INTERNSHIP TRAINING

In

NATIONAL BOARD OF EXAMINATIONS

TO EVALUATE EFFECTIVENESS OF CONTINUING MEDICAL EDUCATION (CME) AMONG RADIOLOGY RESIDENT DOCTORS USING PRE & POST CME ASSESSMENT TOOL.

By

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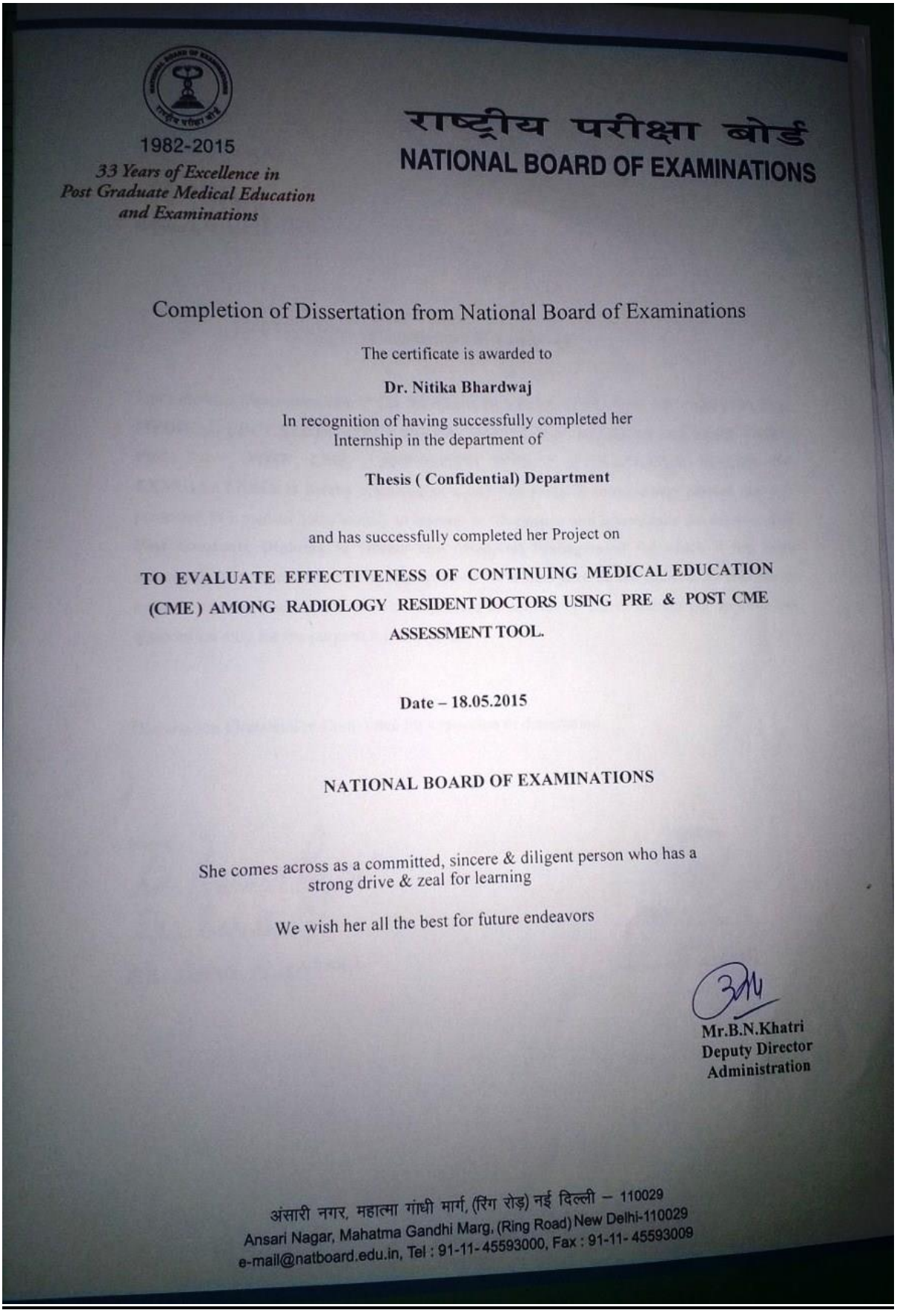

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She comes across as a committed, sincere & diligent person who has a strong drive & zeal for learning

We wish her all the best for future endeavors

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The Internship is in fulfillment of the course requirements.

I wish her all success in all his future endeavors.

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FEEDBACK FORM

Name of the Student: Dr.Nitika Bhardwaj

Dissertation Organisation: National Board of Examinations, New Delhi

Area of Dissertation: CME/ Workshop for DNB trainees

Attendance: Complete

Objectives achieved: Completion of task with sincerity.
Timely completion of project assigned

Deliverables: To Evaluate Effectiveness of Continuing Medical Education among Radiology delegates using Pre & Post CME Assessment tool.

Strengths: Excellent Knowledge of Research Methodology and Data Collection techniques.

Suggestions for Improvement: Study may be continued for more workshops to see the impact with a larger data set.

Dr. Vinay Gupta
Deputy Director (Medical)

Date: 18 May 2015
Place: NBE, Delhi

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INTERNATIONAL INSTITUTE OF HEALTH MANAGEMENT RESEARCH, NEW DELHI

CERTIFICATE BY SCHOLAR

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under the supervision of **DR. PREETHA GS** for award of Postgraduate Diploma in Hospital and Health Management of the Institute carried out during the period from **9 February 2015 to 18 May 2015** embodies my original work and has not formed the basis for the award of any degree, diploma associate ship, fellowship, titles in this or any other Institute or other similar institution of higher learning.

Nitika

Dr.Nitika Bhardwaj

ACKNOWLEDGEMENT

I owe my sincere gratitude to many people who helped and supported me during the course of this project.

It is with immense pleasure and honour that I take this opportunity to express my heartfelt gratitude and deep appreciation to my esteemed PROFESSOR and GUIDE Dr. PREETHA G.S. for guiding and correcting various documents of mine with attention and care. I really appreciate all the pain she took to go through the project and suggesting necessary corrections as and when needed. Her tireless pursuit for perfection and professional insight were a source of constant inspiration to me.

I would like to express my heartfelt gratitude and deep appreciation to my esteemed teachers Dr. BIPIN BATRA (EXECUTIVE DIRECTOR) for his excellent guidance, constant support and encouragement without which the successful completion of this project would have been a distant reality. His critical approach, guidance, unflinching support and constant encouragement have helped me to bring this project to a successful completion.

I would also like to extend my deepest gratitude to my mentor for this project Dr. ANURAG AGARWAL (ADDITIONAL DIRECTOR) for his support and encouragement. I am highly indebted to him for his excellent guidance, constant support and encouragement throughout my course of project. I thank him for providing necessary information and his support in completing the project.

I would like to extend my sincere thanks and profound gratitude to Dr. VINAY GUPTA (DEPUTY DIRECTOR) for providing me with a constant guidance and support and facilities to complete this project.

