USE OF PURIFIED MERCURY IN AYURVEDA AND ITS SAFETY EVALUATION

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Introduction:

Mercury is a chemical element with the symbol Hg and atomic number 80. It is also known as quicksilver or hydrargyrum. Mercury is the only metal that is liquid at standard conditions for temperature and pressure. It has a freezing point of −38.83 °C and boiling point of 356.73 °C. Mercury was found in Egyptian tombs that date from 1500 BC. The element was named after the Roman god Mercury, known for speed and mobility. It is associated with the planet Mercury; the astrological symbol for the planet is also one of the alchemical symbols for the metal; the Indian word for alchemy is Rasavātam which means "the way of mercury". Mercury is the only metal for which the alchemical planetary name became the common name.

Mercury occurs in deposits throughout the world mostly as cinnabar (mercuric sulfide). The mines in Almadén (Spain), Monte Amiata (Italy), and Idrija (now Slovenia) dominated mercury production from the opening of the mine in Almadén 2500 years ago, until new deposits were found at the end of the 19th century.

Mercury is used in thermometers, barometers, manometers, sphygmomanometers, float valves, mercury switches, and other devices though concerns about the element's toxicity have led to mercury thermometers and sphygmomanometers being largely phased out in clinical environments in favor of alcohol-filled, galinstan-filled, digital, or thermistor-based instruments. It remains in use in scientific research applications and in amalgam material for dental restoration. Though it is a poor conductor of heat, it is used in lighting: electricity passed through mercury vapor in a phosphor tube produces short-wave ultraviolet light which then causes the phosphor to fluoresce, making visible light.

In China and Tibet, mercury use was thought to prolong life, heal fractures, and maintain generally good health, although it is now known that exposure to mercury leads to serious adverse health effects. One of the China's emperors, Qín Shǐ Huáng Dì — allegedly buried in a tomb that contained rivers of flowing mercury, on a model of the land he ruled, representative of the rivers of China — was killed by drinking a mercury and powdered jade mixture formulated by Qin alchemists (causing liver failure, mercury poisoning, and brain death) who intended to give him eternal life. The ancient Greeks used mercury in ointments; the ancient Egyptians and the Romans used it in cosmetics which sometimes deformed the face. In Lamanai, once a major city of the Maya civilization, a pool of mercury was found under a marker in a Mesoamerican ballcourt. By 500 BC mercury was used to make amalgams (Medieval Latin amalgama, "alloy of mercury") with other metals. Mercury dissolves to form amalgams with gold, zinc and many other
metals. But iron is an exception. Mercury and its compounds have been used in medicine, although they are much less common today than they once were. The element mercury is an ingredient in dental amalgams. Thiomersal (called *Thimerosal* in the United States) is an organic compound used as a preservative in vaccines, though this use is in decline. Another mercury compound Merbromin (Mercurochrome) is a topical antiseptic used for minor cuts and scrapes is still in use in some countries.

Mercury in the form of one of its common ores, cinnabar, is used in various traditional medicines, especially in traditional Chinese and Indian medicine. Review of its safety has found cinnabar can lead to significant mercury intoxication when heated, consumed in overdose or taken long term, and can have adverse effects at therapeutic doses, though this is typically reversible at therapeutic doses. Although this form of mercury appears less toxic than others, its use in traditional Chinese medicine has not yet been justified as the therapeutic basis for the use of cinnabar is not clear.

Mercury and most of its compounds are extremely toxic and must be handled with care; in cases of spills involving mercury, specific cleaning procedures are used to avoid exposure and contain the spill. Mercury can be inhaled and absorbed through the skin and mucous membranes, so containers of mercury are securely sealed to avoid spills and evaporation. Heating of mercury, or of compounds of mercury that may decompose when heated, is always carried out with adequate ventilation in order to avoid exposure to mercury vapor. The most toxic forms of mercury are its organic compounds, such as dimethylmercury and methylmercury. Inorganic compounds, such as cinnabar are also highly toxic by ingestion or inhalation. Mercury can cause both chronic and acute poisoning.

*Source:* en.wikipedia.org/wiki/Rasa_shastra

**Mercury in Ayurveda:**

There is a specialized branch in Ayurveda that is called *Rasa-Shastra (RS)*. Here term *Rasa* is synonym of *Mercury*; therefore, the word RS literally means the “Science of Mercury”. The evolvement of RS as a specialized branch is traced to the great Buddhist Sage Naagaarjuna. Who is considered as ‘Father of Rasa-Shastra’. It is believed to have come into its proper existence with its scientific classification and documentation around 8th century. Naagaarjuna proclaimed "*Siddhe Rase Karishyaami Nirdaridryamid jagat*" - meaning that I am experimenting with the mercury to eliminate poverty from this world. The main foundation being the concept that the objective of the science of mercury is not limited to Alchemy (*Dhaatu-vaada*) but also to maintain health and strengthen the body for achieving *Moksha* i.e. ultimate salvation. Naagaarjuna is also known for his extraordinary acumen in processing mercury with respect to its alchemic and therapeutic use.

With the advent of Mercury, a miracle substance in those days, a new class of drugs termed as ‘Rasaushadhi’ with a new science termed as ‘Rasa-shastra’ appeared on the horizon of ‘Ayurvedic system of medicine’. Hence, ‘RS’ can be defined as a science of study of mineral and metallic
substances with respect to their therapeutic utility including processing of these substances to prepare a drug. In today’s scientific parlance ‘RS’ can be equated with ‘Iatrochemistry’. Although ‘RS’ deals with the therapeutic of all minerals and metals; it is prominently dominated by knowledge about mercury and techniques of its processing. Physicians using ‘Rasaushadhi’ in the management of disease are known as ‘Rasa-Vaidya’ who was supposed to be superior to their professional counterparts using surgical procedures and plants drugs for treating diseases. As per Ayurved Prakash- (Madhava- 1986)

“Rasavaidyah Smrito Devo Maanusho Moolikaadibhihi, Adhamaha Shastrdhaabhyamtitthaam Vaidyastridhaa Mataha.”


Mercury has many synonyms in RS and each such synonym depicts for itself. Such as; Rasa – capable to absorb all Maha-rasa (Mica etc) and metals (gold etc.). Rasendra – Being supreme to all Maha-rasa. Soot - Creation of healthy cells and tissues in human body. Chapal – Highly motile nature. Parada – to be able to pull out people from the sludge of diseases. Rasaraj – King of all Maha-rasa etc. Besides, all synonyms used for Lord Shiva in Hindu mythology can be used for Mercury. It is described in Rasa text books that Mercury is the semen of Lord Shiva and Sulfur is menses of Goddess Parwati (wife of Shiva). Therefore, the compact union of Mercury and sulfur is always creative.

At the same time, Mercury alone has been termed as highly toxic and poisonous material and carry eight natural toxins within; those may cause the certain ill effects; such as: Naag dosha – wound, Bang dosha – eruption in skin, Agni dosha – burning in body, Mal dosha – stiffness all around, Chapalya dosha – Loss of virility and sexual power, Vish dosha – death, Giri dosha – boils all over body and Asahyagni dosha – Maniac depression. There is always great emphasis that all such doshas of mercury should be eliminated first by performing various processing and then only processed mercury should be used for human consumptions.

Source: Extract from Rasa Ratana Samuchhya and other Rasa Texts

**Ras - Ratnakar** about the properties of processed Mercury

“Hatohanti jaravyadhir murchito vyadhivaatkeh, Baddah khechratam dhatee ko anyam sootaatkripakaharah”

It means that the processed mercury (Bhasma) eliminates all sorrow of oldery age and diseases of body and mind. The bonding of mercury with certain herbs and sulfur provides
khechari – gati (able to fly). There is none material as kind in the universe as aforesaid mercury is for human race!

**Sharanghdhar - Samhita** and processed Mercury:

“Paradah sarvroganaam jeta pushtikarah smritah, Sugyane saadhitah kuryatsansiddhim dehlohayo”.

It means that mercury processed by a scholarly *Rasa-Vaidya* may eliminate all diseases, simultaneously strengthen and stabilize body and mind of people.

**Rasendra - Saar** about the supremacy of processed Mercury:

“Alpamatraapyogitwadsacherprasangatah, shipramarogyadayeitva bhehdjebhyo rasoadhik”

*Parad* (mercury) is best among all medicines as that is effective in low dose and fast acting in the eradication of disease without causing anorexia or other side effects.

**Rasa - Manas** regarding the importance of treatment with Mercury:

“Bhaishajyam trividham proktam devam manushmasuram, rasachurnaksharyogeidevarbhehvaram smritam”

There are three types of treatment; *Devi - chikitsa* (devine treatment), *Manushi - chikitsa* (human treatment) and *Asur - chikitsa* (devil treatment). Rasa is Devi, *Churna* (powder) is *Manushi* and *Kshar* (alkaloids) are *Aasuri* type of treatment.

**Rasa- Tarangini** about the importance of the processing of Mercury with Sulphur (*Gandhak*) and its therapeutic characteristics:

“Vasuvidhvidhisanskritopi sootou rasavibudhairih hingulothtou va, rasaguna balijarnavihino gadganvaarnataam naiti noonam”

Even if Mercury has been purified by carrying *Ashta-Sanskar* (eight steps of purification) or has been extracted from *Hingul* (Cinnabar), but has not undergone six times processing (absorption) with Sulphur, then, it will never be completely therapeutically potent. Therefore, it is a must to do six times absorption of Sulphur into Mercury to make it therapeutically potent.

“Sametu gandhake jeerne samanygadnaashnah, Dwigune tu visheshena maharog vidhunnah.
The mercury that has absorbed equal amount of Sulphur will treat all general types of diseases. The Mercury that has absorbed two times Sulphur in it could eliminate major disorders. When sulphur is absorbed thrice by the mercury then that will have special properties of enhancing fertility and reversal of aging process. The four times processed mercury with Sulphur will increase energy, enthusiasm, intelligence and memory. The five times Sulphur absorbed mercury can treat remaining disorder and the mercury that has absorbed six times Sulphur will do many types wonders!

**Chemical nature of Mercury in Ayurvedic formulations:**

Now, it is evident that mercury has a distinguished place in Ayurveda. It has been accorded the status of God as it is synonym to Lord Shiva in Ayurvedic text. On the contrary, it is also a fact that Mercury is a highly toxic element to the living body. Such phenomenon about the toxicity of Mercury has been very well described in classical Rasa text and modern chemistry. Very interestingly, while organic amalgam of Mercury may cause substantial harm to the body tissues, the inorganic amalgam of mercury, more specifically with Sulphur can bring substantial relief to the injured living tissues. Prior to proceed further, one should understand the chemistry part of Mercury and it is undergoing sequential changes during the processing of Ayurvedic formulations. Here, we quote *Rasa-Sindoor* which is a well known complex mixture of processed Mercury and Sulphur.

*Ras-Sindoor* is a well known mercury based bhasma prescribed for certain diseases, viz. syphilis, genital disorders and also for rejuvenation purposes. In this formulation, the combination of sulfur is believed to have neutralized the toxicity of mercury. *Rasa Sindoor* sample was prepared from raw material obtained from the pharmacy of the Institute of Medical Sciences, Banaras Hindu University, Varanasi. Mercury so obtained was purified through sublimation. For purification of the sulfur, the traditional method using cow’s milk and ghee (a milk preparation) was employed. In this method, sulfur mixed with ghee was heated up to its melting temperature and the resulting liquid is poured through a filter into a vessel containing boiled milk. Sulfur was on the bottom of this vessel. This process was repeated seven times and the final deposited product was taken out, washed with hot water and dried. Mercury and sulfur thus purified in the ratio (1:6) were mixed with the juice of the aerial root of Banyan tree (*Ficus benghalensis Linn.*). This mixture was placed in an iron mortar and crushed till the whole mixture was converted into a fine black, lusterless powder (*Kajjali*). This fine powder *Kajjali* was filled in a glass bottle (*Kach Kupi*) and heated in a controlled intermittent manner with gradually increasing temperature till the blue flame emerging
from the pot disappear and the bottom of the bottle becomes red hot. A red hot iron rod was repeatedly inserted in the neck of the bottle so as to burn any accumulated sulfur at the neck of the bottle. After adequate cooling, the sublimate deposited at the neck of the bottle was collected. The whole heating process required is 7-8 hrs and the highest needed temperature was 650°C.

XRD analysis of Kajjali shows peaks due to free sulfur, mercury oxide and mercury sulfide while the XRD pattern of Ras-Sindoor shows peaks only due to mercury sulfide. No extra diffraction peaks were observed in the case of Ras-Sindoor confirming that while in the initial stages of the processing of the medicine (before the heat treatment) mercury oxide and free sulfur are present in significant amount while after heat treatment only mercury sulfide remains in the product. The diffraction peaks in the XRD pattern of Ras-Sindoor corresponding to mercury sulfide become sharper and intense compared to Kajjali sample as well as some new peaks appears due to mercury sulfide, which were not present in the Kajjali sample. This observation confirms that the heat treatment of Kajjali helps in the formation of mercury sulfide and increases the crystalline nature of the sample.

TEM image of the drug sample shows spongy like structure with the particle size lying in the micro range. From the image it is clear that several crystallites are agglomerated in a signal particle giving rise to microcrystalline structure with loss of grain boundaries. XPS analysis provides valuable information for the surface state of the drug sample. A typical survey spectrum of the drug Ras-Sindoor confirming the presence of mercury and sulfur was observed.

The fundamental reaction for the generation of Mercury sulfide in a mixture of mercury and sulfur is

\[ S + Hg \leftrightarrow HgS \] 

with \( G^\circ = -46 \text{ KJ/mol} \). This negative free energy change \( G^\circ \) shows the theoretical feasibility of making mercury sulfide by mixing elemental mercury and sulfur. Thus, even before the heat treatment some mercury sulfide is present in Kajjali sample. To increase its proportion heat treatment seems essential. The pharmaceutical processing up to 650°C seems reasonable since sulfur boils at 392°C and mercury at 630°C. Juice of aerial root of Ficus benghalensis Linn serve as acidic medium and this acidic medium helps in formation of mercury sulfide.Macro particle size of the preparation may be attributed to the grinding of raw materials for a long duration as well as the heat treatment which causes the change in the chemical nature of the raw materials. It is in general expectation that organic molecules will burn out at the processing temperature of the bhasma (above 400°C in most of these kinds of preparations). However, the IR and thermal analysis shows the possibility of organic matter in such samples. These could be due to the formation of organo-metallic complexes in the drug samples that can sustain even at the high processing temperature of herbo-metallic drugs.

The studies discussed here are quite promising. Several significant possibilities and future prospects of the drug could be debated with these results. The macro particle size of the drug matches well with the colloidal size and this suggest the possibility that these colloidal particles are get attached to the human intestine and provide a large surface area thereby increasing the absorption of other nutrients and drugs, which are added to it during the process of preparation or prescribed to the patient along with them. Thus, these drugs act as the absorbent. Further, the presence of the organic
matter on the surface of the drug suggests that these organic matter acts as the coating material on the surface of the metallic compound present in the drug and metal compound acts as the carrier of the organic matter (just like the concept of novel drug delivery in the modern medicine) derived from the herbs/plant used during the pharmaceutical processing. In short, Ras-Sindoor acts as a carrier for the organic contents from the aerial root of the Ficus benghalensis which is styptic and immune-modulator and is known to be useful in treatment of syphilis, dysentery, inflammation of liver, etc. It could be concluded that mercury sulfide (HgS) in nano crystalline (20-50 nm) form associated with organic molecules probably plays an important role in making it biocompatible and non-toxic at low doses (dose of Ras-Sindoor is<125 mg/day). Other essential elements present in Ras-Sindoor act as additional supplement and help in increasing the efficacy of the drug. Even after all, the actual biological role of the metal present in such drugs is not very clear. In order to accept such kind of herbo-metallic drugs especially containing heavy metals, an extensive research is needed for the complete pharmacokinetic study on the animal system.


Safety studies of mercury based ayurvedic formulations:

No doubt, Mercury is a known toxic material to all. Hence, there should not be any type of debate on this issue. However, there is centuries old system of medicines called Ayurveda which has given prime importance to mercury as Supreme among all medicines. Hence, there are two poles of ideology; where one speaks about the toxicity of mercury and the other one about its medicinal properties. In recent years few publications blamed that ayurvedic medicines specially prepared using mercury and heavy metals might be harmful to the human body and there were demands at various quarters to ban such medicines.

Ayurveda was developed centuries ago using parameters and protocols using the standards of science and technology of those specific eras. Later, the knowledge was transferred to the generation under Guru-Shishya Parampara (tradition of transferring knowledge from the Master to Student) and remained so on until the education of ayurveda was formally institutionalized. Meanwhile there were some reports about the cases that had developed bad effects after using certain metal-based formulations. In that background, an effort was initiated on the behest of Department of Ayush, Under Union Ministry of Health & Family Welfare, Government of India. Here one of the commonly used Herbo-mineral formulation called Arogyavardhini containing various herbs along with mercury (Kajjali), Lauh bhasma (processed Iron), Abhrak Bhasma (Calcined mica) and Tamra Bhasma (Processed Copper) was subjected to safety studies using modern parameter of the evaluations of safety under the aegis of Department of pharmacology, All India Institute of Medical Sciences, Delhi.
Arogyavardhini vati, has been used for liver and skin disorders in the Ayurvedic system of medicine. However, toxicity due to the presence of heavy metals in this traditional medicine is a matter of concern. **Aim of the study:** To evaluate the safety of Arogyavardhini vati on brain, liver and kidney in rats. **Materials and methods:** Arogyavardhini vati at doses of 50, 250 and 500 mg/kg (1, 5 and 10 times of human equivalent dose respectively), mercury chloride (1 mg/kg) and normal saline were administered orally to male Wistar rats for 28 days. Behavioral parameters were assessed on day 1, 7th, 14th and 28th using Morris water maze, passive avoidance, elevated plus maze and rota rod. Biochemical parameters (acetylcholinesterase activity, malondialdehyde, reduced glutathione), histopathology and mercury level in brain, liver, kidney were assessed at the end of the experiment. **Results:** There was no significant change in behavioral parameters, acetylcholinesterase activity, liver function (ALT, AST, ALP and bilirubin) and kidney (serum urea and creatinine) function tests at all doses of Arogyavardhini vati (50, 250 and 500 mg/kg) as compared to normal control. However, significant change was observed in mercury chloride treated group. Mercury chloride treated group as well as Arogyavardhini vati treated groups (50, 250 and 500 mg/kg) showed increased levels of mercury in brain, liver and kidney as compared to normal control. Histopathological results showed significant cytoarchitectural changes in brain, liver and kidney architecture in mercury chloride treated group. Where as normal cytoarchitecture was observed in all doses of Arogyavardhini vati. **Conclusion:** The finding of the present study suggests that Arogyavardhini vati in the doses equivalent up to 10 times of the human dose administered to rats for 28 days does not have appreciable toxicological effects on brain, liver and kidney.

<table>
<thead>
<tr>
<th>Treatment Groups</th>
<th>Mercury Level (µg/g wet-tissue)</th>
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<tbody>
<tr>
<td></td>
<td>Brain</td>
</tr>
<tr>
<td></td>
<td>Liver</td>
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<tr>
<td></td>
<td>Kidney</td>
</tr>
<tr>
<td>Normal Control</td>
<td>1.84 ± 0.17</td>
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<tr>
<td></td>
<td>13.40 ± 1.03</td>
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<tr>
<td></td>
<td>12.49 ± 1.34</td>
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<tr>
<td>Mercury chloride</td>
<td>151.03 ± 14.13</td>
</tr>
<tr>
<td>(1 mg/kg)</td>
<td>775.02 ± 34.07</td>
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<tr>
<td></td>
<td>948.78 ± 19.70</td>
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<tr>
<td>Arogyavardhini vati (50 mg/kg)</td>
<td>7.11 ± 1.12</td>
</tr>
<tr>
<td></td>
<td>21.01 ± 2.98</td>
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<tr>
<td></td>
<td>23.68 ± 3.78</td>
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<tr>
<td>Arogyavardhini vati (250 mg/kg)</td>
<td>9.36 ± 1.36</td>
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<tr>
<td></td>
<td>26.50 ± 1.89</td>
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<tr>
<td></td>
<td>30.34 ± 5.4</td>
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<tr>
<td>Arogyavardhini vati (500 mg/kg)</td>
<td>13.34 ± 1.90</td>
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<tr>
<td></td>
<td>27.83 ± 3.21</td>
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<td></td>
<td>34.31 ± 2.64</td>
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There are many other classical ayurvedic formulations which are prepared using processed mercury and processed metals in conjunction with various parts of specific herbs. To ascertain the safety of those acute and sub-chronic and chronic safety studies were carried out on the behest of a leading Ayurvedic manufacturer. The result of these studies further establishes that ayurvedic formulations containing processed mercury and *bhasmas* of metals do not cause toxicity to experimental animals.

<table>
<thead>
<tr>
<th>Product Name</th>
<th>Type of Study</th>
<th>Species/Dose</th>
<th>Observation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vasant Kusumakar Rasa</td>
<td>Acute oral</td>
<td>Albino mice <em>oral</em> (2.5, 5, 7.5 gm/kg bw)</td>
<td>No sign of toxicity or mortality</td>
</tr>
<tr>
<td></td>
<td>Undue toxicity</td>
<td>(500 mg/kg IP)</td>
<td>No sign of toxicity or mortality</td>
</tr>
<tr>
<td>Laxmi Vilas Ras</td>
<td>Sub chronic (90 days) oral Dose Range Finding study (14 days repeated feeding)</td>
<td>Male &amp; Female rats. 500 mg/kg bw/day. 31.2; 62.5; 125; 250; 500 mg/kg bw</td>
<td>No significant changes</td>
</tr>
<tr>
<td>Vasant Kusumakar Ras</td>
<td>Chronic (180 days) oral</td>
<td>Male &amp; Female Sprague Dawley Rats 0, 20, 100, 300 mg/kg/day</td>
<td>NOEL 20 mg/kg/bw No significant changes/findings. Incidental findings and not treatment related were liver round cell infiltration, lungs-acute inflammation, kidney-acute inflammation and abscess.</td>
</tr>
<tr>
<td>Vasant Malati Ras</td>
<td>Acute oral Repeated Dose Oral (90</td>
<td>Male &amp; Female Sprague Dawley Rats</td>
<td>LD50&gt;2000mg/kg body wt in Rats &amp; Mice NOEL at 80 mg/kg body wt.</td>
</tr>
<tr>
<td>Name</td>
<td>Route of Administration</td>
<td>Animals</td>
<td>LD50/NOEL</td>
</tr>
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<tr>
<td>Swarna Bhasma</td>
<td>Acute oral, Repeated Dose Oral (90 Days)</td>
<td>Male &amp; Female Sprague Dawley Rats</td>
<td>LD50 &gt; 2000mg/kg body wt in Rats &amp; Mice NOEL at 10 mg/kg body wt.</td>
</tr>
<tr>
<td>Siddha Makardhawaj</td>
<td>Acute oral, Repeated Dose Oral (90 Days)</td>
<td>Male &amp; Female Sprague Dawley Rats</td>
<td>LD50 &gt; 2000mg/kg body wt in Rats &amp; Mice NOEL at 80 mg/kg body wt.</td>
</tr>
<tr>
<td>Ras Raj Ras</td>
<td>Acute oral, Repeated Dose Oral (90 Days)</td>
<td>Male &amp; Female Sprague Dawley Rats</td>
<td>LD50 &gt; 2000mg/kg body wt in Rats &amp; Mice NOEL at 160 mg/kg body wt.</td>
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<tr>
<td>Chandraprabha Vati</td>
<td>Acute oral, Repeated Dose Oral (90 Days)</td>
<td>Male &amp; Female Sprague Dawley Rats</td>
<td>LD50 &gt; 2000mg/kg body wt in Rats &amp; Mice NOEL at 1000 mg/kg body wt.</td>
</tr>
<tr>
<td>Medohar Vidangadi Lauh</td>
<td>Acute oral, Repeated Dose Oral (90 Days)</td>
<td>Male &amp; Female Sprague Dawley Rats</td>
<td>LD50 &gt; 2000mg/kg body wt in Rats &amp; Mice NOEL at 1000 mg/kg body wt.</td>
</tr>
<tr>
<td>Mahayograj Guggulu</td>
<td>Acute oral, Repeated Dose Oral (30 Days)</td>
<td>Male &amp; Female Rats</td>
<td>LD50 b/w 300 to 2000mg/kg body wt in Rats &amp; Mice Tolerance of 10 times of therapeutic dose (875mg/kg/d)</td>
</tr>
<tr>
<td>Mahalakshmivilas Ras</td>
<td>Acute oral, Repeated Dose Oral (30 Days)</td>
<td>Female Wistar Rats &amp; Female Swiss Mice and Female Wistar Rats</td>
<td>LD50 b/w 300 to 2000mg/kg body wt in Rats &amp; Mice Tolerance of 10 times of therapeutic dose (175mg/kg/d)</td>
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</tbody>
</table>
Family Backdrop and Personal Experience:

Incidentally in the year 1960, a patient Mr. Mandar Das Jain, who had been diagnosed earlier for Hodgkin’s Lymphoma infiltrated to bone marrow, was treated by my father late Vaidya Chandra Prakash for curing his bone fever. A formulation called ‘Valipani’ consisting of mercury, sulphur, iron, harar, bhilava, amla, ginger & honey was given to the patient to strengthen the bone marrow. This formulation ‘Valipani’ was earlier used by Guru Maharaj ji of my father for the rejuvenation of his injured bony tissues. The local pathologist working at Meerut informed my father about the unexpected recovery of Mr. Mandar Das Jain. Following this success two more patients of Acute Lymphoblastic leukaemia & chronic leukaemia were treated by using the same formulation. Following initial successes, my father made an attempt to prepare new batch of ‘Valipani’ following similar methods of preparation but the ‘Valipani’ so developed didn’t yield the same success. Several attempts were made but none of the batches was that effective, though some were partially effective. In 1972 my father prepared a compound using copper, mercury & sulphur following the concept of ‘Gandhak Jarana’ described in the clinical text of ‘Ras-Shastra’. This compound named as ‘Amar-72’ was given to a patient Sardar Harcharan Singh who was diagnosed in PGI, Chandigarh for advanced malignancy of Pancreas and was brought to my father in November, 1973 at Meerut for treatment. Sardar Harcharan Singh showed marvelous recovery and now leads a normal life in Ferozpur (Punjab). The ‘Amar-72’ was also given to the patients of colon, bladder & skin cancer and many of them showed good recovery. He continued making mercury based medicines from his home/clinic at Meerut.

The work of my father was evaluated by Central Council of Research in Ayurveda & Siddha (CCRAS), the highest apex body working under Ministry of Health & Family Welfare, Government of India. Unfortunately, CCRAS could not pursue this research work further in-spite of strong recommendation of its fact finding committees in 1983, 1988 and 1996. However, in October 1997, CCRAS supported a pilot study on “Effect of metal based ayurvedic treatment (MBAT) in the treatment of patients of acute pro-myelocytic leukaemia (APML)” where AIIMS, Delhi was involved for the confirmation of diagnosis of disease and then to study the post ayurvedic treatment effect of these patients. This study could establish prima-facie therapeutic effect of MBAT on APML patients without causing any grade II side effect. CCRAS has obtained a joint US & European patent against this innovation.

