Executive Summary

We set out departmental activities aiming to provide educational programme, research and oral healthcare facilities for the population-in-need which has been mentioned in 2014-2015 report, 2016-17 is the continuation of the same with several addition. The unit for Centre for Oral Disease, Prevention and Control at A.B. Shetty Memorial Institute of Dental Sciences, Mangalore Karnataka India has set an exclusive Nicotine Replacement Therapy (NRT) clinical session for the patients having habit of tobacco smoking and chewing. More than half of 1000 have received NRT intervention.

While our emphasis has been on seeing more patients than ever before, we have had a clear focus on improving the patient experience as well. Our strategic aim translates the concept of community involvement for health development, and we engage our patients through proper communication between doctors and patients not only with specific clinical conditions, also the societal and broader perspective of disease conditions that help better understanding for the patients and providers as well.

2016 has been a year of significant change.

The Department of Oral Biology and Genomics has a key role in leading and coordinating the provision of public oral health services in India, especially for the disadvantaged and vulnerable communities.

We provide oral healthcare through the well-established team approach housed at the esteemed Institute A.B. Shetty Memorial Institute of Dental Sciences (ABSMIDS) of Nitte University- and we are privileged to mention the name of our Dean Professor U.S Krishna Nayak who developed so much innovative programme within shortest possible duration immediate after activation of his role. All the programmes are well linked with several extramural services through remote rural satellite clinical centers regulated by the ABSMIDS.

We worked closely with all established dental institutions in India to help improve retention of the oral health workforce, particularly in rural India.

And this year we also introduced a series of continuing professional development (CPD) courses for dental students which tends to reflect the notional programs of the country and those relates to public health promotion and education—evidenced during the first Public Oral Health Conferences at Mangalore and Calcutta.
## TABLE OF CONTENTS

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MISSION

Our Vision

ORAL HEALTH FOR TOTAL HEALTH

Our Mission

- TO DEVELOP ORAL AND CRANIOFACIAL HEALTH AND RESEARCH MAINLY FOR INDIAN POPULATION AND LARGELY FOR GLOBAL UNDER-SERVED.
- WE DEVELOP OUR IDEA TO EXERCISE INTO ACTION
- WE ENSURE THE STUDENTS & PATIENT CENTRED EDUCATION
- WE ENSURE BALANCED EDUCATIONAL INPUT FOR POSITIVE OUTCOME DURING ASSESMENT OF THE STUDENTS (WITHOUT FAILING THE STUDENTS)
- WE PERFORM THE TRANSLATIONAL RESEARCHES
- WE HAVE STRATEGIC GOAL AND APPROPRIATE MECHANISH FOR PREVENTION AND CONTROL OF DISEASES BASED ON COMMUNITY INVOLVEMENT FOR HEALTH DEVELOPMENT.

Our Values

CORE-ELEMENTS
MAINTENANCE OF DIGNITY AND CONFIDENTIALITY OF PATIENTS AND STUDENTS
TEAM-WORK APPROACH
CONTINUAL PROFESSIONAL DEVELOPMENT FOR LIFELONG LEARNING
DEVELOPMENT OF COST-EFFECTIVE MEDICAMENT AND DEVICES FOR PROPER ASSESSMENT AND POSSIBLE APPLICATION

AND THOSE ARE BASED ON-

INTEGRITY – WE BEHAVE FAIRLY AND HONESTLY AND ARE ACCOUNTABLE FOR OUR SERVICES
TEAMWORK – WE WORK AS A TEAM AND IN PARTNERSHIP WITH OUR PATIENTS, OUR PARTNERS AND THE COMMUNITY
EXCELLENCE – WE SET BEST PRACTICE STANDARDS AND ARE INNOVATIVE IN ALL THAT WE DO
Applied Research & Education

Our unit for Oral Health Research continues to focus on improving outcomes for the patients accessing based on (community involvement for health development - CIH concept). We always use and enact through evidence-based practice (clinical, education and research).

