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3

Status of Ayurveda, Siddha and Unani Education

I. Evolution of Ayurveda, Siddha and Unani Education

Introduction

In the nineteenth century Ayurvedic medicine was imparted in the traditional way by traditional gurus who asked for no payment.

In Bengal the "Tol" system (an elementary school called a Muth or Pathashala) was used to educate the aspiring physician called Kaviraja which means "Prince of Verse". To start with knowledge of Sanskrit was imparted but since it was not possible for a teacher to cover the entire repertoire of classical texts, students were given basic knowledge by their "Guru" (teacher) and left to read the remaining topics on their own.

Education in the "Tol" was not just theoretical. Students were like apprentices to the "Kaviraja" and accompanied him when he paid visits to the patient's home. In this way they imbibed the art of diagnosis as well as practical knowledge. Side by side they observed the processing of raw material and its formulation as medicine.

Colonial Intervention

The British intervention in the medical education system was marked by "political compulsions". Anil Kumar in his book "Medicine and the Raj" has traced the process through which western influence made inroads into traditional Indian medical institutions especially in the field of education. This can be understood in the following words of the author:

"In Britain, the evolution of medical sciences and its dissemination through educational seminariesresearch institutions and official as well as private scientific bodies was organic in nature, as its roots were firmly entrenched in the society with a long historical continuity.

In India, on the other hand, it was introduced from the top by the colonial government, over and above the traditional medical systems. Thus, in India the relationship between science, society and state was lacking which evolved by itself in Britain."¹

The teaching of Ayurveda underwent a change with the establishment of the Calcutta Medical College where modern medicine began to be taught even as traditional Ayurvedic education continued to be imparted by the "Kavirajas". The latter appeared rudimentary compared to the well-equipped medical colleges that offered a wide range of teaching facilities.

Naturally, those who wanted to become physicians no longer found learning under the tutelage of 'kavirajas' an attractive option and became increasingly drawn towards allopathic medicine and institutional teaching.

At first, orthodox 'kavirajas' did not allow their sons to study allopathic medicine, but according to Charles Leslie, "after taking into account the financial advantages, a great number of them also sent their sons to the modern medical colleges."² He goes on to say that the students obtained certificates to practice medicine and surgery, and were enrolled as "first class Native-Doctors; the second class Native Doctors were those who had been trained in the short lived Native Medical Institute (established in1822) which was later abolished in 1835. The "Native Doctors' were those whose training had been limited to mere apprenticeship."

^{1.} Kumar, Anil. Medicine and the Raj: British Medical Policy in India - 1835-1911. New Delhi: Sage Publication, 1998.

^{2.} Leslie, Charles. Asian Medical Systems: A Comparative Study. Delhi: Motilal Banarsidas, 1998.

After 1835, British policies marginalized Indian medicine giving it no encouragement once western medicine was introduced. The Government resolution of 1821 clearly stated that the purpose of British rulers was "to seek every practicable means of effecting the gradual diffusion of European knowledge." Charles Leslie has put this phenomenon in the following words:

"The political decision to downplay Indian medicine was worked out in different phases. In the early phase both European and Indian medical texts were allowed to be taught side by side in the Sanskrit College. Later on, when the stage was set for a showdown of European supremacy, the Ayurvedic classes were abolished from the Sanskrit College."³

During the Governor Generalship of Lord William Bentinck an ideological debate ensued between the General Committee of Public instruction and the "Delhi Committee", on the feasibility of creating a proper intellectual environment for the introduction of western science and literature in India.

Charles Trevelyan of the Delhi Committee which represented the Anglicist point of view criticized the Madarsa style experiment. The Committee felt that this would hamper the eventual transition to the European language.

The Delhi Committee wanted to bypass the minority Muslim intellectual class and its knowledge base and instead target the uneducated among the Muslims to create a new class of those "educated only in European sciences through the English language." This class it was hoped would then carry forward European knowledge in the vernacular to the masses.

The Delhi Committee did not have full support of H.H. Wilson, Secretary of the General Committee of public instruction. But the Governor-General Lord William Bentinck supported them. In the 1820s a middle path was favored; Madarsa education continued but the ground was prepared for English instruction as the vehicle to impart western medical knowledge. The practicing hakims and vaidyas were trained in aspects of modern medicine in the vernacular and were periodically engaged to implement health programmes in rural areas.

Response of the ISM Educationists

The protagonists of Indian medicine were resentful but this was expressed mostly through ideological discourses and at meetings, gatherings and conclaves. Ayurveda and Unani practitioners and their leaders and supporters were equally eloquent seeking ways and means to revitalize the systems.

Giving Scientific Status to Ayurveda

Initial efforts to rejuvenate and popularize Indian medicine came through the reorganization of the production process (pharmaceutealization) and imparting the know-how contained in the classics through a new framework. PS Varier and the Arya Vaidya Shala (AVS, 1902) were among the early pioneers of such efforts.

The Ashtanga Ayurveda College and Hospital was established by Kaviraja Jaminibhushan Ray in 1916. Since Ray was a scholar in both Ayurveda and allopathic medicine, he tried to revive the other branches of Ayurvedic learning by supplementing it with the instruction of western anatomy, physiology and surgery along with physics chemistry and botany.

The Vishwanta Ayurveda Mahavidylaya was founded in 1932 by Kaviraja Gananath Sen with the idea of giving Ayurveda a scientific status by educating physicians trained in all branches of medicine. In this institution too, Ayurveda was taught side by side with allopathy.

Mahatma Gandhi's approach can be understood from a statement attributed to Dr. Chittranjan Das who wrote about the Mahatma's viewpoint on Ayurveda:-

"Mahatmaji desires that the little that still remains as the glory of Ayurveda should not be completely lost by admixture with allopathic or any other system."⁴

^{3.} Leslie, Charles. Asian Medical Systems: A Comparative Study. Delhi: Motilal Banarsidas, 1998.

^{4.} Chittaranjan Das (1870-1925), popularly called Deshbandhu, "Friend of the country" was an eminent Bengali lawyer and a major figure in the Indian independence movement. His eldest grandson was Siddhartha Shankar Ray who went on to become the Chief Minister of West Bengal from 1972 to 1977.

Building Credibility for Unani

It became apparent that the education, training and the apprenticeship undergone by Unani practitioners were also not recognized by the colonial state as being at par with a 'diploma' from a "recognized school". The controversy over the registration of medical practitioners that began in the 1880s was hotly debated by Unani practitioners as it posed a serious threat to their profession, their status in society and their future.

According to historian Neshat Quaiser, "It (was) the 'reformists' who ultimately prevailed and they were in direct dialogue and confrontation with modern medicine and the colonial state."⁵

The establishment of Madarsa-e-Tibbia (Medical School) in 1889 at Delhi was a landmark development. In his opening speech Sir Syed Ahmad Khan observed that, "English Medicine was very useful and Madarsa-e-Tibbia would develop *doctory* along with Unani tibb and work to remove the differences between the two."⁶

In 1906, the All India Ayurvedic and Unani Tibbi Conference was established. It marked the commencement of joint action to bring the two systems of medicine together viz. Ayurveda and Unani to fight the impending "supression" by modern medicine.

The conference in its first annual meet held in 1910 resolved to work for the establishment of proper teaching institutions for these two systems. It also hoped to mobilise public opinion so that the benefits of the indigenous system of medicine could continue to be availed of.

The inclusion of anatomy and surgery were debated over acrimoniously. In the eyes of "traditionalists" these two subjects were considered to be symbols of colonial domination. For them the Unani method was so complete that surgery was totally unnecessary. Despite this, interestingly, the All India Ayurvedic and Unani Tibbi Conference had itself passed a resolution advocating the teaching of modern anatomy and surgery in Ayurvedic and Unani educational institutions. This shows the ambivalence in approach, a phenomenon that has continued to the present day. Leading the Unani revival was Hakim Ajmal Khan (1868-1927). He was a Muslim nationalist, a poet, a freedom fighter and a renowned medical practitioner. He took keen interest in the expansion and development of the indigenous system of medicine called Tibb-i-Yunania or Unani. In 1908, he established the Anjuman-e-Tibbia which was later converted into a board of trustees to run the affairs of the Ayurvedic & Unani Tibbi College, registered in 1911. In 1908, he laid the foundation stone of the Zenana Tibbi School to provide medical relief to women. This school was inaugurated by the wife of the Lieutenant Governor of Punjab.

Ajmal Khan also suggested that a parallel National educational institution be established, to enable the students to continue their education in the medical field. It was this idea which gave birth to the Jamia Millia Islamia in 1920.

Hakim Ajmal Khan vigorously advocated the causes of Unani & Ayurvedic systems of medicine. He stressed that two Indian systems which had served the people well should continue and make progress without hindrance.

Strengthening Siddha Education

Many efforts to strengthen the theoretical and educational basis could also be seen in the case of the Siddha system. The first school of Indian Medicine under the Siddha system was started in Madras during the year 1924. Those who underwent the course were awarded Licentiate in Indian Medicine (LIM). Those who possessed proficiency and undertook the submission of a thesis were awarded the certificate of Highest Proficiency in Indian Medicine (HPIM). Thereafter, an Integrated Medicine (4½ years) course was offered and was later changed into the Graduate Course of Integrated Medicine (GCIM).

Several Boards/Colleges/Organizations existed before and after independence all over the country and regulated all matters concerning education of Indian System of Medicine, the award of Degrees and Diplomas. Their existence shows that there was an effort to regulate and systematize the education of Ayurveda, Unani and Siddha medicine.

Quaiser, Neshat. "Politics, Culture and Colonialism: Unani's Debate with *Doctory."* In *Health, Medicine and Empire: Perspectives* on *Colonial India*, edited by B. Pati and Mark Harrison. Hyderabad: Orient Longman, 2001.

Quaiser, Neshat. "Science, Institution and Colonialism: Tibbiya College of Delhi – 1889-1947." In Science and Modern India: An Institutional History, c.1784-1947, edited by Uma Das Gupta. Delhi: Pearson Longman, 2010.

There were more than 175 such institutions/Boards spread across various states of India engaged in the regulation of education and practice of Indian Medicine. A list of such institutions that shows courses of 1-5 years duration is available at http:/ /indianmedicine.nic.in/writereaddata/ mainlinkFile/File221.pdf (accessed on 15 July 2011).

From the website of CCIM it would appear that the graduates of courses that were run under scores of state Boards gained entry to the Central Medical Register maintained by CCIM (http://www.ccimindia.org/central_register_ayurveda. php?st=1). They also acquired the right to vote by becoming a member of the general body of CCIM. This situation is not on all fours with the situation prevailing in the Medical Council of India's Central Register where every practitioner holds the basic qualification of MBBS (the erstwhile licentiates having been phased out).

As a result of this recognition, the products of Board examinations that were the outcome of a plethora of courses of varying duration and content enjoy an equal standing in the profession and also in the perception of the consumer. This is fully borne out by examples given in the chapter on Practice.

Despite this apparent inclusiveness, the case for parity with Allopathy and for emulating the modern medicine style of laying out the curriculum and syllabus sprang from the aspirations of BAMS/BSMS and BUMS practitioners who continued to seek greater inclusion of modern medicine in the syllabus and for state approval to practice modern medicine.

Advent of the Integrated Medicine Course

An arrangement involving so many Boards and institutions was untenable because of the huge variation in the standards of education. Due to this, the government appointed several committees to make recommendations on various aspects of the Indian Systems of Medicine, whether to adopt an integrated curriculum or not, and also on the grant of degrees to the aspiring practitioners of Indian Medicine. The committees appointed between 1921-1938 recommended an integrated system of medicine by arranging the curriculum in such a way that whatever was weak in the one system could be supplemented and strengthened by the other. At the same time it was expected that this would also help to provide health and medical care to the rural population. The committees believed that while Indian medicine could derive practical value from Western medicine, in turn Western Medicine could also learn much from the philosophic background of Indian medicine, its comprehensiveness, the importance of the Desha (soil) factor, the dietary regimen and the general principles and knowledge behind the use of supra-sensory perception.

Institutions at Kangari, Haridwar, Varanasi and Madras trained several doctors and made efforts to publish books adopting this integrated approach.

Adverse Reaction to Integrated Medicine

Leena Abraham⁷ has described the turmoil that surrounded the education of Ayurveda prior to the establishment of the CCIM. Her research has illustrated the fierce competition that took place between the supporters of Shudh Ayurveda and those that favoured integration. Her research based among others on the work of Paul Brass⁸ recounts how there were no less than fifty-five strikes that took place between 1958 and 1964 involving both Ayurvedic and Unani colleges. The main demands centred on parity with Allopathic graduates in pay, employment in government jobs, and better quality training and infrastructure. Meanwhile the Allopaths protested against the inclusion of subjects such as anatomy, physiology, pathology, etc., in Ayurvedic colleges which was considered an encroachment into the allopathic domain and incompatible with traditional medicine aimed at providing "a back door entry" to practice allopathy. It is interesting that similar demands for equivalance and parity continue to be voiced even today and have been receiving support particularly from several state governments.

Constant objections began to be raised against the integrated approach of teaching and training. First

Abraham, Leena. "Reproduction of Indigenous Knowledge in Rural Cultures: Ayurveda Education in Contemporary India." In Sociology of Education in India: Disciplinary Perspective and Contemporary Concerns, edited by Geetha B. Nambissan and S. Srinivasa Rao. Oxford University Press, (forthcoming).

^{8.} Brass, Paul. "The Politics of Ayurvedic Education: A Case of Revivalism and Modernization in India." In *Education and Politics in India*, edited by SH Rudolph and LI Rudolph. New Delhi: Oxford University Press, 1972.

the allopathic doctors objected to the teaching of modern medicine to Ayurvedic students. Staunch and orthodox Ayurvedic scholars were also opposed to this approach. Practical difficulties were also encountered in teaching modern subjects to Ayurvedic students. Hence the Integrated Medicine course had perforce to be discontinued.

Indian Medicine Central Council Act, 1970 and Integrated Approach to Education in Indian Medicine

The Central Government enacted the Indian Medicine Central Council Act, 1970 and gave the CCIM responsibility for prescribing:

- 1. The courses and period of study and of practical training to be undertaken,
- The subjects of examination and the standards of proficiency to be obtained, in any University, Board or Medical Institutions for grant of recognized medical qualifications;
- 3. The standards of staff, equipment, accommodation, training and other facilities for education in Indian Medicine;
- 4. The conduct of professional examinations, qualifications of examiners and the conditions of admissions to such examinations.

The products of the Guru-Shishya tradition or even those who had received certification from state Boards had to be allowed to continue to pursue their profession. Under section 25 of the IMCC Act 1970, there is a provision for direct registration with the Central Council. Even if there was no State Register, a person could not practice after the commencement of the Act without a registration either under the Central Act or under the State Act. A person failing to show possession of any of the recognized qualifications entitling him to practice Ayurvedic/ Siddha or Unani medicine, was not entitled to continue practice. But what are now called non-institutionally qualified Vaids, Hakeems and Siddhars were able to get registration not only permitting them to practice but also to vote to elect members of CCIM.

Interestingly the dominant group in CCIM has been at the forefront in promoting the inclusion of modern medicine in a big way.

Conclusion

The educational aspect of the Indian medicine systems remained in the forefront during the colonial period. Ayurveda and Unani as medical systems tried to protect and enhance their ideological base by adopting a contemporary outlook. Ironically in the process they were increasingly influenced by western medicine.

The concern of the Central Government is apparent through the decision to enact the CCIM Act 1970 which gave legitimacy to all the practitioners but also aimed at bringing uniformity in the standards of ISM medical education. How successful this attempt has been is addressed in the next subchapter.

II. Status of Ayurveda, Siddha and Unani Education – A Survey

Introduction and Methodology

For several years the quality of education imparted in the Ayurveda, Unani and Siddha colleges has been a matter of concern. Most of the challenges have revolved around the provision of infrastructure and faculty as prescribed by the Central Council of Indian Medicine (CCIM). Until 2005 CCIM used to grant recognition to new colleges, to review the status of infrastructure, grant permission for increasing seats or for introduction of new courses. The Central government took over powers to grant recognition to new colleges, approve new PG courses or increase the intake of students through an order passed in 2006 which was implemented from 2008 onwards. The number of colleges increased significantly from the year 2000 to 2010 and currently the number of colleges is as follows:

Systems of medicine	Govt. colleges	Private colleges
Ayurveda	55	199
Siddha	2	5
Unani	9	30

Source: http://indianmedicine.nic.in/ writereaddata/linkimages/5995355455-MedicalEducationPartII.pdf (accessed on 1 August 2011).

The purpose behind ASU medical education and its stated objectives is to prepare graduates and post graduates who can help development of the systems and benefit the public by using their special competencies and skills. Somewhere the focus appears to have shifted to how graduates of the system can be best benefitted in finding a useful foothold in the health sector. In pursuing this goal



Meeting with experts of Ayurveda at Mumbai convened by Director, Ayurveda Dr. K.R. Kohli. Inset: Dr. Kohli, Director, ISM, Maharashtra (left) and Mr. Milind Mahaiskar, Secretary, Medical Education, Maharashtra who were present throughout.



Shri. Rajesh Kishore, Secretary (Health), Dr.M.B. Jani, Director ISM and State Drug Control officers of Government of Gujarat



Meeting with faculty of Institute of Post Graduate Teaching & Reasearch in Ayurveda, Gujarat Ayurved University, Jam Nagar.



Meeting with experts at Bengaluru convened by the Director, Ayurveda Shri G.N. Srikantaiah at extreme right.





Principal Investigator (PI) in discussion with Prof. Ajay Kumar Sharma, Director, National Institute of Ayurveda, Jaipur at OPD & IPD of Madhav Vilas Palace Ayurveda Hospital, Jaipur.



Discussion with the faculty at NIA, Jaipur

the development of the systems has been eroded considerably. Added to this, the approaches of the faculty of Banaras Hindu University (BHU), the Kerala School of Ayurveda, the Gujarat Ayurveda University and the faculty in working in Maharashtra insitutions (Tilak Ayurveda Mahavidyalaya, Pune; Poddar Ayurveda Medical College, Mumbai) seem to differ considerably, at times overriding the objective of following a uniform pattern of teaching and patient care. While a core curriculum as prescribed by CCIM has achieved a degree of



View of Faculty of Ayurveda building, Banaras Hindu University, Varanasi

uniformity, many products of the institutions have used their educational exposure and training to advance their own practice in a way that has affected the public perception about ASU systems.

In answering the question what benefits has the education sector of ASU given the public, the Principal Investigator (PI) did not go into the infrastructural requirements like the provision of buildings, or the availability of sufficient faculty or hospital beds in great detail. This is because the CCIM and the Department of AYUSH are already



Meeting with officers, faculty and practitioners of Ayurveda and Unani medicine held at State Ayurvedic College, Raipur Inset: Dr. GS Badesha, Director AYUSH, Chhattisgarh



View of 500-bed Ayurveda Hospital, Tripunithura, Kerala



View of Tilak Ayurveda Mahavidyalaya, Pune



Meeting with faculty of RA Poddar Medical College, Mumbai

actively engaged in conducting an annual exercise for grant of permission to the colleges when the provision of such infrastructure is being constantly reviewed. But an area which perhaps has not been examined in great depth remains the curriculum and the syllabus of ASU institutions and whether the subjects prescribed and their teaching provides the competencies and skills that should make the ASU graduate and post graduate capable of providing ASU patient-care and other services in a variety of settings like hospitals, dispensaries, in private practice, as teachers and researchers, as the backbone of manufacture, in quality control and finally as good ambassadors of the profession. Only then can the public be said to have benefitted.

In order to examine this, it was necessary to understand what various stake holders have to say – among them educationists, private practitioners commanding a good practice and people of stature in the profession.

The PI therefore set about this in three ways:

1. By holding intensive meetings with a cross section of experts and other stake holders either

called by the State ISM Directorates or by the Research council in the case of Unani medicine or through the good offices of the National Institutes of Ayurveda, Unani and Siddha Medicine, individual Vice Chancellors, as in the case of Chhattisgarh or the Gujarat Ayurveda University, Jamnagar who were also consulted.

- 2. By issuing an online questionnaire with 34 questions in 10 sections.
- 3. By sending the questionnaires by registered post to the Principals of ASU colleges directly for being filled by a cross-section of the faculty and PG students.

The number of Ayurveda colleges has increased phenomenally to 254, out of which, about 150 colleges have been established after 1980. During the same period, the number of Siddha colleges rose from 3 to 10 and Unani colleges from 28 to 45. Securing an ASU degree was clearly an attractive proposition. Source: http:// indianmedicine.nic.in/writereaddata/linkimages/ 5995355455-MedicalEducationPartII.pdf (accessed on 1 August 2011). Although the CCIM



Pl in discussion with Commissioner ISM at National Institute of Siddha Hospital, Chennai



Meeting with Education experts at NIS, Chennai convened by Shri Chadrashekhar, Commissioner ISM, Tamil Nadu Inset: Shri Chadrashekhar, Commissioner ISM, Tamil Nadu



Foundation stone and inaugural stone of Ayurveda and Unani (A&U) Tibbi College, Karol Bagh, Delhi.



A view of Ayurveda & Unani Tibbia College, Karol Bagh, Delhi.

has laid down a number of regulations to prescribe the minimum standards of education, these have been ignored at many places. Liberal permissions granted by the State Governments, loopholes in the existing Act and Regulations, weakness in the implementation of standards of education have been held responsible for this state of affairs.⁹ The admission capacity in both undergraduate and post graduate courses is very large borne out by the tables below:

Undergraduate ASU Colleges with admission capacity as on 1.4.2010.

System	No. of UG	Admission
	colleges	capacity
Ayurveda	254	11927
Siddha	7	350
Unani	39	1757

Postgraduate ASU Colleges with admission capacity as on 1.4.2010.

System	No. of PG colleges	Admission capacity	Exclusive PG colleges/ admission capacity
Ayurveda	64	1110	2 / 50
Siddha	3	126	1 / 46
Unani	6	75	1 / 30

While several scattered observations regarding the poor quality of ASU education are available in books and articles, no systematic study (except for a Maharastra centric study done in 2005) could be located. IASTAM conducted a study in the state of Maharastra to examine "status of Ayurvedic medicine education". The survey¹⁰ involved students and faculty at undergraduate and postgraduate

^{9.} Patwardhan, Kishor et al. "Global challenges of graduate level Ayurvedic education: A survey." Int J Ayurveda Res 1, no. 1 (2010).

^{10.} The survey was designed and undertaken by a team led by Vd. Vilas Nanal and Dr. Narendra Bhatt for IASTAM – the Indian Association for the Study of Traditional Asian Medicine in 2005.



Meeting with Unani experts organized by Prof. S Shakir Jamil, Director General, CCRUM (1) at the CCRUM headquarters in New Delhi. Others are Hakim Syed Khalifathullah (2), Dr. Ahmad Yasin (3) and Prof. Anis A Ansari (4). In the picture to the left are Prof. Syed Zillur Rahman and Hakim MS Usmani.



Pl with Prof. MA Jafri, Director, NIUM, Bengaluru.



Meeting with the faculty of NIUM, Bengaluru.

levels and the management of 15 colleges. The need for drastic reforms in Ayurvedic education was strongly emphasised.

Emphasis on Modern Medicine

The emphasis on Modern medicine has continued years. A glance at the undergraduate curriculum for Ayurveda (current) shows the requirements of understanding Modern medicine. There is no indication as to which portion is for overall background information and which is for in-depth knowledge. The incorporation of such a wide spectrum of Modern Medicine content has been criticized by many of the persons interviewed by the PI. The Modern Medicine part of the curriculum can be seen at Annexure-I. The full syllabus of CCIM for Ayurveda can be viewed at http:// www.ccimindia.org/curriculum_ayurveda_ ug_syllbus_2009.html (accessed on July 10, 2011).

The present survey was primarily planned to evaluate the "extent of exposure to clinical and allied skills" extended during the BAMS, BUMS & BSMS courses and PG courses as perceived by a sample groups of teachers and postgraduate students spread over the country. The focus of the study was to ascertain how far the stakeholders felt that a significant part of the syllabus of UG and PG is specifically directed towards providing patientcare. Also to seek suggestions on how the focus could be modified to benefit the public and orient the ASU practitioner as a person with competencies and skills that were capable of responding to specific medical and health concerns.

A special questionnaire ASU Curriculum Evaluation Questionnaire was designed to review the status of ASU education in the country (Annexure-II).

Purpose and Scope of Review

The purpose of the review was to seek answers to the following questions:

- Does the CCIM Ayurveda/Siddha/Unani (ASU) Curriculum identify and provide the necessary skills, knowledge, and experience to turn out practitioners that inspire confidence in providing medical and public health care through ASU systems of medicine working collaboratively and in a variety of health settings?
- 2. Does the ASU Curriculum have sufficient practical content and application to equip the graduate/postgraduate with competencies and skills to make him a sought after ASU health provider because of his special training?
- 3. The scope of the review included:
 - Structure and in particular the syllabus followed from year-to year;
 - Terminology to ensure consistency with the objective of preparing the graduate/ post graduate for using his knowledge and skills for practical application in the areas of research/education/industry but predominantly practice;
 - Content to ensure current relevance, and focus on preventive, promotive and curative health in practical terms based on ASU principles
 - Suggestions on additional tools and resources needed to upgrade the practical

aspects of teaching with the aim of producing good physicians for the benefit of society.

About the Questionnaire

A list of 34 items was prepared on the basis of interactions with ASU administrators and educationists and keeping the stated aims of the ISM policy in view. Reports of various committees, journals, news reports, and the National Health Policy documents were referred to for deciding the list of questions. The questionnaire comprised of 10 sections i.e., A to J which broadly covered the evaluation of the curriculum content (existing and the new one) as displayed on the CCIM website, admission requirements, internship requirements and practical aspects. The respondents were also asked to furnish basic data on age, gender, institutional affiliation and their present status (faculty or administrator or post graduate scholar). Furthermore, the questionnaire contained a privacy clause stating the purpose of the study and assuring strict confidentiality. The respondents were asked to sign a declaration stating that their participation in the study was purely voluntary and the responses given were based on their own individual perceptions and that they were not compelled to respond in any particular by the investigators or by any other authority.

The following methods were adopted to obtain data from various people of all categories who are related to field. The contacts were provided by the Rashtriya Ayurved Vidyapeeth, New Delhi and obtained from the CCIM's website.

- i. Kwik survey K questionnaire
- ii. E- mail questionnaire
- iii. Postal questionnaire

 Sent by registered post to the Principals of ASU Colleges.¹¹ List of these colleges appears at

Kwik Survey			
(A leadi	ng	free	
online service)			
Questionnaires			
issued			
Ayurveda	:	294	
Unani	:	42	
Siddha	:	8	

Annexure-III. The three surveys resulted in 185 individual responses (Ayurveda: 124, Unani: 55, Siddha: 06).¹²

^{11.} Questionnaires were sent by post to 114 Ayurveda, eight Siddha and 41 Unani colleges and followed up with reminders sent by registered post to the Principals to have the questionnaires filled by the faculty and by the PG and a representative group of other students.

