"TO ASSESS THE AWARENESS OF THE RADIATION SAFETY AND HAZARDS AMONG HEALTH CARE PROFFESIONALS"

By Ms. KAJAL KAMARAJ CHAVAN

REG NO: 22MHA03

Dissertation submitted to



BLDE (DEEMED TO BE UNIVERSITY) VIJAYAPURA, KARNATAKA

In partial fulfillment of the requirements for the degree of

MASTER OF HOSPITAL ADMINISTRATION

UNDER THE GUIDANCE OF DR. VIJAYAKUMAR.T. KALYANAPPGOL HEAD OF DEPARTMENT HOSPITAL ADMINISTRATION

SHRI B.M. PATIL MEDICAL COLLEGE, HOSPITAL & RESEARCH CENTRE, VIJAYAPUR, KARNATAKA 2024

DECLARATION BY THE CANDIDATE

I, Ms. KAJAL KAMARAJ CHAVAN hereby declare that this dissertation entitled "TO ASSESS THE AWARENESS OF THE RADIATION SAFETY AND HAZARDS AMONG HEALTH CARE PROFFESIONALS" is a bonafide and genuine research work carried out by me under the guidance of DR. VIJAYAKUMAR.T. KALYANAPPGOL Department of Hospital Administration BLDE (Deemed to be University), Shri. B M Patil Medical College Hospital and Research Centre, Vijayapura.

Date: Place: Vijayapura

Ms. KAJAL KAMARAJ CHAVAN

Reg No: 22MHA03 Post Graduate Student, Department of Hospital Administration

CERTIFICATE BY THE GUIDE

This to certify that the dissertation entitled "TO ASSESS THE AWARENESS OF THE RADIATION SAFETY AND HAZARDS AMONG HEALTH CARE PROFFESIONALS" is a bonafide research work done by Ms, KAJAL KAMARAJ CHAVAN under my overall supervision and guidance, in partial fulfillment of the requirements for the degree of Master of Hospital Administration.

Date: 28/09/2024 Place: Vijayapura DR. VIJAYAKUMAR.T. KALYANAPPGOL

Professor and Head Department of Hospital Administration

ENDORSEMENT BY THE HEAD OF DEPARTMENT

This to certify that the dissertation entitled "TO ASSESS THE AWARENESS OF THE RADIATION SAFETY AND HAZARDS AMONG HEALTH CARE PROFFESIONALS" is a bonafide research work done by Ms. KAJAL KAMARAJ CHAVAN under the guidance of Dr. VIJAYAKUMAR .T. KALYANAPPGOL (PROFESSOR & HOD) Department of Hospital Administration at BLDE (Deemed to be University), Shri. B. M. Patil Medical College Hospital and Research Centre, Vijayapura.

Date:

Place: Vijayapura

Dr. VIJAYAKUMAR.T. KALYANAPPGOL

Professor and Head Department of Hospital Administration

ENDORSEMENT BY THE PRINCIPAL

This to certify that the dissertation entitled "TO ASSESS THE AWARENESS OF THE RADIATION SAFETY AND HAZARDS AMONG HEALTH CARE PROFFESIONALS" is a bonafide research work done by Ms. KAJAL KAMARAJ CHAVAN under the guidance of Dr. VIJAYAKUMAR .T. KALYANAPPGOL (PROFESSOR & HOD) Department of Hospital Administration BLDE (Deemed to be University) Shri. B. M. Patil Medical College Hospital and Research Centre, Vijayapura.

Date: 28/09/2024

Place: Vijayapura

Dr. SHANKAR V PATIL DEAN OF ALLIED HEALTH SCIENCE

DECLARATION BY THE CANDIDATE

I hereby declare that the **BLDE** (**DEEMED TO BE**) **UNIVERSITY VIJAYAPURA, KARNATAKA**, shall have the rights to preserve, use and disseminate this dissertation/thesis in print or electronic format for academic/research purposes.

Date:

Place: Vijayapura

Ms. KAJAL KAMARAJ CHAVAN

Reg No: 22MHA03 Post Graduate Student, Department of Hospital Administration

ACKNOWLEDGMENTS

This dissertation work has been a compilation of great learning experience, knowledge, encouragement, patience and perseverance. At every step, I had inspiration and help from my teachers, guidance from my peers, encouragement from friends and the love of my family, without which this task was impossible. I want to thank several people who have contributed to the final result in many different ways:

To commence with, I pay my obeisance to **GOD**, the Almighty, who has bestowed upon me good health, courage, inspiration, zeal and the light.

After GOD, I express my sincere and deepest gratitude to my guide, **Dr. VIJAYAKUMAR .T. KALYANAPPGOL** Professor & Head Department of Hospital Administration BLDE (Deemed to be University), Shri B. M. Patil Medical College, Hospital & Research Centre, Vijayapura, who ploughed through several preliminary versions of my text, making critical suggestions and posing challenging questions. Her expertise, invaluable guidance, constant encouragement, understanding, patience and healthy criticism added considerably to my experience. Without her continual inspiration, completing this study would not have been possible.

I am thankful to **Dr. VIJAYAKUMAR .T. KALYANAPPGOL** Professor & Head Department of Hospital Administration BLDE (Deemed to be University), Shri B. M. Patil Medical College, Hospital & Research Centre, and Vijayapura

I am thankful to **Dr. Shankar V. Patil**, Dean of Allied Health Science and BLDE (Deemed to be University), Shri B. M. Patil Medical College, Hospital & Research Centre, Vijayapura, for permitting me to conduct this study.

I am very grateful to **Dr. Raghavendra Kulkarni**, Registrar of BLDE (DU) Vijayapura, for their constant support and well wishes.

I am highly thankful to our (MHA) coordinator **Mr. Eknath Jadhav** for his unfaltering patience and kind help in motivating and supporting me.

I am highly thankful to our (MHA) faculty and Hospital Administrator of BLDE Super Specialty Hospital **Mr. Shantesh Salagare** for his unfaltering patience and kind help in motivating and supporting me.

I am highly thankful to our PG Allied Health Science Coordinator **Dr.Smitha Bagali** Associate Professor., Department of Microbiology, for her dynamic presence and kindly helping in the progress of my study periodically.

I thank **Dr. Vijaya Sorganvi**, a Statistician, for their guidance and support in the statistics of my research work.

I sincerely acknowledge the support and kindness shown by the staff members of

Central Library, Shri B M Patil Medical College Vijayapura, at all times.

I sincerely admire the support of my fellow postgraduate friends **Ms.Divyashree Jalawadi**, **Javeed Zhare and Jayesh Korabu Thank** them for a healthy atmosphere, unwavering support and patience throughout my post-graduation.

I am thankful to all the non-teaching and clerical staff members of the Department of Biochemistry for their cooperation in my research study.

I sincerely thank my parents, **Mr. Kamaraj H Chavan and Mrs. Manjula K Chavan** for their prayers and good wishes. I am what I am today because of them.

A special thanks to my brothers, **Mr. Kushal K Chavan and Mr. Prashant B Kumathalli** for believing in my work and helping me to achieve my dreams.

A special thanks to my husband **Mr. Sanjeev M Nayak** for believing in my work and helping me to achieve my dreams.

Lastly, I would like to thank all the subjects participating in the study.

Date: Place: Vijayapura

Ms. KAJAL KAMARAJ CHAVAN

LIST OF ABBREVIATIONS USED

IAEA	International Atomic Energy Agency		
ICRP	International Commission on Radiological Protection		
ALARA	As low as reasonably achievable		
AERB	Atomic Energy Radiation Board		
IRPA	International Radiation Protection Association		
TLD	Thermoluminecent dosimeter		
ALADA	As Low As Diagnostically Acceptabl		
LNT	Liner no Threshold		

ABSTRACT

Radiation security is generally called radiological protection and is portrayed by the Worldwide Thermal power Agency(IAEA) as "The confirmation of people from frightful effects of receptiveness to ionizing radiation"(1).Radiation affirmation is the justification for the prosperity of the two patients and clinical staff during radiographic frameworks, as a result of its unpleasant effects tended to through malignant growth causing nature and skin disorder(2,3). The Worldwide Commission on Radiological Security (ICRP) stated that a cognizance and experience with the risks of radiation among clinical staff can thwart futile risks forward people as a whole(4,5). Every year, endless researchers show stress over radiation sources and the effects that occurred by it all over the planet. 80% of our receptiveness to ionizing radiation comes from typical wellsprings of which radon gas is overwhelmingly the most basic, while the other 20% comes from man-made sources, mainly clinical X-beams (6,7,8). While reports from studies displayed a sensational climb in the inescapability of negative prosperity impacts following receptiveness to ionizing radiation throughout recent many years (9,10) the documented confirmation of lamentable data of radiation security among various units of prosperity workers in danger of word related transparency shows the enormity of the issue at and (11,12,13). Subsequently, the data on radiation risks and the point of convergence for radiation security considering this speculation that is 'the ALARA thought' this includes that radiation transparency is diminished to 'As Low as Really Achievable (ALARA)' however not outperforming the end on strong piece proposed by the Overall Commission on Radiological Protection (ICRP). The Worldwide Commission on Radiological Protection(ICRP) and thermal power managerial board (AERB) has suggested Radiological protection guidelines.

The overall knowledge assessment, based on a sample size of 420 participants, revealed that the total correct answers ranged from 13 to 20, with a mean score of 16.79 and a standard deviation of 1.782. The Mann- Whitney U test indicated no significant difference, with a p-value of 0.148. Additionally, the total wrong answers ranged from 0 to 7, with a mean score of 3.21 and a standard deviation of 1.782 of the study to assess the awareness of the radiation safety and hazards among the health care professionals.

Conclusion: The assessment of radiation safety and hazard awareness among healthcare professionals, based on a sample of 420 participants, revealed that the correct answers ranged

from 13 to 20, with a mean score of 16.79 and a standard deviation of 1.782. The Mann-Whitney U test indicated no significant difference, with a p-value of 0.148. Additionally, the wrong answers ranged from 0 to 7, with a mean score of 3.21 and a standard deviation of 1.782. This suggests a moderate level of knowledge among healthcare professionals regarding radiation safety and hazards, with no significant variation in scores.

TABLE OF CONTENTS

SL No.	CONTENTS	PAGE No.
1	INTRODUCTION	1-4
2	AIM AND OBJECTIVES OF THE STUDY	5-6
3	REVIEW OF LITERATURE	7-10
4	MATERIALS AND METHODS	11-16
5	RESULTS	17-29
6	DISCUSSION	30-33
7	CONCLUSION	34-35
9	BIBLIOGRAPHY	36-42
10	ANNEXURES I- ETHICAL CLEARANCE II- PROFORMA III- CONSENT FORM IV- PHOTOGRAPHY V- MASTER CHART VI- PLAGIARISM CERTIFICATE	44 45-46 47-50 51-54 55-60 61

LIST	OF	TABLES
------	----	--------

SL No.	TABLES		
1	Distribution of study participants according to Department		
2	Distribution of study participants according to Age Group	20	
3	Distribution of study participants according to Designation	21	
4	Distribution of study participants according to Gender	22	
5	Are you aware of radiations safety and hazards?	23	
6	Do you know the three principles of radiation protection?	24	
7	Do you always wear a radiation dosimeter?	25	
8	Do you wear lead apron when you work with radiation?	26	
9	Do you wear lead goggle when you work with radiation?		
10	Have you ever worn thyroid shield when you work with radiation?	28	
11	Do you feel all the different types of radiation are harmful to your body?	29	
12	Are you aware of ICRP/NCRP/AERB?	30	
13	Did you know the purpose of collimators/filters in radiography?	31	
14	Are you aware of the ALARA principle?	32	
15	Did you know about the TLD?	33	
16	Did you know how to use TLD badge?	34	
17	Do X-ray equipment should be carried out periodically?	35	
18	Do you known the thickness of the mobile protective barrier used in the X-ray room?	36	
19	Do all the radiation causing equipment are maintained and serviced periodically?	37	
20	Do you know how much naturally we are exposed to the radiation?	38	

21	Do you know how much radiation is permeable to be get exposed?	39
22	Do you know what types of radiation are used in Cath Lab?	40
23	Do regular training is given to all the healthcare professionals about the radiation hazard?	41
24	Will you adhere to radiation protection protocols at the time of your future clinical practice?	42
25	Over all result of knowlegde	43
26	Comparison of overall knowledge score on Designation	44
27	Comparison of overall knowledge score on Age	45
28	Comparison of overall knowledge score on Gender	46



Introduction

INTRODUCTION

Radiation security is otherwise called radiological insurance and is characterized by the Global Nuclear Energy Agency(IAEA) as "The assurance of individuals from hurtful impacts of openness to ionizing radiation"(1).Radiation assurance is the reason for the wellbeing of the two patients and clinical staff during radiographic systems, because of its unfriendly impacts addressed via cancer-causing nature and skin disorder(2,3). The Global Commission on Radiological Security (ICRP)stated that a comprehension and familiarity with the dangers of radiation among clinical staff can forestall pointless dangers forward populace as a whole(4,5). Every year, countless scientists show worry about radiation sources and the impacts that happened by it around the world. 80% of our openness to ionizing radiation comes from normal wellsprings of which radon gas is by a wide margin the most critical, while the other 20% comes from man-made sources, principally clinical X-rays (6,7,8). While reports from studies exhibited a dramatic ascend in the pervasiveness of unfavorable wellbeing effects following openness to ionizing radiation over the past two decades (9,10) the archived proof of unfortunate information of radiation security among different units of wellbeing laborers at risk of word related openness shows the tremendousness of the issue at and (11,12,13). Thus, the information on radiation dangers and the focal point for radiation security in view of this supposition that is 'the ALARA idea' this involves that radiation openness is decreased to 'As Low as Actually Attainable (ALARA)' but not surpassing the cutoff on powerful portion suggested by the Worldwide Commission on Radiological Insurance (ICRP). The Global Commission on Radiological Protection(ICRP) and nuclear energy administrative board (AERB) has recommended Radiological insurance standards.

While the utilization of ionizing radiation has changed the clinical field, it is a situation with two sides since it is a likely wellspring of wellbeing hazards (16). Radiation mishaps have empowered the investigation of impacts of elevated degree of radiation, and direct no-edge (LNT) model for radiation risk evaluation has been laid out, as indicated by which radiation portion over zero postures chance partially. Albeit some consider that idea of LNT based risk assessment is off-base ascribing it to superfluous trepidation among individuals and expanded radiation consumption security measures, it the reason for on is as yet regulation(17,18). Optimization of radiation in clinical imaging is accomplished through the aggregate exertion of the alluding doctor, radiologist, radiologic technologist/radiographer, different staffs who are straightforwardly or by implication engaged with the imaging method and the patient himself(19). Alluding doctor ought to constantly guarantee that the utilization of ionizing radiation is legitimate that is advantages of radiation ought to offset the gamble. It is likewise the obligation of radiologist and radiographers to check whether the assessment is required. Since they are officially taught, they should have exhaustive information on security measures and streamlining techniques (20, 21,22).

One of the most important organizations for ionizing radiation protection is the International Commission on Radiological Protection (ICRP). Despite the low likelihood of late effects and relatively low radiological doses, it is still advisable to keep them as low as possible (23). Radiation is dangerous, and it becomes even more dangerous when there is ignorance or professional malignancy (24, 25). The radiographer should be positioned at least 6 feet from the source and at an angle of 90° to 135° with respect to the central X-ray beam, per the position distance rule (26). Both the patient and the radiographer are exposed to radiation during radiographic investigations in medicine, so precautions must be taken to protect them both (27).

Everyday, medical services laborers (HCWs) are presented` to word related contacts with different indicative and helpful radiology intercessions [1]. The HCWs' openness to different radiology waves brings about intense confusions (dermatitis, mucositis, and going bald) as well as long haul complexities (waterfalls, skin issues, hereditary issues, and malignant growth) through weakness in the typical DNA working [2], [3], [4], [5], [6].

In particular, the HCWs presented to radiation foster disease by around over 40% contrasted with patients and different gatherings [7]. To forestall the symptoms of radiation, the Global Radiation Insurance Affiliation (IRPA) has planned a few rules to restrict the portion got by the HCWs, and it is occasionally surveyed [8], [9]. The main technique for appropriate radiation security standard execution is instruction [10]. Today, with the expansion in the quantity of radiology strategies, all medical services laborers presented to radiology waves ought to know how these methods are performed and the way that they can more readily safeguard themselves [11], [12]. The degree of consciousness of the medical services labor force about radiation security impressively affects the appropriate demeanor and execution with respect to insurance against radiology waves [13].

Man has lived with, and endured, regular radiation starting from the start of time. There are confirmations that even little dosages of radiation would be able cause the two changes and neoplasms . Nobody knows exactly how much radiation is mediocre. The Public Committee

on Radiation Security's proposals is intended to safeguard both overall population and radiation specialist. A significant number of the suggestions have been transformed into regulations. The main proposals are those including most extreme passable portions, which is presently 5rem/year for a radiation laborer and 0.5rem/year for the sometimes uncovered person Organic Impact of Radiation All ionizing radiations are destructive. This is the reason that commands a radiation wellbeing strategy. The destructive impacts fall into two expansive classes: substantial, those impacts hurtful to the individual being illuminated; and hereditary, those impacts hurtful to the group of people yet to come. There is no information accessible to show on the off chance that there is an edge beneath which no hurtful impact will happen. In real practice, radiation levels ought to be kept at lower practicable level, and we shouldn't consider passable dosages as being completely protected. The most significant substantial impact of radiation is carcinogenesis, and leukemia is the most well-known neoplasia. The specific gamble is obscure. Most specialists concur that low dosages of radiations can cause neoplasms. The hereditary impact of radiations are seriously alarming that the physical ones, since they may not show themselves for a few ages and in view of this dread portion limits are put on openness to enormous sections of populace, rather than most extreme reasonable portion greater part of past examinations have zeroed in on different subspecialties, particularly radiology. In any case, a couple of studies have been directed among sedation faculty and careful subspecialists, despite the fact that they are much of the time presented to radiation. Subsequently, the essential target of this study was to analyze information and mindfulness about radiation perils and information about radiation security among sedation suppliers and careful subspecialists. Both ionizing and nonionizing radiations are regularly utilized in day to day clinical practice. It assumes significant parts in both demonstrative and restorative modalities. Be that as it may, ionizing radiation unsafely affects interventionists and sedation faculty who are presented to radiation in their working environments.

A few examinations have exhibited that openness to clinical radiation builds the gamble of bone marrow concealment, waterfall, fruitlessness, birth disfigurements, and a few kinds of malignant growth, particularly thyroid carcinoma.1-3 The edge portion differs across radiation-related illnesses. For instance, 100-200 mGy is related with teratogenic impacts and cancer,3 though 500 m Gy is related with cataracts.4 Thusly, mindfulness and information about radiation perils and defensive estimates assume a significant part in decreasing radiation openness among medical services laborers.

The utilization of ionizing radiation is fundamental in illness analysis and the board. As of late, the medical services setting has expanded the utilization of figured tomography and X-beam examines [1]. Consistently, over 3.6 billion X-beam tests, 37 million atomic meds, and seven and a half million radiation therapies are done all around the world [2].

Radiation represents a wellbeing risk in both the work environment and the overall climate. Radiation openness in clinical settings influences 20% of the worldwide populace, and this number will continue to rise. Specifically, contrasted with patients and different gatherings, the malignant growth rate among HCWs presented to radiation is practically 40% higher [3]. Radiation openness can cause wellbeing takes a chance with that manifest immediately or later [4].

Persistent openness can affect each framework in the body, including pre-birth deformities, malignant growth, harmless cancers, and hereditary issues. Radiation affliction (dying, weakness, loss of natural liquids, and bacterial disease) might be one of the more serious anomalies [5]. For all HCWs who are presented to radiation, wellbeing information is fundamental. Complying with wellbeing guidelines might support bringing down the recurrence of wellbeing related danger successions.

