

REVIEW OF HEALTH AND WELLNESS PROGRAMS FOR THE NEWFOUNDLAND AND LABRADOR OFFSHORE WORKFORCE

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EXECUTIVE SUMMARY

Recommendation 14 of the Offshore Helicopter Safety Inquiry proposed that the C-NLOPB set goals for physical fitness of workers in preparation for safety training. While the term “physical fitness” includes a number of technical components from aerobic capacity, muscular strength, agility and body composition¹, the emphasis of this paper was to address a concern regarding helicopter passengers who may have difficulty egressing an aircraft in the event of a ditching or crash due to their physical capability². This study was commissioned to:

- Determine if the medical literature supports interventions that enhance healthy body weight, thereby improving safety for workers in the event of an offshore helicopter ditching;
- Determine the effectiveness of workplace interventions for the prevention and management of obesity;
- Evaluate the Health and Wellness Training Manual produced by *Definitions*, an independent service provider that delivers a wellness safety program to the Newfoundland and Labrador offshore workforce; and
- Identify gaps in current health and obesity programs, and recommend strategies for improving health and wellness programs.

The objectives were met by comparing the findings of a critical review of the literature with documents that describe the relevant programs available to the NL offshore workforce. The report concluded that even the most rigorous, customized clinical program is only likely to achieve an individual weight loss of three to five kilograms over periods of 12 to 24 months. Community-level programs yield even less – weight losses of approximately 1.5 kilograms (though they reach a higher proportion of the population). Therefore, wellness strategies for the NL offshore workforce, while likely to reduce the incidence of chronic illness and rates of absenteeism, will likely offer few direct benefits for individuals attempting to evacuate a helicopter after a ditching.

The study noted a number of strengths of the health and wellness program that targets the offshore workforce. Illustrative strengths include the evidence-based, multi-faceted nature of the program, the comprehensive scope of the program, the numerous resources and media that are used to reinforce the adoption of healthy behaviors of offshore workers, and a well-written Health and Safety Manual that is used to train managers and health and safety advisors to deliver health and safety activities to employees. However, opportunities for improvement were noted and included:

- Introducing program, environmental and policy changes on offshore installations to support sustainable healthy lifestyle choices;
- Adapting and adopting alternative models (such as the 'Workplace Health System', developed by Health Canada) to design and implement a program for the specific needs of the offshore workforce;
- Developing a baseline measure of the current health status and lifestyle of the NL offshore workforce, so short- and longer-term health and safety programs can be evaluated;
- Updating the Health and Safety Manual to reflect recent advancements in the medical literature, including Canadian references on physical activity and nutrition; and
- Instituting periodic, independent formal evaluations of the Health and Wellness Program.

1.0 INTRODUCTION

A major issue facing employers today is the requirement to promote and improve the health and safety of their workforce. Changes in lifestyle patterns in society over time and the high prevalence of risk factors such as smoking, obesity, low physical activity levels and poor nutrition adversely affect health and reduce productivity of the working population. For offshore oil and gas installations, factors such as the availability of high caloric foods, limited opportunity for physical activity, increasing age profile of employees and rise in sedentary jobs may all predispose workers to becoming overweight or obese. While the ideal is to be a normal weight, physically fit and active, recent evidence³ suggests, that high levels of physical activity and aerobic fitness are important and may have substantial health benefits regardless of an individual's weight. The Aerobics Centre Longitudinal Study⁴ showed that obese subjects who were physically active had a lower risk of dying than normal weight individuals who were physically inactive. From a health and safety perspective however, obesity in the offshore environment (despite levels of fitness) merits attention as this condition may impose additional hazards for individuals required to negotiate narrow or steep stairs or escape from a helicopter exit in the event of an emergency.

With the automation of society, workplaces have increasingly become a sedentary setting where ample access to energy rich foods as well increases the risk of workers becoming overweight or obese. Worksite health promotion strategies have been designed to improve health-related behaviors and health outcomes of workers. They target the whole workforce or population rather than individuals. Regarding worksite wellness, one review of 12 programs across Canada⁵ demonstrated a variety of activities to improve employee health, which included: mental health, work organization and stress reduction programs, addressing the physical work environment (safety, air quality, ergonomics) and programs to promote the physical health of employees (fitness, smoking cessation, nutrition and lifestyle education initiatives).

