DISSERTATION REPORT ON

Effectiveness of CME on Current Practices in Radiology Among Radiology Resident Doctors Through Pre & Post test Analysis

Post Graduate Diploma in Hospital & Health Management

By

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PG/13/09

Under the guidance of
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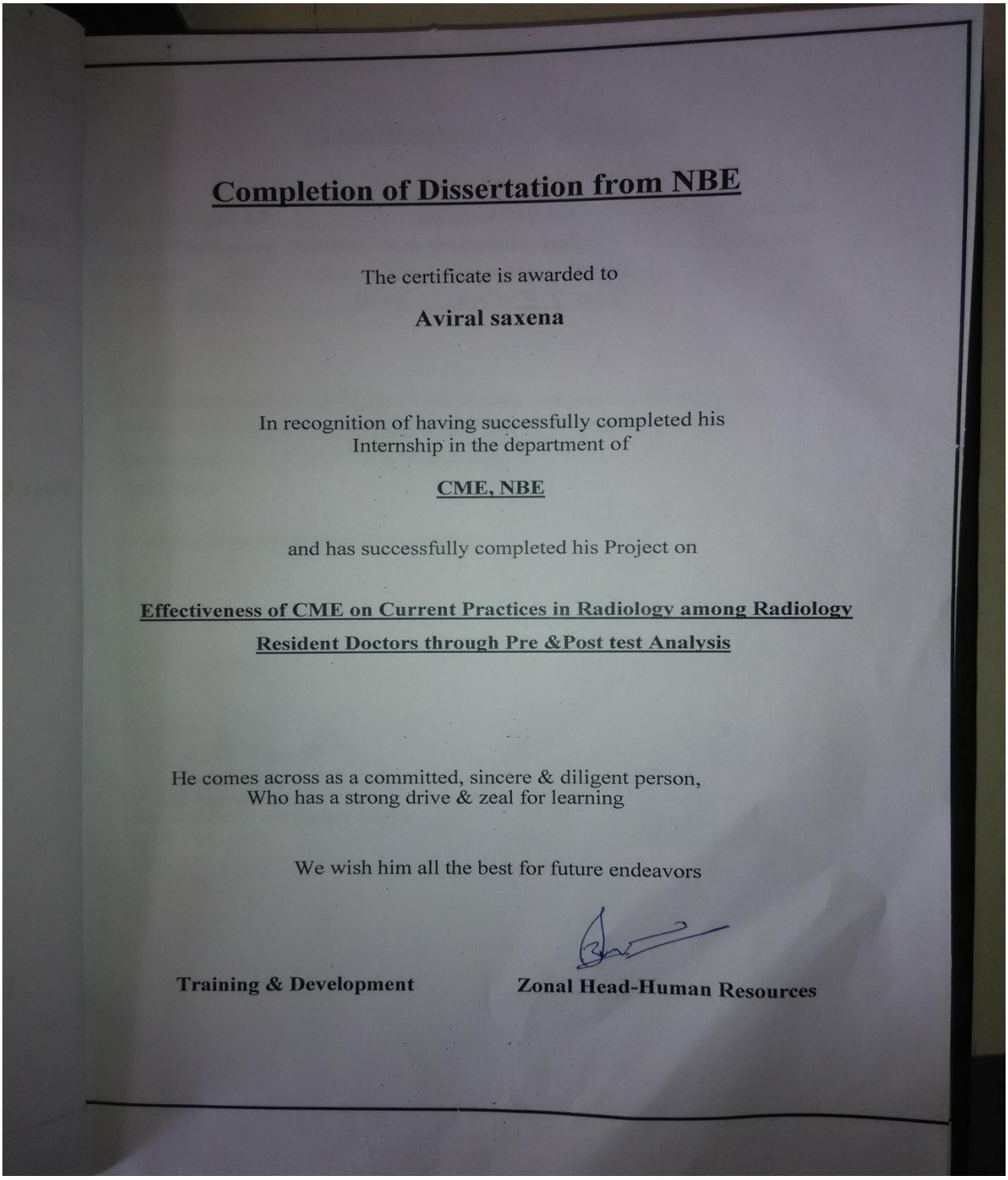

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The certificate is awarded to

Aviral saxena

In recognition of having successfully completed his
Internship in the department of

CME, NBE

and has successfully completed his Project on

Effectiveness of CME on Current Practices in Radiology among Radiology Resident Doctors through Pre &Post test Analysis

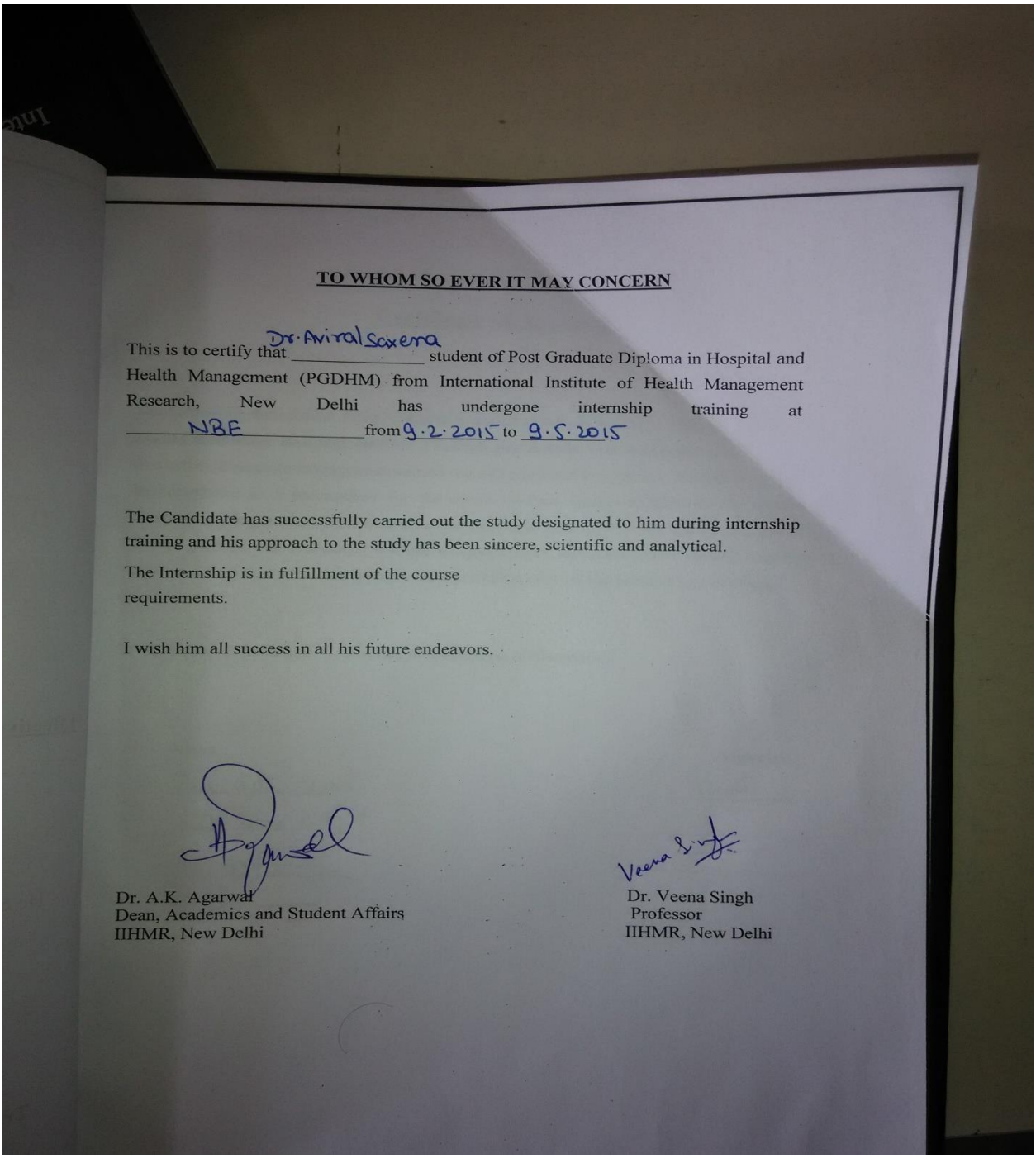
He comes across as a committed, sincere & diligent person,
Who has a strong drive & zeal for learning

We wish him all the best for future endeavors

Training & Development

Zonal Head-Human Resources

TO WHOM SO EVER IT MAY CONCERN



TO WHOM SO EVER IT MAY CONCERN

This is to certify that Dr. Aviral Saxena student of Post Graduate Diploma in Hospital and Health Management (PGDHM) from International Institute of Health Management Research, New Delhi has undergone internship training at NBE from 9.2.2015 to 9.5.2015

The Candidate has successfully carried out the study designated to him during internship training and his approach to the study has been sincere, scientific and analytical.

