

# Teaching reforms required for Ayurveda

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## ABSTRACT

This article concerns the 20th century saga of Ayurvedic Education up to the current situation, based on a general appreciation of knowledge in Ayurveda. In this light, it considers how to improve quality of teaching and teachers. This is most important, because in education, teachers are the custodians of tradition and knowledge. As those most responsible for maintaining or restoring quality, teachers have very important roles to play. The article also treats 'learning and teaching': who should learn Ayurveda, and how to teach Ayurveda so that it continues from generation to generation, leading to the final area of consideration, reforms in teaching Ayurveda, and future prospects.

**Key words:** Ayurveda, teaching reforms, Ayurveda pedagogy.

## INTRODUCTION

### Ayurveda fundamentals

As is well-known, the word Ayurveda means "Science (Veda) of Life (Ayus) or Lifespan". Ayurveda deals with lifespan, it has procedures to determine whether lifespan will be short or long. It deals with properties and activities of vital and fatal substances. It states: "*Hitabitam, sukham dukkham, Ayustasya Hitabitam, Manam cha taccha Yatroktam, Ayurvedassa uchyaate*", a sloka encapsulating all that medical science has said of the patient. What is *sukha* or *asukha*? What is *sukha* to Mr. A, may not be *sukha* to Mr. B. Accordingly, *sukha* pertains to the individual, while *hita* and *abita* are relevant at community level. Who is *hita*, beneficial to the society? Who is *abita*, a problem to society? Ayurveda is all-encompassing, it covers the entire community, both the levels of the individual, and society.

What is Ayurveda's objective? What its purpose? "*Svasthanya svasthya rakshanam*": protection, preservation, and promotion of the health of the healthy. No other medical science today speaks of maintaining the health of healthy people as one of its objectives. Also, "*Vikara*

*prashamanam*": pacifying the disease of the diseased. Of Ayurveda's significance, Charakacharya states:

*"The wise regard the science of life as the supreme science, because it teaches mankind what constitutes good in both worlds, here and hereafter. That is the importance of Ayurveda."*

Who needs Ayurveda Education? Is it the student, who needs it, or the teacher who needs it? It is said: "*Cha Adhyetavya, Brahmana Raja, Anya Vaishyah*". Not as a religion is it to be studied, but by the scientist, the *Brahmana*, as in "*Brahma jnanam tu Brahmanaba*." Why? "*Praninam Brahmanab*": for the benefit of the fellow beings, the *Brahmana* or scientist has to learn it. "*Rajanyah arakshatha*", for Kings to give protection to their subjects, and offer wonderful governance. To achieve this, the ruler, the *Raja*, needs education in Ayurveda; "*Vrittyasya vaishyah*", businessmen have to know how to conduct their professional business correctly; the people: *Samanyato va Dharma Artha Kama*, to obtain *Dharma Artha Kama*, and finally to attain *Moksha*. Ayurveda is there for these to obtain *trivarga*, and maintain it. Ayurveda is not just for students wanting to learn it, or for the teacher, it is for the entire community, scientists, administrators, business people, and the general public, Ayurveda is part of life itself.

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Received: 15-Apr-2010

Revised: 28-Apr-2010

Accepted: 30-May-2010

DOI: 10.4103/0975-9476.65075

### Ayurveda education in India

The development of the modern system of Ayurveda education from 1870 to 1970 has been a great saga. Table 1 summarizes it. *Ayurvedacharya*, the present course, began in Jaipur under the name, Ayurveda Shastra, in 1870. In 1906 the Maharaja of Mysore started the first official college (including Unani). After ups and downs of policy

