

Evaluation of Saskatchewan Workers' Compensation Board Early Intervention Program (EIP)

**Prepared for the EIP Steering Committee
July, 2005**

Executive Summary

Background

The Early Intervention Program (EIP), created in 1996, was designed to help injured workers resume normal life activities — including work — in an appropriate, timely and safe manner. EIP is meant to support the primary health care provider in the care of the injured worker by facilitating treatment and rehabilitation plans for the worker. The aim was to establish a partnership in the worker's rehabilitation and return-to-work involving the worker, employer, health care professionals and WCB. The EIP facilitates assessment and treatment services for workers who require additional assistance in recovery from a work injury.

This report is the synthesis of a study to evaluate the effectiveness of the Workers' Compensation Board's Early Intervention Program (EIP). The evaluation employed qualitative and quantitative methods including a survey of a cohort of injured workers, surveys of providers, employers and union representatives, extraction of WCB administrative data and key informant interviews. Earlier reports have included the findings from these. This report presents the final results from the worker, provider, employer and unions surveys, key informant interviews and a review of the literature.

Research Objectives

An evaluation of the Saskatchewan Workers' Compensation Board Early Intervention Program (EIP) was undertaken to assess the effectiveness of the program interventions. The following objectives were addressed for the purposes of the study.

1. Study the recovery of injured workers who receive primary treatment and/or secondary and tertiary assessment or treatment through the EIP
2. Determine the most appropriate time for assessment and intervention at each stage of the recovery process
3. Compare the effectiveness of secondary and tertiary centre assessments and treatment
4. Determine the effect on WCB costs through each step of the EIP process
5. Establish the difference between types of treatment in terms of patient-centred, functional, economic and time loss outcomes
6. Establish factors at baseline which predict future treatment and outcome

Study Methods

The four methodologies used to collect information for this evaluation are described below:

- A worker cohort survey
- Provider, employer and union surveys
- Key informant interviews
- A literature review

Findings

Health and Injury Status: EIP participants had a higher level of acuity than those who were not in EIP. This meant that the non EIP cohort could not be considered an equivalent comparator and findings should be viewed in this light.

EIP Awareness: Awareness of the EIP program was relatively low among those who have been assessed and/or treated in the program.

Claimant Costs: The average daily costs for those in EIP are higher than for those not in EIP for most types of injuries mainly attributable to higher medical costs for EIP. Within EIP, the average daily compensation costs were higher among those in tertiary treatment.

EIP Assessment and Treatment: There were significant delays from injury to EIP assessment and treatment. Those in tertiary treatment experienced significantly longer waits to assessment and treatment than those in secondary care. As well, those with back injuries appear to have been assessed sooner than those with other injuries.

Secondary versus Tertiary Treatment Functional and Psychological Outcomes: Those in secondary treatment generally scored significantly better on all functional and psychological indices than those in tertiary treatment. While, on average, those in secondary treatment showed clinically relevant functional improvements, those in tertiary treatment did not. There was a significantly higher proportion of individuals who were depressed in the tertiary treatment, but neither group made clinically relevant improvements in terms of their mental health.

EIP versus Non EIP Functional and Psychological Outcomes: Workers not in EIP showed significantly better physical scores than those in EIP over the duration of the study. Those in EIP and not in EIP with back and upper extremity injuries improved at similar rates and those improvements were clinically relevant. For the entire study group (all injury groups), only EIP participants showed a clinically relevant change in physical functioning.

Neither the EIP nor non EIP group were found to be distressed or depressed, and there were no differences between the two groups in the average mental health scores. But, a significantly higher proportion of those in EIP were depressed at baseline compared to those who were not in EIP.

Assessed for EIP versus EIP Secondary Treatment Functional and Psychological Outcomes: Physical scores were generally higher for workers in secondary treatment than for those who had been assessed for EIP but who had not entered treatment, although these differences were not always statistically significant. Notably, while those in secondary treatment had significantly lower physical functioning scores at baseline than those assessed for but not treated in EIP, they had significantly higher scores by the third study period. As well, those in secondary treatment showed less distress or depression throughout the study compared to those assessed for EIP.

Return to Work within EIP: The average number of days off work was greater among those in tertiary treatment than for those in secondary treatment, and at the end of the study a higher proportion of those in secondary treatment had returned to work. As well, injured workers in EIP who were female or had fewer other diagnoses returned to work sooner. Those who returned to work by the end of the study period were significantly more likely to have entered EIP treatment sooner than those who had not returned to work.

EIP versus Non EIP Return to Work Rates: Those in EIP were off work for a significantly longer time than non EIPs, and the EIP return to work rates were lower than non EIP over the course of the study, although there was a greater change in the proportion of EIPs who returned to work over the study period. However, a greater proportion of those in secondary treatment had returned to work than those assessed for EIP, even though significantly fewer in secondary EIP had returned to work at baseline.

Independent Predictors of Time from Injury to Return to Work for EIP versus Non EIP: The worker's physical functioning status at baseline and being female were most often associated with a more timely return to work. Study participants not in EIP returned to work significantly faster than those in EIP, except for those with disc disorders. Although overall EIPs took longer to return to work than non EIPs (when controlling for factors predictive of return to work), when analyses were conducted on subgroups based on time off work and level of assessment and treatment no differences were found in the time to return to work between EIP and non EIP.

Independent Predictors of Time from Injury to Return to Work for Study Population Based on Changes in Functional and Psychological Scores: An improvement of 10 points on the Physical Composite Summary

score or Mental Composite Summary score is associated with a 27% to 28% increase in the rate of return to work.

Return to Work Experience: Among those who returned to work, more individuals in EIP returned to a former employer than those not in EIP. As well, EIPs were no more likely to take time off work due to their injury after returning than those not in EIP.

Recommendations

1. Greater promotion and awareness about EIP may assist in ensuring more timely entry into the program for those who would benefit from it.
2. Further investigation may be required to determine why daily compensation costs are higher for those in tertiary than secondary treatment.
3. Recommended timeframes from injury to time of assessment should be clearly stated and recovery of potential EIP candidates closely monitored from the beginning to ensure timely entry into the program.
4. Efforts should be made to ensure individuals with all types of injuries are assessed in a timely manner
5. The assessment process could potentially be improved and a review may be warranted.
6. Assessing physical functioning at time of injury and monitoring subsequent changes early in recovery could assist with earlier identification of EIP candidates and long-term treatment planning. As well, earlier assessment post injury and monitoring of the injured workers' mental health may also contribute to more timely recovery rates.
7. Some of those who are assessed for but do not enter EIP may benefit from the program and this warrants investigation.
8. Efforts to bring the EIP approach into the mainstream may assist all injured workers. Primary care providers should be encouraged to assess the injured worker at the time of injury using standardized tools and methods similar to those used by the assessment teams.

WCB should consider developing and promoting an *injury treatment support package* for primary care physicians that includes recommendations on how to develop treatment and return to work plans and that includes assessment tools including validated survey instruments. This should be conducted at regular intervals early in the injury to monitor recovery progress and identify any barriers to recovery, such as mental health issues, at the onset. This way physicians can immediately address some of the issues found, refer the worker to other health care and/or social services professionals or request an early assessment for EIP.

9. Improvements in the completeness, quality and validity of the WCB administrative data would greatly increase the ability to accurately describe the true effect of the EIP. This would include a more accurate return to work date, a more easily distinguishable return to work status for each worker, and variables that reflect a worker's EIP status and assessment and treatment level. More complete data on all claimants would facilitate similar comparative analyses in future.

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1. Introduction

1.1 Background

The Early Intervention Program (EIP), created in 1996, was designed with the aim to help injured workers resume normal life activities — including work — in an appropriate, timely and safe manner. EIP was designed to support the primary health care provider provide care for the injured worker by facilitating treatment and rehabilitation plans for the worker. The aim was to establish a partnership in the worker's rehabilitation and return-to-work involving the worker, employer, health care professionals and WCB.

The EIP facilitates assessment and treatment services for workers who require additional assistance in recovery from a work injury. Assessment and/or treatment are co-ordinated by teams throughout Saskatchewan. An assessment team is made up of one physician and two other providers such as a chiropractor, occupational therapist, physiotherapist or psychologist. The team performs medical, physical, functional and psychosocial assessments and provides recommendations for further medical management and return-to-work planning to the injured worker's primary health care professional. Individuals can be assessed for primary, secondary or tertiary treatment. Individuals in secondary and tertiary level treatment are considered to be in EIP treatment.

The injured worker is meant to develop a treatment plan and return-to-work program with his or her primary health care provider to be followed by other health care providers who become involved in treatment. EIP facilitates multiple treatment services for workers who require them. WCB-approved and monitored treatment centres around the province provide EIP-related services at the secondary and tertiary levels.

This report is the synthesis of a study to evaluate the effectiveness of the Workers' Compensation Board's Early Intervention Program (EIP). The evaluation employed qualitative and quantitative methods including a survey of a cohort of injured workers, surveys of providers, employers and union representatives, extraction of WCB administrative data and key informant interviews. Earlier reports have included the findings from these. This report presents the final results from the worker, provider, employer and unions surveys, key informant interviews and a review of the literature.

