NORTHWESTERN ONTARIO WOUND CARE CENTRE OF EXCELLENCE

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1.0 PROJECT OVERVIEW

The Rainy River First Nations, Naicatchewenin First Nation and Couchiching First Nation, in collaboration with Fort Frances Chiefs Secretariat and New Gold, are in the process of establishing a Northwestern Ontario Wound Care Centre of Excellence with a goal to provide holistic care and limb preservation. With the access of highly trained health care professionals, a holistic approach to health care, state of the art equipment, technologies and treatments and the use of Hyperbaric Oxygen Therapy, both First Nation communities will achieve this goal. Advanced wound care and Hyperbaric Oxygen Therapy can heal up to 75% of wounds[1] and ultimately prevent amputation.

When it comes to wound care, Northwestern Ontario is under services especially in terms of Hyperbaric Oxygen Therapy. Not only is Hyperbaric Oxygen Therapy under serviced, it is also under represented when it comes to access to available facilities. Between hospitals, private service providers, and research facilities that focus on Hyperbaric Oxygen Therapy, Ontario has 12 facilities although all of them are located in Eastern Ontario yet Northwestern Ontario has the highest per capita incidence of foot amputation.

The First Nations have brought together local partners from both within the health care sectors, and outside the health care sectors, to achieve the above goal. The list of partners is as follows:

1. Rainy River First Nation
2. Naicatchewenin First Nation
3. Couchiching First Nation
4. Riverside Health Care
5. Fort Frances Tribal Area Health Services
6. Gizhewaadiziwin Health Access Centre
7. Saulteaux Consulting & Engineering
8. Pwi-Di-Goo-Zing Na-Yaa-Zhing Advisory Services
9. New Gold
10. Cennex (US Gas)
11. Judy Dan Research & Treatment Centre
12. Local physicians

Each partner is willing to assist in the project's development as well as to contribute to it financially and through in-kind contributions. The partners have also agreed, in principle, to the pooling and sharing of resources, to creating synergies, to exchanging information and to fund raising.

This project consists of establishing a Centre of Excellence for Wound Care and Limb Preservation through a holistic care approach dealing with morbidity and co-morbidities first, and wound care second, with a special focus on Hyperbaric Oxygen Therapy. The facility has a capital cost of $1.7 million with an annual operating cost of $420,000. Further specific details are provided in this proposal. All 3 First Nations have made a financial commitment of $200,000 each and are exploring other major financial contributions through Pwi-Di-Goo-Zing Na-Yaa-Zhing Advisory Services and New Gold and this has been successful.

[1] http://www.ontariowoundcare.com/treatment.htm - http://www.huffingtonpost.ca/dr-ron-linden/oxygen-therapy-diabetes_b_11219056.html Based on Dr. Ron Linden's article.

Rainy River First Nation, Naicatchewenin First Nation and Couchiching First Nation are approaching Health Canada to provide matching funds to moneys raised for this initiative.

2.0 BACKGROUND INFORMATION – SITUATIONAL ANALYSIS

Aboriginal people living in Canada are among the highest risk population for diabetes and related complications. Community-based and culturally appropriate prevention strategies and surveillance of diabetes indicators among this high-risk population are essential to reducing health disparities.

Table 1: Diabetes Prevalence[2]

Population	Age	Prevalence %
Non-Aboriginal	12+	5.0
First Nations (on-reserve)	18+	17.2
First Nation (off-reserve)	12+	10.3

Aboriginal people with diabetes also experience disparities in diabetes-related complications and mortality. Higher prevalence rates of microvascular disease, including chronic kidney disease, lower limb amputation, foot abnormalities, and more severe retinopathy, are found in Aboriginal peoples with diabetes than in the general population with diabetes. Aboriginal peoples also are burdened by higher rates of macrovascular disease and exhibit higher rates of cardiometabolic risk factors, including smoking, obesity, and hypertension, that may indicate a future increase in cardiovascular morbidity and mortality.[3]

The Aboriginal population in Canada is approximately 4%. In the Rainy River District the First Nation population accounts for 33%.

Table 2: Canadian Population

Canada	#	%
Population	33,476,688	100.00
Aboriginal Population	1,400,685	4.2

Source: Stats Canada 2011 NHS

Table 3: Ontario Population

Ontario	#	%
Population	12,851,821	100.00
Aboriginal Population	301,430	2.35

Source: Stats Canada 2011 NHS

Table 4: Rainy River District Demographics (First Nation population)[4]

Rainy River District	#	%
Population	20,370	100.00
Registered First Nation person	6,735	33.06

[2] http://www.phac-aspc.gc.ca/cd-mc/publications/diabetes-diabete/facts-figures-faits-chiffres-2011/index-eng.php
[3] http://guidelines.diabetes.ca/browse/chapter38
[4] http://www.rrfdc.on.ca/sites/default/files/FF%20Demographic%20Profile%20Nov%202014.pdf

Based on the above demographics there is a higher prevalence of people with diabetes and diabetes-related complications in the Rainy River District. Grand Council Treaty #3 represents the 28 signatories to the document known as Treaty Number 3 signed on Oct 3, 1873. The Treaty Number 3 area covers 55,000 sq. miles with a population of approximately 25,000 members, almost half of these members live on First Nation reserves.

