Prospectus for Clinical Problem Solving Online Certificate Course from

CReATiviTI: electronic information via internet

Center for Research Education And Training In Various Information & Communications Technologies

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CAL2CAL Institute

http://cal2calinstitute.org

Email: creativiti@cal2cal.com, creativity@cal2cal.com

ACADEMIC SESSION 2010-11

Course Coordinators

Prof. Rakesh Biswas, MD
Professor of Medicine
People's College of Medical Sciences, Bhopal, India
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CONTENTS

ABOUT CAL2CAL INSTITUTE

Vision: **C**AL2CAL Institute, through its **C**enter for **R**esearch **E**ducation **A**nd **T**raining **I**n **V**arious **I**nformation & Communications **T**echnolog**i**es (**CREATIVITI**) intends to become a Center of Excellence for empowering professionals to effectively use Information and Communications Technologies, especially applied to healthcare, public health, social sector and alternate energy domains.

Mission: **C**AL2CAL Institute is committed to creating a smart workforce for the 21st century through the Internet, Social Networking sites and also face-to-face classes *i.e*., *Blended Learning*.

Values: **C**AL2CAL Institute shares the values of its parent CAL2CAL group whose global social commitment is to develop alternative low-cost information systems and communication tools to empower the poor and challenged individuals to lead an equitable life.

Online Faculty Mentors for the Course

Prof. Rakesh Biswas

MD is a professor of Medicine in the People's College of Medical Sciences, Bhopal, India and an Adjunct Faculty of CAL2CAL Institute. His interests include clinical problem solving applied to patient centered health care and health education. He has extensively published his experiences in clinical problem solving in global academic journals and books. He is presently a deputy editor for BMJ Case reports, UK, chief editor for the International Journal of User Driven Healthcare, US and a regional editor for the Journal of Evaluation in Clinical Practice, UK. He is an academic co-investigator in funded programs of research on "User Driven Healthcare" in India and Ireland.

Prof. Supten Sarbadhikari

MBBS, PhD, a physician and Biomedical engineer, has been a hardcore academician since the last 15 years and is regarded as a pioneer in spreading awareness of health informatics in India. He is the Founding Director of CAL2CAL Institute. With his past associations with the IIT, the Manipal group, the Amrita group and the PSG group, he has had a wide and varied experience in both healthcare and technology academia. He is a Fellow and Faculty of the PSG-FAIMER

South Asia Regional Institute – an Educational Leadership development program for South Asia, in collaboration with the FAIMER (Foundation for Advancement of Medical Education and Research) Institute, Philadelphia. Currently he is the Chair, Education Committee and Chair-Elect for Health Level Seven India. He has been the Course Coordinator and Co-Developer for the first ever Masters Degree on Medical Informatics from an Indian University at Amrita University. He has also been offering online courses on Health Informatics from PSG Institute of Medical Sciences and Research.

Dr. Carmel Mary Martin

is an Associate Professor of Family Medicine at the Northern Ontario School of Medicine and Visiting Professor, University of Buckingham, UK and Visiting Research Fellow Department of Public Health and Primary Care, Trinity College, Dublin. She is active in clinical general practice with a particular interest in chronic disease and illness, patient centered care and complex systems. Carmel has a large volume of publications around this area and she also edits a journal section on Complexity in the Health Sciences for the Journal of Evaluation in Clinical Practice, UK. Carmel is a lead Clinical Principal Investigator on the Patient Journey Record Program in user driven healthcare at the National Digital Research Center NDRC, an independent organization formed by a consortium of members comprising different academic institutes in Dublin.

Dr. Arindam Basu

MPH, PhD, is a medical doctor and an epidemiologist-health services researcher. In addition to teaching courses on research methods, he works as a senior researcher at the Health Services Assessment Collaboration (HSAC) at the University of Canterbury at Christchurch, New Zealand. Before joining Canterbury, he was working as the Associate Director of the Fogarty International Training Program in Environmental and Occupational Health at Kolkata, India.

