THE EMERGENCY MEDICINE NETWORK

SUPPORTING PRACTITIONERS TO IMPROVE EMERGENCY CARE BY INTEGRATING CLINICAL PRACTICE WITH KNOWLEDGE SYNTHESIS, KNOWLEDGE CREATION, PROFESSIONAL DEVELOPMENT AND REAL-TIME SUPPORT

An Overview

September 2014

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FORWARD

For the past 34 years I have practiced emergency medicine in British Columbia, and consider it a privilege. I continually marvel at the trust patients and families put in physicians they typically have never met, when they might be suffering from a life-altering or life-ending event. That trust is sacred, and demands that emergency physicians deliver the most up-to-date and compassionate care possible… without compromise and regardless of location.

Yet every day I have questions about what is best practice for particular conditions. This uncertainty, and the spirit of inquiry, is what drove me to pursue a career in clinical research in an effort to answer some of those questions. It also inspired me to help others build greater emergency medicine research capacity to answer more of the many, many questions concerning best practice that arise every day across BC.

As my career evolved to include more administrative responsibilities, I began to understand the importance of infrastructure and the health care system, and their essential role in supporting clinicians to make appropriate diagnostic decisions and provide the best possible treatment. It is clear to me that we will be much more effective in delivering consistent best emergency care, in both urban and rural emergency departments, if we can coordinate policy makers, health care leaders, health care managers, researchers, educators and clinicians.

A BC Network of Emergency Care will increase the capacity, relevance and effectiveness of new knowledge creation, synthesis and exchange and in doing so will shorten the time to implementation of consistent best practice in BC. The 2,000,000 British Columbians who cross an emergency department threshold each year, and the 1000 physicians who care for them in 100 emergency departments deserve our best efforts.

This document is intended to provide an overview of a response to that challenge. It represents an effort to bring all necessary stakeholder parties together to define how we can implement a sustainable and organized approach to improving emergency care in BC.

This is just the start of a sea change in the way we should approach emergency care in BC. I hope what is proposed resonates with you, and welcome your participation in constructive discussion, debate and improvements to this plan.

With optimism for the future of emergency care…

Jim Christenson

Jim Christenson MD FRCPC
Professor and Head, UBC Department of Emergency Medicine
Planning Leader - BC Network of Emergency Care

PURPOSE OF THIS DOCUMENT

This document is meant to provide a high-level overview of a proposed Network in Emergency Medicine. It is not meant to be an extensive planning document or a business plan but rather to inform decision-makers of the need and opportunity to improve emergency care in BC. More detailed documents are available for information or to guide implementation after we establish financial commitments to support the Network.

BACKGROUND

Emergency Care in BC

Emergency practitioners in B.C. respond to immediate and often unexpected health needs of our citizens. They respond to all patients arriving at the door of the emergency department whether defined as primary care or acute care. They directly see the consequences of failures in community care and hospital-based acute care, and are often responsible for the transition from community to acute care. It is estimated that 50% of acute inpatient admissions and approximately 25% of patient interactions with acute hospitals occur through an ED.

Over 1000 physicians (many part-time in conjunction with family medicine practices) care for 2,000,000 ED visits each year in 100 emergency departments. Approximately 2/3 of these physicians are part-time and also manage a family practice in smaller communities.

The modern practice of emergency medicine requires a very broad set of knowledge and skills. Individual physicians and emergency department managers struggle to remain current with best emergency care for the many presentations they encounter that are life or limb threatening. The explosion of new information related to emergency care is enormous and difficult for any one individual or emergency department to incorporate quickly into practice. The maintenance of up-to-date emergency knowledge and skills is particularly challenging for rural practitioners who often must remain current in general practice, obstetrics, psychiatry, pediatrics etc. Standard clinical practice guidelines are often out-of-date, confusing to practitioners, based on an urban style practice and commonly require modification to fit into the emergency department environment. Within this community many clinical and operational experts and hospital departments struggle in isolation to define and implement best practices.

Opportunity to Improve Emergency Care

The consequence is a great variation in practice and substantial opportunity to improve care and clinical outcomes. Providing more consistent best care is also likely to result in reduced costs either through more efficient immediate management (eg. reducing need for transport) or reducing unnecessary complications.

