

Practice of Intravenous Infusion Therapy (IVIT)
Certification Course

Duration	32 hours
Credits	30 category A (IVIT)
Instructors:	Jean-Jacques Dugoua ND PhD (JJD) Meera Dossa BSc ND (MR) Leanne Malcom RN(LM) Jared Garshowitz, RPh. BScPhm (JG)
Location:	CCNM (1255 Sheppard ave East, Toronto, ON)
Dates:	September 21-22 and October 5-6, 2019
Format:	This course will include lectures, demonstrations and practicum. No portion of this course will be conducted by webinar, pre-recorded video or any type of distance education.
Attendance	Mandatory
Lunch	Not provided
Certificate	A signed and dated certificate of successful completion of this IVIT course will be provided to all graduates

DESCRIPTION

Intravenous (IV) therapy is the process of putting sterile fluids or drugs into patients through a vein. The IVIT Certification Course is a classroom and practical course designed to ensure that Naturopathic Doctors (NDs) have the competency to both safely and effectively administer a substance from Table 2 of the Naturopathy Act Ontario Regulation (168/15) by injection. In order to promote inter-professional collaboration between the Colleges of the Regulated Health Professions Act (RHPA), this is the first course in Ontario that trains NDs to practice IVIT under the instruction and tutelage of a nurse, pharmacist and NDs.

NDs will receive training to create unique solutions for injection, and prepare such products which require sterile compounding with the knowledge, skill and judgment and facilities necessary to ensure that the products are prepared in a non-contaminated environment, free of particulate matter.

The improper compounding of sterile products can lead to serious consequences for patients in clinical and hospital settings. In the interest of protecting the public, NDs will be made aware of

the importance of sterile technique, thorough patient screening, staff education, appropriate facilities, and proper monitoring to maintain the safety of products for patient care.

This IV certification course is specifically designed for NDs. The course includes classroom lectures in IV techniques, anatomy, venipuncture, IV equipment, IV substances, documentation, patient education, emergency procedures and legal aspects of IV administration. Practical rotations, which give NDs practical applications using catheters, butterflies, IV lines and bags and a laminar airflow hood, are also part of the program. Students both observe others and perform IV insertions themselves. Graduates will be able to identify specific applications for IV therapy, and most importantly, to assess if a patient is suitable for IV therapy or it is contraindicated.

OUTCOMES AND OBJECTIVES

Upon successful completion of this course, the student will have reliably demonstrated the ability to:

- ✓ Describe the indications for intravenous therapy
- ✓ Identify suitable patients for IV therapy and which patients this treatment in contraindicated
- ✓ Describe basic anatomy of veins and skin
- ✓ Identify the names and locations of the veins most suitable for IV insertion and have the ability to confidently select and prepare a site for insertion
- ✓ Identify equipment used for venipuncture including IV cannula, start pack, needleless connector, IV extension set, and securement dressing/device
- ✓ Select appropriate cannula size for prescribed therapy
- ✓ Demonstrate how to successfully initiate IV therapy, including how to secure and dress the site
- ✓ Recognize local and systemic reactions related to IV therapy and their proper management
- ✓ Describe standards of care and maintenance of peripheral intravenous (PIV) therapy
- ✓ Describe components of documentation regarding IV initiation
- ✓ Identify complications of intravenous therapy
- ✓ Prepare IV bags with the correct infusates in an sterile aseptic manner, including a discussion on USP 797 and fumehood use
- ✓ Learn how to calculate the osmolarity of a solution and establish and calculate an appropriate drip rate
- ✓ Discuss components of the physical exam and lab work required to ensure patient safety for the administration of IV therapy
- ✓ Describe precautions to use to prevent the spread of infection and avoid self-contamination
- ✓ Describe emergency complications of IV therapy and what actions to take to address these situations
- ✓ Identify approaches to take to prevent, detect, and minimize complications

- ✓ Describe the procedure for discontinuing the IV
- ✓ Disseminate patient education

COURSE STRUCTURE

Lectures, demonstrations and practicums, including a standardized patient practicum. No portion of this course will be conducted by webinar, pre-recorded video or any type of distance education.

REQUIREMENTS

- ✓ Mandatory attendance
- ✓ Demonstration of an understanding of the material and competency in its application
- ✓ IVIT with multiple partners and at multiple injection sites
- ✓ Successful completion of 7 angiocatheter IV injections (3 y-port pushes)
- ✓ Successful completion of 3 butterfly pushes
- ✓ Successful demonstration of sterile IV compounding
- ✓ Successful administration of IM, sub-Q, intradermal and z-track IM injections (1 each)

EXAMINATION

Osmolarity Assignment (Passing grade: 75%)

On Day 2 of training, NDs will be given 20 osmolarity problems to submit within 7 days to the course instructors. Corrected assignments will be returned to the NDs on Day 3 of training. If a ND has not correctly answered 15 of the 20 problems, he/she will be given the opportunity to correct their mistake and resubmit their assignment by 9AM on Day 4.