Medical services Laborers (HCWs) come into standard contact with different operations including radiation for conclusion and therapy. Around 2.3 million HCWs are working with radiation around the world. Thus, half of all medical services laborers are presented to fake and ionized radiation [6]. This exact point sets the course for the review, guaranteeing an engaged examination concerning the basic part of security consistence with regards to radiation openness in medical services settings. The World Wellbeing Association recognizes that exorbitant ionizing radiation openness raises the probability of unfavorable outcomes. Ionizing radiation's natural impacts can be sorted as deterministic or stochastic [7].

Deterministic impacts, otherwise called non-stochastic impacts or tissue responses, are the underlying changes or harm in tissues or organs brought about by high dosages of radiation. They are straightforwardly connected with the portion got and have an edge portion. Stochastic impacts, or probabilistic impacts, are related with openness to ionizing radiation and can happen at any portion, however their likelihood increments with higher dosages [5].



Aims and Objectives

AIMS & OBJECTIVES OF THE STUDY

AIMS:

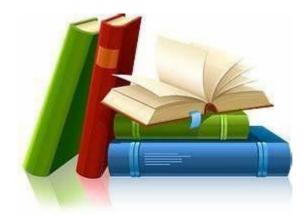
1. To assess the awareness of the radiation safety and hazards among health care professionals.

OBJECTIVES:

- 1. To assess the level of knowledge that the healthcare professionals have about radiation safety and hazards.
- 2. To compare and classify workers and students are aware about the radiation's hazards.

NEED FOR THE STUDY:

- 1. It is necessary to train the staff and students beforehand to avoid unnecessary radiation exposure and accident.
- 2. There is a need for periodic training and regular monitoring of occupationally exposed health workers as well as student to ensure compliance with radiation safety regulations
- 3. According to IAEA (International atomic energy agency) it is essential for each nation to have radiation and nuclear safety authority in order to prevent repercussions arising from radiation safety issues from one country to other countries.



Review of literature

REVIEW OF LITERATURE

In a Review by Maajid MohiUd Noise Malik, Mohd. Arfat and Alok Kumar, Volume 13,2022The review was directed on Medicalstudents and imaging innovation understudy. Thequestionnaire was ready to assess the information and perceptionof risks and radiationprotection implied in radiological examinations. A poll surveywas applied to Clinical and imaging innovation understudies of different foundations that utilization ionizing radiation in their work, to assess their insight levelsabout ionizing radiation and their mindfulness about radiation dosages coming about because of radiologicalexaminations. 200 sixteen(216) members participated in the review, out of which 116 (76.85%) were guys and 50 (23.145 %) were females. Their degree of information about ionizing radiation hazards and assurance radiological assessments were viewed as great. The majority of the participants have great information about radiation assurance however they additionally show less information about the utilization of TLD and identical measurements during x-beam examination. The present review shows that the members have great information about radiation hazards and radiation security, wellbeing dangers, and dosages utilized for radiological applications yet radiation openness and pervasiveness of strange clinical circumstances were viewed as beneath. There is in this way, a requirement for occasional preparation and ordinary observing of occupationally uncovered health workers as well as understudies to guarantee consistence with radiation security regulations.[1]

In the concentrate by Surendra Maharjan Kalpana Parajuli Suraj Sah Upakar Poudel 2020, The principal point of this review based study was to decide the information on radiation security among staffs and understudies in radiology division of one of the clinical schools of Nepal. Radiation insurance is the center of radiography for safe radiation-based imaging practice. This study expects to decide the information on radiation security among radiology experts and understudies in a clinical school of Nepal. A poll overview was done among 35 radiology staff and understudies at General School of Clinical Sciences (UCMS), Bhairahawa, Nepal. The poll study comprised of socio-segment factors and 17 inquiries, 3 inquiries were connected with general data in regards to preparing, information, and experience and the leftover 14 different decision questions (MCQ) were connected with radiation security. Information were dissected in SPSS Measurements programming, form 27. The p-esteem was set at 5% degree of importance. Nonparametric tests were applied since the information didn't

follow typical conveyance. The information score were sorted into lesser than 60 % insufficient, 60-80 % satisfactory and more noteworthy than or equivalent to 80 % magnificent. Out of all out 35 members, 28 were male and 7 were female with mean age 26.09 ± 7.18 years, range 18-54. The typical radiation level of mindfulness was 9.6 (68.57 %), which was satisfactory, most extreme 13 and least 4. There was not factual meaning of information score by orientation, age gatherings, work insight and studentship. Taking scholarly capability, the degree of information on confirmation graduates was insufficient 7.76 (55.42 %), and lower than other higher scholastic qualifications. Adequate radiation assurance course materials and preparing ought to be presented for recognition graduates. Proceeding with proficient training (CME) ought to be coordinated consistently. Besides, radiation security regulation is an unquestionable requirement in Nepal now.[2]

In the review finished up by Shrija Indukuri1, Venkatachalapathy Easwaramoorthy SJIF 2019Paramedic understudies get presented to different divisions of the medical clinic which builds the gamble of superfluous radiation openness in the event that they don't know about it. Recently delegated staff and, surprisingly, some current experienced staff might get presented to superfluous radiation in the event that not prepared. Accordingly information about this theme is fundamental. To survey the familiarity with the radiation insurance, security, and dangers among medical services laborers and paramedical understudies of different branches of an emergency clinic . To look at and assess the degree of information about the radiation insurance, security, and radiation risks among medical services laborers and paramedical understudies of different divisions of an emergency clinic . To assess if the instructional meeting on radiation assurance, security, and risks is given to the medical care laborers and paramedical understudies and how frequently it is directed .To assess assuming that the medical care laborers and the paramedical understudies can distinguish assuming there is any wellspring of radiation in their own specialty This study incorporates medical care laborers and paramedical understudies. The example size is 74 members. An internet based survey was arranged which was circulated as Google structures. The poll comprises of 4 segments, they are-1) Segment information 2) Questions connected with Radiation insurance and wellbeing. 3) Questions connected with Natural impacts of radiation 4) This segments remembers questions connected with the wellspring of radiation for their particular division and recurrence of visiting a radioactive region. Altogether, the survey comprises of 20 inquiries. Every one of the inquiries were various decision questions and contain 4 choices for each inquiry. In general the mindfulness level was low. Compelling and continuous preparation is fundamental for all medical care laborers and paramedical understudies to work on the nature of information on radiation security, wellbeing, and dangers to stay away from superfluous openness to radiation to the specialists, understudies, and patients.[3]

In the concentrate by Hassan Hadi Al Kazzaz M.B.Ch.B, PH.D, F.I.C.M.S (F.M) Volume 08, 2021Study of the well being and clinical innovation understudy 's information and mentalities will open the ways of settling the shortfall in their data with respect to radiation perils. The point is to survey the information on Al-Zahra college understudies toward radiation hazard. This study is a cross-sectional observational scientific investigation of how much information and height

towards radiation risks and insurance of the Wellbeing and Clinical Innovation understudies' of Al-Zahra College in Karbala, Iraq. This cross-sectional poll based study was directed on 129 out of 132 college understudies from The Wellbeing and Clinical Innovation School, whose educational plan included General Radiology, subsequent to finishing 90 days in the Branch of Radiological Methods at Al-Zahra College for Ladies. Among 132 understudies, 129 understudies partook in this Google Study hall poll, giving an in general reaction pace of (97.7%). Their general information was great and showed a higher KAP esteem comparable to dangerous insurance that (Is x beam is unsafe) with a level of (66.6%), while their insight was poor concerning the wellbeing rules. The absence of information about

ALARA or ALADA standards should be considered by refreshing first year understudy 's educational plan as well as making instructional classes to work on their knowledge.[4]

Razieh Behzadmehr, Mahboobe Doostkami, Zohreh Sarchahi, Leila Dinparast Saleh EMAIL logo and Rezvaneh Behzadmehr

From the journal Reviews on Environmental Health

https://doi.org/10.1515/reveh-2020-0063 In review of proof recommends various outcomes about the degree of mindfulness, disposition, and execution of medical services laborers about radiation assurance across various nations Further, many investigations have shown that HCWs with great information might miss the mark on great disposition about radiation security . Additionally, numerous singular examinations have found unfortunate information about radiation assurance . Exact assurance of mindfulness, mentality, and execution of HCWs about radiation security across various fields can help medical services policymakers in the better administration and improvement of mindfulness, demeanor change, and their exhibition. As far as we could possibly know, up to this point, no review has been acted in such manner and with this degree. Likewise, this efficient audit study was led to decide the information, disposition, and practice (KAP) of medical care laborers towards radiation assurance.[5]

Volume-7 | Issue-5 | May-2018 | PRINT ISSN No 2277 - 8179 INTERNATIONAL JOURNAL OF SCIENTIFIC RESEARCH All ionizing radiations are destructive. This is the reason that commands a radiation security strategy. All people are presented to radiations in low portions. Of concern is the gamble associated with this low portion radiation, particularly the acceptance of malignant growth or hereditary deformities. Three boundaries are accessible to diminish radiation openness: time, distance and boundaries. Time assumes its part in three ways: in how much time that the

machine is turned on at a specific current communicated as Mama and is called the responsibility; in how much time that the pillar is aimed at a specific region, called the utilization factor; and in how much time that an region is involved, called the inhabitance factor. Distance weakens the pillar by the recognizable converse square regulation. Boundaries are generally developed of either sheet lead or cement. Obstructions can be essential what's more, auxiliary relying upon whether they shield from essential radiation (the helpful shaft) or stray radiation (a blend of spillage

what's more, disperse radiations). When in doubt no auxiliary obstruction is expected for regions safeguarded by an essential hindrance, for example an essential serves both an essential and optional hindrance.[6]

2020 Jan 22. doi: 10.1177/2050312120901733 Chaowanan Khamtuikrua and Sirilak Suksompong

The principal segment expected members to give the accompanying segment data: age, orientation, word related position (staff, occupant, individual, or medical caretaker), work insight (years), division, level of all out working hours which the respondent was presented to radiation across the beyond a year, and earlier cooperation in a radiation risks and security class.

The subsequent segment, which comprised of inquiries on mindfulness about radiation dangers and security rehearses, evaluated mindfulness about radiation perils and the routine utilization of individual assurance, to be specific, a lead cover, eye goggles, and a thyroid safeguard, while working in a climate that involves radiation openness.

The third segment, which evaluated information about radiation dangers and assurance, zeroed in on the accompanying:

The guideline of radiation insurance (ALARA)

Greatest passable portion of radiation each year for laborers overall and pregnant ladies in specific

Essential wellsprings of radiation openness in mediation rooms

Organs that are defenseless to radiation-related diseases

Lead covers and the standard thickness of lead in a lead apron

Lead goggles

The reverse connection between the distance between oneself and radiation machine and radiation dose

Data about dosimeters

The radiation portion of fluoroscopes that are utilized in clinical procedures.[7]

Methodology

MATERIALS AND METHOD

7.1 SOURCE OF DATA: SHRI B. M. PATIL MEDICAL COLLEGE, HOSPITAL AND RESEARCH CENTER VIJAYAPUR.

7.2 TYPE OF STUDY: Cross sectional study

7.3 STUDY PERIOD: One Year

INCLUSION CRITERIA:

- Employees working experience in for at least 3months.
- The study included healthcare workers and students from various departments like Radiology, Urology, Neurosurgery, Pulmonary Department and Orthopaedic Department.
- All individuals who are willing to participate .

EXCLUSION CRITERIA:

• Other non-surgical departments .

7.4METHODS OF DATA COLLECTION:

All the healthcare professional (Doctors, Nurses, Students) will be selected through Stratified Random Sampling method on duty staff will be included in the study. Radiation safety and hazard exposed by the healthcare professional will be assessed through semi structured questionnaires the factors responsible for the radiation hazards will be thoroughly addressed according to compliance and standards of IAEA (International atomic energy agency) and taking necessary measures like capacity building and creating awareness training etc.

7.5 <u>SAMPLE SIZE:</u>

SAMPLE SIZE:

As per the study done by MaajidmohiUd Din Mailk, The proportion of proportion of good knowledge of radiation hazards is 87% Considering the confidence limit of these studies to be 96% with 4% level of significance and margin of error 0.05. The sample size computed using the following formula

Sample size (n) = $(Z^2 * p^*(1-p))/d^2$

Where,

Z is the z score= 2.0537
d is the margin of error= 0.05
n is the population size
p is the population proportion =0.458
a is the level of significance=0.04
The estimated sample size of this study is 420.

7.6 STATISTICAL ANALYSIS:

The data obtained is entered in a Microsoft Excel sheet, and statistical analyses are performed using a statistical package for the social sciences (SPSS) (Version 20). Results are presented as Mean, SD, counts and percentages, and diagrams. For normally distributed continuous variables between the two groups will be compared using an independent sample test. For not normally distributed variables, the Mann-Whitney U test is used. For Categorical variables between the two groups, are compared using the Chi-square test/Fisher's exact test. If there are more than two groups we will use ANOVA, For not normally distributed, Kruskal-Walli H Test. If p<0.05 will be considered statistically significant. All statistics are performed two-tailed.



Results

RESULTS:

TABLE 1: Distribution of study participants according to Department

TABLE 1: Radiology has the largest group of participants, with 159 individuals, making up 37.9% of the total. Orthopedic is the second largest group, with 56 participants, which is 13.4% of the total. Medico has 42 participants, accounting for 10.0%. Urology and Neurosurgery have 33 (7.9%) and 32 (7.6%) participants, respectively. UG Perfusion Technology has 30 participants, representing 7.1% of the total. Cardiology has 28 participants, which is 6.7%. Pulmonary Department includes 24 participants, making up 5.7%. CATH LAB Technician has 10 participants, or 2.4%. CCT has the smallest group with 6 participants, accounting for 1.4%. The total number of participants across all departments is 420, making up 100% of the data.

Departments	No. of participants	percentage	
Cardiology	28	6.7	
CATH LAB Technician	10	2.4	
ССТ	6	1.4	
medico	42	10.0	
Neurosurgery	32	7.6	
Orthopedic	56	13.4	
Pulmonary Department	24	5.7	
Radiology	159	37.9	
UG Perfusion Technology	30	7.1	
Urology	33	7.9	
Total	420	100.0	

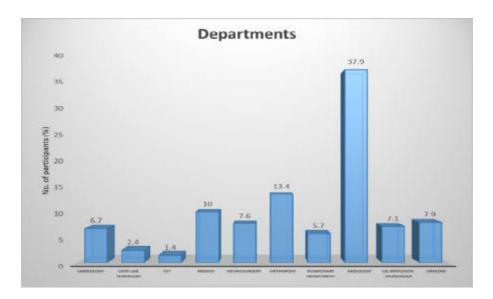


TABLE 2:

Distribution of study participants according to Age

In the study, there were a total of 420 participants. Among them, 4 participants (1.0%) were under 20 years old. The largest age group was 20 to 24 years, comprising 242 participants (57.6%). Participants aged 25 to 29 years made up 97 individuals (23.1%). There were 64 participants (15.2%) in the 30 to 34 years age group. Lastly, 13 participants (3.1%) were aged 35 and above.

Age(Years)	No. of participants	percentage
< 20	4	1.0
20 - 24	242	57.6
25 - 29	97	23.1
30 - 34	64	15.2
35+	13	3.1
Total	420	100.0

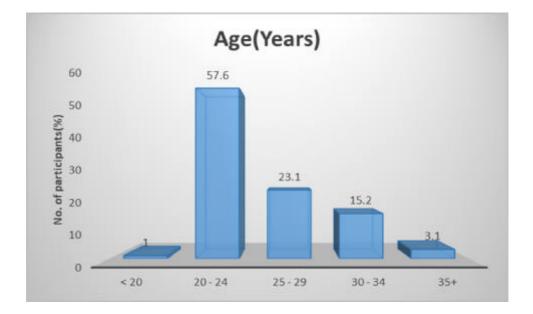


TABLE 3:

Distribution of study participants according to Designation

In the study, there were a total of 420 participants. Among them, 14 participants (3.3%) were CT & MRI radiographers. Interns made up 17 participants (4.0%). Junior Residents accounted for 82 participants (19.5%). The largest group was Medicos, with 98 participants (23.3%). Senior Residents comprised 69 participants (16.5%). Students were the most numerous, with 119 participants (28.4%). Lastly, there were 21 participants (5.0%) who were Technicians.

		Frequency	Percent
Valid	CT & MRI	14	3.3
	radiographer		
	Interns	17	4.0
	Junior Resident	82	19.5
	Medico	98	23.3
	Senior Resident	69	16.5
	Student	119	28.4
	Technician	21	5.0
	Total	420	100.0

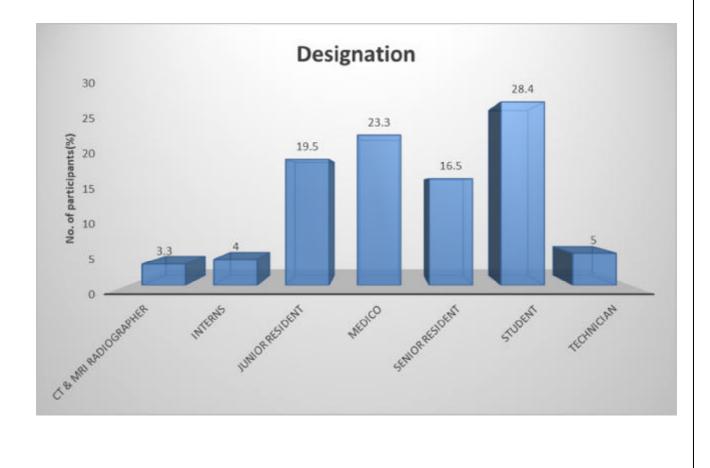


TABLE 4:

Distribution of study participants according Gender

In the study, there were a total of 420 participants. Among them, 168 participants (40.0%) were female, while 252 participants (60.0%) were male.

Gender	No. of participants	percentage
Female	168	40.0
Male	252	60.0
Total	420	100.0

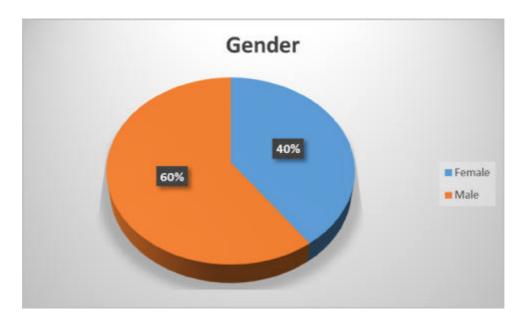


TABLE 5:

In the study, there were a total of 420 participants. Among them, 1 participant (0.2%) responded "No," while 419 participants (99.8%) responded "Yes." This means that 99.8% of the participants gave a valid response of "Yes," and cumulatively, 100% of the participants' responses were accounted for.

Are you aware o	of radiations safety	/ and hazards?
-----------------	----------------------	----------------

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	1	0.2	0.2	0.2
	Yes	419	99.8	99.8	100.0
	Total	420	100.0	100.0	



TABLE 6:

Out of a total of 420 responses, 88 respondents (21.0%) answered "Maybe," 58 respondents (13.8%) answered "No," and 274 respondents (65.2%) answered "Yes." The cumulative percentages for "Maybe," "No," and "Yes" are 21.0%, 34.8%, and 100.0%, respectively.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Maybe	88	21.0	21.0	21.0
	No	58	13.8	13.8	34.8
	Yes	274	65.2	65.2	100.0
	Total	420	100.0	100.0	

Do you know the three principles of radiation protection?

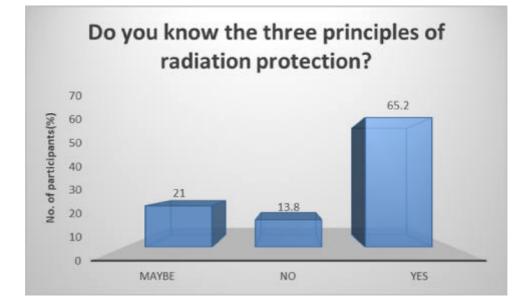


TABLE 7:

Out of a total of 420 responses, 110 respondents (26.2%) answered "Maybe," 95 respondents (22.6%) answered "No," and 215 respondents (51.2%) answered "Yes." The cumulative percentages for "Maybe," "No," and "Yes" are 26.2%, 48.8%, and 100.0%, respectively.

