

To The U. S. Congress, and The Administration of President George W. Bush:

A Proposal To Create An OSHA Ergonomic Demonstration Grant Program

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Abstract

A decade of political gridlock over OSHA's proposed ergonomic rules has stalled relief to pain-afflicted workers and to companies suffering from the reduced productivity. This proposal promotes research which can be valuable to both companies and workers.

Through the proposed demonstration program, OSHA would discover, evaluate, and affirm the value of practical answers to the full range of ergonomic issues facing American employers and their workers. An extensive database of information would be made publicly available to companies and other employers to assist them whenever they are ready to launch an ergonomic program in their workplace.

Industry groups have asked OSHA for this kind of assistance in the past, but no program has provided the budget to address the need with scientifically affirmed information. At present, companies must proceed cautiously on their own, without assuredly credible help in sorting out cost-effective answers from among the well-promoted but operationally insufficient. More information is needed than can be provided by other government programs, most of which are oriented toward academic research, often not leading immediately to practical remedial application.

Most recent ergonomic research and available funding has focused on finding medical answers. This proposal steps over causes, blame, and medical diagnosis to focus on practical answers capable of reducing the factors causing physical stress, pain, and injury in the workplace. This proposal is designed to meet the needs of both sides in the ergonomics debate whether or not regulations are ever enacted. The proposed concept is designed to appeal to workers and managers; labor unions and industry organizations; Democrats, Republicans, and Independents; conservatives, liberals, and moderates.

Regulation is most beneficial and least resisted when improved methodologies can cost-effectively result from corporate response to the regulatory requirements. Cost-effective answers are especially important when some partial causes of the affliction may be unrelated to work. If companies are required to address an affliction they may not have entirely caused, the public treasury and associated government agencies should help identify and prove the value of strategies and

methods which can yield a return on the corporate investment required to address the regulated issues or the identified public need.

Background

With the number of stress-injured workers thought to be larger than conservative Department of Labor numbers suggest, the whole economy has suffered from failure to resolve the political impasse which has held workers and companies hostage over the past decade. In the midst of the technology generated prosperity and its many productivity improvements, the productivity lost to musculoskeletal injury has been hidden from view, but nevertheless, it is real. Many workers have been found to slow down their work—without reporting their pain—to avoid derailing their career hopes or losing their jobs. Others slow down and take protective personal action at work to avoid becoming injured in the future. This behavior is documented by conversing confidentially with workers in many different places. It does not show up in official numbers.

Reduced productivity has even been encouraged by industry-sponsored programs urging workers to take stretch breaks every fifteen minutes. These programs reduce corporate liability for worker injury at the expense of productivity, as if bottom-line productivity were less important than legal liability. By sacrificing productivity, investigative focus is removed from ergonomically inadequate equipment, and progressive productivity improvements are retarded.

With little having been done beyond stretch breaks and other minor palliatives to meet workers' remedial needs, individuals have been left to take whatever action they can figure out to address and prevent their personal musculoskeletal pain and discomfort. Because musculoskeletal injury is difficult to affirmatively diagnose (the sources of pain are not readily visible) and because insurance companies claim fraud by workers who may not really be injured, industry has telegraphed to workers disinterest in addressing musculoskeletal injury. In response, workers have taken the problem underground, lowering the number of reported cases and the visibility of the affliction. As this has happened, the human and the economic costs of the problem have increased, but defensible estimates are not easily made. Inevitably, the costs of the problem have become as invisible as the problem itself.

Because of the operating psychology, the size and the scope of the problem can only be projected, based on confidential worker reports. Justifiably, OSHA has been conservative in the valuation placed on the total economic cost of musculoskeletal injury. Once productivity is restored in the future, the price paid for repetitive stress injury may be assessed—

retrospectively. In the meantime, OSHA estimates are the most credible available, even though European nations with similar workforce stresses report much higher numbers. After ten years of delay, the upper range of OSHA's annual cost projections total as high as a half a trillion dollars, including direct medical costs, lost worktime, and sacrificed productivity. Other intangible costs in human suffering and morale are also high, but they are difficult to count in dollars.

Musculoskeletal disability (MSD) is a major national health care issue, but because of the fears afflicting both workers and companies, it is off the political radar screen. The economic impact of the long delay is not calculated because business and industry groups focus more on the cost of remedial action and the potential cost of liability for previous possible failures than they do on the existing cost of on-going productivity loss. Workers also do not project the price they are paying because they often do not understand the alternatives that might be offered to them under a more aggressive and innovative regime.

Instead of addressing the need to help workers and restore productivity to companies, company executives have sometimes blamed workers for this unwelcome problem. Rather than looking for practical solutions, research has focused on medical issues and proof of causation—even though hardly one case of musculoskeletal injury is precisely the same as the next. Global answers are not promising, but researchers will likely be found to continue study of the issue as long as funds are available. The problem has become like cancer, heart disease, arthritis, and other chronic, degenerative afflictions of modern society which support research careers, clinical practices, and major medical institutions. No premium is given for seeking answers in the right places. The premium is on looking for answers in profitable places, even though the answers found there may be only marginally effective.

During the 20th Century, roughly 2000 studies of work-related musculoskeletal disability were completed, and yet the science of the affliction is still considered inadequate by some observers. Work-related cause, they say, is not yet definitively isolated from other causes unrelated to the workplace of primary employment. Among the secondary or alternative causational factors frequently cited are: housework, heredity, hobbies, other health conditions, smoking, life-style, second jobs, diet, obesity, mental health, poor physical condition, and impaired stamina. The heredity issue was the focus of a recent lawsuit brought by the Equal Employment Opportunity Commission against a prominent national transportation company for using DNA testing to identify workers with the greatest risk of musculoskeletal injury.

