

Dr. Carlo Carandang

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Psychiatrist/Data Scientist investigating Big Data, machine learning, and AI in psychiatry and government.

RESEARCH AREAS

In this era of rapidly increasing demand for mental health services with shrinking budgets, I investigate the application of Big Data, machine learning algorithms, and artificial intelligence (AI) to improve psychiatric care to patients at reduced cost. As Senior Vice President for KARV Data Consulting Ltd., I actively research and build AI applications for clinical psychiatric use.

Big Data produced from clinical psychiatric activity can improve clinical care at reduced cost via clinical predictions (Predictive Modeling), more accurate classifications of presentations outside of clinical guidelines (Computational Phenotyping), case-based reasoning (Patient Similarity), hypothesis generation for Randomized Controlled Trials (RCTs) to further inform clinical guidelines (all AI applications), and clinical workflow automation from extractive summarization of clinical notes (Natural Language Processing [NLP] and Deep Learning), just to name a few.

Recently, I became an employee of the Government of Canada. As a Data Scientist for the Government of Canada, I help the government implement AI and Big Data systems into their large IT enterprise system.

EDUCATION

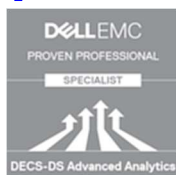
Saint Mary's University, Halifax, Nova Scotia; 2017 to 2019
Master of Science in Computing and Data Analytics

University of Texas Medical Branch School of Medicine, Galveston; 1992 to 1996
Doctor of Medicine

University of Texas, Austin; 1988 to 1992
Bachelor of Science in Chemical Engineering with Honors; Cum Laude Graduate

TECHNICAL CERTIFICATIONS

[Specialist - Data Scientist, Advanced Analytics Version 1.0](#)



February 22, 2018. The certification recognizes the achievement of the Dell EMC Proven Professional Specialist - Data Scientist, Advanced Analytics Version 1.0 certification. Earners of this badge have the knowledge of analytical methods, Hadoop (and Pig, Hive, HBase), Social Network Analysis, Natural Language Processing, and Visualization methods. These methods provide the data scientist

the ability to identify and communicate conclusions and recommendations in order to solve business challenges across many domains.

Associate - Data Science Version 1.0



January 8, 2018. This certification recognizes the achievement of the Dell EMC Proven Professional Associate - Data Science Version 1.0 certification. Earners of this badge can participate and contribute as a Data Science Team Member on big data and other analytics projects.

TECHNICAL PROJECTS

Government of Canada IT Projects

January 2020 to present

I have been the business analyst and data science SME (subject matter expert) on several IT projects in the Government of Canada, involving AI, machine learning, and innovation. These GoC projects have a significant AI and/or innovation component.

Psychiatry AI Application

March 2019 to present

Built an AI application that takes the clinical history from the patient and provides the likely psychiatric diagnosis and provides an initial mental health risk assessment. Utilizes Natural Language Processing (NLP) and deep learning to train the algorithms. The risk assessment involves an extractive summarization process utilizing supervised (multiclass) classification based on the ontology, and summarizing clinical notes to inform mental health risk. Future work will utilize abstractive summarization to paraphrase the extractive process into a much shorter narrative.

Commercial Real Estate AI Application

December 2018 to present

Web scraping to mine data from the web and utilizing machine learning to add intelligence to the webscrape automation. Also utilize NLP and deep learning to extract specific data from text.

Analysis of Air Pollution in Nova Scotia

February 2018 to May 2018

Statistical analysis of an open portal clinical dataset, the Nova Scotia Air Pollution Fine Particulate Matter dataset. Project involved preprocessing in Cloud Dataprep, ETL in an Oracle database, loading into a data warehouse, and visualizing in Tableau. Manuscript will be submitted to a journal for publication:

https://www.researchgate.net/publication/324166588_Analysis_of_Air_Pollution_in_Nova_Scotia.