		Frequency	Percent	Valid Percent	Cumulative Percent
	Maybe	110	26.2	26.2	26.2
Valid	No	95	22.6	22.6	48.8
	Yes	215	51.2	51.2	100.0
	Total	420	100.0	100.0	

Do you always wear a radiation dosimeter?

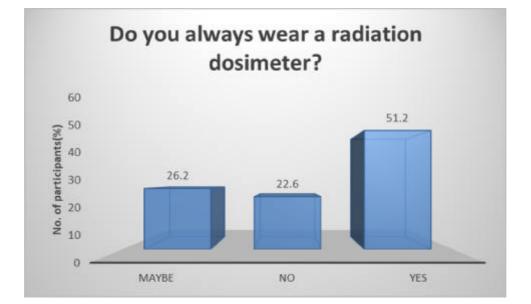


TABLE 8:

Out of a total of 420 responses, 6 respondents (1.4%) answered "maybe," 9 respondents (2.1%) answered "No," and 405 respondents (96.4%) answered "Yes." The cumulative percentages for "maybe," "No," and "Yes" are 1.4%, 3.6%, and 100.0%, respectively.

	De yea near lead apren mien yea nent marradianent						
					Cumulative		
		Frequency	Percent	Valid Percent	Percent		
Valid	maybe	6	1.4	1.4	1.4		
	No	9	2.1	2.1	3.6		
	Yes	405	96.4	96.4	100.0		
	Total	420	100.0	100.0			

Do you wear lead apron when you work with radiation?

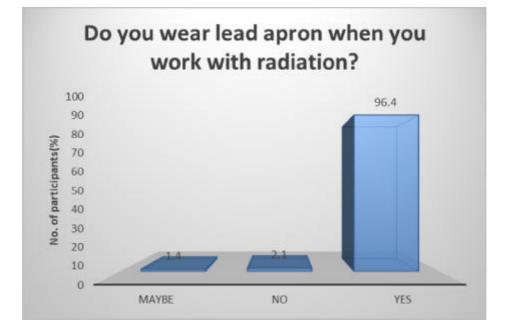


TABLE 9:

Out of a total of 420 responses, 31 respondents (7.4%) answer "Maybe,"50 respondents (11.9%) answered "No," and 339 respondents (80.7%) answered "Yes." The cumulative percentages for "Maybe," "No," and "Yes" are 7.4%, 19.3%, and 100.0%, respectively.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Maybe	31	7.4	7.4	7.4
	No	50	11.9	11.9	19.3
	Yes	339	80.7	80.7	100.0
	Total	420	100.0	100.0	

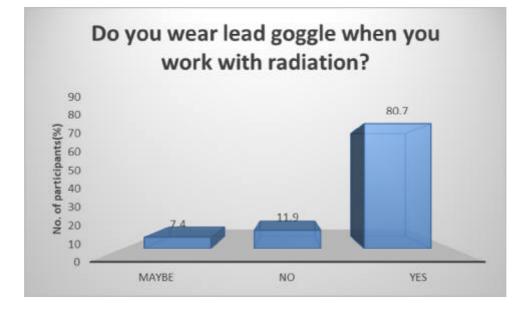


Table 10:

Out of a total of 420 responses, 109 (26.0%) were marked as "Maybe," 92 (21.9%) as "No," and 219 (52.1%) as "Yes." The cumulative percentages for "Maybe," "No," and "Yes" responses were 26.0%, 47.9%, and 100.0%, respectively.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Maybe	109	26.0	26.0	26.0
	No	92	21.9	21.9	47.9
	Yes	219	52.1	52.1	100.0
	Total	420	100.0	100.0	

Have you ever worn	thyroid shield	when you wor	k with radiation?
	v	•	

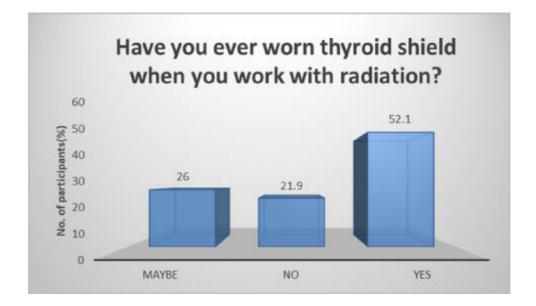


Table 11:

Out of a total of 420 responses, 86 (20.5%) were marked as "Maybe," 28 (6.7%) as "No," and 306 (72.9%) as "Yes." The cumulative percentages for "Maybe," "No," and "Yes" responses were 20.5%, 27.1%, and 100.0%, respectively.

					Cumulative
		Frequency	Percent	Valid Percent	Percent
Valid	Maybe	86	20.5	20.5	20.5
	No	28	6.7	6.7	27.1
	Yes	306	72.9	72.9	100.0
	Total	420	100.0	100.0	

Do you feel all the different types of radiation are harmful to your body?

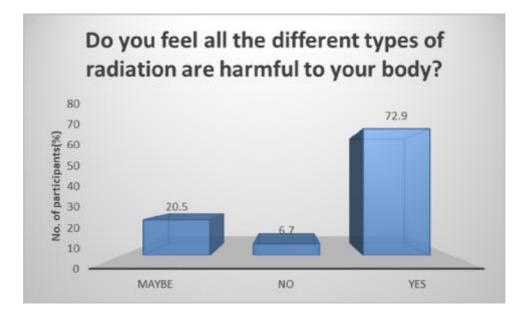


Table 12:

Out of a total of 420 responses, 69 (16.4%) were marked as "Maybe," 122 (29.0%) as "No," and 229 (54.5%) as "Yes." The cumulative percentages for "Maybe," "No," and "Yes" responses were 16.4%, 45.5%, and 100.0%, respectively.

					Cumulative
		Frequency	Percent	Valid Percent	Percent
Valid	Maybe	69	16.4	16.4	16.4
	No	122	29.0	29.0	45.5
	Yes	229	54.5	54.5	100.0
	Total	420	100.0	100.0	

Are you aware of ICRP/NCRP/AERB?

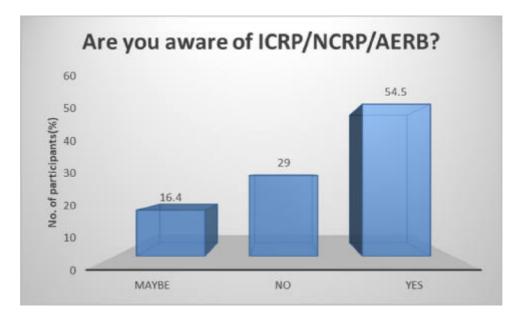


Table 13:

Out of a total of 420 responses, 1 respondent (0.2%) answered "Maybe," 230 respondents (54.8%) answered "No," and 189 respondents (45.0%) answered "Yes." The cumulative percentages for "Maybe," "No," and "Yes" are 0.2%, 55.0%, and 100.0%, respectively.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Maybe	1	.2	.2	.2
	No	230	54.8	54.8	55.0
	Yes	189	45.0	45.0	100.0
	Total	420	100.0	100.0	

Did you know the purpose of collimators/filters in radiography?

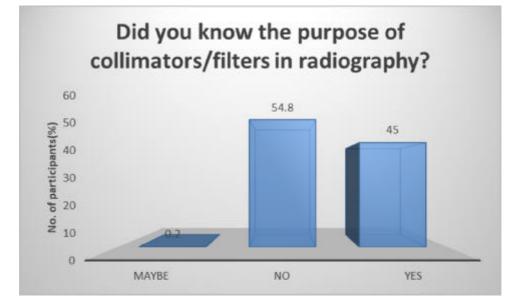


Table 14:

Out of a total of 420 respondents, 68.1% indicated that they are aware of the ALARA principle, while 30.0% stated that they are not aware. Additionally, 1.9% of the respondents were unsure about their awareness of the principle. This means that cumulatively, 31.9% of the respondents either do not know or are unsure about the ALARA principle

					Cumulative
		Frequency	Percent	Valid Percent	Percent
Valid	Maybe	8	1.9	1.9	1.9
	No	126	30.0	30.0	31.9
	Yes	286	68.1	68.1	100.0
	Total	420	100.0	100.0	

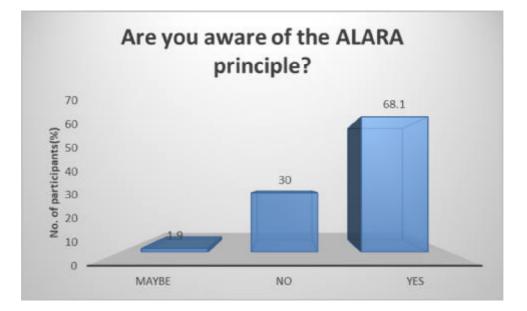


Table 15:

Out of a total of 420 respondents, 40 people (9.5%) answered "Maybe" when asked about the TLD. A smaller group of 27 respondents (6.4%) said "No," while the majority, 353 respondents (84.0%), answered "Yes." This brings the cumulative total to 100%.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Maybe	40	9.5	9.5	9.5
	No	27	6.4	6.4	16.0
	Yes	353	84.0	84.0	100.0
	Total	420	100.0	100.0	

Did you know about the TLD?

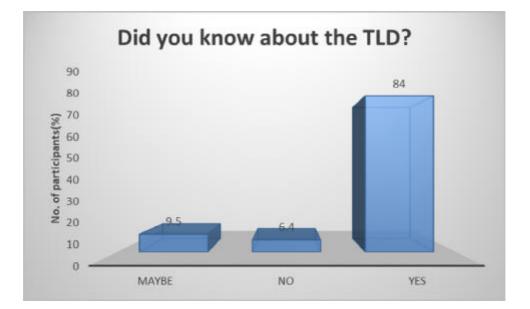


Table 16 :

Out of a total of 420 respondents, 56 people (13.3%) answered "Maybe" when asked about the TLD. A smaller group of 38 respondents (9.0%) said "No," while the majority, 326 respondents (77.6%), answered "Yes." This brings the cumulative total to 100%.

					Cumulative
		Frequency	Percent	Valid Percent	Percent
Valid	Maybe	56	13.3	13.3	13.3
	No	38	9.0	9.0	22.4
	Yes	326	77.6	77.6	100.0
	Total	420	100.0	100.0	

Did you know how to use TLD badge?

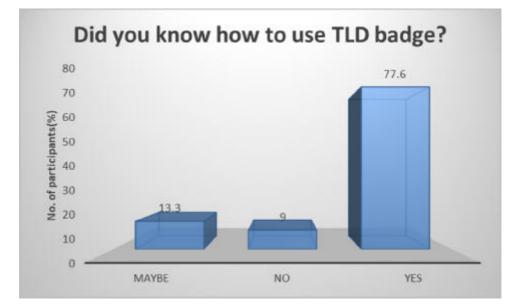


Table 17:

Out of a total of 420 respondents, 210 people (50.0%) answered "Maybe" when asked if X-ray equipment should be carried out periodically. An equal number of 210 respondents (50.0%) said "Yes." This brings the cumulative total to 100%.

					Cumulative
		Frequency	Percent	Valid Percent	Percent
Valid	Maybe	210	50.0	50.0	50.0
	Yes	210	50.0	50.0	100.0
	Total	420	100.0	100.0	

Do X-ray equipment should be carried out periodically?

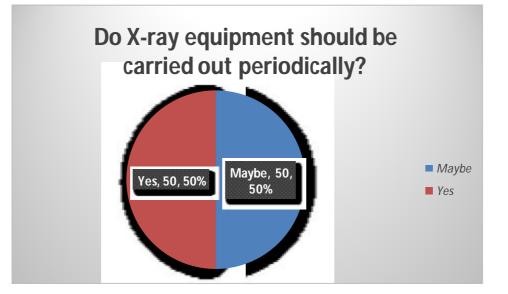
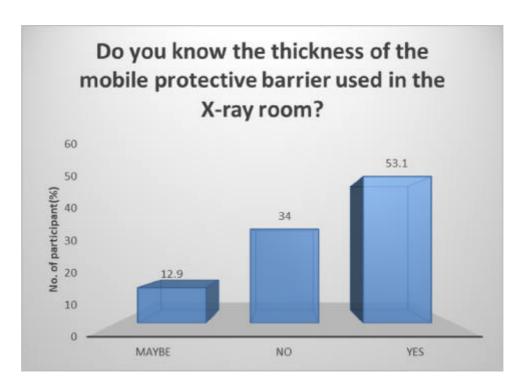


Table 18:

Out of a total of 420 respondents, 54 people (12.9%) answered "Maybe" when asked if they know the thickness of the mobile protective barrier used in the X-ray room. A larger group of 143 respondents (34.0%) said "No," while the majority, 223 respondents (53.1%), answered "Yes." This brings the cumulative total to 100%

the X-	ray room?					
		Frequency	Percent	Valid Percent	Cumulative Percent	
Valid	Maybe	54	12.9	12.9	12.9	
	No	143	34.0	34.0	46.9	
	Yes	223	53.1	29.5	100.0	
	Total	420	100.0	100.0		



Do you know the thickness of the mobile protective barrier used in the X-ray room?

Table 19:

Based on the data provided, it appears that the majority of respondents believe that radiationcausing equipment is maintained and serviced periodically. Specifically, 85.7% (360 out of 420) of respondents answered "Yes," indicating regular maintenance and servicing. Meanwhile, 14.3% (60 out of 420) of respondents were unsure, answering "Maybe." This suggests a high level of confidence in the periodic maintenance and servicing of such equipment among the respondents.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Maybe	60	14.3	14.3	14.3
	Yes	360	85.7	85.7	100.0
	Total	420	100.0	100.0	

Do all the radiation causing equipment are maintained and serviced periodically?

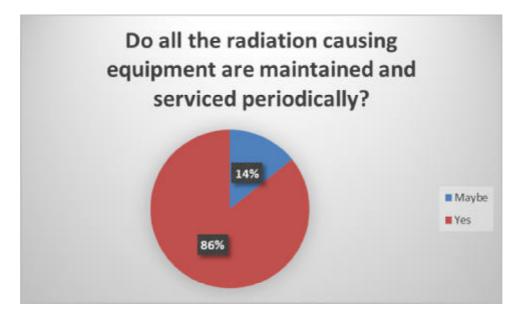


Table 20:

According to the data provided, a significant portion of respondents are aware of natural radiation exposure. Specifically, 68.1% (286 out of 420) of respondents answered "Yes," indicating they know about natural radiation exposure. Meanwhile, 17.9% (75 out of 420) of respondents answered "No," and 14.0% (59 out of 420) were unsure, answering "Maybe." This suggests that while a majority are informed about natural radiation exposure, there is still a notable percentage who are either unaware or uncertain.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Maybe	59	14.0	14.0	14.0
	No	75	17.9	17.9	31.9
	Yes	286	68.1	68.1	100.0
	Total	420	100.0	100.0	

Do you know how much naturally we are exposed to the radiation?

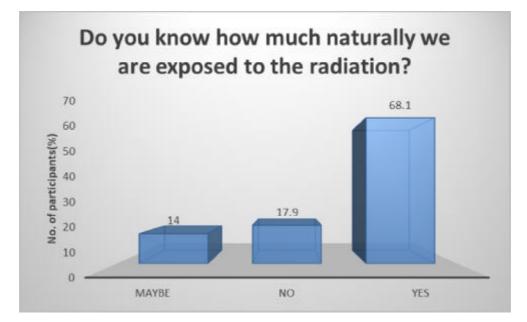
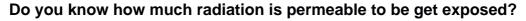


Table 21:

Based on the data provided, it appears that a majority of respondents are aware of the permissible levels of radiation exposure. Specifically, 53.8% (226 out of 420) of respondents answered "Yes," indicating they know how much radiation is permissible. Meanwhile, 23.6% (99 out of 420) of respondents were unsure, answering "Maybe," and 22.6% (95 out of 420) answered "No," indicating they do not know the permissible levels. This suggests that while over half of the respondents are informed, there is still a significant portion who are either unaware or uncertain about permissible radiation exposure levels.

		Frequency	Percent	Valid Percent	Cumulative Percent
	Maybe	99	23.6	23.6	23.6
Valia	No	95	22.6	22.6	46.2
Valid	Yes	226	53.8	53.8	100.0
	Total	420	100.0	100.0	



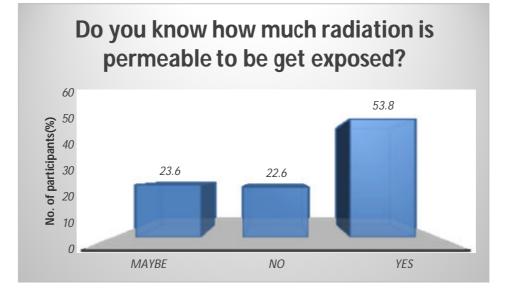


Table 22:

According to the data provided, a significant majority of respondents are aware of the types of radiation used in a CATH LAB. Specifically, 87.6% (368 out of 420) of respondents answered "Yes," indicating they know the types of radiation used. Meanwhile, 6.2% (26 out of 420) of respondents were unsure, answering "Maybe," and another 6.2% (26 out of 420) answered "No," indicating they do not know. This suggests that most respondents are well-informed about the radiation types used in CATH LABs.

		Frequency	Percent	Valid Percent	Cumulative Percent
	Maybe	26	6.2	6.2	6.2
Valid	No	26	6.2	6.2	12.4
Valid	Yes	368	87.6	87.6	100.0
	Total	420	100.0	100.0	

Do you know what types of radiation are used in CATH LAB?

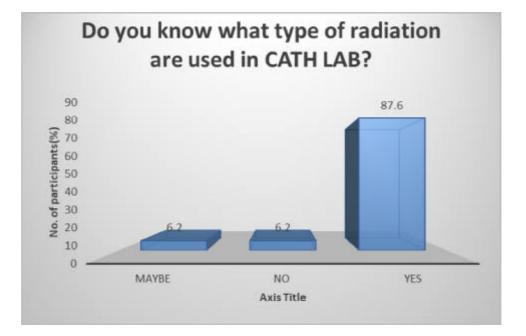


Table 23:

Based on the data provided, it appears that regular training on radiation hazards is given to healthcare professionals. Out of a total of 420 respondents, 418 (or 99.5%) confirmed that they receive such training. Only 2 respondents (0.5%) were uncertain, indicating a high level of compliance and awareness regarding radiation safety among healthcare professionals.

Do regular	training	is	given	to	all	the	healthcare	professionals	about
radiation ha	zard?								

					Cumulative
		Frequency	Percent	Valid Percent	Percent
Valid	Maybe	2	.5	.5	.5
	Yes	418	99.5	99.5	100.0
	Total	420	100.0	100.0	



Table 24:

According to the data, all 420 respondents (100%) indicated that they would adhere to radiation protection protocols in their future clinical practice. This unanimous response highlights a strong commitment to maintaining safety standards among healthcare professionals.

Will you adhere to radiation protection protocols at the time of your future clinical practice?