As obesity is known to drive costs associated with disability claims, injuries, sick leave and absenteeism in the workplace⁶, employers are becoming interested in providing programs and policies to reduce obesity and mitigate costs. A systematic review completed by the United States Task Force on Community Preventive Services looking at workplace interventions to reduce obesity found a net loss of 2.8 pounds over a period of 6-12 months when the results of several studies were collectively analyzed⁷. It was difficult in this review to determine the independent effects of program components (information, behavioral or environment and policy changes) and no association could be found between the effectiveness of specific behavioral approaches

targeting diet versus physical activity. The authors noted that employers would benefit from studies measuring effects of their wellness programs at the population level to learn what proportion of program participants had meaningful weight loss (> 5% or >10% body weight loss) and also whether interventions actually reached the majority of the workforce.

The overarching goal of this paper is to summarize for the Canada-Newfoundland and Labrador Offshore Petroleum Board (C-NLOPB) the evidence regarding effectiveness of interventions that can be used to improve lifestyle behaviors in response to Recommendation 14 from the Offshore Helicopter Safety Inquiry (OHSI)⁸ with particular attention to reducing obesity and increasing physical activity for offshore oil workers. This paper consolidates information on the more prominent workplace health promotion resources that may be used to optimize health and wellness programs for Newfoundland and Labrador offshore personnel. The specific objectives of this report are:

1. To examine Recommendation 14 from the OHSI (which states “It is recommended that the Regulator set goals for physical fitness¹ of workers in preparation for safety training, after consultation with the oil operators, worker representatives, trainers and medical experts”) and determine if the medical literature supports interventions that enhance healthy body weight thereby improving safety for workers in the event of an offshore helicopter ditching or crash.
2. To review and summarize findings regarding workplace interventions (individual and population-based) for improving health and reducing overweight and obesity among personnel.
3. To review the current health and wellness training program (as outlined in the Definitions Health and Wellness Training Manual) provided to the NL offshore workforce.
4. To identify any gaps in this training program and recommend strategies for improving health and wellness programs for the NL offshore workforce.

¹ Physical fitness is defined by the US Centers for Disease Control as “The ability to carry out daily tasks with vigor and alertness, without undue fatigue and with ample energy to enjoy leisure-time pursuits and respond to emergencies. Physical fitness includes a number of components consisting of cardio-respiratory endurance (aerobic power), skeletal muscle endurance, skeletal muscle strength, skeletal muscle power, flexibility, balance, speed of movement, reaction time and body composition.”

2.0 OBESITY PREVALENCE AND MANAGEMENT

Obesity is a common yet complex metabolic problem affecting more than one in four adults in Canada. At a societal level, the economic burden in Canada is not insignificant and has been estimated to cost between \$4.6 and \$7.1 billion annually³. When one includes the overweight category, approximately 60% of our population is affected. The impact of obesity goes beyond the disorder itself as is known to significantly increase the risk of developing other diseases such as type 2 diabetes, cardiovascular disease, osteoarthritis and some forms of cancer. Obesity increases with age and males appear to have a higher risk of developing this condition compared with females. According to the 2007-2009 Canada Health Measures Survey⁹, 29% of women were considered to be overweight and another 24% obese. For men, 44% were overweight and 24% were obese. Between 1981 and 2009, the prevalence of obesity in Canada doubled.¹⁰ Rates of obesity are known to vary provincially and regionally. Rural areas are more likely to be affected than urban regions. In 2007/08, the Canadian Community Health Survey found that approximately 25% of the population of Newfoundland and Labrador was obese compared with 17% for the rest of Canada. Within the province, obesity was found to vary with rates as high as 30.6 in central Newfoundland, 21% for the West Coast and 16% in St Johns.

The causes and determinants of obesity are complex and include individual choices such as diet and physical activity as well as external factors such as socioeconomic status, ethnicity, education, the environment and even social norms. A recent report from the Public Health Agency of Canada and the Canadian Institute for Health Information¹¹ determined that leisure time physical activity was an important predictor of obesity but that only half of Canadians were meeting recommended activity levels each day. High levels of sedentary behavior from exposure to screen time (television, computer or video game use) are also known to be associated with obesity in youth and children. In 2009, the Report Card on Physical Activity for Children and Youth¹² stated that only 19% of children and youth in Canada were meeting the recommended guideline of less than 2 hours of screen time per day.