Source: Vaidya Balendu Prakash, D K Mishra, G C singhal; Monograph on “Effect of metal based ayurvedic treatment in the patients of acute promyelocytic leukaemia”, published by CCRAS, Department fo Ayush, Ministry of Health & Family welfare, Government of India
Rasa-Shastra is one of the eight clinical specialties of Ayurveda. Mercury is the main ingredient of this therapy. Besides that, it contains substances of plant, animal and mineral origin which have moderate to severe irritant/toxic qualities in their raw form. Special methodologies are mentioned in Rasa text to convert these into non-toxic and effective. The process of manufacturing include: **Shodhan – Detoxification**  
**Maran – Grinding**  
**Jaran – Heating**  
It takes one year to three years to prepare one batch of medicine. As mentioned earlier, guidelines of preparation are available in Rasa-text. Personal experience of Ayurvedic Physician might have brought some working modifications. However, the entire process looks very crude especially in the present scientific era. There are numerous instances where Ayurvedic treatment could cure chronic diseases such as cancer, multiple sclerosis, asthma, and hepatitis etc for which the modern system of medicine has no permanent cure. However no systematic scientific studies were carried out to know the science behind the success of Ayurvedic treatment. This resulted not only in domination of the 300 year old modern system of medicine over the 5000 year old Indian System of medicine, but also deprives thousands of poor cancer patients of getting cheap treatment who are dying every day because they cannot afford expensive treatment of modern medicines. It is reported that death rate in cancer is on the rise, by 6% every year in a country like United States of America where best medical care is available to treat cancer patients.

Under the circumstances there is need to explore other ways to control cancer. It is evident now that the Ayurvedic treatment has been effective in curing the cancer patients, but to have it more effective and sustainable results, a great deal of research is required for manufacturing of medicines, analysis and standardization of finished products, assessment of pharmacological effect and designing the treatment protocol. This is the time when all scientific and medical professionals should consider a strategy for ‘drug development program’ so that safe and cheap medicines could be made available for treatment of cancer and other chronic diseases. There is also need for changing the attitude, bring the caliber and dedication in our system and effective community participation. The last but not the least is to look into our deep rooted tradition within the ambit of scientific exploration rather than irrational disapproval. This will also need a strong ‘political will’ which is extremely important for revival of Ayurveda and other traditional Systems of medicines.

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State of Sowa Rigpa in Bhutan

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COUNTRY BACKGROUND

Bhutan is situated between India and China (Tibet) and is totally landlocked. The total land area is only 38,394 square kilometers and the population in 2010 was estimated at 695,822 with Gross National Product (GNP) per capita income of USD 1992/- (NSB, 2010) The country has a forest cover of over 72% attributing to the presence of a rich biological diversity. These forests are home to several endangered species of flora and fauna harboring over 7000 species of plants, 165 species of mammals and 700 species of birds (MOA, 2003). Bhutan is regarded as one of the ten global hot spots in terms of biodiversity and environmental conservation. Apart from its rich biodiversity and natural resources, Bhutan is rich in cultural heritages and one of them is the traditional medical heritage known as Sowa Rigpa.

Bhutan is known as sMen-jhong rGyal-khab, meaning the land of medicinal plants. Above the Indian plains, the country gradually rises from the luxurious jungle of the foothills of 150 meters above sea level to the solitude of the snow-capped peaks, which are as high as 7500 meters above sea level (ITMS, 2010). This difference in altitude, bringing almost tropical vegetation right to the vase of glaciers, has made it possible for plants of extremely different climatic and environmental conditions to grow in the same country. Tropical and subtropical forests are found in the south. Temperate and even Mediterranean plants flourish in the valleys, and very rare plants grow up to 5000 meters. To date, more than 600 medicinal plants have been identified in Bhutan and at least 300 of these are commonly used by practitioners in the country for preparing medicines (ITMS, 2010).

NATIONAL HEALTH CARE SYSTEM

Until the inception of modern health care services in 1961, the traditional medical system including the Sowa Rigpa and local healing systems remained as the mainstream of health care delivery system of the country. After the advent of modern health care services in the country, an integrated health system policy was foreseen as an effective strategy to reach a scattered
population in the rural areas of Bhutan. Therefore, the current national health policy aims to provide well integrated, equitable and balanced health care service delivered through a four tier network system consisting of national, regional and district hospitals followed by Basic Health Units (BHU) at the community level. Based on such integration policy, the Sowa Rigpa medical system was officially incorporated into the mainstream health care delivery system of Bhutan in 1968. It provides primary health care services (PHC) based on eight essential elements. Ever since the launch of PHC, the health status of the people has greatly improved through the effective implementation of PHC components. The integrated health care service services coverage is estimated over 90%.

HISTORY OF SOWA RIGPA IN BHUTAN
Since the Buddhist philosophy is the mainstream of Sowa Rigpa medical practice, its origin is believed to be as old as Buddhism. However, the principles of three humors, diagnostic procedures and treatment regimens were recorded to have been developed in the 7th century in Tibet. The scholars of Bhutan believe that it is this Tibetan Sowa Rigpa which has been modified and adapted to the needs of Bhutanese traditional health care system making it unique to Bhutan. For example, medicinal ingredients used in some of formularies and also the cauterization procedures differ from Tibetan Sowa Rigpa. Therefore, as much as there may be similarities between Bhutanese and Tibetan Sowa Rigpa, there are also many variations to make Bhutanese Sowa Rigpa a distinctly home brewed one.

Sowa Rigpa may have been introduced in the 8th century with the advent of Mahayana Buddhism, but it was institutionalized only in the 17th century by Shabdrung Ngawang Namgyal. It is believed that his personal physician and a Minister of Religion, Tenzin Drukda started the spread and teaching of Sowa Rigpa in the country. Since then, many Bhutanese physicians practiced Sowa Rigpa and some of them have been even sent to Tibet for further studies in Sowa Rigpa. Not much has been recorded about practicing physicians from the time of Shabdrung Ngawang Namgyal to the time of Wangchuck Dynasty. However, it was recorded that the elites of Bhutanese societies including Kings and royal families has personal traditional physicians. Realizing the importance of Sowa Rigpa in upholding the health of the people, Drungtsho Pema Dorji who has completed his study of Sowa Rigpa from the Chagpori Medical Institute was commanded by the third King of Bhutan in 1967 to establish a Sowa Rigpa system
in Bhutan. He, along with another Drungtsho Sherub Jorden who has completed his Sowa Rigpa and some of them have studies from Lhasa Men-tsee-khang, started the system of Sowa Rigpa in 1968 by opening one Indigenous Dispensary.

**National Policy and Mission of Traditional Medicine**

The main mission is to provide the traditional medical services as an alternative choice of treatment for the people of Bhutan. It is also mandated to preserve and promote the unique system of medicine that is based on rich culture and tradition through capacity building and establishing an effective system within the framework of the overall national health care system.

Bhutan 2020: A Vision for Peace, Prosperity and Happiness states the importance of Traditional Medicine as follows. “We must continue to provide a place for traditional medicine in our system of health care. Traditional medicine embodies the knowledge that has been accumulated over centuries and which draws upon the nation’s rich bio-diversity and of plants with proven medicinal qualities. As these qualities become substantiated by scientific research, there is a growing need to integrate more effectively traditional medicine with the modern system of health care. The maintenance of traditional medicine not only adds dimension to the nation’s system of health care, but provides an alternative for those who seek one. It should also be regarded as a conscious decision to conserve a part of our rich and varied cultural heritage”.

**DEVELOPMENT OF SOWA RIGPA IN BHUTAN**

From a single Indigenous Dispensary in 1968, the traditional medical service has grown rapidly over the years to cover the entire country. Currently, there are one apex national referral hospital in the capital of Bhutan, one training institute, one manufacturing industry and 39 traditional medicine units attached to district hospitals and basic health units as per the national health policy of integration. The constitution of the Kingdom of Bhutan states that ‘the state shall provide free access to basic public health services in both modern and traditional medicines’. This will call for an establishment of traditional medicine units in all remaining health facilities in the country.

At the national level, the Indigenous Dispensary was upgraded to National Indigenous Hospital in 1979 and shifted to the present site in Kawang Jangsa from Dechencholing. The National Indigenous Hospital was renamed as the National Institute of Traditional Medicine (NITM) in
1988. Due to increased functions, the NITM has been upgraded as the Institute of Traditional Medicine Services (ITMS) in 1998 with three functional units as follows:

1. **National Traditional Medicine Hospital** (NTMH) - responsible for the development and provision of quality traditional medical care including different therapies.

2. **National Institute of Traditional Medicine** (NITM) - responsible for the development of human resources required for the traditional medical services.

3. **Pharmaceutical and Research Unit** (PRU) - responsible for the manufacturing and production of medicines, conducting quality control for both raw materials and finished products, carrying out research activities and marketing of the products.

Since last year from Jan 2011, the management of the National Institute of Traditional Medicine has been transferred to the Royal University of Bhutan from the Ministry of Health. The Pharmaceutical and Research Unit has been renamed as Menjong Sorig Pharmaceutical (MSP) and there is a plan to make it as an Autonomous Organization as a prelude to become a Corporation in the future.

The traditional medical service functions as an integral part of the national health care delivery system. It is available in all 20 districts and is housed under the same roof of district hospitals and basic health units for mutual consultation, treatment and cross referrals of patients. The traditional medical system serves as complimentary to the modern medical services and offers a choice for the patients to seek either of the services.

The main aims and objectives of traditional medicine are:

- Promote Sowa Rigpa system in the country
- Preserve the unique culture and tradition related to Sowa Rigpa
- Provide alternative medicine as complimentary to the allopathic system
- Produce medicines required by the traditional medical system
- Conduct research and quality control of medicines
- Develop human resources required for the traditional medical system
- Achieve excellence in traditional medicine services in Bhutan
NATIONAL TRADITIONAL MEDICINE HOSPITAL

There are 10 Drungtshos including Medical Superintendent and 10 Menpas in the National Traditional Medicine Hospital (NTMH) for the provision of traditional medical services and therapy services. As an apex hospital for Sowa Rigpa in the country, it is responsible for providing tertiary care services and act as a referral center for the district hospitals. The total number of patients treated in 2010 was 43,651 (AHB 2011)

NTMH provides different therapies such as cauterization with gold and silver needles, bloodletting, moxabustion, herbal bath, herbal steam bath and localized herbal steam application, nasal irrigation, massage with medicated oils etc. whereas, at the district TM units only cauterization with gold and silver needle is provided at the moment. The total number of therapies conducted at NTMH was 22,246 in 2010 (AHB 2011)

In order to provide quality and standard treatment regimens to the patients: various guidelines such as ‘Traditional Disease Codes and Classification of Diseases, Standard Treatment Guideline and Therapy Guidelines’ have been also developed and distributed to all the practicing Drungtshos and Menpas in the country.

Currently, there is no in-patient service in the NTMH due to lack of infrastructure. However, in view of the need to provide intensive care and services to the patients seeking traditional medicines, and also for clinical teaching of the students of NITM, a proposal has been submitted to the Ministry of Health for establishing inpatient services in the NTMH. It would entail the construction of 20 bedded wards and related facilities like kitchen, store, and quarters for the cooks etc. The NTMH also provide outreach services to 9 religious and meditation centers around the Thimphu valley on a regular basis.

The district traditional medicine unit is manned by 1 Drungtsho (Traditional Physician) and 1 sMenpa (Traditional Clinical Assistant). For the benefit of rural communities, religious centers and secluded areas, an outreach services for traditional medicine is introduced in all districts where Drungtshos and sMenpas visit these places turn wise on a monthly basis. Currently, there are 38 traditional medicine units in the districts and the total number of patients treated in 2010 was 62,889 (AHB 2011)
NATIONAL INSTITUTE OF TRADITIONAL MEDICINE

Since its inception in 1971, the Institute has trained 56 Drungtshos, 68 sMenpas, 12 Pharmacy Assistants and 11 Research Assistants. The Institute will continue to train Drungtshos and sMenpas as required by the Ministry of Health. The Institute will also train Pharmacy Assistant and Research Assistants in collaboration with the Menjong Sorig Pharmaceutical as and when required. The focus during the next five years is to improve the quality of training programs through the appropriate faculty development and procurement of required teaching/learning materials. The Institute will also plan and implement in-service training programs for the qualified Drungtshos and Menpas to improve the quality of services.

The NITM has become a federated college of the Royal University of Bhutan in 2008. Therefore various curriculum and programs in relation to university academic requirements have been recently developed. The institute has also developed many teaching materials and contemporary textbooks.

Although, human resource development for the traditional medical services at present is based on the actual service delivery needs of the Ministry of Health, it is expected to change in the future. The rapid socio-economic and political development of the country and the population growth and demographic changes will spur the need for more Sowa Rigpa practitioners in the country. There is also a growth in popularity worldwide for the alternative medicine and our system of traditional medicine is one of the popular alternatives. Therefore, there is great scope to increase the intake of students to meet the growing demands.

The current policy of establishing a traditional unit up to the district level is being reviewed and there is a plan to introduce traditional medicine unit in all the BHUs, as mandated by the Constitution. Similarly, the privatization and private practice policies of the Royal Government are likely to be changed in due course of time. At present, the Sowa Rigpa education is available only in Dzongkha and Choekye and there is a plan to develop short programmes in English for foreign students.
Academic Programmes:

1. Drungtsho Course.
   The duration of training for Drungtsho is 5 years after class 12 and they receive a Bachelor’s Degree in Traditional Medicine on successful completion of the training programs. It is affiliated to the Royal University of Bhutan and recognized by the Bhutan Medical and Health Council. The number of student intake is based on the requirements of the Health Ministry and the job is guaranteed after the training. They are licensed to practice Sowa Rigpa.

2. sMenpa Course
   The sMenpa’s course is 3 years after class 10 and they receive a Diploma in traditional medicine after the training. The number of student intake is based on the requirements of the Health Ministry and the job is guaranteed after the training. This program is also recognized by the Bhutan Medical and Health Council and licensed to practice Sowa Rigpa.

3. Pharmacy Assistant
   The pharmacy technician course is of 2 years after class 10 and is conducted in coordination with MSP as on the job training. The medium of instruction is English and the Ministry of Health employs all of them after the training.

4. Research Assistant
   It is a 2 year certificate program after class 10 passed and is conducted as and when required. The training mechanism is same as Pharmacy Assistants.

In addition to the above training programmes, the NITM is also responsible for organizing and conducting in service training programmes for the traditional medical practitioners in order to improve the quality of traditional medical services. At present there are 10 lecturers and most of them are graduates of NITM and do not possess the required training in teaching. Although, there is a plan to enhance the technical capability of faculty members, the scope for further training especially at the Masters level is limited due to non-availability of appropriate Institutes in the region. The teaching faculty is supported by 12 administrative staff and there is a student body of 60.
MENJONG SORIG PHARMACEUTICAL

In the past, all medicines were produced manually. Small scale mechanized production started only in 1982 with support from the World Health Organization. From 1998 onwards, the manufacturing Unit was upgraded as the Pharmaceutical and Research Unit (PRU) through European Commission (EC) funding and now all products are produced mechanically following good manufacturing practices (GMP) regulations with more emphasis on quality control. Unlike modern drugs, traditional medicine in Bhutan is purely an indigenous product since; its source, processing know-how, and the human resource capacity are available in the country. The preparations are purely natural and no chemicals are used.

Traditional medicines being an integral part of the National Health Service, timely supply of effective traditional drugs in sufficient amount plays a crucial role in the delivery of quality health services. With the commissioning of the Pharmaceutical and Research Unit, shortage of traditional medicines has been significantly reduced. The unit currently produces approximately 8 - 9 metric tons of traditional medicines and meets the requirement of traditional medical services in the country.

The Menjong Sorig Pharmaceutical has three main sections: Production, Research and Quality Control, and Marketing

**Production section**

This section is responsible for the collection of raw materials and manufacturing of traditional medicines based on the traditional formula using latest production technology. The medicines are manufactured based on good manufacturing practices (GMP) guidelines, using standard manufacturing instruction (SMI). The unit currently uses modern equipments and production processes to manufacture authentic traditional medicines as per the traditional system of Sowa Rigpa

According to Sowa Rigpa, more than 2990 different types of raw materials are used in traditional medicine. In Bhutan, about 265 different types of raw materials are used to produce 103 compounds that constitute an essential list of traditional medicines. About 85% of raw materials are available within the country and remaining 15% are imported from India.
The raw materials are classified into:

1. **sNgo-sMen**  – high altitude medicinal plants  
   135 species
2. **Throg-sMen**  – low altitude medicinal plants  
   95 species
3. **Sa-sMen**  – Mineral origin  
   20 types
4. **Sog-cha-sMen**  – Animal origin  
   16 types

**Total = 265**

The MSP currently produces 103 traditional medicines in different dosage forms. In addition, it also produces and markets a dozen of herbal products in the local market. For better patient compliance and better management, dosage forms are standardized. Currently, medicines are manufactured in the form of pills, tablets, capsules, syrups, ointment, medicated oil and powder.

While there is currently an abundance of wild medicinal plants available, wild plants are a challenge to search for and to find, often growing in remote and dangerous locations. In the long term, sustainability is essential and farmers are being encouraged in the sustainable collection and cultivation of medicinal herbs. The intention is that farmers can grow medicinal plants as a cash crop in the same manner as fruits and vegetables. A ready market already exists in India and other countries for any produce in excess of Bhutan’s own needs.

Community based sustainable management of Medicinal Plants has been established and some species are introduced for cultivation in collaboration with the Medicinal and Aromatic Plants Division of the Ministry of Agriculture. The focus is on the development of medicinal plants industry at all levels including sustainable collection and/or production and marketing of herbal products to function the MSP as a self-sustaining commercial entity.

**Research & Quality Control**

This section is responsible for assuring quality and assessing the efficacy and safety of the traditional medicines. Research efforts are focused on authentication of species, building quality parameters both for raw materials and finished products and standardization of the production processes. The main objectives are:

1. To scientifically validate the efficacy and safety of traditional medicines
2. To ensure and enhance the quality and stability of traditional medicines
3. To explore the opportunities for new products using natural resources to combat existing and emerging health problems.
4. To improve production methodologies

Under the Research and Quality Control Section there are several sub-sections with their own specialization and functions.

a) **Quality control** section is responsible for assuring quality of the medicine by implementing the set quality parameters. Besides this routine quality check, QC section monitors the stability of traditional medicine on the shelf, co-ordinates product recalls and assist in the management of adverse drug reactions. It is also responsible for the validation and oversees standard manufacturing instruction that is part of GMP.

b) **Pharmacognosy** section studies the cells and tissues of the raw materials that need authentication and standardization for monograph building. The section in co-ordination with ethno-botany also studies the species variation at the cellular level and through physio-chemical studies

c) **Pharmacology** section is responsible for the scientific validation of traditional drug efficacy by developing appropriate disease models for *in vitro, in vivo* and clinical studies. One of the major drawbacks of traditional drugs and treatments is their lack of scientific data to support their claims. Although it is recognized as an important area of research, our effort in this direction is seriously hampered by the lack of modern facilities for *in vivo* studies (laboratory animal facility) as well as lack of trained personnel in conducting clinical trials scientifically. This is further aggravated by the lack of clear regulatory guidelines and authority in the country for conducting both animal and human studies.

d) **Phytochemistry** section screens the potential plant materials through chemical extractions. The major task of this section is the extraction and identification of main chemical constituents present in different extracts. The extracts are then preserved for authentication/standardization and quality control purposes. The extracts with potential bioactivities are provided to different sections for further research. This section also sets the quality parameters to be adopted by the quality control
section by running through different instruments and method validation. The other activity of this section includes development and validation of pre-processing/detoxification methods.

e) Ethno-botany section is responsible for the research on the ethnic uses of medicinal plants, authentication of plants through botanical studies, and standardizing as per traditional texts. This section is also responsible for developing and maintaining medicinal plant herbarium in the unit. In addition this section carries out a survey of species diversity, distribution and population robustness of medicinal plants that are being used in the manufacture of traditional medicine as well as those plants which are proven to be of medicinal value.

Research and quality control section have the human capacity and ability to institute and carry out modern quality control tests for conventional drugs as per the protocols of the manufactures. Various quality guidelines, protocols and frameworks have been developed by this section. The pictorial field guide books on “high and low altitude medicinal plants” serves as the important reference material for correct identification of the medicinal plants for both the practitioners and students. The monographs and the handbook on the quality control parameters serves as the standard protocols for screening and maintaining the quality of Bhutanese traditional medicines manufactured by the MSP. Drug master files have also been developed by the section for each of the 103 current formulations have been submitted to the Drug Regulatory Authority of Bhutan for regulatory purpose.

Marketing Section
Marketing activities were initiated since 1998 onwards. Since then more than 20 products were introduced for commercial sale in the local market in addition to 103 traditional medicines. Tsheringma herbal tea and Tsheringma incense powder are two of the popular products at the moment. There are also few new products in the process of development. However, because of funding scarcity, it will take some time to launch these products.

Besides marketing our products, the regional markets of SAARC countries will be explored for sourcing the low altitude medicinal plants and other ingredients to have a competitive raw material sourcing strategy. The SAARC region is a vast source of medicinal plant and herbal
products. Opportunities for two ways trade relation in both raw herbs as well as finished herbal products exist to be explored.

It is anticipated that the MSP will become a self-sustaining, and a dynamic profit centre of the Royal Government with operational autonomy, producing and supplying traditional medicines and herbal products of international quality standards (cost effective, safe, and of high therapeutic value). A marketing strategy and a plan to market products in both the domestic market and foreign markets will be developed based on the capacity of the unit and the market studies to be conducted within the region and few western markets.

CONCLUSION
The Sowa Rigpa system in this country has come a long way since its official recognition in 1967 due to a strong political commitment of the Royal Government of Bhutan. It is one of the most sustainable methods for the health care delivery system, as all traditional medicines are manufactured in Bhutan and also since the human resources are developed within the country. This traditional medical system is a perfect miniature representation of a bigger national policy of Gross National Happiness. It encompasses all the four pillars of GNH which are the preservation of culture and tradition, preservation of environment, acceleration of economic growth and the enhancement of good governance.

However, there is a need to build adequate infrastructures for all three units of the Institute of Traditional Medicine Services in order to fulfill its mission for the development of human resources for traditional medical services, production of traditional medicines and for the provision of quality traditional medical services. The major challenges for Traditional Medicine Services are mobilizing adequate resources for infrastructure development and for introducing post graduate programs in Sowa Rigpa.

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1. Historical development overview and peculiarity of Mongolian traditional medicine (Sowa Rigpa in Mongolia)

Based on study made on prosperity and deprivation period of traditional medicine, the development period of traditional medicine is divided into six stages depending on the social and cultural development of Mongolia.

1. Mongolian traditional medicine before our era
2. Mongolian traditional medicine up to 12th century
3. Mongolian traditional medicine from 12th to mid of 16th century
4. Mongolian traditional medicine from mid of 16th century to beginning of 20th century
5. Mongolian traditional medicine for the period of 1937-1990
6. Mongolian traditional medicine after 1990

Mongolian traditional medicine before our era

The Mongolian traditional medicine what we are studying has thousands years history and it is a larger independent branch of medical science which is based on theory, methodology and verification based on 10 large and small Buddhist rules such as philosophy, astrology etc. This traditional medicine has been continuously studied and developed by a number of countries and nations like Mongolia, Tibet, Nepal, Sikim, Bhutan, India, Inner Mongolia, Buryatia of Russian Federation, and Kalmykia for many centuries.

There is a history about that the theories and teachings of Manla in regard with medical drugs have been inherited to Mongolians about 2970 years ago through Buddha (961-881 before our era).

During the period from 3rd to 1st century before our era the ancient Hunnu of Mongolia was becoming more and more powerful in the Central Asia. In the period of Khan Dynasty a statue of Buddha captured from Hunnu was named in the history as “Golden Buddha statue of Hunnu” what proves that Hunnu believed in Buddhist religion. The height of that statue was more than 3
m. During Hunnu’s period Mongolians had not only Buddhist religion, but at that time they also used to make pills what was marked in the history. It also was written in the history of Khan Dynasty about that the doctors of Hunnu were popular in China as “Hu” doctors.

The “Silk road” passing from eastern Turkistan through western north part of Mongolia was under possession of Hunnu during the period of 2nd and 1st century before our era and it contributed a lot in the development of Hunnu. It is stated in “Suan Tsayan” sudar that the silk-road influenced on entrance of script, culture and buddist religion, arrival of the first lamas from China and India, construction of temples and monasteries, translation of religious books, sudars, spread of Buddhist philosophy, exchange of medicine, intelligent culture and development of economic relations.

The paleontological research discovered that our ancestors in the period of Hunnu made a big achievement in medicine what was proved by the human’s scull found at Chandman mountain of Ulaangom somon, Uvs aimag. Based on this rear finding the paleontologists came to a conclusion that surgeries were made in the human brain even in the 5th-3rd centuries before our era.

In the world medical history it was written about that three perforated human skulls were found from the graves located near to Huh nuur in 1875 what also proved that at ancient time there was a medical methodology for making a surgery in the human’s scull around this territory.

The moxibustion treatment way is originated from Mongolians as it was defined in the Chinese medicinal historical source “Huandy Neijin” written more than 2000 years ago.

**Mongolian Traditional Medicine before 12th century**

Other tribal groups of Mongolia have inherited the Buddhist religion which has been spread in Hunnu. At the period of Toba dynasty which was destroyed by Mongolians in the years of 307-581 of our era there were 6578 Buddhist monasteries and 77258 monks and in the year of 510 there were 13000 monasteries and 1 million monks in that dynasty. Particularly, the Buddhist teaching was seriously followed in Syanbi (centuries of 2-4). There are many historical records about prosperity of Buddhist religion in Mongolian Nirun dynasty in the years of 330-550.

It was recorded in the travel memoir of Chinese Tansanzandanbenjig or in the literary work "List of urban construction of India of Great Tan Empire" translated by Gombojav (1680-1750) graf of Mongolia: “Four great kings (monarchs) named as India, Precious king, Dagsig Mongol, China are acceding in the universe.

A specific strict principle was pursued during the time of monarch Soronzongombo (33rd) of Tibet. According to that principle any medicinal person who has not studied the 3 great rules
cannot be accepted as a “doctor”. The medicine of 3 great rules means medical theories and teachings of India, China and Mongolia (Tibetan magazine Dungoin Vodrig, 2009).

At the time of Monarch Soronzongomboover 100 medicinal persons of many countries such as India, China, Balba, Hach, Mongol, Dugu, Dolba and Ojan visited Tibet upon invitation and discussed medicinal books. The monarchs of Mongol, Dugu, Dolba and Ojan sent their own medical doctors several times to Tibet with a purpose to spread medicinal treatment ways. The Mongolian Monarchs of certain periods conducted a policy for dissemination of traditional medicine of own country in other foreign countries and for studying, developing medicine of other countries. At the same time our own doctors were accepted in other countries (Tibetan magazine Dungoin Vodrig, 2009).