Dave Elpern

MD has practiced dermatology on Kauai, Hawaii and in Williamstown, Massachusetts. Primarily a practitioner, he has taken a stab at clinical research in a number of areas: medical informatics, dermatologic epidemiology, the humanities in medicine and skin cancer. He started the Kauai Foundation for Continuing Education in 1987 to promote postgraduate meetings of a different flavor from the pedestrian. The KFCE has sponsored over 30 symposia in Hawaii, Canada, Williamstown and Indonesia.

Dr. Susan D. Ross

MD, FRCPC, is a practicing internist in the Boston area, and an independent consultant in Evidence-based Medicine (EBM). She is an honors graduate of the University Of Toronto Faculty Of Medicine, and completed an advanced course in Biomedical Research Management at the Harvard School of Public Health. She was a co-founder of MetaWorks, an AHRQ Evidence-based Practice Center, in Boston, where she led MetaWorks' technical teams performing

literature-based systematic reviews and meta-analyses. She has over 60 scientific publications and 85 abstracts presented at professional meetings, and has authored/delivered several online and in-person seminars and workshops in EBM. She is presently intrigued with the challenge of how best to marry EBM and User-Driven Healthcare.

Prof. Ravi Shankar

MD is a Professor in Clinical Pharmacology and in Medical Education at KIST Medical College, a new medical school in Kathmandu valley, Nepal. He had started a Medical Humanities module at Manipal College of Medical Sciences, Pokhara as a curriculum innovation project as part of a FAIMER fellowship. He has conducted modules for faculty members and students at KIST Medical College.

Dr. Krishna Badal

MD has been teaching Pediatrics at a Chinese Medical school for the last 3 years. He is from Kathmandu, Nepal and finished his medical schooling from Manipal college of medical sciences, Pokhara and obtained his MD Pediatrics from Institute of Medicine, Kathmandu in 2006. His hobbies include travelling and listening to music. His main areas of interest are clinical teaching learning activities and field of neonatology and neurology.

Dr. Vahideh Zarea Gavgani

PhD.LIS. Is a Researcher, part time Assistant Professor in LIS and healthcare, Member of Center for EBM in Tabriz University of Medical Science (Iran). She has published many research papers and books, worked on research projects and lectured for medical students, residents and Library science students through formal academic courses and workshops. Her topic of interests are: EBM, EBLIP, Information Therapy (Ix), Healthcare, Consumer Health Information (CHI), Web 2.0, Digital Repositories, Digital libraries, LIS education.

Dr. Ankur Joshi

MD perused his graduation in Medicine and masters in Community Medicine from Gandhi Medical College, Bhopal, respectively at 2004 and 2008. His area of interest is infectious disease epidemiology (more specifically T.B., HIV and related issues) and health policy analysis. He has been involved in some community oriented studies during his residency period several of which were funded by reputed international organizations and Govt of India. He presented several papers in national and international conferences. His thesis topic in post graduation was addressed to issue of non adherence in Tuberculosis. He believes that User Driven Health -care may be an appropriate, acceptable and affordable as well as sustainable response to meager resources in a developing country set up.

Course Details

Goal

The purpose of this course is to integrate medical education and practice by empowering health system users (multiple stakeholders such as patients, their relatives, and health

professionals) with contextual information and knowledge that can achieve improved healthcare outcomes in a globally networked community.