Weight loss occurs by achieving a negative energy balance whereby fewer calories are consumed than are expended. While this may seem simple, given the complexity of this condition, it is unlikely that a single solution exists to reverse the rising prevalence in Canada. Evidence from smoking cessation programs indicate that interventions are most likely to be successful if they are long-term, multi-faceted and address multiple

factors simultaneously¹³. Three main approaches have been suggested to reduce obesity:

1. Clinical and health service interventions targeting individuals (e.g. diet counseling by a health professional)
2. Community level interventions that influence behaviors directly (e.g. ParticipACTION to increase physical activity in schools)
3. Policy changes that target broad social and environmental determinants of health (e.g. increasing taxes on unhealthy foods)

2.1 Individual Interventions

Although scientific evidence regarding the management of obesity at the clinical level is well established, the overall impact of health care system interventions is limited as only a small proportion of the population receives these services. As well, while individual interventions may be helpful in achieving modest weight loss, avoiding weight regain remains a challenge. The 2006 Canadian Clinical Practice guidelines¹⁴ for the management and prevention of obesity in adults suggested that clinical obesity programs include the following interventions: behavior modification therapy, dietary counseling regarding adopting a calorie restricted diet and increasing physical activity levels. Medication and surgery are not routinely recommended and often reserved for individuals with complications or morbid obesity. A comprehensive review of the management of obesity by the Cochrane Collaboration¹⁵ supported the previous finding that brief interventions with patients, shared care and dietitian-led programs can be helpful in clinical settings for promoting weight loss. Studies using a combination of the above and with an intensive program of counseling over 4-6-month period have achieved an average of 5 kg of weight loss. Although this may seem insignificant, it is important to note that even modest reductions in weight have been shown to have a positive metabolic effect in reducing blood pressure and blood sugar and improving cholesterol profiles in overweight and obese individuals. A recently published randomized controlled trial by Appel et al¹⁶ compared the effectiveness of a remote (phone, web-based or email) weight loss support program with in-person counseling sessions. After 24 months, both interventions were found to be successful in promoting weight loss with an average reduction of 4.6 kg in the remote group and 5.1 kg in the face-to-face group.

2.2 Community Interventions

Community interventions for obesity include targeted and universal public educational and informational campaigns. Social marketing campaigns that focus on healthy eating or physical activity are a common part of health promotion programs across Canada. These interventions may be delivered through print, on-line or other media mechanisms. An example of this would be a media campaign through television ads and public radio announcements encouraging persons in a city or town to eat healthier by consuming more fruits and vegetables. Also included in this category are programs delivered in the workplace and school settings.

A recent review conducted in the United States¹⁷ (as described below) indicated a number of promising approaches for changing the dietary and physical activity behaviors of adults at the population (community/workforce) level.

- Point of purchase prompts which would include signage indicating which foods are healthy and labeling the caloric content on menus
- Point of decision prompts such as signs promoting the use of stairways
- Worksite programs that include education, counseling, incentives and access to fitness centres and locker rooms
- Workplace and community policies and environmental supports that improve access to healthy food
- Nutrition reminders and training for health care providers

Expanding this concept to the workforce, the United States Centers for Disease Control and Prevention (CDC) has identified (for employers) emerging interventions known as “promising practices” that are helpful in reducing weight among employees. A detailed description of these resources is freely available on the CDC’s LEAN Works website¹⁸. The suggested practices are divided into three categories: 1. environment and policy, 2. Information and education and 3. behavioral interventions. In the first category, environmental changes and policies supporting healthy behaviors are developed for the entire workforce (not individuals). These strategies are considered to be more sustainable than individual interventions, and include for example, increased access to physical activity venues (e.g. fitness centres, outdoor trails). Informational and educational strategies focus on increasing awareness and knowledge about several areas of health including weight loss, chronic disease prevention, physical activity and nutrition. An example would include multi-component education program that address healthy lifestyle behaviors and risks associated with obesity together with interventions such as exercise prescriptions, nutrition prescription and small media (brochures, pamphlets, electronic messages). Behavioral strategies often involve individual or group

counseling for persons trying to lose weight and focus on teaching weight management skills. In this level, family or co-workers may become involved to provide support.