Diabetes, unfortunately, is a systemic disease that can affect many organs of the body, including eyes, kidneys and skin. Diabetics are especially prone to develop changes in the large and small blood vessels supplying the heart and legs, as well as the nerves, particularly those of the feet. In addition, diabetic nerve damage, called peripheral neuropathy, often reduces sensation in the feet putting them at greater risk for injury and infection, which may be difficult for the diabetic to recognize early on. People with high-risk feet require special self-care and professional attention. Feet of diabetics and those with poor circulation are most at risk, as are feet with arthritic deformities (rheumatoid and psoriatic arthritis, osteoarthritis and gout). Almost all open and closed sores, as well as thickened skin and ingrown nails, are due to compression by footwear in conflict with an abnormal foot structure or biomechanics.

Figure 1: Chronic Wound

Chronic Diabetic Wounds - Diabetes Mellitus damages the nerves in the feet resulting in a loss of sensation. Minor skin abrasions and cuts on the feet can occur without pain or without the patient's awareness. Diabetes also damages and blocks blood vessels, particularly small vessels in the feet, resulting in poor circulation and reduced oxygen supply. Without adequate blood supply and oxygenation, the cells that repair wounds and fight infection cannot function. Minor abrasions and cuts can become chronic, infected wounds. Once infection reaches bone, amputation of the limb often results.

The prevalence of diabetes in the North West LHIN (Local Health Integration Network) is higher than that of the province at 14.5 per cent of the population age 18 years and over, compared to 12.4 per cent provincially according to the Ministry of Health and Long-Term Care. The people of Northwestern Ontario report poorer health practices than the population of the province as a whole. With a poorer health status and aging population, the North West LHIN is expected to face growth in the prevalence of diabetes and subsequent demand for health services. Both hospitalization rates for people in the North West LHIN living with diabetes and the diabetes related amputation rate are more than double the provincial average.[5]

Table 5: Facts and Stats from the North West LHIN

Facts and Stats	%	Facts
Canadian Population diagnosed with Diabetes	20%	
Expected to grow to by 2020	25%-30%	
North West LHIN Canadian Population diagnosed with Diabetes	33.3%	
Heart disease		3 times more likely
Renal disease		12 times more likely
Limb ulcers and require amputation		20 times more likely
Amputations/100,000 population/year		44
Based on Northwestern Ontario's population		99.3
Home care cost/person/year for diabetic foot ulcers		$15,000

[5] http://www.healthsciencesfoundation.ca/article/north-west-lhin-launches-new-regional-diabetes-plan-32684.asp

Leg Amputation – surgery cost per person		$65,000
Leg Amputation – long term cost per person		$350,000
North West LHIN yearly cost		$42,700,000

In North America, the most common cause of leg and foot amputation is infection or gangrene in a diabetic foot. Most of these are caused by improperly fitting footwear, injury while walking barefoot or poor nail care. With proper foot-care, special footwear, and safety measures, the vast majority of amputations would be preventable.

The human cost of this disease can be summarized as follows:

- 2 million Canadians have Diabetes Mellitus (6% of the general population, 20% of the population over 70 years of age, and 30% of the native population).
- 200,000 Canadians (15% of diabetic patients) will develop leg or foot ulcers in their lifetime as a consequence of their disease.
- 14 – 24 % of patients with diabetes and leg or foot ulcers will require amputation.
- Diabetes is the leading cause of non-traumatic leg amputations in Canada.
- Of those, 50% have an amputation of the other leg within 5 years due to the chronic effects of their disease.
- The majority of diabetic patients who suffer double amputations die within 6 months of the second amputation.
- Canada spends $1.5 billion on direct costs of diabetic amputations.
- With our aging population, these numbers are expected to double.
- The majority of diabetic patients who suffer double amputations die within 6 months of the second amputation.

Hyperbaric Oxygen Therapy (HBOT) is a well-established medical treatment. Hyperbaric oxygen therapy is the inhalation of 100 percent oxygen inside a hyperbaric chamber that is pressurized to greater than 1 atmosphere (atm). HBOT causes both mechanical and physiologic effects by inducing a state of increased pressure and hyperoxia. The treatment is recognized and approved by Health Canada for its enhancement of healing for wounds such as diabetic foot ulcers. This treatment isn't being offered in Northwestern Ontario.

There are 50 Hyperbaric Oxygen Facilities in Canada. **Table 6 and 7** illustrates their location and their type.[6]