There is a historical record of Ih Utog-Yondongombo, Tibetan medicinal scholar about that in 1248 or 763 years ago Mongolians studied and obtained medicinal knowledge from the medical school established in Gombo Manlund.

In 728 of our era Tibetten Tisrondezen monarch (33rd) and Utog-Yondongombo, Tibetan famous doctor organized "Medicinal forum". Nine scholars and doctors from the countries like India, China, Balba, Hach, Sogbo (mongol), Dugu and Tom etc. participated in that forum. A work of Nalashandir, Mongolian doctor “Theories for healing elders” was discussed at the forum.

At that forum Utog-Yondongombo, Tibetten medicinal scholar introduced Sogbo (Mongolian) medicine “Bloodletting theory for pulling out the pain”, Garlog medicine "Burning theory" and Dasigi medicine "Theory for poison remedy".

Mongolian traditional medicine has inherited theory of hot and cold disease, yin-yang, five elements which have come up on the basis of ancient oriental medicinal healing experience, Mongolian traditional medicine has also inherited Buddhist philosophy, Medicine, theory of wind disease, bile disease, phlegm disease, theory and practice and experience of white and black astrology. During the process of development of Mongolian traditional medicine, the theories and experiences of medicine of the neighboring countries have been studied, introduced and enriched. Many countries and nations have been developing the medicinal theories, diagnosis and healing methodologies inherited through Manla and Budda Shagjatu. But a unified policy was missing.

At that time, after discussion of the medicinal theories of different countries on an international conference, former Ih Utog-Yondongombo, Tibetan famous doctor came to a conclusion that there should be an integrated policy for unifying the similar medicinal theories and treatment methodologies. So, he has compiled them for ten years (753-763) in his work “Spring essense, Secret Quintessential Instructions on the Eight Branches of the Ambrossia Essense Tantra” (Tibetan magazine Dungoin Vodrig, 2009). In his work he has knowledgeably commanded theories, teachings lectured by the gods of last and present time. Therefore, Medicinal scholars, doctors of many countries who are engaged in studying Buddhist medicine warmly recognized
his work. This work has become a main training material for traditional medicine’s theory, diagnosis and remedy of diseases.

A terminology “Mongolian moxibustion” was used in article 5 of Basic Tantra of the chapter “Secret Quintessential Instructions on the Eight Branches of the Ambrosia Essence Tantra”. It proves that Mongolian medicine has had a good reputation and importance among other nations. Utog Yondongombo ordered: “Four gloriously perfect Tantras are a reason for compassion of the human and animals wherever they are and it is certain that they can help to any breathers without limitation.”

Mongolians have got popularity in the history of Oriental traditional medicine and among many nations by the name as “Hu” and “Sogbo” doctors what have been well known in China, Tibet, Nepal Bhutan etc. There is even a history about that Mongolian doctors worked for the kings of Khan Dynasty and Tibet as their doctors.

**Mongolian Traditional Medicine for the period from 12th to mid of 16th century**

During this historical period many Mongolian tribes were unified and Mongolia of new regime was established what positively influenced on the medicinal development of Mongolia. Besides this, our own medicine was developing at international level and legal documents related to medicaments and hospitals also were elaborated and pursued.

- In 1204: eliminated taxes to be imposed on doctors and lawyers
- In 1204: nominated by Chinggis khan certain people for being engaged in medicinal work
- In 1260: set up medicinal administration
- In 1269: nominated officers to be engaged in medical drugs
- In 1273: organized pharmaceutical bureau and hospital for serving the kings’ mothers and wives
- In 1270: established medicinal committee of Arabic type
- In 1292: established a committee for medicinal substances
- Set up an Administration for provision with common assistance for poor people and ordered to deliver to then by free service
- The Yuan Dynasty’s policy supported traditional medicines departments, Chinese and Arabic medicinal theories and experiences.
- In 1261-1263: established a bureau for supporting the inhabitants of the Great Capital (Khuree) and arranged sale and distribution of medical drugs.
- In 1268, 1269, and 1311 years: tightened up use and sale of medical herbs and prohibited sale of false and poisonous drugs like donrog, poisonous “dalan turuu” and bon-aa
- In 1272: ordered to sentence to a death both seller and buyer of poisonous drugs what caused a death for someone. So, very strict legislation was pursued at that time.
Mongolia traditional medicine for the period from mid of 16th century to beginning of 20th century

Starting from 16th century a number of Manba Datsans (Medical Monasteries) were founded in Mongolia. The first Manba Datsan was established in 1585 in Bulgan province (Historical list of Monasteries, 2009)

Furthermore, from the time of establishment of “Darkhan doctors’ aimag” established in 1651 (time of Undur Gegeen Zanabazar, 1635-1723), which was one of the first seven aimags of “Ikh Khuree 30 aimags”, a technology and a program of training were elaborated for preparing traditional medical doctors, specialists. By such way, they had got an integrated training system for preparing doctors of 4 ranks and allocating scholar grades and title. The Manba Datsans conducted high quality trainings, prepared traditional medical doctors with well knowledge and ethics. The Manba Datsans became traditional medicinal research and medicament manufacturing departments. There were quite many Manba Datsans which continuously prepared doctors, doctors with scholar grades and conducted courses for religious healers (Maaramba) (Historical list of Mongolian Monasteries, 2009)

About 250 Manba Datsans were established during the period 1585-1921). The best books regarding many branch sciences like Buddhist philosophy, medicine and astrology were translated by over 200 scholars, monks, holinesses have still being used in our time since 16th century.

Mongolian traditional medicine for the period 1910-1990

Many monks and ordinary people leaded by the Holiness Bogd Javzandamba were having an active participation in the National movement for liberty in 1911 and People’s revolution in 1921.

During the time of the People’s revolution, the experienced traditional medical doctors (otoch, manramba) with high reputation were working in army units as medical doctors.

A European hospital with 15 beds was established in 1925 where there was a Mongolian traditional department. In 1926 an hospital for mentally ill people was set up under name “Psychiatry hospital “ where 3 monks, 8 dry-nurses were working in charge of taking care of the patients, carrying foods to them and they used for the patients traditional medicinal way of treatment like moxibustion, bloodletting and Mongolian medical drugs.

At the time, when the steps just was made for cooperation between traditional medicine and western medicine, unfortunately, intensive measures were taken to restrict and destroy activities towards national inheritance, religion, monasteries and monks. Due to influence of the domestic and foreign communist ideology, about 1000 monasteries, statues, books and valuable
inheritance kept in the Monasteries were destroyed. About 40000 holinesses, saints, monks, national intellectual people and patriots were sentenced to death under repression. Under such political and ideological repression around 250 traditional medicinal Manba Datsans which conducted traditional medicinal trainings, healings and which were also manufacturing medical drugs were destroyed what caused inestimable loss.

For the period of 1920-1990 years when a fanaticism of the communist ideology prevailed in Mongolia, western medicine was developing overridingingly in Mongolia and at that time training on Mongolian traditional medicine, Mongolian traditional healing and making of traditional medicaments were officially prohibited. But there is a history that the monks who have been specialized in traditional medicine implicitly continued to heal the people.

Our ancestors, scholars, doctors (otoch, manramba) were transferring inheritance, culture of Mongolian people, their knowledge of traditional medicine and teachings to their pupils.

A laboratory of traditional pharmacy was found under the Academy of science in 1959 and medical herbs in Mongolia started to be studied.

**Mongolian traditional medicine after 1990**

Clinic and Training centre of Mongolian traditional medicine “Manba Datsan was established first in 1990.

Modern training methodology of traditional medicine and also modern training scale for preparing doctors in traditional medicine have been introduced since 1990.

The first Institute of Traditional Medicine “Otoch Manramba” was established in 1991. Since that time 5 institutes and universities of traditional medicine have been running activities.

They are preparing nurses with bachelor degree for 4 years and doctors with bachelor degree for 6 years in the field of traditional medicine. They are also conducting refresher trainings for master degree and post-graduate degree.

Totally over 1350 doctors have been graduated since 1990. Over 1000 western medical doctors have been involved in training of traditional medicine. Since 1990 the government has been continuously supporting development of traditional medicine.

Adoption of Government policy for development of Mongolian traditional medicine by Resolution No.46 of Mongolian Parliament in 1999 is making a significant contribution in the development of traditional medicine. There is an officer in charge of traditional medicine in Ministry of Health and a branch Council of Traditional Medicine works under the Ministry. With a purpose of intensifying the implementation of the Government policy for development of traditional medicine and improvement of service quality to be delivered to the population, the
Ministry of Health has elaborated a “Program for development of Mongolian traditional medicine for the period 2010-2018”.

It is stipulated in article 4.2.1 of the Health law of Mongolia that health care and service shall be delivered to the population based on humanity, scientific knowledge, achievement, proof, and advanced methodology of modern and traditional medicine.

A certain article has been inserted into the law of Medicaments and Medical Departments of Mongolia by which issues related to traditional medicaments are regulated.

In 2011 the Health law of Mongolia approved and a classification of diseases in terms of traditional medicine and it is applied now.

Branch and units are built and they are carrying out their activities at the state and private health organizations.

There are about 100 private out-patient hospitals of traditional medicine, 54 in-patient hospitals, 29 sanatoriums of rehabilitation and 8 private hospitals with foreign investment in Mongolia. The in-patient hospitals are financed from health insurance.

There are totally 54 in-patient hospitals in Mongolia of which 34 hospital or 62, 9 per cent are located in rural areas, 20 hospitals or 37, 1 per cent are located in Ulaanbaatar.

As of 2009, 75 hospitals and units of traditional medicine work in aimags and somons of which 75 are in aimags and 28 are in somons.

One of the larger branches of traditional medicine is manufacturing medical drugs.

Totally 6 manufacturers such as “Manba Datsan”, “Armon, Monos”, “Corporation of Science and Technology of Traditional medicine”, “Traditional drugs and medical herbs” are operating in the field of traditional medicine in Mongolia.

They produce over 230 types of traditional medical drugs in accordance with international GMP requirements.

2. **State of Sowa Rigpa in Russia**

Tibetan medicine spread to Buryatia, Kalmykia, Tyva and Russia via Mongolia in XVII-XVIII century. At the beginning of the 18th century Buddhism slowly started to penetrate the steppes and semi-steppes in east of Lake Baikal.

In 1712 or 1720, a group of about 150 monks from Tibet and Mongolia came to Buryatia. In the year of 1741, Empress Elizaveta legalized the existence of 11 datsangs and 150 lamas. This further brought the official recognition of Buddhism in Russia. Datsangs also housed medical schools, clinics and pharmacies of Tibetan medicine.
Buryat Emchi Lama Sultim Badmaev (/died in 1873/) introduced widely traditional medicine to Russia and Lama Badmaev was successful in treating patients and received permission to practice as a physician in St. Petersburg and was invited to work at the Medical Surgical Academy. In 1864, the Tsari Alexander II issued a decree to order the translation of the Tibetan medical treatise *The Four Medical Tantras or rGyud-bzhi* into Russian. To assist him in translating the rGyud-bzhi, a younger brother, nine years his junior was allowed to join him. Around 1870, Alexander A. Badmaev's brother, Zam Saran (1851-1920), a monk from Aga Datsang, arrived in St. Petersburg and was baptized a Christian and chose the name, Pyotr Alexandrovich Badmaev. Political reasons may have played a decisive role in inviting the brother to the capital as talk of a Trans-Siberian railway was in the air. Achieving this goal required the goodwill and tolerance of the peoples of Central Asia, especially the Mongols. In this regard, the two lama-physicians were of political value. They were directly descended from Genghis Khan, and it was believed that this fact might be useful during later negotiations.

Tragically, all accumulated experiences of our Lama doctors were destroyed during the 1917 Russian Bolshevik Revolution. The libraries and archives were burnt, the monasteries destroyed, and everyone who represented our traditional culture was executed. From 1990, just after the end of the USSR, in Russian Federation nationality religions and cultures, also traditional medicine restored again.

Today the Ministry of Health and Social Development recognizes the following traditional medicine classification:

1. Types of traditional medicine, recognized by medical science, that are used everywhere in medical practice and classified as medical specialties:
   a) Manual therapy
   b) Medical massage
   c) Reflex therapy /acupuncture/
2. Types of traditional medicine, recognized by medical science, that are used everywhere in medical practice but not classified as medical specialties:
   a) Bio-resonance therapy
   b) Homeopathy
   c) Naturotherapy /phytotherapy, hirudotherapy, apitherapy/
   d) Osteopathy
   e) Different methods of traditional diagnostics

The above two groups of traditional medicine relate to medical practice. They are officially approved by the Ministry for application in medical practice and are regularly published in the state registrar of new medical technologies.
In order to get a license to practice the approved traditional medicine methods, it is necessary to have a high medical education degree, except for massage, for a secondary medical education degree is sufficient.

Types of traditional medicine that are not approved for use in medical practice, as they require further study and examination. The ministry, following the WHO recommendation, has taken a number of organizational measures to support, develop and integrate traditional medicine into the country’s public health system.

In the infrastructure of the Ministry there is a leading research institution-Federal Scientific Clinic-experimental Centre of Traditional Methods of Diagnosis and Treatment- that works actively on the issues relating to traditional medicine, as well as the Ministry Section of the Academic council on traditional medicine issues.

The development of traditional medicine requires a considerable increase in the number of trained medical staff. There are 25 postgraduate educational institutions with programs developed for specialists in traditional medicine and in 2002-2003 over 9000 physicians obtained additional qualification in specific areas of traditional medicine.

There is no unified professional medical organization in the Russian Federation that would unite and regulate all traditional medicine specialists. There is a number of association that bring together specialists from different traditional medicine areas, for example there are three associations of reflex therapists, three associations of manual therapists, four homeopathic associations, and associations of phytotherapists, hirudotherapists, apitherapists.

According to statistics, at least 60% of the Russian population use natural folk remedies, a significant proportion of which are issued without prescription.

According to the results of a wide range of scientific studies in the area of traditional medicine, the majority of methods have proved themselves effective in the treatment of certain illness. There is no doubt of analgesic effect of acupuncture and manual therapy that are used successfully in neurology, orthopedic and traumatology.

Thus, the application of approved traditional medicine methods in Russian Federation is developing dynamically with the support of the state system of public health care. Active scientific research is being conducted on the problems of application of traditional medicine methods. A system of preparation of specialists in the traditional medicine sphere has been created. The Ministry considers it necessary to conduct deep and fundamental scientific research of healing.
Integration of Tibetan Medicine with Allopathic Medicine: A Concept

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INTRODUCTION:

Before I arrived in Dharamsala my most intimate experience with Tibetan medicine was in Kalimpong when I was around eight years old and my mother took me to see the famous Ladakh Amchi la in 10th Mile, known for his miraculous cures. I had a ‘hammer toe’ where the second toe of my right leg remained persistently in a flexed position as there was overcrowding of the toes secondary to wearing tight pointed shoes. Amchi la said this was due to a dislocation and he would have to forcibly straighten it; however he warned that some patients faint due to the severe pain when pulling the toe. I decided to live with my ‘hammer toe’ rather than undergo the treatment.

After my arrival in 1983 into Dharamsala, I realized that Tibetan medicine was more widely used than even allopathic medicine and therefore it was impossible to not be interested in it and find out more about it. My encounters with Tibetan medicine began when I met Drs. Tenzin Chodak and Lobsang Wangyal, both were elderly physician trained in Tibet working in the Men-Tsee-Khang and also serving His Holiness the Dalai Lama as personal physicians.

From then on I had numerous interactions with these two physicians besides many other traditional physicians from whom I learned a tremendous amount of this art of healing that was earlier hidden to me. Gradually I realized that without a concept and interest in providing the best for patients’ using all means available to us, I would be working with many limitations. Therefore over a number of years I have developed a concept of integration of the traditional and modern systems which I will outline in this article.

WHAT IS INTEGRATION?

Integration should be understood to mean

- Bringing closer
- Closing the gap
- Working together
- Being connected

HOW DO WE ACHIEVE THIS?

- Respecting each other
• Communicating with each other
• Understanding each other
• Being together
• Common goals

However, from amongst the above the key is ‘RESPECT’. Without this attitude it cannot work. Respect follows recognition of a quality and for this to happen, awareness or knowledge of the object of respect’s quality is imperative. This can come about through education and experience only.

LEVELS OF INTEGRATION:

Integration can take place at multiple levels and some of these are:

• Clinical
  – Physician
  – Paramedical
  – Nurses
  – Community health worker

• Research
• Education
• Social

CURRENT MODEL OF INTEGRATION PRACTISED IN DELEK:

• Cross referrals
• Regular visiting doctor from Men-Tsee-Khang to the TB patients’ ward
• Joint care of patients (hospitalized and out-patient basis)
• Medical students from Men-Tsee-Khang interning at Delek
• Education – Delek and Men-Tsee-Khang provide education resources for each other
• Joint participation of projects (Italian TB Project, Danish Torture Survivor Program)

PROCESS OF INTEGRATION:

Consultation-

This can be done in two ways:

a) Health care providers of two or more systems sit with the patient and consult together
b) Health care providers provide consultation in the clinics of their consultation in the clinics of their counterparts
c) 1. Traditional physician using modern technology eg. glucometers, thermometers, BP machine etc.
   2. Allopathic physicians doing accupuncture, Cupping, Moxa etc.

DYNAMICS DURING CONSULTATION:
How to decide who should be the primary physician:
Under usual circumstances when a patient present to a physician or a team of physicians one of the care givers takes charge. Therefore in integrated care a mutual decision on this issue will have to be made.

CONSULTATION FORMAT:
1) Patients are seen by physicians of both systems and treatment options discussed later away from the patient
2) Patients are seen by both system physician and treatment options discussed after consultation with the patient.
3) Patients are seen by each system separately and the physicians later discuss the case together. Each physician respectively then explains the treatment to the patient.

WHAT IS THE PATIENTS’ CHOICE?
Perspective from the patients’ side:
• Do patients want an integrated approach?
• Is it necessary to give patients a choice e.g. serious heart disease, hypertension, TB.
• Factors that may affect the outcome of an illness:
  1) Familiarity with the care provider
  2) Trust in the care provider
  3) Patients’ expectation
  4) Patients’ satisfaction

DEVELOPMENT OF A STRUCTURE:
For Integration to actually work a structure must be built which is dependent on several factors like:

1. Goal of treatment
2. Working diagnosis
3. Consensus on treatment modes for common and serious diseases
4. Consensus on end point for diseases treated using integration
5. Mode of follow-up
6. Efficacy
7. Safety
8. Drug interaction’s
9. Complimentary effects
10. Education of professionals in both systems

MODEL FOR MULTI-DISCIPLINARY INTEGRATED APPROACH:
Step I  Social workers screens patient using a simple guideline to decide if the problem is a major one or a minor one.

Step II  a) If the problem is minor he/she is sent to the general OPD.
b) If the problem is major then an initial appointment is sought for an integrated clinic.

Step III  
At the integrated clinic both therapists take history and examine. Decisions are made whether joint treatment is needed, or whether only one system will suffice, who supervises the overall treatment, next consultation. The patient is involved in the decision making process by giving them a choice.

Step IV  
Periodical multi-disciplinary team meetings
• Social workers
• Counselors
• Physicians of both systems
• Nurses
• Physiotherapist
• Health workers

INTEGRATING ‘COMPASSION’:

Integration is understood by most as either the mix of two or more systems of medicine and after a consensual agreement delivered to the patient. However, the key element that empowers the health care provider to carry out the art of healing is compassion. Compassion being a reason based, voluntary, unbiased act of loving kindness needs cultivation and provides strength, courage, confidence and joy to the healer. Therefore, it almost seems inevitable that exclusion of this quality during integration would seem foolish.

CONCLUSION:
Ideally, integration seems to be the answer to many woes of any one system of medicine. However, as one delves into the actual implementation of Integration it leads to the eruption of serious challenging questions like
• Is integration a threat to the originality of the traditional system
• Can modern medicine accept integration as an approach to making allopathy more holistic and therefore minimizing reductionism? However, we can conclude that practicing medicine in partnership is far superior to individual practice.

MIND BODY RELATIONSHIP

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What make us a human being?
We are human being based on our unique physical and cultural characteristics. We manipulate symbols, express ourselves through language, and possess an enormous capacity to develop the
intricacies of culture. According to scientific taxonomy, the science of classifying life-forms, we belong to the primate order. The suborder called anthropidea is within the hominoids is the family called hominoid or hominids which include both modern and extinct forms of human beings. Any organism that is more human than ape is called a hominid (from a Latin word for "man") what makes the hominids so special is their large brain and their ability to walk on two legs bimetalism. The human being, then, is a tailless, habitual, and comfortable biped. As for the beginnings of the earliest hominids anthropologists have been pushing the date back to 3.2 million years to seven million year old.

What is life?
The question what is life? Regardless of how it may be framed, poses a challenge to any intellectual attempt to develop coherent worldview. Like modern science, Buddhism holds the basic premise that, at the most fundamental level, there is no qualitative difference between the material basis of the body of a sentient being, such as human, and that of say, a piece of rock. Just as a rock is constituted by an aggregate of material particles, the human body is composed of similar material particles. Indeed, the entire cosmos and all the matter in it are made from the same stuff, which is endlessly recycled according to science; the atoms in our body once belonged to stars far away in time and space.

The question then is what makes human body so different from a rock that it can support life and consciousness? The modern biological response to this question turns on the notion of the emergence of higher levels of properties corresponding to higher levels of complexity in the aggregation of material constituents. In other words, modern biology tells the story through an increasingly complex aggregation of atoms into molecular and genetic structures, the complex organism of life emerges simply on basis of material elements.

The theory of evolution, and in particular the notion of natural selection, provides the big picture of the origin of diverse life forms. The spectacular richness of life and huge difference among the many species are explained by the scientific idea that new forms are created by the alteration of present subsequent generations, while those features not essential to survival die out.

Buddhism suggests that there are three fundamentally distinct aspects or features of the world of conditioned things, the world in which we live.

1. Matter-physical objects
3. Abstract compositions – mental formation

In the realms of matter there is not much difference between Buddhist thought and modern science. Also in defining the key feature of material phenomena, there would seem to be broad consensus between the two investigative traditions. We see properties – such as extension, spatiotemporal locality, and so on- as defining features of the material world. In addition to these manifestly material objects, from the Buddhist point of view, phenomena like subtle particles, the various fields electromagnetic and the forces of nature gravity belong to this first realm of reality. However, for Buddhist philosophers, reality is not exhausted by the contents of this realm. There is also the realm of subjective experiences, such as our thought processes, sensory perceptions, sensations, and the rich tapestry of emotions. From the Buddhist perspective, much of this world can be found also in others sentient beings. Though heavily contingent upon a
physical base— including neural networks, brain cell, and sensory faculties— the mental realm enjoys status separate from the material world. From the Buddhist perspective, the mental realm cannot be reduced to the world of matter, though it may depend upon that world function.

There is moreover, a third realm of reality, the abstract composites, which can be characterized neither as physical in the sense being composed of material constituents nor as mental in the sense of inner subjective experiences. There are many features of reality that are integral to our understanding the world phenomena such as time, concepts and logical principal, which are essentially constructs of our mind, are distinct from the first two realms. Admittedly, all the phenomena that belong to this third world are contingent upon either the first or second—that is physical or mental-domain of phenomena, yet they have characteristics distinct from the other two.

The main source of happiness and suffering to all sentient beings is mind and the way to dispel suffering and achieve happiness also dependent primarily on mind.

Anybody possessing mind desires to remove suffering and desires to achieve happiness. However most of the people due to being unable to recognize the nature of suffering and happiness aspire to get rid of only grosser level of suffering and aspire to achieve grosser level of happiness. But such is a level not so different from other animals. As such if you are one who aspires to forever remove suffering and actualize everlasting happiness it is important to properly identify the nature of suffering and happiness those that are related to body and those that related to mind. It is not easy to understand their subtle nature in detail as is mentioned in one sutra:

Whatever is said to be peace and happiness by the aryas superior being,  
The others understand this as suffering;  
Whatever is understood to be happiness by others,  
Is seen as suffering by the aryas.

The single hair that is there in palm of the hand  
The human beings will not realize it.  
When the same goes in the eye  
Human beings will feel displeased and will be harmed.

Ordinary beings are like the palm of hand  
They will not realize the hair of conditioned suffering.  
Aryans are like the eye  
Their mind is very disillusioned by it.

Those beings who desire to go to permanent place of peace and happiness should first, out of all the objects of knowledge, properly understand themselves and their mind. It is in this context the Buddha said:

Self is the protector of the self  
Who else is the protector?  
Self is the enemy of the self  
Who else is enemy?
Shantideva right in the beginning of Bodhisattva way of life mentions.
Life is short and there are too many things to know
Also we do not know the span of our life
As such just like the swans extract milk from water
Get what you desire voluntarily.

In the letter of Archarya Guhyagarbha that he addressed to the Tibetan king, people and the Sanghas he states:

In the matter of your birth, up or down, in the six realms
It is the king of natural awareness that is powerful
Of all the knowledge, the knowledge of substances is poor.
The knowledge of the nature of the mind stands rich.

Henceforth properly understand the nature of mind.
Mind is like the monkey in the house, and like the electricity, that runs in the six realms
Where will you go, up or down, it is your mind alone that is powerful.
Do not be lazy, I ask you to look at your mind.

By mind we mean the subjective side of things, the full range of lived experience, both conscious and unconscious, including the experience of thought, cognition, memory, desire, emotional states, and even perhaps the sense of transcendence. By brain we refer to the objective side, the physical stuff between our ears and throughout our bodies, with its complex architecture of inter-related neurons and the electrochemical processes activating, inhibiting, and connecting them.

One approach regards the two as basically identical. In this view all subjective experience not only depends upon but also consists of brain activity, and when we have fully mapped out functions of brain we will have explained the mind. The other approach considers the mind to be much more than the brain, extending far beyond the merely physical in both scope and capability in ways that the current scientific models either have not yet conceived or are just beginning to glimpse. In this view there are of course parallels between brain activity and subjective states, but the one does not entirely explain the other. Traditionally (both east and west) this non-physical perspective on consciousness involved notions of immaterial soul or higher consciousness those are outside the matrix of physical cause an effect.

**Mapping the Physical and Mental Universes**
The potential of mind training to improve our emotional, physical and spiritual well-being has barely been tapped. As human beings; we really do have inner powers that can make a world of difference, particularly if our goal is not merely to advance our own agendas but to cultivate compassion for the benefit of all living beings.

If the manual of life is encoded in our DNA, where do we look to find the blueprint of consciousness?

The human genome map reveals to us that we are made up of some 40,000-odd genes, each of which carries inherited information. So, say some, we are the sum of our genes. It seems, however, that we could well be that and more- a combination of nature and nurture, matter and
mind. But what is mind, besides the countless neuron cells that transmit nerve impulses through the complicated nervous system? And neurons are not confined to brain— their reach extends to even the stomach and intestines. Consciousness and awareness are essentially local phenomenon, generated by activated neurons. However with our present limited understanding of neural correlates, it would be impossible to prove it scientifically. It would also be difficult to explain to others the nature of any conscious experience, without talking about it in relation to other such experiences. But since consciousness is subjective, science alone— which is objective— cannot fully explain the inner life of mind.