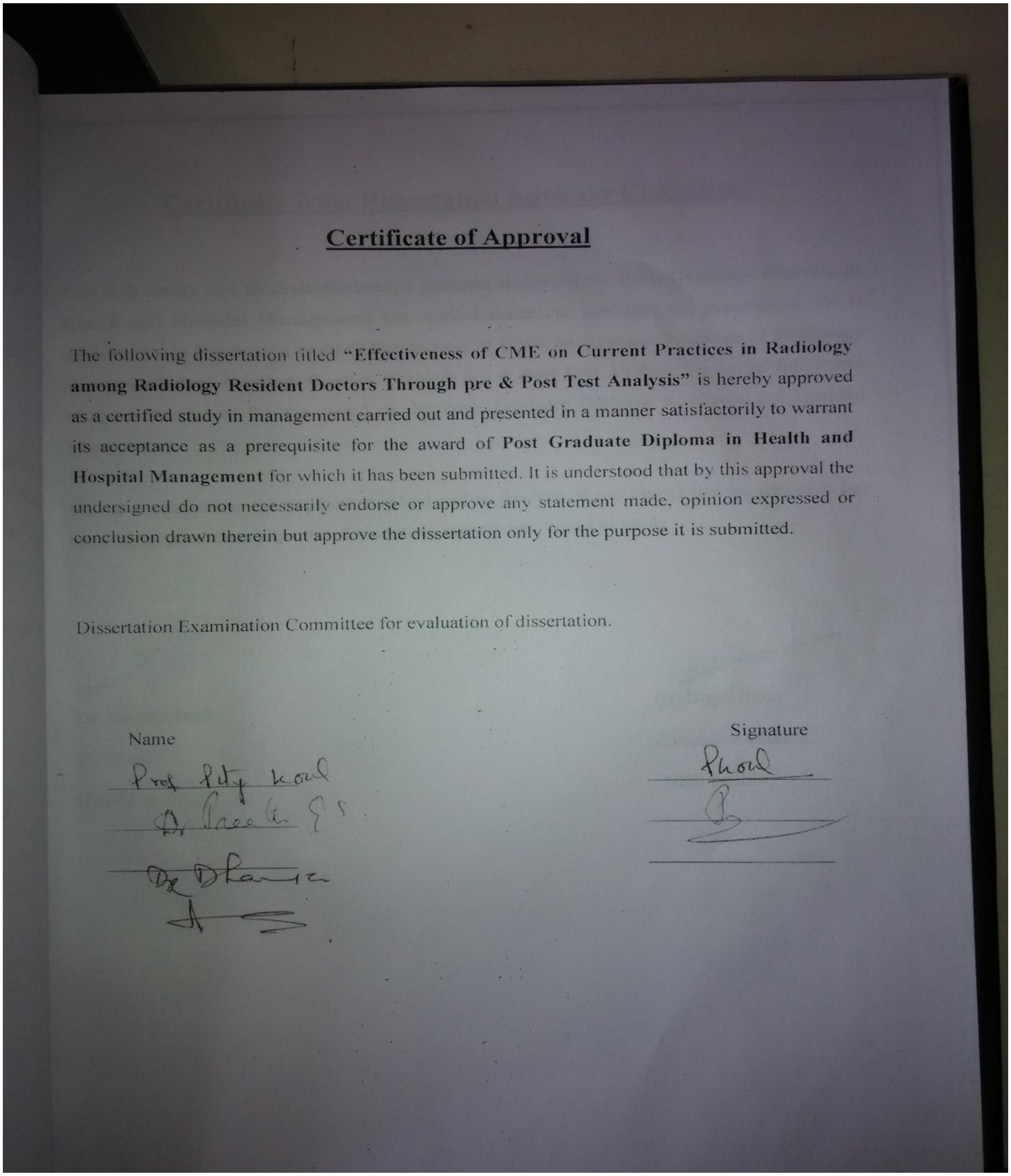
The Internship is in fulfillment of the course requirements.

I wish him all success in all his future endeavors.

Dr. A.K. Agarwal
Dean, Academics and Student Affairs
IIHMR, New Delhi

Dr. Veena Singh
Professor
IIHMR, New Delhi

Certificate of Approval



Certificate of Approval

The following dissertation titled **"Effectiveness of CME on Current Practices in Radiology among Radiology Resident Doctors Through pre & Post Test Analysis"** is hereby approved as a certified study in management carried out and presented in a manner satisfactorily to warrant its acceptance as a prerequisite for the award of **Post Graduate Diploma in Health and Hospital Management** for which it has been submitted. It is understood that by this approval the undersigned do not necessarily endorse or approve any statement made, opinion expressed or conclusion drawn therein but approve the dissertation only for the purpose it is submitted.

Dissertation Examination Committee for evaluation of dissertation.

Name	Signature

Certificate from Dissertation Advisory Committee

Certificate from Dissertation Advisory Committee

This is to certify that **Dr.AviralSaxena,** a graduate student of the **Post- Graduate Diploma in Health and Hospital Management** has worked under our guidance and supervision. He is submitting this dissertation titled **"Effectiveness of CME on Current Practices in Radiology among Radiology Resident Doctors Through pre & Post Test Analysis"** in partial fulfillment of the requirements for the award of the Post- Graduate Diploma in Health and Hospital Management.

This dissertation has the requisite standard and to the best of our knowledge no part of it has been reproduced from any other dissertation, monograph, report or book.

Dr. Veena Singh,
Professor
IIHMR Delhi

Dr. Bipin Batra
Executive Director
NBE Delhi

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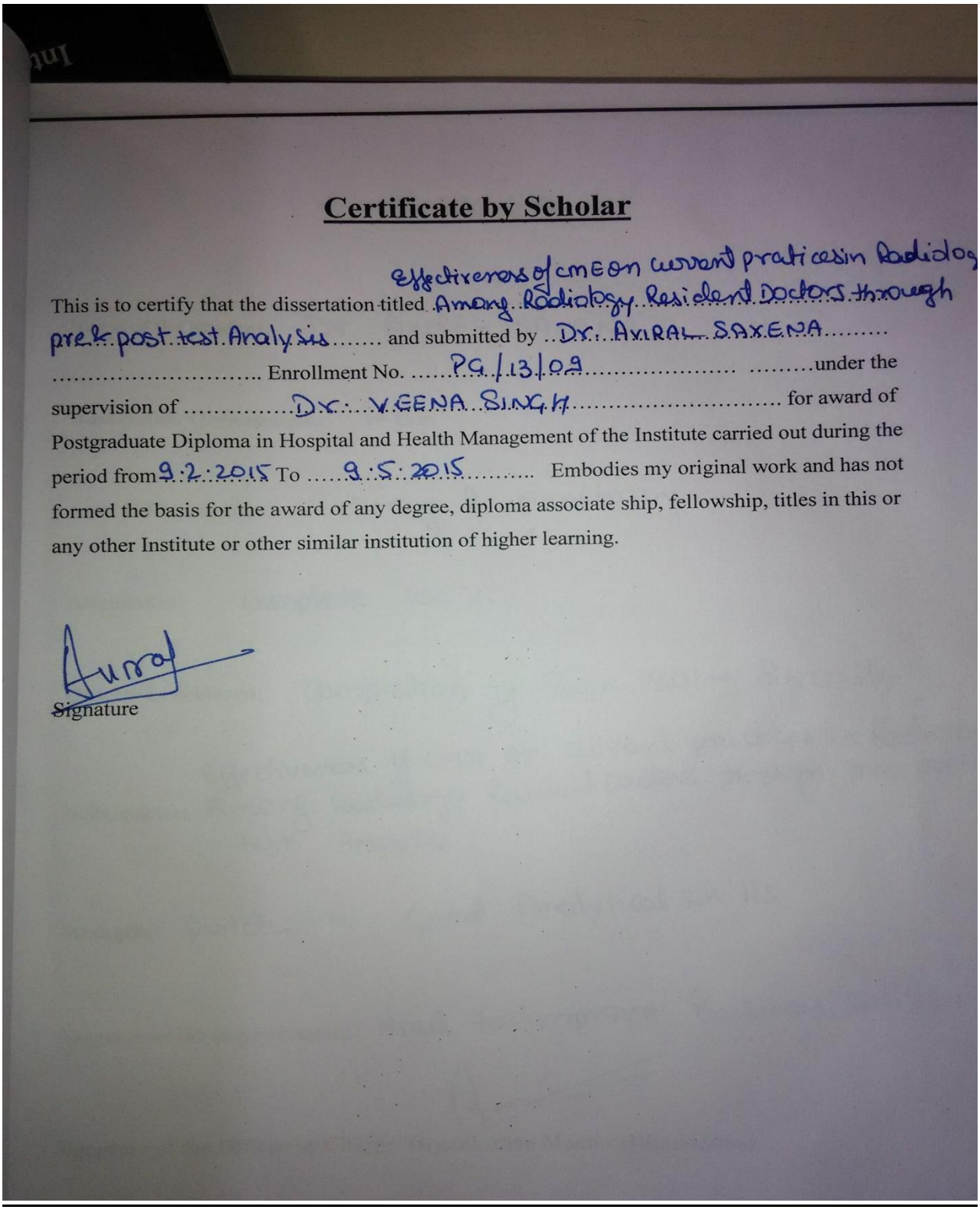