I would also like to thank the DEAN of my institute Dr. A.K.AGGARWAL and my faculty members without whom this project would have been a distant reality.

A note of thanks and appreciation to all helpful colleagues and staff at National Board of Examinations (NBE) for supporting me directly and indirectly all throughout project.

All praise belongs to my family and friends who motivated and inspired me on this project.

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LIST OF ABBREVIATIONS

- NBE-National Board of Examinations
- CME-Continuing Medical Education
- MCI- Medical Council of India
- DNB- Diplomate of National Board
- IMC- Indian Medical Council
- CET-Centralized Entrance Test
- IRIA- Indian Radiological and Imaging Association
- AAMC- American Association of Medical Colleges
- ACCP- American College of Chest Physicians
- EPC- Evidence Based Practice Centre
- KQ – Key Questions

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1. ORGANIZATION PROFILE

National Board of Examinations has been functioning in field of Post Graduate medical Education since 1982. It is the only examining body in the field of post graduate medical sciences which is involved in Continuing evaluation of quality and validity of measurement mechanism and standards of examinations by constant interaction with experts in various disciplines of modern medicine and allied specialities.

NBE conducts examinations in 69 disciplines and subspecialties of modern medicine which include DNB programmes in 30 broad and 22 super specialities. NBE has accredited 450 institutes/hospitals in public and private sector all over country.

The Board conducts following activities.

1. EXAMINTIONS: The National Board of Examinations conducts examinations in a planned and scientific manner in regard to evaluation, assessment.

The following exams are conducted by NBE

I. CENTRALIZED ENTRANCE TEST (CET)
II. CENTRALIZED ENTRANCE TEST (SUPER SPECIALITY)
III. CENTRALIZED ENTRANCE TEST (POST DIPLOMA)
IV. FELLOWSHIP ENTRANCE EXAM
V. DNB FINAL EXAMINATION'
VI. FELLOWSHIP EXIT EXAMINATION
VII. SCREENING TEST FOR FOREIGN MEDICAL GRADUATES
VIII. AIPGMEE
IX. PGET KARNATAKA
X. PGET JHARKHAND

NBE conducts all examination using Computer based Test (CBT) which has made its examination system more secure , consistent and convenient for candidates.

2. THESIS SUBMISSION AND ASSESSMENT

Each Candidates pursuing DNB courses under National Board of Examination has to submit thesis on specific research topic of their respective Broad or Super specialty. Thesis is a document submitted in support of candidature for an academic degree or professional qualification presenting the author's research and findings. Thesis should clearly suggests an essay's direction, emphasis, and scope and usually argues a point of view. It should be concise, specific and strong

Thesis which are submitted by the candidates are assessed by Assessors appointed by Board pursuing. Thesis assessment is a confidential activity where assessors and candidates are not known to each other. In order to maintain this confidentiality, Board has two separate sections to deal with thesis assessment:-

Thesis conduct section:-It deals with candidates.

Thesis confidential section: - It deals with assessors.

3. ACCREDITATION

Board is the prime national level organization that has a set a mechanism for imparting post graduate teaching and training in the sphere of higher medical education. Leading centres of excellence and in public, private and defence institutes all over the country that have been accredited by NBE for imparting training based on the defined accreditation criteria.

4. CONTINUING MEDICAL EDUCATION PROGRAMME/ WOKSHOPS:

National Board of Examination in its continuing endeavour to undertake capacity building and strengthen the Post graduate medical education in the country conducts Continuing Medical Education Programme / workshops for benefits of post graduate trainee, faculty and specialists/consultants. NBE conducts the CME programmes as follows:

I. NBE has set up a repository of electronic content in medical education covering all board and super specialties through titles available in DVD volumes. These titles cover wide range of issues as a part of the post graduate curriculum in modern medicine from common topics to esoteric areas of knowledge which otherwise are not easily available as learning resource.

II. Workshops in research methodology:
NBE in its continuing endeavour to strengthen research and facilitate capacity building in research methodology periodically conducts workshops for benefits of Post graduate candidates and faculty members.

5. SPECIALITY ADVISORY BOARDS: NBE has constituted speciality advisory boards for various disciplines in which examinations are conducted. The experts from all over the country drawn from various institutes in various disciplines are member of these boards.

6. DIPLOMATE OF NATIONAL BOARD (DNB) is the title awarded by the National Board of Examinations (NBE), an autonomous academic body under the Ministry of Health and Family Welfare, Government of India to candidates who successfully complete their postgraduate or postdoctoral medical education under it.

7. NATIONAL BOARD OF EXAMINATIONS meets its expenditure from income through fees etc. and capital grant supported by government.

Areas of Engagement

1. Coordinating activities for assessment of thesis .
2. Analysis of thesis on various identified measures.
3. Assessment of thesis for publications based on assessors comments.

Managerial Tasks

1. Coordinating activities between various departments dealing with research. Coordinating activities between candidates and assessors.
2. Coordinating activities for thesis assessment with assigned expert assessors.
3. Maintaining database and records.
4. Maintaining confidentiality of thesis reports.

Reflective Learning

1. Coordination of various activities.
2. Preparation of official documents'
3. Assessment of official documents'
4. Prioritization of work
5. Time management

TO EVALUATE EFFECTIVENESS OF CONTINUING MEDICAL EDUCATION (CME) AMONG RADIOLOGY RESIDENT DOCTORS USING PRE & POST CME ASSESSMENT TOOL.

2. INTRODUCTION

Medical Science is dynamic and it is essential for the doctor to become acquainted with the advances in medicine. This is in essence the concept of Continuing Medical Education (CME). These programmes help health professionals to be in touch with rapid advances in biomedical knowledge like newer methods, research, technology and clinical practice. Changing expectations of physicians as effective communicators and team members, enhanced awareness of the role of physicians in disease prevention, incorporation of evidence-based medicine, accountability, and financial incentives into daily medical practice, changing work environments as more care moves to ambulatory settings make the necessity of CMEs to be organised regularly[1].

CMEs are used as evidence of competence for medical practice when granting re-licensure to medical institutions, hospital privileges, specialty recertification, professional society membership and recognition for selected other professional activities etc. [1]. Importance of credit hours and updating knowledge of doctors has been globally accepted and also been approved by all the state medical councils on February 2012 and already endorsed by Medical council of India.

CME organized by Indian Radiological and Imaging Association (IRIA) in collaboration with National Board of Examinations (NBE) was conducted on Radiological Imaging Techniques of different body structures.

It was held on 3 days from 17 April 2015 to 19 April 2015 and was divided into 6 sessions.

17th April 2015, Friday	**18th April 2015, Saturday**	**19th April 2015, Sunday**
Pre CME Assessment	Session 3:- GI and Hepatobiliary Imaging	Session 5 :- Neuro Imaging
Session 1:- Chest and Cardiovascular Imaging	Session 4 :- Musculoskeletal and Small parts Imaging	Session 6 :- Intervention and Miscellaneous
Session 2:- Genito-urinary imaging		Post CME Assessment

Radiology resident doctors from all over India had participated in this CME. Programme schedule includes lectures by renowned Radiology professors along with spotting, film reading, viva, and interactive sessions. Pre and Post CME assessment was also done to evaluate its effectiveness among delegates.