^{12.} As very few responses were received only the opinions and suggestions have been incorporated.

The questionnaires were repeated online again. Personal interviews were held with a cross-section of experts invited to CCRUM (for Unani Medicine) and by the ISM/Ayurveda Directors of Maharashtra, Gujarat, Karnataka, Chhattisgarh, Tamilnadu and Kerala in addition to those invited by the Directors of the National Institutes of Ayurveda, Unani and Siddha Medicine to meet the Pl. Complete list of these experts is available at Annexure-IV. The three sub-chapters that follow give the responses received from Ayurveda, Siddha and Unani faculty members and post graduate students. They also encompass detailed advice given by experts who participated in a series of interviews which were recorded by the PI and held at different places in the country including at CCRUM Delhi in respect of Unani Medicine.¹³

^{13.} In the three sub-chapters describing the responses there are "opinions & suggetions" under each section. These include the views of numerous experts whose testimony was recorded and incorporated at relevant places.

II(a). Appraisal of the Responses Received on Ayurveda Curriculum

1. Findings on Ayurveda curriculum evaluation

Under the section of curriculum evaluation, respondents were asked to comment on whether the Ayurveda Curriculum builds the skills and competencies that a practitioner would need to perform his duties connected with the $4\frac{1}{2} + 1$ year professional course.

The following Pie Chart depicts the opinion of the respondents -

A high percentage of the respondents (46%) opined that curriculum description strongly needs reform. Others (27%) opined that curriculum description does not capture the duties; 13% opined that the curriculum captures the duties and the remaining 14% did not respond.



Figure 1. Findings on Ayurveda curriculum evaluation.

Opinions and suggestions:

Aims and objectives of BAMS education: The aims and objects for a BAMS graduate are defined by CCIM as follows: "Ayurveda education should aim at producing graduates of profound scholarship having scientific knowledge in accordance with Ayurvedic fundamentals backed by extensive practical training to enable them to become efficient Teachers, Research workers, Kaya Chikitsakas (Physicians), Shalya Chikitsakas (Surgeons), fully competent to provide healthcare as a part of the medical and health services of the country". The general response indicated that the curriculum had failed in achieving this objective. The curriculum was too overcrowded; it contained too much theoretical knowledge, and expected regurgitation of factual information. Both the National Health Policy 1993 and National Policy on ISM&H 2002 had observed that ISM & H had not been able to play a significant role in the health care delivery system for want of legitimacy in handling public health programmes. This was despite the existence of a huge infrastructure to support professional education. The reason for this failure lies to a large extent in the unachievable aims and objectives set out by the CCIM for the graduate.

- Mixed education: A constant complaint was that the BAMS graduates' capabilities are less than that of an MBBS doctor and more than of a nurse. Their training cannot give them skills to work independently as Ayurveda physicians, because they are given part education in modern medicine and part in Ayurveda.
- Period of curriculum is not suitable: The present length of the curriculum is 4½ years divided into 3 Professionals of 1½ years each, plus a one year internship programme. Emphasis should be given more on practical subjects instead of on theoretical subjects. The introduction of year wise pattern for Pre and Para clinical subjects with 1½ year for Clinical subjects was favoured.
- Lack of interest in the curriculum: Though the total programme length $(4\frac{1}{2} + 1)$ year was sufficient, the structure of the syllabus was found defective; "the graduate comes out almost empty handed at the end of the programme" was one observation. The curriculum even though it promised a lot, was unable to meet present day expectations. No evidence based data was put forward relating to Ayurvedic treatment and the research done in PG departments of many Institutions was of substandard quality. Day by day even once reputed Institutions were deteriorating. The curriculum was asked to be restructured properly keeping in mind the types of duties the graduate was expected to perform. The syllabus needed to be revised in a way that it provided more practical content to the undergraduate level with greater research orientation at the postgraduate level.

 Performance through learning is a distant dream: One respondent put it as follows "A (normal) student is expected Learn – Understand–Reproduce-Practice–Perform." With the present curriculum the student simply reproduces to acquire a Degree, and begins practice without skills which affects his subsequent performance adversely.

2. Findings on Ayurveda admission requirements

Under the section of admission requirements respondents were asked whether the present requirement of 10+2 school level with biology background would suffice or whether there was a need to introduce any specific subjects at the entrance level to enable the student to fulfill the course objectives.

i. Findings on basic qualification required for admission in Ayurveda

The following Pie Charts depict the opinion of the respondents -

A high percentage of respondents i.e. 76% (46% + 30%) opined that admission requirements are not satisfactory and thus needs change. Few percentage of respondents i.e. 11% felt that admission requirements are satisfactory. And another 13% had not responded.



Figure 2. Findings on basic qualification required for admission in Ayurveda.

ii. Findings on need of special subjects for admission

A high percentage of respondents (38%) felt that current 10+2 with Biology background was essential for admission, but change was also needed. 32% of respondents felt that specific subjects are essential for pursuing the course but 19% opined these are unnecessary and another 11% had not responded.



Figure 3. Findings on need of special subjects for admission.

Opinions and suggestions on Ayurveda admission requirement:

- Basic knowledge and background of 10+2 science education is essential: The present entrance requirement of passing 12th standard examination with Physics, Chemistry and Biology is necessary to fulfill the course objectives. A knowledge of Biology is the base on which the course is built. Knowledge of Physics and Chemistry helps the student understand the intricacies of different physical and chemical functions of the human body.
- Ayurveda Colleges to be permitted early admission by AYUSH/CCIM: Presently most of the Ayurvedic colleges receive clearance from AYUSH/CCIM for taking admissions during the mid/end of the academic year. By that time most of the students take admissions in one course or the other. Only left over candidates opt for ASU courses. And they continue with the course just to acquire the degree. The department should initiate the admission process early so as to attract better students.
- Are Pre-Ayurveda courses essential? Introduction of Pre-Ayurveda course after 10th standard instead of 10+2 as a prerequisite to join the BAMS course is not in the interest of Ayurveda. It will damage Ayurveda, because for almost all professional courses 10+2 is the minimum qualification. If Pre-Ayurveda course replaces 10+2 then the status of the professional course will be in question.

3. Findings on curriculum content

i. Findings on sequence of subjects presented in curriculum

The following Pie chart depicts the opinion of the respondents -

A high percentage of respondents i.e. 76% (42+34) opined that sequence of training is inadequate and needs modification. A smaller percentage of respondents (17%) felt that it is adequate and remaining 7% had not responded.



Figure 4. Findings on sequence of subjects presented in curriculum.

ii. Findings on time allocation for each subject in curriculum

A high percentage of respondents i.e. 81% (43+38) opined that time allocation in curriculum is insufficient and needs change and they suggested a few changes. A smaller percentage of respondents (14%) felt that it is sufficient and the remaining 5% did not respond.



Figure 5. Findings on time allocation for each subject in curriculum.

iii. Findings on inclusion of necessary learning objectives in relation to individual subject

A high percentage of respondents i.e. 87% (45+42) opined that learning objectives in the curriculum are missing or only partially included. A smaller percentage of respondents (12%) felt that learning objectives are included, and the remaining 1% had not responded.



Figure 6. Findings on inclusion of necessary learning objectives in relation to individual subjects.

iv. Findings on balance between theory and practice

A high percentage of respondents i.e. 72% (39+33) opined that balance between theory and practice is lopsided or exists partially. Other respondents (22%) felt that the balance between theory and practice is alright and the remaining 6% had not responded.



Figure 7. Findings on balance between theory and practice.

Opinions and suggestions on Ayurveda curriculum content

General objectives of preparing the BAMS graduate are overlooked in the curriculum content: The objective of the graduate curriculum should be to produce a general practitioner and not an expert of any particular specialty. Hence, he must be equipped with skills to handle routine illnesses as a primary care giver. Moreover, he should be able to recognize situations where secondary and tertiary care is required. As a result of the absence of clearly defined objectives, almost all subjects are crowded together and there is unnecessary content. The subject content of almost all the subjects gives an impression that the objective is to create proficiency in every

subject, which is not possible and cannot be expected from a graduate. There is a need for restructuring of the syllabus rather than inclusion of new items. The whole curriculum needs to become more practical oriented.

- Subjects without learning objectives: As per the existing curriculum available on CCIMs official website, the student is supposed to clear 17 subjects in 3 professional examinations. But no subject in the curriculum is provided with learning objectives. Learning without specified objectives leads to recitation and recapitulation only. Learning objectives are essential to assess the knowledge gained by the student and capability to exhibit his skills at the end of course. BAMS being a medical science there is every need to be clear about learning objectives. Department of AYUSH should nominate the Committee members who make the syllabus or else see that the AIIMS type syllabus is used as a guideline while formulating the learning objectives.
- Repetition of Syllabus content to be omitted: Sequencing of training (i.e. order of subjects presented) within the curriculum do not properly address course pre-requisites and/or corequisites. The curriculum content is a mixture of ancient and modern methods of teaching and learning medicine. Such a mixture of methodologies has resulted in repetition of the subject content. This has to be given attention by separating Ayurvedic and Modern medicine content into separate papers and to induct experts in the concerned fields from faculties of Ayurveda and Allopathy (both) to teach such subjects independently.
- Knowledge of Sanskrit is not compulsory in the present day context: Some people argue that knowledge of Sanskrit is essential for understanding Ayurveda. This is partially true. Knowledge of Sanskrit will definitely be useful but it does not necessarily mean that a person not having the knowledge of Sanskrit will not be able to understand Ayurveda. Hence absence of knowledge of Sanskrit is not a major hurdle in undertaking training of Ayurveda. Regarding subject content of Sanskrit a serious thought needs to be given. The current subject content of Sanskrit appears to be designed to acquaint the student with the Sanskrit grammar, rather than to facilitate the students in reading

and understanding the Sanskrit text in the Ayurvedic classics. A text book based Sanskrit learning course may be introduced for undergraduates of Ayurveda. Such a text book may be designed to contain paragraphs, phrases, terminologies and verses drawn from Ayurvedic classics. The current examination system of this subject should be concise and confined to one theory paper of 100 marks without viva voice. It should cover 25% grammar and 75% descriptive texts and translations. Sanskrit language teachers scholars must be given the responsibility of teaching this subject.

- Theoretical subjects to be reorganized: The curriculum is didactic and theoretical. In the present curriculum some of the subjects are 100% theoretical. They need to be removed or to be reorganized. For example subjects titled Ashtanga Hridaya, Padarth Vigyan and Ayurvedic Ithihasa of Ist Professional of BAMS can be reorganized into one subject under the heading of Ayurvedic Philosophy which can be examined through one paper of 100 marks of which Part A covers Ayurvedic Ithihas (History of Ayurveda) + Siddhantas & Darshanas and Part B covers Ayurvedic fundamentals. As this is entirely theoretical there is no need for a practical and viva-voce examination.
- Essential to introduce subjects of Modern medicine with requisite syllabus focusing on public healthcare: Subjects like principles of Biochemistry, Microbiology, Pharmacology, Forensic Medicine and Toxicology, Preventive and Social Medicine need to be introduced in the curriculum as independent subjects. They should never be taught under any Ayurvedic subject title. Moreover allopathic experts of concerned subjects must be given the responsibility of teaching these subjects independently.
- Programme review to be done at regular intervals: Presently there is no mechanism for reviewing the programme. A periodic review of each academic programme is needed to maintain relevance and promote excellence. The review should be taken at an interval of 3–5 years.
- Professional bodies to be involved in curriculum designing: Presently professional curricula are

designed by the academic boards of the respective councils and the councils are dominated by non-academicians. The academic board members belonging to senior age groups may not be conversant with latest technology, which in turn hampers development of curriculum setting. It would be ideal if members of NCERT, MCI, Senior Ayurvedic faculty members (retired and working) from clinical and non clinical specialties as well as other professional bodies are involved in designing the curriculum. Provisional copy of syllabus needs to sent to all institutions for their opinion and comments and to be made available on the website for incorporating suggestions from all those related to the field. Opinions, remarks and suggestions need to be reviewed before being included in the curriculum finally.

4. Findings on resources

i. Findings on availability of resources in relation to tools/ equipments/ practical components

The following Pie Charts depicts the opinion of the respondents -

A high percentage of respondents i.e. 81% (43+38) felt that institutions are short of resources supply or partial supply. Other respondents (13%) felt that there is adequate supply of resources for practical component, and remaining 6% had not responded.



Figure 8. Findings on availability of resources in relation to tools/equipments/practical components

ii. Findings on resources in relation to text books

A high percentage of respondents (49%) opined that the prescribed text books require amplification and updation. 40% respondents felt that the prescribed text books are insufficient. Other respondents (5%) felt that prescribed texts are sufficient, and remaining 6% had not responded.



Figure 9. Findings on resources in relation to text books.

iii. Findings on learning resources (print media, audio-visual materials, etc.)

A high percentage of respondents (57%) felt that Audio visual learning resources are inadequate, 27% opined that AV resources exists but need enhancement, few 15% have opined that AV resources are adequate, and others 1% had not responded.



Figure 10. Findings on learning resources (print, media, audio-visual materials, etc)

iv. Findings on technical resources

A high percentage of respondents (49%) felt that computer support is inadequate, 29% opined that computer support exists but needs enhancement, another 21% opined that computer support is adequate, and the remaining 1% had not responded.



Figure 11. Findings on technical resources.

v. Findings on specialized resources to strengthen the delivery of the programme

A high percentage of respondents (36%) felt that specialized resources exist but need augmentation, 29% opined that they were inadequate for programme delivery, another 18% have opined that specialised resources are adequate, and remaining 19% had not responded.



Figure 12. Findings on specialized resources to strengthen the delivery of the programme.

Opinions and suggestions on Resources

- Inadequate supply of equipments, tools, and clinical material to meet learning objectives: Initially the student bed ratio was 1:5, which became 1:3 and now it is 1:2. Still there are some people who are thinking of reducing it to 1:1. Clinical material is the most essential component of each and every medical institute, irrespective of the pathy. Most of the Ayurveda colleges do not have enough patients and, the bed occupancy is very poor. There cannot be any medical education without the presence of clinical material. Ayurvedic hospitals and dispensaries are largely located alongside allopathic hospitals within the same campus whose functioning is better compared to individual Ayurveda units. Even if that is not so, it is better to attach an Ayurvedic teaching hospital to the nearest allopathic hospital so that there is exposure to clinical material.
- Non-availability of learning resources & technical inputs: There is a dearth of adequate learning resources i.e. printed material, audiovisual material, specialized software etc. and technical inputs to actively engage the students. Material or equipments specific to covering the curriculum of Ayurveda are not available. Such material needs to be created. At present awareness is there and computers are

purchased but no qualified staff is available to guide the students and proper time is not allotted either. There should be a fixed number of hours allotted to teach the students about how to utilize these inputs.

- Acute need for human resources like paramedical and non teaching staff: Paramedical staff who are technically qualified like Ayurvedic Pharmacists, Panchakarma technicians, Ksharasutra technicians, Lab technicians in the Physiology Deptt., Anatomy Lab. Assistants, Herb collectors in Dravyaguna departments, Drugs store keeper in Rasatantra and Baishajya Kalpana department, ward boys in hospitals. Non teaching staff mainly Librarians etc. are also required to participate in the smooth functioning and development of each department. But there is no controlling body even at the central level to regulate education of such personnel; these aspects are not included among essential requirements for establishing a department.
- Organizations involved in publication of Ayurveda books & journals to be encouraged: Books in Ayurveda are minimal as they do not have sufficient market. It should be compulsory for colleges to purchase new books on Ayurveda. Through this a market would be available for sale of books and writing books would be pursued. National/State libraries do purchase Ayurveda books - as Ayurveda is not accepted as science or a part of humanities. As a result textbooks are inadequate in relation to the present day needs and revival of interest in traditional medicine. The textbooks should be problem oriented and updated with research information. The concept of designing text books with multiple contributing authors needs to be inculcated in the ASU sector and the publication of books in regional languages should be encouraged. Efforts should be made to list and print the Ayurveda textbooks from Indian manuscript libraries.
- 5. Findings on programme instruction/evaluation methods
- i. Findings on instructional methods

The following Pie Charts depicts the combined opinion of the respondents –

A high percentage of respondents (41%) felt that evaluation methods needs change, 33% opined that methods are balanced and adequate, others 22% have opined that methods are not balanced and the remaining 4% had not responded.



Figure 13. Findings on instructional methods

ii. Findings on evaluation method for a programme/subject

A high percentage of respondents (78%) suggested for additional evaluation methods and remaining 22% had not responded.

iii. Findings on recommendation for additional methods for evaluation

A high percentage of respondents (87%) suggested a system for assesing potential instructors and remaining 13% had not responded.

Opinions and suggestions on Programme Instruction/Evaluation Methods:

Inappropriate evaluation methods: Presently the assessment methods are subjective in nature and the assessor is not answerable to anybody. Examiners count pages and length of the answer instead of the quality of the answer. In any examination, when a question setter sets a paper he should provide the key answers which ought to be circulated to all evaluators. Clear grading levels need to be laid down, based upon attendance, involvement and performance. In the practical examination instead of allotting marks for assessment, appraisal should indicate either "Qualified or Un-Qualified" to remove bias. Evaluation methods based on grading as advocated by UGC need to be adopted. Spot evaluation will prove ideal for enhancing confidence among the students. It will also institute credibility into the evaluation system. Presently the assessment methods are teacher centric; they need to become more and more student centric.

- Examination pattern should undergo reform: Pattern of examination needs structural changes. Provision of intermittent internal assessment at least twice in six months is required to be introduced. The internal assessment method should be open ended. Students should be given assessed answer sheets, so that he comes to know where he erred. The question paper should be divided into at least three sections. One section devoted to very short answers/multiple choice questions, another to small answer section and the third one for Long answer section (with choice), where descriptive capability of the student can be assessed.
- Medium of Instruction must be in English only: Presently most of the states conduct ASU courses in regional languages. As the students taking admission into these courses are mostly from English medium students up to their 10+2 level, once they are admitted they are forced to work in the regional languages which they may have studied as a second language during their schooling. The medium of instruction/ teaching for both UG/PG should be in English only and it should be common to all colleges. That will also improve confidence level vis-àvis students of modern medicine.
- Standards to be followed to recruit Lecturers/ Research Officers: Qualification and experience may not be the only criteria for assessing the qualities of potential instructors. Instead, the capacity to communicate and teach should be given due consideration. Group discussion is also one of the tools to identify those who can become good teachers. Research Officer's recruitment in CCRAS does not follow any speciality-wise recruitment. A research officer from a non clinical background is posted to the clinical side. Then how can such a person proceed for clinical research without knowing the basis. So speciality-wise recruitment should be favoured in teaching and research organizations.
- Performance based promotions to faculty to be made compulsory in all Ayurveda institutions: Presently there is no regulatory mechanism to assess the capabilities of faculty

members at national and state level institutes. Every instructor/faculty member must be asked to submit an Annual Performance Report (APR), and it should be screened and assessed based on the number of papers published in reputed and peer reviewed journals; Research work done/guided during academic year; authorship of a book; presentations/lectures at conferences; number of credits earned by attending CMEs/ ROTPs/workshops etc. utilization of latest technology and teaching methodologies; active involvement/ participation in various activities of the department, college, or system as whole. This APR should be linked with future career prospects.

- Ayurveda Teaching modules to be needed: Present method of teaching in Ayurveda colleges is didactic and revolves around classical content, rather than practical application. Interactive learning methods need to be introduced. This is possible only when the instructors are provided with proper subject wise teaching modules prepared as per the prescribed syllabus. These teaching modules should be prepared in the form of books and power point presentations and sent to all colleges. The responsibility of preparing teaching modules should be given to Rashtriya Ayurveda Vidyapeetha (National Academy of Ayurveda).
- Re-Orientation Training Programme (ROTP) to Ayurveda Teaching faculty on the content of modern medicine and allied sciences: Allopathic subject content should be taught by instructors qualified in the relevant allopathic subject. For that the allopathic content in the curriculum should be separated and should have an independent identity in the curriculum. The ROTP should be designed by Deptt. of AYUSH alongwith Deptt. of Health & F.W to train ASU faculty in modern medicine content covered in the ASU syllabus e.g. Kaya Chikitsa faculty should undergo ROTP on General Medicine contents covered in ASU syllabus, Shalya Chikitsa faculty in ROTP on General Surgery contents covered in ASU syllabus, faculty of Panchakarma Dept. needs to undergo ROTP on Physical medicine and Rehabilitation methods and likewise. This ROTP should not be conducted by ASU fraternity; rather it should

be organized by allopathic institutions in their campuses. For Non-clinical subjects also faculty members of Ayurveda should be made to compulsorily undergo specialized ROTP e.g. Dravyaguna Deptt. faculty needs to undergo ROTP in Pharmacognosy, Bio-analytical and standardization methods; Rasatantra & Baishajya Kalpana Dept. faculty needs to undergo ROTP on standardization and modern pharmaceutical methods.

Ayurveda PG (MD/MS) specialties to be reoriented: Presently CCIM has allowed PG in 22 specialties. The specialties mentioned at S.No 8,13,14,15 and 16 in the following list will be awarded the title of Master of Surgery (M.S) after the completion of the 3 years of PG course. The post graduates who are awarded this degree will be under the false impression that they are eligible to practice surgery. But legally they will be punished if they do so. And the specialties at S.No. 20, 21 and 22 have no reference in the classical texts. Ayurveda institutions do not have infrastructure and faculty to conduct these courses. Still if somebody completes this course he will be eligible to join as Lecturer in a private college or in a govt. institution, but will not be able to practice legally. So if Government wants to conduct these courses then those that gain proficiency need to be given legal status, or such courses should not be encouraged. Specialties should be designed to use the real potential of Ayurveda, for example specialties like M.D. (Jara Chikitsa-Geriatrics in Ayurveda), M.D. (Vrisha Chikitsa-Reproductive medicine in Ayurveda), M. Sc. (Applied Nutrition in Ayurveda). Jara Chikitsa and Vrisha Chikitsa have been mentioned as special subjects during Samhita period itself and these have current day significance also and are becoming increasingly important. If these subjects are introduced as subspecialties then Ayurveda will be recognized as having practical value.

Ayurvedic Post-graduate degree specialties

- Ayurveda Vachaspati (M.D.-Ayurveda) -Ayurveda Sidhanta (Fundamentals of Ayurveda)
- (2) Ayurveda Vachaspati (M.D.-Ayurveda) -Ayurved Samhita (Lexicons of Ayurveda)

- (3) Ayurveda Vachaspati (M.D.-Ayurveda) -Rachna Sharir (Anatomy in Ayurveda)
- (4) Ayurveda Vachaspati (M.D.-Ayurveda) Kriya Sharir (Physiology in Ayurveda)
- (5) Ayurveda Vachaspati (M.D.-Ayurveda) -Dravya Guna Vigyana (Materia medica)
- (6) Ayurveda Vachaspati (M.D.-Ayurveda) Ras Shastra (Metals and minerals)
- (7) Ayurveda Vachaspati (M.D.-Ayurveda) -Bhaishajya Kalpana (Pharmaceutics)
- (8) Ayurveda Dhanwantri (M.S.-Ayurveda) -Prasuti Tantra Evam Stri Roga (Gynaecology and Obstetrics)
- (9) Ayurveda Vachaspati (M.D.-Ayurveda) -Kaumar Bhritya (Paediatrics)
- (10) Ayurveda Vachaspati (M.D.-Ayurveda) -Kayachikitsa (Internal medicine)
- (11) Ayurveda Vachaspati (M.D. -Ayurveda) -Swastha Vritta (Community medicine)
- (12) Ayurveda Vachaspati (M.D.-Ayurveda) Rog Nidan Evam Vikriti Vigyana (Pathology)
- (13) Ayurveda Dhanwantri (M.S.-Ayurveda) Shalya Tantra Samanya (General surgery)
- (14) Ayurveda Dhanwantri (M.S.- Ayurveda) -Shalya Tantra - Kshar Karma Evam Anushastra Karma (Para surgical procedures)
- (15) Ayurveda Dhanwantri (M.S.-Ayurveda) Shalakya Tantra Netra Roga (Ophthalmology)
- (16) Ayurveda Dhanwantri (M.S. -Ayurveda) -Shalakya Tantra: Shiro-Nasa-Karna Evam Kantha Roga (Ear nose throat)
- (17) Ayurveda Vachaspati (M.D -Ayurveda) -Shalakya Tantra - Danta Evam Mukha Roga (Dentistry)
- (18) Ayurveda Vachaspati (M.D.-Ayurveda) Mano Vigyan Evam Manas Roga (Psychiatry)
- (19) Ayurveda Vachaspati (M.D.-Ayurveda) -Panchkarma (Biopurificationtherapeutics)
- (20) Ayurveda Vachaspati (M.D.-Ayurveda) Agad Tantra Evam Vidhi Vaidyaka (Forensic Medicine & Toxicology)
- (21) Ayurveda Vachaspati (M.D.-Ayurveda) -Sangyaharana (Anesthesiology)

- (22) Ayurveda Vachaspati (M.D.-Ayurveda) -Chhaya Evam Vikiran Vigyan (Radiology)
- Ayurveda to be part of Central Universities: Department of AYUSH needs to take the initiative to introduce traditional systems of medicine as a part of the subjects covered by Central Universities to promote Interdisciplinary Research in Ayurveda. This approach will attract the scientific community towards Ayurveda. ASU systems will flourish only when the crosssection of related disciplines use the resource material from AYUSH systems and become involved in working on its principles and effectiveness.
- Introduction of Post Graduate Diploma in Modern therapeutics (PGDMT) for Ayurveda graduates & Ayurveda Therapeutics (PGDAT) for Allopathic graduates: At most of the conclaves on the Allopathy and AYUSH systems, the very first discussion starts with a discussion on whether ASU physicians are allowed to prescribe allopathic medicines or not. This discussion never concludes. But it is a practical problem and has to be addressed by the government. This has to be considered from several angles but chiefly from the point of public health benefits. If Government considers that health problems can be tackled by Ayurveda physicians they must be encouraged. Most of the State Government have a soft corner for Rural Medical Practitioners (RMPs) because they are influential in the community. Recently Government of Andhra Pradesh took a decision to train RMPs having 10th as basic qualification to prescribe allopathic medicines at the rural level. The Government of India was planning to introduce Bachelor of Rural Health (BRHS) Service course to meet the needs of the rural people. But Ayurveda physicians are already servicing the rural community. This manpower should be utilized properly. To get a legal status for Ayurveda doctors to practice allopathy it is advisable to introduce a course titled PGDMT (11/2 year duration) under National Board of Examinations (NBE). This will act as bridge course between Ayurveda and Allopathy. And it is also advisable to introduce PGDAT (1¹/₂ year duration) under CCIM to enable allopaths to practice Ayurveda. In the long run this will give fruitful results.

