



Arogya Karnataka

**Dept. of Health and Family Welfare and
Medical Education,
Govt. of Karnataka**

Report of the Sub-Committee on

**Human Resource Planning,
Development and Strengthening**

June 2021

**Report of the Sub Committee on
HUMAN RESOURCE PLANNING, DEVELOPMENT AND
STRENGTHENING**

for

**Arogya Karnataka
Department of Health and Family Welfare
and Medical Education,
Government of Karnataka**

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Expansion of Abbreviations

Abbreviation	Expansion
ADR	Adverse Drug Reactions
AMR	Antimicrobial Resistance
CHC	Community Health Centre
DCI	Dental Council of India
DRP	District Residency Programme
GNM	General Nursing and Midwifery Course
GGH, Chennai	Government General Hospital, Chennai
HLEG	High level Expert Group
HHR	Health Human Resource
MOU	Memorandum of Understanding
NAAC	National Accreditation Assessment Council
NEET	National Eligibility cum Entrance Test
NIMHANS	National Institute of Mental Health and Neurosciences
NMC	National Medical Commission
NITI Aayog	National Institution for Transforming India Aayog
PCTRC	Poison Care, Training and Research Centre
Pharm D	Doctor in Pharmacy
PG	Post Graduate
PHC	Primary Health Centre
PPP	Public Private Partnership
PSUs	Public Service Undertakings
RGUHS	Rajiv Gandhi University of Health Sciences
SDGs	Sustainable Development Goals
UHC	Universal Health Coverage
UG	Under Graduate
WHO	World Health Organisation

VISION GROUP KARNATAKA
Dept. of Health & Family Welfare and Medical Education, Government of Karnataka
Report of the Sub Committee on
HUMAN RESOURCE PLANNING, DEVELOPMENT AND STRENGTHENING

Preface

The Department of Health and Family Welfare and Medical Education, Govt. of Karnataka, formulated a Vision group to develop a much needed road map for strengthening Health Systems program in the state. The formation of Vision Group by the State Government was timely and a positive step towards bringing out changes in the health sector to fulfill the aspirations of the people on the one and on the other to reach the goal of achieving universal health coverage (UHC), and also the Sustainable Development Goals (SDGs). Although Karnataka has made significant progress in the health sector, there are certain areas which need attention including policy decisions. The Vision group formed several thematic subcommittees to review and recommend policy issues to the Government. One of them was the thematic Subcommittee on Human Resource Planning, Development and Strengthening, for which I was designated as the Chairman, and Dr. S. Pruthvish (former Prof. Head, Dept. of Community Medicine, MS Ramaiah Medical College) as Convener. Members for this Subcommittee were drawn from Medical, Dental, Nursing, Pharmacy, Physiotherapy and Allied Health Sciences faculty with considerable experience in their respective domains for a quick situation analysis and preparation of the report (Annexure-II). The group's work and the recommendations were based on the Terms of Reference (Annexure-III).

The Subcommittee focused on Education and Training of Medical, Dental, Nursing, Pharmacy, Physiotherapy and Allied Health Care Professional faculty and their deployment and utilisation in Karnataka. It held four meetings. The members of the Subcommittee collected or pooled data from various sources (NITI Ayog, National and State level available data, Universities – RGUHS, Deemed to be Universities and State Private Universities in Karnataka and from NIMHANS, regarding the various courses conducted by them. Where necessary the Subcommittee consulted teachers, administrators, health officials and made presentations during the subcommittee meetings. A structured check list was used to collect data for situation analysis. The present report is in the form of General and Specific recommendations pertaining to the various faculties mentioned already.

I thank the Hon'ble Minister for Health and Family Welfare and Medical Education, Govt. of Karnataka, and the Chairman of the Vision Group of Karnataka, for giving us this opportunity. I also thank the Convener, the Subcommittee members for their contribution and all others who directly or indirectly helped us in preparing the report.

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Chairman, Subcommittee on Human Resource Planning, Development and Strengthening,
Arogya Karnataka,
Vice Chancellor, Rajiv Gandhi University of Health Sciences, Karnataka, Bangalore.

Acknowledgement

The Chairman, Convener and members of the Subcommittee on Human Resource Planning, Development, Strengthening, Arogya Karnataka express immense thanks to for the opportunity provided to contribute to this important endeavor to:

- Hon'ble Minister of Health and Family Welfare and Medical Education, Government of Karnataka, Additional Chief Secretary and Principal Secretary, H and FW. Principal Secretary, Medical Education, Directors, Dept. of H&FW, Government of Karnataka.
- Chairman, Dr. G. Gururaj, former Director, National Institute of Mental Health & Neurosciences, Bangalore, and Convener, Dr. Sathish Babu, Consultant Endocrinologist, Sparsh Hospitals, Bangalore, Karnataka.
- Vice-Chancellors and Registrars of following Deemed to be Universities:
 1. BLDEA Academy of Higher Education & Research, Bijapur.
 2. JSS Academy of Higher Education & Research, Mysuru.
 3. KLE Academy of Higher Education & Research, Belagavi.
 4. Manipal Academy of Higher Education & Research, Manipal.
 5. NITTE Academy of Higher Education & Research, NITTE Education Trust, Mangalore.
 6. Sri Devaraj Urs Academy of Higher Education & Research, Tamaka, Kolar.
 7. Sri Siddhartha Academy of Higher Education & Research, Tumkur.
 8. Yenopoya Academy of Higher Education & Research, Mangalore.
- Vice Chancellors and Registrars of following Private Universities:
 1. Garden City University, Bangalore
 2. MS Ramaiah University of Applied Sciences, Bangalore
- Director, National Institute of Mental Health and Neurosciences, Bangalore.
- Faculty members from Government and Private Medical, Dental, Nursing, Pharmacy, Physiotherapy and Allied Health Educational Institutions and Experts from Private Health Sector in Karnataka
- Dr. S. Raghunathan, Prof. of Medicine, Institute of Internal Medicine, Chief, Poison Control, Training, & Research Centre, Madras Medical College, Chennai.
- Secretariat, Rajiv Gandhi University of Health Sciences, Bengaluru, Karnataka.

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Introduction

The Department of Health and Family Welfare and Medical Education, Govt. of Karnataka, formulated a Vision group to develop a much needed road map for strengthening Health Systems program in the state. The Vision group formed several thematic subcommittees to review and recommend policy issues to the Government. One of them was this Subcommittee on Human Resource Planning, Development and Strengthening. The Subcommittee focused on Education and Training of Medical, Dental, Nursing, Pharmacy, Physiotherapy and Allied and Healthcare Professional faculties and their deployment and utilisation in Karnataka. It held three meetings. In addition, the members of the Subcommittee collected or pooled data from various sources (NITI Ayog, National and State level available data, Universities – RGUHS, Deemed to be Universities and State Private Universities in Karnataka and from NIMHANS, regarding the various courses conducted by them. Where necessary the Subcommittee consulted teachers, administrators, health officials and made presentations during the subcommittee meetings. The present report is the outcome.

It is presented in five parts, Section-I, consists of Executive Summary, Section-II, is Situation Analysis and Background, Section III, is the operative part detailing the main Recommendations in the form of General and Specific recommendations, the latter pertaining to the faculties of Medical, Dental, Nursing, Pharmacy, Physiotherapy, Allied and Healthcare Professional. Section IV, describes the Operational Considerations and Section V, is for References and Annexures.

Section I - Executive Summary

General Recommendations

1. Manpower Study of Health Human Resource (HHR) in the State of Karnataka

Karnataka can be proud to be called as an “educational hub” in India. Details of human resource output with respect to Medical, Dental, Nursing, Physiotherapy and Allied Sciences and Pharmacy in Karnataka is outlined in Annexure IV-B and Annexure IV-C, bears testimony. However, how this trained workforce is utilized in the State in various health care facilities is an important matter to be considered because in spite of training a large number annually, there is shortage of manpower in health care facilities.

Therefore, there is an urgent need (i) to conduct HHR study in order to determine the existing workforce of all categories of Health Care Professionals both in Government, Public Sector Undertakings (PSUs) and Private sector and (ii) to estimate by Gap analysis the existing gap between the need and availability of Health Care Professionals in the three sectors mentioned above.

The above mentioned two studies would help to take such steps as necessary to fill the gaps in a phased manner to fulfill the various health goals in the next 5 years. The above studies may also help in optimal utilization of the existing health care professionals work force avoiding either non utilisation or suboptimal utilisation of trained human resource.

2. Establishment of Quality Monitoring and Enhancement Cell (QUMEC)

Need has arisen for establishment of a QUME cell in view of the rapid increase in the number health professional educational institutions, increase in number of admissions, and somewhat skewed ratio in postgraduate intake *vis a vis* undergraduate intake (Annexure IV-B Tables 1 to 7, IV-C Tables 1 to 11).

The quantitative increase needs to be balanced with improvement in the quality of education too, as maintenance of health and well-being of people is an important responsibility of educational institutions, health science/medical Universities and the State.

Therefore, the Subcommittee urges the Government of Karnataka to establish a Quality Monitoring and Enhancement Cell at the earliest. The government could recommend all the Medical/Health sciences Universities including NIMHANS to establish such cells too.

3. Pharmacovigilance, Drug Monitoring and Hospital Formulary Unit, Antimicrobial Resistance Policy and Poison Care, Training and Research Centre

3.1. Pharmacovigilance, Drug Monitoring Unit & Hospital Formulary Unit

It is imperative to exercise vigilance over the use drugs as a safety measure so that not only medical errors are reduced [1], but also monitor Adverse Drug Reactions (ADR), provide after care to ADR, report ADRs and maintain a Registry, and exchange information within the hospital and among the hospitals. In addition, it is essential to prepare Hospital Formulary for every hospital. It will help in standardization of procurement of essential drugs. It will

also help in Rational Drug use and reduction of expenditure by hospitals on procurement of drugs.

The Subcommittee requests the Government of Karnataka to establish at the earliest Pharmacovigilance and Drug Monitoring Centers in each of the teaching, non-teaching (both government and privately owned) and District Hospitals.

3.2. Antimicrobial Resistance Policy:

Antimicrobial Resistance (AMR) is one of the greatest challenges of 21st century. The Director General of World Health organization said "AMR is a slow tsunami that threatens to undo a century of medical progress". An estimated annual global 700,000 deaths have occurred. It is forecasted that about 10 million deaths and economic costs up to \$100 trillion may happen by 2050 [2]. Among the many reasons for development of drug resistance include over or indiscriminate prescriptions of antibiotics, inappropriate use in agriculture, poultry, veterinary purposes, contamination by pharmaceutical manufacturing industry where large quantities of untreated effluents containing antimicrobials are released into the environment. It may be mentioned here that India is one of the largest manufacturers of pharmaceuticals globally.

There are examples of successful adoption of Antimicrobial Resistance policy in countries such as Peru, the United Kingdom (UK) and European Union (EU) [2].

Therefore, it is essential to formulate Antimicrobial Resistance Policy by the Government of Karnataka urgently with a multi-sectoral approach involving, medical/health, agriculture, veterinary, environment, drug controlling authority and Pharmaceutical industry. Patient education, change in prescriber behavior, restrictions on over the counter sale, patient safety [1], are some of the steps to be considered in the policy.