					Cumulative
		Frequency	Percent	Valid Percent	Percent
Valid	Yes	420	100.0	100.0	100.0

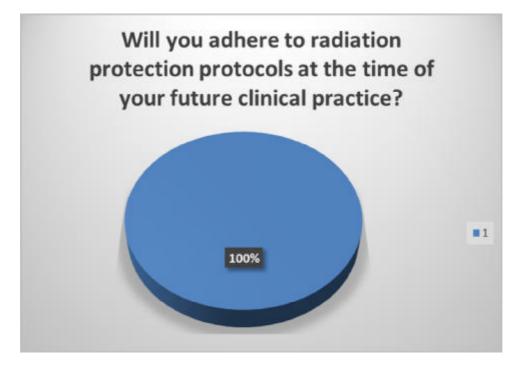


Table 25:

The overall results of the knowledge assessment for 420 respondents show that the total score for correct answers ranged from 13 to 20, with a mean score of 16.79 and a standard deviation of 1.782. For incorrect answers, the scores ranged from 0 to 7, with a mean score of 3.21 and the same standard deviation of 1.782. The Mann-Whitney U test yielded a value of 1206.000 with a significance value (P) of 0.148, indicating no statistically significant difference in the distribution of scores

Overall Result of knowledge

Overall Total score of knowledge	Ν	Minim um	Maximu m	Mean	Std. Deviatio n	Mann Whitney U test	Significan t value
CORRECTANSWER S	420	13	20	16.79	1.782	U=1206.0 00	P=0.148
WRONGANSWERS	420	0	7	3.21	1.782	00	

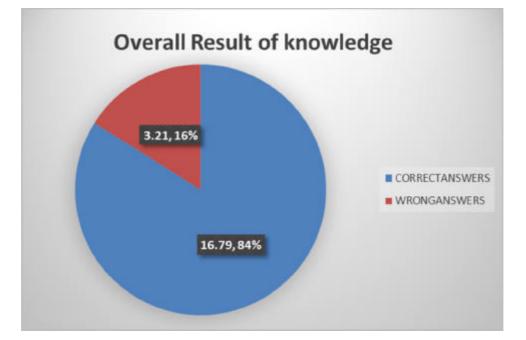
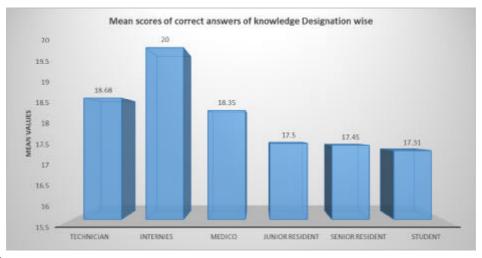


Table 26:

The comparison of overall knowledge scores across different designations reveals some interesting insights. Among the 107 respondents, interns scored the highest with a perfect mean score of 20.00 and no variation (standard deviation of 0.000). Technicians followed with a mean score of 18.68 and a standard deviation of 1.520. Medicos had a mean score of 18.35 with a standard deviation of 1.648. Junior residents and senior residents had mean scores of 17.50 and 17.45, respectively, with standard deviations of 0.926 and 2.115. Students scored the lowest with a mean score of 17.31 and a standard deviation of 1.620. The overall mean score for all respondents was 18.19 with a standard deviation of 1.620. The Kruskal-Wallis test yielded a significant value (P=0.0001*), indicating a statistically significant difference in knowledge scores across the different designations. Comparison of overall knowledge score and Designation

Designation	Descriptive statistics of overall knowledge score (Correct answers)			Kruskal- Wallis Test	Significant value		
	N	Mean	Std. Deviation	Std. Error			
Technician	25	18.68	1.520	0.304	30.183	P=0.0001*	
intern	11	20.00	.000	0.000			
Medico	26	18.35	1.648	0.323			
junior resident	8	17.50	0.926	0.327			
Senior resident	11	17.45	2.115	0.638			
student	26	17.31	1.123	0.220			
Total	107	18.19	1.620	0.157			
*:Statistically significant							





The comparison of overall knowledge scores across different age groups reveals some interesting insights. For the age group 20-24, with a sample size of 76, the mean score was 18.51 with a standard deviation of 1.596 and a standard error of 0.183. The age group 25-29, consisting of 15 individuals, had a mean score of 17.47, a standard deviation of 0.990, and a standard error of 0.256. Meanwhile, the 30-34 age group, with 16 participants, showed a mean score of 17.31, a standard deviation of 1.740, and a standard error of 0.435. Overall, the total sample of 107 participants had a mean score of 18.19, a standard deviation of 1.620, and a standard error of 0.157. The Kruskal-Wallis Test indicated a significant difference in knowledge scores across these age groups, with a p-value of 0.015

Comparison	of overall	knowledge	score on Age
------------	------------	-----------	--------------

AGE	Descript	Kruskal- Wallis Test	Significant			
AGE	Ν	Mean	Std. Deviation	Std. Error		value
20 - 24	76	18.51	1.596	0.183		
25 - 29	15	17.47	0.990	0.256		P=0.015*
30 - 34	16	17.31	1.740	0.435	5.868	
Total	107	18.19	1.620	0.157		
*:Statistically significant						

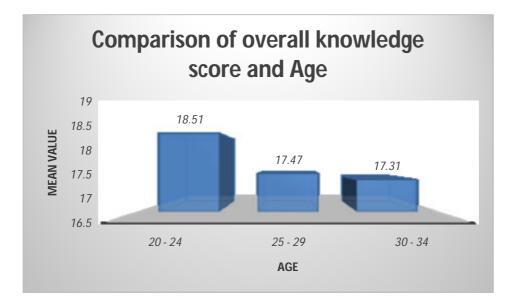
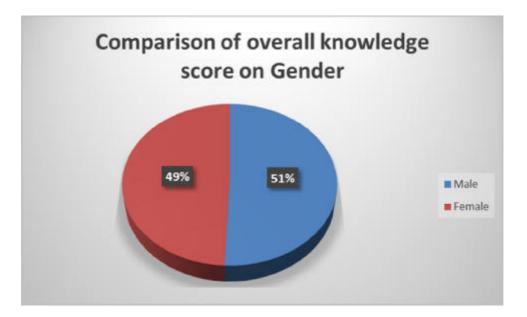


Table 28:

The comparison of overall knowledge scores based on gender shows that males, with a sample size of 54, had a mean score of 18.43, a standard deviation of 1.382, and a standard error of 0.188. On the other hand, females, with a sample size of 53, had a mean score of 17.94, a standard deviation of 1.813, and a standard error of 0.249. The Mann-Whitney Test indicated no significant difference in knowledge scores between males and females, with a p-value of 0.148.

Comparison of overall knowledge score on Gender

CORRECT	Gender	Frequency	Mean	Std. Deviation	Std. Error Mean	Mann- Whitney Test	Significant value
ANSWERS	Male	54	18.43	1.382	0.188		
	Female	53	17.94	1.813	0.249	1206.000	P=0.148*





Discussion

DISCUSSION

The fundamental points and objective of this review to assess the information and mindfulness level of the radiological experts, who are working and concentrating on in the radiation zone straightforwardly or by implication. Progression of the innovation in the clinical science, increment the utilization of assortment of modalities in the medication for the analytic as well as helpful reason. Ionizing radiation might make unsafe impact the human populace, on the off chance that they took care of inappropriately; in any case, there is no hurtful impact of radiation. Hence, this is vital to be familiar with the fundamentals of radiation including physical science of radiation, uses of radiation in medication, and mindfulness about wellbeing perils. There is different wellspring of radiation, regular as well as fake (man-made). Greatest level of radiation got from normal source, just of radiation got from the counterfeit source. In this review, just members knew about the wellspring of radiation. This isn't great portrayal of information, on the grounds that as radiology proficient we need to be aware of fundamentals of radiation like source, hurtful impact, and kinds of radiation security guideline and so on absence of this essential information may prompts undesirable radiation portion to the patients as well as him/her moreover. By and large fulfillment level of the experts in the radiology division yielded disheartening, Some idea additionally comes from the member's side including radiation portion and hardware's connected inquiry. We can additionally work on the mindfulness and showing system in the radiology field. It ought to be more hypothetical as well as down to earth situated to upgrade the ability and information the radiology experts. This is vital to radiology understudies as well as personnel to examine about the essentials of radiations, for example, wellspring of radiation, radiation insurance rule, natural impact of radiation and so on in subtleties, it improves the information on radiology understudies as well as radiology experts too. It is disturbing that, the information about rudiments

The assessment of radiation wellbeing information and mindfulness among radiology experts including radiology laborers and radiology understudies was finished effectively. The review uncovered connections between their capability levels, with radiation security mindfulness. It likewise found connections between nuts and bolts of radiation to fulfillment level in the radiology field. Lower level of information was related with consciousness of radiation

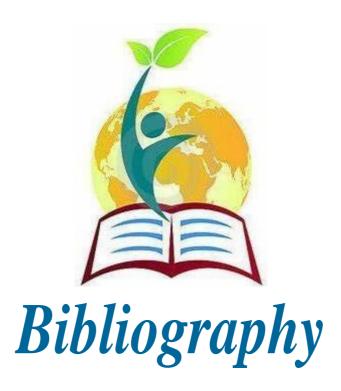
insurance measures. At last we need to concentrate the more exploration based study including hypothetical too viable too The assessment of radiation safety and hazard awareness among healthcare professionals, based on a sample of 420 participants, revealed that the correct answers ranged from 13 to 20, with a mean score of 16.79 and a standard deviation of 1.782. The Mann-Whitney U test indicated no significant difference, with a p-value of 0.148. Additionally, the wrong answers ranged from 0 to 7, with a mean score of 3.21 and a standard deviation of 1.782. This suggests a moderate level of knowledge among healthcare professionals regarding radiation safety and hazards, with no significant variation in scores.



Conclusion

CONCLUSION

Conclusion: The assessment of radiation wellbeing information and mindfulness among radiology experts including radiology laborers and radiology understudies was finished effectively. The review uncovered connections between their capability levels, with radiation security mindfulness. It likewise found connections between nuts and bolts of radiation to fulfillment level in the radiology field. Lower level of information was related with consciousness of radiation insurance measures. At last we need to concentrate the more exploration based study including hypothetical too viable too The assessment of radiation safety and hazard awareness among healthcare professionals, based on a sample of 420 participants, revealed that the correct answers ranged from 13 to 20, with a mean score of 16.79 and a standard deviation of 1.782. The Mann-Whitney U test indicated no significant difference, with a p-value of 0.148. Additionally, the wrong answers ranged from 0 to 7, with a mean score of 3.21 and a standard deviation of 1.782. This suggests a moderate level of knowledge among healthcare professionals regarding radiation safety and hazards, with no significant variation in scores.



BIBLIOGRAPHY

1. Rahman MH, Radiation Risk, Wellbeing, Control andProtection, Faridpur tradition. Coll. J.

2. De González Abdominal muscle, Darby S. Hazard of complaintX-beams needles for the UK and 14 othercountries. The Lancet Mathews JD,

3. Forsythe AV, Brady Z et al. nasty growth threat in 680,000 individualities uncovered reused tomography pollutants inchildhood or puberty information relation disquisition of 11millionAustralians. BMJ

4. ICRP. Aversion of radiation injuries from medicalinterventional ways ICRP distribution 85. AnICRP

5. CRP. training and preparing in radiological assurance fordiagnostic and interventional styles ICRPPublication 113. Ann ICRP

6. Park K. Park's course book of preventative and socialmedicine. twentieth ed. Jabalpur, India M/ sBarnasidasBhanot; 2009 .

Charles M. Sources and impacts of ionizing radiation. JRadiol Prot. 2001;
 2183- 85.

8. Adetokunbo Old, Herbert MG. Short course book of publichealth drug in the jungles. fourth ed. London Arnold; 2003.

 National Board on Radiation Security and Measurement. Ionizing radiation openness of thepopulation of the US offer of the National Gathering on Radiation Insurance and Measurements. Report no 160. NCRP. Bethesda MD 2009.

10. Cover B.X-beam portion preparing would we say we're uncovered toenough? Clin Radiol. 2004; 59926.

 Shiralkar S, Rennie A, Snow M, Galland RB, Lewis- Thomas K.
 Specialists' information on radiationexposure a bean study. BMJ. 2003; 327371-72.

52

12. Lee CI, Haims AH, Monico EP, Edge JA, Forman HP.Diagnostic CT examines, appraisal of cases, croakers

13. Global Commission on Radiological Protection(ICRP). proffers of the ICRP ICRP Publication103. Rrecords of the ICRP. 2007; 37

14. Nuclear energy executive board(AERB). RadiationProtection norms on AERB point.

15. L. Al- Lamki, Radiation openness from clinical imaging a memorial for Oman!, Ruler Qaboos Univ. tradition. J.(2011).

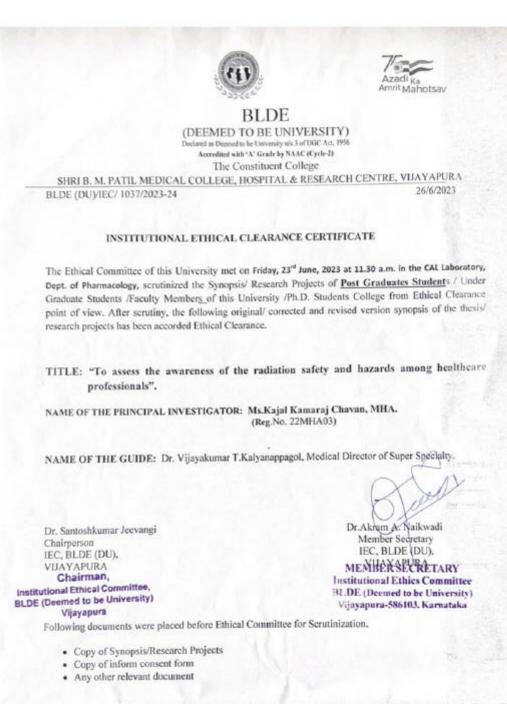
16. J.J. Cardarelli, B.A. Ulsh, The time has come to move past the direct noedge thesis for low- portion radiation insurance, Portion response(2018),



Annexure

ANNEXURE – I

INSTITUTIONAL ETHICAL CERTIFICATE



Snit. Bangaramma Sajjan Campus, B. M. Patil Road (Sholapur Road), Vijayapura - 586103, Karnataka, India. BLDE (DU): Phone: +918352-262770, Fax: +918352-263303, Website: www.bldcha.g.in. E-mail.college: blone: +918352-262770, Fax: +918352-263019, E-mail: binpine.principal.irbidedu.ac.in College: Phone: +918352-262770, Fax: +918352-263019, E-mail: binpine.principal.irbidedu.ac.in

ANNEXURE – II

SCHEME OF CASE TAKING:

NAME:	AGE:
GENDER:	DEPARTMENT:
QUALIFICATION:	DURATION OF WORK:
DESIGNATION:	

Sl, No.	QUESTIONS	YES	NO	DONT KNOW
1	Are you aware of radiations safety and hazards?			
2	Do you know the three principles of radiation protection?			
3	Do you always wear a radiation dosimeter?			
4	Do you wear lead apron when you work with radiation?			
5	Do you wear lead goggle when you work with radiation?			
6	Have you ever worn thyroid shield when you work with radiation?			
7	Do you feel all the different types of radiation are harmful to your body?			
8	Are you aware of ICRP/NCRP/AERB?			
9	Did you know the purpose of collimators/filters in radiography?			
10	Are you aware of the ALARA principle?			

Sl, No.	QUESTIONS	YES	NO	DONT KNOW
11	Did you know about the TLD?			
12	Did you know how to use TLD badge?			
13	Do X-ray equipment should be carried out periodically?			
14	Do you known the thickness of the mobile protective barrier used in the X-ray room?			
15	Do all the radiation causing equipment are maintained and serviced periodically?			
16	Do you know how much naturally we are exposed to the radiation?			
17	Do you know how much radiation is permeable to be get exposed ?			
18	Do you know what type of radiation are used in Cath Lab?			
19	Do regular training is given to all the healthcare professionals about the radiation hazard?			
20	Will you adhere to radiation protection protocols at the time of your future clinical practice?			

ANNEXURE – III (A) INFORMED CONSENT FORM

BLDE (DEEMED TO BE UNIVERSITY)

SHRI B. M. PATIL MEDICAL COLLEGE, HOSPITAL AND RESEARCH CENTER VIJAYAPURA

RESEARCH INFORMED CONSENT FORM

Title: To Assess the awareness of the radiation safety and hazards among health care professionals.

Participant's name:

Address:

The details of the study have been provided to me in writing and explained to me in my own language. I confirm that I have understood the above study and had the opportunity to ask questions. I understand that my participation in the study is voluntary and that I am free to withdraw at any time, without giving any reason, without the medical care that will normally be provided by the hospital being affected. I agree not to restrict the use of any data or results that arise from this study provided such a use is only for scientific purposes). I have been given an information sheet giving details of the study. I fully consent to participate in the above study.

Signature of the participant: Date:

Signature of the witness: Date: Name of the witness: Address of the witness:

Signature of the investigator:

$ \begin{array}{c c c c c c c c c c c c c c c c c c c $	10.7
Importantial legences Respective legences <td></td>	
Description: according and according and accordin	~
Description: according and according and accordin	
App App <td></td>	
Needet Iter yru Are yru Are yru Are yru Bryu Bryu </td <td>2</td>	2
Itery Keryu Keryu <th< td=""><td>Ð</td></th<>	Ð
Are yru de yru ber yru by yru by yru	-
Are yn Eryn bryn byrn byrnpro byrn<	
Der ynu De ynu	
Is you be you be with the slope principle principle	<u>_</u>
In you In you<	Ŧ
Ion yru Ion yru <t< td=""><td>-</td></t<>	-
Io yru Base yru feel all ever the alwage Ji yru heat Ji yru the aver aver aver aver aver aver aver ave	-
Base ym be ynu be ynu bi ynu ever: the all ifferen er ynu ifferen ynu word ifferen er ynu ifferen er ynu incer the word inferen er ynu incer the withe ynu califferen er ynu incer the word inferen er ynu incer the word incer the incer the word	_
Base ym be ynu be ynu bi ynu ever: the all ifferen er ynu ifferen ynu word ifferen er ynu ifferen er ynu incer the word inferen er ynu incer the word inferen er ynu incer the word inferen er ynu incer the word incer the incer word incer the <td>_</td>	_
Base ym be ynu be ynu bi ynu ever: the all ifferen er ynu ifferen ynu word ifferen er ynu ifferen er ynu incer the word inferen er ynu incer the word inferen er ynu incer the word inferen er ynu incer the word incer the incer word incer the <td></td>	
Num Day you the Alifyee alifyee Alifyee alifyee Alifyee alifyee Alifyee alifyee Alifyee alifyee Alifyee bailyee Alify	×
	~
	•
	-0
	P
	20
Jii yru Jii yru	ñ
Did yru sputp inny bor 1- isny sputp inny bor 1 isny bo	-
	, c
tory yet, for show the the show the the should be radius protects equi- round in each show the fill protects equi- round in each show the fill fill fill fill fill fill fill fil	<
Tes	
No No No namoż namoż namoż namoż No No No No	*
box Test	-
lo por lo	2
La st the file of the state of	AB Will you aichere