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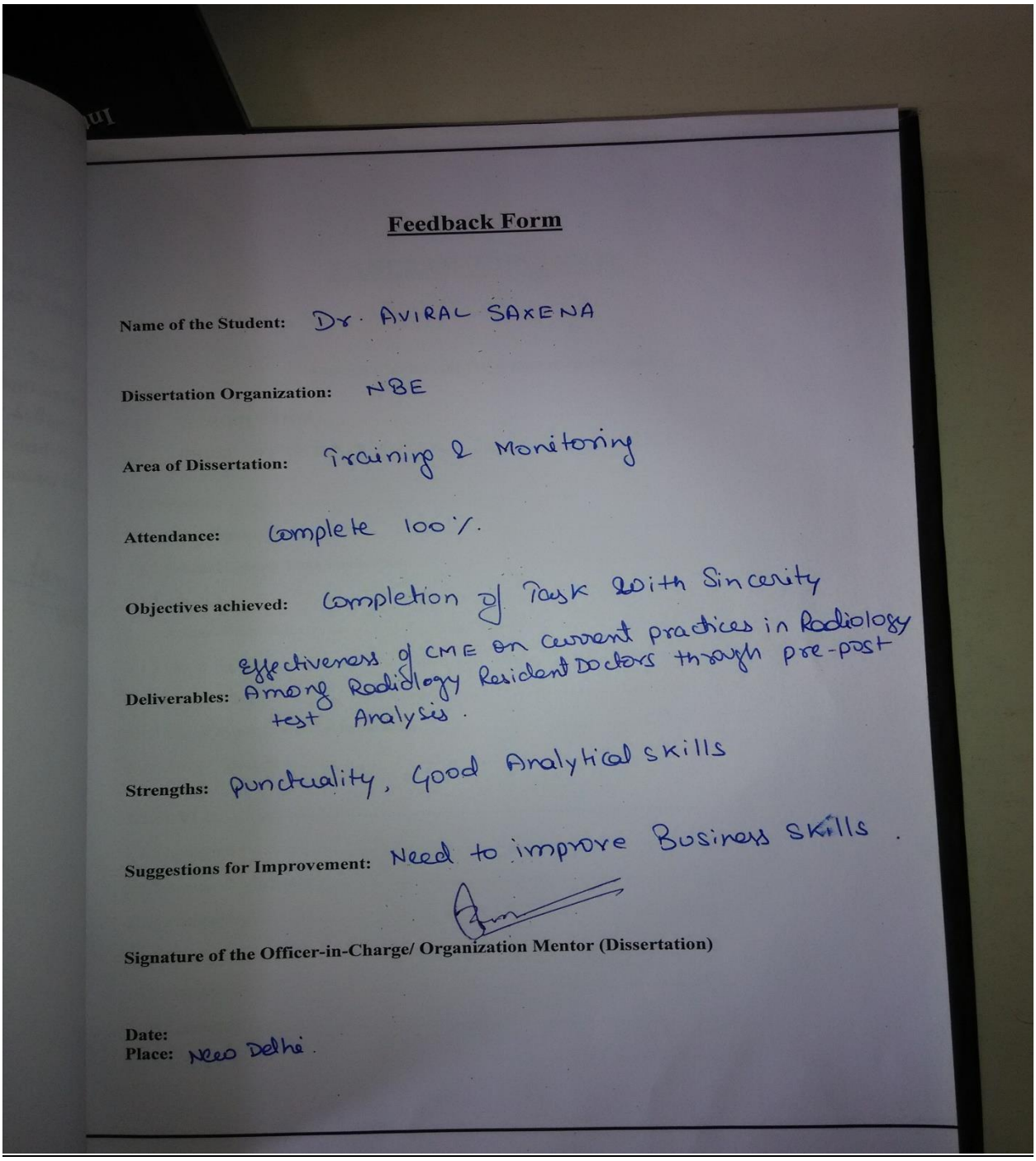

Feedback Form

Name of the Student: Dr. AVIRAL SAXENA

Dissertation Organization: NBE

Area of Dissertation: Training & Monitoring

Attendance: Complete 100%.

Objectives achieved: Completion of Task with Sincerity

Deliverables: Effectiveness of CME on current practices in Radiology Among Radiology Resident Doctors through pre-post test Analysis.

Strengths: Punctuality, Good Analytical Skills

Suggestions for Improvement: Need to improve Business Skills.

Signature of the Officer-in-Charge/ Organization Mentor (Dissertation)

Date:
Place: New Delhi.

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Annex A (Guide to the Preparation of Dissertation)

ABSTRACT

CME is educational activities that serve to maintain, develop, or increase the knowledge, skills performance and relationship a physician uses to provide services for patients, the public or the profession. Understanding what CME tools and techniques are most effective in disseminating and retaining medical knowledge is critical to improving the effectiveness of CME and thus diminishing the gap between evidence and practice.

To assess the effectiveness of CME on “current practice in radiology” the study was taken with prime objective to measure the score gained by the radiology resident doctors on current practices in radiology through pre and post test score analysis. CME was conducted at National Board of Examinations, New Delhi with sample size of 130 delegates with radiology clinical background were participated and given pre-test before the beginning of the CME and post-test was conducted after the completion of CME.

ACKNOWLEDGEMENTS

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

I would like to express my heartfelt gratitude and deep appreciation to my esteemed mentor Dr. BIPIN BATRA, Executive Director, NBE 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.

It is with immense pleasure and deep appreciation to my esteemed professor and guide Dr. VEENA MALIK, 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 extend my sincere thanks and profound gratitude to Mr. B.N. KHATRI, Deputy Director, Mr. DINESH CHAND, Deputy Director, Mrs. SUNITA KAPOOR, Assistant Director, NBE providing me with a good environment 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 Ms. SHEEBA PARVEEN IQBAL, Mrs. POOJA CHAUHAN, Mr. GEETESH for supporting me directly and indirectly all throughout the project.

LIST OF SYMBOLS & ABBREVIATIONS

NBE - National Board of Examinations

DNB - Diplomat of National Board

CET - Centralized Entrance Test

CME - Continuing Medical Education

OSCE - Objective Structured Clinical Examination

EEC - Examination Ethics Committee

AIPGMEE - All India Post Graduate Medical Entrance Examination

DNB CET - Diplomat of National Board

FMGE - Foreign Medical Group of Examination

CRISIS - Convenience Relevance Individualization Self-Assessment And Specialization

EPC - Evidence-Based practice Center

AHRQ- Agency of Health Care Research& Quality

ACCP - American College of Chest Physicians

DARE - Database of Abstracts of Reviews of Effects

ERIC - Educational Resource Information Centre

IRIA - Indian Radiology and Imaging Association

ORAGANIZATION PROFILE

The national board of examination was established in 1975 on the basis of the report of a working group set up by them prime Minster Smt. Indira Gandhi Since 1982 the board has been functioning as an independent autonomous body established under societies registration Act.

The Board conducts following activities.

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

The following exams are conducted by NBE.

I. CENTRALIZED ENTRANCE TEST (CET): There is a common CET for all broad specialties. Candidates who have completed their compulsory internship After gradation are eligible to tale CET examination. Centralized Entrance Test (Super-Specialties) and Centralized Entrance test (Post Diploma)

II. FINAL THEORY EXAMINTION consists of 4 papers of 3 hours duration on Each consisting of 10 short answer/essay type questions. A total 3056 and 4324 Candidates appeared and 1011 and 1743 passed in the DNB final examination during the year 2009-2010 and 2010-2011 respectively (exam conducted twice a year at exam centers all across country)

III. POST DOCTRAL FELLOSHIP PROGRAMMES: India has expertise in various sub specialty areas, with centers having high equipment and trainee Man power performing exceptional quality work. There are many young Medical post graduates with aptitude for higher learning. Considering the need to increase man power that can render highest degree of profession Work the national board the started postdoctoral Fellowship courses in 16 Specialties.

IV. SCREENING TEST FOR FOREIGN MEDICAL GRADUATES: The Government of India has entrusted the conduct of screening test regulation 2002 for the candidates who have undergone medical training abroad to National Board. The purpose of screening test of quality for registration as medical practitioner with the MCI or any state medical council. Exam is conducted twice a year since year 2002.

2. ACCREDITATION

The 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 centers of excellence and in public. Private and defense institutes all over the country that have been accredited by NBE for imparting training based on the defined accreditation criteria.

3. CONTINUING MEDICAL EDUCATION PROGRAMME/WORKSHOPS:

National 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 centers of excellence and in public, private and defense institutes all over the country that have been accredited by NBE imparting training based on the defined accreditation criteria.

I. E-learning-satellite based interactive sessions are conducted using television broadcast on Gyan Darshan channel every Thursday. This session provide two-way audio communicated and one-way video communication between the facility and the DNB students. NBE also conducts interactive sessions in FM radio every Thursday from 5:00 PM to 6:00 PM on Gyan Vani.

II. NBE has also set up a repository of electronic content in medical education covering all board and super specialties through titles available DVD volumes. These titles cover wide range of issue 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.

III. Workshops in research methodology.

NBE in its continuing endeavor to strengthen research and facilities capacity building in research methodology periodically conducts workshops for benefits of Post graduate candidates and faculty members.

4. SPECIALLITY ADVISORY BARDS: NBE has constituted specialty 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.

5. Diplomat 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.

6. The Board sustains its activities through following means:

   Income from examination fees etc (operational activities)-Examination fees and accreditation fees are charged from applicant institute/candidates to cover the recurrent operational expenditure and creation of infrastructure of NBE such as regional offices and extending the activities of NBE.

   Plan development/capital expenditure is supported by ministry of health by giving bulk grant.

Research Area

.Working as Research Associate in Training & Monitoring at National Board Of Examinations, New Delhi

1.2.1 Area of Engagement

1. Conducting of Objective Structured Clinical Examination (OSCE)
2. Conducting of Examination Ethics Committee (EEC)
3. Conducting CME/Workshop
4. Making Appraisal report for exams (AIPGMEE, DNB CET, FMGE)

1.2.2 Managerial Tasks

1. Coordinated meeting
2. Coordinated CME On'' current practices in pediatrics''
3. General Tasks in the Training & Monitoring Department.

1.2.3 Reflective learning

1. Organizing CME's
2. Preparation of Impersonator Booklet
3. Resolving case of Peeping/Cheating as per reports provided by authorize agency.
4. Preparing official document's
5. Prioritizing of work
6. Time management

Introduction

Continuing medical education (CME) is defined as educational activities that serve to maintain, develop, or increase the knowledge, skills, performance, and relationships a physician uses to provide services for patients, the public, or the profession. Despite the broad range of CME aimed at educating practicing physicians, researchers have found that physicians commonly overuse, under use, and misuse therapeutic and diagnostic interventions. It has been suggested that CME may not be effective enough to significantly narrow the gap between what is done in clinical practice and what should be done based on current evidence. Understanding what CME tools and techniques are most effective in disseminating and retaining medical knowledge is critical to improving the effectiveness of CME and thus diminishing the gap between evidence and practice. To date, relatively little has been done to comprehensively and systematically synthesize evidence regarding the effectiveness of CME and the comparative effectiveness of differing instructional designs for CME in terms of impact on knowledge, attitudes, skills, practice behavior, and clinical practice outcomes. Review of evidence elucidating the value of CME (and ways the activities could be improved, if appropriate) could yield tremendous value to policy makers and professional organizations seeking to make recommendations regarding the optimal delivery of medical care. (1)

Medical sciences change rapidly with new scientific information and technology (2) therefore; continuing education plays a vital role in presenting ever-growing knowledge, modern technology, and new orientation for the heart care providers. To perform their professional responsibilities, physicians need to participate in continuing medical education (CME) (3). CME has been the focus of many studies conducted by medical teachers and health managers throughout the world. Convenience, Relevance, Individualization, Self-assessment, Interest and Speculation (CRISIS) were recommended to improve the effectiveness and quality of continuing medical education programs (4).