Analysis of Surgical Wait Times in Nova Scotia

March 2017 to February 2018

Statistical analysis of an open portal clinical dataset, the Nova Scotia Surgical Wait Times dataset. Utilized multiple linear regression to make predictions on surgical wait times. Project led

to an app https://carlo-carandang.shinyapps.io/Nova_Scotia_Surgical_Wait_Times_App/ and a manuscript submission to a journal https://www.researchgate.net/publication/323837798_Analysis_of_Surgical_Wait_Times_in_Nova_Scotia.

Retrieving, Processing, and Visualizing Enormous Email Data

Personal Project

July 2017

I retrieve a large email data set from the web, and then I place it into a database. I then analyze and clean up the email data so that it can be visualized.

Google Geocoding API with a Database and Visualization on Google Maps

Personal Project

July 2017

I use the Google Geocoding API with a database, and visualize the mapping data on Google Maps.

Webcrawl and Pagerank of a Website

Personal Project

May 2017 to July 2017

I demonstrate a webcrawl and pagerank of a website. For the parser, I use a Python code, spider.py, which incorporates BeautifulSoup, a Python library for pulling data out of HTML and XML files.

Analysis of Lottery Draws Between 2009 and 2017

Personal Project

Mar 2017 – May 2017

Analysis of the winning lottery numbers of a specific lottery, with the data scraped from the website. We wanted to analyze the winning lottery numbers, to see if there was a way to predict winning numbers. We hypothesize that the winning numbers should be random. However, if it is not random, then we want to see if the data clusters. We utilized R, histograms, and cluster analysis to perform the analysis: https://github.com/Carlo-Carandang/Analysis_of_Lottery_Draws_Between_2009_and_2017

PROFESSIONAL EXPERIENCE

IT Analyst/Developer

Government of Canada, Ottawa, Ontario, Canada; 2020 to present

Data scientist working as an advisor and business analyst involved with implementing AI, machine learning, Big Data systems, R&D, and innovation in the Government of Canada.

Senior Vice President

KARV Data Consulting Ltd., Dartmouth, Nova Scotia, Canada; 2018 to present

AI company which focuses on automating business processes to save on overhead, and builds predictive models for improved decision-making.

Partner

Healthy Mind Research Corporation, Middletown, New York; 2014 to 2017
Startup company focused on anxiety education and self-help. Portfolio includes AnxietyBoss.com, KalmPro, and Anxiety Protocol.

Assistant Professor of Psychiatry

Dalhousie University Faculty of Medicine, Halifax, Nova Scotia, Canada; 2005 to 2013
Academic appointment consisted of administrative, teaching, and research allocations with Dalhousie University Department of Psychiatry.

Staff Psychiatrist

IWK Health Centre, Halifax, Nova Scotia, Canada; 2005 to 2011
Clinical appointment as the attending on the IWK Crisis Team and the Consult-Liaison Service.

Clinical Assistant Professor of Psychiatry

University of Vermont College of Medicine, Burlington; 2002 to 2005
Primarily a clinical teaching appointment, involved with teaching medical students and psychiatry residents via clinical work and formal didactics.

Attending Psychiatrist

Maine Medical Center, Portland; 2002 to 2005
Clinical and research appointment, focused on outpatient and consultation-liaison psychiatry.

Staff Psychiatrist

Counseling Services, Inc.; 2001 to 2002
Outpatient psychiatry.

Child Psychiatry Fellow

Maine Medical Center, 1999-2001

Psychiatry Resident

University of Texas Medical Branch Hospitals, 1996-1999

Process Engineer, Coop Student

Mobil Oil Corporation, summer 1991
Beaumont Refinery
Coop student at oil refinery- optimized distillation towers and ran tests in the oil refinery to improve purity of the distillate and remove pollutants from the stack.

