"Guidelines for Meaningful And Effective Utilization Of Manpower At Dental Colleges For Primary Prevention Of Oro-dental Problems In The Country"

(A GOI- WHO Collaborative Programme)

Conducted at

TS-Centre for Dental Studies & Research

Delhi Meerut Road, Murad Nagar,
Ghaziabad (U.P.) 201206. INDIA.

FINAL REPORT AND RECOMMENDATIONS

“Formulation of Guidelines for Meaningful and Effective Utilization of Available Manpower at Dental Colleges for Primary Prevention of Oro-dental Problems in the Country”

(A GOI- WHO Collaborative Programme)

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This project has been jointly undertaken by faculty from I.T.S Centre for Dental Studies and Research, Ghaziabad and Centre for Dental Education and Research, All India Institute of Medical Sciences, New Delhi. The contents of this report are outcome of several meetings and a brain storming workshop held at I.T.S-Centre for Dental Studies and Research.

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CONTENTS

ABBREVIATIONS AND ACRONYMS

AIIMS	-	All India Institute of Medical Sciences, New Delhi
ART	-	Atrumatic Restorative Technique
ASHA	-	Accredited Social Health Activitist
BDS	-	Bachelor of Dental Surgery
BHU	-	Banaras Hindu University, Varanasi
CHC	-	Community Health Centre
CMC	-	Chirstian Medical College, Vellore
CRFA	-	Common Risk Factor Approach
DGHS	-	Directorate General Health Services
DMFT	-	Decayed, Missing and Filled Permanent Teeth
GOI	-	Government of India
HIV	-	Human Immuno-deficiency Virus
I.T.S-C.D.S.R	-	I.T.S Centre for Dental Studies and Research
ICDS	-	Integrated Child Development Scheme
IDA	-	Indian Dental Association
IEC	-	Information, Education and Communication
IMR/MMR	-	Infant Mortality Rate, Maternal Mortality Rate
JIPMER	-	Jawahar Lal Nehru Institute of Post Graduate Medical Education and Research, Pondicherry
MDS	-	Master of Dental Surgery
MOHFW	-	Ministry of Health and Family Welfare
NGO	-	Non-Governmental Organization
NOHCP	-	National Oral Health Care Programme
NRHM	-	National Rural Health Mission
NSS	-	National Service Scheme
PG	-	Post Graduate
PHC	-	Primary Health Centre
SD	-	Sub-division Hospital
UG	-	Under Graduate
WHO	-	World Health Organization
WHO-India	-	WHO- Country Representative Office for India

FOREWORD

The commitment to attain an optimal level of health for all by year 2000 an important world wide goal is still pondering the minds of people concerned and committed to the welfare of people…will this dream ever come true? The existing gross inequality in the health status of people particularly between the developed and developing countries as well as within the countries is a matter of great concern and unacceptable in the spirit of social justice and violation of fundamental rights of the mankind.

Health is incomplete if it does not include oral health. There are continued efforts to improve oral health and to improve the overall health of the masses in India. However, the participation of dental professionals and institutions in the national health system has been very minimal. In order to bring the oral disease under control and to help the nation in achieving health goals, it is important for the dental professionals and a fleet of 240 dental teaching institutions to participate in the health system by incorporating the training of students in the primary health care centers and inclusion of faculty from dental institutions for primary prevention of oro-dental diseases.

The project entitled "Formulation of Guidelines for Meaningful and Effective Utilization of Available Manpower at Dental Colleges for Primary Prevention of Oro-dental Problems in the Country" is an effort by the Ministry of Health and WHO to help the dental institutions in this direction. I hope that this report will be a ready blue print for the authorities to enforce primary preventive programmes for the masses through manpower in dental institutions.

Ministry of Health and Family Welfare, Govt of India, WHO-India and the participating institutions need to be congratulated on such an effort. Prof. Hari Parkash, the Principal Investigator and his zealous team of this project deserves heartfelt praises for coming out with such a report.

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PREFACE

Urbanization and modern food practices have not only contributed to the increase in lifestyle diseases but also there is a shift in pattern of non-communicable diseases. Oral Disease burden is increasing in the country. This burden does not only have impact upon general health but also affect psychology and economy of the individuals, families and society. In view of this, it has become essential that preventive measures may be under taken at all possible levels which are more cost effective than curative treatment. To achieve this, we have to have indulgence of dental manpower at various levels and in particular in teaching institutions. Therefore, training of the dental students' right from first year should be community based and community oriented. To achieve this, we need to involve the dental institutions faculty and administration for effective implementation of guidelines for primary prevention of oro-dental problems in the country.

This report is being presented as an outcome of several brainstorming meetings, review of literature and national level workshop conducted at I.T.S-C.D.S.R to reach a national consensus on effective and meaningful utilization of available manpower in Dental Institutions across the country for primary prevention. The proposed guidelines would not only require mobilization of workforce, capacity building and lot of will power but also require restructuring of the training programme for the students. This report also elaborates upon phased training of students in rural India for facilitating their understanding and change in attitude for better oral health. We hope that the Ministry of Health and Family Welfare, World Health Organization, Dental Council of India and policymakers will accept the recommendations and enforce them to control the ever increasing burden of oro-dental problems.

Hari Parkash
Ritu Duggal
Vijay P Mathur

INTRODUCTION AND BACKGROUND

India is a developing country with a population of approximately 1090 million (March 2007). Although the economy of the country is improving, yet some of the health problems of the nation are on the rise. While few of the communicable diseases are being controlled, but there has been an increase in the non-communicable diseases[1].

The oro-dental diseases are emerging as considerable public health problems in India. Oral problems are not only causing pain, agony, functional and esthetic problems but also lead to loss of working man-hours. Hence, in the long run, they are bound to have a significant impact on our economy. According to estimates, about 50% of schoolchildren are suffering from Dental caries and more than 90% of adults are having periodontal diseases[2]. The use of tobacco products, smoking or smokeless form, are widely prevalent in our country. Hence, oral pre-cancers and cancers are emerging as major threat to younger people and is increasing to alarming proportion in India. Oral cancer is a life threatening malady and the available treatment modalities are expensive and are way beyond the reach of the common man. They can be prevented and controlled by public education and motivation to a significant level. Thus, primary prevention of oro-dental problems is need of the hour and it is high time to activate preventive programmes for the masses.

It has been widely recognized that the present system of under graduate dental education is predominantly curative and little emphasis is laid on preventive aspects. It is therefore far from satisfactory as far as the national oral health situation is concerned. Despite the curriculum frame, numerous recommendations in various committees and conferences, the quality and relevance of dental education to the prevailing oral health situation of our country could not be satisfactorily introduced by the Dental Institutions.

The dental graduate occupies a central place in oral health care delivery system. His work is not merely curative but has to be involved in the prevention of oral diseases[3]. During graduation, his training is lopsided towards curative aspects of oral health care. The student spends most of his time in the teaching institution hospital, where specialized dental treatments are available in different dental specialities. However, he has to practice in the society where no such facilities exist and this completely disorients him. Hence, it can be observed that there is a conflict between his training and the role that is assigned to him. This disharmony is finally responsible for the present day aloofness of dental graduates from basic dental health care needs of the community. There is a definite need to bring in preventive aspects in the curriculum and adapt a community-based approach in training dental graduates. This necessitates changes in the curriculum and providing pertinent guidelines towards preventive and community-based approach.

It has also been observed that there is no interest of the faculty in dental

colleges towards public health. There are unorganized efforts by the institutions to bring patients to the dental colleges rather than having a systematic public health approach. A considerable portion of the oral healthcare provided in our country comes from the private individual practice, followed by dental institutions. There is general notion that the Dental Institutions are not a part of health care system of the country. Few of the dental institutions have made solitary efforts in this direction but largely, they have not been encouraged due to non availability of guidelines.

There are about 240 dental colleges in the country[4] having about 9000 faculty members, both in government and private sector. In spite of a large number of dental colleges, there is uneven geographical distribution, which leads to imbalance in availability and provision of oral health care with respect to oral health problems within the homeland. Moreover, it is a striking fact that despite of an enormous increase in the number of Dental Surgeons and dental institutions during last two decades in our country, the prevalence and severity of oral diseases is increasing[5]. Thus it is true that the increase in number of dental graduates has not led to corresponding improvements in the oral health of the population because of non implementation of the preventive programmes.

It was conceptualized that if guidelines can be formulated for effective and meaningful utilization of available manpower in dental institutions for primary prevention of oro-dental diseases, it might have a significant impact on overall oral disease burden in the country. This will also help in participation of dental institutions in the national health system and in achievement of national health goals.

OBJECTIVES OF THE PROJECT

2

The idea of effective and meaningful utilization of existing manpower in various dental institutions has been conceptualized to improve the oral health of the countrymen. The project was undertaken to formulate the guidelines for effective resource utilization and achieving health for all.

The objectives defined for the project are as follows:

I. Formulation of Guidelines for effective and meaningful utilization of available manpower in various Dental Colleges in the country for primary prevention of oro-dental problems.

II. To suggest appropriate measures to the bodies like Ministry of Health and Family Welfare, WHO and Dental Council of India etc. for effective implementation of primary preventive programmes for dental problems across the country.

3 EFFECT OF ORAL HEALTH ON GENERAL HEALTH

Oral health and general well-being are inextricably bound. Many conditions that plague the body are manifested in the mouth, thus enabling to view the onset, progression and management of numerous systemic diseases. The wide array of habitat renders the mouth a microbial paradise, offering preferred accommodations on the cheek, back of the tongue and in the moist, oxygen deprived area between the tooth surface and the adjacent periodontal tissues.