Many employers are bewildered in the face of conflicting claims and arguments over causation and blame. Out of this confusion and uncertainty,

they may defer or ignore the problem, wishfully hoping to make it disappear. Unfortunately, the problem has not gone away; it has just become invisible—and increasingly costly to the entire economy. The strategy of deferral is counter-productive to the best interests of all concerned, but many of the strategists are unable to see that. The costs of the strategy have become invisible to almost everyone.

An allocation of federal funds was won by industry in 1998 to pay for one more study conducted over the following two years by the National Academy of Science (NAS). High hopes were expressed by some that this study would finally be definitive on issues not resolved by the previous studies. Others said the additional study was just a tactic designed to justify delayed release of the OSHA ergonomic rules—until a new U. S. President could re-examine the whole issue. Whatever the truth, the health of workers and the productivity of companies was forced to wait. Now that the results of the NAS study have been released with the effect of reinforcing the prior findings that work-related injury is real, the time for an appropriate political resolution to the ergonomic issue may have arrived.

Because the medical issues are thorny and troublesome, comprehensive federal policy beyond ergonomic regulation is needed. Even if new ergonomic regulations are ultimately implemented, they can be only part of an appropriate answer to the problem. Much more is required to effectively address the suffering and reduced productivity. Regulations can only focus and identify the problem and set uniform national standards governing employer response; they cannot facilitate the discovery or development of innovative analytic tools and solid, affirmed remedial answers. Once the problem is acknowledged and the need for practical workplace remediation established, the cooperative search for answers can begin.

Work-related musculoskeletal disability is a major national disability, and yet it does not receive as much attention as do the victims of other more traditional disabilities, whose needs are now addressed by the Americans with Disabilities Act (ADA), as well as by other mechanisms of response.

A total of 4.5 million disabled Americans, victims of a variety of limiting conditions, are estimated to be users of many different assistive technologies. Amply funded programs and agencies help the victims of traditional disability meet their needs. Among these are the blind, the victims of arthritic joint disease, the muscularly impaired, and those afflicted with neurological disease. Meanwhile, workers suffering from work-related musculoskeletal injury are often on their own, sometimes without even the benefit of employer empathy. Insurance providers too frequently do all they can to escape responsibility for this particular affliction.

The victims of traditional, historically-recognized disability waited long years before their needs and their potential productive value to society

were finally recognized. Such unconscionable previous delay should not mean the victims of newer forms of disability should have to wait similarly for their needs to be met.

Based on reports of lost workdays received by the Labor Department's Bureau of Labor Statistics, OSHA places the annual number of victims of work-related musculoskeletal injury at approximately 600,000. This number includes those injured badly enough to require time off from work for rehabilitation. The agency further estimates about twice this number are injured but not badly enough to require time off from work. Other studies suggest a much larger group of workers feel some pain some of the time, but more research is needed to develop assuredly reliable data.

The 600,000 stress injured workers roughly equals the number of blind people in the United States, but again, the amount of available assistance available to the two groups is not proportional to the relative need of each. Similarly, about one million Americans are in treatment for substance abuse. The resources available to them are much greater than the resources available to the victims of work-related musculoskeletal disability. Few substance abusers claim work-related stresses drove them to the abuse, but worker health insurance pays for their rehabilitation, and prominent, well-funded facilities have been created to address victim needs.

Because of the lack of attention to the MSD issue within companies, workers have been forced to seek a variety of alternative treatment methods on their own. Many workers know that surgical answers carry high likelihood of pain re-emergence later, so less invasive approaches are sought. Many workers have tried up to dozens of alternative therapies and equipment options, with varying amounts of success—and success. With employers unwilling to help, some workers purchase—with their own money—remedial equipment to use at work. Most, without the resources to fund such options, wait and hope companies will finally accommodate their needs. In the meantime, they get on with their work the best they can.

To draw a comparative analogy, a large number of American citizens and their political leaders are quite concerned about the human beings lost to abortion, but these same people are not visibly concerned about the human potential lost to work-related musculoskeletal injury. Without taking a position on the moral issue underlying the abortion debate, a moral issue also underlies the national sacrifice of human health and productivity to MSD. In a caring and concerned nation, ways to address health needs should be found—regardless of causal ambiguity. To simply ignore any type of human affliction is morally wrong.

OSHA's conservative annual total number of reported MSD cases is more than twice as large as the total number of AIDS cases over the last two decades (according to the 2000 U. S. Statistical Abstract). Yet, the amount of policy attention given to MSD has not been appropriately proportional.

MSD may not be as frightening nor lead to death, but that is no excuse for ignoring it and stonewalling victim needs. The victims of stress-related musculoskeletal injury may not march in the streets to bring attention to their issue, but they do suffer not only pain but considerable personal insecurity about their future.

Many stress injured workers feel comparatively helpless to do anything about their pain. They feel as powerless as the victims of other discrimination in the past. If they speak up, they fear they could lose their jobs or derail their career aspirations, so they suffer silently. The victims of musculoskeletal disability need advocacy on their behalf just as much as any other group of disabled, afflicted, or disenfranchised people.

After ten years of adversarial controversy, the need to address musculoskeletal injury and disability has become more pressing—not just because response would be humane but because failure to address the issue is costly to everyone—including many corporations. The aggregated productivity cost of delay over a decade could more than cover the cost of implementing programs to address the ergonomic need, but those losses are gone. They cannot now be reappropriated to fix the problem. These losses have weakened the ability of many companies to address the problem now. That is part of the price paid for the long delay.

At present, the size of the injured population is not even known with certainty. Arguably, the only MSD victims willing to speak up about their pain are those secure enough in their jobs to have the leverage within their companies to get their remedial needs met. Many valuable computer programmers are in this category. If musculoskeletal injury afflicted corporate executives as much as it does their employees, the problem would likely have been addressed sooner, but most executives do not suffer the same exposure as other workers, because their job requirements do not typically expose them to similar amounts of repetitive work.