According to resident doctors, this CME content was determined and there was perfect coalition of educational content and goals (objectives) with evolving societal needs, practice patterns and scientific developments.

3. REVIEW OF LITERATURE

CME is important for the prosperity of health care providers as it allows a practitioner to learn and discover viable ways to improve on the patient care they deliver and effectively manage a career in the ever-changing landscape of the medical industry. The requirements or acceptable level of CME vary across medical disciplines, but they are equally important irrespective of the specialty or scope of practice in which a provider is engaged.

Topic of a CME should be selected depending on learning needs of delegates. There is need for a more systematic and rigorous analytic approach, where CME content is determined according to assessed needs and CME is evaluated using outcome measures [2]. In an article the authors have tried to define the action steps to enact a new vision of CME wherein they have indicated the need to collaborate to develop and implement new systems to measure learning [1]. They have mentioned that CME outcomes assessment, measures to validate educational effectiveness, and efforts to promote educational evaluation research will expand our thinking [1]. They have recommended (for institutional and organizational members of the American Association of Medical Colleges [AAMC]) developing resources using available and new information to define outcomes and assess them, developing an inventory of evaluation resources and tools that can be used in CME efforts, and encouraging development and testing of new assessment tools, with training to use them[1]. The evaluation should reflect not only whether physicians (delegates) have learned from participating in a CME program, but whether practice behaviours and/or patient outcomes have changed as a result[2]. Also if CME directors cannot show the effectiveness of their programs in meeting such needs, physicians should question the usefulness of attending CMEs and the accrediting body, which may represent the physician, should restrict its accreditation of such programs [3].

According to Evidence Report no.149 titled **Effectiveness of Continuing Medical Education prepared by:** The Johns Hopkins University, Evidence-based Practice Center, Baltimore, MD, CME was found to be effective on following parameters including knowledge (22 of 28 studies), attitudes (22 of 26), skills (12 of 15), practice behavior (61 of 105), and clinical practice outcomes (14 of 33).

Another report by **ACCME (Accreditation Council of Continuing Medical Education)** r (July 2014) titled "Effectiveness Of Continuing Medical Education:updated Synthesis Of Systematic Reviews " by RONALD M. CERVERO, PH.D. And JULIE K. GAINES, MLIS , University of Geogia shows Five of the eight systematic reviews (published since 2003) reached the conclusion that CME has a positive impact on physician performance and patient health outcomes if it is more interactive, uses more methods, involves multiple exposures, is longer, and is focused on outcomes that are considered important by physicians

There will be concerns about whether CME works or how we should present (technique of delivery) it. New forms of CME must incorporate and take advantage of new technology based on its intrinsic capacity to foster learning, and not merely on convenience factors [2].

We live in a "Prove it!" age. Those responsible for the continuing education of practitioners feel much pressure from professional educators, the public, and both private and governmental agencies to show that a project is worthwhile (that the money was/will be beneficially spent).Therefore, much effort is expended in the struggle to evaluate effort and demonstrate that a given exercise in continuing education indeed improved health care [4].

Concern has been expressed about the need to demonstrate the effectiveness of CME in improving physician performance and outcomes for patients' health [5]. CME must be evaluated and that we should not permit ourselves the luxury of not pursuing the question of its worth simply because it is too complex or may be too full of negative findings [6].

Literature survey indicates the strong need to evaluate the CMEs. Therefore in the present study two CME's organized at our institution have been evaluated.

The American College of Chest Physicians (ACCP) recognized the potential value of Identifying and synthesizing the evidence in this area, and nominated this topic to the Evidence based Practice Center (EPC) Program of the Agency for Healthcare Research and Quality (AHRQ). In response to this request by the ACCP, the Johns Hopkins EPC

performed a systematic review to address the following key questions (KQ) pertaining to the effectiveness of CME:

KQ1) is there evidence that particular methods of delivering CME are more effective in:
a) Imparting knowledge to physicians,
b) Changing physician attitudes,
c) Acquiring skills,
d) Changing physician practice behaviour, or
e) Changing clinical practice outcomes?

KQ2) Do changes in knowledge, attitudes, skills, practice behaviour, or clinical practice Outcomes produced by CME persist over time (greater than or equal to 30 days)?

KQ3) What is the evidence from systematic reviews about the effectiveness of simulation methods in medical education outside of CME?

KQ4) Which characteristics of the audience by themselves or in combination with other characteristics influence the effectiveness of certain educational techniques?

KQ5) Which external factors by themselves or in combination with other factors reinforce the effects of CME in changing behaviour?

KQ6) What is the reported validity and reliability of the methods that have been used for measuring the effects of CME in terms of:
a) imparting knowledge,
b) changing attitudes,
c) acquiring skills,
d) changing practice behaviour, or
e) changing clinical practice outcomes?

Continuing Medical Education (CME) forms a vital link between professional education, practice, and maintenance of competence for clinicians and hospital staff [1, 2]. It allows health care providers to:

- Refine skills to improve overall patient care
- Stay current with the latest developments within their specialty
- Address real-world challenges that health care professionals face day to day
- Gain professional growth and a means to advance career status
- Meet licensing/certification requirements
- Learn effective medical team management skills
- Earn membership in professional organizations

CME activities should be held at regular intervals, and much effort and preparation is devoted to their design, organization, evaluation, and implementation.

Convenience, Relevance, Individualization, Self-assessment, Interest and Speculation (CRISIS) are recommended to improve the effectiveness and quality of continuing medical education programs

Comprehensive evaluation of CME programs needs sufficient time, energy, resource and efforts for planning, designing, organizing, evaluation and implementation. Effective evaluation of CME is measured using pre-CME and post-CME assessment which determine learning of health care providers.

4. RATIONALE

CMEs are most effective in disseminating and retaining medical knowledge thus improvement and effectiveness of CME is important in diminishing the gap between evidence and practice.

5. OBJECTIVE

To Evaluate Effectiveness of Continuing Medical Education among Radiology Resident Doctors using Pre & Post CME Assessment tool.

5.1 SPECIFIC OBJECTIVES

1. To analyze the profile of Radiology resident doctors who attended CME in terms of some selected parameters.
2. To assess the effectiveness of the CME conducted by comparing pre and post assessment scores.
3. To find effectiveness of CME for DNB and MD radiology resident doctors
4. To check learning outcome of CME among male and female doctors
5. To compare knowledge gain/ learning among different subgroups of the resident doctors who attended the CME .

6. METHODOLOGY

6.1 Study area

CME was organized by Indian Radiological and Imaging Association (IRIA) in collaboration with National Board of Examination from 17th to 19th April.

6.2 Study design

Cross Sectional study

6.3 Study Period

17th April 2015 to 19th April 2015

6.4 Study Population

Total of 250 Radiology Resident Doctors who had registered in CME from all over India.