Oral infection can have an adverse effect on other organs of the body. Oral cavity can tell of direct assaults by a broad range of systemic disorders such as Diabetes, AIDS, Sjogren's syndrome, as well as complications of treatments like Cancer Chemotherapy and Radiation. Several recent studies have demonstrated a relationship between periodontal disease and Infective Endocarditis, Coronary Artery Disease, Stroke, Diabetes and Respiratory Tract diseases[5]. These studies investigating the association between periodontal disease and other health problems and advanced medical and dental technology have greatly expanded our understanding of various disease processes. The pregnant women suffering from periodontitis are at a higher risk of pre-term delivery or a low-birth-weight baby or may experience pre-eclampsia. Periodontitis appears to share genetically determined risk factors with several other chronic degenerative diseases such as Ulcerative Colitis, Juvenile Arthritis and Systemic Lupus Erythematosus. Obviously, these health problems are of concern to all health care professionals, including dentists. From the insight provided by these studies and technologies, we now recognize that periodontal, or gum diseases may be a potential risk factor for many health problems

3.1. Effect of Oral Conditions on Systemic Health

3.1.1. Periodontal Disease Vs Cardiovascular Disease

As per the studies reported in the literature, the relationship between periodontal diseases and various vascular diseases could be explained by the hypothesis that periodontal pathogens can invade the blood vessel walls and cause atherosclerosis[6-8]. Another hypothesis is based on several studies that have shown that periodontal infections can be correlated with increased plasma levels of inflammation such as fibrinogen (this creates blood clots), C-reactive protein, or several cytokines (hormone proteins). Researchers have found that the risk of fatal heart disease doubles with severe periodontal disease[9].

3.1.2. Periodontal Disease Vs Diabetes

For years, physicians and dental professionals have known of the two-way relationship between diabetes and periodontal health. People with diabetes are at increased risk of getting periodontal disease, which in turn, may make diabetes worse. It can also increase the risk of

complications such as vision problems, nerve damage, kidney disease and cardiovascular disease. Researches show that patients with Type II (adult onset) diabetes are about three times more likely to get periodontal disease than non-diabetics[6]. The disease also is more likely to progress rapidly and to more severe stages in people with diabetes. Conversely, it was found that people with more severe periodontal disease were six times more likely to have poor glycemic control at follow-up than those who had less severe periodontal disease. A recent study found that smoking increases the risk of periodontal disease by nearly ten times in diabetic patients.

3.1.3. Periodontal Disease Vs Adverse Pregnancy Outcomes

Severe periodontal disease in pregnant women causes a seven-fold increase in the risk of delivering Preterm Low Birth Weight (LBW) babies[10-13]. Scientists theorize that oral pathogens release toxins that reach the human placenta via the mother's blood circulation and interfere with fetal growth and development. The oral infection also prompt accelerated production of inflammatory mediators PG E_2(Prostaglandin E 2) and TNF á (Tumor Necrosis Factor- alpha) that normally build to a threshold level throughout pregnancy and thereby trigger the premature delivery[14-16].

Another recent study revealed that higher salivary levels of *Actinomyces naeslundii Genospecies 2* is associated with low birth weight and preterm delivery while higher levels of *Lactobacillus casei* during pregnancy positively affects the birth weight. Periodontitis also increases the risk of pre-eclampsia or pregnancy induced hypertension (PIH) which occurs sometime after 20th week of gestation[15,17]. Severe PIH reduces the flow of oxygen and nutrients from the placenta to the fetus and can lead to life threatening organ damage and seizures in pregnant women. Mild PIH can be kept under control until birth, but severe cases may require preterm delivery.

3.1.4. Periodontal Disease Vs Respiratory Disease

Studies have shown that poor oral hygiene and periodontal disease may foster colonization of the oropharyngeal region by respiratory pathogens, particularly in hospital or nursing home patients. If aspirated, these pathogens can cause Pneumonia and Chronic Obstructive Pulmonary Disease (COPD). Recent research suggests that bacteria found in the throat and mouth can be drawn into the lower respiratory tract, causing infections or worsening existing lung conditions[18-20]. More research is being conducted to further elucidate the association between periodontal disease and respiratory tract infections.

3.1.5. Periodontal Disease Vs Obesity

The prevalence of periodontal disease among obese young adults (18-34 yrs) was found to be 76% higher than normal weight individuals in this age group. This association of obesity and periodontal disease in young adults can be explained by their different dietary patterns than older

people[18,25]. Their dietary trend reveals a significant decrease in raw fruit and non-potato vegetables, which are rich source of Vit.C. Also, increased intake of soft drinks and non-citrus juices and reduced calcium intake contributes to the development of periodontal disease in the young adults.

3.2. Effect of Systemic Conditions on Oral Health

3.2.1. Osteoporosis Vs Periodontal Disease

Another interesting correlation has been found between Osteoporosis and Periodontitis. Osteoporosis is a condition characterized by progressive loss of bone density, thinning of bone tissue and increased vulnerability to fractures. Thus, there is progression of oral bone loss following menopause, which could lead to tooth loss[21]. A current study suggests that estrogen supplementation in women within five years of menopause may slow the progression of periodontal disease[22,23].

3.2.2. Rheumatoid Arthritis Vs Periodontal Disease

Periodontal disease and Rheumatoid Arthritis are known to have very similar pathology. Damage caused by the immune system and chronic inflammation is central to both diseases. According to a study, people who had rheumatoid arthritis were more than twice as likely to have periodontal disease with moderate to severe jaw bone loss than the control subjects[21].

3.2.3. Radiation Therapy Vs Oral Diseases

While head and neck radiation treatment kills cancerous cells, it often destroys vital acinar cells also that lie within the radiation field. Patients are unable to produce adequate saliva, leading to problems like xerostomia, mucositis, rampant dental caries, infections of the mouth and pharynx, and difficulty with swallowing, speech and taste[24]. These conditions dramatically reduce quality of life and can also be the source of systemic infections that may threaten patient survival or interfere with their cancer treatment.

It will therefore be important to control the oral micro-flora for systemic reasons, since increasingly strong links are being established between focal infection of oral origin and a range of systemic diseases. All these developments have been derived from a greatly improved understanding of the fundamentally ecological nature of the natural microbial biofilm (dental plaque) and of its interactions with its human host. Thus, we can conclude that there is an intimate relationship between oral health and general health. Therefore, there is a need to analyse the patho-physiology of disease processes and follow Common Risk Factor Approach (CRFA) as advocated by WHO to prevent both oral and systemic diseases.

ORAL HEALTH SITUATION AND TRENDS

4

Oral health is an integral component of general health. Dental Caries and Periodontal problems are almost universal and are found in many populations and age groups across the globe and all economies. India is no exception to these problems and they are widely prevalent in India too. The other common oral health problems in India are oral cancer, fluorosis and malocclusion.

In our country no organised National Survey has been conducted to understand the magnitude of Oral & Dental problems, however, isolated studies are available to indicate the prevalence of Oral and Dental diseases. These studies clearly indicate that Dental Caries, Periodontal diseases, Malocclusion and Dento-facial deformities and Oral Cancer are still increasingly affecting Public Health adversely

With the improvements in the economy of the country and changing life style patterns, there are changes in the trends in the occurrence of oral diseases as follows:

4.1. Dental Caries

Dental Caries has been consistently increasing both in prevalence and severity for the last five decades, in the year 1941, its prevalence was reported between 40 50 % with an average DMFT of 1.5[26]. In 1980's the point prevalence increased to about 80% in children with an average DMFT of 2-6 at the age of 16 years in different regions of the country[27]. The point prevalence in 10 to 15 year old children of Delhi was found to be 39.2% and DMFT was 2.61 in the year 1992[28] (Parkash H et al, 1992). According to the most recent estimates dental caries is prevalent in 40-50 % of children and about 30% of the adults.

4.2. Periodontal diseases

Available studies shows, almost 95 to 100 percent of the population above 35 years of age are suffering from periodontal diseases in the country. With increasing life expectancy, the periodontal needs of the population are increasing.

4.3. Oral Pre-cancer and Cancer

According to National Cancer Registry data, the prevalence of Oral Cancers ranges between 0.02 0.03 % in different Urban and Rural areas[29]. It is estimated that intra and peri-oral cancers constitute about 16-19% of all Cancers diagnosed in the country. Relatively higher prevalence has been reported in southern part of country and some part of the Uttar Pradesh. Pindborg Hospital Based studies revealed that almost 35-40 % off all cancers detected in India are Oral Cancers or Pre-cancerous lesions[30].

4.4. Malocclusion

Isolated studies on prevalence of malocclusion elicited that 30% school going children exhibit severe malocclusion requiring orthodontic treatment[31]. The prevalence of unattended cleft lip, palate and other

dento-facial anomalies is very high in our country as compared to the rest of the world, 7 to 9 per thousand.

4.5. Impact of Oral Diseases on Economy and Man Hours

4.5.1. Treatment Cost

The Oro-dental problems are largely considered to be non-life threatening except oral cancer and Treatment of dental diseases are very expensive and time consuming. The treatment of dental caries only in schoolchildren of the country would require a huge amount of funds and time.

In USA alone $ 43,83,000.00 were spent in 1970 for dental caries with major expenditure going for restoration of caries teeth. This sum was approximately 1% of total national income and 10% of nation's health bill. Similarly in U.K. in 1977 approximately 250 million pounds were spent in England and Wales alone on dental treatment within the general dental services section of National Health Services. Whereas in India less than 2% of National budget is spent on health and at present there is no separate allocation for oral health[32].

4.5.2. Loss of Man days

Though the dental diseases are not considered to be life threatening yet they seriously affect day to day activities. When a person is suffering from dental pain, he is amenable to loss of concentration on his work or may not be able to work at all. Though the factor does not seem to be important but it has serious economic implications on the country. In India, we do not have statistical data but it can be estimated by the data of other countries for example in USA in the year 1988 on an average 8 working hours per person per year were lost due to either dental problems or appointment with dentist. So we can very well understand the social and economic implications due to neglect of oral health.

The loss of working hours is specially important in the Indian context since about 26% of the population is below poverty line and depend on daily earnings. The families where a worker is the only earning member, the situation can be even worse if the earning member suffers from a dental ailment stopping him from working for one full day. This could lead to serious situation for food and daily needs for the whole family of 4 or 5 persons.

