Disability management: Trends and emerging strategies

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Overview

People are living longer. In a period of 40 years, from 1970-2010, the worldwide average life expectancy increased by 35 years.[1] This is an incredible achievement. However, with this achievement comes a significant challenge: people who live longer are undoubtedly at higher risk of disability. Other factors that can increase the number of the people with disabilities include:

- Armed conflicts and violence, which increase the number of people with disabilities but also destroy the safety net for those who already have a disability[2]
- Ageing, which is accompanied by an increase of chronic diseases such as strokes, arthritis and low back pain[3]; the elderly also have different exposure to risks
- Behavioral changes, such as an increase in risky activities
- A shift from traditional to non-traditional occupational risks, for instance the recognition of some psychosocial risks
- International social trends towards more inclusive societies, which call for additional social policies, tools and assessments to improve the visibility and recognition of people with disabilities

International and multinational organizations are actively supporting actions to make societies more inclusive of people with disabilities.[4] The United Nations clearly endorsed the social model concept for disability—a concept that has been evolving from a pure medical model to a broader social model definition—and elevated it to the human rights level.[5]

This combination of trends helps societies be more inclusive and raises the level of disability management. This new level advances the goal of benefiting all, but it also requires:

- Additional decisions from social policymakers
- A new way of doing things for organizations, families and individuals
- More economic and human resources

This paper describes the challenges, trends and emerging strategies of disability management. It gives examples of good and best practices we see evolving and highlights areas for disability management organizations to focus on as they review their longer-term transformation.

Definitions

The United Nations, in its *Convention on the Rights of Persons with Disabilities*, defines "persons with disabilities" as those who have long-term physical, mental, intellectual or sensory impairments which in interaction with various barriers may hinder their full and effective participation in society on an equal basis with others".

Disability is more prevalent than many people realize:

- More than a billion people are estimated to live with some form of disability. This is about 15 percent of the world's population (based on 2010 global population estimates).
- According to the *World Health Survey*, approximately 785 million persons 15 years and older live with a disability, while the *Global Burden of Disease* estimates that it is approximately 975 million. Of these, the *World Health Survey* estimates that 110 million people have very significant difficulties in functioning. The *Global Burden of Disease* estimates that 190 million have "severe disability."
- The *Global Burden of Disease* measures childhood disability (0–14 years), which it estimates to be 95 million children, of which 13 million have "severe disability."

IBM views **disability management** as a proactive process composed of integrated activities targeted at prevention, support, health, benefits in cash and rehabilitation services. The aim of disability management is to minimize the impact of injuries and diseases, promote economic participation and foster social inclusion.[6] Based on data from the *Global Burden of Disease*[7] and in terms of years lost to disability, daily life risks are responsible for 73 percent of moderate and severe disability, occupational risks for 17 percent and road traffic risks for 10 percent. Thus, responses from governments and societies in terms of social security and social services can be mainly clustered in four groups:

- Welfare for people with disabilities, disability coming from daily life risks (normally covered under disability insurance)
- Disability from occupational risks (mainly covered by occupational accident and disease insurance)
- Disability from traffic risks (motor insurance for personal injuries)
- Disability coming from extraordinary risks such as violence, armed conflicts and natural catastrophes (normally covered by special funds)

Disability management methods vary by country and the types of social protection programs in place. The balance between prevention, health services, support, benefits in cash and rehabilitation can also vary substantially in different jurisdictions; the mix of public, private and not-for-profit service providers also varies.

Welfare for people with disabilities

Also known as mainstream services, specialist disability services, disability provisions or income support services, these are formal financial and support services funded by governments to provide and commission services. They offer access to universal government programs such as education, housing or transportation, or are targeted specifically to the needs of people with disabilities. Such targeted needs can include supported accommodation and residential care, aides and equipment, daily living and day programs. Welfare for people with disabilities services are characterized by high demand and managed supply. Legislation defines who is entitled to these services, and assessment, prioritization and allocation determine the recipients. Many services are means-tested and increasingly seek co-contributions to limit the cost to government.