This is the information age, Thanks to the giant leaves we have made in computer chip technology. A complex futuristic question is: if the precise interactions between our neurons could be duplicated with silicon chips, would it give rise to same consciousness experience? Can consciousness arise in a complex, synthetic system? In other words, can consciousness someday be achieved in machines? Consider a silicon-based system in which the chips are organized and function in the same way as the neurons in your brain. That is, each chip in the silicon system does exactly what its natural analogue does and is interconnected to surrounding elements in precisely the same way. Thus, the behavior exhibited by the artificial system will be exactly the same as yours. The crucial question is. Will it be conscious in the same way that you are?

The synapse does not explain everything. Whether artificial intelligence can evolve to extent of human consciousness or not, the fact remains that the many conflicting theories of the universe are not confined to the physical. We live in individual universes of mind, too. If our perception of the subjective and objective universes are in a state of constant flux, it follows that theories of everything that seek to explain the A to Z in either domain will necessarily be in state of constant evolution. And so we, too, will constantly be in search of an elusive truth.

**Science and Buddhism on the Transformation of Mind**

Although modern science and the Buddhist contemplative tradition arose out of quite different historical, cultural, and intellectual circumstances, they have a great deal in common. By some accounts, both traditions are motivated by an urge to relieve the hardships of life. Both are suspicious of notions of absolutes, whether these imply the existences of a transcendent creator or an unchanging entity such as a soul, preferring to account for the emergence of life in the world in terms of the natural laws of cause and effect. Both traditions take an empirical approach to knowledge. It is fundamental Buddhist principle that the human mind has tremendous potential for transformation. Science, on the other hand, has, until recently, held to the convention not only that the brain is the seat and source of the mind, but also that the brain and its structures are formed during infancy and change little thereafter.

Buddhist practitioners familiar with the workings of the mind have long been aware that it can be transformed through training. What is exciting and new is that scientists have now shown that such mental training can also change the brain. Related to this is evidence that the brain we develop reflects the life we lead. This has far reaching implication for the effects of habitual behavior in our lives, especially the positive potential of discipline and spiritual practice. Evidence that powerful sections of the brain, such as the visual cortex, can adapt their function in response to circumstances reveals an astonishing malleability unforeseen by earlier, more mechanistic interpretations of the brain's workings.
Investigators have shown that how people think really can change their brains. Now scientists talk about neuroplasticity, the brain's capacity to adapt and change. We have now reached a watershed, an intersection where Buddhism and modern science become mutually enriching with huge practical potential for human well-being.

A great Tibetan teacher once remarked that one of the mind's most marvelous qualities is that it can transform. Some of the researches confirm that such deliberate mental training can bring about observable changes in the human brain. The repercussions of this will not be confined merely to our knowledge of the mind. They have the potential to be practical importance in our understanding of education, mental health, and the significance of ethics in our lives.

For millennia, meditation adepts have been exploring the potentials of brain plasticity, systematizing their findings and passing them on as instructions for future generations, down to our day.

One of the cardinal assumptions of neuroscience is that our mental processes stem from brain activity. The brain creates and shapes the mind, not other way around, but the data reported here now suggest there maybe two-way street causality, with systematic mental activity resulting in changes in the very structure of the brain.

**Health through Balance**

There are two aspects of human life. One that relates to the physical body, the material and the other that relates to the inner self or the spiritual. Materialism is tendency to lead a life of worldly pleasures. Spirituality means to keep in mind the awakening of the mind even while remaining active. Material characteristics include greed, attachment towards worldly objects and people, and egoism. We generally engage our time and effort in satisfying our material requirements.

In case of a spiritual practitioner, the priority is given to the mind compared to body. Bodily requirements are kept to a minimum and the principle of simple living and high thinking is adopted. This means a person who takes care to his mind has to practice restraint over the sense and remain satisfied with minimum resources.

People who practice restraint experience neither financial crisis nor do they remain in debt. They maintain a healthy body and healthy mind. They are called people character, they are respected. We should consider the whole world as family, by adopting the principle of vasudhaiva kutumbakam. Why spend valuable time and effort for the sake of just oneself or even a few family members only? When the feeling of vasudhaiva kutumbakam develops, a person exhibits love and compassion towards everyone and offers his services for the welfare of humanity.

Burnout affects a wide swath of people, it is the exhaustion produced from continuous and disproportionate strenuous work in any field. The main reason for burnout is overspending of energy without learning to renew it on a daily basis.

The phenomenon is increasing by the day in every field of life, perhaps because our lifestyles have become more external. Our goals are set by others than by our own judgment of what we truly need. Again, the goals are becoming more difficult to attain while many of us are not aware
how to recharge ourselves. The burnout process is reversible. The first step is to pause, review the direction of what you are doing to your body and mind and check whether you are achieving finally what you want. It is the emergence of a genuine consciousness of self-enquiry. If we compare our body-mind with a car, we can understand the proposal easily. The car runs on battery which is subject to two processes. Operating the car functions and getting continuously recharged from within the car. If there is no recharging, the battery burns itself out. It is important to learn how to remain joyful in everything we do, as joyfulness in life is the antidote to burnout.

Then we also experiences stress. Stress is the inability to cope with a real or imagined threat to your mental, physical, emotional and spiritual well-being which results in a series of physiological responses and adaptations. It can be caused by good and bad experiences. We might have a classic case of stress overlap when everything seems to be going wrong, all at the same time. Be aware. Take a moment to determine your main source of stress at the current time and work towards managing it. Everyone responds differently to stress. That is why some people seem to thrive during stressful situations while other are exhausted. The solutions lie in active management.

Health is key factor in the human evolutionary process. Health is not just physical fitness or absence of disease. The spiritual dimension reinforces and also uplifts the physical and mental dimensions of health. As the philosopher Spinoza said, men ignores health and the love of the eternal and infinite and deem riches, fame and sensual pleasures as the highest good. Today materialistic view of life is a huge departure from this approach. We need to be healthy not only at the physical and mental level but also at the spiritual level. Worldly obligations are indeed to be performed, but with detached attachment. We need to learn to exercise inward detachment. Efficient and effective worldly life calls for a sound and disease-free body. Mental health is no less important. But, a person cannot be said to be mentally healthy if he continues to be afflicted with afflictive emotions. It is matter of common experience that we do a lot to cure physical ailments but precious little to cure mental maladies. Mental afflictions constantly torment the soul is even responsible for physical ailments. This leads to serious malfunctioning of body and mind. For balanced development, it is essential that body and mind work in tandem with each other. So, a sound body, mind and spirit help human beings attain the zenith of perfection. It calls for spiritual illumination, which starts with a transdichotomous experience of cosmic vision. Just as one cannot cross a river in a leaky boat, even so without healthy body and mind we cannot cross the ocean of life. Thus, the acme of human perfection can be attained only with an ideal mix of physical, mental and spiritual health.

The human mind is like a double-edged sword where its potentialities, if mishandled, can cause much havoc in the form of diseases. At the same time, effective utilization of its potentialities can help in eliminating anxiety attacks and stress.

The mind is equipped with incredible powers that can change life. It is like creating the power-machine, which can create anything from the worst to the best. The worst gets manifested when the mind is overwhelmed with negativities propagating anxiety, worries, and depression, which further shoot up into various forms of diseases.
Generally, anxiety, stress, worry etc, all need just a single negative thought for their ignition. But, often, you don’t get aware of that negative thought, instead, you sense this negativity when it has assumed some other worse state like headache or stomach ache.

The need is to control negative thoughts before they reach their summit in the form of variegated ailments. However, negative thoughts can be control by bridling the mind with help of proper reflection and meditation with the realization that the source of all our problems and suffering is self-cherishing attitude and self-grasping.

An irresistible urge to serve, sacrifice, and help should replace an attitude of what is in it for me. It is a myth to believe that you can succeed or be happy through selfishness. Similarly, it is true to say that you cannot attain long-lasting happiness through self-grasping or misconception of the reality where you tend to see things as having independent and objective existence.

That is in Buddhism we talk about the importance of understanding impermanence, suffering selflessness and emptiness. For example if you shift your focus to that which is impermanent then the ephemeral aspects of life cease to traumatize you. You become sagely within. You command the wealth and power of the world. But you neither depend on it nor get affected by it. You remain unfazed by the roller coaster ride of life. In the end you move to state of enlightenment, your true nature.

A majority of people spend their entire lives catering only to the need of the body and not the mind. The most compelling of these needs is to please the senses Kama for which one needs wealth artha. To obtain sufficient wealth, many are persuaded to procure it by any means, fair or foul. Many ancient Indian spiritual traditions like Buddhism and Vedanta does not deny man the enjoyment of sense pleasures or the necessity of earning money. In fact, they accept requirement of both and has included them in the four purusharthas (pursuits or objectives) prescribed for him: Dharma (code of values), artha (wealth), Kama (sense pleasures) and moksa (liberation).

However, they caution us not to chase Kama and artha indiscriminately and recommend that these two pursuits are tempered by dharma. Dharma is thus placed before Kama and artha as it regulates the two. Moksha, the fourth is a spiritual quest. For (moksha) knowledge and realization of mind is a prerequisite.

Man is graced with a unique nature. He is distinct from and far superior to all other life forms. He is endowed with a highly developed consciousness (chained) and abundant intelligence coupled with the ability to discriminate (buddhi). This faculty of discrimination in the human being, when not under the sway of his sensory urges to be truly unique. But man fails to manifest his unique nature because the animal tendencies (pasu bhava) in him are overpowering. If he can subjugate these tendencies, his real nature, humanness (manusya bhava), will come forth and his spiritual awareness will start to grow. He should, therefore, not waste his precious human body, which is highest form of life among the 8.4 million species and, instead, use its unique nature to inquire into and discover the higher spiritual dimension of life.

Simply put, happiness is satisfaction of mind. Commonly, happiness is measured by achievement in terms of money, property, other material possessions, power, name, fame, education, lifestyle, position and social status. In the quest for happiness individuals tread apath that destroys the
inner good instincts and virtues. Craving for material wealth begets greed leads to corruption. Similar is the outcome when passion for power drives one's mind.

Life is not permanent, nothing is life can last forever. Saints and stages have realized this truth and lived away from pursuit of mundane objects and worldliness. But ordinary people fail to see this truth. Maya impels individuals to believe that material achievement is the truth of life, and in the process, it fuels attachment to worldly pursuits and sensory pleasures.

Growing attachment breeds addiction to material attainments. In turn, such addiction intoxicates the human mind, making it oblivious to truth. So real happiness remains a mirage. The change of mind, however, cannot be achieved overnight. This change needs preparation of mind and takes times. It is practice that an individual needs to pursue for "being in world but not of it". You should have a mind open to everything but attached to nothing. This does not mean that you have to run away from your family, society, duties and responsibilities and be less sensitive. One needs to recognize what is really worthwhile to pursue for long-term peace and happiness for oneself as well as for others.

Death is not the End
Birth and death are merely doors of entry and exit on the stage of world. Just as you move from one house to another house, the mind moves from one body to another. Just as man casting off worn-out garments takes new ones, so the dweller in this body casting off worn-out bodies enters into others that are new. Death is not the end of life. Life is one continuous never ending process. Death is like sleep. Birth is like waking up. A man of discrimination and wisdom is not afraid of death.

They physical body being grosser appears to have great strength, but the controlling switchboard is in the mind. From the biological point of view, the human body is a dense network of nerves, cells, veins and other constituents all interconnected with each other. It has also ability to constantly repair and renew itself.

If all cellular reactions are optimum and perfect, one can lead a disease-free life. Our mind exercise direct control over all biochemical reactions taking place in our body. Our thoughts, emotions and feelings leave their impact on the biological system. For instance, the feeling fear in us leads to the gush of the hormone adrenaline, the feelings of stress cause the release of the hormone cortisol. The feelings of laughter increase endomorphic levels, anger and annoyance, raising the cholesterol level and blood pressure increases the risk of fatal heart attacks or strokes, and there is many more such example available.

Every emotion or feeling has the tendency of altering or modifying our biochemical profile. In short, our body is the physical outcome of all our thoughts and emotions we have been rearing in our mental plane, as is depicted in the famous adage. Belief creates biology. We are such stuff as dreams are made of; thus, everybody cell of ours are influenced by the way we think and feel. In addition, our all thoughts, emotions and feelings get stored up in the vibration code of our cells. There is also untimely death, or death upon the consumption of merit, for the impetus of the action that established this life remains, but external concordant circumstances that are achieved through other meritorious actions in pervious lives do not. A person dies within a virtuous, no virtuous or neutral mind. The three attitudes- virtuous, non-virtuous and neutral- occur until the
point of the subtle mind of death. According to the sutra system, this final subtle mind is necessarily neutral, for unlike Highest Yoga Tantra; sutra does not describe the techniques for transforming subtle minds into virtuous states, only for treating coarse ones.

In any case, the attitude just before death is very important, because we all have predispositions established by former, non virtuous or virtuous actions which are ready to be activated upon meeting with disadvantageous or advantageous circumstances, which will provide the impetus for lifetimes in happy or unhappy migrations. Similarly, if a person who usually behaves sinfully dies within a virtuous attitude, he or she will probably be reborn in good situation. Therefore, it is very important for both the dying person and those around him or her to avoid creating situations of desire or hatred and instead to foster virtuous states of mind. We need to know this.

Through the afflictions of desire, hatred and ignorance, contaminated karma (actions) are performed, which establishes potencies in the form of dispositions. When lifetimes finished, a person who has such predispositions is born again in cyclic existence with a mind and body appropriated through these contaminated causes.

In everyday life, attitudes of desire, hatred, jealousy and so forth, to which we are well accustomed, become manifest with only slight provocation, but those with which we have little familiarity take considerable provocation, such as recourse to reasoning, to manifest themselves. Similarly, at the time of death, attitudes of long familiarity usually take precedence and direct the rebirth. For the same reason, This attachment serves as the connecting link to the intermediate state between lives, the linking of body, in turn, act as a cause establishing the body of intermediate being, the warmth of the body finally gathers at the heart, from which the consciousness exists. Those particles of matter, of combined semen and blood, into which the consciousness initially entered in the mother womb at the beginning of the life, become the centre of heart, and from that very same point the consciousness ultimately departs at death.

The connection to life is, therefore, made under the influence of desire, hatred, and ignorance. Until these afflictions are overcome, one is as if bound in chains without freedom. While one is still bound, one must bear the burden of mental and physical aggregates that are under the influence of contaminated actions and afflictions. External medicines alleviate superficial suffering but cannot cure the central problem. Internal practices- such as resorting to specific antidotes of desire and hatred-are more helpful, but their effects are temporary. However, if one can destroy ignorance- their root- then all of these cease of their own accord.

References:
1. Acharya Guhya was a great Indian Acharya who came in th8th century and was a very learned master of the internal secret tantric. The Tibetan dharma king, Thrisong Deutsan sent two messengers to invite him. But at the time he was sick and could not come and sent an epistle to king, people and Tibetan sang has. Although this is what is found in the epistle but in other sources there is also a version stating that he had visited Tibet for the dissemination of Tantra.
2. Unlimiting mind, the Radically Experiential Psychology of Buddhism by Andrew Olendzki, wisdom publication.
3. Mirror reflecting the Nature of the Mind by Geshe Lharampa Gashar Konchok Tsering
4. The Universe in a single Atom by His Holiness the Dalai Lama
5. The best of speaking tree Volume 4, Good life series.
6. The best of speaking Tree Volume3, The Times of India
7. Death, Intermediate state and Rebirth in Tibetan Buddhism by Lati Rinpoche & Jeffrey Hopkins
8. John Robbins, author of healthy at 100 and Diet for New America.
1. THE FOUR MANDATORY CONDITIONS FOR LEARNING THE JEWEL-LIKE ORAL INSTRUCTION TANTRA:

Generally, one wishing to study any study of science should possess these four step by step conditions: a) teacher b) have observed/seen and heard c) practical experience and d) examination. Although the cause, conditions, symptoms, treatment methods, general and specific symptoms are mentioned very clearly in this wish-fulfilling gem-like 'Oral Instruction Tantra', due to the thickness of the book, very few people go through the entire text. People rather prefer to pick up and study the chapter they want to learn; this may lead to the gradual degeneration of many important practical knowledges. The main purpose for taking interest in this Tantra is to make ourselves good at practical implementation of the treatment methods after clearly understanding the techniques of clinical science.

As mentioned in the Explanatory Tantra:
"The information on the causes and conditions helps to ascertain the imbalanced state of nyepa, whereas knowing the location of a disease reveals its entrance and the signs and symptoms determine the specific disease".
"First, understanding the characteristics of a disease involves knowing the general and specific signs and symptoms of all diseases. This enables the physician to understand the presence of specific disease by merely knowing the location and nature of an illness. Therefore, it is important to familiarize oneself with this technique. For instance, the proper identification of the genuine and the fake precious stones and other items depends not only on theoretical knowledge but also on practical knowledge".
"In order to learn the section on diagnostic approaches, it should be known that the relationship between a disease and its signs and symptoms is like the relationship between a fire and smoke. Accordingly, a disease should be identified on the basis of its related signs and symptoms. Any physician ignorant of the basic knowledge on diagnostic techniques will not understand the definite signs and symptoms of a disease and its true manifestations. It is like smoke being mistaken for a steam or like predicting inevitable rainfall whenever clouds gather. Consequently, these uncertain signs could be taken for a real one, resulting in a wrong diagnosis. Therefore, the knowledge on the method of identifying signs and symptoms is very important for every physician".

Therefore, those wishing to study the cause, conditions, classification, symptoms in detail but has no knowledge of this 'Oral Instruction Tantra' are devoid of knowledge on a very important aspect of clinical studies. Besides, there is no doubt that lacking detail knowledge of the names of diseases, signs and symptoms, and treatment methods can lead to wrong treatment of deceptive appearance of diseases. Those wishing to live a disease-free life and wishing to cure
other peoples' illnesses must learn the 'Four Tantras' in general and this 'Oral Instruction Tantra' in particular.

2. THE FOUR TANTRAS IN GENERAL AND THE ORAL INSTRUCTION IN PARTICULAR IS ENRICHED WITH TERMINOLOGIES:

In the current world, when many systems of studies are coming closer to each other, our science of healing is also automatically getting connected to them. Due to problems faced in the field of terminology, at times when new terms are to be coined, many medical terms are found in our Tibetan medical text, 'rGyud bzhi'. I always note down the unfamiliar terms on a daily basis and it has helped me a lot while dealing with terminology projects. There are many terms in the text which has remained unused even by the practitioners; I find it very important on our part to write down in the patient's record book, the cause, conditions, name of diseases, symptoms etc. in a detailed manner as mentioned in the text. With this, the terms mentioned in the text will be in use as it is said that words if remain unused is a sign that indicates degeneration of a study of science. So I feel it is very essential to remain alarmed on this matter.

3. THIS ORAL INSTRUCTION TANTRA IS ENRICHED WITH DEEP AND MEANINGFUL SUBJECT MATTERS

As mentioned in the first chapter of this tantra:
"Therefore, the “four hundred and four types of diseases” that originate from past karmic actions and imbalanced nyepa torture the body and mind without giving any break even for a momentary happiness."

"The treatments of all these diseases affecting the body from head to feet, which are categorized into eight branches namely, i) diseases of the body in general, which include nyepa diseases, internal diseases, hot natured diseases, diseases of the upper part of the body, diseases of the vital and vessels organs, genital diseases, unclassified diseases, and diseases which simultaneously develop lesions, ii) pediatric diseases, iii) gynecological diseases, iv) diseases caused by evil spirits, v) wounds, vi) poisoning, vii) geriatric diseases, and viii) infertility, will be lovingly explained to you in this 'Oral Instruction Tantra'."

Even generally, a disease has ignorance as its remote and general cause, and the three mental poisons which arise from ignorance and further produces the three nyepa (desire-attachment: loong, hatred-anger: tripa, and obscurcation: baekan) as its specific cause. Ignorance, being the main cause of all kinds of diseases and sufferings substantiates the saying "everything depends on the mind." In short, it is said that ignorance and its product, the three mental poisons are diseases of the mind and there is nothing better than the holy dharma to cure it while the unsurpassed doctor to treat this disease is the Buddha himself. It is said that nyepa loong, tripa and baekan are diseases of the body and thereby body is a disease and even the body is the nature of a disease. Although there are innumerable classifications of diseases on the basis of
their general characteristics, it can be briefed into four types: a) minor transient diseases, b) diseases influenced by evil spirits, c) diseases of this lifetime, and d) diseases influenced by negative imprints from past lives. Each of these can be further classified on the basis of nyepa, principal dominance, location and type which totals to 1616. Out of these, since diseases influenced by negative imprints from past lives is untreatable, the rest three diseases can be classified into 404 diseases totaling to 1212; out of these, the 404 diseases of this lifetime which needs to be treated can be condensed to 101 on the basis of nyepa. This can be further condensed into three nyepa, loong, tripa and baekan which can be further typed into hot and cold natured diseases. This way of classifying diseases is one of the unique features of Tibetan Medical Science.

4. ENRICHED WITH AUTHENTIC AND REASONABLE TREATMENT PRINCIPLES

The ideology of Tibetan Medicine is based not only on trust and belief but is also enriched with actual authentic reasons. Many information are mentioned in detail in 'Gyue shhi', particularly in chapters on clinical science. Many have been treated with this healing science. Ju Mipham has mentioned, "Excluding those caught by the nine fatal diseases, there is not a single patient who has not been treated by me." So one must be very careful and shouldn't underestimate this science of healing. In short, just as our body, diseases and remedies are all related to the five elements, if we don't care about the four conditions which are seasons, evil spirits, diet and lifestyle, and specifically our daily diet and lifestyle patterns, due to disuse, overuse, and misuse of these factors, it will cause an increase, decrease, or disturbance in the characteristics of nyepa; this harms the seven bodily supports and the three wastes giving rise to the manifestation of signs and symptoms indicating a disease. Confirming the nature of a disease and diagnosing a disease sans confusion through pulse reading and urinalysis is the most unique feature of this healing science.

5. ENRICHED WITH PRACTICAL TREATMENT METHODS TO TREAT A DIAGNOSED DISEASE:

For treating a diagnosed disease, the four remedies namely, diet, lifestyle, medication and external therapies and its usage in accordance with the nature of disease are mentioned very clearly in the text. For example, even medicines are classified into pacifying and evacuating medicines. These pacifying medicines which pacify diseases in their own location are further typed into decoctions, medicinal powders, pills etc. As a treatment method for evacuating diseases that have infiltrated into locations other than their own, the evacuative therapies such as purgative therapy, emeses are explained in detail. The external therapy is also explained in detail through mild therapies like compresses, medicinal bath therapy and massage therapy etc., rough/coarse therapies like moxibustion, venesection etc. and strong therapies like opening, cutting, and digging etc. These therapies have proved very helpful in the treatment of diseases and we are all aware that Tibetan Medicine in the current era has become a matter of great interest for people around the world.
6. **ENRICHED WITH SUBTLE AND DETAIL KNOWLEDGE OF DISEASES:**

Since the three *nyepa, loong, tripa* and *baekan* in a balanced state and proportion help to maintain the body, but when increased, decreased and disrupted, it causes various kinds of physical and mental diseases thus causing destruction of this body; so one must be very careful of this *nyepa*.

*Loong*, which is mobile in nature, is produced by attachment, and aggravated by conditions like depression, anxiety, mental activities etc., intake of innutritious diets, heavy blood loss, starvation and sleeplessness. It is responsible for causing different kinds of diseases like rigidity and contracture of the body and the limbs, paralysis, wasting, swelling, mental instability, unconsciousness, abnormal trembling etc. Treatment methods like taking nutritious diets, healing mind, medicine, oil massage and moxibustion etc. are explained in this Tantra.

*Tripa*, which is burning in nature, is produced by hatred-anger, and aggravated by conditions like a feeling of hatred anger, intake of hot and sour foods, tortured by scorching heat, excessive strenuous works etc. It is responsible for causing signs and symptoms like headache, hot body temperature, increase of blood and *tripa* proportion, yellowing of the skin and eyes etc. Treatment methods like giving cool natured remedies are explained in this Tantra.

*Baekan*, which is cool and slow in nature, is produced by obscuration, and aggravated by conditions like sedentary lifestyles, excessive intake of cold, raw and fatty foods, untimely eating, is responsible for causing indigestion, obesity, puffiness and mainly various diseases of the stomach and kidneys. As a treatment method, giving light and warm nature diets, doing exercises, moxibustion etc are explained in detail.

*Mukpo*, which has all the three *nyepa* as its cause, and both the hot and cold natured conditions as its causative conditions, has three stages: at the initial stage, one experiences burning sensation in the chest and occurrence of sour water; at the middle stage, one vomits yellow, gya shael matter; and at the end, one vomits putrid, smoky matter. This disease has thirteen kinds of expressions, and acts as the cause of many abdominal diseases. Therefore one must be very careful while treating this disease and offer a balanced treatment.

Indigestion has been mentioned as the root cause of all kind of abdominal diseases; the formation and accumulation of unhealthy blood, *chhuser* and abnormal matters in the body is attributable to indigestion. When a cold -*loong* natured or a *baekan* natured person takes unfamiliar diets at untimely hours such as mid night, or takes incompatible diets, or takes heavy diets, it affects the normal functioning of the digestive heat to decompose, digest, and segregate the nutritional essence and its wastes products; this causes proliferation of mucus and *baekan* in the stomach, which is termed as indigestion. *Nyigma ma shhu wa* or the undigested waste products cause diet-associated tumors etc. in the stomach and colon; while in *dhangma ma shhu wa*, the undigested nutritional essence, the nutritional essence and its waste products combine and enter the liver,
where it fails to transform into blood and develops unhealthy blood and chhuser. On rolling, it solidifies while on leaking it causes anemia and dropsy; on spreading, it causes leprosy, maevel, cancer, chronic tripa diseases etc. while on stagnating, it causes accumulation of unhealthy blood of mukpo in the stomach, and many other diseases. The treatment methods of mukpo in detail and even its treatment through diet, lifestyle, medication, and external therapies are explained in this 'Oral Instruction Tantra'.

Tumors are formed by indigestion and baekan, blood, tripa, loong, cin, chhuser, hair etc. Its classifications on the basis of nyepa and location are also explained in detail. The formation, diagnostic and treatment methods of diet associated tumors caused by nyigma mashhuwa and blood tumors of the intestine etc. caused by dhangma mashhuwa are all explained in detail.

Anemia caused by scattering of proliferated unhealthy blood and chhuser throughout the whole body by loong; dropsy caused by chronic anemia or proliferation of unhealthy blood and chhuser; fluid stagnation caused by degeneration of digestive heat and reversal of descending loong, and fluid leakage from the vital organs such as liver caused by proliferation of unhealthy blood and chhuser are all explained in detail with regard to their formation, diagnostic methods, means and methods of treatment, and techniques of using diet and lifestyle.