4.5.3. Public Health Expenditure

This is very unfortunate that till date in India no serious effort has been taken to improve oral health of the masses. Till today, there is no separate budget allocation in national or in most of states health budget for Oral Health. As compared to other countries, we are still lacking in paying sufficient attention to such an important part of our health.

ORAL HEALTH CARE SYSTEM IN INDIA

Oral health care in India is delivered mainly by the following establishments:

1. Government organizations
   a. Government Dental Colleges
   b. Government Medical Colleges with Dental Wing
   c. District Hospitals with Dental Unit
   d. Community Health Centers
   e. Primary Health Centers
2. Non-governmental organizations
   a. Private Dental Colleges
   b. Private Medical Colleges with Dental Wing
   c. Corporate Hospitals with Dental Units
3. Private practitioners
   a. Private dental practitioners
   b. Private dental hospitals
   c. Private medical hospitals with dental units
4. Indigenous systems
   a. Ayurveda
   b. Sidda
   c. Unani
   d. Homeopathy

Majority of dental services in India is being provided by the private dental practitioners, followed by non-governmental organizations.

The Oral Health Care has not received due importance in India. During the past 60 years of independence the Medical Sciences have made tremendous advances in combating most of the communicable and non-communicable diseases; however the Oral Health Care has been neglected. This is evident from the increased prevalence of dental diseases in recent years and from the meagre funds being allocated for Oral Health Care. Govt. of India has accepted the Oral Health Policy in 1995 in principle as a part of the National Health Policy. The Govt. has started a pilot project on oral health titled "National Oral Health Care Programme" in the year 1999 and AIIMS was identified as a nodal agency to implement it[2]. This is a primary preventive programme aimed at prevention by awareness generation and IEC use. However, the Revised National Health Policy Document 2002 does not have any mention of oral health[33]. Till now as a part of NOHCP, training modules for Dental Surgeons, Health Workers and Schoolteachers and various IEC materials like educational video film on oral health, training manuals, posters, pamphlets etc. have been developed.

As per Dental Council of India there are more than 79,000 dentists for population of about 1090 million with dentist population ratio of 1:10,000 in urban areas and 1:1,50,000 in rural areas[34]. There are 240 approved and recognised dental colleges in the country but these colleges have been set up arbitrarily and haphazardly without considering the magnitude / need of the population in different states. It has been well established that Preventive programmes are very cost effective and advantageous method for fighting oral diseases. But restorative / rehabilitative approach has been practised in India in spite of being more expensive than the preventive measures. In India with increasing level of dental diseases, limited resources and manpower it seems practically difficult to provide curative services to each and every individual, which is the prime responsibility of the Government. Therefore, in a vast country like India, Preventive approach including health education and promotion should be given due importance in implementing the Oral Health Care.

6

DENTAL COLLEGES/ INSTITUTIONS IN INDIA

6.1. Distribution:

The numbers of Dental Colleges in the country have increased from three at the time of independence (1947) to 39 in 1980 to 240 in year 2007. Correspondingly, the number of Dental Surgeons in the country has also increased from hundreds to now nearing 80,000. There is about 3.5 times increase in the population since then and number of dentists has increased to more than 3000 times. But it is unfortunate that, the increase in number of dental professionals could not have significant impact on the incidence and severity of oro-dental problems.

ANDHRA PRADESH	20
1. Hyderabad	1
2. Vijayawada	1
3. Tirupati	1
4. Secundarabad	1
5. Nellore	1
6. Guntur	1
7. Vikarabad	1
8. Vishakhapatnam	1
9. Khammam	1
10. Narketpalli	1
11. Rajahmundry	1
12. Eluru	1
13. Bhimavaram	1
14. Mahbobnagar	1
15. Ranga Reddy	1
16. Srikakulam	1
17. Krishna	1
18. Sangareddy	1
19. Kurnool	1
20. Nizamabad	1

MAHARASHTRA	28
1. Mumbai	2
2. Nagpur	3
3. Aurangabad	2
4. Pune	4
5. Loni	1
6. Amravati	1
7. Nashik	1
8. Navi Mumbai	5
9. Sangli	1
10. Akola	1
11. Wardha	1
12. Ghulewadi	1
13. Solapur	1
14. New Paragon	1
15. Dhule	1
16. Latur	1
17. Beed	1

PONDICHERRY	2
1. Pondicherry	2

J & K	2
1. Srinagar	1
2. Jammu	1

GOA	1
1. Goa	1

KARNATAKA	43
1. Banglore	16
2. Manipal	1
3. Davengere	2
4. Belgaum	2
5. Deralakhatte	1
6. Mysore	2
7. Dharwad	1
8. Chitradurga	1
9. Gulbarga	2
10. Manglore	3
11. Bagalkot	1
12. Sullia	1
13. Hassan	1
14. Kolar Gold Fields	1
15. Bidar	1
16. Bijapur	1
17. Humnabad	1
18. Tumkur	1
19. Shimoga	1
20. Virajpat	1
21. Raichur	2

TAMIL NADU	17
1. Chennai	8
2. Annamalai Nagar	1
3. Salem	1
4. Komarpalayam	1
5. Vadakangulam	1
6. Kulasekharam	1
7. Coimbatore	1
8. Namakkal	1
9. Melmaruvathur	1
10. Trichurapalli	1

PUNJAB	12
1. Amritsar	2
2. Patiala	3
3. Ludhiana	2
4. Faridkot	1
5. Sunam	1
6. Muktsar	1
7. Firozpur	1
8. Chandigarh	1

DELHI	1
1. New Delhi	1

GUJRAT	9
1. Ahmedabad	2
2. Jamnagar	1
3. Vadodara	1
4. Gandhinagar	1
5. Nadiad	2
6. Visnagar	1
	1

HARYANA	11
1. Rohtak	2
2. Yamuna Nagar	1
3. Panchkula	2
4. Ambala	1
5. Gurgaon	1
6. Faridabad	2
7. Sirsa	1
8. Bahadurgarh	1

RAJASTHAN	11
1. Jaipur	6
2. Udaipur	2
3. Sri Ganganagr	1
4. Jodhpur	2

ORISSA	4
1. Cuttak	1
2. Khurda	1
3. Bhubaneshwar	2

UTTARANCHAL	2
1. Rishikesh	1
2. Deheradun	1

WEST BENGAL	3
1. Kolkata	1
2. Siliguri	1
3. 24 Parganaz (North)	1

ASSAM	1
1. Guwahati	1

BIHAR	7
1. Patna	3
2. Darbhanga	3
3. Behera	1

CHATTISGARH	5
1. Rajnandgaon	1
2. Durg	1
3. Bhilai	1
4. Bilaspur	1
5. Raipur	1

KERALA	17
1. Thiruvananthpuram	4
2. Kozikode	1
3. Kottayam	1
4. Kothamangalam	2
5. Muvattupuzla	1
6. Poinachi	1
7. Chalissery	1
8. Cochin	1
9. Kannur	2
10. Kollam	1
11. Tiruvalla	1
12. Calicut	1

HIMACHAL PRADESH	5
1. Sunder Nagar	1
2. Solan	1
3. Shimla	1
4. Nalagarh	1
5. Paonta Sahib	1

UTTAR PRADESH	28
1. Lucknow	5
2. Kanpur	2
3. Meerut	2
4. Ghaziabad	6
5. Moradabad	2
6. Modi Nagar	2
7. Aligarh	1
8. Gaila	1
9. Mathura	1
10. Bareilly	1
11. Safedabad	1
12. Azamgarh	1
13. Greater Noida	2
14. Gorakhpur	1

MADHYA PRADESH	11
1. Indore	4
2. Bhopal	4
3. Gwalior	1
4. Jabalpur	1
5. Burhampur	1

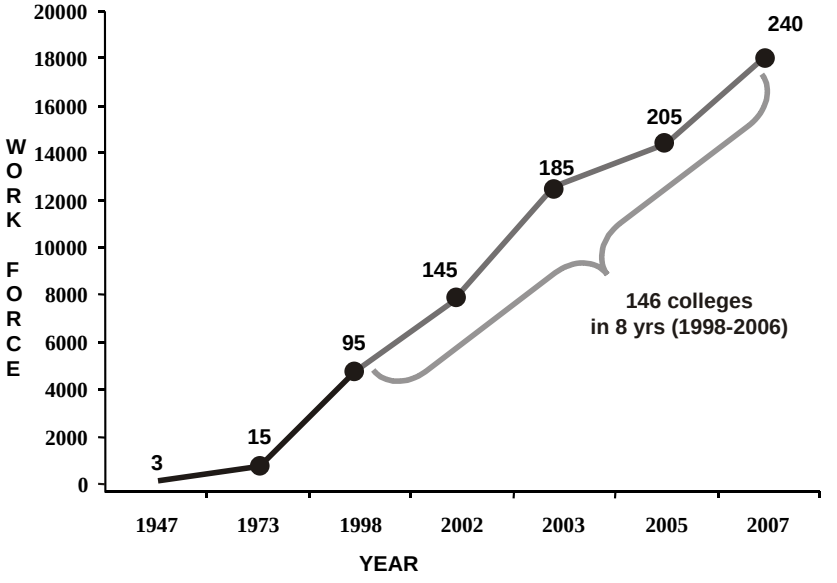
GEOGRAPHICAL DISTRIBUTION OF DENTAL COLLEGES IN INDIA

(As on 5th January 2007)

n = 240

6.2. Workforce: There are about 11,900 faculty members in dental institutions across the country and it has also increased tremendously over last two decades with exponential growth in number of dental institutions[34]. In addition, the first year enrolment in various dental institutions has increased drastically during last 3 decades and it has multiplied 3 times in last 8 years. The graph below depicts the year wise annual intake of students in the institutions over a period of time in India.

First Year Enrolment in Dental Institutions during 1947-2007



6.3. Trends in Dental Education in India: There has been sudden increase in number of dental institutions in the country, however the growth is not uniform in Govt and Private Sectors. Presently only 13% of the dental institutions are owned by the Govt. as compared to 77% in 1980's. This change in proportion has also decreased the participation of dental institutions in the national health system.