Another excellent resource for employers contemplating renewal of workplace health and safety programs is an initiative known as ActNow BC¹⁹. This web-based program which was developed by the B.C. Ministry of Health provides a wealth of materials, tools and background documents that could be used for creating a healthy work environment in a variety of settings.

www.actnowbc.ca/healthy_living_tip_sheets/healthy_work_environments

Some examples of actions suggested for employers are:

- Communicating regularly to employees the importance of worksite health and safety
- Supporting or subsidizing employees to attend workshops, training or conferences about health and safety
- Training managers about health, safety and wellness issues
- Developing and implementing a plan that includes actions and goals, which involves employees in the process ensuring their participation at all stages
- Establishing a healthy workplace committee to engage employees in the process
- Evaluating the business benefits of a healthy workplace and reporting on health and safety statistics
- Including in the organization's mission or vision statement a commitment to the health and safety of employees and in the business plan, healthy workplace goals and objectives

The ActNow BC website provides several documents and tips regarding occupational safety and injury reduction, alleviating stress in the workplace, promoting physical activity, good nutrition and suggestions for health promotion programs and campaigns. Some examples of popular programs include: challenges to increase activity, smoking cessation initiatives, ensuring availability of exercise facilities and change-rooms, providing healthier choices for meals and snacks including vending machines as well as education for employees and managers about healthy lifestyles. The model below (Figure 1), developed by the BC Ministry of Health¹⁹ shows the elements necessary for a healthy workforce.

Figure 1. British Columbia Ministry of Health, Healthy Workforce Model.



2.3 Policies to Promote Health

Community and individual level efforts to promote healthy behaviors may be limited by external factors (physical, social and economic environments) that preclude the adoption of positive lifestyle choices. For example, the lack of exercise facilities or safe places to walk or run may affect levels of physical activity. Some examples of public policies that may be used to promote healthy diets and physical activity are:

- Urban planning, transportation and land development planning that promotes active commuting and safe recreational physical activity (e.g. pedestrian and cyclist paths)
- Financial incentives to promote physical activity (e.g. children’s fitness tax credit)
- Financial disincentives such as tax on unhealthy foods and drinks
- Subsidy programs to support healthy eating.

3.0 EMPLOYER INITIATIVES TO PROMOTE HEALTH

The workplace is an appropriate place to promote health issues since two thirds of Canadians are employees and on average they spend about 60% of their waking hours at work. To assist organizations in developing health and wellness programs, Health Canada also developed the Workplace Health System²⁰ which provides businesses of varying size a step-by-step method for introducing comprehensive health promotion programs in the workplace. The process is intended to strengthen existing initiatives and fill in any programming gaps rather than replace existing programs. It involves the following steps:

1. Gain Commitment – Organizational commitment from key decision making to three avenues of influence – environment, health practices and person resources.
2. Get Organized – identifying managers, employees and health professionals who will carry the process forward and coordinate aspects of the health and wellness program.
3. Complete a Needs Assessment – Employees complete a survey indicating their needs and health risks they face. This process provides baseline data relevant to implementation of the worksite health program.
4. Develop a Worksite Health Profile – survey results are analyzed and summarized to create a profile of employees. This step ideally should be completed by an independent company to maintain privacy and confidentiality of participants.
5. Create a Three to Five Year Health Plan – The coordinating group examines how the survey information fits with resources and drafts a long-term health plan.
6. Develop a Specific Program Action Plan – the first year of activities are developed and the program begins.
7. Review of Progress – an evaluation should be considered during the program-planning phase. Deciding on and obtaining baselines measures will assist with tracking success over time.

To assist with the above process, the University of Toronto's Centre for Health Promotion (<http://www.thcu.ca/workplace/sat>) identified a list of resources that are freely available or that can be purchased to assist employers in creating a healthy workplace. These very specific tools are divided into six categories: needs assessments, health risk appraisals, workplace environmental audit, employee interest survey, current practice surveys, and organizational culture surveys. Employers can decide which tools best meet their needs.

4.0 OFFSHORE WELLNESS PROGRAM DESCRIPTION

An independent service provider called Definitions currently delivers a wellness safety program to the Newfoundland and Labrador offshore workforce. This company, founded by Mike Wahl and Mike O’Neill services the health and fitness requirements of some major oil and gas clients and other corporate entities in North America. Definitions provides a combination of education, experience and support in lifestyle counseling, exercise training, nutrition, motivation and human factors. The Definitions Wellness Safety Services brochure and website indicate that their program is executed “by creating a culture of energy and wellness through five components:

1. Health, Safety and Ergonomic (HS&E) system – to reduce the probability of an incident from human factors
2. Medic System – to help to prevent instead of treat illness and injuries
3. Employee wellness counseling system – to provide support for all wellness needs of employees
4. Fitness system - action systems to get crew moving
5. Food curriculum and system – ensure that cooks are providing the best nutrition possible for the health and performance of the crew”

The Definitions Health and Safety Manual is a well written document providing background about the company and a comprehensive description of the individual HS&E components which are used for training managers and health and safety advisors about health and safety activities for personnel. The program is designed to be part of a long-term strategy for incoming and current employees. Phases of the program may need to be repeated depending on employee turnover rates.

