Guidance for Service Planning and Detailed Proposal: A Functional Conditions Care Network in Nova Scotia

Working Group for Functional Conditions, September 30, 2018

SECTION 1: BACKGROUND

We are pleased to provide this proposal for an integrated care network for Functional Conditions. The work is a product of 20 years of collaboration, clinical care, teaching and research plus the product of a working group of people as follows:

Sam Campbell: Chief of QEII HSC Emergency Department
Greg Archibald: Head, Department of Family Medicine, Dalhousie University
Allan Abbass: Centre for Emotions and Health.
Angela Cooper: Psychology Family Medicine,
Brock Vair: Surgery,
David Lovas: Pediatric Psychiatry,
Heather Hunter: Family Medicine Resident,
Joel Town: Psychology, Emergency Department,
Kevork Peltikian: Gastroenterology,
Lay Consultants: Alan Hill, John Forsyth, Sara Ramsay, Kim Hawes
Lorne Marsh: Family Medicine Private,
Michelle Karris: Physiotherapy,
Neal Henderson: Mental Health and Addictions,
Nikki Kelly: Nursing, QEII Emergency Department
Rachel Boehm: Mental Health and Addictions,
Roger McKelvey: Neurology,
Ryan Wilson: Neuropsychology and Emergency,
Scott Milligan: Psychiatry Cape Breton,
Steve Kisely: Community Health and Epidemiology/Psychiatry,
Volodko Bakowsky: Rheumatology

Thanks to Jeris Abbass from NSHA who assisted us with the Business Case and related documents.

Beyond the work of this group, consultations and /or meetings with over 40 people within and outside of the health system and government influenced this document.

These include, among others:
David Anderson: Dean of Medicine, Dr Mike Fleming: Asst Dean Continuing Medical Education, Dr Jennifer Hall: Asst Dean Undergraduate Medicine, Manoj Vohra: Medical Chief WCB NS, DRS NS Primary Care Group, Dr Alban Comeau: DRSNS, Dr David Petrie: Chief of Emergency, Dr Robert Strang: Chief of Public Health, Katrina Philopolous: Provincial Manager, Health Safety and Wellness, Tom MacNeil: Director Health, Safety and Wellness, NSHA, George McPhail: Manager, Compensation & Benefits, NSHA, Dr Barb O'Neill, DRS NS, Dr Craig White, Family Physician, Dr Tom Marrie: Interim VP Research, Innovation & Knowledge Translation, NSHA, Dr Stan Kutcher: IWK, Starr Cunningham Mental Health Foundation of NS, Minister's Innovation Committee, Joanna Zed: Family Medicine, Dr Ian Grant: Chief Neurology, Catherine Meaney: Department of Community Service, Dr Rod Wilson, Barb O'Neil DRSNS, Andrew Harris: Chief of Medical Staff: Mental Health and Addictions, Sonia Chehil: Acute Care Psychiatry, Greg Bailley: Urology, NSHA, Dr Lynne Harrigan: Chief of Medical Staff, Steven Carrigan: Decision Support, Dr

Mary Lynch: Pain Management, Darren Steeves: Vendura Wellness, Dr Tim Kent Primary Care NHS U.K., Dr Chris Burton Primary Care Sheffield University UK, Dr Jurgen Margaf, Ruhr University, Germany, Dr Pat McGrath: Strongest Families, Dr Christina Feltz, Netherlands, Dr Arno Goudsmit, University Maastrict, Netherlands, Dr Steve Allder: Neurology UK, Sandra Janes: Choosing Wisely, Ahya El Darahali: Choosing Wisely, Tara Sampalli: Mental Health and Addictions, Dr Ken West Central District Chief of Medical Staff, Dr Ian Slayter: Psychiatrist, Antigonish. Hugh Maguire: Psychiatrist Truro, Chief of Medical Staff Amherst, Financial Advisor from Province, Noel Pendergast: Health Professions Dalhousie University, James McLachlan: Medical Chief New Glasgow, Brenda Payne: Director Health Services New Glasgow, John Gribbin: Curables Apps, Directors of Health, Dr Howard Schubiner Wayne State University, and Chiefs Medical Staff: Kentville, Yarmouth and Sydney, and several members of the public who replied to media.

Media efforts have provided some public education about FC and brought feedback from the public:

CBC Radio Interview: June 2018: A possible way to cut the costs of medically unexplained physical symptoms and help patients

CIOE Radio Interview: with Al Hollingsworth, September, 2018

Globe and Mail Article Pending: Erin Anderssen

Herald Article Pending: October 2018

Website: www.nshealth.ca/mus

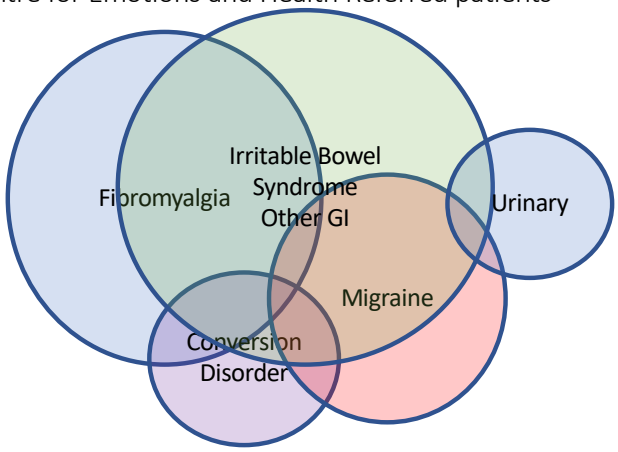
SECTION 2: WHAT ARE FUNCTIONAL CONDITIONS?

Functional Conditions (FC) are persistent bodily complaints for which medical examination and investigation does not reveal sufficiently explanatory structural or other specified pathology. The group of syndromes called psychophysiologic disorders, which may have a defined physical pathology but are highly responsive to emotionally focused treatments are included in this group. A person can have FC alongside a structural organic illness such as cancer or multiple sclerosis making detection and management more difficult.

FC are common, with a spectrum of severity, and patients with FC are found in all areas of the healthcare system. Patients with FC are sometimes more likely to attribute their illness to physical causes, rather than emotional or behavioral factors. FC may include symptoms such as pain in different parts of the body, functional disturbance of organ systems and symptoms of fatigue or exhaustion. Patients with a combination of symptoms will often present to primary care or emergency departments seeking appropriate treatment. This usually results in a referral to a relevant medical or surgical outpatient department for further investigation. People with FC average 25 years of untreated symptoms making this the most common untreated chronic medical condition.

Common examples of symptoms that can present as FC include fibromyalgia, irritable bowel syndrome and headaches. Given the wide-ranging symptoms that can occur, patients have high rates of access to a number of outpatient departments. On average, 52% of patients accessing outpatient medical services in one UK study have FC. Moreover, people with one of these symptoms usually have 2 or more of the other symptoms: See Figure 1 for Nova Scotia data on comorbidity.

Figure 1: Overlap of Somatic Symptom Presentations NS Data
N=890 Centre for Emotions and Health Referred patients

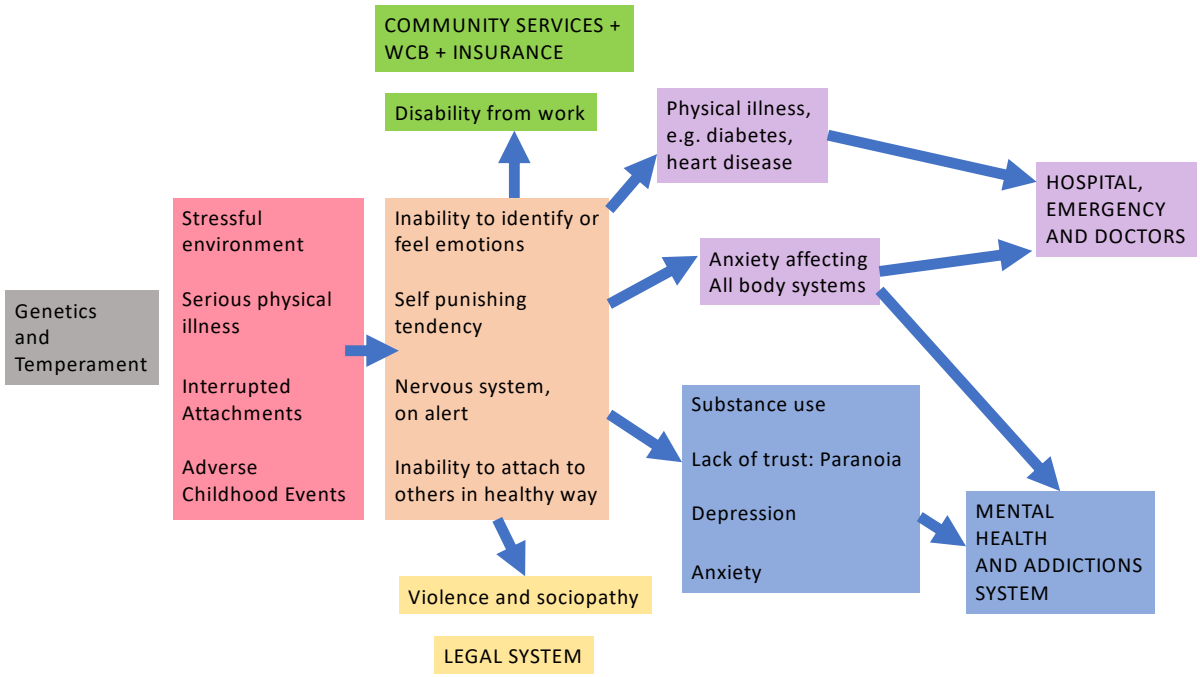


Abbass et al, Journal of Psychiatry Research, 2015

A study of 550 referred patients found people presenting with FC with the highest rates in Gynecology (66%), Neurology (62%) Gastroenterology (58%), Cardiology (53%) and Rheumatology (45%) (Nimnuan et al, 2001). Childhood abuse, interrupted attachments and other factors are risks factors for these conditions in part by interrupting the ability to identify emotions and relate to others and the self in healthy ways. These same factors create risks for sociopathy, disability, medical illness and psychiatric disorders. Hence, the 1/3 of Nova Scotians

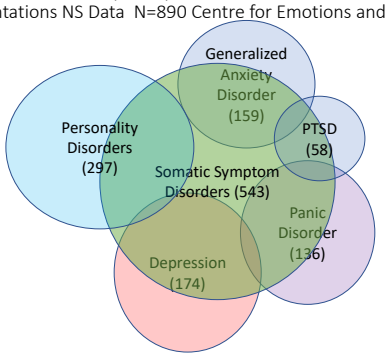
who report significant adverse childhood experiences are at risk for these common and costly conditions. Figure 2.

Figure 2: Causes and Results of Functional Conditions



FC may be caused by physiological disturbance, emotional problems or pathological conditions which have not yet been diagnosed. This means undetected medical causes must be ruled out and attention must be paid to situations where new medical signs appear needing investigation. Psychiatric morbidity is not directly associated with the presence of FC but is more likely in those complaining of multiple symptoms. 91.3% of 543 Nova Scotians with FC referred to the Centre for Emotions and Health, had coexisting psychiatric disorders. Figure 3.

Figure 3: Comorbidity of Psychiatric Disorders with Somatic Symptom Presentations NS Data N=890 Centre for Emotions and Health Referred patients



Abbass et al, Journal of Psychiatry Research, 2015

Serious medical illness like coronary artery disease, multiple sclerosis, cancer and Lupus can raise strong emotions and anxiety resulting in a range of secondary somatic symptoms. In a study of patients with multiple sclerosis, patients had a near 50% reduction in somatic symptoms after a course of short-term dynamic psychotherapy to resolve these feelings and anxieties. This symptom reduction may have contributed to observed 45% reduction in annual doctor costs for these patients in 3 year follow up. See Appendix 1.

SECTION 3: WHY DO WE NEED A NOVA SCOTIA PLAN FOR FC

A tailored Nova Scotia plan for Functional Conditions is needed to improve health outcomes, reduce risk to patients and reduce both fiscal and health system burdens.

1. IMPACT ON PATIENT QUALITY OF LIFE

In addition to the adverse effects of physical symptoms, disability and treatments, patients with FC often experience distress and anxiety as a result of unexplained symptoms. They report feeling that their concerns are not taken seriously by their doctor resulting in anxiety which can increase the somatic symptoms and lead to emergency department visits and excess medical visits. The suggestion that a patient has 'nothing wrong physically' is cited as the most common explanation given by doctors, and patients may consequently feel that their symptoms are not believed.