1.2 Research Objectives

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1.3 Study Methods

The four methodologies used to collect information for this evaluation are described below:

- A worker cohort survey
- Provider, employer and union surveys
- Key informant interviews
- A literature review

1.3.1 Worker Cohort Survey

The survey included workers enrolled in EIP and a control group of WCB claimants not in EIP during the recruitment period October 2002 through August 2003. Where possible individuals in EIP were matched to a control by location of injury, age and sex and were interviewed at four intervals over the course of a year. The non-EIP arm is comprised of a subset of workers from the WCB Injury Recovery Curve stream.

Table 1. Criteria for including and including participants in (from) the survey

| Inclusion criteria | Exclusion criteria |
|---|---|
| Injured worker had to be 18 years of age or older | Had a catastrophic injury |
| Requests had to be dated after October 1, 2001 with the following part(s) of the body injured: <ul style="list-style-type: none"> • Back - including lower back, buttocks and mid back • Upper extremity - including neck, shoulders, arm between shoulder and elbow, arms between elbow and wrist, elbow, wrist, hands and fingers • Other soft tissue • Acute | Had an inability to understand English |
| Workers with more than one body part injured were asked to respond to the survey questions for the most serious injury. | Had a disease and/or condition resulting in an inability to answer the questionnaires or respond to the telephone interview |
| All injured workers with a time loss claim enrolling in the EIP for the first time were considered. First time status was determined according to the date of the WCB Health Services requests for the first secondary or tertiary EIP assessment for the injured worker. | Had serious associated injuries that result in an inability to respond to telephone interviews |
| | WCB claim had been denied |

WCB prepared a weekly list of all claimants entering EIP and possible controls. The lists were provided to the IBM Survey Centre in MS Excel spreadsheets which included the names and telephone numbers of injured workers entering the EIP after October 1, 2001 for the first time and possible controls.

The IBM Survey Centre telephoned the injured worker, explained the study and asked for consent to participate. IBM asked injured workers who agreed to participate in the survey questions relating to their injuries. If the worker's injuries conformed to the inclusion criteria, they were entered into the study. IBM recruited participants until the pre-established sample size was achieved. If an individual in the control (non-EIP) or study (EIP) group dropped out, they were replaced in wave 2, but not in subsequent waves.

Of the 2,177 individuals who qualified for inclusion in the study, 1,081 persons were both selected and agreed to participate – 643 in EIP and 438 not in EIP. About half of EIP participants were in secondary treatment and half were in tertiary care. Among non EIPs, 156 had been assessed for but did not enter EIP.

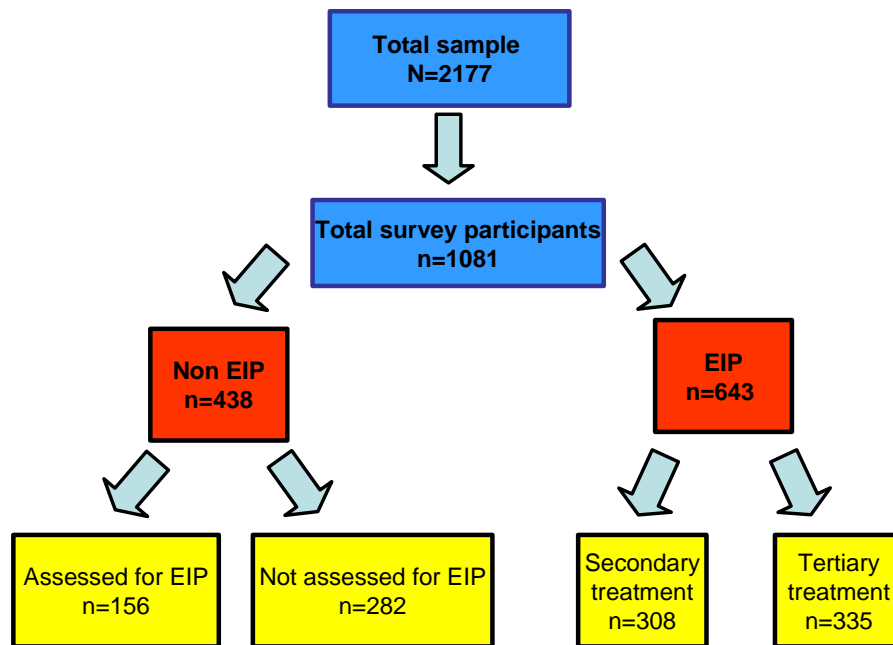


Figure 1. Breakdown of survey participants

1.3.2 Provider, Employer and Union Surveys

Three surveys - one of Saskatchewan unions, a second of Saskatchewan employers and third of clinic providers of services related to the Early Intervention Program (EIP) – were undertaken to gather information from each group regarding the effectiveness of the Early Intervention Program of the Saskatchewan Worker’s Compensation Board.

The surveys took place between August of 2002 and February of 2003. The data were collected through a combination of telephone and web-based surveys.

Lists of unions, employers and providers were obtained from WCB and members of the EIP Advisory Committee. Postcards were sent to a mailing list of unions and employers advising them about the survey and inviting them to access the web site to complete the surveys. Telephone interviews were conducted to supplement the response rate for both these groups. A letter of introduction was sent to all providers working with the EIP. Telephone surveys were then conducted with participants who agreed to be part of the survey.

1.3.3 Literature Review

The survey instruments for the cohort study were chosen based on a review of the literature on physical and psychological functioning related to disability and pain. This resulted in the use of the following scales:

- Quality of life scores (SF-36 PCS and MCS)
- Roland Morris Low Back Pain and Disability Questionnaire
- DASH Outcome Measure
- Tampa Scale for Kinesophobia
- Centre for Epidemiological Studies Depression
- Effort-Reward Imbalance Model
- Over commitment

Literature on return to work post injury was also reviewed to inform the selection for analyses of possible predictors of timely return to work.

2. Findings and Conclusions

2.1 Health and Injury Status

In general, at baseline and throughout the study, EIP participants had a higher level of acuity (i.e. a higher level of injury severity) than those who were not in EIP. This meant that the non EIP cohort could not be considered an equivalent comparator and findings should be viewed in this light.

Some of the analyses conducted for this study presented below attempted to control for the difference between EIPs and non EIPs. For similar analyses in future, the selection of controls should be thoroughly assessed.

EIP and non EIP participants reported similar health status at each study time period and rated their health similarly (as compared to the previous year). Nonetheless, those in EIP were more likely to have an additional injury than those non EIPs.

At the initial and final survey, EIP participants had a longer duration of injury than non EIPs. As well, EIP study participants were more likely than non EIP claimants to have a back injury.

Table 2. Average number of injury diagnoses per claimant

| Primary injury classification* | EIP | | | non-EIP | | | p (t Test) |
|--|------------|-------------|------------------|------------|-------------|------------------|------------------|
| | n | Mean | 95% CL Mean | n | Mean | 95% CL Mean | |
| Back injury | | | | | | | |
| Lumbar and thoracic disc disorders | 70 | 1.54 | 1.35 1.73 | 23 | 1.22 | 1.04 1.40 | 0.014 |
| Sprains and strains and other back disorders | 196 | 1.49 | 1.37 1.62 | 120 | 1.20 | 1.11 1.29 | <.0001 |
| Upper extremity injury | | | | | | | |
| Rheumatism, arthropathies and related disorders | 177 | 1.94 | 1.78 2.10 | 92 | 1.35 | 1.23 1.46 | <.0001 |
| Sprains, strains, fractures, dislocations and other injuries | 96 | 1.71 | 1.52 1.90 | 85 | 1.21 | 1.10 1.32 | <.0001 |
| Other injury | 104 | 1.71 | 1.51 1.92 | 118 | 1.28 | 1.15 1.41 | <.0001 |
| Total | 643 | 1.69 | 1.62 1.77 | 438 | 1.26 | 1.20 1.31 | <.0001 |

Within EIP, most participants had one injury, 61% of those in secondary treatment and 52% in tertiary treatment. A higher proportion of those in tertiary treatment had 4 or more injuries (7.5% versus 3.2%) (Figure 2).

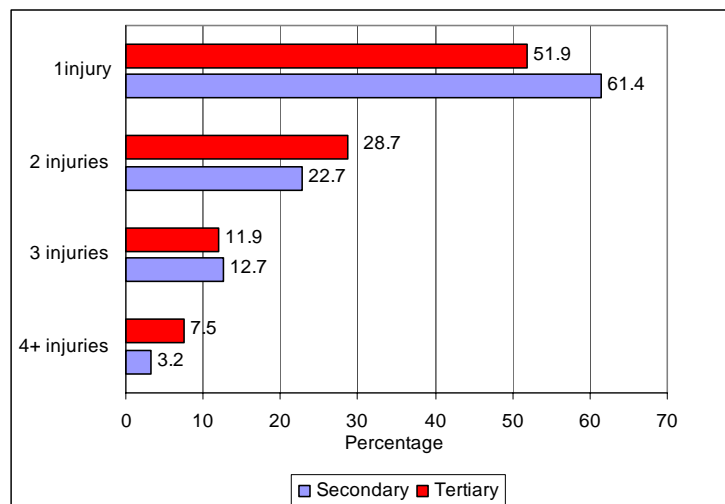


Figure 2. Percentage of EIP participants in secondary and tertiary care with one or more injuries

A higher percentage of EIP participants reported greater limitations of work and other activities due to their physical health or injury, felt they accomplished less than they wanted due to their injury and had more difficulty performing work or other activities due to their injury compared to non EIP participants.

