Donelson, Ronald G.[1]; Spratt, Kevin F.[2]; Gray, Richard[3]; Miller, Mark[3]; McClellan, S[3]; and Gatmaitan, E[3]

1. Self-Care First, Hanover, NH
2. Geisel School of Medicine at Dartmouth, Dept. of Orthopaedics, Lebanon, NH
3. Integrated Mechanical Care, Tallahassee, FL

Title: The cost impact of a precise mechanical diagnosis on low back pain care: a comparison with usual community care.

Introduction: The cost of treating low back pain (LBP) keeps increasing with little evidence of improved outcomes. A fundamental contributor is the inability to make a reliable, accurate diagnosis which results in a wide range of questionably effective treatments. However, considerable reliability and patient-reported outcome validity evidence documents that a "mechanical diagnosis" based largely on a directional preference finding identifies predictably-effective directional exercises and posture modifications for most. Until now, no study has looked at the cost impact of basing treatments on mechanical diagnoses compared with "usual" community care.

Analyzing employer's claims data offers the rare opportunity to identify initial and downstream care and costs regardless of where care takes place. A significant decrease in one-year downstream costs also reflects improvement in care quality in the absence of other cost-lowering factors.

This administrative claims data analysis evaluated for differences in costs and use of services between outcomes-driven McKenzie-type mechanical care (MC) and community care (CC) over one year. It was hypothesized that MC costs and use of services (imaging, injections, surgery) would be significantly lower compared to CC.

Methods: All care-seeking employees and dependents with low back complaints at a large U.S. manufacturer selected either community care (CC) or care within a company clinic. Each was first physician-examined and assigned a lumbar diagnostic code. Only patients with a fracture, dislocation, or infection code were excluded. Most who selected the company clinic were unaware they would undergo mechanical (MC) based on a mechanical evaluation. Their mechanical diagnosis typically determined their treatment which, in most cases, focused on directional exercises that matched their evaluation findings.

CC providers were reimbursed using standard fee-for-service. MC providers agreed to risk-sharing reimbursement using a negotiated case-rate. All subsequent claims for one year were allocated to the baseline treatment group. The two groups were risk-adjusted using the company's claims-based risk score and patients' age and gender.

Results: During 2013, 434 subjects chose MC and 4,602 sought CC. After one-year follow-up and risk-adjustment, MC produced a 51.5% savings compared with CC, significant at $p < .0001$.

Additionally, MC reduced the utilization of MRIs, injections, and surgeries by 61%, 75%, and 66% respectively, with relative risks within CC of 2.57, 3.97, and 2.95 respectively.

Discussion: The risk-sharing case-rate rewarded the MC provider for accepting allocation of all costs for each patient during the one-year follow-up. The 51.5% savings was largely related to substantial decreases in MC subjects' need for MRIs, injections, and surgeries. In the absence of any other cost-saving factors, e.g. payment denials, these substantial savings appear to reflect the benefit of making a mechanical diagnosis in determining treatment. If diagnoses made at the outset of care are sufficiently precise to also identify a predictably-effective treatment, recoveries should be faster, treatments less complex, and significantly less expensive.

It is widely accepted that indirect costs are 2-4 times greater than direct care costs. Our significant direct care savings with MC may therefore create a substantial indirect cost savings for the employer as well.