2. THE FINANCIAL COST OF FC IN NOVA SCOTIA

Functional Conditions are a common and costly* problem in all healthcare settings, accounting for:

- Up to 45% overall of Primary care appointments
- 50% of new visits to hospital clinics
- Over 1 on 6 Emergency visits
- 20-50% increase in outpatient costs compared to other patients
- 20-25% of all 'frequent attenders' at specialist medical clinics
- 30% increase in hospital admissions and inpatient care
- Gross excess of occupational short and long-term disability
  *(*Chew Graham et al, 2017)*

In Nova Scotia these cost an estimated $238,000,000 in total direct NSHealth expenditure on health services. In addition, sickness absence and decreased quality of life for people with FC costs Nova Scotia an estimated $366,000,000 See Table 3.
See Appendix 1 for causes of hospital admissions and which types of physician uses these admissions.

Table 3 Annual Cost Estimates of FC in Nova Scotia

Factor	Data Source	Quantum	Nova Scotia Estimate
Hospital Costs	NS Decision Support 2015 data	139,000 days x CIHI estimate $6070/6.9/day	122,300,000
Family Doctor Costs	NS DHW 2016 Report	25% of 240,000,000 [1]	60,000,000
Emergency Costs	NS DHW 2016	574,000 x 16% X $300 per visit[3]	27,550,000
Specialist Costs	NS DHW Report	458,000 x 0.52 1 x $82	19,500,000

Administration	CIHI	3.9% of total [2]	8,710,000
HEALTH CARE in NS ESTIMATE for FC			**$238,000,000**
DISABILITY COST ESTIMATE IN NS FROM FC	UK DATA	£14,000,000,000 based on CAD and NS per capita	**$366,000,000**

1. Bermingham, S.L., Cohen, A., Hague, J., & Parsonage, M. (2010) The cost of somatisation among the working-age
2. https://yourhealthsystem.cihi.ca/hsp/indepth?lang=en#/indicator/041/2/C2000/

3. EXCESSIVE MEDICATION COSTS AND ADVERSE EFFECTS

Excessive prescribing of medications for FC leads to financial loss and adverse effects on patients. Many patients end up on opioids and other sedating medications that cannot easily be stopped. One in 10 Nova Scotian takes an antidepressant and these are often used, without a clear indication, to try treat mixed Functional Conditions. Adverse drug effects are a major cause of hospitalization in NS, especially in the elderly.

4. UNNECESSARY AND COSTLY INVESTIGATIONS THAT DO NOT CONTRIBUTE TO CARE

In concordance with the *Choosing Wisely* campaign recommendations, http://www.doctorsns.com/en/home/advocacy/current-initiatives/Choosing-Wisely-Canada.aspx some conditions like uncomplicated back pain should not be xrayed or otherwise imaged because of the very high rate of abnormalities in patients who have no symptoms. After age 40 over half of people with no symptoms whatsoever will have abnormal findings on neck, back, knee, hip and shoulder MRIs (Abbass and Schubiner 2018, leedarrenh@twitter.com). These findings can lead to excess patient anxiety, procedures, specialist referrals and medications.

5. EXCESS COMMUNITY SERVICE AND INSURANCE CLAIMS

Without access to intensive care for functional conditions, many people become disabled requiring community services supports, insurance support and workers compensation funding. Quality of life is severely impacted and the financial costs to the society accumulate over a lifetime.

6. RISK LADEN MEDICAL-SURGICAL PROCEDURES WITH NO ACCESS TO PRE-SCREEN

Several FC conditions may result in surgical procedures, injections, laparoscopies, deep brain stimulation, electroconvulsive therapy and other invasive procedures with significant cost and risks associated. Easily accessible non-invasive pre-screen meetings or treatment trials should be liberally available as a front-line option to prevent these adverse events and costs in accordance with *Choosing Wisely.*

7. WAIT TIMES FOR FAMILY DOCTOR AND SPECIALIST VISITS

High frequency of primary care visits in patients with functional complaints contributes to large wait-times and systemic pressures within family practice and specialty. It is common for patients to give up hope and many end-up not receiving necessary care. Delay in assessment and treatment may extend work disabilities and patient anxiety as people await

specialist opinion on illness. Further, the delays may result in late detection of serious medical illnesses. Table 4

Table 4: Nova Scotia Medical Surgical Specialist Consultation Wait Times
https://waittimes.novascotia.ca/ extracted June 5 2018

Gastroenterology 558 days
Rheumatology 545 days
Physical Medicine Rehab 408 days
Neurology 304 days
Cardiology 283 days

8. WAIT TIMES FOR TESTS

In Nova Scotia we wait 264 days for an MRI. (https://waittimes.novascotia.ca/procedure/mri-nova-scotia-health-authority#waittimes-90) All the normal or inconsequential MRIs and other tests in FC patients result in inordinate delays in diagnosing and managing people with treatable structural lesions and conditions such as cancer.

9. IMPACT ON HEALTH CARE PROVIDERS: FRUSTRATION AND BURNOUT

There is extensive literature on the adverse impact on clinicians managing people with FC. Much research has been on the effects of this on Family Doctors though the same issues apply to other health care professionals. Family doctors have reported they often find it stressful, feel powerless, feel insecure, and feel resentment and end up questioning their competency working with patients with FC. Work with individuals with FC contributes to doctor burnout affecting half of Nova Scotia doctors. Fortunately, educational approaches, including one the Department of Health and Wellness supported here in Halifax (Cooper et al, 2018, Rostis et al, 2018, Lai et al, 2018), result in doctors reporting improved confidence and less anxiety while managing FC patients.

Figure 4: *One Example: Irritable Bowel Syndrome in Nova Scotia Fedorak et al, 2012*

40,000 Nova Scotians have Irritable Bowel Syndrome

Direct health care cost estimates in NS are about $100,000,000
Up to half of new Gastroenterology consultations are related to IBS leading to wait times approaching 2 years.

2400 Nova Scotians with IBS are permanently on social assistance or insurance disability while the others miss an average for 13 work days per year:
Costs for Nova Scotia employers and insurers are at least $60,000,000 per year

SECTION 4: WHAT SHOULD GOOD FC SERVICES LOOK LIKE IN NOVA SCOTIA?

A good healthcare system for FC in the Province should be person-centred, accessible, needs-based, enabling patients to recover as fully and efficiently as possible. It should be evaluated to inform its structure and function. It should contain the following elements:

Range of services

A stepped care model with the intensity of the intervention being proportional to the complexity of the current difficulties. Services should include inexpensive or free online, self-guided and peer led models in addition to clinician-provided psychotherapies matching levels of impairment. Inpatient services when needed should include knowledgeable and trained health professionals to enable physical, behavioral and social mobilization as tolerated.

Sufficient service provision to meet local needs.

Adequate services should be provided in the provincial regions based on rates of FC doctor visits and hospitalization rates.

Accessibility within settings which patients find most acceptable

Services should be linked to emergency, specialty medicine, and surgery but may best be embedded in primary care medical settings with access to tertiary medical or mental healthcare settings when appropriate.

Care pathways integrating physical/mental care and primary/secondary/tertiary services

Each level of care should involve professionals who have shared principles including valuing a holistic, person-centered approach to care to avoid creating siloes.

Protocols clarifying the roles of different health and social care agencies

Such coordination is necessary to support primary care in avoiding unnecessary use of specialist services and other resources.

Shared Electronic Records

Benefiting from the Nova Scotia provincial plan of developing EMRs, various clinicians can access all relevant clinical information for optimal coordinated care.

Staff qualified and appropriately trained in FC care

Healthcare professionals should be able to assess the physical and mental aspects of FC patients' problems, take a positive approach to symptom management, and commit to collaborative working. Doctors nurse practitioners and other linked professionals like family practice nurses should be trained to provide basic FC care, counseling and limited therapeutic interventions. Specialist FC staff should have additional competence and capacity to offer training and consultation.

Quality Assurance and Outcome Evaluation

In addition to video-based case review for quality assurance, new service implementations should be evaluated using a range of stakeholder agreed and prioritized outcome indices.

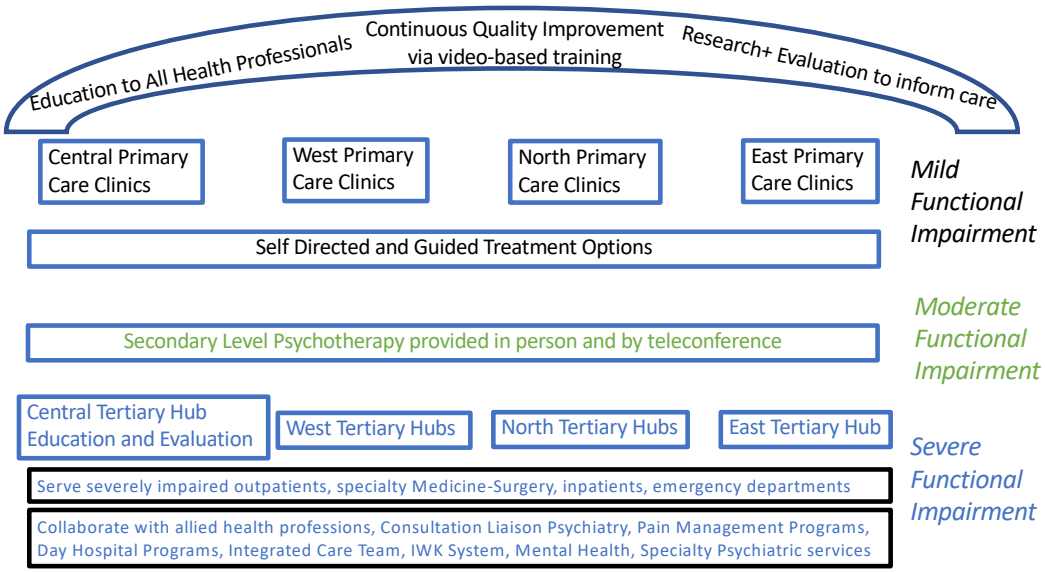
Consider Partnerships

Since the major cost burden is insurance related to lost work and medications, partnerships should be explored to fund treatments that benefit both the insurance and health care systems. As the largest employers in NS, the government and health systems stand to save direct costs by providing proven clinical services across the province.

SECTION 5: A PROVINCIAL NETWORK FOR THE CARE OF FUNCTIONAL CONDITIONS

A province-wide integrated care network for patients with FC including education to all health care providers, self-directed care modules, guided self-help treatments, counselling and advanced psychotherapy skills in tertiary hubs is proposed.

Figure 4: Overview of Proposed FC Network Model



Foundation of Knowledge: Education to Health Professionals

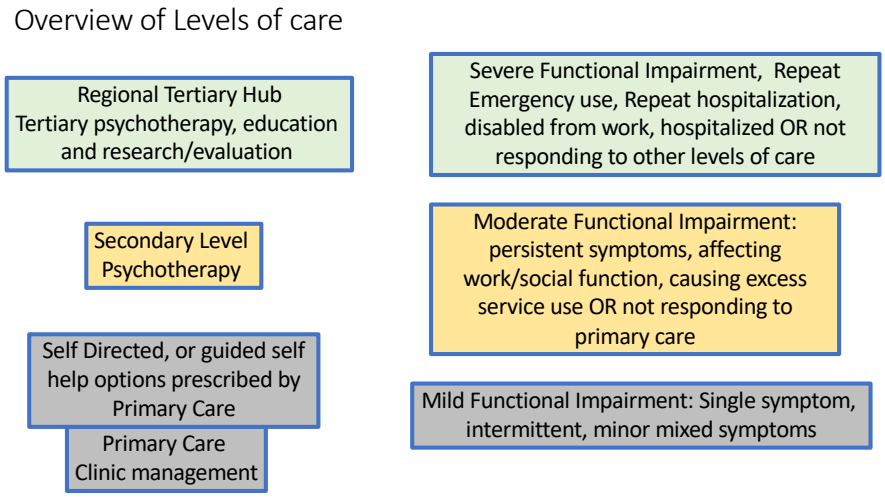
The objective is a healthcare system with basic knowledge and skills on how to understand, interact with and, to variable degrees, manage individuals with FC presentations

- Core curriculum in health professions education at undergraduate, post graduate and continuing education levels
- Advanced education of family medicine residents with supervised clinical experiences, case conferences and other options
- Core education to residents in medicine and surgery
- Continuing education to health professionals in refresher courses
- Education package for provincial health and social system administrators
- A Functional Disorders Card: a “cheat sheet” to be developed with key information including how to manage or refer and how to define levels of impairment
- An online literature library to be made accessible
- Educational videos to be developed and utilized
- Website carrying this information embedded in NSHealth www.nshealth.ca/mus
- The responsibility for development and evaluation of this education will be staff of the “Central Hub” (see below)

Guidance to Provincial Navigators

Because of the nature of diverse physical symptoms, it is always possible that serious medical conditions are causing the symptoms and not primarily emotional or stress factors. For this reason, people calling central intakes should be referred back to primary care for treatment or referral into the network of FC care. This information should be provided to those fielding calls at central intakes. As a tertiary medical psychotherapy service, we occasionally receive referrals who have undetected medical conditions so we are always looking for these cases (See the case of Barry below).