6. Findings on graduation and employment requirements

The following Pie Charts depicts the opinion of the respondents -

A high percentage of respondents (34%) felt that graduate requirements are inadequate, 26% opined that requirements needs change, another 28% have opined that methods are adequate and the remaining 12% had not responded.



Figure 14. Findings on graduation and employment requirements.

The following Bar Chart depicts the three most important type(s) of job options available to graduates of ASU medicine -

A high percentage of respondents (72%) selected working as resident doctors in general hospitals/ nursing homes as employment option, 59% opted for private practice and the remaining 17% other choices.



Figure 15. Findings on employment options.

Opinions and suggestions

 Limited career opportunities: Graduates of Ayurveda medicine are having limited opportunities for further career growth. Some options given are- 1. Post graduate/ Doctoral study of Ayurveda either by merit or under management quota; 2. Ayurveda Private Practice/ Panchakarma specialist; 3. Govt. service as Medical Officer/Lecturer; and 4. Other interdisciplinary courses like M.Sc. (Anatomy/Physiology/Biochemistry/Clinical Research/Nutrition etc.) or MBA (Hospital/ Healthcare management) or different positions in Pharma industries.

Government has to create more employment for Ayurveda professionals: Presently Ayurveda doctors have few options of working in the government sector i.e. in CGHS, ESI and state Govt.'s are few in comparison to the number of graduates produced each year. Ayurveda doctors should be posted in Railway hospitals, ESI hospitals, ECHS (Ex-servicemen Contributory Health Scheme) hospitals etc. The Dept. of AYUSH has to convince the Health & Family Welfare Departments to recruit Ayurvedic specialists in Modern Specialty hospitals e.g. as an Ayurvedic Paediatrician (M.D. – Kaumarabhritya/Balroga), Ayurvedic General Physician (M.D. – Kayachikitsa) in Allopathic Cancer hospitals and in corporate hospitals as is being done in Medanta Institute, Gurgaon and Moolchand Hospital, Delhi.

7. Findings on internship term

The following Pie Charts depicts the opinion on the internship term –

i. Findings on appropriate sequence of internship term

A high percentage of respondents i.e. 70% (43+27%) felt that internship period is not properly sequenced thus needs change, 11% opined that internship is properly sequenced, and remaining 19% had not responded.



Figure 16. Findings on sequence of internship.

ii. Findings on objectives of internship

A high percentage of respondents i.e. 42% (26+16%) felt that objectives of internship are

inadequate to build knowledge and thus needs modification, 28% opined that internship is clear and sufficient, and the remaining 30% had not responded.



Figure 17. Findings on objectives of internship.

iii. Findings on the adequacy of the duration of internship training

A high percentage of respondents (46%) opined that duration of internship training is adequate to prepare student for practical application, 26% opined that duration needs change, other 13% opined that training is inadequate to prepare student for practical application, and remaining 15% had not responded.



Figure 18. Findings on the adequacy of the duration of internship training.

iv. Findings on evaluation method of internship term

A high percentage of respondents i.e. 62% (34+28) opined that evaluation methods of internship are inadequate and thus need change, 23% opined that it was adequate, and the remaining 15% had not responded.



Figure 19. Findings on evaluation method of internship.

Opinions and suggestions

Poor implementation of Internship/Houseman ship: The current duration of 1 year internship term is adequate and properly placed but the programme is not implemented properly. The objectives of internship programme are not defined. Still it can be assumed that an intern is supposed to acquire field experience in clinical skill development. If properly implemented, this objective can be achieved during the internship programme. At present there are no evaluation methods of the internship training component. At the end of the Internship programme every internee should be asked to submit a project report on work done during one year, and then only he/ she should be awarded a certificate of completion. It is also advisable to introduce Advance Internship Programme (House job) of 6 or 12 months in specialty fields like Panchakarma, Ksharasutra, Netra Chikitsa etc. where there is a need of extra manpower for the therapies.

8. Findings on Ayurvedic practice

Findings on Ayurvedic practice were drawn by taking different issues into consideration like modification of the syllabus to meet the medical needs of people, the practice of integrated medicine officially permitted by some states, practice as per the public demand, relevance of Sanskrit in providing Ayurveda treatment, applied aspects of the Ayurveda systems, strengths, lacunae in the syllabus with reference to current needs, need for regular inclusion of professional bodies in curriculum design and periodical review of the deliverables from the programme. The following Pie Charts depicts the opinion on different issues of practice -

A high percentage of respondents (78%) suggested for more Ayurvedic practice, and remaining 22 % had not responded.



Figure 20. Findings on Ayurveda practice.

Opinions and suggestions

- Public Demand: The public demands that Avurveda practitioners prescribe allopathic medicines particularly in rural areas: The Ayurveda practitioner has to provide services as per public demand and patients seek quick relief. But responsibility for this situation is because the authorities have neglected and failed to monitor and control the Ayurveda sector. Prescription of essential medicines approved at places: Some State Governments have allowed Ayurveda practitioners to prescribe essential allopathic drugs. State governments like Maharashtra, Punjab, Haryana, Assam, Himachal Pradesh, Delhi, etc. allow the ASU practitioner to prescribe drugs and conduct certain interventions using allopathic systems/medication. Orders have been passed by Government of Maharashtra but the legal status of these orders is still questioned in the background of the Supreme Court judgment in the case of Mukhtiar Chand v/s State of Punjab. Very recently Hon'ble High Court of Tamil Nadu allowed practitioners of Siddha medicine to prescribe allopathic drugs. After the Court's decision the Health Secretary of Tamil Nadu is reported to have said, "Practitioners of Indian systems of medicine are allowed to prescribe allopathic medicines because they have been trained to do so. States like Maharashtra, Punjab and Haryana have allowed such practice. CCIM recommended it and the High Court okayed it. We took the decision after discussion and debate".
- Syllabus to be related to public needs: Modification in the syllabus is essential to equip the Ayurveda practitioner to deal with critical situations when no allopathic practitioner is available. Clinically relevant subjects should be given more weightage for building competencies in practice. It can be done or rather it was being done till the end of decade of seventies. The main issue is the legal status of an Ayurveda practitioner while dealing with such situations. A considered view has to be taken by the authorities in the Government of India in consultation with Medical Council of India to legally facilitate the Ayurveda practitioner to deal with critical situations. Regarding modification of syllabus some restructuring of syllabus will be required, where the allopathic portion will have the status of an independent subject and such subjects will be taught by allopathic experts of the concerned subject.
- Specialized practice in Ayurveda must be promoted: No science is complete and lacunae have to be filled by using the knowledge gained from other systems and subject areas. This is true in the management of non-communicable diseases like Hypertension, Diabetes, Arthritis, Cancer etc. where no single pathy is sufficient to manage the diseases on a long term basis. So Ayurveda has to be supplemented with Allopathy for better outcome. Here the specialty practice plays a role. Though CCIM conducts post graduation (MD/MS) in 22 specialties for the last 25 years, no post of Ayurvedic specialist is in existence. This requires serious thought.
- Integrated practice: Integration of AYUSH is the stated policy of the National Rural Health Mission (NRHM) as well as the (National Policy on AYUSH, 2002). Ayurveda doctors must be taught Allopathy, must know how to deliver Allopathic medicines, and must know how to manage emergencies.
- Kerala & Maharashtra models of Healthcare recommended to be adopted on All India basis: Govt. of Kerala allocates a major portion of health budget to Ayurveda. Ayurveda plays a role in primary healthcare including the prevention of disease and promotion of good health. When Maharashtra state allowed integrated practice, many Allopaths warned that Ayurveda doctors will practice only

Allopathy rather than their own system. But today in Maharashtra there is a very strong tradition of Ayurveda and many international renowned stalwarts of Ayurveda are from Maharashtra. And many renowned and genuine Ayurveda pharmaceutical companies are also from Maharashtra. So this model can be adopted on an All India basis.

• Quackery in Ayurveda: Speaking during the inaugural function of the centenary celebrations of the All India Ayurveda Congress on 7th Oct., 2009 at New Delhi, *President Pratibha Patil spoke of the need to take strict action against quacks practicing Ayurveda and who are bringing a bad name to an age old medicinal system. She said that while people in India have respect for this system of medicine, false practitioners do a lot of damage to the image of Ayurveda and need to be strictly acted*

against. She therefore urged the practitioners to follow the standardized methods stringently. As per statistics, India has over six lakh registered Ayurvedic practitioners. However, there are many who pose as 'Vaidyas' and fool the common people giving them wrong medication. This eventually results in the loss of faith in this system of medicine.

Relevance of Nadi Pariksha & Prakriti assessment: Patients that ingest modern medicine will be under the influence of those drugs. In such conditions manual palpation of pulse examination leads to biased results. The concept of Prakriti (Constitution/Temperament) is beneficial for understanding the patient but is of lesser significance to therapeutics. It has less application in epidemics and general practice but has a significant role in dealing with chronic diseases.

II(b). Appraisal of the Responses Received on Siddha Curriculum

1. Findings on Siddha curriculum evaluation

Respondents were asked about the ASU curriculum in relation to built up of skills, competencies and duties during the programme.

Opinions and suggestions

- Respondents feel that the programme length is sufficient but also proposed to incorporate new subjects in the curriculum with a practical orientation towards bio-medicine for diagnosis and treatment.
- Certain modifications were considered absolutely necessary. Students needed more exposure in areas like medical emergencies.

2. Findings on Siddha admission requirements

Under the section of admission requirements, respondents were asked whether the present 10+2 with Biology background was sufficient or whether any specific subjects needed to be included to fulfil the course objectives.

Opinions and suggestions

- 10+2 with Biology background fulfils what a person should possess as basic knowledge and background to enter the BSM&S course.
- Basic science including Mathematics gives a more analytical approach in clinical diagnosis and use of instruments as in drug formulation where numerical ability is very important. In depth knowledge of Tamil language is also essential.
- Apart from the above mentioned subjects, Tamil language upto +2 is mandatory. In addition to this, knowledge and exposure to Siddha Medicine, *Saiva Siddantha* can be considered as a desirable requirement.

3. Findings on Siddha curriculum content

i. Findings on sequence of subjects presented in curriculum

Opinions and suggestions

- The subjects included in the First Professional need to be altered a little. Basic knowledge of identification of medicinal herbs and raw drugs, metal and mineral ores and animal products etc., need to be included in the curriculum. Expertise in Tamil language is also a corequisite.
- Basic knowledge of Genetics and Immunology can be added since many Siddha drugs have profound activity on immunology. Modern Pharmacology should be incorporated in the syllabus.
- By and large the subjects are sequential but communication both written and verbal is very low among Siddha physicians which put them at great disadvantage to express themselves with clarity. Classical texts are not included in the syllabus. Safety and efficacy of drugs are not dealt with at length in *Gunapadam*.
- ii. Findings on curriculum content in relation to time allocation of each subject with a view building competencies to practice Siddha

Opinions and suggestions

- Present curriculum is an overloaded one. To reduce the burden on students, it should be revised.
- Though the time allocated for each subject is adequate but emphasis and linkage between five elements-Biological humors-Physical constituents to disease diagnosis and treatment is currently not stressed, therefore ASU orientation is lacking.
- The time allocated to each subject is sufficient in terms of the syllabus. One notable point is

that more stress and time allocation should be given to specific ASU subjects rather than to their counterparts, i.e. General/Scientific/ Allopathic medicines. Examples are medicine preparation and diagnostic methods as per the basics of Siddha.

iii. Findings on inclusion of necessary learning objectives in relation to individual subject

Opinions and suggestions

- The learning objectives are not spelt out clearly and many times students feel that some topics are irrelevant, as textbooks are not updated.
- Clinical subjects are overloaded with modern topics, which may be minimized.
- Phytochemistry, Pharmacognosy, with special reference to hands on training in TLC, HPLC, Liquid chromatography, etc. should be incorporated.
- For subjects like Sattam Sarntha Maruthuvam (Medical jurisprudence) two months clinical posting is mentioned as mandatory but students hardly get exposed to medico-legal cases. For Sool Maruthuvam (Obstetrisc & Gynacology), no labour case is conducted - not even antenatal care clinics are run by the educational institutions. There is no clinical posting for community health and students have limited exposure to National Programmes.
- For example (i) there are three subjects *Thotrakirama Araichiyum Maruthuva Varalarum* (Origin & development of Siddha Medicine), Udal Thathuvam (Physiology) and *Noi Mudal Nadal* (Pathology) in which subject matters/topics such as 96 Thathuvams (96 basic principles) Pancha Bootha Thathuvam (Five element theory) and description about Pathi (Lord Shiva), Pasu (bound soul), Pasam (bondage) are found common and mixed. (ii) Verses and explanation about 14 Vegams (natural urges) deal only with symptomatology and so that they should be excluded.

iv. Findings on curriculum content in relation to examination requirements

Opinions and suggestions

• Modern allied science subjects should not exceed 25% of the total curricilum. Research

methodology should be incorporated. More importance needs to be given to Siddha treatment approach like lifestyle modification, dietary medicine.

- In the subject *Sirrapu Maruthuvam* courses practical/clinical examination for Yogam should be included.
- v. Findings on balance between theory and practice

Opinions and suggestions

- Greater practical application is suggested for the subjects like Vermam, Thokkanam, Yogam and other external therapy techniques such as Attai Vidal
- (Leech application), Ottradum, Vedhu and Pottanam.
- Time allocated for theory is much more than practical. Pratical training should be given more time to build expertise in the students.

4. Findings on resources

i. Findings on availability of resources in relation to tools/ equipment/ practical components

Opinions and suggestions

- The tools, equipment and supplies listed to fulfil the practical components of the curriculum are inadequate for programme delivery. More equipment and tools (with innovations) relevant to external therapy techniques should be designed and supplied as per the current student ratio.
- In certain colleges, consumables are not planned and made available to the students. Range of drugs available is limited due to deficiencies in the pharmacy attached to the colleges and associated hospital.
- ii. Findings on resources in relation to the textbooks

Opinions and suggestions

 The textbooks need to be updated to suit the present needs, so that they become more relevant considering the present revival of interest in traditional medicine e.g. *Aruvai Mathuvam, Sirappu Mathuravam.*

- Siddha textbooks have never been updated. The need of the hour is immediate updation of the available textbooks with recent advances. Special emphasis should be given to training in specific subjects during practical sessions without deviation from the basics.
- iii. Findings on resources in relation to the learning resources (i.e. print media, audio-visual materials etc.)

Opinions and suggestions

- Learning resources i.e. print media, audiovisual materials etc. badly are needed in Siddha colleges for programme delivery.
- Some respondents also proposed to introduce e-learning and teleconferences. Present teaching module is limited to conventional methods only without any state-of-the-art learning resources.

iv. Findings on resources in relation to the technical components

Opinions and suggestions

- Appropriate technical inputs are not reinforced in instruction. Change is particularly required in the area. All the classrooms are to be equipped with audio-visual facilities including OHP/LCD projectors and access to virtual libraries.
- Number of components (computer system, software and other related items) is inadequate to meet the students requirement.
- MoU with pioneers in the required medical and allied branches and access to all leading online/print journals will certainly help in motivating and improving the knowledge and research skills of the future practitioners of ASU.

5. Findings on programme instruction/evaluation methods

i. Findings on instruction and evaluation methods

Opinions and suggestions

• The methods of evaluation are appropriate and there is adequate balance between the theory

and practical assessments conducted for each course. Existing procedure may be continued.

- Little change is needed, weightage for records should include minor project reports, assignments etc. Case preparation should be given in internal assessment.
- There should be assignments like minor projects, invited lectures and community health orientation programme including health surveys. Statistics on morbidity and mortality should be included.
- ii. Findings on recommendation for additional methods for evaluation

Opinions and suggestions

- Continuous comprehensive evaluation (CCE) method or Grade system should be introduced. Internship with qualified and experienced physicians and non-institutional hospitals should be introduced.
- Seminars, frequent subject interactions with departmental staff, PG scholars and experts of the field should be encouraged. These should be included in the syllabus itself to ensure students involvement.
- iii. Findings on qualifications and experience for potential instructors

Opinions and suggestions

- The qualification required for Siddha teachers must be MD (Siddha) and for other related subjects, there should be post graduation in the respective subject.
- From time to time engaging various traditional experts for giving practical training to students is also essential.
- For the subjects Varmam and Thokkanam, collection of original literature from various traditional experts and writing of standard textbooks which would be helpful in evolving common treatment techniques based on experience of various experts.
- Siddha regimen therapy, cleansing therapy, external therapies, and physical manipulation therapies should be made mandatory. Students should be encouraged to interact/ learn from

successful traditional healers as per Guru-Sishya concept in Ayurveda. This has not been implemented in Siddha. In-plant training in drug manufacturing units and analytical testing laboratories during summer vacation should be encouraged.

6. Findings on graduation and employment requirements

Respondents stated that research and allied careers, private practice and working as resident doctors in general hospitals were the preferred employment avenues in order of priority.

Opinions and suggestions

- Requirements for successful completion are sufficient.
- There is general reluctance among examiners to detain a student as it reflects badly on the internal examiner who also happens to be the candidate's teacher. There is general tendency to pass all students. Private college managements pressurize examiners for favourable results.

7. Findings on internship term

i. Findings on appropriate sequence of internship term

Most respondents felt that the internship term was sequenced properly.

ii. Findings on the adequacy of the duration of internship training

Opinions and suggestions

- Duration of internship training is adequate.
- There should be training on handling poison cases, emergencies, ante-natal care, labour etc.

iii. Findings on evaluation method of internship

Opinions and suggestions

- Most of the respondents feel the evaluation methods are appropriate.
- Some of the respondents suggested that practical skills need to be properly evaluated

by the teaching faculty. There is no evaluation of skills except attendence.

8. Findings on Siddha practice

Opinions and suggestions

- Siddha practitioners must be trained adequately in providing First Aid, emergency management to handle the critical and dreadful conditions.
- They may also be authorized to deal with medico-legal cases. The foremost area of focus should be the "Varma technique" because by this technique one can handle many emergency situations successfully.
- Some modification is needed in the syllabus to cater to different medical needs of people in urban and rural areas. Research methodologies are to be given more importance. Medical tours and national health programmes should be a part of the curriculum.
- i. Findings on status of awareness on integrated medicine

Opinions and suggestions

 The government of Tamil Nadu has recently issued G.O. under Drugs and Cosmetics Act, 1940 which gives legal protection to the practitioners of ASU to prescribe drugs and conduct certain interventions using allopathic system/ medication.

ii. Findings on ASU practice as per public demand

Opinions and suggestions

- Intensive research and extensive analysis have to be done to prove the non-toxicity and potential value of emergency medicines mentioned in Siddha systems to handle critical conditions faced by the patients. Drugs delivery research needs to be carried out.
- iii. Findings on knowledge imparted to be able to provide Siddha treatment

Opinions and suggestions

• Siddha preparations from the original Siddha literature need to be preclinically and clinically evaluated and put into practice.

- Expertise in Tamil language is mandatory since most of the Siddha texts are still in the form of Tamil verses.
- Applied Siddha approaches/techniques are always essential to serve patients better. There are number of therapies that can be incorporated in curriculum which is already discussed like cleansing therapy, Varma, infertility, allergies, arthritis etc.
- iv. Findings on suggestions given on further strengthening of the system

Opinions and suggestions

• Inclusion of modern Pharmacology in undergraduate course is essential. It should be

taught along with Siddha Gunapadam subjects. This will help the students study Siddha Gunapadam subjects with better understanding and will also promote a research minded approach.

- Siddha treatment is very useful in Endocrine disorders, infectious disease, Cancer, AIDS, burns, Shocks etc. Use of emergency medicine like Kattu, drug less therapy like yoga, Vassiyogam can be incorporated in the syllabus.
- It is also proposed that the essentials of Nano technology, Biotechnology/Bio informatics be included.

II(c). Appraisal of the Responses Received on Unani Curriculum

1. Findings on Unani curriculum evaluation

Under the section of curriculum evaluation respondents were asked whether the ASU curriculum description is related to the skills, competencies and duties to be exhibited by practitioners and in relation to ASU programme length of $4 \frac{1}{2} + 1$ year.

The following Pie chart depicts the opinion of the respondents -

A high percentage of the respondents (53%) opined that curriculum description strongly needed reform. Others i.e. 22% opined that curriculum description did not capture the duties; 21% opined that curriculum captured the duties and remaining 4% did not respond.



Figure 1. Findings on Unani curriculum evaluation.

Opinions and suggestions

- All the respondents agreed that the length of the programme was sufficient for the under graduate level.
- The curriculum needed upgradation to incorporate latest findings of research and recent surgical equipments/methods.
- The curriculum should be more clinical and practical.
- The 1st Professional year should have Urdu among the subjects so that the Unani literature can be understood better. Presently, majority of the students come from English medium.
- Knowledge of modern medicine should be added in the curriculum.
- The duration which is allotted for the 3rd Professional of BUMS is too short. The

candidate has to gain knowledge in theory as well as practical/clinical aspects. So the duration may be enhanced like MBBS.

- Subjects like clinical research methodology and comprehensive study of Materia Medica should be introduced on scientific lines.
- Some subjects like Umoor-e-Tabiyya (Fundamentals of Medicine), Mantia (Logic) and Arabic are too short and deserve to be covered in a six month period. Some subjects are extensive like Anatomy, Physiology, Medicine and Pharmacology. They are required to be remodeled to incorporate the latest advancements.
- Periodic medical tours to apex medical center would be beneficial and play an important role in nourishing the mind of the young graduates.

2. Findings on Unani admission requirements

Under the section of admission requirements respondents were asked whether 10+2 with biology background would suffice or any specific subjects to be included at the entrance stage to fulfill the course objectives.

i. Findings on basic qualification required for admission in Unani

The following Pie Chart depicts the opinion of the respondents -

A high percentage of respondents i.e. 70% (63% + 7%) opined that admission requirements were not satisfactory and thus needed change. A smaller percentage of respondents i.e. 18% felt that admission requirements were satisfactory and another 12% did not respond.



Figure 2. Findings on basic qualification required for admission to Unani.

ii. Findings on need of special subjects for admission

A high percentage of respondents (53%) felt that specific subjects are essential for pursuing the course, 25% felt that current ongoing 10+2 with Biology background was essential for admission but change was needed, 13% respondents opined that these was unnecessary and another 9% did not respond.



Figure 3. Findings on need of special subjects for admission.

Opinions and suggestions

- Present admission/ entrance requirements do not ensure availability of the basic knowledge and background about the programme.
- The entrance/admission for BUMS should be separate as the student chooses this option only after comparing the content with the MBBS course.
- In a combined pre-medical entrance both for MBBS, BUMS/BAMS, a candidate writes his preference and naturally the first choice is MBBS. Consequently the students having lower performance in the entrance are selected for BUMS/BAMS.
- The requirements are not sufficient as some of the students are of Hindi or Urdu medium and cannot compete properly. So the medium of Urdu and Hindi should also be included.
- In addition to above subjects Arabic, Urdu and English should be included in the entrance.

3. Findings on Unani curriculum content

i. Findings on sequence of subjects presented in curriculum

The following Pie chart depicts the opinion of the respondents -

A high percentage of the respondents i.e. 57% (37+20) opined that sequence of training was inadequate and needed modification. 30% percent of the respondents felt that it was adequate and remaining 13% did not respond.



Figure 4. Findings on sequence of subjects presented in curriculum.

Opinions and suggestions

- Biochemistry should be in the first semester which helps the understanding of pharmacology.
- Unani Materia Medica with scientific advancement needs to be in the curriculum.
- Clinical trials should be part of project work for final BUMS students working under guides/ supervisors.
- Pathology and clinical subjects should be separate and the approach should be more practical.

ii. Findings on time allocation for each subject in curriculum

The following Pie chart depicts the opinion of the respondents -

A high percentage of the respondents i.e., 45% opined that time allocation in curriculum was sufficient but 42% suggested for change, a smaller percentage of the respondents (11%) felt that it was sufficient and the remaining 2% did not respond.



Figure 5. Findings on time allocation for each subject in curriculum.
Opinions and suggestions

- Time allocated to each subject is adequate but for some subjects like surgery, modern medicine, time should be increased.
- In the third Professional there are 10 papers in which the candidate has to study and complete all subjects along with clinical/practical requirements. So the allocated time is not sufficient to cover all the requirements.
- Clinical subjects should be given more time as these subjects take more time than theory subjects e.g. *Tareekh-e-Tib* (History of Medicine), Arabic, etc. which has been given more time than Anatomy.
- Moalajat (Medicine) should be divided into two Professionals.

iii. Findings on inclusion of necessary learning objectives in relation to individual subject

The following Pie chart depicts the opinion of the respondents -

A high percentage of the respondents i.e. 74% (43+31) opined that learning objectives in the curriculum were missing or partially included. A smaller percentage of respondents (21%) felt that learning objectives were included and the remaining 5% did not respond.



Figure 6. Findings on inclusion of necessary learning objectives in relation to individual subject.

Opinions and suggestions

- The subjects for example Saririyat (Bed side clinic) learning methods of perception of Nabiz (Pulse) should be demonstrated to the student.
- In the subjects of Community Medicine there must be one rural unit of 5-10 villages for coverage through Health camps for

propagation and practical demonstration measures like *Dalak* (massage), *Riyazat* (Exercise) and vaccination methods etc. It will encourage and popularize the ASU systems also.

- Field work should include introduction of skills to practice. Social & community medicine and *Illmul Advia* (Unani Pharmacology) respectively need emphasis.
- Endocrine system, Nervous system and knowledge on Vitamins should be added in the Physiology syllabus of Ist BUMS. Emphasis should be given to applied Physiology.
- Every subject should have question answer session i.e. direct teacher and student interaction session for better coverage and understanding of all segments of the syllabus.
- Tareekh-e-Tib (History of medicine) should be taught in each subject.
- In ancient times Unani Medicine was taught after completing its philosophy because, most of the theories in Unani Medicine are based on philosophies and hypothesis. Nowadays, everything is accepted on the basis of research and experiment. So subjects like Arabic, Mantiq wa Falsafa (Logic & Philosophy) wa ilm Al Hayath should be excluded and some subjects like Statistics, Microbiology and Toxicology etc. may be included.

	Inclusion	Exclusion
lst Prof.	Biochemistry, Embryology	Arabic, <i>Mantiq wa</i> <i>Falsafa</i> (Logic & Philosophy) <i>Al Umoor Al Tabiya</i> (Fundamentals of Medicine)
llnd Prof.	Microbiology	<i>Majarrabak Atiba-e- Qadeem</i> (Classical Experiments)
IIIrd Prof.	Human Genetics	<i>Usool-e-Nuskha</i> <i>Naveesi Mamoolat-</i> <i>e-Tib</i> (Principles of Prescription writing)

iv. Findings on curriculum content in relation to examination requirements

The following Pie chart depicts the opinion of the respondents -

A high percentage of the respondents (43%) opined that examination requirement needed change, 25% felt that examination requirements were removed from expected competencies and skills, 24% opined that examination requirements were related to expected competencies and skills, and the remaining 8% did not respond.