The victims of repetitive motion injury have faced widespread discrimination by employers, insurance companies, and the government. The prosperity of the last few years has been built on the backs of these workers, and yet their health needs have mostly not been met, except to the degree they are able to address these needs by themselves with existing, available health care and health insurance resources. As has been true in the case of other forms of discrimination—the whole community benefits economically and morally when the error is ended.

Action on the ergonomic issue will benefit not just workers and the profitability of companies, but it will generate economic benefit for the greater prosperity of everyone in America. Once addressed with collaborative innovation and creative confidence in the ability to find better work methods, the controllable factors causing or exacerbating musculoskeletal injury will gradually become more clearly illuminated.

Introduction

The proposed OSHA Ergonomic Demonstration Grant Program is designed to collect and affirm information about a wide variety of remedial approaches capable of providing musculoskeletal relief for pain-afflicted workers and productivity-impaired companies. The goal is to encourage, demonstrate, evaluate, and report cost-effective answers which can improve productivity while also relieving worker pain and discomfort.

This program is suggested because existing research resources available to be focused on the MSD issue are insufficient to the size of the need. Further, these funding sources are abstracted from the agency charged with the responsibility of working with companies to get aid to afflicted and endangered workers. Often, the research funded by other agencies addresses practical workplace needs only indirectly or partially.

The goal of the proposed program is to move the OSHA ergonomic program toward supportive assistance, reducing emphasis on government regulation as the sole means of relieving repetitive motion musculoskeletal affliction. Regulations are considered necessary to provide uniformity of response in the interest of worker health and protection under the OSHA mandate, but repetitive stress musculoskeletal injuries (RSI) are different from the other injuries traditionally addressed by OSHA. A variety of causative factors have been identified and their relationship to one another is difficult to determine. Some observers still dispute the view that work is a primary cause of musculoskeletal affliction, even though most credible medical opinion assigns work the major part of the causative blame.

Because secondary factors apart from work are thought to contribute to the onset of repetitive motion ailments, greater emphasis is needed on assistance and less emphasis may be needed on precise causation and blame; for this to happen taxpayer funds need to get involved. Taxpayer benefit will result in exchange for this commitment. If practical ways to reduce or eliminate repetitive stresses are found, then the need to identify causes and blame is much reduced. Because of the weight assigned to work-related causes by most researchers, ergonomic regulation of the workplace response will likely prove to be justified, but because other factors can contribute to the onset of the affliction, practical government assistance is also important. Whatever the weight assigned to secondary causation, the debate may not be quickly or agreeably resolved. Even the findings released by the prestigious National Academy of Science report have not resolved the issue, as the vote against the ergonomic rules in the Congress made clear.

Case by case, the assignment of blame to a precise group of causative factors may never be possible. As long as claims about secondary causation can be sustained, they will be—either in the political arena or in the courts,

but eventually people will have to decide whether they want to advance practical workplace remediation for the benefit of the nation or whether they want to retard feasible progress while perfect answers and perfect understandings are awaited. With even the approximate weighting of causative factors unlikely to ever be possible, political, not medical answers, are required.

A political response is needed to get aid to both injured workers and productivity-deprived companies without further delay. This proposal is designed to address the existing workplace need regardless of the outcome of the causation debate. The focus is on practical answers capable of reducing work-related repetitive motion musculoskeletal stresses.

Susceptibility to disease and injury has never been distributed equally. Many different factors are always involved. Health is always a complex matter. Ways need to be found to help both workers and corporate executives feel less defensive, because no problem can be solved when people are defended in their position. Psychology and willingness to look at the problem differently is always the key to finding answers.

Both companies and individuals are almost always fearful about the costs of change even when the change is essential and believed to be beneficial. Fear over potential liability about past failure to take action before problems were understood or anticipated is understandable. The tendency to look around for someone to blame is taken as normal in human affairs, but companies should not have to suffer because of actions taken in good faith, based on state of the art technological understandings at the time. Repetitive stress injury has not been found to be caused by companies who knowingly made their workers use tools which were commonly or scientifically known to cause injury uniformly to everyone.

On the other hand, continuous stonewalling of all change in the face of changing knowledge about possible solutions would constitute new grounds for liability, even when the old grounds were certainly invalid. Initially, the case is not similar to the tobacco case where companies knew the risks associated with their products and sold them anyway, but the situation could become more similar to the tobacco case if research, innovation, and practical remedial options is continuously ignored for a long period of time.

Standards governing the past will always be different from the standards which must govern the future. The important long-term question is not whether or not change should be allowed; it is whether the human response to new circumstances will be positive or negative, regressive or progressive, helpful or painful, wasteful or prudent. To defend the appropriateness of their past actions, many companies try to stonewall any change lest change reflect unfavorably on their past actions—even when remedial changes may be very much in their own best interests. The need for

progress cannot be ignored without cost. The truth of yesterday will not necessarily be the truth of tomorrow.

Because both workers and companies have been immobilized in their response to musculoskeletal affliction for their own separate reasons, government needs to assist both. No other entity has the operational scope to provide the needed assistance. People on both sides of the issue need help to understand the available answers. Compelling workers or companies to take actions in which they do not yet have confidence is counterproductive and likely doomed to failure; thus, a demonstration program is needed to document the value and shortcomings of as many available answers as can be examined. This may mean documenting the insufficiency of currently defended answers, but study and analysis could also provide a strengthened defense of their overwhelming adequacy in comparison to other available solutions. Whatever the outcome, the goal of the proposed undertaking is to stimulate creativity, innovation, and careful, fully credible analysis of many proposed or currently utilized workplace methods.

