Risk Assessment, Primary Prevention, and the Chronic Care Model

In this issue of the Journal, companion articles by Bilbul and Schipper[1], and by Schipper et al[2] describe an emerging evidence-informed strategy to risk assessment and mitigation through primary prevention. Taken together, the articles represent i. a timely contribution to a burgeoning literature on risk, and risk mitigation, of health disparities; ii. a demonstration of innovation fluency for health systems change focused on implementation of evidence-informed interventions; and iii. potentially a timely and significant contribution to the Chronic Care Model (CCM) in the area of primary prevention[3].

Bilbul and Schipper have undertaken a comprehensive review of contemporary thinking related to factors potentially predisposing to Alzheimer Disease in five domains; Genetic, Metabolic, Nutritional, Cognitive, and Psychological. The authors focus on potential risk factors that are partly environmentally-determined (hypertension, hyperlipidemia, dysregulated glucose/insulin homeostasis, inadequate intellectual or social engagement, high chronic anxiety and work/ sport-related traumatic brain injury), and potentially modifiable by a holistic approach that includes diet, lifestyle and/or medications.

The authors indicate (sic) 'certain vulnerabilities are inherited and fixed', implying that they are immutable to mitigation. That risk/vulnerability of an inherited trait is fixed and immutable to mitigation is an assertion to be scrutinized in light of i. two recent publications on the risk/predictors of health disparities[4,5], ii. a host of supporting literature that highlights the clinical relevance of the genetics/epigenetics of the brain 'connectome'[6], and iii. implications running through this literature that point to evidence of risk mitigation, and call for broad systems strengthening of practice, programs, and public policy in education, health, and social services to address such disparity.

Cast in the Canadian context, two longitudinal studies, the Canadian Longitudinal Study on Ageing[7], and the Ontario Health Study[8], linked as they are to repeat analyses of targeted biomarker suites, are now well-positioned, integrated with other forms of surveillance, research, and program evaluation[9,10] to generate evidence that contributes to the health knowledge base that will advance the emerging field of the 'neurobiology of risk and risk mitigation' in the interests of ongoing improvements in practice, equity, programs, policy, and performance measure.

Bilbul and Schipper are keenly aware of the complementary growth of i. the body of information to identify susceptibility factors that will inform future Alzheimer Disease prevention strategies, ii. an increasingly informed/need-to-know public, and iii. the 'social constructs'/advocacy coalition frameworks ('Prevent Alzheimer's Disease by 2020', Neurological Health Charities Canada, targeted funding by CIHR) currently at play that will shape systems improvements in practice, programs and policy to mitigate population burden, and to enhance quality of life for persons (patients and caregivers) affected by Alzheimer Disease and other chronic neurological disorders.

Astutely aware of the juxtaposition of these drivers of 'emergence capacity' for broad social benefit[11], Schipper and colleagues have nimbly engaged the philanthropic community and have undertaken to implement an Alzheimer Risk Assessment Clinic (ARAC) in Montreal, launched in 2009, and described in the companion article.

As described by Schipper et al, (sic) 'the primary objectives of ARAC are to (i) ascertain, inform and mitigate the risks of developing AD in cognitively-healthy persons aged 40-65 based on best available medical and epidemiological evidence, (ii) conduct scientific research on midlife dementia risk and prevention in this population and (iii) provide instruction in dementia risk assessment and management to health professionals, clinical/research fellows, medical residents and students'.

Of the six key components of the CCM, ARAC currently emphasizes organization of health care (eg. setting measurable goals); delivery system design (eg. team-delivered care, proactive follow-up); and, to some extent decision support (use of evidence-based guidelines, provider education). These foundation pieces will be key to future linkage to self-management support, supportive linked community resources, and clinical information systems that fully engage all stakeholders in order for ARAC to fully realize the potential of the CCM.

Perhaps the greatest strength of the ARAC initiative is its embedding in ongoing programs of research, and capacity building (education and training of highly qualified personnel). In this regard, two points are noteworthy.

First, ARAC has the potential to contribute significantly to the emerging neurobiology of risk and risk mitigation referred to above.

Second, the program evaluation component of ARAC within a national study involving other programs[2], and emerging opportunities from CIHR, deserves particular mention. The national study has the potential to improve the universal science of implementation related to any CCM program. Through program analysis, documentation, and evaluation focused on the four attributes of innovation fluency (the needs and emerging issues of communities and regions; the intervention and its core indicators for fidelity, sustainability, and scalability; implementation and its core indicators for fidelity, sustainability, and scalability; and improvement cycles for practice, program, and system change emerging from integration of survey, surveillance, program evaluation, and research activities)[12,13], a body of knowledge to inform staff competency, systems organization/re-organization, leadership, and performance-based

investment, and distribution/re-distribution of resources will be forthcoming. This integrated approach provides the necessary and sufficient conditions to address the call for the required transformative changes in this area[3].

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