**Table 1: History of Ayurveda education in India 1870 - 1977**

Date	Place	Action
1870	Jaipur, Rajasthan	Ayurveda Shastra (later Ayurvedacharya) Bhishagvara, Bhishagvaracharya.
1906	Mysore	Government Ayurvedic and Unani College,
	Ayurveda Vidvat	'Licenciate in Ayurveda Medicine and Surgery', (LAMS)
1910	Delhi	All India Ayurvedic Congress with its Educational Division, Akhil Bharatiya Ayurveda Vidyapith (ABAV) + affiliated Vidyalyas
1930		50 Ayurveda Educational Institutions under ABAV
1946	Delhi	Chopra committee, combine Ayurveda with Western Medicine (Nehru)
1955	Delhi	Dave committee recommended a degree course of 5 1/2 years.
1958	Delhi	Udapa committee: develop Ayurveda (education) on scientific lines, Fill in gaps by modern scientific methods as necessary
1962	Delhi	Committee under Mudaliar, integrated system to be discontinued, Teaching of Shuddha Ayurveda begins
1970	Delhi	Central Council of Indian Medicine (CCIM) constituted
1977	Delhi	CCIM Ayurvedacharya, currently sole recognized Ayurveda degree Bachelor in Ayurvedic Medicine and Surgery, BAMS

reversals by various government committees following independence, the Central Council for Indian Medicine (CCIM) was constituted by Act of Parliament in 1970. Minimum qualifications for admission to Ayurveda courses were fixed, as were the required number of courses of study and practical training; subjects of examinations and standards of proficiency to be obtained were finalized; requirements for staff standards, numbers in each department, equipment, accommodation, training and other facilities; conduct of professional examinations, qualifications for examiners, and conditions for admission to examinations, all were prescribed.

In 1977, *Ayurvedacharya* was retained as the sole course leading to an Ayurveda Degree, called Bachelor of Ayurveda Medicine (BAMS). Eligibility read, "Admission

**Table 2: Rationalization of Ayurveda degrees**

Previous UG degrees	Previous diplomas	Graduate degrees
Ayurvedacharya,	DAM	GAMS, Graduate in Ayurvedic Medicine
ABMS,	DAMS	GCAM, Grad. of Coll. of AV Medicine
AMS		GCIM, Grad. of Coll of Indian Medicine
ASF.		(Grad of Course of Integrated Medicine)
BAMMS, Bachelor of Ayurveda with Modern Medicine and Surgery.		
BSAM, Bachelor of Shuddha Ayurveda Medicine.		
<b>Today's Course</b>		
Ayurvedacharya	5½ year Bachelor of Ayurveda Medicine (BAMS) course	
Ayurveda Vachaspati	3 year Doctor of Medicine in Ayurveda MD (Ayurveda) CCIM	

to the BAMS degree course is open to students who have passed the second year pre-university examination, and in some states, pre-university," i.e. 10 years + 2 years of board examination, or any other equivalent examination. For the last three years minimum percentages required in Physics, Chemistry and Biology have been raised to 50%. All this rationalization is summarized in Tables 1 and 2, with present day numbers of colleges in Table 3.

This number is more or less equal to the number of medical colleges, but admission to those is much higher. In MBBS alone, there are 30,000 seats with 10,000 post-graduate seats.

Post Graduate Degrees in Ayurveda are given in Table 4. As indicated, old courses combining specialties, have been replaced by separate courses e.g. panchakarma is now a degree course, instead of coming under Kayachikitsa. Manasa roga is completely new; some colleges have already started offering it.

### Present day action

Today, the system is in a state of crisis. The Department of Ayurveda, Yoga, Unani, Siddha and Homeopathy (AYUSH), is concerned that the majority of qualified Ayurvedic practitioners have resorted to practicing biomedicine. To try and help, discrete consultations have been held with practitioners throughout the country. When asked why they are not practicing the system in which

**Table 3: Colleges**

System	UG Colleges	#places	PG Options	#places
Ayurveda	253	12,265	71	1,234
Unani	41	1,865	8	107
Siddha	9	360	4	138
Total	303 AU and S	13,490	83	1,479

they were trained, the answer comes that they need more confidence. The knowledge obtained from their colleges did not instill it. To practice Ayurveda alone as a specialty, they need more effective, confident knowledge. We are now going about providing it.

