Fatigue Management Project

Update by Steve Webb

Fonterra Milk Supply – Te Rapa **April 2005**

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Project Team

Steve Gunn
Graeme McGonigal
Steve Webb
Gavin Lysaght
Darrin Rhodes
Mark Jessen
Graham Johnstone
Bruce Gillespie
Bob Copsey
Bruce Moore
Don McKinnon
Jason Porter
Jocelyn Pratt

Weblink

www.interdynamics.com/
Learn about the company and their tools that assisted Fonterra Milk Supply in Fatigue management.

From the beginning

Fatigue is a critical occupational safety concern for shift workers, especially workers who drive as a profession like we do. One of the major problems of working shifts and extended hours is that the natural circadian rhythm *(biological clock)* can be disrupted. Irregular working hours, long shifts, increase drowsiness and reduce alertness.

Under the Health and Safety in Employment Act (1992), Fonterra is required to prevent harm occurring to employees. In some situations, fatigue may be deemed to be a significant hazard; therefore, Fonterra must take all practicable steps to prevent harm. If the employer cannot practicably eliminate or isolate the cause of fatigue i.e. shift work, Fonterra must then minimise harm to the employee. So combining the nature of our work with consideration for legislation, It is not surprising then that senior management wanted to take steps to actively look at reducing fatigue in our business.

An initial meeting was set up by Gavin Lysaght, milk supply H&S advisor at the Te Rapa site to look at factors that contribute to driver fatigue and how fatigue levels could be reduced. Involved in the meeting were tanker drivers, training & development staff; transport management and health & safety reps. Gavin also had a colleague attend the meeting who had done research in fatigue. This person was Len Pearson from Interdynamics.

Interdynamics

Interdynamics are based in Adelaide, South Australia and are a leading supplier of shift analysis and roster planning software tools that are focused on reducing the risk associated with fatigue in the workplace. InterDynamics service an international market for Planning, Analysis, Scheduling and Rostering programs, products and systems. Achievements of note include the development and implementation of the Delivery Vehicle Scheduling System for the Sydney 2000 Olympics.

InterDynamics has been proud to work with Professor Drew Dawson and Dr Adam Fletcher of the Centre for Sleep Research, University of South Australia, to develop FAID™, one of the world's leading software products used to assess shift work fatigue risks and would become a primary tool for analyzing fatigue levels for Fonterra tanker operators. This software has also been used at Aviation companies, Mobil Oil and other transport industries in Australia. I will be talking about FAID™ later in this newsletter.

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Reverse Roster participant comments

"It has worked out better for my family – he wasn't a zombie over the flush"

"I didn't want to participate in the reverse roster but am glad I did as I feel really good and was not as tired over the flush period. I feel Nightshift also goes quicker"

"I prefer the time off you get with this roster"

"I feel heaps fresher & better on my 1st day off"

"I found that the only difference of the rosters over the weekend period is that you come back to work on Sunday night on the reverse. Has taken approx 6 months to get used to it"

Project Team

Various aspects causing driver fatigue were raised at the initial meeting, ultimately highlighting a need to better management of fatigue levels. Concerns such as current roster, run scheduling, staff coverage, drawdown hours and holdups were conveyed to Len Pearson. It was evident that there were grounds to run a fatigue project and Len consulted Steve Gunn for approval to commence and facilitate the project.

Steve Gunn initiated another meeting with a union organizer Jocelyn Pratt along with Steve Webb and Graeme McGonigal to get cooperation from the union to commence a trial potentially looking at alternate rosters and ways of managing fatigue. Obviously this was in the best interests of drivers, so the project had full support of the union to run a pilot project and to work with the company to reduce fatigue levels for drivers.

A project team was discussed and selected compiling of Te Rapa drivers, managers, training people, H&S people and union reps to form a base for the project. (*Project team members are listed in the left column Pg1)*

How Do we Measure Fatigue

Measuring fatigue is a difficult process and when we look at what causes fatigue It could be due to 3 main reasons - mental, physical and emotional factors. A great deal of managing fatigue comes down to how we look after ourselves not only at work but outside of work also i.e. How much opportunity do we give ourselves to sleep, how much energy do we conserve for work etc. As I mentioned earlier under the H&S act Fonterra has a responsibility to ensure employees are not at risk, this includes looking at workload; length of the shift; previous hours and days worked; and time of day or night worked.

Another way Interdynamics are able to help us is with the use of FAID™ - software that is able to give a fatigue or recovery score known as Peak fatigue index (PFI) This score is achieved by analyzing duration of shifts and breaks, timing of shifts and breaks, prior seven day work history of individuals. It is important to remember that FAID™ is used as a guideline only and gives an indication to what decisions relating to fatigue management need to be made, however much research by Interdynamics in conjunction with the Adelaide sleep research centre has gone into the development of the FAID™ system.