6.5 Sample population

Total of 113 Radiology Resident Doctors who had attended in CME from all over India

6.6 Study Tool

Pre CME Questionaire- 60 questions

Post CME Questionaire- 60 Questions

Combined Score of Delegates are given out of 120 which had decided the top three rankers in CME session.

6.7 Scoring Pattern

- One Mark was given for each correct response
- There was no negative marking for incorrect response.
- No mark was awarded for blank answers.

6.8 Data Collection Method

Multiple choice questionnaires with 60 structured questions were designed and administered for Pre-CME and post-CME assessment using computerized system. Audience responses were recorded using OMR sheet. Educational points are made clear during CME but Test results and summary responses were provided only after Post –CME assessment was done.

6.9 Data Analysis

Microsoft excel 2007 is used for data analysis followed by SPSS 3.0. using t-test.

6.10 Research Methodology Summary

SUMMARY OF RESEARCH METHODOLOGY		
1.	Study Area	CME organized by IRIA at National Board of Examination Auditorium
2.	Study Design	Cross Sectional
3.	Study Period	17-19th April 2015
4.	Study Population	250 Radiology Resident Doctors registered at CME.
5.	Sample Population	113 Radiology Resident Doctors registered at CME
6.	Study Tool	Pre CME and Post CME Questionaaire containing 60 Questions each.
7.	Scoring Pattern	One Marks for Each response. No negative marking Combined Score was given from out of 120
8.	Data Collection	Using OMR sheet
9.	Data Analysis	• Microsoft excel 2007 • SPSS 3.0 were used to analysis the data using t-test.

7. STUDY FINDINGS AND DISCUSSION

7.1: PROFILE OF RADIOLOGY RESIDENT DOCTORS ATTENDED CME

Table 7.1 :- Profile of Radiology Resident Doctors who have attended CME

Reg No.	Sex	Institution	Hospital	City	Region	Course	Pre CME	Post CME	Difference
15001	M	BL Kapur Hospital	Private	New Delhi	N	DNB	27	24	-3
15002	M	Institute of Nuclear Medicine and Allied Sciences	Government	New Delhi	N	DNB	45	42	-3
15004	F	Max Hospital Saket	Private	New Delhi	N	DNB	45	45	0
15007	F	BLKapur Hospital	Private	New Delhi	N	DNB	38	35	-3
15009	M	Artemis Hospital	Private	Gurgaon	N	DNB	32	31	-1
15010	M	Bombay hospital,	Private	Indore	N	DNB	32	33	1
15012	M	Bokaro General hospital	Private	Jharkhand	E	DNB	39	27	-12
15013	M	Sir Ganga ram Hospital	Private	New Delhi	N	DNB	45	43	-2
15014	M	Sir Ganga ram Hospital	Private	New Delhi	N	DNB	47	45	-2
15015	M	GVI Institute of medical sciences	Government	Trichy	S	DNB	40	45	5
15016	F	Apollo Hospital	Private	Telangana	S	DNB	44	46	2
15017	M	Apollo Hospital	Private	Telangana	S	DNB	47	48	1
15018	F	Guru Tegh Bahadur Hospital	Government	Delhi	N	MD	29	38	9
15019	M	Guru Tegh Bahadur Hospital	Government	Delhi	N	MD	29	37	8
15022	F	Rajiv Gandhi Cancer Hospital	Private	New Delhi	N	DNB	41	32	-9
15023	M	BL Kapur Hospital	Private	New	N	DNB	40	36	-4

				Delhi					
15024	M	IGIMS Patna	Government	Patna	E	DNB	38	36	-2
15025	F	Apollo Hospital	Private	Hydrabad	S	DNB	39	37	-2
15028	M	Apollo Hospital	Private	Hyderaba d	S	DNB	33	40	7
15029	M	Army Hospital	Government	New Delhi	N	MD	31	42	11
15032	M	Army Hospital	Government	New Delhi	N	MD	18	30	12
15034	M	KJS medical college	Private	Mumbai	W	DNB	19	25	6
15035	F	Vivekananda Institute of Medical Sciences	Private	Kolkata	E	DNB	33	38	5
15036	F	KJS Hospital	Private	Mumbai	W	DNB	35	40	5
15037	M	Medanta Hospital	Private	Gurgaon	N	DNB	42	37	-5
15038	M	Medanta Hospital	Private	Gurgaon	N	DNB	43	43	0
15039	M	KJS medical college	Private	Mumbai	W	DNB	44	44	0
15040	M	LTMMC & GH	Private	Mumbai	W	DNB	41	45	4
15041	M	KJS hospital	Private	Mumbai	W	DNB	39	42	3
15042	M	Bharat scan Hospital	Private	Chennai	S	DNB	43	36	-7
15043	M	LTMMC & GH	Private	Mumbai	W	DNB	44	45	1
15044	F	KJS Hospital	Private	Mumbai	W	DNB	40	35	-5
15045	F	Bombay hospital	Private	Indore	N	DNB	42	38	-4
15046	F	Vikram hospital	Private	Mysore	S	DNB	39	38	-1
15048	M	Laurdes hospital	Private	Kerala	S	DNB	30	44	14
15049	F	Sagar hospital	Private	Bangalore	S	DNB	42	47	5
15052	M	Diwan chand	Private	New Delhi	N	DNB	26	34	8
15053	F	Rajiv Gandhi Cancer Hospital	Private	New Delhi	N	DNB	37	28	-9
15054	M	V.PIMS,Lucknow	Private	Lucknow	N	DNB	30	32	2
15055	M	MGMC,Jaipur	Private	Jaipur	N	DNB	27	19	-8
15056	M	Ruby hall clinic,Pune	Private	Pune	W	DNB	43	44	1
15057	F	Max Hospital	Private	New Delhi	N	DNB	42	44	2

15058	M	D.M Hospital,	Private	Pune	W	DNB	35	46	11
15059	M	Batra hospital	Private	New Delhi	N	DNB	44	39	-5
15060	M	Batra hospital	Private	New Delhi	N	DNB	41	43	2
15061	F	Batra hospital	Private	New Delhi	N	DNB	48	47	-1
15062	M	Batra hospital	Private	New Delhi	N	DNB	44	47	3
15065	F	NMR medical Institute	Private	Hubli	E	DNB	39	48	9
15068	F	GIBPER	Private	New Delhi	N	DNB	24	37	13
15074	F	Max Hospital	Private	New Delhi	N	DNB	45	42	-3
15075	M	JIPMER	Government	Pondicherry	N	DNB	41	47	6
15077	M	Ballineri hospital	Private	Nellore	S	DNB	44	46	2
15079	M	PGIMS rohtak	Government	Rohtak	N	MD	29	40	11
15080	F	PGIMS Rohtak	Government	Rohtak	N	MD	37	48	11
15081	M	PGIMS Rohtak	Government	Rohtak	N	MD	35	44	9
15082	F	Batra hospital	Private	New Delhi	N	DNB	43	45	2
15083	M	Ruby hall clinic,Pune	Private	pune	W	DNB	41	44	3
15085	F	Apple hospital	Private	Kolhapur	E	DNB	22	26	4
15086	M	PD Hinduja Hospital	Private	Ahmedabad	W	DNB	42	47	5
15089	F	Vivekananda Institute of Medical Sciences	Private	Kolkata	E	DNB	27	34	7
15090	M	Vivekananda Institute of Medical Sciences	Private	kolkata	E	DNB	37	35	-2
15091	M	VPIMS,Lucknow	Private	Lucknow	N	DNB	37	33	-4
15092	M	Jankharia Imaging Centre	Private	Mumbai	W	DNB	32	29	-3
15093	M	Base hospital	Government	New Delhi	N	DNB	44	37	-7
15097	M	BLKapur Hospital	Private	New Delhi	N	DNB	40	38	-2
15098	M	Fortis Hospital	Private	Mohali	N	DNB	39	42	3

