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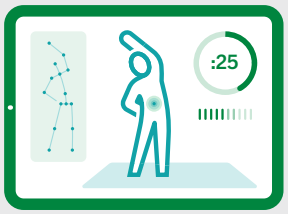
OVERVIEW FOR POLICYMAKERS



Virtual Musculoskeletal Solutions

HEALTH TECHNOLOGY ASSESSMENT | JUNE 2024

Clinical and Economic Impact for Patients with Musculoskeletal (MSK) Disorders

Peterson Health Technology Institute (PHTI) conducts rigorous, independent evaluations of innovative digital health technologies to improve health and lower costs. PHTI's assessment used an evidence-based framework and systematic literature review of more than 2,000 articles, including information submitted by the companies reviewed in the report. PHTI received input from various experts and individuals, including licensed physical therapists, clinical advisors, MSK patients, and other stakeholders.

Topic and Category Selection

For its latest evaluation, PHTI selected virtual MSK solutions that use self-directed exercise and physical therapy (PT) programs to replace or augment in-person PT. The category was chosen because:

- One in three people in the United States experiences MSK disorders.[1]
- Back pain, the most common MSK disorder, has a disproportionate impact on seniors, women, and people with incomes below the poverty level.[1]
- Medicare spending for people who get physical therapy as a first-line treatment is 19% lower than those who start therapy with a steroid injection.[2]
- Patients can struggle to attend multiple weekly in-person sessions with a physical therapist due to transportation or mobility limitations, geographic barriers, and work obligations.

Some virtual PT solutions offer little if any interaction with a human physical therapist throughout the course of care, while others offer much more interaction, either live or asynchronously, with therapists and coaches. The solutions often incorporate feedback about exercise completion and range of motion from computer vision analysis and on-body sensors. They are typically offered as wellness benefits, not medical benefits.

Summary of Findings

PHTI's evaluation found that **physical therapist-guided solutions,** which incorporate a moderate level of clinician involvement and use computer vision to track self-directed exercises at home, produce improvements in pain and function comparable with in-person PT and work better than healing naturally or receiving treatment without PT. For some people, solutions in the therapist-guided category can work as a reasonable substitute for in-person care. These platforms may be especially appealing for people who have access challenges to in-person PT. Studies show that these solutions can lower the cost of delivering PT, speed up initiation of

[1] Nguyen, Andrew, Izzuddin Aris, Brian Snyder, et al., "Musculoskeletal Health: An Ecological Study Assessing Disease Burden and Research Funding," *The Lancet Regional Health Americas* no. 29 (January 2024): 100661. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC10788788/#bib7.

[2] The Moran Company, "Initial Treatment Intervention and Average Total Medicare A/B Costs for FFS Beneficiaries with an Incident Low Back Pain (Lumbago) Diagnosis in CY 2014" (May 2017). http://www.aptqi.com/Resources/documents/APTQI-Complete-Study-Initial-Treatment-Intervention-Lumbago-May-2017.pdf.

ASSESSMENT OF VIRTUAL MSK SOLUTIONS

WHAT IS THE GOAL OF THE TECHNOLOGY?

Virtual MSK solutions seek to expand convenient access to virtual PT to improve pain and functional status for patients and avoid unnecessary treatment and spending.

WHICH CATEGORIES ARE INCLUDED?

App-Based Exercise Therapy Solutions	Physical Therapist–Guided Solutions	RTM-Augmented PT Solutions
Dario, Kaia	Hinge, Omada, RecoveryOne, Sword, Vori	Limber

WHAT ARE THE CLINICAL BENEFITS?

- **App-based exercise therapy solutions** are shown to improve patients' pain compared with no in-person PT.
- **Physical therapist–guided solutions** can improve patients' pain and function at a level comparable with in-person PT.
- **RTM-augmented PT solutions** have limited but positive evidence indicating superior outcomes for pain and function compared to in-person PT alone.

WHAT IS THE BUDGET IMPACT?