18 Cardiology	Cardiology	T Cardiology	5 RADIOLOGY	15 RADIOLOGY	14 RADIOLOGY	BADIOLOGY	11 PADIOLOGY	11 MADIOLOGY	10 RADIOLOGY	3 FADIOLOGY	38 PADIOLOGY	37 PADIOLOGY	M RADIOLOGY	S RADIOLOGY	M RADIOLOGY	BADIOLOGY	32 FADIOLOGY	1 RADIOLOGY	N RADIOLOGY	BUDIOLOGY	N PADIOLOGY	17 PADIOLOGY	16 PADIOLOGY	NUDIOLOGY	M PADIOLOGY	B RADIOLOGY	M RADIOLOGY	11 PADIOLOGY	N BUDIOLOGY	19 PADIOLOGY	18 FADIOLOGY	17 RADIOLOGY
senior resident	senior resident	senior resident	nedico	nedico	nedico	nedico	nedico	nedico	nedico	nedico	nedico	medico	nedico	nedico	nedico	medico	medico	nedico	nedico	netico	medico	medico	medico	netico	nedico	nedico	netico	medico	nedico	nedico	senior resident	resident
34 Tale	3] Male	37 Male	22 Female	23 Male	24 Female	22 Tale	21 Jale	22 Fenale	23 Fenale	25 Fenale	23 Female	24 Male	22 Fenale	21 Male	22 Female	21 Male	23 Female	21 Male	21 Female	21 Female	23 Female	23 Fenale	2] Female	2] Male	24 Male	22 Male	24 Jale	27 Male	23 Male	22 Jale	35 Female	32 Fenale
Tes	Tes	Tes	Tes	182 Tes	les	Tes	les	les	185	Tes	les	Tes	Tes	les	Jes	185 Tes	1es	les	les	Tes	Tes	ies	Tes	les	Jes	Tes	Tes	Tes	les.	Tes	Tes	les
l Tes	1 763	1 Tez	1 Mayte	1 Mayte	1 Mayte	1 Mayte	1 Mayte	1 Mayte	1 Mayte	1 Mayte	1 Mayte	1 Maybe	1 Mayte	1 Mayte	1 Mayte	1 Mayte	1 Mayte	1 Maybe	1 Mayte	1 Mayte	1 Maybe	l Mayte	1 Mayte	1 Mayte	1 Maybe	1 Mayte	1 Mayte	1 Mayte	1 Mayte	1 Mayte	1 Tes	1 762
1 Yes	1 Yes	1 Yes	1 Maybe	1 Maybe	1 Maybe	1 Maybe	1 Maybe	1 Maybe	1 Maybe	1 Maybe	1 Maybe	1 Maybe	1 Maybe	1 Maybe	1 Maybe	1 Maybe	1 Maybe	1 Maybe	1 Maybe	1 Maybe	1 Maybe	1 Mayhe	1 Maybe	1 Maybe	1 Maybe	1 Maybe	1 Maybe	1 Maybe	1 Maybe	1 Maybe	1 Yes	1 Tes
: "es	: Tes	: Tes	: Tes	: Tes	: Tes	: 185	: Tes	: Tes	: Tes	: Tes	: Tes	: Tes	: Tes	: Tes	: Tes	, Tes	: Tes	: Tes	: Tes	: Tes	: Tes	: Tes	: Tes	: Tes	: Tes	: Tes	: Tes	: Tes	: Tes	: :es	: Tes	: Tes
185	les	les	les	les	3er	29L	182 182	185	1es	les	1e2	Tes	les	1es	les	1es	les	les	Jes	les	Tes	1es	Tes	les	lez	182	les	165	les	381 A	leg	ies
10	15	Eg a	120	120	122	122	120	120	E.a	Esa a	120	122	120	120	120	120	120	120	120	120	Ing.	120	122	122	II .	IE2	120	12	120	120	12	53
181 182	:=1 25	194 85	195	:=4 25	1.55	1.04	182	: *i	1.14 25	:=4 25	1.81	1.14 25	1.81 25	1.84 25	:-=1 22	: *1 22	:=4 22	: #1 22	:=4 23	193	1.14 22	194	1.14 22	:=4 22	194 29	:=4 22	1.51	1.81 22	: #4 22	1	E ^{at}	E.
ies es	les	les	185 185	185	les	les	les	ies 1es	les	ies tes	les	les	les	les	les	165	87	89	57	57	81	5	81	57	57	57	57	57	57	50	ies tes	ies ies
	15	Ţ,	110	120	1.00	1:0	1:2	110	10	120	120	120	120	12	10	120	æ	æ	æ	æ	æ	æ	æ	æ	æ	æ	æ	æ	æ	÷		15
₩ 23	r ^a	E ⁴	ist B	124 22	174 25	194 295	124	124 22	134 25	124 22	134 23	174 22	E ⁴	174 22	174 22	124 22	57	57	57	57	57	57	8	57	55	5	57	8	57	50	E.	2ª
185	ies es	les	291 S	185 Res	ie:	Tes	먨	Sar	ies es	185	185 Set	Tes	Tes	185 Ser	185	185 Tes	185	185 185	185	ies	ies	ies	ies es	les	ies 185		ies tes	185	Tes.	192 192	ies	Les Ser
Tes tes	180	182	160	16g	162	162	182	18g	100 Egg	180	162	162	162	16g	160	162	162	16g	100 Egg	160	16g	100	162	162	162	182	16g	162	100 to	162	Ieg	In the
Ilaybe	llayte	Ilayte	Mayte	llaybe	Mayte	llayte	llayte	llaybe	llayte	llayte	Mayte	llayte	Mayte	llayte	Mayte	Mayte	llayte	llayte	llayte	llayte	llayte	llaybe	llayte	llayte	llayte	llayte	llayte	llayte	llayte	Mayte	llayte	llayte
28é	jes	Sec.	Sec	Sec	saf	saf	se.	Sec	Saé	Saé	Sac	Saé	39F	Sal	Saé	Se.	- C	Sal	Sai	Sac		Sal	Sai	Sac.	Sai.	Saf	Sai	Saí	Sal	Sec.	81	51
ieg Ieg	lee lee	leg	18g	18g	182	182 182	162	182	180 teo	180 Teo	182	leg Ieg	182	182	18g	18g	180 180	182 182	182	182	182	182	leg	les.	182	1eg	182	18g	162	182 182	leg	Yeg
llayte	llayte	llayte	llayte	llayte	llaybe	lizite	llayte	llayte	llzybe	llayte	llayte	llzyte	llayte	llzybe	llayte	llayte	llzyte	llayte	llzyte	llayte	llzyte	llayte	llzybe	llayte	llaybe	llayte	llayte	llayte	llzyte	lizite	llayte	llayte
: *I 22			105	8	2	1	8	1	8	8	8	: •1 83	185	8	8	8	8	. er 193	3	3	 8	100	8	8	8	8	8	 33	8	100	8	8
182	leg	les	182 Tes	39I A	les	185	185 185	les	185 185	391 162	leg	leg	les	185 Ies	165	185 A	les	leg	leg	leg	les	182 Teg	leg	leg	leg	leg	185	leg	Teg	les	leg	les
150 Eg	Is.	Eg	IEg	IEg	leg	ieg	leg Teg	ieg	12 ⁴	ing.	100	Ing.	12g	Eg a	Ing.	15g	120	Eg a	128 a	Eg a	155	ieg	123	Teg	ieg	ieg	ieg	12	Teg	ieg	Ĩez	Ē
8	8	E.	185	1	1	Tes	1	Tes 1	ies	:=1 25	1	:34 25	ing i	ingi Ber	1	: *1 22	:::: 2	ies.	: *i	ies Ies	19	ies.	i Bi	:::: :::::::::::::::::::::::::::::::::	i es	18	:=1 25	2	:::: :::::::::::::::::::::::::::::::::	ie:	2	:=1 25

Prinnery 71 Department	Princery 10 Department	06 Ferlusin: 59 Technology	00 Ferdusinn 58 Tarinology	00 Ferdusian 57 Technology	06 Ferdusing 56 Tachnology	05 Ferlusing 55 Tarinology	06 Ferlusing 54 Technology	06 Feriusing 53 Tarinology	06 Feriusing 52 Tachnology	06 Feriusing 51 Tachnology	06 Feelusing 50 Technology	06 Feriusing 55 Tarinology	05 Feriusin: 55 Tathology	05 Feriusing 57 Tarinology	06 Feriusinn 56 Tachnology	06 Ferdusing 55 Technology	34 Carindogy	Sologiation 25	👥 Cariiology	51 Cariiology	50 Cartiology
juzier resident	jazier rasident	Staten:	Studenc,	Studen;	Student,	Itzien;	Itzien:	Strien;	Strien:	Staten;	Staten:	Staten:	Studenc,	Itzien;	Itzien:	Student,	sacion rasident	raciónt	section:	sacio: raciòent	sector resident
20 Maie	27 Nie	22 Fanale	19 1 12 E	30 Fanzle	30 Fanale	20 Naie	19 Farale	21 Maie	21 Farale	22 Fanale	19 Fanale	19 Maie	21 1 13.'e	20 Main	21 1 12'e	30 Mile	22 Faile	31]] <u>1</u>]	311.e	35 Mai e	31 N ale
755	B,	13 ⁴	B	æ	B,	Ĩs	1 1 2	Ĩs	Ĩs	ľs:	Ĩs	13	B,	Ĩs	Ĩs	B,	F	Ĩs	Ĩæ	735	1 ²¹
1 162	1 Ter	1 Tes	1 Teg	1 Ter	1 Teg	1 Tes	1 Teg	1 Teg	1 Teg	1 Teg	1 Teg	l Ter	1 162	1 762	1 ¹ 62	1 Tes					
1 183	i ies	118	lies	i.	1 es	1 B	18	118	1 es	i e	18	i es	1 es	i æ	118	1 a	1 ies	1183	1 les	188	18
Tes	12	12	12	- He	124		in ⁴	- TES	1 mg	1 TES	E.	127		- is	12	12	1ª	- Tes	- int	- "B	1485
162	ies	ie: T	ie T	Ĩť	ie:	ie -	ä	īe	ä	is	is.	ie: T	ie	ie.	ie:	ie:	ĨĘ	is.	ie.	ie:	ie -
a,	a.	\overline{s}_{z}	<u>8</u> °	a.	a.	<u>8</u> °	<u>8</u> 2	5 5	<u>8</u> °	<u>8</u> °	2 7	a.	a.	ā,	<u>8</u> ,	<u>8</u> 3	a.	\overline{a}_{z}	53 73	<u>8</u> °	\overline{a}_{2}
æ	æ	<u>a</u> :	₫.	a *	æ*	2 °	3 "	æ	8 "	B "	3 °	æ	a :	<u>.</u>	2 °	æ	3 °	ā,	æ*	ā,	æ
3	3 *	1 2*	B ⁴	Ĩs:	57 ⁴	9ª	1 74	1 34	13 ⁴	9ª	1 34	5 7'	13 ⁴	57	B,	57	13°	1 74	1 31	57	135
ie,	ig ¹	is i	is"	ies"	is"	H.	ыŤ	ыŤ	is"	is i	is"	H.	ы ^т	is"	E.	is"	65 ⁴	is ¹	is"	is"	LES .
je,	ie	a,	ie	Ĩ¢	le	ä	ä	З.	a.	a.	a,	is .	ie	ai.	3i	ie	Ĩe	3i	je.	З.	ie
8 "	ā	ā,	ā,	3	ā.	ā.	ā.			3		ā,	ā,	ā.	ā,	ā,	a.	ā.	·3	8	3
- Es	3	3	3	8	3°	33"	33°	33°	33°	33"	33"	33	3	3	33"	33	8	33*	3	33	$\overline{\mathfrak{B}}^{\mathfrak{s}}$
Izie]lipte	liște	lizite	lipte	liște	liște	liște	Izte	Nete	Nete	liște	liște]]zjete	liște	liște	liște	Jzete	Izte	liște	Işte	lizite
. 15	35.	.a	18	35'	B.	.¶	. 8	33'	19	' 8	' #	.¶	' #	. 4	.u	'	18	' #	' #	B.	31.
ai Bi	31	Este	Egbe	lizybe	lizybe	ed;sil	edtall	lighe	lizybe	lisybe	ed;sil	Esto:	Estos	liste.	la'spe	listoe	ie	3i	ä	ä	ä
8	8	ectel	ecteal	listos	literios	ectell	ectel	ected	ecteal	lisyia	Ecúlo	ectel	literios	Ecited	ecital	ectel	llagios	Ecite	eclisi	ecteal	ectell
в	8	llayte	llayite	lligite	llegite	llaçte	llaçte	light	llarite	llavie	llighte	llayite	llayte	llaçie	llayte	llaçõe	8	3 °	53°	3	<u>B</u> 4
134	12ť	12*	12 ⁴	12 ⁴	17 ⁴	17 ⁴	67 ⁴	12"	124	G ⁴	67 ⁴	12 ⁴	12 ⁴	12 ⁴	121	12 ⁴	11ª	6 7	D.	1 2*	1 2 ⁴
1. at	185	165	ie.	100	ie:	ie:	ie ¹	ie:	ie:	ies	ie ^t	ie ¹	ie st	ie:	102	ie ¹	182	ie ^r	ie:	ie:	iffe
ai B	ā	ä	ā	ā	ä	ä	ä	ä	ŝ	ä	ä	ä	ā	ä	ā	ā	ä	ä	ŝ	ŝ	ä

Palmonary 118 Department	Tolog	0rology	Tralogr	87 Urology	Urology	Urology	CATH Laß 84 Technician	CATH LaB Technician	CATH LaB 82 Technician	CATH LAB Technician	CATH LAB Technician	79 Cardiology	78 Cardiology	77 Cardiology	75 Cardiology	75 Cardiology	Palmonary 74 Department	Palmonary Departments	Palmonary 72 Department	71 Department	Palmonery Department
								5	54					8				128			
Sector	secior resider	secior resider	serior resider	secior resider	secior resider	secior resider	17 E	13 E		н П	R D	19 J.	junior resider	jurior resider	junior resider	jurior resider	junior resider	jurin reside	jurior resider	juziar	juniar Teside
Secior resident	secior resident	secior resident	serior resident	secior resident	secior resident	secior resident	Technicia L	[echminia	lechnicia E	Technicia E	Technicia M	junior resident	junior resident	jurior resident	jurior resident	junior resident	junior resident	jurior resident	junior resident	juzior resident	juzior resident
32 Male	33 Male	34 Male	29 Male	33 Male	35 Male	32 Male	31 Male	32 Male	34 Male	32 Male	24 Male	29 Male	25 Male	27 Male	26 Male	28 Female	25 Mala	26 Fenals	28 Male	26 Male	27 Male
Neg	Yeg	leg.	Yeg	Yeg	leg	100 100	182 Teg	1eg	Yez	182	Yes	Yez	18g	18g	leg	Teg	Yeg	Yeg	leg	18g	Yeg
1 Жа	1 Marice	1 Mayire	1 Mayrie	1 Mayte	1 Negice	1 Mayice	1 Maybe	1 Mayte	1 Marte	1 Maybe	1 Maybe	1 Yeg	1 Yez	1 Yeg	1 Yeg	1 Yeg	1 122				
D Maybe	1 Tes	1 Tes	1 Tes	1 Yes	1 Tes	1 Tes	1 Yes	1 Yez	1 Teg	1 Yes	1 Yez	1 Teg] Teg	1 Yes	1 Teg	1 Tes	1 Yes	1 Yes	1 Tes	1 Tes	1 Teg
410																					
L'es	1 185	Tes	1 Jes	: ser	Tes	: Tes	: ses	Tes	Tes	1.00 1.00 1.00	1 Tes		Tes	Sa <u>r</u> 1	Tes	Tes	: Ses	: Tes	: Tes	: Tes	l Tes
Taybe	es	: • 65	: *I 65	es	ies	res	ies S	Tes	ŝ	:# ();	Tes	ies	ies i	es	Tes	ies	es	ies es	es	es es	i es
Esphe	Larbs	Tapbe	Tarbe	Tajebe	Lipbe	Taple	Tajebe	Tamb:	Tarbe	Tapte	Tambe	Tes	195 Set	Tes	Tes	Tes	Tes	Tes	res	Tes .	Tes
liste .	Tes	Tes .	19	Tes -	Tes	174 175	Tes	174 175	Tes	Tes	Tes	Tes .	127	Tes .	ie.	Tes .	Tes .	Tes .	Ĩ.	æ	E.
ig.	llaybe	Taybe	llaybe	Maybe	Esybe	llaybe	Maybe	Maybe	llaybe	llaybe	Haybe	12	18	124	E ⁴	18	183	12 ⁴	18	Ĩe	12ª
Tes T	1	5	10	100	5	8	100	5	10	8	1 98	les l	18 7	Tes T	les l	Tes T	18	is .	les 7	les l'	ie -
ieg	12	<u></u> .	<u></u> .	8	8	<u> </u>	8		<u> </u>	ā,	ig"	a"		2ª	5	12	<u></u> .	8	Ē.	ie 	<u>5</u> °
Wzybe Ho	Teg Teg	Tes Tes	Tes Tes	Teg Teg	122 122	TES TES	Teg Teg	122 122	152 152	152 152	122 122	152 152	TE TE	iez iez	Tes Tes	Tes Tes	TES TES	122 122	152 152	Teg Teg	Tes Tes
1eg	te Teg	100	to Teg	152	10	100	to Teg	100	to The	1000	e Vez										
e Neyte	e yee	s liss	e yee	38ĥ 3	e yee	5 Jec	g yeg	e yee	e yee	e yes	2 yez	May're yes	Nayice yes	May're yes	Nay'ze yez	Nay'ze yez	May're yez	Nay'ze yez	Nay'ze yez	Nay'ze yez	Nay'ze yez
te les	38I 3	39I 3	s les	381 28	3er 3	e Tee	381 28	Tes	e Tee	Tes	e Tes	e Tee	381 28	38I 2	s les	38I 3	381 281	aal aa	281 Tec	381 28	e Yee
185	391 Ser	Jes	185 Res	ser Ser	87	84	84	51	뎡			84				명리			54	St.	84
	Jaybe	Jaybe	Jaybe	Taybe	Jaybe	57	51	51	57	넝	51	57	51	51	54						
er B	e "Tache	e "Tato	e "zepe	e "Jepe	16 . Tarbe	e Tarbe	ie Tes	le Tes	le Tes	ie Tes	le Tes	les	ies	105	: #1 65	ies	3	Tes	ies	ies es	8
(3) (3)	e	e Tes	res res	e Tes	e Tes	e Tes	Tes	192	Tes	ies	Tes	Tes	195	Tes	Tes	Tes	t es	Tes	Tes	:es	ies
I H	Tes	Ĩes	res	Tes	Tes	Tes	185	194	Tes	Tes	Tes	Tes	Tes	Tes	14	Tes	195	Tes	14 85	Tes	Tes

