Introduction - The problem

Work injuries are ubiquitous in the United States with actual rates fluctuating depending on the occupational sector and are generally considered a cost of doing business. Employers have attempted to mitigate their risks of occupational exposures through various methods including forming safety committees, hiring ergonomic specialists, and re-engineering work processes to better fit the job to the worker. Other initiatives including re-formulating hiring criteria, conducting pre-hire screening, revising job descriptions for accuracy, and bringing in outside health/safety consultants have also become common. These tactics have all been part of the more global strategy to reduce workplace injury and ultimately health care costs. More recently, implementation of on-site back school programs, sponsoring fitness/wellness initiatives and even full-fledged disease management programs have become the trend in industry with the goal of reducing both presenteeism/absenteeism, injury/sickness
related losses, and to improve worker productivity in general. Despite our best efforts, accidents continue to happen and for many different reasons, not the least of which is underlying worker de-conditioning, which many argue, sets the stage for injury to begin with. Between labor policy mandates (union contracts), government agency restrictions (EEOC, ADAA) and emerging scientific discovery in ergonomic science, industry has yet to come together in a manner that allows employers to identify high risk or injury susceptible applicants during the hiring process. It stands to reason that as a worker population ages, these employees are at greater risk of injury simply as a result of aging induced changes in the musculo-skeletal system, including muscle/bone mass related losses, excluding any injuries or trauma’s overlaid on the aging process. Given that injury prevention is not a perfect science, we should get comfortable with the fact that injuries will happen and are an inherent part of the work experience, not for all, but for at least 5% of the total working population at most any given time. For non surgical work injured cases the usual course of events will include a physician consultation, in many cases, followed by a prescribed course of rehabilitation or physical/occupational therapy. For the majority of these work injured clients, there is resolution of their medical condition in a relatively short period of time. For a smaller and significant proportion of cases, this is not the pattern, as they transform into chronic pain/disability with symptoms becoming recalcitrant to conventional treatments.

This relatively small proportion of “chronic disability” patients, are, in many instances observed to become unresponsive to conventional therapies such as medicinal, pharmacological, physical or occupational therapy. There have been many theories as to why 20% of the cases represent 80% of the costs in the worker compensation and no fault (auto) system, but controlling expenditures in this critical subset of the injured population has never before had such a high priority for insurance companies. It is these outlier cases that represent a disproportionate amount of the total annual burden of expenditures that insurance companies are ultimately responsible for.

**The Rehabilitation Provider Marketplace**

Although there are variations in the practice pattern of outpatient physical therapy providers, much of the collective provider behavior is shaped by insurance reimbursement/regulatory policies that limit number of visits, types of interventions, who performs the treatment (staff mix) and for how long. Declining reimbursements, greater utilization management (fewer approved patient visits) , more frequent coding, billing and documentation audits, increasing liability lawsuits, and a much greater emphasis on cost containment tactics including more robust outcome documentation translates to increasing clinician distraction from patient care and greater focus on regulatory structure. More time is being spent on non patient clinical activities that focus on satisfying insurance company reporting requirements, than on direct patient
treatment time. The result is that the rehabilitation industry is being forced to place greater emphasis on volume than on value, with clinicians expected to treat more patients with less available time per patient to compensate for declining reimbursements. Competing demands are forcing licensed therapists to spend less direct patient time while making more time for regulatory and compliance expectations. To make matters even more challenging, the demographic shift or graying of America will only drive up the demand for rehabilitation services, further Although the expected shift from volume based to value based reimbursements to physicians and hospitals is occurring, the rehabilitation sector continues to be in a state of flux with fewer certainties than ever in our new health care economy. The outpatient physical therapy provider marketplace is currently characterized by fragmentation and considerable practice variation. Hospital satellite facilities co-exist with independent physical therapy entities along with the less regulated forms of therapy entities such as those owned by medical doctors. The changing reimbursement in the physical/occupational therapy environment, combined with legislative reform, is driving the shift from marketplace fragmentation to consolidation. The downstream effects being improved payer contracting, procurement of larger pieces of business, servicing larger and more varied populations, optimized revenue cycling, better supply chain management, value purchasing, and higher regulatory compliance generally through more robust infrastructure resource frameworks.