Figure 7. Findings on curriculum content in relation to examination requirements.

Opinions and suggestions

- Examination requirements should be revised in all the areas in national level by CCIM, because in some colleges like Government Unani Medical College (GUMC) (Chennai, Allahabad and Bengaluru) Government Nizamiah Tibbi College (GNTC) (Hyderabad) etc., they are not as competent and equipped as what is expected.
- The present theory and practical evaluation needs reform. Actually, in practical assessment/ examination not more than 20 students are examined in a day. The practical examination should be extended for 2 to 3 days according to total strength of the students, and whole segments of a subject should be assessed.
- The subject *Tareekh-e-Tib* should be excluded from examinations as it does not have any use in practice.
- Viva-voce examination is required to be revamped as it is not uniform which creates bias or it should be recorded through audiovisual devices to have fair play. Students should be examined by exploring the whole syllabus and weightage should be given to assignments.
- Yearly system of examination should be implemented as it would give sufficient time for each subject.

v. Findings on balance between theory and practice

The following Pie chart depicts the opinion of the respondents -

A high percentage of the respondents i.e. 62% (37+25) opined that balance between theory and practice was lopsided or exists partially. Other respondents (34%) felt that balance existed between theory and practice, and remaining 4% did not respond.



Figure 8. Findings on balance between theory and practice.

Opinions and suggestions

- Much more IPD and OPD practice should be prescribed to enable the students to know the strength of ASU subjects.
- There is no proper balance in Unani Medical College between the theory and number of practicals. From the beginning, Unani Colleges need dissection hall for anatomy and clinical laboratory for Chemistry and Biology. This is not available uniformly.
- A theory class should be preplanned first giving the justification for the topic, mode of presentation, supportive methods to make the class fruitful and interesting.
- The art of medicine is to be exhibited rather than the science to build up confidence among young doctors.
- The tools and equipment supplied for the practical component of the curriculum should be modernized.

4. Findings on resources

i. Findings on availability of resources in relation to tools/ equipment/ practical components

The following Pie chart depicts the opinion of the respondents

A high percentage of the respondents i.e. 78% (45+33) felt that institutions were short of resources supply or partial supply. Other respondents (20%) felt that there was adequate supply of resources for practical component, and remaining 2% not responded.



Figure 9. Findings on availability of resources in relation to tools/equipments/practical components.

Opinions and suggestions

- Tools and equipment should be up-to-date and hands on experience was needed. The practical components do not support the learning objectives of the programme.
- Audio/video classes, on line dissection, surgeries and provision of basic diagnostic tools and equipment and assessment upto the standard of modern medicine is the need of the hour.
- As some practicals like Gynecology & Obstetrics are difficult to demonstrate, the e-simulations are required for better training. Also there is a need to maintain uniform standards in all colleges. The colleges hardly get any cadaver for practical exams.

ii. Findings on resources in relation to the textbooks

The following pie chart depicts the opinion of the respondents

A high percentage of the respondents (43%) opined that prescribed textbooks are insufficient, 28 % felt that books required amplification and updation. Other respondents (28 %) felt that prescribed texts were sufficient, and remaining 1% did not respond.



Figure 10. Findings on resources in relation to text books.

Opinions and suggestions

- The text books listed with the curriculum are not updated, some of them are really very preliminary and written long back. This is a grey area of ASU. The libraries of the colleges should have classical text books in abundace.
- The Government of India should open a Bureau of printing and encourage more and more authors to write/share their views, so that the students get the benefit and can gain latest knowledge and experience.
- iii. Findings on resources in relation to the learning resources (i.e. print media, audio-visual materials etc.)

The following Pie chart depicts the opinion of the respondents -

A high percentage of the respondents (47%) felt that Audio visual learning resources existed but needed enhancement, 27% opined that AV resources were inadequate, 22% have opined that AV resources were adequate, and another 3% did not respond.



Figure 11. Findings on resources in relation to the learning resources (i.e. print media, audio-visual materials, etc.)

Opinions and suggestions

• Improvement is required in relation to the learning resources. Students should be

engaged by using more and more teaching tools. Lectures in the classroom should be through power point and use of internet with accompanying pictures would help the students to understand better.

- Quiz programmes may be added for adequate learning.
- Basic computer courses should be added in the first BUMS Professional. Audio visual material like computers, projectors, internet facility rooms are not available in most of Unani colleges.
- The teachers should be trained compulsorily in this area and they should be overseeing the students. A majority of Unani teachers are computer illiterate.
- Learning resources are very much necessary for programme delivery, but unfortunately there is a lack of learning resources in all the Unani medical colleges with a very few exceptions.

iv. Findings on technical resources

The following Pie chart depicts the opinion of the respondents-

A high percentage of the respondents (43%) felt that computer support existed but needed enhancement, 22% opined that computer support was inadequate, others 29% opined that computer support was adequate, and remaining 6% did not respond.



Figure 12. Findings on technical resources.

Opinions and suggestions

- Appropriate technical inputs are not yet provided except in very few colleges.
- Classical textbooks of Unani needed to be scanned and thrown open on internet.
- The instructions are not durably applied with the technological usage. Clinical software and

programme modules for each subject should be specially designed.

- Free interest loan for the students to purchase computer system should be provided by Government.
- v. Findings on specialized resources to strengthen the delivery of the programme

The following Pie chart depicts the opinion of the respondents -

A high percentage of the respondents (27%) felt that specialized resources existed but needed augmentation, 23% opined that specialized resources were inadequate for programme delivery, another 34% opined that specialized resources were adequate, and the remaining 16% did not respond.



Figure 13. Findings on specialized resources to strengthen the delivery of the programme.

Opinions and suggestions

- New teaching methods may be adopted like e-learning through latest electronic gadgets, training in MRI, CT scan, and DNA tests should be incorporated in the syllabus.
- There are many resources which would strengthen delivery of the programme. Classical text books of ISM which are becoming scarce and other software inputs are needed for strengthening the delivery of the curriculum and for making it durable. This will enable Unani Hakeems to practice the system with confidence.
- 5. Findings on programme instruction/evaluation methods
- i. Findings on instruction and evaluation methods

The following pie chart depicts the opinion of the respondents -

A high percentage of respondents (46%) felt that evaluation methods are balanced and adequate, 39% felt that evaluation needed change, 13% opined that methods were not balanced and inadequate, and remaining 2% did not respond.



Figure 14. Findings on specialized resources to strengthen the delivery of the programme.

Opinions and suggestions

- Different methods of evaluation are appropriate, but more seminars on specific disease should be conducted at regular intervals.
- During the course the theory and practical/ clinical assessment is poorly managed and not as consistent or accurate as modern medicine.
- Time duration for practical should be more than theory. Viva voce questions may be asked to students at all levels. Some levels of questions should be asked from every student so as to ensure equality.

ii. Findings on recommendations for additional evaluation

Opinions and suggestions

- There should be no partiality/influence in assigning staff. Students should be asked to give proper presentations on current diseases so as to improve their compentencies.
- There should be academic assessment of the institution by the senior teachers through intense and value based interactions with students and teachers. The academic report should be discussed with the teachers and students for improvement.
- Students' involvement and competency in group discussions, debates, medical camps,

and surveys in epidemic areas should be recognized.

• Small projects included field work should be assigned to each student.

iii. Findings on qualifications and experience for potential instructors

The following pie chart depicts the opinion of the respondents -

A high percentage of the respondents (62%) made suggestions for potential instructors, and the remaining 38% did not respond.



Figure 15. Findings on qualification and experience for potential instructors.

Opinions and suggestions

- The majority recommended that the qualification requirements for potential instructors should be at least postgraduate, i.e.
 M.Sc. for allied sciences, MD for Unani, MD/ MS for allopathic subjects.
- In final BUMS some courses should be added to teach research methodology i.e. statistics (already in MBBS).
- Some courses require a different combination of specialized training, experience and clinical exposure also i.e. Sanat-e-Dawasazi (Unani Pharamacy), Crude drugs and formulation of Unani compound drugs, Ilaj-bit-Tadbeer (Regimental therapy) and Sanat-e-Attar (Compound & Dispensing).

6. Findings on graduation and employment requirements

The following pie chart depicts the opinion of the respondents -

A high percentage of the respondents (66%) felt that graduate requirements were adequate, 23% opined that requirements needed change and 7% opined that methods were inadequate, and the remaining 4% did not respond.



Figure 16. Findings on graduation and employment requirements.

The following Bar chart depicts the three most important types of job options available to graduates of ASU medicines.

A high percentage of the respondents (63%) opted for private practice, 41% opted for working as resident doctors in general hospitals and the remaining 43% opted for other openings.



Figure 17. Findings on employment options.

7. Findings on internship term

i. Findings on appropriate sequence of internship term

The following pie chart depicts the opinion on the internship term -

A high percentage of the respondents (37%) felt that internship was properly sequenced, 35% suggested changes while 15% opined that it was not properly sequenced and remaining 13% did not respond.



Figure 18. Findings on appropriate sequence of internship term.

Opinions and suggestions

- The internship of 12 months should cover all the major departments of different specialties. At least two months posting must be given in PHCs, which includes Mother & Child Health, disease surveillance and prevalence of diseases, Family Planning Clinics, district level outpatient departments and dispensaries. Specialty hospital posting like psychiatric, leprosy hospitals and hospitals catering to epidemics and endemic problems would be helpful.
- Six months internship should be in modern medicine and six months in Unani Medicine.

ii. Findings on objectives of the internship

The following pie chart depicts the opinion on objectives of the internship term –

A high percentage of the respondents i.e. 58% (39 +19 %) felt that objectives of internship were inadequate to build knowledge and thus needed modification, 27% opined that internship was clear and sufficient, and the remaining 15% did not respond.



Figure 19. Findings on objectives of internship.

Opinions and suggestions

• The objectives of the internship are clear. However 80% time should be utilized in the OPD and IPD of Unani clinical subjects and 20% time in the training in surgery and casualty.

- In Karnataka, the interns of ASU are posted to all major and specialty hospitals apart from AYUSH hospitals, only to provide exposure in contemporary fields as well as to arm them, so they are assets for the health centre. It is proposed to make this essential for all colleges.
- The internship time is not sufficient because of short term of posting in major departments, like general medicine, surgery, casualty and intensive care unit. The duration should be increased.

iii. Findings on the adequacy of the duration of internship training

The following pie chart depicts the opinion on adequacy of internship training-

A high percentage of the respondents (59%) opined that duration of internship training was adequate to prepare student for practical application, 17% opined that duration needed change, other 9% opined that training was inadequate to prepare students for practice and the remaining 15% did not respond.



Figure 20. Findings on the adequacy of the duration of internship training.

Opinions and suggestions

- The duration of internship should be five months for Moal-e-jat, five Months for modern side and two months for Institute of Public Health. Approximately 35% respondents suggested this.
- The duration of internship is said to be adequate but the duration of the posting should be increased in the major departments by reinforcing practical application of the theoretical knowledge.

iv. Findings on evaluation method of internship term

The following pie chart depicts the opinion on evaluation method of internship-

A high percentage of the respondents (63%) (46%+17%) opined that evaluation methods of internship were inadequate and thus needed change, 15% opined that these were adequate, and remaining 22% did not respond.



Figure 21. Findings on evaluation method of internship term.

Opinions and suggestions

- The evaluation methods for internship are neither available nor established so far. Only the attendance in various disciplines is considered to be sufficient. Medical camps and grading in terms of efficiency among the students should be developed.
- Internship evaluation method should be stringent. Per day working hours should be increased. Candidates may be posted for night duties and evaluation should be done in the form of projects.

8. Findings on Unani practice

The following pie chart depicts the opinion on different issues of practice –

A high percentage of the respondents (76%) made suggestions for Unani practice, and remaining 24% did not respond.

Opinions and suggestions

 Seventy-six percent did not agree that the Unani practitioner hardly use their ASU knowledge and skills as a practitioner as they have to provide services as per public demand and choice which calls for quick relief.



Figure 22. Findings on Unani practice.

- A good percentage of the respondents said that Unani practitioners do not have full fledged knowledge for treating the disease using Unani medicines.
- A lot of modification can be done by providing training for handling critical situations in obstetrics and training for prescribing essential medicine and surgery.
- Besides adding allopathic medicine in the syllabus, Unani practitioners need modification in their own pathy by introducing emergency medicine.
- Frequent CME programmes should be conducted to update the knowledge of practitioners in the field of emergencies.
- In some States (like Tamil Nadu) there was a huge difference between allopathic and ASU practitioners. Finally the High Court of Tamil Nadu permitted the Siddha practitioners to prescribe allopathic medicines. So allopathic medicine should be included in syllabus as essential medicine to deal with emergencies. In Tamil Nadu, BUMS graduates are directly admitted in M.Sc. Anatomy, Biochemistry and these professionals are serving in allopathic medical colleges.
- Government of Karnataka has included BUMS in integrated schedule of Karnataka Ayurveda Practitioners Board. Maharashtra extended such facilities for ASU graduates.
- The prescribed syllabus of Unani needs modification and rectification. Urdu helps to meet the problem because ancient Unani literature is written in Urdu and without it one never gets knowledge of basic theories of the Unani system.
- Urdu terminology should be replaced by modern terminology as all the investigation

reports are in modern terminology. Urdu language helps only in communication and dealing with patients.

- Biochemistry is the subject that is very important. It provides basic diagnostic points to determine disease and should be added in the syllabus. Pharmacy should be well designed to better understand ASU medicines.
- Along with curriculum redesigning, proper personnel management with accountability, updating of skills and efficiency and transparency is badly required.

9. Findings on periodic review of the programme

A high percentage of respondents (96%) responses recommended for periodic review of the programme and remaining 4 % had not responded.



Figure 23. Findings on periodic review of the programme.

- Almost all respondents i.e. 96% are in the favour that a periodic review of the academic programme is needed to maintain relevance and promote excellence.
- CCIM education teams review periodically but it takes years in reaching to implementation level. It is proposed that every three years, there must be periodic review and then speedy implementation within educational institute.

Specific additional comments on Unani curriculum

- A separate Board or Council for Unani should be established in all States and union territory.
- Emergency care/ training must be given.
- Syllabus must be updated after every five years. Basic concepts (knowledge) of other systems like Ayurveda/Siddha/ Homoeopathy should be taught by respective faculties.

- Weekly seminars may be organized by renowned Hakims/ allopathic doctors. Seminar hall and Auditorium facilities should be available.
- Research work of CCRUM should be periodically informed to all students.
- Herbal gardens should be upgraded.
- Every Unani college should have its own library where specific Unani and related allopathic books should be provided.
- Some useful regimental therapy procedures like cupping, venesection, Dalak (massage) and Hammam(bath) should be modernized and included in the curriculum.
- The new development and findings in the field if Unani medicine are not referred in theory and practical components of UG and & PG programmes. Unfortunately, the teachers do not consult and refer to latest findings in the classroom lectures. A high level coordination committee should be formed to examine and to include the latest findings and research output in the courses which will be helpful in building the confidence of graduates of Unani Medicine.
- Since the CCRUM or CCRAS have nationwide network of regional and Central Research Institute, the Council should organize the CME (Continuing Medical Education) programmes of practitioners of ASU systems. This will be very helpful to remind the latest findings and achievements in the field of respective disciplines particularly the treatment through ASU systems in general diseases as well as in recent challenging diseases like chikungunya, viral encephalitis and in number of lifestyle diseases.
- Surgery is an integral part of any medical subject; hence more and more emphasis may be given on surgery.
- Classical literature of Unani Medicine, which is available only in Persian or Arabic, should be translated into a common language i.e. English or Urdu and made available in college libraries.
- Students coming from other medium i.e. Hindi or English should be allowed to write the Urdu paper in English, which would promote other people to participate in the Unani or Ayurveda system of medicine.

Discussion and Recommendations

Focus of the Recommendations

In this section the discussion focuses on the scope of professional education imparted to the ASU student to equip him to become a health professional of relevance; first as a practitioner but also capable of pursuing higher education, leading to careers in teaching and research. The quality of education is of critical importance and the orientation of the curriculum and syllabus plays a substantial part in determining how the student will approach his professional future.

It was clarified in the introductory part of this Report that it does not dwell on the infrastructure of ASU colleges because that is being constantly reviewed at the government level. But the curriculum and syllabus require discussion based upon interviews and responses received to the questionnaires.

Currently there are two sets of curricula and syllabi in force for ASU students. On the website of the Central Council of Indian Medicine (CCIM) the new curriculum for UG, PG and Postgraduate Diplomas are displayed which were to be introduced from the academic session 2010-11. The existing curriculum will however continue according to the individual decision of each affiliating university in respect of students that have joined the courses before the changes were notified. The discussion is therefore related to both new and "pre-existing" curricula.

1. Recommendations regarding orientation of the curriculum

The existing curriculum and the new one and do not indicate the orientation of the courses in the way professional courses stipulate. In professional education it is necessary to refer to this explicitly because clarity is needed for both the teacher and the student.

A. The curricula (existing and new) should state at the outset what the student would essentially learn in terms of theoretical knowledge and practical skills to be able to render unique service by way of preventive, promotive and curative care through the Indian systems of medicine. At present the curriculum whether in its existing incarnation or the new one does not spell out these capabilities at all.

- B. Nowhere is there a mention of the competencies and skills based on ASU knowledge and practical training that the curriculum seeks to provide.
- C. For ASU systems to gain credibility and legitimacy in the eyes of the student and even the public, the study of modern medicine should not occupy a position of so much primacy. The orientation of the ASU curriculum towards modern medicine should be linked to the role that Government policy assigns to the ASU graduate. The precise role expected to be played both in the public health arena and in hospital settings needs to be stated unambiguously. Such a statement would provide a context and a purpose which would stand as a backdrop for teaching individual subjects.

2. Recommendations regarding essential components of the curriculum

Every subject in the curriculum whether of Indian medicine or modern medicine should have the following features:

- (i) The **goal** sought to be served by teaching the subject should be stated clearly.
- (ii) A statement of the **learning objectives** should include:
 - What part is to be taught simply by way of background and for improving overall knowledge?
 - What skills will be taught which the student can use on completion of the course?
 - A summary of how each subject integrates with earlier subjects which have been taught.
 - The teaching and learning methodology to be followed in the theory and practical classes.

- The method of internal assessment and the marks given for each segment of the syllabus related to that particular subject.
- Sample question papers and responses to guide the student.
- The objectives of the internship programme and its duration and design.

3. Recommendations regarding modern medicine/allopathic practice

Discussion:

Before going into the recommendations the arguments for and against the incorporation of modern medicine teaching to enable its practice by ASU doctors need to be summed up.

Arguments in favour of teaching and practising modern medicine as put forward by ASU educationists and practitioners:

- Modern science has developed phenomenally and no ASU practitioner would be fair to his patients if he remained ignorant about what is available through modern diagnostics and pathological investigations. Diagnostic and laboratory equipment is the outcome of medical engineering and the results have to be available for the use of humanity at large and not to be used only when recommended by modern medicine practitioners.
- Several ASU educationists and practitioners said that knowledge is not the preserve of any particular profession or "pathy" and the inclusion of allopathic subjects in the curriculum is for the statutory council, CCIM to decide.
- The ASU practitioner must know how to taper allopathic medicines which have been in use when a patient desires to move to ASU medicine. Without this knowledge the ASU physician may be handicapped and that may harm the patient. Even when ASU treatment is used as an adjunct or an adjuvant, the ASU practitioner must know how modern medicine drugs and ASU drugs might interact with each other. That requires an understanding of how modern medication works.
- The ASU practitioner has to be in a position to discuss the approach with the allopathic treating doctor particularly as new state-of-theart multi-specialty hospitals like Medanta

(Gurgaon) and Moolchand (Delhi) have adopted an integrated approach to medical treatment. The patient would feel much more confident if the doctors talked to each other and treatment through both systems was available under one roof.

- As far as surgery is concerned, it was argued that in the Sushruta Samhita, more than 60 percent of the diseases were related to Ophthalmology, ENT and the treatment of anorectal disorders. [In the case of Ksarasutra knowledge of anaesthesiology is needed for the comfort and well-being of the patient.] The inclusion of surgical techniques was therefore justified on the ground that surgery was already a part of the Samhitas and exclusion of surgical techniques would reduce the content of Ayurveda teaching substantially.
- In a recent judgement of the Tamil Nadu High Court, the court has permitted the use of modern drugs by ASU practitioners on the ground that the state has approved the same; also modern medicine has been included by the CCIM which is competent to register medical practitioners that undergo the course as prescribed. The Judgement is available at http://judis.nic.in/judis_chennai/ qrydisp.aspx?filename=26978 (accessed on 7 July 2011).

Arguments against practice of modern medicine by ASU doctors as stated by some ASU educationists:

The first argument against inclusion of modern medicine is the Supreme Court order in the case of Mukhtiar Singh versus the State of Punjab where the apex court gave a ruling that a practitioner of one system of medicine has to adhere to his own system and that ruling has been quoted whenever this debate surfaces. The judgment is available at www.ccimindia.org/downloads/ 6%20SC%20Judgment%2008.10.pdf (accessed on 7 July 2011) but the order is quoted selectively by protagonists and antagonists and a universal understanding of the judgment has remained elusive. In a nutshell, the common view expressed against the practice of modern medicine mostly by modern medicine practitioners include the following arguments:

ASU practitioners prescribe modern drugs under provisions of the Drugs and Cosmetics Act, 1940 - an Act which was made for the regulation of the production and sale of drugs and not practice of medicine. The training and exposure of ASU students to modern medicine is deficient. The teaching imparted by nonallopathic teachers having neither specialisation nor up-to-date knowledge is not acceptable. The absence of clinical material in ASU hospitals is a major handicap. The duration of exposure to modern medicine is underprovided and there can be no short-cut to systematic training in these subjects before patients are exposed to medication and treatment from undergualified, inexperienced ASU practitioners.

Ground realities about the allopathy practice by ASU doctors:

• An overview of the functioning of ASU practitioners in a representative group of cities, towns, district headquarters and talukas gave the following picture:

These practitioners are offering services which predominantly comprise of modern medicine diagnosis and treatment in most cities in North India and even in Delhi. In Maharashtra and Karnataka practitioners use both the systems side by side. [Some practitioners belong to the old integrated course which was phased out; but most are graduates and postgraduates from the ASU medical colleges]. There is nothing surreptitious about the practice of moden medicine by ASU graduates. Many of them were found dispensing allopathic drugs, giving injections, administering IV fluids, prescribing antibiotics and in some cases even conducting appendicitis and hernia surgeries as well as caesarean operations. In urban areas they can be seen working in general hospitals and nursing homes in the private sector, as hospital registrars or assisting senior physicians. When the PI asked knowledgeable persons about how these doctors gained proficiency in the absence of clinical exposure generally unavailable in the ASU hospitals the response was that many students paid out of pocket and worked as assistants to allopathic doctors to gain knowledge and experience.

- State governments like Maharashtra, Punjab, Haryana, Assam, Himachal Pradesh and Tamil Nadu permit the ASU practitioner to prescribe modern medicine drugs and conduct procedures and interventions using allopathic medication. Explicit orders have been passed by the Governments permitting this. The CCIM grants registration to medical practitioners and no one has prevented their practising modern medicine. The Government of India, Ministry of Health and Family Welfare, Department of AYUSH has made a forceful case for mainstreaming practitioners of the Indian systems of medicine in the delivery of health care services in policy statements.
- The National Rural Health Mission (NRHM) has supported the contract appointment of ASU practitioners and they are being posted the in Primary Health Centres (PHCs). Their salaries are paid out of NRHM budgets, and NRHM is a flagship national programme. In fact in some States, ASU graduates are being posted as the in charge of PHCs, responsible for the implementation of all national programmes. At such places, the Auxiliary Nurse Midwives (ANMS) that operate at the sub-centre level report to the primary health centre and their function whether it is antenatal care. reproductive and child health or immunisation is supervised by the primary health centre headed at times by an ASU practitioner. In some cases specific training has been given to the ASU appointees so that they can administer the programmes as well as the medication.

4. Recommendations regarding modern medicine practice by ASU practitioners

The following recommendations are made keeping in mind ground realities and in the public interest:

 An ASU practitioner survey and a beneficiary needs assessment should be conducted in a representative group of cities, towns, district headquarters and talukas. The aim should be to determine the extent to which ASU practitioners are using modern medicine procedures and medication and how far they are being used for these services by the general public. Observations need to be inventorised and even if the study is given to an organisation like the NSSO or the International Institute of Population Sciences (IIPS) it should be done with the involvement of the State Health Secretaries and Directors of ISM /AYUSH. Such a survey would enable a uniform view to be formed on additional training needed to be given to equip ASU practitioners to undertake modern medicine practice; also to list those aspects of modern medical practice that need to be proscribed.

- The content of the CCIM syllabus and the teaching imparted (keeping in mind that practically all modern medicine subjects are being taught by non-allopathic teachers and the availability of clinical material in the ASU hospitals is relatively small) needs to be juxtaposed with what a medical graduate learns in an average college of the allopathic system.
- In the undergraduate ASU curriculum, the knowledge and practical skills used in the inpatient wards and the Emergency and Casualty Departments of hospitals have been listed. These include paracentesis, venipuncture, administration of IV fluids, catheterisation, nebulisation, incubation, insertion of Ryles tube, aspiration of fluid in the joints, and lumbar puncture, among others, which according to the Ayurveda curriculum have to be "managed". These are skills that have to be acquired. There should be no disparity in the duration of hands on training if the ASU graduate is to be permitted to conduct these procedures. Reference may be made to the modern medicine component of the Ayurveda curriculum at Annexure-I.14
- In the case of acute symptoms or a medical emergency including poisoning, snake or dog bites, respiratory distress and cardiac emergencies, in the absence of an allopathic practitioner the public will continue to access the first doctor available. The patient and his family, except the highly educated class, cannot distinguish between an MBBS and an ASU physician. The reality is that in many districts in North India, particularly in UP, there are hardly any general practitioners of modern medicine available. It is well-known that ASU practitioners are being accessed by most of the population. Even in the outskirts of Delhi, many

private practitioners are from the ASU background and people access them routinely. Therefore the ASU practitioners must be trained and permitted to use at least 10-12 emergency drugs as a life saving measure. This was the considered view of several allopathic specialists that the PI consulted but the note of caution was that the training should be uniform and the list should be specific to identified conditions only.