15106	M	Jaslok hospital	Private	Mumbai	W	DNB	42	39	-3
15107	M	INMAS	Government	New Delhi	N	DNB	28	24	-4
15108	M	PGIMS Rohtak	Government	Rohtak	N	MD	28	38	10
15109	M	SVIMS Tirupati	Private	Tirupati	S	DNB	25	30	5
15111	F	ST.Stephan Hospital	Private	New Delhi	N	DNB	27	43	16
15113	M	ST.Stephan Hospital	Private	New Delhi	N	DNB	35	38	3
15114	F	MIMS Calicut	Private	Calicut	E	DNB	32	42	10
15115	M	MIMS Calicut	Private	Calicut	E	DNB	37	39	2
15116	F	MIMS Calicut	Private	Calicut	E	DNB	42	47	5
15118	F	Nanawati Hosp	Private	Mumbai	W	DNB	43	40	-3
15119	M	Vishesh Diag.Pvt.Ltd	Private	Mumbai	W	DNB	36	45	9
15121	M	Seth nandlal Hospital	Private	Shrirampur	W	DNB	35	30	-5
15124	M	RIMS Ranchi	Private	Ranchi	E	MD	44	45	1
15125	M	MMHRC	Private	Hyderabad	S	DNB	38	41	3
15126	M	MT Hospital	Private		N	DNB	42	47	5
15133	M	Sir Ganga ram Hosp	Private	New Delhi	N	DNB	35	39	4
15147	F	University College of Medical Sciences	Government	New Delhi	N	MD	30	28	-2
15149	F	University College of Medical Sciences	Government	New Delhi	N	MD	41	38	-3
15153	M	Rajiv Gandhi Cancer Hospital	Private	New Delhi	N	DNB	33	34	1
15155	M	Fortis NOIDA	Private	Noida	N	DNB	40	35	-5
15156	M	Dr. Bhubaneswar Borooah Cancer Institute (BBCI)	Private	Guwahati	E	DNB	43	43	0
15158	F	Batra hospital	Private	New Delhi	N	DNB	45	43	-2
15159	M	Sir Ganga ram Hospital	Private	New Delhi	N	DNB	45	45	0
15160	F	ST.Stephan Hospital	Private	New Delhi	N	DNB	47	46	-1
15161	M	Max Hospital	Private	New	N	DNB	41	41	0

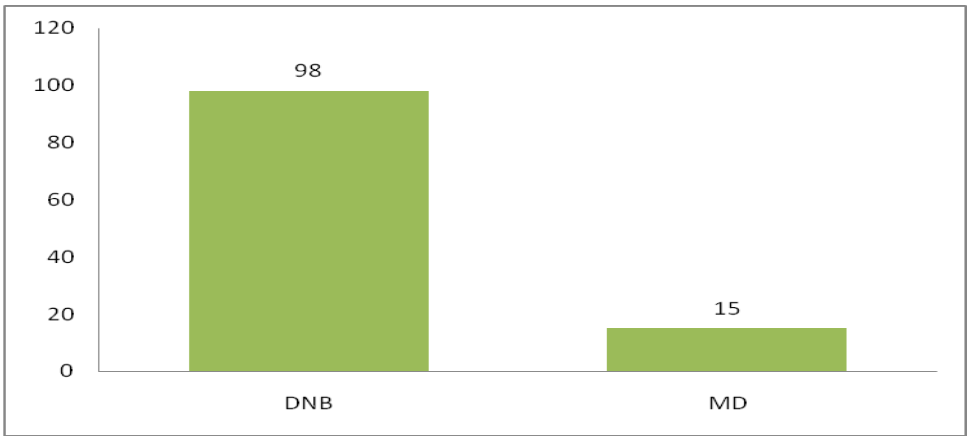
				Delhi					
15162	F	Sir Ganga ram Hospital	Private	New Delhi	N	DNB	43	46	3
15163	F	Sir Ganga ram Hospital	Private	New Delhi	N	DNB	37	44	7
15165	M	MediCiti Institute of Medical Sciences	Private	Telangana	S	DNB	36	41	5
15166	M	Sanjay Gandhi Post Graduate Institute of Medical Sciences	Private	Lucknow	N	MD	43	42	-1
15167	M	Sanjay Gandhi Post Graduate Institute of Medical Sciences	Private	Lucknow	N	MD	39	46	7
15168	M	Sanjay Gandhi Post Graduate Institute of Medical Sciences	Private	Lucknow	N	MD	47	51	4
15170	M	TNMC&BYL Nair Hospital	Private	Visakhapatnam	E	DNB	35	36	1
15171	F	Mata Chanan Devi Hospital	Private	New Delhi	N	DNB	25	42	17
15173	M	Kokilaben DA Hospital	Private	Mumbai	W	DNB	40	50	10
15174	M	TaraNain Hospital	Private	Ghaziabad	N	DNB	26	39	13
15175	M	Fortis escort heart Hospital	Private	New Delhi	N	DNB	33	33	0
15176	M	Breach candy Hospital	Private	Mumbai	W	DNB	34	43	9
15177	M	Breach candy Hospital	Private	Mumbai	W	DNB	37	39	2
15178	M	Breach candy Hospital	Private	Mumbai	W	DNB	40	39	-1
15179	M	MMHRC Hospital	Private	Chennai	S	DNB	33	38	5
15184	M	Aiims Hospital	Government	New Delhi	N	MD	41	48	7
15186	M	VMMC Hospital	Government	New Delhi	N	DNB	31	35	4
15187	M	VMMC Hospital	Government	New Delhi	N	DNB	37	38	1
15188	M	Rajiv Gandhi cancer Hospital	Private	New Delhi	N	DNB	41	38	-3

15189	M	Fortis Mohali	Private	Mohali	N	DNB	40	42	2
15190	F	Lilavati Hospital	Private	Mumbai	W	DNB	38	34	-4
15191	F	Holy spirit Hospital	Private	Mumbai	W	DNB	47	43	-4