The new era of rehabilitation will reward those providers that demonstrate the greatest value i.e. the blending of cost effectiveness and patient satisfaction within the context of utilization (number of visits) and as determined by risk adjusted diagnostic categories. In other words, blending high patient satisfaction levels with excellent outcomes utilizing as few visits as possible. Risk adjustment will focus primarily on complexity (co-morbid disease and risk factors) in much the same way that relative value units are used within the MCE system. A heavier emphasis on patient satisfaction and experience has been a primary goal of current systems integration efforts, along with improved clinical efficiencies and accountability (shared risk). The use of ancillary staff (extenders) has grown in both the inpatient and outpatient sectors. Cost shifting, population health management and risk sharing have become the new buzz words in the rehabilitation industry with health insurance premiums continuously rising, at the same time, the patient owed portion has also risen. Diluted insurance plans that cover fewer services and shift the burden of cost in the form of higher deductibles and co-payments to the patient have become standard practice. The changing insurance demographic was most obvious in states such as Michigan these last 5 years with poor auto industry sales/profits leading to higher than normal unemployment rates and poor opportunity for re-employment. Those jobs that have been replaced have been done so with much cheaper direct labor costs (hourly wages) jobs and corresponding weaker benefit packages. The greater proportion of people on
HMO plans versus pre-recession levels is testimonial to the insurance plan shift and translates into significantly lower provider reimbursement rates. As part of the Affordable Care Act (ACA) employers and consumers in general are seeing a rise in health insurance premium amount due to new taxes such as; comparative effectiveness fee, federal tax on insurance premiums, reinsurance fee, marketplace fee, and risk adjustment fee-and these are on top of the current state claims tax which is already included in insurance premiums. The total expected increase in premiums employers can anticipate across the board just from these added taxes will range from 4-6.5% exclusive of annual increases not related to ACA. As well, at the individual member level, rates will vary based on age and number of dependents. Member level pricing could be different for each employee which can have implications for the employer of less than 50 employees including that each enrolled member could be paying different contribution amounts.

The institutional sector comprised of a majority who are non-profit status hospitals (approximately 5800 in the US) has also been forced to operate under economic constraints with shrinking margins due to several major factors including changing population payer mix, decreasing reimbursements (when adjusted to inflation), increasing operating costs, and more recently, Medicare re-admission penalties on certain diagnostic groups that only serve to further erode profits. This recent Medicare re-admission policy penalty policy has created a financial burden in many urban hospitals that typically have a disproportionate number of federally funded beds, and a generally more unhealthy population. Health status is recognized to correlate with socio-economic status with disenfranchised populations carrying a greater burden of disease than their more affluent counterparts. The new health care plan that focuses on prevention as part of accountable care, in general, will aim to reconcile integration of clinical service lines with an enhanced patient experience as demonstrated by improved outcomes and patient satisfaction. From a provider perspective, the system will reward provider behavior that demonstrates optimal value in several domains including clinical, operational, and financial, and patient optimization. The current system is being built with certain assumptions in mind, one of those being, that patients will seamlessly transition from acute care to functional recovery through incremental progression or care pathways that can be measured and benchmarked. It can be argued that this assumption is valid for the majority of patients with musculoskeletal complaints, but how do we manage chronic pain that leads to chronic disability in the system we described? What usually happens is that a large proportion of this small but important subset of patients is that they have consumed traditional pathways and clinical programs, with little or no success, albeit, for a constellation of reasons and not all being in the biological realm. This chronic disability group inevitably becomes the bane of insurance carriers whose indemnity payments and medical costs coverage support an often times dysfunctional individual
who becomes depressed, drug dependent and physically deconditioned. We already know that there are a myriad of reasons why patients don’t achieve an expected physical status or a specific outcome such as return to work. Psycho-social determinants of both disability and recovery have been well described in the literature. But which outpatient programs deliver the most value for the payer, especially in situations where a patient is a frequent flier but never appears to get to his/her destination?