Definitions also provides clients with other resources including presentations, videos, posters, pamphlets, web-based risk assessment and other tools that may be used to reinforce the adoption of healthy behaviors for offshore workers. In the first chapter of this manual, three main phases of the wellness program structure are described:

- Phase 1 – a job site assessment is performed by interviewing and videotaping workers on the job. The overall suitability of the working environment is assessed along with risk factors for injuries so adjustments to equipment, movements and the working environment as a whole can be made if required.

- Phase 2 – training is completed for managers and employees. For managers, the program includes education about signs of repetitive strain injury, proper nutrition and information about enhancing employee participation in programs. Employees are then educated through discussion, video and photographs about nutrition, physical activity, appropriate equipment use and task performance. The goal is to increase adherence and adoption of healthy behaviors through education.
- Phase 3 – following stages 1 and 2 and with input from offshore personnel, modifications to the jobsite take place to improve existing health and safety programs. Evaluation of the effect of these changes should be ongoing.

Job site modifications include equipment modification and employee education on performing tasks to minimize repetitive strain injury as well as changing the environment (workload, shift schedule, behavioral atmosphere, physical layout, noise, lighting, temperature, vibration) to ensure a safe working environment. In this phase, the manual also describes opportunities for improving mental and physical health through educating workers about the benefits of physical activity, warm-ups and stretching, proper nutrition and hydration.

The remaining chapters of the training manual deal with several aspects of workplace health and safety including: the economic costs of illness and injuries and savings that may be realized through wellness programs; the merits of ergonomics in general and in the offshore oil context; body composition measures (Body Mass Index, Waist to Hip Ratio, Skin fold thickness); the physiology, impact and prevention of foot, back and repetitive strain injuries; stretching and warm-ups to prevent injuries; fatigue, vibration and temperature as sources of health problems in offshore workers; blood sugar awareness (high and low levels) and stress in the workplace.

Since the focus of this paper was to review best practices regarding worksite health programs for the NL offshore industry with attention to reducing obesity, a review of the literature of each specific subject area of the manual was not completed. Rather, this report outlines areas for consideration for the content of the Definitions training manual regarding obesity prevention and control and as well for the operators in examining successful interventions for promoting a healthy workforce.

It should be noted that while this report focused on the Definitions manual for training offshore personnel, additional materials² providing a more comprehensive picture of

² Canship Food Order Review - Sept 20, 2011, Atlantic Towing Ltd 2010 Statistics, Husky Energy Health and Wellness Program R&D/E&T Expenditure Application, HUSKY ENERGY Wellness

the diverse activities and products offered to offshore personnel as part of the Definitions Wellness Program were reviewed at a later date and are summarized in Appendix A.

5.0 RECOMMENDATIONS

5.1 *Definitions Health and Safety Manual*

This manual appears to be a very useful tool for training and provides a detailed and comprehensive and well-organized description of a variety of factors influencing the health of offshore workers.

1. While the content of the program appears to be valid, in general it lacks information from key medical sources about injury prevention, nutrition and physical activity recommendations such as the US Task Force on Preventive Health Services, the Public Health Agency of Canada and the US Centers for Disease Control. This recommendation has been reviewed by Definitions scientific staff and the training manual is presently undergoing revision to include the resources mentioned above.

Although the material is scientifically driven, it should be updated to examine more recent evidence regarding stretching as an intervention to prevent injuries and as well, on the use of multivitamins to promote health. Stretching is believed to increase the range of motion around the joint and increase muscle compliance to prevent injury, however this is a confusing area of the literature. A recent systematic review of clinical studies concluded that the evidence does not support the prevention of injuries through pre-exercise stretching.²¹ Only two studies examined the effect of stretching after or outside periods of exercise. Both suggested a protective effect but the results were not statistically significant. With conflicting evidence and few well conducted studies examining the merits of stretching alone on injury prevention, current thinking is moving

Safety Program 2 Year Plan, HMDC Wellness Safety Program : 1st Quarter Report and Initial Findings, The Value of Wellness: Building the Case for Wellness Programs in Remote Locations by Dr. Tom Cooper, Mike O'Neil and Mike Wahl.