Figure 5: Care levels



Barry's Abdominal Pain

After 2 weeks of on and off abdominal pain, Barry went his local emergency department for a second time. Physical examination and blood testing revealed no abnormality. Barry was referred to the Emergency MUS psychologist for an assessment. In the interview, his physical anxiety patterns did not fit with an emotional source of his symptoms. Because of this, he was referred back to his family doctor for further testing and was found to have an undetected gall stone: his symptoms were removed with surgery!

Backbone of the System: Collaborative Primary Care Teams and Practitioners

The core of the FC network will be through the care of Primary Care teams and practitioners who will provide medical care, support, education and limited therapy while managing referrals, medications, sick leaves and investigations to prevent excess service use and deterioration.

Staffing

Utilizes solo or group practice family physicians, nurse practitioners and other existing staff or those being hired and trained now to provide a *Primary Care Screening and Management Protocol.*

Services

- This care will be delivered by Primary care Practitioners and adjunctive staff depending on the setting
- Rule out medical conditions through physical examination and testing
- Educate patients with mild levels of functional impairment: symptoms having little to no effect on work, social life or physical function
- Provide sustained relationship with patient to prevent adverse effects of perceived rejection from care and to prevent duplication of care
- Provide behavioral and cognitive elements and coaching regarding exercise/exposure/mindfulness and provide other basic evidence-based interventions
- Prescribe and follow up regarding self-directed care options (below)
- Refer to secondary or tertiary level psychotherapist as needed if treatment fails or functional impairment worsens (see criteria below)
- Option for phone consultation with secondary or tertiary level psychotherapists
- Training time: 3 hour session covering core curriculum once and 1 hour meeting every 4 months with regional tertiary psychology leads.
- Online literature including training videos, book and "FC summary sheet for primary care" to be provided.

Joan's "Heart Attack"

10 years after her father died of heart disease, 41 year-old Joan went to her family doctor with episodes of rapid heart rate and chest discomfort fearing a heart problem. A medical evaluation found no explanation for these symptoms. This reassurance brought relief to Joan but the Family Doctor offered her an interview to talk about stress and the body. Nancy, the clinic's nurse practitioner scheduled a 45 minute meeting later that week to talk about her symptoms. In speaking about her recent life events, it was at first unclear why she had been developing symptoms, but then it came to Joan's mind that her father had died April 24 - the same date as her symptoms emerged. This brought a lot of painful feelings about losing her dad. In a brief follow-up interview with Nancy, the symptoms ceased and did not return.

Self-Directed and Guided Interventions

A range of self-directed and guided interventions may be recommended or prescribed by Primary care team member after medical problems have been ruled out.

Registries of Treatment Options exist including at the Mental Health Foundation of Nova Scotia https://www.mentalhealthns.ca/resources/ , Self Help Connection http://selfhelpconnection.ca/ and EMental Health Canada http://www.ementalhealth.ca/

Guided Interventions to include Strongest Families and internet supported self-directed treatments. The evidence is fair to good for these models which mostly include education, cognitive, behavioral, supportive and self-reflective components. Some models like guided meditation, exercise, QiGong and yoga can be beneficial for mind and body health in some patient populations. There are fees attached to some of these models. Strongest Families has proposed to develop and deliver a coached, self-directed model from Sweden that has been shown very successful in a recent study: this will then be evaluated and if successful, used here each year to serve 100 people (See Appendix 7) .

The evidence for purely *self-directed models* (without coaching) is limited but a portion of people with FC will benefit from these treatments. These require self-motivation to do and follow through. Engagement and outcomes may be better if the patient does this in conjunction with Primary Care check-ins to keep up motivation and to monitor response. They are comprised mostly of interventions to change thoughts, behaviors and build awareness of emotional patterns. They can treat associated anxiety and depression in some cases. Some of these models appear to reduce anxiety and depression but not help somatic symptoms: some seem to help somatic symptoms but not depression or anxiety. Formats include eBooks, web-based models, paper books and Apps. Many of these are freely available or available with conditions such as outcome evaluation. We are proposing that one well established online based application and one book-based application be piloted and evaluated over the first 1-2 years in partnership with these developers on a no-cost or limited cost basis.

Support groups are an available option in the community with listings through resources including the Self-Help Connection. Although formal research evidence is limited for pure support groups in regards to the effect on somatic symptoms, these groups are highly valued as a support for people who often feel isolated with their physical problems.

Serge Finds Courage

Serge was a chronically anxious and fearful person, having endured extensive emotional abuse and neglect in childhood related to an unstable home setting with substance dependence. After having surgery as a child he became frightened of doctors and health professionals. When anxious Serge would lose parts of his vision and hearing. Despite this he had a strong drive to gain strength and confidence and turned to online resources and guides. Through these he learned how to meditate, how to challenge frightening thoughts and how to overcome fearfulness. After doing this self-directed work over 2 years he gained the confidence to meet with a therapist and begin a further journey to self-mastery and interpersonal skills leading to active social engagement and resolution of his physical symptoms.

Secondary Level Psychotherapy

As an economical means to delivering effective formal psychotherapies to those with FC across the province, enhanced psychotherapy provided by masters level psychotherapists will be provided in regions and through teleconference systems as needed.

Staff Requirements:

5 master level psychotherapists who may be registered counselors, social workers, nurse specialists, psychologists, occupational therapists or equivalent.

Services

- To serve people not responding to primary care or self-directed modules and who have moderate functional impairment such as missing work days, decreased socialization, distress in close relationships due to the symptoms or depressive features
- Videoconference provided evidence-based psychotherapies to include short-term cognitive behavioral therapy, short term psychodynamic therapies and other bona fide psychotherapy models: these core treatments will be enhanced with training specific to care of FC patients
- Location of these professionals to be in primary care clinics in the province: can be in central (for ease of training) or other regions as care will be distributed by telehealth when needed
- Treatment to be videorecorded, when acceptable to patients, for continuous quality improvement and quality assurance.
- Referrals from primary care and internally routed from tertiary services
- Training to include bi weekly 1 hour video-based case conference and annual 3 day in service with team in Halifax
- Clinical back up by aligned specially trained Family Physicians in the regions regarding medication and medical issues

Jamil's Stomach

Jamil is a 32 year-old recent immigrant working in construction. A few years after settling in Canada he developed nausea, abdominal pain and diarrhea. Medical assessment and specialty consultation did not yield any specific findings. He went to the emergency department twice and was beginning to miss 3 days of work each month. His Family Doctor spoke with him about the patterns and how they tied to stress as work and encouraged him to see a psychotherapist who works in the clinic. In those meetings Jamil was able to identify and work through some of the painful and frightening feelings attached to leaving his home country and the circumstance he left behind. By session 4 his abdominal symptoms were reduced and they ceased entirely by the end of 12 sessions.

Managing Severe FC presentations: Regional Tertiary Hubs

For the most ill populations, highly trained and supported psychologists, backed up by psychiatrists or trained family doctors, will provide advanced psychotherapy for complex and refractory functional conditions.

Staff Requirements:

Total of 5.0 Psychologists PhD level: One each for Sydney, New Glasgow, Amherst, Kentville and Yarmouth *

Total of 1.0 FTE Family Doctors with FC expertise: 0.2 partnered with each of the 5 Regional Psychologists

Services

- Treat those with severe functional impairment who are high users of Emergency, specialty services, medical inpatients and those not responding to secondary level care and with severe functional impairment. Severe impairment means loss of mobility, complete work loss, and loss of social function.
- To use the Intensive Short-term Dynamic Psychotherapy model which is established for both patients with refractory presentations and those with diverse functional conditions (Full references and tables in Appendix 4)
- Psychologists to oversee regional continuing education of Doctors, nurse practitioners and others involved in direct FC care in their regions
- When patients are admitted, coordinate inpatient care with Occupational Therapists, Physiotherapists, Social Workers, Nurses, Recreation Therapists, other health professionals and administrators. Relationships with these allied health professionals to be developed in recognition of unique and key elements they bring to FC care on a region by region basis.
- Oversee regional service evaluation, quality assurance and reporting
- Family Physicians to manage and oversee medical assessment, referral and medication management. Family Physicians may treat some complex medical presentations.
- Both professionals should be located in hospital based medical-surgery or primary care clinical areas for ease of liaison with referral sources.
- Training for Psychologist required to build and maintain high level therapy skills: weekly 1 hour video supervision on telehealth and 5 day annual intensive training in Halifax
- Training for Family Physicians required to develop assessment and therapy skills: 2 weeks working with Centre for Emotions and Health and Consultation Liaison Psychiatry in Halifax: may be completed during residency or fellowships

*We have proposed these locations but final location decisions would be made with DoHW and NSHEALTH. See Decision Making Processes Below.

Central Hub: Serving Central Region and Supporting Other Regions

The Central team will oversee the treatment provided by therapists in the province, education, research and service evaluation.

Staff Requirements:

1.0 Emergency PhD Psychologist (Currently 1.0)

1.0 Family Medicine Based PhD Psychologist (Currently 0.75 non-permanent, 1 year funding remains)

2.0 PhD Psychologists for tertiary direct care to Central zone (Currently 0.4)

1.0 Research/Evaluation Technician (Currently 0.4)

0.5 Low Intensity Treatment Coordinator: technical person (Currently 0)

2.0 Psychiatrists Centre for Emotions and Health (Currently 1.0)

1.0 Administrative Assistant (Currently 0.5)

Services

- Serving inpatients and outpatients not responding to care and with severe functional impairment through the use of the ISTDP model for refractory FC patients.
- Dedicated clinics in QEII/VGH Specialty Medicine Clinics and Surgery Clinics: direct service, education of learners and patient friendly access where they see specialists.
- Collaborate with other services including Pain Management Programs, Day Hospitals, Integrated Chronic Care Service, IWK System, Mental Health Services and others
- Central intake located here for all secondary and tertiary referrals outside of tertiary clinics
- Receive referrals from and collaborate with Consultation Liaison Psychiatrists to provide assessment and treatment of FC on inpatients
- Family Medicine Psychologist to organize and provide education to primary care teams
- Low Intensity coordinator to oversee and maintain web-based care models for Province
- Research/Evaluation Coordinator to oversee evaluation of entire program
- Administrator to manage and, as needed, route referrals to secondary and tertiary hubs
- Conduct prospective research of implemented treatments
- Oversee and deliver education and supervisory support to regional leads
- Provide basic FC curriculum at undergraduate, postgraduate and continuing education level to Health Professionals linked to Nova Scotia colleges and universities

Mary may die

This 58 year- old woman with longstanding irritable bowel syndrome had been hospitalized for 225 days with intractable nausea, vomiting and weight loss of over 75 pounds. Family and medical staff were preparing for the reality that Mary may not survive this illness even though there was no specific cause found for it. After being seen in a last-ditch effort by Consultation Liaison Psychiatry, the tertiary psychologist was consulted and began treatment. In the second session after gaining Mary's trust, she revealed terrible childhood trauma that had been perpetrated by a heath professional. The therapist helped her to experience and work through the anger and sadness about that in 2 sessions which led to a cessation of vomiting and discharge home within 2 weeks. In several month follow-up she maintained these gains. After $225,000 of hospital expense, $1,000 of talking therapy facilitated these needing results.