Table 3. Limitation of work and other activities at beginning and end of study period

| | Wave 1 | | | | | Wave 4 | | | | |
|-------------------------------|--------|-------|---------|-------|--------|--------|-------|---------|-------|--------|
| | EIP | | non-EIP | | p | EIP | | non-EIP | | p |
| | n | % | n | % | | n | % | n | % | |
| Back Injury | 253 | 95.5% | 109 | 76.2% | <0.001 | 113 | 68.9% | 42 | 49.4% | 0.003 |
| Neck / Shoulder Injury | 251 | 92.3% | 137 | 77.4% | <0.001 | 100 | 64.9% | 45 | 47.4% | 0.006 |
| Other Injury | 95 | 91.3% | 90 | 76.9% | 0.004 | 44 | 73.3% | 29 | 45.3% | 0.002 |
| Total | 599 | 93.4% | 336 | 76.9% | <0.001 | 257 | 68.0% | 116 | 47.5% | <0.001 |

At each study wave, EIP study participants rated their pain as worse than non EIP participants. They were also more likely to report that their pain interfered quite a bit or extremely with their work. Those in EIP were also more likely to be receiving medication for their pain compared to non EIP throughout the study.

Most study participants had seen a doctor following their work-place injury, and over 80% of EIP and non EIP participants had seen a family doctor for their injury. At the first wave, 70% of respondents were currently under the care of a physician; this dropped to 28% by the final wave. Initially, more EIP participants were under the care of a doctor, but this difference disappeared by the final wave.

2.2 EIP Awareness

Awareness of the EIP program was relatively low among those who have been assessed and/or treated in the program, and more efforts could be made to increase awareness of the program and its objectives. As well, for those in EIP treatment, some improvements could be made to waiting times and co-ordination of care.

While there are relatively high levels of awareness about the program among unions and employers, there is potential for greater awareness about the existence of the program and its objectives and for more awareness among unions and employers about the number of their workers who have accessed the program.

There was no difference in terms of their knowledge of EIP at any wave of the study between those treated in EIP and those assessed but not treated in EIP. Awareness did increase for both groups through each wave of the study, but perhaps due to participation in the study itself.

EIP participants found the co-ordination of appointments and access to special treatment and health care providers as positive aspects about EIP. Some expressed concern about waiting times, lack of information and co-ordination of care.

Three-quarters of union members and 85% of employers were aware or somewhat aware of the EIP program. However, fewer were aware of the number of employees who had been assessed for the program in the previous year. Three-quarters of union representatives did **not** know how many of their members accessed EIP and 43% of employers knew how many employees had been assessed.

Most providers interviewed (80%) were fully aware of the program, and 42% indicated that 30-50% of their volume of work relates to the EIP.

2.3 Claimant Costs

EIP assessment costs about \$2.7 million per year and EIP treatment costs approximately \$7 million.

The average daily costs for those in EIP are higher than for those not in EIP for most types of injuries; the difference is mainly attributable to higher medical costs for EIP.

Within EIP, the average daily compensation costs were higher among those in tertiary treatment.

Union representatives and employers generally felt that WCB managed its funds efficiently with approximately four in ten agreeing and four in ten neutral on the subject.

On an annual basis, EIP assessment costs approximately \$2.74 million and EIP treatment costs \$6.95 million. Assessment and treatment costs are higher for tertiary care (Table 4). These costs have not changed substantially since 2000.

Table 4. Total annual EIP assessment and treatment costs (2004)

| | Assessment | Treatment |
|-----------|-------------|-------------|
| Secondary | \$532,633 | \$2,657,489 |
| Tertiary | \$2,211,597 | \$4,293,323 |
| Total | \$2,744,230 | \$6,950,812 |

The average cost per day for study participants – from time of injury to May 31st 2005 – was \$85.00 for those in EIP and \$62.61 for those not treated in EIP.

Average daily costs varied by several of the injury types. Average daily costs for EIP participants with back sprains and strains, other back disorders, upper extremity rheumatism, arthropathies and related disorders, upper extremity sprains and strains and other injuries were significantly higher than for those who were not in EIP. They were not significantly higher for those with disc disorders or upper extremity fractures, dislocations or other injuries. Among all cost categories – compensation, ER, medical and vocational – these differences were only attributed to higher average medical costs for those in EIP.

Table 5. Average medical cost per day for EIP and non EIP study participants by injury type

| Injury type | EIP | Non EIP |
|--|-----------------------------------|----------------------------|
| Back: Lumbar and thoracic disc disorders | \$30.73 (26.12 – 35.34) | \$22.74 (10.40 – 35.07) |
| Back: Sprains and strains | \$42.53 (34.51 – 50.56) | \$23.04 (14.44 – 31.64) |
| Back: Other or unspecified back disorders | \$40.90 (30.30 – 51.50) | \$20.91 (9.23 – 32.60) |
| Upper extremity: Rheumatism, arthropathies and related disorders | \$38.42 (32.78 – 44.06) | \$24.74 (14.27 – 35.22) |
| Upper extremity: Sprains and strains of shoulder or upper arm | \$36.48 (31.58 – 41.38) | \$18.31 (15.02 – 21.60) |
| Upper extremity: Fractures, dislocations and other injuries | \$31.45 (22.43 – 40.47) | \$22.78 (14.51 – 31.05) |
| Other injury | \$38.54 (33.28 – 43.79) | \$24.11 (16.98 – 31.24) |

95% confidence interval is shown in brackets
Significant differences bolded in blue

The overall total average daily cost per individual in EIP was higher among those in tertiary care compared to secondary care. Average daily compensation costs were significantly greater for those in tertiary care, while daily medical costs did not differ between the two groups.

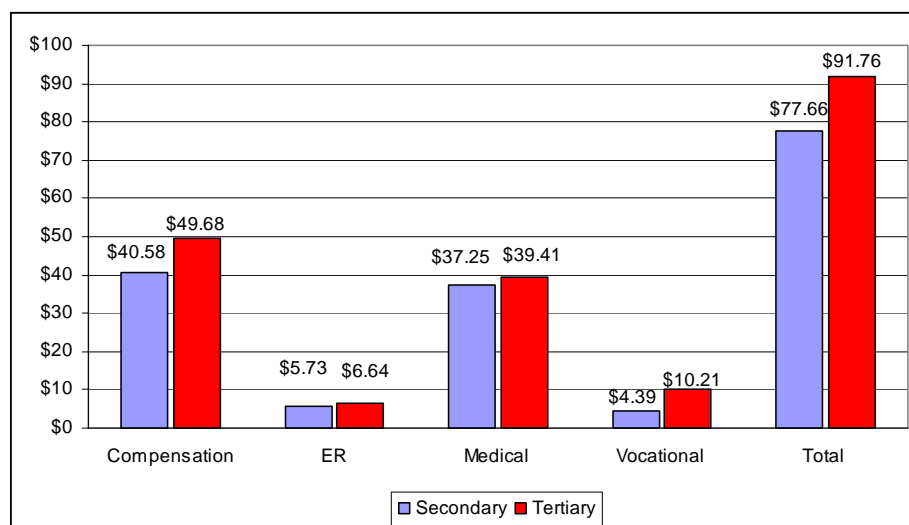


Figure 3. Average cost per day for EIP participants by secondary and tertiary treatment

Among unions and employers, 42% of union members agreed that WCB did a good job managing worker’s compensation, 28% were neutral and 32% felt that WCB did not do a good job of managing worker’s compensation. Only 17% of responding unions felt that WCB did not manage its funds efficiently, 41% were neutral and 43% felt that WCB did manage funds efficiently.

Similar numbers of employers were positive and negative on this issue with 44% agreeing that WCB did a good job of managing worker’s compensation and 39% feeling that WCB did not do a good job of managing worker’s compensation. Slightly more employers agreed that WCB did a good job of managing funds (41%) than were neutral (39%). Twenty-seven percent (27%) felt that WCB did not use funds efficiently.

Providers concern related to cost was that when they feel that they require further specialist help with a worker's treatment it is difficult to get WCB involved even though the injured worker could benefit significantly.

2.4 EIP Assessment and Treatment

Contrary to the “early” in EIP, there were significant delays from injury to EIP assessment and treatment. The average time to assessment and treatment was significantly longer than prescribed by the program. Those in tertiary treatment experienced significantly longer waits to assessment and treatment than those in secondary care. As well, those with back injuries appear to have been assessed sooner than those with other injuries.

Reducing the time from injury to assessment and treatment would likely result in more timely improvements to functional and return to work outcomes in both secondary and tertiary treatment groups.

Many union, employer and provider representatives felt that there were undue delays in the time from injury to EIP treatment and assessment. Some expressed concern about the comprehensiveness, accuracy and consistency of assessments.

Efforts should be made to ensure closer monitoring of potential EIP participants earlier on in their injury to ensure a timely EIP assessment when required. As well, the assessment process itself could potentially be improved and a review may be warranted.

2.4.1 Time from Injury to EIP Assessment and Treatment

Following injury, those in secondary treatment were assessed for EIP more quickly than those in tertiary treatment. However, both groups experienced delays in receiving timely assessments. On average, individuals received a secondary assessment in 79 days compared to an average 288 days for a tertiary assessment. At 60 days after injury, only 10% in either group had been assessed. At six months, while about 85% of those in secondary treatment had been assessed, only 60% of those in tertiary treatment received an assessment.