Practicum (pass or Fail)

Demonstration of sterile compounding techniques with relation to IV bag preparation with a given formula in a timed setting. Successful initiation and termination of a saline IV infusion with the inclusion of patient instructions and assessment of vitals.

Retake of examination

If failure, ND will have two (2) other attempts to pass. After the third failure, this course must be repeated in its entirety at the NDs own cost. Retake of examination will be subject to additional costs.

Cheating

Cheating is a continuing education offense and will be treated seriously. Should an attendee be caught cheating during the examination, the attendee will receive an automatic fail.

ATTENDANCE

Course attendance is mandatory for all 4 days. Course examination and assignment are mandatory. If a ND has missed any of the course days or the examination, he/she will not graduate.

INSTRUCTORS

Dr. Jean-Jacques Dugoua HBSc ND PhD

Dr. Jean-Jacques Dugoua, or Dr. JJ as he is affectionately known, is a naturopathic doctor, clinical pharmacologist and researcher. He is the Chief Medical Officer of the Liberty Clinic in downtown Toronto and the first Naturopathic Doctor (ND) to practice at the Toronto Western Hospital in the Artist Health Center, one of the few NDs practicing in a hospital in Canada. He has done research with the Motherisk Program at Sick Kids Hospital and was an Associate Professor at the University of Toronto Leslie Dan Faculty of Pharmacy.

Dr. JJ completed his PhD in Pharmacy Sciences at the University of Toronto. As part of his PhD research, Dr. JJ investigated the safety of natural products during pregnancy and lactation at the Sick Kids Hospital and conducted a clinical trial on the effects of cinnamon on type 2 diabetes at the Toronto Western Hospital and the Centre Universitaire de Sherbrooke.

Dr. JJ is a co-author of “Herbal Medicines in Pregnancy and Lactation – An Evidence-based Approach First Edition” (Taylor & Francis, 2006) and contributing author to “Clinical Pharmacology During Pregnancy” (Academic Press 2012) and “Diabetes: An old disease, new insight” (Landes 2012). Dr. JJ has many peer-reviewed scientific publications published or in press. He is a world expert on natural health products pharmacology and pregnancy safety. Local and nationwide print and television media frequently consult him to provide expert commentary.

Dr. JJ is an avid public speaker. He has given many presentations to pharmacists, medical professionals, government, academics, artists and musicians, students, teachers, cancer survivors and the general public. Dr. JJ has also given presentations internationally, including presentations at the World Health Organization in Washington DC.

Dr. Meera Dossa BSc ND

With a major in Nutritional Science from the University of British Columbia, Meera Dossa, ND completed her studies at the Canadian College of Naturopathic Medicine.

After being diagnosed with Crohns and Colitis, her life was transformed by the utilization of naturopathic principles and as such, she takes a keen interest in gastrointestinal health. Her clinical experience has been based on the concept of healing the body from within by means of restoring the function and integrity of the gastrointestinal tract. This is achieved mainly through lifestyle modification, nutritional counselling, supplementation and IV therapy.

Meera has treated a variety of conditions including hypertension, blood sugar dysregulation, hypercholesterolemia, IBS, IBD, seasonal allergies and autoimmune disorders with a strong focus on digestive health.

With a flair for blogging, Meera is a regular contributor to the NaturalPath and NDNR.

She is a member in good standing with the Ontario Association of Naturopathic Doctors and the Canadian Association of Naturopathic Doctors and is certified and licensed to perform parenteral therapy in the province of Ontario by having successfully met the requirements of the Standard of Practice in Therapeutic Prescribing.

Leanne Malcom RN

Leanne Malcolm is a registered Nurse (RN) currently working in the operating room (OR) at Mt. Sinai Hospital. She received her nursing diploma at Humber College. While in school, she worked in administration at Toronto's Ronald McDonald House and in the nutrition department at Toronto Health Network, which is rooted in Toronto General Hospital. After graduating, Leanne began working on the Cardiac Floor of Sick Kid's Hospital, Toronto, before working in a private clinic administering IPL and laser therapy treatments. Leanne later worked at London Health Sciences while studying for her Operating Room (OR) certification at Fanshawe College. The majority of Leanne's nursing career has been in the operating room. She worked at London's Victoria Hospital, a high acuity hospital and the main trauma center for the most of south-western Ontario. Leanne has worked in the OR at St. Michael's and Sunnybrook hospitals, which are both major trauma centers in the Greater Toronto Area. Leanne has specifically worked in surgical areas for orthopaedics, trauma, plastics, general surgery, neurosurgery, urology, otolaryngology, ophthalmology, gynaecology, vascular and thoracics.