Excellent provision of emergency care (primary and acute) reduces admissions, repeat emergency department visits, morbidity, mortality and health care costs. Excellence in

emergency care also supports primary care in conjunction with the patient's general practitioner. The Emergency care system not only provides care for patients with unpredictable health crises but it is also a broad safety net for the inevitable patient safety near misses in the broader health care system.

Expertise Without Coordination

A large pool of talented expert clinicians and qualified and successful clinical researchers are faculty members within the UBC Department of Emergency Medicine. Academic emergency physicians work clinically in emergency departments, however, they traditionally work in tertiary care centers and are relatively isolated from the front line emergency care providers in rural and remote settings. Published "best practices" often do not penetrate to all providers in all settings, and some of the most common issues in emergency departments do not have well articulated ideal care paths. New evidence to support better patient management often takes years to incorporate into practice and may need specific modification for different settings.

We face the challenge of a lack of harmonization of evidence-based best emergency practice across the province. Building a communication network to share the knowledge and expertise of traditional academic emergency physicians and the perspective of experts from rural communities will enable more rapid change to best practice models.

To optimize implementation of evidence based best emergency care and to better support health system access, quality, efficiency and productivity, we need to:

- determine and continually update best practices in a wide variety of presentations
- effectively share that knowledge amongst emergency health providers
- maintain the necessary knowledge and skills through continuing professional development for all emergency practitioners and
- provide real-time expert clinical support

The public, medical and nursing communities and health care managers all expect high quality of care to be delivered in BC emergency settings. The Quality Improvement culture appropriately demands that we consistently provide best practice and avoid medical errors. The intent is to improve patient outcomes while also reducing the costs of avoidable adverse consequences. Despite universal support for this philosophy and the resulting change in medical culture, the resources and structure required to affect the necessary change in process and culture are insufficient. Provincial efforts through structures such as the BC Quality Council based on the Ministry of Health Clinical Care Management initiatives and the Evidence-to-Excellence Program have had success, but impact only a small proportion of patient presentations in EDs and have not penetrated adequately to all locations. The efforts to define privileging and credentialing for Emergency Practitioners are well-intentioned but difficult. A key principle incorporated into the discussions is the need to identify practice gaps or weaknesses in skills and critical thinking and address them through support, information or practice support.

To date, there is no coordinated effort to systematically and comprehensively improve the support for emergency physicians and emergency departments across BC to improve clinical care.

The community of emergency practitioners is an excellent resource to treat a range of primary and acute care issues; define health system problems; propose, implement and refine solutions; and evaluate the effectiveness of new policy. The UBC Department of Emergency Medicine is interested in working with partners to integrate academic and clinical emergency medicine. This implies a very different model from the traditional university department.

THE SOLUTION: AN EMERGENCY MEDICINE NETWORK

The solution is to coordinate the significant talent and resources within the emergency medicine practitioner community and share the extraordinary knowledge and experience.

The Network Vision

Emergency practitioners supporting emergency practitioners
to deliver best emergency care

Primary Network Objectives:

- To provide real and sustainable system improvements in the quality of emergency care in all BC emergency departments
- To re-align resources to more efficiently improve emergency care and contribute to the larger health system strategic initiatives

Network Support Objectives:

- A vibrant communication network of emergency practitioners, policy-makers, provincial and local emergency care leaders, researchers, quality care experts and educators
- Increased capacity to create and synthesize best practices on a wide range of relevant topics
- An efficient communication platform to share best practices and facilitate implementation
- Real-time support to advise and support
- Comprehensive and accessible CPD for the emergency medicine practitioner

Who are we?

This plan was initiated in the UBC Department of Emergency Medicine and is consistent with its vision. However, many other stakeholders support the concept and direction and have contributed to the plan's development.

The BC Network in Emergency Care is not simply an expansion of the UBC Department of Emergency Medicine. It is a new and broader "organization" integrating clinical care with knowledge creation and exchange. It will establish shared governance and a shared vision for all stakeholders and will evolve as we learn how to most effectively achieve our goals. The UBC Department of Emergency Medicine will play an important leadership role and use its clinician scientists to create new knowledge, synthesize existing knowledge and evaluate the effectiveness of the Network.