MEDICAL CERTIFICATIONS

Diplomate, American Board of Psychiatry and Neurology (ABPN), certificate number 50825, 2002 to 2012

Master Psychopharmacology Program, 2011 to 2012

Certification and training in psychopharmacology via the Neuroscience Training Institute.

MEDICAL LICENSURE

Washington State Medical License, 1998 to 2020

Nova Scotia Medical License, Specialist in Psychiatry, 2005-2012

Maine Medical License, 1999-2007

ORGANIZATIONS

American Psychiatric Association (inducted to Fellow status December 2010)

JOURNAL EDITOR/REVIEWER

Editorial Board, SM Journal of Neurology and Neuroscience, 2015 to present

Ad Hoc Reviewer, Journal of Child and Adolescent Psychopharmacology, 2006, 2011 to 2012, 2015

Editorial Board, World Journal of Psychiatry, 2011 to 2015

Ad Hoc Reviewer, PLOS Medicine, 2012-2013

Assistant Editor, Journal of the Canadian Academy of Child and Adolescent Psychiatry (JCACAP), 2008 to 2012

Ad Hoc Reviewer, Journal of Neurosciences in Rural Practice, 2011

Ad Hoc Reviewer, The Journal of Medical Case Reports, 2011

Ad Hoc Reviewer, World Journal of Surgical Oncology, 2011

Ad Hoc Reviewer, The Primary Care Companion to the Journal of Clinical Psychiatry, 2010

Ad Hoc Reviewer, Dalhousie University Department of Psychiatry, internal research grants, 2010

Ad Hoc Reviewer, Children's Hospital of Eastern Ontario (CHEO) Research Institute, 2010

Ad Hoc Reviewer, Progress in Neuro-Psychopharmacology & Biological Psychiatry, 2009 to 2010

Ad Hoc Reviewer, Journal of the American Academy of Child & Adolescent Psychiatry (JAACAP), 2004 to 2008

Ad Hoc Reviewer, Child and Adolescent Psychiatric Clinics of North America, 2006

INTERNATIONAL COMMITTEES

Member, Group for the Advancement of Psychiatry (GAP), Research Committee White Plains, NY, 2005 to 2011

GAP is a think-tank dealing with the advancement of psychiatric issues, and is comprised of the thought leaders in the field of psychiatry. The research committee focuses on research issues in psychiatry and how it affects the field, and also gives critiques on current research and provides futures directions for research. Information and knowledge are disseminated mainly through journal publications, books, and presentations.

Member, National Institute of Mental Health (NIMH) Antidepressants and Suicidality Review Panel, Washington, DC, 2006

This NIMH committee was convened to review R01 grant proposals dealing with the RFA on antidepressant medication and suicidality. This group was comprised of the leading experts in antidepressants and suicidality.

NATIONAL COMMITTEES

External Reviewer, Canadian Institutes of Health Research (CIHR), 2008

Ad hoc external reviewer for mood disorders research proposal.

Book Reviewer, Prescription for Information Project, McMaster Children's Hospital, 2007

This project involves rating various books on topics related to pediatric health and mental health. Parents use this guide to help them get more educated about the various illnesses in youths.

REGIONAL COMMITTEES

Co-Chair, Annual Atlantic Provinces Child and Adolescent Psychiatry Conference, 2007 to 2010

Organizer for annual CME conference for child psychiatrists in the Eastern Atlantic Canada region. Involved with various aspects of planning the conference, including invitation of keynote speaker and regional speakers, choosing a location for the conference, implementing the learning objectives and obtaining CME credits for attendees, organizing small group committees involved with regional issues, and planning for future conferences.

INSTITUTIONAL COMMITTEES

Member, Drugs & Therapeutics Committee, IWK Health Centre, Halifax, NS, 2009 to 2011

This committee reviews and approves all medications and therapeutics at the IWK.

Member, Child Psychiatry Education Committee, IWK Health Centre, Halifax, NS, 2005 to 2011

Faculty on committee organizes and directs the education of child psychiatry fellows, psychiatry residents, and medical students.