**Chronic Disability and Functional Recovery**

Conventional rehabilitation delivery models have historically not been effective in the rehabilitation of that small percentage of the work/auto injured patient population. This chronically disabled subset of patients develop complications in their recovery path, and as a result, drive up direct and indirect medical costs associated with optimal recovery. For the purpose of this report, a chronic disability patient is defined as a person who has sustained legitimate injury with corroborative medical data to support injury and has sought out conventional treatment intervention(s) in the past, but with no significant resolution to their symptoms. They may or may not have objective quantifiable functional deficits, however, they do have medical evidence of injury-they simply didn’t get better. This report describes a group of 50 of these patients all having different injuries to various parts of the body, all of whom had significant medical evidence of injury/trauma at one point, but all of whom had no significant resolution to their symptoms despite surgery, injections, invasive procedures (Rhizotomies/implants) pharmacotherapy, physical/occupational/pain therapy and work recovery program intervention(s).

We feel that the data contained in this report is compelling in that; 1) the data was collected and provided by the insurance carrier, and not generated by the provider, and 2) this program represents what clinical integration is at the actual service delivery level; and 3) the results demonstrate the clinical utility and financial benefits of providing clinically integrated programming. The carrier can now measure the success of a program and calculate the return on investment using actuarial data that focus on case reserves as a primary indicator of program value. This report focuses on the treatment of 50 patients (cases) referred to a private multidisciplinary outpatient program (It-Works, LLC) from an insurance carrier (Accident Fund of Michigan) who was simultaneously monitoring the total costs involved in the total treatment package. The program delivery method was un-conventional in that it combined 3 disciplines in an integrated manner to co-treat these difficult cases which all had a very guarded prognosis to begin with. Patients referred to this integrated program would undergo combined physical therapy, acupuncture and medical massage treatment on nearly every session. The service intensive nature of this outpatient program provided a very pain focused approach to the treatment of MSK disorders. Unlike a pain therapy
center that entails many hours every day for a prescribed period of time, the ITW program is delivered much like a traditional physical therapy schedule of 3 x week with each session lasting approximately 90 minutes. The program is outcome measure intensive utilizing standardized outcome measures (SOM’s) to quantify clinical and functional improvement. The following summary will focus on the case reserve level for patients as the primary indicator of cost effectiveness.

Objective: To examine the value of an integrated rehabilitation program from the payer perspective and as measured in terms of cost savings through the lowering of the case reserves. This report utilizes actual injury cost data (case reserves) supplied by the insurance company as a basis for the analysis.

Design: Our design is that of a prospective cohort outcome study and we examined the relationships between insurance company case reserves at time of assignment to therapy clinic and case reserve levels at time of completion of integrated therapy protocol. A number of other analysis were performed that were related to clinical outcomes but the focal point in this report is cost savings as measured by lowered case reserves as a function of improved functional status and resultant decreases in medication use, attendant care requirements, medical visits/hospitalizations, rehabilitative costs, DME/transportation costs, and return to a more productive life.

Setting: The ITW integrated model operates as an independent outpatient facility that employs multiple rehabilitation professionals (multidisciplinary) in a contiguous setting. A treatment session typically consists of 30-45 minutes of soft tissue therapy followed by 30-45 minutes of strength/stabilization and another 30 minutes of traditional Chinese acupuncture. The treatment schema seeks to address painful soft tissue restrictions, deconditioning syndrome, and pain/drug dependency issues in a conservative manner.