1. The Value of Wellness, Building the Case for Wellness Programs in Remote Locations by Dr. Tom Cooper – Faculty of Business Memorial University, Mike

- away from static stretching as an isolated intervention and to include it in more comprehensive interventions or to use dynamic stretching instead. It should be noted that Definitions staff reviewed this recommendation and were aware of the need to clarify information on stretching. The manual and other materials are being updated to include the preferred approach which involves an active warm-up and dynamic stretch pre shift and static stretching for flexibility post shift.
2. Important Canadian references on physical activity and nutrition are not mentioned in the training material and should be incorporated into the manual. Regarding exercise, the Public Health Agency of Canada released in 2011²² new physical activity guidelines based on three years of research conducted by The Canadian Society for Exercise Physiology. The new guideline suggests at least 150 minutes (two and a half hours) of moderate to vigorous intensity physical activity a week for adults (age 18 and over) in bouts of 10 minutes or more. For children and youth (ages 5 to 17), a minimum of 60 minutes of moderate to vigorous intensity physical activity per day is recommended. Definitions has indicated that this information will be included as a separate chapter in revised training materials.
 3. For nutrition, Health Canada sets evidence-based nutritional standards for Canadians that are described in a recently released revised version of “Canada’s Food Guide”²³. This document was developed to meet nutrient standards (Dietary Reference Intakes) for Canadians and to be consistent with scientific evidence linking diet to a reduced risk of chronic diseases. The guide outlines specific information on the recommended number of servings per day of fruits and vegetables, grains, milk products and meat. It provides additional information about serving sizes and healthier food choices and considerations for persons of different ages including the need for daily supplements of vitamin D. As the leading nutritional document for Canada, Definitions staff have agreed to include this resource in the health and wellness training materials.

5.2 Newfoundland and Labrador Offshore Workplace Health and Safety Program

1. The Definitions Health and Wellness program appears to be evidence-based and multi-faceted. However, information was not available on the effectiveness of this initiative. To improve the program, an evaluation should be carried out by an independent consultant external to Definitions and the C-NLOPB with

- expertise in public health, epidemiology and evaluation, to determine the costs, whether it incorporates recent effective workplace interventions, is meeting its intended goals and objectives, is reaching intended recipients and whether the offshore workforce is satisfied with opportunities for enhancing health using this program.
2. The present program includes interventions (educational, counseling) targeted at the level of both the individual and the workforce. However, opportunities for introducing environmental and policy changes in the offshore establishments should be considered to support more sustainable adoption of healthy lifestyle choices.
 3. Several models exist for introducing effective workplace health and wellness programs. The Workplace Health System developed by Health Canada (as one example) outlines several key steps for employers and is recommended for implementing health and wellness program for offshore workers. The process should include the following steps: gaining commitment from senior leaders, identifying staff who will advance and coordinate the program, obtaining feedback from employees on their needs through a survey, developing a Worksite Health Profile from this survey, creating a three to five year strategic plan followed by a more specific implementation plan and then finally, evaluation of the system.
 4. There is a lack of information about the health status and lifestyle behaviors of Newfoundland and Labrador offshore workers. Baseline information about obesity, smoking, diet, exercise and other factors influencing health obtained from a survey (as outlined in point three above) would be helpful in guiding the development of health promotion and safety programs for this population.
 5. Since the prevention of certain conditions such as obesity and injuries is grounded in theories of population health as well as individual medical care, it is strongly recommended to have health and wellness materials reviewed by a professional external to Definitions who has training in public health and epidemiology. This will ensure that health and wellness programs and policies have components directed at the level of the population which are likely to have a larger impact on health compared to those provided at the individual level.

6.0 CONCLUSION

There is no legal requirement in Canada for employers to require a healthy lifestyle among their employees. On the contrary, there may be laws and human rights codes that prevent discrimination by employers on the basis of risk factors and behaviors such as smoking, obesity, poor diet or an inactive lifestyle. In the Offshore Helicopter Safety Inquiry, a recommendation was made by the Wells Commission to “set physical fitness goals for offshore workers”. This arose as a result of concerns about the ability of offshore workers who were overweight or obese to escape from a helicopter successfully in the event of a ditching or crash. From a health and safety perspective therefore, the current epidemic of obesity in Canada presents unique challenges for offshore personnel and the operators.