For 35 years, the syllabus was not translated into English. The responsible body is the Central Council of Indian Medicine, of which the President is Vaidya Raghunandan Sharma-ji, one of the most dynamic in our history. The translation has now been done and circulated, so that teachers have been able to look into the syllabus. This is something they felt strongly about, saying it needs a lot of change. Recently, we held a workshop in Bangalore, to which 500 experts representing the cream of our Ayurveda teachers were invited. They suggested changes to suit present day needs. These have now been implemented.

The council decided to inculcate the expertise required for Ayurveda practitioners to practice Ayurveda alone, in two years study. Since there are only 1,234 post-graduate degree places [Table 3], we decided to introduce two year post-graduate diploma courses. The syllabus has been designed, circulated, and sent to the Government of India for notification. It has already been finalized in the following subjects: *Panchakarma*, *Ksharakarma*, Ayurveda Pharmaceutics, *Tvakroga*, Ayurvedic Dietetics, *Patha apathya*, *Svasta vritta* and *Yoga*, *Prasuti*, *Striroga*, *Balaroga*, Ayurvedic pharmacognosy and standardization under *Dravyaguna vijnana*, *Manasika svasthya* (psychiatry), and *Netraroga vijnana*.

With regard to the last, I recently had occasion to visit a 300 bed Ayurveda hospital near Cochin, Trishur, exclusively for eye problems. It was Sunday, but more than 200 outpatients were waiting for consultations. They treat all cases left over by ophthalmologists in western medicine, and they manage them. The majority of the patients claim to feel much better after having gone there. In this area, Ayurveda can definitely contribute. That is why we have started the post graduate diploma in *Netraroga vijnana*.

*Rasayana* (rejuvenation) and *Vajikarana* (potency): Ayurveda is perhaps the only system with these specialties. With its aim of creating the best progeny, Ayurveda's system of *Vajikarana* is different in outlook from anything else available. Ayurvedic *Vajikarana* is a very great specialty, but it is not practiced by people with proper qualifications. In conventional medicine, geriatrics is important. So *rasayana* and *Vajikarana* could also be a specialty. Also *sajna harana* and *chhaya evam vikina vijnana*, *marma evam asthi chikitsa*, a number of centers in Tamil Nadu and Kerala, have *marma* vaidyas doing great work with fractures (*asthi bhagna*) and things like that, which they treat with Ayurveda medications and stimulation of certain *marma* pointa. Also *Roga Nidhana*

*Vidhi*, diagnostic techniques could be part of a diploma in clinical medicine, like those in western medicine. We have proposed such courses starting in the next academic year – see Table 4.

### The role of the teacher

Only teachers can carry through the educational reforms needed to restore Ayurveda, but they must have the right qualities: Charakacharya enumerated wonderful qualities that teachers should exhibit. We need to produce teachers who exemplify them, then glory will return to Ayurveda. This is what Charaka says: teachers should be completely conversant with what they teach, and skilful with words. Without the latter, how can they communicate effectively with students? Unless they are well informed, with internal understanding, how can they teach students? They should be well respected, with much practical experience. Teachers with experience, with hands on knowledge, communicate far more effectively. They should be well equipped with every necessary instrument. Teachers should be dextrous, industrious and intelligent; pure, virtuous, honest, sincere, candid, straightforward, pleasing and compliant; also judicious, with reason and sound judgment, balanced temper and disposition. Teachers need to be committed, expert in perception, observation, knowledge and intellectual judgment; confident in what they teach. Their knowledge should be balanced, genuine and blameless.