MINIMAL INVASIVE PROCEDURE

Oral Health Practice research unit has been involved in assessing the cost effectiveness and that is materialized through the current global trend of tooth and maxillofacial tissue preservation i.e. By employing the concepts of minimal invasive clinical procedures, of them we do mention below-

That is- “The Hall Technique is a painless method of treating tooth decay in young children (3-7 years). This approach uses stainless steel caps to seal tooth decay without using needles or drills”.

The project studied the effectiveness of distributing toothbrushes, toothpaste and health promotion materials (through the Maternal and Child Health Service) on improving the oral health of young children in disadvantaged communities.

Evidence

Department of Oral Biology also submitted the report on updating the evidence base on oral health promotion strategies to inform the development of the National Oral Health Promotion Plan especially tackling the Pavagada Fluorosis, an action plan to fix the problem of mild to moderated cases of dental fluorosis, and referral for invasive procedure by the experts of the field if needed.

Research to publish

The team wrote five peer-reviewed journals and is continuing with a number of applied research and evaluation projects.
Improving the student experience

Developing a committed oral health workforce has required us to be innovative leaders and, in the past year, we have introduced more opportunities to improve student satisfaction assessed by measuring the outcome through uniform feedback assessment.

Department of Oral Biology & Genomic Studies are opted to continue supporting clinical placements of students/dentists inside country and abroad.

Department of Oral Biology also offers a Continuing Professional Development program designed for staff wanting to enhance their skills and knowledge. These courses are offered free to all public oral health practitioners.
Research

2014-15

The areas on which research is being conducted presently

1. Cleft lip and Palate and Oral Health
2. Fluoride Research
3. Osteoporosis Research
4. Dental Anxiety
5. Cone Beam Computed Tomography (CBCT) and Third Molars
6. Dental Imaging
7. Chronic Obstructive Pulmonary Disease (COPD), Oral Health and Candidal Load
8. Oral Health for General Health
9. Diet and Nutrition
10. Bisphosphonate related Osteonecrosis of the Jaw (BRONJ)
11. Dentures and Quality of Life among Removable Partial Denture Wearers
12. Recommended Daily Allowance of Fluoride (RDA)
13. AMES Test
14. Nicotine Replacement Therapy (NRT)
15. Oral Cancer prevention and control
17. Education and Development (OSCE, Manikin practices MiniCex, Skill assessment, PBL, Small scale tutorial)
2016

1. Fluoride Research (Pavagada) 2017

Description on rough estimate and work-plan (Phase-1)
Estimated budget: 5.0 Lakhs (INR)

Target population:

Of two villages

1. Sunkarlakunte: 551 people living in 121 houses
2. Krishnapura: 295 people living in 54 houses

Sub-total Population: 840
Roughly 50% people will need treatment of dental fluorosis:
420 patients

3. Of two high schools at Pavagada town area:
500 patients

Total patients: 920

1 Patients

Duration (Days need to treat 920 cases): 15 days

Dental surgeons will be needed*: 8

Working hour/day/dental surgeon: 7.5 Hrs (6 hrs plus 1.5 hrs break, 9AM-5:30PM)

Number of patients will be treated by 8 dental surgeons: 7x8 = 56 patients/day

Treatment method\textsuperscript{2}: Office bleaching with/without micro-abrasion (1 hr/patient)

Frequency of follow-up: 1 month, 3 months, 6 months, 1 year (locally
trained people can send images and case note, but 6 moths’ review is a must

Note

- Informed consent will be taken – explaining the sequel /limitations/ options of the treatment
- \(^1\)920 (entire population will be treated in 15 days)
- \(^2\) invasive treatment will be enlisted and managed separately
- Systemic fluorosis will be enlisted and informed to clinical advisory board of the team.