This paper provides an overview of effective interventions for weight loss at the clinical and community levels. Unfortunately, even the most rigorous clinical programs involving intense levels of counseling and support achieved about a 3-5 kg weight loss over periods of 12-24 months. At the community level, the cumulative effect of weight reduction programs as reported by the US Preventive Services Task Force was about 1.5 kg. Given the above information, even the most intensive weight loss strategies for offshore workers (while important for medical reasons) are unlikely to lead to sufficient weight loss to improve safety in the event of a crash or ditching. That said, health and wellness programs implemented at the workplace are beneficial as they have been associated with reduced rates of chronic illness, lower absenteeism and reduced costs overall to the employer. As well, although interventions for obesity may be expected to have only a modest effect for individuals, at the population level they can potentially reduce overweight and obesity when applied to a large percentage of the population and when combined with other approaches.

A comprehensive education-based health and wellness program is currently in place for the offshore workforce. Adaptation of the content of the training manual and periodic review of this and other health and wellness resources by public health and medical experts, external to Definitions is suggested to ensure the materials are accurate and evidence-based. As well, a formal evaluation of the Definitions Health and Wellness program by an independent expert is strongly encouraged to ensure the program is meeting the needs of the employer and the offshore workers collectively.

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**SUMMARY OF SUPPLEMENTAL DEFINITIONS HEALTH AND WELLNESS MATERIALS REVIEWED
FOR THE “REVIEW OF HEALTH AND WELLNESS PROGRAMS FOR THE NEWFOUNDLAND AND
LABRADOR OFFSHORE WORKFORCE” REPORT**

1. The Review of Current Food Practices examines trends in food consumption for the offshore vessels as a gross indicator of lifestyle practices among personnel when working offshore. The report for the period of April 2010 to April 2011, showed workers were choosing good amounts of fruits and vegetables but had high consumption of less healthy food such as potatoes, white breads and pasta (rather than whole grain) as well as sugary cereals and high fat meats (sausage and bacon). While this is a useful resource for monitoring food consumption, individual behaviors measured using standardized nutritional scales as part of a workforce health survey would provide a more comprehensive picture of the dietary patterns of offshore personnel.

2. Other statistics regarding offshore health were provided by Definitions in the Atlantic Towing Limited 2010 Statistics document. Little information was available on the methods for inviting study participants, collecting data, the response rate, quality of data or statistical testing therefore the interpretation of the graphical information provided is limited. The document however suggested that the average weight declined over the time period of interest by 1.6 pounds, waist circumference decreased by 1.1 inches and hip circumference declined by 0.5 inches. Regarding energy levels, participants reported higher levels of energy over time upon waking and at midday. Exercise frequency was reported to have increased by 14% and stretching by 20%. There was a 14% increase in the selection of healthy foods by offshore participants and the percentage of personnel who ranked their health as high increased by 8%.

3. The Husky Energy Health and Wellness Program R and D Expenditure Application summarized activities that Husky has completed with Definitions since 2008 and contains a two-year go-forward plan. Some of the highlights of this report included: implementation of a wellness program into both office and offshore settings, development of tools to support the program when Definitions staff are not available (videos, cookbooks, pamphlets, on-line programs), introduction of a stretching/warm-up program (pre-tower and pre-flight), delivering annual wellness counselling sessions, organizing a weight loss contest and smoking cessation programs, development of the Definitions HSE manual and safety alerts on human factors subjects.

For the Office program: more than 240 personnel met with a counselor since the inception; 387 individuals were given access to the Husky Wellness Website; 600 Power Living books were distributed and several hundred fitness, nutritional and personal wellness plans were developed to assist individuals in adopting healthy lifestyles. Regarding Offshore initiatives: over 90% of the crew met with a counselor; more than 150 persons were given access to the Husky Wellness Website; over 300 Habits books were distributed; an educational DVD and workbook regarding healthy eating were delivered to kitchen staff; several seminars were provided on health and wellness topics and a weight loss contest (involving 420 participants) was introduced along with plans for implementing a new fitness facility.

The document presented a graph outlining the annual number of injuries per year between 2008 and 2011 and the authors suggested there was a decline in numbers between 2008 and 2011. However to properly examine injury trends, rates should be presented (number of injuries/population at risk) rather than numbers alone. As well, information on how injuries are monitored, the quality of this data and whether this reporting process changed over time should be incorporated into the document.