- There is a need for a stated Government policy on how far the paucity of allopathic doctors warrants that ASU practitioners diagnose and treat, using modern medicine, therapeutics and interventions. This requires the duration of training and exposure to be prescribed explicitly along with the qualifications of the faculty that should teach those subjects. Allopathic subjects should be taught by the concerned modern medicine faculty. In no case should Sanskrit / Urdu and Tamil versions and nomenclatures be used to justify a correlation with ASU medicine. This is confusing and misleading both for ASU students and teachers as this nomenclature gives the impression that the root of the subject lies in ASU which is a subterfuge.
- Exposure to adequate clinical material is a prerequisite to be able to practice and unless training linkages with district and private hospitals have been established (where patient load is high), there should be no compromise on giving the same hands on experience as prescribed for modern medicine students. Theoretical teaching of modern medicine by ASU teachers unaccompanied by teaching aids leave alone human material should not be accepted.

5. Recommendations regarding involvement of professional bodies in curriculum design

Presently the academic board set up by the respective councils prepares the curricula and these are placed before the executive committee of the Council who are from a non-academic background. Today there is no interaction between members of the Medical Council of India (MCI), National Board of Examinations (NBE) and the Central Councils for Ayurveda, Siddha and Unani

^{14.} Such an Annexure containing modern medicine subjects for Siddha and Unani curriculum has not been included.

Medicine. Much more would be gained if the government sets the broad agenda of what kind of health manpower is needed and the extent to which the inclusion of modern medicine is a public necessity. This would enable the ASU student to become skilled to play a complementary and supplementary role in a way that helps the community. But curriculum design should be undertaken by a professional body of medical teachers of both the systems to the extent that the knowledge of modern medicine requires to be imparted to be of service to the public, due to shortage of allopathic doctors. A separate Central organization should be formed on the lines of the proposed National Council for Human Resources in Health (NCHRH) for AYUSH educational planning should be brought under that umbrella with its own set of experts. There is every need for an umbrella organisation to look into aspects like manpower planning, curriculum design, accreditation of institutions/colleges and regulation. That is not described at length here as the model prepared by Department of Health is available to the Government which has been debated extensively. These responsibilities need to be withdrawn from CCIM which has not attempted to establish professional institutional linkages with expert bodies without which the modern medicine content of the syllabus cannot be imparted properly to ASU students. Incorporating the views of selected modern medicine doctors is by no means the way a professional curriculum should be drawn up. This was the repeated lament of almost all those who responded to the questionnaire sent out by the PI. However, to be fair, almost all the Health Secretaries and Directors of AYUSH in the states favoured that the ASU graduate should be equipped to practice modern medicine.

6. Recommendations regarding training in medical and public health network systems

The ASU practitioner should be made conversant with the system for making referrals to the most appropriate modern medical facility both in the government and private sector. ASU students should be taught how to contact the city hospitals, officers of the Directorate of Health Services and the district and municipal hospitals. They should be trained to maintain the locations /addresses, telephone numbers and other details of multi-speciality Government and private hospitals and specialists. The curriculum should provide for giving this orientation and the State Government policy should require exposure sessions to be given by the Health Department machinery to ASU doctors to equip them to make useful referrals.

7. Recommendations regarding sequencing of training and tie up for teaching

The curriculum content is a mixture of methodologies which seems to lead to unnecessary repetition of subject content. This should be avoided. The Ayurvedic and modern medicine contents have to be in separate and the faculties of ASU and modern medicine should teach the subjects independent of one another. There is a shortage of teachers even in the allopathic medical colleges. Therefore the terms of engagement and remuneration would need to be worked out bilaterally between the Deans /Principals of the ASU and allopathic teaching colleges so that there is no let- up. The State Medical Education and AYUSH Secretaries are the same in states like Maharashtra, Gujarat, Kerala and Punjab to name but a few. A joint meeting called by the Departments of Health and AYUSH at the Centre would flag the need for each state to find local solutions to the shortage of allopathic teachers as well as the shortage of clinical material to impart hands on training to AYUSH students. This needs proactive management and cannot be left to the college Principals to sort out.

8. Recommendations regarding bed strength and clinical material

During discussions, the PI was told that the Benaras Hindu University (BHU) has a tradition of cross referrals between the two systems of medicine i.e. modern medicine and Ayurveda chiefly because there is an allopathic hospital which runs as a part of the teaching institution. To some extent this happens also in institutions like the Aligarh Muslim University's Tibbiya College Hospital, the hospital attached to the Tilak Mahavidyalaya and the Majeedia Hospital in Jamia Hamdard. This is by no means the universal pattern.

But the absence of sufficient patient load is a source of universal concern. By simply adding to the bed strength of ASU hospitals it will not automatically bring in patients to fill the beds. In several hospitals visited by the PI, it was evident that the beds were either not filled or most of the patients were admitted for Panchakarma procedures related to

muscular skeletal problems, neurological problems or mental disorders. In surgery the admissions were mostly to do with ophthalmology, ENT and anorectal diseases. The full range of clinical material to be able to diagnose patients and to watch the progress of treatment in a wide range of conditions was simply not available even in flagship ASU hospitals. Only occasionally when the students went to attached hospitals of modern medicine did they get exposure to the full range of medical problems. A formal structure and arrangement needs to be worked out to make their exposure a reality which will require high level policy intervention. If Government policy supports that ASU graduates perform some degree of modern medicine practice then it would be necessary to increase the period of hospital internship in a modern hospital to at least an additional six months; alternately the ASU theoretical portion would need to be curtailed.

Unless the paucity of modern medicine doctors to impart education in modern medicine is confronted at a policy level, and the needs of patient care are placed above all else, it will not be possible to decide what the ASU graduate should be equipped to handle from modern medicine. The Department of Health has already acknowledged the role of ASU practitioners by including them to perform PHC related functions. A list of procedures, interventions and medicines that the ASU student can use for public benefit needs to be drawn up and introduced in a uniform way. But the list has to be specific and oriented towards the management of public health programmes common diseases and dealing with emergencies in order to stabilize the patient before making a referral. The ASU student should be divested of the belief that he is both an ASU doctor and a modern medicine doctor as that can produce harmful outcomes. He should be regarded primarily as an ASU physician, specially trained to perform identified modern medical and public health functions which should be stated clearly. The inventory should indicate modern drugs that can be prescribed by the ASU physician. Likewise, the invasive modern medicine procedures that ASU practitioners are permitted to undertake, should be specified. The need for also drawing up a negative list of drugs, procedures and interventions that may not be undertaken may be considered, particularly as the curriculum does not distinguish between knowledge and practical competencies.

Recommendations regarding teaching of Sanskrit and Urdu

While knowledge of Sanskrit and Urdu are definitely useful but absence of knowledge of these two languages should not become an insurmountable hurdle. Instead of acquainting the student with the grammar of the language, textbooks should be specially designed to contain paragraphs, phrases, terminologies and verses drawn from the classics. In that way the grammar portion can be reduced substantially and there could be greater emphasis on learning the translations, which is important for appreciating the original texts. It would be desirable to have Sanskrit and Urdu teachers handling this portion of the syllabus. If this were to be done, students from the SAARC countries and even from the West could be allowed to take admission into the AU courses with a three-month language orientation which would be the best way of promoting global knowledge about the systems.

 Recommendations regarding teaching of modern medicine subjects for the sake of acquiring knowledge

The principles of biochemistry, microbiology, pharmacology, forensic medicine and toxicology need to be introduced in the curriculum as independent subjects without any Ayurvedic nomenclature. The subjects should be taught only by experts of these subjects and not by ASU faculty. This has been stated by several respondents and is the basis of a research critique by Dr. Kishor Patwardhan¹⁵, BHU.

11. Recommendations regarding paramedical and non-teaching staff in ASU institutions

The practice of ASU necessarily requires the assistance of ASU pharmacists, Panchakarma and Ksharasutra technicians, laboratory technicians and assistants to manage the pharmacies as well as the anatomy and physiology departments and herbariums. Nursing staff and ward boys and librarians are also needed. These are basic requirements for the efficient functioning of ASU departments. The need for supporting staff should be recognized and normative requirements need to be spelt out. At the time of inspection this aspect should receive due attention.

Patwardhan, Kishor, Sangeeta Gehlot, Girish Singh and HCS Rathore. "Global challenges of graduate level Ayurvedic education: A survey." Int J Ayurveda Res [serial online] 2010 [cited 2010 Nov 21]; 1: 49-54.

12. Recommendations regarding books and journals

The shortage of good ASU books as well as textbooks was repeatedly highlighted. Apparently national and state libraries do not purchase ASU books as the subjects are neither treated as a part of science nor as a part of the humanities. This deters writers from bringing out new books. In the 12th plan multiple contributing authors need to be persuaded to take up the design of new textbooks and the publication of new textbooks in regional languages should be encouraged. It should be compulsory for ASU colleges to purchase new books which are published. Department of AYUSH should consider making a plan provision to encourage the writing as well as the purchase of textbooks by ASU colleges through an agency like National Council of Education Research and Training (NCERT), National Book Trust (NBT) or the Raja Ram Mohan Roy Library, which has a mandate to supply books to district libraries. Department of AYUSH could fund the most enthusiastic among such agencies to commission writers and translators and also to facilitate the sale of the textbooks. The Department could give an annual grant to the Government colleges for purchase of the textbooks and could extend this to also include a grant for putting all books on line with learning resources like step-bystep demonstration of ASU skills.

13. Recommendations regarding teachers' qualifications and aptitude

Qualifications and experience are not necessarily the only ways of judging the capabilities of potential instructors. There were constant complaints that teachers do not update themselves and do not have the capacity to hold the attention of the class. Communication skills are extremely important and one way to judge that would be to have mock presentations videographed to enable independent selection of candidates aspiring to become lecturers and Assistant Professors/Professors. This suggestion needs to be given to the Secretaries in charge of the ISM so that they take it up with the Universities for Health Sciences or other affiliating Universities to exercise scrutiny so that the ability to teach is given more importance at the time of recruitment. Equally, research work, authorship of books, presentations and credits earned for attending CMEs, reorientation workshops, and the use of new teaching methodologies should be incentivized.

Student evaluation should also be introduced in a limited way because several post graduates and final year students felt that they had to put up with out of date teachers who had made no effort to engage the attention of the class. All these factors need to be taken into account at the time of recruitment and promotion, wherever public funds are being used.

14. Recommendations regarding encouragement of ASU in Central universities

There should be a dialogue with the Central universities to create ASU departments particularly with a view to supporting interdisciplinary research ultimately leading to better clinical outcomes. Only the Department of AYUSH is in a position to take this up as it is unlikely that individual colleges and departments would be able to do so. Without multidisciplinary involvement held in a collaborative manner, ASU will not be able to create a wider interest or generate respect for what the systems can offer.

15. Recommendations regarding specialization in ASU

Now that postgraduate diplomas are being introduced by CCIM, there should also be a move to create positions of specialists in ASU hospitals – starting with the areas of well established strength, confined to ASU treatment and devoid of modern medicine drugs and therapies except to taper off medication.

16. Recommendations regarding exposure to good ASU private practice

It is important that the ASU undergraduates are exposed to good clinics and clinical practice conducted by competent private practitioners very early in their course of study, even in the very first year. It was repeatedly stated that students with a 10+2 science background get frustrated in the very first year as they have to learn about what was written 5000 years ago; this does not appeal to the student who has opted for ASU as a fallback from his first preference which was modern medicine. Therefore to inculcate an interest, the young student should be exposed to the actual treatment of patients and the running of successful ASU clinics in the private sector so that he sees the opportunities that lie ahead through successful practice of the Indian systems he has chosen to study.

17. Recommendations regarding visits to apex medical centres

It would be beneficial to also take young students to see identified ASU hospitals on a regional basis to observe best practices and to get inspired by teachers who have earned a reputation from their work, within the first year, to sustain interest.

18. Recommendations regarding computer literacy

It was found that many among the older generation of teachers do not use the computer. The younger generation is well versed in the use of computers but even so, some are at it distinct disadvantage over others. Computer laboratories should form an essential part of the college infrastructure and an exposure to the capabilities of different kinds of software would help the students design better projects.

19. Recommendations regarding videos and step-by-step lessons to be available on the Internet

A special website needs to be created so that the entire course curriculum is available in textual and audio-visual manner on a special website created for ASU teaching and learning. Typical questions and answers should be available on the website for all the major subjects so that students can learn about the more complex aspects of the syllabus on their own. Programme modules for each subject should be designed and put up on the website. The Department of AYUSH can commission private practitioners who are already running good websites to help create these modules in an imaginative way under the overall guidance of a set of web designers who are engaged on contract.

20. Recommendations regarding interdisciplinary interaction at ASU colleges and departments

It is clear that the three systems of traditional Indian medicine have several skills and drugs which are specific only to those systems. It would be useful to arrange monthly seminars where students from Ayurveda, Unani (and Siddha if feasible) take up a topic from one system and discuss the approaches under each systems along with case studies. Historically, both the systems Ayurveda and Unani collaborated both in the Mughal days and even under the British rule; they learnt from each other and benefited. The present tendency to segregate and subdivide the systems does not work in favour of patients and a common meeting ground should be promoted as a matter of policy.

21. Recommendations regarding a bridge course of three years for both modern doctors and ASU doctors in the interest of patient care

Several doctors of modern medicine would be interested in learning about ASU medicine and this should be facilitated to the extent possible. The best way to do this would be to design a special diploma/ degree courses of three years duration to be undertaken after MBBS or two years after post graduation in which the modern medicine doctor can be taught about the ASU systems and particularly the management of chronic diseases like Parkinson's, rheumatoid arthritis, autoimmune diseases, infertility and cirrhosis of the liver. Equally, it would be in the public interest if modern medicine doctors get a chance to study ASU treatment of new public health problems like chickanguniya so that the culture of cross referrals increases if the patient is inclined.

22. Recommendations regarding ASU degree eligibility for different courses and new openings

The ASU curriculum needs to be designed in a way that the products of an ASU education can also move laterally to join courses in different areas of agriculture, veterinary science, human behaviour and allied sciences, nutrition and dietetics, botany, ethnobotany, ecology and environmental sciences to name only a few. This would need to be planned well in advance in collaboration with university departments. This is not something that CCIM is equipped to do and a centrally appointed committee with representation from the protagonists of ASU together with the relevant departments of Jawaharlal Nehru University, Benares Hindu University, Aligarh Muslim University and Jamia Hamdard need to come together to discuss how the outreach of ASU can be widened. The focus should not be the career interests of ASU students

and practitioners but rather how the knowledge can be used to bring new paradigms to existing disciplines.

23. General recommendation on funding ASU colleges

During the 12th plan the Department of AYUSH should make a provision for several inputs without which the educational foundation on which ASU rests will remain weak. The government colleges would need to be assisted in a way that students are able to acquire sufficient competencies and skills to be of real benefit to society. Apart from infrastructural requirements about which this report has not made any recommendation, adequate provision ought to be made to upgrade the soft facilities in the government ASU colleges. Some of these are listed below:

- Department of AYUSH could consider funding a division of UGC or the Universities of Health Sciences to cater exclusively to ASU colleges. All funds could be routed through a newly formed AYUSH division of UGC or the State Health Science Universities so that there is uniformity as well as a check on proper utilization of funds. A beginning can be made with the Universities of Health Sciences in the states of Maharashtra and Karnataka which have the maximum colleges. The Government run colleges could be given grants which can be utilised through approved agencies and for specified items.
- Funds should be set aside for the establishment of an educational portal or a Virtual Resource Centre including its updating and maintenance. This portal should cover the practical aspects of the ASU curriculum particularly where medical or manipulative procedures have to be observed step-by-step over the Internet. This can be projectized and given as a turnkey job either to C-DAC, NIC, EDUSTAT or IGNOU as they have adequate server space. A University of Health Sciences which sets up an independent division for AYUSH can be entrusted with the preparation of software. An advisory committee could be set up with well-

known educationalists and researchers from leading institutions/universities like IPGT&RA, GAU, BHU, NIA, Jaipur and AVS, Kottaikal.

- Department of AYUSH should make a provision for commissioning textbooks from a crosssection of authors and also provide funds for the purchase of textbooks to be procured from a central source. A provision for all printed material to be in downloadable form should also be made. Existing material should be scanned and put up as PDF documents.
- The terms under which allopathic teachers can be incentivized to deliver lectures and conduct practicals in ASU colleges or alternately teach ASU students in modern medicine hospitals would need to be worked out and funds given to the modern medicine colleges to defray expenses utilizing the services of their teachers/ laboratories/learning resources. This could be done as a one-time exercise for two to three years until the ASU colleges build up their own infrastructure. It will not be possible for the Department of AYUSH to do the handholding for so many individual colleges. This would be possible only if it were to be made a part of Government policy. The costs to be incurred on a consultancy should be provided for in the 12th Plan so that there is an incentive with the allopathic colleges to undertake this collaboration. Similarly, funds should be set aside for permitting the ASU students to gain knowledge in the Departments of pharmacology, microbiology, biochemistry, forensic science, etc. but by paying for the utilization of the resources in a structured way, there will be less resistance and greater acceptability for the idea, particularly if it is a part of Government policy. The involvement of the Medical Education and ISM/AYUSH Secretaries at the State level is essential if this idea is to take off. In no case should this be an effort to convert the ASU student into a clone of the modern medicine graduate - merely a means to provide comparable education and training in areas identified by the Government for the management of medical and health needs of the public.

Annexure-I

Modern Medicine Contents included in the Syllabus of Ayurvedacharya (BAMS) Course with Ayurvedic Nomenclature

1 st Professional	2 nd Professional	3 rd Professional	
 Sanskrit Padarth Vigyan Ayurved ka Itihas Ashtang Hridayam (Sutrasthan) Rachana Sharir Kriya Sharir 	 2.1 Charak Samhita (Purvardha) 2.2 Swasthavritta 2.3 Dravyaguna Vigyan 2.4 Rasashastra & Bhaishajya Kalpana 2.5 Roga Vigyan Evum Vikriti Vigyan 2.6 Agad Tantra, Vyavhar Ayurved Evum Vidhi Vaidyak 	 3.1 Charak Samhita (Uttarardha) 3.2 Kayachikitsa 3.3 Shalakya 3.4 Shalya 3.5 Prasuti Tantra Evum Striroga 3.6 Kaumarbhritya 3.7 Panchkarma 	

1.5 Rachana Sharir

- Preservation and Dissection Method of dead body
- Fertilization, cell division, principles of Hereditary, sex Determination, month wise development of Fetus, factors effecting development and growth of embryo, formation of placenta, formation of umbilical cord, Development of various systems. Developmental Anomalies and their causes
- Detailed description of each bone Ossification of bones, applied anatomy of each bone.
- Definition of joints, Types, structure of each joint, various, Specific description of temporomandibular and joints of extremities vertebral joints, Sutural Joints, Ligaments, movements of Joints and Clinical importance of the joints.
- Importance of Cardiovascular system, heart, Description of Arteries and capillary, Accessory veins and Principal veins.
- Introduction and study of Lymphatic channels, Lymphatic glands, thoracic duct, lacteals and Courses of Lymphatic Ducts.
- Introduction and detail Structure, shape, size and types and their Importance of muscles – their attachments and origin, insertion, actions nerve supply and its clinical application.

- Thoracic cavity organs, organs of abdominal cavity, Description of digestive organs and accessory digestive organs. Organs of Respiratory system, Organs of Urinary system, Description of male and female reproductive organs and their details.
- Description of the structure of Exocrine, and Endocrine glands.
- Definition and structural pattern and details study of Pericardiurm, Pleura, Meninges, Peritoneum).
- Definition of Skin, its structure, types
- Introduction, Definition, classification and importance of Brain:
 - 1. Cerebrum,
 - 2. Cerebellum,
 - 3. Mid brain,
 - 4. Pons,
 - 5. Medulla oblongata, Spinal cord, Cranial Nerves and spinal Nerves, Peripheral nervous system. Description of Autonomic nervous system, Sympathetic and parasympathetic nervous system and nerve plexuses.
- Surface marking and Radiological Anatomy
- Sensory organs: Description of the Eye, Ear, Nose, tongue, Skin

1.6 Kriya Sharir

- Basic principles of biochemistry. Study of basic componants of food. Biochemical structure, properties, classification of proteins, fats and carbohydrates. Metabolism of proteins, fats and carbohydrates. Vitamins – sources, daily requirement, functions, manifestations of hypo and hyper-vitaminosis. Biochemical study of enzymes.
- Definition and mechanisms of maintenance of Homeostasis. Cell Physiology. Membrane Physiology. Resting membrane potential and action potential.
- Physiology of Respiratory system: Functional anatomy of respiratorysystem. Definition of ventilation. Mechanism of respiration. Exchangeand transportation of gases. Neural and chemical control of respiration.Spirometry and lung function tests. Artificial respiration.
- Physiology of Cardio-Vascular system: Functional anatomy of cardiovascular system. Properties of cardiac muscles. Cardiac cycle. Heart sounds. Regulation of cardiac output and venous return. Physiological basis of ECG. Heart-rate and its regulation. Arterial pulse. Systemic arterial blood pressure and its control. Regional circulations. Physiology of lymphatic circulation.
- Modern view of somato-types, biological personality and psychological traits of an individual.
- Functional anatomy of gastro-intestinal tract. Descriptive physiology of digestion and absorption in gastro-intestinal tract. Mechanism of secretion and composition of different digestive juices.
- Haemopoetic system composition, functions of blood and blood cells, Haemopoiesis-(stages and development of RBCs, WBCs and platelets); Introduction to bone marrow: composition and functions of bone marrow. Structure and functions of haemoglobin, mechanism of blood clotting, anticoagulants, study of platelets, physiological basis of blood groups, principles of blood transfusion, plasma proteins- synthesis and functions. Applied physiology: anaemia, jaundice. Basics of Immunity – Classification and Mechanisms. Hypersensitivity. Physiological basis of

immunization.

- Muscle physiology comparative study of physiology of skeletal muscles, cardiac muscles and smooth muscles. Physiology of muscle contraction.
- Physiology of adipose tissue, lipo proteins like VLDL, LDL and HDL.
- Calcium metabolism: hormonal control of calcium metabolism. Functions of vitamin D, parathormone and calcitonin. Bone and teeth.
- Structure and functions of skin, sweat glands and sebaceous glands.
- Physiological study of male and female reproductive systems. Spermatogenesis and oogenesis. Hormonal regulation of menstrual cycle.
- Physiology of pregnancy and lactation.
- General introduction to nervous system neurons, mechanism of propagation of nerve impulse, physiological study of CNS, PNS, ANS; physiological study of sensory and motor functions of nervous system. Functions of different parts of brain – Cerebral cortex, Hypothalamus, Limbic system, Midbrain, Pons, Medulla and Cerebellum. Physiology of special senses. Intelligence, Memory, Learning and Motivation. Physiology of sleep and dreams. Physiology of speech and articulation; EEG. Physiology of temperature regulation.
- Endocrine glands General introduction to endocrine system, classification and characteristics of hormones, physiological study of all endocrine glands and their hormones.
- Urinary tract physiology Functional anatomy of urinary tract. Functions of kidneys. Mechanism of formation of urine. Control of micturition. Renal function tests.
- B) Modern practical
- 1. Use and care of compound microscope
- 2. Types, uses and care of balances
- Collection of blood sample prick, venepuncture method and bulbs, apparatus for collection
- 4. Preparation of blood film and staining,
- 5. Hemoglobinometry

- 6. Microscopic examination of blood
 - a. RBC count,
 - b. WBC count,
 - c. Differential leucocyte count
- 7. Packed cell volume (PCV) demonstration,
- 8. ESR demonstration,
- 9. Bleeding time,
- 10. Clotting time,
- 11. Blood grouping and Rh typing,
- 12. Examination of Cardio-Vascular system
 - a. Pulse examination,
 - b. Arterial blood pressure measurement
 - c. Examination of heart sounds by stethoscope,
 - d. ECG demonstration
- 13. Examination of Respiratory system
 - a. Respiratory rate,
 - b. Air entry with the stethoscope,
 - c. Spirometry
- 14. Examination of CNS Reflexes
- 15. Urine examination Collection of urine, physical examination, chemical examination and microscopic examination.

Test for normal constituents of urine

Following chemical examinations for abnormal constituents are expected

- a. Albumin test,
- b. Sugar test,
- c. Acetone bodies,
- d. Bile salts and pigment,
- e. Occult blood
- Stool examination Collection of stool, physical examination, chemical examination and microscopic examination
- 17. Examination of semen,
- 18. Measurement of body temperature
- 19. Study of instruments related to physiology practicals.

2.2 Swasthavritta

Epidemiology

- 1. Concept of Epidemiology
- 2. Concept of disease
- 3. Concept of causation
- 4. Epidemiological triad
- 5. Natural history of disease
- 6. Risk factors
- 7. Concept of control
- 8. Concept of prevention
- 9. Modes of intervention
- 10. Incidence and prevalence
- 11. Dynamics of Disease transmission
- 12. Modes of transmission
- 13. Susceptible host
- 14. Host defenses
- 15. Immunizing Agents
- 16. Disease prevention and control
- 17. Disinfection
- 18. Epidemiology of Communicable Diseases
 - a) Measles
 - b) Diphtheria
 - c) Pertussis
 - d) Mumps
 - e) Tuberculosis
 - f) SARS
 - g) Influenza
 - h) Pneumonia
 - i) Cholera
 - j) Polio
 - k) Viral Hepatitis
 - l) Typhoid
 - m) Leptospirosis
 - n) Dengue fever
 - o) Chikungunya
 - p) Malaria
 - q) Filariasis
 - r) Leprosy
 - s) Rabies
 - t) Tetanus
 - u) Emerging and re-emerging diseases
- 19. Kuprasangaja vyadhis (STDs)
 - a) AIDS
 - b) Syphilis

- c) Gonorrhoea
- d) Chanchroid
- 20. Ayurvedic paribhasha of sankramika rogas
- 21. Non Communicable disease epidemiology
 - a) Diabetes
 - b) Obesity
 - c) Hypertension
 - d) Coronary heart Disease,
 - e) Rheumatic Heart disease
 - f) Cancer

Community Health Care

- I. Prathamika Swasthya Samrakshana (Primary Health Care)
 - 1. Definition,
 - 2. Principles,
 - 3. Elements
 - Structure at Village level, Sub centre level, PHC level, CHC level, Hospitals, Health Insurance, Private agencies, AYUSH, Voluntary health agencies in India and N.G.Os.
 - 5. Role of Ayurveda in Primary Health Care in India
- II. Parivara Kalyana Karyakrama (Family Welfare Programmes)
 - 1. Demography,
 - 2. Demographic Cycle,
 - 3. Life Expectancy
 - 4. Family Planning,
 - 5. Methods of Family Planning.