**Table 4: Specialities for Ayurveda PG degrees**

Siddhanta
Darshana
Samhita
Rachana Sharira
Kriya Sharira
Roga Nidana
Vikriti Vijnana
Kayachikitsa
Panchakarma
Manasa roga
Dravyaguna
Rasashastra
Bhaishajyakalpana
Prasuti Tantra
Striroga
Kaumara Bhritya
Samanya Shalya Tantra
Shalya Kara Karma
Anushastra Karma
Shalakya: Karna, Nasa, Kantha, Shiroroga
Shalakya Netraroga Vijnana
Svasta Vritta
Sajna Harana
Chhaya tatha Vikirna Vijnana
Agada Tantra
Vyavahara Ayurveda

They should have humility, be free from self-conceit, and envy (especially of successful colleagues); content, comfortable and cheerful, with fortitude and forbearance, and much perseverance; affectionate towards students they are advising, treating them as brothers and sisters. All these qualities teachers must possess.

The Dept of AYUSH recently noted that Ayurveda practitioners have a feeling of inferiority to practitioners of conventional medicine. Communication was also found to be poor. This is unnecessary. There are great teachers with lots of knowledge, they just need to communicate better.

### Learning Ayurveda

Teachers are also learning Ayurveda. There are three ways to do so. They should not just give lectures, *adhyapanam*, they must also read and study, *adhyayanam*. That is very important. Undergraduate training should be a platform for life-long learning for teacher and students. *Adhyapanam* is one of the oldest forms of large group teaching. Whatever their reputation, lectures transfer concepts and core knowledge to large groups efficiently. They can stimulate interest, and direct student learning. Conversely, students should be given a measure of control over their own learning, not telling teachers what to teach, but clarifying subject areas where they want more knowledge. N.B. Students' feedback requests not having to learn unnecessary details. We need to reduce information overload.

Lecturing well requires participating in colloquia (*Tadvid Sambhashanam*), normal practice today in superspeciality hospitals: with critical patients, the physician concerned gathers all the experts around a table, where everything is discussed, and a solution determined. This does not happen in Ayurveda. Our teachers should incorporate such problem based learning into teaching practice. India is soon going to be the world capital of diabetes (and hypertension). What should Ayurveda do? Treat it as an *Apyaryadhi* and leave it at that? By using such cases to train students and practitioners to face them forthrightly, problem based learning can develop the confidence of both.

Like their teachers, students should have good knowledge of *Prakriti*, nature, character, constitutional type, understanding their own constitution (*Deha prakriti*), and Ayurveda's recommendations for it. Final year students, when asked, should know, which now, when asked, they mostly do not. Equally, every college should know the number of students it has in each prakriti type.

A related topic is dosha involvement, *samprapti*, and how to arrive at it. Here, we should encourage Ayurvedic lifestyle, *Dinacharya*, *Ritucharya*, *Patha Apathya* among students.

Teachers should set the example, and act as role models, rising at *Brahmi Muhurtam*. They should know *Dinacharya* and *Ritucharya*, and follow it. In most colleges, the house surgeons don't know the day's *Ritu*, nor what *Dinacharya* is to be followed.

In this regard, when CCIM members visit Ayurveda colleges and dinner is organized with the students, they often serve milkshake and ice cream, which in Ayurveda is *Atmya Ahara*. With this example, how can we graduate students following diet and daily routine? It's impossible! As teachers we must be role models and set the right example. This is important. It is essential that we encourage it.

To help this, Bangalore's Ayurveda Academy has started a 10 day residential program, in which students and teachers live in the same place following all recommended *Ritucharya* and *Dinacharya*: on rising in the morning, *Abhyanga* with the correct oil for their *Prakriti*, followed by *Vjyama*. The entire day is devoted to a specified program including *adhyayanam*, study of Ayurvedic classics. Unless students study the original classics, they will not understand real Ayurveda at all.<sup>[1]</sup> Too many cannot even read the original classics, let alone understand them.