The Network will connect academics, policy makers and managers with the front-line clinicians who deliver care. It will focus on the quality of care provided with an intensity never before attempted. It will build and provide the support for clinicians thus enabling them to provide the best care. In doing so, the Network will directly contribute to the successful achievement of the goals of the Ministry of Health and the Health Authorities related to quality emergency care.

Although all physicians practicing emergency medicine are likely to benefit, the most important impact is likely to be for part-time rural emergency practitioners and the communities they serve. Network supports will provide confidence in rural physicians that they can deliver the care their emergency patients deserve. Physicians supported by a Network are more likely to remain in rural communities and continue the challenging career of mixed general and emergency practice.

Integrated province-wide support for emergency practice

An integrated Network of Emergency Medicine clinicians, researchers, educators, clinical specialists, health services managers, quality leaders, Health Authorities and the Ministry of Health can improve emergency care in all sites across the province.

A functional Network of Emergency Care will provide the infrastructure to:

- Identify opportunities for improvement
- Share existing expertise to solve operational or quality improvement issues
- Use existing expertise from across the province to centrally define best practices for many common emergency clinical patient presentations
- Share the developed information or solution in a central repository for easy access by all clinicians and emergency departments
- Support and direct clinician scientists to prioritize and develop solutions to real clinical problems
- Coordinate and facilitate continuing professional development for emergency practitioners in BC
- Provide real-time support using modern eHealth and tele-health strategies to advise emergency clinicians in the moment of need

Network Programs

The work of the network can be divided into 4 functional and 2 support programs.

The functional programs to support practitioners directly are:

- Descriptions of best practice (knowledge synthesis and sharing)
- Creating better practices (knowledge creation/research)
- Continuing professional development (comprehensive and pro-active)
- Real-time advice for practitioners (eHealth and tele-health)

The support programs that facilitate the functional programs are:

- an accessible, provincial clinical and administrative database
- an effective and sustainable communications infrastructure

THE FOUR FUNCTIONAL PROGRAMS

Relevant Descriptions Of Emergency Medicine Best Practices

Despite standard publications and excellent programs such as Evidence to Excellence and Clinical Care Management, province-wide implementation of the many emergency best practices is inadequate. Dissemination of newly created knowledge relevant to care even if generated in BC is inefficient because there is no structured communication network to support information sharing.

We will build an efficient province-wide repository of best practices and clinical support tools. Each topic will define specifics relevant to tertiary settings, large community hospitals and rural emergency departments. Experts from across the province will acquire perspectives from users, build a useful and accessible reference, maintain the reference as knowledge changes and lead an interactive province-wide conversation to discuss nuances and practical application improvements offered by users.

Identifying 25-50 topics priority topics with one provincial repository and one expert responsible for updating each will be much more efficient than developing similar information independently at multiple sites. Engaging clinicians in a network depends in the practical usefulness of these described best practices.

Example: Clinician scientists have evaluated discharge errors in patients with chest pain and developed a clinical decision rule that identifies the patients who have a very low likelihood of an incipient heart attack. A substantial proportion of these patients can be discharged without the need for further investigations. This reduces ED congestion, reduces the error of inappropriate discharge and reduces patient inconvenience and anxiety. It can and should be applied in all EDs in BC but has not penetrated to this level despite academic publication.

Creating Better Practice (Innovation)

The ultimate purpose of the UBC Department of Emergency Medicine (DEM) is to improve care provided in emergency departments across BC. Emergency medicine clinician scientists create new knowledge to improve the practice of emergency medicine. The Department of Emergency Medicine research faculty include those: who build capacity for research through funding, training and tools; who conduct research in tertiary care centers, multicenter networks or in community settings; who use newly gained knowledge to inform practice; who understand how to best implement new findings; who create knowledge essential to

health care policy; and who evaluate the effectiveness of new policies. DEM faculty share a common passion: to bring the very best of emergency care based on sound evidence to the bedside. Clinician scientists in the UBC Department of Emergency Medicine have generated significant contributions to emergency medicine practice.