Greater assistance by the agency of government charged with the protecting worker health and safety is desirable and fair, given the limited ability of workers and companies to cost-effectively and reliably inform themselves about good remedial answers or easily develop these answers for themselves. The intent of this proposed program is to provide OSHA with a body of practical information to beneficially address the painful stress of workers, the productivity of companies, and the progress of the national economy. As an alternative to the existing sense of ergonomic regulatory harassment, the proposed program aims to promote cooperative search and mutual assistance for the good of all.

To persist with a purely regulatory ergonomic program in the future, the government may have to prove musculoskeletal injury is caused mostly by work. Claims about significant secondary causation might have to be overcome to forestall or win court cases brought again in the future by industry groups. The government would likely have as much difficulty showing all injury is caused by work as attorneys representing workers in the recent keyboard injury suits have had winning their product liability claims. None of those cases were won. Most were either settled or withdrawn, even though no one denied that worker injury existed. The problem of musculoskeletal injury did not go away just because the workers were not awarded damages. An enormous national problem still exists.

If the burden of proof is placed on the plaintiffs to show that work-related causation is not a major factor in the affliction, they might also have a difficult time making that case. Whatever happens, suits from worker organizations demanding that OSHA fulfill its mandate to protect American workers from repetitive motion workplace injury are either likely or inescapable. With certainty, such cases will ultimately end up before the

Supreme Court of the United States. The only question is how long it will take for them to get there and what will the attitude of the court be when they do.

In the keyboard liability cases, the significance of secondary causation was successfully argued, even though the contribution of work to the injury was undeniable. The juries proved reluctant to do anything that might derail the prosperity generated by the computerized economy. The defendants were powerful companies with access to significant resources with which to craft their defense, while the plaintiffs were individuals of limited means who were perhaps easily intimidated when confronted by unexpected attacks. In many cases they were dependent on the goodwill of their attorneys who might only be paid if the cases were successful. The attorneys might have been examining the probabilities of winning more than they were focusing on the research and education necessary to persist against the vigorous industry defense. No doubt, they expected the victory to come more easily as it had in earlier product liability cases. They may have failed to understand the differences between the keyboard issue and the prior issues with more clear liability.

Traditional keyboards were claimed by industry to be the state of the known art, and no case was made they were not. No case was made that manufacturers of keyboards had significantly misrepresented their knowledge about the dangers of using their products. Everyone learned about the risks of extensive keyboard use at about the same time, with much public discussion. Keyboard manufacturers were not privy to advance information about the dangers associated with the use of their products—even if those risks are quite real.

The companies needed to win the keyboard cases convincingly to stop the threat of further court challenges by others, so they poured significant resources into the defense. They pursued their strategy aggressively and sent a clear message to all potential future plaintiffs. Plaintiffs, on the other hand, may have been made uncomfortable when their personal integrity and belief about work-related injury became vigorously challenged. When the early cases failed, judges telegraphed their attitude about future cases of the same type. They told the attorneys for the plaintiffs to clear their keyboard related cases off the dockets.

One important conclusion may be drawn from the outcome of these cases: they emboldened industry to request further delay by the government in the issuance of the OSHA ergonomic rules. Because of the high cost of this delay, new ways are needed to bridge the impasse.

Major industry associations believe the payment of remediation costs to be an unwarranted burden on corporate capability to remain in business. This point of view cannot be shaken until methods are found to address musculoskeletal injury cost-effectively—demonstrably improving corporate

profitability and lowering health costs. Such answers are available, or they assuredly can be made available with creative, cooperative effort, but their value needs to be documented and credibly affirmed before managers and workers can become convinced to utilize them.

Neither company executives nor workers want to try doubtful, unproven ideas, but once good ideas are credibly determined, everyone may be quick to embrace them. As long as the status quo seems to represent the best available answer in most cases, its maintenance is justifiable, and little would be gained through the imposition of regulations. Regulation may only be beneficial if it is backed up with solid knowledge about better ways to avoid repetitive motion musculoskeletal injury. If industry remains unclear about how to fix the problems, the results of regulation may only be costly confusion. In the past, the assumption has been that industry will go to work to find the answers they need once they are forced to, but in the case of musculoskeletal injury, those companies that have progressively tried to address the problem have often implemented expensive solutions which do not work. Aware of these experiences from reports in the trade press and sometimes the general press, all companies have taken a wait-and-see cost-conscious attitude.

Regulation is most universally valuable if it can assist industry and workers to discover valuable improvements which augment safety while also improving both productivity and income. In the absence of better methods to discover and affirm the value of improved tools and operational techniques, ergonomic regulation may be little more than unproductive harassment leaving everyone still in a quandary.

The goal of progressive regulation should be the encouragement of innovation, but in the case of repetitive motion injury, forcing everyone to come up with good answers on their own, without help, is certainly doomed to be unproductive and wasteful. In spite of all the complaints heard about OSHA, historically it has often goaded industry valuably to improve both safety and economic productivity at the same time. Much past OSHA regulation has resulted in the development or discovery of better and cheaper ways to perform work safely. The same finding is likely in the case of repetitive motion injury, but with causes outside of work possibly contributing more to the injury than has been the case with other forms of injury regulated by OSHA over past years, government assistance in determining good answers is more robustly justified and even required before the problem can be solved.

More importantly, good answers are often not obvious. Much time and money have been wasted pursuing ergonomic answers which are ineffective, sometimes even worse than the original problem. This circumstance drives the need for scientific affirmation of good solutions. Without the hope of positive outcomes, regulation can be just as negative as

the recalcitrance of workers or managers to face the need for change. Workers can be as fearful and negative as corporate executives when faced with innovations they do not understand and from which they do not appreciate benefit. Workers have often subverted valuable progress if they see nothing in it for them. In exchange for new learning, they must see a benefit. Ergonomic remediation is often change management as much as it is product or process development and implementation.

