

Chapter 3

Data Interpretation & Analysis

3.0 Introduction

This chapter on analysis of the data aims to analyse the information obtained from the survey of ICMR's permanent institutes and Regional medical research centres. The analysis is done in the order of and according to the research questions posed in the questionnaire. Answers to these research questions are attempted with the information obtained from the responding ICMR's permanent institutes and Regional medical research centres.

3.1 Overall Analysis

For analytical purposes as well as for meaningful comparison and consideration, the ICMR's 21 Permanent Institutes and 6 Regional Medical Research Centers all over the India were classified and examined in distinct groups, which are as follows:

(a) Communicable diseases group

1. National JALMA Institute for Leprosy & Other Mycobacterial Diseases (NJILMD), AGRA
2. Tuberculosis Research Centre (TRC), CHENNAI
3. National Institute of Malaria Research (NIMR), DELHI
4. Centre for Research in Medical Entomology (CRME), MADURAI
5. Enterovirus Research Centre (ERC), MUMBAI
6. Rajendra Memorial Research Institute of Medical Sciences (RMRIMS), PATNA
7. Vector Control Research Centre (VCRC) ,PONDICHERRY
8. National Institute of Virology (NIV), PUNE
9. National AIDS Research Institute (NARI), PUNE
10. National Institute of Cholera and Enteric Diseases (NICED), KOLKATA

11. Regional Medical Research Centre, Dibrugarh
12. Regional Medical Research Centre, Port Blair
13. Regional Medical Research Centre, Bhubaneswar

(b) Reproductive Health and Nutrition group

1. National Institute for Research in Reproductive Health (NIRRH), MUMBAI
2. National Institute of Nutrition (NIN), HYDERABAD
3. National Centre for Laboratory Animal Science (NCLAS),HYDERABAD
4. Food and Drug Toxicology Research Centre (FDTRC), HYDERABAD
5. Regional Medical Research Centre, Jabalpur

(c) Non-Communicable diseases group

1. National Institute of Epidemiology (NIE), CHENNAI
2. Regional Medical Research Centre, Belgaum
3. Institute of Cytology and Preventive Oncology (ICPO), NOIDA
4. Desert Medicine Research Centre, Jodhpur

(d) Basic Medical Sciences group

1. Institute of Pathology (IOP), DELHI
2. Institute of Immunohaematology (IIH), MUMBAI
3. Genetic Research Centre, MUMBAI

(e) Environmental & Occupational Health group

1. National Institute of Occupational Health (NIOH), AHMEDABAD

(f) Medical Statistics group

1. National Institute of Medical Statistics (NIMS), DELHI

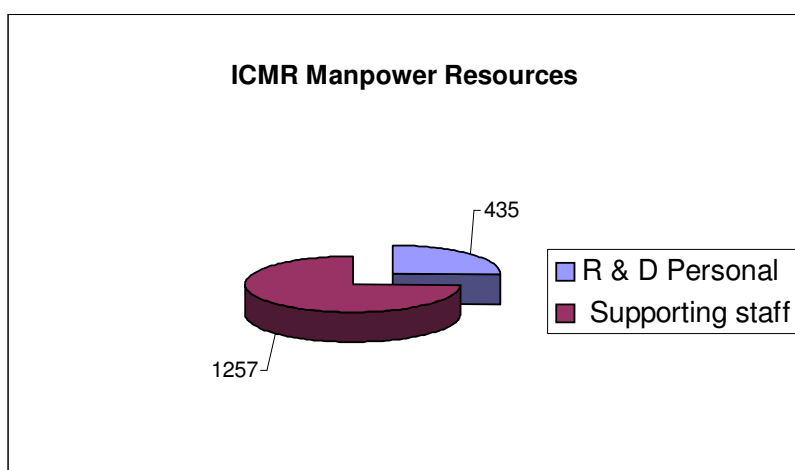
However, based on the available data the following ICMR's Permanent Institutes and Regional Medical Research Centers were examined under distinct groups.

1. National JALMA Institute for Leprosy & Other Mycobacterial Diseases (NJILMD), AGRA
2. Tuberculosis Research Centre (TRC), CHENNAI
3. National Institute of Malaria Research (NIMR), DELHI
4. Centre for Research in Medical Entomology (CRME), MADURAI
5. Rajendra Memorial Research Institute of Medical Sciences (RMRIMS), PATNA
6. National AIDS Research Institute (NARI), PUNE
7. National Institute of Cholera and Enteric Diseases (NICED), KOLKATA
8. Regional Medical Research Centre, Dibrugarh
9. Regional Medical Research Centre, Port Blair
10. Regional Medical Research Centre, Bhubaneswar
11. National Institute for Research in Reproductive Health (NIRRH), MUMBAI
12. National Institute of Nutrition (NIN), HYDERABAD
13. National Centre for Laboratory Animal Science (NCLAS), HYDERABAD
14. Food and Drug Toxicology Research Centre (FDTRC), HYDERABAD
15. National Institute of Epidemiology (NIE), CHENNAI
16. Regional Medical Research Centre, Belgaum
17. Institute of Pathology (IOP), DELHI
18. Institute of Immunohaematology (IIH), MUMBAI
19. National Institute of Occupational Health (NIOH), AHMEDABAD