III. Rashtriya Karyakrama (National Programmes)

- 1. Tuberculosis (RNTCP),
- 2. Leprosy (NLEP),
- 3. AIDS (NACP)
- 4. Blindness (NPCB),
- 5. Polio (PPI),
- 6. Diabetes (NDCP),
- 7. Cancer (NCCP)
- 8. National Rural Health Mission (NRHM)
- 9. National Anti Malaria Programme,
- 10. National Filaria Control Programme
- UIP (Universal Immunisation Programme),
 RCH (Reproductive and Child Health programme)
- 13. National water supply and sanitation programme
- 14. Minimum needs programme,

15. All emerging National health programmes.

IV. Matru-Shishu Kalyana Karyakrama (Mother and Child Welfare Programme)

- 1. Ante natal care,
- 2. Post natal care,
- 3. Neo natal care,
- 4. Child health problems,
- 5. Indicators of MCH care
- V. Preventive Geriatrics
- VI. International Health
 - 1. World Health Organization Objectives, Structure and function of WHO
 - 3. Alma Ata declaration,
 - 4. National Health Policy and Importance of Ayurveda in it.
 - 5. United Nations agencies,
 - 6. Health work of bilateral agencies

VII. Swasthya Prashasana (Health Systems in India)

- 1. Central level,
- 2. State level,
- 3. District level,
- 4. AYUSH

VIII. Health Statistics

- 1. Definition of statistics/health statistics/vital statistics,
- 2. Sources and uses of health statistics.
- 3. Data Collection, classification and Presentation,
- 4. Mean,
- 5. Median,
- 6. Mode,
- 7. Health survey
- 8. Mortality rates, Morbidity rates and Fertility rates

2.3 Dravyagun Vigyan

5. Definition & scope of Pharmacology, Principles of general Pharmacology.

Brief knowledge of the following

Anaesthetics, CNS depressants, Sedatives, Hypnotics, Tranquilisers, Antipyretics, Analgesics, Antiepileptics, Antihypertensive, Antianginal, Antiplatelet, Hypolipidaemic, Haemopoetic, Coagulants, Bronchodialators, Aerosols/Inhalants, Expectorants, Digestants, Carminatives, Antacids, Antiulcer, Laxatives, Antidiarrhoeals, Antiemetic, Hepatoprotective, Diuretic, Antidiuretic, Lithotriptic, Antiinflammatory, Hormonal therapy, Antiobesity, Antidiabetic, Antithyroids, Oxytocic. Galactagogues, Contraceptives, Styptics, Antihistamins, Antimicrobial, Antibiotics, Antimalarial, Amoebicidal, Antifilarial, Anthelmentic, Antifungal, Vitamins, Minerals, Water imbalance and IV fluids, Vaccines, antivenom, antirabbies serum, Local anti septics, drugs in ophthalmic practice, Anti cancer drugs and immunomodulators etc.

2.5 Roga Vigyan Evum Vikriti Vigyan

- Basic knowledge of Hereditary, Congenital, Acquired, Multifactorial, Traumatic and Environmental disorders.
- Introduction to ICD Classification of Diseases

 of WHO and DSM classification.
- Introduction to pathology and its sub-divisions. Introduction to Cell Injury and Cellular adaptations
- Definition and brief description of inflammation – Healing/repair.
- Definition and brief description of oedema shock haemorrhage.
- Thrombosis and embolism. Ischemia and Infarction
- Immunity types different types of immune responses in the body – Basic knowledge of auto immune diseases, Acquired immune deficiency disease and hypersensitivity
- Nomenclature and classification of tumors difference between benign and malignant tumors.
- Introduction to Nutritional disorders disorders of macro and micro nutrients.
- Introduction to infectious diseases
- Introduction and classification of microorganisms such as virus-bacteria- fungus.
- Importance and methods of history taking, clinical examination and knowledge of Ancillary investigations.
- Basic Knowledge of tools ECG, USG, and Radio imaging.

- Basic Knowledge of Laboratory investigations pertaining to Metabolic and Endocrine disorders.
- General mechanism of Fever. Introduction to the Aetiopathogenesis of Malaria, Typhoid, Dengue fever, influenza and Chikungunya.
- Introduction to Anaemia & its Classification, Rheumatic fever, Rheumatoid Arthritis, Angina, Ischaemic Heart Disease, Hypertension, Myocardial Infarction
- Introduction to Hepatomegaly, Spleenomegaly, Leukaemia, Thalessemia, Sickle cell anaemia.
- Introduction to Urticaria,Psoriasis, Eczema, Pemphigus
- Introduction to Obesity and Diabetes Mellitus.
- Introduction to Osteo- Arthritis, Osteomyelitis, Osteoporosis.
- Introduction to Parkinson's disease, Stroke, lumbago – sciatica syndrome, Bell's palsy, Ankylosing Spondylitis
- Introduction to male and female infertility.
- Introduction to the aetiopathogenesis of Pneumonia, Pleural effusion, Bronchitis, Bronchiectasis, Bronchial Asthma.
- Introduction to Peptic ulcer, Irritable Bowel Syndrome, Diarrhea, Dysentry, Constipation, Inflammatory Bowel Syndrome.
- Introduction to water and electrolyte imbalance disorders
- Introduction to Urinary Tract Infection, Urolithiasis, Nephropathies and Renal failure.
- Introduction to Depression, Anxiety neurosis, Phobia, Personality disorders.
- Introduction to Leprosy, Tuberculosis and AIDS.
- Introduction of Filariasis and classification of common parasites.

Practical

100 Marks

Laboratory Practicals

- 1. Fundamental Principles of Laboratory Tests
 - Introduction to laboratory, Sterilization, glass wares, solutions reagents and safety procedures.

- 2. Hematology
 - Hb% estimation, Blood cells counting -WBC, RBC, platelets
 - Hematocrit/Packed cell volume (PCV), Erythrocyte indices - MCV, MCH, MCHC
 - Peripheral blood smear, staining technique and differential leucocyte count.
 - Peripheral blood film examination in Anemia, Leukemia, Malaria, Filaria (Demonstration)
 - ESR., Introduction to rapid diagnostics of hematology
 - Screening test for bleeding disorders bleeding time (BT), Clotting time (CT), Prothrombin time (PT), Blood grouping -ABO system, Rh typing (Rhesus system)
- Urine Examination Physical Examination -Volume, Reaction (P^H) & Specific Gravity
 - Chemical Examination for Proteins, Glucose, Phosphate, Ketone, Bile salts, Bile pigment
 - Microscopic Examination
- 4. Stool Examination Microscopic examination of ova & cyst etc, Occult Blood Test
- Sputum Examination Physical, Chemical and Microscopic Examination of the sputum, Sample collection and Demonstration of AFB.
- 6. Semen examination Semen examination & Demonstration of semen, sperms.
- Biochemical Examination (Demonstration) -Serum Glucose, Serum Bilirubin, Serum urea, Lipid profile, Serum Creatinine.
- 8. Demonstration of different staining techniques in microbiology.
- 9. Demonstration of Sero-immunological Investigations: Ra and Widal.
- 10. Demonstration of Aspiration techniques.
- 11. Laboratory record maintenance of observation Diary and laboratory record book.

Bedside Practicals (Clinical Methods)

- 1. Introduction and demonstration of clinical methods (General and Systemic Examinations).
- 2. Demonstration of instruments used for clinical examination

- 4. Practical records of clinical examination of at least 20 long cases in I.P.D.
- 5. Demonstration of ECG, USG and Radio imaging techniques.

2.6 Agadatantra, Vyavaharayurved Evum Vidhivaidyak

- Poisoning with contact poisons
- Contamination of air, water, soil etc. their contemporary significance. Effects of chemical and Nuclear warfare
- Signs and symptoms of poisons of plant kingdom and their management. Signs and symptoms, Fatal Dose, Fatal period, Treatment,post mortem appearences and Medico legal importance
- Essentials of Food poisoning.
- Animal poisoning and zoonotic diseases -Signs and symptoms, classification, management, prognosis and medico legal importance
- Acids and Alkalis Fatal Dose, Fatal period, signs and symptoms, cause of death, treatment, medico legal importance and postmortem appearance of – Sulphuric acid, Hydrochloric acid, Nitric acid, Hydrocyanic acid, Oxalic acid, Carbolic acid, Formic acid and alkalis in general, treatment and safety measures.
- Asphyxiants Carbon monoxide, Carbon dioxide, Hydrogen sulphide;
- Stimulants Antihistamines, Cocaine; Hallucinogens – LSD
- Sedatives and Hypnotics Barbiturates
- Petroleum Kerosene Poisoning
- Organo phosphorus compounds Aluminum phosphate, Zinc phosphide
- Definition of Toxicology, classification of poisons, their actions and routes of administration, absorption, excretion, metabolism, diagnosis and general principles of treatment, duties of a medical practitioner in case of suspected poisoning.
- Metallic and Nonmetallic poisoning General characters, Signs and symptoms, Fatal dose, fatal period, Treatment, Medico Legal Importance and Postmortem

- Appearance of Nonmetallic poisons Phosphorous, iodine
- Metallic poisoning Arsenic, Mercury, Lead, Copper, Zinc, Tin and Radiation metals.
- Alcohol poisoning (Ethanol and Methanol)
- Laws related to poisons Poisons act 1919, Dangerous Drug act 1930,
- Drugs and cosmetic act 1940, Narcotic drugs and Psychotropic substances Act 1985, Pharmacy Act 1948, Criminal poisoning.
- Introduction, Definition and concise history of Forensic medicine (Vyavahara Ayurveda) and Medical jurisprudence (vidhivaidyaka). Introduction to Indian Penal Code, Indian Evidence Act and Criminal Procedure Code.
- Personal identity and its medico legal aspects, forensic odontology, forensic serology and DNA profiling.
- Death and its Medico Legal Aspects.
- Medico legal autopsy and exhumation.
- Injuries and wounds and its medico legal aspects.
- Dowry deaths, their medico legal importance and laws in relation to it.
- Asphyxial deaths and its Medico Legal importance.
- Death due to heat, cold and starvation.
- Virginity, Pregnancy, Delivery; Impotence & sterility, Artificial Insemination, Legitimacy, Abortion, Infanticide battered baby and their Medico Legal importance. Medical Termination of Pregnancy Act.
- Sexual offences, Sexual perversions and their medico legal aspects.
- Forensic psychiatry.
- Laws in relation to medical practitioners: Indian Medicine Central Council Act, Code of Medical Ethics, General Principles, duties of a physician towards his patient, towards the profession at large, professional services of physicians to each other, duties of a physician in consultation, duties of a physician in cases of interference, duties of a physician to the public, Physician's responsibility in criminal matters, duties of a

patient, professional negligence, civil negligence, criminal negligence, medico legal aspects of Acquired Immune Deficiency Syndrome, rights of an unborn child, transplantation of human organs Bill 1994, Pre Natal Diagnostic Testing Act, donation of cornea, malingering of feigned diseases, international code of medical ethics for doctors.

Practical 50 Hours

- 1. PostMortem examination 10
- 2. Evidence in the court 10
- 3. Demonstrations in the Toxicology museum 10
- 4. Clinical postings 20

3.2 Kayachichikitsa

Paper I

- 5. Detailed description of Chikitsa Sutra and Management of Jwara/Fever and its types.
- Relevant Ayurvedic management according to Samprapti ghataka of following types of Fevers-Typhoid, Pneumonia, Pleurisy, Influenza, Mumps, Meningitis, Encephalitis, Tetanus, Yellow fever, Plague, Dengue Fever, Chikun Guniya, Leptospirosis, Viral Fever, Anthrax, Masurika (Small pox), Laghu Masurika (Chicken pox), and Romantika (Measles).
- Knowledge of National Health programmes, and the relevant Ayurvedic management of the following diseases enlisted by World Health Organisation- Malaria, Filaria, Kala Azar, Leprosy, Tuberculosis, AIDS.
- Introduction of general principles of maintenance of health and management of diseases of following systems of Medicine-Yoga, Naturopathy, Unani, Siddha Homeopathy, Acupuncture, Acupressure, Modern medicine, Physiotherapy and Rehabilitation.

Paper II

- 1. Management of the diseases of Bronchitis, Bronchiectasis, Emphysema and COPDs.
- 2. Management of the diseases of Acid Base & Electrolyte Imbalance.
- 3. Management of the diseases of Acid peptic disorders.

- 4. Management of the Hypotension, Hypertension.
- 5. Management of the Hepatitis, Cirrhosis of Liver, Leukaemia,
- 6. Management of Diabetes Mellitus and Dyslipidaemias.
- 7. Management of Osteomyelitis, Osteoporosis, Osteo Arthritis.
- 8. Management of diseases of Cystitis, Nephritis, Nephrotic Syndrome, Renal Failure.
- 9. Management of sexually transmited diseases, such as Syphilis, Gonorrhoea, Chanchroid.

Paper III

- 1. Gullian Barrie syndrome, Muscular Dystrophy, Myasthenia Gravis, Motor Neuron Diseases and Neuralgias.
- 2. Diseases of different Endocrine Glands -such as Thyroid, Parathyroid, Pitutary and Adrenal Glands and their Ayurvedic management.
- 3. General introduction and principles of Management of diseases produced by Genetic, Environmental and latrogenic factors. Disorders due to drug and Food allergy and their management.
- 4. Treatment of Motion sickness. General introduction, types and Management of diseases caused by Immuno deficiency disorders and Auto Immune disorders.
- 5. Introduction and management of Anxiety disorders, Stress induced disorders, Depression, somatoform and Mood disorders, Psychosexual Disorders.
- 6. Alziemers Disease, Sleep disorders, General debility.
- Etiopathogenisis and modern management of following diseases – Anthrax, Chicken pox, Chikun Guniya, Dengue Fever, Encephalitis, Influenza, Leptospirosis, Measles, Meningitis, Mumps, Plague, Pleurisy, Pneumonia, Small pox, Swineflu, Tetanus, Typhoid, Viral Fever, Yellow fever.
- 8. Nutritional deficiency disorders, Acid Base & Electrolyte Imbalance and related clinical conditions.

- 9. Description and management of following Emergency Conditions – Acute Haemorrhages, Hypertensive Emergencies, Acute abdominal pain (Renal colic, Biliary colic, Gastritis, Pancreatitis, Peritonitis and Appendicitis), Acute Abdomen, Anuria/Oliguria, Congestive Heart Failure, Myocardial Infarction/Angina, Shock, Syncope, Convulsions, Hyperpyrexia, Hyperglycaemia, Hypoglycaemia, Status Asthmaticus, Acute Respiratory distress Syndrome, Drowning and Electric shock.
- 10. Vitamin deficiency diseases and their treatment.

Practical

	Hospital Training	9 months
1.	General patient training	5 months
2.	Department of Manas roga	15 days
3.	Department of Communicable diseases	15 days
4.	Department of X-Ray and Laboratory	1 month
5.	Emergency Services in Kayachikitsa	2 months

3.3 Shalakya Practicals

Paper I

- Etiology, pathology, classification, clinical features and management of Acute and chronic Dacryocystitis, Epiphora, Blepharitis, Lacrimal cyst – aetiology, pathology, signs & symptoms and management. Knowledge about Dacryocystectomy and dacryocystorhinostomy
- Etiology, pathology, classification, clinical features and management of diseases Hordeolum externum, Chalazion, Ptosis, Trachoma, Trichiasis, Entropion, Ectropion, Lagophthalmus, Blepharospasm and lid growths – Etiology, signs and symptoms and management.
- Conjunctival degenerative disorders like pterygium, Scleritis, Episcleritis Sub-conjunctival hemorrhage, Xerosis their etiology, signs & symptoms and management.
- Ulcerative and Non Ulcerative Keratitis, Corneal opacity, Staphyloma, Hypophyon Ulcer & Uveitis, their aetiology, pathology,

symptoms and management.

- Conjuctivitis, Glaucoma, Dry eye Syndrome, Panophthalmitis, etiology, pathology, sign & symptoms and management.
- Refractive errors, Strabismus, Cataract, Retinitis pigmentosa, Amblyopia, Central serous retinopathy, Eale's disease, Hypertensive & Diabetic Retinopathies, Age related Macular degeneration, Optic Neuritis and Optic atrophy, – Etiology, pathology, signs and symptoms and management.
- Xerophthalmia and other malnutritional eye disorders.
- Introduction to Eye bank, Eye donation, Corneal Transplantation.
- Preventive ophthalmology and community ophthalmology.

Paper II

- Instruments and technology used in the diagnosis and treatment of diseases of Shira, Ear, Nose & Oral cavity
- Headache, its differential diagnosis and treatment along with diseases of Scalp.
- Anatomical and Physiological considerations of Karna (Ear)
- Examination of Ear.
- Otalgia, ASOM, CSOM, Deafness, Otomycosis, Tinnitus, Meniere's disease, Foreign body in ear and Sound pollusion, Etiology, pathology, clinical features and management. Tympanoplasty.
- Anatomical and Physiological considerations of Nasa (Nose)
- Rhinitis, Epistaxis, Nasal polyp, DNS, Nasal trauma, foreign body in the nose - Etiology, pathology, clinical features and management
- Anatomical sites of diseases of Oral cavity
- Generalised etiology Pathology Clinical picture and Treatment of Mukharoga (Diseases of oral cavity)
- Etiology, pathology, classification, clinical features and management of diseases of Oshta (Lips) as detailed in literature of Ayurveda.

- Labioplasty, Hare lip, Retention cyst, Cracked lips.
- Anatomical and Physiological considerations of Danta (Tooth) in Ancient and Modern Medical literature. Examination of Teeth.
- Etiology, pathology, classification, clinical features and management of diseases of Danta (Teeth)
- Dental carries, dental tartar, causes and treatment.
- Etiology, pathology, classification, clinical features and management of diseases of Dantamula (Periodentia) - Gingivitis, Apical abscess, Periodontitis (Pyorrhoea), Periodential abscess and Mandibular sinus
- Etiology, pathology, classification, clinical features and management of diseases of) Jihwa (Tongue) Glossitis, Tongue tie, Ranula, Benign and malignanat tumors of tongue
- Etiology, pathology, classification, clinical features and management of diseases of Talu (Palate) Palatitis, Cleft palate, Uvulitis and Tumors of the palate.
- Etiology, pathology, classification, clinical features and management of diseases of) of Kantha and Gala (Pharnyx and Larynx) -Pharyngitis, Laryngitis, Tonsillitis, Carcinoma of larynx pharynx, Diphtheria, Adenoiditis, foreign body in the throat- etiology, pathology and treatment of these diseases.
- Etiology, pathology, classification, clinical features and management of diseases of Generalised mucosa of the oral cavity -Stomatitis, HIV and Herpes infection of oral cavity
- Anatomy and physiology of salivary, thyroid and para thyroid glands, their diseases and treatment - Dysphagia, Cervical lymphadenopathy, Manyastambha (Sternocleidomastoiditis).

Shalakya Practicals

Identification, uses, demonstration of surgical instruments and method of sterilization.

Training of case taking, bedside clinics and case presentation.

Training in para- surgical procedures-

Kshara karma Agnikarma Raktamokshana

- Training of ward procedures Application of bandages, wound management, IV, Retrobulbar, Peribulbar, Facial, IM, Subcutaneous and Intradermal injections.
- 5) Training of minor procedures Incision and drainage, Excision, Sutures
- 6) Observation of surgical procedures Pterygium, Cataract Cyst removal

3.4 Shalya

Paper I

- Sterilization Methods, Types and O.T. fumigation
- Anaesthesia Definition, Types, anaesthetic agents, indications, contraindications, procedures, complications and management.
- Operative procedures, Experimental Surgery.
- Principles and procedures of reconstructive and cosmetic surgery.
- Introduction to physiology of fluids and electrolytes
- Dehydration and over hydration,
- Specific electrolyte losses and symptomatology and management of Acidosis, Alkalosis and Acid balance.
- Electrolyte changes in specific diseases like pyloric stenosis, intestinal obstruction and anuria.
- Various replacement fluids in surgery, mode of administration and complications.
- Nutrition pre-operative, post-operative and intravenous alimentation.
- Blood Transfusion –Blood groups, components, compatibility, indications, contraindications and complications with management.
- Knowledge of antibiotics, analgesics, antiinflammatory and emergency drugs in surgical practice.
- Knowledge of diagnostic techniques X-ray, Imaging techniques, Ultra Sonography, CAT Scan, MRI, Biopasy/ cytological study.

- Ulcer types and their management
- Wound healing stages and management.
- Management of bites and strings
- Pramehapidaka- Diabetic carbuncle, Chippa -Paronychia, Kadara – Corn, Vrana Granthi – Keloid.
- Galaganda Goitre, Gandamala, Apachi Lymphadenitis, Pashanagardhabha – Parotitis.
- Venous disorders Superficial and Deep venous thrombosis, haemangioma, varicose veins, Venous Ulcers and their management.
- Arterial disorders Nidina, Samprapti, Lakshana and Chikitsha of Aneurysm, Burger's disease, Raynaud's disease.
- Diseases of tendons and ligaments Tendinitis, tenosynovitis, ganglion and their management.
- Principles of Amputation.
- Surgical practice in AIDS HIV and hepatitis patients.

Paper II

- Description of fracture of following bones with clinical features, diagnosis, complications and management – scapula, clavicle, humerus, radius, ulna, carpals, metacarpals, phalanges, femur, patella, tibia, fibula, tarsals, metatarsals, vertebrae, ribs, mandible, pelvis and skull bones.
- Dislocation of following joints with clinical features, diagnosis, complications and management of shoulder, elbow, wrist, hip, knee, ankle, mandible, vertebrae and Phalanges.
- Diseases of bone Aetiopathogenesis, classification, Clinical Features, Diagnosis, Complications and management of – Congenital anamolies Osteomyelitis, cysts, tumours and tuberculosis.
- Cranio-cerebral injuries mechanism, pathology, investigations, complications and management. Cerebral concussion, contusion and laceration. Acute extradural haematoma, Acute intracerebral and chronic subdural haematoma.
- Brain tumors and their management.

- Diseases of breast Aetiopathogenesis, classification, Clinical Features, Diagnosis, Complications and management of - Sthan Vidradhi- Breast Abscess, Sthan Arbuda-Breast tumors and their management.
- Diseases of chest Aetiopathogenesis, classification, Clinical Features, Diagnosis, Complications and management of - Pleural abscess, pleural effusion, tumors, pleurisy and their management.
- Diseases of esophagus Aetiopathogenesis, classification, Clinical Features, Diagnosis, Complications and management of -Congenital Anamolies, Oesophagitis, ulcer, varices, tumors and their management.
- Diseases of stomach and duodenum Aetiopathogenesis, classification, Clinical Features, Diagnosis, Complications and management of – Congenital pyloric stenosis, peptic ulcer, tumors and their management.
- Diseases of small intestine Aetiopathogenesis, classification, Clinical Features, Diagnosis, Complications and management of - Mickel's Diverticulitis, Tuberculosis, obstruction, perforation and their management.
- Diseases of large intestine Aetiopathogenesis, classification, Clinical Features, Diagnosis, Complications and management of – Tuberculosis, obstruction, perforation, tumor, appendicitis, crohn's disease, ulcerative colitis and their management.
- Udara rogas Aetiopathogenesis, classification, Clinical Features, Diagnosis, Complications and management of - Jalodara
 Ascitis, Chidrodara – Perforation and Peritonitis, Badhagudodara – Obstruction and their management.
- Diseases of rectum and anal canal Aetiopathogenesis, classification, Clinical Features, Diagnosis, Complications and management of - Congentital disorders, Arshas -Haemorrhoids, Rectal polyp, Parikartika -Fissure in ano, Bhagandara – Fistula-in-ano, Guda Vidradi - Anorectal abscess, Gudabhramsa - Rectal prolapse, Sanniruddaguda - Anal stricture, Incontinance. Gudarbuda - tumor and their management.
- Abdominal Injuries and management

- Diseases of liver Aetiopathogenesis, classification, Clinical Features, Diagnosis, Complications and management of Abscess, cysts, tumors, obstructive jaundice and Yakritdalyodar –Hepatomegaly.
- Diseases of gall bladder Aetiopathogenesis, classification, Clinical Features, Diagnosis, Complications and management of Cholecystitis, cholelithiasis, tumors.
- Diseases of pancreas Aetiopathogenesis, classification, Clinical Features, Diagnosis, Complications and management of Pancreatitis, pseudo pancreatic cyst, tumors.
- Diseases of Spleen Aetiopathogenesis, classification, Clinical Features, Diagnosis, Complications and management of Pleehodara – Spleenomegaly, spleenic rupture.
- Diseases of Kidney Aetiopathogenesis, classification, Clinical Features, Diagnosis, Complications and management of Congenital anomalies, polycystic kidney, perinephric abscess, tumor, renal calculus, renal injury.
- Diseases of Ureter Aetiopathogenesis, classification, Clinical Features, Diagnosis, Complications and management of Calculus, obstruction.
- Diseases of Urinary bladder Aetiopathogenesis, classification, Clinical Features, Diagnosis, Complications and management of Congenital anomalies, Ashmari -Vesicle calculus, Cystitis, tumor and Injury.
- Mutragata & Mutrakrichra- Aetiopathogenesis, classification, Clinical Features, Diagnosis, Complications and management. Retention of urine.
- Diseases of Prostate Aetiopathogenesis, classification, Clinical Features, Diagnosis, Complications and management of Prostatitis, Prostatic abscess, Benign prostatic hypertrophy, carcinoma of prostate.
- Diseases of Urethra Aetiopathogenesis, classification, Clinical Features, Diagnosis, Complications and management of Urethritis, Stricture and rupture.
- Diseases of Penis Aetiopathogenesis, classification, Clinical Features, Diagnosis,

Complications and management of Niruddhaprakasha -Phimosis, Parivartika -Paraphimosis, Avapatika - Prepuceal ulcer, Arbuda- tumor, Lingarsha -Venereal warts.

- Diseases of Scrotum and Testis Aetiopathogenesis, classification, Clinical Features, Diagnosis, Complications and management of Mutravriddhi - Hydrocele, Vrushana shotha-epididimo-orchits, Vrushana granthi- epididimal cyst, Scrotal filaria, Shukrashmari -Seminal calculus, torsion of testis, ectopic testis, undescended testis and tumors.
- Vriddhi Roga Aetiopathogenesis, classification, Clinical Features, Diagnosis, Complications and management.
- AntraVriddhi Aetiopathogenesis, classification, Clinical Features, Diagnosis, Complications and management of Hernia -Inguinal, femoral, epigastric, umbilical, incisional and rare forms of Hernias.