No group has a corner on defensive behavior in the face of needed change or the demand for paradigm shift. The point is to encourage people to reach beyond defense of the established inadequacy to find better answers for the benefit of everyone. That cannot be done unless regulations are accompanied or preceded by the systematic search for improved work methods—and the realistic offer of clear benefit to all in exchange for their implementation.

Frequently unrecognized in the past has been the economic cost of inaction on work-related musculoskeletal affliction. The payment of upwards of 50 billion dollars annually in medical costs, lost worktime, and lost productivity should be an unwelcome drag on the national economy, but more information is needed before these costs can be widely understood and avoided. Even \$50 billion could prove to be a low estimate of the cost, once the full invisible impact of the issue is recognized. More information is also needed to understand the accuracy of the many different cost projections assigned to the implementation of the OSHA ergonomic rules in the different affected industries. Past projections in relation to other previous OSHA regulations have normally proven to be high, compared to actual costs as calculated after the fact. The benefits have also often been underestimated.

The Labor Department's Bureau of Labor Statistics can only track reported events. Unreported pain cannot be tracked. The large number of workers who have decided to manage the RSI problem silently on their own through self-protective productivity reduction increases the economic impact of the RSI problem. Cooperative discovery of beneficial answers could begin to lower this cost.

Government needs to play a central role in finding, evaluating, and affirming the value of all kinds of remedial responses. OSHA has the related mission, resources, and scope of activity to manage this responsibility. Even though the research responsibilities of other agencies are valid and beneficial, no other agency of the federal government has the same direct connection with the occupational safety and health needs of workers and companies. No other agency has its central mission as closely connected to this research need. No other agency has the connection with the American workplace needed to both advance the research and implement its results.

Only OSHA can as effectively coordinate the research priorities with the workplace needs of companies and workers. Other agencies may be suited to the advancement and support of academic research, but none is more closely connected to the practical relationship with companies. This relationship needs to be expanded and developed to meet the new needs associated with work-impairing repetitive motion musculoskeletal injury. This type of injury is different from any other type of workplace injury or safety concern managed by OSHA, and the response to it by OSHA needs to be managed differently, as well.

A demonstration grant program will enable OSHA to build a database of proven remedial solutions with the goal to help companies avoid unproven approaches unsubstantiated by reliable experience. Such a body of scientifically affirmed information is needed whether or not the implementation of OSHA ergonomic rules is delayed or abandoned. OSHA could have an important role to play in advancing RSI-related workplace safety and productivity through assistive information even if ergonomic rules are never promulgated. Similarly, research on beneficial work methods could be advanced even if future versions of the OSHA ergonomic rules become tied up in the courts or in the Congress for an extended period of time.

Many companies are facing pressures to find solutions now, without further waiting. They are beginning to take independent action, but they need guidance to know which answers work best. Independent searching for the best responses has led to the waste of resources, the duplication of effort, and trial-and-error research often with more error than trial. Company officials do not know who to believe among all the various voices and claims, and they do not know how to evaluate and utilize the many possible products and methodologies without possibly aggravating their troubles. Some companies have tested expensive but inadequate ideas only to find them unsatisfactory and sometimes just as bad or worse than the original problem.

In the existing climate of uncertainty, companies badly need some authority they can turn to for tested answers and practical assistance. Companies also need to know the costs and the benefits related to the various available alternative solutions, so they do not have to repetitively do this research for themselves, sometimes with less skill or ability to avoid pitfalls.

The Program Design and Rationale

Under the proposed demonstration grant program, companies and others could apply to OSHA for grant funds to conduct a demonstration project designed to prove or examine the efficacy of a particular remedial concept. Once reports are affirmed by participating academic authorities, whose oversight and involvement would be essential, the results of the study could be widely shared with all others who might like to utilize the results. The study findings would not be proprietary to the company performing the study.

Because of the government funding, the reported results would be public information. If companies want to keep the findings of their research to themselves, they would use their own funds to pay for it. Any company can do that if they want to. Understandably, some may want to gain a competitive advantage through the refinement of improved work methods. The goal of this proposed program is to create a body of publicly available information which saves companies the cost of expensive research or implementation of concepts and methods which could prove marginal or fruitless.

Grant applications would be evaluated using the following criteria:

- - -potential ability to relieve pain and musculoskeletal discomfort aggravated by or caused by work,**
- - -potential ability of the demonstration project to be replicated in other places for the practical benefit of a range of workers and companies,**
- - -potential ability of the project to demonstrate the restoration of employability, productivity, and morale of injured workers,**
- - -potential ability of the studied method to prevent workers from becoming injured or re-injured in the future,**
- - -potential ability to lower health costs and workers' compensation claims, and**
- - - potential ability of the method to contribute positively to the bottom-line productivity and profitability of affected companies as well as the income viability of workers.**

Discussion:

In the tight labor market the nation has experienced over recent years, some companies have felt pressure to develop progressive answers to their RSI challenges to achieve the goal of keeping existing employees fully productive. This group is not the majority, but their experience is useful to examine. They either cannot find or cannot afford the cost of recruiting and training new workers. Knowing they cannot afford further delay waiting for the political process, the medical researchers, or the courts to provide answers, these companies have moved forward to address the ergonomic challenge on their own.

This progressive group of companies believes waiting even for assistance and collaboration from other companies facing similar worker health issues may take more time than they have available, given the many pressures they face, but the majority of other companies and employers around the country are still cautious, uncertain, and hesitant. Many of these less bold or more defensive companies cannot afford to do their own research into the best answers to help solve the musculoskeletal injury problems faced by their workers. Most companies and other employers are confused and unsure due to the shortage of information about affirmed, cost-effective ergonomic answers. They have heard conflicting information, and they do not know what to believe. They do not want to move until they know the cure is not going to be worse than the disease.