Disability insurance

Also called invalidity insurance, invalidity pensions or disability pension, disability insurance is part of social security (convention 102/1952 ILO) and covers disability as a consequence of a non-occupational accident or disease.[8] An example is blindness caused by diabetes. However, if the person is not entitled to workers' compensation insurance, disability insurance might cover a disability that arises from occupational risk.

Jurisdictions cover disabilities incurred by non-occupational accidents and diseases in various ways such as by means of contributions to old-age pension, separate contribution systems or taxes. Legislation can also define if private insurance organizations can offer this coverage on behalf of the government, in which case the policy issued is a copy of the law and competition might be based on pricing or quality of the services.

Workers' compensation insurance

Also called industrial injury schemes, employees' compensation benefits or labor risks system, workers' compensation covers the consequences from occupational risks. It is often part of social security, or closely related to it (convention 102/1952 ILO).[9] In the case of an occupational accident or disease, the employee is entitled to the benefits without having to prove fault of the employer. It commonly provides one or more of the following:

- Benefits in kind, such as health and rehabilitation services
- Benefits in cash, such as lump sums, disability and survivors' pensions
- A daily allowance, also called sickness benefit

Motor accident insurance

Motor accident insurance, sometimes called car or vehicle insurance, is also often relevant to disability management. Depending on the way in which the motor accident insurance system is designed, it can share, along with social security and social services, the same challenges and strategies related to disability management. Of particular interest are so-called "no-fault" systems where this insurance is compulsory, passengers in the vehicle or vehicles involved in the accident are covered, along with pedestrians, and benefits are paid in cash or in kind. In various countries there is a strong coordination of provisions between this type of insurance and coverage from social security, such as health, disability or workers' compensation. For example, if a motor accident occurs in which a pedestrian is injured while working, some systems define in law that despite the fact that this is an occupational accident, motor insurance should pay first and social security will pay in excess of what motor insurance pays. In other words, the systems are coordinated so that the victim can't receive double benefits.

Trends and emerging strategies

Various factors can contribute to higher numbers of people with a disability in society. Examples include a global increase in armed conflicts and violence, chronic diseases and the shift of traditional to non-traditional occupational risks. In addition, a more inclusive society has more mechanisms for promoting the rights of people with disabilities, as well as for identifying them. Although these mechanisms do not increase the number of people with disabilities, they can increase the number of people with disabilities who are recognized.

- Armed conflicts and violence increase the number of people with disabilities and also destroy the safety net for those who already had a disability.

  The devastating effects of conflicts and violence certainly impact disability management. Just as one example, there are many weapons that remain active after the conflict is over, such as landmines, victim-activated improvised explosive devices, cluster munition remnants, and other explosive remnants of war (ERW). These weapons are often designed to harm rather than to kill. Between 2004 and 2013, civilians represented three-quarters of all casualties from mines and ERW in 31 analyzed states; of these 48 percent were children and 52 percent adults.[10]

  In addition to the harm caused by weapons, the displacement and destruction of the safety net is an issue. Displacement due to armed conflicts and violence destroys social inclusion processes, damaging processes of rehabilitation and integration. Family and community support is weakened and people with disabilities are more vulnerable.

- Ageing is accompanied by an increase of chronic diseases as well as with changes to the risks that the elderly encounter.

  – In the U.S., nearly 25 percent of the population—86 million people—will be over 60 by 2025.
  – In China, although only 11 percent of the population is over 60 today, the U.N. predicts that figure will rise to 28 percent by 2040. This represents 400 million people.
  – In Japan, the population is predicted to shrink from 127 million people today to under 100 million by 2050.
  – In the European Union, the number of people aged 50-64 will grow 25 percent, but the segment aged 20-29 will decrease 20 percent over the next two decades.

  Chronic diseases of age, such as strokes, arthritis and low back pain, will increase the burden of disability.[11] An increase of the diagnosis of depression and cancers is also expected. Simply because people live longer, diseases that take a long time to appear will become more common. These diseases are expensive, may appear as in groups (as comorbidities), and can increase the risk of disability if not properly treated.