Shalya - Practicals (Clinical and Surgical training)

- 1. Identification, uses, demonstration of surgical instruments and method of sterilization.
- 2. Training of case taking, bed side clinics and case presentation.
- 3. Demonstration and Practical training in Anesthesia.
- 5. Training of following ward procedures
 - a. Application of bandages and splints.
 - b. Catheterization
 - c. Wound management
 - d. Ryle's tube aspiration
 - e. Injections Intramuscular/intravenous/ subcutaneous/intradermal
- 6. Training / Practice of following procedures
 - a. Incision and drainage of abscess,
 - b. Excision,
 - c. Sutures,
 - d. Circumcision,
 - e. Hydrocele,
 - f. Hernial repair,
 - g. Haemmorrhoidectomy,
 - h. Fistulectomy,
 - i. Fissurectomy,
 - j. Exploratory Laparotomy

8. Training of surgical emergencies and management.

Practical Training	6 Months
OPD / IPD	- 4 Months
Operation theatre	- 1 Month
Emergency casualty	- 1 Month

3.5 Prasuti Tantra Evum Stri Roga

Paper I

- Normal and abnormal conditions of Asthisandhi peshi Sahita stree shroni (Soft & Bony Pelvis) and its obstetrical importance, Shroni mapana (pelvic assessment) – Artavvaha and Stanyavaha strotamsi. Tryavarta yoni (Female internal and external genitalia).
- Menstrual cycle and their regulation by endocrine glands
- factors essential for conception, Monthwise development of foetus, lie, position, presentation, fetal skull,
- Apara (Placenta) Garbha Nabhinadi(Umbilical cord), Garbhodaka (Amniotic fluid), Jarayu (Foetal membranes)- Formation, development, function, normalcies and their abnormalities. Ulba (vernix caseosa).
- diagnosis of pregnancy
- Ante Natal care, examination investigation and management
- Abortions, Intrauterine Foetal death, pseudocyesis, Hydatidiform mole. Ectopic pregnancy, I.U.G.R, Bahugarbhata, Rhincompatibility – causes, clinical features, complications and treatment.
- Minor ailments of pregnancy, Major Diseases of Pregnancy
- Pandu (Anaemia), Jwara, Shotha (oedema), pregnancy induced hypertension, toxemias of pregnancy, prasava poorva rakta srava (Antepartum haemorrhage) causes, clinical features, complications and treatment of all diseases, High risk pregnancies.
- linical features and management of normal labour, partogram, jatamatraparicharya, (care and resuscitation of newborn)

- Akalaprasava (Preterm labour), Kalatita prasava (post term labour), Vilambita prasava (prolonged labour)
- Induction and augmentation of labour
- cervical dystocia, cephalo pelvic disproportion, fetal distress.
- Garbha stithi parivartana (version), forceps delivery, Ventouse delivery. Muladharachhedan (Episiotomy) Udarapatanapurvaka garbha nirharana, ceasarean section.
- Aparasanga (Retention of placenta), prasavottara raktasrava (PPH). its causes, clinical features and treatment,
- Maternal distress, prasavajanya janananga abhighata, uterine inversion, amniotic fluid embolism etc.
- Emergency care in obstretics
- Pharmacotherapuetics of the drugs used in Obstretic emergencies, PNDT Act, MTP Act.

Paper II

- Congenital malformations of female genital tract.
- abnormal uterine bleeding, Anartava (Amenorrhoea), Alpartava (hypo and oligomenorrhoea).
- infertility causes, types, investigations and management
- Benign and malignant tumours of genital tract
- Pelvic infections including sexually transmitted infections and their management.
- Stanagranthi, stanavidradhi (abscess), stanashopha (mastitis) their etiopathology, clinical features, diagnosis, prognosis, treatment and complications.

Shastra Karma

Surgical procedures their indications, Contraindications, purvakarma (pre-operative), Pradhanakarma (operative), Paschatakarma (postoperative), Complications and managements.

-Garbhashayamukha vistrutikarana (Cervical dilatation) & Garbhashaya lekhana (curettage), Garbhashaya mukhadahana (cauterization of Cervix), Swasthane garbhashaya sthapana (repair of genital prolapse), Arshanirharana (excision of polyp), Granthi evam garbhashaya nirharanasya samanya gyana (Hysterectomy), Female surgical sterilization.

- Removal of different types of cysts, Marsupilisation, PAP smear, endometrial and cervical biopsy.

Stree roga sambandhita pramukha aushadhi. Prasuti stree roga chikitsa upayogi yantra shastra parichaya and vyadhivinischaya upaya (investigative and diagnostic aids).

Basic knowledge of laproscopy, Hysteroscopy, Hysterosalpingography, USG, X-RAY, Colposcopy. Garbhanirodhaka upaya.

Parivar niyojana, reproductive and child health care. AIDS/HIV control programme and importance of current national programme.

Clinical Training

- 1. History taking and examination of antenatal and gynecological cases.
- 2. Observation of 10 labour cases.
- 3. Practical knowledge of performing sthanika chikitsa
- 4. Observation of surgical procedures mentioned above.
- 5. Identification, uses, demonstration of surgical instruments and method of sterilization.

3.6 Kaumarbhritya

- Navajata Shishu Paricharya (Neonatal Care): Care of the Samaya-purvajata Shishu (Preterm), Purnakalika Shishu (Full term), and Samaya-Paschatajata Shishu (Post term neonate), Nabhinala Chhedana (Cutting of umbilical cord), Complications of improper cutting of umbilical cord and its treatment, Rakshoghna Karma (Protective measures).
- Prana Pratyagamanam (Neonatal Resuscitation): Methodology; complications and their management (Ayurvedic and modern view).
- Modern approach of Neonatal Examination including gestational age assessment
- Navajat Shishu Poshana (Nutrional aspects including neonatal feeding): Specific feeding schedule as per Ayurvedic texts and modern

concept; Stana Sampat (Characteristics of normal breast), Stanya Sampat (Properties of normal breast milk) Stanyotpatti and Prasruti (Physiology of lactation), Stanya Sangathana (Composition of breast milk), Stanya Parikshana (Examination of breast milk), Stanya-Piyusha (Colostrum); Stanya-Pana-Vidhi (Method for breast feeding), Stanyakshaya-Stanyanasha (Inadequate production and absence of breast milk), Stanyabhave Pathya Vyavastha (Alternative feeding in the absence of breast milk), Various other feeding methods.

- General introduction to normal fetal growth from conception to full term maturity),Sharirika Vriddhi, Mansika evam SamajikaVikas (Physical, mental and social growth & development of child), Important mile stones during infancy and early childhood with special reference to gross & fine motor, language and personal – social development, Anthropometrymeasurement and their interpretation.
- Normal requirements of nutrients for newborn, infant and children, common food sources, Satmya and Asatmya Ahara (Compatible and incompatible diet)
- Dentition and dental care): Dantasampat (Characteristics of healthy teeth), Danta Nisheka evam Dantodbeda (Eruption of teeth), Dantodbhedjanya Vikara (Dentition disorders).
- Knowledge of National Programs related to Child Health Care: Reproductive and Child Health (RCH) Program, Community Child Health Programs, Nutritional Programs, National Immunization Program and other programs incorporated by Govt of India, time to time.
- Birth injuries): Shwasavrodha (Asphyxia), Upasheershaka (Caput Succidaneum and Cephalohaematoma), Shastraghatajanya: Facial Paralysis, Erb's Paralysis, Bhagna (fractures).
- Congenital disorders) : Sahaja Hridaya Vikara (Congenital Cardiac Disorders) Jalashirshaka (Hydrocephalus), Khandaoushtha (cleft lip), Khanda-Talu (cleft palate), Sanniruddha Guda (Anal stricture / imperforated anus), Pada-Vikriti (Talipes equanovarus and valgus), Tracheoesophageal Fistula (TOF), Spina bifida, Meningocoele, Meningomyelocoele, Pyloric Stenosis.

- Hereditary diseases): Down syndrome, Turner Syndrome, Myopathy, Thalassemia, Sahaja Prameha (Juvenile Diabetes).
- Neonatal disorders): Navajata Kamala (Neonatal Jaundice), Navajata Netrabhishyanda (Neonatal conjuctivitis), Nabhiroga (Umbilical disorders), Mastishkaghata (Cerebral Palsy), Rakta Vishamayata (Neonatal Septicaemia), Rakta Vaishamyata (Rh-Incompatability), Raktasravi Vikara (Haemorrhagic Disorders), Ulvaka Roga.
- Nutritional disorders): Karshya, Phakka, Balashosha and Parigarbhika (Protein Energy Malnutrition), Vitamin and micronutrient deficiency disorders, Hypervitaminosis.
- Infectious Diseases): Karnamula Shotha (Mumps), Romantika (Measles), Rubella, Masurika (Chicken Pox), Rohini (Diphtheria), Kukkura-kasa (Whooping Cough), Dhanurvata (Tetanus), Krimiroga (Worm Infestations), Antrika Jwara (Typhoid), Mastisakavarnashotha (Meningitis), AIDS, Dengue, Malaria, Poliomyelitis, Rajayakshma (Tuberculosis), Jivwanujanya Yakrit shotha (Hepatitis)
- Pratishyaya (common cold), Kasa (Cough), Shwasa (Respiratory distress syndrome), Tamaka Shwasa (Bronchial Asthma), Utphullika, Swasanaka Jwara (Pneumonia/ Pneumonitis, Bronchiolitis), Gala shotha (Pharyngitis, laryngitis), Talukantaka (Tonsillitis)
- Ajirna (indigestion), Atisara (Diarrhoea) , Chhardi (Vomiting), Vibandha (Constipation), Mukhapaka (Stomatitis) , Gudapaka (Proctitis), Parikartika (Anal fissure) ,Udarshoola (Infantile colic), Pravahika (Dysentry) , Gudabhransa (Rectal Prolapse)
- Jwara (Fever), Pandu (Anemia), Mridbhakshanajanya Pandu (Anemia associated with clay eating/ Pica).
- Kamala (Jaundice), Raktapitta (Haemorrhagic disorders), Krimija Hridroga (Infectious cardiac diseases including Rheumatic Heart Disease), Uchcha-Raktachapa (Hypertension), Yakridpleehodara (Hepatospleenomegaly).
- Apachi (Lymphadenitis), Galaganda (Goitre), Gandamala (Cervical lymphaedenopathy), Sthaulya (Obesity)

- Mutraghata (Anuria), Mutrasanga (Retention of urine) Mutrakriccha (Dysurea), Vrikkashotha (Glomerulonephritis and Nephrotic syndrome)
- Pangutwa (Locomotor disorders), Vamanatwa (Dwarfism), Jadatwa (Mental disorders), Apasmara (Epilepsy), Unamada, Akshepa (Convulsions), Nirudhaprakasha (Phimosis), Kushtha (Skin disorders), Madhya Karna Shotha (Otitis media), Karnasrava (Otorrhoea)
- Behavioral disorders of children, their management and counseling: Breath holding spell, Shayyamutra (Bed wetting), Autism, ADHD (Attention Deficit and Hyperactive Disorders)
- Pediatric Emergency Management): Shock and Anaphylaxis, Fluid and Electrolyte Management, Drowning, Poisoning, Foreign body aspiration, Status epilepticus, hemorrhage, Acute Renal Failure, Febrile Convulsion, Status Asthmaticus

Practical

100 Marks

- 1. Clinical training of above mentioned disorders of children.
- 2. Navajata Shishu Paricharya (Care of the newborn)
- 3. Pranapratyagamana Vidhi (Resuscitation procedure of new born)
- 4. Vaccination
- 5. Knowledge of various equipments such as phototherapy unit, overhead radiant warmer, special resuscitation equipments, Panchakarma and their application
- 7. Knowledge of IV fluids administration, blood sampling
- 8. Breast feeding technique

Annexure-II

ASU Curriculum Evaluation Questionnaire

Privacy Notice: Personal information is being collected for the purpose of ascertaining the views of major stakeholders relevant to the education and practice of Ayurveda, Unani and Siddha medicine. The information you provide is confidential and will not be disclosed without consent or authority. Any questions or comments can be directed to Smt. Shailaja Chandra, Principal Investigator,(PI) Former Secretary, Department of AYUSH, Ministry of H & F.W., Govt. of India at shailajachandra1@gmail.com

Guidelines for Completion

Background

- Background:
- The review on the status of ASU education & practice is being conducted by the PI as a part of a Project undertaken with the prior approval of the Dept. of AYUSH MOHFW. In this section the effort is to gather the views of important stakeholders among teachers, researchers, practitioners and students who have had experience of or have been exposed to the teaching syllabus of Ayurveda, Unani and Siddha medicine. It is not intended to comment on the performance of any organization or group. The effort is to ascertain how far the stakeholders feel that a significant part of the syllabus of UG and PG is directed specifically to address patient-care. Also to seek suggestions on how the focus can be modified to benefit the public and orient the ASU practitioner a person with competencies and skills that are capable of responding to specific medical and health concerns.
- The review on the status of ASU education & practice is being conducted by the PI on the behest of Department of AYUSH.

Purpose And Scope of Review

The purpose of the review is to answer the following questions:

1. Does the CCIM ASU Curriculum identify and provide the necessary skills, knowledge, and experience to turn out practitioners that inspire confidence in providing medical and public health care collaboratively and in a variety of health settings?

Does the CCIM ASU Curriculum have sufficient practical content and application to equip the graduate/ postgraduate with competencies and skills to make him a sought after health provider because of his special training? The scope of the review will include:

- *Structure/*format year- to-year
- *Terminology* to ensure consistency with the objective of preparing the graduate /post-graduate for using his knowledge and skills for practical application in the areas of research/education/industry but predominantly practice.
- *Content* to ensure current relevance, focus on preventive, promotive and curative health in practical terms based on ASU principles
- *Description of additional tools and resources* needed to upgrade the practical aspects of teaching with the aim of producing good physicians for the benefit of society.

Guidelines for Respondent

• In your review you should consider whether the objectives (both theoretical and practical), the duration of course, the assessment/instructional tools, and equipments/supplies are sufficient and appropriate.

- Each section should contain some response, however brief, to indicate that you have assessed this aspect of the program. Please answer questions you feel you are qualified to respond to based on your experience/training, in greater depth.
- We value your input which is aimed at informing policy-makers about the knowledge and skills presently given to the ASU students through the curriculum and a projection of the practical suggestions of stakeholders. There are a number of way that you can contribute:
 - Provide a postal submission by 30 October, 2010. Receipt of submissions will be acknowledged. If no response is received the designations and addresses of those that did not join the consultation will be listed to show efforts made to involve maximum stakeholders.
 - > Complete an online questionnaire by 30 October, 2010
 - Have a phone interview during October 2010 if you wish to give only a limited suggestion. Project staff will conduct the interview during October, 2010. Participants will be contacted in advance to arrange a suitable time.
 - If you would like to participate in a phone interview please complete the following to enable us to contact you. Responses will be acknowledged on receipt.
 - Contact Information:
 - > Name:
 - Role: Student/Teacher/Administrator
- For more information, please contact Smt. Shailaja Chandra: shailajachandra1@gmail.com
- Once completed, this form must be submitted directly to the Principal Investigator. The address is as follows:

Smt. Shailaja Chandra Room 502 Central Council for Research in Unani Medicine 61-65, Institutional Area Opp. D-Block Janakpuri New Delhi-110 058 (India) (Mark all correspondence with Response to Education Questionnaire in Bold on the cover.)

ASU Curriculum Evaluation Questionnaire

(To be completed by respondent)

Section A: Respondent Information

Name of Program Being Evaluated: BAMS/BSMS/BUMS/MD/MS (Ay)(Siddha)(Unani)

Name of the Institute:						
Respondent's Name:						
Position/Title:						
Years of Combined Experience and Education in Field:						
Mailing Address:						
Telephone:	E-mail:	Fax:				

Section B: Curriculum Evaluation

(NOTE: Please answer only those questions you feel you are qualified to based on your experience/training)

- 1. Does the curriculum description capture the types of duties a graduate can expect to perform in the work environment? Please explain.
- 2. Do you feel that the program length is sufficient to produce graduates with the required entry-level knowledge skills and competencies required to function as a confident, ASU practitioner? Please explain.

Section C: Admission Requirements

- 3. Do you feel that the present program entrance/admission requirements ensure that students possessing basic knowledge and background enter the program? Please explain.
- 4 Do you feel specific subjects (e.g.Maths/Physics/Chemistry/Biology) for entrance/admission are required to fulfill course objectives? Please explain.

Section D: Curriculum Content

- 5. Does the sequencing of training (i.e. order of subjects presented) within the curriculum properly address course pre-requisites and/or co-requisites? Are there any subjects within the program you feel should be pre-requisites for other subjects, but have not been identified? Please explain.
- 6. Is the time allocated to EACH subject sufficient, excessive, or inadequate from the point of view of building competencies to practice ASU? Please explain.
- 7. Do you feel that all necessary learning objectives are included within the individual subjects? Please explain and suggest or give examples of what should be additionally included/excluded.
- 8. Are there any subjects that contain learning objectives not particularly relevant to the subject/program? Please specify, providing a rationale or examples where necessary.
- 9. Are there areas in the examination requirements that need to be revised or removed because they are outside the prescribed competencies and skills expected of an ASU practitioner? Please specify and give a rationale or examples where necessary.
- 10. Do you feel that there is a proper balance between theory (i.e. classroom) and practice (i.e. lab/ clinics?) Please explain where greater practical application is called for.

Section E: Resources

- 11. Do you feel that the tools, equipment and/or supplies listed for practical components of the curriculum are satisfactory for program delivery (i.e. do they support the learning objectives of the program)? Please explain.
- 12. Are the textbooks listed with the curriculum adequate for program delivery (i.e., are the textbooks sufficiently updated and relevant considering the present revival of interest in traditional medicine. Please explain.
- 13. Do you feel there is adequate learning resources (i.e. print media, audio-visual materials, etc.) provided for program delivery to actively engage students? Please explain.
- 14. Do you feel that instruction is reinforced with appropriate technical inputs (i.e., computer software, hardware, etc)? Please explain where you feel change is required.
- 15. Is there specialized equipment, textbooks, software or other resources which you feel are not listed but would strengthen the delivery of this program from a future practitioner's point of view? Please specify, providing a rationale where necessary.

Section F: Program Instruction/Evaluation Methods

16. Are there any instructional methods that you would suggest for subject/program delivery? Please specify, providing a rationale and good examples observed elsewhere if relevant.

- 17. Do you feel that the methods of evaluation used for this are program appropriate? Is there an adequate balance of theoretical and practical assessment conducted for each course)? Please explain.
- 18. Do you have recommendations for additional evaluation methods which would ensure student involvement and competency? Please specify, providing a rationale where necessary.
- 19. What qualifications and experience do you feel will be required for potential instructors hired to teach core competencies/subjects/allopathic content within this program?Please specify, providing a rationale where necessary.
- 20. Are there specific courses within the program that require a different combination of training, experience and clinical exposure than that which is presently provided generally by the teaching faculty ? Please specify areas /subjects/ practical classes,

Section G: Graduation Requirements/Employment Requirements

- 21. Are the requirements for successful completion (i.e. passing grades of subjects, internship term completion, etc) of the program sufficient? Please explain.
- 22. Please list in order of priority three most important type(s) of job options available to graduates of ASU medicine, selecting from Private Practice, resident in general hospitals/ Nursing Homes, further studies like P.hd, MBA,Research, industry (labs and/or quality control).

Section H: Internship Term

- 23. Do you feel that the internship term is appropriately placed within the program? Please explain.
- 24. Are the objectives of the internship term clear and sufficient to further build on the students' knowledge and skill level already developed? Please explain.
- 25. Is the duration of the internship training adequate to reinforce, and allow students to make a practical application of, the theoretical concepts already learned? Please explain.
- 26. Are the evaluation methods utilized for the internship term appropriate? Please explain.

Section I: Practice

- 27. In your view what kind of modification is needed in the syllabus to be able to cater to the medical needs of people both in urban and rural areas where the ASU practitioner essentially represents the ASU system but is equipped to deal with critical situations when no allopathic practitioner may be available.
- 28. Are you aware of any states/government orders which allow the ASU practitioner or integrated medicine practitioner to prescribe drugs and conduct certain interventions using allopathic systems/ medication?Give details where you can
- 29. It is stated at different public fora that the ASU practitioner hardly uses his ASU knowledge and skills as a practitioner as he has to provide services as per public demand and choice which calls for quick relief.
- 30. To what extent does each part of the prescribed syllabus refer to knowledge as contained in the selected ASU texts and mastery of Sanskrit/ Urdu and how much does it deal with knowledge and skills that will be of direct relevance to providing ASU treatment to patients?
- 31. Is there scope to include more applied Ayurveda approaches, techniques and skills which would be relevant to rural areas, or to specific disease oriented target groups where Ayurveda or Siddha or Unani has a clear strength?
- 32. Can you suggest a few examples which do not find place in the syllabus but which are very important only to give an idea of what kind of competencies can be included under ASU which would be useful and sought after by beneficiaries that search for gentler alternatives to interventions based on chemical drugs?
- 33. Do you think that the functions of curriculum design should be handled by special agencies/groups that are conversant with the deficiencies in health manpower and the search for treatment of chronic diseases, auto-immune diseases and intractable conditions?
- 34. Do you think that a periodic review of each academic program is needed to maintain relevance and promote excellence? If yes, how frequently should the program be reviewed?

Section I: Additional Comments

Please provide any additional comments regarding this program you feel have not been addressed.

Section J: Respondent Declaration

I certify that my participation in the study is purely voluntary and the responses given by me were based on my own individual perception and I am not compelled to respond in any particular way by the investigators or by any other authority.

Name:

Date of Completion:

Signature:

Telephone Number:

Annexure-III

List of Ayurveda, Siddha and Unani Colleges to whom Questionnaires were sent by Post

Ayurvedic Colleges

- 1. Dr. BRKR Ayurved College, SR Nagar, Hyderabad–500038 (Andhra Pradesh)
- 2. Dr. NR Sastry Government Ayurvedic College, Besides VK Super Bazar, Bandar Road, Vijayawada–520002 (Andhra Pradesh)
- 3. Government Ayurved College, Jalukbari, Guwahati–781004 (Assam)
- 4. Government Ayurved College, Post-graduate Training & Research Institute, Kadam Kuan, Patna–800003 (Bihar)
- 5. Ravindranath Mukherji Ayurved College, District Champaran, Motihari–845401 (Bihar)
- Rajkiya Ayodhya Shivkumar Ayurved Mahavidyalaya, Begusarai–850101 (Bihar)
- Swami Raghwendracharya Tridandi Ayurved Mahavidyalaya, Karjara Station, PO Manjholi, Gaya–823001 (Bihar)
- Shri Motisingh Jageshwari Ayurved College & Hospital, Baratelpa, Chhapra–841301, District Saran (Bihar)
- 9. Ayurved Mahavidyalaya, Ghughi Chowk, Gaya–823001 (Bihar)
- Rajiv Lochan Ayurved Medical College, Village Chandkhuri, Post Chandkhuri, Gunderdehi Road, District Durg-491221 (Chhatisgarh)
- Chhatisgarh Ayurved Medical College, GE Road, Manky, Rajnandgaon–491441 (Chhatisgarh)
- Bharteeya Sanskrit Prabodhini Gomantak Ayurved Mahavidyalaya & Research Centre, Vajem, Shiroda–403103, District South Goa (Goa)
- JS Ayurved Mahavidyalaya, College Road, Nadiad–387001 (Gujarat)
- Government Ayurved Mahavidyalaya, Ajwa Road, Baroda–390001 (Gujarat)
- Aryakanya Shudha Ayurved Mahavidyalaya Ayurved Hospital, Kareli Bagh, Baroda– 390018 (Gujarat)
- Government Ayurved College, Sadar Bagh, Junagarh–362001 (Gujarat)
- Shri Balahanuman Ayurved Mahavidyalaya, Lodra, Tamansa, District Gandhinagar (Gujarat)
- Shri Gangadhar Shastri Gune Ayurved Mahavidyalaya, Vishrambag, Ahmednagar–

414001 (Maharashtra)

- Govindbhai Jorabhai Patil Ayurved Medical College, PB No. 2, Vallabh Nagar, Vidyanagar–388121 (Gujarat)
- Shri Gulab Kunverba Ayurved Mahavidyalaya, Dhanwantri Mandir, Jamnagar–361008 (Gujarat)
- Institute of Post-graduate Training & Research, Gujarat Ayurved University, Jamnagar– 361001 (Gujarat)
- 22. Shri Maru Singh Memorial Mahila Ayurved Degree College, Kanya Gurukul, Khanpur Kalan, Sonepat–124301 (Haryana)
- Gaur Brahmin Ayurved College & Hospital, Village Branmanawas, District Rohtak– 124001 (Haryana)
- 24. Shri Krishna Government Ayurved College, Near DC Residence, Umri Road, Kurukshetra– 132118 (Haryana)
- 25. Chaudhary Devilal College of Ayurveda, Bhagwan Parshuram Education Trust, Ambala Road, Jagadhri–135003 (Haryana)
- 26. Rajiv Gandhi Rajkiya Government Ayurvedic Post-graduate College, District Kangra, Paprola–176115 (Himachal Pradesh)
- Jammu Institute of Ayurved & Research, Muthi, Nardhani Raipur Ban, Talab Road, Jammu Tawi–181123 (Jammu & Kashmir)
- Surya Mukhi Dinesh Ayurved College & Hospital, Dinesh Nagram Booty, Ranchi– 835217 (Jharkhand)
- 29. JSS Ayurved Medical College, Shri Shivaratheshwara Nagar, Mysore–570015 (Karnataka)
- Government Ayurved College & Hospital, Vishweshwariah Circle, Sayaj Rao Road, Mysore–570021 (Karnataka)
- Government Ayurved College, Dhanwantri Road, Bangalore–560009 (Karnataka)
- 32. Government Taranath Ayurved College, Anantapur Road, Ballary–583101(Karnataka)
- Ashwini Educational Association's Ayurved College, 1851/33, Anjaneya Layout, Davangare –577004 (Karnataka)
- Shri Vijay Mahenthesh Ayurvedic Medical College, PB No.15, Ilkal, District Bagalkot– 587125 (Karnataka)