Fever has been introduced as general fever in this Tantra; it has ignorance as its root cause, hatred-anger as general cause and tripa as its proximate cause. Out of the seven characteristics of tripa, when the sharp and hot characteristics increase excessively, it causes fever. Details about nyepa combined fever etc. and the reason behind fever, its diagnostics methods and treatment methods are also introduced in this Tantra.

Within our body, which is formed by the four/elements, when the heat produced by the fire element, and cold energy produced by the earth, water and wind elements are disturbed, the external signs and symptoms are that of a hot disease while the nature of the disease is cold, and the nature of disease is hot while the external signs and symptoms are of cold diseases; both the signs and symptoms are of hot diseases, and both the signs and symptoms are of cold diseases. Due to lack of knowledge in identifying these deceptive states of hot and cold diseases, people get confused and offer wrong treatments due to which death occurs. To avoid this kind of drastic problems, many important instructions are explained in detail and to correct the wrong treatment, diagnostic methods through external, internal and secret means, and treatment methods are mentioned in detail.

For those who are not able to identify the borderline of hot and cold diseases leading to wrong treatments, the borderlines as well as their treatment methods are explained carefully.

The cause and conditions, and diagnostic and treatment methods of unripened fever, in which one initially shivers, feels physically and mentally cold, horripilate, craves for warm stuffs etc., and one which is combined with baekan and loong are the secret and special instructions only found in the Tibetan Medical Text.
The cause and conditions, and diagnostics and treatment methods of developed fever, which is a single independent fever devoid of *baekan* and *loong* association, and which is caused by immense increase in the hot and sharp characteristics of *tripa*, are explained in detail.

In the Tibetan Medical science, empty fever, which has *loong* as its cause, is a special case as it is based and explained with authentic reasons; its diagnostic and treatment methods are explained through diet, lifestyle, medication and external therapies.

The causes, classifications, signs and symptoms, and treatment methods etc. of hidden fever, which means fever hidden under cold diseases resembling fire hidden under ashes, are also explained in detail.

Even the causes, classifications, signs and symptoms, and treatment methods etc. of chronic fever, which means prolonged fever that remains adhered and hidden in the body for months and year like oil on a cloth, are also explained in detail in this tantric.

The causes, classifications, signs and symptoms, and treatment methods etc. of turbid fever, which refers to fever combined with *chhuser* resembling the turbidity caused in the pond on stirring it, are also explained in detail.

The causes, classifications, signs and symptoms, and treatment methods etc. of dispersed fever, which refers to fever which has developed due to disturbance in the blood circulation caused by dispersion of the bodily constituents and the vital and vessel organs due to accidents etc. are explained in detail.

The causes, classifications, signs and symptoms, and treatment methods etc. of disturbed fever, which is caused by misuse of diets and lifestyle activities leading to disturbance in the *nyepa*, thus harming the bodily constituents, are also explained in detail.

When the physical, vocal and mental activities of human beings involve excessive wrong doings like polluting the environment, indulging in non-virtuous acts etc., this creates disturbances to the Gods and *nagas*; they release breaths which first increases *tripa*, infiltrate in the body through body pores and then gradually enter *loong*, *tripa*, *baekan*, and the six doors of entrances etc. or infects person to person. This is called contagious fever and the cause, conditions, classifications, signs and symptoms, treatment methods, protection methods etc. are explained in detail.

Even the causes, classifications, signs and symptoms, protection and treatment methods etc. of small pox, dysentery, inflammation of the muscle tissues and diphtheria, common cold etc. are explained in detail in their chapters.

In the diseases of the upper part of the body, in the case of head diseases, the signs and symptoms, classifications, and treatment methods of headaches caused by smoke, sleeplessness, excessive intake of *chhang*, *nyepa* disturbances, and *cin*, etc. are explained in detail.
In the chapter on eye diseases, it is mentioned that intake of rotten, sour things etc. increase blood and tripa which infiltrate into the channels and cause eye disease. It is classified as cataract, blurred vision, weak eyes, nyepa dominant eye diseases etc. Its cause, conditions, signs and symptoms, and treatment methods are explained in detail.

The causes and conditions, classifications, signs and symptoms, and treatment methods of diseases of the ears, nose, mouth, and goiter are explained in detail in their respective chapters.

Among all the vital organs, the heart is considered as the King of vital organs and the basis of life. The causes of heart diseases are mental discouragement due to depression, anxiety etc., development of strong hatred, starvation and sleeplessness, poor blood circulation, loong infiltration in the heart, sharp pains associated with blood and loong affecting the heart, dullness due to baekan, and various other diseases. The signs and symptoms of all these diseases are mentioned clearly in this Tantra. The causes, conditions, classifications, signs and symptoms, and treatment methods of lung, liver, spleen, kidney diseases, stomach, large and small intestines, are explained in detail in their respective chapters.

As of male genital diseases, most of these are caused by excessive sexual intercourse, suppressing or forcing out feces, urine and sperm. The classification of this disease based on nyepa domination, and its signs and symptoms and treatment methods are also explained in this Tantra. Similarly, the causes of female genital diseases such as excessive sexual intercourse, blood discharge, misuse of foods and lifestyle post delivery etc., classification of female genital diseases based on nyepa domination, and their signs and symptoms and treatment methods are also explained.

The cause and conditions, classification, signs and symptoms and treatment methods of each miscellaneous diseases like vocal obstruction, anorexia, thirst, hiccups, asthma, abdominal cramps, cin diseases, vomiting, diarrhea, constipation, urine obstruction, chinyi, tropical diarrhea, gout and arthritis, chhuser diseases, nerve diseases, skin diseases and minor accidents are revealed clearly in their respective chapters.

Unsuitable diets and lifestyles cause disturbance in nyepa due to which the unhealthy blood and chhuser etc. in the body develop wounds. Cancer being one of these is caused by dispersion and disturbance of the bodily parts by accidents etc., unripening of foods into nutritional essence due to weak digestive heat, rolling, spreading or adherence of the proliferated unhealthy blood and chhuser in the body etc. The classification, signs and symptoms based on its location, and their respective treatment methods are also explained in detail. The other diseases that come under the same category like piles, maevel, surya, diseases of the glands, hernia, kangbam, fistula etc. are also explained in detail through their causes, conditions, classification, signs and symptoms and treatment methods.

Child care which involves observing auspicious and inauspicious signs on delivery followed by cutting the umbilical cord, performing auspicious ceremonies etc. in general and nurturing of the
child etc. are all explained in detail. The cause, conditions, signs and symptoms, and treatment methods etc. of pediatric diseases are explained in detail. The pediatric diseases caused by evil spirit influences, its signs and symptoms, and treatment methods are also explained in detail.

Gynecological diseases include general, specific and common gynecological diseases. In the chapter on general gynecological disease, loong tshab and thrag tshab in general, and their signs and symptoms, classification are explained in detail. Similarly, the specific and common gynecological diseases are also explained vividly in their respective chapters.

Diseases caused by evil spirit influences such as diseases caused by joongpoe dhoen, psychosis, epilepsy, stroke, leprosy etc. are also explained in detail in their respective chapters. In the current era, although there are many protection methods that we can adopt from other medical systems, the protection methods against diseases have already been mentioned very clearly in the Tibetan medical system in general and the chapter on leprosy in particular, since time immemorial.

Wounds are injuries caused to body by weapons such as arrow, sword etc. due to which the affected part degenerates and from which discharges blood, pus and chhuser giving a very painful feeling. Classifications based on its typology, location, vulnerability etc., conditions responsible for exacerbating the wound, its treatment methods are all explained in detail. In the means of treatment, it is mentioned that since the first seven days are the period of blood, the wound should be treated like a saint by cleaning it; the mid seven days are the period of chhuser, and thereby should be treated like a monk by observing in detail the lifestyle activities, and the final seven days are the period of pus, and thereby should be treated like a king by healing with nutritious foods. Such kind of extraordinary tips are mentioned in this "Oral Instruction Tantra'. Similarly, the wounds of neck, chest and limbs are explained in detail in their respective chapters. Treatments of the body using surgical methods, owing to the vulnerability of the location etc., are explained in great detail in these chapters. Those wishing to study in detail about human physiology must study these chapters on wound.

Chapters on poisoning involve compounded, food and natural poisons. Compounded poisons are sent through vehicles of sunrays, air, foods, oil etc. The classification, diagnostic methods, treatment methods are all explained in detail. The classification, signs and symptoms, and treatment methods of food poisoning which is caused by incompatible foods and actual poisoning which involve mobile (snake) and immobile (bongwa) poison are explained in detail.

Geriatric disease, which is caused by degeneration of the bodily supports due to time factor, should be healed with rejuvenating therapies. Just as a flower aged by sun blossoms up immediately on watering, for those with little aging, these therapies are very effective. Direct or indirect participation in these therapies is also beneficial.
Infertility involves aphrodisiacs and restoration of female fertility; it is very clear that Tibetan medicine has proved very helpful in these cases, given the fact that if one carefully follows the instructions as mentioned in the text.

In a nutshell, it is very important to know and understand that in Tibetan medical science, the body and mind are interdependent and interrelated; when the mind is disturbed, it affects the body and vice versa.
འབོད་ཡིག་ཡི་ཨ་ཞ་འབ་ཐོས་ད་ཀྱིུ་ས་བོད་ཀྱིས་བོད་ཀྱིས་སྣ་ཚོགས་པའི་ཐོས་ཁྱབ་མཐོང་པོ་གཅིག་བུ་དམིགས་ཀྱིས
གོ་བའི་སྐར་དྲུག་བོད་པར་བཅས་

ཁོ་ནས་ཤེས་གཞས་དུས་རབ་ཀྱིས་ འཆིའི་ཐོས་ཁྱབ་མཐོང་པོ་གཅིག་བུ་དམིགས་ཀྱིས་བོད་ཀྱིས་མིང་གཏན་དཔེར་ལྕན་པར་བཅས་

འབོད་ཡིག་གི་དོན་དང་ཨ་ཞ་འབ་ཐོས་ད་ཀྱིུ་བོད་ཀྱིས་བོད་ཀྱིས་སྣ་ཚོགས་པའི་ཐོས་ཁྱབ་མཐོང་པོ་གཅིག་བུ་དམིགས་ཀྱིས
གོ་བའི་སྐར་དྲུག་བོད་པར་བཅས་

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འབོད་ཡིག་གི་དོན་དང་ཨ་ཞ་འབ་ཐོས་ད་ཀྱིུ་བོད་ཀྱིས་བོད་ཀྱིས་སྣ་ཚོགས་པའི་ཐོས་ཁྱབ་མཐོང་པོ་གཅིག་བུ་དམིགས་ཀྱིས
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བོད་སྐད་ལ་བཙོན་པའི་ཐོང་ཁུ་བཀུར་ཐོལ་བུ་དེ་བོད་སྐད་ལ་བཙོན་པའི་ཐོང་ཁུ་བཀུར་ཐོལ་བུ་དེ་བོད་སྐད་ལ་བཙོན་པའི་ཐོང་ཁུ་བཀུར་ཐོལ་བུ་དེ་བོད་སྐད་ལ་བཙོན་པའི་ཐོང་ཁུ་བཀུར་ཐོལ་བུ་དེ་བོད་སྐད་ལ་བཙོན་པའི་ཐོང་ཁུ་བཀུར་ཐོལ་བུ་

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རྒྱལ་དང་བོད་སྐད་ལ་བཙོན་པའི་ཐོང་ཁུ་བཀུར་ཐོལ་བུ་དེ་བོད་སྐད་ལ་བཙོན་པའི་ཐོང་ཁུ་བཀུར་ཐོལ་བུ་དེ་བོད་སྐད་ལ་བཙོན་པའི་ཐོང་ཁུ་བཀུར་ཐོལ་བུ་

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རྒྱལ་དང་བོད་སྐད་ལ་བཙོན་པའི་ཐོང་ཁུ་བཀུར་ཐོལ་བུ་
युगान्ति बुद्ध का गुरु ब्रह्माण्ड की आठ वयस्कताकालीन वस्तुओं के माध्यम से देखा गया ज्ञात किया गया। यह देखा गया कि उसने अपने गुरु के साथ अग्रिम अनुभव किया। ये एक समय से इतिहास में अपनी स्थायता के लिए एक संस्कार स्वीकार किया। यह पत्नी के इतिहास में अपनी स्थायता के लिए एक संस्कार स्वीकार किया। यह पत्नी के इतिहास में अपनी स्थायता के लिए एक संस्कार स्वीकार किया।

भगवान के इतिहास में अपनी स्थायता के लिए एक संस्कार स्वीकार किया। यह पत्नी के इतिहास में अपनी स्थायता के लिए एक संस्कार स्वीकार किया। यह पत्नी के इतिहास में अपनी स्थायता के लिए एक संस्कार स्वीकार किया। यह पत्नी के इतिहास में अपनी स्थायता के लिए एक संस्कार स्वीकार किया। यह पत्नी के इतिहास में अपनी स्थायता के लिए एक संस्कार स्वीकार किया। यह पत्नी के इतिहास में अपनी स्थायता के लिए एक संस्कार स्वीकार किया। यह पत्नी के इतिहास में अपनी स्थायता के लिए एक संस्कार स्वीकार किया।
བོད་ཀྱང་ལས། ཐོག་མེད་ཚོ་བི་དབང་བལྟ་བཟང་པའི་བོད་ཀྱང་ལས། ཁོ་སྨོ་བོད་ཀྱང་ལས། དབང་པོ་རྒྱུ་འཛིན་བོད་ཀྱང་ལས། སྨོན་པོ་སྨོན་པོ་རྒྱུ་འཛིན་བོད་ཀྱང་ལས། དོན་ན་བོད་ཀྱང་ལས། མ་ོ་བོད་ཀྱང་ལས། བོད་ཀྱང་ལས། ཐོག་མེད་ཚོ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ་ཤཱ་ཧེ_
བོད་དོན་བརྒྱ་དང་བོད་སྲོག་ཤེས་གནང་།

དཔལ་འཇིག་མི་དོན་བོད་ཀྱི་ཞེས་བཅས་བྱེད་པའི་ཤེས་ཁུབ་ཤེས་བཅས་བྱེད་པའི་བོད་ཀྱི་ཤེས་བཅས་ཀྱིས།

དཔལ་འཇིག་མི་དོན་བོད་ཀྱི་ཞེས་བཅས་བྱེད་པའི་ཤེས་ཁུབ་ཤེས་བཅས་བྱེད་པའི་ཤེས་ཁུབ་ཤེས་བཅས་ཀྱིས།
བོད་ཀྱི་ཐོབ་མཛོད་ལས་ཐོས་ལ་སོགས་པ་ཐེམས་པོ་སེམས་ནས་བོད་པ་ལ་ཐོབ་མཛོད་ལས་ཐོས་ལ་སོགས་པ་ཐེམས་པོས་ཀྱི་བོད་པ་ཐོབ་མཛོད

བོད་ཀྱི་ཐོབ་མཛོད་ལས་ཐོས་ལ་སོགས་པ་ཐེམས་པོ་སེམས་ནས་བོད་པ་ལ་ཐོབ་མཛོད་ལས་ཐོས་ལ་སོགས་པ་ཐེམས་པོས་ཀྱི་བོད་པ་ཐོབ་མཛོད

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ུམ་ུང་ུང་བོད་ཡི་མི་ཐོན་ཐོན་མཐོང་མཐོང་འཐོས་དགེ་ཚོས།་ཀུན་ཐོན་དང་ཅུང་ཐོན་ཐོན་པའི་བདོ་བདོ་བདོ་བདེར་ལས་བོད་ཀྱི་བོད་དབང་བོད་ཀྱི་ན།

ུམ་ུང་ུང་བོད་ཡི་མི་ཐོན་ཐོན་མཐོང་མཐོང་འཐོས་དགེ་ཚོས།་ཀུན་ཐོན་དང་ཅུང་ཐོན་ཐོན་པའི་བདོ་བདོ་བདོ་བདེར་ལས་བོད་ཀྱི་བོད་དབང་བོད་ཀྱི་ན།
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The topic is of few words with a profound meaning that deals with wisdom and doctrine of emptiness that my little knowledge does not put me in a position to speak with courage. This topic deals broadly with our daily activities attributed to everyone’s noble conduct. However, the different personal motivation and thoughts determine the practical aspect of these ideals in various individuals. As such in 'The explanatory Tantra' of the Tibetan medical text, there is a chapter dealing with the conduct of an ideal physician that emphasizes six qualities and the fourth quality speaks about versatility in body, speech and mind. The physical versatile describes one’s dexterity in compounding medicines such as purgatives, designing therapeutic as well as elementary tools such as bloodletting lancet, moxibustion wick, scratcher, bandages and splinters. The quality of speech stands for the polite word and truth that appeal to the patient and his attendants. Finally, the quality of the mind describes the comprehension of all knowledge devoid of any doubt and mistakes. These triple quality endowed in one is called the King of versatile.

First we learn and then we contemplate on what we have learn, and thereafter we practically apply our knowledge in healing the patients through the techniques of food and behavioral regimen, medicine and external therapies assimilating theory with our own experience. Thus, we master ourselves in this field of knowledge and receive the title as the King of Arts. Notwithstanding whether one is a physician or not, all of us know that it is of prime importance in our daily activities to be true to our own conscience and follow the sublime principles of our physical, verbal and mental actions. I would take this opportunity to remind you of this ethics and its importance. As an example of my own experiences, I had started with a motivation to become a physician, not merely by observing how others are doing but also with practical assimilation of what I had experienced. My close association with patients in over 30 years of my professional life, I had gained something from my experience, though not significant just like a drop in a sea, yet I want to share it with you to be able to contribute in the same manner. Hence, I wish all of you to keep in mind what I had expressed and seek your forbearance if I err or speak out of proportion.
Firstly, a brief introduction on the three ways of action; the three ways of action are the movements of physical, verbal and mental. The physical refers to a mortal body that can experience pain and verbal means an energy that gives us a sense of hearing, which has a quality of pleasant and unpleasant, to our ears and mental means the consciousness of a being that feels the thing and commands the two other ways of actions. All our actions, be it beneficial to others or harmful to others or just neutral basically generates through these three ways of action and we had this quality within us ever since we took place in our mother’s womb and it remains with us till death. In the medical text, illness that affects the three ways of action refers to the variable nature of body, speech and mind. For example, when we cannot feel the touch to our skin nor can stretch and fold our limbs, when we does not hear voice precisely and when our memory gets weak. It is very essential that our conduct through these three ways of action must be of standard with moral principles. It is not only the moral principle of this world but also the teachings in all religion that carry the same message. This will create an environment of harmony in the family and society, and personally, one can lead a life of a good conduct that may bring him the prospect of a good human rebirth in the next life.

Most of us, irrespective of any motivation, from the very beginning aspire to become a physician and had underwent through all the hardships while studying and had become a standard yet a normal physician. Being a physician, the primary objective in our daily work is to give relief to the patient from the illness. There exists countless number of illnesses broadly classified into one thousand two hundred and twelve different disorders owing to extremes in the imbalances of the wind, bile and phlegm energies in the body due to season, evil spirit, diet and behavior. Our efforts in delivering our services with genuine concern or not ultimately becomes the talk among the patients as they are at the receiving end of our conduct. Moreover, this definitely defines in building a bond between the physician and the patient. One cannot judge whether the patient has a strong faith to the physician or not. Likewise, it is difficult to judge whether the physician has the genuine compassion to the ailing patient or not. Nevertheless, there is a valid conviction that such a quality of faith and compassion has a natural effect to the result of our effort. It proves that there is bond between our activity and our body, speech and mental quality. It also leaves a deep impact on the relationship between the physician and the patient. To be truly religious in mentality one must develop deep faith and confidence in the power of Almighty. Buddha appears before the one who had true faith in Him. There has been instances that image of Buddha appears on a dog’s teeth. It also appears in our medical text that we should treat even the tiny insects just as you treat ourselves and be kind and helpful even to your foe and develop compassion. As explained in the text a physician should employ the four infinite qualities of mind that are compassion, loving, elation and impartial in his practice in dealing with patients. A physician must have these four infinite mental qualities. Compassion refers to a strong empathy toward others suffering and your intent to alleviate their suffering. Loving refers to your care and efforts to save one from the suffering. Elation refers to your feeling of satisfaction on seeing others being happy and well due to your efforts. Impartial is a quality of equal treatment in all respect.
There is a reference in the medical text, which considers physician as very important figure and ascribed with six distinct qualities. First is the compassionate one. Without being compassionate, even a highly learned physician cannot be a kind physician. In accordance to the concept of dependent origination, the principle of action and result makes one a kind and a reliable physician. Thus by following the general and distinct activities of a physician one should alleviate the patient from his suffering. As a preliminary course of action a physician should keep in order of readiness all the medicines and instruments of therapies such as bloodletting lancet, incision needle, cupping bowl, purgatives etc. As explained, metaphorically in the chapter titled 'Entrustment of the Four Tantra' that a physician without therapeutic tools is as a warrior unarmed that cannot win over the foe of illness. Having diagnosed properly with the help of visual, touch and interrogative techniques;, a patient must be explained about his illness, causes of illness as well as its cure through food and behavioral regimen in all the amusing words. Similarly, your empathy to the ailing patient should be in such a manner as if to your own ailing wife. Such a genuine motivation and dedication will surely have a positive effect that will give joy and satisfaction to the patient and the physician himself had acquired a virtuous deed that can be termed as an offering par excellence. What I want to stress here with urgency is not to emphasize the amount of zeal and enthusiasm that we all put in to study to become a physician. The profession of a physician is such a noble thing that it should characterize with a strong motivation and empathy to help the sick without any motive of gain and remuneration. Thus, I sincerely hope and wish that you all would practice in this way.

PRACTICAL EXPERIENCE ON PULSE READING

Feeling the Pulse: Unique Ways of diagnosing in Tibetan Medicine

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Tibetan medicine is arguably the second most important field of learning within the ten traditional Tibetan sciences. This science not only recognizes diseases through the three-fold methods of touching, questioning and watching but also treats illnesses by prescribing herbal medicine, diet and changes in human conduct. These remedies subdue the disease with little or no side effects and hence Tibetan medicine is one of the unique healing sciences in the world.

Today, there is an ever-increasing usage of chemicals, which causes irreversible damage to both living and non-living matter, including our air and water systems. Consequently, there are dramatic changes in the global climate and new and previously unknown diseases keep surfacing.
around the world. The excessive use of harmful substances seen from the growing number of products such as clothing and edibles which include chemicals just to appeal the customers and increases the profit margin. The impact of eye-catching products is visible through mounting competition and insatiable desires to have more, sometimes even causing friction between parents and their children. This in turn, forces people to seek temporary refuge in sleeping pills, alcohol and drugs, which lead to financial burdens and communal disharmony.

One of the counterbalances to the degeneration of human health can be found in the legacy left to us by innumerable ancient scholars and adepts such as Guru Rinpoche, who in the seventh century prophesied: ‘It is human beings that change and not time.’ Likewise a chapter on eighteen epidemic diseases in the 'Four Tantras' states: "Out of greed, human beings engage in non-virtuous acts such as internal feuds among Tantric practitioners, discords among dharma community, disharmony and curse by clerics, atheists and others, and corrupt behaviour by ordinary people such as killing and using vulgar language which ultimately lead to contagious disorders. At such time the cloud of diseases floats due to disturbances caused to deities and other heavenly beings leading to disorders like diphtheria, smallpox, abdominal cramps and inflammation of muscles."

The same chapter further states that ‘other causes and conditions of contagious disorders are drastic change in climate/seasons, air pollution, extreme anger, depression, obsession and imbalanced diet. The temperature of bile is increased leading to excessive sweat/perspiration that either comes in contact with air or enters through six pathways of wind, bile and phlegm carrying the disorder. This cycle repeats itself, and therefore it is termed as contagious disease.’

The senior Yuthok Yonten Gonpo compiled 'The Four Tantras' of Tibetan medicine in the seventh century by incorporating the essence of other medical traditions and knowledge of physicians from other countries into the already-existing Tibetan science of healing. Apart from achieving this astonishing feat of putting together the 'Four Tantras', he made it an essential prerequisite for a good Tibetan physician to embrace the principles of kindness and compassion in their daily practice. Buddhism teaches us that as long as we remain in samsara, we carry the three evils of greed, jealousy and ignorance within us; these further manifest or lead to an imbalance of wind, bile and phlegm in our bodies. When the season, spirits, diet and behaviour are in harmony, there wind, bile and phlegm are in balance and consequently there is perfect
physical and mental health. However, when there is imbalance in the four factors of season, diet, spirits and behaviour, there is excessive increase, decline or agitation in wind, bile and phlegm that adversely affects the health of a person. In spite of all the advanced technology, this complex system of recognizing diseases does not yet exist in modern medicine. Yet, there are technological advances in modern medicine that enables a specialist to count germs and effectively treat diseases such as gall and kidney stones. These are praiseworthy and help physicians to protect the lives of patients.

After the 'Four Tantras' became the most authoritative texts on Tibetan medicine, the country’s first-ever medical school was set up in Kongpo Menlung, Southern Tibet, in 765 AD. The school had a standard ten-year curriculum after which the students were graded based on their examination results and accordingly conferred titles such as karchupa and menrampa. This tradition of conferring varying degrees based on a student’s in-depth study of the 'Four Tantras' continues to this day. There is no other way for a physician to master the healing science other than to study these 'Four Tantras'. One of the most fundamental guidance given to physicians is – ‘Do not test on a patient life instead perfectly master the Tantras. Do not pretend that you know all aspects of treatments instead carry out thorough experiments.’

In parallel with the fact that there are incredible advances in modern medicine and its research into diseases, their prevention and maximizing human health, the need for Tibetan medicine and its pulse reading method is also increasing. This can be gauged from the growing demand by people from all walks of life to be treated through this unique and cost-effective system.

At this point, I would like to thank the Central Council of Tibetan Medicine for giving me this opportunity to speak about my experiences over the past thirty years. I have nothing new to tell as you are all far more learned and better informed than I am. However, I hope that those of you who are newly interested in Tibetan medicine can learn a little from this. For decades I have spent my time seeing patients and at the same time studying their illnesses and their response to my treatments. As a result, I have acquired a good amount of practical experience and a firm belief in myself as a physician. Perhaps because of this, a large number of patients put their complete trust and faith in me.

Since the inception of the Tibetan Medical & Astro. Institute in 1961, many scholars such as late Dr. Tenzin Choedak, late Dr. Lobsang Wangyal and late Dr. Kunga Gyurme Nyarongshar and
Dr. Yeshi Dhonden, who were all personal physicians to His Holiness the Dalai Lama, as well as Dr. Lobsang Dolma Khangkar and Dr. Trogawa Rinpoche and new generations of doctors have made tremendous contributions to the development and popularity of Tibetan medicine and astrology by benefitting patients all over the world. In many ways, this is fulfilling the vision of His Holiness the Dalai Lama, who continues to suggest the importance of introducing Tibetan medicine and astrology to universities and colleges, and speaking at conferences and organizing exhibitions on Tibet’s healing science around the globe, particularly in India.