For further action for an International fund

- Start-up fund supported outcome from Nitte University will aim to write a DBT Welcome trust fund UK grant (1.5 crores to 2 crores)

2. Orthodontic Emergencies in Dental Practice

Pavoor Panchayat is located in the Mangalore district of Karnataka State in India. Pavoor has a population of 10,000. There are nearly 2500 school going children lives in the area. A pilot survey was conducted by the Department of Oral Biology and Genomic Studies of A.B. Shetty Memorial Institute of Dental Sciences, of Nitte University, Deralakatte Mangalore. The objective of the study was to assess the knowledge, attitude and practice (KAP) regarding oral health, oral cancer, such as- (i) the oral health perceptions for quality of life; (ii) information regarding risk-associated factors for occurrences of oral cancer; (iii) free-sugar intake and body mass index(BMI); (iv) the prevalence rate of dental decay, periodontal diseases and orthodontic problem. The study population was the students of a high school located in a state of India—a peri-urban population of Karnataka, considered as a sampled population. A total of 64 children (age ranged 11-13, equal number of male and female students) were
examined. The IOTN score was high ranged between 3.2 and 4, and their BMI was recorded low i.e. 16.3.

3. Medical Emergencies
   a. OSCE input and assessment among rotational interns
   b. PGs lecture- and assessment

4. Stem Cell Research
   a. To investigate the **prognostics role** of CSCs in OSCC cases
   b. To find out **interdependency** of CSCs and count of MVD (for angiogenesis)
   c. To find out **interdependency** of CSCs and count of LVD (for Lymphangiogenesis)

5. Ames Test

6. Nicotine Replacement Therapy
   The NRT clinic at Oral Biology and Genomic Studies assisted 75 patients to quit smoking.

7. Diet and Nutrition

8. Osteoporosis Research:
   **Project update:**

   **Phase I**

   An initial pilot study was carried out to set the method for the proposed original experiment.

   An albino rats samples (n=6) was included in pilot study. The samples will be divided equally into three groups i.e. control
group, fluoride with calcium group and fluoride without calcium. Two doses of fluoride and calcium i.e. low and high dose of fluoride and calcium was decided based on the calculations on the rats’ body weight. Before any intervention, the rat’s body weight, age, categorisation of rats based on gender, blood serum analysis for fluoride and calcium availability was collected. Later, the rat will be subjected to DEXA scanning to determine the change before intervention and after 6 weeks for fluoride and calcium intervention.

**Update:** The samples were not scanned under OCT due to change in plans to visit the IIT New Delhi Centre. The visit will be done once all N=36 (Phase II) samples were given the intervention drugs after a duration of 2 months. Since small animal bone software was not available in the vicinity, we employed histomorphometric analysis as an alternative method to the compare with OCT. The histomorphometric analysis will be done in the SCTIMST, Trivanandapuram.
## Academic

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<thead>
<tr>
<th>Mode of Teaching</th>
<th>Topic</th>
<th>Objective</th>
<th>Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lecture &amp; Small Group Sessions</td>
<td>Managing Dental Problems based on Evidence based Dentistry (EBD): A Current Practice</td>
<td>• To determine the traditional and Novel methods available in the management of Dental Caries • To identify evidence available in current concepts in managing dental caries • To understand the barriers for transformation of current traditional practice to evidence based practice</td>
<td>Final Year II Interns</td>
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<tr>
<td></td>
<td>Minimally Invasive Dentistry (MID): Controlled Clinical Care and Prevention</td>
<td>To determine the traditional and Novel methods available in the management of Dental Diseases</td>
<td>Final Year II Interns</td>
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# New Teaching Methods

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<tr>
<th>No.</th>
<th>Teaching Method</th>
<th>Course</th>
<th>Level (I/II/III year etc)</th>
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<tbody>
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<td>1.</td>
<td>Mind Mapping</td>
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<td>Interns</td>
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<td>2.</td>
<td>Role Playing and Scenario Analysis</td>
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<td>3.</td>
<td>Quiz</td>
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<td>4.</td>
<td>PBL</td>
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<td>5.</td>
<td>Case Discussion</td>
<td>yes</td>
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<td>6.</td>
<td>Multi media</td>
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<td>7.</td>
<td>Project</td>
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<td>8.</td>
<td>Any other (specify)</td>
<td>OSCE’s, EMQ’s</td>
<td>Interns</td>
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Continuing Professional Development Programme