Participants: The patients were recruited as direct referrals from the insurance company medical department with various musculoskeletal diagnosis stemming from work/auto related injuries. All participants were classified as chronically disabled patients if they had been non productive or off work for at least 6 months, most had been off work for years prior to entering the integrated program and all were collecting indemnity payments from the insurance carrier.

Methods: Financial (case reserve data) was supplied by the medical department for the Accident Fund of Michigan and data is represented for 50 patients (n=50). Financial data (costs) are tracked by the insurance company responsible for paying these costs. The cumulative 12 month case reserve savings (pre-intervention case reserve minus post intervention case reserve) is reported.
**Results:** The data shows a cost savings of just over $1.5 million dollars based on the integrated treatment approach used by the It-Works program on 50 randomly assigned (by Accident Fund) patients who were classified by the insurance carrier as chronic disability cases. The longer a patient stayed in the ITW program, the more money was saved by the insurance company. The highest savings were generated from patients who were 800 days (2.5 yrs) or more post injury. The ITW program saved more money in cases where patients did not return to work than for those that did return to work. Injuries were classified as upper, middle and lower body injuries. Data analysis shows that the highest dollar savings occurred with patients who presented with documented upper body injuries than the other two categories. The per case average dollars saved (lower reserve) by body area is as follows; Upper body ($46,800.50), Lower body ($33,871.95), Middle body ($40,931.29). The amount saved by return to work (RTW) status is as follows; RTW ($17,657.20), non RTW ($41,787.22).

**Conclusion:** Integration is a critical cog in the current discussions that are unfolding throughout the health care industry. This report focuses on providing an applied example of how integration of multidisciplinary providers working together can be more cost effective than a more traditional single service or silo type service delivery model. There are several unique aspects to the ITW program that we need to highlight as distinctive. The treatment session is a compilation of 3 disciplines that tend to complement each other and may be more powerful together, than if they were performed separately. Patients are given an extraordinarily longer session as a result of the multidisciplinary approach. The focal point of the treatment is pain stemming from unresolved soft tissue dysfunction. During these sessions, the therapist and patient tend to develop a stronger therapeutic relationship with the combination of human touch via manual therapy along with patient education. Unlike more conventional outpatient therapy where treatments might be more time constrained, the ITW treatments focus on providing up to 60 minutes of hands on medical massage/manual therapy until pain is controlled. The patient then transitions to an exercise based program or traditional physical therapy program once symptoms have decreased.

The data presented in this report was generated by the payer, and not the provider group, which should make the results even more compelling for the various payer entities charged with the task of authorizing post injury provider services while at the same time containing claims costs. Important to note that the sample population used in this pilot study, was arguably biased against treatment, given the recalcitrant nature of the patient demographic studied, yet to the credit of this program, very significant decreases in case reserves were observed by the carrier. As health care networks and hospital systems move forward in the new era of health care (ACA) the need for post acute care networks to form and collaborate will be paramount for effectively treating
populations. Chronic disability patients have been a challenging sub set of the total musculoskeletal patient population in terms of cost effective treatment strategies. The integrated ITW model has demonstrated the value of an interdisciplinary and patient focused approach to treatment, as measured by both clinical and financial outcome indicators. Although the data presented does not claim to compare conventional rehabilitation programs costs with an integrated format, such as that described in this report, it is worthwhile to note that all 50 cases had attempted traditional rehabilitation programs, most multiple times, but without success. Our data puts into the forefront, the various methods by which we can calculate a ROI outside the context of what service is least expensive at the outset. Single service rehabilitation might be cheaper at the front end, but over time, a multi-disciplinary approach can save the most money. It is tempting to speculate as to what drives the significant differences observed in clinical, patient and financial outcomes between the single vs a multi disciplinary rehabilitation program. Whether the important difference is the number and type of providers involved, or the length of total session, the amount of hands on time per session, or the effect(s) of a specific combination of disciplines involved-it is difficult to determine. What does appear to be evident is that a patient focused integrated approach to chronic disability can save insurance carriers significant money in the back end as measured by significantly reduced case reserves.

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