Relationships with parts of the wider system

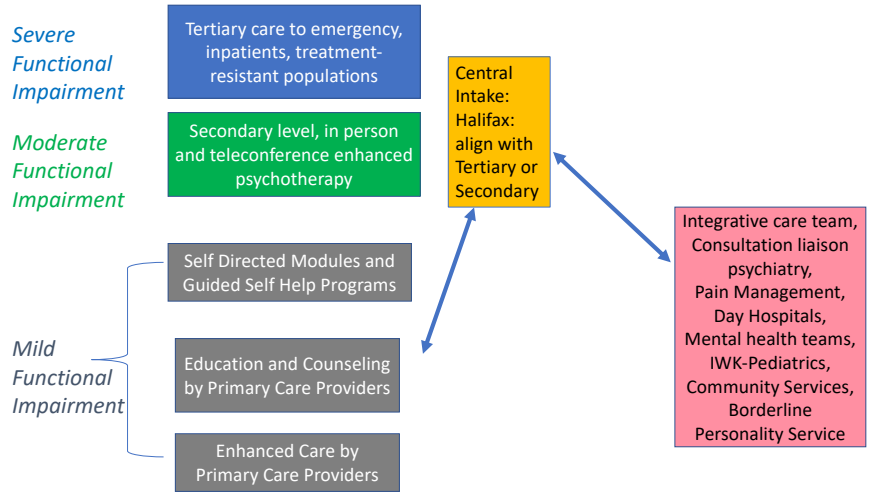
Patients with functional conditions are currently supported and treated in several parts of the health and social systems (Figure 6). Relationships with these parts of the system should be clarified to:

- Reduce duplication of services
- Reduce the delivery of modalities that contradict one another: being on same page
- Reduce overall investigation and service volumes, wait times and costs

We have written about the relationships with Primary Care, Specialty Medicine-Surgery and Emergency departments above. Following are some key parts of the system that the proposed FC network would relate to and collaborate with.

For more detailed recommendations on relationships that would need be developed in collaboration with other aspects of the system See Appendix 3.

Figure 6: Relationships with the proposed FC Net system



SECTION 7: EVALUATION OF FC Network

Following are proposed outcome indicators function and timing of collection or reporting: Table 5. An online system to enter self-reported outcome will be sought to enable data collection and analysis.

Component	Indicator	Function	Proposed Timing
CORE ELEMENTS			
Education at UG, PG, CE and Training levels	Written feedback with quantitative and qualitative parts	QA, QI, ACA	After events, compiled reported annually
# education hours provided	hours	QA, ACA	Annual Report
Video case review: Psychotherapists	Treatment fidelity and quality using brief rating scale	QA, QI	Weekly for tertiary, biweekly for secondary
# Referrals	n	QA, ACC	Annual Report
Wait time for first contact with a psychotherapist	# months	QA, ACC	Annual Report
# Patients seen at secondary and tertiary levels	#	ACC	Annual Report
Mean # sessions provided per patient	#	ACC	Annual Report
Patient Satisfaction	Questionnaire NSHA	ACC	Annual Report
Referrer feedback	Short questionnaire: quantitative and qualitative parts TBD	QA	Annual Report
# Users of self-directed/ guided interventions	n	QA, ACC	Annual Report
# using primary care FC services*	n	ACC	Annual Report
# Academic Presentations	n	ACA	Annual Report
# Publications	n	ACA	Annual Report
SELF REPORTED OUTCOMES			
PHQ15	Somatic symptoms	QA, QI	Each psychotherapy or self directed/guided session
PHQ9	Depression	QA, QI	Each psychotherapy or self directed/guided session
GAD 7	Anxiety	QA, QI	Each psychotherapy or self - directed/guided session

IIP 32	Interpersonal Problems	QA, QI	Intake and every 4 sessions and end
Function Questionnaire TBD	# meds/week, work hours/week, doctors seen/week	QA, QI	Each psychotherapy or self-directed/guided session
CLINICIAN RATED			
Patient Complexity Spectrum	Numeric on 1-9 scale		At intake for each case. Report annually.
COST BENEFIT EVALUATION			
Community Services Costs 1 year pre vs 1 + year post	DCS Data base TBD: anonymized aggregate data	Cost, ACC	Annually or biannually starting second year
Doctor Costs 1 year pre vs 1 + year post	Data Access NS aggregate anonymized	Cost, ACC	Annually or biannually starting second year
Hospital Costs 1 year pre vs 1 + year post	Data Access NS aggregate anonymized	Cost, ACC	Annually or biannually starting second year
Disability Costs Nova Scotia Gov employees	? Via Insurer data: anonymized aggregate	Cost, ACC	Annually or biannually starting second year
Medication Number	# of different medications taken. Patient report ? Data NS, ?DCS	Cost, ACC	Annual Report
Laboratory and Diagnostic Tests	# tests	COST	
Lab and diagnostic Tests costs	Costs	COST	
Employment Status		QA, COST, ACC	

Legend: PG: postgraduate, UG: undergraduate, CE: continuing education, QA: Quality Assurance, QI: Quality Improvement, ACC: Accountability, ACA: Academic Output, Cost: Cost benefit analysis, TBD: To be developed, * primary care capture of services used will require a unique billing code.

SECTION 8: DECISION MAKING

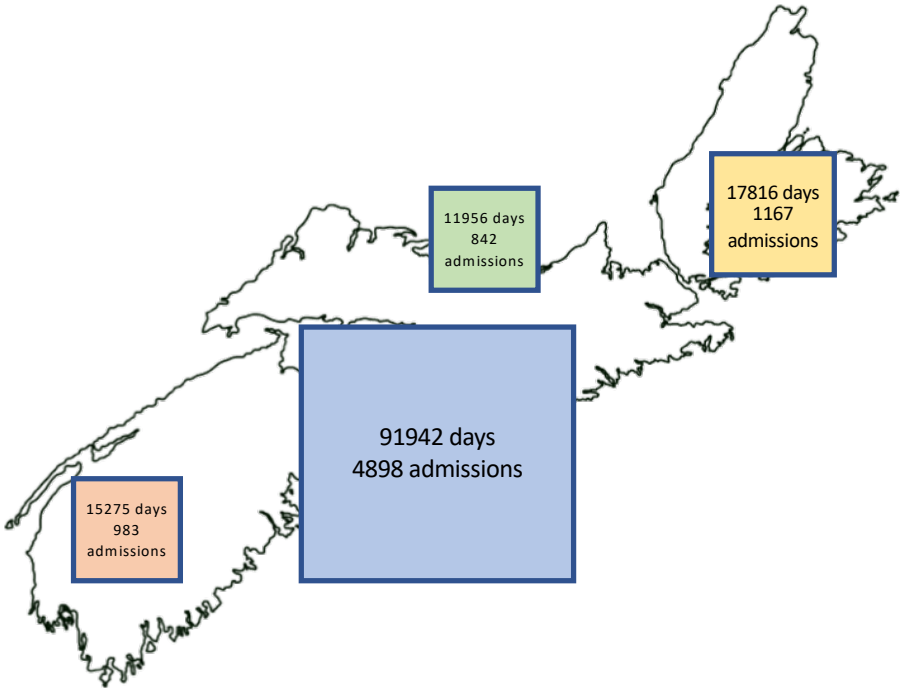
Decision 1: Where to locate services?

Where are the hospital admissions related to functional conditions in Nova Scotia?

Central Region has over twice the number of FC related Hospitalizations and days as the rest of the province (Figure 7, Decision Support Data 2015). Nearly 80% of Centre for Emotions and Health referrals come from Central zone.

For tertiary psychologists in regions, it makes sense to place them in a town or city with a substantially sized hospital, emergency department and specialty services. We proposed New Glasgow, Amherst, Sydney, Yarmouth and Kentville as they meet these criteria and are located so visiting patients would have a reasonable drive in. The final decisions on these locations to be made with DHW and NSHEALTH.

Figure 7: Distribution of Admissions for Functional Conditions



Decision 2: How much staffing is required at which levels?

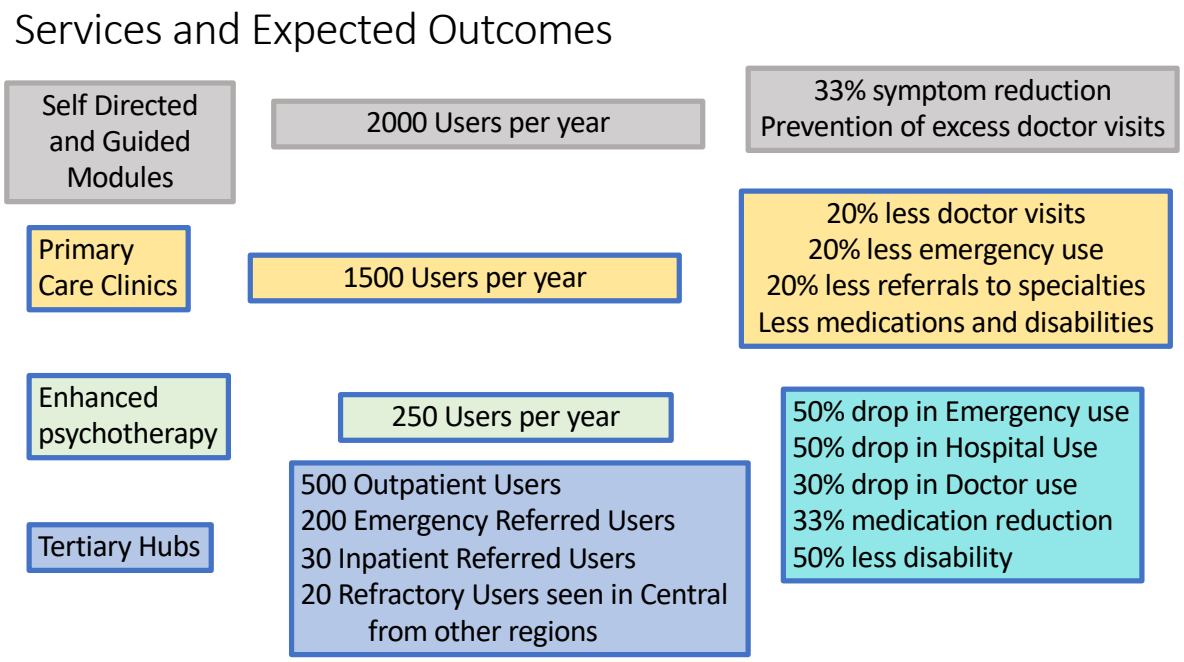
The Centre for Emotions and Health currently receives over 300 referrals per year, 80% of whom are only from central zone emergency departments, specialists, inpatients, mental health and primary care. These are typically highly refractory patients, many who have had surgery, prolonged admissions, long insurance- or community service-based disabilities, treatment failures, and excess medications. They on average use 3.5 times the normal population amount of doctor and hospital services (~$7500 per year, 2007 dollars).

Based on the overall burden including the incidence of FC, rate of complex referrals seen at the CEH, excess hospital, doctor, investigations and disability for the estimated 100,000 people in the province with FC, services to treat 5000 people per year are recommended.

2000 of these services are to be online, guided or free services, 1500 to be seen through Primary care and 1000 through formal psychotherapy provided by secondary and tertiary level psychologists.

The average clinician can treat 50-75 less complex or 40-60 more complex patients per year using the intensive short term dynamic psychotherapy modality including video case review for self-review and peer supervision. Based on this, 9 tertiary psychologists plus 4.5 psychiatrists in total would treat about 750 patients per year while 5 masters level therapists would treat 250 patients per year (Figure 8). Beyond the clinical care, teaching, supervising, research and evaluation demands take more time the higher up the steps in this model.

Figure 8: Proposed Care and Outcomes



Decision 3: Which treatments are recommended at which levels?

Guidance on recommended treatments at the mild moderate and severe levels of impairment are provided based on the best available evidence: See Appendix 4 for a summary of studies reviewed to inform this proposal.

Mild Functional Impairment:

Core features of informed primary care management including patient centered care, a helpful stance, education, cognitive and behavioral elements have fair-moderate evidence* and form the base of this model.

Self-directed models are mixes of education, cognitive, behavioral, exercise and other ingredients and have fair evidence base in reducing somatic symptoms. Coached models of self-directed care have fair to moderate evidence in reducing somatic symptoms. Both these self-directed level of care models have limited evidence on cost effectiveness, long term benefits or efficacy in improving physical function.

Medications have fair evidence for benefit in treating fibromyalgia, chronic pain, syndromes like recurrent migraine and possibly irritable bowel syndrome. Downsides of medications include long term costs, adverse effects and the need to continue medications permanently. Beyond these, the evidence is limited and medications are not recommended. Somatic treatments for various functional disorders such as electroconvulsive therapy, transcranial magnetic electrical stimulation lack supportive evidence and are not recommended. Talking and behavioral therapies are recommended ahead of medications.

Moderate Functional Impairment:

Bona fide psychotherapies such as cognitive behavioral therapy, mindfulness-based models and short term dynamic models have moderate evidence for symptom reduction and there is some evidence for functional gains in some reviews. Based on this, these are recommended treatments, along with enhancements for FC care and augmentation with video-recording based supervision, at the secondary levels.