- Bapuji Ayurvedic Medical College, Rajendra Nagar, Main Road, Shimoga-577201 (Karnataka)
- Shri JG Cooperative Hospital Ayurved Medical College, Ghataprabha, District Belgaum– 591321 (Karnataka)
- Shri Kalabhairaveshwara Swami Ayurved College, No.10, Pipe Line Road, RPC Layout, (Adichunchangiri Matt), Vijayanagar, Bangalore–560040 (Karnataka)
- Indian Institute of Ayurvedic Medicine & Research, Bangalore Palace Compound, Jaya Mahal Road, Bangalore–560006 (Karnataka)
- Shri Jagadguru Gavisiddeshwar Sansthan, Gavimath, Koppal–583231 (Karnataka)
- 40. Shri Hingulambika Education Society Ayurved College, Sidramrao Astikar Marg, Bhavani Nagar, Maktampura, Gulbarga-585101 (Karnataka)
- 41. Shri Basaveshwar Vidya Vardhak Sangha Ayurved College, Bagalkot–587101 (Bijapur) (Karnataka)
- 42. Gramin Ayurved Medical College, Tq. Jamkhandi, Terdal, District Bagalkot–587315 (Karnataka)
- 43. Shri SBS Ayurved College, Mundargi, District Gadag–582118 (Karnataka)
- 44. Bhagvan Mahavir Jain Ayurved College, Gajendergarh, District Gadag–582114 (Karnataka)
- 45. Rama Krishna Ayurved College, No. 2345/ 2185, Ramana College Road, Kamakshi Palaya, Magadi Road, Bangalore–560079 (Karnataka)
- 46. Shri DM College of Ayurved, Laxminarayan Nagar, P.O. Kuthapady, Udupi–574118 (Karnataka)
- Karnataka Ayurved College, KECT Tower, Near Daivjna, Kalyan Mantap, Hoige Bail, Ashok Nagar, PO Mangalore (Karnataka)
- Shushrutha Ayurved College, No. 5, Sy. No. 23, Kathriguppe BSK, Illrd Stage, Bangalore– 560085 (Karnataka)
- 49. Ashwini Ayurvedic Medical College & Research Centre, Ring Road, Maralur, Tumkur–572105 (Karnataka)
- 50. Acharya Desh Bhushan Ayurved Medical College, Bedkihal, Shamanewadi (Shanti Nagar), District Belgaon–591214 (Karnataka)
- Government Ayurved College, Dhanwantri Nagar, P.O. Tripunitura, District Ernakulam– 682301 (Kerala)

- 52. Nangelil Ayurved College, Nellikuzhi, PO Kothamangalam, Nangelil, Ernakullam– 686691 (Kerala)
- 53. PN Panicker Sauhruda Ayurved Medical College, PN Panicker Sauhruda Trust, Parakalai, Kanhangad, Kasaragod (Kerala)
- 54. Vaidyaratnam Ayurved College, Ollur, Thalkkattusseryh, Trichur–680322 (Kerala)
- 55. VPS Varier Ayurved College, Kottakkal, District Malappuram, Edarikode–676501 (Kerala)
- Mannam Ayurved Medical College, The Mannam Sugar Mills Cooperative Ltd., 4324, Pandalam–689501 (Kerala)
- 57. Parrasianikkadavu Ayurved College, PO Parassiaikkadavu, District Kannur–670563 (Kerala)
- College of Ayurved Medical College & Hospital, Bara Ghat, Jhansi Road, Gwalior– 474001 (Madhya Pradesh)
- 59. Government Dhanwantri Ayurved College, Mangalnath Road, Ujjain–465001 (Madhya Pradesh)
- 60. Pt. Shivshaktilal Sharma Ayurved Mahavidyalaya, 497, Katju Nagar, Ratlam (Madhya Pradesh)
- 61. Shaskiya Swashasi Ashtanga Ayurved Mahavidyalaya, Lok Manya Nagar, Keshar Bagh Road, Indore–452009 (Madhya Pradesh)
- 62. Subh Deep Ayurved College, 11, Press Complex, AB Road, Indore (Madhya Pradesh)
- 63. Government Ayurved College & Hospital, New Outdoor Building, Rewa–484001 (Madhya Pradesh)
- 64. Pt. Khushilal Sharma Government (Autonomus) Ayurved College & Institute, Science Hills, Behind Mani, Bhopal–462003 (Madhya Pradesh)
- Veenavadini Ayurved College & Hospital, Opp. Shriram Mandir, Chuna Bhatti, Kolar Road, Bhopal–460001(Madhya Pradesh)
- 66. Ramrao Patil Ayurved Mahavidyalaya & Rugnalaya Purna, Tq. Purna, District Parbhani (Maharashtra)
- 67. Rural Institute of Ayurveda & Research Center Hospital, Myaniat Vidyagiri, Myani, Tal. Khatav, District Satara (Maharashtra)
- JJ Magadum Ayurved Medical College, Shirolwadi Road, Jaisinghpur, District Kolhapur–416101 (Maharashtra)
- Mahatma Gandhi Ayurved College, Hospital & Research Centre, Swangi, Meghe, Salod Hirapur Mousa Area, Wardha (Maharashtra)

- Ashvin Rural Ayurved College, Sadhvi Preeti Sudhaji Maharaj Nagar, Manchi Hill, Ashvi B.K., Tal. Sangamner, District Adhmednagar– 413714 (Maharashtra)
- Dhanwantari Ayurved College, Infront of Kala Mandir, Nanded Road, Udgir, District Latur– 413517 (Maharashtra)
- 72. Annasaheb Dange Ayurved College, Ashta, Tal. Valva, District Sangali–416301 (Maharashtra)
- 73. Manjara Ayurved College & Hospital, C/o Zilla Parishad Boys School Gandhi Maidan, Bhoi Gall, Latur–413531 (Maharashtra)
- 74. Jupiter Ayurved College & Tarini Ayurved Hospital, Sawarkar Nagar, Khamla Road, Nagpur–440015 (Maharashtra)
- 75. Dr. Dy Patil Pratishtan Ayurved College, Pimpri, Pune–411018 (Maharashtra)
- 76. Padamshri Dr. Vitthal Rao Vikhl Patil Foundation Ayurved College, Shevgaon, District Ahmednagar (Maharashtra)
- 77. Shri Saptashrungi Ayurved College, Yashwant Mandai, Ravivar Peth, District Nasik–422001 (Maharashtra)
- Lt. Sunil Ramshingji Chunawale Ayurved College, Deen Dayal Nagar, Chikhli, District Buldana–443201 (Maharashtra)
- Shri Gajanan Maharaj Sansthan Ayurved Mahavidyalaya, Pusad, District Yeotmal– 445204 (Maharashtra)
- 80. Vidarbha Ayurved Mahavidyalaya, Hanuman Vyayam Nagar, Amrawati–444605 (Maharashtra)
- Bhau Saheb Maulak Ayurved Mahavidyalaya, Great Nag Road, Nandanwan, Nagpur– 440009 (Maharashtra)
- Nalasopara Ayurved College (Swargiya Shri Suresh Nursingh Dube), PO Nalasopara, Tal. Vasai, District Thane–401209 (Maharashtra)
- 83. RJVS Bhaisaheb Sawant Ayurved Mahavidyalaya, Sutikagriha Campus, Khaskilwada Sawantwadi, District Sindhu Durg–416 510 (Maharashtra)
- 84. Yerala Medical Trust & Ayurved College, Sector No.4, Kharghar Station, Navi Mumbai, District Raigad, Mumbai–400614 (Maharashtra)
- 85. Chaitanya Ayurved Mahavidyala, Sakegaon, Bhusawal, District Jalgaon–425201 (Maharashtra)
- Dada Saheb Surupsingh Naik Ayurved Mahavidyalaya, Shri Suwalal Bafna, Vidyanagar, Mumbai Agra Mahamarg,

Nangaon, Dhule-424004 (Maharashtra)

- 87. Hanuman Shikshan Prasarak Mandal's Ayurved Mahavidyalaya, Peth, Vadegaon, Tal. Hatkanangale, District Kolhapur (Maharashtra)
- Seth Govindji Raoji Ayurved Mahavidylaya, 21/A/13, Budwar Peth, Samarat Chowk, Sholapur–413002 (Maharashtra)
- 89. College of Ayurveda & Research Centre, Akurdi, Pune–411044 (Maharashtra)
- Ayurved Mahavidyalaya, Shri Shivaji Nagar, Rahuri, Ahmednagar–413706 (Maharashtra)
- 91. Vasant Dada Patil Ayurved College, South Shivajinagar, Sangli–416416 (Maharashtra)
- 92. Karmvir Vyanketrao Tanaji Randhir Ayurved College, Boradi, Tal. Shirpur, Dhule–425428 (Maharashtra)
- 93. Ayurved Mahavidyalaya, Ganeshwadi, Panchavati, Nasik–422003 (Maharashtra)
- Kaviraj Ananta Tripathy Sharma Ayurved Mahavidyalaya, Ankushpur, Ganjam– 761100 (Orissa)
- Sri Nrusinghnath Ayurved College & Research Institute, Nrusinghnath, PO Paikmal, District Bargarh–768039 (Orissa)
- 96. SMBT Ayurved College, Nandihills, Dhamangaon, Teh. Igatpuri, District Nasik (Maharashtra)
- 97. Dayanand Ayurved College, Mahatma Hans Raj Marg, Jallandhar City–144008 (Punjab)
- Shaheed Kartar Singh Sarabha Ayurved College & Hospital, VPO Sarabha, District Ludhiana (Punjab)
- Smt. Urmila Devi Ayurvedic College & Hospital, VPO Kharkhan, Una Road, Hoshiarpur–146001 (Punjab)
- 100. SSMD Ayurvedic College & Hospital, GT Road, Moga–142001 (Punjab)
- 101. National Institute of Ayurved, Madhav Vilas Palace, Amer Road, Jaipur–302002 (Rajasthan)
- 102. JR's Tantia Shri Ganganagar College of Ayurvedic Sciences, Hanumangarh Road, Ricco, Sriganganagar (Rajasthan)
- 103. Sri Sairam Ayurveda Medical College, Leo Nagar, Tambaram West, Chennai–600044 (Tamil Nadu)
- 104. Government Gurukul Ayurved College, Gurukul Kangari, Haridwar–249404 (Uttarakhand)
- 105. Government Rishikul Ayurved College, Haridwar–249401 (Uttarakhand)

- 106. Uttaranchal Ayurved College, Ayurved Estate17, Old Mussorie Road, Rajpur, Dehradun–248009 (Uttarakhand)
- 107. Padamshri Dr. Dy Patil College of Ayurveda and Research Institute, Nerul, Navi Mumbai, Sector 7, Mumbai–400706
- 108. Sri Sai Ayurved College & Hospital, Sarsol, GT Road, Aligarh–202001 (Uttar Pradesh)
- 109. Patanjali Bhartiya Ayurvigyan Avum Anusandhan Sansthan, Patanjali Yog Peeth, Maharishi Dayanand Gram, Near Bahadrabad, Haridwar–249402 (Uttarakhand)
- Desh Bhagat Ayurvedic College & Hospital, Post Box No.78, Mandi Gobindgarh, District Fatehgarh Sahib–147301 (Punjab)
- 111. Shri Radha Krishna Toshniwal Ayurved Mahavidyalaya, Station Road, Akola–444001 (Maharashtra)
- 112. Kisan Dnyanoday Mandal Gudhe's Ayurved College, Maharaja Pratap Housing Society, Anna Saheb Sonusing Patilnagar, Chalisgaon, District Jalgaon (Maharashtra)
- 113. Smt. KC Ajmera Ayurved Mahavidyalaya, Dayasagar Educational Campus, Deopur Dhule–424 202 (Maharashtra)
- 114. Yashwant Ayurved Mahavidyalaya, PO Kodoli, District Kolhapur–416114 (Maharashtra)

Siddha Colleges

- Government Siddha Medical College, Palayamkottai, Tirunevlveli–627002 (Tamil Nadu)
- 2. Government Siddha Medical Collge, Arumbakkam, Chennai (Tamil Nadu)
- Akila Thiruvithamcore Siddha Vaidya Sangam Siddha Maruthuva Kallory & Hospital, Munchirari, Kanyakumari (Tamil Nadu)
- 4. Sri Sai Ram Siddha Medical College & Research Centre, Chennai (Tamil Nadu)
- 5. Velumailu Siddha Medical College, Sriperumbudur, Kancheepuram (Tamil Nadu)
- 6. Santhigiri Siddha Medical College, Thiruvanathapuram (Kerala)
- 7. National Institute of Siddha Tambaram, Chennai (Tamil Nadu)
- 8. RVS Siddha Medical College, 242 B, Trichy Road, Sulur (Tamil Nadu)

Unani Colleges

- Government Nizamia Tibbia College, Hyderabad (Andhra Pradesh)
- 2. Dr. Abdul Haq Unani Medical College, Kurnool (Andhra Pradesh)
- 3. Government Tibbi College, Patna (Bihar)
- 4. Zulfequar Haider Unani Medical College, Siwan (Bihar)
- 5. Salfia Unani Medical College, District Darbhanga (Bihar)
- 6. Nizamia Unani Medical College and Hospital, Dumri, District Gaya (Bihar)
- 7. Mohsin-e-Millat Unani Medical College, Raipur (Chhatisgarh)
- 8. Ayurvedic & Unani Tibbia College, Karol Bagh, New Delhi
- 9. Jamia Hamdard (Deemed University), Hamdard Nagar, New Delhi
- Unani Medical College, Institute of Asian Medical Sciences, Srinagar (Jammu & Kashmir)
- Kashmir Tibbia College, Srinagar (Jammu & Kashmir)
- 12. Government Unani Medical College, Bangalore (Karnataka)
- Luqman Unani Medical College, Bijapur (Karnataka)
- 14. Tipu Sultan Unani Medical College, Gulbarga (Karnataka)
- 15. HMS Unani Medical College, Tumkur (Karnataka)
- National Institute of Unani Medicine, Kottigepalya, Magadi Main Road, Bangalore (Karnataka)
- Saifia Hamidia Unani Tibbia College, Burhanpur (Madhya Pradesh)
- Al-Farooque Unani Tibbia College, Indore (Madhya Pradesh)
- 19. HSZH Government Unani Medical College, Bhopal (Madhya Pradesh)
- 20. HAH Unani Medical College, Dewas (Madhya Pradesh)
- 21. Anjuman-i-Islam's Dr. M. Ishaq Jamkhanawala Tibbia Unani Medical College, Mumbai (Maharashtra)
- 22. Mohammadia Tibbia College and Assayer Hospital, Malegaon, District Nasik (Maharashtra)
- 23. ZVM Unani Medical College, Pune (Maharashtra)

- 24. Ahmed Gharib Unani Medical College, Nandurbar (Maharashtra)
- 25. Iqra Unani Medical College, Jalgaon (Maharashtra)
- 26. Rajputana Unani Medical College, Jaipur (Rajasthan)
- 27. Rajasthan Unani Medical College, Jaipur (Rajasthan)
- 28. Government Unani Medical College, Chennai (Tamil Nadu)
- 29. State Unani Medical College, Allahabad (Uttar Pradesh)
- 30. State Takmil-ut-Tib College, Lucknow (Uttar Pradesh)
- 31. Jamia Tibbia, Deoband, Saharanpur (Uttar Pradesh)
- 32. Ibn-e-Sina Tibbia College, District Azamgarh (Uttar Pradesh)

- Deoband Unani Medical College, Saharanpur (Uttar Pradesh)
- 34. Allama Iqbal Unani Medical College, Muzaffarnagar (Uttar Pradesh)
- 35. Aligarh Unani Medical College, Aligarh (Uttar Pradesh)
- 36. SGM Unani Medical College, District Ghazipur (Uttar Pradesh)
- 37. Eram Unani Medical College, Lucknow (Uttar Pradesh)
- Dr. Abdul Ali Tibbiya College, Lucknow (Uttar Pradesh)
- 39. Ajmal Khan Tibbia College, Aligarh Muslim University, Aligarh (Uttar Pradesh)
- 40. Calcutta Unani Medical College, Kolkata (West Bengal)
- 41. Yunus Fazlani Medical College & Al-Fazlani Unani Hospital, Aurangabad (Maharashtra)

Annexure-IV List of the Experts consulted

Ayurveda

Experts consulted at Mumbai

- 1. Milind Mahaiskar, Secretary Medical Education, Maharashtra.
- 2. Dr. KR Kohli, Director ISM, Maharashtra.
- 3. Dr. PU Deshmukh, Dean, RA Podar Ayurved College, Worli, Mumbai.
- 4. Dr. Satish Shah, Trustee, Ayurved College, Sion, Mumbai.
- 5. Dr. Gajanan Pol, Trustee, Yerala Ayurved College, Kharghar, Navi Mumbai.
- 6. Dr. VV Doiphode, Trustee, Tilak Ayurved College, Pune.
- 7. Dr. Omprakash Dube, Trustee, Nallasopara Ayurved College, Dist.Thane.
- 8. Dr. Tathed, Dean, Yerala Ayurved College, Kharghar, Navi Mumbai.
- 9. Dr. Ajay Salunke, Principal, Smt. KGMP Ayurved College, Charniroad, Mumbai.
- 10. Dr. RN Gangal, Principal, Tilak Ayurved College, Pune.
- 11. Dr. Dineshchandra Goradia, Ayurved Medical Practitioner.
- 12. Dr. Sanjay P Chhajed, Ayurved Medical Practitioner.
- 13. Dr. Prasad Vaidya, Ayurved Medical Practitioner.
- 14. Dr. Dattatraya B Muzumdar, Ayurved Medical Practitioner.
- 15. Dr. Kakani, Ayurved Medical Practitioner.
- 16. Dr. Vilas Nanal, Ayurved Medical Practitioner.
- 17. Dr. Ramesh Deshmukh, Ayurved Medical Practitioner.
- Dr. DV Shukla, Asso.Professor, RA Podar Ayurved College, Worli, Mumbai.
- 19. Dr. Kavindra Singh, Trustee, Nallasopara Ayurved College, Dist.Thane

- 20. Dr. Anirudha Tripathi, Ayurved Medical Practitioner.
- 21. Dr. Dipak D Goradia, Ayurved Medical Practitioner.

Experts consulted at Raipur

- 1. Dr. GS Badesha, Director AYUSH, Chattisgarh.
- 2. Dr. AT Dabke, Vice Chancellor, Health University, Raipur.
- 3. Dr. DK Tiwari, Principal Ayurveda College.
- 4. Dr. DK Kataria, Prof. (Basic Principles) Ayu. College.
- 5. Dr. S Mohanty, Prof. (Ras Shastra) Ayu. College.
- 6. Dr. BP Sharma, Prof. (Dravyaguna) Ayu. College.
- 7. Dr. Suraj Agrawal, Prof (PSM) Ayu. Medical College.
- 8. Dr. BP Tikehriha, Prof (Physiology), Ayu. Medical College.
- 9. Dr. Basant Sharma, Reader, Sharir Rachna, Ayu. College.
- 10. Dr. Leela Pandey, Reader, Sharir Kriya, Ayu. College.
- 11. Dr. SK Sharma, Reader, Swasthavritt, Ayu. College.
- 12. Dr. RN Tripathi, Reader, Kaya Chikitsa, Ayu. College.
- 13. Dr. SK Ahirwar, Reader, Shalya Chikitsa, Ayu. College.
- 14. Dr. N Satpute, Lecturer, Rog nidan, Ayu. College.
- 15. Dr. R Deewan, Lecturer, Kaya Chikitsa, Ayu. College.
- 16. Dr. G Ratre, Lecturer, Basic Principles, Ayu. College.
- 17. Dr. RP Gupta, Reader, Dravyaguna, Ayu. College.

Experts consulted at Bengaluru

In Chair: Shri GN Srikantaiah, Director, Ayurveda

- 1. Dr. MA Jafri, Director, NIUM
- 2. Dr. Jaya Prakash Narayan, Vice President, CCIM
- 3. Dr. SM Angadi, Rtd. AYUSH Director
- 4. Dr. HT Srinivas, Joint Director AYUSH
- 5. Dr. Sumitra T Gouda, Professor, Govt Ayurvedic Medical College, Bengaluru
- Dr. Ashalatha, Professor, Govt Ayurvedic Medical College, Bengaluru
- 7. Dr. Iqbal Memon, Principal, Govt Unani Medical College, Bengaluru
- 8. Dr. Nagendrayya, Professor, Govt Ayurvedic Medical, Bengaluru
- 9. Dr. BG Patil, Principal, Ayurvedic Medical College, Gadag
- Dr. Srinivas Prasad, Principal Ayurvedic Medical College, Belgaum
- 11. Dr. PN Rao, Principal Ayurveda Medical College, Hassan
- 12. Dr. Navaneeth Prasad, MS Ramaiah Medical College, Bengaluru
- 13. Dr. KC Ballal, Former CCIM Member
- 14. JSD Pani, President, Indian Medicine Manufacturers' Association
- 15. Niranjan Murthy, Pentacare, Ayur Pharma, Hassan
- 16. Rajiv Vaasudevan, MD, Ayurvaid Hospital, Bengaluru
- 17. Dr. Bairesh, Ayurved Hospital, Bengaluru
- 18. Mr Shivakumar, Admin Bengaluru
- 19. Vijay Paani, Ayurpark, Bengaluru
- 20. Dr Padmanabha Rao, Ayurveda practitioner

Experts consulted at National Institute of Ayurveda, Jaipur

- 1. Prof. Ajay Kumar Sharma, Director NIA Jaipur
- 2. Prof. Mahendra Singh Meena, Professor & Dean

- Prof. Abhimanyu Kumar, Professor & HOD of Bala Roga
- 4. Prof. Hemant Kushwaha, Professor & HOD of Shalya Tantra
- 5. Dr. K Shankar Rao, Associate Professor (Rasa Shastra)
- 6. Dr. Ram Kishore Joshi, Associate Professor (Kayachikitsa) & RMO
- Dr. Hem Raj Meena, Assistant Professor (Sharir Kriya)
- Dr. Yogesh Kumar Pandey, Lecturer (Kayachikitsa)
- 9. Dr. Vikas Bhatnagar, Lecturer (Sharir Rachana)
- 10. Dr. Ashok Kumar, Lecturer (Shalya Tantra)
- 11. Dr. Narinder Singh, Lecturer (Shalya Tantra)
- 12. Dr. Sri Prakash, Lecturer
- 13. Vd. Banwari Lal Mishra, Ayurveda Practitioner
- 14. Dr. Sahdev Arya, Ayurveda Practitioner
- 15. Dr. Rajesh Kotecha, Ayurveda Practioner

Experts consulted at Jamnagar

- 1. Prof. MS Baghel, Director, IPGT&RA.
- 2. Prof. HM Chandola, Prof. & Head, Department of Kayachikitsa.
- Prof. KS Dhiman, Prof. & Head, Department of Shalakyatantra.
- 4. Dr. KS Patel, Reader & Head, Department of Kaumarbhritya
- 5. Dr. AB Thakar, Reader Department of Panchakarma.
- Dr. AR Dave, Reader Department of Kayachikitsa
- 7. Dr. Hitesh A Vyas, Senior Lecturer, Department of Basic Principles
- 8. Dr. BR Patel, Lecturer, Department of Dravyaguna
- Dr. Rajgopal, Lecturer, Department of Kaumarbhritya
- 10. Dr. Shubhangi Kamble, Lecturer, Department of Basic Principles.

Siddha

List of Siddha experts consulted

Central Govt officers

- 1. Dr. K Manickavasagam. Director I/c, National Institute of Siddha, Chennai
- 2. Dr. T Anandan, Director I/c, Central Research Institute, (S), Chennai
- Dr. Saraswathy, Assistant Director, Captain Srinivasa Moorthy Research Institute, Chennai
- 4. Dr. C Anbarasi, Research Associate Sri Ramachandra Medical University, Chennai
- 5. Dr. K Anbarasan, Assistant Medical Officer, Karur District
- 6. Dr. K Palanichamy

State Govt. officers

- 7. Thiru M Chandrasekaran IAS., Director, Indian Medicine and Homoeopathy Department
- 8. Dr. G Ganapathy, Consultant NRHM Scheme, Chennai
- Dr. S Ramalekshmi Ammal, Joint Director I/c, Indian Medicine and Homoeopathy Department
- 10. Dr. Kumar, State Drug Licensing Authority(IM)
- Dr. V Tamilarasan Drug Inspector / District Siddha Medical Officer
- Dr. PM Krishna Kumar Drug Inspector / District Siddha Medical Officer

Academicians & Practioners

- 1. Dr. G Veluchamy (Former Director CCRAS)
- 2. Dr. P Jeyaprakash Narayanan
- 3. Dr. AM Abdul Kadher, Principal, Government Siddha Medical College, Chennai
- 4. Dr. Parthiban, Professor, Government Siddha Medical College, Chennai
- 5. Dr. Shaik Shahul Hameed, Principal, Government Unani Medical College, Chennai
- Dr. N Manavalan, Principal, Government Yoga and Naturopathy Medical College, Chennai

- Dr. FA Raja, Assistant Medical Officer (H), Government Kilpauk Medical College & Hospital Dispensary, Chennai
- Dr. Venthamarai Selvi, Assistant Medical Officer, Arignar Anna Government Hospital of Indian Medicine, Chennai – 600 106
- 9. Dr. TR Siddique Ali, Chennai
- 10. Dr. L Shiv Kumar, Chennai

Manufacturers

- 11. Thiru Ramanathan, Marketting Manager, Tampcol; Chennai
- 12. Dr. (Hakim) Syed Ameen
- 13. Thiru R Gunasekaran
- 14. Thiru Kannan
- 15. Thiru Vijay A Metha

Siddha faculty members at the Siddha Medical College & Hospital, Chennai

- 1. Dr. Aruna
- 2. Dr. Siddique Ali
- 3. Dr. Venthamarai Selvi
- 4. Dr. Rani
- 5. Dr. Manimegalai
- 6. Dr. Saravana Devi
- 7. Dr. Geetha Devi
- 8. Dr. Shamim
- 9. Dr. Malliga
- 10. Dr. Meena Kumari

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Experts consulted at CCRUM headquarters

In Chair: Prof. S Shakir Jameel, DG, CCRUM

- 1. Prof. S Khaleefuthullah, Vice President, CCIM
- 2. Prof. KMY Amin, Deptt. of Ilmul Advia, Ajmal Khan Tibbiya College, AMU, Aligarh
- 3. Hkm. SA Tamanna, Majeedia Hospital, Jamia Hamdard, New Delhi
- 4. Dr. Mohammad Yousuf, Former Dy Director, RRIUM, Srinagar, J&K

- 5. Hkm. Sirajuddin Ahmad, Proprietor, Drugs Laboratories, Meerut
- Prof. Syed Zillur Rahman, Founder, President, Ibn Sena Academy, Aligarh & Former Dean, Faculty of Unani Medicine, AMU, Aligarh.
- 7. Prof. TA Siddiqui, Dean Faculty of Medicine (Unani), Jamia Hamdard, New Delhi
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- 9. Dr. Ahmad Yasin, Principal A&U Tibbia College, Karol Bagh, New Delhi
- Prof. BS Usmani, Former Principal & HOD Kulliyat Dr MIJTUM College & HAR Kalsekar Hospital, Mumbai
- 11. Prof. Saad Usmani, Principal, Unani Medical College, Allahabad.
- 12. Prof. SM Ashraf, Former Chairman, Department of Moalijat, AKTC, Aligarh

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- 17. Dr. Mubashshera Begum, Chennai
- 18. Dr. B Habibullah, Chennai
- 19. Dr. Dilip Yadav, Unani Medical Officer Unani Dispendary, Raipur
- 20. Dr. FU Faruqui, Unani Medical Officer Unani Dispendary, Durg
- 21. Hkm. Zillur Rehman, Shifa Medicines, New Delhi