Table 6: Location and Type of Hyperbaric Oxygen Facilities in Canada

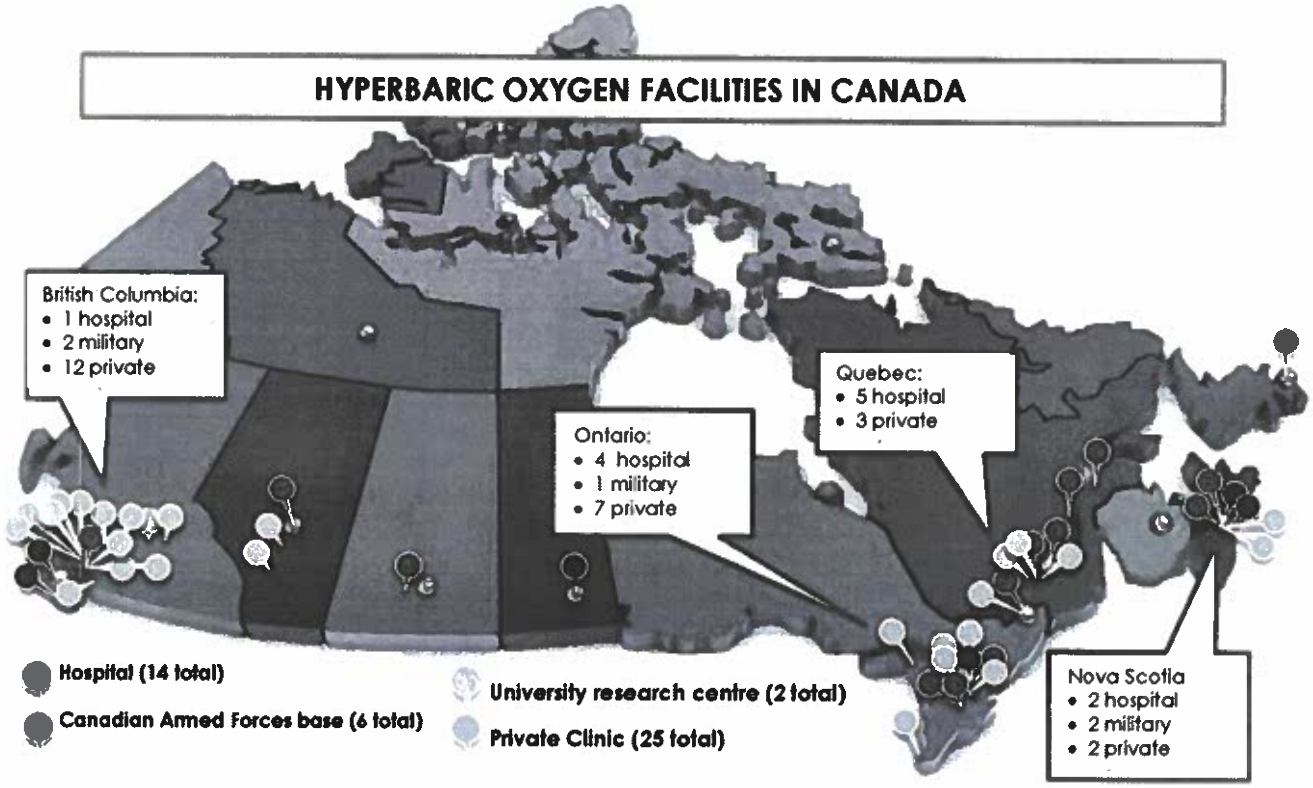
Type	BC	MB	NS	ON	AB	NL	QB	SK	Total
Canadian Forces	2	1	2	1	0	0	0	0	**6**
Hospitals	1	0	2	4	3	1	4	1	**16**
Private	13	0	2	7	2	0	2	0	**26**
Research	1	0	0	0	0	0	1	0	**2**
Total	**17**	**1**	**6**	**12**	**5**	**1**	**7**	**1**	**50**

[6] http://www.nlcahr.mun.ca/CHRSP/HBOT_in_Canada.pdf

Table 7: Location and Type in Ontario

Type	Location
Canadian Forces	Toronto
Hospitals	Hamilton
	Hamilton
	Ottawa
	Toronto
Private	Ottawa
	Toronto
	Toronto
	Tecumseh
	Elmira
	Tobermory
	Port Credit

In the USA, there are more than 800 centres and the service is covered by Medicare and Medicaid, while in Japan there are more than 600 centres.



2.1 Background Information – Understanding Hyperbaric Therapy

What is Hyperbaric Oxygen Therapy?

Hyperbaric oxygen therapy is a medical treatment that enhances the body's natural healing processes by inhalation of 100% oxygen in a total body chamber where atmospheric pressure is increased and controlled. It is used for a wide variety of treatments usually as part of an overall medical care plan. Under normal circumstances, oxygen is transported throughout the body only by red blood cells. With HBOT, oxygen is dissolved into all of the body's fluids, the plasma, the central nervous system fluids, the lymph, and the bone and can be carried to areas where circulation is diminished or blocked. In this way, extra oxygen can reach all of the damaged tissues and the body can support its own healing process. The increased oxygen greatly enhances the ability of white blood cells to kill bacteria, reduces swelling and allows new blood vessels to grow more rapidly. It is a non-invasive treatment.

Health Canada recognizes HBOT as an effective treatment for 13 specific conditions. These conditions are listed below as:

1. embolisms (air or gas bubbles in the bloodstream, which may travel to the brain or lungs);
2. carbon monoxide poisoning (from inhaling smoke or car exhaust);
3. gas gangrene;
4. crush injury, Compartment Syndrome and other acute traumatic problems where blood flow is reduced or cut off (e.g., frostbite);
5. decompression sickness (the bends);
6. enhancement of healing for wounds such as diabetic foot ulcers;
7. exceptional blood loss (anemia);
8. intracranial abscess (an accumulation of pus in the brain);
9. necrotizing soft tissue infections (flesh-eating disease);
10. osteomyelitis (bone infection);
11. delayed radiation injury (e.g., radiation burns that develop after cancer therapy);
12. skin grafts and flaps that are not healing well; and
13. thermal burns (e.g., from fire or electrical sources).