Severe Functional Impairment:

Intensive Short-term Dynamic Psychotherapy (ISTDP) has moderate to strong and persistent effects with treatment resistant populations (11 studies, n=449) and somatic symptom populations (17 studies, n=1912) along with evidence of its cost effectiveness through health service, medication and disability use reduction (20 studies, n=2313, See Appendix 4 for full references and tables). It is the best studied model of psychotherapy for FC care in the province. The effects of ISTDP generalize to anxiety reduction, improved mood and improved relational function in addition to somatic symptom reductions in systematic research. The Emergency Department ISTDP based FC program in Halifax is a designated Canadian Leading Practice. ISTDP has built in elements to address resistance, complexity and the spectrum of somatic symptoms. Video based teaching and supervision are a standard for continuous quality improvement with ISTDP and this has been shown important for more complex somatic cases (Koelen et al, 2014). The CEH has extensive experience with this model and is recognized as an international center of excellence for functional conditions. Based on this, it is the recommended model at the tertiary level. This model will be used in coordination with inpatient services and other specialized services while working with people who have FC with severe impairment. A few patient comments on the services received in Emergency and Centre for Emotions and Health, and the Family Medicine Pilot are in Appendix 6.

* Fair evidence: symptom gains of small size (Cohen's d < 0.5) that either persist or drop off in follow-up plus lack of effect on function. Moderate evidence: moderate sized overall treatment effects (Cohen's d < 0.8) that persist in follow up or large treatment effects that tend to drop off in follow-up plus/or small effects on function. Strong Evidence: large treatment effects (Cohen's d > 0.8) that persist or increase in follow-up plus moderate or greater effects on function.

Decision 4: What are expected direct economic benefits to counter the added costs of this proposal?

Clinical outcomes when providing advanced psychotherapy to secondary and tertiary level patients based on published research in Nova Scotia Emergency Departments, Family Medicine, and Centre for Emotions and Health and other studies of the model point to a range of expected economic benefits to counter the estimated $600,000,000 per year cost in Nova Scotia.

Cost savings are lower in primary care vs secondary or tertiary care because they have lower baseline health care costs: however, these people are typically prevented from entering into excess emergency and specialty costs over the longer term.

The main cost reductions have been in the area of reduced disability costs and hospital costs in the high user populations. Corporations and insurance companies stand to gain the most by providing better access to effective treatment for FC suggesting that strategic partnerships should be sought in this area. Even without strategic partnerships, the government and health care systems themselves, as major employers in the province, stand to save the most through reduced sick time and disability by making this service available to its employees. As the province is a major provider of medications to those of social assistance, seniors and inpatients, major cost savings are expectable here as well. See Table 6. Full tabulation and references in Appendix 4.

Table 6. Cost bearing outcomes

Location of Service	**Service Use % Reduction**	**Service cost reduction per patient 1 year after treatment**
Queen Elizabeth II HSC Emergency Department (50)	69% drop in repeat emergency visits	$45,500 by 1 year later
Centre for Emotions and Health (890)	31% reduction Doctor costs 71% reduction in Hospital costs	$11,303,000 by 3 years later
Dalhousie Department of Family Medicine (87)	32.4% drop in Family Doctor use 37.5% drop in Emergency use	$37,930 by 2 years later
Psychiatry Residents Cases (140)	36% Reduced Total Doctor and Hospital Costs	$528,000 by 3 years later
QEIIHSC Occupational Health referred cases (18)	87% successfully maintained work	$250,000 by 18 months later
Community Service Recipients (65)	No longer requiring DCS supports	$740,000 by 5 years later
Workers Compensation referred Cases (N=188)	56.4% return to work after nearly 2 years disabled (188 cases seen more than one consult)	$5,285,800 by 2 years later

Based on these figures and expected outcomes above, conservative estimated pre versus post costs of disability, medication, doctors, emergency and hospital are as follows:

*Primary Care Level (1500 services): $337,500 less by 1 year post
Secondary and Tertiary Care Level (1000 services): $660,000 Emergency, $1,435,000 Hospital, $303,000 doctor costs, $200,000 medications and $2,220,000 disability less by 1 year post.

Total 1 year post system costs with these assumptions are $5,175,500 less compared to the year before service.

Based on long term follow-up research, such gains tend to sustain or even increase meaning system cost difference are several times the cost of the service. These benefits do not count the savings to patients seeking care, the reduction of investigation costs, and the other "indirect benefits" below many of which have financial implications.

**Cost effects data is unavailable for self-directed and guided interventions but it is anticipated the benefits would be greater than costs of a technician and of the limited Guided Self Help to be piloted.*

Decision 5: What are the expected indirect benefits of this proposal

An array of indirect benefits are expected from instituting an FC Network

1. *Provision of a good standard of care for these many medical conditions:* following recommended care per treatment guidance in other regions.
2. *Improved health of Nova Scotians:* less physical mental and interpersonal symptoms and distresses
3. *Improved function of Nova Scotians:* More physical, social and occupational activity
4. *Helping break intergenerational transmission of trauma:* treating parents to be better emotionally attuned breaks the chain of trauma and disability for the next generations
5. *Reduced travel costs for patients:* services to be distributed in regions or provided by telehealth
6. *Province wide care:* reaching people who could not attend treatment to meet the goal of provincial care for all
7. *Harm Reduction:* Avoidance of invasive procedures, surgeries and medications used unnecessarily or inappropriately to treat functional conditions
8. *Exemplifying Choosing Wisely:* the proposal lays out a provincial education plan to promote wise decision making by primary care practitioners
9. *Wait time reduction:* by reducing primary and specialty medical visits slots are freed up earlier for patients with non-functional conditions
10. *Unburdening of busy primary care clinics:* given limits in primary care practitioners in the province this should optimize the utilization of this resource
11. *Reduced adverse medication effects:* medications are a major cause of accidents, falls, admissions so reducing these is in everyone's interest
12. *Prevention of out of province referrals for functional conditions: headache, pain, autonomic problems*: people are sent to out of province resources for conditions like headache and unexplained autonomic conditions
13. *Improving quality of life for primary care workers*: based on research findings, education and support will facilitate more confidence and less anxiety in family doctors and other primary care practitioners.
14. *Recognition of Nova Scotia Health Care as leaders in Healthcare Innovation*: as the Emergency MUS Service is a Canadian Leading Practice, likely this Functional Disorders Network will receive recognition.

Decision 6: What are recommended time lines to rolling out this plan

Based on limitations in availability of trained staff to hire, the greatest functional and economic burden being at the top tier of the system, it is recommended that this proposal be phased in as follows:

Year 1:

- Hire 3 tertiary psychologists, 1 psychiatrist/Family Physician, two masters level therapists and service coordinator/evaluator.
- Render permanent the 1.0 family medicine psychologist position
- Administrative support to go to 1.0 FTE
- Develop and implement tertiary clinics connected to emergency departments and specialty medicine-surgery
- Begin to provide education and inservices to Family Medicine clinics and nurse practitioners
- In collaboration with health professional schools, provide core curriculum for health professionals at the undergraduate, postgraduate and continuing education levels
- Establish an online resource network
- Develop and/or align some existing types of guided self-help interventions
- Establish online evaluation system

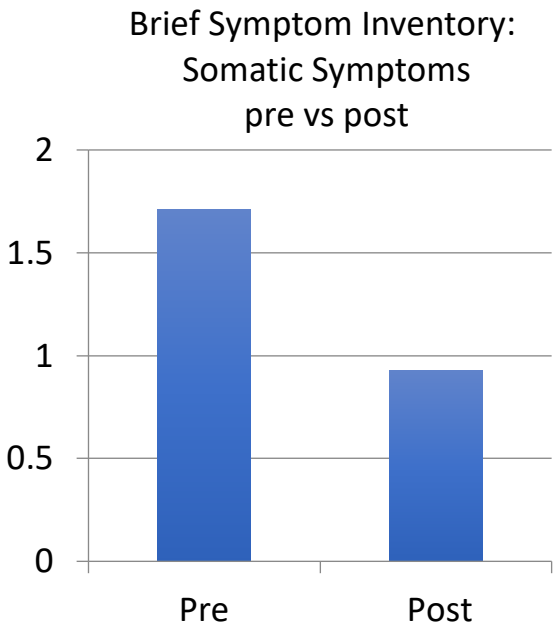
Year 2:

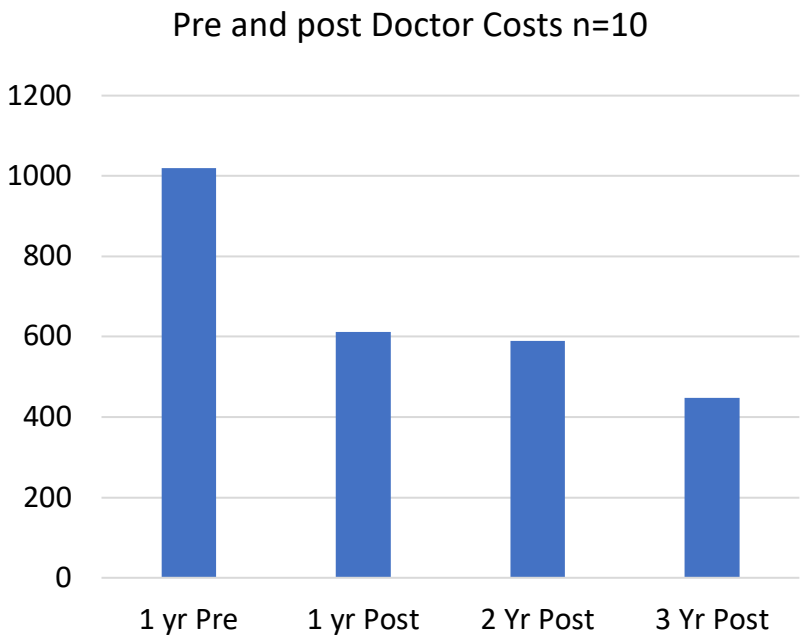
- Hire remaining 2 tertiary psychologists and linked portions of family physician and facilitate their establishment in the regional centers
- Hire three remaining masters level therapists providing local and telehealth-based treatment to moderately severely impaired FC patient
- Evaluate the cost effectiveness of the first year of the roll out: some cost effects will be delayed due to wait times for specialty referrals and other factors
- Develop further online resources for health professionals
- Implement some guided self-help interventions
- Further provide education to family medicine clinics and nurse practitioners

Year 3:

- Evaluate the cost-effectiveness of the first two years of this rollout
- Evaluate the effectiveness and cost effectiveness of online and guided resources
- Produce an operations manual for this FC Network based on the first two years of experience

Appendix 1: Impact of short-term dynamic psychotherapy on somatic symptoms and doctor use in Multiple Sclerosis. Mean of 17.8 sessions, n=10





Appendix 2: Admissions in Nova Scotia for FC

Top FC Diagnoses at Discharge NS 2015 Decision Support

Symptom Group	# Admissions
Malaise, fatigue	1515
Abdominal pain, nausea, vomiting	907
Chest pain, rapid heart rate	894
Confusion, Fainting	581
Acute pain	357

Type of Doctor responsible for FC Hospital admissions in Nova Scotia 2015 Decision Support

Physician	# Admissions	% of Admissions
Family Medicine	3617	73.8
Cardiology	693	14.1
Internal medicine	689	14.1
General Surgery	640	13.1
Orthopedics	360	7.4
Neurology	218	4.5
Urology	180	3.7
Obstetrics Gynecology	162	3.3

Appendix 3: Relationships with the Wider System

Following are some considerations on how the proposed Functional Conditions Network would relate to the wider system over time.

IWK Child Psychiatry, Pediatrics and child-adolescent emergency services

The model described above is primarily an adult service although these treatments can be beneficial for youth with some modifications. This FC Net can however provide consultations make recommendations or provide brief therapy for youth with FC. The details of the services, referral processes and functional relationships will need to be determined on a region by region basis. It is notable that Strongest Families has been successfully used to treat children and their families in the Nova Scotia system with related conditions like anxiety disorders.

Integrated chronic care service

This service which was historically the Nova Scotia environmental health center, provides consultations and various kinds of treatment to patients with conditions including FC. They have been providing specialized psychotherapy for FC linked to the Centre for Emotions and Health to select patients in their service. It is recommended that internal access to this treatment modality and linkage be maintained.

