ISSN: 0975-3583, 0976-2833 VOL12, ISSUE 7, 2021

RESEARCH AVENUES AND UP-GRADATION OF SKILLS FOR ORAL PATHOLOGY & ORAL MEDICINE POST GRADUATES IN POST-PANDEMIC PERSPECTIVE

Authors: Sherin Nedumpillil[1], Ravi Seth[2], Sunita Pathak[2], Simi Thankappan[3]

Author Affliations:

[1]Government Dental College, Dibrugarh, Assam

Email: drsherinclt@yahoo.co.in

[2]Rama Dental College Hospital & Research Centre, Rama University, Mandhana, Kanpur, Uttar Pradesh- India 209217

[3]Geetanjali Dental and Research Institute, Udaipur, Rajasthan.

INTRODUCTION

Oral Pathology and Oral Medicine specialists undergoes rigorous training in diagnosing and treating maxillofacial diseases. The Covid-19 pandemic has had profound effect on dentistry worldwide. This has led to unprecedented academic and economical damage to the profession, recovering from which might take a few years. After post-graduation, most OP or OMDR specialists usually prefers to join academics in private or govt. institutions. The third option is research, and that is the focus of this article.

RESEARCH AFTER MDS

There are various projects under Indian Council of Medical Research (ICMR) and institutes under Department of Health Research (DHR) (Table 1, 2). Most of these research/scientist/project jobs require a basic MBBS/BDS/M.V.SC (Veterinary science) qualification, or a degree in life sciences (microbiology, biotechnology etc). MDS candidates are preferred to BDS for direct recruitment to most positions.[1]

Desirable Skill-Sets and Experience for Researcher /Scientist in National Institutes

1. **Experience in Conducting Drug Trial/Clinical Research:** Hands-on experience in all type of evidence based studies, from basic in-vitro research to Randomized Clinical Trial (RCT) is preferred. [2,3]

a) Scientific Publications in Peer Reviewed Journals indexed by major bibliographic and citation databases such as Pubmed/MEDLINE, Elsevier Scopus, EMBASE and Web of Science.

a) **Publish Original Research** (Most preferred article type that holds value in academic publishing)

b) **Systematic Reviews (SR) and Meta-analysis (MA):** Always register your SR/MA in sites like PROSPERO (International Prospective Register of Systematic Reviews) or

ISSN: 0975-3583, 0976-2833 VOL12, ISSUE 7, 2021

Cochrane Database to prevent duplication of work. Follow PRISMA 2020 guidelines (Preferred Reporting Items for Systematic Reviews and Meta-Analyses). [4]

c) Publish in Journals with High Impact Factor

d) Beware of Publishing in Predatory Journals[5]: Check Beall's list and criteria for predatory journals identification

e) Publish as First Author or Corresponding Author

2. **Critical Appraisal of Scientific Literature:** Journal clubs, as a part of PG curriculum should be reinforced in critical appraisal thus inculcating research interest among students.
3. **Research and Scientific Report Preparation starting from MDS training**
4. **Evidence-Based Medicine:** SR and MA are considered the "gold standard" in evidence based medicine, followed by RCTs, then Cohort studies and case–control studies. Whenever possible, conduct level 1 evidence based studies. [2]
5. **Writing Standard Operating Procedures (SOPs):** SOP writing can be learnt from PG training itself, like 'SOPs of department staff responsibilities', 'SOPs for study subject recruitment', 'informed consent and confidentiality for patients', and 'reporting Adverse Events (AE) and Serious Adverse Events (SAE)' in case of drug trials and devices.
6. **Good Clinical Practice (GCP) Guidelines:** There are 13 core principles of ICH-GCP including Declaration of Helsinki, maintaining confidentiality and well being of patients, and getting Institutional Ethics Review Board (IERB) approval. A training in GCP helps in easing the career to research.
7. **Business Intelligence Tools In Healthcare:** Healthcare business intelligence (BI) tools are not popular in dentistry but widely used in medical healthcare. BI tool tracks patient files and financial records in hospitals and clinics, organizes and analyzes data. One can get training in apps like Power BI, Sisense, Tableau and Qlik Sense according to the specific job.
8. Working Knowledge of Statistical Software like SPSS (Statistical Package for the social science, IBM), STATA and, programming languages like R and PYTHON. MATLAB is also helpful in analysis.
9. **Additional/Advanced Clinical and Laboratory Experience for Dental specialists**

a) Saliva Sample Collection

b) Viral Diagnostics (Polymerase Chain Reaction-based Methods and ELISA)

c) Training in Handling Biological Specimens with theoretical knowledge of Biosafety levels and bio-safety cabinets desirable.