3.3. Poison Care, Training and Research Center:

A large number of deaths take place in India due to poisoning by consumption of pesticides, snake and other bites and over dosage of drugs. These are emergencies and need immediate appropriate management at hospitals and other health facilities.

In order to provide suitable care and also develop trained health care personnel establishment of Poison Care, Training and Research Centre (PCTRC) is recommended by the Subcommittee.

3.4. Utilisation of Pharm.D. Professionals:

A number of Pharm. D., (Doctor in Pharmacy) qualified personnel, well versed Pharmacovigilance, drug monitoring, rational drug prescription and use, are available who can be gainfully employed in each of the teaching hospitals either attached to medical colleges or others like National Board, Corporate and Private hospitals or Nursing homes and District hospitals. They would help in Preparation of Hospital Formulary, ADR monitoring, implementation of Antimicrobial Resistance policy on the one hand and on the other in conducting periodic Continuing Education and Training Programs for PHC doctors and Pharmacists employed at different levels.

4. Admissions through Common Application, Common Entrance Test, Single Window Counseling for AYUSH, Nursing, Pharmacy, Physiotherapy, Allied & Healthcare Professional Courses

The subcommittee reviewed in detail situation of Pre-university students seeking admission to AYUSH, Nursing, Pharmacy, Physiotherapy, Allied & Healthcare Professionals, are facing different time line of admissions, modus operandi of admissions, delays in admissions because of sequential admissions process every academic year, is resulting in not only loss of academic time up to October/November during 1st year, but also is causing anxiety of students and parents due to uncertainty. In addition, it is alleged that "left overs" join courses like Pharmacy, Physiotherapy and Allied & Healthcare Professional course.

Therefore, the Subcommittee strongly recommends developing a system of Common Application, that is, one Application form providing option for all those courses mentioned in the above paragraph, one Common Entrance Test, Common Counseling that is Single window counselling, fixed time line for admissions (preferably, ending before 31st July) is likely to improve the quality of education.

Recommendations Specific to Different Faculties

5. MEDICAL FACULTY

The subcommittee requests the Govt. of Karnataka to take following pro-active steps at the earliest, to facilitate adoption of three Primary Health Centers (PHC) by medical colleges as per the recommendations of erstwhile Medical Council of India and the present National Medical Commission (NMC) to:

5.1 Correspond with NMC to remove or relax the clause that the PHCs adopted should be under the administrative control of the medical colleges. This clause whatever its merit may be, is not feasible or practical, because the Government may not be willing to hand over lock stock and barrel PHCs. Similarly, private medical colleges may not be willing to take the additional financial expenditure and staff absorption. Even government employees may not be willing such a change.

5.2 The State government may consider and moot the idea of PPP model by having a MOU with medical colleges in the state; or

5.3 Revive the idea of handing over 80% of the budget of PHCs to medical colleges to defray the additional costs.

5.4 Lack of Admissions to Postgraduate Courses in Pre and Para clinical Subjects in Medical Colleges

While it is appreciable to see the rapid addition to the number of Medical Colleges in the country - an increase by over 35% in the last four years, we need to look at a related fact that in around 75% of the existing Medical Colleges there are no "takers" for the PG seats in six of the eight departments* over the past few years. They are Anatomy, Physiology and Biochemistry in Pre-Clinical area and Pharmacology, Forensic Medicine and Microbiology Para-Clinical areas. This reality may precipitate a situation where in we will see a huge shortage of faculty in these areas- to meet the requirements in new Colleges as well as replacing the retirement of existing faculty.

Therefore, the Subcommittee recommends that this matter be taken up by the Government with NMC and NEET authorities and find a solution. Certain suggestions have been made by the Subcommittee to motivate the students to join these courses the details of which are given in Section III., (Main Recommendations, Sl. No 5.4).

The Subcommittee strongly recommends Government of Karnataka may take up with NMC and NEET authorities and find a solution.

6. DENTAL FACULTY

The subcommittee after careful deliberations felt that the following issues are to be addressed as early as possible with a view to improve dental care services in the state. They are:

6.1 To involve Dental colleges, and Dental practitioners, more in the National programs including that of Oral Cancer prevention and care, Caries control and promotion of oral health.

6.2 To encourage posting of Dental practitioners in all CHCs and PHCs and provide suitable equipment such as dental chairs etc.

6.3 To urgently address the disparity in pay between and amongst teachers working in various departments. This is causing considerable dissatisfaction among teachers.

The Subcommittee requests the Government to take appropriate action as deemed fit to bring in pay parity at the earliest.

6.4. To evolve a policy for uniform development in the State a cadre of Dental Chair Assistants. All Dental Colleges, and Dental Clinics must have Dental Chair Assistants to assist during dental practice. It will improve quality of service. The collateral benefit of such a policy is that it encourages skill development amongst young people and opens up avenues of employment also.

7. NURSING FACULTY

7.1 Although a large number of Nurses both BSc. (N) and GNMs pass out from Nursing colleges and Schools (please see Annexure IV- A and IV- B), yet there is shortage of nurses available for employment. This is akin to the adage - Poverty amidst plenty. Hospitals find great amount of turnover and attrition. This matter requires serious attention as to how to attract nurses for employment and working in the hospitals and other health care facilities in the State. Please see Section III., (Main Recommendations, Sl. No. 7. Nursing Faculty for the suggestions made in this regard to improve the situation is given.

7.2 **Nursing Assistants:** The Government may please consider establishing a new cadre of "Nursing Assistant" who can be trained in ONE year into assisting nurses in procedures like bed making, patient sponging, providing bed pans, to procure daily drug indent from the store, to procure and maintain linen stores, etc. This might reduce shortages faced in the hospitals about nursing care.

7.3. **Establishment of Government Nursing Colleges:** There is need to start more Government Nursing Colleges in the State which will help retain the Nurses within the state encouraging "local" enrolment to nursing courses - with focus on attracting rural and semi urban students.

8. PHYSIOTHERAPY AND ALLIED and HEALTHCARE PROFESSIONAL FACULTY

- 8.1 Allied and Health Care Profession Act, was passed by the Parliament at the end of March 2021. The Gazette notification for the same was published on 28th March 2021. In the light of the above:
- 8.2. According to the above mentioned Act, the State Government has to notify and establish within six months of the Notification, State Allied and Healthcare Council, with four boards as spelt out in the Act to regulate Education, Registry as well as Ethics and Ratings. Therefore, the Government may take steps to establish State Council at the earliest.
- 8.3 The State Government may have to expand or create posts in the fields of Allied and Healthcare Professions and Physiotherapy to ensure healthcare related to these two specialties reaches till the Community level with creation of posts at state level as well as under the Central health care schemes in a phased manner to reach the goal within the next five 5 years.
- 8.4 Standalone Physiotherapy and Allied and Healthcare Professions colleges should be encouraged to get accreditation from National Accreditation Assessment Council (NAAC).
- 8.5. Establishment of Government Physiotherapy Colleges: Among 80 Physiotherapy Colleges in the state, only one is a Government Institution. The rest are Privately managed. There is need to establish more Government Physiotherapy Colleges in the state. This will help those students and their parents who cannot afford to join private colleges.

9. PHARMACY FACULTY

9.1 Encouraging Pharmacists with Diploma in Pharmacy (D Pharma) to do B Pharma

As a career improvement for the large number of working Pharmacists (Diploma holders) in government hospitals and health centers and pharmacies in the State, the subcommittee suggests that the government should plan Faculty development program to upgrade their qualification to degree for those who have passed Pre-university II examination or equivalent. Further, diploma holding Pharmacists, already in government service may be encouraged by providing needful reservation in the lateral entry quota provided by the Government for admission to the II year of B. Pharma course and provide scholarships to them to pursue the same. This would improve the quality of services provided by them.

Such a career improvement program would be very much beneficial for the employed chemists and druggists as it will fine-tune know-how on drug dispensing, adverse drug reaction, patient counselling, rational & irrational drug combination and medication dosage advice.

9.2. Establishment of Government Pharmacy Colleges: Keeping in mind only one Government Pharmacy College among 88 in the State, there is need to establish more Government Pharmacy Colleges in the State.

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Section II: Situation Analysis

Overview

In this section, after a brief description of existing health sciences education and training institutions in Karnataka, both in Government and Private sectors, SWOC analysis is done to provide the context for the next Section III, which is the operative part containing recommendations of the Subcommittee for improvement of HHR.

1. Background

Karnataka state has a total area of 191,791 km² and is the eighth largest state. The state has 30 administrative districts with a total population of 611 lakhs (*Census, 2011*) of which 51% are male and 49% are female. It is the 9th most populous state having a population density of 319 per sq. km. The sex ratio is 968 (females per 1000 males). The total literacy rate is 75.60% (male - 82.85%, and of female - 68.13%). Almost 34% of the total population in the state lives in urban areas.

Following is an overview of Health Human Resource Institutions in Karnataka.

1.1 Health Sciences Education and Training Institutions in Karnataka

(i) Rajiv Gandhi University of Health Sciences, Karnataka, Bangalore, (RGUHS) was established in 1996, by the Government of Karnataka. It was the third medical/health sciences university to be established in the country. There were about 168 institutions belonging to medical, dental, nursing, pharmacy, physiotherapy and AYUSH. It is now one of the largest Universities considering the number of institutions affiliated to it and the number of students studying under its umbrella (Please see Annexure IV-B Table 2).

(ii) There are nine Deemed to be Universities and two Private Universities (Annexure IV-C Tables 1 to 11)

(iii) There are also two institutions of National importance, National Institute of Mental Health and Neuro Sciences, (NIMHANS) Bangalore, and All India Institute of Speech and Hearing, Mysore.

1.2. In-service Training Institutions for Health Care Professionals

Department of Health and Family Welfare, Government of Karnataka, has established for in-service training of staff, the following training centres: State Institute of Health and Family Welfare (1), Health and Family Welfare Training Centres (4), District Training Institutes (19/30). In addition, there is Karnataka State Health Research Centre (1).

1.3. Paramedical Board, Government of Karnataka:

Paramedical Board, Government of Karnataka offers Diploma in Nursing courses in 765 institutions including 18 Government institutions, Certificate courses in 565 institutions including 34 Government institutions (Medical Laboratory Technology, Medical Imaging Technology, Ophthalmic Technician, Medical Records Technology, Dental Mechanics, Dental Hygiene, Operation Theatre and Anaesthesia Technology, Dialysis Technology, Physiotherapy, Health Inspector) across the State.

Table I and Table II (Annexure IV A) on Human Resource institutions in Karnataka regarding Health Professional education focusing on Medical, Dental, Nursing, Physiotherapy and Allied Health Care Profession and Pharmacy.

The introspection in the current endeavour refers to “HR Planning Development Strengthening with respect to Health Professional Education of: Medical, Dental, Nursing, Physiotherapy, Allied Health Care Profession and Pharmacy” only, in the State of Karnataka.

2. Problem statement

2.1. The health professional education sector in Karnataka has many strengths. Although, various initiatives were taken to address the issue of Human Health resource development, a comprehensive health human resource policy which lays down detailed guidelines for Universities, Health Professional Institutions - both Government and Private, Public Health system and its training institutions to implement strategies to address the planning development and strengthening of human resources for health, is most essential.

It is now widely appreciated that for achieving universal health coverage (UHC), health human resource is one of the key factors. Given the fact that Karnataka and India is committed to achieving UHC and also the Sustainable Development Goals (SDGs), it should develop and implement a proper human resource policy urgently.