3.2 Manpower

The 19 ICMR labs out of 27 labs possess 435 R&D personal/scientists of diverse competence in the country who have demonstrated their ability and skills in meeting challenges for the development of the country's medical system. The figure 3.1 below represents the Manpower profile of the 19 ICMR Laboratories from whom data in terms of R&D personnel/scientists and supporting staff could be obtained.

Figure 3.1



The table-3.1 gives indicative figures for group wise comparative analysis, of the manpower of the 19 ICMR laboratories, in terms of R&D personnel/scientists and supporting staff.

Table 3.1

Group-wise Distribution of Manpower Profile of 19 ICMR labs

Groups	R&D Personal	Supporting Staff	Total
Communicable Diseases	217	918	1135
Reproductive Health and Nutrition	142	203	345
Non- Communicable Diseases	18	73	91
Basic Medical Sciences	46	44	90
Environmental & Occupational Health	12	19	31
Statistical Data	NA	NA	--

Total	435	1257	1692
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3.3 Exportable R&D Service

The ICMR laboratories, over the years have acquired expertise and recognition for providing range of R&D services, which meet international standards. The group wise comparative list of the significant ones is given in table-3.2.

Table 3.2

Group wise Distribution of R&D services of the laboratories

S. No.	Group	R&D Services
1.	Communicable Diseases	<ol style="list-style-type: none"> 1. Testing 2. Training 3. Consultancy services 4. Surveys 5. Studies 6. Clinical Trials 7. Supply of Information
2.	Reproductive Health and Nutrition	<ol style="list-style-type: none"> 1. Testing 2. Training 3. Consultancy service 4. Surveys 5. Studies 6. IPR services 7. Contract Research 8. Technology Transfer 9. Specialized facilities / services 10. Clinical Trials 11. Supply of Information/database

3.	Non- Communicable Diseases	<ol style="list-style-type: none"> 1. Studies 2. Training 3. Consultancy services 4. Contract Research 5. Surveys 6. Supply of Information/database
4.	Basic Medical Sciences	<ol style="list-style-type: none"> 1. Consultancy services 2. Training 3. Contract Research 4. Technology Transfer 5. Specialized facilities / services 6. Training certification
5.	Environmental & Occupational Health	<ol style="list-style-type: none"> 1. Testing 2. Training 3. Consultancy services 4. Surveys 5. Studies 6. Contract Research 7. Technology Transfer 8. Specialized facilities / services 9. Clinical Trials 10. Supply of information / Database
6.	Medical Statistical Data	NA

3.4 Major Core Competencies

Towards a first step of identification of exportable R&D services from the ICMR system, key areas of core competencies in ICMR laboratories were identified. The Group wise core competencies of the laboratories of the ICMR are given below in following table 3.3:

Table 3.3

Group wise Distribution of core competencies of the laboratories

S. No.	Group	Area of Core Competency
1.	Communicable Diseases	<ol style="list-style-type: none">1. Microbiology2. Immunology3. Molecular Biology4. Epidemiology5. Clinical Trials
2.	Reproductive Health and Nutrition	<ol style="list-style-type: none">1. Contraceptives2. Infertility & Reproductive Disorders3. Menopause & Osteoporosis4. Reproductive Tract Infections5. Maternal & Child Health6. Adolescent Reproductive health7. Field Studies8. Clinical Studies9. Endocrinology10. Lipid Chemistry11. Animal house12. Extension and Training13. Pre-clinical toxicology of drugs and foods.
3.	Non- Communicable Diseases	<ol style="list-style-type: none">1. Field Epidemiology Training Programme (FETP)2. Research studies/surveys

		<ul style="list-style-type: none"> 3. Clinical trials 4. Consultancy in Epidemiology and Biostatistics
4.	Basic Medical Sciences	<ul style="list-style-type: none"> 1. Histopathology 2. Molecular Biology 3. Electron Microscopy 4. Immunology/Immunohistochemistry 5. Cell Biology / Tissue Culture / Hybridoma 6. Cytopathology 7. Hemoglobinopathies 8. Hemostasis 9. Blood group serology 10. HLA and cytogenetics
5.	Environmental & Occupational Health	<ul style="list-style-type: none"> 1. Occupational Medicine research 2. Occupational Hygiene research 3. Environmental assessment 4. Psychology