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"A person who works a normal 40-hour week- 8 hours per day 5 days a week on dayshift would have a PFI of 40, however If that same person works the same number of hours on the same days but works them at night his/her PFI would be 80 "

"The starting PFI point the project team agreed on was to be 90"

"Working more than two nights in the current rotation of days then nights would cause a higher PFI score due to the fact that you had less opportunity to have 'normal' night time rest time."

Weblink

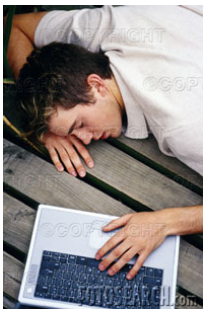
http://www.acc.co.nz/injury-prevention/safe-at-work/worksafe/action/hazard-management/people/stress/

Learn more about fatigue and stress from a occupational view

Learning More about PFI

Initial discussions with Len Pearson from Interdynamics indicated that changing roster patterns could reduce fatigue levels. We were informed that it was also possible to measure fatigue by entering various data from payroll into FAID™ that would give us a PFI

Len Pearson advised us that Mobil Oil Australia had also contracted Interdynamics to undergo fatigue level testing in their workplace, similar to what we were looking at. Results from Mobil trials indicated that a benchmark PFI of 80 was reasonably acceptable to them and still fitted within their business practices. It is quite important to consider that a person who works a normal 40-hour week- 8 hours per day 5 days a week on dayshift would have a PFI of 40, however If that same person works the same number of hours on the same days but *works them at night* his/her PFI would be 80.



Not knowing what our current PFI was and not having any information on fatigue based on what we do, the project team felt that a good PFI starting point for us would be at a level slightly higher than that of Mobil Oil had set, due to the fact that the time our drivers spent sitting in the seat for any period of time was often shorter and also our job was slightly more physical than that of the Mobil Oil Drivers. *The starting PFI point the project team agreed on was to be 90.*

During the next few weeks payroll data was to be analysed by Len Pearson and after the results were received back it was determined that an average PFI for Te Rapa was approx 111 based on drivers payroll data from August to December on the current 3 days, 3 nights, 3 off roster rotation, 21 points higher than the initial benchmark decided upon by the project team. So it was obvious that we need to be looking at an alternative roster that would reduce fatigue levels in our business.

Alternate Roster Patterns

The project team discussed various options regarding alternate roster patterns such as a much favoured 4x4 roster, a 6x2 roster and the current 3x3x3 but in reverse order.
The 6x2 and 4x4 were put aside for later discussion as Len Pearson had informed us that working more than two nights in the current rotation of days then nights would cause a higher PFI score due to the fact that you had less opportunity to have 'normal' night time rest time.

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"The fact of doing night shift first as well as having an RDO in the middle of the shift meant that the PFI of approx 92 was reached"

"Due to the fact that most rosters incorporate more than two nightshifts this ultimately causes a high fatigue index in excess of 100"

Contributing fatigue factors at Te Rapa were identified as follows – Current roster, Scheduling, callbacks, staff coverage, nightshift all season, drawdown hrs and queuing to unload milk and to hotwash.

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www.shiftwork.co.nz/

A resource for managers giving guidelines and general tips for staff

That left the current 3x3x3 roster but in reverse order, 3 nights, 1 Day Off, 3 days, 2 days Off. The project team collectively decided to investigate this 'reverse roster' further, as initial thoughts indicated that the same staff numbers and current vehicle numbers could be maintained.

The exact figures that gave us the 111 PFI score from the current 3x3x3 roster were then entered into the FAID™ system but with reverse roster data. *The fact of doing night shift first as well as having an RDO in the middle of the shift meant that the PFI of approx 92 was reached* which to us as a project team showed encouraging results and from there we decided to proceed further and ask for volunteers for a reverse roster trial for the 04-05 season as well as a group who would be referred to as the *control group* - this is the group currently operating the 3x3x3.

By Using the FAID™ system we anticipated that by reversing the roster i.e. NNN-O-DDD-OO that fatigue levels would be reduced in that by starting fresh on nights the fatigue level would be lower. Other rosters such as the 4x4 were entered into the system as well, however due to the fact that most rosters incorporate more than two nightshifts this ultimately causes a high fatigue index in excess of 100. The Project Teams aim is to reduce PFI to 90 or less.

Contributing business factors to fatigue

The role of the project team was to look at all aspects of fatigue in our workplace and to identify them and implement action plans in an effort to reduce fatigue. Contributing fatigue factors at Te Rapa were identified as follows – Current roster, Scheduling, callbacks, staff coverage, nightshift all season, drawdown hrs and queuing to unload milk and to hotwash.