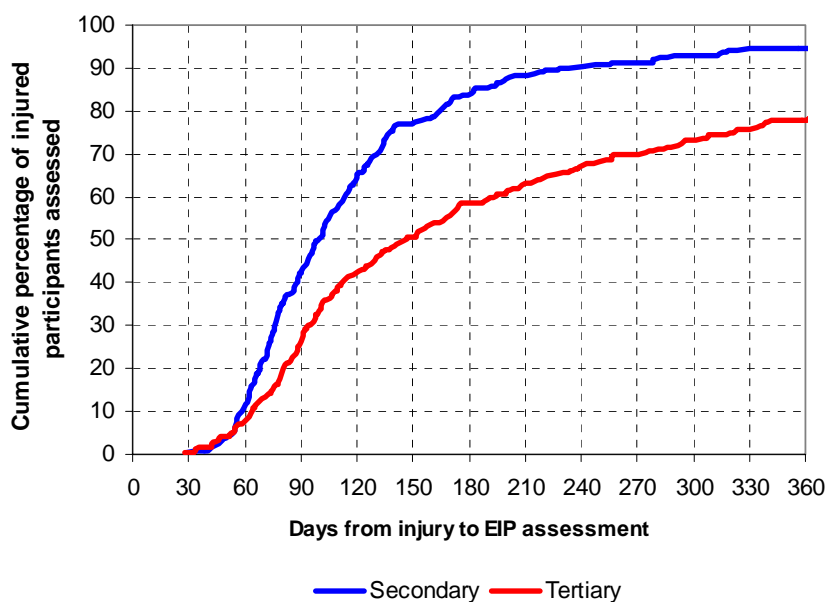


Figure 4. Cumulative percentage of injured study participants assessed for EIP by days from injury to assessment by treatment level

Individuals in EIP with back injuries were assessed for EIP somewhat sooner than those with other injuries. At six months, 80% of those with back injuries had been assessed for EIP compared to approximately 65% of those with other types of injuries.

After 60 days following injury, less than 1% of EIP study participants had enrolled in EIP treatment. The median time from injury to entry into EIP was 156 days (over 5 months) (Figure 5).

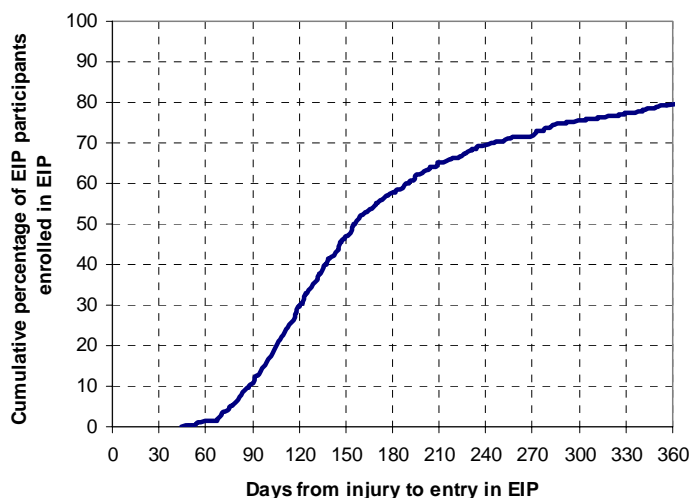


Figure 5. Cumulative percentage of EIP participants enrolled in EIP treatment by number of days from date of injury

Those in secondary treatment entered the EIP treatment program sooner after injury than those in tertiary treatment programs (178 days versus 368 days). At 30 days after assessment, 60% of those with a secondary assessment had entered treatment, while about 40% of those with a tertiary assessment had entered treatment. As well, for a handful of individuals in each group entry into treatment was delayed by several months.

2.4.2 Union, Employer and Provider Opinion on EIP Assessment and Treatment

Union representatives varied in their opinion of the appropriateness of the timing of EIP assessments with 29% believing the timing to be appropriate, 37% believing it inappropriate and 34% neutral. Similar proportions of employers thought that the timing of assessments was appropriate (38%) as did not (40%).

The majority of unions were either neutral (44%) or agreed (31%) that the secondary and tertiary assessments were comprehensive, and the majority of employers (56%) felt the assessments were comprehensive. Many union representatives were neutral (46%) on the accuracy of the assessments in terms of the workers' condition; 29% felt they were accurate and 25% did not. Half of the employers felt the assessments accurately assess a worker's condition.

Thirty-nine percent of unions were neutral as to whether workers received fair treatment during the assessment process; (34%) agreed that workers were treated fairly. More employers (61%) felt that workers are treated fairly.

Similar proportions of union representatives felt that workers received appropriate care (39%) as were neutral on the issue (39%). Again, more employers (62%) agreed that workers received appropriate care.

About half of treatment providers indicated that secondary assessments are not made in a timely manner and six in ten felt tertiary assessments were delayed considerably and that they were significantly slower than the program stipulations. Several providers felt more established timelines should be applied to primary care to allow earlier identification of EIP candidates and that more diligence was required in tracking the recovery those at the primary treatment level.

Constraints identified included significant delays and unfulfilled commitments by WCB relative to getting cases to secondary and tertiary treatment. In addition, too few tertiary treatment centres in rural areas created problems related to travel and disruption for individuals and families. Some providers expressed concern that some assessment teams were not consistent in their reviews of workers' injuries and that they had found significant variation in assessments. However, most felt that workers were treated fairly during the assessment process.

2.5 Functional and Psychological Outcomes

2.5.1 Secondary versus Tertiary Treatment

Over the course of the study, those in secondary treatment generally scored significantly better on all functional and psychological indices than those in tertiary treatment.

While, on average, those in secondary treatment showed clinically relevant functional improvements, those in tertiary treatment did not.

While on average neither those in secondary nor tertiary rated as depressed, there was a significantly higher proportion of individuals who were depressed in the tertiary treatment group than the secondary group.

Neither group made clinically relevant improvements in terms of their mental health, nor was there a difference in the rate of improvement between the two groups.

These results may indicate that there is more room for improvement in terms of mental health interventions among those with conditions affecting their mental health in EIP tertiary treatment. It was not possible to establish whether those in tertiary treatment should be expected to have made better functional improvements than were found or whether their mental health had an impact on physical recovery.

For the functional indices, those with a back injury in secondary care had clinically relevant change in their Roland Morris back pain and disability score, while the change for the tertiary group either was just or verging on clinical relevance. Similarly, the average disabilities of the arm, shoulder and hand outcome score for those with upper extremity injuries showed a clinical improvement for those in secondary treatment, but only verged on a clinical improvement for tertiary.

For the EIP group as a whole, study participants in secondary and tertiary EIP treatment had average Physical Composite Summary (PCS) score less than the norm for the population indicating greater than average physical impediments. Those in secondary care improved at a greater rate than those in tertiary care and made clinically relevant improvements.

In the psychological scores, the Mental Composite Summary (MCS) score averaged around the population norm for those in both secondary and tertiary care indicating average mental status. This was confirmed by the average scores on the CES depression scale which were 15 or less for both secondary and tertiary levels indicating that most study participants were not depressed.

However, the tertiary group had significantly higher average depression scores than those in secondary care and at all four study periods there was a significantly higher proportion of individuals in tertiary care who, based on their depression score, were depressed.

Table 6 summarizes the functional and psychological scores for secondary versus tertiary treatment at each of the four study waves.

Table 6. Summary of functional and psychological scores for secondary versus tertiary treatment

| Scale | Level of Care | N | Mean | N | Mean | N | Mean | N | Mean | Change |
|---|---------------|-----|-------------|-----|-------------|-----|-------------|-----|-------------|--------|
| Roland Morris | Secondary | 168 | 13.1 | 119 | 9.1 | 102 | 7.3 | 88 | 7.3 | 5.8 |
| | Tertiary | 166 | 16.1 | 101 | 14.8 | 86 | 13.8 | 76 | 13.2 | 2.9 |
| DASH | Secondary | 93 | 44.4 | 91 | 34.0 | 79 | 26.0 | 63 | 24.9 | 19.5 |
| | Tertiary | 106 | 52.5 | 123 | 44.3 | 99 | 42.1 | 83 | 39.0 | 13.5 |
| Tampa | Secondary | 308 | 41.9 | 249 | 39.7 | 211 | 39.0 | 180 | 38.6 | 3.3 |
| | Tertiary | 335 | 43.1 | 276 | 41.6 | 230 | 41.5 | 198 | 40.9 | 2.2 |
| Depression | Secondary | 308 | 9.9 | 249 | 8.1 | 211 | 7.4 | 180 | 7.1 | 2.8 |
| | Tertiary | 335 | 15.1 | 276 | 13.0 | 230 | 12.9 | 198 | 12.5 | 2.6 |
| Physical Component Summary Score - SF36 | Secondary | 308 | 34.8 | 249 | 39.5 | 210 | 40.9 | 180 | 42.1 | -7.3 |
| | Tertiary | 333 | 32.5 | 274 | 34.4 | 228 | 34.1 | 198 | 35.4 | -2.9 |
| Mental Component Summary Score - SF36 | Secondary | 308 | 49.7 | 249 | 51.5 | 210 | 52.7 | 180 | 52.5 | -2.8 |
| | Tertiary | 333 | 45.8 | 274 | 48.9 | 228 | 50.0 | 198 | 49.4 | -3.6 |

Significant differences bolded in blue

Those in secondary treatment had significantly better improvements in the average daily Roland Morris back scores and in their SF-36 physical functioning scores than those in tertiary care over the duration of the study. Average improvements in DASH scores among those with upper extremity injuries were better among those in secondary treatment, but the difference was not significant. There were no significant differences found in the psychological scores (Table 7).