Member, Dalhousie University Health Sciences Research Ethics Board, Halifax, NS, 2007

This multidisciplinary board reviews all research at Dalhousie University that includes human subjects. The Board meets monthly to review numerous research protocols, the majority of which are grant-funded.

Coordinator, Clinical Academic Rounds, IWK Mental Health and Addictions Program, Halifax, NS, 2006 to 2008

Halifax, NS, 2006 to 2008

Organizes and directs the continuing medical education (CME) for the Child and Adolescent Psychiatry Division. Involves inviting speakers to present at these clinical rounds for the educational benefit of the mental health clinicians in the program.

Member, Child Psychiatry Education Committee, Maine Medical Center, Portland; 2002 to 2005

Faculty on committee organizes and directs the education of child psychiatry fellows, psychiatry residents, and medical students.

TEACHING: HOUSESTAFF SUPERVISION

Supervisor for resident and fellow training in psychiatry & child psychiatry, Department of Psychiatry, Dalhousie University, Halifax, NS, 2005-2011

Supervisor for resident and fellow training in psychiatry & child psychiatry, Department of Psychiatry, Maine Medical Center, Portland, 2002-2005

TEACHING: MEDICAL STUDENT SUPERVISION

Supervisor for Dalhousie medical student rotations, Department of Psychiatry, Dalhousie University, 2005-2011

Supervisor for external elective medical students, Department of Psychiatry, Dalhousie University, 2005-2011

COPS Tutor, Adolescent Development, Dalhousie University Faculty of Medicine, 2005-2011

Preceptor for Med 1 and Med 2, Dalhousie University Faculty of Medicine, 2008-2010

Supervisor for UVM medical student rotations, child and adolescent psychiatry, Department of Psychiatry, University of Vermont College of Medicine, 2002-2005

GRAND ROUNDS

“The Neurobiology of Adolescent Development,”
Halifax, Nova Scotia; September 23, 2010
Child and Adolescent Psychiatry Rounds, IWK Health Centre

“Canadian Psychiatry: The Case for Universal Health Care and How Psychiatry Benefits,”
Portland, Maine; October 20, 2009
Psychiatry Grand Rounds at Maine Medical Center

“Clinical Assessment of Children and Adolescents with Depression,”
Halifax, Nova Scotia, Canada; October 1, 2008
Pediatric Grand Rounds, IWK Health Centre

"Data Safety Monitoring Boards and Safety in High Risk Trials in Youths,"
Halifax, Nova Scotia, Canada; June 6, 2007
Dalhousie University, Department of Psychiatry, Clinical Conference

"Velocardiofacial Syndrome Associated with Adolescent Psychosis,"
Halifax, Nova Scotia, Canada; October 4, 2006
Psychiatry Clinical Case Conference at IWK Health Centre

"Metyrosine in Adolescent Psychosis Associated with 22q11.2 Deletion Syndrome,"
Halifax, Nova Scotia, Canada; June 7, 2006
Dalhousie University, Department of Psychiatry, Clinical Conference

“Lamotrigine for Treatment Refractory Mood Disorders in Adolescents: A Case Series,”
Halifax, Nova Scotia, Canada; September 14, 2005
Psychiatry Clinical Case Conference at IWK Health Centre

“Pediatric Bipolar Disorder,”
Portland, Maine; March 29, 2005
Family Practice Grand Rounds at Maine Medical Center

“Lamotrigine for Treatment Refractory Mood Disorders in Adolescents: A Case Series,”
Portland, Maine; December 14, 2004
Psychiatry Grand Rounds at Maine Medical Center

“Pediatric Bipolar Disorder,”
Portland, Maine; November 5, 2003
Social Work Grand Rounds at Maine Medical Center

“Pediatric Bipolar Disorder,”
Lewiston, Maine; August 19, 2003
Grand Rounds at St. Mary’s Hospital.