Pain management services

Some patients with FC have painful conditions or indeed have chronic pain as the core manifestation of psychophysiological disorder. They currently provide consultation and services to the province and have an extensive waitlist. Historically this service has not had a formal working relationship with Center for Emotions and Health meaning that patients are sometimes seeing both services at the same time or in sequence without coordination. A formal collaborative arrangement between the FC Net in pain management services is recommended to foster collaboration on care and possibly shared education and research.

Consultation liaison psychiatry

There has historically had an arrangement between the Center for Emotions and Health and CL Psychiatry that inpatients are not seen without the ascent or request of CL Psychiatry. These collaborations have been quite fruitful in assisting long term admitted patients, including patients admitted with FC for several months or more, to be successfully discharged home. With full staffing of this FC Net, Tertiary Psychologists or psychiatrists could be engaged alongside of CL Psychiatry in select cases to provide a greater volume of cost-effective services. Such services could be similar but scaled down in centers outside of Halifax where there are mixed inpatient services and psychiatric consultation procedures.

Day hospitals

They offer services, including one at the Abbey Lane building in Halifax that are effective for complex patients including someone with FC symptoms. These are time-intensive treatments requiring a fair bit of staffing, space and resources. However, certain patients seem to benefit selectively from group formats of this type employing mixed interventions included in the ISTDP model. In Halifax there have historically been referrals both back and forth to day hospital services and CEH. In consultation with the leadership of the Day Hospital in Halifax, it is recommended that the services work more in parallel to each other rather than in sequence to maintain the flow of patients through both services. Day hospitals in health centers outside of Halifax also offer effective services for complex patients, some of whom have FC as part of their

problems. Relationships between regional the tertiary psychologist and psychiatrist should be developed and tailored to those regions to further collaboration and reduce duplication.

Department of community services

Based on previous Community Services pilot study providing advanced psychotherapy for patients including those with FC, services should be made available to these functionally impaired members of society seeking out this support. Because the relationships with DCS caseworkers precludes clinical recommendations, a unique referral process and pathway should be developed to allow collaborative processes between NS Health and Community services for the benefit of both branches of the system.

Mental health services

On the basis of the high incidence of FC in those with mental illness (up to 70%), and paucity of FC-specific treatments, it is likely the majority of patients seen on mental health services have FC. For example, cognitive-perceptual disruption is extremely common in those with psychotic disorders and irritable bowel syndrome is extremely common in depressive disorders. As mental health services are in the middle of developing core services, now is not the best time to tried to add care pathways within mental health. However, regional and central education to provide core knowledge about FC will be offered to all health professionals including those who are mental health professionals. The FC Network will receive referrals from mental health services and in some cases will provide brief treatment with referral back to mental health services.

Borderline personality disorder service

Borderline personality disorders service offers primarily group treatment for people with severe personality dysfunction. Many if not most of these patients also have FC symptoms affecting cognitive perceptual function. There have occasionally been referrals back and forth between services. A general recommendation is that patients with severe personality dysfunction the first managed through the BPD service to either a completed treatment course or to build sufficient psychological capacities to benefit from other treatment overtime and follow-up. It is notable that even though such follow-up treatments are long-term they are highly cost effective based on major service use reduction, disability reduction in long-term follow-up.

Relationships with other health professionals

Collaboration between health professionals is very important in overall outcomes. Physiotherapists are often involved in the care of patients with FC. Some examples include treatment of medically unexplained dizziness, pain, conversion disorder and movement disorders. Similarly, occupational therapists are involved in treatments and aids for people with a range of physical and mental dysfunctions including some that are directly related to functional conditions. Other health professionals have variable amounts of involvement in the care of those with FC as well including specialized and generalist nurses, speech therapists and social workers. On a region by region basis, relationships should be built between these professional groups and services and those working directly in the FC Network. The provision of education to all provincial health professionals about FC should facilitate these relationships. See Appendix 5 for Draft Education Recommendations.

Appendix 4: Evaluating the Effectiveness Interventions for FC

The following types of interventions were reviewed for consideration:

(FM=Fibromyalgia, CFS=Chronic Fatigue Syndrome, CBT=Cognitive Behavioral Therapy, IBS= Irritable Bowel Syndrome, ©= Cochrane Review, ISTDP=Intensive Short-term Dynamic Psychotherapy)

	Efficacy short term	**Efficacy longer term**	**Effect on function**	**Cost vs benefits**	**Notes**
Medical or Somatic Treatments	***Apart from some antidepressant and gapapentin for FM and meds for IBS, evidence is lacking for medications. Also not cost effective in long follow-up. TMS, ECT, sedatives and opioids are not recommended. Medications should be reduced under supervision***				
Medications for FM: Several © Reviews SNRI, pregabalin, nabilone, antipsychotics, amitryptiline, carbamazepine	Mixed results from the many med trials, lot of adverse effects. May not be better than placebo	Few long term follow up studies		Long term are very costly plus adverse effects.	Second or third line option
Medications for mixed FC © Kleinstäuber 2014	0 for most. Mod for FM Poor quality evidence	Require permanent prescription	no	Over long term very costly	Second or third line option
Medications for IBS (Ford et al, 2014)	Moderate		Adverse effects	No evidence given	Third line option
ECT and Transcranial Magnetic Stimulation for functional weakness (Schönfeldt-Lecuona, et al, 2016)	Small (limited evidence < 100 cases)	no	-	No evidence given. Cost prohibitive with little effects	Not recommended
Support Groups					
Chronic pain 2 studies in one review	0 for pain, but reduces isolation	-	-	No evidence	***Evidence is weak for symptom effects but good for feeling of well being***
General review of support groups mixed conditions (Brunelli 2016)	Small but significant: reduced pain, anxiety, loneliness			No evidence given	

Self Directed					
Apps and e health for Mindfulness/Relaxation in Pain (Mikolasek et al, 2018)	Yes general effects, ? for pain, 0 for stress, 0 for mindfulness	-	Yes	No evidence given	***There is evidence for pure self-directed models but depend on motivation. Coaching is likely better though some do well without it.***
Self-help for FC: Most Educational or CBT (van Gils et al, 2016)	mod	mod	yes	No evidence given	
Guided Self-Directed Treatments					***Evidence for small to moderate effects depending on type of approach and patient. Models using exposure to body, activity, sensations, emotions of most interest. Passive approaches less effective***
Mixed FC in youth: several psychological models and formats (Bonvanie et al, 2017)	Small- mod	-	-	No evidence given	
Mindfulness for Mixed Chronic Pain Conditions (Bawa 2015)	small for pain/function, 0 for mindfulness, large for acceptance			No evidence	
Mindfulness based for Back Pain (Anheyer, et al, 2017)	Small	Lost effects	Short term	No evidence given	
Irritable bowel, Fibromyalgia, Chronic Fatigue and Neurological Adults ©	small	small	mod	No evidence given	

Hypnosis for IBS Ford 2014	moderate			No evidence given	
Accupuncture for FM Deare et al 2013 ©	Not better than sham: electronic version may be better			No evidence given	
Relaxation training for IBS Ford 2014	No effects			No evidence given	Not recommended
Guided self-help for chronic pain Leigl, 2016	Small		small	No evidence given	
Exercise for Fibromyalgia © Busch et al 2009	Mod	Lacking long term study	Mod	No evidence given	Limited by tolerance and motivation
Exercise for CFS Larun ©	Some benefits		unclear	0	More study needed
QiGong for FM (Sawynok and Lynch (Dalhousie))	Mod	-	-	No evidence given	
WISE Model GI problems IBS + Others (Thompson 2018: Large UK study)	0	0	0	0	Mix of Inflammatory Bowel Disease with others
Emotion awareness expression training. IBS (Thakur, Lumley, Schubiner 2008)	Moderate	moderate	QOL Large		3 session model like guided treatment
Exposure for FM: “full throttle” (Hedman-Lagerlöf 2018, 1 Large RCT)	Large	Sustained		No evidence given	
Strongest Families Nova Scotia: DL reviewing					
Remotely delivered pain management youth (mostly CBT based) ©	moderate	0		No evidence given	
Internet based models					

Pain Mixed internet based Review (Heapy et al, 2015)	0-small	Mod	0	No evidence given	***Some evidence for effects with or without clinician guidance being important***
ISTDP for Chronic Pain Chavooshi et al 2016	Large	Large	yes	No evidence given	
Enhanced Primary Care for FC					***There is mixed evidence but wider research points to central importance of advancing doctor education and skills***
Enhanced Primary care Rosendal, 2013 ©	Could not meta-analyze. Non sig effects. More intensive rx better.	Non sig		Could not evaluate	
Enhanced care vs Psychotherapies Dessel 2014 ©	Similar outcome effects on all outcomes	Small advantage to psychotherapy in follow up	yes	Not evaluated	
Which treaters give best results. Gerber, 2015	Therapists did better than Family Docs for symptoms but not function or psychological	Small effects			
Bona Fide Psychotherapy					***There is evidence for CBT, MBSR, Short Dynamic therapy in FC***
Unexplained Chest pain Various psychotherapies © Kisely et al 2010	Small to moderate	Small Less effects on anxiety/depression		No evidence given	

CBT, Hypnosis, Short dynamic and multicomponent therapy for IBS (Ford et al, 2014)	Mod				
Psychotherapies for FC in Adults © Van Dessel 2014	Small-Mod CBT= Enhanced Care. Higher drop out rates. CBT= other therapies.	Small			
CBT Hypnosis for pseudoseizures Pulman 2014 ©	Little evidence				Further study needed
MBSR for Chemical sensitivity, FM, CFS Sampalli et al, (Integrated Chronic Care Halifax)	Sig effects vs control	Effects maintained			1 controlled trial of model used at ICCS routinely
Mixed CBT for FM Bernardy et al, 2013 ©	small	small	Small-moderate	No evidence	
CBT for CFS Price ©	small	Lost effects/ unclear			
Emotion awareness expression training. FM (Lumley, Schubiner)	Moderate (outperformed CBT on some pain measures)	moderate			
CBT FM © Klose 2013	small	small	small		
Short term dynamic Pain, IBS, Neuro © and Abbass et al, 2009, in process	Mod-large	Mod-large		Moderate to large	
Psychotherapy for treatment resistant and complex patients					***Complex populations require multiprofessional teams and advanced psychotherapy***

					models built to handle resistance and complexity
Mixed models including inpatient multiprofessional Koelen 2014	Mod to large	Mod to large	small	Not reviewed	
Intensive Short-term Dynamic (Town and Driessen, 2013, Abbass et al, 2003, 2009, 2015, in process)	Mod-Large	Mod-Large	Return to work	>$4200 per patient per year health cost reduction	
Multiprofessional NS Integrated Chronic Care Cost Study Fox et al, 2007	10% drop in doctor use 8.7% drop in doctor costs	Persists in follow-up			
Inpatient program for Treatment Resistant cases using ISTDP	Moderate effects on symptoms	Moderate effects			

Somatic Symptom Disorder Outcome Studies of Intensive Short-term Dynamic Psychotherapy

MUS= Medically Unexplained Symptoms, TAU= Treatment as Usual, RCT=Randomized Controlled Trial

Condition (Reference)	Country	Study Type	Number Cases	Outcome
Urethral Syndrome/ Pelvic Pain (1)	Italy	RCT	36	ISTDP > Medical TAU
Mixed MUS (2)	Canada	Case Series	29	Sig symptom reduction
Back Pain (3)	USA	Case Series	47	Sig Pain Reduction
Functional Movement Disorders (4)	USA	Case Series	9	Sig Symptom Reduction
Chronic Headache (5)	Canada	Case Series	29	Sig Symptom and cost reduction
Pseudoseizures (6)	Canada/ UK	Case Series	28	Sig symptom and cost reduction
Chronic Pain (7)	Iran	RCT	63	ISTDP> Mindfulness Based Stress Reduction and TAU
Chronic Pain (8)	Iran	RCT	81	ISTDP in person > Skype
Chronic Pain (9)	Iran	RCT	100	ISTDP by Skype > TAU
Irritable Bowel Syndrome (10)	UK	RCT	102	ISTDP > Medical TAU
MUS in Emergency (11)	Canada	Controlled	77	Sig reduction pre post and vs referred control.
Mixed MUS + (12)	Canada	Controlled	890	Sig health cost and symptom reduction vs referred control
Atopic Dermatitis (13)	Denmark	RCT	32	ISTDP> Ctrl in Anxious Cases
Bruxism (14)	Italy	RCT In Progress		
Functional Neurological (15)	UK	Case Series	11	Improvement on multiple domains
Mixed MUS in Family Practice (16)	Canada	Case Series	37	Sig symptom improvement
Chronic Pain (39)	Iran	RCT	341	Sig symptom reductions ISTDP=CBT