Two systems of identifying diseases in Tibetan medicine – pulse reading and urinalysis – have achieved remarkable results and have become widely well-known. These have become the preferred diagnostic methods by an overwhelming number of patients. In 1988, a man in India’s capital came to know that he had liver cancer/cirrhosis and visited Safdarjung Hospital. A specialist there advised the patient that the best solution for him was to undergo an immediate operation or the outcome might prove fatal. By chance, three years later the same doctor ran into the same patient in a Delhi marketplace. The doctor could not believe that the patient was still alive. He enquired how his patient had managed to survive despite his grave condition. ‘I am alive and healthy because of Tibetan medicine,’ he told the doctor.

During my eighteen years as resident physician at the Delhi branch of the Tibetan Medical & Astro. Institute, I came across many patients who had similar chronic and near-fatal diseases. Yet, they positively responded to Tibetan medicine and many of them were very satisfied with the results. They would regularly return for further treatment.

Tibetan doctors generally check their patients using the two principle diagnostic techniques of pulse reading and urine analysis. Through these methods, doctors identify and explain to their patients about their disease, symptoms, and its manifestation in their bodies. As a result, many patients discover and can identify diseases, which until then had remained unknown to them. In a number of cases, patients who were sceptic go onto undergo various tests by allopathic doctors, only to confirm that they indeed had the exact diseases that Tibetan doctors had diagnosed. In this way, we saved many lives.

Pulse taking is a very scientific diagnostic technique to identify diseases. This method can correctly recognize a disease in five vessels – including the heart – and predict the lifespan of a person through his/her latsa or life-pulse. In the same way, pulse taking can identify hot or cold
diseases in the six hollow organs such as the intestine and stomach, and from which direction the harm or causes originated. Although arteries and veins spread throughout the human body, the best and most suitable place to read pulse – according to Tibetan medicine – is on the under-side of the wrist at about one finger’s breadth below the first wrinkle/fold.

The pulse rate of a healthy adult male should be five beats in one breath. An average human being breathes 21,600 times in a day. A human lung inflates and deflates about fifteen times in a minute, and during one opening and closing of a lung, the heart beats about five times. A pulse rate is three in one to the opening of the heart and two in one to its closing.

As stated in the 'Four Tantras', before actually taking the pulse of a patient it is vitally important for the physician to observe preliminary steps to ensure correct time, placement, methods and to apply the right amount of pressure at the actual time of pulse reading. Observing these steps helps to avoid mistaking *rgyun rtsa* – a way of taking the pulse of a healthy person – for the way of taking a seasonal pulse, etc. Whether a physician diagnoses a patient correctly or wrongly depends entirely on following these prerequisites. I realized this one thing after seeing thousands of patients. Furthermore, I have learned that it is important to be attentive and to spend enough time to consciously note and respond to the place, time, age, race and physical appearance of patients (such as whether overweight or underweight) so that the pulse is correctly taken.

Many traditional healing sciences have their own methods of pulse taking and doing urine analysis. However, we believe that these diagnostic techniques are an indigenous wisdom that developed in Tibet and can arguably claim to have the longest history.

The famous Tibetan physician and scholar, Taktsang Lotsawa Sherab Rinchen, wrote that pulse reading and urinalysis did not originate in India. In fact, he declared that highly realized lama physicians and monk doctors through their vision and realization of Bodhichitta or the ‘enlightenment-mind’ that strives toward awakening and compassion with all sentient beings devised the diagnostic methods. The two conclusion chapters of 'The Subsequent Tantra' also states: "From Tibet, pulse-taking and urinalysis are taught". Consequently, the first and the second chapters of this last Tantra of the 'Four Tantras' are pulse examination and urine analysis respectively. We can prove that these developed in Tibet because Tibetan medicine has a unique way of taking pulse rates and an entirely different set of examples to demonstrate them. Likewise, it has its own ways of checking the pulse of pregnant women and an intricate
categorization of pulses into ‘seven wonderful pulse’ based on changes in the elements at different seasons.

In the eleventh century, Melha Chakdum authored a book titled ‘TsaChui Takthab Bembu Nagpo’ or 'The Black Book of Pulse and Urine Analysis'. Numbers of composition such as a title on pulse-taking and urinalysis by Nyimai Woeser in the thirteenth century, Ju Mipham’s 'Tsa Chui Lhenthab' or 'Efficacy of Pulse-taking and Urine Analysis', Dharma Menrampa Lobsang Choedak’s 'Regpa Dhonden' or 'Meaningful Touch' and Bharshi Phuntsok Wangyal’s 'Tsa Chui Drelwa Rabsel Melong' or 'Clear Mirror of Explanation on Pulse and Urine Analysis' appeared. Numerous other books authored by contemporary Tibetan scholars such as Gojo Dawa Tsering’s 'Tsa Chui Dondrel dang Chelug Regpa Donden' supplement these classics. Scanning through these volumes verifies that these two diagnostic techniques developed in Tibet.

However, the effectiveness of using these methods to recognize diseases depends on the physician’s motivation stemming from his/her mind, body and speech at the time of both studying medicine and later putting this into practice. The senior Yuthok Yonten Gonpo wrote, "Follow the proper path as stated in the Tantras. If things go wrong, I will take the responsibility."

At the same time, we must realize that each person is different from the next and so are his or her views and attitudes towards life. At this degenerate time, due to various causes and conditions, there are innumerable diseases that require many different techniques to recognize, identify and treat them. Personally, over many years I have been using both traditional medicine and modern techniques together on patients to identify their diseases, to provide a more lasting solution and prevent illnesses from relapsing. This is a practical reality. However, as stated in the 'Four Tantras', a physician must consider a patient’s life as if it is his own, since having such an attitude would not only enable the physician to impart his best treatment but also derive happiness, fortune and merit for himself.

The Tibetan science of healing is increasingly winning deep appreciation and praise from people around the world. Even Communist China is promoting Tibetan medicine while claiming it as a part of Chinese medicine. This is because they see great value in Tibetan medical healing techniques and the tradition’s vast knowledge.
In the fourteenth century, Geshe Tenzin Phuntsok compiled a book titled 'Drimed Shelgon Sheltreng' in which he correctly categorized seven different classes of herbs and identified the tastes, potency and therapeutic values of over two thousand medicinal plants without today’s powerful tools and machines. This is equivalent to what we today call ‘pharmacopeia’. Furthermore, in the sixteenth century, Khedup Ugyen Je invented techniques to detoxify mercury and other precious minerals used in Tibetan medicine that helped save uncounted lives. This is akin to today’s ‘mini diamond therapy’. Similarly, checking the pulses of patients living in far off places through the ‘mother-son-enemy-friend’ pulse-taking method, which has been used in Tibetan medicine for many centuries, is another form of ‘tele-diagnose’. Other complementary treatments such as moxibustion and spoon therapy are highly developed and are quite in tune with today’s modern scientific treatments.

Therefore, it all depends on a physician’s ability to take a pulse according to the guidelines given in the medical Tantra to check whether a person is healthy, with all the elements in perfect balance. Recently, a Russian professor, Vitaly Boronoyev, has invented an advanced machine – Integration of Traditional Tibetan Pulse-Reading and Digital Pulse-Wave Processing: Towards a Holistic Monitoring and Screening Health Approach – and is doing research on pulse taking. I hope that in future, such new researches will come and new scientific tools invented to analyze the ancient practices in Tibetan medicine such as detoxification of mercury sulphate and tso-thal. This is a complex tradition in Tibet’s traditional medicine in which precious metals, and stones are turned into ashes as ingredients and are used in herbal pills. If so, this would provide a great contribution towards sustaining the practice of these unique sciences of healing.

I would like to conclude here with a short extract from His Holiness the Dalai Lama’s speech on Tibetan medicine: "[the] Tibetan Medicine is far more advanced in the understanding of the nature of mind than Western medicine. In matters of understanding the physical functioning of the human body, Tibetan Medicine … is less advanced than Western medicine. Without mixing the two approaches, and without saying one is better than the other, both schools should work together in order to find ways of understanding and thus boost the effectiveness of the two healing techniques".
Research on and production of Tibetan Medicines in the European context

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Introduction

The Swiss pharmaceutical company Padma Ltd., established in 1969, produces poly-herbal preparations based on Tibetan Medicine since over 40 years. Currently 10 different formulas are produced according to pharmaceutical GMP (Good Manufacturing Practice) guidelines and are marketed in European countries, USA and Canada. Since our main expertise lies in the production, marketing and scientific research of Tibetan herbal multi-compounds in the European context, we will focus on requirements for an implementation of Tibetan formulas in these markets and on aspects of scientific research with complex whole formulas. Regarding globalisation and the changing (health) politics, some of these issues may also have an importance on the development in Asian countries.

Status of Tibetan medicine in Europe

Although there is some level of public interest in Tibetan Buddhist culture and its healing system, Tibetan Medicine is not well known to the public and to professionals in European countries. It is mostly perceived as one of many Asian ethno-medicines and is usually lesser known than e.g. Chinese Medicine or Ayurveda. The outsider position of Tibetan medicine in Europe is highlighted by a survey on CAM (Complementary and Alternative Medicine) use in Europe to be published this year, in which Tibetan Medicine is hardly mentioned [1].

Tibetan medicines are usually classified as phytotherapeutics and grouped within the heterogeneous field of CAM, which includes a wide variety of methods some with more, some with little or no scientific evidence. Nevertheless, we consider it as a success that Tibetan medicine is officially mentioned in some papers of European medical agencies, e.g. in the Swiss regulation of complementary and phytomedicines (KPAV, Article 4.3.; translation from German):

“In reference to the 3rd chapter of this regulation Chinese, Tibetan or Ayurvedic medicines are regarded as Asian medicines”

Another example is the reflection paper of the London based European Medical Agency (EMA):

“…the European Commission is prepared to consider extending the simplified registration procedure to products other than herbal substances with a long tradition of safe use. … The
The proposed extension would enable certain medicinal products from specific European or non-European medicine systems (such as anthroposophy, Ayurveda, Chinese, Kampo, Korean, Mongolian, Thai, Tibetan, Unani, or Vietnamese medicine) to be eligible for the simplified registration procedure.” [2].

**Tibetan medicines for a Western market**

When selecting Tibetan formula for a European context the following points must be considered:

1. Ingredients with as little as possible toxicological concerns. This excludes precious materials and herbs with potent pharmacological profile (e.g. fruits of *Areca catechu* L./betel nut because of its alkaloid content).
2. Clean material, i.e. raw material free of contaminants (pesticides, mould, heavy metals, etc.) that is readily available from reliable sources.
3. With endangered species the regulations of CITES (Convention on International Trade in Endangered Species of Wild Fauna and Flora) have to be followed [3].

Additionally the mixture of herbal and non-herbal substances in some Tibetan formulas is problematic from a Western point of view. The European directive 2001/83/EC for medicines defines this quite strictly:

**Herbal medicinal product:** Any medicinal product, **exclusively** containing as active ingredients one or more herbal substances or one or more herbal preparations.

Some European national authorities follow this to the letter and do not allow non-herbal ingredients in an “herbal medicinal product” [4].

The nature of Tibetan Medicines as multi-compound formulas is difficult to understand from a scientific mindset. Why so? On the one hand modern science is in its foundations strongly influenced by Greek philosophy. Aristotle (384 BC – 322 BC) already proclaimed the existence of a "single proper cause for all observed phenomena". Later the medieval physician Paracelsus (1493 –1541) stated that "against each disease there exist a (one) plant" [5]. These concepts paved the way for modern pharmaceutical science: diseases are treated with single active compounds. In modern “rational” phytotherapy this results in herbal products containing only one single herb.

On the other hand, the overall concepts of Tibetan medicine are largely unknown. In modern medicine, a medical indication has to be defined in Western medical terms. Introducing concepts of Tibetan medicine into modern medicine entails not only a linguistic translation but a profound understanding of both Tibetan and Western medical concepts and terminology. A close collaboration of experts in these fields is therefore necessary.
All this has also consequences for marketing a Tibetan herbal formula. The field of application of the selected formula must be considered carefully. CAM-medicines in Europe are mostly sold over the counter (OTC) without prescription and are taken without supervision by a doctor. On the package insert the indication has to be stated in modern scientific terms. In addition, the European authorities demand a favorable risk-benefit ratio. The toxicological risk is perceived via the dosage of the individual ingredients. The lowest dosage producing unwanted or toxic symptoms should be many times higher than the therapeutically effective dosage. Additionally the approved indications for herbal medicines in Europe are usually only for mild to moderate disorders, serious diseases are usually not accessible for CAM-products.

The preparation Padma 28 e.g., which is based on the formula Gabur 25 and is available in Switzerland since over 30 years, is approved for the relatively weak indication "circulatory disorders with symptoms such as a tingling sensation, formication, feeling of heaviness and tension in the legs and arms, numbness of the hands and feet and calf cramps" [6]. Besides this, Padma 28 is also used in mild to severe stages of atherosclerotic diseases such as peripheral arterial occlusive disease (PAOD), a serious condition with the main symptom of leg pain when walking. This is also the area of use, for which the most clinical evidence for efficacy of Padma 28 exists [7].

Other studies show the efficacy of the formula, which is characterized as a cooling formula from a Tibetan point of reference, also in other inflammatory diseases such as recurrent respiratory tract infections in children [8-11] or chronic viral hepatitis B [12-14]. This reflects the relatively wide field of indications that is due to the multi-target mechanisms of action characteristic for many herbal medicines.

Despite all the aforementioned obstacles, we could achieve a regulatory milestone for the formula Padma 28 last year. It was registered as a “traditional herbal medicine” in Austria and is thus the first medicinal product of an Asian traditional medicine registered in this category in the European Union. We are very proud that this status was first awarded to a product from Tibetan Medicine (fig. 1).

Currently Padma Ltd. produces a range of 10 preparations based on Tibetan Medicine and distributes them in different Western countries (tab. 1). We hope to register more products as medicines in Europe and we strongly believe that these are essential steps of acceptance for Tibetan Medicine.
Fig. 1: Padma Circosan - a reference product of the Swiss preparation Padma 28 based on the Tibetan Gabur 25 - is the first formula from an Asian Medicine System to be registered as a "traditional herbal medicine" in an EU-country, namely Austria. The packages of the Austrian and the Swiss products are shown.

Tab. 1: Preparations based on Tibetan Medicine, which are produced by Padma AG in Switzerland.

<table>
<thead>
<tr>
<th>Name (Switzerland)</th>
<th>other names and reference products</th>
<th>available in other countries</th>
<th>Tibetan name of the formula</th>
</tr>
</thead>
<tbody>
<tr>
<td>Padma 28</td>
<td>Padma Circosan, Padmed Circosan, Padma Basic</td>
<td>Austria, Canada, Denmark, Italy, Latvia, Lithuania, Netherlands, Poland, Switzerland, United Kingdom, USA</td>
<td>based on Gabur 25</td>
</tr>
<tr>
<td>Padma Digestin</td>
<td></td>
<td>Austria, Canada, Denmark, Italy, Lithuania, Netherlands, Poland, Switzerland, USA</td>
<td>Se 'bru 5</td>
</tr>
<tr>
<td>Padma Leber-Regulans (Padma Liver Regulator)</td>
<td>Padma Hepaten</td>
<td>Austria, Italy, Lithuania, Netherlands, Poland, Switzerland*</td>
<td>'Bras bu 3</td>
</tr>
<tr>
<td>Padma Nerven-Tonikum (Padma Nerves Tonic)</td>
<td>Padma Nervotonin</td>
<td>Austria, Lithuania, Netherlands, Switzerland*</td>
<td>Srog 'zin 10</td>
</tr>
<tr>
<td>------------------------------------------</td>
<td>-----------------</td>
<td>-----------------------------------------------</td>
<td>--------------</td>
</tr>
<tr>
<td>Padma Lax</td>
<td>Padmed Laxan, Padma Lx</td>
<td>Canada, Italy, Switzerland, USA</td>
<td>based on Zhi byed 6</td>
</tr>
<tr>
<td>Padma Venen-Tonikum (Padma Vein Tonic)</td>
<td>Padma Venaben</td>
<td>Netherlands, Switzerland*</td>
<td>based on Se bru kun dey</td>
</tr>
<tr>
<td>Padma Magenbrennen-Formel (Padma Heartburn Formula)</td>
<td>Padma Aciben</td>
<td>Netherlands, Italy, Switzerland*</td>
<td>Cong zhi 6</td>
</tr>
<tr>
<td>Padma Grippe-Formel (Padma Flu Formula)</td>
<td></td>
<td>Switzerland*</td>
<td>Khyung 5</td>
</tr>
<tr>
<td>Padma Rheuma-Akutformel (Padma Rheumatism Acute Formula)</td>
<td></td>
<td>Switzerland*</td>
<td>sLe-tres 5</td>
</tr>
<tr>
<td>Padma Leber-Galle-Tonikum (Padma Liver-Gallbladder Tonic)</td>
<td></td>
<td>Switzerland*</td>
<td>Gar nag</td>
</tr>
<tr>
<td></td>
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</tbody>
</table>

* in Switzerland available in pharmacies in the canton of Appenzell Ausserrhoden.

**Production of Tibetan Medicines: GMP and GACP**

A prerequisite for producing herbal multi-compounds in the West is the clear definition of the components, using botanical and pharmacological terms. Monographs that describe the characteristics, chemical markers, analytical procedures and laboratory standard methods used are necessary for the approval as a medicine.

Another essential condition is of course the high quality of the raw material. PADMA Ltd. purchases roughly 50 different raw materials from countries all over the world, some are even grown in Switzerland especially for PADMA Ltd. Most herbs are produced according to Good Agricultural and Collection Practice (GACP) guidelines [15]. Nevertheless, every component
and every manufacturing step is monitored regarding contaminants as well as botanical identification and qualitative markers by the Padma laboratory, which uses a wide variety of analytical methods, e.g. organoleptic and microscopic analysis, thin layer chromatography (TCL) and high-performance liquid chromatography (HPLC) (fig. 2).

Production according to Good Manufacturing Practice (GMP) [16], including quality management, quality control and validated production steps is required for the approval by the health authorities and also for scientific research on the preparations.

Fig. 2: Example of a HPLC scan of an herbal substance. Marker peaks are representative of different chemical substances and may be used e.g. for identification.

Research on Tibetan Medicines

GMP-production is essential for reproducibility, a key factor in scientific research. Three groups of scientific studies are discussed in the following:

a) Studies for safety questions: Health authorities may request certain toxicologic analyses or interaction studies. Although Tibetan formulas, through their long time of use, can generally be presumed safe when consumed as intended in the traditional context, caution should be exercised with very potent formulas.

b) Experimental studies including *in vitro*, *ex vivo* and animal studies: Although experimental studies are usually of little relevance in a regulatory context, they may elucidate mechanisms of action of a formula. Here it is important to study the whole mixtures and not only single ingredients. Also in herbal multi-compounds it is true that the whole is more than the sum of its parts and the synergistic interplay between the components has to be taken into account.

For the mixture of Padma 28 a number of scientific publications show strong anti-inflammatory and anti-oxidative effects, but also immune-modulating, metal chelating and anti-bacterial activities as well as cell and tissue protecting properties [17-21]. The
experimental data thus suggests a broad activity spectrum in atherosclerosis and other chronic inflammatory diseases [22].

c) Clinical trials and case studies: These take also the pharmacodynamics into account. To conduct randomized clinical trials and systematic reviews a lot of know-how and financial resources are necessary. Following the ICH guideline for good clinical practice (GCP) [23] is required for the approval by the authorities and for the publication in scientific journals.

**Tibetan Medicines in the medical scientific literature**

Publication in a medical scientific journal is difficult and tedious. We observe an increasing bias against manuscripts on herbal medicines. Even journals specialized on phytomedicine often take a reductionist approach, which may be suitable for monosubstances but is neither feasible nor relevant in understanding the synergistically acting whole mixture preparations.

This is reflected in the relatively small number of scientific publications on polyherbal formulas found in the biggest medical publications database PubMed ([www.pubmed.org](http://www.pubmed.org)). A rough survey shows 125 articles for Tibetan medicine up to 2010. For comparison 2136 and 22505 articles were found for Ayurveda and Chinese medicine respectively (fig. 3).

![Number of scientific publications in the PubMed database](image)

**Fig. 3:** Number of articles in the PubMed database for Tibetan Medicine, Ayurveda and Chinese Medicine (status March 26 2012).

These high numbers may represent the resources put into promoting the respective medicine system. All Asian medicines have the aforementioned problem of their multi-compound nature of the formulas. This can be seen clearly, since many of these publications are not on complete polyherbal medicines but on single ingredients or on other subjects such as frequency of use, sociological or historical aspects.
From the articles on Tibetan herbal formulas, many originate from academic institutions in the Tibetan and other parts of China. But also here most are on single substances or on pharmacognostic aspects, subjects which are much easier to publish but are of little relevance in whole formula research. Regarding studies on whole formulas most publications are from academic institutions collaborating with Padma Ltd (15 on clinical, 20 on experimental data) and from authors associated with the TMAI (4 on clinical, 1 on experimental data [24-27 and the recent excellent paper from T. Choedon et al. 28]) (fig. 4.).

These numbers show that there is still a lot of work to do to gain the acknowledgement of the Tibetan Medical system as a proper scientific discipline. Especially for the recognition by the international scientific community more publications PubMed indexed, peer-reviewed journals in English language are needed. This entails that researchers of Tibetan Medicines have to consider aspects of publication already in the planning stages of a study in any of the above mentioned categories.

Fig. 4: Number of PubMed-listed publications on multi-compound formulas or Materia medica from Tibetan Medicine (PubMed Search from May 23 2012).

**Outlook**

An increasing public interest in CAM methods and remedies is noted in European countries. Despite the public interest the political and regulatory environment, health policies and decision makers up to now largely failed to find practical and safe solutions to make CAM-medicines, and among them Tibetan medicine, available for doctors and patients. One approach is to gain acceptance in the international scientific community. For this we need well designed studies and
research on all levels to prove that the concept of Tibetan medicine is valid even in the modern scientific world.

Making Tibetan Medicines available in Western countries is important for doctors and therapists as well as for patients. Integration in Western medical practice is possible, as 40 years of experience shows. The example of Padma 28 has over the decades been established in Switzerland as a household remedy.

Through diligent work, by closely observing the political environment and by adroitly acting on opportunities, the number of Tibetan herbal formulas available in Western countries will increase in the future.

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**RESEARCH ON CATERPILLAR FUNGUS**

Steps towards Sustainable Harvest of Yartsa Gunbu (Caterpillar Fungus, *Ophiocordyceps sinensis*)

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**Introduction**

The vast grasslands of the Tibetan Plateau provide the natural resources Tibetans’ traditional livestock herding has been dependent on for millennia. Even nowadays, it seems that every blade of grass on the Tibetan Plateau, no matter how remote, is grazed by a yak, sheep or goat. Most rural households still rely on their pastoral and agricultural products to feed their families. The integration of traditional subsistence products, such as butter, barley or dried meat into the Chinese economy has not taken place due to a range of constraints, amongst them culturally differing culinary preferences and communication problems. However, Tibet’s rural communities have being integrated rapidly in the last fifteen years thanks to the phenomenal proceeds of Caterpillar fungus or Yartsa gunbu, a precious medicinal fungus-larva compound, sought after especially by Chinese consumers.

**Caterpillar Fungus**

Caterpillar fungus (*Ophiocordyceps sinensis* [Sung et al. 2008], synonymous *Cordyceps sinensis*) is an insect parasitizing fungus endemic to the Tibetan Plateau and the Himalayas. Tibetans know it as Yartsa gunbu (ʼ[YOU COULD ADD TIBETAN SCRIPT] Wylie: dbyar rtswa dgun 'buʼ), which means “summer grass-winter worm” and describes well how the sedge-like fruiting body (= stroma) of the fungus grows in spring out of the head of a larva (Photo 1). The stroma belongs to the entomophagous fungus *Ophiocordyceps sinensis* that parasitizes the larvae of more than thirty ghost moths (*Thitarodes* spp.). Together, the dried club-shaped stroma and the larva is traded as a precious medicinal. The use of *Yartsa Gunbu* probably dates back at least a thousand years in Tibet, but first scriptural reference of “Yartsa Gunbu” in Tibetan Medicine is found in Nyamnyi Dorje’s 15th Century writing “Instructions on a Myriad of Medicines (Wylie: man ngag bye ba ring bsrel pod chung rab byams gsal ba’i sgron me mal gro gung dkar, Winkler 2008b). Within this volume there is the text “An Ocean of Aphrodisiacal Qualities - A special work on *Yartsa Gunbu*” (Thanks again to Yonten Gyatso for pointing me to this text, see Fig. 1). In Traditional Chinese Medicine, where it is known as 冬虫夏草 (Pinyin: dongchong xiacao), which is a literal translation of its Tibetan name, its first mention is by Wang Ang in 1694 (Winkler 2008a).

In traditional Tibetan and Chinese medicine *Ophiocordyceps sinensis* is recognized as a powerful tonic and aphrodisiac. It is also prescribed for lung, liver and kidney issues. Western medical research on *O.s.* suggests anti-viral, anti-tumor, and anti-cancer activities (Wong et al. 2010), immuno-modulating effects, anti-oxidation, reduction of cholesterol, and increase of stamina and libido (Holliday & Cleaver (2004). This myco-medicinal is mostly consumed by Chinese communities and elsewhere in East Asia. Furthermore it has also become a fashionable luxury product, often given as a gift, and used as a culinary status symbol. However, it has not really penetrated the western market. Most *Cordyceps sinensis* sold in the West is dried and ground mycelium artificially grown on grains.
The quality of Caterpillar Fungus collected in the wild is mostly based on size of the larva, the bigger the better. Another important quality feature is firmness of the larvae and the length of the stroma, which ideally should be the length of the larva or shorter (compare Photo 1), indicating an early harvest before the stroma started to produce spores. When Yartsa gunbu is collected late in the lifecycle of the fungus, the larva becomes soft and shrinks during drying. This late stage Yartsa gunbu has just a fraction of the economic value of a specimen harvested in prime condition, but since spore dispersal can continue for several weeks, it has the highest ecological value a fact that will be discussed under sustainability issues.

Caterpillar Fungus occurs in alpine ecosystems on the Tibetan Plateau and the Himalayas. In China, the distribution area spans Tibet Autonomous Region (TAR), Qinghai, Sichuan, Gansu and Yunnan. In the Himalayas it is collected in Nepal, Bhutan and India (Figure 2: Map). It is distributed in grass- and shrub-lands that receive a minimum of 350 mm average annual precipitation. It occurs in an altitude of 3000-5000 m rising from the east to the west of the Plateau. Locally it grows within an altitudinal range of 500 m around the potential tree line. The peak fruiting season is in May and June and lasts locally about six weeks.

