# Multi-Perspective Cost and Capacity Impact Analysis of Transitioning from Intravenous to Subcutaneous Ocrelizumab/Hyaluronidase in an Academic Medical Center Multiple Sclerosis Clinic

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## BACKGROUND

Ocrelizumab is an anti-CD20, B-cell depleting monoclonal antibody used as a high-efficacy disease-modifying therapy (DMT) for treatment of adults with relapsing and primary progressive forms of multiple sclerosis (MS). Ocrelizumab is available for administration as both an IV infusion (OCR-IV) and as in combination with hyaluronidase as a subcutaneously administered injection (OCR-SC).

For people with MS, each OCR-IV maintenance visit may require 5–6 hours in an infusion center. This includes premedication, IV placement and setup, a 3–4-hour infusion, and post-infusion observation. Infusion-related reactions can further lengthen the visit and make nursing and chair needs less predictable.

OCR-SC offers a shorter approach to treatment and does not require IV access. It is administered by a healthcare professional as an approximately 10-minute injection, followed by at least 60 minutes of observation after the first dose and at least 15 minutes after subsequent doses. Depending on institution-specific protocols, patients may take their premedications at home before arriving for treatment.

Although the shorter administration time may benefit patients and clinics, the injection itself is only one part of the treatment experience. The effects of transitioning from OCR-IV to OCR-SC on clinic workflow, costs, chair availability, and patient time, as well as the coordination provided by an embedded specialty pharmacy team including a clinical pharmacist and a clinic-based pharmacy technician, have not been fully described in an academic MS clinic.

## OBJECTIVES

1. To quantify direct per-visit and annualized operational cost differences between OCR-SC and OCR-IV for a 100-patient cohort, including embedded specialty-pharmacy team labor throughout the workflow.

2. To estimate chair-hours made available, additional treatment capacity, and the potential financial value of reallocating that capacity.

3. To compare CMS Medicare Part B drug payment limits for OCR-IV (J2350) and OCR-SC (J2351), together with projected administration payments.

4. To estimate the potential effects of shorter treatment duration and co-scheduling DMT treatment with provider follow-up visits on patient and caregiver time and associated financial burden.

5. To realize the potential institutional financial impact of transitioning from OCR-IV to OCR-SC using site-specific operational, reaction-management, payment, and capacity inputs and utilized a 3-year Net Present Value (NPV) analysis to estimate institutional value of OCR-SC utilization.

## METHODS AND DATA SOURCES

A multi-perspective, cost-consequence analysis was developed using information from a UVA OCR-SC implementation project coordinated by the MS clinic's embedded specialty pharmacist. UVA project information included workflow design, clinic staff's time and responsibilities, treatment supplies, documented reaction-management resource utilization, and pharmacist work. Published benchmarks and estimates from Centers for Medicare & Medicaid Services (CMS) values were used for cost-estimates when exact values were unavailable, and Bureau of Labor Statistics (BLS) wage values were used to estimate patient time earnings estimates. Costs were calculated for a standardized cohort of 100 patients receiving 200 treatments of either ocrelizumab IV infusion (OCR-IV) or ocrelizumab/hyaluronidase subcutaneous injection (OCR-SC) annually.

The OCR-SC case examples assumed that treatments were subsequent doses (post-initial), requiring only a 15-minute observation period versus the recommended 60-min observation for the initial administration. It also assumes that patients took their premedications on their own following pharmacist or nurse-coordinated education. Clinic treatment time included 10 minutes for administration time for doses, followed by and at least 15 minutes of observation. At least 30 additional minutes was assumed if premedications were not completed before arrival. Chair capacity and institutional value were estimated with the assumption that chair capacity time from OCR-IV switches was redirected to other patient care needs.

CMS payment limits were evaluated separately and were not interpreted as acquisition cost, actual reimbursement, or margin.