INVITED PRESENTATIONS AND LECTURES

“Big Data in Psychiatry: An Introduction and Overview”

Amelia Island, Florida; August 9, 2019

2019 Summer CME Meeting, Georgia Psychiatric Physicians Association

“Big Data in Psychiatry: An Introduction and Overview”

Washington DC; April 6, 2019

2019 Presidential Symposium, Washington Psychiatric Society

“A Webinar on Computer Anxiety”

Manila, Philippines; May 30, 2015

Webinar will be presented to health care professionals and students, University of the Philippines (Manila) College of Medicine

“Child and Adolescent Psychiatric Emergencies,”

Halifax, Nova Scotia, Canada; October 14, 2011

2011 Pediatric Emergency Care Conference, IWK Health Centre

“A New Platform for the Management of Mental Illness- Bipolar Disorder,”

Wolfville, Nova Scotia; April 16, 2011

Valley Half Day Symposia at the Blomidon Inn

“Canadian Psychiatry: The Case for Universal Health Care and How Psychiatry Benefits,”

Austin, Texas; November 24, 2009

Psychiatry resident didactics, Austin Medical Education Programs (AMEP) Psychiatry program, Seton Hospital

“The Neurobiology of Adolescent Development,”

Austin, Texas; May 6, 2008

Psychiatry resident didactics, Austin Medical Education Programs (AMEP) Psychiatry program, Seton Hospital

“Antidepressants and Suicidality in Youth,”

Halifax, Nova Scotia, Canada; May 15, 2006

2006 IWK Research Celebration, IWK Health Centre

“Bipolar Disorder in Youth: Does it Exist?”

Halifax, Nova Scotia, Canada; March 22, 2006

Community presentation at IWK Health Centre

“Pediatric Mood Disorders Conference,”

Lewiston, Maine; June 23, 2005

Daylong conference presented for the Maine Parent Federation’s Androscoggin County Family Support Committee.

“Teen Depression and Suicide,”

South Portland, Maine; April 26, 2005
Suicide Conference, Maine Suicide Prevention Program.

“Teen Depression,”

Falmouth, Maine; April 13, 2005
Community presentation, Falmouth Campus of Maine Medical Center.

“Pediatric Mood Disorders Conference,”

Augusta, Maine; December 6, 2004
Daylong conference presented for the Maine Parent Federation’s Kennebec County Family Support Committee.

“Pediatric Bipolar Disorder Conference,”

Oakland, Maine; October 13, 2004
Conference presented for the Augusta School System and Maine Parent Federation.

“Pediatric Mood Disorders Conference,”

Presque Isle, Maine; September 20, 2004
Daylong conference presented for the Maine Parent Federation’s Aroostook County Family Support Committee.

“Pediatric Bipolar Disorder Conference,”

Portland, Maine; May 12, 2004
Conference presented for the Portland School System.

“Pediatric Mood Disorders Conference,”

Machias, Maine; March 31, 2004
Daylong conference presented for the Maine Parent Federation’s Washington County Family Support Committee.

“Creation of a Data Safety Monitoring Board for a Moderate to High Risk Randomized Trial,”

Portland, Maine; February 11, 2004
Clinical Research Seminar, Center for Outcomes Research & Evaluation, Maine Medical Center.

“Anxiety Disorders,”

Scarborough, Maine; May 7, 2003
Community presentation, Scarborough Campus of Maine Medical Center.

“Delirium and CNS Vasculitis,”

Galveston, Texas; February 1998
Consultation & Liaison Division at the University of Texas Medical Branch.

“Psychiatric Manifestations of Toxic Exposure,”

Galveston, Texas; October 1997

Consultation & Liaison Division at the University of Texas Medical Branch.

TELEVISION APPEARANCE

“Impact of Trauma on Children & Adolescents,”

Saco, Maine; November 28, 2001

Televised public presentation aired on Maine PBS November to December 2001.