3. Process adopted by the subcommittee

Approach followed in the preparation of rapid appraisal involved following steps :

Consultations with distinguished members were held with a check list for inquiry into situation analysis of efforts, areas of strengths, challenges and opportunities, barriers, opinion, feedback and suggestions. Subsequent to this, expert groups were formed in the areas of Medical, Dental, Nursing, Pharmacy, Physiotherapy and Allied Health Sciences and were consulted by coordinators of respective disciplines on online and offline platform using a predesigned inquiry check list and responses obtained. Consultative and participatory effort was pursued. Inputs from Deemed University (DU) perspective were provided by MAHE and JSS DUs. Certain specific inputs were obtained from all nine Deemed universities, two private universities and NIMHANS. Data related to Degree/Diploma awarded during the last Regular convocation held in 2020 or 2021 with respect to UG/PG in Medical, Dental, Nursing, Pharmacy, Physiotherapy and Allied Health Care Profession was collected using predesigned questionnaire from RGUHS, nine Deemed Universities in Karnataka, two State Private Universities and NIMHANS. Feedback, opinions and suggestions were compiled, discussed with members of the subcommittee and draft report was prepared

4. Situation analysis with specific reference to Karnataka - strengths, challenges and opportunities (SWOC Analysis) :

Faculty and Experts were consulted and Strengths, Weaknesses , Challenges and opportunities (SWOC) Analysis with respect to Health Professional educational sector was undertaken and

details are given in Annexure V. Some of the important needs and challenges are highlighted below :

Physiotherapy and Allied Health care Profession

- Allied health care Profession is still an unorganized stream, not governed by any council as yet, the quality of education is variable and also the programs are not well regulated.
- Both Physiotherapy and Allied health professional areas did not have a regulatory body until the enactment recently. The direction going forward, creating cadres, building up the manpower requirements were not addressed to date. The need at the state level for a regulatory body was also strongly felt.
- Further, there is no available data on the workforce requirements for Physiotherapy and Allied Health care Professional graduates in the State.

Nursing

- Needs quality Improvement of quality in education was a felt need.
- Challenge to retain Nurses of Karnataka to serve within the state

Dental

- Non uniform Quality assurance: Standards are variable since there is no uniform quality assurance mechanism in place across all dental institutions.

Pharmacy

- Need for defining expanded role of pharmacists; there is need for better collaboration between dept of Pharmacology and Pharmacists.
- There is need for better collaboration between Dept. of Pharmacology of Medical Colleges and that of Pharmacy practice and Pharmacology of Pharmacy Colleges Institutions .

Medical

- Need for apt urban/rural distribution; incentives for rural service; Health HR assessment for planning, development and strengthening; strengthened efforts towards Faculty Development .
- There are no "takers" for the PG seats in six of the eight departments* over the past few years. They are Anatomy, Physiology and Biochemistry in Pre-Clinical area and Pharmacology, Forensic Medicine and Microbiology Para-Clinical areas. This reality may precipitate a situation where in we will see a huge shortage of faculty in these areas- to meet the requirements in new Colleges as well as replacing the retirement of existing faculty.
- **Nursing, Pharmacy, Physiotherapy, Allied Health Professional and Ayush admissions :**

The subcommittee reviewed in detail situation of Pre-university students seeking admission to AYUSH, Nursing, Pharmacy, Physiotherapy, Allied & Healthcare Professionals, are facing different time line of admissions, modus operandi of admissions, delays in admissions

because of sequential admissions process every academic year, is resulting in not only loss of academic time up to October/November during 1st year, but also is causing anxiety of students and parents due to uncertainty. In addition, it is alleged that “left overs” join courses like Pharmacy, Physiotherapy and Allied & Healthcare Professional course.

- Need to establish more Pharmacy, Nursing, Physiotherapy and Allied Health Professional Colleges in Government sector

5. Existing HRH norms and HRH availability in the country

(Source: Desk review of important documents)

The development and deployment of HRH in India over the last six decades has been steered by various Government-commissioned expert committees. Notable among these are the Health Survey and Development Committee headed by Sir Joseph Bhore (1946), the Health Survey and Planning Committee lead by Mudaliar (1961), the Chadha Committee (1963), the Kartar Singh Committee (1974), the Shrivastav Committee (1975), the Medical Education and Review Committee led by Mehta (1983), the Bajaj Committee (1986), the Mukherjee Committee (1995), The National Commission on Macroeconomics and Health (2005), and the Planning Commission Task Force on Planning for HRH (2007).

5.1 The Bajaj Committee for health manpower planning and development presented the first ever assessment of HRH availability in India. It recognized that health systems and human resources development were isolated from each other across ministries. The Committee made projections for rural HRH requirements for the millennium along with recommendations for building human resource capacity in educational institutions. In order to ensure quality in health services, the Bajaj Committee recommended a competency-based curriculum, refresher and bridge courses, in-service trainings, career structures for all categories and uniform pay scales across the country. The Bajaj committee also recommended cadre-wide coordinated planning for HRH production and the establishment of a University of Health Sciences in each state during the Eighth plan, as advocated earlier by the Medical Education and Review Committee in 1983.

5.2. The High Level Expert Group (HLEG) on Universal Health Coverage acknowledges and endorses the comprehensive and critical recommendations made by these earlier expert bodies. While central and state leadership in health ministries may not have always adopted or implemented the recommendations of these expert committees, their suggested rationale and norms continue to be the basis for HRH planning and formulation of standards [6]

The health sector in India is plagued by an acute shortage of human resources. Although, various initiatives were taken to address the issue, a comprehensive human resource policy, which lays down detailed guidelines for states to implement strategies to address the shortage of human resources for health, is always missing. It is now widely acknowledged that for achieving universal health coverage (UHC), health human resources is the key factor. Given the fact that India is committed to achieving UHC and also the Sustainable Development Goals (SDGs), it should develop and implement a proper human resource policy urgently. This has been recommended from time to time by various committees, introspection and reports [4, 6,7, 10, 11, 16].

6. Goals / targets fixed for the domain from any health or related documents

6.1 Excerpts from WHO (2013) HEALTH WORKFORCE REQUIREMENTS FOR UNIVERSAL HEALTH COVERAGE AND THE SUSTAINABLE DEVELOPMENT GOALS Human Resources for Health Observer Series No 17:

Globally, the needs-based shortage of health care workers in 2013 is estimated to be about 17.4 million, of which almost 2.6 million are doctors, approximately 9 million are nurses and midwives, and the remainder represent all other health worker cadres. The largest needs-based shortages of health workers are in South-East Asia at 6.9 million and Africa at 4.2 million. The shortage in absolute terms is highest in South-East Asia due to the large populations of countries in this Region, but in relative terms (i.e. taking into account population size) the most severe challenges are in the African Region. The global needs-based shortage of health care workers is projected to be still more than 14.5 million in 2030 (a decline of only 17%).

If we apply the WHO's standardized threshold of 4.45 skilled health professionals per 1000 population, India needs about 6.0 million health professionals and workers given its 1326.8 million population in 2016. As per the registration data of concerned authorities, the total number of health professionals or workers registered in India is about 5.49 million. It still indicates the shortage of more than 0.5 million (or 50 lakhs) health professional and workers in the country. If we take note of the caveat mentioned above, the shortage would shoot up depending on the size (or proportion) of those who are not actively rendering their service among the registered health professionals and workers. According to the National Health Profile's information, there were about 1,10,000 allopathic doctors and 10,000 dental surgeons working in the Government sector, in 2016. This number definitely indicates the actual availability and would be reliable. The government sector includes rural health centres (PHCs and CHCs), area and district hospitals, and any other government hospitals. Their availability is 9 doctors per lakh population and 5 dental surgeons per ten lakh population. In terms of coverage of population, it is about 12 thousand population for each doctor to serve and more than two lakh population for each dental surgeon. It presents a partial picture of the strength of human resources for health in the Indian health care system [12].

6.2 Bird's Eye view of HR deficiencies in Primary Health Care System :

Report of Committee for creation of Public health cadre and Reorganization of Health and Family Welfare Services, Karuna Trust for Government of Karnataka [16] highlights deficiencies in the position of various categories of Human Resource personnel in Public Health System in Karnataka. Notable to mention is deficiency of 72.86 % among Lady Health Visitors, 9.35 percent among Medical Officers, 39.56 %among Specialist doctors. Of particular importance is deficiency of 54.37 % Pediatricians , 17.48 % of OBG Specialists and 37.86 percent of Surgeons in CHCs. Table below gives bird' s eye view of HR deficiencies in Public Health System as per Rural Health statistics as on 31 March 2016.

Table I : List of Vacancies at Government Health Facilities, Karnataka

Staff vacancies at Government health facilities				
SI No	Staff facilities	Sanctioned	No of positions vacant	% vacant position
1	Female health worker at subcentre (ANM)	10025	942	9.40
2	Male health worker at subcentre	5853	2475	42.29
3	Female Health Assistant (Lady health visitor) at PHCs	3824	2786	72.86
4	Male health assistant at PHCs	5853	2475	42.29
5	Medical officers at PHCs	2353	220	9.35
6	Pharmacists at PHCs & CHCs	2668	146	5.47
7	Laboratory Technicians at PHCs & CHCs	1790	258	14.41
8	Nursing staff at PHCs & CHCs	3459	166	4.80
9	Radiographers at CHCs	206	39	18.93
10	General Duty Medical Officers (GDMOs)- Allopathic at CHCs	255	37	14.51
11	Total Specialists (Surgeons, OB & GY, Physicians & Paediatricians)	824	326	39.56
12	Paediatricians at CHCs	206	112	54.37
13	Obstetricians & Gynaecologists at CHCs	206	36	17.48
14	Surgeons at CHCs	206	78	37.86

(Source : Rural Health statistics, 2016; As on 31 March, 2016) (16)

6.3 Excerpts from National Education Policy :

.....Healthcare education shall be re-envisioned such that the duration, structure, and design of the educational programmes are as required for the roles that graduates will play. For example, every healthcare process/intervention (e.g., taking/reading an ECG) does not necessarily need a fully qualified doctor. All MBBS graduates must possess (a) Medical skills, (b) Diagnostic skills, (c) Surgical skills, and (d) Emergency skills. Students will be assessed at regular intervals on well-defined parameters primarily for the skills required for working in primary care and in secondary hospitals. Quality of nursing education will be improved; a national accreditation body for nursing and other sub-streams will be created. Given that our people exercise pluralistic choices in healthcare, our healthcare education system must be integrative: this would mean, illustratively, that all students of allopathic medical education must have a basic understanding of Ayurveda, Yoga and Naturopathy, Unani, Siddha, and Homeopathy (AYUSH), and vice versa. **There shall also be a much greater emphasis on preventive healthcare and community medicine in all of healthcare education. [13]**

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Section III Main Recommendations

Overview

This section is the central part, the operative part consisting of General Recommendations and Specific Recommendations. The latter pertains to the faculties of Medical, Dental, Nursing, Pharmacy, Physiotherapy, Allied and Healthcare Professional

1. General Recommendations

1.1 Manpower Study of Health Human Resource (HHR) in the State of Karnataka

Karnataka can be proud to be called as an “educational hub” in India. It attracts students not only from different states of the country, but also from abroad. The number of institutions conducting various degree and diploma courses affiliated to RGUHS and to the Para Medical Board, Dept. of Medical Education, Government of Karnataka, is shown in Annexure IV -B, Tables 1, 2 & 3 bears testimony.