On the other hand, the quality control and establishment of effective continuing medical education programs have been under consideration from long ago and the need for their evaluation has repeatedly been cited (5-7). Nevertheless, the evaluation methods used have defects including lack of objectivity, repeatability, and feedback to learners and compatibility.

Existing evidence suggests that CME programs in Iran have rarely been evaluated, and most of them end up only with an opinion poll. As a result, re-examination in the procedure and qualitative control of these programs is a well recognized requirement.

Comprehensive evaluation of CME programs needs sufficient time, energy and resource for planning and organizing evaluation. That's why the evaluation methods mostly focus on opinion evaluation. Although the effect of CME on behavior change has been investigated (8), there are some evidence of investigating the knowledge and or opinions of the participants of CME program using question test before and after the educational sessions (9), a questionnaire along with open discussion at the end of a symposium (6), a test and a questionnaire approving an increase in physician's self-confidence confronting with clinical and psychosocial symptoms (10), psychometric evaluation of participants taking part in an intensive 5-year continuing education program (11), and mailed questions on the topic of the educational package on the knowledge of etiology, diagnosis and the treatment of incontinency (12).

In an investigation of the status of CME of the Iranian Medical Society, it was concluded that in most CME programs complaints, violations and problems with medical documentation and the society's culture are not considered. The main objection of the participants in the program was lack of harmony among the professional needs of the participants and clinical problems of the physicians with the subjects raised in the continuing educational programs (13). In another research project, the relationship between the subjects attending the continuing educational programs and health requirements and needs of the country was investigated. The researchers concluded that in most cases there is no harmony between the society's needs and the length of time spent to teach and train the physicians in this regard (14).

Presently, CME is presented in most of the main universities and service providing centers of the country. This has been immensely expensive. Evidence suggests that in most cases, the evaluation of these programs is only conducted using the opinions of the participants which indeed cannot be illustrative of different aspects of evaluation (15). Considering the feasible methods of evaluation in the above-mentioned research projects, the present research aims at evaluating a training program held in Shiraz.

Title of the study

Effectiveness of CME on “Current Practices in Radiology among Radiology Resident Doctors through pre & post- test analysis”

Objectives

1. To measure the score gained by delegates on current practices in radiology through pre & post test score analysis.
2. To evaluate effectiveness of CME on the same.

Review of Literature

1. “Effectiveness of Continuing Medical Education” This report is based on research conducted by the Johns Hopkins University Evidence-based Practice Center (EPC) under contract to the Agency for Healthcare Research and Quality (AHRQ), Rockville (16)

We formulated specific questions with input from external experts and representatives of the Agency for Healthcare Research and Quality (AHRQ) and the American College of Chest Physicians (ACCP) which nominated this topic. We systematically searched the literature using specific eligibility criteria, hand searching of selected journals, and electronic databases including: MEDLINE®, EMBASE®, the Cochrane Database of Systematic Reviews, The Cochrane Central Register of Controlled Trials (CENTRAL), the Cochrane Database of Abstracts of Reviews of Effects (DARE), PsycI NFO, and the Educational Resource Information Center (ERIC®). Two independent reviewers conducted title scans, abstract reviews, and then full article reviews to identify eligible articles. Each eligible article underwent double review for data abstraction and assessment of study quality.

Study finding were Of the 68,000 citations identified by literature searching, 136 articles and 9 systematic reviews ultimately met our eligibility criteria. The overall quality of the literature was low and consequently firm conclusions were not possible. Despite this, the literature overall supported the concept that CME was effective, at least to some degree, in achieving and maintaining the objectives studied, 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). Common themes included that live media was more effective than print, multimedia was more effective than single media interventions, and multiple exposures were more effective than a single exposure. The number of articles that addressed internal and/or external characteristics of CME activities was too small and the studies too heterogeneous to determine if any of these are crucial for CME success. Evidence was limited on the reliability and validity of the tools that have been used to assess CME effectiveness. Based on previous reviews, the evidence indicates that simulation methods in medical education are effective in the dissemination of psychomotor and procedural skills.

Conclusion of the study despite the low quality of the evidence, CME appears to be effective at the acquisition and retention of knowledge, attitudes, skills, behaviors and clinical outcomes. More research is needed to determine with any degree of certainty which types of media, techniques, and exposure volumes as well as what internal and external audience characteristics are associated with improvements in outcomes.

2. Effectiveness of CME on "Pediatric Emergencies and Management" Among the Health Personnel's in Community Health Centre, Karikalampakkam, Puducherry. (17)

This study was conducted at Karikalampakkam village of Puducherry. Karikalampakkam is a Community Health Center with seven sub centers under it. The research design was one of the Quasi Experimental Design pre and post test with one group. All the health personnel's like ANM, PHN, Health educators were considered as subjects for the study. The sample size was 40 and selected by purposive sampling technique. Pretest was conducted before the CME programme with the structured interview schedule. Post test was conducted after completion of the programme with the help of same tool. Study finding were the pretest mean knowledge score among the health personnel's was 3.15 ± 0.89 with the mean percentage 7.8 % whereas the posttest mean knowledge score was 4.47 ± 1.58 with mean percentage 11.17 %. The Z value was -2.555 and the p value was 0.011 ($p < 0.05$)which was significant at 0.05 level. Conclusion of the study though the health personnel's are already trained, during pretest their knowledge level was found to be poor and after training, the results show that their knowledge improved. Thus, there is a necessity to conduct in-service training programmes to update knowledge and skill of health personnels.

Methodology

Study Area

It was conducted at National Board of Examinations, New Delhi where CME was conducted on "current practices in Radiology"

Study Design

Comparative Study Design

Study Sample

Total 130 delegates from radiology clinical background has participated from all over India for the CME.

Tools & Technique

Pre –test & Post –test questionnaires were administrated to delegates before the CME and after completing the CME.

Microsoft excels 2007 & SPSS 17.0 were used to analysis the data.

Study Results

Pre-test & Post-test Score Summary

S. No.	Pre-test score out of 60	% of Pre-test score	Post-test score out of 60	% of Post-test score
1	47	78.33333333	51	85
2	47	78.33333333	48	80
3	48	80	47	78.33333333
4	47	78.33333333	46	76.66666667
5	47	78.33333333	45	75
6	44	73.33333333	47	78.33333333
7	45	75	45	75
8	44	73.33333333	46	76.66666667
9	44	73.33333333	46	76.66666667
10	45	75	45	75
11	40	66.66666667	50	83.33333333
12	47	78.33333333	43	71.66666667
13	44	73.33333333	45	75
14	42	70	47	78.33333333
15	42	70	47	78.33333333
16	42	70	47	78.33333333
17	44	73.33333333	45	75
18	42	70	47	78.33333333
19	43	71.66666667	46	76.66666667
20	41	68.33333333	48	80
21	44	73.33333333	45	75
22	45	75	43	71.66666667
23	44	73.33333333	44	73.33333333
24	41	68.33333333	47	78.33333333
25	43	71.66666667	45	75
26	45	75	43	71.66666667
27	45	75	42	70
28	43	71.66666667	44	73.33333333
29	39	65	48	80
30	45	75	42	70
31	43	71.66666667	43	71.66666667
32	41	68.33333333	45	75
33	42	70	44	73.33333333
34	43	71.66666667	43	71.66666667
35	40	66.66666667	45	75

36	37	61.66666667	48	80
37	41	68.33333333	44	73.33333333
38	43	71.66666667	42	70
39	39	65	46	76.66666667
40	42	70	43	71.66666667
41	41	68.33333333	43	71.66666667
42	45	75	39	65
43	44	73.33333333	39	65
44	43	71.66666667	40	66.66666667
45	42	70	41	68.33333333
46	41	68.33333333	41	68.33333333
47	40	66.66666667	42	70
48	39	65	42	70
49	35	58.33333333	46	76.66666667
50	44	73.33333333	37	61.66666667
51	39	65	42	70
52	42	70	39	65
53	36	60	45	75
54	37	61.66666667	44	73.33333333
55	42	70	38	63.33333333
56	37	61.66666667	43	71.66666667
57	42	70	37	61.66666667
58	43	71.66666667	36	60
59	35	58.33333333	44	73.33333333
60	38	63.33333333	41	68.33333333
61	41	68.33333333	38	63.33333333
62	40	66.66666667	39	65
63	41	68.33333333	38	63.33333333
64	41	68.33333333	38	63.33333333
65	38	63.33333333	41	68.33333333
66	38	63.33333333	41	68.33333333
67	40	66.66666667	38	63.33333333
68	39	65	38	63.33333333
69	36	60	41	68.33333333
70	34	56.66666667	43	71.66666667
71	40	66.66666667	36	60
72	39	65	37	61.66666667
73	37	61.66666667	39	65
74	37	61.66666667	39	65
75	36	60	40	66.66666667
76	35	58.33333333	40	66.66666667