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<tr>
<th>DATE</th>
<th>CONTINUING PROFESSIONAL DEVELOPMENT PROGRAMME</th>
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<tr>
<td>27\textsuperscript{TH} MAY 2016</td>
<td>Seminar-workshop and Hands-on Knowledge and Skill Development Through Objective Structured Clinical Examination (OSCE): Towards Re-shaping of Evidence-Based Clinical Practice in Indian Dentistry</td>
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<tr>
<td>22\textsuperscript{ND} JUNE 2016</td>
<td>Objective Structured Clinical Examination (OSCE) : Medical Emergencies</td>
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<td>14TH OCTOBER 2016</td>
<td>Diet and Nutrition</td>
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<tr>
<td>4\textsuperscript{TH} NOVEMBER 2016</td>
<td>Tackling Fluoride in Pavagada: A way out to fix the National problem</td>
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## Outgoing Activities

<table>
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<tr>
<th>No.</th>
<th>Type of extension Activity</th>
<th>Date(s)</th>
<th>Collaboration</th>
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<tr>
<td>1</td>
<td>Oral Cancer Awareness Programme</td>
<td>7-21 November 2014</td>
<td>None</td>
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<td>2</td>
<td>Health Awareness Programme at Suratkal Mangalore Karnataka India</td>
<td>18/05/2016</td>
<td>Applied Zoology Mangalore University Department of Community Medicine, K.S.Hegde Medical College</td>
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<td>3</td>
<td>Tackling Fluorosis in Pavagada</td>
<td>14/05/2016</td>
<td>Ramakrishna Mission Pavagada Taluk Tumkur Karnataka India</td>
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<td>4</td>
<td>Clinical and translational Research</td>
<td>April 2014-16</td>
<td>-</td>
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<tr>
<td>6</td>
<td>Nicotine Replacement Therapy (NRT)</td>
<td>2013 - Till Date</td>
<td>Saroj Gupta Cancer and Research Centre Calcutta India</td>
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## Research Proposals submitted

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<tr>
<th>No.</th>
<th>Faculty &amp; Designation</th>
<th>Title</th>
<th>Funding Agency</th>
<th>Amount (Rs.)</th>
<th>Status</th>
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<tbody>
<tr>
<td>1</td>
<td>Dr Shahnawaz Khijmatgar</td>
<td>Effect of Fluoride Therapy Assessed by Optical Coherence Tomography</td>
<td>Nitte University</td>
<td>1,20,000</td>
<td>Approved</td>
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<td>2</td>
<td>Professor Chitta Chowdhury</td>
<td>Recommended Daily Allowance of Fluoride (RDA)</td>
<td>Nitte University</td>
<td>80,000</td>
<td>Approved</td>
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<td>3</td>
<td>Professor Chitta Chowdhury</td>
<td>Development of Atraumatic Restorative Material (ART)</td>
<td>Nitte University</td>
<td>50,000</td>
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<td>4</td>
<td>Miss Sunena Shetty</td>
<td>Chronic Obstructive Pulmonary Diseases (COPD) and Candida Load</td>
<td>ICMR</td>
<td>10,000</td>
<td>Approved</td>
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<td>5</td>
<td>Dr Shahnawaz Khijmatgar</td>
<td>Orthodontic Emergencies in Clinical Practice</td>
<td>A.B. Shetty Dental College</td>
<td>1500</td>
<td>Approved</td>
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<td>6</td>
<td>Professor Chitta Chowdhury</td>
<td>Oral Cancer Prevention and Control</td>
<td>Department of Biotechnology</td>
<td>35,00,000</td>
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<td>7</td>
<td>Professor Chitta Chowdhury</td>
<td>Development of Artificial Saliva</td>
<td>Incubation Centre Nitte University MSME</td>
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<td>8</td>
<td>Dr Shahnawaz Khijmatgar</td>
<td>Development of Optical Coherence Tomography</td>
<td>MSME New Delhi</td>
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<td>Professor Chitta Chowdhury</td>
<td>Angiogenesis and Stem Cell Research</td>
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<td>10</td>
<td>Dr Shahnawaz Khijmatgar</td>
<td>Skeletal Stem Cells in Bone Regeneration</td>
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# Publications