S.No	Designation	Nos.
1.	Professors	1792
2.	Associate Professors/ Readers	2032
3.	Assistant Professors/ Lecturers	7200
	TOTAL	11024

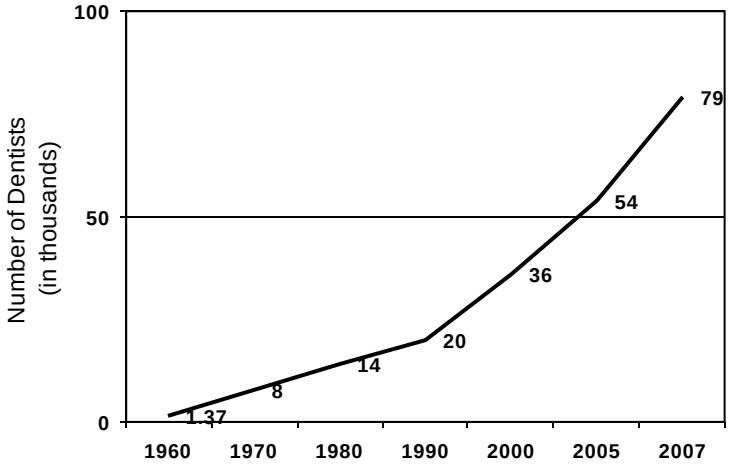
6.4. Numbers of Dental Colleges, 1950 to 2007

	No. of Colleges	Share of Colleges (%)			
Year(s)	Public	Private	Total	Public	Private
1950	3	0	3	100.0	0.0
1960	10	0	10	100.0	0.0
1970	13	1	14	92.9	7.1
1980	17	5	22	77.3	22.7
1990	24	31	55	43.6	56.4
2000	30	104	134	22.4	77.6
2005	31	175	206	15.0	85.0
2007	32	208	240	13.3	87.7

6.5. Number of Dental Professionals: The number of Dental Surgeons registered with Dental Council have also increased multi fold over past 3 decades as is evident from the graph below. In addition, there are about 3856 para dental professionals in the country[41] (dental hygienists and technicians)

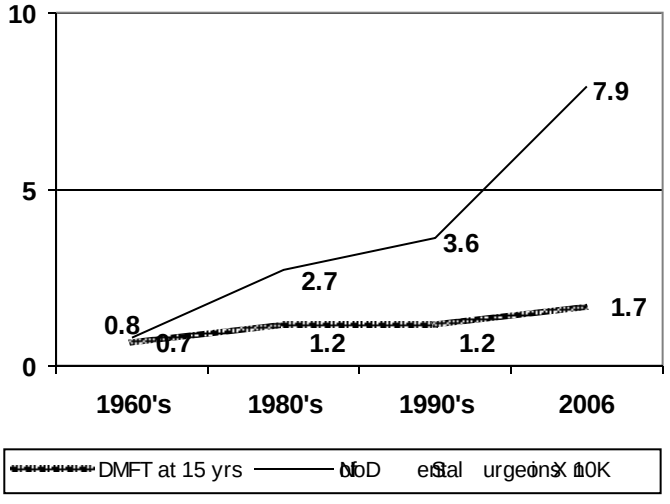
Dental Surgeons (in thousands) registered with Dental Council of India (1960 to 2007)

(source: Dental Council of India)



The increase in number of Dental Surgeons in the country should have ideally brought down the incidence and severity of oro-dental problems in the country. This does not hold true as shown in the graph given below. There is a general notion that the dental professionals are not active contributors to the national health system and they do not actively participate in reducing disease burden in the country. Over a period of time the dental professionals have proved that this notion is correct. Since the number of Dental Surgeons in the country has increased to nearly a lac now and however, if we see dental disease prevalence, there is rather an increase rather than decrease. Though there are no national level surveys conducted in the past, however isolated studies are not showing any decline in prevalence of dental caries.

Diagram showing correlation between number of Dental Surgeons (in multiple of 10,000) with DMFT at 15 years[35]



(source: Dental Council of India and Damle SG;A Text book of Pediatric Dentistry[35])

From the above, it can be concluded that, the prime reasons for increase in oral health problems are lack of oral health policy for long time; no stress on policy makers; no stress on prevention in the dental education; inadequate oral health awareness of the masses; inadequate utilization of available dental manpower for primary prevention. Therefore, it is the need of time to formulate guidelines for effective and meaningful utilization of available manpower in dental colleges and training of dental students during their education and internship.

In spite of 240 dental colleges in the country bringing out nearly 17660 dental graduates yearly have not significantly contributed in control of incidence and severity of the oro-dental problems because:

1. Haphazard growth of the dental institutions has led to concentration of the dental institutions in certain states and crowding in the urban areas.

2. Expensive dental education, both at the graduate and the post graduate level nearly make it economically non-viable for fresh graduates-postgraduates to start their carrier in the rural areas forgoing luring carrier in the cities.

3. Lack of infrastructural facilities and poor job opportunities provided by the government in the rural areas.

4. Absence of definite guide lines /strategies /policies or plans of the DCI and the Govt. of India for the utilization of the potential man power in the form of students, interns in the 240 dental colleges in the country.

RE-ORIENTATION OF MEDICAL EDUCATION: AN EXAMPLE FOR DENTAL FRATERNITY

Historically, medical education system has seen overhaul and change as per the need of the time and changing demographics and culture. The world has seen change in curriculum and India is also not an exception. From few years before independence, the process of re-evaluation and evaluation of the curriculum and the Health System started in this country and various committees were made by the Govt. for suggesting guidelines on Health System Performance. These were namely, Bhore Committee 1946, Special Committee for Medical Council of India in 1956, 1964 and 1973, Srivastava Committee 1975 etc. During the Sixth and Seventh Five year Plan, there were definite budget provisions for reorganization of Health System for better performance.

The need for reorientation of medical education was perceived way back in 1960's and it was clearly mentioned that the medical graduates are poor managers because they are not being taught about management of personnel, finances and referral system. They are also not trained for leadership quality and motivation, communication skills and skills for obtaining community participation. A medical graduate, who is posted in a PHC has multiple duties to perform including team work supervision, monitoring, control and evaluation etc. Therefore it was mentioned that medical graduates are misfit in the health system and the recommendation were given that the Medical college products should be user oriented who is capable of adoption to changing community requirements. The education in medical institutions should be community oriented and finally the medical graduate at completion of MBBS should be capable of processing information, decision making, planning and implementation of programmes, development of individual and team skills etc.. He is expected to work as team leader and continue self learning and continually expand his skills and knowledge to solve new problems as they arise.

Keeping in mind such recommendations from various commissions and committees the Govt. constituted Srivastava Committee in the year 1975[36]. The committee submitted its report in 1975 and one of the recommendations was to re orient the existing medical education. This scheme was popularly called as Reorientation of Medical Education (ROME)[36]. It suggested re-organization of Medical System and envisaged that three PHC's should be attached to each medical college and these could be developed into model PHC's. This in turn help them to expose the under graduate students with first hand experience in primary health care and implementation of various National Health Programmes.

The objectives of the scheme were as follows:

1. Introduce community bias in training of UG medical students with

emphasis on preventive and promotive services

2. Orient medical colleges so that they become part of health care system

3. Reorient all the faculty so that the hospital based and disease oriented training was progressively complemented by community based training

4. Health oriented training for providing comprehensive health care and;

5. To develop effective referral linkages between PHC, District hospitals and Medical college hospital

This was a very ambitious project for the Govt however; this scheme was finally rated as partial success due to lack of commitment to programme at different levels, slow progress in utilization of central allocation (16 lacs), absence of efforts to restructuring teaching and training programmes at medical college level. But the concept of the scheme was in principle accepted by the Govt. and the educationists and finally it was decided to revise the same using systematic approach.

Consortium of Medical Institutions for Reforms in Medical Education in India (1986- 1996)

Following the Srivastava Committee, a major step was taken towards curricular reforms in Medical Education by a joint project of AIIMS- BHU-CMC- JIPMER with University of Illinois, Chicago in the year 1986[37]. The project was aimed at initiating health services research for curricular change, context evaluation for decision making regarding curricular change, establish the consortium organization and cooperative protocol and to decide on and plan a long term innovative activities based on results of these short term projects.

In the year 1998, a workshop was conducted at AIIMS to consider a synthesis of the literature on curricular innovation's in the context of India's goal of reorienting medical education and to initiate health sciences research and context evaluation for decision making related to curricular changes. They also planned for long term activities of the consortium on the basis of results achieved. The basis for the same was taken from faculty and student perception of own curriculum, patient and community expectations from doctors and health services and a survey of morbidity at tertiary care centres and PHC's. Various questionnaires, structured interviews and informal discussions were held between the investigators and the faculty, students and members of community. The final recommendations of the workshop and the project included various reforms in medical education and most significant of them was re-organization of community postings for the medical students. It was defined that the block postings will be community based; community oriented training programmes for the students[38]. These are as follows.

Phase- I: Community Orientation Programme (COP)

• To familiarize the students to demographic, socioeconomic, environmental aspects of rural community health

• 2 weeks

• Group of students- I or II year

• Objective- Orientation

Phase - II: Community Health Programme -I

• First Clinical Year 2 weeks

• Group activity

• Field Investigation Data Gathering like IMR, MMR etc.

• Objective Basic Knowledge and Experience

Phase - III: Community Health Programme -II

• Second Clinical Year

• 2-3 weeks

• Group activity

• Plan, implement and Evaluate a programme in the community under supervision

• Objective apply the knowledge of previous 2 years

Phase - IV : Block Internship Posting

• Objective training as basic doctor

• Organize preventive services to vulnerable groups

• Conduct surveys

• Ability to promote family planning

• Evaluation at various stages

• Supervise and work as Team Leader

8 ROLE OF DENTAL EDUCATIONAL INSTITUTIONS IN MAINSTREAM HEALTH CARE SYSTEM

The Medical Colleges across the country, whether in private or public sector are participating in the mainstream health care system of the country by making provisions for medical students first hand learning at Primary Health Centers. This system indirectly helps in improvement of PHC's and provision of various primary, secondary and referral services through these centres. Moreover, as a part of training in Community Medicine, students are also given opportunity to participate in planning and implementation of various national health programmes as a first hand experience. Therefore, this system makes them understand the present health system, and implementation of national health programmes and exposure to rural India. However, as far as Dental Educational Institutions are concerned, this kind of arrangement does not exist resulting in; firstly the Dental Graduates are completely unaware of the health system and implementation of National Health Programmes and secondly there is no participation of Dental Institutions in mainstream health care system of the country. This is to mention that few of the Dental Institutions have taken some initiatives but a concrete step has not been taken to include the dental institutions and dental professionals to help the govt. in providing dental health care services at various levels.