Leanne has continued in her education through certifications, and in various courses, such as:

- Advanced Course of Fracture Fixation for Nurses – Zimmer
- Principles Course of Fracture Management for Operating Room Personnel AO North America,
- Advanced Course of Fracture Management for Operating Room Personnel AO, North America
- Principals Course of Craniomaxillofacial Trauma Management for Operating Room Personnel
- Initiating IV Therapy – post-grad Durham College

Leanne is often, preceptor to new operating room nurses, preparing them for this specialized area of nursing.

Jared Garshowitz, RPh. BScPhm

Jared Garshowitz graduated from the University of Toronto pharmacy program in 2012. He is the compounding supervisor at York Downs Chemists - overseeing hazardous and non-hazardous sterile and non-sterile compounding divisions. He has trained extensively in low, medium, and high-risk compounding techniques and progressed under the tutelage of mentor, Boyana Djokic, pharmacist manager at York Downs Chemists. He is the third generation to be in his family's business of York Downs Chemists and York Downs Pharmacy.

SCHEDULE

Instructors: Jean-Jacques Dugoua (JJD), Meera Dossa (MD), Leanne Malcom (LM), Jared Garshowitz (JG)

Location: CCNM (1255 Sheppard ave East, Toronto, ON)

Day 1

Time	Content	Instructor	Location
9:00-9:30	Introduction <ul style="list-style-type: none">• Course overview and instructor introduction• Examination and Assignment overview• Insertion and IV Bag preparation requirements• Routes of drug administration• Intravenous Infusion Therapy (IVIT), IV, IM, ID and SC• Clinical indications and Contraindications• CONO requirements	JJD MD LM	CCNM
9:30-10:15	Overview of Intravenous Infusion Therapy (IVIT)	JJD	CCNM
10:15-11:15	IV equipment	JJD	CCNM
11:15-11:30	Break		
11:30-13:00	Peripheral IV insertion <ul style="list-style-type: none">• Anatomy and Commonly used veins• Needle insertion technique, Sterile technique• Safety	LM	CCNM
13:00-14:00	Lunch (head over to LC)		CCNM
14:00-17:00	IVIT insertion practicum <ul style="list-style-type: none">• Demonstration IVIT and IM• Needle insertion (groups of 3)	LM MD JJD	CCNM
17:00-19:00	IV bag preparation practicum <ul style="list-style-type: none">• Demonstration• Practicum (groups of 3)	JJD MD LM	CCNM

Day 2

Time	Content	Instructor	Location
9-10:30	Osmolarity <ul style="list-style-type: none">• Hyper/Hypo-osmolar• Drip rate• Osmolarity calculation practicum	JJD	CCNM
10:30-10:45	Break		
10:45-11:00	Osmolarity Take-home Assignment	JJD	CCNM
11:00-13:00	Emergency Procedures I	MD	CCNM
13:00-14:00	Lunch		
14:00-16:00	Prescribed Substances by injection <ul style="list-style-type: none">• CONO IVIT substances list• Descriptions• Clinical indications• Adverse reactions	JJD	CCNM
16:00-16:15	Break (head over to LC)		
16:15-17:15	IV bag preparation practicum	MD JJD	CCNM
17:15-18:15	IM, ID, SC and Z-track practicum <ul style="list-style-type: none">• Demonstration• Practicum	MD JJD	CCNM

Day 3

Time	Content	Instructor	Location
8:30-9:00	Osmolarity assignment feedback/assignment return	JJD	CCNM
9:00-10:30	IV protocols <ul style="list-style-type: none"> • Conditions and associated protocols • IV form explanation 	JJD MD	CCNM
10:30-10:45	Break		
10:45-12:00	Documentation <ul style="list-style-type: none"> • SOAP • Laboratory tests • Physical examination (PE) • Contraindications • CONO requirements • Consent form 	MD	CCNM
12:00-13:15	Emergency procedures II	MD	CCNM
13:15-14:15	Lunch		
14:15-15:15	Sterile Compounding	JG	CCNM
15:15-15:30	Break (head over to LC)		
15:30-16:30	Sterile Compounding demonstration	MD JG	CCNM
16:30-19:00	Sterile technique practicum	MD JJD	CCNM

Day 4

Time	Content	Instructor	Location
9:00-11:30	Emergency Procedures III	MD	CCNM
11:30-11:45	Break		
11:45-13:15	Emergency Procedures III (cont.) <ul style="list-style-type: none">• Practicum• Equipment overview (AED, oxygen tank and mask, pulse oximeter, bag mask, crash cart, emergency Rx)	MD	CCNM
13:15-14:15	Lunch		
14:15-14:45	CONO policy and procedures overview	JJD MD	CCNM
14:45-15:15	Infection Control	JJD	CCNM
15:15-15:30	Break (head over to LC)		
15:30-18:30	Practical examination <ul style="list-style-type: none">• Sterile compounding• Saline IV infusion	JJD MD	CCNM

Primary References

Standards

US Pharmacopeial Convention. USP Compending Compendium 2016: 40-85.