  Age also entails normal changes to the body, which alter how each person responds to risks. Natural changes, such as diminishing visual acuity, will prevent people from working certain jobs, unless properly handled. The same can be said of other qualities, such as strength, balance, reaction time, sleep cycles, and physical changes that might increase susceptibility to carcinogens or allergens.

- Behavioral changes, such as an increase in risky activities, can increase disability.

  While prevention is gaining more importance, risky activities are also on the rise. This is not simply seen in the obvious categories, such as extreme sports, but also in extreme activities. Terms like adrenaline junkies and adrenaline highs are not strange anymore.

  "Current numbers are significant. In the United States participation in baseball is down 28 percent since 1987, to 9.7 million players. Basketball participation has declined 17 percent from its 1997 peak. Since 1987, involvement in softball has dropped off 37 percent and volleyball has plunged 36 percent.

  At the same time, skateboarding has surged 49 percent, to 14 million U.S. participants, and building a skate park is a growing trend in community development. Snowboarding now claims 7.2 million participants, up 51 percent from 1999. Mountain biking has an estimated 8.6 million participants, making it the second-most popular extreme sport."[12]

  The risk of disability from extreme sports is still not entirely clear. However, a recent study found that over the course of 11 years, seven type of extreme sports accounted for four million injuries in the US.[13] This represents almost 18 percent of all sports injuries for the same period, assuming approximately two million sport injuries per year.

- A shift from traditional to non-traditional occupational risks — for instance the recognition of some psychosocial risks — expands the group of disabled.

  Occupational safety and health programs developed in response to occupational hazards that mainly involved physical, biological and chemical risks. Over time, though, this has changed and other types of occupational risks have been added to the list of hazards. These include psychological and musculoskeletal risks, risks that will certainly be more important in the future when combined with old age, as old age is frequently accompanied by depression and locomotive restrictions.

  Besides being difficult to diagnose, these nontraditional risks are also difficult to assess, especially when trying to determine if the accident or diseases coming from these types of risks happened while working and in trying to assess the grade of disability in order to set compensation.

- International social trends towards more inclusive societies implement additional social policies, tools and assessments.

  These additional social policies don't expand the number of disabled people, but they do reveal disabled people that previously would have gone unrecognized. Thus, this visibility is not about new cases, but identifying existing cases that were not recognized or invisible to society. For instance, in many countries, family members are still afraid to share with their community that a family member has a disability. This fear constrains the right of the disabled person to be socially included. Bringing awareness to societies that there is nothing to be ashamed or afraid of, and pushing for inclusive societies, will certainly help these society members to move from isolation to a more participatory attitude.

The expected increase in the number of people with disabilities is consequently triggering new strategies, such as:

- New efforts for prevention to avoid disability or to mitigate its impact
- Changes in the assessment of disability to focus on ability
- More and better qualification of human resources involved in disability management
- More activities in information, communication and personalization
- Improvement of social protection management
- Return-to-work programs
- Pooling efforts
- Segmenting
- Predicting
- Automating

New efforts for prevention to avoid disability or to mitigate its impact

Higher rates of disability mean that prevention is more important than ever. Prevention has always focused on avoiding injuries and diseases, but in the last decade, a greater emphasis is being placed on helping people to live healthier lives. This additional focus is an answer to personal and societal expectations. Rarely has a specific period in history had so many changes come together with such extraordinary empowerment of the individual. For example, people have unprecedented access to what was once considered privileged information about definitions, diagnosis, treatments and or social benefits entitlement. This information is helping people to make their own decisions about healthy lifestyles, adherence to recommendations from a physician or the pursuit of additional benefits from a social service organization.

The different sciences and professions involved in disability management are now cooperating to take known factors into more consideration, and scientists and societies are committing themselves to more innovation with social responsibility. For instance, concepts like better understanding of the values of work and prevention—and other self-care initiatives are gaining momentum.[14] Also, the field of molecular biology is being used to forecast health outcomes with enormous impacts on future health conditions, such as the probability that an individual will develop a debilitating form of cancer. Furthermore, social determinants such as education, place of living, social and family support are always mentioned as important influencers on outcomes; these are finally starting to play an important role in interventions.