Sponsored by Southern Maine Medical Center, post-September 11th.

PUBLICATIONS

Carandang C., Wells W., Horne G., and Stokes C. Analysis of Surgical Wait Times in Nova Scotia (manuscript to be submitted to a journal).

Carandang C. Treatment-Resistant Depression in Adolescents: A Comprehensive Review. *Journal of Depression & Anxiety*, 2:128, June 2013.

Carandang C. Canadian Psychiatry: The Case for Universal Health Care and How Psychiatry Benefits. *Journal of Depression & Anxiety*, 2:126, March 2013.

Yuill K and **Carandang C.** Safety Methodology in Pediatric Psychopharmacology Trials. *Journal of Child and Adolescent Psychopharmacology*, 23:3, April 2013, 148-62.

Murphy A, Gardner D, Kutcher S, Beaulieu S, **Carandang C**, Labelle A, Lalonde P, Malla A, Milliken H, O’Donovan C, Schaffer A, Soni J, Taylor V, Williams R. Evidence Review and Clinical Guidance for the Use of Ziprasidone in Canada. *Annals of General Psychiatry*, 12:1, January 2013.

Carandang C, Rekha Jabbal, Angela MacBride, Dean Elbe. A Review of Escitalopram and Citalopram in Child and Adolescent Depression. *Journal of the Canadian Academy of Child and Adolescent Psychiatry*, 20:4, November 2011, 315-24.

Carandang C. Response to Commentary: Biopsychosocial Assessment: Why Mainly Biopsychosocial and Rarely the Social? *Journal of the Canadian Academy of Child and Adolescent Psychiatry*, 18:4, November 2009, 348.

Carrey N, **Carandang C**, Gagnon A. The First 100 Days. *Journal of the Canadian Academy of Child and Adolescent Psychiatry*, 18:2, May 2009, 88.

Elbe D and **Carandang C.** Focus on Ziprasidone: A Review of its use in Child and Adolescent Psychiatry. *Journal of the Canadian Academy of Child and Adolescent Psychiatry*, 17:4, November 2008, 220-29.

Beahrs J, **Carandang C**, Gardner R, Grunebaum M, Kerbeshian J, Kramer D, Looney J, Swann A, Sutton B, Verhulst J, Wamboldt F, Woo B. Lessons to Be Learned From CATIE and CUtLASS. *Psychiatric Services*, 59:5, May 2008, 473.

Carandang C and Grant A. Delirium and Isolated Angiitis of the Central Nervous System: A Case Report and Review. *CNS Spectrums*, 13:3, March 2008, 209-13.

Keshen A and **Carandang C**. Acute Dystonic Reaction in an Adolescent on Risperidone When a Concomitant Stimulant Medication is Discontinued: Case Report. *Journal of Child and Adolescent Psychopharmacology*, 17:6, December 2007, 867-70.

Culkin C and **Carandang C**. Eating Disorders May Be a Neuropsychiatric Manifestation of PANDAS: Case Report. *Journal of the Canadian Academy of Child & Adolescent Psychiatry*, 16:3, August 2007, 132-35.

Carandang C, Santor D, Gardner D, Carrey N, Kutcher S. Commentary: Data Safety Monitoring Boards and Other Study Methodologies that Address Subject Safety in “High Risk” Therapeutic Trials in Youth. *Journal of the American Academy of Child & Adolescent Psychiatry*, 46:4, April 2007, 489-92.

Carandang C and Scholten M. Metyrosine in Psychosis Associated with 22Q11.2 Deletion Syndrome: Case Report. *Journal of Child and Adolescent Psychopharmacology*, 17:1, February 2007, 115-20.

Carandang C, Mullany E, Yazbek M, Minot S, Robbins D. Lamotrigine in Adolescent Mood Disorders: A Case Series. *Journal of the Canadian Academy of Child and Adolescent Psychiatry*, 16:1, February 2007, 1-8.