77	40	66.66666667	35	58.33333333
78	40	66.66666667	35	58.33333333
79	37	61.66666667	38	63.33333333
80	38	63.33333333	36	60
81	30	50	44	73.33333333
82	32	53.33333333	42	70
83	35	58.33333333	39	65
84	36	60	38	63.33333333
85	38	63.33333333	35	58.33333333
86	41	68.33333333	32	53.33333333
87	33	55	40	66.66666667
88	31	51.66666667	42	70
89	35	58.33333333	38	63.33333333
90	37	61.66666667	35	58.33333333
91	38	63.33333333	34	56.66666667
92	35	58.33333333	37	61.66666667
93	33	55	38	63.33333333
94	35	58.33333333	36	60
95	33	55	38	63.33333333
96	35	58.33333333	36	60
97	37	61.66666667	33	55
98	27	45	43	71.66666667
99	34	56.66666667	36	60
100	35	58.33333333	35	58.33333333
101	31	51.66666667	39	65
102	32	53.33333333	38	63.33333333
103	29	48.33333333	40	66.66666667
104	23	38.33333333	45	75
105	29	48.33333333	38	63.33333333
106	33	55	34	56.66666667
107	25	41.66666667	42	70
108	39	65	27	45
109	29	48.33333333	37	61.66666667
110	28	46.66666667	38	63.33333333
111	33	55	33	55
112	31	51.66666667	35	58.33333333
113	32	53.33333333	33	55
114	37	61.66666667	28	46.66666667
115	35	58.33333333	30	50
116	26	43.33333333	39	65
117	32	53.33333333	31	51.66666667

118	30	50	32	53.33333333
119	34	56.66666667	28	46.66666667
120	24	40	37	61.66666667
121	27	45	34	56.66666667
122	32	53.33333333	29	48.33333333
123	26	43.33333333	34	56.66666667
124	31	51.66666667	29	48.33333333
125	30	50	30	50
126	19	31.66666667	41	68.33333333
127	25	41.66666667	30	50
128	27	45	28	46.66666667
129	18	30	30	50
130	22	36.66666667	26	43.33333333

Pre-Test & Post test Score Frequency Table

		Pre Test Score	Post Test Score
N	Valid	130	130
	Missing	0	0
Mean		37.39	39.78
Median		38.50	40.00
Mode		35[a]	38
Std. Deviation		6.373	5.466
Variance		40.612	29.876
Range		30	25
Minimum		18	26
Maximum		48	51
Sum		4861	5172

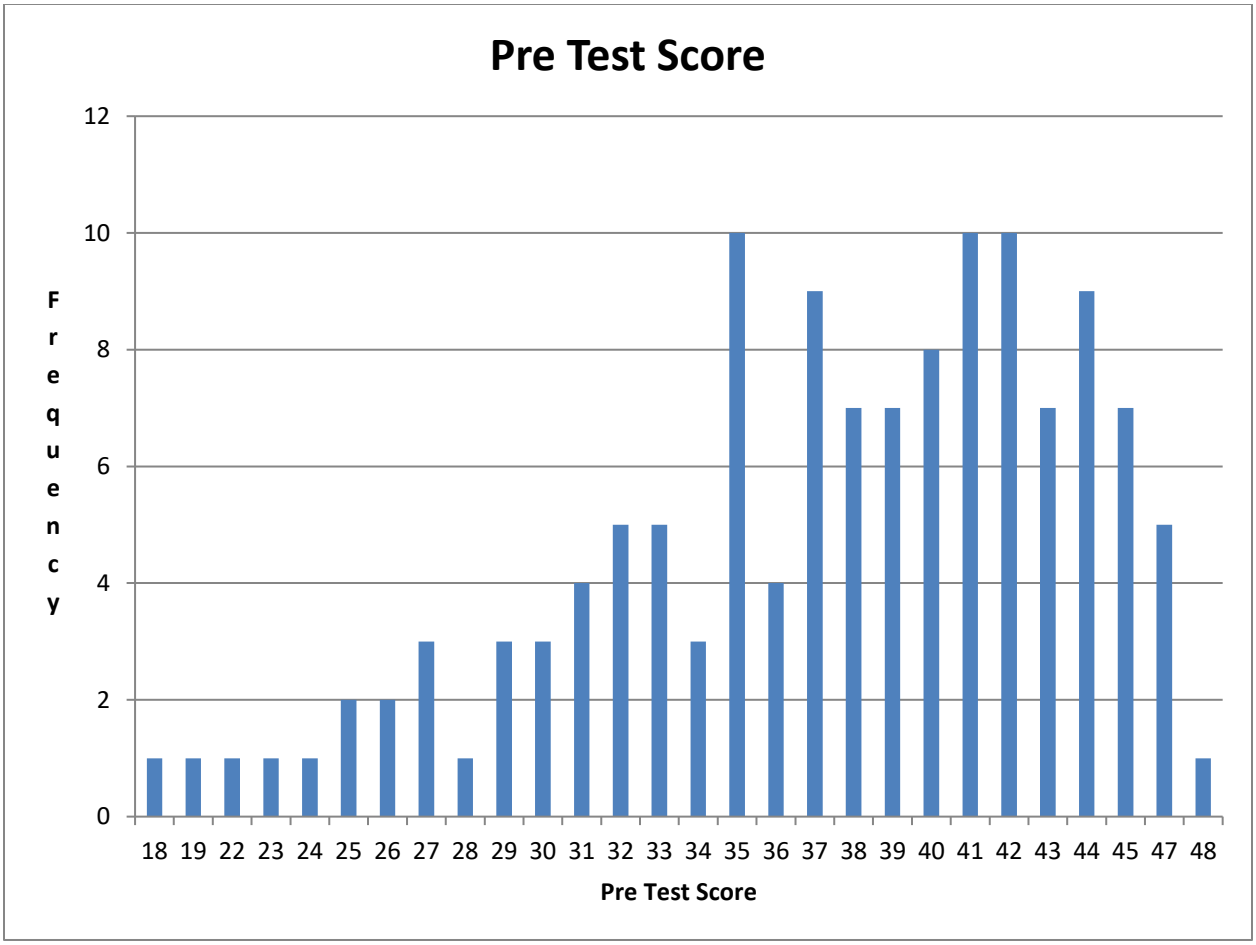
The Overall Pre-test Mean knowledge scores was 37.39and Median was 38.50; whereas the Post-term mean knowledge score was 39.78and Median was 40.

Maximum knowledge score was 48 and Minimum Score was and Minimum out of Score was 18 out of 60 marks in pre-test; Whereas Post-test Maximum Knowledge Score was 51 and Minimum Score was 26 out of 60 marks.

Pre-test Score frequency Statistic

Pre test score	Frequency
18	1
19	1
22	1
23	1
24	1
25	2
26	2
27	3
28	1
29	3
30	3
31	4
32	5
33	5
34	3
35	10
36	4
37	9
38	7
39	7
40	8
41	10
42	10
43	7
44	9
45	7
47	5
48	1
Total	130

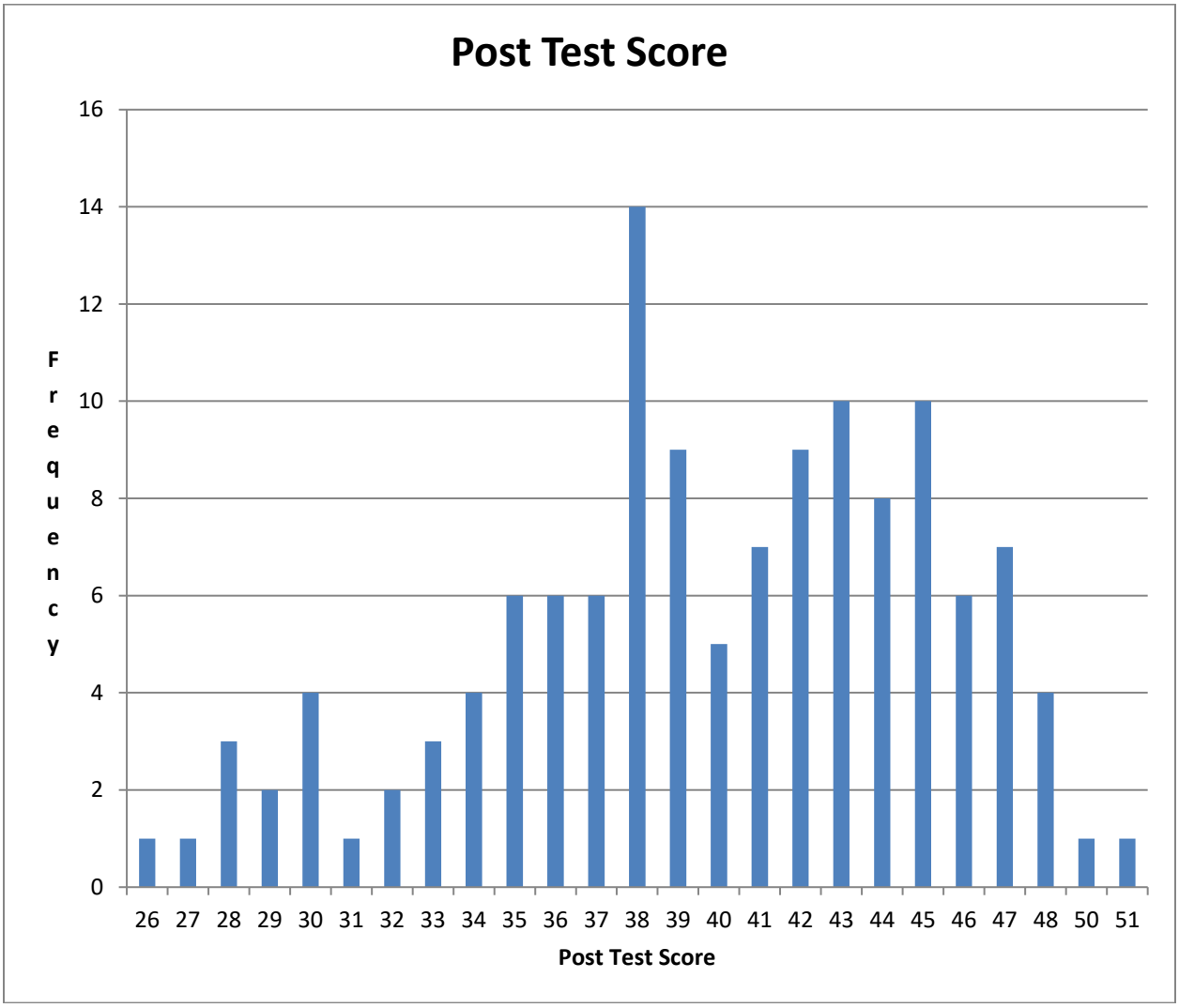
Frequency of Pre-test Score by 130 Radiology Resident Doctors



Post-test Score Frequency Statistics

Post test score	Frequency
26	1
27	1
28	3
29	2
30	4
31	1
32	2
33	3
34	4
35	6
36	6
37	6
38	14
39	9
40	5
41	7
42	9
43	10
44	8
45	10
46	6
47	7
48	4
50	1
51	1
Total	130

Frequency of Post-test Score by 130 Radiology Resident Doctors



Paired Pre-test & Post-test Samples Test

	Paired Differences					t	df	Sig. (2-tailed)
				95% Confidence Interval of the Difference				
	Mean	Std. Deviation	Std. Error Mean	Lower	Upper			
Pair 1 pre - post	-2.392	5.886	.516	-3.414	-1.371	-4.634	129	.000

Paired T-test result showed t(130) =4.634,the p value of paired t-test was .000 which is less than p<0.005which was significant at 0.05 level. So null hypothesis is rejected stating that there was a significant difference between pre-test & post-test score after administration of CME on delegates.