The number of candidates who were awarded various degrees and diplomas in the convocations held during 2019-20, by RGUHS, Deemed to be Health Universities and NIMHANS is an evidence of the huge human health resource available (Please see Annexure IV –B, Tables 4, 5 & Annexure IV –C Table 1 to 11). For instance, from RGUHS alone, 29,104 candidates received degrees and Diplomas and 7316 candidates received from Deemed to be Health Universities.

Of course, all of them are not from state of Karnataka. We made certain assumptions to estimate the health human resource that would be available in Karnataka. The assumptions are shown in Annexure IV –B, Table 6. Based on the assumptions the estimated number of doctors with MBBS degree belonging to Karnataka or who might stay in Karnataka and available for employment during one academic year would be in the range of 790 to 940. Similarly, the estimated number of BSc(N) Nurses and GNM Diploma Nurses belonging to Karnataka or would be available for employment in Karnataka would be 2700 and 12000 respectively.

How such trained workforce is utilized in the State in various health care facilities is an important matter to be considered. Similarly, what has happened to the previous batches who graduated? Soon MBBS and those with post graduate degrees would be available for deployment under the bond that they have given to the Govt. of Karnataka. National Medical Commission has recently under the amended “Post-graduate Medical Education (Amendment) Regulations, 2020, has made training “District Residency Programme (DRP)” mandatory in respect of MD/MS students admitted with effect from academic session 2020-21. These postgraduate trainees may perhaps be better equipped in future to provide health care in the rural and semi-urban community than those who were exclusively trained in the medical college teaching hospitals. How can their services be utilised?

In the light of this background the Subcommittee felt that there is an urgent need for a Manpower Study of Health Human Resource (HHR) in the State of Karnataka with following objectives:

- (i) **To determine the existing workforce of all categories of Health Care Professionals** both in Government, Public Sector Undertakings (PSUs) and Private sector.
- (ii) **To estimate by Gap analysis**, the existing gap between the need and availability of Health Care Professionals in the three sectors mentioned (i), above.

The above mentioned studies in (i) and (ii) would help to take such steps as necessary to fill the gaps in a phased manner to fulfill the various health goals in the next 5 years. It may also help in optimal utilization of the existing work force i.e., health care professionals.

1.2. Lack of Admissions to Postgraduate Courses in Pre and Para clinical Subjects in Medical Colleges

While it is appreciable to see the rapid addition to the number of Medical Colleges in the country - an increase by over 35% in the last four years, we need to look at a related fact that in around 75% of the existing Medical Colleges there are no "takers" for the PG seats in six of the eight departments* over the past few years. They are Anatomy, Physiology and Biochemistry in Pre-Clinical area and Pharmacology, Forensic Medicine and Microbiology Para-Clinical areas. This reality may precipitate a situation where in we will see a huge shortage of faculty in these areas- to meet the requirements in new Colleges as well as replacing the retirement of existing faculty.

Remedy suggested is to lower the eligibility in PG NEET percentile for these departments so that the future crisis could be averted. There is a precedent to this suggestion in that the Council and NEET authority have lowered the Eligibility percentile for Super Specialty courses in the past, even during the counselling.

Therefore, the Subcommittee recommends that this matter be taken up by the Government with NMC and NEET authorities and find a solution. Similarly, to motivate the students to join these courses, academic incentives such as integrated MD- PhD courses the Government may also take up with MNC.

*(8 subjects are Pre clinical - Anatomy, Physiology, Biochemistry, and Para clinical – Pathology, Microbiology, Pharmacology, Forensic Medicine and Community Medicine.)

2. Establishment of Quality Monitoring and Enhancement Cell

Need has arisen for establishment of a cell mentioned above in view of the rapid increase in the number health professional educational institutions, increase in number of admissions, already alluded to, and somewhat skewed ratio in postgraduate intake *visa vi* undergraduate intake (Annexure IV B Table 7) . At All India level, the increase in number of Medical Colleges was 45% in just six years – from 381 in 2014 to 539 in 2020. The proportional increase in Postgraduate medical seats was 79% compared to increase by 48% in MBBS seats. (Please see Annexure IV B – Table 7). Recently, National Medical Commission (NMC) allowed increase in the ratio of recognised Post Graduate teacher to number of students to be admitted in clinical subjects from 1:2 to as many as 1:3 for Professors and Associate Professors who are unit heads vide, "Postgraduate Medical Education (Amendment) Regulations, 2019".

The growth in number of Nursing colleges in the last 2-3 years is unprecedented. For example, the number of Nursing Colleges affiliated to Rajiv Gandhi University Health Sciences (RGUHS) during 2002-03 were 62, with 2920 admissions to BSc(N), and 75 to MSc(N) courses. By 2017-18, the number of colleges affiliated to RGUHS alone rose to 434, with about combined 30,250 admissions to BSc(N), Post Basic BSc(N) and MSc(N) courses. There were about 600 admissions in the Deemed (to be) health sciences universities of Karnataka and NIMHANS to those Nursing courses. In addition, 760 Nursing Schools are training GNMs.

Increases have taken place in number of Physiotherapy colleges from 38 colleges during 2002-03 to 80 colleges during 2019-20 and in Allied Health Care courses also.

The quantitative increase needs to be balanced with improvement in the quality of education too, as maintenance of health and wellbeing is an important responsibility of educational institutions, health science/medical Universities and the State.

Therefore, the Subcommittee urges the Government of Karnataka to establish a Quality Monitoring and Enhancement Cell at the earliest. The government could recommend all the Medical/Health sciences Universities including NIMHANS to establish such cells too.

3. Pharmacovigilance and Drug Monitoring Unit, Antimicrobial Resistance Policy and Poison Care, Training and Research Centre

The Subcommittee requests the Government of Karnataka to establish at the earliest:

3.1. Pharmacovigilance and Drug Monitoring Unit in each of the teaching, non-teaching government, public sector and privately owned hospitals and District Hospitals, with following objectives.

a) Prepare Hospital Formulary which is essential in every hospital. It will help in standardization of procurement of essential drugs. It will also help in Rational Drug use. It may reduce to some extent expenditure on procurement of certain drugs.

b) Drug Monitoring Unit. It will monitor Adverse Drug Reactions (ADR), Medical errors [1] provide after care, report Adverse Drug Reactions (ADRs) and maintain a Registry, and exchange information within the hospital and among the hospitals.

c) Antimicrobial Resistance Policy

Antimicrobial Resistance (AMR) is one of the greatest challenges of 21st century. The Director-General of World Health organization said "AMR is a slow tsunami that threatens to undo a century of medical progress". An estimated annual global 700,000 deaths have occurred. It is forecasted that about 10 million deaths and economic costs up to \$100 trillion may happen by 2050 [1]. Among the many reasons for development of drug resistance include over or indiscriminate prescriptions of antibiotics, inappropriate use in agriculture, poultry, veterinary purposes, contamination by pharmaceutical manufacturing industry where large quantities of untreated effluents containing antimicrobials are released into the environment. It may be mentioned here that India is one of the largest manufacturers of pharmaceuticals globally.

There are examples of successful adoption of Antimicrobial Resistance policy in countries such as Peru, the United Kingdom and European Union [1 & 2].

Therefore, it is essential to formulate Antimicrobial Resistance Policy by the Government of Karnataka urgently with a multi-sectoral approach involving, medical/health, agriculture,

veterinary, environment, drug controlling authority and Pharmaceutical industry. Patient education, change in prescriber behavior, restrictions on over the counter sale, patient safety [2], are some of the steps to be considered in the policy.

3.2. Poison Care, Training and Research Centre

A large number of deaths take place in India due to poisoning by consumption of pesticides, snake and other bites and over dosage of drugs. These are emergencies and need immediate appropriate management at hospitals and other health facilities. In order to provide suitable care and also develop trained health care personnel establishment of Poison Care Training and Research Centre (PCTRC) is recommended by the Subcommittee.

The Objectives:

- Poison treatment & Management of Common types of cases treated: Pesticide, Rodenticide & Corrosive poisoning, Snake Bite & other Bites & Stings, Drug Over dosage etc.
- Training Program on Poison Management including Bites & Stings to Medical Officers and Staff Nurses who are working in Government Primary Health Centre, Taluk & District Hospitals
- Information Services including professional counselling for the patients and their family members. This goes a long way in preventing any such incident in the future
- Antidote Bank

The Government of Tamil Nadu established a Nodal Poison Control Training & Research Centre in 2005, at Rajiv Gandhi General Hospital, attached to Madras Medical College, Chennai. The Nodal Centre has been functioning successfully and has developed 70 Poison Control Centers throughout the State of Tamil Nadu.

The PCTRC is getting support from the TN Govt. Health Systems Project for training and establishment of Poison Care Centers in other parts of the state.

3.3 Utilisation of Pharm.D. Professionals: A number of Pharm. D., (Doctor in Pharmacy) qualified personnel, well versed Pharmaco-Vigilance, drug monitoring, rational drug prescription and use, are available who can be gainfully employed medical college teaching hospitals, Corporate and District hospitals. They would help in Preparation of Hospital Formulary, ADR monitoring, implementation of Antimicrobial Resistance policy on the one hand and on the other in conducting periodic Continuing Education and Training Programs for PHC doctors and Pharmacists employed at different levels.

4. Admissions through Common Application, Common Entrance Test, Single Window Counseling for AYUSH, Nursing, Pharmacy, Physiotherapy, Allied & Healthcare Professional Courses

The subcommittee reviewed in detail situation of Pre-university students seeking admission to AYUSH, Nursing, Pharmacy, Physiotherapy, Allied & Healthcare Professionals, are facing different time line of admissions, modus operandi of admissions, delays in admissions because of sequential admissions process every academic year, is resulting in not only loss of academic time up to October/November during 1st year, but also is causing anxiety of students and parents due

to uncertainty. In addition, it is alleged that "left overs" join courses like Pharmacy, Physiotherapy and Allied & Healthcare Professional course.

Therefore, the Subcommittee strongly recommends developing a system of Common Application, that is, one Application form providing option for all those courses mentioned in the above paragraph, one Common Entrance Test, Common Counseling that is Single window counselling, fixed time line for admissions (preferably, ending before 31st July) is likely to improve the quality of education.

Recommendations Specific to Various Faculties

5. MEDICAL FACULTY

5.1 Adoption of Three Primary Health Center by each of the Medical Colleges – A way of Enhancing Orientation towards Rural Ethos.

The subcommittee requests the Govt. of Karnataka to take following pro-active steps at the earliest, to facilitate adoption of three Primary Health Centers (PHC) by medical colleges as per the recommendations of erstwhile Medical Council of India and the present National Medical Commission (NMC) to:

- i. Correspond with NMC to remove and relax the clause that the PHCs adopted should be under the administrative control of the medical colleges. This clause whatever its merit may be, is not feasible or practical, because the Government may not be willing to hand over lock stock and barrel PHCs. Similarly, private medical colleges may not be willing to take the additional financial expenditure and staff absorption. Even government employees may not be willing such a change.
- ii. The State government may consider and moot the idea of PPP model by having a MOU with medical colleges in the state; or
- iii. Revive the idea of handing over 80% of the budget of PHCs to medical colleges to defray the additional costs.