Basic/Foundational Course:

Eligibility:

Interested and articulate candidates with basic mathematical and computer literacy along with very good language skills with or without degrees in any discipline such as BA Humanities, Social Sciences, B Tech, B Sc Math, Physics and Chemistry etc are welcome to join and foster a multidisciplinary approach to healthcare. Other requirements include proficiency in computer operation and internet browsing, willing to dedicate minimum 2 hours every day for the course work. ***Please note that if you are eligible for the Advanced Course, you are not eligible for the Basic course.*** To know if you could be an Online Learner, take a test at:
http://webb.nmu.edu/Programs/OnlineLearning/SiteSections/Technology/OnlineCompatibility.shtml

Career Gains

Candidates taking the basic course are expected to develop and propagate heightened health awareness and education among healthcare users (patients and their relatives) in the community. Improved health system awareness in terms of safety and quality of care can augment healthcare outcomes in the community. If able to successfully chart out the learning points from their online encountered 'real patient problems' candidates will be able to publish their findings in a peer reviewed journal (subject to the results of the peer review).

Advanced Course:

Eligibility:

(i) A Basic degree in Health Sciences. For example, B Sc Human Biology, B Sc Nursing, B Pharm, BPT, BMLT, BHMS, BAMS, MBBS, MD, MS or equivalent.
(ii) Candidates who have successfully completed the Basic Course

Career gains

Participants successfully completing the course are likely to become important stakeholders in health professional careers that involve solving clinical problems asynchronously through a web based platform resulting in improved health care outcomes for a global (rural-urban) virtually networked community and may be employed as online clinical problem solving facilitators by online health care delivery platforms that are going to become more and more common in future.

The successful completion of this course after a formative assessment of the student at the end of the course is a requirement for the certification; however, students can register for it regardless of course completion certification.

Students wanting to receive an Official Course Completion Certificate must satisfactorily complete all mandatory contextual assignments in the specified timeframe for a formal formative assessment by the course facilitators. The certificate will be issued by CAL2CAL Institute, Coimbatore, India.

The differences between the basic and advanced course will be in terms of entry level preparedness assuming that basic course entrants will require more guidance on understanding basic sciences such as anatomy etc which will be presumably less likely for candidates entering into the advanced course (barring exceptions). Course content in

relation to learning objectives will remain same for both courses but it is assumed that the differences in the basic and advanced course will be in terms of future functionality of the students in the sense that basic course students may use this knowledge for spreading health awareness, safety and quality in healthcare whereas advanced course students who are health professionals are more likely to use this knowledge in improving their career gains in terms of getting employed by online health care delivery platforms as web based facilitators of ongoing learning conversations between patients and other health professionals as it is expected that this model of communication is going to become more and more common in future

Course Contents

1. Introduction and overview of clinical problem solving
   (The student will learn to prepare a patient problem list, identify an anatomical and etiological diagnosis and as one of the stakeholders in the patient's care facilitate a positive relationship between the patient and his/her primary-secondary-tertiary health professionals through efficient and optimal knowledge sharing between all these stakeholders)
2. Clinical history taking and examination
   (The student will learn to assist and facilitate the process of examining the patient's narrative and other information obtained through physical examination with and without the help of modern technological tools such as radiological imaging and laboratory parameters reflecting the patient's internal chemistry)
3. Essentials of anatomy, radiology, physiology and biochemistry
   (This is necessary to reach an anatomical, functional and molecular diagnosis for a given clinical problem at hand. Students will be taught to discover these essentials while practicing online clinical problem solving beginning with the case at hand and traveling right down to basic anatomy, physiology and biochemistry in context of case-based information collected from clinical, radiological and laboratory data.)
   Students will learn an approach to solve problems around diseases of:
   - Cardiovascular system (Cardiology)
   - Respiratory system (Pulmonology)
   - Renal and genitourinary system (Nephrology, Urology)
   - Hematological system (Hematology, Immunology)
   - Nervous system (Neurology)
   - Gastrointestinal system (Gastroenterolgy)
   - Reproductive system (Men's and Women's health)
   - Skin and Integumentary system
   - Cognitive system (Psychology, Psychiatry)
   - Musculoskeletal system (Rheumatology, Orthopedics)
4. Essentials of pathology and microbiology
   (Necessary to reach an etiological diagnosis and students will be taught to discover it in the context of solving their patient's problems)
5. Essentials of Pharmacology, EBM and Net-searching
   (With special separate lectures by expert faculty other than what students are likely to learn during their hands on clinical problem solving exercises with online patients)

This module is necessary for candidates to learn how to facilitate the provision of validated treatment according to current global consensus amongst health professionals based on empirical research.