This program produces huge changes in student attitudes. At Bangalore's Ayurveda academy, Ayurveda students are now genuinely interested in practicing Ayurveda in any situation, even first aid, to manage with Ayurvedic Medicine. The results contrast to most Ayurveda hospitals and colleges, where whatever is in their pharmacy or dispensary is given. Ayurveda colleges should have their own pharmacies, where fresh preparations like *svarasas*, and *kashayams*, decoctions, are prepared.

In short, this program is essential. CCIM has been requested to conduct similar programs throughout the country, to encourage Ayurvedic textual training. This in itself will encourage continued reading of the texts, and make undergraduate training a platform for life-long learning: once a first degree is finished, it is not the end, only the beginning.

Deliberate reduction of factual knowledge is happening in many ways, replacing didactic teaching with problem-based learning directed by the students themselves.

### Ashtanga yoga and rasayanas: The need to implement the knowledge

*Ashtanga Ayurveda* together with fundamental concepts need to be understood in contemporary ways without disturbing traditional Ayurveda's rules and values. Not all the *Ashtangas* are fully practiced today, neither *Manasaroga* nor *Vishavaidyaka*, *Agada tantra*, *rasayana* or *Vajikarana*.



Different chapters on *rasayana* and *Vajikarana* must be put into practice. Vaidyas must 'walk the talk'.

According to Shangadhar, an individual loses a basic quality of life every ten years: *Bahyam Vriddhi Chavi Meda Trak Drishtih Shukravikramau Buddhi Karmendriyam Chetu Jivitam Hrasat*. Each decade, a person loses a particular quality. At 10 years, *Bahyam*, infancy. Brain growth is maximum after two decades. Thereafter no immunization will help the individual. *Svarna vacha* has to be given, *Svarna prashana* etc. to make immunity strong the entire life.

At 20 years, *Vriddhi*, growth stops. *rasayanas* are needed earlier to complete the process. By the end of the second decade, the epiphysial ends of the bones are closed, so how can growth continue? Ages 20 to 30 are called Chavi, the best part of one's life. Ask a person to move a mountain, and they have all the strength, vigor and vitality to do so. After 30, in the 4<sup>th</sup> decade, comes decline. From 20 to 30, Ayurveda suggests certain *rasayanas* to be given, to sustain strength later. Chyavanaprash is now sent everywhere as a food supplement. But will it help if taken at age 60? Not to the same extent as if it is started in youth. A recent article on old age onset said it starts at 20! An experiment observed skin cells dying at age 20, which can be seen at 30, the skin being a tissue by which age can be assessed. So if you don't want to look 30 years old at 30, you must start taking *rasayanas* at 20. Only then can you prevent it. Hence *rasayanas* should start being taken at age 20 to 30.

40 to 50 similarly: osteoarthritis starts at 40, but you can't prevent it once it has started and degeneration is already present. Also presbyopia develops: eye tonics need to be taken before that, not when the problem arises. Cataract: has to be prevented: *Saptamrita lobas anjanas* should be taken earlier, not when a cataract comes. Everything is there in Ayurveda, but neither patients nor the public are told.

This is a loss: Ayurveda's first aspect is prevention of disease and promotion of health. Biomedicine's idea of the doctor-patient relationship, that patients should approach doctors only when sick or ill, prevents their practice. But Ayurveda says that the healthy should consult Vaidyas in order to maintain their health. Today, we do not tell the people, "Come to me even though you are healthy, and I will help you maintain your health, and not have problems." These things must be introduced. That's what we need to bring back the glory, practice all of the eight Ashtangas. Teachers have to teach them, and encourage their practice. Ashtanga Ayurveda needs to be understood.