5.2. Lack of Admissions to Postgraduate Courses in Pre and Para clinical Subjects in Medical Colleges

While it is appreciable to see the rapid addition to the number of Medical Colleges in the country - an increase by over 35% in the last four years, we need to look at a related fact that in around 75% of the existing Medical Colleges there are no "takers" for the PG seats in six of the eight departments* over the past few years. They are Anatomy, Physiology and Biochemistry in Pre-Clinical area and Pharmacology, Forensic Medicine and Microbiology Para-Clinical areas. This reality may precipitate a situation where in we will see a huge shortage of faculty in these areas to meet the requirements in new Colleges as well as replacing the retirement of existing faculty.

Remedy suggested is to lower the eligibility in PG NEET percentile for these departments so that the future crisis could be averted. There is a precedent to this suggestion in that the Council and NEET authority have lowered the Eligibility percentile for Super Specialty courses in the past, even during the counselling.

Therefore, the Subcommittee recommends that this matter be taken up by the Government with NMC and NEET authorities and find a solution. Similarly, to motivate the students to join these courses, academic incentives such as integrated MD- PhD courses the Government may also take up with MNC.

*(8 subjects are Pre clinical - Anatomy, Physiology, Biochemistry, and Para clinical – Pathology, Microbiology, Pharmacology, Forensic Medicine and Community Medicine.)

6. DENTAL FACULTY

There are 45 Dental Colleges (3 Government and 42 Private Colleges) in Karnataka, one of the highest numbers in the country. Courses offered include BDS, MDS, and PhD. In addition, Fellowship and Certificate programs are also conducted in subspecialties. There are approximately 3500 teachers working in these colleges. The subcommittee after careful deliberations felt that the following issues are to be addressed as early as possible with a view to improve dental care services in the state. They are:

6.1 To involve Dental colleges, and Dental practitioners, in the National programs including that of Oral Cancer prevention and care, Caries control and promotion of oral health.

6.2. To encourage posting of Dental practitioners in all CHCs and PHCs and provide suitable equipment such as dental chairs etc.

6.3. To urgently address the disparity in pay between and amongst teachers working in various departments. This is causing considerable dissatisfaction among teachers.

The Subcommittee requests the Government to take appropriate action as deemed fit to bring in pay parity at the earliest.

6.4 To evolve a policy for uniform development in the State a cadre of Dental Chair Assistants. All Dental Colleges, and Dental Clinics must have Dental Chair Assistants to assist during dental practice. It will improve quality of service. The collateral benefit of such a policy is that it encourages skill development amongst young people and opens up avenues of employment also.

7. NURSING FACULTY

7.1. Although a large number of Nurses both BSc. (N) and GNMs pass out from Nursing colleges and Schools (please see Annexure IV- B and IV- C), yet there is shortage of nurses available for employment. This is akin to the adage - Poverty amidst plenty. Hospitals find great amount of turnover and attrition. This matter requires serious attention as to how to attract nurses for employment and working in the hospitals and other health care facilities in the State. Here are a few suggestions in this regard:

- Improvement of working conditions, addressing issues of stay with improved hostel and residential facilities, and monetary incentives may be considered.
- Attractive incentives to encourage "local" enrolment to nursing courses - with focus on attracting rural and semi urban students.
- Review and revision of salaries and working environment of nurses
- There is need to introspect further and create a team which can find out reasons and factors which are restraining retention of nurses to serve within Karnataka and find solutions.

7.2 Nursing Assistants: The Government may please consider establishing a new cadre of "Nursing Assistant" who can be trained in ONE year into assisting nurses in procedures like bed making, patient sponging, providing bed pans, to procure daily drug indent from the store, to procure and maintain linen stores, etc. This might reduce shortages faced in the hospitals about nursing care.

7.3. Establishment of Government Nursing Colleges: There is need to start more Government Nursing Colleges in the State which will help retain the Nurses within the state encouraging "local" enrolment to nursing courses - with focus on attracting rural and semi urban students.

8. PHYSIOTHERAPY AND ALLIED and HEALTHCARE PROFESSIONAL FACULTY

Allied and Health Care Profession Act, was passed by the Parliament at the end of March 2021. The Gazette notification for the same was published on 28th March 2021. In the light of the above:

- 8.1 According to the above mentioned Act, the State Government has to notify and establish within six months of the Notification, State Allied and Healthcare Council, with four boards as spelt out in the Act to regulate Education, Registry as well as Ethics and Ratings. Therefore, the Government may take steps to establish State Council at the earliest.
- 8.2 The State Government may have to expand or create posts in the fields of Allied and Healthcare Professions and Physiotherapy to ensure healthcare related to these two specialties reaches till the Community level with creation of posts at state level as well as under the Central health care schemes in a phased manner to reach the goal within the next five 5 years.
- 8.3 Standalone Physiotherapy and Allied and Healthcare Professions colleges should be encouraged to get accreditation from National Accreditation Assessment Council (NAAC).
- 8.4. Establishment of Government Physiotherapy Colleges: Among 80 Physiotherapy Colleges in the state, only one is a Government Institution. The rest are Privately managed. There is need to establish more Government Physiotherapy Colleges in the state. This will help those students and their parents who cannot afford to join private colleges.

9. PHARMACY FACULTY

9.1 Encouraging Pharmacists with Diploma in Pharmacy (D Pharma) to do B Pharma

As a career improvement for the large number of working Pharmacists (Diploma holders) in government hospitals and health centers and pharmacies in the State, the subcommittee suggests that the government should plan Faculty development program to upgrade their qualification to degree for those who have passed Pre-university II examination or equivalent. Further, diploma holding Pharmacists, already in government service may be encouraged by providing needful reservation in the lateral entry quota provided by the Government for admission to the II year of B. Pharma course and provide scholarships to them to pursue the same. This would improve the quality of services provided by them.

Such a career improvement program would be very much beneficial for the employed chemists and druggists as it will fine-tune know-how on drug dispensing, adverse drug reaction, patient counselling, rational & irrational drug combination and medication dosage advice.

- 9.2. **Establishment of Government Pharmacy Colleges:** Keeping in mind only one Government Pharmacy College among 88 in the State, there is need to establish more Government Pharmacy Colleges in the State.

Section IV: Operational Considerations

1. Few recommendations towards Implementation :

Implementation	Implementation of these recommendations requires establishment of Quality Management Cell at the Directorate of H and Family Welfare with the Participation of Government, RGUHS, Deemed Universities, Private Universities and Management of Institutions of Health Professional Education. Such a body needs to be established; HR needs study is to be conducted and HHR Road map prepared.
Integration	<p>"Unity for Health" concept proposed by WHO promotes "Health Team" concept. This needs to be promoted at Institutional/ University/ Deemed University/ District/ Taluk/ CHC/ PHC/ Sub-centre and Village level in letter and spirit all Health Professional setups including Ayush.</p> <p>ICDS, Water Supply and Sanitation, Dept. of Panchayath Raj, Dept of Disabled Welfare will be other non-Health, but most needed departments for Integration.</p> <p>There is need for strengthening integration between RGUHS, Deemed Universities, Health Professional institutions and District Training Centres, HFWTCs, SIHFW, Autonomous Institutions of Central and State Governments in the area of Health Human Resource Planning, Development and Strengthening.</p>
Innovation	There is need for skill development : Strengthening and developing Competency based curricula and assessment methods as well as soft skill development among students in Health Professional Education.
Investments	<p>Establishing following will involve cost for the Government/Universities and Health Professional Institution.</p> <p>Skill labs in all Health Professional Institutions</p> <p>Establishment of Quality Cell at State level conducting studies to develop Health HR Plan for the State in the immediate future;</p> <p>Development of Data base of Health Professionals of all disciplines including Ayush</p> <p>Faculty Development Programmes</p> <p>Quality Assessment and Accreditation Costs of Health Professional Institutions</p>

2. Suggested mechanisms for implementing recommendations :

A committee to be set up with representatives of Dept. of Health and Family Welfare, RGUHS, Deemed Universities, State Institute of Health and Family Welfare, Public Health System, Ayush Directorate , Experts of Disciplines of Medical, Dental, Nursing, Physiotherapy and Allied Health Care Profession , Pharmacy, to review implementation of these recommendations atleast once in three months . The Committee to evolve guidelines for implementation.

Budget allocation be made for listed recommendations especially conduct of studies, establishment of Quality Monitoring Cell in particular.

3. Other issues discussed:

Issues related to Public Health Cadre at State and District level and following issue will be suggested to respective sub-committees to discuss in their meetings and move forward.

Government/Universities/Deemed to be Universities to create teams to provide training in the area of Telemedicine, Geriatric Care, Disaster Management, Pandemic Management, Death Certification to strengthen the areas in their manpower in a Phased manner over a period of five years for in-service / new health professional trainees

Section V. References and Annexures

References and further reading materials on Human Resources for Health

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Annexure I

AROGYA KARNATAKA

Dept. of Health & Family Welfare, Medical Education, GOK

Report of the Sub Committee on HUMAN RESOURCE PLANNING, DEVELOPMENT AND STRENGTHENING

Reference :

- (1) Proceedings of Government of Karnataka, Ministry of Health and Family welfare, Government of Karnataka 1121/2020 dated 30 November 2020 -formation of Vision Group
- (2) Letter issued on 11.02.2021 from the office of the Chairman, Karnataka Vision Group indicating formation of Subcommittees on HR Planning, Development, Strengthening, Arogya Karnataka .

Annexure II

AROGYA KARNATAKA

Subcommittee Members, Arogya Karnataka, Department of Health & Family Welfare, Medical Education, Domain Area: Medical Education and Human Resources in all allied education sectors

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Annexure III

AROGYA KARNATAKA

Subcommittee Members, Arogya Karnataka, Department of Health & Family Welfare, Medical Education, Domain Area: Medical Education and Human Resources in all allied education sectors

Terms of reference of the Subcommittee:

1. To examine and review guidelines, developments in Human resource planning development with specific reference to Medical, Dental, Nursing, Pharmacy, Physiotherapy and Allied Health Science Education in the State of Karnataka in RGUHS and Deemed Universities.
2. (i) To identify gaps and suggest implementable and sustainable solutions covering areas of curriculum, education methods, evaluation.
(iii) To identify opportunities for integration with Training facilities in Public Health System at State, Regional, District Health System, integration within health professional education.
3. To suggest a framework for strengthening human resources for health care delivery within the current resources of health professional education in the state enhancing Health Professional education System- Public Health system interface.
4. To provide Road map for delivery of recommendations keeping National Health Policy -2017, Universal Health Coverage, National Health Programmes, SDGs.

Annexure IV- A

Annexure IV Table I

Number of Institutions Government & Private Affiliated to RGUHS, Deemed to be Universities, Private -Universities, NIMHANS, Paramedical Board conducting UG (undergraduate) Courses during 2019-20

Faculty	Total number of Institutions affiliated to RGUHS	Govt. Institutions	Private Institutions	Institutions under Deemed to be Universities	Institutions under Private Universities	Institutions under NIMHANS	Para-Medical Board, GoK (Diploma courses)	Total
Medical	56	19	37	8				64
Dental	37	2	35	7	1			45
Nursing	429	15	414	7		1	765(18)*	437+765 =1202
Physiotherapy	80	1	78	7	1			88
Pharmacy	88	1	87	6	1			95
Allied Health Sciences	124	13	111	7	1		565(34)@	132+565 =702

* Diploma courses; @ Certificate courses; Numbers in Parenthesis indicate Government institutions.