I Padi Cam	43 RadioLogy	12 Padicing	11 Ortániedie	10 (rtiışadic	19 Padicingy	38 (trianaedic	37 (trispædio	36 (prinzædio	rtigedic 🗄	14 ortigzedic	n (rtigedic	n (rtiņzečio	11 (trianadic	19 Ortagzedic	78 Ortinaedic	7 (hrtanječio	16 Ortánječie	🚨 (triagecia	14 Ortanado	23 Radialogy	72 Padicing	71 (triaspečie	Pubrizzy 20 leoartran:	Pubrizzy 19 Department	Pubrizzry 18 Department	
Territor	Triim	Jedos	, iccion Jescident	, scoor resident	Tailoo	, iccior Jescident	, iccion Jescident	, schoor Jestident	, izzioant	jazio: resident	, schoor resident	_izzier resident	, sciller resident	Jailoo	, schoor residents	Teiloo	, TILION TESIDEN	Teiloo	, iccioci resident	Jaco	Teiloo	, schoor resident	Serior	Terzident	TEDIOC	
C1 11.7.4	21 Mala	22 Wala	38 Fenaie	21 Fenale	22 Mala	21 Wale	27 Wale	28 Mala	28 Mala	27 Wale	Se Mala	26 Male	27 Mala	22 Mala	27 Mala	23 Mala	21 Fenale	22 Fenale	21 Fenale	21 Fenale	22 Fenale	29 Wale	31 Fenale	33 Mala	32 Mala	
line in the second	8	a.	ā	ā	<u>8</u> 1	ā	<u>s</u> ,	ā	ā	<u>s</u> ,	ā	ā	ā	<u>s</u>	ā	<u>s</u> ,	ā	<u>s</u>	ā	ie"	<u>s</u>	ā	ā	ī	ā	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
1 E.	150	150	150	150	150	110	110	110	150	150	110	110	150	150	150	150	150	150	150	150	150	110	110	110	150	
1 Feebs] Este] lisybe] lizybe] lisybe] fizybe] lizybe] lizybe] lizybe] lizybe] lizybe] lizybe] lizybe] lizybe] Este] lizybe] lizybe] lizybe] Esybe] Esphe] [62] lizybe] lizybe] lizybe] lizybė] fizybe	
· 7.0	: 1e	: [@	: "e	: 16	: 16	: [g	:]e	: [g	: " "	: " :	: .	: [g	: 16	: 162	: le	: 16	:"e	: Teg	: Te	: Te	: ie	: læ	: : :	: [æ	: le	
1	ie:	ie:	a.	ie]6	ä	3	a,	ia.	a.	1 T	a,	18	$\overline{\mathfrak{B}}_{i}$	ä	<u>1</u> 21	1 T	ie:	is"	31	liste	llaybe	Este	llaybe	lighe	
Earths	llaybe	llsybe	5	5	[g/be	57	57	5°	5	5	5°	57	5	lls/be	llsybe	lls/be	llsybe	llsybe	llaybe	162	Iste	edfall -	llsybe	llsybe	edfall	
Banks	lighe	laybe	87	5	Iste	87	87	5	5	5	87	5	5	llaybe	llaybe	la'pe	llaybe	laybe	lla;be	5	8	ed/all	lizybe	liste	liste	
Tea	a,	3	a.	ia.	ŝ	\overline{a}	ā	a,	\overline{a}_{i}	ā	\overline{a}	a.	ā	19 19	a.	\overline{a}_{a}	a a	3	ia.	a,	3	ia.	\overline{a}	\overline{a}_{a}	a,	
1	3	ie:	a.	10	3	3	3	ā	100	a,	<u>8</u> ,	a,	is"	3	a.	3	3	ie"	3	3	31	a.			3	
ŝ	a,	B	a,	a.	a.	$\underline{\mathfrak{U}}_{\mathfrak{s}}$	ā,	\overline{a}_{i}	\overline{a}_{i}	\overline{a}_i	a,	a.	\overline{a}_i	3	\overline{a}	, a	a,	a.	a.	laybe	laybe	\overline{a}	\overline{a}_{i}	$\underline{\mathfrak{U}}_{\mathfrak{a}}$	a,	
Luks	lls;be	lls;be	87	8	llaybe	87	87	87	87	87	ਭਾ	87	8	lls;be	llaybe	lls;be	llsybe	lls;be	lighe	a.	6	ed/sil	llegbe	edital	edial	
F	8	6	eq'tail	list)e	8	edital	edizil	lley be	lisy'de	eçîsi	eçîsi	edital	llaybe	6	8	6	8	6	8	a,	\overline{a}_i	5	8	6	10	
ŝ	8	3	\overline{a}_{i}	a.	a,	<u>8</u>	a,	\overline{a}_{i}	\overline{a}_i	\overline{a}_{i}	\overline{a}_i	a,	\overline{a}_{i}	3	\overline{a}_i	3	<u>s</u> ,	3	a,	lls;be	llaybe	3	\overline{a}_{i}	a.	ā	
Luks	llaybe	llaybe	llegioe	llaybe	lighe	edital	edital	litybe	edital	llerjoe	llaybe	edital	lisybe	llayba	llaybe	llaybe	llaybe	llaybe	lleybe	87	8	llaybe	llayba	edital	llsybe	
-	a.	\overline{a}_{i}	<u>s</u> ,	\overline{a}_{a}	\overline{a}_{a}	8,	<u>8</u> ,	8,	\overline{a}_{i}	ā	\overline{a}^{*}	8,	<u>s</u>	<u>8</u> ,	\overline{a}_{i}	<u>8</u> °	\overline{a}_{i}	ā	\overline{a}_{i}	llaybe	ā,	\overline{a}_{z}	<u>8</u> ,	\overline{a}_{i}	\overline{a}_{z}	
n a	8,	3	<u>8</u> ,	<u>8</u> ,	<u>8</u> ,	8	\overline{a}^{i}	\overline{a}^{*}	$\underline{\underline{u}}_{i}$	<u>8</u> ,	\overline{a}_i	<u>8</u> ,	\overline{a}_{z}	ā,	\overline{a}_{i}	<u>8</u> ,	$\underline{\underline{g}}_{z}$	<u>8</u> ª	<u>8</u> ,	8ª	3	\overline{a}	\overline{a}_{i}	8	ā	
	8,	<u>8</u> ª	<u>8</u> ,	<u>8</u> °	<u>8</u> °	8,	<u>8</u> ,	8,	<u>8</u> ,	<u>s</u> ,	<u>8</u> ,	<u>8</u> ,	$\underline{\underline{g}}_{z}$	8,	<u>s</u> ,	<u>8</u> ,	<u>8</u> ,	8	<u>8</u> ,	8	<u>8</u> °	\overline{a}^{*}	<u>8</u> ,	ā,	<u>8</u> 1	
1.00	8,	3	ਭਾ	87	<u>8</u> ,	8	8	8	87	8	8	ਣ	8	3	<u>8</u> ,	2.	<u>s</u> ,	2	<u>s</u> ,	87	ā,	<u>s</u> ,	<u>s</u> .	ā	ā,	
	<u>8</u> °	\overline{a}_{i}	<u>s</u> .	<u>8</u> .	<u>8</u> °	<u>8</u> ,	ā,	8	<u>s</u> ,	<u>8</u> ,	<u>8</u> ,	<u>s</u>	ā	ā,	ā	<u>8</u> °	<u>s</u> ,	<u>8</u> °	<u>8</u> °	llayba	8,	8	8,	<u>8</u> .	ā	
2	3	8.	ā	8	33	8,	- - -	· 8	<u>8</u> °	8,	ā,	ā	<u>8</u> °	3	<u>8</u> .	3	<u>8</u> °	<u>8</u> °	·33	3	3	ā.	<u>8</u> .	ā.	23	

167 KADUGT	166 FADDUGT	16 KADOOG	164 EXERCISE	TER FAILURE	TEL PLUCET	161 FADIOLET	160 FADIOLOG	159 FADIOUST	150 FAILUUGT	itërreoraji <mark>151</mark>	istananen <mark>951</mark>	ieturautei <mark>st</mark>	istanomi <mark>Hi</mark>	istanome 📴	istarauna <mark>11</mark>	iational <mark>191</mark>	incorrection 051	isterrauran <mark>611</mark>	itërrauray <mark>111</mark>	tribeedic:	cipeedorcy 311	14 Fadiology	14 Factiology	
9	8	B	9	9	2	9	2	9	9	Ūtā1	ili i	Ūtāj	Útůl	Ūtā1	រដែរ	Ūtāj	Ūtā1	iŝi.	iŝi.	cite	efic	23	2	
collea	netico	region	cenior crecident	cenior creatent	cenior createst	cenior createst	cenior resident	cenior crecident	cenior crecident	1 :unior Treaident	1 ;unior recident	1 :unior rezident	1 :unior Tresident	1 penior recident	1 penior perident	1 panior Prezident	1 penior Trecident	1 cenior resident	1 senior Trecident	Junior recident	Junior rezident	Wedico	Hetico	
8	8	8	11 H	in a	int or	in or	in n	lat n	Ξ́ Ξ	in a	ΞĮ H	at a	in a	at a		at a	a a	ist of	int or	in in	발 기	8	8	
a N IV	1: Ifsle	1: Male	15 Mille	HTELe	11 Fensle	12 fizle	12 Fensle	HTele	1: Fensle	Hile	17 Fensle	33 Mille]1 Feesle]] f[£]e	33 Fensile	Ble]" fi≦le	13 Fensle	23 Fensle	13 Fensle	l' Male	1. Tele	1. Tele	- 8
23	ie.	ie.	Ĩ	ie.	ia.	Ē	ia.	ä,	<u>s</u> ,	je.	a.	je.	je.	ie"	ia"	E.	E,	ia.	ä,	ä,	ā]e:	a.	
1 165	1 165	1 165	1 Tes	1 Tes	1 Tes	1 Tes	1 162	1 Tes	1 Tes	: Tzyte	: Tzyte	1 Tzyte	1 Tzyte	1 Tzyte	: Tzyte	1 Tzyte	: Tzyte	1 Fzyte	1 Naște	15:	15	15c	15	
· Terte	: l'aybe	: Esthe	: le	: Tes	: Tes	: Tes	: Tes	: Tes	: Tes	: Tes	: Tes	. "fe	. 1e	. ie	- 162	. Tes	: Tes	: Tes	: Tes	1 Este	1 Espte] lizyte] lisyte	
2	1162	: le	116	i le	1	116	i ie	al :	1 18	1]@	118	1 1 2	: ie	118	Ter	i ie		1 18	i ie	i e	: 18	1	118	
-	ы	ы	ы	ы	ы	ы	5	ы	ы	ы	67 ⁴	67 ⁴	67 ⁴	13 ⁴	53°	67 ⁴	67 ⁴	67 ⁴	574	97 ⁴	13 ⁴	53 ⁴	53 ⁴	
3	ā,	3	5	5	: 3	5	3	ā.	5	ā.	ā.	<u>8</u> .	<u>s</u> .	<u>s</u> .	<u>s</u> .	ā.	ā.	5	5	8	8	llaybe	lls;be	
a"	b"	b"	hf'	bf'	bť	bf'	bf'	b"	b/'	b/'	b/*	b/'	b/'	b/'	h"	67	b/'	bf'	bf"	Ħ	H.	Teste	Teste	
5	8	8	- 8°	3	33	33	3	-	8	8	8	8	8	llaybe	llaybe	8	8	33	3	3	- - 	8"	8	
57	Ħ	Ħ	15 ⁴	ig i	165	Ĩ	165	Es ^t	is"	57	57	27	57	57	27	is"	E.	ig i	ies	100	107	ie:	ies Tes	
	36	30	183	E.	æ	ā,	E	E	a a	8	$\overline{\mathfrak{B}}^{\mathfrak{s}}$	8	8	8	8	8	8	8	E ²	E ²	$\overline{\mathfrak{B}}^2$	183	18	
E	162	Ĩe	Ĩes	les	Ĩe	Ĩe	les.	Ĩes	ie	jes	ie	Ĩe	Ĩť	39[Ĩfg	Ĩe	ie	39ľ	lez	2	F	liste	lizite	
3	133	133	la la	133	5	133	133	53	3	it in the second	liĝi	ligis	liĝi	liĝi.	li și li	li in the second	Et.êE	ligi	ili ili	ligi i	Igio	3	8	
Isthe	liste	liste	liste	liste	liste	liste	liste	liste	ligte	\overline{a}_{i}	\overline{a}_{i}	a,	a,	a,	a,	\overline{a}_{a}	\overline{a}_{i}	\overline{a}_{i}	\overline{a}^{*}	\overline{a}_i	ā,	\overline{a}	a,	
H.	S.	a	5	ы	ы	ы	5	ы	ы	ы	ы	5ª	ы	5	ы	5ª	ы	ы	ы	1911			Japie	
7 7 7 7 7	<u>8</u> ,	ā,	<u>8</u> .	5	ā,	ā,	ā	ā	ā	llsybe	llaybe	llaybe	llaybe	<u>8</u> ,	<u>8</u> ,	ā,	<u>8</u> ,	2	ā	2	22		8,	
bi"	bi"	bi"	bf'	bf"	bi"	b"	b"	61	64"	ы"	64"	bi"	H,	64	64	bi"	bi"	64	b"	bť	bf'	15"	67 ⁴	
3	<u>8</u> .	<u>8</u> .	8.	·33	33	33	- - 	ā"	8	8	8	8.	8.	8	8.	8	8	33	33	3	3	33	8	
in a	ie:	ie,	ig T	is ¹	is ¹	is ¹	105	165	is ¹	is"	is"	Tes	ie:	18 ¹	is"	E,	E,	ie:	ig i	27	r.	i st	i st	
<u></u>	E a	E a	8	$\overline{\mathfrak{B}}^{\mathfrak{a}}$	8	8	Es"	8	8	3	3 2	8	8	8	8	8	2 3°	8	8	E a	$\overline{\mathbb{R}}^{d}$	E a	8	
ie:	jes.	391	162	lez	Ĩe	Ĩe	Ĩes	Ĩŧs	ie	Ĩe	ie	Ĩŧ	Ĩe	162	162	Ĩe	Ĩe	Ĩe	Ĩez	Ĩes	Ĩez	leg	162	

198 Cardiology	197 Cardiology	196 Cardiology	195 Cardiology	194 Cardiology	198 Cardiology	10001116 201	191 34D10007	190 341(0)(7	100010E	1000114E MI	100011E 381	106 341 (0) (7	100011EE	184 341 (0) 77	LICOLOUE SN	12001116 281	TACOLOGY 381	THOMAS IN THE REAL	179 BALLONY	1700HE ST	177 HILLOUT	176 BELLOOT	LOUIDE 21	174 BALLONT	TODIES 51	172 2010037	170 BAHONY	1700114E OCI	TOOTLE BI	100010E BIL	10 BUILDE	3
semior	senior rezidart	senior rezidert	senior rezident	senior rezidazi	senior rezidant	redica	reticz	redica	redico	retico	redica	redict	retica	Isdici	redict	retico	retico	Tedico	redico	Iedici	retica	Isdici	Indici	retico	Tedici	Indici	Indici	Indici	Istici	redict	redica	•
+ 30 MELe	d 35 Male	d 34. Male	d 30 Mile	d 34.1121e	d 3751ale	22 Ferale	21 Fenale	24 Fenale	23 Fenale	20 Fenale	21 Benale	23 Fenale	23 Fenale	22 Ferale	21 Jiale	21 Jiale	23 Male	22 Male	22.Male	24 Male	22.Male	21 Male	21 Jiale	22.Male	22 Male	23 Male	20 Fenale	20 Fenale	21 Fanale	23 Fenale	22 Male	
a.	ā	ā	ā	ā	ā	ä	ia.	ŝ	ia"	ā	ia"	3	100	10	a.	3	10	ia.	ia.	E.	a.	E,	a.	R	E,	100	is"	ā	a.	ia.	a.	
1 185	1 les	1 les	1 leg	1 les	i les	1 185	1 183	1 183	1 185	1 183	1 183	183	183	183	185	1 183	185	: "es	1 185	1 183	1 183	1.183	1 183	: 183 183	1183	- "" "	. 183 183	1 183	183	183	1 183	
1 735	1 195	1 Br	118	L B	17	1 Marte	1 Marte	1 Marte	1 Marte	1 Marte	1 Marte	1 Marte	1 Marte	1 Marte	1 Marte	1 Marte	1 Marte	1 Marte	1 Marte	1 Marte	1 Marte	1 Marte	1 Marte	1 Marte	1 Marte	1 Marte	1 Marte	1 Marte	1 Marte	1 Marte	1 Marte	
	175	l fa		1 îz	175	175	1755	175	1752	175	1755	1755	175	1755	175	175	175	1755	1755	175	173	175	1755	1755	175	175	1755	1722	175	1 122	1755	
5	8	ਣਾ	8	8	8	87	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	87	8	8	8	8	8	8	-
TE2	182	E	183. TES	391 BE	182	100	i Eg	188 188	100	165	180 180	165	1.65 1.65	162	188 188	162	180 180	i es	i es	1 Eg	ies es	i eg	188 188	100	i el Es	160	180 180	1 81 1 82	180 180	i es	1 80 2 80	
8	B		3	B,	E.	18	8	185	B	B	18	8	3	8	8	3	8	B,	8	183	18°	13	18	8	IB:	8	18	13	183	18	18	Ì
50	50	57	57	50	5	5	5	50	5	5	5	5	57	57	5	5	5	57	50	2	5	57	5	5	10	57	50	57	57	50	5	
8	8	8	8		8	3		3		3		3		3	3	3	3		3						8		3	8		8	3	
10	5	5	5	10	5	5	10	50	5	10	5	5	5	5	10	5	5	5	10	5	87	5	5	5	81	5	10	5	5	10	5	
1 2 ⁴	13 ⁴	G ⁴	13 ⁴	10 ⁴	Eff	13 ⁴	13 ⁴	13	13 ⁴	13	(3 ⁴	Ĩs	(J ⁴	13 ⁴	13 ⁴	۵ť	(3 ⁴	Gf4	13 ⁴	13 ⁴	E ⁴	Ę۳4	13 ⁴	13 ⁴	67 ⁴	12 ⁴	13 ⁴	13 ⁴	13 ⁴	63 ⁴		
ā.	ā.	<u>a</u> .	ā	æ	ā,	8	≅*	₹.	8	ā	₫.	8	æ	8	₫.	æ	8	ā,	₫.	8	8	≅°	8	8	8	ā,	8	ā,	8	₫.	8	
Taybe	Tabe	Tayle	Taybe			Taybe	Taybe	Taybe	Taybe	Taybe	Taybe	Taybe	Taybe	Taybe	Taybe	Taybe	Taybe	Taybe	Tzybe	Taybe	Tzybe	Taybe	Taybe	Taybe	Taybe							
8	8	8	8	8	8	8	8	*	8	8	8	8	35	8	8	35	8	8	8	8	8	8	8	8	8	8	8	в	8	8	*	
3:	ä	ä	ä	ia.	ia.	E.	ŝ	is.	<u>1</u>	ie.	1. 1. 1.	ŝ	ŝ	8 1	1.21	ie 1	.e.	ig'	.e.	1. St.	18 ¹	ig ¹	31	.e.	S.	is"	.e.		18 1	<u>1</u> 21	S.	
13 ⁴	12°	12ª	3	Ĩz	Ĩs	in a	13 ²	Ξ,	Ξ ³	la	12	in a	13	13	Ξ ^α	12ª	13ª	13 ⁴	Ξ ²	13	in a	13ª	Ξď	12	12ª	131 ⁴	Ш ^а	Ш ^а	13ª	III ⁴	12ª	
a.	a.	a.	ā	ā	ā	a,	a,	a.	a,	ŝ	a.	ŝ	ŝ	ŝ	a,	ŝ	a,	ŝ	a.	a,	ŝ	ā	a.	a,	ŝ	ŝ	a.	a,	ŝ	\overline{a}_{i}	<u>s</u>	
Ē	124	14 18	121 ⁴	Ĩ	Ĩ	182	18 ⁴	185	Tes	185	18 ⁴	Ĩs	Es.	Ĩŧs		Eg	ing Tes	Tes		Ĩes	Es.	igi		18 ⁴	E ⁴	E ⁴	185	185 185	igi	ig 4	ies	
8	æ	ā	ā	ā	ā	8	8	8	8	8	æ	3	æ	ā	æ	ā	3	æ	8	æ,	æ	æ	æ	æ	8	æ	8	ā	ā	8	8	
i et Ceo	i et	ies	ie.	160	100	160	231 231	180 180	162 162	182 182	33. 162	33. 182	33°	1. ES	33. 33.	33. 1	33. 1	: #1 : #1	182 182	182	182 Teo	:Eg	33°	182 182	i es	ieg Teg	182 182	i et	1 at	182 182	182 182	