- Absent sufficient pricing data, this report does not estimate the budget impact of **app-based exercise therapy solutions.**
- At current prices, **physical therapist–guided solutions** can decrease spending relative to in-person PT and generate savings from avoided care.
- **RTM-augmented PT solutions** increase total healthcare spending because estimated savings from avoided care do not offset increased costs of RTM billing.

WHICH TARGET POPULATIONS COULD BENEFIT MOST?

Virtual MSK solutions stand to improve access for populations who otherwise have barriers to in-person PT, including older adults, people who live in rural areas, and those with mobility limitations.

WHERE ARE THERE OPPORTUNITIES TO OPTIMIZE THESE SOLUTIONS?

Integrate into medical benefits	Encourage PT-first with virtual care as an option	Pursue value-based contracts	Improve evidence generation

therapy, and improve adherence to care plans, resulting in lower average healthcare spending across the patient population.

The two other categories of virtual MSK solutions evaluated by PHTI show more nuanced results:

App-based exercise therapies, which use algorithms to design and update participants' care plans and have very little therapist involvement once a program is established, can help with pain but are not shown to improve functional status as well as in-person PT. Offered broadly at an affordable price, they may be effective solutions for lower-acuity patients.

A third category that PHTI calls **remote therapeutic monitoring (RTM)-augmented PT solutions** supplement in-person physical therapy with virtual care and are paid for using RTM billing codes. These solutions appear to deliver superior clinical results on pain and function compared to in-person PT. However, net costs are higher since the savings from lower overall utilization do not offset the impact of billing for RTM on top of existing treatment.

Policy Implications of PHTI's Virtual MSK Solutions Assessment

Overall, virtual MSK solutions show immense promise in realizing the potential of digitally enabled care to improve clinical outcomes, enhance access to care, and reduce costs across patient populations. The chart below evaluates the solutions by category.

Economic analysis shows that if 25% of in-person PT users with low back pain shifted to a physical therapist–guided solution at a price of $995 per year, it would reduce spending by $4.4 million per 1 million commercially insured lives.

Meanwhile, the RTM-augmented PT solutions would increase spending by $1.7 million per 1 million commercially insured lives. If targeted to higher-acuity patients, the higher price point could be justified by downstream reductions in surgeries, injections, specialty visits, and imaging. But it requires further evidence development, particularly in support of growing purchaser interest in value-based contracting.

To encourage care continuity, optimal use, and to help to avoid over-paying for these solutions, purchasers should migrate these solutions to the medical benefit of a health insurance plan, from the wellness benefit (where they are typically today).

ESTIMATED CHANGE IN ANNUAL HEALTHCARE SPENDING RESULTING FROM ADOPTION OF PHYSICAL THERAPIST–GUIDED VIRTUAL MSK SOLUTIONS AT VARIOUS PRICES

		1-YEAR			2-YEAR		
		Commercial	**Medicare**	**Medicaid**	**Commercial**	**Medicare**	**Medicaid**
Total Per 1M Members	High Solution Price: $1,144	–$3.6M	+$1.6M	+$3.2M	–$4.7M	–$0.1M	+$2.5M
	Middle Solution Price: $995	–$4.4M	–$0.6M	+$2.0M	–$5.4M	–$2.3M	+$1.4M
	Low Solution Price: $575	–$6.5M	–$6.7M	–$1.1M	–$7.5M	–$8.5M	–$1.7M
Per User Per Year	High Solution Price: $1,144	–$737	+$111	+$421	–$476	–$4	+$169
	Middle Solution Price: $995	–$886	–$38	+$272	–$550	–$78	+$94
	Low Solution Price: $575	–$1,306	–$458	–$148	–$760	–$288	–$116
Per Member Per Month	High Solution Price: $1,144	–$0.30	+$0.14	+$0.26	–$0.20	$0	+$0.11
	Middle Solution Price: $995	–$0.36	–$0.05	+$0.17	–$0.23	–$0.10	+$0.06
	Low Solution Price: $575	–$0.54	–$0.56	–$0.09	–$0.31	–$0.35	–$0.07

Notes. Assumes 25% of in-person PT users shift to virtual MSK platforms, 50% improvement in adherence, and 50% improvement in early initiation of PT. Negative numbers represent healthcare savings (decreased spending).