Table 7. Average change per day in functional and psychological scores for secondary versus tertiary EIP

| Scale | Secondary | Tertiary |
|---------------|-----------------|-----------------|
| Roland Morris | -.028 | -.016 |
| | (-.036 – -.021) | (-.022 – -.010) |
| DASH | -.108 | -.063 |
| | (-.166 – -.051) | (-.090 – -.037) |
| Tampa | -.016 | -.011 |
| | (-.023 – -.010) | (-.016 – -.006) |
| Depression | -.010 | -.013 |
| | (-.018 – -.003) | (-.023 – -.002) |
| PCS | .033 | .014 |
| | (.025 – .040) | (.007 – .021) |
| MCS | .017 | .016 |
| | (.007 – .026) | (.006 – .025) |

95% confidence interval is shown in brackets
Significant differences bolded in blue

2.5.2 EIP versus Non EIP

Those workers not in EIP showed significantly better physical scores than those in EIP over the duration of the study. Nonetheless, workers in EIP as well as those not in EIP with back and upper extremity injuries, improved at similar rates and those improvements were clinically relevant.

For the entire study group (all injury groups), only EIP participants showed a clinically relevant change in physical functioning (the Physical Composite Summary score) indicating a greater rate of physical improvement in the EIP group overall.

On average, neither the EIP nor non EIP groups were shown to be distressed or depressed. There were no differences between the two groups in the average Mental Composite Summary (MCS) score and neither showed a clinically relevant change over time.

However, a significantly higher proportion of those in EIP were depressed at baseline compared to those who were not in EIP. For both groups, the proportion of those depressed declined over time and by the third wave of the study the difference in depression rates between the two groups was no longer statistically significant. This meant that depression rates among EIP and non EIP were similar by the end of the study period.

Workers with back injuries whether or not in EIP improved at a similar rate over time and both showed clinically meaningful improvements as measured by the Roland Morris back pain and disability score. However, EIP had significantly poorer scores than non EIP over the duration of the study. Study participants with disabilities of the arm, shoulder and hand improved at a similar rate and both groups showed clinically meaningful improvements. However, those not in EIP showed significantly better scores throughout the study.

Study participants both in and not in EIP had average Physical Composite Summary (PCS) scores below the population norm. While those not in EIP had significantly higher scores through all four waves, only the change in PCS for those in EIP was clinically relevant.

On average for the psychological indices, based on the Mental Composite Summary (MCS) score and CES Depression scale, generally neither the EIP nor non EIP groups were distressed or depressed. There were no differences between the two groups in the average MCS score and neither showed a clinically relevant change. But, a significantly higher proportion of those in EIP were depressed at baseline compared to those who were not in EIP (33% versus 26%). For both groups, the proportion of those depressed declined over time and by wave 3 the difference in depression rates between the two groups was no longer statistically significant.

The results of the Tampa Scale for Kinesophobia (fear of movement or re-injury) show moderate fear of movement and re-injury in both cohorts and some improvement over the study period.

Table 8 summarizes EIP and non EIP functional and psychological scores over the four study waves.

Table . Summary of changes in functional and psychological scores for EIP versus Non EIP

| Scale | Group | N | Mean | N | Mean | N | Mean | N | Mean | Change |
|--|---------|-----|-------------|-----|-------------|-----|-------------|-----|-------------|--------|
| Rolland Morris | Non EIP | 169 | 11.0 | 117 | 8.3 | 97 | 7.6 | 85 | 6.8 | 4.2 |
| | EIP | 334 | 14.6 | 220 | 11.7 | 188 | 10.3 | 164 | 10.0 | 4.6 |
| DASH | Non EIP | 146 | 41.7 | 134 | 30.0 | 113 | 28.3 | 93 | 25.6 | 16.1 |
| | EIP | 199 | 48.7 | 214 | 39.9 | 178 | 34.9 | 146 | 32.9 | 15.8 |
| Tampa | Non EIP | 438 | 42.2 | 355 | 40.6 | 286 | 40.3 | 244 | 38.7 | 3.5 |
| | EIP | 643 | 42.6 | 525 | 40.7 | 441 | 40.3 | 378 | 39.8 | 2.8 |
| Depression | Non EIP | 438 | 10.6 | 355 | 8.8 | 286 | 8.5 | 244 | 7.8 | 2.8 |
| | EIP | 643 | 12.6 | 525 | 10.7 | 441 | 10.3 | 378 | 9.9 | 2.7 |
| Physical Component Summary Score - SF36 | Non EIP | 438 | 38.8 | 353 | 41.7 | 285 | 41.8 | 243 | 43.3 | -4.5 |
| | EIP | 641 | 33.6 | 523 | 36.8 | 438 | 37.4 | 378 | 38.6 | -5.0 |
| Mental Component Summary Score - SF36 | Non EIP | 438 | 48.5 | 353 | 50.7 | 285 | 51.8 | 243 | 51.9 | -3.4 |
| | EIP | 641 | 47.7 | 523 | 50.1 | 438 | 51.3 | 378 | 50.9 | -3.2 |

Significant differences bolded in blue

2.5.3 Assessed for EIP versus EIP Secondary Treatment

When subgroups were assessed some differences were found that were not found in the EIP versus non EIP cohort as a whole. Physical scores were generally higher for workers in secondary treatment than for those who had been assessed for EIP but who had not entered treatment, although these differences were not always statistically significant. Notably, while those in secondary treatment had significantly lower PCS scores at baseline than those assessed for but not treated in EIP, EIP participants had significantly higher scores by wave 3.

Those in secondary treatment showed less distress or depression throughout the study compared to those assessed for EIP. A significantly higher proportion of those assessed but not treated in EIP were depressed at baseline compared to those in EIP secondary treatment. For both groups, the proportion of those depressed declined over time (although the changes were not clinically relevant based on the MCS score) and at the final survey the difference in depression rates between the two groups was statistically different with a lower proportion of those in secondary EIP being depressed. This may indicate that EIP has a positive impact on psycho-social indices at the secondary level.

Without controlling for other factors, those in secondary treatment appear to progress better functionally and psychologically than those who were only assessed for EIP. This may indicate that EIP treatment is effective for workers in secondary treatment, and show that some of those who are assessed for EIP, but who do not enter the program, would benefit from doing so.

Those with back injuries who were either in a secondary level of care in EIP or assessed for but not in EIP, improved at a similar rate over time and both groups showed clinically meaningful improvements. Although those in EIP had better scores, there were no significant differences in the EIP secondary versus assessed group scores at all four waves for backs.

Those in secondary EIP treatment with upper extremity injuries improved at a somewhat greater rate than those with similar injuries who were assessed but not treated in EIP. Workers in secondary treatment showed significantly better scores at wave 3, although this was not maintained at wave 4. On average, those with disabilities of the arm, shoulder and hand in secondary treatment showed a clinically meaningful improvement over the study period. Whereas those assessed but not treated in EIP either verged on a meaningful change or did not experience a clinically relevant change.

While workers in secondary EIP treatment had significantly lower scores for the SF-36 PCS at baseline than those assessed for EIP but not treated in EIP, EIP participants had significantly higher scores by wave 3. However, the difference was no longer significant at the last wave, perhaps due to fewer survey participants in that period. Study participants both in secondary EIP and assessed for EIP had average PCS scores lower than the population norm and both showed clinically relevant improvements in their scores over time, although the group in secondary care improved more.

For the psychological scores, the MCS averaged around the population norm for those in secondary EIP and those assessed for but not in EIP, and the two groups did not rate as depressed on the CES depression scale. Nonetheless, as a group those in EIP showed less distress or depression throughout the study. A significantly higher proportion of those assessed but not treated in EIP were depressed at baseline than those in EIP secondary treatment (33% versus 24%). For both groups, the proportion of those depressed declined over time and at wave 4 the difference in depression rates between the two groups was statistically different with a lower proportion of those in secondary EIP being depressed. However, the average changes in the MCS scores were not clinically relevant in either group.

The table below summarizes the functional and psychological scores for workers assessed for EIP versus those in EIP secondary treatment at each study wave.