6. Patient safety, confidentiality and medico legal problem solving
   Students will learn about global human and financial toll of medical errors, psychology of errors and try identifying unsafe acts in real health care cases. This module will discuss various modalities of asynchronous online clinical problem solving currently available and evolving possibilities of monitoring patient safety as well as healthcare quality improvement through these platforms also focusing on online approaches to maintaining patient confidentiality and other medico legal issues that often arise in utilizing these platforms.
7. Hands on Case based learning interactions
   (This will be the core strategy adopted for learning in this course as students are expected to discover 1-6 utilizing 7)

Learning Objectives:

At the end of this course students will have a good understanding of basic anatomy, physiology, pharmacology, pathology along with a practical ability for history taking and clinical examination that may enable them to facilitate the process of clinical problem solving as one of the stakeholders other than patient and his/her primary/secondary physician/caregiver.

Structure of the Course

Schedule / Study plan – MODULES and Objectives:

Introduction and overview

This will describe the general principles of clinical problem solving as they apply to all types of clinical decisions: diagnosis, prognosis, management, monitoring patients and so forth. It will describe both what is known about how health professionals make such decisions, and ways that we believe can help them to improve their clinical problem solving. With greater understanding of these principles, health professionals should be able to provide both safer and more patient-centered care supported by other stake holders such as online clinical problem solving enthusiasts working through recognized online healthcare delivery platforms.

Systems approach to clinical problem solving:

Trainees will be virtually and asynchronously taken on a guided tour of various patient and health professional user driven web sites and introduced to different patients with problems related to:

- ✓ Cardiovascular system (Cardiology)
- ✓ Respiratory system (Pulmonology)
- ✓ Renal and genitourinary system (Nephrology, Urology)
- ✓ Hematological system (Hematology, Immunology)
- ✓ Nervous system (Neurology)
- ✓ Gastrointestinal system (Gastroenterology)
- ✓ Reproductive system (Men’s and Women’s health)
- ✓ Skin and Integumentary system
- ✓ Cognitive system (Psychology, Psychiatry)
- ✓ Musculoskeletal system (Rheumatology, Orthopedics)

Our teaching methods are completely discovery based (practically there will be no teaching/spoon feeding but a lot of learning) and the average student's sustenance of the entire course period of 6 months will depend mostly on how much the student enjoys pouring through online patient narratives and trying to make sense of them in relation to anatomical and etiological localization of their patient's symptomatology and the various interventions utilized/considered to tackle the problem.

In essence the student may be just asked to pour through available online patient narratives listed system wise (for example as in the website health-boards…see online references/web links below) and try to identify patient problems from their narratives and from their problem list try to arrive at a conclusion about the anatomical and etiological localization of those problems and finally devise a plan for tackling those problems based on the best possible available evidence.

Each and every student may react differently to this kind of an active learning activity but it is entirely upon the student to put all efforts to adapt to this kind of problem solving activity that inculcates a sense of responsibility and independence with team work through a network that facilitates self directed life long learning.

Hardware and Software requirements

To access the course students need a personal computer (PC) or Laptop, running MS Windows or Linux, MS Office or Open Office with a current web browser. Students also require Internet access via an Internet Service Provider (ISP) of their choice.

Resources

- Study guide/clinical expert facilitating the student learning process and helping them solve real life problems helping achieve better health care outcomes in the community.
- Application Activities using knowledge acquired during the clinical problem solving process
- Links to Online reading material

These activities will promote the exchange and use of knowledge and experiences of students as well as facilitate the implementation of new apprenticeships to professional practice. The activities will include:

- Mandatory weekly assignments: activity required for approval of course completion.