Recent examples include:

- *improved sudden cardiac death survival in BC from 6.6% to 13.8% (>150 additional patients alive each year)*
- *a decision rule to identify patients with chest pain for safe discharge within 2 hours*
- *documenting the safety of electrical cardioversion for atrial fibrillation to reduce ED length of stay*
- *defining and implementing best practices for stroke prevention and management*
- *defining the effect of alcohol levels on drivers and supporting more effective driving impairment laws*
- *identifying the burden of prescription drug adverse events and methods of effective screening*
- *development of local and regional emergency medicine databases to monitor care gaps and the effect of policy implementation*
- *defining accountability and advocating for policies to reduce ED crowding*
- *identifying characteristics of effective implementation of best practices in sepsis*

The DEM is committed to focus researchers funded by the MOH and the Health Authorities to provide solutions to real clinical or operational problems identified by practitioners and health authority managers.

One of the advantages of a comprehensive network lies in the shared successes of smaller, traditionally non-academic emergency departments and experts outside the traditional academic sphere. The network views research in its broadest sense to include successful clinical and administrative quality improvement projects from any local site or multi-center group.

The Network provides the structure to share new clinical or operational solutions on the platform defined above in the “Description of Best Practices”. Time to broader implementation of new knowledge will be dramatically shortened.

Enhancing Continuing Professional Development

The network will build a robust schedule of **continuing professional development** that pro-actively disseminates new important knowledge for critical decision-making and provides a solid opportunity for acquisition and maintenance of necessary emergency medicine skills.

Many excellent but separate education programs have been well received in the emergency practitioner community. They all have strengths and weaknesses but rarely penetrate deeply enough to reach all those who need this education. Integrating and coordinating face to face simulation programs, conferences, webinars and distributing the many excellent rounds delivered at local centers will provide the necessary opportunities for emergency

practitioners to learn new skills, maintain infrequently practiced skills, hone critical thinking and strengthen the core knowledge base essential to best practice.

This Network CPD program will build on the substantial success of: existing simulation programs (The CARES Course; The Shock Course, The Interior Health Authority simulation community team practice course, The Simulation-assisted Emergency Procedures course and a companion course for pediatric skills); current excellent conferences (The St Paul's Emergency Medicine update conference and the Kelowna Rural Emergency Medicine Course); Evidence to Excellence webinars (this concept will be expanded to share rounds given in emergency medicine across the province with practitioners accessing from their desktop interface)

A comprehensive integrated professional development program will be focused on meeting the knowledge and skills gaps expressed by practitioners or uncovered in the privileging and credentialing process.

Real-Time Expert Support

Despite good access to expert descriptions of best practice and a more robust professional development program, practitioners in smaller communities will at times require real-time support from expert colleagues. We will build three levels of real-time support based on increasing urgency and complexity.

1. Non-urgent social media based support. There will be times, perhaps with a patient in the emergency department or perhaps after an interaction, when an emergency practitioner has a simple question about management that is not time-sensitive.

2. Urgent telephone advice. Practitioners at times need to talk about the best management for a moderately ill patient they are currently seeing. It might involve actual therapies or diagnostic procedures or a better understanding of what care might be offered to a patient in a higher level of care. Sometimes what will be done at a higher level of care is achievable at any center thus obviating the transfer. On other occasions advice might be to transfer a patient who is not unstable currently but at high risk, thus preventing a more urgent transfer that could result in unnecessary complications after clinical deterioration. We will explore the potential to partner with the BC Emergency Health Services Emergency Physician Online Services (EPOS) program. The model will be very similar to the effective Poison Control program but deal with a greater array of clinical scenarios.

3. Video-linked support for critical care. On occasion a practitioner in a smaller center needs an expert to be looking over his or her shoulder and advising on the next course of action. These are very stressful circumstances in situations that require expert care but in cases where the practitioner has little practical experience. A video view using modern mobile devices can be extremely helpful to diagnose or define the urgency of interventions such as intubation as well as to guide procedures such as intubation or chest-tube placement. The structure would require available experts 24/7 and could be a provincial or regional service.

NETWORK REQUIREMENTS AND STRUCTURE

The following are necessary for successful network implementation

- deep **engagement of clinicians, academics, managers and health leaders**
- **shared governance**
- **effective dedicated management**
- distributed but **organized support** and management
- **frequent discussions to continually improve** and redesign the network
- **facilitated communication platforms**
- **easily accessible support tools for clinicians**
- **data** on emergency presentation and care processes
- **protected time for strategic initiative research leaders**
- **time commitments from clinical experts** across the province in key areas
- a broad definition of knowledge creation including **quality improvement**
- a robust schedule of **continuing professional development**
- integrated **evaluation**
- **investment** in the resources required for detailed planning, management, implementation and reporting

Partnerships necessary for success

A large number of partners are required to commit to this vision and plan if we are to achieve success. The following groups are essential.