Table 9. Summary of changes in functional and psychological scores for assessed for EIP versus EIP secondary treatment

| Scale | Level | N | Mean | N | Mean | N | Mean | N | Mean | Change |
|---|-----------|-----|-------------|-----|-------------|-----|-------------|-----|-------------|--------|
| Rolland Morris | Assessed | 55 | 12.8 | 34 | 10.6 | 30 | 9.3 | 22 | 8.4 | 4.4 |
| | Secondary | 168 | 13.1 | 119 | 9.1 | 102 | 7.3 | 88 | 7.3 | 5.8 |
| DASH | Assessed | 55 | 43.3 | 51 | 36.0 | 39 | 36.7 | 33 | 32.5 | 10.8 |
| | Secondary | 93 | 44.4 | 91 | 34.0 | 79 | 26.0 | 63 | 24.9 | 19.5 |
| Tampa | Assessed | 156 | 42.7 | 124 | 41.1 | 96 | 42.0 | 78 | 40.9 | 1.8 |
| | Secondary | 308 | 41.9 | 249 | 39.7 | 211 | 39.0 | 180 | 38.6 | 3.3 |
| Depression | Assessed | 156 | 12.5 | 124 | 10.4 | 96 | 10.5 | 78 | 9.7 | 2.8 |
| | Secondary | 308 | 9.9 | 249 | 8.1 | 211 | 7.4 | 180 | 7.1 | 2.8 |
| Physical Component Summary Score - SF36 | Assessed | 156 | 36.6 | 123 | 39.3 | 95 | 38.3 | 78 | 39.9 | -3.3 |
| | Secondary | 308 | 34.8 | 249 | 39.5 | 210 | 40.9 | 180 | 42.1 | -7.3 |
| Mental Component Summary Score - SF36 | Assessed | 156 | 47.2 | 123 | 49.1 | 95 | 50.5 | 78 | 50.4 | -3.2 |
| | Secondary | 308 | 49.7 | 249 | 51.5 | 210 | 52.7 | 180 | 52.5 | -2.8 |

2.6 Return to Work

2.6.1 Return to Work within EIP

The average number of days off work was greater among those in tertiary treatment than for those in secondary treatment, and at the end of the study a higher proportion of those in secondary treatment had returned to work.

As well, injured workers in EIP who were female or had fewer other diagnoses returned to work sooner.

Those who returned to work by the end of the study period were significantly more likely to have entered EIP treatment sooner than those who had not returned to work indicating earlier entry to EIP may have an impact on return to work.

Among EIP participants, those receiving secondary treatment (rather than tertiary), those who were female and those with fewer diagnoses returned to work more quickly. The median time to return to work was 270

days for secondary treatment 972 days for tertiary treatment. At a year, 59% of those receiving secondary, while only 25% of those receiving tertiary treatment had returned to work. There was a strong statistical difference - shown in Figure *** - in time to return to work between EIP participants receiving secondary treatment and those receiving tertiary treatment.

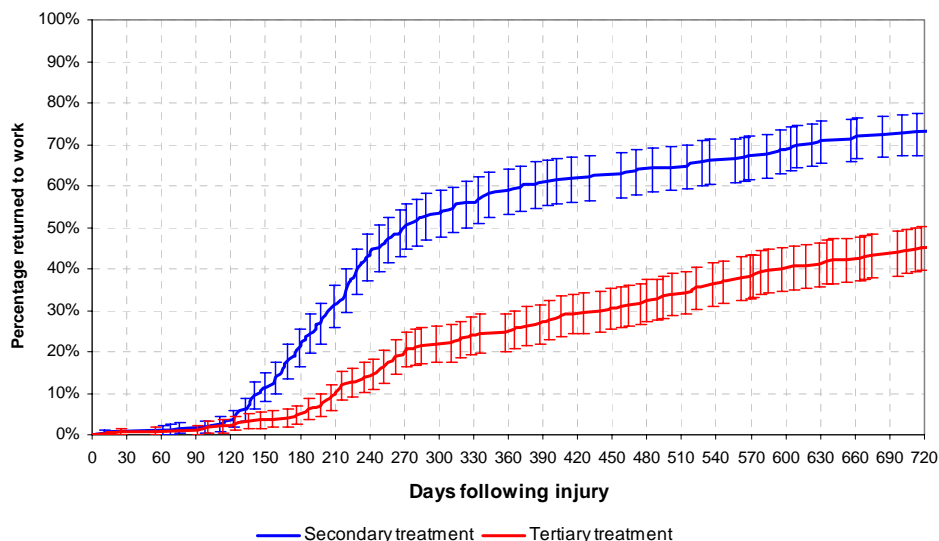


Figure 6. Cumulative percentage of EIP claimants who returned to work by time since injury and by treatment level and adjusted for factors found to be independently predictive of time to return to work

2.6.2 EIP versus Non EIP Return to Work Rates

Those in EIP were off work for a significantly longer time than non EIPs, and the EIP return to work rates were lower than non EIP over the course of the study, although there was a greater change in the proportion of EIPs who returned to work over the study period. The percentage in the non EIP group who returned to work by the end of the study increased by 21% from baseline, and increased by 44% in the EIP group.

In the subgroup analysis of those assessed for EIP versus those in EIP secondary treatment, as the study progressed, a significantly greater proportion of those in secondary treatment had returned to work than those assessed for EIP, even though significantly fewer in secondary EIP had returned to work at baseline.

Without controlling for other factors, injured workers in secondary treatment returned to work at a better rate than those assessed for primary treatment (or for those assessed at a higher level but who did not enter the program).

Until May 31, 2005 the average number of days off work for those in EIP was 684 and for those not in EIP it was 451. As shown in the figure below, at wave 1, 16% of study participants in EIP were back at work compared to 53% of those not in EIP.¹ By May 31, 2005, 71% of those in EIP had returned to work compared to 83% who were not in EIP. Throughout the study a greater proportion of those not in EIP had returned to work than those in EIP, although there was a greater change in the proportion who returned to work over the time studied in the EIP group.

¹ Wave 1 ran from November 2002 through November 2003.

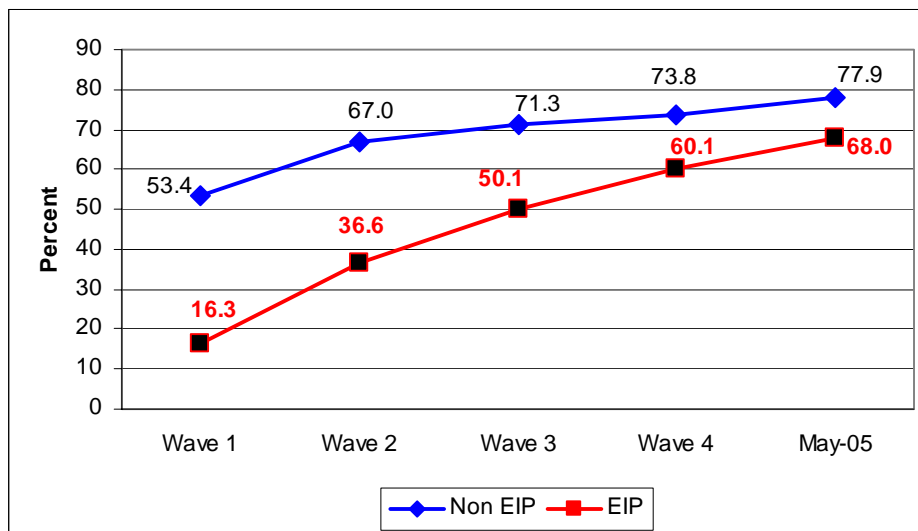


Figure 7. Percentage who returned to work at each wave by EIP and non EIP

Examining the subgroups of those assessed for but not in EIP versus those in secondary treatment a different pattern emerges than that found for the entire group. At the first time period, significantly fewer study participants in EIP undergoing secondary treatment were back at work compared to those assessed for but not in EIP (23% versus 39%). But by May 31, 2005, 78% of those in secondary EIP had returned to work compared to 70% who were assessed for but not treated in EIP.

2.6.3 Union, Employer and Provider Opinion on Return to Work

Unions and employers were divided in their opinions on the effectiveness of EIP and the program's ability to get workers back to work sooner. About two-thirds rated it between moderately and highly effective. Slightly more than half of union representatives and employers felt it got workers back to work faster.

Among providers, eight in ten felt EIP was effective and that it got workers back to work sooner with higher functional abilities and levels of adjustment than those with similar injuries not in the program.

Similar proportions of union representatives indicated they believed EIP to be effective or highly effective (33%) as reported they felt EIP was least or slightly effective (31%); 35% saw it as moderately effective. Similarly, 28% of employers thought the EIP was effective or highly effective, 34% felt it was least or slightly effective (34%), and 38% saw the EIP as moderately effective.

With mixed reviews on EIP's effectiveness, 53% of union respondents agreed that workers who accessed EIP were able to return to work sooner than those who had not been treated in the program and 51% of employers felt workers in EIP were able to return to work sooner. Thirty-one percent (31%) of employers disagreed with this statement.

Eighty percent of treatment providers ranked the EIP program as effective or highly effective, although fewer among those who provided only secondary level treatment gave it this rating. As well, 80% in the provider group felt that workers who go through EIP are able to return to work sooner and with higher overall functional abilities and better adjusted than others with similar injuries who had not been in the program.

2.6.4 Independent Predictors of Time from Injury to Return to Work for EIP versus Non EIP

Various studies have found a number of predictors of the time to return to work after a work-related injury. Where possible this study examined factors similar to those found in the literature. This research study found that, generally, the worker's physical functioning status at baseline and being female were most often associated with a more timely return to work.

Study participants not in EIP returned to work significantly faster than those in EIP, except for those with disc disorders. However, when those who returned to work in the earliest time periods – generally before many EIPs had entered EIP treatment – were removed from the analysis this difference diminished and then disappeared completely when those who had returned to work within 120 days of injury were not considered. As well, an analysis of those in secondary treatment versus those assessed for but not treated in EIP showed no significant differences in time to return to work between the two groups.