Assignments specified as mandatory will have to be complete and uploaded to the online site before the deadline specified by the tutor. In essence the student will be just asked to pour through available online patient narratives listed system wise (for example as in the website health-boards…see online references/web links below) and try to identify patient problems from their narratives and from their problem list try to arrive at a conclusion about the anatomical and etiological localization of those problems and finally devise a plan for tackling those problems based on the best possible available evidence.

Communication:

Two-way communication between those taking the course and the faculty will be done asynchronously through emails only.

Assessment

A system of formative Assessment will evaluate student generated data/learning points arising from their experiences during the course of their online learning interactions with virtual patients and faculty.

This means there will be multiple weekly assessments and validation/corrections of the candidate's learning through a dialogue between the facilitator and the student all of which will be recorded on the web site.

At the end of the course all these formative assessment data shall be qualitatively analyzed for an overall assessment. There will be no formal exam/summative assessment at any point of the course.

Time Frame:

The modules of this course will be conducted over a 6-month period. The student should plan for an estimated average of 7-8 hours of course work per week. This time duration of 6 months is aimed at teaching the student how to continue to learn 'online clinical problem solving' through online guidance of experts rather than make them masters of "Online Clinical Problem Solving."

References:

Books

- Problem Solving in Clinical Medicine: From Data to Diagnosis, Cutler, P. 3rd. Edition, Baltimore: Williams & Wilkins, 1998
- Clinical Problem-Solving. by Sanjay Saint, Jeffrey Drazen, and Caren Solomon, 282 pp, with illus, New York, NY, Mcgraw-Hill 2006

Articles:

- Gale J, Marsden P, Clinical problem solving: the beginning of the process
- Medical Education, Volume 16 Issue 1, Pages 22 - 26, 2009
- Balla JI, Biggs B, Gibson M, The application of basic science concepts to clinical problem-solving Medical Education Volume 24 Issue 2, Pages 137 - 139, Jan 2009
- Donald A. B. Lindberg, MD; Elliot R. Siegel, PhD; Barbara A. Rapp, PhD; Karen T. Wallingford, MLS; Sandra R. Wilson, PhD Use of MEDLINE by Physicians for Clinical Problem Solving JAMA. 1993;269(24):3124-3129.

Web Links:

- http://www.ihi.org (An institute dedicated to improving quality and safety in healthcare which is also one of the major concerns of clinical problem solving)
- http://ihiopenschool.blogspot.com/ (Interesting details by a health sciences student on how one learns through reflective practice which is one of the major tools to develop an expertise in clinical problem solving)
- http://www.healthboards.com/ (Online clinical problem solvers can learn system wise from this treasure trove of clinical problems discussed by patients sharing similar illnesses. All health topics are classified system wise such as heart disorders or blood disorders or disease based such as Parkinson's disease or Epilepsy and all such topics have been given individual message boards. Each message board typically contains thousands of discussion threads, each relating to

a specific question or comment initiated by a HealthBoards user. Participation on HealthBoards requires free registration. Users who register must supply an email address and login name. Users who are not registered may still view all the contents of the message boards, but cannot post messages. Anonymous posting is not allowed. The boards are moderated by a large staff of mostly volunteers. Users who violate the participation policy are temporarily banned from using the site. Repeat violations usually result in a permanent ban. Due to the tight control that the moderators keep over the board content, discussions are almost always on topic, relevant, and useful.

- http://www.patientslikeme.com/ (Physicians and researchers can access this site that enables them to find out what treatments its patients have tried and how successful the outcome of the treatments were. The site has also introduced a number of projects that analyze clinical information given by the patients. Users of the site access the site for free. However the site is a commercial site as it aims to sell its users' data to drug and medical companies. In the time since launch, the company has expanded to 9 disease categories, with plans to expand to many more).