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<tr>
<th>No.</th>
<th>Publication citation - Authors, Article title (Year), Journal title, Volume, Issue, page nos.</th>
<th>Impact Factor of Journal* <em>(NA if unavailable)</em></th>
<th>Year</th>
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<tr>
<td>4</td>
<td>Fluoride in fish flesh, fish bone and regular diet in South-coastal area of Karnataka state of India</td>
<td>Pubmed</td>
<td>Under Peer Review</td>
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<td>5</td>
<td>Highly acidic pH values of carbonated drinks and unregulated fluoride levels in dentifrices, fruit juices and mineral water: A public health concern for India</td>
<td>Pubmed</td>
<td>Under Review</td>
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<td>6</td>
<td>Dental Fear and Anxiety</td>
<td>1.30</td>
<td>Under Review</td>
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<td>7</td>
<td>Fluoride releasing capacity from ART material</td>
<td>Pubmed</td>
<td>Under Review</td>
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<td>Denture and Quality of Life</td>
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<td><strong>Candida and COPD</strong></td>
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<tr>
<td></td>
<td><strong>Fluoride and Anesthesia</strong></td>
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<td></td>
<td><strong>Physical Properties of ART material</strong></td>
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<td>11</td>
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<td></td>
<td><strong>Interrelations of Level of Urinary Cotinine and Score for Fagerstrom Test for Nicotine Dependence among Beedi Smokers, and Smokeless Tobacco Users in India: A Systematic Review</strong></td>
<td>Pubmed</td>
<td>Accepted</td>
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</table>
Press Release

Nitte team does Fluoride mapping of Karnataka state

Stanley Petrol /TN / Feb 24, 2016, 08:57 PM IST

MANGALURU: A spatial distribution mapping of drinking water fluoride levels in Karnataka has been carried out by a transnational research team of Nitte University, which would help improve planning of funds and work to mitigate the condition.

Kolar, Kopal of Karnataka India have High Concentration of Fluoride -- Published Research

Says The New Indian Express 11 March 2016

Article (PDF Available) · March 2016 · 7 Reads

11 March, 2016
Nitte University, health centre to fight fluorosis

4th November 2016

MANGALURU: A civicemed university in Mangaluru and a rural health centre in Pavagada are coming together to tackle the dreaded fluorosis problem dogging Tumakuru region since decades.

Govt cold to Nitte researchers' study on fluoride distribution

25th Feb 2016

Stanley Pinto Mangaluru: A spatial distribution mapping of drinking water fluoride levels in Karnataka, carried out by a transnational research team of Nitte University and which could help proper channeling of funds, has unfortunately found no takers in the government.
Pavagad, MCC area have high, below normal fluoride levels, says study team

March 2, 2016 - Ahmedabad - DH

A team, led by Chintan Banaji Choudhury, Head, Department of Oral Biology and Genomic Studies, A B Shetty Memorial Institute of Dental Sciences of Nitte University, has carried out a spatial distribution mapping of fluoride level in drinking water in the State.

The study has been published in ‘Perspectives in Public Health’, one of the UK-based high impact journals, recently.

Prof Choudhury, the main author of the study, has estimated the concentration of fluoride in drinking water throughout the four different zones of 26 districts of the State. The team has developed an updated fluoride concentration intensity map and evaluated the data in the context of fluoride-related health disorders. Now, we can see the fluoride level at a glance from the map and quickly identify the fluoride deficit and excess areas in the State. However, Pavagad Fluorosis (Pavagad, in Tapihara district, one of the areas having high concentration of fluoride in its drinking water) is a matter of concern and we do plan to intervene appropriately,” Prof Choudhury said.

earlier, researchers from Nitte University’s A B Shetty Memorial Institute of Dental Sciences, had undertaken a path-breaking fluoride mapping study with international exports which resulted in a spatial distribution map of drinking water fluoride levels in different zones across 25 districts of Karnataka.