Reports show the value of prevention

In 2011, the European Agency for Occupational Safety and Health released the publication "How to create economic incentives in occupational safety and health: a practical guide." Various experts from several countries and organizations demonstrated the positive impact of prevention programs. An example from INAIL (the Italian workers' compensation public carrier) showed that an investment of EUR60 million led to benefits worth EUR180 million to society. In another example from the German butchery sector, investments in incentive schemes correlate with a 25 percent drop in reportable accidents.[15]

Also, in 2013, the International Social Security Association (ISSA) released a report called "The return on prevention" which demonstrated that the average return on prevention efforts for multiple countries was 2.2.[16]

Probability, predictions and cohort similarities are having influence as powerful forecasting tools and are likely to increasingly affect disability management. For example, is it worthwhile to break down huge amounts of data to find patterns that might guide additional actions to try to prevent predicted outcomes? "Are technology, organizations and individuals prepared to align social determinants, such as family and community support, education, access to transportation and availability to communications just to predict outcomes for rehabilitation? We believe that the answer is yes".

Changes in the assessment of disability to focus on ability

The various social security and social services organizations responsible for disability management have approached the assessment of disability in different ways. The methods for determining eligibility and defining the entitlement to benefits in cash, for instance, are not the same for a workers' compensation system, disability insurance or welfare for people with disabilities. Legislation and program rules are designed according to the rationale of the program. Moreover, different approaches from country to country are the rule. However, there is an ongoing work on emphasizing assessments around abilities, while diminishing the focus on disabilities. The positive approach of finding the assets and skills of the person that may allow him or her to better engage with work and daily life activities is also more harmonious with a society based on social inclusion principles. This is not easy though. Different systems provide for different benefits with different interests of the participants.

For example, *income support* is the main focus of welfare for people with disabilities, whereas *income replacement* is the most common for workers' compensation insurance and disability insurance. Finally, and also depending on legislation, *injury compensation* is also common for various jurisdictions in the case of motor insurance and also disability insurance. All influence relationships and roles in the systems, along with the tools used. In the case of welfare for people with disabilities, the person who is asking for the benefit is normally a citizen with a disability, but not a claimant or a patient. Conversely, in those cases of disability managed by social security type of insurance, a person will go through different processes to determine whether he or she should be considered a patient, victim or claimant.

The claims process in workers' compensation, disability insurance and motor insurance involves human factors that can influence the size of the claim and therefore is subject to actions that are not always motivated by objective facts. Assessments tied to a payout might be biased; for example, the victim of an accident might overstate the characteristics of the impairment while the carrier might focus on what the individual is still able to do.

The system for assessing disability should certainly be improved, but any changes should accommodate the respective needs of each system, integrate assessment tools and work out cultural changes. However, the focus on improving assessment and looking to ability rather than loss is increasing, as the personal value of staying healthier and longer at work gains more importance. Therefore, what if, instead of labeling the process "assessment of disability," it is identified as "assessment of ability?" Could a carrier increase the final amount of benefits in cash, after having applied the "standard" assessment, by adding a multiplier factor to reflect the achievement of a specific set of abilities? Could the carrier also forecast, based on evidence and information on remaining abilities, the expected return to work of a person with a disability after an occupational accident or disease?

The change in conceptual framework from "what a person can't do" to "what the person can do" fosters unprecedented prospective analysis and evidence-based decisions. One interesting example of this is the recent change implemented by the Department of Work and Pensions (DWP) in the UK. They moved from a Disability Living Allowance (DLA) to a Personal Independence Payment (PIP). From the perspective of the DWP, PIP is better than DLA because PIP "is based on an assessment of person need. It will not consider what impairment a person has, labeling them simply on this basis. Instead it will consider how their impairment affects their life, considering their ability to carry out a range of everyday activities."[17]

More and better qualification of human resources involved in disability management