At present, there is no defined strategic document on the use of available manpower for primary prevention of Dental problems. The curriculum for various clinical subjects enumerates methods of prevention of relevant diseases but does not mention about chair-side prevention or field training. However, the guidelines for curriculum in Community and Preventive Dentistry envisage few of the features in this relation.

8.1. Third Year/ Final Year BDS Curriculum (Community Dentistry)

The BDS curriculum does recommend 180 hours of teaching, posting, field work and tutorials in the subject of Community Dentistry[3]. The details of the hours are listed below:

Lecture	60 hrs
Clinical posting	50 hrs
Field work	50 hrs
Tutorial	20 hrs
Total	180 hrs (190 in some institutions)

The goal of the study of this subject is far from reach. However, it states the subjective knowledge, clinical skills and field training in the curriculum. But the field training is not being adequately followed in most of the dental institutions. The curriculum also includes Public Health, Preventive Dentistry, Public Health Problems in India, Nutrition, Environment, Basis of Medical Statistics, Epidemiological methods and National Health Policy.

8.2. Internship Programme

The Dental Council guidelines for Internship programme mentions two months of training in the Community Dentistry. However, there are no clear guidelines whether this period is to be spent in the institutions or in the rural areas[39]. Further the skills and field training during this 2 month period has not been defined completely. Thus it is evident that there are no guidelines for utilization of this 2 months posting during internship. Moreover there are no guidelines for role of the dental institution in providing this training.

8.3. Issues in Dental Education

There are about 240 dental colleges in the country having 9000 faculty members and annual intake of students is about 17,660 annually. Therefore, as per existing data we have about 35,000 students available in Third year (final year) and Internship for about 2 months each. If this much of workforce is directed in a proper direction, we can achieve a reasonable success in our primary preventive programmes. Adding to this, we have dental auxiliaries like hygienists, technicians and primary health care manpower to support. Further, the schoolteachers and ICDS workers have also been utilized for oral health awareness generation[40].

It is evident from the above that firstly, we certainly require involvement of dental institutions with the available manpower in primary preventive programmes exclusively designed for the dental colleges. The role of dental institutions must be specified in preventive programmes with particular emphasis on the national oral health needs. We need to re-orient our resources and redirect our manpower for better oral health of our countrymen.

Though the curriculum recommends 180 hours for the preventive and community dentistry teaching including field posting of the third year and the final year students but it is not been followed in letter and spirit. Rather it is ignored by most of the institutions for the want of required infrastructure, qualified faculty, mobile vans and due to lack of interest by most of the staff and management. Further, the objective of the institution is obviously limited to the training of the students and not to provide professional services to the population which is considered a state subject.

9 OPINION POLL FROM THE DENTAL PROFESSIONALS

A questionnaire was administered to the Dental Teachers, Public Health Dentists, Private Practitioners and Fresh graduates to find out their perception about issues in Primary Prevention and various methods they think to be used for effective utilization of the manpower. The results are as follows:

9.1.Distribution of respondent's speciality (n = 135)

The table below shows distribution of speciality of 135 respondents, it is evident that there was nearly a balance between various specialities as well as general practitioners.

Sepciality	Frequency	Percentage
Community Dentistry	17	12.6
Prosthodontics	17	12.6
Orthodontics	10	7.4
Periodontics	13	9.6
Oral Surgery	18	13.3
Pedodontics	17	12.6
Conservative & Endodontics	12	8.9
Oral Medicine	7	5.2
Oral Pathology	7	5.2
General Practice/ Others	17	12.6

9.2. Information about key issues in Oral Health (n = 135)

(Q. In your opinion, what are the key issues in oral health? please enumerate)

When the question on key issues in oral health was administered, about one fourth people could not reply on key issues in oral health but about 41% thought that lack of awareness about oro-dental problems is the key issue in oral health in our country. About 15% of respondents replied that oral disease burden is the key issue; however, 5% had the opinion that the training of Dental Surgeons and lack of govt. policy on oral health is the major issue. It seems that we need to address awareness regarding oral health as per the opinion.

Key Issue on Oral Health	Frequency	Percent
Lack of awareness	56	41.5
Burden of Oral Diseases	17	12.6
Manpower inadequate/ training	3	2.2
Related to Govt. Policies	1	.7
Awareness and Disease burden both	3	2.2
Awareness and Lack of Policy	2	1.5
Other reasons	18	13.3
No reply	35	5.2

9.3. Respondents' view about targeting various oral problems for prevention in community (n = 135)

(Q. In your opinion, which of the following diseases should be targeted for prevention as public health measure in India?)

When the respondents were asked which of the common dental problems should be targeted for prevention as public health measure in India, a majority were in favour of dental caries (70%). periodontal diseases (80%) and oral pre-cancers and cancers (72%). However comparatively lesser number of people favoured for malocclusion (23%) and dental fluorosis (32%). Therefore, we need to stress more on prevention of Dental Caries, Periodontal Diseases and Oral Precancers and Cancers.

Dental Problem	Frequency	Percent
Dental Caries	94	69.6
Periodontal Diseases	107	79.3
Malocclusion	31	23
Pre-cancers and Cancers	91	71.9
Fluorosis	43	31.9

9.4. a. Information about preventive programme in operation in their area (n = 135)

(Q. In your knowledge, are there any structured Governmental/ Non-governmental preventive programme operational in your area with respect to prevention of oro- dental problems?)

When the Dental Surgeon's were asked whether there is any preventive programme operational in their area, about 33 % of the respondents said that yes there is a programme, however, 23% of the respondents were not aware of any such programme in their area. It can be concluded that there is lack of oral health primary preventive programmes in the country.

Reply	Frequency	Percent
No	52	38.5
Yes	45	33.3
Do not know	31	23.0
No reply	7	5.2

9.4.b. Detailed information about the preventive programme (n = 135)

(Q. If yes, then name the programme and suggestions for improvement in the existing programme, if any?)

When the respondents were asked to name the preventive program on oral health operational in their area, about 38.5% named locally run, NGO or commercial organization based projects. It came out as a

Reply	Frequency	Percent
IDA-Colgate	6	4.4
Local Project	32	23.7
Any other NGO project	5	3.7
Not replied	91	61.5

9.5. Barriers for non participation of dental professionals in preventive programme (n = 135)

(Q. In your opinion, what are the barriers for non-involvement of dental professionals in preventive programme?)

The barriers in participation of dental professionals for various primary preventive programmes were enumerated by about 55% of respondents. About 23% of people mentioned that there is lack of will among dental professionals and 15% said that even if they wish to work they do not get adequate leadership/ guidance for the same. 11% of the respondents were of the opinion that the cost of dental treatment is very high. Other opinions were lack of training in this regard (2%) and Govt.s apathy (5%). Though many people could not reply on this aspect of questionnaire, but we can perceive that we need to motivate dental professionals and train them to participate in oral health primary preventive programmes.

Barriers	Frequency	Percent
Cost of Treatment	15	11.1
Lack of will in Dental Professionals	31	23.0
Lack of Guidance/ leadership	21	15.6
Lack of relevant training	2	1.5
Govt's apathy	6	4.4
No reply	60	1.5

9.6. Which method you think can be best utilized for prevention (n = 135)

(Q. In your opinion, how the existing infrastructure & manpower of more than 200 dental colleges can be effectively utilized for prevention of oro-dental problems?)

The participants were asked to specify the method for implementation of primary prevention through Dental Institution participation, about 33% percent of people agreed on awareness generation and camps. Few others have suggested adoption of schools, old age homes and villages for providing primary prevention as well as services in the selected adopted area. The responses of the people are indicating towards need for long term and sustainable programmes. There is a need to re structure the internship and areas/ schools may be adopted by dental institutions for primary prevention.

Reply	Number	%
Effective Internship utilization	5	3.7
Adoption of an area by the college	10	7.4
Adoption of schools by the college	2	1.5
Organizing camps and awareness programmes	44	32.6
Others	27	20.0
No reply	47	1.5

In addition, the Dental Surgeons were also asked to give their opinion on which manpower can be best utilized from Dental Educational institutions for primary prevention of oro-dental problems in the community, the responses varied from utilization of interns, Dental Hygienists, Auxillaries to Faculty etc.

Overview of the Opinion Poll

The opinion poll from a wide variety of dental professionals ranging from academicians to practitioners and specialists to fresh graduates reveal that :

1. We need to address lack of awareness about oral health
2. Target Dental Caries, Periodontal Diseases and Oral Cancers for public health programmes.
3. Have wide dissemination of oral health primary preventive programmes.
4. Structured. planned and long term preventive programmes.
5. Need to motivate and train oral health professionals in this regard and;

Have sustainable programmes like adoption of area/ schools by Dental linstitutions etc.

10 OUTCOME OF THE NATIONAL CONSENSUS WORKSHOP

In order to bring the professional expertise under one roof for brain storming discussions on effective and meaningful utilization of manpower in dental institutions for primary prevention, a National Consensus Workshop was conducted on 10-11 November 2006 at I.T.S Centre for Dental Studies and Research, Murad Nagar, Ghaziabad. This two day brainstorming workshop was attended by participants representing approximately 60 institutions across the country, WHO - India, Dental Council of India and Army Dental Corps. The profile of the participants was ranging from Vice- Chancellors, Directors, Principals, Deans and Experts in Public Health, Research to the Administrators and Academicians.