Specific partners include: the Department of Emergency Medicine, the Ministry of Health, Health Authorities, the Faculty of Medicine, the Rural Care Collaborative, Shared Care Services Committee, the doctors of BC, Rural Education Action Program (REAP), each

emergency department in the province and all physicians practicing emergency medicine in the province.

Defining and reporting success

Success of the Network will depend on the engagement of the stakeholder partners and the continuing energy and enthusiasm of the participants. In the end it will only survive and be sustained if it benefits patients by meeting the needs of emergency practitioners.

One of our key priorities is to build and integrate provincial emergency medicine clinical and administrative data systems to allow us to identify problems and quantitatively measure the effect of policy or process implementation on clinically relevant or system relevant outcomes and health system efficiencies.

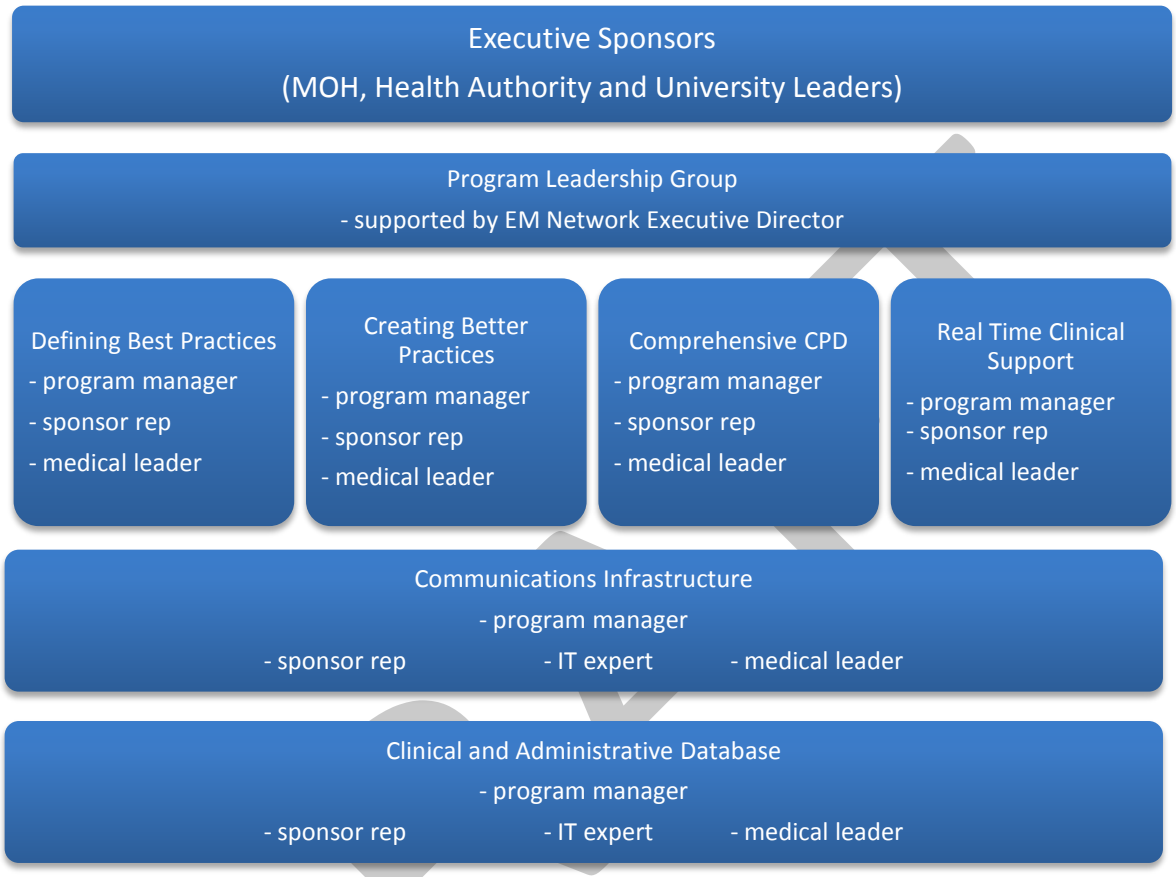
Nevertheless we intend to implement an evaluation framework from the initiation of this project to describe quantitatively and qualitatively what we have achieved. It will also provide information on implementation issues and allow us to modify and improve the approach as we proceed.