4. The Husky Energy Two year plan submitted by Mike Wahl and Alan Hamilton outlined an execution checklist for offshore wellness activities to be completed for each month in 2011 and 2012 for the following categories: Office, Offshore, Pre-employment, Training, Innovation (online and other services) and Administration. Among the many types of activities and interventions listed, weekly lunch and learn sessions on various wellness topics were planned for office staff and one to one counseling sessions were available twice a week for offshore employees. The individual sessions were used for nutritional and exercise planning, measuring body anthropometrics and to support employees in making positive lifestyle changes. The report indicated that Definitions planned to use its wellness website, intelligence bank resources and other tools to ensure each individual had a realistic and tailored plan for wellness that was most likely to be successful.

In addition to promoting good nutritional habits and fitness, the two year plan also mentioned the importance of maintaining an ergonomic program for Husky employees and the development of a Human Factors course to increase awareness about the interaction between health and safety and prevention of injuries. Each week approximately eight hours are dedicated to developing an ergonomic program at both office and offshore locations, to ensure employees have optimal access to safe and physically supportive work environments.

Another initiative known as the Belly Off contest provides an incentive using prizes for participants (onshore and offshore) to lose weight and reduce their waist circumference. Participants of this contest are all encouraged to speak with a Definitions representative to obtain guidance on how to successfully introduce lifestyle changes. While these contests are

popular and frequently used in North America to assist with behavior change, the effectiveness of such interventions could be assessed as part of an evaluation of the wellness program.

The plan mentioned several other wellness initiatives which included activities such as fitness camps (offered weekly to employees), an office-warm up stretching program that involved a stretching sequence twice daily for short periods of time (3 to 4 minutes), a monthly Power Living Newsletter, an individual Seven Habits planning session with on-going support to assist in the adoption of healthy behaviors long-term, a functional assessment of work tasks using a work site simulator to determine the functional capacity of workers to complete their jobs, training kitchen staff about healthy food choices and holding a healthy recipes contest as well as offering a “know your numbers” campaign where individuals had their blood lipids, blood sugar and blood pressure taken in the office by a Definitions team member or offshore by the medic.

In the Husky Two Year plan, Definitions mentioned developing a partnership with Atlantic Offshore Medical Services (AOMS) to collaborate on the implementation of prevention and health screening programs offshore. The plan noted that Definitions would update and design relevant medical articles which will be provided to medics offshore and utilized by AOMS staff servicing Husky. Mike Wahl and a Definitions nutritionist would be responsible for reviewing the documents for accuracy.

5. The HMDC Wellness Safety Program - First Quarter Report Launch and Initial Findings report presented measures for the HMDC Power Living program which was launched in June 2010, involving over 80 employees. It consisted of nine days of full-time, on-site counseling for offshore employees. This program was reinforced with additional services such as follow-up offshore visits, online services and health and wellness campaigns. The program aimed to educate participants about healthy lifestyle behaviors using the Definitions Power living curriculum and personal counseling sessions.

The report mentioned that 60 counseling sessions were completed along with 70 questionnaires. The total population on the Hibernia platform at the time was not reported therefore the response rate and representativeness of the data is unknown.

In the quarterly report, the waist to hip ratio was measured directly (pre and post launch) and a questionnaire was used to monitor several variables including: changes in perceived energy (morning and mid-shift), physical activity levels, general health, nutritional habits, illnesses and other health related outcomes. As a copy of the questionnaire was not included in the report, it is not possible to examine whether standard measurement scales (such as those used in the Canadian Community Health Survey) were incorporated in the survey methodology.

6. The Value of Wellness paper provides a conceptual model of the costs associated with high and low risk employees as applied to the offshore oil and gas setting. The authors estimated that a high-risk employee (having many risk factors for having an adverse health outcome), can cost a company \$125,000 per year and up to 2.65 million over the course of a career. The paper suggested that an organization could gain both financially and in becoming an employer of choice, by adopting a wellness culture which would assist in improving health behaviors among personnel. A suggestion for future reviews on this topic would be to include more specific information about the methods for conducting the literature review outlining the inclusion and exclusion criteria as well as specific review methods, whether studies had control groups, an assessment of the quality of studies and including a summary of studies included in the literature review in table format.