Workshop Goal

The final goal of the workshop is to formulate the guidelines for effective and meaningful utilization of available manpower in various Dental Colleges in the country for primary prevention of oro-dental problems.

Workshop's Specific Objectives:

1. To find out methods of inclusion of national needs of primary prevention and dental service delivery by the dental institutions
2. To find out the barriers in non participation of manpower in dental institutions and methods to overcome them.
3. To suggest appropriate level of population block for oral health service delivery by method of adoption. (one District, Sub-division, CHC, 2-3 PHC's etc)
4. To suggest methods of Govt. Dental Institution partnership for effective implementation of preventive strategies.
5. To suggest methods by which Dental manpower in institutions can help in National Rural Health Mission.
6. Role of Dental Council and Govt. of India in increasing the participation of dental institutions for oral health preventive programmes and service delivery as per the national needs.
7. Role of various professional organizations like Indian dental Association etc. in helping the Govt. and dental institutions to participate in primary preventive programmes.

The participants were divided into eight different groups and certain micro tasks were assigned to them for discussions and formulation of guidelines. The groups then presented the group recommendations in front of all participants. The final recommendations of each group have been compiled as follows:

10.1. GROUP DISCUSSION OUT COMES

Micro-task Assigned and Recommendations

A. To find out methods of inclusion of national needs of primary prevention and dental service delivery by the dental institutions

• Primary preventive strategies for 5 dental diseases must be targeted i.e. Dental Caries, Periodontal diseases, Malocclusion, Oral Cancer and Dental Fluorosis

• Adoption of an area is the best option for providing oral health services and to expose the students to primary health care and rural situation

• Monitoring cell could be established at institutional level to monitor the activities and involvement of institution in primary health care activities

B. To suggest appropriate level of population block for oral health service delivery by method of adoption. (one District, Sub-division, CHC, 2-3 PHC's etc)

• Govt. notification is necessary to implement and make adoption mandatory and to get the cooperation from the State Govt. administration in this regard

• The Dental Institutions may begin with adoption of one PHC initially

• A definite partnership document delineating liabilities and responsibility on part of dental Institutions and Govt. be prepared and signed by competent authorities. Initially Dental Institutions may provide only manpower support

• The Oral Disease prevalence must be monitored by the Dental Institutions in the area covered by PHC and even when the oral diseases are controlled, surveillance and support to the PHC's may continue.

• The Dental Institutions may provide services at the PHC at least once a week

C. To find out the methods to overcome barriers in non participation of manpower in dental institutions for primary prevention

• Relevant faculty orientation programmes should be organized to make them aware of national needs and their important role in primary prevention. It must be stressed that they are also part of mainstream health care delivery system and can contribute significantly for the society

• Faculty training in primary prevention methods organized at institutional level be carried out as obligatory requirement.

• The competent faculty / Dept of Community Dentistry must develop preventive module for the selected area which may be followed by other faculties.

• The institutional heads should make mandatory minimum of one hour per month involvement of each faculty from all the departments for primary prevention.

• The Dental Institutions should have definite budget allocation for primary prevention in the field.

• The work report of the institutions in this regard should be documented and submitted to competent authorities along with annual report.

D. To suggest methods of Govt. Dental Institution partnership for effective implementation of preventive strategies

• Initially there may only be manpower support by Dental Institution and Govt. should provide material, space, infrastructure and machinery (as per the contract with local authorities)

• The Local Health Administration should utilize the Manpower from Institution for Training of Health Workers on oral health along with other health programmes

• The collaborative activities, training, supervision etc. must be monitored by higher bodies like DCI etc. or the Govt. may appoint Chief Dental Officer / Project In charge or equivalent post for this purpose.

E. To suggest methods by which Dental manpower in institutions can help in National Rural Health Mission.

• Community Dentistry Specialist must be appointed/ involved in national rural health mission at national , state , district levels

• The Dental Fraternity specially the faculty in the institutions should come forward as resource person for various training institutes for the health workers like Health and Family Welfare Training Centre, Multi Purpose Worker Training Centres, Integrated Child Development Scheme Training Centres, ASHA Training Centres, State Institutions for Public Health Administration, District Institutes for Education and Teaching, State Institute for Education and Training, Various NGO's pertaining to Health etc.

• There should be separate budget allocation for Oral Health Programmes at District Health Mission.

• The community Dentistry dept. should conduct training programmes for NSS workers which may finally be involved for oral health awareness campaign

• There should also be dental awareness programme for the industrial workers wherever feasible.

F. Possible solutions for barriers in effective implementation of curriculum for primary prevention at the UG and PG level

• Faculty Orientation and involvement is a must for the successful implementation of primary preventive methods for the community via Institutions

• The Under graduates may be posted in the PHC as block posting in three phases similar to MBBS course. Should also observe various

health day's and attend well baby clinics for parental counselling on oral health.

• During Post graduation all specialties must have exposure of the student for Primary Health Care at PHC and there should also be sufficient time for comprehensive oral health care training

• PG seats in Community Dentistry be increased in number and DCI may relax the rules for the same for one time

• Till the time sufficient faculty is available in community dentistry, other department faculty can help in PG programme.

• The students should not repeat the surveys etc. but at the same time they can help in evaluation of previous work, surveys etc. with the help of faculty

• There should be annual reporting of activities & surveys etc. by the institutions

• The institutions may collaborate with local NGO's and grass root level Health Workers etc. for local planning, implementation and prevention from duplication of work.

• The activities being conducted in an area must be reported to the local administration, health department or competent authority so that it can become part of the system and will also prevent duplication of the efforts. This can also help in networking and partnership building.

• There must be standardized IEC material available for utilization at field level. (May be produced by the Ministry of Health or by other relevant bodies)

G. Role of Dental Council and Government of India in increasing the participation of dental institutions for oral health preventive programmes and service delivery as per the national needs

• Role of DCI/Govt. should only be limited to issue of directions in this regard & fix the accountability.

• It is mainly the responsibility of the Head of the Institution to organize faculty development and resource management for primary prevention etc. They should prepare roster of students & interns under the supervision of Faculty In charge of rural posting.

• DCI can play an important role in faculty development, through the institutions. The dental institutions can take help of premiere Management Institutions of the country

H. Role of various professional organizations like Indian Dental Association etc. in helping the Govt. and Dental Institutions to participate in primary preventive programmes.

• The professional associations should help on technical matters to the

Govt and policy makers on issues related to oral health. The initiative in this regard may be taken by the organizations by active participations in projects

• Indian Dental Association and various other speciality associations should be represented in relevant statutory bodies

10.2. UTILIZATION OF MANPOWER IN DENTAL INSTITUTIONS

The manpower mainly identified as main resource for Dental Public health Measures in Dental Institutions are:

1. Dental Teaching Faculty
2. Dental Interns
3. Dental Students during III and Final Year BDS
4. Dental Auxillaries (Hygienists, Health Workers etc.)

The recommendations would be incomplete if the proposed work definition for each of the resource person is not defined. The proposed role of each of them could be:

10.2.1. Dental Teaching Faculty

The faculty from Dental Institutions can perform in 3 different ways.

A. Administrative, planning and supervisory

B. Role playing

C. Monitoring and evaluation

A. Administrative, planning and supervisory

The faculty from all the clinical and non-clinical departments should participate in community programmes, however, the faculty from Community and Preventive Dentistry Department may primarily be responsible for planning and implementation of various activities.

The faculty can first assess the oral health burden of the community by undertaking smaller oral health indicator studies and risk factor assessment with the help of group of students. Following this, they should first formulate certain preventive strategies pertaining to the population.

The strategies must be first tested for operational convenience in a smaller group and then depending upon the response; it may be modified and finalized in consultation with public health planners in the District Administration.

There should be administrative tie up between the dental institution and local administration regarding the oral health preventive programme in the area defined. This role must be undertaken directly by the administrative head of the institution.

On finalization of the strategies, group work must be assigned to for role

different group of manpower identified in a team. Each team must have atleast one faculty for role playing for rest of the group. The same person can also work as supervisor for the team. This way one faculty from each department can be taken at a time so that overall clinical and academic schedule of the institution is not disturbed.

B. Role Playing

At least for the first time in an area, group made from within the faculty may be identified to implement the first part of the implementation of the programme. During this kind of work, each faculty must be assigned a role of particular proposed manpower for the team. The experiences of each of the member of the team during implementation may be compiled for further training of the remaining manpower and to be used as a tool during implementation.

C. Monitoring and Evaluation

With the help of faculty from Public Health subjects, faculty from Preventive and Community dentistry departments can be given a task for monitoring and evaluation of the programme. The faculty may even make surprise checks and inspection during implementation. Over all evaluation of a programme can be done on a periodical basis and health indicators of the community may also be studied depending upon the results.

10.2.2. Dental Interns

The internship period may be used as true field training and experience simulating to the future role to be played by the graduate if he/she is employed in Govt. At this time, they may be made a team leader for short time periods and their experiences and feedback may be recorded for future upliftment of the system. The interns must be posted for 2 months in the rural area to study the demographic and oral health related behavioural characteristics of the population. They must be given adequate opportunity to express what they feel about the preventive strategies devised for the community. They may also be given a role in monitoring and evaluation tasks.

The interns may also work out an awareness campaign as a group activity on oral health for smaller population. They may be asked to deliver oral health talks, street plays etc. The IEC material developed by the students are sometime more useful than those developed by media people. The interns may also attend the ante natal clinic, school health clinics etc. for counselling on oral health. They can also apply topical fluoride and pit and fissure sealants in the field and could even carry out Atraumatic Restorative Technique (ART). Another group of interns may also be asked to run a safe drinking water programme in a fluoride endemic area.

10.2.3. Dental Students

The students may be given smaller jobs like oral health talks, diet counselling and helping the interns and faculty in various tasks. They

can be more effective in developing IEC material for a particular campaign so a mixed group of interns and students may be given such smaller projects. They must be allowed to observe the primary health care system and various other national health programme delivery. They must be exposed to community activities like vaccination, health talks, ante-natal clinics and dental health care facilities in the rural areas.