Figure 2: Hyperbaric Oxygen Chamber Example

Why Hyperbaric Oxygen Therapy?

Hyperbaric oxygen therapy can expedite the healing of certain types of chronic, non-healing wounds, such as diabetic wounds, as well as reduce patient suffering, disability and prevent unnecessary hospitalizations and amputations.

Initial studies have shown that Hyperbaric Oxygen Therapy combined with proper wound care, adequate nutrition, and control of the diabetes, have resulted in a 75% to 90% success rate in healing chronic non-healing wounds, thus avoiding amputation.

In addition to the severe emotional impact of the loss of a leg, these patients frequently become permanently disabled, wheelchair-bound or bedridden, losing their independence and requiring considerable social services including long, costly hospitalizations. It is estimated that only 40 – 50% of senior amputees ever become fully rehabilitated.

How Does Hyperbaric Oxygen Therapy Work?

It involves administering 100% oxygen to patients in a specially constructed chamber. The atmospheric pressure is increased two to three times normal for 90 minutes per session. At sea level, the atmospheric pressure is at approximately 14.7 pounds per square inch, know as 1 atmosphere absolute (ATA). The use of 100% oxygen at 2 to 3 ATA of pressure during treatment helps get more oxygen to the tissues. This has the effect of:

- Quadrupling the oxygen concentration of the patient's blood
- Saturating the wound with oxygen, and
- Enabling cells to function that fight infection and repair wounds.

This oxygen saturation lasts for up to two hours after completion of the treatment in the chamber. The number of treatments varies from 1-5 (in acute conditions) to 60 (for chronic diseases). Treatment is repeated daily, for an average of thirty times or based on treatment plan.

Benefits of Hyperbaric Oxygen Treatment

By placing someone under pressure in a hyperbaric environment, there is an increase in the gas pressure forced into the lungs. This increase in gas pressure, increases the partial pressure of the oxygen gas, and thus forces more oxygen to be dissolved in the plasma. This saturation of oxygen in the blood allows the extra oxygen to be diffused or transported to the surrounding body tissues promoting a healthy, healing environment for the body. Additionally, it can increase the effectiveness of some antibiotics and stimulate new blood vessel growth to increase circulation in areas of poor circulation.

Figure 3: Before and After HBOT

The Safety of Hyperbaric Chambers

Hyperbaric chambers are medical devices and require a licence from Health Canada. Before granting a licence, Health Canada experts review technical information to ensure that the medical device is safe and effective when used for specific conditions.

Health Canada has reviewed the scientific evidence related to hyperbaric chambers. The evidence shows that chambers are effective in treating the 13 conditions recognized by the Undersea and Hyperbaric Medical Society. Therefore, Health Canada has issued medical device licences for hyperbaric chambers to treat only these 13 conditions. No device licences have been issued for the use of hyperbaric chambers to treat other conditions.

3.0 STATEMENT OF THE PROBLEM

Wound care in Northwestern Ontario is fragmented for the following reasons:

- Inconsistent wound care between doctors and other health care providers.
- Fragmented liaison with specialist due to multiple providers, no true/consistent pathway of care.
- Best Practices Guidelines either unknown or rarely followed.
- Clinician knowledge in advance practice wound care and adjunctive treatment. Little knowledge about proper wound care. Lack of proper diagnostic tools, leading to delay in appropriate care.
- Time of referral and distance to specialist.
- 4 to 5-hour drive just for an assessment.
- Advanced modalities 20+ hours away.
- Lack of advanced treatment procedures.
- Lack of holistic approaches.
- Inconsistent knowledge in dressing products and uses.
- Lack of appropriate supplies and resource.
- No team approach to a problem that affects a large percentage of our area. Care is fragmented and communication is inconsistent.

Considering the above, why is Hyperbaric Oxygen Therapy not being implemented and used in Northwestern Ontario, especially when both the economic and health benefits that it provides are high.

Hyperbaric oxygen therapy is not an expensive treatment. Other than the initial cost of the chamber, expenses are physician supervision and technical costs (support staff to operate the chamber, oxygen, chamber maintenance, etc.). In Ontario, the Ministry of Health recognizes hyperbaric oxygen therapy as an "essential medical treatment" for the thirteen internationally recognized conditions and pays physicians to supervise the treatment.

The Ministry of Health does not fund the capital costs or technical and operational expenses of providing hyperbaric oxygen. Hospitals providing hyperbaric oxygen therapy must fund the technical costs from their global budgets. Such funds are limited and as a result, very few diabetic patients are able to access this treatment.

In Canada, laws prohibit patients from paying for "essential medical treatment" themselves, leaving most diabetic patients no choice other than to undergo amputation when standard wound care fails. Most patients with diabetic wounds have been disabled for considerable time and do not have the health or financial resources to obtain this treatment in other countries. **The cost to provide hyperbaric treatment to a patient and save a leg from amputation is approximately $3,000 - $4,000. This is much less than the cost of amputation, or an artificial leg.**

According to Dr. Nancy Dudek, who works at the Ottawa Hospital Rehabilitation Centre, a single leg prosthetic for below the knee can cost $15,000.[7] Ontario pays more than $100 million per year to amputate the feet of diabetics. Only two small groups of diabetics in Ontario get public coverage -- the RCMP and federal inmates. The lack of coverage hits hardest where diabetes and poverty are