## RESUTLS: 1. OPERATIONAL COSTS PER VISIT

| Input | Value | Source |
|---|---|---|
| Registered Nurse (RN) wage | $47.50/hr | UVA institutional benchmark (range $40-$55/hr) |
| Pharmacist wage | $72/hr | UVA institutional benchmark (range $60–$84/hr) |
| IV active RN time / visit | 45 min | UVA program time-and-motion data |
| SC active RN time / visit | 25 min | UVA program time-and-motion data |
| IV / SC supply cost | $14.30 / $6.50 | UVA GPO acquisition-cost itemization |
| Managed reaction rate, IV / SC | 37% / 0.5% | UVA program data (210/570 IV; 2/436 SC) |
| IV chair margin IQR (25th–75th) | $96.3K–$181.9K | UVA chair-level financial performance |
| SC chair margin IQR (25th–75th) | $270.0K–$500.5K | UVA chair-level financial performance |
| CMS Part B payment limit / mg (J2350/J2351) | $60.970 / $48.060 | CMS July 2026 payment-limit file |
| Patient time value | $24.51/hr | BLS OEWS, all occupations median, May 2025 |

*Table 1: Values combine UVA project-derived workflow data, published benchmarks, and analysis team estimates. Values not prospectively measured were classified as estimates. IQR= interquartile range*

## DIRECT VARIABLE COST (DVC)

| Component | IV | SC | Δ |
|---|---|---|---|
| RN labor (45 vs 25 min) | $52.84 | $29.35 | **−$23.49** |
| Disposable supplies | $14.30 | $6.50 | **−$7.80** |
| Clinic-supplied premedications | $9.66 | $0.00 | **−$9.66** |
| Pharmacist time | $73.60 | $120.00 | **+$46.40** |
| Non-RN support staff | $51.50 | $27.75 | **−$23.75** |
| **DVC TOTAL / visit** | **$201.90** | **$183.60** | **−$18.29** |

*Table 2: Direct variable costs were estimated per treatment and included nursing and support-staff time, disposable supplies, clinic-provided medications, and embedded specialty-pharmacist time. Values were calculated using estimated hourly rates.*

### DVC Bundle per Visit ($)

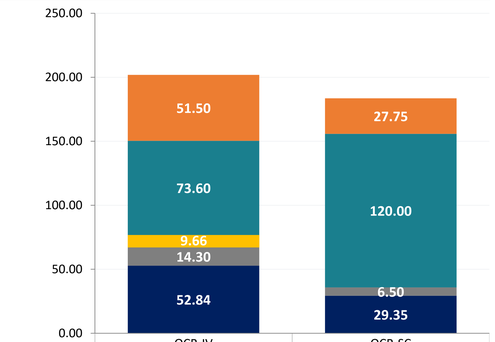



*Figure 1: Estimated direct variable costs components per treatment visit for OCR-IV and OCR-SC. All costs were decreased with OCR-SC except for embedded specialty-pharmacist time, which was $46.40 higher per visit, reflecting additional coordination for access, medication readiness, education, documentation, and follow-up.*

**−$18.29 / visit**

Net DVC savings after accounting for +$46.40/visit in embedded specialty-pharmacist time. Values are rounded.

## UVA-SPECIFIC TREATMENT REACTION MANAGEMENT

Resource use and cost were modeled only when a documented administration reaction required active management and included additional nursing time, rescue medication, or chair/facility escalation.

**37%**

IV administrations requiring documented **infusion-related reaction management** at UVA, 2025–2026

**(210 patients out of 570 OCR-IV administrations)**

**0.5%**

SC administrations requiring documented **injection-reaction management** at UVA, 2025–2026

**(2 patients out of 436 OCR-SC administrations)**

| Cost vector | IV | SC |
|---|---|---|
| Nursing time escalation | $52.84–$70.45 | $17.61 |
| Rescue medication | $6.30–$14.00 | $0.15–$3.00 |
| Chair/facility escalation | $150–$250 | $30–$50 |
| **Cost / event (midpoint)** | **$271.79** | **$59.19** |

*Table 3: Ranges include estimated additional cost for nursing time, rescue medication, and chair/facility use. The cost per event describe the cost of actively managed events and do not represent overall reaction incidence.*

**−$100.27 / visit**

Lower expected reaction-management cost per visit (managed-reaction rate × cost/event).