People and organizations will keep on demanding more and better-prepared workers for disability management. In a timeframe of less than 20 years, the world has implemented more initiatives for prevention, anti-discrimination, return to work and integration than in the entire 20th century. The following developments indicate how dynamic this field is:

- New multinational actions on managing workplace disability[18]
- Guidelines for return to work programs from the International Social Security Association[19]
- New certification for disability managers[20]
- The founding of the International Disability Management Standards Council[21]

These all mobilize and will mobilize more financial, human and knowledge resources for the field. In the area of human resources in particular, the number of persons working in the sector and their qualifications are increasing. National and local governments, healthcare providers, occupational safety and health services, social security organizations, insurance carriers and others who provide services are all participating in addressing the needs of the people with disabilities. People are needed to carry out their missions.

This need for more and better qualified resources for these areas will generate competition for hiring these personnel. Not only will organizations compete, but also entire territories, which will lead to incentives to move from one region to another. The healthcare field has already seen this trend of professional migration (Figure 1).[22] The effect of increased professional migration is likely to create additional demands on social security organizations, along with the need for better frameworks to help governments, societies and people with disabilities adequately respond to this migration. Professional organizations will need to keep these groups of practitioners at the forefront of knowledge, and all parties involved might have to adapt to different cultures and values.

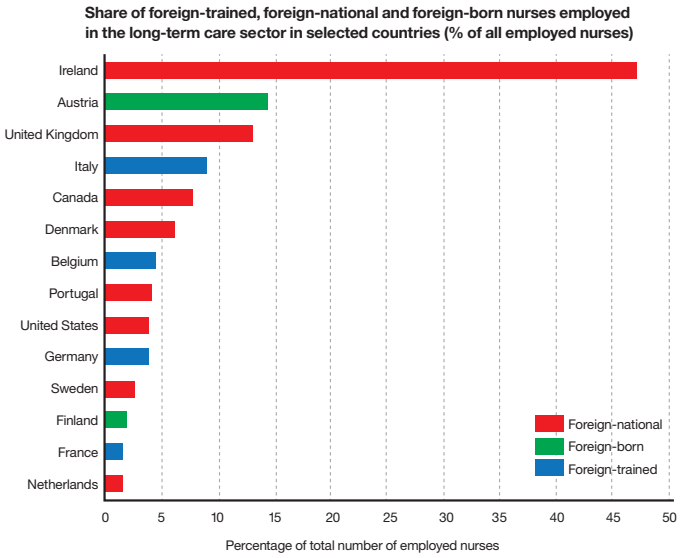

Figure 1: Proportion of foreign health care professionals (nurses), by European country.

Source: European Centre for Social Welfare Policy and Research: Vienna, 2012.

More activities in information, communication and personalization

The free flow of information between people, communities and territories has unquestionable power and impact. Information empowers people and communities to share experiences and to demand more actions from authorities. Citizens, providers, insurers and community interactions are more important than ever. In this context, a more equitable and consistent delivery will be paramount.

Information is enabling people to play a more active role in prevention, care, support, compensation and rehabilitation. Information exchange is also driving changes in the roles of the participants in service delivery and reception. Until very recently, a "hierarchical" relationship was the rule. People who received benefits tended to passively follow instructions. However, with the advent of widespread Internet connectivity, this relationship has changed. The result is a tremendous capacity for people and families to enter into a dialogue that begins with understanding services and benefits better by sharing expectations and may result in "negotiating" diagnoses or services with the respective service delivery worker.

Telecommunications are also helping "to alleviate social isolation and in many cases act as a lifeline allowing people with disabilities to keep in touch with family, friends and support services."[23] New communication avenues create a new dimension of services and possibilities for people with disabilities and their families.

In addition to information technology, developments in political discourse are encouraging dialogue and autonomy. A notable example is the political recognition of the rights of people with disabilities, particularly their right to make their own choices.[24] National policies have already started to reflect these needs and rights. One example is the ongoing planning and implementation of deinstitutionalization policies for people with disabilities.[25] Some other examples include adjustment in legislation, such as the new act on disability in Australia that adapts the names of disability schemes or agencies with the conceptual framework of being more inclusive.[26]

These initiatives are likely to overlap more and more, supported by apps, websites and community services. Such support in turn is likely to lead to greater public pressure for people with disability rights to be properly recognized and for them to be socially included.