From Table 7.1, it is inferred that

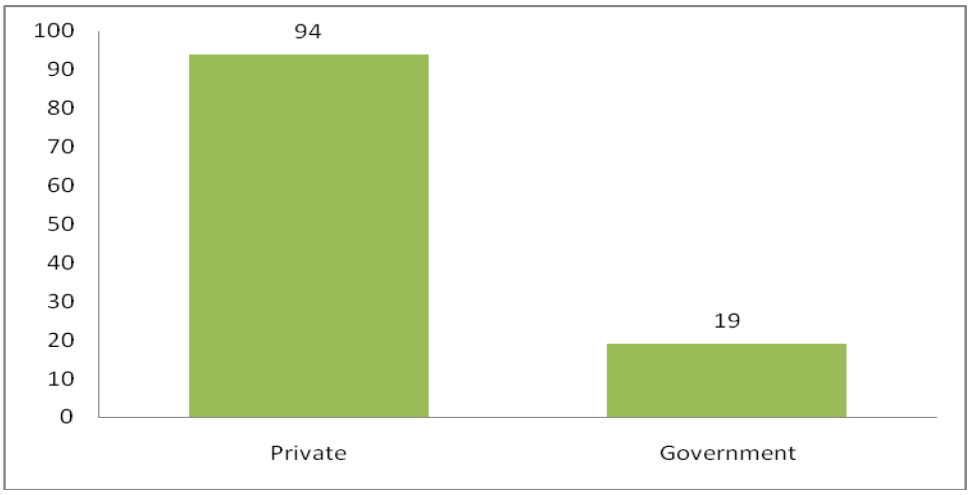
- 86 % of Radiology Resident Doctors who attended CME are pursuing DNB and only 13 % were pursuing MD.

Figure 7.1.1:- Number of MD & DNB attended CME



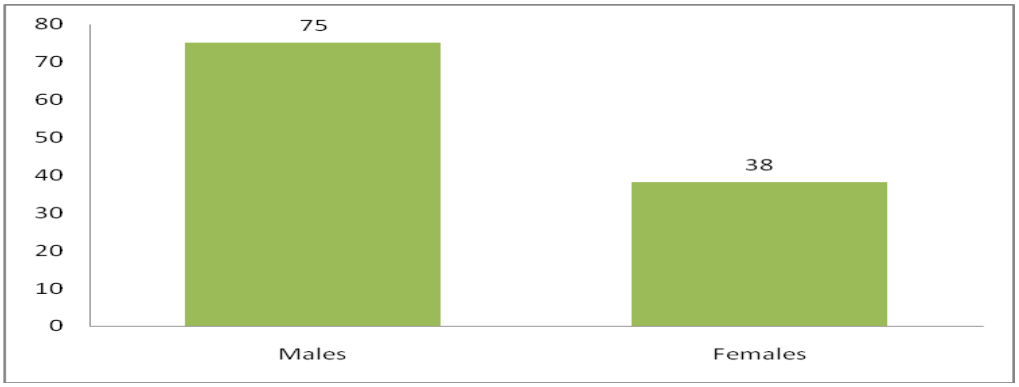
- 83% of Resident Doctors are working in Private Hospital while 16% are working in Government hospital.

Figure 7.1.2:- Number of Resident Doctors from Private and Government Hospital



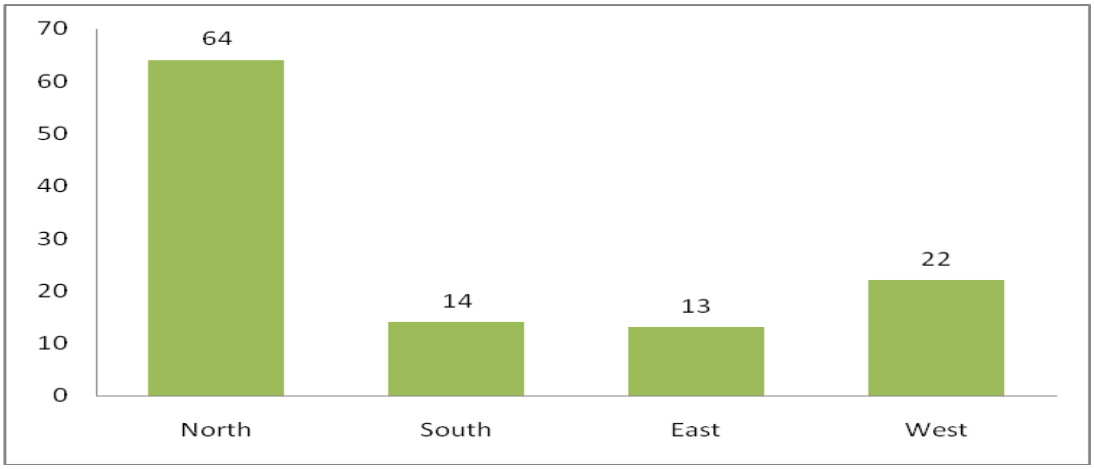
- 66% of male resident doctors while 33% of female resident doctors have attended CME .

Figure 7.1.3: Number of Males & Females doctors



- 56% of resident doctors who attended CME was from North region followed by 19% from West than 12% from South and 11% from East.

Figure 7.1.4: Number of resident doctors from different regions



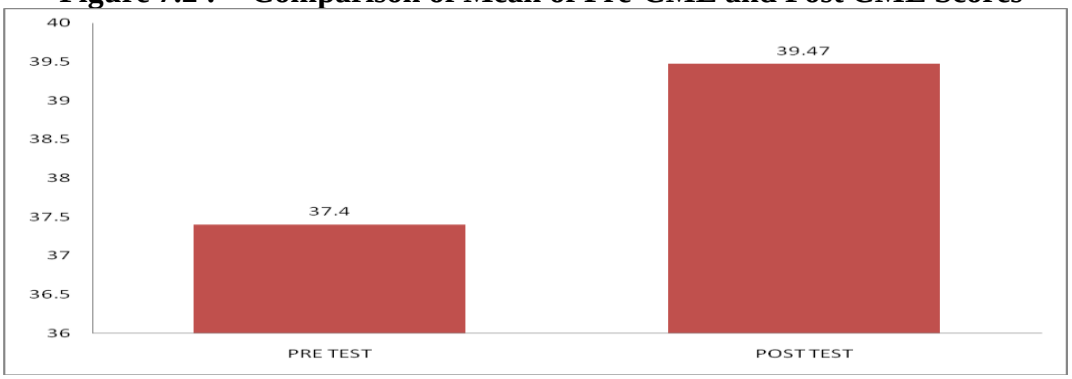
- As CME was organized in north region so accessibility of Northern delegates are more than the other region showing distance is one of the important factor for delegates attending CME so CME should be organized region wise for native candidates.