[7] http://www.metronews.ca/news/ottawa/2013/08/02/ontario-amputees-face-steep-financial-obstacles-to-rehabilitation.html

widespread. Amputations are nearly twice as prevalent in northwestern Ontario, where the disease afflicts up to half the people in some First Nations communities.[8]

According to The First Nations and Inuit Health Branch (FNIHB) the cost for a person from our region to stay in Toronto for treatment roughly amounts to the following:

Flight =	$ 1,500.00
Hotel @ 130/day for 8-10 weeks =	$ 7,280.00 - $9,100.00
Meals @ 50/day =	$ 2,800.00 - $3,500.00
Return transportation treatment @ $400.00 per week =	$ 3,200.00 - $4,000.00
Additional cab fare for testing at other facilities	$ 500.00
Total (8-10 weeks of treatment)	**$15,280.00 -$18,600.00**

The above cost does not account for the cost of being away from family or wages lost.

One would think that if Canadian diabetics are losing feet and legs at an alarming rate every year and despite a growing body of scientific evidence which shows that a treatment already available can potentially prevent amputation in about 75 per cent of cases, why not support and fund this type of therapy.

Figure 4: Assistance with Prosthetic Device

[8] http://www.torontosun.com/2015/05/18/ontario-wont-pay-for-diabetics-limb-saving-devices

4.0 THE ECONOMICS OF PREVENTION AND PRESERVATION

Based on the numbers provided by the North West LHIN and the benefits and effectiveness of advanced wound care and Hyperbaric Oxygen Therapy one would only come to the conclusion to support and fund this type of initiative. The benefits to the patient and the cost saving to the health care system would be substantial.

Assuming that each amputee costs the North West LHIN approximately $430,000 and that the capital cost of the Northwestern Ontario Wound Care Centre Excellence is estimated at $1,700,000, the payback in terms of displacing patients from amputation would be four (4). The same reasoning would apply to the yearly operating cost of the Centre of Excellence; displacing one patient from amputation per year would cover this cost.

Are these numbers achievable? One would think so, especially when scientific evidence shows the potential of preventing amputation is in the 75% range.

Figure 5: Stages of healing process with HBOT treatment

58 year old gentleman with a history of Diabetes Mellitus. Presented with poor healing wound (Left leg). Received 30 sessions of HBOT.

5.0 WOUND CARE IN THE REGION

When it comes to wound care in our Region, we are not well prepared or equipped and we are plagued by other issues. As much as health care should be patient centred and health care near to home, when it comes to diabetic foot ulcer (DFU) we fail at both.

Physicians do not know where to refer and patients do not know where to go. Health care organizations work in silos and communication gaps between these organizations often affect patients. Very few patients receive modern or adequate care and most are not treated at a wound care centre. For those who are, they need to travel far distances, be away from their families for extended periods and incur major costs. Standard treatment consists usually of the use of iodine and gauze with various wound dressings. Many patients are told, "When the wound turns black amputate".

Our district has few very skilled and trained clinicians in this field. We need to utilize these trained clinicians under one roof in combined knowledge of existing resources and deliver client centred, best practiced based care coordinated out of a single site.

Diabetic wound healing requires a multidisciplinary approach and the creation of a Centre of Excellence with the focus on limb preservation. The Centre of Excellence would:

1. Provide treatment with "Advanced" technologies;
2. Specialize in wound care and hyperbaric oxygen treatment;
3. Have access to surgeons (vascular, plastic and orthopedic);
4. Have access to internists (endocrine and infectious disease);
5. Have access to wound care nurses;
6. Provide diabetic education and nutritional counseling; and
7. Ensure the offloading of wounds.

Figure 5: Multidisciplinary Approach

6.0 PROJECT DETAILS

It is the belief of Rainy River First Nations, Naicatchewenin First Nation and Couchiching First Nation that a Northwestern Ontario Wound Care Centre be developed as a Centre of Excellence with a goal to holistic care and limb preservation. The proposed Centre of Excellence will be located in Emo, Ontario half way between Moosejaw Saskatchewan and Toronto, Ontario. The facility will host three Hyperbaric Chambers and is comprised of a series of treatment rooms. This facility will be available to both status and non-status individuals both locally and within the region. **Appendix "A" provides drawings of the facility.**

Our Mission is

"To improve the quality of life of those suffering from diabetic related complications by healing wounds and preventing amputations using the highest quality wound care therapy."

Our Goals and Objectives are

- Using Hyperbaric Oxygen Therapy to enhance the body's natural healing process;
- Development of clinical pathway to expedite care;
- Educate family, peers and practitioners;
- Utilize trained clinicians under one roof in combined knowledge of existing resources and deliver client-centred, best practices based care coordinated out of a single site.
- Utilizing our regions strengths and current resources in a focused approach to client care
- Address co-morbidities focus on "treat the cause" and "prevent the wound"
- Utilizing high caliber diagnostics to insure only those who need to be seen by specialists are seen and seen in an expedited manner (SPP, PVR, tCo2)

Our Clientele

For those suffering of diabetic foot ulcers and need of wound care healing as well as those suffering for the other 12 specific conditions recognized by Health Canada as listed above. Our services will also be extended to residents outside of Northwestern Ontario.

Method

As described above.

Staff/Administration/Personnel

Table 8 illustrates the human resources to run the facility and provide wound care.