Improvement of social protection management

Cooperation and coordination amongst social protection agencies is increasingly important. Internal and external factors affect health and well-being, yet in the past the focus for care has been on the internal factors. Now, external factors such as family, environment and working conditions are being recognized as having a major influence on health and wellness. In addition, more information about individuals is available much more quickly than ever before, and this is enabling a more holistic basis for service delivery and social policy. Cooperation and communication between previously unconnected stakeholders has become a reality.

With cooperation comes the possibility of coordinating policymaking, strategy design, service delivery and information exchange, while legislative conflict and redundancy are avoided. Cooperation is needed not just to better serve the disabled, but also to curtail costs while improving sustainability and social inclusion.

Coordinating the definitions and rationales behind the different disability management insurances and services helps operational efficiency while diminishing social friction and mismatch on social policy delivery. Finland shows that multiparty dialogue on social policies is possible. For instance in the field of workers' compensation insurance employers, employees, workers' compensation carriers and government held valuable multiparty dialogue about ongoing challenges and possible reforms.[27]

The German government's efforts to care for the elderly are another example. Old age is certainly not a disease but a condition. Preventing the consequences that come with old age is not simply about health challenges, but also about elderly serving other elderly, being more autonomous and staying longer in the labor market. However, these efforts require cooperation between different sectors. Staying longer in the labor market is a social benefit but also a challenge for disability management. Germany is also supporting and coordinating activities at different levels to encourage healthy habits for the elderly while trying to create incentives for them to keep working longer.[28]

Discussions of obesity can also reflect the need for cooperation. The America Medical Association has recently recognized obesity as a disease.[29] This categorization is not accepted by others yet, and is still a matter of discussion.[30] This disagreement has important implications. For instance, should obese people be considered disabled? Can they claim services coming from welfare for people with disabilities? Should people with obesity receive discounts when going to the movies, museums or have preferences when queuing? Does an obese person have the right to park in a space reserved for people with disabilities? Or, by contrast, if obesity is not a disease but a condition entirely pertaining to the individual sphere, should they pay a premium for disability insurance or for using the facilities in a hospital or an airplane? These questions all relate to the definitions of both obesity and disability, and for programs to be effective, shared definitions must be reached.

Addressing childhood obesity in Ohio

In Ohio, childhood obesity has been defined as a public health concern. An initiative was launched in June 2013 that funds counties to work with their early childhood education centers, healthcare systems and providers, public health providers and other community partners such as the YMCA to coordinate the education of parents about physical activity and nutrition.[31]

Improvement of social protection management and the other strategies that have developed as a response to the trends and directions in disability management represent a significant progress in improving the lives, health and well-being of the disabled.

Return-to-work programs

Return to work means more than just rehabilitation and good health services. It is about enabling people to lead productive lives after they have suffered an accident or disease. It is an ongoing social policy response to the challenges posed by disability risks and therefore is very important for individuals, families and the success of disability management in organizations and communities at the local, state and national levels.

Return-to-work programs are gaining momentum because they are a positive answer to social and economic challenges. As societies are confronted with demographic changes and people have to stay in the labor market longer, and as the number of people with disabilities increases, return to work programs are part of the answer. However, a well-planned and durable strategy is necessary to keep people fit and satisfied at work and bring them quickly and efficiently back to work after a short-term or long-term sick leave.

Aging populations and chronic diseases that cause impairments are a drain on community resources if those afflicted are unable to work, and they affect priorities and objectives such as efficiency and affordability. For example, one US hospital studied the effects of short-term disability and workers' compensation absences and found these results:

- 569 workdays per 100 employees were lost due to short-term disability with 93 full-time employees out of work all year.
- 28 lost workdays per 100 employees were due to workers' compensation with five full-time employees out of work all year.
- Lost workdays increased costs and decreased efficiency.[32]

Some countries, particularly in Europe, are also integrating return-to-work achievements with economic and social incentives that include housing and, sometimes, education.[33] In addition, global discussions about return-to-work programs include building more vocational rehabilitation facilities to advance the return to work and developing more job preparedness. In all cases, return-to-work programs should extend past functional rehabilitation to maximize the working life of the person, the family and the society.