(Source: Data Collection through email March/April 2021 by the Subcommittee)

Annexure IV -A Table II

Number of Institutions Government & Private Affiliated to RGUHS, Deemed to be Universities, Private universities , NIMHANS conducting PG (Postgraduate) Courses Faculty-wise during 2019-20

Faculty	Total Number of Institutions under RGUHS	Govt Institutions	Pvt Institutions	Constituent Institutions of Deemed Universities (Pvt)	Constituent Institutions of Pvt Universities (Pvt)	Constituent Institutions of NIMHANS	Total
Medical	46	18	28	7		1	54
Dental	36	1	35	7	1		44
Nursing	196	6	190	7		1	204
Physiotherapy	31	0	31	7	1		39
Pharmacy	56	1	55	6	1		63
Allied Health Sciences	26	1	25	1			27
Fellowship Courses	124	48	76	35	3	2	164

(Source: Data Collection through email March/April 2021 by the Subcommittee)

Annexure IV –B

Annexure IV –B. Table 1

Number of Institutions Government & Private Affiliated to RGUHS conducting UG (undergraduate) Courses and Number of Students admitted Faculty-wise during 2019-20

Name of Faculty	Total no of Institutions affiliated to RGUHS	Government institutions		Private institutions		Total No. of Students
		Institutions	Students	Institutions	Students	
Medical	56	19	2900	37	3793	6693
Dental	47	2	109	45	2236	2345
Nursing	429	15	962	414	27508	28,470
Physiotherapy	80	2	42	78	2413	2455
Pharmacy	88	1	83	87	5326	5409
Allied Health Sciences	124	13	394	111	3346	3740
Grand Total						49,112

Annexure IV –B. Table 2

Number of Institutions Government & Private Affiliated to RGUHS conducting PG (Postgraduate) Courses and Number of Students admitted Faculty-wise during 2019-20

Discipline	Total no of Institutions affiliated to RGUHS	Government Institutions		Private Institutions		Total No. of students
		Institutions	Students	Institutions	Students	
Medical	46	18	853	28	2137	2990
Dental	36	1	25	35	648	673
Nursing	196	6	33	190	1756	1789
Physiotherapy	31	0	0	31	360	360
Pharmacy	56	1	32	55	773	805
Allied Health Sciences	26	1	8	25	311	319
Fellowship Courses	138	48	6	76	42	214
					Grand Total	6936

Total number of students admitted to UG & PG courses in the institutions affiliated to RGUHS during academic year 2019-20 = 56,048.

Annexure IV – B. Table 3					
RGUHS affiliated Faculty-wise number of Colleges conducting Undergraduate & Postgraduate degree/diploma courses & Nursing Schools & Technicians Training Centres recognised by Para Medical Board, Dept of Medical Education, GoK					
Total colleges affiliated to RGUHS					
Medical	59	Dental	47	Nursing	434
Pharmacy	88	Physiotherapy	81	AYUSH	96
Super Specialty Hospitals*			10	Ayurveda (77), Unani & Naturopathy (12) Homeopathy (17)	
					710
Schools or Training Centers under jurisdiction of Paramedical Board, DME, GoK**					
Nursing Schools			760	Para Medical Institutes	552
General Nursing & Midwifery (GNM)				offering technician courses	

*Conduct only PG courses

**Under the jurisdiction of Directorate of Medical Education, Government of Karnataka.

Annexure IV – B. Table 4

RGUHS Degrees Awarded Faculty-wise during Convocation held in February 2021

I. Faculty of Medicine

1.	Doctor of Philosophy [Ph.D]	2
2.	Super Specialty	115
3.	Fellowships	75
4.	Doctor of Medicine /Master of Surgery	1667
5.	Post Graduate Diploma	337
6.	Bachelor of Medicine & Bachelor of surgery	4920
Total		7116

II. Faculty of Dentistry

1.	Doctor of Philosophy [Ph.D]	3
2.	Master of Dental Surgery	666
3.	Diploma in Dental Faculty	14
4.	Fellowships	4
5.	Certificate Courses	9
6.	Bachelor of Dental Surgery	2340
Total		3036

III. Faculty of Ayurveda, Unani, Naturopathy and Yogic Sciences

1.	Doctor of Philosophy [Ph.D]	6
2.	MD/MS Ayurveda	639
3.	MD/MS Unani	50
4.	M.D.Naturopathy, Yogic Sc. and Diet & Nutrition in Yoga & Naturopathy	27
5.	Bachelor of Ayurvedic Medicine & Surgery	819
6.	Bachelor of Unani Medicine & Surgery	14
7.	Bachelor of Naturopathy & Yogic Sciences	29
Total		1584

IV. Faculty of Homoeopathy

1.	Doctor of Medicine [Homoeopathy]	110
2.	Bachelor of Homoeopathic Medicine & Surgery	204
Total		314

V. Faculty of Pharmacy

1.	Doctor of Philosophy [Ph.D]	9
2.	Master of Pharmacy	629
3.	Doctor of Pharmacy (Post Baccalaureate)	20
4.	Doctor of Pharmacy (Pharm D)	705
5.	Bachelor of Pharmacy	2349
Total		3712

V. Faculty of Nursing

1.	Doctor of Philosophy [Ph.D]	10
2.	M.Sc Nursing	988
3.	B.Sc Nursing	9918
4.	PC B.Sc Nursing	4927
Total		15843

VI. Physiotherapy and Allied Health Sciences course

1.	Master of Physiotherapy	288
2.	M.Sc. Allied Sciences	10
3.	M.Sc MLT	13
4.	Master in Hospital Administration	12
5.	Bachelor of Hospital Administration	7
6.	Bachelor of Physiotherapy	616
7.	Bachelor in Prosthetic and Orthotics	13
08.	U.G Allied Sciences	1065
Total		2024
Grand Total		33629

Annexure IV – B. Table 5

Total Number of Undergraduate, Postgraduate Degrees awarded by RGUHS, Deemed to be Universities in Karnataka and NIMHANS, Bangalore.

FACULTY	UG	PG
Medical	6313	2896 (including 133 Superspeciality courses; 88 Fellowship Programmes; and 448 PG Diploma)
Nursing	15195	1092
Dental	2967	861 (including 6 Fellowship programmes)
Physiotherapy	763	351
Allied Health Sciences	546	204
MPH		74
Pharmacy	2820	1838 (967 M. Pharm + 837 Pharma D + 34 Post Baccalaureate)
Grand Total	29,104	7316

Annexure –IV - B .Table 6

Estimated number of MBBS doctors, BSc. (N) Nurses and GNM Diploma Nurses belonging to Karnataka or would be available for employment in Karnataka

MBBS Doctors (2019-2020)

Total Number of MBBS Doctors who received degree in RGUHS and Deemed to be Universities in Karnataka in 2019-20	6313
Assumption 1: 50 percent succeed in joining postgraduate courses (PG)	3156
Assumption 2: 40 percent succeed in joining PG courses	2841
As per Assumption 1: 30 percent of 50 percent joining PG courses are from Karnataka, (25 percent may remain in Karnataka. 5 percent may go to others states or abroad)	789
30 percent of 50 percent joining PG courses are from Karnataka, (25 percent may remain in Karnataka. 5 percent may go to others states or abroad)	944
As per Assumption 1: MBBS doctors available for Karnataka, rounded off	790
As per Assumption 2: MBBS doctors available for Karnataka, rounded off	940

BSc. Nursing graduates from RGUHS (2019-20)

Total number of candidates who received BSc. Nursing, degree	15,195
Assumption 1: 20% percent may be from Karnataka	3039
50 percent of 20 percent may remain in Karnataka; rest may go abroad or to other states in India.	1520
10 percent of 80 percent hailing from other states may remain in Karnataka	1216
Available number of graduate Nurses for Karnataka (rounded off)	2700

GNM Nursing Diploma (2020)

Total number of GNM Nursing who pass out from Paramedical Board	43,480
20 percent are from Karnataka	8696
Almost all 20 percent and 10 percent of remaining 80 percent remain in Karnataka	12174
Available for Karnataka rounded off	12,000

Annexure IV- B. Table 7

Increase in number of seats in 2014 and 2020 with respect to Medical seats

	2014	2020	%
Medical Colleges	381	539	Increase by 45%
UG seats	54,348	80,312	Increase by 48%
PG seats	23,903	54,094	Increase by 79%
DNB / FNB	4845	8394	Increase by 73%

(Source: National Medical Commission)

Annexure –IV - C. Table 1

Name of the University: BLDE (Deemed to be University), Vijayapura

Particulars of the Degrees/Diplomas awarded during the last Regular convocation held in the year of 2020

I. Faculty of Medicine

1	Doctor of Philosophy	PhD	12
2	Fellowships		02
3	Doctor of Medicine / Master of Surgery --	MD/MS	61
4	Post Graduate Diploma		11
5	Bachelor of Medicine & Bachelor of Surgery--	MBBS	127
		Total	213

II. Faculty of Allied Health Sciences

1	UG Allied Health Sciences	B.Sc (MIT)	13
		Total	13

Annexure IV -C. Table 2

JSS Academy of Higher Education & Research, Mysuru

Particulars of the Degrees/Diplomas awarded during the last Regular convocation held in the year of 2020

I. Faculty of Medicine

1.	Doctor of Philosophy	Ph.D	3
2.	Super Specialty	(DM & MCh)	5
3.	Fellowships		1
4.	Doctor of Medicine /Master of Surgery –	MD/MS	102
5.	Post Graduate Diploma		28
6.	Bachelor of Medicine & Bachelor of surgery -	MBBS	209
7.	Master of Philosophy –	M Phil	1
8.	Master of Public Health -	MPH	11
9.	Master of Sciences –	MSc (Medical Sciences)	23
Total			383

II. Faculty of Dentistry

1.	Doctor of Philosophy	Ph.D	4
2.	Master of Dental Surgery -	MDS	25
3.	Diploma in Dental Faculty		11
4.	Fellowships		0
5.	Certificate Courses		0
6.	Bachelor of Dental Surgery -	BDS	94
Total			134

III. Faculty of Nursing

1.	Doctor of Philosophy	Ph.D	0
2.	MSc Nursing		0
3.	BSc Nursing		0
4.	PC BSc Nursing		0
Total			0

IV. Faculty of Pharmacy

1.	Doctor of Philosophy	Ph.D	29
2.	Master of Pharmacy –	M Pharma	163
3.	Doctor of Pharmacy (Post Baccalaureate)		14
4.	Doctor of Pharmacy (Pharm D)		55
5.	Bachelor of Pharmacy	B Pharma	216
6.	Post Graduate Diploma		48
7.	Diploma in Pharmacy		2
8.	Residency Program in Oncology		4
9.	Bachelor of Pharmacy Practice		10
Total			541

V. Faculty of Physiotherapy and Allied Health Sciences (Faculty of Biomedical Sciences)

	Doctor of Philosophy	Ph.D	3
1.	Master of Physiotherapy	MPT	0
2.	M.Sc. Allied Sciences		18
3.	M.Sc MLT		0
4.	Master in Hospital Administration		35
5.	Bachelor of Hospital Administration		0
6.	Bachelor of Physiotherapy	BPT	0
7.	Bachelor in Prosthetic and Orthotics		0
8.	U.G Allied Health Sciences		20
9.	Master in Pharmacy Administration		5
Total			81