Intensive Short-term Dynamic Psychotherapy for Treatment Resistant or Complex Conditions

(Adapted from Abbass, Psychodynamic Psychiatry, 2016 and added)

Treatment Resistant Sample (Reference)	Number of Sessions	Number of Patients	Study Type (follow-up in months)	Within Group Effect Size: Post treatment
Personality Disorder (17)	40	25	RCT(18)	0.84
Personality Disorder (18)	29	25	RCT (6)	0.27
Personality Disorder (19)	60	6	Case Series	4.92
Personality Disorder (20)	40	25	RCT (24)	1.76
Treatment Resistant Depression (21)	13.6	10	Case Series (6)	2.16
Personality Disorder (22)	27.7	27	RCT (24)	1.95
Refractory Mixed Diagnoses (23)	8.6	23	Case Series	0.53
Psychiatric Inpatients (24)	9.0	33	Case Series	0.74
Refractory/ Personality Disorders (25, 26)	6 months	155	Case Series (12-120)	1.07
Mixed Treatment Resistant (27-29)	8 weeks	60	Controlled (14)	1.68
Treatment Resistant Depression (30)	16	60	RCT (12)	Large within grp effects
Numerical Means (unweighted)	**29.4**	**38.9**		**1.59**

Cost Effectiveness of Intensive Short-term Dynamic Psychotherapy Studies
(Adapted from Abbass and Katzman, 2013 and added to)

Sample	*n*	# Session	Control	Reference Time Period	Cost Domains Included	Cost Reduction Per Patient or other outcome
Panic disorder (31)	40	15	RCT. Clomipramine alone.	18-month after stopping clomip-ramine	Medication use rates only	Medication use reduced
Mixed sample (2)	166	16.9	Wait list. Non-randomized.	Before vs. 1.75-year passive follow-up	Medication use, disability rates	Medications and disability reductions
Mixed sample (32)	89	14.9	–	1-2 years post vs. 1 year pre	Hospital costs, physician costs, medication costs, disability costs	$6,202
Personality disorders (25,26)	93	Up to 6 months	–	2 years post vs. 1 year pre	Health care utiliza-tion and disability rates only	Healthcare and disability reductions
Mixed sample (33)	88	14.9	–	3 years follow-up vs. projections	Hospital costs, physician costs	$1,827
Treatment-resistant depression (21)	10	13.6	–	6 months post vs. 6 months pre	Hospital costs, medication costs, disability costs	$5,688
Chronic headache (5)	29	19.7	–	1 year post vs. 1 year pre	Medication costs, disability costs	$7,009
Personality disorder (22)	27	27.7	RCT: wait list	2 years post vs. 1 year pre	Medication costs, disability costs	$10,148
Mixed sample. Trial therapy (34)	30	1	–	Pre vs 1 month post	Employment rate, medication use only	Medication and disability reductions
Medically unex-plained symptoms (35)	50	3.8	Non-randomized control	1 year post vs. 1 year pre	Medical (emergency) visits and costs	$910
Personality disorder (26)	155	Up to 6 months	–	10 years post vs. 1 year pre	Employment rates only	Increased employment 39% to 88%
Psychiatry inpatients (24)	33	9.0	Other psychiatric ward. Non-randomized.	1 year post vs. 1 year pre	Electroconvulsive therapy costs	$1,400
Mixed sample: Treated by Residents (36)	140	9.9	–	3 years post vs. 1 year pre	Physician costs, hospital costs	$3,773
Pseudoseizures (6)	28	3.6	-	3 years post vs. 1 year pre	Physician costs, hospital costs	$57,400
Mixed Sample (12)	890	7.3	Non-randomized control	3 years post vs. 1 year pre	Physician costs, hospital costs	$12,700

Psychotic Disorders (37)	38	13	-	Pre vs 4 years post	Physician costs, hospital costs	$80,400
Generalized Anxiety Disorder (38)	215	8.3	-	Pre vs 4 years post	Physician costs, hospital costs	$16,200
Inpatient Refractory cases (29)	95	8 wk	Wait list control	Pre versus post	Healthcare use Medications Disability	Reduced healthcare use, medications and disability
Family Medicine Cases (16)	37	7	-	Pre versus post 6 months	Family Doctor visits	23% drop
Treatment Resistant Depression (31)	60	16	RCT: Treatment as Usual	Pre vs 6 month post	Medication use	Reduced medications vs controls
Mixed Conditions: Trial Therapy (40)	344	1	-	3 years post vs. 1 year pre	Physician costs, hospital costs	$10,840

1. Baldoni F, Baldaro B, Trombini G. Psychotherapeutic perspectives in urethral syndrome. Stress Med. 1995;11(1):79-84

2. Abbass A. Office-based research in intensive short-term dynamic psychotherapy (ISTDP): Data from the first 6 years of practice. Ad Hoc Bulletin of Short-term Dynamic Psychotherapy. 2002;6(2):5-14.

3. Hawkins JR. The Role of Emotional Repression in Chronic Back Pain Patients Undergoing Psychodynamically Orientated Group Psychotherapy as Treatment for Their Pain. New York, NY: New York University School of Education; 2003.

4. Hinson VK, Weinstein S, Bernard B, Leurgans SE, Goetz CG. Single-blind clinical trial of psychotherapy for treatment of psychogenic movement disorders. Parkinsonism Relat Disord. 2006;12(3):177-180.

5. Abbass A, Lovas D, Purdy A. Direct diagnosis and management of emotional factors in the chronic headache patients. Cephalalgia. 2008;28(12):1305-1314.

6. Russell LA, Abbass A A, Allder SJ, Kisely S, Pohlmann-Eden B, Town JM (2016). A pilot study of reduction in healthcare costs following the application of intensive short-term dynamic psychotherapy for psychogenic nonepileptic seizures. Epilepsy & behavior : E&B , 63, 17-19.

7. Chavooshi, B., Mohammadkhani, P., & Dolatshahee, B. (2016). A Randomized Double-Blind Controlled Trial Comparing Davanloo's Intensive Short-Term Dynamic Psychotherapy as Internet-Delivered Versus Treatment as Usual for Medically Unexplained Pain: A Six-Month Pilot Study. Psychosomatics, 57(3), 292–300.

8. Chavoosh i, B., Mohammadkhani, P., & Dolatshahee, B. (2016). Efficacy of Intensive Short-Term Dynamic Psychotherapy for Medically Unexplained Pain: A Pilot Three-Armed Randomized Controlled

Trial Comparison with Mindfulness-Based Stress Reduction. Psychotherapy and Psychosomatics, 123–125.

9. Chavoosh i, B., Mohammadkhani, P., & Dolatshahee, B. (2016). Telemedicine vs. inperson delivery of intensive short-term dynamic psychotherapy for patients with medically unexplained pain: A 12-month randomized, controlled trial. Journal of Telemedicine and Telecare, 0(0), 1–9.

10. Svedlund , J., Sjodin, I., Ottosson, J. O., & Dotevall, G. (1983). Controlled study of psychotherapy in irritable bowel syndrome. Lancet, 2, 589-592.

11. Abbass A, Campbell S, Magee K, Tarzwell R (2009). Intensive short-term dynamic psychotherapy to reduce rates of emergency department return visits for patients with medically unexplained symptoms: preliminary evidence from a pre-post intervention study. Canadian Journal of Emergency Medicine, 11(6), 529-34.

12. Abbass A, Kisely S, Rasic D, Town JM, Johansson R (2015). Long-term healthcare cost reduction with Intensive Short term Dynamic Psychotherapy in a tertiary psychiatric service. Journal of psychiatric research, 64, 114-20.

13. Linnet, J., & Jemec, G. B. (2001). Anxiety level and severity of skin condition predicts outcome of psychotherapy in atopic dermatitis patients. Int J Dermatol, 40, 632-636.

14. Bargnani A, Rocco D. ISTDP for Bruxism. A Randomized Controlled Trial. In Progress. Padua Italy.

15. Russell L. (2017) A preliminary evaluation of intensive short-term dynamic psychotherapy within a functional neurological symptoms service. The Neuropsychologist 4, 25-33

16. Cooper A, Abbass A, Zed J, Bedford L, Sampalli T, Town J (2017) Implementing a Psychotherapy Service for Medically Unexplained Symptoms in a Primary Care Setting. Journal of Clinical Medicine 6, 109.

17 Winston, A., Laikin, M., Pollack, J., Samstag, L., McCullough, L., & Muran, J. C. (1994). Short-Term Psychotherapy of Personality Disorders. American Journal Of Psychiatry, 151(2), 190-194.

18 Hellerstein, D., Rosenthal, R., Pinsker, H., Samstag, L., Muran, J. C., & Winston, A. (1998). A randomized prospective study comparing supportive and dynamic therapies. Outcome and alliance. J Psychother Pract Res, 7(4), 261-271.

19. Callahan, P. (2000). “Indexing Resistance in Short Term Dynamic Psychotherapy (STDP): Change in Breaks in Eye Contact During Anxiety (BECAS).”. Psychotherapy Research, 10(1), 87-99.

20. Svartberg, M., Stiles, T., & Michael, S. (2004). Randomized, Controlled Trial of the Effectiveness of Short-Term Dynamic Psychotherapy and Cognitive Therapy for Cluster C Personality Disorders. American Journal Of Psychiatry, 161, 810-817.

21. Abbass, A. (2006). Intensive Short-Term Dynamic Psychotherapy of Treatment-Resistant Depression: A Pilot Study. Depress Anxiety, 23(7), 449-452.

22. Abbass, A., Sheldon, A., Gyra, J., & Kalpin, A. (2008). Intensive Short-Term Dynamic Psychotherapy for DSM-IV Personality Disorders: A Randomized Controlled Trial. Journal of Nervous and Mental Disease, 196(3), 211-216.

23. Hajkowski, S., Buller S. (2012). Implementing Short-term Psychodynamic Psychotherapy in a Tier 4 Pathfinder Service: Interim Report. Retrieved from NHS, England.

24. Abbass, A., Town, J., & Bernier, D. (2013). Intensive Short-Term Dynamic Psychotherapy Associated with Decreases in Electroconvulsive Therapy on Adult Acute Care Inpatient Ward. Psychotherapy And Psychosomatics, 82(6)

25. Cornelissen, K. (2014). Long Term Follow Up of Residential ISTDP with Patients Suffering from Personality Disorders Ad Hoc Bulletin of Short-Term Dynamic Psychotherapy, 18(3), 20-29.

26. Cornelissen, K., & Roel, V. (2002). Treatment Outcome of Residential Treatment with ISTDP. AD HOC Bulletin of Short-term Dynamic Psychotherapy Practice and Theory, 6(2), 14-23.

27. Solbakken, O. A., & Abbass, A. (2014). Implementation of an intensive short-term dynamic treatment program for patients with treatment-resistant disorders in residential care. BMC Psychiatry, 14, 12. doi:10.1186/1471-244X-14-12

28. Solbakken, O. A., & Abbass, A. (2015). Intensive Short-term Dynamic Residential Treatment Program for Patients with Treatment-Resistant Disorders. Journal of Affective Disorders, 181, 67-77. doi:10.1016/j.jad.2015.04.003

29. Solbakken, O. A., & Abbass, A. (2016). Symptom and personality disorder changes in intensive short-term dynamic residential treatment for treatment resistant anxiety and depressive disorders. Acta Neuropsychiatrica 28(5), 257-71.

30. Town JM, Abbass A, Stride C, Bernier D (2017). A randomised controlled trial of Intensive Short-Term Dynamic Psychotherapy for treatment resistant depression: the Halifax Depression Study. Journal of Affective Disorders , 214, 15-25.

31. Wiborg, I. M., & Dahl, A. A. Does brief dynamic psychotherapy reduce relapse rate of panic disorder. Archive of General Psychiatry, 1996; 53: 689-94.

32. Abbass, A. Intensive short-term dynamic psychotherapy in a private psychiatric office: clinical and cost effectiveness. American Journal of Psychotherapy. 2002 56(2), 252-32.

33. Abbass A. Cost Effectiveness of Short-term Dynamic Psychotherapy: Expert Rev. Pharmacoeconomics Outcomes Res. 2003; 3(5): 535-539

34. Abbass, A., Joffres, M. R., & Ogrodniczuk, J. S. (2008). A naturalistic study of intensive short-term dynamic psychotherapy trial therapy. Brief Treatment & Crisis Intervention, 8(2), 164-70.