Executives have become cautious lest they spend money on highly touted answers which prove unsuccessful. Horror stories have been shared privately or written up in press accounts—even though they are embarrassing to the executives involved. The costly, erroneous, even disastrous, experiences of some companies, coupled with disquieting research reports has redoubled uncertainty and lack of confidence among many executive managers. Unable to winnow out all the complex and conflicting information provided by competing vendors, studies, and press reports, company officials have waited for medical and scientific authorities to affirm proven answers before they move forward with plans to implement innovative new work methods.

As a means of avoiding mistakes, many company leaders hope to protect themselves by staying within the safe circle of collective action. This is the pursuit of the safety-in-numbers strategy. Many companies wait to apply widely affirmed answers together and they have tacitly resolved to ignore the issue until agreed answers are available. Unusual new concepts need not apply even to companies claiming to favor thinking “outside of the box.”

At present, ergonomic salvation is not available because very few specific answers have yet been widely affirmed, and some that have been

affirmed simply represent the best available ad-hoc thinking at the moment. Some of this thinking is merely defensive of the status quo. It may represent the effort of existing product and equipment manufacturers to defend their existing markets. Sometimes, this defense is conducted with great sophistication and expenditure. Often the goal is to protect profits for as long as possible before change occurs. This behavior is not economically valuable for the majority of workers, consumers, and citizens, but the rationale is understandable. Unfortunately, it is a distortion of free market ideals.

Defensive attitudes grow from the common human fear of unknown change, but in this case, they feed on fear of potential liability over possible past mistakes. When the past is defended by clinging steadfastly to its decisions, the only way to move forward is to make positive change irresistible and the economic cost of not changing clear. Only then can the present polarization between the divergent interests of companies and workers on the MSD issue be bridged.

So far, little systematic and thorough study has been applied to the evaluation and presentation of affirmed fact about a wide range of ergonomic answers. By some, ergonomics is seen as liberal do-goodism without practical benefit to the bottom-line profitability of companies. By others the ergonomic marketplace is seen as a place where companies can try to make quick money without delivering assured benefit. These perceptions can be changed, but it will take effort to evaluate and prove the value of practical answers in many different places of work. To date, the value of many ergonomic answers has only been crudely suggested. Real benefits remain to be tested and quantified.

Even though helpful work by the National Institute for Occupational Safety and Health (NIOSH), the National Institutes of Health, academic institutions, many clinics or health centers, and many advocacy groups is recognized, only OSHA has the scope to develop a database of information useful for the practical benefit of a wide range of employers where workers perform many different kinds of work. The work needs to be centered in the place with the closest direct contact to the workplace needs of companies and workers.

At present, the funding of academic studies often depends on industry sources. Those with the financial resources or political relationships (or both) get their studies performed, while some with the best ideas may get lost or ignored. Visionary ideas may lose to those which have established market dominance—even though this result puts the nation at international competitive disadvantage. To provide one painful example of how economic leverage has worked in the past, the ubiquitous flat, QWERTY keyboard was not even the best of the keyboard ideas one hundred and thirty years ago when it first came to dominate the market. The company with the deepest pockets and the power to achieve market dominance won the economic

contest back then. This domination was achieved with a concept not relevant to 21st century needs in that it forced workers to work more slowly so they would not clash and entangle the keys on old-fashioned mechanical typewriters. Many other cases can be cited to show how the power to achieve market domination has proven more important than the quality of the productive performance in determining the success of companies. The negative implications of these marketing victories afflict consumers and the competitive strength of the national economy in many ways. The continued dominance of the data-entry, computer interface market by the flat QWERTY keyboard is just one example of the problem.

In the modern global economy, survival of the wealthiest at the expense of the best leaves the nation at a competitive disadvantage. The proposed demonstration grant program is intended to provide a systematic framework for the evaluation of a broad range of potential answers, so the best answers may have a reasonable chance in competition against the best funded answers. The proposed program is designed to level the playing field in the best interests of all Americans, so high quality answers are more likely to have a chance. The assistance of government would be invoked to insure the opportunity for the best ideas to get the attention of companies, other employers, and workers. The studies could be reviewed and evaluated by anyone who might want to assess the truth of their findings.

The many different places where musculoskeletal affliction is found, plus the hesitation and uncertainty among so many managers, shows the size of the need for this demonstration program. The proposed demonstration program is designed to encourage the simultaneous testing and evaluation of many different ergonomic solutions. The only limit would be set by administrative capacity and the number of qualified people available to design and conduct the studies. Creative innovation may be valuable, but assessment of it is difficult without a comparative baseline. Many different approaches must be evaluated to provide a matrix of ideas enabling the measurement and comparison of all.

Grant applications could come from a wide range of groups or individuals such as those listed below. This list is suggestive, not exhaustive:

- - - companies facing ergonomic challenges and pain among their workers,**
- - - occupational health and safety organizations with broad methodological proposals for addressing a wide range of situations where affliction occurs,**
- - - medical clinics with remedial proposals based on experience and insight gained from work with patient populations,**

- - - consultants acting in concert with a group of client companies,
- - - groups of affected workers within a company (workers can have excellent ideas about how to alleviate the stresses they face, but they are often discouraged from stating them),
- - - manufacturers and vendors working in concert with client companies to demonstrate the efficacy of their proposed solutions, and
- - - individuals wanting to partner with companies to demonstrate an innovative idea or remedial program which they have made ready for market.

All applications would be required to propose a specific, practical, immediately available program in partnership with a company, institution, government agency, or some other type of employer. Each applying group, company, individual, or organization without its own population of afflicted or potentially afflicted workers would be required to have a partnering employer who would provide the setting and the workers for the demonstration. This could be a government agency, an organization of sufficient size to have the needed worker population, or a company. The goal of the program is to demonstrate practical answers in actual work environments with full public documentation and reporting of the research results. Academic affirmation of study findings will be an important part of the program.