Economic Relevance of Caterpillar Fungus Collection

Caterpillar Fungus has been collected for centuries in substantial amounts, already tens of million specimens in the 19th Century (Winkler 2008). In the last 15 years value and collection intensity have immensely increased. Its value has increased by 1000% between 1997 and mid 2011. In mid 2011, a bag of mixed average quality sold for ¥40,000 (US$ 6,500) per pound (500g), top quality sold for over to ¥80,000 US$ 12,000) in Lhasa. In Shanghai the same quality Yartsa gunbu fetched up to ¥180,000 ($28,500). In 2012 prices increased further. The importance of the income from fungus collection and trade for rural Tibetans cannot be overemphasized. In 2004, Tibet AR caterpillar fungus production figured at 50.5 tons. At a market price of ¥18,000 / pound this represented a value of ¥1.8 billion, equaling 8.5% of the GDP of Tibet AR. At rural and small town level per capita income from caterpillar fungus collection in 2004 figured at ¥463 based on a conservative value of ¥11,000/pound, representing 25% of the per capita income (¥1,861 in 2004). The contribution to cash income should be at least 40% for the rural population in Tibet AR (all figures from Winkler 2008a & 2008b). Income contribution in 2009 was comparable. Similar, astonishingly high, financial contributions can also be expected in the prime collection areas of South Qinghai Province. Income contribution has further increased since 2004, up to early 2008 when Cordyceps value peaked, but in connection with the global financial crisis caterpillar fungus prices came down 30-40% in China in late 2008 retreating to 2006 levels. A poor harvest in 2009 in Tibet AR, attributed by many collectors to an unusually dry spring and a belated arrival of the monsoon rains pushed prices in summer 2009 nearly back to pre-crisis levels and prices have still increased since then, but at a much slower pace.
Impact on rural communities

This immense stream of cash income to rural communities from Yartsa gunbu has caused a far-reaching transformation of the social and economic conditions in the last 15 years. Yartsa Gunbu income provides cash for health care, education and transportation - especially motorcycles and plenty of consumer goods (i.e. TV sets, DVD players etc.). Furthermore, the fungal income provides “spore” money for entrepreneurial activities such as trade and community activities. It also opened access to bank loans, which were next to impossible to obtain for rural Tibetans. Thus, income derived through the collection and trade of this precious myco-medicinal has led to an empowerment of marginal communities, often living in extremely remote locations. Furthermore, the cash influx has led to a commodification of local production and services. In fungal resource rich areas, formerly non-cash based exchanges of local products, and more intriguingly neighborly work assistance, is now being compensated in cash instead of barter goods or work exchange. Farming or herding work services are solicited with the newly available cash resources. Thus, the Caterpillar Fungus boom is facilitating the integration of rural Tibetan households into regional, national and international economic cycles by providing the necessary product and cash in exchange for participation.

However, this transformation is also causing many challenges. In the past community disputes mostly occurred over grazing rights. Now, they are mostly fought over access to Caterpillar fungus resources. Some of these turn violent, a few even deadly each year. The availability of cash allows for outsourcing of services, which by itself is not negative. However, often outsiders are hired for construction and other jobs and not enough locals are taking up such trades, which would strengthen local economies and generate incomes year round and possibly beyond the fungal boom. Thus, the immense income that can be made from Yartsa Gunbu collection also undermines engagement in long-term economic activities, which offer much smaller economic returns and economic diversification should be an objective by policy makers. Big amounts of cash floating in the community also causes people to overspend and fall into debt traps. What looked like a loan that could easily paid back with a fraction of another good harvest can turn into insurmountable debt when the harvest turns out be poor like it occurred in many areas in 2011.

In recent years an array of research papers has shed light on the Yartsa Gunbu phenomenon from many perspectives, such as anthropological, geographical and socio-economic perspectives, documenting the impact especially on rural Tibetan communities (see Winkler 2009). In a nutshell, all these papers elicit how intricately the income generated from Yartsa Gunbu collection and trade is now interwoven with local socio-economic processes and how dependent these communities have become on the fungal income. Loss of this income stream, if it should run dry, be it due to resource exhaustion, successful artificial cultivation or any other reason would have a catastrophic impact on rural communities.
Annual Production

Reliable data on the annual production on Caterpillar Fungus are still lacking from many production areas. So far, the most detailed figures available are from Tibet AR on prefecture level (Fig. 3, Winkler 2008 & 2009). Also in recent years localized studies from the Himalayan production areas have been published. In a review of all available figures from the Tibetan Plateau and the Himalayan an annual harvest ranging from 83.2 to 182.5 tons was estimated, most likely figuring annually around 140t (Fig. 4, Winkler 2009), but the informal aspect of harvest and trade undermines reliability of these production figures and estimates. Having reliable data is of great importance to understand the industry, its importance for the whole region and also to assess its sustainability in light of a lack of sound long-term in-situ studies on the impact of intense annual collection.

Sustainability of Collection

The lack of scientific data regarding sustainability is striking. Any resource of such immense value, and key relevance to rural livelihoods as the main cash source, runs the risk of being over-exploited. The current (and apparently increasing) harvest pressure on Caterpillar fungus is unprecedented. With increasing numbers of collectors and in many cases local governments optimizing collection, the issue of sustainability looms large. In a 2008 unpublished report Yang suggested that the Cordyceps production has collapsed and current output is down to 3-10% of the output from 20 years ago (Yang 2008, Stone 2008). Yang’s claim is extraordinary, but is not backed up by baseline data derived from field plots or government agency production figures. Annual harvest in TAR from 1999 to 2009 fluctuated between 35 to 55t. In short, published and unpublished figures do not indicate a population crash of that nature so far, but don’t preclude a reduced harvest in specific production areas. Research on the actual consequences of the impact of intensive harvest of Caterpillar Fungus is noticeably lacking in China. Interestingly, Bhutan, whose annual Cordyceps production figures below 1% of the overall production, has so far the most advanced field study regarding Caterpillar Fungus growth and harvest impact (Cannon et al. 2009), but it is too early for any results regarding the impact of harvesting on annual production.

Collection of Yartsa gunbu is not a new phenomenon; it has been collected in the same locations for centuries and is still present in most such areas, attesting to its resilience to human collection. The few production statistics available (Winkler 2008a, 2009) seem to report stable or increased production, but the lack of multi-annual reduced harvest amounts could be veiled by two factors; more people searching more intensely and also areas being searched not previously accessed for fungal extraction. However, in my experience, having since 1998 visited nearly annually production areas, be it in Garze Tibetan Autonomous Prefecture (Sichuan), Deqen TAP (Yunnan), Naqu, Qamdo or Nyingchi (TAR), most interviewed collectors and dealers did not report reduced output, but reported reduced harvesting rates per collector due to substantially
increased competition. However, visiting collection grounds in Yushu TAP and Maqen TAP (both South Qinghai Province) in 2010 and 2011, the common perception there seemed to be that caterpillar fungus productivity is declining [but incomprehensibly no agency is collecting any production data in Qinghai that would confirm or contradict this notion]. Many collectors reported on dwindling caterpillar fungus resources in this region. Seasoned collectors in Zadoi (Tsato / Zaduo) County, Yushu TAP reported during field work carried out in cooperation with World Wide Fund for Nature in China (WWF China), how spots that used to have very rich fungal populations are now barren of Yartsa gunbu. These reports impressed me deeply and made me reconsider my previously overall quite optimistic evaluation regarding the resilience of the caterpillar fungus resource. These reports indicated to me that continued overly intense collection could lead to local resource extinction since no more spores get into the environment to produce future harvests. In addition many dealers in Yushu and Xining also stated in interviews that they have the impression that the resource seems to dwindle.

Furthermore, informal interviews with collectors all over the Tibetan Plateau have shown that there is no awareness as to how the fungus reproduces. An often used term by Tibetan collectors all over the collection area was “rangjung”, which is also commonly used to describe miraculously self-manifesting religious symbols such as mantras or seed syllables manifesting in a rock wall. In scientific terms “rangjung” is best translated as autogenic. The notion that suggests that Yartsa gunbu is not dependant on the production and availability of spores from a parental generation is undermining responsible resource usage. In addition, previously, collectors would not dig up old specimen in sporulation due to their low value, but now collectors collect Yartsa gunbu in every stage of maturity and thus undermining spore production in a way not done before the current boom and probably one of the reasons for apparently successful resource management in the past.

**Steps toward sustainable management**

Reports by collectors and dealers of dwindling resources, unprecedented collection intensity, climate change and the recent economic dependence of local economies on caterpillar fungus collection, calls urgently for sustainable harvest practices and a new approach to fungal resource management. So far the main objectives of resource management have been minimizing conflicts, orderly collection, and foremost optimizing economic returns for the counties and the community. Now it is time to shift the management focus and making sustainable resource use the central objective, since it is the long-term prerequisite for continued economic benefits and minimizing conflicts.

Such a management shift is not possible without support from all stakeholders, but especially from collectors. As Cannon et al. (2009) reported from Bhutan, “In the long term, the only viable way of ensuring sustainability of wild Yartsa Guenbub harvest is through locally focused natural resource management, with the villagers making their own informed decisions about collection policy”. Making informed decisions is only possible if the community has sufficient knowledge that necessary steps and especially sacrifices, meaning cessation of indiscriminate
harvest of all specimens, towards sustainable resource management can be taken. Most crucial at this point is that collectors attain a rough understanding of the reproductive needs of caterpillar fungus, so that community support can be gathered in a management approach that secures sufficient spore production each year. All stakeholders are interested in keeping caterpillar fungus populations healthy and productivity thriving.

Recent field work in Yushu TAP in cooperation with WWF China confirmed the previously obtained impression that basically all collectors – just like most people - have no knowledge regarding the life-cycle of caterpillar fungus and the crucial role spore dispersion plays for continued production. Educating the collectors is a prerequisite to shift towards sustainable collection practices that will help retain sporulating fungi in the ground. The development of easily implementable approaches that can rely on community support will be crucial for successful management.

A two-pronged management approach seems most sensible and least interruptive based on current best knowledge. The two components are, a community education campaign focusing on spreading understanding on the requirements for caterpillar fungus to thrive and a sustainable management framework that establishes a cut-off date for collection.

During interviews in Yushu TAP in late May and early June 2011 all interviewees were very interested in learning about the reproductive cycle of caterpillar fungus. We pointed out that fungal spores are too small to be seen with bare eyes, but that caterpillar fungus like all mushrooms produces “seeds”. Often at this juncture interviewees brought up that Yartsa gunbu is “rangjung” [YOU COULD ADD TIBETAN SCRIPT], self-manifesting. We then pointed out that Yartsa gunbu is just like any other animal or plant that reproduces. Once this new knowledge sank in, we continued to share with the interviewees our sustainable management initiative of retaining low-value late-season caterpillar fungus in the ground by discouraging collection paired with a clear cut-off date. Overwhelmingly such an approach was accepted as reasonable. We were most impressed how quickly collectors were able and willing to accept the new understanding. A commonly voiced concern was that such a management approach made only sense if everyone supports and respects it. Also, it would need full support from all officials, especially at village level to gather full community support. Of course there were a few interviewees expressing doubt regarding the possibility of success of implementing such a management plan stating opinions to the notion of “people will never forgo to collect as much yartsa gunbu as they possibly can”. Still, the common perception in the Tibetan areas of South Qinghai Province of reduced Caterpillar fungus productivity should make it feasible to garner support from a community that understands the objective of the measures taken, especially in the face of potential future productivity decline with all its dire consequences.

WWF China as a result of our cooperation already designed an educational poster and a small brochure with Tibetan and Chinese text that has been distributed in Yushu TAP just before the onset of the 2011 season. Furthermore trainings with local officials have been organized to educate them on sustainable management options, the value of late-season caterpillar fungus and
its reproduction cycle. Later this year interviews with local stakeholders will evaluate the success of these initiatives. Furthermore an educational movie on sustainable harvest of caterpillar fungus is being produced in cooperation with Grassland Monitoring Institute and the Cordyceps Research Unit, both Qinghai Province.

Besides the educational campaign the most promising sustainable management intervention is an easily implementable establishment of a collection season ending after four or five weeks of collection. Such a date need to be implemented skillfully with a good amount of annual and territorial flexibility necessary to adjust to local realities, since Yartsa gunbu fruiting varies each year slightly according to weather conditions and in general according to altitude and latitude. Ideally, at this end point of the season collectors will already have collected substantial amounts, probably having earned already 90 to 95% of their seasonal income.

Enforcing the official ending date is easier in areas where collectors set up tents within the high altitude habitat, often a process that require permits and fee payments. More difficult is enforcing a collection stop where herdries or farmers just collect above their homesteads. However, under these circumstances collectors should be motivated to manage their resource to their best knowledge to secure sustainability. Whatever the specific circumstances, prerequisite for successful implementation is finding community support, which only can be achieved after a successful education initiative.

All in all, requesting informed collectors to give up digging low-value late-season specimens, which on the other side are prime spore producers that will secure next year’s harvest, should find crucial community support. Furthermore, a set collection season end date as resource management strategy will be much easier to implement than more interruptive approaches such as further reducing collectors or limiting access to collection grounds.

**Conclusions**

Rural households benefit substantially from the caterpillar fungus industry. More and more households now are relying on caterpillar fungus income to get them through the year. Still, substantial income from caterpillar fungus collection and trade also challenges the community in many ways, forcing adjustment to new realities and coping with newly arising problems.

Centuries of collection indicate that caterpillar fungus is a relatively resilient resource. Unprecedented collection intensity, climate change and the recent economic dependence of local communities on caterpillar fungus collection in addition to increasingly frequent reports on resource overuse call for sustainable resource management. It is of paramount importance to develop management plans that can be implemented in a simple way taking into account the remoteness of the production areas.

Collection practices that remove unchecked as many fungi as possible seem to undermine spore dispersal. Late-season low-value fruiting bodies in the midst of spore dispersion are nowadays removed, whereas in the past such specimens were often left in the ground, thus securing spores
to infect next year’s crop of larvae. Recent field work has demonstrated that most collectors have no knowledge regarding the life-cycle of this fungus and the crucial role spore dispersion plays for continued production. Educating the collectors is a prerequisite to shift towards sustainable collection practices that will help retain sporulating fungi in the ground. The development of easily implementable approaches that can rely on community support will be crucial for successful management. Most sensible is a campaign to discourage harvest of late-season low-value fungi – a product disdained by most buyers - and the establishment of an end date of the collection season. It is hoped that these measures will allow for sufficient spore dispersal to guarantee continued sustainable harvest in order to protect the fungal resource, the production of this precious myco-medicinal and the livelihood of rural communities on the Tibetan Plateau.

References:


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Photo 1: Fruiting Stages of *Ophiocordyceps sinensis* © Daniel Winkler

Photo 2: A Tibetan family taking a break from Yartsa gunbu search. Unfortunately 2012 had only few Yartsa gunbu, just like 2011. 4640m, Lithang Dzong (Litang Xian), Garze Tibetan Autonomous Prefecture, Sichuan. June 5, 2012. © Daniel Winkler

Photo 3: Collectors searching Yartsa gunbu above Da Nge (Crying Horse Valley), Zatoe Dzong (Zaduo Xian), Yushu TAP, Qinghai Province. June 3, 2011 © Daniel Winkler
Photo 4: Interview with collectors regarding Yartsa gunbu life cycle and sustainability above Da Nge (Crying Horse Valley), Zatoe Dzong (Zaduo Xian), Yushu TAP, Qinghai Province. June 3, 2011 © Daniel Winkler

Fig. 1: First folio of the Tibetan text on *Yartsa Gunbu* by Zurkhar Nyamnyi Dorje
Fig. 2: Distribution area of *Ophiocordyceps sinensis* (green, white area: Tibetan Plateau)

Fig. 3: Annual Caterpillar Fungus Production by Prefecture in Tibet AR. (COULD BE DEPICTED IN Black and White TOGETHER WITH FIG 40)

Fig. 4: Estimated Average Annual Production of Caterpillar Fungus presented by Production Regions
According to the Buddhist teachings, all the sentient beings are subjected to the four vicious cycles of birth, disease, aging and death. This is called cyclic existence and no one is free from this Four Fold Suffering. Disease has followed mankind like a shadow since its inception. The root cause of all the suffering is attributed to "Marigpa" which means Ignorance in grosser sense of its translation. The Ignorance in turn gives rise to all kinds of negative mental afflictions which are known as three mental poisons such as: desire or attachments, hatred or anger, confusion or lassitude. The first one causes what is known in Tibetan Medicine as rLung or wind energy, second one causes mKrispa or Bile energy and third one causes Bad-kan or phlegm energy and together they constitute what is called as Nes-pa-sum or three principle diseases under which all the diseases that mankind could inherit are associated with. In Tibetan Medicine, though there are several diseases in which all the three Nes-pas are actively involved in its pathogeneses, cancer is one major disease that is characteristic of involvement of all the Nespas and Krag( blood) in their most virulent ways. It can be also said that cancer is not a single disease; it is a disease of disease with many layers of infections capable of destroying the total anatomy and architecture of our body system.

Tibetan Medicine believes that there are four hundred and four different kinds of diseases called nad-rigs bzhi-brGya-tza bZhi. In other words, all types of diseases or suffering as a whole is divided into four major categories with one hundred and one kinds of diseases that are associated with each category.
They are as follows:

1. **gZhan-dBan sNon-las** are those diseases which are associated with the negative karmic imprints from one's past lives. They invariably succumb to the disease despite the best treatment.

2. **Kun-brTags gDon-nad** are those kind of disease which are strongly influenced by evil spirits or negative mental elements. Such diseases can be relieved with appropriate rituals and spiritual healing by the Dharma Masters.

3. **Yons-sGrups Tze-nad** is associated with those kinds of diseases that if treated properly, can be cured, and if not, can prove fatal.

4. **ltar-snans 'Phral-nad** is associated with those common diseases that recovers even without any treatment, but recovers faster if treated on time.

Though there is no clear mention in the medical text about the cancer as being listed under the first category, there is popular belief among the people that cancer could be one such disease that falls under the disease of negative karma. In fact, for many of the cancer patients, the disease indeed appears like some kind of negative karmic influences where no matter how much of the best possible treatment are being met, the disease recurs again and again, sometimes with such a dreadful manifestation and pathetic condition that one many even dread to think of. Under such circumstances, it always helps to accept the suffering as it is without getting unduly frustrated. Being more positive and tolerant of the suffering and actively engaging oneself in some genuinely motivated selfless charitable services may certainly help to minimize the effects of negative karma which in turn may help to expedite the process of healing.

*In today's time, cancer has a reputation as one of the deadly disease. Taken as a whole, about half of people receiving treatment for invasive cancer die from active cancer or its treatment. Survival is worse in the developing world. However, the survival rates vary dramatically by type of cancer and early well planned treatment regimen.*

Cancer is a generic term for a large group of diseases that can affect any part of the body.

*Other terms used are malignant tumors and neoplasms.*

*One defining feature of cancer is the rapid creation of abnormal cells that grow beyond their usual boundaries, and which can then invade adjoining parts of the body and spread to other organs. This process is referred to as metastasis. Metastases are the major cause of death from cancer. Today, cancer stands as the leading cause of death next only to heart disease.*

**The data taken from the GLOBOCAN 2008 database estimates for year 2008.**

* Around 12.7 million new cancer cases were diagnosed worldwide in 2008
* Worldwide around 7.6 million deaths from cancer occurred in 2008.
• The most commonly diagnosed cancers worldwide are lung, breast and colorectal, stomach and liver cancers.
• An estimated 12.66 million people were diagnosed with cancer across the world in 2008,
• Just four cancer sites – lung, female breast, colorectal and stomach – accounted for two fifths of the total cases diagnosed worldwide.
• Lung cancer continued to be the most common among men.
• Cancer diagnosed in men worldwide (accounting for 16.5% of all new cases), and breast cancer was by far the most common cancer diagnosed in women (23% of all new cases).

WHO: News Media reports following as the cause of cancer or risk factor

• Tobacco use
• Environmental factors.
• Unhealthy diet with low fruit and vegetable intake
• Lack of physical activity
• Alcohol use
• Sexually transmitted HPV-infection
• Urban air pollution
• Indoor smoke from household use of solid fuels.

Tobacco use is the single most important risk factor for cancer causing 22% of global cancer deaths and 71% of global lung cancer deaths. In many low-income countries, up to 20% of cancer deaths are due to infection by HBV and HPV.

*Cancer is known as 'Dres-nad' in Tibetan Medical System. The name Dres was given following its resemblance to the shape of a fruit: like a coconut fruit, or like a solid mass of outgrowth from the internodes of big tree branches. The 63rd chapter from the “Oral transmission Tantra”, of the Four Great Tantra, explains in some details about this dreadful disease.

CAUSE:

The general cause of the cancer is given as follows:

• Improper food leading to chronic indigestion.
• Heavy physical stress or chronic accidental injury.
• Accumulation of impure blood in the body.
• This impure blood gradually multiplies and in many cases solidifies into tumors because of the action of an aggravated rLun as a result of severe stress factors.

The role of the chronic indigestion in the development of cancer is very clearly given in the Man-nag rGyud, 6th chapter on Indigestion. The nature of indigestion is explained as having two types: sNyigs-ma Ma-zhu and Dans-ma Ma-zhu. Former indigestion comes directly from the chronic indigestion in the location of digestive organs like stomach, intestine and colon etc.
Because of the indigestion, lots of mucus is generated which in turn cover up the undigested food particles inside which then gradually solidifies to become a tumor. Hence it is called indigestion of waste part or sNyigs-ma Ma-zhu. The latter is the result of poor absorption of foods where the waste products escapes into the duct cavities of fine nutrients connected with the liver which in turn fails to mature the blood producing cells. This long standing inhibition process in the liver leads into what is known as indigestion of essence or Dans-ma Ma-zhu. If left untreated and becomes more chronic, the process then gives way to four different pathways of disease proliferation as follows:

1. Solidification: This process can manifest mainly into tumor formation.

2. Draining condition: This process gives rise to dropsy and ascitis.

3. Dispersed condition: This condition may give rise to many inflammatory changes in the body such as skin eruptions, gout and arthritis, and above all cancer among many others.

4. Stagnation: This condition may give rise to active and dormant ulcerative condition, spleen disease and others.

Therefore, the proper digestion, absorption and assimilation food is considered very important so as to enjoy a proper flow of vital energy to nourish and enliven our body system.

**TYPE:**

There are 18 different type of cancer which are identified according to its location & predominance of Nes-pas.

Location of the cancer is mainly: Outer & Inner body organs.

Outer location comprises of: 1.Muscle, 2. bone, 3. rTsa.


In addition, cancer which arises from aggravated Nes-pas such as: 13. rLung, 14. mKrispa, 15. Khrag (Blood), 16. Badkan.

17. Cancer which comes from chronic Injury.

18. Je-’Bras: Small solid growth resembling bird's egg.

It is interesting to note that the breast and uterine cancer is associated with Khrag or blood type of cancer.
In sMan-dPyad Dawa'rGyalpo\(^3\), in chapter 42, Khrag-Des or blood cancer is clearly mentioned among 5 different types of cancer. Sha-Des or muscle cancer is given as very hard and solid type, rTza-Des or cancer in the blood vessels or lymphatic vessel is mentioned as hard swelling near these vessels and largely found in neck and body limbs, Rus-Des or bone cancer as very painful, found mainly in the thyroid region, sternum, nasal bone and knee joint etc, and blood cancer coming as a result of improper bloodletting. There is treatment mentioned against breast cancer too.

**CHARACTERISTIC FEATURE OF CANCER:**

- The nature of the tumor is hard & well defined.
- Tumor is hard to dissolve with the hot medicinal bath or with any external application.
- Once established in the body organs, the cancerous cells drain out all the nutritional essence of the body for its growth.
- Once matured, it has the tendency to come out with pus from both upper & lower ends.
- The advanced cancer becomes extremely difficult to treat. Therefore, an early treatment is strongly advised.

These early and very important observations made on the nature of cancer assume lots of significance in the context of similar views or findings from the modern conventional approach. As a practitioner, we could observe these things very clearly in cancer patients. An emphasis on the diagnosis and early treatment as advanced cases as being very difficult to treat is something which too is very sound and rational and, sits pretty well with the view of modern biomedical science.

**TREATMENT MECHANISIM:**

- **Textual:** In order to restore the balance of the Nes-pas; to generate faster immune response and for the disease to regress and cellular healing to take place, herbal formulations in the form of pills & decoction should be given orally.

**Practice and observation:** Irrespective of the clear cut cure, one thing sure about the Tibetan Medicine is its ability to give a general well being, improvement in appetite and reduction in the mental trauma and to greater extent, the quality of remaining life of the patient. There are several different types of decoctions which can provide detoxification, reduction of the inflammatory changes and harmonizing or balancing the energy level of the aggravated body system. Some of the oral pills can give immediate boost to the immune response and can be extremely helpful in maintaining the hematological parameters.

- **Textual:** Since the nature of tumor is solid hard, hot medicine bath, or an external application should be employed to dissolve the tumor.
Practice and Observation: The facilities and practice for giving medicine bath is a rare occurrence in most of the branch clinics with the exception of Dharamsala where such facility is available. This could be very helpful in relieving the pain and in minimizing the chances of rapid progression of the cancer. Some hot and cold compression or fomentation is practiced where ever necessary. Among the external therapies, most commonly practiced and most effective too, in controlling and also in reducing/shrinking the sizes of the external hard tumor is the moxa-bustion\(^4\). We have ample records to show the significant decrease in the tumor sizes after the application of moxa-bustion.

- **Textual**: To flush out the dissolved cancerous debris or necrotic tissues from the body channels, vein-cleansing is strongly advised with the help of experienced practitioner.

Practice and Observation: Although the channel cleansing method is very important part of the treatment process, it is practiced very little or not at all in most of the Branch Clinics under Mentsee-khang. This not only helps in flushing out the inner necrotic substances or cancer causing free radicals from the body organ, it also paves the way for the proper flow of energy. Many of our patients in Bangalore are quite aware of these cleansing decoctions though we still do not have those rTza-sByjons\(^5\) or channel cleansing formulations.

- **Textual**: To reduce the pace of infection & inflammation, and to curb the speed of progression of cancerous cells, vene-section\(^6\) is frequently advised with the expert’s help.

Practice and Observation: As per the instructions in the medical text, vene-section is highly advised, particularly in reducing the pain and infection level; severity of the cancer activity and in minimizing its dreaded progression. But it is quite unfortunate that this practice of vene-section is steadfastly declining in modern day practice and, there are hardly any few doctors who actually implement them in their regular practice. Nonetheless, it is also quite risky to practice this unless one is thoroughly professional in its practice.

- **Textual**: To slow down or to stop the pathways of proliferation or angio-genesis, moxabustion is highly advised.

Practice and Observation: Moxa-bustion is the one as stated earlier that is being practiced relatively common, both with the dried herbs as well as in the form of Golden hammer therapy. I have personally found it very helpful in many ways, particularly, in reducing the sizes of the external growths and also the lymph nodes that appears again and again. Instead of going for chemo, many of my patients are given this moxa with quicker and better result.

Desid Sangye Gyatso\(^7\), in his supplementary on rGyud-bZhi commentary, called Man-nag Lhan-thaps, outlines three important treatment regimens as follows:

1. The main cause of cancer is blood & hence, the blood should be purified by giving frequent venesection from the nearest site of its development.
2. The supporting factor is an infection & hence, it calls for an anti-inflammatory medicine. Detoxification and Cleansing the blood vessel or body channel is advised.