Table 8: Human Resource Requirements

Positions	Total
RPN – Wound Care professional	$75,000.00
HBOT tech or combines with 2.5 professional staff PT	$100,000.00
Receptionist	$30,000.00
Facility Manager/HBOT	$40,000.00
Total	**$245,000.00**

Available Resources

The First Nation's have initiated a working relationship with the Judy Dan Research & Treatment Centre[9] of Toronto that specialized in treatment of patients with chronic non-healing wounds (primarily diabetic

[9] http://www.ontariowoundcare.com/index.htm

wounds), research and teaching. Their mentorship, expertise, education programs and research capacity will be extended to the Northwestern Ontario Wound Care Centre of Excellence. Their professional staff will also assist in program development and provide guidance in the early stages of the Northwestern Ontario Wound Care Centre of Excellence. Knowledge transfer and sharing of resources will also be provided to ensure that the project exceeds the expectations.
The Rainy River First Nations, Naicatchewenin First Nation and Couchiching First Nation have also engaged local First Nation and non-First Nation health care organizations and providers to partake to this initiative and are exploring the pooling and sharing of resources that can be dedicated to this project. It is expected that these contributions will be in-kind.

With regards to financial resources, all 3 First Nations have made a $200,000 commitment and have other financial commitments from New Gold and Pwi-Di-Goo-Zing Na-Yaa-Zhing Advisory Services. Other fund-raising efforts are on the go and it is hoped that Health Canada will match all funds raised. **Table 9** illustrates the expected revenues from all sources for the capital cost of the project.

Table 9: Expected Revenues

Revenues	Confirmed	Total
Rainy River First Nation	Yes	$200,000.00
Naicatchewenin First Nation	Yes	$200,000.00
Pwi-Di-Goo-Zing Na-Yaa-Zhing Advisory Services	Yes	$200,000.00
New Gold (verbal commitment)	Yes	$200,000.00
Couchiching First Nation	Yes	$200,000.00
Cennex (US Gas)	Yes	$10,000.00
Other fund-raising efforts	No	$0.00
Total		**$1,010,000.00**
Request to Health Canada/LHIN (44.44%)	No	$790,000.00
Total		**$1,800,000.00**

The group will also explore a grant program offered by the Lions Clubs International Foundation. The grant program is specific for these types of projects and is called "Core 4 Diabetes Grant Program".

Capital Cost

Table 10: Capital Cost

Capital	Total
Building	$499,800.00
Building Install	$120,000.00
Building Permits	$10,000.00
Site Servicing Cost	$125,735.50
Furniture	$30,350.00
Hyperbaric Chambers (3)	$357,441.50
Other Equipment Required for Operations	$313,005.69
Install cost on Medical Equipment	$60,000.00
Zoning and Legal	$15,000.00
Land	$80,000.00
Engineering	$65,000.00
Misc.	$30,000.00
Total	**$1,706,332.69**

Operational Cost

Table 11: Operational Costs

Operations	Total
Education	$23,238.50
Staff	$245,000.00
Supplies	$31,100.00
Property Taxes	$15,000.00
Administrative Costs (Copier, accounting, etc.	$23,000.00
Maintenance and Janitorial	$12,080.00
Utilities	$8,400.00
Equipment Reserve	$89,394.96
Total	**$447,513.46**

Details are provided in Appendix "B".

Equipment/Supplies

Table 10 and 11 illustrate the general cost of equipment and supplies. For further details, please see **Appendix "B"** for detailed project costing. **Table 12 and 13** provide a detail on the equipment that is available for the project and that still needs to be purchased. HBOT training has been purchased and currently being completed for 3 HBOT technicians.

Table 12: Available Equipment

#	Available Equipment
1	**Moleculight** -this piece of equipment can determine the type of bacteria growing in a wound with a picture from this piece of equipment.
2	**DermaTemp Scanners** – this piece of equipment determines the increase in skin temperature, it can also indicate an infection before any other symptoms are visible.
3	**Hand Dopplers** - determines vascular flow to the foot (low level testing).
4	**Sensilase** - determines Skin Profusion Pressures and Pulse Volume recording (high level vascular testing).
5	**VersaLab LE** (higher level doppler than hand held).
6	**Silhouette camera** - documents exact depth, width and length of a wound and calculates volume. Much more accurate and indicates whether or not a wound is progressing or digressing in a very short period of time.
7	**DCA Vantage analyzer** – point of care A1C- measures average Blood sugar for last 3 months in less than 7 minutes with a finger poke sample.
8	**Hgb analyzer** - cannot heal a wound without adequate Hemoglobin, measure this in less than 30 seconds with a finger poke sample.
9	**Polymem dressings**

Table 13: Equipment to be Purchased

#	Equipment Still Required	#	Equipment Still Required
1	FScan VersaTek wireless in shoe measurement System	12	Bariatric chairs
2	3 PAH Monoplace HBOT Chamber	13	Procedure carts
3	tcpO2 analyzer	14	Washer/dryer
4	Pulmonary Function test machine	15	Storage carts for supplies
5	Auto BP machines	16	Autoclave (footcare)
6	Camera for plain wound documentation	17	Ultrasonic cleaner (footcare)
7	AED	18	Foot care tools
8	12 lead ECG	19	Total contact casting supplies
9	Coaguchek	20	Computers
10	Arobella Wound irrigation system	21	Server
11	Scale	22	Printer/copier/fax

In Kind Contributions

Saulteaux Consulting and Engineering are contributing in-kind the design of the facility along with any additional engineering support required. Total design and inspection costs on this type of building amount to 8% of the building cost. Riverside Health Care and Fort Frances Tribal Area Health Services and Gizhewaadiziwin Health Access Centre have all offered in kind contributions of their services. Local contractors and District Government Groups have also committed in-kind contributions.