VI. Faculty of Life Sciences

1.	Doctor of Philosophy	Ph.D	7
2.	M.Sc. Life Sciences		135
3.	U.G Life Sciences		155
Total			297
Grand Total			1436

Annexure IV - C. Table 3

KLE (Deemed to be) University, Belagavi

Degrees/Diplomas awarded during the last Regular convocation held in the year of 2019

I. Faculty of Medicine

1.	Doctor of Philosophy	Ph.D	03
2.	Super Specialty	(DM & MCh)	09
3.	Fellowships		08
4.	Doctor of Medicine /Master of Surgery –	MD/MS	94
5.	Post Graduate Diploma		51
6.	Bachelor of Medicine & Bachelor of surgery -	MBBS	198
Total			363

II. Faculty of Dentistry

1.	Doctor of Philosophy	Ph.D	01
2.	Master of Dental Surgery -	MDS	35
3.	Diploma in Dental Faculty		--
4.	Fellowships		--
5.	Certificate Courses		07
6.	Bachelor of Dental Surgery -	BDS	93
Total			136

III. Faculty of Nursing

1.	Doctor of Philosophy	Ph.D	
2.	MSc Nursing		17
3.	BSc Nursing		95
4.	PC BSc Nursing		19
Total			131

IV. Faculty of Pharmacy

1.	Doctor of Philosophy	Ph.D	05
2.	Master of Pharmacy –	M Pharma	137
3.	Doctor of Pharmacy (Post Baccalaureate)		03
4.	Doctor of Pharmacy (Pharm D)		--
5.	Bachelor of Pharmacy	B Pharma	189
Total			334

V. Faculty of Physiotherapy and Allied Health Sciences

1.	Master of Physiotherapy	MPT	46
2.	M.Sc. Allied Sciences		31
3.	M.Sc MLT		--
4.	Master in Hospital Administration		06
5.	Bachelor of Hospital Administration		--
6.	Bachelor of Physiotherapy	BPT	69
7.	Bachelor in Prosthetic and Orthotics		--
8.	U.G Allied Health Sciences		78
Total			230
Grand Total			1194

Annexure IV- C. Table 4

Manipal Academy of Higher Education (Institution of Eminence Deemed to be University), Manipal

Degrees/Diplomas awarded during the last Regular convocation held in the year of 2020

I. Faculty of Medicine

1.	Doctor of Philosophy Ph.D	04
2.	Super Specialty (DM & MCh)	11
3.	Fellowships	04
4.	Doctor of Medicine /Master of Surgery - MD/MS	166
5.	Post Graduate Diploma	23
6.	Bachelor of Medicine & Bachelor of surgery - MBBS	481
Total		689

II. Faculty of Dentistry

1.	Doctor of Philosophy Ph.D	00
2.	Master of Dental Surgery - MDS	42
3.	Diploma in Dental Faculty	--
4.	Fellowships	--
5.	Certificate Courses	--
6.	Bachelor of Dental Surgery - BDS	205
Total		247

III. Faculty of Nursing

1.	Doctor of Philosophy Ph.D	01
2.	MSc Nursing	12
3.	BSc Nursing	105
4.	PC BSc Nursing	12
Total		130

IV. Faculty of Pharmacy

1.	Doctor of Philosophy Ph.D	04
2.	Master of Pharmacy - M Pharma	86
3.	Doctor of Pharmacy (Post Baccalaureate)	27
4.	Doctor of Pharmacy (Pharm D)	
5.	Bachelor of Pharmacy B Pharma	97
Total		214

V. Faculty of Physiotherapy and Allied Health Sciences

1.	Doctor of Philosophy Ph.D	05
2.	Master of Optometry	08
3.	M.Phil (Clinical Psychology)	11
4.	M.Sc. (Audiology)	13
5.	M.Sc. (Cardiac Catheterization and Interventional Technology)	01
6.	M.Sc. (Clinical Psychology)	19
7.	M.Sc. (Echocardiography)	02
8.	M.Sc. (Exercise and Sports Science)	11
9.	M.Sc. (Health Information Management)	02
10.	M.Sc. (Medical Imaging Technology)	03
11.	M.Sc. (Medical Laboratory Technology)	03
12.	M.Sc. (Medical Radiation Physics)	07
13.	M.Sc. (Nuclear Medicine Technology)	01
14.	M.Sc. (Renal Replacement Therapy and Dialysis Technology)	01
15.	M.Sc. (Respiratory Therapy)	04
16.	M.Sc. (Speech-Language Pathology)	08
17.	Master of Occupational Therapy	10
18.	Master of Physiotherapy MPT	32
19.	Bachelor in Audiology and Speech Language Pathology	26
20.	Bachelor of Optometry	20
21.	B.Sc. (Cardiovascular Technology)	29
22.	B.Sc. (Exercise and Sports Sciences)	03
23.	B.Sc. (Health Information Administration)	01
24.	B.Sc. (Health Information Management)	13
25.	B.Sc. (Medical Imaging Technology)	27
26.	B.Sc. (Medical Laboratory Technology)	22
27.	B.Sc. (Medical Radiotherapy Technology)	06
28.	B.Sc. (Nuclear Medicine Technology)	07
29.	B.Sc. (Perfusion Technology)	11
30.	B.Sc. (Renal Replacement Therapy and Dialysis Technology)	09
31.	B.Sc. (Respiratory Therapy)	33
32.	Bachelor of Occupational Therapy	29
33.	Bachelor of Physiotherapy BPT	48
Total		425
Grand Total		1705

Annexure IV –C . Table 5

**National Institute of Mental Health And Neurosciences, Institute of National Importance,
Bengaluru-29**

Degrees/Diplomas awarded during the last Convocation held in Academic year of 2019-2020.

I. Faculty of Medicine

1.	Doctor of Philosophy	Ph.D	25
2.	Super Specialty	(DM & MCh)	29
3.	Fellowships		9
4.	Doctor of Medicine /Master of Surgery –	MD/MS	27/NIL
5.	Post Graduate Diploma		NIL
Total			90

II. Faculty of Nursing

1.	Doctor of Philosophy	Ph.D	1
2.	MSc Nursing		5
3.	BSc Nursing		76
4.	PC BSc Nursing		Nil
Total			82

III. Other Courses

1.	Mphil Courses		51
2.	MSc Biostatistics		4
3.	Post Doctoral Fellowship		28
4.	Master of Public Health		4
5.	Diploma in Clinical Neurophysiology Technology(DCNT)		4
6.	Post-Basic Diploma in Psychiatric/Mental Health Nursing(DPN)		3
7.	Post-Basic Diploma in Neuroscience Nursing(DNN)		2
8.	BSc Anaesthesia Technology		6
9.	BSc Radiography		8
Total			110

Annexure IV -C. Table 6

NITTE (Deemed to be University) Mangalore

Particulars of the Degrees/Diplomas awarded during the last Regular convocation held in 2020

I. Faculty of Medicine

1.	Doctor of Philosophy	Ph.D	02
2.	Super Specialty	(DM & MCh)	01
3.	Fellowships		---
4.	Doctor of Medicine /Master of Surgery –	MD/MS	71
5.	Post Graduate Diploma		---
6.	Bachelor of Medicine & Bachelor of surgery -	MBBS	170
Total			244

II. Faculty of Dentistry

1.	Doctor of Philosophy	Ph.D	04
2.	Master of Dental Surgery -	MDS	39
3.	Diploma in Dental Faculty		---
4.	Fellowships		02
5.	Certificate Courses		----
6.	Bachelor of Dental Surgery -	BDS	106
Total			151

III. Faculty of Nursing

1.	Doctor of Philosophy	Ph.D	01
2.	MSc Nursing		05
3.	BSc Nursing		102
4.	PC BSc Nursing		10
Total			118

IV. Faculty of Pharmacy

1.	Doctor of Philosophy	Ph.D	02
2.	Master of Pharmacy –	M Pharma	57
3.	Doctor of Pharmacy (Post Baccalaureate)		---
4.	Doctor of Pharmacy (Pharm D)		28
5.	Bachelor of Pharmacy	B Pharma	100
Total			187

V. Faculty of Physiotherapy and Allied Health Sciences

1.	Doctor of Philosophy	Ph.D	04
2.	Master of Physiotherapy	MPT	20
3.	P.G Allied Health Sciences:		17
	M.Sc. (Medical Imaging Technology)	MIT	07
	M.Sc. (Anaesthesia & Operation Theatre Technology)	A&OTT	03
	M.Sc (Medical Laboratory Technology)	MLT	--
4.	Master in Hospital Administration		--
5.	Master of Public Health	MPH	05
6.	Master of Philosophy (Psychiatric Social Work)	M.Phil.	02
7.	Bachelor of Hospital Administration		---
8.	Bachelor of Physiotherapy	BPT	59
9.	Bachelor in Prosthetic and Orthotics		---
10.	U.G Allied Health Sciences:		79
	Bachelor of Science in Medical Imaging Technology	MIT	24
	Bachelor of Science in Anaesthesia & Operation Theatre Technology)	A&OTT	32
	Bachelor of Science in Medical Laboratory Technology	MLT	23
Total			179

VI. Faculty of Humanities

1.	Master of Arts (Journalism & Mass Communication)	06
2.	Bachelor of Arts (Journalism & Mass Communication)	37
Total		43

VII. Faculty of Biological Sciences

1.	M.Sc. (Biomedical Science)	10
2.	M.Sc. (Food Safety & Biotechnology)	03
3.	Bachelor of Science in Biomedical Science (Honours)	45
Total		58

VIII. Faculty of Architecture

1.	Bachelor of Architecture	30
Total		30
Grand Total		1010

Annexure IV –C. Table 7

SRI SIDDHARTHA ACADEMY OF HIGHER EDUCATION, TUMKUR, KARNATAKA

Particulars of the Degrees/Diplomas awarded during the last Regular convocation held in the year of 2020

I. Faculty of Medicine

1.	Doctor of Philosophy	Ph.D	01
2.	Super Specialty	(DM & MCh)	--
3.	Fellowships		--
4.	Doctor of Medicine /Master of Surgery –	MD/MS	28
5.	Post Graduate Diploma		14
6.	Bachelor of Medicine & Bachelor of surgery -	MBBS	146
Total			189

II. Faculty of Dentistry

1.	Doctor of Philosophy	Ph.D	--
2.	Master of Dental Surgery -	MDS	07
3.	Diploma in Dental Faculty		--
4.	Fellowships		--
5.	Certificate Courses		--
6.	Bachelor of Dental Surgery -	BDS	49
Total			56

III. Faculty of Nursing

1.	Doctor of Philosophy	Ph.D	--
2.	MSc Nursing		--
3.	BSc Nursing		--
4.	PC BSc Nursing		--
Total			---

IV. Faculty of Pharmacy

1.	Doctor of Philosophy	Ph.D	--
2.	Master of Pharmacy –	M Pharma	--
3.	Doctor of Pharmacy (Post Baccalaureate)		--
4.	Doctor of Pharmacy (Pharm D)		--
5.	Bachelor of Pharmacy	B Pharma	--
Total			--