The training must be structured in the format given below:

Phase - I: Community Orientation Programme (COP)

• Duration - This should be group activity for students of first or second year BDS students for two weeks duration under supervision of Dept. of Community and Preventive Dentistry.

• Objective - The main objective of this phase must be to familiarize the students to demographic, socioeconomic, environmental aspects of rural community health and to orient them towards community based learning

• Activities - The students may be asked to participate or assist in various programmes which the senior students and faculty are conducting. They may be asked to retract the cheeks or may be asked to mix the material for ART for others. The students may also be asked to listen to a health talk and observe anti natal clinics, immunization room, pediatric OPD etc. Apart from Dental, they may also be asked to participate in various health programmes as observers or listeners during the performances by the health workers in that area. The faculty in charge must coordinate and plan for such actions in advance.

Phase - II: Community Health Programme I

• Duration - Part I of the community health programme may be conducted during first clinical year or third year BDS for about 2- 4 weeks duration. This should also be a group activity under supervision.

• Objective - The main objective of this posting should be to obtain basic knowledge and experience in epidemiology and field activities.

• Activities - The theory classes must be planned in advance for teaching the basics of oral epidemiology and sampling etc. They must also be trained in recording of various oral health indicators using different indices in advance before initiation of such programmes as class room teaching. Once the students are posted in the community, they may be given responsibility of data collection on dental caries, periodontal diseases, fluorosis etc. under supervision. The students may also be asked to assist the interns in their small community tasks assigned. They can also act as workforce for implementation of the programmes and may be asked to assist in supervised fluoride mouth rinsing programme or application of topical fluoride varnish etc.

Phase - III: Community Health Programme II

• Duration - Part II of community health programme must be conducted during the final BDS or second clinical year when students have attained

sufficient clinical experience of handling patients on dental chair for about 4 weeks duration. This time the activity can be both group as well as solitary.

• Objective - Before this posting, they must be trained in chairside clinical preventive dentistry and must be taught about principles of dental public health and various national health programmes.

• Activities - They must be given an exercise to plan and evaluate a programme in a given community under supervision. They may also be posted at satellite dental clinics or primary health centres for patient care. The students may be asked to perform ART, pit and fissure sealant application, salivary testing etc in the clinical part of the posting. However, in the field part of the posting they may be asked to go for advocacy meetings with various authorities, school administration, local govt. etc. They should be able to independently apply the knowledge gained in previous two postings.

Phase- IV: Block Internship Posting

• Duration - Each student must be posted in primary health centre for 2 months duration.

• Objective - The final objective of this posting is to train them to become a basic dental surgeon.

• Activities - This period must be used as training of the students as full fledged dental surgeon in villages. During this time he should be able to organize preventive services to vulnerable groups, conduct surveys (with help of students) and should be able to conduct structured campaigns in the given area. He should be trained to work as a team leader and be able to supervise the work of the students.

The intern must be given a task to handle a complete campaign in a given area or school in relation to oral health. The same must also be monitored or evaluated by their faculty/ counterparts. Similarly the students must be allowed to participate in monitoring and evaluation of other's programme. They may also be asked to participate in other national health programmes if possible.

During this time, the intern must be asked to handle oral health services in the PHC for 2 weeks independently. He should be able to completely understand the country's health system and referrals. Apart from this, he should also be exposed to other administrative work and health programmes.

10.2.4. Dental Auxiliaries

These are very important group of people, who can play effective role in providing oral health care services in the rural areas. They can be asked to do oral prophylaxis, topical fluoride application and pit and fissure sealant application in the community. They must also be the regular component of the teams formed for smaller tasks and campaigns within a community.

11

RECOMMENDATIONS

In the light of the opinion poll conducted, review of available literature and oral health services of other countries, discussion and outcome of the national consensus workshop and core group meeting, following conclusions may be drawn. We can categorize the responsibilities of various bodies/ personnel under following sub-headings:

11.1. Role of Dental College Administration in Primary Prevention

• The Dental Institutions should take the responsibility of adopting population covering 3 PHCs in the rural areas as well as schools, old age homes, schools for children with special needs, orphanages and homes for women in distress etc in the district.

• The college administration shall coordinate and liaise with local Govt. officials of the district at appropriate levels for obtaining necessary permissions and help with regards to oral health promotion & service provision.

• There should be definite MoU between the college administration and district administration regarding sharing of responsibilities with regards to infrastructure, manpower & facilities to be provided.

• The college administration should monitor and evaluate the functioning and effectiveness of the preventive programme and service provision on a periodical basis (say quarterly).

• The college administration should frame short and long term goals with reference to the activities planned for oral health promotion under primary prevention in the adopted area and should be able to justify their role in the health care system.

• The college administration should conduct faculty development and reorientation programmes with reference to primary prevention and community interventions at regular intervals.

• The college administration should also collaborate with other health programmes being run by the Govt. to advocate common risk factor approach like Mother and Child Care, Cardiovascular Health Programme, Adolescent health programme etc.

11.2. Role of Faculty and Students

• There should be a core group for oral health primary prevention comprising of nominated faculty from each department functioning in the college, headed by HOD of Community Dentistry and Principal. The role of this core group would be to develop strategies for the oral health primary prevention activities to be conducted in the adopted areas. They should be primarily responsible for implementation, monitoring and evaluation of primary preventive program.

• Each faculty from the clinical and non-clinical departments should participate in community programmes by coordinating with Faculty In charge and college administration.

• The institution should take the responsibility of training health workers of the area on oro-dental prevention. (awareness generation, identification of common oral problems and referral)

• The faculty should also conduct training for NSS workers and organize rallies etc on important health days and take the students along for parental counselling etc.

• The students must be given first hand exposure of the field training by the help of structured training with reference to community programmes and a log book must be maintained for the same.

• Faculties form the each discipline (Dept. of Conservative Dentistry cum Endodontics, Oral Surgery, Periodontia, Pedodontia and Preventive Dentistry, Orthodontia, Prosthodontia, Oral Medicine and Radiology, Oral Pathology) should in their internal assessment frame few (at least one) question(s) in (theory/practical) which should ask regarding the ways that particular discipline could contribute in primary prevention of oral health. This will help student in reading the subject with community approach.

• HOD and faculty of Dept. of Community Dentistry/Dept. of Periodontia/Dept. of Pedodontia and Preventive Dentistry should mandatorily award projects to each student, conduct demonstrations, group discussions, seminars, clinical work, counselling sessions for the patients and conferences with the view point of primary prevention in oral health.

• Dept. of Community Dentistry has to play the most important role in guiding & motivating the students to think on the lines of primary prevention & utilizing the field postings judiciously. The faculty has to be the role model & he/she must develop leadership abilities. During field postings, the students/interns/post graduates should be asked to conduct oral health assessment surveys, screening, community interventions and deliver health talks (especially in regards to rural areas) related to oral health and hygiene maintenance in order to attract the attention of rural population.

11.3. Role of Dental Council of India /Govt of India

• The curriculum for under graduate training needs to be framed in a way that it reflects training in totality for field experiences as well as planning and implementation of programs as per the objectives of the course. (Annexure 16.3)

• The Govt. should frame policies and strategies for oral health promotion. The policies should be incorporated in the National Health Policy. Necessary and relevant steps should be taken to strengthen the implementation of policies and its integration in other National Programs.

• The National Program on Oral Health should address important issues like oral health promotion, lower consumption of sugar & modification in diet behavior, integration of oral health in general health /various health programs/NRHM, school oral health program, oral health problems of elderly, development of oral health information systems & promotion of research in oral health.

• The State Government before issuing the essentiality certificate must take undertaking from the Institutions that in-view of the acute shortage of Dental manpower in their area, it will be able to improve the oral health status of the population of the adopted PHC's by effectively utilizing the dental manpower during field posting of the students and the Interns and submit report of the work undertaken twice a year to the State Government Office.

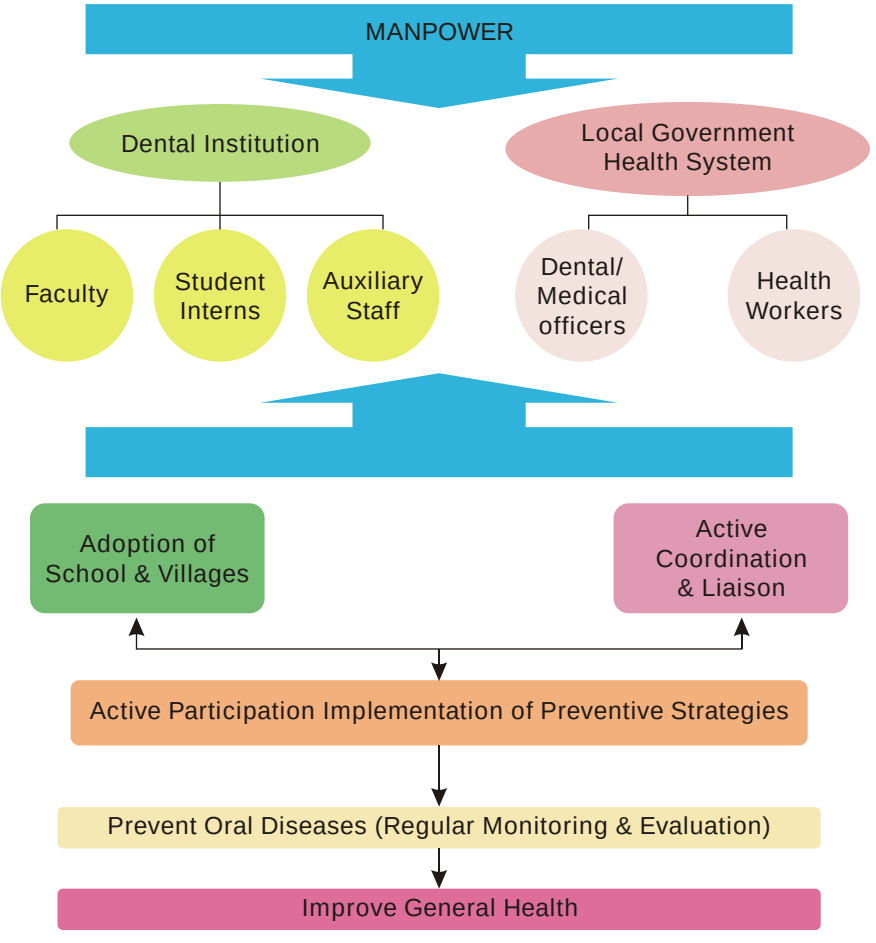
12

PROJECTIONS FOR THE FUTURE

If the recommendations are implemented effectively by all Dental Teaching institutions in the country it is expected that by the year 2015:

1. Up to 10% of the population of the country could have access to primary dental care at a very nominal cost to the Govt.
2. About 20% of the population will have knowledge about healthy oral practices and they will be able to maintain their oral health till the age of 60 years.
3. Upto 40% of reduction will be achieved in Dental Caries by the year 2015.
4. About 40% reduction will be achieved in pre mature tooth loss by the year 2015.
5. Public awareness program shall bring about significant reduction in oral precancer and cancer cases.
6. Approximately 60% of children will be free from caries by the year 2015.