Discussion

In the present study a sample of 130 Radiology Resident Doctors were consider in the study, finding showed that the overall pre-test mean knowledge score was 37.39 and median was 38.50 whereas the Post-term mean knowledge score was 39.78and Median was 40.

Paired T-test result showed t(130) =4.634,the p value of paired t-test was .000 which is less than p<0.005which was significant at 0.05 level. So null hypothesis is rejected stating that there was a significant difference between pre-test & post-test score after administration of CME on delegates.

Limitation of Study

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

Conclusion

Though the delegates were of Radiology background, during pre-test their knowledge level was found to be poor and after delegates has attend the CME on “current practices on Radiology” showed considerable improvement in post-test score. Thus there is necessity to conduct continuing medical education to update the knowledge of the health personnel.

Recommendation

1. CME should have included more skills based work shop or hands on training workshop.
2. Handouts of CME topics should have been provided at same time of CME for better understanding of subject.

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IRIA RESIDENT EDUCATION PROGRAMME

Organized by: **Indian Radiological and Imaging Association (IRIA)**

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Conducted by **Delhi State Chapter of IRIA**

Date: 17th to 19th April, 2015

Venue: Auditorium, National Board of Examinations
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PRE CME MCQS TEST

Current practices in Radiology
Pre-test Questionnaire

1. Contra-indications for percutaneous biopsy of liver SOL include all except:

a. Mass likely to be hemangioma on CECT

b. Hyperbilirubinemia

c. Deranged PT/INR

d. None

2. All statements are true regarding percutaneous drainage of liver abscess except:

a. Amoebic liver abscess do not necessarily require drainage

b. Deeper abscess should be drained using seldinger technique

c. Left lobe sub cardiac abscess with thin rim should be drained urgently

d. Liver abscess < 5 cm is best treated by continuous catheter drainage

3. CT guided procedure is preferable over USG guided procedure in all situations except:

a. Biopsy of 3 cm para-aortic LN at the level of renal hilum

b. Drainage of post pancreatitis infected

Collection in lesser sac

c. 13 mm lesion in segment VI of liver

d. RFA of osteoid osteoma

4. Which of the following will silhouette the right cardiac border?

A) Right upper lobe consolidation

B) Right middle lobe consolidation

C) Right lower lobe consolidation

D) all of the above

5. Luftschiel sign is seen in

A) left upper lobe collapse

b) Right upper lobe collapse

c) Left lower lobe collapse

d) Right middle lobe collapse

6. Crazy paving pattern of geographic ground glass opacities with thickened interstitium is classically described in

A) Tuberculosis

B) Pulmonary alveolar proteinosis

C) Sarcoidosis

d) Streptococcal pneumonia

7. Lymphocytic interstitial pneumonia (LIP) in adults in typically associated with

a. Sjogren syndrome

b. Progressive systemic sclerosis

c. Rheumatoid arthritis

d. Systemic lupus erythematosus

8. Lymphangioleio myomatosis is characterized by all except

a. Uniformly distributed lung cysts

b. Female patients

c. Diminished lung volumes

d. Pleural effusions

9. A 12 years old boy presents with cough and haemoptysis. Chest radiograph reveals a well defined right hilar mass with right upper lower pneumonia. On CECT, the mass is seen to be located in the right upper lobe bronchus and shows homogeneous contrast enhancement. The most likely diagnosis is:

a. Haemangioma

b. Carcinoid

c. Hamartoma

d. Tuberculosis

10. Which of the following is not true regarding adeno carcinoma of the small bowel?

a. It is the most common primary neoplasm of the small bowel

b. Ileum is the most common site of involvement

c. Small obstruction is a common presentation

d. Short segment of bowel is generally involved

11. Initial investigation of choice for evaluation of a suspected small bowel mass is

a. Barium enteroclysis

b. Push enteroscopy

c. MDCT enterography

d. MR enterography

12. Capsule endoscopy is preferred over imaging for evaluation of :

a. Small bowel obstruction

b. Obscure gastrointestinal bleed

c. Recurrent small bowel diarrhea

d. Palpable central abdominal mass

13. A 43-year-old man with progressive increase of prolactin levels, sexual dysfunction and visual disturbances. MR imaging of sella showed a cystic, non-enhancing lesion in the superior portion of the pituitary stalk. Indentation on the distal intra-cranial segments of both optic nerves and optic chiasm was also seen. Which of the following is most likely diagnosis?

a. Pituitary adenoma

b. Pars intermedia cyst

c. Rathke’s Cleft Cyst

d. Arachnoid cyst

14. The differential rates of enhancement of the pituitary gland on dynamic contrast MRI is related to a.

a. Superior hypophyseal arterial supply

b. Inferior hypophyseal arterial supply

c. Hypophyseal portal venous system

d. Combination of hypophyseal arterial and portal venous blood supply

15. Which of the following is the smallest pituitary micro adenoma?

a. ACTH secreting micro adenoma

b. Prolactin secreting micro adenoma

c. Growth hormone secreting micro adenoma

d. Non functioning micro adenoma

16. Focal nodular hyperplasia does not show one of the following imaging features

a. Markedly hypo echoic on Ultrasound

b. Central scar which can be hyper intense on T2weighted images

c. Arterial phase enhancement on multi phase MRI

d. Retention of hepatocyte specific contrast agents in hepato biliary phase on MRI

17. Which of the following is false regarding esophageal tumors on barium swallow?

a. Leiomyoma makes obtuse angle with the adjacent normal esophagus

b. Carcinoma esophagus is seen as an irregular filling defect

c. Long lobulated filling defect which changes its shape during peristalsis is typical for locally advanced carcinoma esophagus

d. Extra luminal extension is underestimated on barium swallow

18. Which of the following is false regarding gastrointestinal stromal tumor (GIST) on imaging?

a. Stomach is the most common site

b. Can present as a cavitating mass with filling of oral contrast

c. Adjacent organ infiltration is unusual in benign tumors

d. RECIST 1.1 is the optimal and widely accepted response evaluation criteria

19. Young female will positive urine pregnancy test and pain presents for USG pelvis. Which of the Following findings on USG is most reliable to confirm intrauterine pregnancy?

a) Pseudogestational sac

b) “Ring of fire” on Color Doppler

c) Double decidual sac sign

d) Echogenic ring like mass outside the uterus

20. Which of the following CT protocols is optimal for characterization of a renal cortical solid mass seen on USG in a middle aged man?

a) NCCT _CECT at 30s_CECT at 90s

b) NCCT _CECT at 15s_CECT at 90s

c) NCCT_CECT at 90s _CECT at 15mts

d) NCCT_CECT at 90s

21. Which of these conditions does not primarily include cranial abnormality?

a) Thanatophoric dwarf

b) Pentology of Cantrell

c) Meckel Gruber Syndrome

d) Holoprosencephaly

22. In which of the following conditions following Gallium citrate Scan is ‘Panda Sign’ seen as a finding?

a. Sarcoidosis

b. Hogdkins Lymphoma

c. Wilsons Disease

d. Hyperparathyroidism

23. The superficial palmar arch of the hand receives dominant arterial supply most Commonly from which of the following?

a. Radial artery

b. Median artery

c. Ulnar artery

d. Interosseous artery

24. What should NOT be in the differential diagnosis of a right-sided catheter tip over lying the left mediastinum?

a. Arterial placement of central venous catheter

b. Persistent left sided SVC

c. Enlarged superior Inter costal vein

d. Dilated coronary sinus

25. Which of the following is not a pointer towards malignant nature of a cavity in chest radiograph?

a. Wall thickness more than 16 mm

b. Air fluid level

c. Inner wall nodularity

d. Interval growth in last 6 months

26. Which of the following imaging features indicate benign nature of a lung nodule?

a. Spiculated margins

b. Cavitation

c. Stippled calcification

d. Fat attenuation within a nodule

27. Which of the following is not an imaging feature of bronchial atresia?

a. Solitary pulmonary nodule

b. Coarse calcification

c. Hyper lucency of the distal lung

d. Air trapping in the lung distal to the nodule

28. All of the following are true about Chronic Recurrent Multifocal Osteomyelitis (CRMO)except

a. Has remitting and relapsing course

b. Usually bilateral and multifocal

c. Caused by bacterial osteomyelitis

d. Characterized by sclerosis, hyperostosis and lack of abscess formation on imaging

29. All of the following are true about solid variant of aneurysmal bone cyst except

a. Also termed as giant cell reparative granuloma.