Pooling efforts

Old age, chronic diseases, obesity, psychological and ergonomic risks and social risks have increased. A significant proportion of disabilities are caused by injuries, including those that result from traffic crashes, falls, burns, and acts of violence such as child abuse, youth violence, intimate partner violence, and war and conflict. Persons, families and communities are demanding more attention and rights as society has become more complex and technologically interconnected.

Pooling efforts to address the causes of human impairment and a scarcity of human resources while providing attention and rights is a significant method of overcoming all these challenges. When the efforts of multiple parties are coordinated, mutual cooperation can result in more effective solutions that eliminate redundancy and inefficiency, while responding more quickly and accurately to the needs of the Person with a disability. An example of a successful pooled effort is the Health Home program in the state of New York, whereby a network of partners that includes health care providers, behavioral health providers, housing providers, health plans and other community-based organizations provide coordinated care for Medicaid patients who have chronic conditions.[34]

Segmenting

Segmenting is the process of identifying subgroups of people with similar needs and wants. These groups form a critical mass for which the development of personalized products and services is warranted. Segmenting in disability management helps to better apply a holistic view at a personal level to achieve better outcomes.

Without reducing activities or eliminating benefits to which people are entitled, organizations can target actions and track them to see if they are really having the expected impact. In other words, better understanding and clustering can mean better outcomes. Segmenting is therefore ongoing. Organizations can better understand who is eligible for a specific service, apply the service analysis as much as possible to the level of the individual, and eventually create adequate responses.

It has been always desirable to design and apply services considering the personal and environmental conditions. However, practice has shown that time and capacity constraints at the moment of service delivery plus difficulties in crunching data prevent this customization. Thus, protocols are standard, hardly changed and normally applied on group basis. This status quo is finally changing. It is possible to personalize services based on what works and on desirable outcomes.

Dynamic protocols adjusted to combine social determinants with best outcomes are finally possible. For example, if a single mother with a diagnosis of low back pain without community and family support needs physiotherapy, the case worker can define right from the beginning the best service provider plus additional support for guaranteeing child care. This is, of course, a simple example, but the level of analysis can include an important number of complex variables that with adequate rules and algorithms certainly help to prioritise actions. In other words, segmenting involves not just knowing but acting on positive results.

"People with disabilities are committed and willing to transform their lives; community reintegration and rehabilitation interventions are sustainable and produce greater impact; interventions should be responsive to the different needs and aspirations of various social groups such as the elderly, chronically sick, young people and people living with disability; 'know your disability, know your response."[35]

Predicting

This field has tremendous potential, especially in terms of forecasting occurrences and outcomes. In a number of cases, administration of disability services is passive. When individuals become a person with a disability, they approach an agency or organization for assistance. However some disabilities are predictable based on living circumstances and observable patterns of behavior. For example, diabetes can result in the amputation of a leg or blindness. By analyzing data, an organization or agency can identify the diabetes trends that lead to these impairments and implement intervention services that might prevent these disabilities. Furthermore, predicting tools can help consider social determinants such as living conditions, family and community support and their relation to each particular type of disability, and for example can indicate when adequate social inclusion might fail. In such a case, there is a clear need to adjust the support actions right from the beginning to help prevent that failure.

Predicting is working in other fields of social program management. The Alameda County Social Services Agency in California implemented a solution called Social Services Integrated Reporting System that extracts client information from a series of department-specific systems. Agency staff and management can view case performance from the global agency level to the worker level and all levels in between. With a combination of business intelligence, automated alerts and "what-if" scenario modeling, they can see how everything fits together and understand all the relationships clearly to determine possible negative outcomes and design preventive services.[36]

Automating

Automating is the application of technology to reduce process cycle times and costs. The key to improving disability management through automating is a focus on eliminating manual processes and transforming business processes in a way that adds value for the recipient, the organization or preferably both. An example is information intake. In many cases, the person with a disability must fill out forms and proceed through a series of interviews to determine eligibility for services. If they are approaching several organizations, some of the information they must provide is the same. Automating this intake process would better direct staff time to the delivery of services rather than the determination of services.