ISSN: 0975-3583, 0976-2833 VOL12, ISSUE 7, 2021

d) Microbiological Culture (basic lab procedures)

e) Advanced Diagnostic Techniques like DNA isolation, Gel-based techniques, DNA microarrays, and microbiomics, metagenomics and DNA sequencing in Next Generation sequencing (NGS) are preferred.

10. **Additional Skills**: Local language with good communication skills.
11. **Certification** from Government of India (SWAYAM Central) to private sites (Coursera, Massive Open Online Courses (MOOC), BioTecNika that offer certification courses.

References:

1. Main.icmr.nic.in. 2021. Career Opportunity | Indian Council of Medical Research | Government of India. [online] Available at: <https://main.icmr.nic.in/career-opportunity> [Accessed 1 October 2021].
2. Manja V, Lakshminrusimha S. Epidemiology and Clinical Research Design, Part 1: Study Types. Neoreviews. 2014 Dec 1; 15(12):e558-e569.
3. Gowri S, Kannan S. Clinical trials in dentistry in India: Analysis from trial registry. Perspect Clin Res. 2017 Apr-Jun; 8(2):95-99.
4. Page MJ, McKenzie JE, Bossuyt PM, Boutron I, Hoffmann TC, Mulrow CD et al. The PRISMA 2020 statement: an updated guideline for reporting systematic reviews. BMJ. 2021 Mar 29; 372:n71.
5. Beallslist.net. 2021. Beall's List – of Potential Predatory Journals and Publishers. [online] Available at: <https://beallslist.net/> [Accessed 1 October 2021].

LEGENDS

TABLE 1: Permanent/Temporary Scientist positions at ICMR

ICMR Positions	No: of posts	Age Limit*
Scientist 'G'	29	≤ 52 years
Scientist 'F'	03	≤ 52 years
Scientist 'E'	78	≤ 50 years
Scientist 'D'	81	≤ 45 years
Scientist 'C'	224	≤ 40 years
Scientist 'B'	422	≤ 35 years

TABLE 2: Temporary Research Positions in Various National Institutes

Research/Project positions (3months-one year duration)	**National institute**
Scientist B (≤35-40 years) **Scientist C**	All Indian Institute of Medical Sciences (AIIMS), all institutes National Institute for Cancer Research and Prevention, (NICRP), Noida

ISSN: 0975-3583, 0976-2833 VOL12, ISSUE 7, 2021

(≤35-40 years) **Research Scientist I & II Medical** (≤40 years) **Consultant: Scientific-Medical** (≤40 years) **Research associate** (≤35-40 years) **Junior Reserch Fellow** (≤28 years) **Senior Researh Fellow** (≤ 35 years)	National Agri-Food Biotechnology Institute (NABI), Punjab Translational Health Science and Technology Institute (THSTI), Faridabad National Centre for Diseases Informatics and Research (NCDIR), Bengaluru National Institute of TB and Respiratory Diseases (NITRD), New Delhi National Institute of Mental Health & Neurosciences (NIMHANS), Bengaluru National Institute of Biomedical Genomics (NIBG), west Bengal National Institute of Pathology (NIP), New Delhi National Institute of Malaria Research (NIMR), New Delhi National Centre for Cell Science (NCCS), Pune Jawaharlal Institute of Postgraduate Medical Education and Research (JIPMER-VRDL), Pondicherry National Institute of Cholera and Enteric Diseases (VRDL-NICED), Kolkata Atal Bihari Vajpayee Institute of Medical Sciences (VRDL-ABVIMS), New Delhi

- 5 years age relaxation (SC/ST/OBC)
- 2 years age relaxation (women)
- Salary as per 7th CPC or individual institute guidelines