SUMMARY FLOW CHART



14

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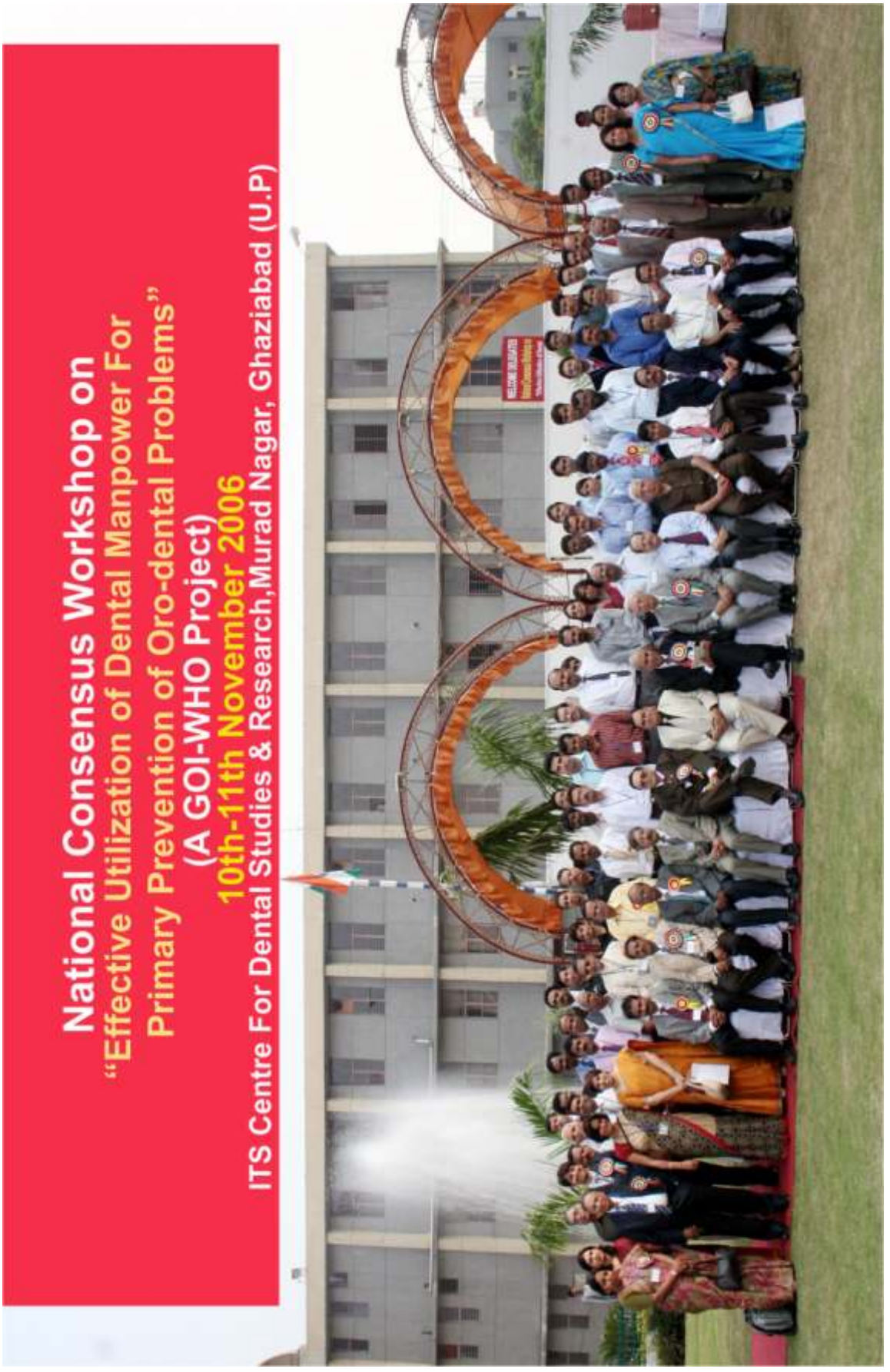
GROUP PHOTOGRAPH



16

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ANNEXURE - 1

World Health Organization and Govt. of India Project

Formulation of Guidelines for Effective and Meaningful Utilization of Manpower in the Dental Colleges for Primary Prevention

Questionnaire Key issues in Oral Health

Name: Age:

Education: BDS/ MDS Speciality:

Years in Teaching/ Service/ Practice:

1. In your opinion, What are the key issues in oral health (please enumerate)

2. In your opinion, which of the following diseases should be targeted for prevention as public health measure in India?

- Dental Caries
- Periodontal diseases
- Malocclusion
- Precancerous conditions and oral cancer
- Fluorosis
- Any other, please specify

3. In your knowledge, are there any structured Governmental/ Non-governmental preventive programme operational in your area with respect to prevention of oro- dental problems?

Yes/ No/ Can't say

If yes, then name the programme and suggestions for improvement in the existing programme, if any?

4. In your opinion, what are the barriers for non-involvement of dental professionals in preventive programme?

5. In your opinion, how the existing infrastructure & manpower of more than 200 dental colleges can be effectively utilized for prevention of oro-dental problems?

6. Kindly give your suggestion on prevention of oro- dental problems utilizing

a. Health infrastructure & manpower

b. Dental supporting staff

c. Dental professionals in Private practice

Professional and specialty associations

ANNEXURE - 2

STATE WISE DISTRIBUTION OF DENTAL COLLEGES, DENTISTS AND POPULATION

STATE	TOTAL NO OF DENTAL COLLEGES	BDS SEATS	MDS SEATS	REGISTERED DENTISTS	POPULATION (Census 2001)	DENTIST : PATIENT RATIO
Andhra Pradesh	20 (*5)	1690	67	4050	76210007	1 : 17928
Assam	1 (*1)	40	10	762	26655288	1 : 34980
Bihar	7(*1)	320	2	1032	82998509	1 : 80424
Chandigarh	1(*1)	100	4	4010	900635	1 : 224
Chhattisgarh	5	500	0	**	20833803	***
Delhi	1(*2)	20	6	6500	13850507	1 : 2130
Goa	1(*1)	40	11	417	1347668	1 : 3231
Gujarat	9(*2)	620	49	1553	50671017	1 : 32627
Haryana	11(*3)	880	60	2000	21144564	1 : 10572
Himachal Pradesh	5(*1)	340	8	469	6077900	1 : 12959
Jamu Kashmir	2	120	0	536	10143700	1 : 18924
Jharkhand	0	0	0	**	26945829	***
Karnataka	43(*25)	2900	571	19108	52850562	1 : 2765
Kerala	17(*2)	870	39	6800	31841374	1 : 4682
Madhya Pradesh	11(*2)	910	25	1246	60348023	1 : 48433
Maharashtra	28(*10)	2140	296	12142	96878627	1 : 7978
Orissa	4	230	0	407	36804660	1 : 90429
Pondicherry	2(*1)	140	10	325	974345	1 : 2997
Punjab	11(*5)	800	54	5950	24358999	1 : 4093
Rajasthan	11(*4)	910	79	**	56507188	***
Tamil Nadu	17(*10)	1380	283	9600	62405679	1 : 6500
Uttar Pradesh	28(*10)	2390	177	5000	166197921	1 : 33239
Uttaranchal	2	150	0	**	8489349	***
West Bengal	3(*1)	170	14	1539	80176197	1 : 52096
TOTAL	240 (*87)	17660	1765	79436	1028610328	1 : 12948

* *Colleges offering MDS Courses*

** *State Dental Councils not established*

*** *Dentist : Patient Ratio could not be calculated*

(Source Dental Council of India)

ANNEXURE - 3

BASIC PRINCIPLES FOR THE MAINTENANCE OF MINIMUM EDUCATIONAL STANDARDS FOR THE DEGREE OF BACHELOR OF DENTISTRY

Dental Curriculum (BDS Course Regulation 1983)

• The aim and objective of the curriculum is to produce a Dentist who is socially acceptable and is able to work safely and effectively on patients in diagnosis, prevention and treatment of dental and oral diseases

AND

To maintain uniformity in standards, technical and clinical requirements.

• To produce a dental graduate who is *capable of functioning effectively both under the rural and urban setting* should be kept in view and emphasis should be placed in fundamental aspects on the subjects taught and on common problems of health and diseases avoiding unnecessary details and areas of specification.

• The *education process should be an evolving one and not merely a process of acquisition of a large number of disjointed facts*.

• There should be *less emphasis on didactic lectures*, and major part of the learning time should be devoted to *demonstrations, group discussions, seminars, clinical work and conferences*.

• Frequent internal assessment tests should be held, so that, the process of learning would be continuous one and not sporadic.

• Careful record of work should be maintained, which should form the base for internal assessment.

• Every attempt should be made to encourage the students to participate in group discussions and seminar to enable them to develop expression, character and personality and other qualities essential for a *dental graduate to serve the community and the nation effectively*.