V. Faculty of Physiotherapy and Allied Health Sciences

1.	Master of Physiotherapy	MPT	--
2.	M.Sc. Allied Sciences		--
3.	M.Sc MLT		--
4.	Master in Hospital Administration		--
5.	Bachelor of Hospital Administration		--
6.	Bachelor of Physiotherapy	BPT	--
7.	Bachelor in Prosthetic and Orthotics		--
8.	U.G Allied Health Sciences		--
Total			--
Grand Total			245

Annexure IV –C. Table 8

Sri Devaraj Urs Academy of Higher Education (SDUAHER), Tamaka, Kolar

Degrees/Diplomas awarded during the Convocation held in 2020

I. Faculty of Medicine

1.	Doctor of Philosophy	Ph.D	02
2.	Super Specialty	(DM & MCh)	
3.	Fellowships		01
4.	Doctor of Medicine /Master of Surgery –	MD/MS	52
5.	Post Graduate Diploma		17
6.	Bachelor of Medicine & Bachelor of surgery -	MBBS	109
Total			181

II. Faculty of Dentistry

1.	Doctor of Philosophy	Ph.D	
2.	Master of Dental Surgery -	MDS	
3.	Diploma in Dental Faculty		
4.	Fellowships		
5.	Certificate Courses		
6.	Bachelor of Dental Surgery -	BDS	
Total			

III. Faculty of Nursing

1.	Doctor of Philosophy	Ph.D	
2.	MSc Nursing		
3.	BSc Nursing		
4.	PC BSc Nursing		
Total			

IV. Faculty of Pharmacy

1.	Doctor of Philosophy	Ph.D	
2.	Master of Pharmacy –	M Pharma	
3.	Doctor of Pharmacy (Post Baccalaureate)		
4.	Doctor of Pharmacy (Pharm D)		
5.	Bachelor of Pharmacy	B Pharma	
Total			

V. Faculty of Physiotherapy and Allied Health Sciences

1.	Doctor of Philosophy	Ph.D	01
2.	Master of Physiotherapy	MPT	
3.	M.Sc. Allied Sciences		
4.	M.Sc MLT		03
5.	Master in Hospital Administration		
6.	Bachelor of Hospital Administration		
7.	Bachelor of Physiotherapy	BPT	
8.	Bachelor in Prosthetic and Orthotics		
9.	U.G Allied Health Sciences		109
Total			113
Grand Total			294

Annexure IV -C. Table 9

YENEPOYA DEEMED TO BE UNIVERSITY

Degrees/Diplomas awarded during the last Regular convocation held in October 2020

I. Faculty of Medicine

1.	Doctor of Philosophy	Ph.D	-
2.	Super Specialty	(DM & MCh)	01
3.	Fellowships		05
4.	Doctor of Medicine /Master of Surgery –	MD/MS	80
5.	Post Graduate Diploma		18
6.	Bachelor of Medicine & Bachelor of surgery -	MBBS	151
Total			255

II. Faculty of Dentistry

1.	Doctor of Philosophy	Ph.D	02
2.	Master of Dental Surgery -	MDS	45
3.	Diploma in Dental Faculty		-
4.	Fellowships		-
5.	Certificate Courses		-
6.	Bachelor of Dental Surgery -	BDS	115
Total			162

III. Faculty of Nursing

1.	Doctor of Philosophy	Ph.D	01
2.	MSc Nursing		02
3.	BSc Nursing		96
4.	PC BSc Nursing		25
Total			124

IV. Faculty of Pharmacy

1.	Doctor of Philosophy	Ph.D	-
2.	Master of Pharmacy –	M Pharma	-
3.	Doctor of Pharmacy (Post Baccalaureate)		-
4.	Doctor of Pharmacy (Pharm D)		-
5.	Bachelor of Pharmacy	B Pharma	-
Total			

V. Faculty of Physiotherapy and Allied Health Sciences

1.	Master of Physiotherapy	MPT	11
2.	M.Sc. Allied Sciences		03
3.	M.Sc MLT		-
4.	Master in Hospital Administration		06
5.	Bachelor of Hospital Administration		08
6.	Bachelor of Physiotherapy	BPT	40
7.	Bachelor in Prosthetic and Orthotics		-
8.	U.G Allied Health Sciences		61
Total			129
Grand Total			670

Annexure IV -C . Table 10

MS Ramaiah University of Applied Sciences, (MSRUAS), Bangalore
Degrees/Diplomas awarded during the last Regular convocation held in 2020

I. Faculty of Dentistry

1.	Doctor of Philosophy	Ph.D	04
2.	Master of Dental Surgery -	MDS	31
3.	Diploma in Dental Faculty		-
4.	Fellowships		-
5.	Certificate Courses		-
6.	Bachelor of Dental Surgery -	BDS	58
Total			93

II. Faculty of Pharmacy

1.	Doctor of Philosophy	Ph.D	-
2.	Master of Pharmacy –	M Pharma	32
3.	Doctor of Pharmacy (Post Baccalaureate)		-
4.	Doctor of Pharmacy (Pharm D)		22
5.	Bachelor of Pharmacy	B Pharma	58
Total			112

III. Faculty of Physiotherapy and Allied Health Sciences

1.	Master of Physiotherapy	MPT	-
2.	M.Sc. Allied Sciences		-
3.	M.Sc MLT		-
4.	Master in Hospital Administration		25
5.	Bachelor of Hospital Administration		-
6.	Bachelor of Physiotherapy	BPT	-
7.	Bachelor in Prosthetic and Orthotics		-
8.	U.G Allied Health Sciences		-
Total			25
Grand Total			230

Annexure IV --C . Table 11

GARDEN CITY UNIVERSITY (State Private University)

Admissions during 2019-20

Physiotherapy

BPT: 93

MPT: 17

Annexure IV -C. Table 12

National Institute of Mental Health and Neurosciences (NIMHANS), Bengaluru
Number of Students admitted for various courses during - 2019-20

Faculty	UG Courses Number of Students	PG Courses Number of Students				
		M D	MS	DM	M.Ch.	Total
Medical		36	NIL	42	10	88
Nursing BSc N, MSc. N		85				85
Other B.Sc. and Diploma courses		21				21
M.Phil in Clinical Psychology		28				28
MPH		11				11
M.Phil in Psychiatric Social Work		25				25
Other M.Phil courses		8				8
M.Sc. in Biostatistics		1				1
Ph.D. Courses		39				39
TOTAL						306

Annexure V

SWOC Analysis

Discipline	Strengths	Challenges- Gaps & Barriers	Opportunities
Physiotherapy and Allied Health care profession	<p>Physiotherapy being in education for over 25 years, is today more structured and the awareness of the scope of practice is there.</p> <p>The proposal for the formation of National Commission for Allied Health and Healthcare Professions (NCMAHP) was placed and passed by both Houses of Parliament in March 2021. It was gazette by the end of March 2021</p>	<p>Allied health sciences is still an unorganized stream, not governed by any council as yet, the quality of education is variable and also the programs are not well regulated.</p> <p>Both these areas did not have a regulatory body until the enactment recently. The direction going forward, creating cadres, building up the man power requirements were not addressed to date. The need at the state level for a regulatory body was also strongly felt.</p> <p>Further, there is no available data on the workforce requirements for Physiotherapy and Allied Health care Professional graduates in the State.</p>	<p>Thorough review of curriculum, manpower needs, manpower Institutions, establishment of Council, Cadre, Job Opportunities Scientific study and Road map for HR Planning, Development and Strengthening.</p> <p>There is opportunity now in view of NCMAHP Act 2021, for State Government to notify at the earliest a State Level Council to regulate the vast range of courses in Allied Health and Healthcare Professions, including Physiotherapy.</p>
Nursing Education	<p>Karnataka state has the highest number of nursing education institutions and nursing seats in India.</p> <p>Curriculum, training methods available</p>	<p>Needs quality Improvement of quality in education was a felt need.</p> <p>Challenge to retain Nurses of Karnataka to serve within the state</p>	<p>Improvement in quality of training; regulation of Nursing Colléges, Affiliation to Hospitals rather than nursing homes</p> <p>Unregulated growth of colleges to be monitored</p> <p>Developing training courses in Specialty areas of Nursing.</p> <p>Scientific study and Road map for HR Planning, Development and Strengthening.</p>

Dental Education	Highest number of Dental colleges in the country, produce 3000 dentists (approximately) every year. In Urban areas, the dentist population ratio is 1:1000 (in some areas, even lesser), while in the rural areas it is 1:2,50,000. The number of dentists is surplus in urban and under-represented in the rural areas.	<p>Non uniform Quality assurance: Standards are variable since there is no uniform quality assurance mechanism in place across all dental institutions. The top ranked institutions have voluntarily been accredited to National Assessment & Accreditation Council (NAAC) of quality assurance parameters have been fulfilled to varying degree.</p> <p>Cadre/Pay scale need greater care specially in Private sector.</p>	<p>Integration with Primary Health care System, Quality assurance and standards to be maintained.</p> <p>There is need for developing a Dental Chairside Assistants. Strengthening the cadre of Dental Health Care worker.</p> <p>Scientific study and Road map for HR Planning, Development and Strengthening.</p>
Pharmacy Education	The present function of pharmacy does not lie merely in dispensing of medication, but in the provision of relevant drug information and drug therapy recommendation to the people in the society.	<p>Need for defining expanded role of pharmacists; there is need for better collaboration between dept of Pharmacology and Pharmacists.</p> <p>There is need for better collaboration between Dept. of Pharmacology of Medical Colleges and that of Pharmacy practice and Pharmacology of Pharmacy Colleges Institutions) .</p> <p>Cadre/Pay scale need greater care specially in Private sector.</p>	<p>Utilisation of Pharm D scholars at District level for Pharmacovigilance; Enhancing role of Diploma/Degree holders in clinical Pharmacy; Developing Pharmaco-vigilance at Taluk Level; Teleconsultation on Pharmacovigilance. Developing Drug Information Centre/Drug Policy and Drug Formulary in every Large Hospital</p> <p>There is opportunity to encourage Pharmacists with Diploma in Pharmacy to- obtain B Pharma degrees through lateral entry.</p>
Medical Education	Large number of Medical Colleges in the State	<p>Need for apt urban/rural distribution; incentives for rural service; Health HR assessment for planning, development and strengthening; strengthened efforts towards Faculty Development .</p> <p>There are no "takers" for the PG seats in six of the eight departments* over the past few years. They are Anatomy, Physiology and Biochemistry in Pre-Clinical area and Pharmacology, Forensic Medicine and Microbiology Para-Clinical areas. This reality may precipitate a situation where in we will see a huge shortage of faculty in these areas- to meet the requirements in new Colleges as well as replacing the retirement of existing faculty.</p>	Scientific study and Road map for HR Planning, Development and Strengthening

- **Admission to AYUSH, Nursing, Pharmacy, Physiotherapy, Allied & Healthcare Profession :**
The subcommittee reviewed in detail situation of Pre-university students seeking admission to AYUSH, Nursing, Pharmacy, Physiotherapy, Allied & Healthcare Professionals, are facing different time line of admissions, modus operandi of admissions, delays in admissions because of sequential admissions process every academic year, is resulting in not only loss of academic time up to October/November during 1st year, but also is causing anxiety of students and parents due to uncertainty. In addition, it is alleged that “left overs” join courses like Pharmacy, Physiotherapy and Allied & Healthcare Professional course.
- Need to establish more Pharmacy, Nursing, Physiotherapy and Allied Health Professional Colleges in Government sector.