Carandang CG. Lamotrigine in Adolescent Treatment-Resistant Depression. *Child and Adolescent Psychopharmacology News*, 11:2, September 2006, 1-10.

Carandang C, Robbins D, Oesterheld J. Lamotrigine and Informed Consent (reply to letter). *Journal of the American Academy of Child & Adolescent Psychiatry*, 43:2, February 2004, 130-32.

Carandang C, Maxwell D, Robbins D, Oesterheld J. Lamotrigine in Adolescent Mood Disorders (letter). *Journal of the American Academy of Child & Adolescent Psychiatry*, 42:7, July 2003, 750-51.

BOOK CHAPTERS

Carandang C, Marval H, Gray C, MacPhee S. Child and Adolescent Psychiatric Emergencies. In: Rey JM (editor). *IACAPAP e-Textbook of Child and Adolescent Mental Health*. Geneva: International Association for Child and Adolescent Psychiatry and Allied Professions (2012).

Carandang C, Kratochvil C, Scahill L, Martin A. Chapter 27: Running a Pediatric Psychopharmacology Clinic: Practical Aspects. In: Martin A, Scahill L, Kratochvil C (eds), *Pediatric Psychopharmacology: Principles and Practice, 2nd edition*. Oxford University Press (December 2010).

Carandang C and Martin A. Chapter 3: Clinical Assessment of Children and Adolescents with Depression. In: Rey J and Birmaher B (eds), *Treating Child and Adolescent Depression*. LWW (March 2009).

BOOK

Carandang, C. (2014). *Anxiety Protocol* (1st ed.). Middletown, NY: Healthy Mind Research Corporation. Retrieved from <http://anxietyprotocol.com/>

ABSTRACTS

Cloutier, P., Cappelli, M., Newton, A., **Carandang, C.**, Glennie, E., Fitzpatrick, E., Kennedy, A., Gray, C., Lyons, J. A Multisite Study of Emergency Mental Health Services for Children and Youth. Poster presentation, 59th Meeting of American Academy of Child and Adolescent Psychiatry, San Francisco, CA, USA, October 23-28, 2012.

Cappelli, M., Newton, A., **Carandang, C.**, Glennie, E., Cloutier, P., Kennedy, A., Lyons, J., Gray, C. Mental Health Services in the Emergency Department: Meeting the Needs of Children and Youth. Poster presentation, AACAP/CACAP Joint Annual Meeting, Toronto, ON, Canada, October 18-23, 2011.

Keshen A, **Carandang C**, Chatman J, Pencer A. Prevalence of Cannabis Use in Adolescent Psychosis: Retrospective Analysis of an Inpatient Population from 1997-2007. Poster presentation, 2010 Annual American Psychological Association Convention, San Diego, CA, USA, August 14, 2010.

Keshen A, **Carandang C**, Chatman J. Incidence of Adolescent Psychosis in Nova Scotia between 1997 and 2007. Oral presentation, 2008 Research Day, Department of Psychiatry, Dalhousie University, Halifax, NS, October 3, 2008.

Scholten M and **Carandang C**. Metyrosine in Psychosis associated with 22Q11.2 Deletion Syndrome. Poster presentation, 2006 Research Day, Department of Psychiatry, Dalhousie University, Halifax, NS, October 20, 2006.

Carandang C. Lamotrigine for Adolescent Mood Disorders. Poster presentation, 2004 Maine Medical Center Research Forum, Portland, Maine, April 8, 2004.

Robbins, D.R., Tweed, L. Fowler, B., Yoe, J., **Carandang, C.**, Pershouse, L., Bell, J., Korthas, M., Claffey, J., Dagnese, K., Cook, W.L. Home-based treatment of children and adolescents: An intergenerational perspective. Scientific Proceedings - American Academy of Child and Adolescent Psychiatry, 2003.

