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ABSTRACT

Comparative health resource utilization and cost analysis of porcine placental extracellular matrix versus standard of care and other advanced treatments in the treatment of venous leg ulcers in the Medicare Fee-For-Service population

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Aim: Venous Leg Ulcers (VLU) have significant economic costs while also a high rate of negative health outcomes. This study compares health resource use and cost in the Medicare population receiving porcine placental extracellular matrix (PPECM)* to patients receiving standard of care (SOC)‡ and other advanced treatments (AT)†.

Methods: Medicare Research Identifiable Files, which contain 100% of Medicare Fee-For-Service Parts A and B claims were assessed from 2021 through 2024. Patients with a newly diagnosed VLU were identified. Their treatment episodes were categorized as either: PPECM, SOC, or AT. Upon treatment conclusion, the patients' utilization and spending were assessed across all Medicare Parts A and B care sites. Pre-index clinical and demographic differences were controlled via inverse probability treatment weighting. Adjusted cohorts were analyzed using weighted regression models to estimate differences in predicted spending and utilization across treatment groups and care settings.

Results: 60 VLU PPECM treatment episodes were selected to compare to the other groups (SOC = 53,947; AT = 2,491). Total medical care costs in the post-treatment window were not significantly different compared to SOC but were significantly lower than AT ($4,690 vs. $7,463, p=0.02; *Table 1*). PPECM was associated with significantly lower utilization rates in outpatient hospitals, intensive care units, and emergency rooms, with no site showing increased utilization. Weighted regression analyses found PPECM had significantly lower rates of utilization across every site except home health (*Table 2*). PPECM was associated with reduced per beneficiary spending in physician offices, outpatient hospitals, and skilled nursing facilities, with lower total medical spending across all sites (*Table 1*).

Conclusions: This real-world analysis reveals PPECM treatment delivers favorable clinical value for VLU patients, reducing both downstream healthcare utilization and spending compared to SOC and alternative ATs.

*PPECM: InnovaMatrix® AC, Convatec Triad Life Sciences, LLC, Memphis, TN, USA

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‡ SOC: Surgical debridement, total contact casting, compression, non-surgical selective debridement and dressing changes, general debridement, SOC-dressing
† AT: Collagen dressings, platelet-rich plasma, negative pressure wound treatment, electrostimulation, MIST therapy, hyperbaric oxygen, topical oxygen

Conflicts of Interest: JL: employee of Convatec; JM: employee of Convatec; RD: employee of Convatec; SN: employee of Convatec; IV: none to declare; CS: none to declare; PK: none to declare; CT: employee of Convatec.

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TABLE 1 | Comparison of post-period costs between treatment cohorts

	PPECM	Standard of care (SOC)		Other advanced treatments (AT)	
Site of care	Average spend (per patient per month)	Average spend (per patient per month)	P-value	Average spend (per patient per month)	P-value
Physician office cost	$1,084	$1,234	0.51	$2,483	0.09
Inpatient hospital cost	$2,094	$2,338	0.72	$2,854	0.29
Inpatient hospital cost - medical	$1,486	$1,639	0.78	$1,860	0.50
Inpatient hospital cost - surgical	$607	$699	0.80	$995	0.30
Outpatient hospital cost	$239	$438	0.18	$503	0.08
DME cost	$192	$98	0.15	$130	0.35
Home health cost	$358	$433	0.36	$433	0.37
SNF cost	$544	$736	0.34	$861	0.13
Total medical cost	$4,690	$5,478	0.39	$7,463	0.02

PPECM, porcine placental extracellular matrix; DME, durable medical equipment; SNF, skilled nursing facility

TABLE 2 | Weighted regression comparison of post-period utilization rates between treatment cohorts

	PPECM			Standard of care (SOC)				Other advanced treatments (AT)			
Site of care	Point	LCL	UCL	Point	LCL	UCL	P-value	Point	LCL	UCL	P-value
Physician office visits	18.43	18.37	18.49	18.24	18.19	18.30	<.0001	22.29	22.23	22.36	<.0001
Outpatient hospital visits	2.51	2.49	2.53	4.79	4.76	4.82	<.0001	4.9	4.87	4.93	<.0001
Inpatient hospital visits	0.32	0.31	0.32	0.42	0.42	0.43	<.0001	0.45	0.44	0.46	<.0001
Readmissions (within 30 days)	0.12	0.11	0.12	0.14	0.13	0.14	<.0001	0.18	0.18	0.19	<.0001
ICU visits	0.08	0.08	0.09	0.19	0.18	0.19	<.0001	0.21	0.20	0.22	<.0001
Inpatient hospital - medical DRGs	0.38	0.37	0.39	0.42	0.41	0.43	<.0001	0.45	0.44	0.45	<.0001

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TABLE 2 | Continued. Weighted regression comparison of post-period utilization rates between treatment cohorts

	PPECM			Standard of care (SOC)				Other advanced treatments (AT)			
Site of care	Point	LCL	UCL	Point	LCL	UCL	P-value	Point	LCL	UCL	P-value
Inpatient hospital - surgical DRGs	0.09	0.09	0.10	0.12	0.12	0.13	<.0001	0.16	0.16	0.17	<.0001
Home health visits	1.08	1.07	1.10	1.06	1.04	1.07	0.01	1.06	1.04	1.07	0.01
ER visits	0.31	0.30	0.31	0.43	0.42	0.44	<.0001	0.45	0.44	0.46	<.0001
Inpatient ER visits	0.40	0.39	0.41	0.42	0.41	0.43	0.00	0.44	0.43	0.45	<.0001
Outpatient ER visits	0.19	0.19	0.20	0.41	0.40	0.42	<.0001	0.43	0.42	0.44	<.0001
DME visits	2.18	2.16	2.20	2.16	2.14	2.18	0.12	2.3	2.28	2.32	<.0001
SNF visits	0.38	0.37	0.39	0.41	0.40	0.42	<.0001	0.47	0.46	0.48	<.0001

PPECM, porcine placental extracellular matrix; LCL, lower confidence limit; UCL, upper confidence limit; DRG, diagnosis related groups; ICU, intensive care unit; ER, emergency room; DME, durable medical equipment; SNF, skilled nursing facility

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