At a minimum, early reports to define success will include:

- perceptions of emergency practitioners about the value of the Network
- documentation of newly developed clinical support materials
- documentation of new solutions to relevant clinical or administrative problems
- extent of provincial participation in development of clinical support tools
- active local ED implementation of centrally available support tools

GOVERNANCE AND MANAGEMENT STRUCTURE

The following structure provides a high-level view of the governance and management structure that defines the work, accountability, decision-making and reporting stream.



Executive Sponsors

The Executive Sponsor Group will set overall direction by sponsoring this plan (when finalized and endorsed). They will approve expectations and objective measurement of outcomes consistent with the level of support provided.

The Executive sponsors will be specifically responsible for hiring the EM Network Executive Director who will in turn report directly to them through regular reports and yearly meetings.

Each Health Authority and the Ministry of Health will appoint a decision making executive from their organizations. The Head of the Department of Emergency Medicine will represent the Academic perspective.

Program Leadership Group

The Program Leadership group will act as the working Senior Executive Team for the Network. It will include the Medical Leader and Manager of each of the six programs. It will modify

plans, set strategy, set timing and output targets for reporting to the Executive Sponsors. Each Health Authority and the Minister of Health is welcome to appoint a sponsor representative to the Program Leadership Group.

This committee will hear all the issues and reports on successes and problems encountered by each of the programs and develop reports to the Executive Sponsors. They will meet monthly by video / teleconference.

MANAGEMENT FRAMEWORK

Program Leadership Group

The Program leadership Group as described above will support the managers of each program. They will use their varied skill sets to ensure success of the Network Programs as a whole, despite variable timing and expectations of individual programs.

Programs

Management of each individual program will include a part-time manager and a supported medical leader. A particular management staff could be responsible for 2 programs if the skill set is aligned and the time allotment is possible.

Managers and Leaders will work closely together using allocated resources to fulfill the objectives of the program. In the initial stages they will reach out to the entire Network to ensure alignment and engagement of clinicians, health care managers and decision makers. A business plan specific to the Program will then be developed for approval by the Program Leadership Group.

The Network will adopt a servant leader/facilitator leadership model. To truly function as a Network there will be minimal vertical hierarchy and a broad horizontal partnership. Success will depend on frequent meaningful communications about Network Activities so that it has an identity and a personality.

Credit will be ascribed to all in a given team with perhaps special highlights to individuals who facilitate a major change in the culture or operations.

Network leadership will seek contributions from all departments in the province and will find ways to share that knowledge or engage contributors in other ways within the Network.

FUTURE BENEFITS AND OPPORTUNITIES OF THE NETWORK

Although the initial focus must be to support the 1000 physician emergency practitioners, the network can then provide additional benefits to the emergency health care system. In brief, the clinical support programs, communications infrastructure and data analyses could be used to:

- Expand beyond physicians to support clinics in remote communities staffed by Nurse Practitioners (best practices and CPD programs will be available to this expanded group of practitioners from the onset)
- Support First Nations health authority emergency infrastructure (best practices and CPD programs will be available to this expanded group of practitioners from the onset)
- Add support to Nurse-Line to more effectively determine the need for patients to attend emergency departments and likely reduce emergency department volumes
- Support Community Practice Paramedics in ambulance responses or remote community practice
- Improve information transfer between primary care physicians and emergency
- Define the optimum role for an Emergency Department in rural vs urban sites through engaging patients in those communities as partners
- Engage patients and lay experts as partners in further network development to ensure it aligns with patients needs and expectations

CONCLUSION

Emergency Medicine in BC is presented with a wonderful opportunity. Although emergency practitioners deliver excellent care much of the time, there are real opportunities to improve care quality and efficiency. Clinical expertise and academic expertise across our province can support the delivery of care for all emergency practitioners. We need an organized and sustainable network to share knowledge, create new knowledge, develop and maintain critical skills and provide real-time advice whenever necessary by integrating clinical and academic emergency medicine. We have committed engagement from clinical, academic, policy, management and community partners. A financial commitment from policy decision makers will bring this practical vision to reality.