;	Cardiclogy	194 Cardiclogy	195 Cardiclog	(Ediclog	197 Carditlog7	199 Cardiclogy	199 Cardiclogy	Toppa, 200	101 Lednilogr	To Parfusion 2002 Lecharlogy	Tr Parfusion Ins Lednings	La Parfusion	L' Parfusion Technology	105 Technico	10 lecturior	Tr Parfusion Technilogr	Ledniloga	To Parfusion 200 Lechniclogy	Tr Parfusion 211 Jedniclogr	Cr Parfusion	C: Parfusion	To Parfusion
	senice resident	restient	restient	senice resident	restient	resticent	sentor restient	sentit testient	Student,	Student,	Student	Student	Student	Student	Student	Student,	Student	Student	Student	Student,	Student	Soutenc
	13 Parale	14 Male	16 Maie	34 Male	15 Male	16 Maie	12 Male	11 Male	20 Maie	21 B ale	22 Maie	21 Male	22 Male	21 Maie	20 Maie	12 Male	23 Male	21 Male	22 Farale	13 Farale	12 Ferale	12 Farale
					2.52																	
	1.00	135	135	135	13	15	1.0	195	135	261	261	135	100	10	1.0	135	135	135	735	135	15	
	1 785	1 785	1 785	1 735	1 Tas	1 785	100	1 785	1 785	1 785	1 735	1 785	1 735	1 735	1 125	1 795	1 795	1 795	1 735	1 735	1 735	
	1.165	185	185	185	185	185	185	: 185	. es	- ies	185	: les	: 185	165	8	185	: ies		185	185	185	
	1 183	l Tes	l Tes	1 18	l Tes	l je	l Tes	l les	l les	l Tes	l Tes	1 163	1 Tes	l Tes	1.765	1 Tes	l les	l Tes	l Tes	l lies	1 Tes	1
	107	10	10	107	10	107	10	Jo	Jo	50	Jo	Jo	Jo	J0	ie:	je.	ĩ	is:	ĩe	je.	is.	ä
	ie:	ie	ie	lez	ie:	ie	le	Ĩœ	Ĩœ	ie.	Ĩœ	Ĩœ	Ĩœ	ä	зії	ie	le	ie	Tez	lez	lez	a.
	Tez	162	395	391	391	162	162	397	162	162	Tez	162	iee	:62	165	: 4 : 65	<u>.</u> ez	Teg	Tez	Tez	162	
	ы	ы	ы	ы	ы	ы	ы	ы	57	ы	ы	Ч	5ª	H	ы	ы	J.	ы	ы	ы	ы	ы
	Ħ	ы	H	ы	Ħ	ы	H	ы	J.	я	н	Ħ	Ħ	н	Ħ	ы	H	H	H	H	H	Ħ
	H	57	H	H	H	H	H	H	3	3	H	3	a.	2ª	37	H	H	3:	H	3	3:	H
	135	135	735	135	135	Tag.	14	735	261	Tas	715	112	112	Ĩ:	12	112	Tas	735	35]	735	125	132
	55	35				35	58	195	Tes	Tag	195	195			55		135	3		a:		
ł	Marte	Warte	Warte	Warte	Warte	Warte	Marte	Warte	Warte	Warte	Warte	₩rete	Warte	Warte	Warte	Warte	Warte	Warte	Warte	Warte	Warte	llarte
	₹	₹	8	₹	₹	₹	₹	₹	8	8	₩.	8	8	₹	₹	₹	8	₹	8	8	₹	₹
	les	ies	ies.	102	Tes	183	ie:	les	Narice	Regise	Bayine	Narice	llagice	llay're	llagi ze	Way'ze	Narize	Nation	Bayise	llagize	Rayize	llagi're
	ē	ī	ē	a,	ē	ā	ž	ie.	Ĩæ	Ĩœ	Ĩœ	Ĩœ	Ĩœ	Tes	Ĩe	Ĩæ	ē	Ĩœ	ē	ē	ā	Ē
	ie.	ä	ä	ä	ä	ä	ä	Ĩœ	Taylor	Taylor	Taylor	Taylor	Raybe	Rayion	Faybe	Narjos	Taylor	Tayine	Taylor	Raybe	Nayine	Taylor
	ie:	ä	is.	ä	is.	ä	ä	Tec	Tec	Tec	Teo T	17	Tez	ä	S.	3.	17	ä	ä	17	1. 1	ä
	162	Tez	ie	Tez	.Teg	Ĩŧz	162	162	35	162	162	162	162	:62	:62	397	162	Tez	162		Tez	16
	ing.	100	:82	182	100	: 4 (5)	100	100	33.	100	:10	162	100	: # 50	: Eg	100	TE2	i H Eg	* # 60	100	: Tes	i teo

34 Juliz	Zriol 🕱	Briol	Briol 18	11 EU BUED	013 LE Maintei (01	DI ELO Manaziel M	DI ED ministel W	013 105 Maintei 00	muting	201 Jacking	muting	m (article	m latting	Pilmary 2000 partnert	Pilmar 19 Opartrect	Prinzary 200 poartrect	Picturary 2070 Strattert	Pultunary <mark>206</mark> 0anartract	10 Perfusion 205 Deciminate	76 Perfusion 714 Estationer	00 Perfosion 203 Decimination	4
zenio: rezident	senio: rezident	senio: veciden:	senio: rezident	Technicia n	Technicia n	Technicia D	Technicia D	Technicia D	junio: rezident	junio: rezident	junio: tecident	junio: rezident	junio: rezident	junio: rezident	junio: rezident	junio: rezident	junio: rezident	junio: pezident	Student	Student	Souderc	8 (
3 Ilale	3: Male	2 Hale	2011	3 Hele	21b13	Stall 32	30 Hale	3 Hale	39 Fanals	27 Fenals	3Faale	29 Fenals	27 Fanals	38Fanale	3) Fenals	27 Fenals	3Fmils	3Fmals	21 Fenale	22Fanala	22 Female	1 O
8.	8	8	ā	8	ā	ā	8	8	ā	8	ā	8	8	8	8	8	8	8.	8	8	8	
13	173	1735	17	135	175	1735	173	175	175	173	175	133	135	135	15	135	Ū,	17	1733	1735	13	6 H
l'æ	lïe	18	- B	- le	18	ai ai	- Ing	lïes	-lig	- B	- is	- ie	lis.	-lie	- ie	lie	lïæ	- la	18	lïg	l"e	_
18	1 m	118	a.	i.	a i	a.	1 e	118	ie ie	i.	ia 1	i.	ai i	ai i	ii B	i.	i"	118	118	18	1	1 ~
133	13 ¹	3	133	753	133	in the second se	133	les l	133	133	133	ไรร	133	ไซ	33	ไรร	133	3	133	133	133	-
Tayte	Teste	Tzyte	Tayte	Tayte	Tate	Tate	Tzyte	Tzyte	100	He ¹	is ¹	155	Ha ¹	He ^{rt}	E,	ES 1	E.	is"	is ¹	is ¹	185 T	
<u>8</u> :	<u>8</u> :	2.	3	3	3	3	5	2	3	3	5	3	3	3	2.22	3	<u>\$</u> :	2.	5	3	2.	0
]] Teris	lie.	ligi.	Line	niar.	ligis	ligi:	li și l	ligi.	574	E.	5	B 4	G ⁴	5	5	5	5	ы	1	5	ы	-0
ſ	ų.	F	2	5	F	Ξ	2	2	Γ	Γ.	Σ	Γ.	5	5	F	5	ĩ	ž	Į.	Б.	F	0
8,	8	3	8	8 °	8 °	- - 	8	3	3	8,	33	8,	2	8	8	35	8	8	Ю	в	8	
u"	bi"	Ŀſ*	Ŀſ*	Ŀſ'	67	Ŀſ*	64	64	64	Ŀſ'	Ыť	W,	W,	W,	b/"	W,	W,	u"	W,	ыť	W'	5
ia.	a,	a,	a.	ie"	100	a.	ā	ā	2	E.	a,	ie"	ie.	ie:	a,	ie"	a,	ä,	a.	a.	IC.	
8	8	8	8	8	8	8	22°	8	llajos	llajos	llajos	llarjos	llajos	llarjos	llarjos	llarjos	llarios	llarjos	llarjos	lkjos	llarjos	_
a"	64	b/'	bi"	H.	bi"	ia"	64"	64"	bf"	bi"	bs"	bf'	1d ⁴	12 ⁴¹	10 ⁴¹	μť	12 ⁴¹	6ď		57	H.	-
<u>s</u> ,	\overline{a}_{z}	\overline{a}	ā,	ā,	ā,	\overline{a}^{*}	<u>s</u> .	\overline{a}_{i}	ā,	ā,	\overline{a}^{*}	ā,	ā,	<u>s</u> ,	ā	ā,	<u>s</u> ,	\overline{a}_{i}	liste	liste	liste	
133	33	13	193	ไซ	195	13	133	3	13	la:	135	133	125	133	133	132	131	135	133	13	133	*
Tzyte	leyte	Izite	lizite	lizite	Izite	Izite	Izite	Izite	77	'n	'n	Υ.	'n	77	'n	'n	F	27	ligite	lizite	lizite	
llaybe	llaybe	llaybe	llaybe	3	22	- - 	8	- - -	3	- 33	2	3	33	5	5	33	<u>8</u> :	ā.	3	- 3	<u>8</u> :	1
3	53 ⁴	57	53 ⁴	33	53	53 ⁴	574	574	57 ⁴	53 ⁴	13 ⁴	33	534	33	63 ⁴	84	53 ⁴	57	53 ⁴	51	133 133	*
Ĩ	Ĩe	ie	Ĩŧs	Ĩes	Ĩŧs	Ĩfg	Ĩŧs	Ĩ62	Ĩŧs	Ĩť	Ĩfe	162	Ĩfg	Ĩť	Ĩŧs	Ĩŧs	Ĩe	Ĭe	Ĩŧs	Ĩes	Ĩť	

100 Cribysedic	Mining Radialogy	194 Arthujaedio	100 Strangaedic	🐹 triaņasdie	199 (trianguedic	🐹 ortarjædie	115 Triansedic	115 Crispaedic	117 Setistradio	115 Inthopedic	opering Mi	113 Schupedic	111 Statege	171 Orthogedie)17) Irlayedic	15 Reduingy	155 Radialogy	15 (triangedie	155 Cardinlegy	15 Cardinlegy	Pularizzy 154 Department	1990 Geolugy	Gerpan Ger	134 Ucolugy	Þ
Junco resident	Wedtor	Juncar Resident	Junco Resident	Junur Resulent	Junior Resident	Junite Junite	Junter	Junio	Junia residen	interr	Juniar residence	interr	Junta restient	interr	Junter	Hedico	Hedico	Junto Testien	inter	interr	Securi	20111 Jestien	restient	2011I Testien	0 8
21 Fenale	20 Mala	21 Mala	27 Maile	36 Mala	36 Walls	21 Male	27 Walls	Elen se	36 Walls	22 Mala	26 Mala	22 Fenale	21 Fenale	EIM 22	35 Maile	21 Mala	20 Maila	3E Wale	20 Ha la	Elell 22	51 Mails	IF Fenzie	etell 15	31 Mala	DE
ā	3	ā	æ	æ	æ	ā	æ	æ	æ	8	æ	a "	æ	19	æ	B	B	æ	8	18	æ	ā,	æ	æ	
15	15:	IJ,	ц	IJ,	15	ц	ц	ы	ц	12	15	15	15	12	IJ	17	17	IJ	13:	17	15	175	175	1 Tes	e H
[llayba	[llagion	[llayba	[llagica	[llayba	[Hayba	[llayba	[llayis	[lisyba	[llayise	[Narjoa	[llsyba	[llagha	I llayise	E Magioa	[Haying	3	[Wayba	[llayba	I Magina	I Marjoa	[Wayba	 8"	a. B	 8	_
12	<u>-</u>	<u>1</u> 7	- Fr	<u>F</u>	<u>1</u> 7	l îs	Ē	Ē	17	<u> </u>	175	- 12 ⁴	Ē	<u>1</u>	- Fr	1755	1755	<u>F</u>	13	175	<u>1</u> 7	l îs	<u>F</u>	Ē	~
LES ES	33.	ies tes	: Eg	LES	i es	LES	:Eg	189 189	162	16g	391	.TES	162	188	165	33 <u>-</u>	39 <u>-</u>	: ES	ieg	. Eg	i et Eg	Teg	162	ieg	*
5	lig/be	5	5	5	57	5	5	6	5	lls/be	lla'ye	laybe	llsybe	llsybe	lla'pe	a.	lls/be	lls/be	llaybe	llaybe	lla'yə	llsybe	lisybe	list)e	
8	llarja	8	8	8	8	в	35	35	8	Nacional	llagia	Navia	lagia	llarja	Boying	8	8	llagia	Wayice	llagice	Bayine	ā	8	æ	0
13ª		13	135	5	13 ⁴	E di	E de la companya de l	135	Ш ^а	3	5	5	3	8	8	lizite		3	8	5	5	lipte	liște	lipte	
151	H.	1014	15	18 ⁴	12 ⁴⁴	151	10	105	18 ¹⁴	님	뎕	님	님			님	1.01	님	님	님	님		님	님	Q
is:	is.	ä	is: T	is"	ä	is.	185 T	3. Z	ie i	31	Ĩe	3i	is.	ŝ	ie T	Taybe	Taybe	is.	31	ŝ	is.	ai Bi	is T	ie T	*
8	llajoe	₹	8	8	8	8	8	8	8	llarjoe	llarjos	llayina	llarjos	llaria	lityje	8	8	llayice	llarjo:	llayina	Ecútell	<u>s</u> ,	<u>8</u> °	<u>8</u> ,	~
lligite	37	Marte	Ngite	llagite	llagie	Ngite	Marte	llagite	Norte	в	8	8	80	3	8	<u>1</u> 3°	13°	8	8	37	8	8	<u>B</u> °	E.	_
13 ⁴	10 ⁴	13 ⁴	₩	۶¢	13 ⁴	١d.	67 ⁴	ii ⁴	đ	ig ⁴	12 ⁴	۲,	Ef ⁴	Ш ⁴	۲.	Izte	lizte	67 ⁴	D,	œ4	13 ⁴	₩.	۲ď	₩,	-
Taybe	Taybe	Tzybe	Izybe	Tzybe	Taybe	Taybe	Taybe	Taybe	Taybe	Taybe	Izyte	Taybe	Izyte	Taybe	Taybe	57	57	Izybe	Taybe	Taybe	Taybe	185	162	ies	-
<u>s</u> ,	i≣ª	ā	ā	a,	<u>s</u>	a,	a.	ā	ā	a.	a,	a,	3	1 1 1 1 1 1	ā	lls/ba	a.	ā	ŝ	a.	a,	a,	ā	ā	W
8	3	8	ā	ā	≅*	8	æ	8	8	18	8	8	8	8	ā	8	8	8	3	3	3	8	ā	8	X
132	135	137	13	13 ⁴	13 ⁴	132	13 ⁴	135	122	132	Ĩ2		192	132	25]	3	13 ⁴	132	3	135	53 ⁴]]zēte	Ngite]]zīte	_
ы	is"	Ч	님	Ħ	Ч	H	녑	넘	년		TES	i si	in the second se	L ^{at}	185	뉟	1 ES	281 1	e,	i si	is"	Tayte	Tzybe	Tzyte	-
ie	ie:	ia.	ie:	ie	ie.	ie:	ie:	is"	is.	Ĩe	ä	je.	ig'	Ĩe	ie:	Egbe	ie	ie:	ŝ	18	ia.	ie	Ĩ	is"	÷
8	ā.	8.	ā	<u>8</u> .	<u>8</u> .	8	ā	8	ā,	3	ā	8,	ā	8,	ā	8	8	ā	8.	8.	ā,	8	8.	ā.	B

343 Radialogy	341 Badiclogy	341 Radiclogy	340 Radiclogy	335 Redictory	335 Radiclogy	310 Radialogy	305 Radiclogy	305 Badiclogy	307 Radialogy	305 Radialogy	305 Radialogy	304 Radiclogy	303 Radialogy	302 Badiclogy	301 Radialogy	300 Radialogy	235 Radialogy	238 Radiclogy	297 Radialogy	295 Radialogy	235 Radialogy	294 Radialogy	31 Orthspasdis	21 Orthopaedic	290 Radialogy	285 Radiclogy	285 Radialogy	287 Orthopaedic	285 Orth:pasdi:	
Techniciz n	Techniciz n	Techniciz n	Techniciz n	Techniciz n	Techniciz n	student	student	student	studeut	student	student	student	student	student	student	studeut	studeut	student	studeut	student	student	student	Juzior resident	Juzior resident	Netics	Neiicz	Neticz	Junior Resident	Jucior resident	
12 18 Tale	12 19.7ala	12 12.7ale	iz 13.Tale	iz 11 Jenzle	12 19.7ala	11. Ta le	12. T ale	13. T ale	11. Tale	12.¶ale	1.513	12.¶ala	13. T ale	12. T ale	11. Ta le	21 Fenzle	12. T ale	11 Jenzle	21 Female	12 Female	13 Female	12 Feazle	: I Jenzle	t 26 Fenzle	13 Femile	12 Female	12 Jenzle	t 20Jemzle	18 Female	
125					5	182	182	182	185	<u>1</u> 8	3	<u>a</u> :	185	185	185	18	185	18	18	18	8	B :	3	īg"	185	188	18		5	
Tes	Tes	l Tes	l Tes	lies	Tes	l Tes	l Tes	l Tes	l jes	l les	l Tes	Tes	l Tes	l Tes	l Tes	l Tes	1 Tes	. Tes	l Tes	l Tes	l Tes	Tes	156	156	150	130	1 30	156	150	
1 Tes	l Tes	l Tes	l ïes	1 Tes	l Tes	1 165	l Tes	l Tes	1 Tes	1 Tes	Tes	Tes	1 Tes	1 Tes	1 165	1 Yes	1 Tes	1 Tes	l Yes	Yes	Tes	Tes	0 llate	0 Narte	0 Narte	0 Nathe	0 Narbe	0 Nathe	0 Marte	
1 185	l ïes	l ïes	l ïes	l ïes	l ïes	1 182	1 185	1 185	l ïes	l ïes	l ïes	1.162	1 185	1 182	1 182	l ïes	l ïes	l ïes	1 185	l ïes	["es	1 185	l ïes	l ïes	1 182	1 185	1 165	l ïes	l "es	
105	a	8	8	æ	a :	3	B :	<u>8</u>	ā	ā	ā	ā	ā	a :	a :	ā	ā:	a :	a :	ā	ā	ā	ā	ā	3	3	3	æ	8	
122	5	Tag Tag	Ē,	8	18	Baybe:	eqfall	Haybe	Baile a	Waybe	llayba	Hayba	Hayba	llayba	Baile a	Waybe	Waybe	Waybe	Haybe	llayba	llayba	llayba		8	Waybe	llayba	Haybe -		8	
112	122	112	110	132	122	10 50	221	112	112	251 112 112	112 112 112	251	110	211 211 211 211	100	221	110	132 132	110	110	112 112 112	251	æ	H	Waybe	Waybe	Waybe	8	B	
7±2	122	122	ΪΞ2	122	122	21 1 1 2 1 2 2	122	1:2	152 152	251 1 1 1 1 1 1 1	251 4	25] 4	351 155	251 251	155	155 155	251 155	752 752	351 252	150 4	150 110 110	251 251	150	122	25	25	24	120	152	
F	F	F	F	F	F	150	Teg	Teg	TE2	150 LEG	TE2	leg I	F	Ħ	F	Ħ	F	Ħ	F	F	Ħ	Ħ	Teg	Teg	F	F	F	"Eg	Teg	
5	Б	50	5	10	10	14 182	Teg	183 Tea	TE2	LES ES	Teg	Teg	Teg	TE2	TE2	Teg	TE2	TE2	150	TE2	TE2	TE2	THE B	Teg	TES	Teg	TES TES	Teg	TES	
ieg ieg	Teg	Teg	ĨĘġ	100	162	Teg	168	55	162	Eg.	ieg	169 1	162	ES.	163	Teg	163	183	1931 1931	183 Tes	169 1	55 14	5	5	Tayte	Taybe	Tayloe	50	50	
3	8	Ĩæ	3	12		55 1.4	55 1 4	55 1. 4	8 1. 14		88 1. 14	55 1. at	Tayte	Tayle	Tayle	Tayte	Tayle	Tayle	Tayle	Tayle	Tayle	Tayle	Tayle	Tayle	5	5	20	Tayle	Tayle	
Tayle		Tayte	Tayle			.ajte	.ayie	.ayie	."sjie	."aj:e		. sjie	8	8	8	8	8	8	a	8	8	<u></u> ,	' <i>'</i>	8	8	а, Г.,	8	3	8	
a,	8	50	5	5	5	50	57	57	5	50		57	57	50	5	5	50	57		50	5	57	Tapte	Tarie	Tayte	Tarte	Tarte	Tapte	Tayte	
ä	ä	ŝ	ä	ä	ä	ŝ	1	ŝ	ŝ	a.	ä	a.	Tarte	Tapte	Tayte	Tarte	a.	æ ⁱ	a'	ŝ	a"	ä	ä	ä	8	8	ŝ	ä	8	
Tes	Ĩes	īes	ŝ	18 B	185	jez	les	les	lez	ŝ	ies	ä	Tes	ie:	ies	183 Tes	jes	183	jez	les	ŝ	Ē	18	ä	Tes.	ie:	je:	ŝ	162	
Tes	Tes	Tes	Tes	Tes	Tes	les	Tes	Tes	les	les	Tes	les	Tes	les	Tes	Tes	les	Tes	les	les	Tes	les	Tes	ies	Tes	Tes	les	Tes	les	
les	Tes	Tes	les	Tes	Tes	les	les	les	Tes	les	les	les	les	Tes	185 185	Tes	185	Sel	les	Tes	Tes	165	5	5	les	les	185	10	10	
les	les	les	les	Tes	les	les	les	les	les	les	185 Tes	les	165	les	les	162	185 N	les	165 T	165	les	185	Tes	183	les	les	les	les	les	
a.	<u>7</u> 2"	B	B.	₩.	ā,	B,	₩. 191	B	8	185	8	8 °	8	8 °	₩.	B °	æ*	8	æ	<u>8</u> °	8	<u>تع</u>	3 "	B .	<u>B</u> .	8	33°	3 "	₩.	