#### The need of ayurveda research protocols

Today's world encourages evidence-based teaching and practice, another important point. I am convinced that

Ayurveda is evidence-based. Why? Charaka and Sushruta give dosage, posology, and various combinations, stating what is *Satmya*, and *Asatmya*. Unless such things came in dreams, they must have conducted tests, but their way of arriving at dosages is unknown. We need to develop evidence bases for everything suggested in Ayurveda. Today, only biomedical protocols are available; we need our own.<sup>[2]</sup>

#### Teaching and lecturing methods

Deliberately reduce factual knowledge; replace didactic teaching with problem based learning directed by the students themselves. Sushruta always did that. That is why his students learned well and practiced their profession. Traditional classroom teaching is old fashioned; too detailed, producing doctors with poor interpersonal skills. Rather we must improve doctors' interpersonal skills, so they can train students to be empathetic and relate better to patients and their problems. Students should learn to feel patients' pain. "This patient is really suffering. I must do something", is how they should respond, not "My professor has asked me to dispense this medicine", and then dispense and go away. Unless teachers themselves possess such empathy, they will be unable to inculcate it.

Before becoming Regius Professor of Medicine at Oxford, Sir William Osler was chief physician at Johns Hopkins Hospital, Baltimore. The methods he introduced led to his becoming known as the 'Father of Modern Medicine'. It was his idea to have residents, so they could directly experience clinical practice at first hand – patients suffering, and how their pain was relieved. His book, "The Principles and Practice of Medicine", became a bible for students and clinicians alike. Of teaching, he specifically says, "Who is a successful teacher? The successful teacher is no longer he who pumps knowledge at high pressure into passive receptacles. He is a senior student, anxious to help his juniors," an attitude he exemplified.

Teaching should thus be hospital-oriented, and clinically oriented; then students remember well. Didactic teaching, lectures and tutorials, is outdated spoon-feeding, stifling creative thinking, keeping students inferior. In contrast, problem-based learning is liberating and humane. It works by a combination of group discussion and individual research, where students set their own learning objectives, strategy and pace. That is what I mean by student learning.

#### Lecture delivery: Some hints

Lectures are still necessary, but should be effective. Many students have told me of teachers who dictate notes given to them many years previously when they were at college. What impression do such teachers create? Teachers should rather consider how each lecture fits into the course or

curriculum, construct and deliver their lectures in that light, and improve their own understanding. Students, equally, should obtain copies of lecture and tutorial lists for each course, and how the course and lectures will be assessed.

Here are points to improve lectures:

- Use concrete examples to illustrate abstract principles,
- Give handouts of the lecture slides with space to write notes.
- Allow for pauses in delivery for students to write notes.
- Check for understanding by asking questions or by running mini quizes.
- Keep students attentive so they are able to understand.
- There is an ancient Chinese proverb, "Tell me and I forget, Show me and I remember, Involve me and I understand."

Students should feel involved for that very purpose. An example is given in Box A.

Students' interactions influence their recall of lecture content – no student activity, no understanding. Student involvement improves understanding, it is important. So is lecture structure – see the Box B on Lecture Plans. The Sample lecture may be summarized as, "*Say what you are going to say, say it, and say what you have said.*" If you do this, students will not forget. Problem oriented lectures also need student involvement in discussions and awareness of alternatives. End of Lecture Test (Box C) and Evaluation Forms (Box D) can also help.

### Lecture delivery

Consider different possible media for delivering lectures. What is available at the venue, with which you are familiar? Even primary school children are computer literate today. Teachers must be too, there is no alternative. The medium

should best illustrate concepts and themes to be taught, and also encourage students to learn through interaction. (Many teachers don't want interactions.) This must be overcome.

As regards helping students improve their learning: Handouts can definitely help. They should summarize major themes, avoid exhaustive explanations, and provide a scaffold on which students can build their understanding of a topic, so giving students more time to listen and think. Then they will encourage better learning. Include, exercises, questions and reading lists; these help direct further learning.

### Curriculum

A recent meeting with the Secretary, Department of AYUSH, concerned learning Ayurveda correctly. In ancient times, the gurukula system was used. Today, years 1 and 2, should include Sanskrit language, literature, grammar, and logic. Poor Sanskrit is one reason why students do not understand Ayurveda.<sup>[1]</sup>

### Ayurveda padartha vijnana

Ayurveda basic concepts is often considered one of the most boring subjects, but it is only poorly taught, that is the problem. If you understand it properly, the entire logic of Ayurveda treatment and its management is understood. Poor teachers may claim it is a boring subject. That registers.