ESTIMATED CHANGE IN ANNUAL HEALTHCARE SPENDING RESULTING FROM RTM-AUGMENTED PT SOLUTIONS

	YEAR 1 BUDGET IMPACT			TWO-YEAR CUMULATIVE BUDGET IMPACT		
	Commercial	**Medicare**	**Medicaid**	**Commercial**	**Medicare**	**Medicaid**
Total Per 1M Members	+$2.3M	+$3.7M	+$1.3M	+$1.7M	+$2.8M	+$1.0M
Per User Per Year	+$462	+$254	+$178	+$176	+$97	+$68
Per Member Per Month	+$0.19	+$0.31	+$0.11	+$0.07	+$0.12	+$0.04

Note. Assumes 25% of in-person PT users shift to virtual MSK platforms and 90% improvement in adherence. Positive numbers represent increased healthcare spending.

PHTI's findings underscore the importance of having physical therapists involved in initial patient evaluations and management of care plans to achieve both pain and function benefits. The solutions with more physical therapist involvement showed better clinical outcomes.

Though data on race and ethnicity of patients in the literature are limited, virtual MSK solutions show directional signs of improving primary health outcomes across all racial and ethnic backgrounds. More-focused outreach by providers and purchasers is needed to locate the patients who have the highest potential for good outcomes at lower costs from virtual PT, especially those who have not yet sought other medical care.

For more information, policymakers and their staff should contact Mairin Mancino, Senior Advisor for Policy at MMancino@PHTI.org.

PHTI CATEGORY-LEVEL RATINGS FOR VIRTUAL MSK SOLUTIONS

● Positive ● Moderate ● Negative
● Higher Clinical Evidence Certainty ○ Lower Clinical Evidence Certainty

	Clinical Effectiveness	Economic Impact	Summary Rating[b]
App-Based Exercise Therapy[a] Dario, Kaia	○ **Results:** Improves pain but not function; not substitutable for in-person PT **Evidence Certainty:** Lower	N/A Pricing data not available	● **Evidence supports broader adoption depending on price, particularly for patients with lower-acuity MSK conditions**
Physical Therapist–Guided Solutions[a] Hinge, Omada, RecoveryOne, Sword, Vori	○ **Results:** Improves both pain and function; comparable to in-person PT **Evidence Certainty:** Lower	● Decreases net spending relative to in-person PT with savings from avoided care	● **Evidence supports broader adoption**
RTM-Augmented PT Solutions[a] Limber	○ **Results:** May perform better than in-person PT alone **Evidence Certainty:** Lower	● Increases net spending; savings from avoided care are less than added RTM billing	● **Ongoing evidence generation needed; may justify broader adoption for patients with higher-acuity MSK conditions**

Source: PHTI, Virtual MSK Solutions Assessment, June 2024. See PHTI.org for complete report, methods and recommendations.

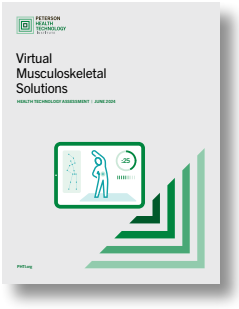
Notes: [a] Not all solutions have clinical data that meet the inclusion standards for this report. Based on the similarity of approaches, it is fair to assume that companies without solution-specific data perform in line with the category. Purchasers and users will have to make their own assumptions about performance.
[b] Summary rating reflects the combination of clinical and economic results.

About the Peterson Health Technology Institute

The Peterson Health Technology Institute (PHTI) provides independent evaluations of innovative healthcare technologies to improve health and lower costs. Through its rigorous, evidence-based research, PHTI analyzes the clinical benefits and economic impact of digital health solutions, as well as their effects on health equity, privacy, and security. These evaluations inform decisions for providers, patients, payers, and investors, accelerating the adoption of high-value technology in healthcare. PHTI was founded in 2023 by the Peterson Center on Healthcare.

Accessing PHTI's Full Report

You can access the full report here.



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