Although overall EIPs took longer to return to work than non EIPs (when controlling for factors predictive of return to work), when analyses were conducted on various subgroups no differences were found in the time to return to work between EIP and non EIP. These results show that when individuals are compared to those who are more similar in terms of time off work and injury severity there was no difference in the time to return to work between EIP and non EIP.

The table below summarized the factors found to be predictive of return to work from various studies conducted in this area.² An “x” represents the number of studies where the stated factor was found to be a predictor of return to work.

A number of these factors were explored in this study in terms of their effect on time to return to work. Factors often found to be associated with return to work in other studies – but not this one – included age, income, years with employer, self-reported health status, amount of effort expended in the workplace versus the reward, feelings of over commitment in the workplace and job satisfaction.

Table 10. Summary of predictors of return to work found in the literature

| Variable | Shortened | No effect | Prolonged | Phase-specific |
|---|-----------|-----------|--------------|----------------|
| Socio-demographic factors | | | | |
| Older age | x | | xxxxxxxxxxxx | xx |
| Female gender | x | xxxxxx | xxxx | |
| Marital status single (female) or divorced/widowed (male) | | x | xx | x |
| Having dependents | | | x | |
| Being a breadwinner | x | | | |
| Lower education/income | | | xxxxxxxx | x |
| Blue collar occupation | | | xx | |
| Unemployed pre-injury | | | xxx | |
| Unemployed post-injury | | | x | |
| Unemployed family members | x | | | |
| Spouse on disability retirement | | | x | |
| Working family members | | | x | |
| Fewer years with employer | | | xxxxx | |
| More jobs since age 20 | | | x | |
| Union membership | | x | | |
| Poverty | | | x | |
| Beneficiary of Social Disability Insurance | | | x | |

² Krause N, Frank JW, Dasinger LK, Sullivan TJ, Sinclair SJ. Determinants of duration of disability and return-to-work after work-related injury and illness: challenges for future research. Am J Ind Med 2001;40(4):464-84.

| | | |
|--|-------|----------|
| Psychological factors | | |
| Hypochondriasis and hysteria | X | XX |
| History of anxiety or depression | | XX |
| Mental health limitations (SF-36) | X | X |
| History of childhood abuse | | X |
| Attitudes and beliefs | | |
| Individual prediction of continued disability | | XXXXXX |
| Perception of inability to change job | | X |
| Understanding of medical condition | X | |
| Health Behaviors | | |
| Lifelong & current heavy smoking | | X |
| Clinical Measures | | |
| Poor general health | | XXXXXXXX |
| Comorbidity | X | X |
| Psychosomatic complaints | | XXX |
| Non-organic signs (Waddell) | X | XX |
| Activity limitations | | X |
| Impairment (by AMA guidelines) | | X |
| Previous episodes of pain | | X |
| Previous back injury | X | XX |
| Previous back surgery | | X |
| Decline in health | | X |
| Disease category (specific medical diagnosis) | | |
| Injury or illness severity | | XXX |
| Body part injured | | X |
| Compensability | | XXX X |
| Longer time off work | | XXXX |
| Pain intensity or radiation | | XXXXXX X |
| Medical and Vocational Rehabilitation Interventions | | |
| Acute disability phase | | |
| Back education | X | XX |
| Back education and exercise | X | XX |
| Medical case management | XXX | |
| Physician-patient communication about job | XX | |
| Physician recommendation of RTW | XX | |
| Subacute disability phase | | |
| Early activation with graduated sub-maximal exercise, operant conditioning, education, and worksite visit by physical therapist or similar program | XX | |
| Medical case management | XX | X |
| Physician-patient communication about job | | X |
| Physician recommendation of RTW | X | X |
| Chronic disability phase | | |
| Multimodal functional restoration | XXXXX | X |
| Vocational rehabilitation program of counseling to establish/monitor goals plus use of social service resources | X | |
| Supported employment | X | |

Physical job characteristics

| | | | | |
|--|---|---|----------|---|
| Heavy physical work | | X | XXXXXXXX | X |
| Repetitive or continuous strain | | | XX | |
| Musculoskeletal strain | | | X | |
| Uncomfortable working position | | | X | |
| Crouching | | | X | |
| Noise exposure | | | X | |
| Bending, twisting, or fixed positions | | | X | |
| More daily hours of physical labor | | | X | |
| Construction work | | | XXXXX | |
| Work in service sector | X | | | |
| Interaction of physical demands with physical limitations | | | XX | |
| Interaction of physical demands and place of residence (urban vs. rural) | | | X | |

Psychosocial job characteristics

| | | | | |
|---|--|----|------|---|
| Exposure to more than one of the following: piece work, time pressure, shift work, heavy physical labor | | | X | |
| High job strain or job stress | | | XXXX | X |
| Low job control | | | XX | X |
| Low control over work-rest-schedule | | | XX | X |
| High psychological job demands | | | XXX | |
| Monotonous work | | | X | |
| Long work hours | | | X | |
| Low job seniority | | | XXXX | |
| Job dissatisfaction | | XX | XX | |

Social support

| | | | | |
|------------------------------|--|---|----|--|
| Low social support at work | | X | | |
| Low supervisor support | | | XX | |
| Low coworker support | | X | X | |
| Low practical social support | | | X | |

Organizational Level Employer Factors

| | | | | |
|--|-----|----|----|---|
| People oriented culture | XX | | | |
| Proactive in-house RTW program (disability management) | XXX | | | |
| Active safety leadership (safety climate) | XX | | | |
| Ergonomic job design practices | X | | | |
| Unionization | | X | X | X |
| Large employer size | XXX | XX | XX | |
| Public employer | X | | | X |
| Self-employment | X | | X | |

Employer- or Insurer-Based Disability Prevention and Disability Management Interventions

| | | | | |
|---|----|--|--|--|
| Comprehensive programs including shift of workplace culture, early injury reporting, light duty, rest periods, and on-site physical therapy | XX | | | |
| Active monitoring of claimants by insurer | XX | | | |
| Orthopedic specialist case management | XX | | | |

| | |
|--------------------------------------|-------|
| Early contact of worker by workplace | x |
| Modified work program | xxxxx |
| Participatory ergonomic program | x |
| Supported employment | x |

For workers with lumbar and thoracic disc disorders in the EIP cohort study, a lower score on the Roland Morris Back Pain and Disability questionnaire – meaning less pain and disability at baseline –was associated with a more timely return to work. For those with back sprains and strains and other back disorders, having a lower score on the Roland Morris scale, having fewer other injuries or diagnoses and being female independently predicted a faster return to work.

Related to upper extremity injuries, for persons with rheumatism, arthropathies and related disorders and those with sprains, strains, fractures, dislocations and other injuries having a lower score on the DASH scale at baseline – meaning better functionality – and being female were predictive of a speedier return to work.

For persons with other injuries, a higher SF-36 Physical Composite Score and Mental Composite Score at baseline and being female were found to predict a more timely return to work.

The table below summarizes the independent predictors of time from injury to return to work by injury type.

Table 11. Summary of independent predictors of time from injury to return to work by injury type

| Primary injury classification | Covariate | | | | | |
|--|--|--------|---------------------------|---|--------------------------------|------------------------------|
| | Roland Morris Low Back Pain and Disability Score | Female | Total Number of Diagnoses | Disabilities of Arm, Shoulder and Hand (DASH) Score | SF-36 Physical Component Scale | SF-36 Mental Component Scale |
| Back injury | | | | | | |
| Lumbar and thoracic disc disorders | ↓ | . | . | . | . | . |
| Sprains and strains and other back disorders | ↓ | ↑ | ↓ | . | . | . |
| Upper extremity injury | | | | | | |
| Rheumatism, arthropathies and related disorders | | ↑ | . | ↓ | . | . |
| Sprains, strains, fractures, dislocations and other injuries | | ↑ | . | ↓ | . | . |
| Other injury | | ↑ | . | . | ↑ | ↑ |

↑ presence of or higher value associated with faster return to work; ↓ absence of or lower values associated with faster return to work

Workers not in EIP returned to work significantly faster than those in EIP, except for those with back disc disorders. When those who returned to work earliest were removed from the analysis the difference between EIP and non EIP decreased and then disappeared completely when those who had returned to work within 120 days of injury were removed from the analysis.

As well, when a subset of EIP and non EIP claimants – those in secondary treatment versus those assessed for but not treated in EIP – were analyzed, higher mental and physical functioning scores at baseline and being female predicted a more timely return to work (Table 12).

Table 12. Independent predictors of time from injury to return to work for assessed versus secondary EIP

| Parameter | Coefficient | SE | Chi Sq | p | Hazard Ratio | 95% CI |
|---------------------------------|-------------|--------|--------|--------|--------------|-------------|
| Female | 0.4016 | 0.1097 | 13.4 | 0.0003 | 1.493 | 1.205 1.852 |
| SF36 - Physical Component Score | 0.0159 | 0.0069 | 5.3 | 0.0209 | 1.016 | 1.002 1.030 |
| SF-36 Mental Component Score | 0.0109 | 0.0051 | 4.5 | 0.0332 | 1.011 | 1.001 1.021 |

When the analysis was adjusted for the factors identified above, there was no significant difference in return to work times between the two subgroups.