BOOKS REVIEWED

Carandang CG. ASCP Model Psychopharmacology Curriculum, by ASCP (book review). *Journal of the American Academy of Child & Adolescent Psychiatry*, 48:1, January 2009, 90-91.

Carandang CG. The Body Hunters, by Shaw (book review). *Journal of the American Academy of Child & Adolescent Psychiatry*, 47:1, January 2008, 111-112.

Carandang CG and Leebens PK. Handbook of Child and Adolescent Psychopharmacology, by Benedetto Vitiello, Gabriele Masi, and Donatella Marazziti (book review). *Journal of the American Academy of Child & Adolescent Psychiatry*, 46:5, May 2007, 661-63.

Carandang CG and Leebens PK. Pediatric Psychopharmacology- Fast Facts, by Daniel F. Connor and Bruce M. Meltzer (book review). *Journal of the American Academy of Child & Adolescent Psychiatry*, 46:2, February 2007, 261-62.

Carandang CG. The Years of Silence are Past: My Father's Life with Bipolar Disorder, by SP Hinshaw (book review). *Journal of the American Academy of Child & Adolescent Psychiatry*, 43:7, July 2004, 918-19.

RESEARCH GRANTS

Newton, A. (Principal Investigator), Baxter, P., **Carandang, C. (Co-Investigator)**, Curtis, S., Fitzpatrick, E., Jabbour, M., Johnson, D., Joyce, A., Ohinmaa, A., Rosychuk, R., Young, M. Developing an internet-based program for anxious youth who visit the emergency department for mental health care: a strategy to increase access to post-crisis care. Canadian Institutes of Health Research, 2012.

Carandang, C. (Principal Investigator and Supervisor) and Chuang, H. (student). Patient and Family Satisfaction in an Urgent Psychiatric Service at the IWK Health Centre. IWK Summer Studentship, \$2,500, 2011

Cappelli, M., Newton, A. (Co-Principal Investigator), **Carandang, C. (Co-Principal Investigator)**, Ali, S., Cloutier, P., Dong, K., Fitzpatrick, E., Gokiert, R., Gray, C., Kennedy, A., Lyons, J., McGrath, P., Osmond, M., Rosychuk, R., Sinclair, D. Emergency Mental Health Services for Children and Youth: A multi-site study of clinical indicators for patient needs, decision-making, and service delivery. Canadian Institutes of Health Research, \$100,000, 2010-2011.

Totton, J., **Carandang, C. (Co-investigator)**. Zopiclone vs. trazodone vs. quetiapine for inpatient psychiatric adolescents with insomnia. Medbuy \$7,500, 2010.

Carandang, C. (Principal Investigator and Sponsor) and Robbins, D: Lamotrigine for treatment-refractory depression in adolescents: a placebo-controlled, crossover study. GlaxoSmithKline, \$362,511, 2004-2005.

Robbins, D. and **Carandang, C. (Co-Investigator)**: Treatment-resistant mood disorders in children and adolescents: clinical characteristics and implications for treatment. Maine Medical Center Research Institute, \$15,000, 2003.

PHARMACEUTICAL INDUSTRY EXPERIENCE

Advisory Board: Shire 2011

Educational Grant: Pfizer 2010

Research Grant: GlaxoSmithKline 2004-2005

Speakers' Bureau: **Purdue** 2010-2011
Bristol-Myers Squibb 2010-2011
Janssen 2010-2011

ENGINEERING PROJECTS

Optimization of the #2 Deethanizer at GP5E

Mobil Oil Corporation, Beaumont, TX; May to August 1991

Lead engineer with project budget of \$6,000,000

Performed feasibility study to convert the production of 90% ethane to 95% ethane in the distillate.

Optimization of the Propane Scrubber at GP5E

Mobil Oil Corporation, Beaumont, TX; August 1991

Lead engineer with 2-week field tests.

Optimized the removal of particulates and other air pollutants from the discharge gases of the distillation tower.

REFERENCES

Available upon request.