## RESULTS: 2. CHAIR TIME AND CAPACITY

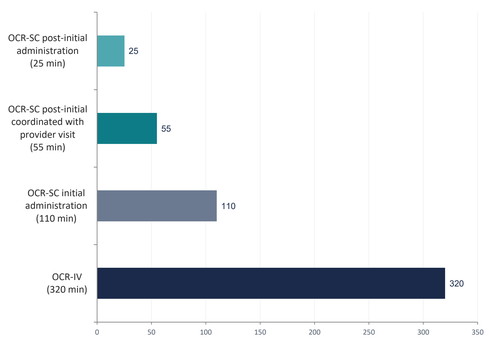



*Figure 2. Chair time per visit type, OCR-IV vs OCR-SC. Initial SC visits include a 10-minute administration and at least 60 minutes of post-dose monitoring. Subsequent visits, or post-initial visits, include 10-minute administration and at least 15 minutes post-dose monitoring. OCR-SC post-initial visit coordinated with the provider visit include 10-minute administration, 15-minute observation, and 30-minute provider visit. OCR-IV administration shown with 30 minutes for premedications, 230-minute infusion, and 60-minute monitoring.*

**82.8%**

chair-time reduction, subsequent SC visit vs. IV

**883 hr/yr**

chair-hours made available across the cohort, annualized

**$31K – $155K / yr**

Potential financial value of reallocated capacity: conservative overhead cost avoidance ($35/hr) to published chair-occupancy benchmarks ($100–$175/hr).

## RESULTS: 3. CMS PART B PAYMENT LIMITS

| Payment | IV (J2350, 600mg) | SC (J2351, 920mg) | Δ |
|---|---|---|---|
| Payment limit/unit (Q3 2026) | $60.970 | $48.060 | **−$12.910** |
| Drug payment limit/dose | $36,582.00 | $44,215.20 | +$7,633.20 |
| Modeled administration payment | $175 | $75 | **−$100** |
| **Modeled combined payment/dose** | **$36,757** | **$44,290** | **+$7,533.20** |

*Table 4: July 2026 CMS Part B Drug Payment-Limit and Estimated Administration-Payment Comparison*

### CMS PAYMENT-LIMIT COMPARISON

- The July 2026 total CMS Medicare Part B drug payment limit per dose for OCR-SC's labeled dose (920 mg) was higher than OCR-IV despite its lower payment limit per billing unit (+$7,633/dose).

| Formulation | HCPCS calculation | July 2026 payment limit/unit | Drug payment limit/dose |
|---|---|---|---|
| OCR-IV | J2350 x 600 units | $60.970 | $36,582.00 |
| OCR-SC | J2351 x 920 units | $48.060 | $44,215.20 |
| Difference, IV vs SC | | | **+7,633.20 (+20.9%)** |

*Table 5: J-codes represent 1 mg of ocrelizumab; therefore values were calculated multiplying the CMS payment limit per billing unit by the labeled dose.*

- For 100 patients receiving twice-yearly treatment, the calculated difference in gross payment limit is **$15,266** per patient-year or **$1.53 million** per 100 patient-years.
- **Note**: Drug component only; calculated from CMS-published per-unit payment limits. This does not represent acquisition cost, 340B drug pricing program access, realized reimbursement, patient cost, or institutional margin.

### TAKE-HOME MESSAGE

**Cost and capacity.** OCR-SC substantially reduces estimated non-drug delivery cost and chair capacity time.

**Value is conditional.** Released chair capacity must be productively reused for other treatments.

**Payment limit is not margin.** The calculated Medicare drug payment-limit amount is higher for OCR-SC; this does not establish institutional margin.

**The pharmacist role shifts.** Work moves to patient selection, access, medication readiness, education, charge integrity, and follow-up.

**Report perspectives separately.** Results cannot be collapsed into one "savings" number.

## RESULTS: 4. PATIENT TIME & TRAVEL BURDEN

Patients could spend an estimated **295 min fewer minutes** in the clinic per visit switching from OCR-IV to OCR-SC. The BLS median hourly wage was used to conservatively estimate the value of that time.

**Example coordination of treatment and provider follow-up visit,** assuming a 30-minute provider visit otherwise requiring a separate encounter, oral premedication completed before or during the visit, and no reaction-related delay. Travel, parking, caregiver, childcare, lodging, and actual work-loss costs are additional and patient-specific.

**Time value:** U.S. Bureau of Labor Statistics Occupational Employment and Wage Statistics estimates from May 2025 median wage ($24.51/hr). SC timing: prescribing information and UVA workflow assumptions.