Our wonderful pharmacology teacher, Subrahmanya Bhat, is an illustration. Most of our teachers wanted seats in clinical subjects, and resented teaching Pharmacology. They would take ages over attendance, complaining about having to teach it, "Such a volatile subject", they would say. "Why study now, you will forget details, don't bother now. Read it up in the last 6 months," were some of their pieces of advice. It would register, "I will certainly fail pharmacology". Over 40% did. Then, fortunately,

## Box A: Identifying sites of cancer secondaries

### A Brief Vignette

After an operation, a cancer patient started developing secondaries in the liver. Prognosis: "maximum survival three months; take him home." His son a doctor from Shimoga in Karnataka, brought him back to Bangalore, where they started counting days. Meanwhile somebody suggested consulting a Vaidya, so they brought the patient to my father; following a pulse diagnosis, Nadi Vijnana, he said the dhana-njaya Nadi was healthy, predicting that the patient would not die for at least another two years.

He said he would treat him. After the patient left, I said to him, as a fresh graduate from medical college, "No, no, papa! These kinds of cases do not survive, when experts in the US have predicted that he will not survive more than three months, he will not live." He replied, "No, I found his Nadi good, we will treat him". Next day, we went to the patient's. Most of his relatives were doctors, gastroenterologists, surgeons, gynecologists; all were there discussing the case. They asked my father, "Panditji, this is a case of secondaries in the liver, how do you understand that in Ayurveda?"

My heart started beating heavily, I thought, how will he answer this? How will he examine him? He asked them to prepare sandalwood paste, which he applied on the entire abdomen, including the right hypochondrium. After some time, a certain portion dried out, and he said to them, "This is the location of the secondaries". Inspecting the CTs, the doctors agreed "Yes, Panditji, that is the place". Later he explained to me, "Because of the secondaries, the circulation is higher in that part of the liver. The paste dried up there first, because the temperature is elevated. In the liver pitta is higher, so the heat generated dries up that part faster."

That was how my father demonstrated locations of liver secondaries. I can't still forget it - which goes to show the importance of student involvement. Postscript: the patient survived for exactly two years, only developing complications for a couple of months at the end before he died.

## Box B: Lecture plans

### Sample lecture

*Sthapana*: Outline the purpose of the lecture, describe themes to be covered,  
First key point: outline and explain, illustrate with an example, repeat the point again.  
Optional: student activity to reinforce the first key point.  
Second key point: outline and explain, illustrate with an example, repeat the point again.  
Similarly for other key points. Finally, summarize, repeat main themes, and conclude  
Problem oriented lecture plan  
State problem to be done,  
Offer the solution,  
Discuss its strengths and weaknesses.  
Then give other possible solutions similarly,  
Summarize and conclude.

## Box C: 1 min end of lecture test

Name Date Lecture Title,  
Direction: take a moment to think about this lecture, then answer the following questions.  
What was the most important thing you learnt in today's lecture?  
If you have communicated properly, the student will be able to answer.  
What question remains uppermost in your mind at the end of today's lecture  
What was the least clear point in today's lecture? (Note that so you can correct it.)

## Box D: Evaluation forms

Well informed students come well prepared. Both lecture and lecturer should be evaluated  
Lecture Evaluation: should indicate whether it was:  
Clear? Interesting? Easy to take notes from? Well Organized? Relevant to the Course?  
Lecturer Evaluation: should indicate whether the person was:  
Enthusiastic? Clearly audible? Confident? Clear explanations?  
Encouraged participation?  
Gradation: Strongly agree, Slightly agree, Slightly disagree, or Strongly disagree.