Budgets

Table 14: Capital Budget

Revenues	Comments	Totals
Revenues from all Sources	As per Table 9	$1,800,000.00
Other		$0.00
Total Revenues		**$1,800,000.00**
Expenditures		
Capital Expenses	As per Table 10	$1,706,332.69
Other		$93,000.00
Total Expenditures		**$1,799,332.69**
Surplus/(Deficit)		**$667.31**

Table 15: Operational Budget

Revenues	Comments	Totals
Revenues from all Sources	Pending	
Other		
Total Revenues		
Expenditures		
Operational Expenses	As per Table 11	$447,513.46
Other		$0.00
Total Expenditures		**$447,513.46**
Surplus/(Deficit)		

Communications

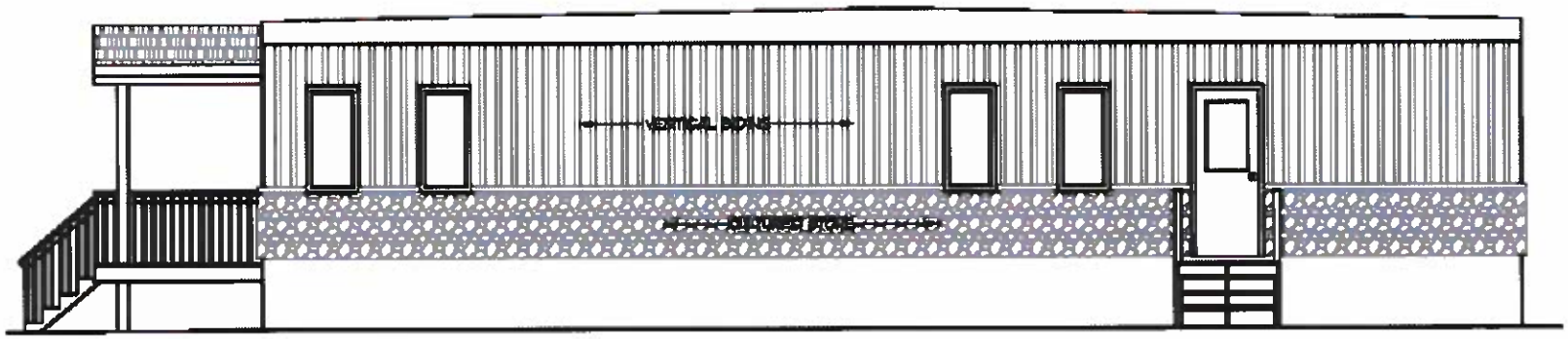
A communication plan among all partner will be develop and implemented as the project progresses.

Evaluation and Governance Plan

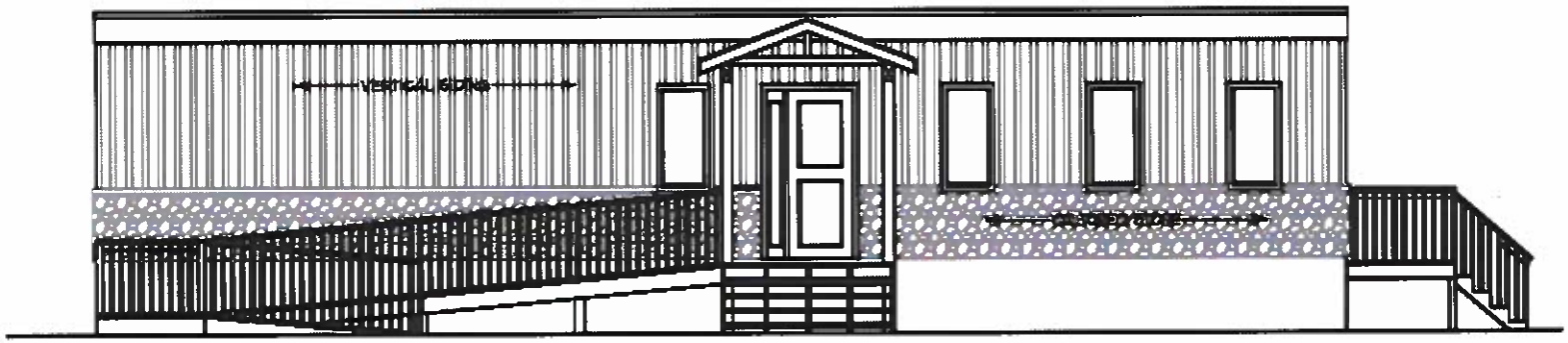
The project will be evaluated on a quarterly basis and a series of performance indicators will be developed for each quarter or a combination of quarters. These performance indicators will be developed by management to evaluate both service delivery and financial performance.

A Governance Plan will also be developed and implement once the project is confirmed for funding.