Systematic Reviews and meta-analyses

Block, K. I., Koch, A. C., Mead, M. N., Tothy, P. K., Newman, R. A., and Gyllenhaal, C. Impact of antioxidant supplementation on chemotherapeutic efficacy: a systematic review of the evidence from randomized controlled trials. *Cancer Treat.Rev.* 2007;33(5):407-418.

Clinical Studies

Messner, M. and Brissot, P. Traditional management of liver disorders. *Drugs* 1990;40 Suppl 3:45-57.

Hinze-Selch, D., Weber, M. M., Zimmermann, U., and Pollmacher, T. [Thiamine treatment in psychiatry and neurology]. *Fortschr.Neurol.Psychiatr.* 2000;68(3):113-120.

Schoffski P, Breidenbach I, Krauter J, et al. Weekly 24 h infusion of aviscumine (rViscumin): A phase I study in patients with solid tumours. *Eur J Cancer* 2005;41:1431-8.

Thaha, M., Yogiartoro, M., and Tomino, Y. Intravenous N-acetylcysteine during haemodialysis reduces the plasma concentration of homocysteine in patients with end-stage renal disease. *Clin Drug Investig.* 2006;26(4):195-202.

McKenna, M. J., Medved, I., Goodman, C. A., Brown, M. J., Bjorksten, A. R., Murphy, K. T., Petersen, A. C., Sostaric, S., and Gong, X. N-acetylcysteine attenuates the decline in muscle Na⁺,K⁺-pump activity and delays fatigue during prolonged exercise in humans. *J Physiol* 10-1-2006;576(Pt 1):279-288.

El-Hamamsy, I., Stevens, L. M., Carrier, M., Pellerin, M., Bouchard, D., Demers, P., Cartier, R., Page, P., and Perrault, L. P. Effect of intravenous N-acetylcysteine on outcomes after coronary artery bypass surgery: a randomized, double-blind, placebo-controlled clinical trial. *J Thorac.Cardiovasc.Surg* 2007;133(1):7-12.

Smyth JF, Bowman A, Perren T, et al. Glutathione reduces the toxicity and improves quality of life of women diagnosed with ovarian cancer treated with cisplatin: results of a double-blind, randomised trial. *Ann Oncol* 1997;8:569-73.

5374 Cascinu S, Cordella L, Del Ferro E, et al. Neuroprotective effect of reduced glutathione on cisplatin-based chemotherapy in advanced gastric cancer: a randomized, double-blind, placebo-controlled trial. *J Clin Oncol* 1995;13:26-32.

Locatelli MC, D'Antona A, Labianca R, et al. A phase II study of combination chemotherapy in advanced ovarian carcinoma with cisplatin and cyclophosphamide plus reduced glutathione as potential protective agent against cisplatin toxicity. *Tumori* 1993;79:37-9.

Padayatty SJ, Levine M. New insights into the physiology and pharmacology of vitamin C. *CMAJ* 2001;164:353-5.

Coombes, J. S. and Fassett, R. G. Antioxidant therapy in hemodialysis patients: a systematic review. *Kidney Int* 2012;81(3):233-246.

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 Certification Course
Course Evaluation Survey

1 What overall rating would you give the course?

- Excellent
- Very good
- Good
- Fair
- Poor

2 Please indicate your level of agreement with the following statements:

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
The course objectives were clear					
The course schedule was clear and manageable					
The lectures were appropriate to the topics covered					
The practicums were appropriate to the topic covered					
The course covered the Standards of Practice for IVIT from CONO					
The course increased my interest in the subject					
The course corresponded to my expectations					

3 What overall rating would you give each teacher?

	Excellent	Very Good	Good	Fair	Poor
Jean-Jacques Dugoua					
Michael Rahman					
Leanne Malcom					
Adam Silvertown					

4 Please indicate your level of agreement with the following statements:

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
The teacher demonstrated knowledge of the subject matter					
The teacher was effective in Communicating the content of the course					
The teacher encouraged feedback from the class					
The teacher showed genuine concern for the students					
The teacher was enthusiastic about the course					

5 Would you recommend this course to other students?

- Definitely
- Probably
- Not sure
- Probably not
- Definitely not

6 Please provide any comments or suggestions that might help improve this course in the future?

7 Please suggest what IVIT topics you would like to see offered in the future as continuing education (CE)