A series of meetings were held before the commencement of the trial to look at how we can change some of the contributing factors to fatigue for all drivers not just the drivers on the reverse roster trial. The drawdown hrs was negotiated with the union to get drivers home in the peak of the season a lot earlier than the previous season. Staggard hotwash times were introduced to reduce congestion and queuing at peak times therefore allowing drivers to get home earlier and it was agreed that there would be no compulsory cover or call backs.

The project team continues to look at ways of reducing fatigue besides roster patterns beside roster patterns including staff coverage solutions.

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Did you know ?

Adequate sleep is essential for maintaining and restoring human function and is the only way of providing recovery from fatigue (especially for the brain).

Studies indicate that people who have gone without sleep for long enough may be just as impaired as people who are over the legal limit for alcohol (OSH).

Short-term relief from the effects of fatigue can be achieved through the use of stimulants, such as caffeine, but sleep is essential for the restoration of full physical/mental function.

The Reverse Roster Trial

A great deal of communication was given to Te Rapa drivers prior to the reverse roster commencement. Jocelyn Pratt (union organiser) and Graham Johnstone (transport delegate) also held a series of short meetings along with myself to inform everyone on the process and events that would take place over the trial period. The meetings also involved Questions and Answer Sessions. A response form was given to each driver where they were to indicate whether they were interested in participating in the reverse roster as part of the trial group or part of the control group or wished to have no participation at all.

Len Pearson from Interdynamics gave a presentation to the Te Rapa Transport drivers during Te Rapa Transports Communication Day held in July 2004 providing more depth around fatigue management. A follow up workshop was planned with Len Pearson for anyone who was interested in seeking further information around the effects of fatigue and how results were to be gathered and analysed. Literature and a video around sleep and shift work was issued for those drivers participating in the trial.

18 drivers participated in the reverse roster originally; we now have 15 with 3 temporary staff finished.

Monitoring the trial

The project team discussed a number of ways to identify the success of the trial and decided the best feedback was from the participants themselves. Medically, it is very difficult to measure the effects of fatigue without conducting comprehensive blood test. The project team discussed this with an occupational doctor and concluded that drivers would rather have medical assessments from the site nurse (Carole Thomas) who they know, trust and respect. This was also easier to organise due to the time of the season.

The site nurse agreed to conduct basic test on drivers on both rosters for Blood sugar levels, blood pressure and weight measurements along with a general discussion around how they feel, the pros and cons around the roster, and any other comments they felt they needed to share with Carole.

Drivers were also asked to complete a confidential survey prior to the medical so as Carole could discuss any issues with them. Questions were asked around how shiftwork effects them, how it effect their families, managing sleep etc. Progressive surveys were also issued to drivers on both rosters once a month to record how they are feeling each day for a Complete shift.

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Did you know ?

Drivers placed in a simulator deviated much more in the lane and tended to brake and accelerate harder as their speed control became erratic. Getting two hours less sleep than needed was enough to begin degrading performance

After four hours of sleep for six consecutive nights, healthy young men produce the type of blood test results expected from sixty-year olds.

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Jason Porter
Jocelyn Pratt

Medicals were carried out along with surveys one month after the trial commenced and then again in February. The final medicals completing the season will be done shortly. All results were given to the manager from the site nurse collectively and not on an individual basis. This was to protect the individual's opinions and privacy. The only exception, which was advised to everyone, was that If an individual was at risk or at risk to other people, the site nurse would inform the manager.

Initial findings from medicals indicate that there has been no major trends to drivers health, however this could be due to the short duration of the trial and could take some time before the effects were evident. When talking to the majority of the reverse participants, their comments are encouraging indicating they are feeling more energetic on their days off (see drivers comments on pg2)

Where to from here

Due to the encouraging comments from the participants of the reverse roster, it makes sense to continue to look at workplace fatigue solutions. The reverse roster is one way that fits our current business operation best; however this does not mean that other alternatives cannot be considered and as I mentioned earlier the project team continues to look at ways to reduce fatigue.

Now that the first season of the reverse roster is coming to a close, the project team felt it was necessary to provide an overview of the fatigue project to all staff of Fonterra milk supply by way of this newsletter. Please read the content of this newsletter carefully and if you are a driver that is interested in the reverse roster, please talk to your manager so he/she can get in touch with one of the project team and arrange to meet with you if necessary.

Workshops involving members from the project team and drivers that were on the reverse roster has been planned for any sites that have drivers interested and are seeking more information.

Remember it is not mandatory to work the reverse roster but an alternative roster that may assist in reducing fatigue, and certainly initial reports reveal this type of roster is achieving that.

If You have any comments, questions or suggestions
Please contact one of the project team