Subrahmanya Bhat became head of department. His classes were 2-3 pm. Students complained, "If there are no classes in the next period, he continues. O! God, this person is a headache." But believe me, he made pharmacology such an interesting subject, even today, I can't forget things he said. Morphine and pathidene doses confuse people: 20mg and 10mg. Pathidene is more, morphene is less. You couldn't forget. He used to say, "A person failing pharmacology is something like dying under the legs of a mosquito. If you fail in medicine or surgery, it is like dying under a big car! How can you fail pharmacology? You can't fail." This is how he encouraged. Starting 2-3 pm, he would continue till 4.30, 5, or 5.30, and we never used to think it was already 5

## Box E: Outline of a 7 year syllabus

### Years: Subjects

1 & 2: Ayurvedic literature including Brihatrayi & Laghutrayi, all to be read at least once.  
Modern Science including necessary: Mathematics, Physics, Chemistry, Biology.  
3 & 4: Aharira, Svastavritta, Dravyaguna, Rasashastra, Bhaishajya Kalpana, Agadatantra, Vikriti vijnana.  
5 & 6: Kayachikitsa, Shalya tantra, Shalakya, Prasuti, Streeroga, and Kaumara Bhritya.  
Final year: Internship – to become a fully fledged doctor, residency experience is essential.  
Given responsibility for patients, emergency, management etc. are learned.

## Box F: Further charaka quotes

*jagatyevam anaushadham* "No plant is without medicinal uses. Efficacy merely requires appropriate use." "There are no limits to Ayurveda's application .... Our duty is to apply it persistently ....."  
"Professional development requires assimilating information without resentment".  
"The entire world is a teacher for the wise, and an enemy of the unwise".  
"Kritsno hi loko buddhim atamacharyah".  
"...the wise should adopt wholesome, agreeable, life-promoting contemporary knowledge."  
These quotes imply that our future quest should be one of research-oriented inquiry. Our attitude must be: keep searching, not stopping anywhere. Ayurveda is an ocean. Answers to all problems are found in its depth.

o'clock. Well I remember him. Pass percentages increased from the previous 35-40% to 80%. Many of my class mates took his pharmacology classes with great interest, and are good pharmacologists today. Everything depends on how teachers communicate what they say.

Developing *pariksha*, diagnostic skills, is primary. "*Anantaram aushadham*", evidence-based practice is secondary. Correct diagnosis permits anybody to plan treatment and administer medicines.

Teaching should focus on personal development. A graduate should have an excellent vocabulary, self confidence, be expert in signification and interpretation, proficient in practice from clinical experience, continued studies, and, especially research. If evidence is not created, nothing will improve. Applying real determination to achieve. The National Ayurveda University, *Rashtriya Ayurveda Vidyapith*, has started identifying teacher's needs. All these qualities must be theirs.

A seven year syllabus is also being developed (see Box E). In its past glory, Ayurveda was known for its openness of 'learning and teaching'. Such a course can restore that.

## CONCLUSION

RE: Integrative Medicine. Studying only a single science gives limited understanding. Physicians should listen to other scientists. Sushruta states "*Ekam shakham adhiyano na vidya shastra nishchayam*". We need exposure to different fields of knowledge. Science, both theoretical and practical, should be learned from experienced teachers. Such students alone become real physicians, others just play that role.

The Glory of Ayurveda cannot be lost in time. We must apply Ayurveda's full wisdom now and in future. "*Ayuh kamayamanena dharmartha sukha sadhanam Ayurvedopadesheshu vidheyah paramadaram*" Those wanting long life, to achieve

right living, wealth and, happiness, should place their faith in Ayurveda's teachings. Its realm has no boundaries. Charaka clearly says that continuing research is essential (see Box F). Only through ceaseless research will we continue to improve Ayurveda and do justice to the foundations laid by its ancient rishis and past generations of vaidyas.

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**Source of Support:** Nil, **Conflict of Interest:** None declared.