b. Appear as eccentrically located within the long bone

c. Show pronounced soft tissue and marrow edema

d. Seen as multi-septated sclerotic lesion

30. All of the following are differential diagnosis of multiple lytic lesions on skeletal survey except

a. Hyperparathyroidism

b. Non-Langerhans cell histiocytosis

c. Hemophilia

d. Enchondromatosis

31. Most common primary neoplasm of bone is

a) Osteosarcoma

b) Ewing's sarcoma

c) Multiple myeloma

d) Chondrosarcoma

32. Best modality to characterize bone tumors is

a) Radiographs

b) CT scan

c) MRI scans

d) Bone scan

33. MRI is the modality of choice for

a) Detection of bone tumor

b) Distinguishing benign from malignant

c) Local staging

d) Distant staging

34. The Annual Permissible dose for radiation worker is

a. 2 mSv

b. 20mSv

c. 200 mSv

d. 2000 mSv

35. What contributes to the radiation worker's dose

a. Primary Radiation

b. Scattered Radiation

c. HVT

d. Transmitted Radiation

36. Intra-axial mass includes

A. Any Intracranial mass

B. Intra ventricular mass

C. Mass in Subarachnoid space

D. Mass in Gray / White matter

E. Mass in Pituitary Gland

37. The following is not a glioma

A. Astrocytoma

B. Glioblastoma multiformae

C. Gliomatosis cerebri

D. Oligodendro1`glioma

E. Medulloblastoma

38. Meningioma typically arises from

A. Intramedullary part of Skull

B. From Dura

C. from Arachnoid membrane

D. from Lepto meninges

39. All the following statements are true regarding confluent hepatic fibrosis except:

a. Wedge shaped lesion radiating from portato capsule

b. Preferentially involves posterior segments of right lobe

c. It is hyper intense on T2W images

d. Usually shows delayed enhancement

40. A 45 year old man presents with Necrolytic Migratory Erythema and Diabetes. His abdomen CT reveals a small focal lesion in the Pancreas which shows enhancement in the arterial phase and washes out in the portal venous phase. The likely diagnosis is:

a. Insulinoma

b. Glucagonoma

c. VIPoma

d. Gastrinoma

41. Triple phase CT of a cirrhotic patient shows amass with peripheral arterial enhancement, retention of contrast on delayed images and dilated intra hepatic biliary radicles. The most likely diagnosis is:

a. Hepatocellular carcinoma

b. Hemangioma

c. Mass forming cholangio carcinoma

d. Epitheloid hemagio endothelium

42. Commonest renal tumour which is associated with second malignancy is:

a) Clear Cell Sarcoma

b) Multilocular cystic nephroma

c) Congenital Mesoblastic Nephroma

d) Rhabdoid Tumour

43. Which of the following is most likely to be associated with pulmonary nodules?

a) Wilms tumour

b) Multilocular cystic nephroma

c) Pheochromocytoma

d) Adrenal Haematoma

44. Thrombus in IVC can be seen in:

a) Pheochromocytoma

b) Wilms tumour

c) Renal lymphoma

d) Mesoblastic nephroma

45. ‘Puff of smoke’ appearance is described in the angiogram of which of the following conditions:

a. Primary CNS vasculitis

b. Moya moya disease

c. Arterio-venous malformation of the brain

d. Multiple ‘berry’ aneurysms in a case of neurofibromatosis

46. A 6 year old child presents with elastic seizures. What is the most likely finding that can be seen on brain MRI?

a. Tectal plate glioma

b. Temporal lobe dysembryoplastic neuro epithelial tumor (DNET)

c. Hypothalamic hamartoma

d. Colloid cyst at foramen of Monroe

47. Thrombosis of vein of Lab be usually results in venous infarct in

a. Frontal lobe

b. Temporal lobe

c. Occipital lobe

d. Basal ganglia

48. A 60 year old lady presented with vague pain abdomen. There was no previous significant history. CECT revealed a uni locular lesion in the head of the pancreas with lobulated outline and imperceptible wall. What is the most likely diagnosis?

a. Serous cystadenoma

b. Mucinous cystic neoplasm

c. Intraductal papillary tumor

d. Inflammatory pseudo cyst

49. A 55 year old lady with a macro cystic lesion in the tail of the pancreas was diagnosed to have mucinous cystic neoplasm based on imaging morphology and biochemical analysis. There were no other co-morbid conditions. What is the best plan of management in this case?

a. Follow-up 6 monthly

b. Surgery

c. Biopsy

d. Lesion can be left alone

50. Central scar with calcification in a cystic pancreatic lesion is pathos gnomonic for

a. Serous cystadenoma

b. Mucinous cystic neoplasm

c. Intraductal papillary mucinous neoplasm side branch type

d. Solid pseudo papillary neoplasm

51. Which of the following statements regarding Crohn's disease on barium study is false?

a. Separation of bowel loops suggests mesenteric fat proliferation

b. Skip areas of involvement is seen with normal intervening mucosa

c. Terminal ileum is more frequently involved than cecum

d. Absence of peristalsis in a structured segment suggests active inflammation without fibrosis

52. Which of the following statements regarding contrast enema for suspected Hirschsprung's disease is true?

a. Enema is usually done with 60% high density barium

b. Recto sigmoid ratio of < 1 excludes the diagnosis

c. The study should be performed till the contrast reaches cecum

d. Ultra short segment disease may be missed

53. The best imaging modality for the evaluation of achalasia cardia is which of the following?

a. Barium swallow

b. Magnetic resonance imaging

c. Contrast enhanced CT scan

d. Upper gastrointestinal endoscopy

54. Peritoneal inclusion cysts have all the features except

a. Passively conform to the shape of the adjacent pelvic structures.

b. Ovary is seen separately and entrapped within it.

c. It has a well defined wall.

d. Seen in post op adhesions and endometriosisetc.

55. A large ovarian mass will displace the ureter

a. Anteriorly

b. Posteriorly

c. Postero laterally

d. Antero medially

56. Ovarian blood vessels run in_____ ligament.

a. Broad ligament

b. Suspensary ligament

c. Utero ovarian ligament

d. Mesovarium.

57. An extra peritoneal mass will do all the following except:

a. Can displace the rectum anteriorly

b. Can efface/compress the external iliac Vessels.

c. Can efface the obturator internus muscle

d. Can displace the ureter laterally.

58. All of the following are non-ionic monomer except:

a) Iohexol

b) Indianola

c) Iopromide

d) Ioversol

59. Barium sulfate:

a) Is filtered by the kidneys

b) Is absorbed by the stomach

c) Coats the gastrointestinal lining

d) Is absorbed by the jejunum

60. Which of the following acute reactions to contrast media usually requires no medical treatment?

a) Bronchospasm

b) Laryngeal edema

c) Urticaria

d) Convulsions

POST CME MCQS TEST

Current practices in Radiology
Post-test Questionnaire

1. All statements are true pertaining to pancreatitis is except:

a. Percutaneous drainage of pseudocyst is preferred over endoscopic drainage

b. Interventions should be avoided in acute phase

c. FNA of fluid collection may be done in acute phase if infection is suspected

d. PTBD may be done for biliary obstruction and cholangitis

2. For inoperable mid CBD malignant obstruction true statement is:

a. ERCP followed by stent placement is the preferred treatment

b. ERCP is done only if PTBD fails

c. PTBD allows better biliary decompression

d. Endoscopic ultrasound guided procedure and decompression is preferred now-a-days

3. Straightening of left heart border on chest x-ray in a case of rheumatic heart disease is due to

A) enlargement of left atrial appendage

B) Left atrium enlargement

C) Left ventricular enlargement

D) Pulmonary artery enlargement

4. In a case of road traffic accident CT chest and abdomen was done. it shows “dependent viscera” and a “collar” the patient has had

A) Liver injury

B) Pericardial injury

C) Diaphragmatic injury

D) Splenic trauma

5. The investigation of choice in a suspected case of pulmonary thrombo embolism is

A) CT pulmonary angiography

B) HRCT chest

C) Ventilation-perfusion scan

D) MR angiography

6. Diffuse interstitial pattern of pulmonary infections is seen in all except.

a. Mycoplasma pneumoniae

b. Viral pneumonia

c. Klebsiella pneumoniae

d. Pneumocystis jiroveci

7. Alveolar micro lithiasis is characterized by all except

a. Dyspnoea

b. Miliary calcifications on chest radiograph

c. Microliths on broncho alveolar 1avage

d. “Black” pleura on HRCT due to sub pleural cysts

8. The differential diagnoses of silicosis on chest radiograph include all of the following except.

a. Progressive massive fibrosis

b. Sarcoidosis

c. Idiopathic pulmonary fibrosis

d. Tuberculosis

9. Which of the following is not a criterion for primary small bowel lymphoma?

a. Increased leukocyte count in the blood

b. Normal liver and spleen

c. Regional Lymphadenopathy

d. Normal chest X ray

10. Small bowel GIST is characterized by all of the following except :

a. Large exophytic mass with ulceration / cavitation

b. Heterogeneous enhancement on post contrast study

c. Frequent metastasis to nodes

d. Prognosis depends upon the size of lesion and mitotic figure on histology

11. Which of the following in not true regarding the carcinoid tumors of the small bowel

a. Illeum is the most common site of occurrence in small bowel

b. Marked enhancement in the arterial phase and mesenteric infiltration is a distinctive feature on cross sectional imaging

c. Annular narrowing of the involved small bowel loops is seen

d. Octreotide scan is used for definitive diagnosis in doubtful cases

12. Which of the following statement is untrue of posterior pituitary gland?

a. Midline intra sellar structure

b. Bright spot (hyper intense signal) on T1W MR images

c. Bright signal is due to vasopressin & oxytocin

d. Suppresses on fat suppression sequences

13. In neonate and during pregnancy, anterior lobe of pituitary gland is?

1. Hyper intense to cerebral white matter on T1WI

2. Iso-intense to cerebral white matter on T1WI

3. Hypo intense to cerebral white matter on T1WI

4. Iso-intense to gray matter on T1 & T2WI

14. On MRI, the most reliable sign of cavernous sinus invasion by pituitary macro adenoma is:

1. Interposition of abnormal tissue between the lateral wall of cavernous sinus and ICA

1. ICA encasement of 20% by the tumour

2. Bulging of lateral wall of cavernous sinus

3. Lateral displacement of cavernous ICA

15. A 56-year-old man with cirrhosis and diabetes presented with clinical features of hypopituitarism.On MR imaging, the anterior lobe of the pituitary gland had almost no signal intensity on T1- and T2-weighted images at 3T. What is most likely diagnosis?