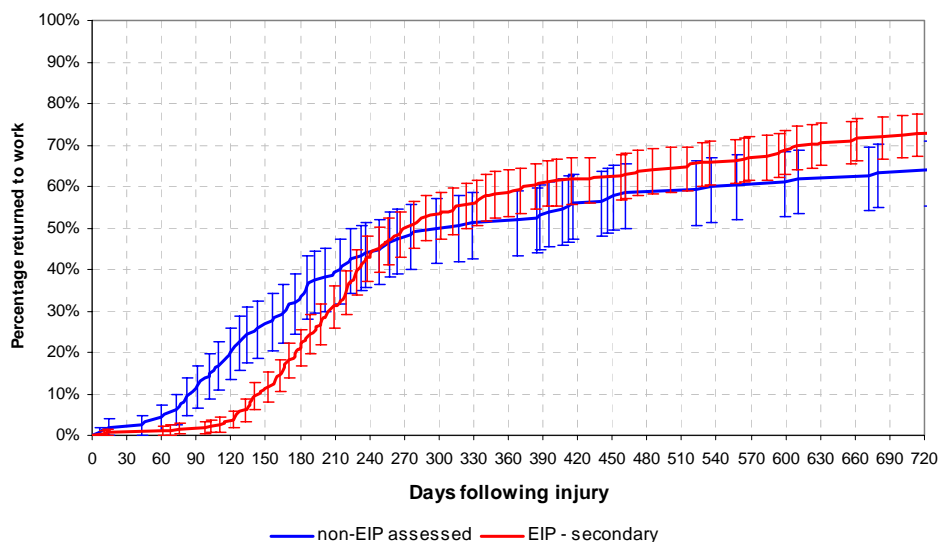


Figure 8. Cumulative percentage of claimants returned to work by time since injury adjusted for factors found to be independently predictive of time to return to work by assessed versus secondary treated

2.6.5 Independent Predictors of Time from Injury to Return to Work for Study Population Based on Changes in Functional and Psychological Scores

Greater improvements over time in the physical functioning scores predicted a more timely return to work, as did improvements in the Mental Composite Summary score, especially for those with injuries other than of the back and upper extremities.

An improvement of 10 points on the PCS or MCS is associated with a 27% to 28% increase in the rate of return to work. These instruments may prove useful as a tool for monitoring an injured worker's recovery progress.

Among all study participants, an increase of 10 points in the PCS score was associated with a 28% increase in the rate of return to work among study participants, and an increase of 10 points in the MCS score was associated with a 27% increase in the rate of return to work. Changes in the Tampa and Depression scores were not associated with time to return to work.

For individuals with back injuries, an improvement of one point on the Roland Morris score was associated with a 7.8% increase in rate of return to work. For persons with upper extremity injuries an improvement of

10 points on the DASH score was associated with a 17% increase in the rate of return to work. Among claimants with other injuries, an increase of 10 points on the MCS was associated with a 66% increase in the rate of return to work.

2.6.6 Return to Work Experience

Among those who returned to work, more individuals in EIP returned to a former employer than those not in EIP. These results might indicate greater return to work support for injured workers who are in EIP.

As well, EIPs were no more likely to take time off work due to their injury after returning than those not in EIP.

There was no difference in mean length of time on the job before injury between EIP and non EIP participants, although significantly more EIP participants returned to work with a former employer than non EIP participants. Similar proportions of EIP and non EIP participants reported returning to the same type of job and doing similar tasks regardless of whether it was the same employer or not.

Among respondents conducting different tasks, a similar proportion of EIP and non EIP participants reported this change was a personal decision and that it was due to their injury. Since returning to work, there were no differences between EIP and non EIP participants in terms of taking time off due to their injury (Table 13).

Table 13. Description of job assignment upon return to work cumulative to wave 4

| | EIP | | non-EIP | | p |
|---|------------|---------------|------------|---------------|-------|
| | n | % | n | % | |
| Working with an old employer or new employer? | | | | | |
| New | 47 | 13.5% | 74 | 23.2% | 0.001 |
| Old | 300 | 86.5% | 245 | 76.8% | |
| Total | 347 | 100.0% | 319 | 100.0% | |
| Description of the job returned to | | | | | |
| Same job | 248 | 71.5% | 238 | 74.6% | 0.362 |
| Different job | 99 | 28.5% | 81 | 25.4% | |
| Total | 347 | 100.0% | 319 | 100.0% | |
| How would you describe the tasks of this job | | | | | |
| Same tasks | 222 | 64.0% | 210 | 65.8% | 0.617 |
| Different tasks | 125 | 36.0% | 109 | 34.2% | |
| Total | 347 | 100.0% | 319 | 100.0% | |
| How would you describe the decision to do other jobs/tasks? | | | | | |
| Personal decision | 44 | 39.6% | 39 | 42.4% | 0.691 |
| External decision | 67 | 60.4% | 53 | 57.6% | |
| Total | 111 | 100.0% | 92 | 100.0% | |
| How would you describe the reason for the decision? | | | | | |
| Because of the treated problem | 67 | 60.4% | 61 | 66.3% | 0.382 |
| Other reasons | 44 | 39.6% | 31 | 33.7% | |
| Total | 111 | 100.0% | 92 | 100.0% | |
| Since returning to work, have you taken time off due to your injury? | | | | | |
| Yes | 109 | 31.4% | 83 | 26.0% | 0.125 |
| No | 238 | 68.6% | 236 | 74.0% | |
| Total | 347 | 100.0% | 319 | 100.0% | |

3. Recommendations

3.1 EIP Awareness

There is limited awareness among injured workers about the EIP program and awareness could be improved among employers and unions. ***Greater promotion and awareness about the program may assist in ensuring more timely entry into the program for those who would benefit from it.***

3.2 Claimant Costs

As would be expected the average cost per day is higher for those in EIP than not in EIP. These additional costs are attributed to higher medical costs. Within EIP, daily medical costs do not differ significantly between those in secondary and tertiary treatment, although daily compensation costs are higher for those in tertiary treatment. ***Further investigation may be required to determine why this is the case.***

3.3 EIP Assessment and Treatment

Those who returned to work by the end of the study period were significantly more likely to have entered EIP treatment sooner than those who had not returned to work indicating earlier entry to EIP may have an impact on return to work.

Significant delays were found from the time from injury to EIP assessment and treatment. ***Recommended timeframes from injury to time of assessment should be clearly stated and recovery of potential EIP candidates closely monitored from the beginning to ensure timely entry into the program.***

It also appears that those with back injuries are receiving assessment and treatment more quickly. ***If this is not intentional, efforts should be made to ensure individuals with all types of injuries are treated equitably.***

As well, the assessment process itself could potentially be improved and a review may be warranted.

3.4 Outcomes

An individual's physical functioning at baseline predicts his or her recovery and time to return to work, as does the rate of physical improvement during treatment. ***Assessing physical functioning at time of injury and monitoring subsequent changes early in recovery could assist with earlier identification of EIP candidates and long-term treatment planning.***

As well, for some groups psychological indicators early in their injury may predict their rate of recovery and there is some evidence that participation in EIP assists in this regard. ***Earlier assessment post injury and monitoring of the injured workers' mental health may also contribute to more timely recovery rates.***

Some results suggest that those in secondary treatment have better physical and psychological outcomes than those who were assessed for but who did not enter EIP. ***This may indicate that some of those who are assessed but do not enter EIP would benefit from the program and warrants investigation.***

3.4 EIP an Approach as well as a Program

The philosophy behind EIP is to identify workers early in their injury who require additional assistance with their treatment and recovery planning. Individuals who have not returned to work by their projected recovery date are assessed for EIP and, as found in this study, assessments usually take place much later than that date.

Individuals who require additional medical and/or psychological assistance and receive it early tend to have better outcomes. ***Thus, efforts to bring the EIP approach into the mainstream may assist all injured workers. Primary care providers should be encouraged to assess the injured worker at the time of injury using standardized tools and methods similar to those used by the assessment teams.***

WCB should consider developing and promoting an injury treatment support package for primary care physicians that includes recommendations on how to develop treatment and return to work plans and that includes assessment tools including perhaps survey instruments similar to the ones employed in this study. This “modified” assessment should be conducted at regular intervals early in the injury to monitor early recovery progress and identify any barriers to recovery, such as mental health issues, at the onset. This way physicians can immediately address some of the issues found, refer the worker to other health care and/or social services professionals or request an early assessment for EIP.

3.5 Future studies

It is difficult to draw a definitive conclusion on the effect of EIP given evidence of significantly greater severity of injury in the EIP arm of the study at baseline and throughout the study period and the lack of detailed data to effectively control for this bias.

EIP participants generally had a higher level of acuity than those who were not in EIP. This meant that the non EIP cohort could not be considered an equivalent comparator. Some of the analyses conducted in this study attempted to control of the difference between EIPs and non EIPs. For similar analyses in future, the selection of controls should be thoroughly assessed.

Improvements in the completeness, quality and validity of the administrative data would greatly increase the ability to accurately describe the true effect of the EIP. This would include a more accurate return to work date, a more easily distinguishable return to work status for each worker, and variables that reflect a worker’s EIP status and assessment and treatment level.

As well, data related to persons’ readiness to return to work, including those who may have been ready to return to work but who did not have a position to return to, were only available for EIP participants. This information could not be used in the analyses of time to return to work as it would bias the results in favour of the EIP. ***More complete data on all claimants would facilitate similar comparative analyses in future.***