Employers are expected to want to participate because of the reduction in cost and risk to them by virtue of government funding. Many are expected to want to find answers more than they will want to reserve the findings for their own competitive advantage. Most employers do not at present think of ergonomics as a place to gain great competitive advantage even though evidence of substantial productivity improvement does exist.

The intended program focus is not on pure science in the laboratory or on pie-in-the-sky brainstorming in search of potentially profitable business concepts. The program goal is to bring information about practical, realistic ergonomic answers to companies and workers, not to advance the early stage development of concepts unready for market, or to offer an alternative to venture capitalism and investment banking in the development of preliminary, early stage ideas. Only ideas considered fully ready for market would be admissible into the demonstration program.

A goal would be to promote cooperative thinking among companies, workers, ergonomic consultants, unions, and vendors to bring ergonomic benefit and improve productivity. The program incentive would be designed to generate robust and immediately practical workplace innovation capable of discovering and proving the

best possible answers to address the needs of workers and companies. If successful, the program would replace adversarial controversy with cooperative innovation focusing on the common desirability of improving the productivity of both companies and workers. The information provided would enable all concerned to learn the value of a proposed idea. The efficiency and prosperity of the entire national economy would be promoted.

Scientific Evaluation and Affirmation of All Projects and Program Reporting

Under the program, funds would be provided to enable recognized academic institutions to document the results of each demonstration project, monitor the testing process, and affirm the research design. Quality analysis is essential to the success and the credibility of the program. The findings must be honest, credible, and complete. The involvement of experienced academic researchers would do as much as possible to achieve this goal. All involved would be expected to attach their name, institutional affiliation, and academic reputation to the findings.

In addition to providing credible scientific evaluation of each project, third party evaluators could help identify further research to be done. The academic independence of the evaluation process would be a keystone element of the program—intent to insulate findings from political or commercial pressure and the possibility of false, incomplete, or inadequate findings. Government funding would serve to separate academic institutions from dependency on corporate sponsorship, thus working to improve integrity and credibility just as government sponsored research does in other areas of investigation.

Diverse alternative data interpretation should be encouraged, not stifled, in an undertaking of this type. Study designs and results should be examined and commented upon critically by scientists from more than one institution, and results should be subject to broad peer review. Correct assessment of innovative concepts can be complex. Many obscure factors must be considered to obtain the full picture of the benefits and liabilities of particular answers. Thus, extra effort to insure the full comprehension and understanding of all factors is important. Multiple tests may even be desired to prevent false results.

OSHA would be required to report to the Congress and the public annually on the progress of the program and the results. An advisory panel could be created to oversee the project and further comment on

the results. Dissenting minority views would be possible and could be published with each report.

Summary and Conclusion

Because of uncertain and controversial causation, difficulties of diagnosis, and complexity of appropriate cure or remediation, musculoskeletal injury is different from other occupational hazards regulated by OSHA. Ergonomic afflictions require remedial methods much different from the responses needed to address the hazards traditional to the OSHA mandate. This proposed demonstration grant program is designed to assist OSHA in moving toward the establishment of assistive programs in better harmony with ergonomic needs and complexities. Without undermining the possible role of regulatory rules in the future, the need for new policy tools is recognized in the unique, awkward, and special circumstances of work-related musculoskeletal disability.

Companies and workers need reliable information scientifically affirming the effectiveness of proposed ergonomic answers. Through the proposed program, companies will be able to know more about the expected benefits and costs of a contemplated, planned, or proposed ergonomic undertaking. This knowledge will help overcome hesitancy and fear about the possibility of failure or the expenditure of funds without achievement of the expected remedial objective.

Information generated through the proposed ergonomic demonstration program will enable companies and workers to know, in advance, the scientifically affirmed efficacy of a range of possible remedial approaches. The bottom line cost-benefit impact of many possible answers will be more clear at the outset—before specific remediation plans are drafted.

To address repetitive motion musculoskeletal worker injury effectively, OSHA needs a body of reliable information about the best ways to accomplish work with assured safety and measured productivity. This requires the creation of a database of many possible documented answers with credible reports about their efficacy. This program is expected to have low cost compared to its benefit. The federal tax income resulting from the program's innovations would be expected to more than cover the cost of the research program. A highly positive impact on the flow of federal tax revenues is anticipated.

At present, the burden is on client companies and vendors to provide their own testing of new concepts. This approach results in duplication and

limited sharing of valuable data. It also puts great cost burden on small companies without the ability to spread the cost of research among a larger worker population. Often the performance data developed by companies is either methodologically inadequate, scientifically suspect, or proprietary—and unavailable for sharing. When companies must spend their own money on valuable research, they may not readily give up the competitive advantage gained. Other times, reports of a successful remedial experience may be distributed only very slowly, incompletely, or with faulty communication of important details. As a result, workers suffer longer than necessary, with broad economic benefits either deferred or sacrificed.

In many cases, communication about new ideas is left haphazardly to journalists, television producers, and news editors, who are not scientifically trained to accurately evaluate alternative concepts or even ensure the accuracy of the basic facts they report. Articles and broadcast stories can inflate claims or embellish facts to attract readership. Sometimes, reporters are ill-prepared to winnow the effective from the flamboyant or the well-funded, but inadequate. Often ideas with seeming initial appeal because of their similarity to known solutions are less valuable than answers that may seem initially mundane or peculiar. Sometimes good ideas can also be ignored or criticized inaccurately, because they seem very different from existing methods. Quite often a paradigm shift in thinking is needed to effectively address ergonomic issues.