Current technology provides the ability to process data with more accuracy and speed than ever before. This is not just about hardware but also about the capacity of software to run complex algorithms that can analyze huge amounts of data in seconds and convert it into information that helps support decisions.

WorkSafeBC, the independent workers' compensation board in British Columbia, Canada, promotes workplace health and safety for British Columbia's workers and 190,000 employers. One of its services is providing compensation to injured workers for the province. It handles approximately 170,000 claims each year. Caseworkers were overwhelmed because the agency was responding to a growing number of appeals and dealing with too many reversals of claim decisions. To address this issue, they developed a new comprehensive workers' compensation solution. A core set of extendible claims lifecycle management capabilities manages claimants from injury to outcome. The solution automates information that was historically stored in policy books and uses that information to drive the rules. The solution also generates expected transactions, so WorkSafeBC can pay bills faster because it can determine immediately whether costs are approved. The new system resulted in a major productivity boost.[37]

Conclusion

Higher numbers of people with disabilities in society are the result of various factors such as longer life expectancy, increased violence and conflict, riskier activities, better social policies for disability and much more. To address this increase, disability management, which traditionally has focused on providing services to those in need, must change to improve outcomes, particularly in the areas of social inclusion and full integration.

Disability management should therefore be streamlined, optimized and automated, and it should include preventive and collaborative activities that involve cooperation between agencies, organizations, individuals, governments and societies. Social security and social services organizations are implementing different strategies to properly respond to these challenges. These changes are all guided by the goal of building better institutional relationships with people with disabilities. Work training, holistic programs and deinstitutionalization are all ways to integrate the person with a disability into his or her communities and productive sectors. These relationships are an important step toward full inclusion.

Engaging with people with disabilities on the personal level is an important component of improved outcomes. For example, both the individual and the assessment process are better served when assessment of disability focuses on assets and skills of the person with a disability and confirms what the person can do, instead of focusing on what he or she can't do. In a similar way, return-to-work strategies have the twin benefits of both increasing engagement of people with disabilities, and increasing workforce participation.

Some of these advances in disability management are being driven by technology. Predicting, automation and segmenting are gaining importance in terms of helping provide the appropriate service to the right person, making the best out of data and supporting better processes. The improvement they offer is mainly a matter of applying positive targeting to help guarantee that the service matches the needs of the person, thereby diminishing incorrect service delivery and improving efficiency and efficacy.

In general, instead of letting people go through the processes, the processes are increasingly coming to them. This is true not just of internet-based services but also community-organized services; the key innovation is empowering the user to make his or her own decisions about services. A real organizational need for effectiveness and the widespread recognition of the rights of people with special needs have been the impetus for important efforts in rethinking relationships and fostering cooperation.

Effective social inclusion can add to the transformation of disability management. With the emergence of big data and predictive analytics, the opportunity is there to use new technologies and information to maximize understanding and knowledge of special needs. With this understanding, society at large can help people with disabilities lead productive lives while getting the benefits and services that best fit their requirements.

IBM Cúram Research Institute

The Cúram Research Institute is IBM's social policy research arm. Its mission is to foster the development of best practice service delivery models that improve the ability of social program management organizations to increase the social and economic potential for citizens and families.

The Institute is committed to undertaking and commissioning research with social enterprises, not-for-profits, universities and other social program management organizations. Output from the Cúram Research Institute consists of industry point of views, position papers, industry consultations and input to the Cúram product family.

The area of research is in the cross-over from policy to service delivery. While there is extensive policy research undertaken and numerous reviews of service delivery success and failure, there is a gap in the intersection of these two worlds. The Cúram Research Institute's primary focus is to develop new social business models and the best practices that they encompass for this area.

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