Fluoride in drinking water is a double-edged sword, as both deficit and excess of fluoride can cause health problems. While deficit of fluoride can cause dental caries, excess of fluoride (fluorosis) is more serious as it can cause muscle, bone, and kidney diseases. There is also the added concern that fluoride excess affects the poorest sections of the society.

The Nitte study successfully identified fluoride deficit areas in the state, which were mainly in South Karnataka, like Bangalore Municipal Corporation area, and more importantly, fluoride surplus areas, mainly in North Eastern parts of the state like Pavagad where fluorosis has become a serious health concern.

The Nitte team led by Prof. Chintan Banaji Choudhury not only did the fluoride mapping but suggested detailed solutions for both deficit and excess and communicated the same to state and local administrations for further follow up action. The study was so impressive that it was published by the noted UK based high-impact journal, ‘Perspectives in Public Health’.

31st May 2016
A. Tackling Fluorosis Pavagada Initiative: Expert Group Meeting. B. From Right to Left, Professor (Dr) Shridhar N Shetty, Vice Chancellor Prof (Dr) Ramananda Shetty, Swami Japananda, Professor Chitta Chowdhury

A. Education and Development: OSCE’s training in Medical Emergencies organized by the Department of Oral Biology and Genomic Studies
B. Medical Emergencies CPD Programme organized by Department of Oral Biology and Genomic Studies
Health Indicators in a underserved population of Suratkhal:

A. BMI check at a residence of Suratkhal Population
B. Situational Analysis of Population and demographics
C. Interns from Oral Biology Examining the Oral health status
D. Applied Zoology Mangalore University Team
E. Prof Chitta Chowdhury Examining the Oral health Status
A. Nitte Fluoride Team Visit to Pavagada 2016  
B. Situational analysis of de-fluoridation plants installed in Pavagada, Tumkur district  
C & D. Village residents suffering water crisis
# Awards

<table>
<thead>
<tr>
<th>Sl. No</th>
<th>Faculty Name</th>
<th>Award</th>
<th>Amount</th>
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<tbody>
<tr>
<td>1</td>
<td>Dr. Shahnawaz Khijmatgar</td>
<td>ESCEO-Eli Lilly Scholarship to present his findings at World Congress on Osteoporosis, osteoarthritis and musculoskeletal diseases April 14-17 2016 held at Malaga Spain.</td>
<td>€800</td>
</tr>
</tbody>
</table>
Acknowledgement

We are very much thankful to the Chancellor Shri N.V Hegde, Nitte University for supporting the cause and activities in the Department of Oral Biology and Genomic Studies. The department is very much thankful to our dean Prof (Dr) U.S. Krishna Nayak for his support and time. We would also be thankful to Prof (Dr) N. Shridhar Shetty and Prof (Dr) Rajendra Prasad for their support and co-operation. We are thankful to our all colleagues in the A.B. Shetty Dental College and K.S. Hegde Medical College for working with the Department of Oral Biology and Genomic Studies.
Nicotine Replacement Therapy Programme

Nicotine replacement therapy (NRT) is the most widely used pharmacotherapy for treating tobacco addiction. NRT replaces nicotine from tobacco, reducing nicotine withdrawal symptoms and the urge to smoke which makes it easier to quit smoking. NRT is a way of getting nicotine into the bloodstream without smoking. There are nicotine gums, patches, inhalers etc. These help to manage the withdrawal symptoms of nicotine. Department of Oral Biology and Genomic Studies have a NRT centre where the patients are referred from the department of Pulmonary Medicine, Urology and Oral Medicine for tobacco cessation programme. Since October 2014, three hundred patients have benefited from NRT intervention. The follow up of the patients helped to manage the complete cessation from tobacco habits.

A Follow up Case

https://www.youtube.com/watch?v=xBrJ3nHJi40&t=24s

NRT Awareness Programme

https://www.youtube.com/watch?v=lWvhYUuAV_w

- Subject to comprehensive treatment- New CO monitor needs to be procured and under process