**$212**

per patient, per year in encounter-time value recovered

**$106**

per visit, encounter-time value recovered

**≈4.9 HOURS OF TIME SAVED**

**per eligible treatment encounter only • 1 round trip potentially avoided**
$121/visit in estimated time value alone (excludes coordinated provider visit)

## RESULTS: 5. INSTITUTIONAL FINANCIAL IMPACT

**Annual modeled direct contribution per chair (25th–75th percentile; UVA chair-level financial estimates):**

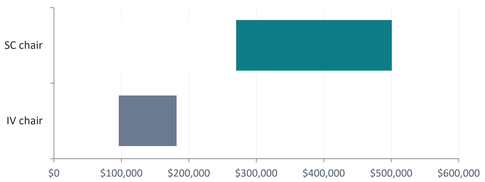



*Figure 3: Across the estimated 25th–75th percentile range, annual chair-level financial contribution was higher for OCR-SC than OCR-IV ($270,000–$500,000 versus $96,000–$182,000). These are scenario-based estimates, not observed profit; actual value depends on patient demand, payer mix, and whether available chair time is used to care for other patients.*

ESTIMATED ANNUAL FINANCIAL VALUE • 100-PATIENTS, 200-OCR-SC TREATMENTS / YEAR

**$206,654 estimated annual institutional value**

$23,700 net operational savings + $183,000 chair and room capacity value

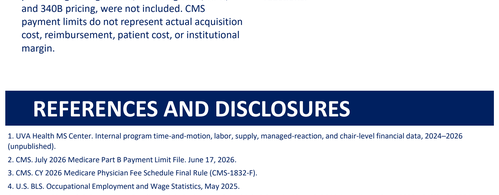



*Figure 4: Waterfall bridge to the $206,654 estimated annual institutional value. Chair capacity and room capacity are estimated capacity values ($138,000 and $45,000); pharmacist time is additional embedded pharmacist and technician time (−$9,280), the only offset and already netted out above. Scenario example, contingent on productive reuse of released capacity.*

ESTIMATED 3-YEAR INSTITUTIONAL NPV

**$514,544**

Using a 3% discount rate (sensitivity range $462,567–$549,962 [0%–8%])

## CONCLUSIONS

| | |
|---|---|
| **39%** lower | Estimated non-drug delivery cost was 39% lower with OCR-SC than OCR-IV ($183.90 versus $302.46 per visit), representing a $23,712 annual difference in the standardized 100-patient, 200-treatment scenario. |
| **+$46.40** per visit | OCR-SC required an estimated $46.40 more in embedded specialty-pharmacist time-value per visit, reflecting the coordination needed for access, medication readiness, patient education, charge integrity, and follow-up. Dose not include pharmacy technician time, which is another factor. |
| **82.8%** less chair time | Using an estimated 55-minute post-initial OCR-SC visit, treatment duration was 82.8% shorter than OCR-IV, potentially saving 883 hours annually for other patient care treatments. |
| **+$7,633** per dose | The July 2026 CMS drug payment-limit amount was $7,633 higher per labeled OCR-SC dose; this comparison does not represent acquisition cost, actual reimbursement, or institutional margin. |
| **$514,544** 3-year NPV | When chair capacity was redirected to other patient care, the estimated three-year institutional NPV was $514,544. Actual value depends on demand, staffing, payer mix, acquisition cost, and the financial contribution of other treatments scheduled. |

## LIMITATIONS AND KEY ASSUMPTIONS

- **Generalizability.** Analysis was modeled after a single-center's OCR-SC experience, and the results may not apply directly to other clinics.
- **Estimated activities.** Time spent on patient education, documentation and charge review, and follow-up was estimated because these activities were not explicitly documented.
- **Patient time.** Patient time burden was estimated from treatment duration and a wage-based time value. Travel, parking, childcare, caregiver time, lodging, and actual missed wages were not directly measured. The 25-minute post-initial dose estimation assumes that premedications were self-administered by the patient prior to treatment.
- **Drug acquisition.** Drug acquisition costs and local purchasing arrangements, including WAC, GPO, and 340B pricing, were not included. CMS payment limits do not represent actual acquisition cost, reimbursement, patient cost, or institutional margin.
- **Setting variation.** Administration-cost estimates vary by treatment setting and payer and should be confirmed using local claims data.
- **Capacity realization.** Chair-capacity and financial estimates are not guaranteed savings. Actual value depends on staffing, observation space, turnover, patient demand, payer mix, and whether available chair time can be used to care for other patients.
- **NPV assumptions.** The three-year NPV includes an estimated $70,000 implementation cost, including pharmacist workflow-development time, and a 3% discount rate.
- **Reaction definitions.** UVA reaction rates include only documented events requiring active management and do not represent the overall incidence of infusion- or injection-related reactions.