35. Abbass A, Campbell S, Magee K, Lenzer I and Hann G, Tarzwell R. Cost Savings of Treatment of Medically Unexplained Symptoms Using Intensive Short-term Dynamic Psychotherapy (ISTDP) by a Hospital Emergency Department. Arch Med Psychol 2010; 2 (1): 34-44.

36. Abbass A, Rasic D, Kisely S, Katzman J. Residency training in intensive short-term dynamic psychotherapy: methods and cost-effectiveness. Psychiatr Ann. 2013;43(11):501-506.

37. Abbass A, Bernier D, Kisely S, Town J, Johansson R (2015). Sustained reduction in health care costs after adjunctive treatment of graded intensive short-term dynamic psychotherapy in patients with psychotic disorders. Psychiatry Research, 228(3), 538-43.

38. Lilliengren P, Johansson R, Town JM, Kisely S, Abbass A (2017). Intensive Short-Term Dynamic Psychotherapy for generalized anxiety disorder: A pilot effectiveness and process-outcome study. Clinical Psychology & Psychotherapy Nov;24(6):1313-1321

39. Chavooshi B, Saberi M, Tavallaie SA, Sahraei H (2017) Psychotherapy for Medically Unexplained Pain: A Randomized Clinical Trial Comparing Intensive Short-Term Dynamic Psychotherapy and Cognitive-Behavior Therapy. Psychosomatics. 58(5):506-518.

40. Abbass A, Kisely S, Town J. Cost-Effectiveness of Intensive Short-Term Dynamic Psychotherapy Trial Therapy. In Press Psychotherapy and Psychosomatics

Appendix 5: Education Map for NS Health Professionals

Developing literacy in understanding and Core management principles for patients with medically unexplained symptoms, requires collaborations to develop objectives, delivery methods and evaluation methods with the relevant overseeing education bodies.

Following is a general map of possible approaches that may be considered to reach the objective of developing an FC-literate health system. Most of these are developed and have been delivered in the past or in the current curricula.

	Psychological theory of FC, Diagnosis, Interview methods, video examples, evidence bases, understanding burnout, self-awareness, how to refer	Overview video	Literature provided	Direct clinical experience
Medical UG	C	C	C	
Medical PG	P	N	N	
Surgical PG	C	N	N	
Family Medicine PG	C	N	N	N
Medicine CE	P	N	N	
Nursing CE	N	N	N	
Nursing UG	N	N	N	N
Nurse-specialized	N	N	N	N
Occupational Therapy PG	N	N	N	N
Occupational Therapy CE	N	N	N	
Dentistry UG	P	N	N	
Dentistry CE	P	N	N	
Physiotherapy UG	N	N	N	N
Physiotherapy CE	N	N	N	
Social Work CE	N	N	N	
Social Work PG	N	N	N	N
Psychology PG	N	N	N	N
Psychology CE	N	N	N	
Registered Counselors CE	N	N	N	

C= Currently provided, P= Provided at some time in the Past, N= Necessary

APPENDIX 6: SAMPLE PATIENT COMMENTS ON EXISTING FC SERVICES

CEH: "Absolutely turned my life around after years of every doctor prescribing new medication on top of new medication. No more medication for me and I'm a lot be happier."

CEH: "Very helpful treatment when nothing else worked. Thank you."

CEH: "I'm deeply appreciative for this service. The doctor is very compassionate and helped me greatly with problems I had for over 30 years. After years of pills I had given up hope but am now back to life."

CEH: "This treatment was extremely helpful, if not lifesaving for me. I had been suffering depression and anxiety and was so sick I kept going to the hospital but since working with him haven't been feeling this good in years."

EMERG: My relationship with my family, my mother and my sister, has gotten better because they would talk to me and I just didn't want to hear anything they'd have to say because I was so angry.

FAM MED: "It has given me a new perspective on how to deal with life, gave me some self-esteem back, as well as significantly decreased my physical symptoms that I continuously sought medical attention for."

FAM MED: "Having someone trained to help explore the emotional turmoil I have been dealing with inside felt exhilarating"

FAM MED: "I am overwhelmed by the changes that have happened and am grateful, very grateful."

WCB: "After being off work for 7 years no one had any hope Id recover from chemical sensitivity, but now 10 years later I have been working since the treatment and haven't been on any medications either. It was a life saver for me"

APPENDIX 7: STRONGEST FAMILIES PROPOSAL

A Proposal for a Nova Scotia adapted, internet-based cognitive behavioral therapy

Submitted by Pat McGrath and David Lovas

As we have described previously in this proposal, MUS are highly prevalent, disabling and costly. For instance, Fedorak et al. (2012), based on Statistics Canada data from the Canadian Community Health Survey, reported that Nova Scotia had the highest rate of IBS in Canada. It was estimated that about 40,000 Nova Scotians have IBS with women being 3.5 times more likely to be afflicted. Direct health care costs are about $100,000,000 per year. Almost half of new gastroenterologist speciality consults are related to IBS and 2400 Nova Scotians are on permanent disability from IBS. Costs for NS employers and insurers is at least $60 million per year.

Fortunately, effective treatments are available. As described, research by Dr. Abbass and colleagues (e.g. Cooper et al., 2017; Koelen et al., 2014) has established that emotion-focused psychotherapeutic interventions may be particularly effective for patients with MUS. However, while individual psychotherapy is necessary for the most complex and severe presentations, there will likely never been sufficient human resources or funding to provide individual psychotherapy for every Nova Scotian in need. With such high prevalence rates (e.g. more than 50% of many subspecialty clinic visits), other innovative options are needed to address costs, disability and suffering. Moreover, transportation, timing with work, and other barriers can make psychotherapy untenable for many Nova Scotians. Therefore, as illustrated in Figure 4, we propose a stepped model of care, with the most intensive, psychotherapeutic care for the most complex cases, and using a less resource-intensive and less costly intervention for less severe cases.

Internet-based psychotherapies are emerging as powerful means of reaching more patients than has ever been possible via the traditional model of 1:1 psychotherapy. Internet-based therapies can be accessed by participants at their convenience, and require much less clinician staffing per patient, as we will describe in more detail below. Most importantly, these internet-based psychotherapies have been shown to be highly clinically and cost effective in multiple randomized control trials (RCTs) of functional conditions (including somatic symptom disorder, fibromyalgia, IBS).

Researchers at the Karolinska Institute in Sweden have developed an emotion-focused intervention that uses mindfulness and cognitive behavioral techniques (such as graded exposure) to treat MUS via an internet-based platform. Participants are guided through the experiential process online and have access to a therapist via text message for coaching and trouble-shooting. This typically involves 10 minutes or less of therapist time per week per patient (e.g. Ljotsson et al. 2011), thus allowing therapists to carry much larger patient loads. They have demonstrated this treatment's efficacy in large, high-quality RCTs for somatic symptom disorder (Hedman-Lagerlof et al, 2016), fibromyalgia (Hedman-Lagerlof et al, 2018a, b), and IBS (Ljotsson et al, 2011). An adolescent RCT has also shown positive effects (Bonnert et al. 2017). They also demonstrated significant healthcare cost savings. Anderson et al. (2011) found that their treatment saved $16,806 per successfully treated case. The cost reductions that were sustained at 3 month and 1 year follow up were mainly due to reduced work loss in the treatment group. Results were sustained at 3-month and 1 year follow-up. Ljótsson et al. (2011) in a similar trial reported cost savings of $39,821 per patient.

PROPOSED NEXT STEP

As this is still an emerging field, with testing by one research group in Sweden to date, and it has not yet been replicated in an effectiveness trial, we propose conducting an effectiveness replication trial in Nova Scotia before committing to a broader roll-out. To do this we propose starting by focusing on one of the most prevalent and burdensome MUS conditions in Nova Scotia - IBS.

We propose to undertake two replication trials, one with adults and one with children using the Swedish model for Irritable Bowel Syndrome to insure this approach is transferable to Nova Scotia. We would adapt the Swedish system, develop a patient advisory group and conduct usability studies before launching two randomized clinical trials, one for adolescents and one for adults.

The trial design would be a two-armed trial with comparison between full treatment and a psychoeducation control. The CONSORT Statement methods would be used throughout. The sample size per group would be approximately 75 per group. Coaches would be Drs. Lovas and McGrath and other recruited clinicians in the initial trial. The trial would be conducted from the Centre for Research in Family Health with Drs. Lovas and McGrath as co-principal investigators. The research team would include: Lovas, McGrath, Abbass, a gastroenterologist from Nova Scotia and Dr Ljótsson from Sweden.

The timeline for the trial would be 2 years.

Costs would include:
Visit to Ljótsson in Sweden by Lovas and McGrath $10,000
Development of intervention materials based on the Swedish work: $30,000
Research Manager: approx. $50,000 X2= $100,000
Research analyst: approx. $20,000 X2=$40,000
Economic analyst: approx. $14,000
Materials reproduction: $20,000
Publication costs: $15,000
Indirect costs to IWK Research $35,495
Total costs $264,495

In the second year, preparation would begin to develop the intervention for other patients with medically unexplained pain such as fibromyalgia.

SUSTAINABILITY

Following the trial, services would be offered to suitable patients with Irritable Bowel Syndrome at a cost of approximately $700 per patient (costs of materials, therapists, management and follow up costs) following screening and referral to the treatment group.

References to Strongest Families Submission

Andersson E, Ljótsson B, Smit F, et al. Cost-effectiveness of internet-based cognitive behavior therapy for irritable bowel syndrome: results from a randomized controlled trial. *BMC Public Health*. 2011;11:215. doi:10.1186/1471-2458-11-215.

Bonnert M, Olén O, Lalouni M, Benninga MA, Bottai M, Engelbrektsson J, Hedman

E, Lenhard F, Melin B, Simrén M, Vigerland S, Serlachius E, Ljótsson B. Internet-Delivered Cognitive Behavior Therapy for Adolescents With Irritable Bowel Syndrome: A Randomized Controlled Trial. Am J Gastroenterol. 2017 Jan;112(1):152-162.
Cooper A, Abbass A, Town J. Implementing a Psychotherapy Service for Medically Unexplained Symptoms in a Primary Care Setting. J Clin Med. 2017 Nov 29;6(12). pii: E109. doi: 10.3390/jcm6120109. Erratum in: J Clin Med. 2018 Mar 06;7(3):.

Fedorak RN, Vanner SJ, Paterson WG, Bridges RJ. Canadian Digestive Health Foundation Public Impact Series 3: irritable bowel syndrome in Canada. Incidence, prevalence, and direct and indirect economic impact. Can J Gastroenterol. 2012 May;26(5):252-6.

Hanlon I, Hewitt C, Bell K, Phillips A, Mikocka-Walus A. Systematic review with meta-analysis: online psychological interventions for mental and physical health outcomes in gastrointestinal disorders including irritable bowel syndrome and inflammatory bowel disease. Aliment Pharmacol Ther. 2018 Aug;48(3):244-259.

Hedman-Lagerlöf M, Hedman-Lagerlöf E, Ljótsson B, Wicksell RK, Flink I, Andersson E. Cost-effectiveness and cost-utility of internet-delivered exposure therapy for fibromyalgia: results from a randomized controlled trial. J Pain. 2018 Aug 11. pii: S1526-5900(18)30421-8.

Hedman-Lagerlöf M, Hedman-Lagerlöf E, Axelsson E, Ljótsson B, Engelbrektsson J, Hultkrantz S, Lundbäck K, Björkander D, Wicksell RK, Flink I, Andersson E. Internet-Delivered Exposure Therapy for Fibromyalgia: A Randomized Controlled Trial. Clin J Pain. 2018 Jun;34(6):532-542.

Hedman E, Axelsson E, Andersson E, Lekander M, Ljótsson B. Exposure-based cognitive–behavioural therapy via the internet and as bibliotherapy for somatic symptom disorder and illness anxiety disorder: randomised controlled trial. The British Journal of Psychiatry. 2016 Nov;209(5):407-13.

Koelen JA, Houtveen JH, Abbass A, Luyten P, Eurelings-Bontekoe EH, Van Broeckhuysen-Kloth SA, Bühring ME, Geenen R. Effectiveness of psychotherapy for severe somatoform disorder: meta-analysis. Br J Psychiatry. 2014 Jan;204(1):12-9

Ljótsson B, Andersson G, Andersson E, Hedman E, Lindfors P, Andréewitch S, Rück C, Lindefors N. Acceptability, effectiveness, and cost-effectiveness of internet-based exposure treatment for irritable bowel syndrome in a clinical sample: a randomized controlled trial. BMC Gastroenterol. 2011 Oct 12;11:110