their regular maintenance dialysis treatment. Although the evaluation report prepared by Mathematica Policy Research found emergency dialysis for the RSNAT model ESRD population to have increased by 15 percent, it also determined that use of such treatment remained rare (.003 uses PBPQ), that overall emergency department visits and hospital admissions were virtually unchanged, and that hospitalizations for ESRD-related complications actually decreased slightly.

While it therefore appears reasonable for the evaluation report to conclude that quality of care has not materially deteriorated over the study period, evolving related benefit policies at both state and federal levels warrant continued monitoring to ensure that access and quality are maintained over an expansion period. Such related policies include reductions in Medicaid RSNAT benefits in some states<sup>3</sup> (which potentially affect dual-eligible beneficiaries for whom transportation could be particularly challenging) and the recent BBA-mandated incremental reduction in Medicare RSNAT payments of approximately 14.4 percent.

### **Conclusion**

Even under our most conservative array of assumptions, the projected savings from expansion would significantly outweigh the cost of administering the prior authorization policy. I certify that expansion would reduce net program spending.

I am a member of the American Academy of Actuaries and I meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion contained herein.

Paul Spitalnic, ASA, MAAA  
Chief Actuary

---

<sup>2</sup> Chan *et al.*, “Adherence Barriers to Chronic Dialysis in the United States,” *Journal of the American Society of Nephrology*, November 2014, Volume 25, Number 11, pages 2642-2648.

<sup>3</sup> <https://khn.org/news/no-car-no-care-medicaid-transportation-at-risk-in-some-states/>