ladi:log	Badiclogy 354	353 Badiclogy	352 Badirlogy	Badiclogy 351	350 Badiclogy	Indialogy	Badi:logy	357 Badiclogy	356 Badiclogy	355 Badiclogy	354 Badiclogy	353 Badiclogy	352 Badiclogy	351 Badiclogy	350 Badiclogy	349 Badiclogy	348 Badiclogy	347 Badiclogy	346 Badiclogy	345 Badiclogy	344 Badiclogy	3
			L																			•
U V UEL Carrol per	CT & TEL Callograp her	U & TEI Callograp ber	CT & TEL callograp her	CT & TEL radiograp her	U & IEI callograp her	CT & NAL ratiograp her	CT & TEL railograp ber	CT & IDEE catiograp her	intera	intern	intern	intern	intern	intera	intern	intern	intern	intern	intera	Technicia N	Technicia n	
23 Maie	24 Naie	24 Naie	22 Maie	53 Mile:	9.141 CC	24 Naie	24 Naie	23 Maile	24 Naie	23 Fenale	24 Fenale	22 Fenale	24 Fenale	23 Fenale	22 Fenale	23 Fenale	22 Fenale	23 M ale	22 Ib 1e	29 Noile	29 Noile	-
185	185	185	185	les	ies	Tes	185	ie:	ies	les	les.	ies.	les	les	les	les	les	les	185	185	les	-
l les	l Tes	l Tes	l Tes	18	līe	18	l les	lies	l les	lie	l Tes	l jes	1783	l je	118	lie	l Tes	118	1.165	l "e	l Tes	•
1 Tes	1 Tas	: Tes	1.125	i läs	I Tas	1 132	1.195	1.12	1 135	1 182	1 132	1 185	1 125		1.12	1 132	1 195	1 125	1 105	1 12	132	
1 caybe	1		1	1		;;	1.2	178	3.1	1762	178	17e	31. [31 <u>.</u> [178	158	1762	178	3. []		3.1	
11	12"	12	12	12	Ĩ	12	E ^r	351	132	122 221	35]	25] 25]	122	251 132	201 201 201	122	122	35] 132	35] 35]	132	132	
IB.	ies.	18ª	IB ^a	<u>19</u> °	Es.	10 ⁴	B,	iez Iez	ies.	162	larte	laste	laste	ligite	larte	ligite	ligite	ligite	llarte	llarte	llajte	
ä	ä	ä	ä	ä	ä	ä	ä	ä	Ξ.,	a,	81		а, В,	8	8	3	8	8ª	8	'a"	E,	
Izybe	IE2	In the second se	Ĩŧs	IES 4	Ĩŧs	ĨĘ	124	Teg	Teo Teo	Teg	Teg	122	120	122	International Action of the second se	122	122 122	100	[80 100	Teg	Teg	
8	8	8	*	8	8	8	5	8	8	8	8	8	8	*	*	5	*	*	8	5	8	
5	50	50	50	50	5	5	50	5	J0	J_0	Jo	50	50	5	10	J_0	J 0	50	J0	5	5	-
E8 1	100	100	ies	100	ies Tes	100	184 88	ing to	100 100 100	i es	160	teo teo	ieg teg	ieg Ieg	1 Eg	i et teo	i es	ieg teg	100	125	Teg	I
ā,	ā,	ā:	ធ	ā,	ā,	ā.	ā,	ā,	ā,	Ū,	æ	īg"	12°	ā,	ī3°	Ū,	ū,	ō,	æ	ā,	ā,	
lligite	llapte	llagite	llarte	ligte	ligite	llarte	llspte	llapte	Nyte	Nyte	Narte	Naște	Naște	llarte	Narte	Ngte	Narte	ligite	Naite	Narte	Ngte	-
ie"	is"	13	ia"	ъ	ъ	ъ	5	5	ы	1.4	1	3.	1	5	1	1.4	1.5	3.	1.4	8		
13"	13		II III	llayba	llizyba	llayba	llaybe	llaybe	llzybe	llayba	llayba	llaybe	llayba	llayba	llaybe	llayba	llayba	llaybe	351	135	132	
ie:	105	ies .	ies"	10°	Ē	10°	B,	ies 195	les	185 Tes	les	les	ies	185	185	185 Tes	183	ies Ies	185	ies"	ie:	
5	5	57	50	Tajie	Tayle	Tajie	Tajie	Tajie	Tajie	Tayle	Tajie	Tajie	Tarie	Tayle	Tajie	Tajie	Tayle	Tarrie	a"	a'		
Eg	IE2	ĨEg	Ĩeg	Ĩŧ	Ĩŧg	Eg	10 ⁴	IE2	Teg		Teg					120	120	Teg	Teg	IE2	Ĩeg	
ā.	3 °	æ*	8 "	æ.	7 8"	7 8°	7	Ē	3	B	B.	8	ES.	18	B	121	B	8	B,	<u>a</u> .	æ*	
ä	ä	ä	ä	ä	ä	ia"	ä	is	ing t	3	E.	iet B	igi B	ia"	in a	in t	iez	æ	ŝ	ä	ä	

Chast	Neurosurgery	306 (rthyjzećie	nipatio 38	101 (rthojazóc	ocierátu) 💥	10 (rthy)zetic	oringer 135	10 (rthipattic	379 (tribipatio	00 (rthopaetic	300 (tribipazói c	076 Orthopaetic	375 (tribijazčio	0rthypatic	000 (Inthogastic	372 (tribigascic	371 (tribijazčio	Padiology 00		100 Badiology	Redicing:	60 Balining	Badiology 106	Radio 127	
			-		-	777 1.0	-	-													- 12 / 3		-		
	Junior	Semior Rezident	Senior Resident	Senior Resident	Senior Resident	Senior Recident	Senior Resident	Senior Resident	Iedico	ledico	ledico	Iedioo	Iedico	tedico	tedico	tedico	nedico	cadiograp bec	T & IEE	CT & UEEL codiograp bec	17 ta IIREE Iradiograp Iber	CT & UEE Isoliograp bec	CT & UEE Isslingrap ber	11 k IIRE Dec	
	31 Fenale	34 liale	21 Hale	ii lisie	31 Hale	34 liale	34 Hale	32 Male	22 Ilale	22 Fenale	22 Female	21 Female	23 Female	21 Female	22 Female	23 Female	22 Female	24 Fenale		22 Female	34 Hale	eleil 22	34 lible	22 Male	
	195	in the second se	135	B	135	13 ⁴	133	13 ⁴	13	13 ⁴	13	135	3	13 ⁴	14 135	13 ⁴	[3]	135		57	Ĩs	in a	14	195	
	Teg	Tes	Ĩe	les	Ĩe	Ĭe	Ĩe	Teg	Teg	Teg	162 1	Ĩŧs	39]	1 162	1 162	1 Tes	1 162	1 Tes		1 162	1 Teg	1 168	1 Tee	1 165	
	1 785	1783	1783]es	1 185	1 785	l les	1763	1785	1 785	183	1783	1783	1 183	1 183	1 183	1 783	1785		1 795	1 725	1 195	1 185	193	
	: Teg	: 16	: 60	: le	: Tee	: læ	: le	: le	: Tez	: 162	31 . 1	: [ez	: "B	: Tes	: Tes	: "e	: Teg	: usybe		: naște	: uzybe	: inste	. naybe	: usybe	
	ia"	H.	181	101	12 ¹¹	E ¹	12"	H.	is"	101	i st	is"	1.01	ist.	in i	i aj	is"	is"		6ª	is"	is"	1 8) 10	15	
	133	5	5		Ţģi.]ișie	jāj.	1. Terr	Jæie	Iste	Japie	light	ligite	lişte	135	135	135	[3]		las	135	134			
	<u>a</u> .	ā*	ā,		ā,	<u>a</u> *	8	ā"	8	8	ā,	ā,	ā	8	3	ā	8	<u>a</u> "		ā,	æ	ā	æ	æ	
	8	edisij	lls;be	llsybe	llaybe	ller, be	llaybe	llsybe	lls;be	liste	lls;be	ler, be	lis;be	lis;be	lls;be	lls;be	lls;be	llaybe		llsybe	llsybe	list)e	lls;be	ed/sill	
	Tes	e le	31. 8	162 162	162 Tes	e les	33, 8	le Tes	e Tes	e les	e Tes	e Tes	e Tes	9 Tes	8 Tes	e Tes	e Tes	e le		e	e T	97. 9	e It	e T	
-	13 ⁴	67	ur'	67 ⁴	ur'	67'	14 ⁴	67'	13 ⁴	67	12 ⁴	13 ⁴	57 ⁴	10 ⁴	u"	67 ⁴	17 ⁴	ia*		12 ⁴	67 ⁴	ia"	5	ы	
		193	13	13	la	3	134		183	183	193	183	183	193	193	lez	les	B		<u>.</u>	<u>1</u> 2	E .	ie:	E.	
Ш	3	3	8,	3	5	8	3	3	8	3		<u>8</u> .		3	- 8	æ.	8.	8		ā.	ā.	5	5	ā.	
Ш	ie:	ie	le	le	le	ä	Ĩe	Ĩe	lee	lez			lez	lez	le:	ie:	Egbe	Este		lizyte	lizyte	lizyte	lizyte	lizyte	
Ш	Ha"	5	18 ¹	15"	13"	6 7 '	H."	h,	E ^r	in"	8	H.	in a	18"	is"	E	be Tes	12		8	e. E.	a. B	e. E	19	
Ш	133	135	33	35	13 ⁴	3	135	135	133	135		133	E	135	135	135	133	13		B,	E ²	14	135	1 E	
	8	35		8	35	8		8	35	8	35	8	35	35	35	8	8	8		ā	ā	8	ā	ā	
	5	llst,be	llsybe	llaybe	lls;te	lls;te	lls;te	lls;be	lls;be	llsybe	llaybe	leybe	llsybe	llsybe	lls;be	: lls;be		8		8	5	6	87	5	
	ies 1	be Tes	be Tes	be Tes	be Tes	be Tes	te Tes	be Tes	tes Tes	be Tes	1.2	be Tes	be Tes	sa, aq	be Tes	be Tes	Tes	162		ia"	is.	in t	ies.	Ĩe	
	G ⁴	14	57 ⁴	135	13 ⁴	1 2 ⁴	13 ⁴	1 ⁴	13 ⁴				2 ⁴	97 ⁴	13 ⁴	9 ⁴	2 ⁴	13 ⁴		57 ⁴	E ^r	131	r #4	œ,	
	133	13	183	IB ^a	8	3	183	in the second se	183	183	125		183	192	193	ing a	193	E a		<u>a</u> "	<u>a</u> *	E.	les	58°	

110 01	Color. Str	Bolint.	13 urdeg	112 urilogy	fill urtlogy	flo urlog	Topur 604	LEUNITE <mark>307</mark>	Litunit, Ut	árennire <mark>901</mark>	iteomice <mark>911</mark>	404 Collocary	ALC STITUTE SIT	TENDER 201	TELEVILLE IN	100 Publication	TEUDINE 665	300 Jerzowarzech	397 Jerrosrigery	10 Urthopastic	0tthopastic	10 Orthopastic	0rthopastic	202 Urthopastic	01thopastic	300 ()tthopasitic	
Student	, increa	juccor rescient	Nettoo	Weitco	Weitco	Nettoo	Neico	Sector Resident	Sector Bestdent	Sector Resident	Seccor Resident	Netco	Neico	Weitco	Nei:co	Neitco	Neitco	1 Junior Descient	1 Junior Pescient	Sector Resident	Seccor Resident	Sector Resident	Seccor Resident	Seccor Resident	Seccor Resident	Sector Resident	
21 Jale	33 File	27 Tale	22 Fenale	23 Female	22 Fenals	24 Fenals	23 Femals	31 Femala	34 Femala	32 Female	34 Female	21 Femals	22 Female	23 Female	21 Female	23 Female	22 Femala	27 Fale	33 Female	34 Tale	31 JELe	33 Fale	31 File	34 Fale	34 Fale	32 Fale	•
<u>a</u>	ā	æ	8	æ	ā	8	a.	ā	ā	ā	ā	8	8	æ	8	ā	ā	ā	ā	ā	ā	ā	ā	ā	ā	8	
a.	ā	ī	"e	3.	3.	"si	ie:	ā	ā	ŝ	ā	3	"e	ie:	3	3	a.	ā	ā	ŝ	ā	3	ŝ	ā	3	ā	=
116	116	l Ter	116	116	116	l Tec	116	līe	116	l Ter	l Ter	1 18	116	176	116	116	116	1 Tec	l Ter	1 Tee	311	1 Ter	l Ter	l Tec	l Tec	118	-
31.1	116	1 162	1 162	1 162	1 162	1 162	1 162	15	15	116	l Teg	1 162	1 162	1 162	1 162	1 162	1762	l Teg	l Teg	150	150	1 Tec	[Teg	1 ¹ 62	116	158	
B.	Tes "	3	183	18	100	185	18	a.	3	a.	3ª	105	- 	18	183	3	18		3	Tes "	B.	B.	3	3 *	- B	183	
i ei	182	LES .	Tayte	Taybe	Tzybe	Tzybe	Tzybe	Taybe	Tayle	Taybe	Taybe	Taybe	Taybe	1.00	i et	L et	LES ES	331 8	IE2	a.		Taybe	Taybe	Tayte	Tzybe	Tzybe	
ā	8	ī.	les.	be les	163	183	165	8	8	8	ie:	165	165	8	8	ā	8	8	æ	8	ā.	8	les.	e e	e e	18	
a"	18	in the	145	185 TES	1 HE S	1 Eg	ing at	124	i B	15	1ES	ing the second sec	Jzybe	Jzybe	Japhe	Japte	Jzybe	Tayte	뎕	Jzyte	Tayte	Tayte	Tayte	Jayte	Tayte	Jizybe	•
19	8	8,	3	100	a.	3	a.	<u>8</u> ,	<u>8</u>	ā	ā	ā	190 190	ie Ie	ie ie	100	100	a a	3	8	8	8	8	8		is:	
1 74	Jąte	liște	ii ⁴	122	[12]	EF4	13 ⁴	1 2 ⁴	12 ⁴	Ĩs	Ĩs	12 ⁴	12 ⁴	13 ⁴	134	17 ⁴	13 ⁴	E.	Ĩs.	1 Tes	13 ⁴	Ĩ	Ĩ.	Gf	Ĩs	Ĩ	*
Estisa	ie Ie	e lio	lisy'de	listo:	lls/oa	listo:	a,	ia:	ia.	10	is"	a,	a,	3i	31	Bi	3	a,	ie"	3	a.	a.	a.	ä	a.	ie"	
	195	13	3	3	3		131		132	l'as	Ĩs	132	131	135	I as	13 ⁴	13 ⁴	[as	ľs	las Ist	E ^a	Es.	ľs:	Ĩs	las.	1 1 25	-
ist State	Izbe	Expe	is,	162	39ľ	3.	31	ie	is:	Ĩœ	le	ie:	31	39ľ	391 See	a,	39 ¹	Ĩœ	īe	Ĩœ	ie	ie	ie	ie	le	Ĩŧ	•
E,	E C		195	193	13	18	193	3ª	3	- B	100	13 ²	195	13	- 	133	3	E.	13	3	B	E ^a	E.	3	B ⁴	B,	
er er	Taybe	ie,	i aj	188 188	162	."E2	331 1	ie:	ie:	i et	33.	: ee	i es	162	182 182	: #1 182	:e2	331	391 Teg	331	ie E	180	391 1	391	i ec	ie:	
8	*	llagine	*	*	8	8	8	8	35	*	*	8	8	8	8	8	*	*	*	8	8	8	*	*	*	8	
100	뎕	ES .	i teo	1 ES	182 182	182 TES	ы	ы	ы			ы	H	H		Ħ	H			Taybe	."Iste	Tayte	.Taybe	.Taybe	Jaybe	.Tayle	-
ā.	8	ā	ā,	ā,	8	8	8	8,	8	8	æ	3	8	ā,	ā,	8	ā,	ā	ā	ā	ā	ā	ā	ā	ā	ā,	
a'	ig ⁴	13 ⁴	Eg	12	124	Ш ⁴	13 ⁴	67 ⁴	67 ⁴	ia ⁴	ii'	13 ⁴	13 ⁴	ia ⁴	13 ⁴	11ª	Ш ⁴	ii ⁴	1 14	E ⁴	E ⁴	E ⁴	E ⁴	13 ⁴	Ĩ	13 ⁴	3
's	a,	·3	·3	a.	3	and a second	n B	a.	a,	10	3	'.	ie"	a,	a.	r B	ie"	a.	3	a.	a.	a.	3	ā	a.	a.	10

N.	8	-	9	-	9	5	Ċ,	Ċ.	žų 3	600 1	0.0	100 1	100	diff.
		¥		퇅	H	ur H		₿- U	厚证	٩P	١F	١P	١F	١F
		ili Q			10	12	2	W.	20		ile.			
		295*	211.4	215*	215	211.4	215	225	595 ⁴	×**	295*	200	215	225*
		67	ur,	ur,	6.P	67	ыr	ы г	ur,	ыr	679	ыr	ыr	ur,
				4 9	1 1		.		4 5.	÷.	1 11			
-		int ^a	in."	Int ^a	in"	int*	ine*	in"	Sec.	in"	in."	in"	in"	in.
		4 8	5 5	5 5'	1 1	$\overline{\mathbf{q}}\overline{\mathbf{x}}^{\dagger}$	55	52	44	44	$\overline{48}^{\prime}$	42 1	1 5	55
		i	6.7°	6.7°	6.71	67	67	6.7*	6.5*	аr.	霊	霏	œ۲.	靀
-		325*	275"	215*	275*	28.4	215"	225.4	275.4	225"	225	225*	275"	225
		5 2	4 8	5 8'	5 8 ¹	5 5	4 8	52	44	5 5	TT	52 '	5 2 ¹	44
		6.7*	6.7*	6.7*	6.7*	i.:7*	6.7*	1.7*	6.7*	6.7*	1.7*	67	67	1.7
	-	275*	275"	225*	$2\pi^4$	$2\pi^{\alpha}$	$2\pi t^{\alpha}$	5	5	225°	int"	275"	$2\pi^{\rm st}$	375*
		5	5	÷3	5	5	5	44	201	÷3	5	53	5	58
			- 2	2.00	2.09	2.07	2.0	6.7*	6.7*	21/2	1.10	100	~ 2	1.17*
-	-	$2\pi^{\alpha}$	$2\pi^{a}$	$2\pi^{4}$	275*	\mathcal{H}^{a}	$2\pi^{a}$	57	5	275"	$2\pi^4$	$2\pi^{\alpha}$	$2\pi^{a}$	78.4
		52	44	÷2	<u>77</u>	¥8.	44	52	44	<u>78</u>	44	44	48	¥¥
	-	6.7*	6.6°	6.7°	6.7*	6.5*	6.7*	-97F	1.5*	i.rf*	677	6.7*	67	6.7
-		**	82	81	-	87	-	87	-82	-	**	-	87	87
		¥¥.	$\overline{v} v$	¥8	52	58	<u>55</u>	275.1	412	<u>55</u>	4 12	\overline{vv}	¥8	201
-		i.;7*	6.F*	1.17*	i.:7*	127°	6.7*	1.17*	1.5*	Ъ₽	i.;7*	6.7*	6.7*	i.r
		$2\pi^{\alpha}$	275.4	275"	275"	$2\pi^{\alpha}$	$2\pi^{\rm s}$	28.4	275.1	$2\pi^{\alpha}$	$>\pi^{a}$	\mathcal{H}^{α}	$2\pi^{a}$	775**
		52	58	58	58	52	÷2	52	52	58	÷**	$\overline{\nabla X}^{(1)}$	<u>48</u>	58