Even more often, articles and broadcast stories about new ideas provide only enough information to tweak curiosity, not enough to promote informed conclusions. The sources of additional, more complete, information are frequently not provided. Even magazines which earn their livelihood reviewing new technology can be haphazard and incomplete in the presentation of needed information about new concepts. Under the pressure of journalistic deadlines, important details about complex ideas can be missed. Rarely do reviewers have time to become fully knowledgeable about complex technologies before they publish their reviews. Subsequent, published letters to the publication's editor from unknown writers with their own biases can divert attention away from the reviewer's investigation. Opinions about unusual new approaches to ergonomic problems can be so diverse as to leave readers more confused than informed. The journalistic climate can often make the discovery of fully accurate information about unusual new approaches quite difficult.

Studies conducted under the guidance of an OSHA Ergonomic Information Clearinghouse can increase the incentive to innovate. Also, it would provide payback resulting from high quality answers with full credible evaluation and academic affirmation. With sober, professional, academic, and medical assistance, the ergonomic issue can move from

the recent environment of political turmoil, journalistic flamboyance, and continuing controversy toward enlightened analysis and constructive action.

A major goal will be to stop the continuing national hemorrhage of human and financial resources drained away by disability, high health costs, and productivity loss. Without action to find and affirm good answers, the expensive impact on the productivity of companies and the health of workers could continue for many more years. Valuable skilled workers should not be simply assigned to a life on disability. Most people who have worked hard to build the national prosperity want to continue to contribute—if only their ergonomic needs can be met. Once cooperative action replaces adversarial antipathy, this goal can be advanced. OSHA is in a strong position to facilitate this process if it can be provided with the resources to do so.

Disability has become a substantial burden on the Social Security System and other health resources. If disabled workers can be helped to become productive again and others can be prevented from needing disability assistance, the effort can help improve the longer term viability of the Social Security System and other health care systems—including Medicare and Medicaid. Many studies show that most workers prefer a life of productive economic contribution to forced disability. Most people just need a little help to achieve their goal of productivity and service to others. The economy needs these workers, as well. Skilled workers are much in demand; they need to be helped, not discarded. Very often the hardest working, most dedicated employees are the ones who have become injured. Lazy workers, or those who have tried to protect themselves against injury by slowing down their work, may be the least injured. The current climate rewards these less dedicated workers and penalizes diligence with greater likelihood of injury.

The partisans of the political impasse of the last decade, which is still continuing in spite of its cost to the national economy, have hung the solution of the RSI problem on medical research designed to determine cause and blame for the injuries. It is a bit like asking the victim of an industrial accident if the accident happened because the victim was thinking about something unrelated to work, before First-Aid is authorized—but the point of this comparison is not to trivialize the real costs of remediation and the possible range of causal factors. Ultimately the opinion of judges may be required to resolve some issues, but in the meantime, political leaders should work together to bridge problems and resolve the differences constructively, even if a paradigm shift in policy thinking is needed. The ergonomic problem is complex, but continued gridlock over it reduces the prosperity of all

Americans and many others around the world as well—in the long run. Every American has been hurt already by the continuing delay over the past ten years—and the problem has been exploited politically for long enough. Regulation is not the only possible answer to the ergonomic problem.

The work-related musculoskeletal injury problems of almost every worker and workplace are somewhat different from the next. Answers must be adjusted workplace by workplace and often even worker by worker, but findings in one place can point directions in others, even if tailoring and customization are needed. Good information about many different remedial experiences is necessary to create the tools to compare and facilitate valuable responses in many diverse places of work.

The presentation of this proposal follows an Open Letter to the Congress and the Clinton Administration sent during the summer of 2000. The anomalies and hidden costs of the ergonomic issue were outlined. Both political and entrepreneurial innovation were advocated as fundamentally important to the process of finding the best policy and remedial answers. Subsequently, an earlier draft of this policy proposal was presented to the Clinton Administration in November 2000, but time and other preoccupations did not permit the preparation of an official response by the Clinton Labor Department. A official response was requested again from the Labor Department following the inauguration of President Bush, but no response is expected until new OSHA personnel are in place and all policy positions in the Department have been filled. At present, Department spokespeople report they are working on drafting a reply.

This proposal suggests a next step in the process of advancing an effective, efficient ergonomic policy, so it is believed the idea will capture the imagination of the Bush team as they seek ways to improve upon the Clinton regulations which have now been discarded by act of Congress. Bush officials are expected to proceed deliberately, but they are not expected to remain immobilized on this issue. This policy proposal is considered to be important whether or not ergonomic regulations are ever reimposed in the future. Work-related musculoskeletal injury remains a major national problem which cannot be ignored forever even if political considerations continue to work against the enactment of ergonomic workplace regulation by OSHA.

This suggestion has been offered based on experience gained from working with both employers and employees, managers, executives, labor union officials, ergonomists, advocacy groups, and academic investigators on the issues surrounding the implementation of ergonomic innovation. From this experience, focused innovation and the gathering of information

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about many alternative ideas is believed to be applicable to all aspects of the nation's ergonomic need, regardless of the fate of future ergonomic regulations, but it is not considered to be a complete substitute for regulation.

From the beginning, the ergonomic demonstration grant proposal was considered a necessary supplement to regulation, not as a complete alternative to it. Regulations are important to help make sure all workers are treated fairly and equally.

The proposed policy continues a direction already begun under the Clinton Administration which seems to have been much appreciated by the business community. This new direction has provided assistance and cooperative problem solving in support of business efforts to address regulatory requirements. The proposed policy would encourage regulatory rules in the interest of fair and equal protection of all workers in all different kinds of employment as well as the fair and equal treatment of all companies, but regulations would be supplemented with informed assistance and constructive guidance.

Without this supplementary support, ergonomic policy cannot serve the real real needs of both employees and employers, nor can it overcome political opposition. The proposal encourages cooperative problem solving and works to overcome adversarial contest. The hope is to refocus policy on the restoration of productivity and the increase of profitability and income for the benefit of everyone, including workers, employers, shareholders, taxpayers, and consumers.

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This proposal was drafted and edited using the comfortable, quick, and less fatiguing DataHand ergonomic keyboard.