Articles on Self directed Learning:
http://www.mysdcc.sdccd.edu/Staff/Instructor_Development/Content/HTML/Empowering_Learners_Page1.htm
http://www.eurojournals.com/ejss_9_1_05.pdf
http://www.ehow.com/how_5794182_foster-self_disciplined-online-learning.html
Article on Experiences with Online teaching and learning:
http://ncsu.academia.edu/documents/0097/7293/EDUCAUSE_2010_Conference_Paper_Teaching_out_of_the_box_-_20_Research-based_Princ_.pdf
Articles on Online Formative Qualitative Assessment:
Online formative: http://www.biomedcentral.com/1472-6920/8/52
Online formative ideas: http://www.nbme.org/PDF/NBME_AAMC_ProfessReport.pdf
Online formative qualitative:
Action research: http://www.omsp.net/Papers/ARProj1.htm
Significant event analysis:
http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2653155/pdf/150.pdf
http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2653155/

Certification

The approval of this course is a requirement for the certification; however, students can attend it regardless of course completion certification. If students want to receive an Official Course Completion Certificate, they must satisfactorily complete all mandatory assignments in the specified timeframe. CAL2CAL Institute, India will issue the Certificate.
This course is estimated to take about 100 hours to complete. For further information or inquiries please contact the course coordinator at rakesh7biswas@gmail.com

Course Schedule

Schedule for the Batch commencing on Fri, September 10, 2010

Assignment to be available and completed by:

1 Introduction and overview

Fri, September 10, 2010 to Oct 10, 2010

2 *Systems approach to clinical problem solving:*

a) Cardiovascular system (Cardiology), Respiratory system (Pulmonology), Renal and genitourinary system (Nephrology, Urology), Gastrointestinal system (Gastroenterology)

Monday, **Oct 11 to November 11 2010**

b) Hematological system (Hematology, Immunology), Nervous system (Neurology) Musculoskeletal system (Rheumatology, Orthopedics)

November 11 to December 11 2010

c) Reproductive system (Men's and Women's health), Skin and Integumentary system Cognitive system (Psychology, Psychiatry)

Dec 11, 2010 to Jan 11 2011

3) Summarizing the learning points and insights gained from online exercises in clinical problem solving into a publishable article

Feb 11 to March 11, 2011

How to Apply

Application Form is annexed in the next page. Please send the completed Application Form along with the Crossed Demand Draft to: **Dr. S N Sarbadhikari, CAL2CAL Institute, CAL2CAL (India) Ltd., 408 Jodhpur Park, Kolkata – 700 068. Phone: (+91) 91590 32857. Also, email a scanned copy of the filled up Application Form to supten@cal2cal.com for enrollment.**

CAL2CAL Institute

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Center for Research Education And Training
In Various Information & Communications Technologies
Coimbatore 641 028
Tamil Nadu, India

Clinical Problem Solving Online Certificate Course
http://cal2calinstitute.net/ and http://cal2cal-institute.wikispaces.com/

Application Form

Name:

Educational Background:

Corresponding Address:

Phone: Fixed: **Mobile:**

Email:

Reasons for applying to this Course (mention whether Basic or Advanced):

Expectations from this Course:

Payment Details:
Crossed Demand Draft drawn in favor of **"CAL2CAL (India) Ltd.",** payable at **Kolkata,** worth **Rs. 10,000/= (Rupees ten thousand only)** or **US$ 300.00**

DD number: **Bank & branch:** **Date:**

SIGNATURE (with Place and Date):

The User id and the password will be sent to the applicant by email only, after realization of the payment.
All disputes regarding this course are subject to the jurisdiction of Kolkata.
Please send the completed Application Form along with the Crossed Demand Draft to: **Dr. S N Sarbadhikari, CAL2CAL Institute, CAL2CAL (India) Ltd., 408 Jodhpur Park, Kolkata – 700 068. Phone: (+91) 91590 32857. Also, email a scanned copy of the filled up Application Form to supten@cal2cal.com for enrollment.**