Appendix "A"
Facility Drawings



SIDE ELEVATION
SCALE: 3/16" = 1'-0"



FRONT ELEVATION
SCALE: 3/16" = 1'-0"

MARK	DESCRIPTION	DATE

REVISION RECORD

SAULTEAUX CONSULTING & ENGINEERING

SITE 3694-3671 RR22
FORT FRANCES, ONTARIO
FILE #13
1-807-274-7114

SCE

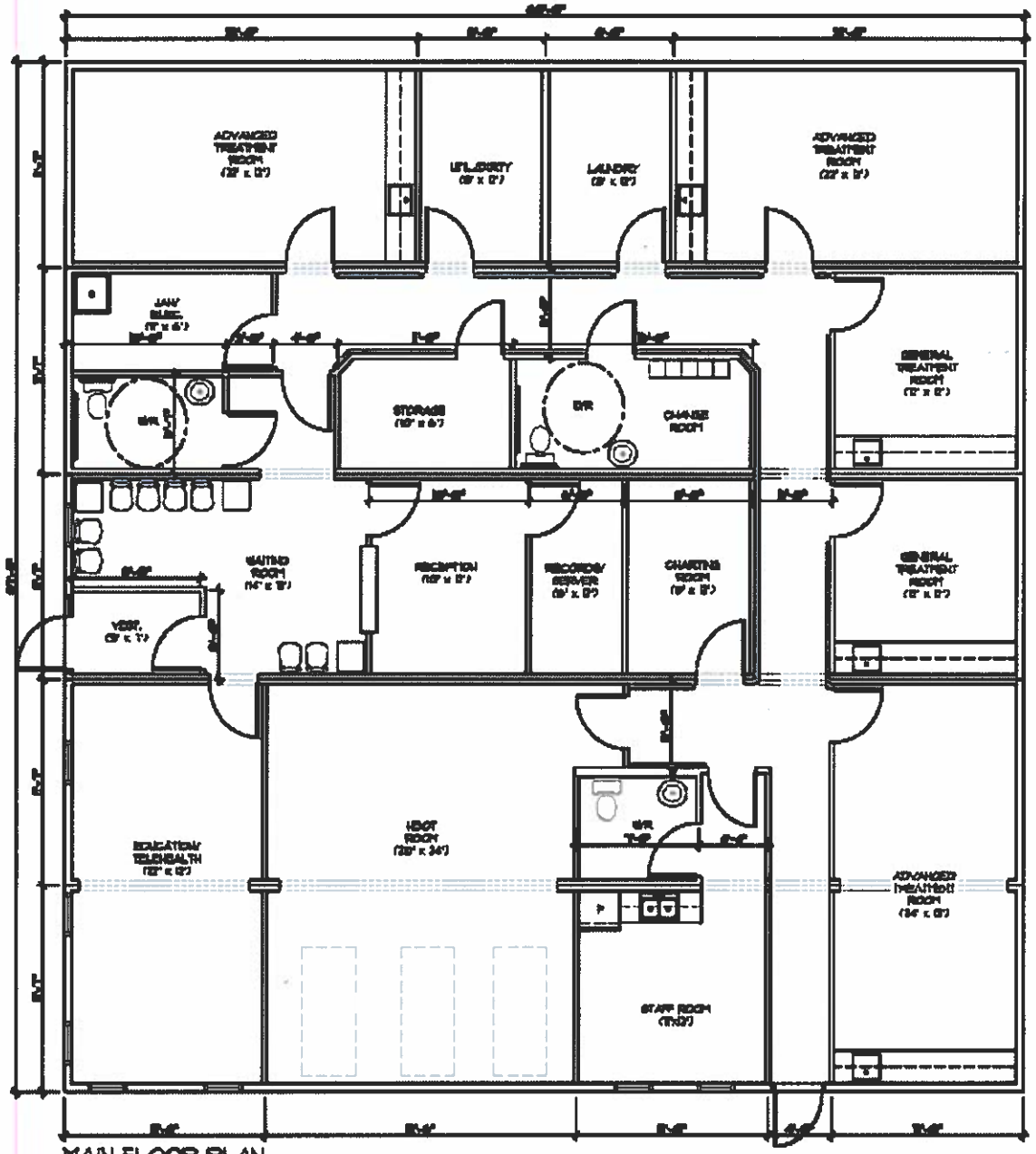
DRAFT

BCIN: 43281

SHEET TITLE: BUILDING ELEVATIONS

PROJECT TITLE: RAINY RIVER FIRST NATIONS WOUND CARE CENTRE

DRAWN BY	DATE
TKD	07/04/19
CHECKED BY	PROJECT NO.
SEP	-
SHEET NO.	REVISION
2	-



MAIN FLOOR PLAN

SCALE: 1/8

MARK	DESCRIPTION	DATE

REVISION RECORD

BAULTEAUX CONSULTING & ENGINEERING

SITE 206-207 RR3
FORT FRANCES, ONTARIO
P9A 3T3
1-807-274-1714

SCE

DRAFT

BCIN: 43281

SHEET TITLE: FLOOR PLAN

PROJECT TITLE: RAINY RIVER FIRST NATIONS WOUND CARE CENTRE

DRAWN BY: TKD

DATE: 08/04/19

CHECKED BY: DB

PROJECT NO.: -

SHEET NO.: 1

REVISION: -

Appendix "B"
Detailed Project Costing