7. 2: COMPARISON OF MEAN PRE-CME AND POST CME ASSESSMENT SCORES

Table 7.2 :- Statistics of Pre & Post CME Scores

	Mean of Difference	N	Std. Deviation	t	df	Sig.
Pre_CME	37.41	113	6.625			
Post_CME	39.47	113	6.332	-3.8	112	0.00

Figure 7.2 :- Comparison of Mean of Pre-CME and Post CME Scores



From Table & Figure 7.2, it is inferred that :-

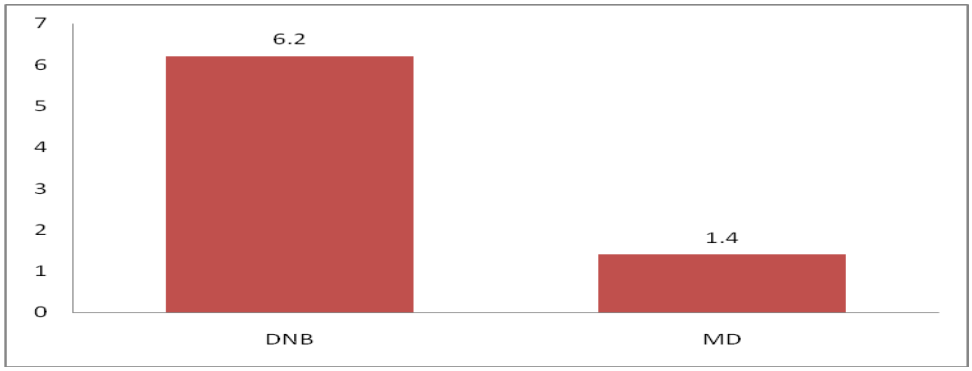
- The Overall Pre-CME assessment mean knowledge score of Radiology Resident Doctors was 37.4 while overall Post –CME assessment mean knowledge score of resident doctors was 39.47 which shows there was improvement in knowledge of doctors through CME justifying effectiveness of CME for the same.
- Paired Student t-test shows that significance value is less than 0.05 so the values of Pre and Post assessment score were significant and there is improvement in knowledge of resident doctors.

7.3 COMPARISON OF MEAN OF DIFFERENCE OF CME SCORES OF DNB AND MD CANDIDATES

Table 7.3 :- Statistics of DNB & MD Resident Doctors

Course	N	Mean of Difference	Std. Deviation	t	df	Sig.
DNB	98	6.27	5.50539	-3.3		
MD	15	1.42	5.16121		19.21	0.003

Figure 7.3 :- Comparison Of Mean Of Difference of CME Scores Of DNB And MD Candidates



From Table & Figure 7.3, it is inferred that:-

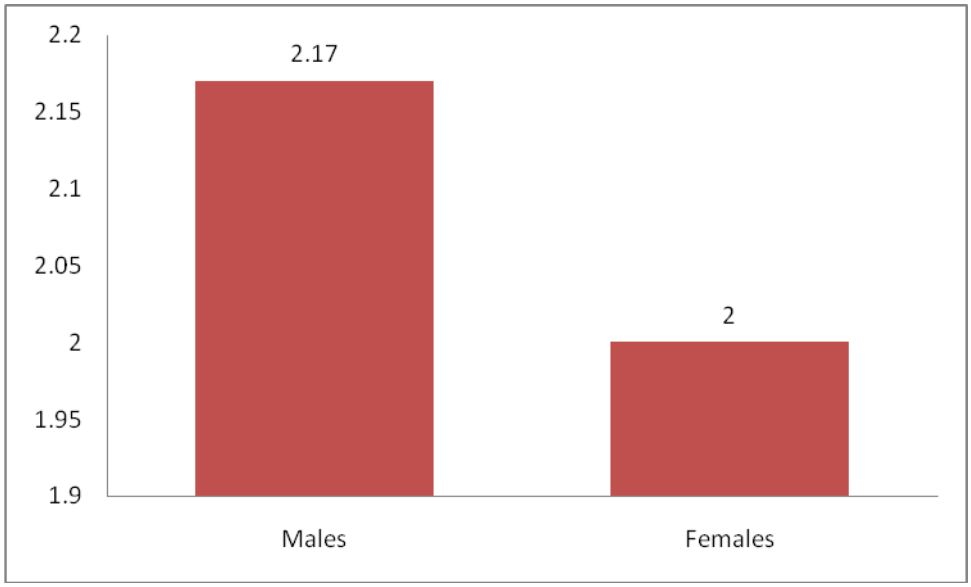
- The mean of difference of CME scores for DNB resident doctors was 6.2 while for MD resident doctors was 1.42 showing better learning outcome and knowledge gained among DNB resident doctors.
- The Independent t-test shows that above mentioned score were significant as level of significance is less than 0.05 (i.e. 0.003) showing CME was more effective for DNB resident doctors.

7.4 COMPARISON OF MEAN OF DIFFERENCE OF CME SCORES AMONG MALES AND FEMALES

Table 7.4:- Statistics of Male and Female Doctors

Gender	N	Mean of Difference	Std. Deviation	t	df	Sig.(2 tailed)
M	75	2.17	5.32	0.088	63.62	0.93
F	38	2.0	6.40			

Figure 7.4:- Comparison of Mean of difference of CME Scores Among Males And Females



From Table and Graph 7.4, it is inferred:-

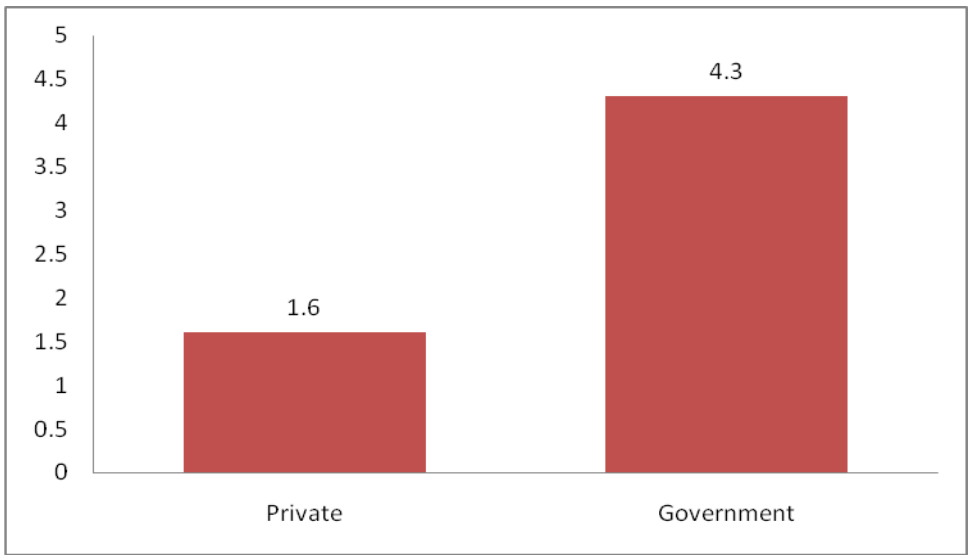
- The overall mean of difference of CME scores of males is slightly more than females.
- Independent T-test shows that above mentioned values were not significant value of significance in this case is 0.93 (which is greater than 0.05) so effectiveness of CME cannot be categorised gender-vise (according to Males or Females.)