3.5 Accreditations, Certifications, Collaborations and Patents

The 19 ICMR Laboratories (including 15 permanent institutes and 4 research centres) have various Accreditations, Certifications, Collaborations and Patents for bilateral cooperation in R&D not only in India but also abroad by any Indian entity. The summary of this cooperation's in numbers is shown in table -3.4

Table- 3.4

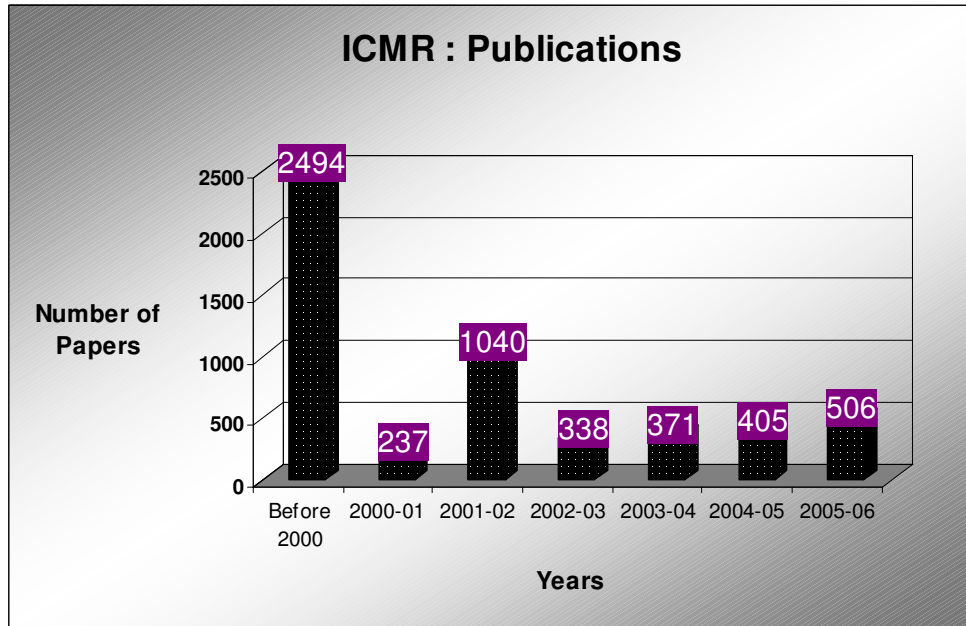
Groups	Accreditations	Certifications	Collaborations	Patents
Communicable Diseases	6	13	N-74 I-34	10
Reproductive Health and Nutrition	4	3	N-61 I-16	NIL
Non-Communicable Diseases	NIL	NIL	N-8 I-1	NIL
Basic Medical Sciences	3	NIL	N-4 I-3	3
Environmental & Occupational Health	NIL	NIL	I-1	NIL
Total	13	16	201	13
where, N-National ,I- International				

The preliminary analysis of these data demonstrates that ICMR labs are fairly advanced in performing these activities. A strong administration and awareness is a necessary condition for attracting business and industry for seeking know-how and R&D services from ICMR system.

3.6 Papers

The following figure 3.2 represents the total number of 19 ICMR Laboratories publications as a whole for before 2000 and up to 2005-06:

Figure 3.2



As it is observed, that there is a gradual increase in the number of papers published from 2002-03 to 2005-06 for the ICMR system as a whole.

The table-3.5 shows the number of papers published by ICMR Laboratories according to the different groups. It shows that the Communicable diseases group contributed to the maximum number of papers published in all the years. The Environmental & Occupational Health group comes second in terms of contribution to the papers publications and other groups contribute average paper publication.

Table -3.5

Year	Communicable Diseases	Reproductive Health & Nutrition	Non-Communicable Diseases	Basic Medical Sciences	Environmental & Occupational Health	Total
Before 2000	1590	67	92	154	591	2494
2000-01	141	30	6	31	29	237
2001-02	941	34	4	41	20	1040
2002-03	213	26	3	66	30	338
2003-04	256	39	4	36	36	371
2004-05	264	38	4	67	32	405
2005-06	308	101	12	48	37	506
Total	3713	335	125	443	775	5391

The analysis of publication profile of ICMR labs was considered essential to throw light on the areas of strength in relation to possible R&D services being offered by ICMR labs. A direct correlation between the two could not however be derived. But it is evident that a good publication record is a reflection of productivity of ICMR labs. An increase of publications over time shows that productivity of ICMR labs has been on the rise in recent times.