## PATIENT TIME BURDEN AND ESTIMATED TIME VALUE

Time value uses the BLS all-occupations median wage ($24.51/hr) as an opportunity-cost example—not actual cash savings.

| Patient burden | OCR-IV | OCR-SC | Potential time savings for each patient |
|---|---|---|---|
| **Treatment encounter only (no provider visit)** | 320 min<br>$131 | 25 min<br>$10 | **295 min (4.9 hr saved)**<br>**$121 estimated** |
| **Provider visit + treatment visit, combined-visit scenario** | 350 min (2 separate visits)<br>$143 | 55 min (1 coordinated visit)<br>$22–$29 | **295 min**<br>**(4.9 hr saved and 1 trip potentially avoided)**<br>**$121** |
| **Every 6-month treatment (2 per year)** | 700 min<br>$286 | 110 min<br>$45–$57 | **590 min (9.8 hr saved)**<br>**$229–$241** |
| **Trips needed for treatment and provider visit** | 2 | 1 | **1 trip potentially avoided** |

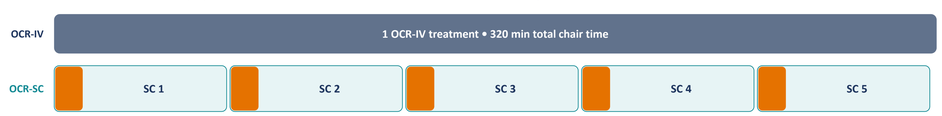
**The combined 55-min visit = 10-min injection + 15-minute observation + 30 min provider follow-up visit*⁺**

***Premedication administration occurs 30-60 min prior to arrival to clinic and is not added again**
**⁺Does not include cost of the provider follow-up visit.**

*Table 6: Coordinating MS treatment and provider follow-up visit assumes a 30-minute provider visit otherwise requiring a separate encounter; oral premedication completed before or during the visit, and no reaction-related delay. Not yet monetized: travel time/mileage, parking/tolls, caregiver time, childcare, lodging, and actual unpaid wage loss. Avoid double counting the same hours as both time value and lost wages.*

## CHAIR CAPACITY REGAINED WITH OCR-SC

**One projected 320-minute OCR-IV chair block can accommodate five subsequent OCR-SC visits (5 × 55 = 275 minutes).**




ORANGE = approximately 10-minute injection • TEAL = remaining observation and coordinated provider visit

**1 OCR-IV CHAIR BLOCK → 5 SUBSEQUENT OCR-SC TREATMENTS COORDINATED WITH PROVIDER FOLLOW-UP VISITS**

**4.42 hr**
chair time saved per switch from IV to SC administration

**883 hr/yr**
saved across 200 annual treatments
(100 patients = 2 treatment)

**≈110 days/yr**
eight-hour chair-days made available for other treatments

**If chair capacity from OCR-IV treatments is repurposed for other treatments:**
**883** 1-hr slots **442** 2-hr slots **294** 3-hr slots **221** 4-hr slots / year

**Potential cost capture based on CMS payment limit per dose:**
**$36,582 IV** vs **$44,215 SC**
**+$7,633 per labeled dose**

**≈$31K–$155K/year potential chair-capacity value when chair time from patients transitioning from OCR-IV to OCR-SC is used for other treatments.**

*Figure 5: The OCR-SC subsequent encounter includes approximately 10 minutes for administration and at least 15 minutes of observation, for 25 minutes of clinic time. This assumes premedications were completed before arrival through pharmacist- and nurse-coordinated education; otherwise, at least 30 additional minutes would be needed before administration. Approximately 25 minutes of RN time was estimated across preparation, administration, monitoring, and documentation. The amount of saved chair capacity that can be redirected to other patient care depends on available space, staffing, turnover, demand, payer mix, and the duration and financial contribution of other treatments scheduled. CMS values represent Medicare Part B drug payment limits—not acquisition costs, actual reimbursement, revenue, or margin and does not demonstrate actual estimated profit.*

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