7.5 COMPARISON OF MEAN OF DIFFERENCE OF CME SCORES OF RESIDENT DOCTORS WORKING IN GOVERNMENT & PRIVATE HOSPITAL

Table 7.5:-Statistics of Doctors working in Government and Private Hospital

Hospital	N	Mean of Difference	Std. Deviation	t	df	sig
Private	94	1.60	5.49			0.083
Government	19	4.36	6.18	-1.80	24.08	

Figure 7.5 : Comparison Of Mean of Difference of CME Scores Of Resident Doctors Working In Government & Private Hospital



From Table and Figure 7.5, it is inferred that :-

- The overall mean of difference of CME scores of Resident doctors working in Private Hospitals was 1.6 while in Government Hospitals was 4.3 showing better knowledge and gaining power of MD delegates.
- The Independent t-test value was 0.083 which was more than 0.05 showing there was no effect on CME scores whether resident doctors were working in government or private hospital.

8. RECOMMENDATIONS

- Most of resident doctors who attended CME are from North Region showing accessibility to venue is important factor so CME should be organized region wise for native candidates.
- The mean of Post CME Assessment scores are more than Pre CME assessment scores showing considerable improvement in knowledge of resident doctors so CME should be organized more periodically for benefit of doctors.
- Topic of CME should be focussed on outcomes that are considered important for physicians.
- CME should be made more interactive, interesting by using newer methods rather than simple learning sessions.
- Web Based CME should be organized to increase accessibility of resident doctors to attend CME from their native place.

9. LIMITATIONS

1. Only immediate knowledge aspects of delegates were reviewed in the study to prove effectiveness of the CME .
2. Skills gained & change in physician attitudes, behaviour & clinical practice outcomes were not reviewed in study.

10. CONCLUSION

Continuing medical education (CME) appears to be effective at the acquisition and retention of knowledge, attitudes, skills, behaviours and clinical outcomes. As educational activities, it helps to maintain, develop, or increase the knowledge, skills, performance, and relationships a physician uses to provide services for patients, the public, or the profession.

In the given study, most of resident doctors attended CME are from North region showing accessibility to venue plays major role in attending CME.

Comparison of mean of Pre CME and Post CME assessment scores shows the effectiveness of CME among resident doctors so more and more such CMEs should be organized in benefit of resident doctors. CME scores are not affected by gender or type of hospital in which doctors are working whether government or private. Results show that DNB doctors have gained better scores than MD doctors showing better learning outcome of DNB resident doctors.

CME is effective educational tool which is to be held more periodically to achieve perceptible change in knowledge outcome.

11 . REFERENCES

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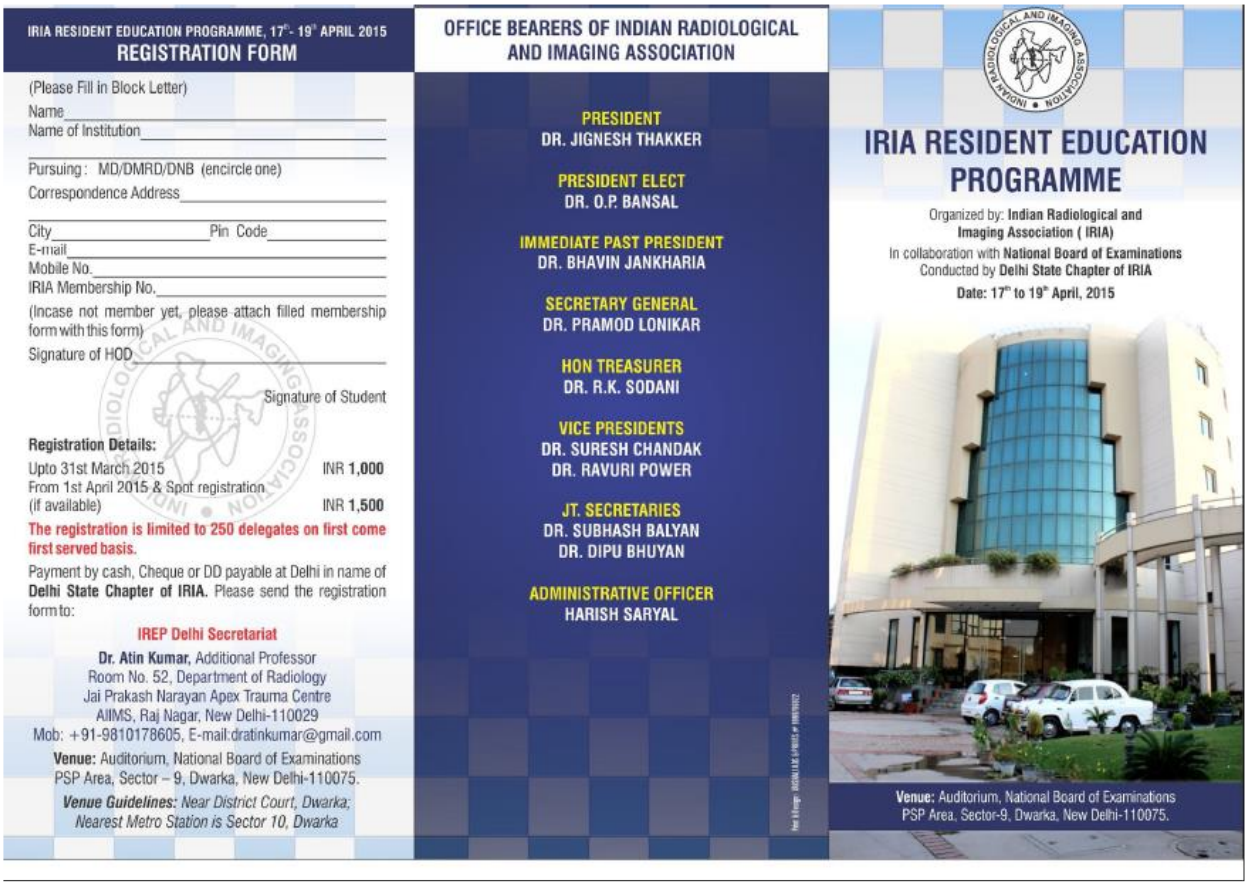
12. ANNEXURES

12.1 Brochure of CME organized by IRIA in collaboration with NBE



IRIA RESIDENT EDUCATION PROGRAMME, 17th- 19th APRIL 2015

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Name of Institution_____

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E-mail_____

Mobile No._____

IRIA Membership No._____

(Incase not member yet, please attach filled membership form with this form)

Signature of HOD_____

Signature of Student

Registration Details:

Upto 31st March 2015 INR **1,000**

From 1st April 2015 & Spot registration (if available) INR **1,500**

The registration is limited to 250 delegates on first come first served basis.

Payment by cash, Cheque or DD payable at Delhi in name of **Delhi State Chapter of IRIA.** Please send the registration form to:

IREP Delhi Secretariat

Dr. Atin Kumar, Additional Professor
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Jai Prakash Narayan Apex Trauma Centre
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Mob: +91-9810178605, E-mail:dratinkumar@gmail.com

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