a. Langerhans' cell histiocytosis

b. Pituitary hemochromatosis

c. Lymphocytic hypo physitis

d. Pituitoma

16. All the following conditions are associated with focal nodular hyperplasia (FNH) except

a. Adenoma

b. Hemangioma

c. Congenital portal vein atresia

d. Lymphoma

17. All the following statements regarding hepaticinfantile hemangio endothelioma are correct except

a. Most of the lesions show calcification

b. Typical peripheral enhancement with gradual contrast filling in is seen

c. Hypertrophy of celiac trunk is seen

d. Most of the children are asymptomatic

18. Which of the following is not a feature of typical lhemangioma in liver?

a. Hyperechoic on Ultrasound

b. Markedly hyper intense on T2 weighted scans on MRI

c. Peripheral nodular enhancement in arterial phase of a multiphase CT scan

d. Retention of contrast in delayed and hepatobiliary phase

19. Which of the following has the highest incidence of infertility?

a) Bicornuate Uterus

b) Septate uterus

c) Uterus didelphys

d) Unicornuate uterus

20. A young 25 year female with family history of nephrectomy for malignancy is demonstrated to have multiple renal cysts on surveillance USG. What is the most likely diagnosis?

a) ADPKD

b) Multiple simple cysts

c) VHL

d) Cystic RCC

21. Which of these USG findings is unlikely in a neonate with bifid scrotum and hypo spadias with non palpable testes?

a) Bilateral intra abdominal testes

b) Presence of uterus and both ovaries

c) Bilateral adrenal enlargement

d) None of the above

22. Technique usually used for abscess drainage procedures is

a. Bohlinger

b. Seldinger

c. Palmes

d. Picard

23. Which of the following areas is most prone to stenosis, in a patient of chronic renal disease who is dialyzed through a left upper arm Brachiocephalic fistulaAV fistula?

a. Subclavian artery

b. Brachiocephalic vein

c. Axillary vein

d. Cephalic arch

24. Which is most common cause of secondary Hypertension?

a. Atherosclerosis

b. Reninoma

c. Hyper aldosteronism

d. Fibromuscular Dysplasia

25. What is the ideal next step for an incident all detected solitary pulmonary nodule of 5 mm?

a. CECT

b. MRI

c. Follow up/ evaluation of old radiographs

d. Image guided biopsy

26. Which of the following is not a classical imaging feature of pulmonary infarct associated with pulmonary embolism?

a. Central perihilar consolidation

b. Cavitation

c. Resolution of the consolidation from the periphery

d. Dilated descending pulmonary artery

27. The air crescent sign is seen all of the following except

a. Complicated hydatid cyst

b. Cavity with fungal ball

c. Rasmussen’s aneurysm

d. CCAM

28. All of the following are examples of juxta-cortical bone lesions except

a. Chondroma

b. Periosteal osteosarcoma

c. Parosteal osteosarcoma

d. Myositis ossificans

29. All of the following are associated with more pronounced edema on MRI except

a. Osteoid osteoma

b. Osteomyelitis

c. Stress injury

d. Metastasis

30. All of the following are complications of Tuberculosis of spine except

a. Psoas abscess

b. Cord compression

c. Pseudo aneurysm

d. Fibrous ankylosis

31. All are epiphyseal tumors except

a) Chondroblastoma

b) Giant cell tumor

c) Osteoblastoma

d) Clear cell chondrosarcoma

32. The ‘Mini brain” appearance in spine is path gnomic of

a) Hemangioma

b) Metastasis

c) Plasmacytoma

d) Lymphoma

33. False negative/ cold scan is seen in all except

a) Multiple myeloma

b) Lymphoma

c) Eosinophilic Granuloma

d) Melanoma

34. Which is the Regulatory Authority which is sues radiation Protection guidelines, radiation dose monitoring and regulatory control in India?

a. There is no regulator for x-rays.

b. Atomic Energy Regulatory authority

(AERB)

c. ICRP

d. BARC

35. Annual maximum whole body effective dose limit for public

a. 1 mSv

b. 2 mSv

c. 5 mSv

d. 20 mSv

36. The grade of tumour can be inferred from

A. MRS

B. DWI

C. Perfusion study

D. All of the above

37. Best time period to know the residual tumour after Surgery is

A. Within 72 h

B. within 7 days

C. Within 15 days

D. within 21 days

38. The grade of Brain tumour can be best assessed on Perfusion imaging by

A. MTT

B. TTP

C. CBV

D. CBF

39. A 52 year male patient presents with pain in epigastric location since 4 months. CT shows diffusely enlarged pancreas with a hypo dense rim around the body and tail with no MPD dilatation. The serum level of which of the following can clinch the Diagnosis:

a. Serum Amylase

b. Serum Lipase

c. Ig G4 level

d. Ca 19-9

40. Which of the following statements is false about perfusion CT in pancreas?

a. The parenchymal perfusion gradually reduces with age.

b. Hypo perfused areas may progress to necrosis in Patients with acute pancreatitis.

c. Pancreatic adeno carcinoma shows increased tumor blood volume and mean transit time.

d. Reduced blood flow may suggest rejection in pancreatic transplant tissue

41. The best MR sequence for the diagnosis of Hemochromatosis is:

a. STIR sequence

b. T2*W sequence

c. Diffusion weighted sequence

d. Fast spin echo sequence

42. The commonest solid renal tumour of infancy is:

a) Wilms tumour

b) Rhabdoid tumour

c) Congenital Mesoblastic Nephroma

d) Clear cell sarcoma

43. Which of the following is NOT true about neuroblastoma?

a) Normal adrenal glands exclude the diagnosis

b) Can metastasize to bones

c) Calcification is common

d) Vascular encasement is common

44. Investigation of choice for follow up of adrenal haematoma is:

a) Intravenous urography

b) Ultrasound

c) Computed Tomography Scan

d) Magnetic Resonance Imaging

45. Which of the flowing intracranial vascular malformations is occult on cerebral angiogram?

a. Cavernous angioma

b. Developmental venous anomaly

c. Dural arterio venous fistula

d. Pial arterio venous malformation

46. Which one of the following structures is commonly involved by diffuse axonal injuries

a. Corpus callosum

b. Cerebellum

c. Medulla

d. Thalamus

47. Absent septum pellucidum is seen in which one of the following disorders?

a. Septooptic dysplasia

b. Neurofibromatosis

c. Tuberous sclerosis

d. Cavum septum pellucidum

48. CECT abdomen of a 28 year old lady revealed an encapsulated cystic lesion with internal hemorrhage in the tail of pancreas. What is your diagnosis?

a. Serous cystadenoma

b. Mucinous cystic neoplasm

c. Intraductal papillary tumor

d. Solid pseudo papillary neoplasm

49. In case of multiple pancreatic cystic lesions, what is the most likely diagnosis?

a. Serous cystadenoma

b. Mucinous cystic neoplasm

c. Intraductal papillary tumor

d. Solid pseudo papillary neoplasm

50. CECT scans of a 40 year old male reveal cerebellar hemangioblastoma, pancreatic and renal cysts and adrenal mass. What is the diagnosis?

a. Tuberous sclerosis

b. Von-Hippel Lindau disease

c. Multiple endocrine neoplasias - type 1

d. Polycystic kidney disease

51. The major benefit of performing barium swallows Compared to endoscopy is

a. Depiction of mucosal lesions

b. Assessment of motility

c. Demonstration of gastro-esophageal reflux

d. Detection of sub mucosal lesions

52. Which of the following statements regarding barium meal follow through is true?

a. The concentration of barium used is typically30%

b. Good demonstration of mucosal lesions

c. Emptying the bladder allows better visualization of ileal loops

d. It is a good screening modality for sub acute intestinal obstruction

53. Which of the following statements is false regarding single and double contrast barium enema?

a. Single contrast enema lower sensitivity for mucosal lesions

b. Double contrast enema is associated with higher radiation exposure

c. Single contrast enema produces sub optimal distension of colon compared to double contrast study

d. Thicker barium preparation is needed for double contrast enema

54. A simple ovarian cyst in any age would require further evaluation if it measures larger than

a. 5cm

b.7cm

c.10cm

D.7cm in post menopausal & 10 cm in pre menopausal women.

55. Patient presenting after 5 years of menopause is diagnosed of having a hemorrhagic cyst on ultrasound You would recommend

a. 6-12 week follow up to see if it resolves

b. If <5cm-follow up but if > 5 cm advise MRI for further evaluation.

c. No follow up required as almost certainly benign

d. Any size would require further evaluation with MRI or surgery.

56. In a woman of any age a probable endometrioma would require

A .No follow up if echo genic foci within it

B .would require initial 6-12 week follow up to rule out hemorrhagic cycst

C .only annual follow up

d. would always require an MR evaluation

57. Bridging vessel sign is seen in

A .ovarian mass

B .subserosal fibroid

C hydrosalpinx

d. parovarian cycst

58. Osmolality of Iodinated Ionic Monomer is

a) 5-8 x blood

b) 2-3 X blood

c) 2 x blood

d) Iso = blood

59. When you schedule multiple procedures, using contrast media – which examination must be done first?

a) Thyroid function tests (Nuc Med)

b) Upper GI

c) air-contrast colon (BE-AC)

d) Intravenous pyelogram (IVP)

60. Each of the following is an example of a negative contrast media except:

a) Air

b) soda water

c) Barium sulfate

d) gas-producing crystals