UNIVERSITY OF TORONTO
FACULTY OF MEDICINE

CREATION OF A TORONTO CENTRE FOR DEMENTIA RESEARCH

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On behalf of the TDRA:
Baycrest
St. Michael's Hospital
University Health Network
University of Toronto, CRND
Sunnybrook Health Sciences Center
Centre for Addiction and Mental Health

Toronto Dementia Research Alliance

Toronto Dementia Research Alliance

What will happen over the next several years?

- Improved symptomatic therapies remain critical - of most immediate value to patients and their caregivers. But these will not stem the tide of the disease.
- Delay for disease modification (DM) and prevention is untenable
  - 5 million Americans are currently afflicted with AD.
  - Will increase by 50% in 20 years, 300% by 2050
  - Cost in US: currently $100B/yr, $20T over next 40 yrs, $1T/yr by 2050
  - Projection: 24% Chinese population afflicted by 2050 = >300 million
- Feasibility for DM and prevention exist in principle. Barriers must be broken.
  - No more "Business as Usual"
  - Collaborative national and international initiatives, cross-sector alliances, national registries, changes to regulatory and intellectual property policies, new legislation
- The only path to success in an acceptable time frame

TDRA - History

- Brain Imaging and Biomarker Alliance – initial meeting with representatives of UHN, Baycrest and Sunnybrook on 16 September 2009
- Development of Provincial, national and international initiatives changing the landscape for early intervention and prevention
- Matured into effort to position ourselves proactively as a flagship Canadian ADRC-type Centre of Excellence in research on dementia, co-morbidities, and co-occurring, contributory, underlying disorders
- Inclusion of CAMH, CRND, St. Mike's – all of the UT-affiliated memory clinics

Vision:
Toronto Centre for Research on Cognitive Disorders

- Cognitive and related disorders: Dementia, movement disorders, mood and psychiatric disorders, cerebrovascular disease, metabolic disorders
  - Preclinical basic and applied research including animal modeling focused on disease mechanisms and therapeutic targets
  - Genetic risk factor identification, novel gene discovery, pharmacogenetics
  - Biological fluid and image-based biomarker analyses across continuum of preclinical models, prodromal and clinical disease states of increasing severity
  - Integration of multi-modal imaging relationships - brain function, structure, pathology, metabolism, neural network characterization
  - Focus on prodromal disease: Pre-dementia risk factor and subgroup identification for cohort segregation relevant to therapeutic intervention strategies

Focus on prodromal disease

- Identification and treatment of patients at risk
  - Robust patient cohorts available for longitudinal and cross-sectional studies
  - Integration of genetics, fluid & imaged-based biomarker analyses
  - Development of novel psychometrics in pre-symptomatic and early dementia
  - Cross-validation of relationships among pre-symptomatic and clinical dementias with co-occurring/contributory/underlying progressive disorders
  - Patient sub-group segregation to identify those with better chances of responding to selected therapies

Innovations and Impacts

- (Some) Potential innovations *not* discussed in today's presentations:
  - Longitudinal studies on retinal pathology
  - Neural network modeling
  - Pioneering studies in human cognition
  - Neuroinformatics
  - Epigenome sequencing
  - Cerebrovascular antecedent risk factors, revascularization treatment potential
  - Novel surgical & clinical approaches for treatment/hypothesis generation, i.e. DBS
- Impacts on:
  - Validation of novel sets of genetic markers, biomarkers, brain function and clinical assessments
  - Clinical trial design and responder analyses

Outcomes

- Create innovative, integrated and synergistic research programs extending from basic to clinical research, and POC for novel therapeutic and diagnostic agents in early-phase clinical trials
  - Cross-sectional and longitudinal multi-disciplinary studies. Capabilities on par with leading centers in US.
  - Broader interactions with additional academic centers
  - Participation in the developing initiative-driven landscape in dementia research
  - Cross-sector funding – governmental, voluntary, industrial, private
  - Improved patient care

Discussion points on the TDRA agenda

- Cross-institutional governance structure
  - Enable recruitment into key positions
  - Create single point of contact for external interactions
  - Facilitate harmonization of IRB and IP policies across UT hospital landscape to streamline studies, assessments, cross-institute and external interactions
- Harmonization of IT platforms
  - Facilitate use of electronic records, data files
  - Create compatibility across institutions and with national/international consortia
- Alignment/affiliation with ADNI-2
- Participation in centralized tissue/brain, fluid, cell, genetic banks
- Identification of key hires, functional capabilities, budgets, funding requirements

Summary

Consolidation of the TDRA into a working cross-institutional alliance will:

- Maximize the scope and integration of basic and clinical research capabilities
- Provide opportunities for new funding through existing and novel streams
- Create opportunity for participation and leadership in consortia-based efforts to understand, treat and prevent progressive cognitive disorders

Today's agenda

- Tony Lang – Toronto Neurology Programs
- Morris Freed … havior… Neurology S… Memory Cli…
- Neil Vasdev … and CAMH
- Tiffany Ch… …g, … and AD
- Ekaterina … CRND program from basic … to clinical … on
- … l trials, … dities
- … – Toronto Neuropath
- Roger McIntyre – Prodromal risk

… Quirion – CIHR's international Alzheimer strategy

TDRA Core working group – 9 April 2010

- UHN
  - Barry Greenberg, Ron Keren, David Tang-Wai, Mary Pat McAndrews, Roger McIntyre
- Baycrest
  - Lisa Goos
- Sunnybrook
  - Mario Masellis
- CAMH
  - Zahinoor Ismail
- St. Mike's
  - David Munoz
- Behavioural Neurology Section
  - Morris Freedman


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