3. The resultant disease is malignant tumor & hence, should be dissolved with hot medicinal compression & moxabustion.

These three pronged strategy outlined by Desid appears to be very practical and rational in its approach. With the gradual and continuous progression of the cancer, the blood gets thicker with lack of oxygen supply and tends to stagnate at certain vulnerable sites paving the way for more and more lymph node enlargement; blockade of vital energy supplies, pus formation etc. And when it breaks out, it is all necrotic and dead tissue. The lymph node proliferation and pus formation could be avoided to large extent with the purification of blood time to time so that the oxygen supply to the blood is enhanced to facilitate the process of healing. Desid also calls for reducing the severity of an infection through the cleansing of veins and blood vessels to flush out the free radicals that are lodged inside. Moxabustion often cuts off the blood supply to the tumor and cancerous formation and hence, highly advised.

I have always believed that there is no magic bullet in the treatment and cure of cancer. Strategy and treatment approach appears much more important than the treatment itself. On many occasions, ill-timed treatment and also the wrong treatment approach has done more harm than giving any semblance of benefit. A well manageable cancer becomes totally aggressive with severe complications and much hastened metastasis because of the totally inefficient handling of the case.

In addition to the above treatment regimen, following advises are given which appears to help in many ways.

- Changes in one's diet and life style are found to be quite essential.
- Regular exercises; brisk to light walking in the morning and early evening hours.
- Yoga practices including rhythmic stretching and deep breathing exercises are also encouraged.
- Enlightened Lamas & the respected Sangha community are also being consulted for the following reasons.

1. To counteract the harmful negative influences that sometimes creates an obstacles to the treatment response and recovery phase.

2. To minimize one’s bad Karmic effects, & to remove any hidden obstacles to the treatment response by engaging in desired spiritual practice and certain important rituals like Medicine Buddha's mdo-chog or prayers.

3. To uplift patient’s aura & positive spirit.
Tibetans apart, I have personally come across many Indians and foreigner who expressed great mental relief and sense of well being and spiritual upliftment after visiting Tibetan Monastery in South India and after receiving the blessings from the spiritual masters most of whom were referred by myself. This is a condition where many researchers and experts now strongly believe and work in the specialized field of psycho-neuro-immunology. Apparently, when our mind-spirit is low and discouraged lot, even the disease, pain and complications becomes more and unbearable. On the contrary, when our mind-spirit becomes stronger, optimistic and more positive, it sends off neuronal signal that begins to activate the organs of immune system.

CANCER TREATMENT AND MANAGEMENT IN BANGALORE MENTSEE-KHANG

It is to be noted that 90% of the cancer patients that comes to us were post operative, post chemotherapy, post radiation therapy or either one or two or all three of them. May be 5% of the cases were on other Alternative therapies like Ayurveda, Sidda & Homeopathy in addition to the Allopathic treatments prior to starting Tibetan Medicine. May be 2% of the patients may come to us without having taken any other therapies and want to start with only Tibetan Medicine as the main course. Here in Bangalore, Chennai, Hyderabad and Kerala, patients were given Tibetan Medicines to take 3 or more times a day with an average of 15 to 30 days course.

They are also being given dietary restrictions & recommendations. Change in the lifestyles & mental attitudes are strongly encouraged and advised accordingly.

Some self-healing techniques like guided visualizing meditation, breathing exercises, recitation of Medicine Buddha’s Mantra are also advised.

MAINTAINING THE RECORDS AND DOCUMENTATION OF THE CASES

Each patient has a separate case file with a common treatment study form along with his or her medical history, discharge summary, pathological & radiological reports. Patients were asked to bring their complete blood test every 3 months & radiological reports every three to six months to evaluate the progress. No wonder, the patient compliances rates are not very satisfactory.

No strict controlled measures or standard laboratory technique was followed while collecting the various medical follow-up reports of the patients. Many patients want to bring their medical test from their nearest diagnostic centre and not from where doctor want them to bring. There are many instances where patients are not able to continue with their medications because of the distance and some other family issues. All other system of Alternative Therapies and complementary medicines are discouraged once patients are in full course with the Tibetan Medicine.

However, standard conventional treatments like chemo & radiation therapy (C & R), and some new generation cancer drugs are also allowed in-between wherever and whenever necessary as per the patient’s request in keeping with the increasing tumor markers as well as newly acquired secondary infections. During the course of chemo therapy and radiation therapy, the main course
of Tibetan Medicine against the cancer will be stopped and instead, some supporting medicines will be given. These supporting medicines are taken only between the intervals of chemotherapy and not while patient were receiving the injections. Also, the powerful precious pills are advised to stop while the patient undergoes chemo and radiation. Once the patient fully stops the conventional course of the cancer treatments, we then include the precious pills as part of the main course of the treatment.

STATISTICS:

<table>
<thead>
<tr>
<th>Total No. of patients</th>
<th>647</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of Male patient</td>
<td>309</td>
<td>48%</td>
</tr>
<tr>
<td>No. of Female patient</td>
<td>338</td>
<td>52%</td>
</tr>
</tbody>
</table>

*Summary in area wise:*:

<table>
<thead>
<tr>
<th>PLACE</th>
<th>Discontinued</th>
<th>Good case</th>
<th>Control case</th>
<th>Near cured case</th>
<th>Bad case</th>
<th>Expired</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chennai</td>
<td>168</td>
<td>32</td>
<td>43</td>
<td>7</td>
<td>2</td>
<td>62</td>
<td>314</td>
</tr>
<tr>
<td>B’lore</td>
<td>102</td>
<td>17</td>
<td>25</td>
<td>1</td>
<td>---</td>
<td>39</td>
<td>184</td>
</tr>
<tr>
<td>Hyd.</td>
<td>70</td>
<td>21</td>
<td>40</td>
<td>4</td>
<td>---</td>
<td>14</td>
<td>149</td>
</tr>
<tr>
<td>Total</td>
<td>340</td>
<td>70</td>
<td>108</td>
<td>12</td>
<td>2</td>
<td>115</td>
<td>647</td>
</tr>
</tbody>
</table>
### Most common cases of the diseases:

<table>
<thead>
<tr>
<th>S.No</th>
<th>Disease</th>
<th>Cases</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Ca. breast</td>
<td>74</td>
</tr>
<tr>
<td>2.</td>
<td>Ca. lung</td>
<td>42</td>
</tr>
<tr>
<td>3.</td>
<td>Ca. liver</td>
<td>35</td>
</tr>
<tr>
<td>4.</td>
<td>Ca. stomach</td>
<td>30</td>
</tr>
<tr>
<td>5.</td>
<td>Ca. brain</td>
<td>27</td>
</tr>
<tr>
<td>6.</td>
<td>Ca. ovarian</td>
<td>25</td>
</tr>
<tr>
<td>7.</td>
<td>Ca. colon</td>
<td>17</td>
</tr>
<tr>
<td>8.</td>
<td>Ca. Lymphoma</td>
<td>15</td>
</tr>
<tr>
<td>9.</td>
<td>Ca. leukemia</td>
<td>14</td>
</tr>
<tr>
<td>11.</td>
<td>Ca. oesophagus</td>
<td>13</td>
</tr>
<tr>
<td>12.</td>
<td>Ca. cervix</td>
<td>12</td>
</tr>
<tr>
<td>13.</td>
<td>Ca. mouth</td>
<td>11</td>
</tr>
<tr>
<td>14.</td>
<td>Ca. prostate</td>
<td>10</td>
</tr>
<tr>
<td>15.</td>
<td>Ca. pancreas</td>
<td>9</td>
</tr>
<tr>
<td>16.</td>
<td>Bone cancer</td>
<td>7</td>
</tr>
<tr>
<td>17.</td>
<td>Ca. tongue</td>
<td>8</td>
</tr>
<tr>
<td>18.</td>
<td>Ca. urinary bladder</td>
<td>6</td>
</tr>
<tr>
<td>19.</td>
<td>Ca. caecum</td>
<td>3</td>
</tr>
</tbody>
</table>
In June this year, we have undertaken complete analysis of cancer patient's files and came out with the following statistics.

Total number of patients recorded with their case files from Feb, 2011 to June, 2012 = 144.00

Total number of patients actively continuing the Tibetan Medicine = 75

Total number of patients who have discontinued Tibetan Medicine = 35

Total number of patients found to have passed away = 34

**Top Ten Cancer Cases from Feb, 2011 till June 2012.**

<table>
<thead>
<tr>
<th>S. no.</th>
<th>Type of cancer</th>
<th>No. of cases</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Breast</td>
<td>19</td>
</tr>
<tr>
<td>2</td>
<td>Lung</td>
<td>12</td>
</tr>
<tr>
<td>3</td>
<td>Ovary</td>
<td>11</td>
</tr>
<tr>
<td>4</td>
<td>Multiple Myeloma</td>
<td>8</td>
</tr>
<tr>
<td>5</td>
<td>Colo-rectal</td>
<td>7</td>
</tr>
<tr>
<td>6</td>
<td>Stomach</td>
<td>7</td>
</tr>
<tr>
<td>7</td>
<td>Non Hodgkin lymphoma</td>
<td>6</td>
</tr>
<tr>
<td>8</td>
<td>Brain</td>
<td>6</td>
</tr>
<tr>
<td>9</td>
<td>Type of Leukemia</td>
<td>6</td>
</tr>
<tr>
<td>10</td>
<td>Oral tongue and Mouth</td>
<td>5</td>
</tr>
<tr>
<td>S.no.</td>
<td>Name</td>
<td>Age</td>
</tr>
<tr>
<td>-------</td>
<td>----------------</td>
<td>-----</td>
</tr>
<tr>
<td>1</td>
<td>Lakshmi Narasimha</td>
<td>30</td>
</tr>
<tr>
<td>2</td>
<td>R G Menon</td>
<td>M</td>
</tr>
<tr>
<td>3</td>
<td>Dase Gowda K N</td>
<td>33</td>
</tr>
<tr>
<td>4</td>
<td>S K Podder</td>
<td>66</td>
</tr>
<tr>
<td>5</td>
<td>Mrs Indira Prasad</td>
<td>F</td>
</tr>
<tr>
<td>6</td>
<td>Ramanan</td>
<td>62</td>
</tr>
<tr>
<td>7</td>
<td>Balasubramani U</td>
<td>48</td>
</tr>
<tr>
<td>8</td>
<td>Malini Narayan</td>
<td>60</td>
</tr>
<tr>
<td>9</td>
<td>Shanti Ramanathan</td>
<td>37</td>
</tr>
<tr>
<td>10</td>
<td>Arunagiri R</td>
<td>64</td>
</tr>
<tr>
<td>11</td>
<td>Mallikarjuniah</td>
<td>49</td>
</tr>
<tr>
<td>12</td>
<td>Mrs. S.Hari</td>
<td>68</td>
</tr>
</tbody>
</table>

**SUMMARY OF THE OBSERVATION ON THE EFFECTIVENESS OF TIBETAN MEDICINE AND POTENTIAL AVENUE FOR CARRYING OUT COLLABORATIVE RESEARCH**

1. Tibetan Medicine helps promisingly in improving the immune system & general health condition of the patient.
There is no shred of doubt that Tibetan Medicine does help in boosting the immune response of severely compromised or suppressed immune functions of the cancer patients. It was also found that patients with severely low immune parameters have none or very minimal chances of any potential infections, fever and body pain etc while on Tibetan pills. Feeling of wellness and better energy is assured in most of the cases.

2. Helps to slow down or delay the progression of the cancer.

In most of the cases with potential chances of further or quicker progression of the cancer, it is being observed that after due course of Tibetan Medicine; the tumor activity slows down without further increase in the lymph node sizes or growth/lesions in some of the organs. In some cases, it was noted substantial decrease in the tumor markers like CEA, Ca-125, PSA etc.

3. Helps to avoid or effectively control any secondary infections.

This is very promising findings that we have keenly observed very rare or no secondary infections in most of our old patients who have been taking Tibetan Medicine for more than 5 years and above. For instance, patients with breast cancer; most of whom are post surgery alone, some with post chemo and no radiation and some with all the three conventional treatment prior to taking Tibetan Medicine with or without any secondary infections to Lung, Liver and others, and few who refused any other treatments other than Tibetan Medicine; Bronchogenic Carcinoma, Multiple Myeloma, NHL, Colo-rectal cancer, and Brain tumor etc have been doing very well without any sign of metastasis or secondary infections. It is also noted that all of these patients were and many of them are still dependant only on Tibetan Medicine with no other alternative therapies.

4. Minimizes both the physical & mental suffering and severe cancer pain.

This is more general with no substantial or tangible records to prove with facts and figures at hand, yet genuinely felt relief and well being both physically and mentally. One could easily find the patient becoming more tolerant and positive, less frustration, better sleep with less stress, more engaging and friendlier with their family members and neighbors after some courses with Tibetan Medicine. However, it is to be noted that except for the severe Liver pain (carcinogenic) and excruciating piercing pain in the bone which I found very difficult to give relief, most of other pains from organ related or some severe body pain, pain in the ribs, and pressure in the upper body etc are found to be much better and bearable with the Tibetan Medicine.

5. Minimizes side effects of Chemotherapy & Radiation when taken complementary with each other.

This is one area where Tibetan Medicine when taken in complementary with the chemo and radiation therapy, particularly, in between the intervals of each cycle of chemotherapy, helps to reduce the notorious side effects like severe hair fall, nausea, liver problem, neuritis, and above all, extreme weakness. Most of the patients were able to tolerate the chemos much better. Some
even prefer and so, have been taking Tibetan anti-biotic type of pills in place of modern antibiotics right after the chemo cycle to fight the infections in much healthier manner. I think this is one area where we could do a serious and purposeful research.

6. Extends the life-span significantly.

This findings also needs to be taken very seriously as most of the patients who comes to us with a bad prognosis of 3 months and 6 months etc, have been living invariably much more with significant extension in their life, and that too with a bonus of quality life worth appreciating. Some of the Mentsee-khang food supplements like Chong-chen Chue-len, Ge-so Chue-len and Tse-phel Dud-tzi-contain many rejuvenating herbs; phyto-chemicals and phyto-nutrients in synergistic combination to protect the body; fight the cancer cells and rejuvenates the body system.

Footnotes:

1. Cancer according to the definition of WHO
2. In transliteration, it is written as ’Bras-nad. ‘Bras meaning fruit and, nad meaning disease.
3. sMan-dPhad Dawa’ rGyalpo is one of the most ancient and authentic referral medical text.
4. Moxabustion is called bSreg (pronounced as Seg) or May in Tibetan. It is given very hot at the meridians.
5. rTza-sByons is a purifying method of Channel Cleansing with a use of some herbal formulations.
6. Venesection is called gTar-ga (pronounced as Targa in Tibetan. It is also known as bloodletting.
7. Born in 1653 was a popular regent during 5th Great Dalai Lama, also one of the most learned 17th century scholar.
8. Healing Emotions by Daniel Goleman
9. Precious pills known as Rinchen Rilbu in Tibetan, are very powerful and sacred combination of multiple rare herbs with precious and semi-precious stones, heavy metals and minerals with several months of secret detoxification and highly standard preparation and potentiation. They are also like an elixir of life capable of curing many chronic and dreaded diseases.
10. Other source book of this article includes mainly rGyud-bZhi, Baidurya sNonpo and Man-nag Lhen-thabs by Desid.

**MANAGEMENT OF HEPATITIS**
西藏阿格·阿旺·洛基·彭措·多吉·桑波·章都·吉布·阿旺·桑波·多吉

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1. 阿旺·桑波·多吉

阿旺·桑波·多吉

2. 阿旺·桑波·多吉
བོད་ཀྱི་སྤྱི་ཚེད་དེ་གྲོས་བཅོས་པ་ཤེས་བོ་དེ་བཅོས་ནས་བྱེད་ཕྲག་ཕྲད་གྱིས་སྤྱད་བུ་ཡོད་དགོས་པར་ཞུས་དང་བྱེད་མི་དུ་འཁོར་བུ་དེ་སྤྱད་པར་མས་པ་ནི་ཤེས་དེ་བཅོས་ནས་ངོ་ཞིོ། སྤིན་པ་བཞི་བརྙན་སྤྱད་པར་ཞུས་དང་བྱེད་མི་དུ་འཁོར་བུ་དེ་སྤྱད་པར་མས་པ་ཐོས་དེ་བཅོས་ནས་ངོ་ཞིོ།

སོར་བོད་ཀྱི་སྤྱི་ཚེད་དེ་གྲོས་བཅོས་པ་ཤེས་བོ་དེ་བཅོས་ནས་བྱེད་ཕྲག་ཕྲད་གྱིས་སྤྱད་བུ་ཡོད་དགོས་པར་ཞུས་དང་བྱེད་མི་དུ་འཁོར་བུ་དེ་སྤྱད་པར་མས་པ་ཐོས་དེ་བཅོས་ནས་ངོ་ཞིོ།

དེར་ནི་སོགས་ཐོས་དེ་བཅོས་པ་ཤེས་བོ་དེ་བཅོས་ནས་བྱེད་ཕྲག་ཕྲད་གྱིས་སྤྱད་བུ་ཡོད་དགོས་པར་ཞུས་དང་བྱེད་མི་དུ་འཁོར་བུ་དེ་སྤྱད་པར་མས་པ་ཐོས་དེ་བཅོས་ནས་ངོ་ཞིོ།

116
བོད་དཔལ་དི་ཨེ་ཐོབ་(positive to negative) མཐོང་ནུམ་དཀར་བུ་དང་ཐུབ་བསྟོད་

51 བོད་དཔལ་དི་ཨེ་ཐོབ་(Hep.B) འོ་མྱིས་ལྡན་གཡུག་

52 བོད་དཔལ་དི་ཨེ་ཐོབ་(Hep. B) འོ་མྱིས་ལྡན་གཡུག་བདེ་སྐྱེལ་དབང་གིས་}
བོད་ལྷག་བློ་གསལ་བ་དམིགས་མེད་ཀྱི་ཕྱིར་སློབ་

"དབང་ཕྲན་བསོད་ནམས་དང་ལྟོགས་ཀྱིས་དབང་བན་སངས་རྒྱས་"
61 འཚུབ་ས་ས་བོད་(Hep. B) འཕྲུལ་བཤད་

ལོ་ཁང་ལ་སྐྱེན་ཁོ་སྤྱུར་དང་། རོལ་རྒྱུས་ཏེ་བེད། ཡང་ཐོས་ནི་ལོ་ཁང་ལ་སྐྱེན་ཁོ་སྤྱར་བོད་ལ་འཚུབ་ས་མི་བཞི་ལ། འོ་གོ་བཞི་་

dང་པོབོད་གཤེགས་སིལ། རོལ་རྒྱུས་ཏེ་བེད། རོལ་རྒྱུས་ཏེ་བེད། ལོ་ཁང་ལ་སྐྱེན་ཁོ་སྤྱར་བོད་ལ་འཚུབ་ས་མི་


61 འཚུབ་ས་ས་བོད་(Hep. B) འཕྲུལ་བཤད་

་མིང་ན་འཚུབ་ལ་ལ་འཚུབ་ས་ས་བོད་(Hep. B, viral load)༔ འདམ་པ་འཆེར་བྱས་སུ་, བོད་ལས་ནི་འཚུབ་ས་ས་


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His Holiness the Dalai Lama has said on several occasions to Tibetan doctors regarding the need to do research studies on Tibetan medicine in collaboration with other scientific and research institutions. He also has stressed the need to work closely between doctors of traditional Tibetan medicine and other medical systems, including allopathic doctors.

This paper aims to introduce processes of modern research methodology, explains the compatibility and incompatibility between Tibetan medical approach and modern research.
methodology, and discusses the need to find an appropriate research methodology for Tibetan medicine.

**Introduction**

The role of medical research has increased substantially in modern times, which is of great significance for all scientific disciplines. Almost all the progress in medical science is the result of careful and systematic research studies. For example, the eradication of small pox, the discovery of BCG vaccination, the development of sophisticated computerised surgical procedures, etc., are all a result of research studies. However, the precise knowledge of modern medical sciences, which are effective in dealing with the diseases of single and specific causes, is still not able to deal satisfactorily with non-specific and multifaceted diseases. We are still witnessing an alarming rise of people with chronic degenerative diseases like cardiovascular disease, diabetes mellitus, Alzheimer, hepatitis, cancer and AIDS despite the continuous scientific and technological developments in this 21st century. This means that our human body is a very complex and sophisticated organism that the biomedical science approach is still not sufficient to tackle with these chronic diseases. Therefore, there is an urgent need for holistic ways to deal with such disease. With the rising cost of health care the world over, traditional Tibetan medicine can offer a major contribution in dealing with these chronic and debilitating diseases. Acknowledging this potentiality in view, this paper discusses processes of research methodology as well as strategies as to how they have been and could be applied to Tibetan medicine.

The basic definition of health in Tibetan medicine is not merely the absence of disease. Tibetan medicine believes that healing takes place because of a complex interplay between positive physical energies and positive mental attitudes, as well as social and environmental aspects of the human condition. This means that chronic diseases have multiple and non-specific causes, and only an intervention on multiple levels can heal the disease at its root (Cohen. 1989:3-6). Considering its aspects such as the determination of constitutional types, age peculiarities, time factors and environmental conditions in its diagnostic principles, the classification of diseases and the definition of properties of raw materials are given great importance in Tibetan medicine. Our organs and energy systems are functionally united and the regulation of their state depends upon the degree of their interaction. Consequently, we understand that the affliction of a single organ has a systematic effect on the surrounding organs. All of these deeply connect with the functional states of the three humors (rLung, Tripa and Badkan) and the five elements (Earth, Water, Fire, Air and Space).

**Meaning of Research**

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8 I thank Dr. Barbara Gerke, Humbolt University of Berlin for her many useful comments and providing some of the reference materials for this paper. I also would like to thank my brother Karma Dorjee for reading the manuscript and giving me useful suggestions.
Research is an art of systematic investigation in search of knowledge to establish facts or principles, and it promotes skills of logical thinking and organization. Research comprises defining and redefining problems, formulating hypothesis, collecting, organizing and evaluating data, making deductions and reaching conclusions, and finally carefully testing these conclusions to determine whether or not they fit the formulated hypothesis (Kothari. 2007:1).

Research is important both in scientific and non-scientific fields in order to analyse new problems, events, phenomena and processes that occur every day in our life and assists us to understand nature and natural phenomena. Modern research in particular draws its power from the fact that it is empirical, rather than merely theorizing, about what might be effective or what could work. New medical research found answers to health problems, and it leads to new methods of treatment, new drugs and better ways to deal with our lives. For example, the cyber-knife method of radiotherapy helps to locate a precise point for treating cancer. This robotic method is much safer and easier to operate than the previous radiotherapy against cancer.

Research gives access to a fountain of knowledge and information that provides a basis for making government policies, including health policies, and guidelines for solving problems. For example, if it finds that Tibetan medicine is effective in treating cancer during the initial phase of a clinical trial, then it helps policy makers and administrators to allocate more funds for further research on Tibetan medicine against cancer. However, there are major problems that we face today with researching on Tibetan medicine: the lack of a standard research model, the lack of dedicated facilities, the lack of training for researchers, the lack of a central research database, inadequate funding, and difficulties in designing protocols and in obtaining peer reviews.

**Types of Medical Research and Research Methodologies**

Research Methodologies usually employ a format that must provide room for repeatability and accuracy. It should always be of high quality in order to produce knowledge that is applicable outside of the research setting with implications that go beyond the group that has participated in the research. It enables researchers to pursue an in-depth original study of a topic of their interest that leads to new ideas, revision and improvements. Researchers use acceptable scientific methodology to solve problems and create insights that based on unbiased studies by collecting data in an ordered manner and by following strict rules about the mode of collection. It is important to examine study methods and data from different viewpoints to ensure a comprehensive approach to the research question.

Public health, biochemistry, clinical research, microbiology, physiology, oncology, surgery, etc., are different fields of present-day medical research. There are two general categories of biomedical research. The first one is preclinical or basic medical research that helps in the development of new treatments; it precedes the clinical trials. A rigorous test in a laboratory must be carried out of any new formulation before its use in clinical trials. Preclinical research
trials are often based on theoretical and laboratory experiments. It is then used in clinical practice. In the case of Tibetan medicine and other traditional medicine, it is a reverse approach (Kienle et al. 2011:175-76). For example, Poekar-10 is a Tibetan medicinal compound that has been in use for many centuries in Tibetan medicine to treat conditions like arthritis and gout. The study on the effects of Poekar-10 on the NIH3T3 Fibroblast cell line, which was conducted by Carol–Renee Pierpoint in the year 2004 at Portland Community College (Pierpoint, sMan-rtsis Jounral 2007:23-31) supports the use of Poekar-10 in Tibetan medicine practice. WHO guidelines suggest that elaborate laboratory experiments are not necessary for traditional medicine and this includes traditional Tibetan medicine (WHO.2001).

Another type of medical research is clinical research. The comparison between treatments of one group versus a controlled group is the gold standard in a clinical trial. When a formulation is found to be safe for human consumption in a laboratory experiment, the drug is then tested on a few numbers of healthy subjects during a so-called ‘phase one clinical trial.’

Clinical trials vary in size in terms of number of researchers, hospitals and clinics. Some clinical trials are conducted on a few dozens of participants, while others are conducted on a few thousand. For example, Dr. Sarah Sallon and her team conducted a clinical trial on just 11 patients divided into three groups. The first group of six patients (group I) took mercury-sulphide containing Tibetan medicine, the second group of three patients took non-mercury sulphide containing Tibetan medicine and the third group consisted of only two healthy volunteers (Sallon, sMan-sTsis Journal 2007:7-22).

Now the question is what kind of research methodology should we choose to conduct research on traditional Tibetan medicine? Are conventional research methodologies sufficient to conduct research on Tibetan medicine? Is the ‘Gold Standard’ of randomised controlled clinical trials (RCTs) compatible with a Tibetan medical approach?

The importance of designing an appropriate research methodology for Tibetan medicine lies in exploring the integrated aspect of the Tibetan medical system as a Science, Art and Philosophy. Although it is essential to conduct research studies on Tibetan medicine science, but modern research methodologies are not always the best research model to study the art and philosophical aspects of Tibetan medical ideas. Dr. Narendra Bhatt in his interview to P. B. Mukharji has said that the application of new research methodologies has enriched Ayurveda’s science, but not its practice (Mukharji 2006).This means that integration of modern research methodologies in the clinical trial of Ayurvedic medicine has not enriched its diagnostic and treatment procedures in the past.

Sometimes the ignorance of Tibetan doctors in the field of research and research methodology and the belief in the superiority of scientific truth of biomedicine model makes Tibetan doctors easily vulnerable. FeiFei Li, a Chinese-born engineering student from Princeton University conducted a one-year clinical study at the Digestive Division of Men-Tsee-Khang in Lhasa. She and her team of Tibetan doctors used six Tibetan medicines to study their effects in treating H-
pylori on 60 patients. These six medicines after the study seemed to have eradicated all the symptoms associated with HP bacteria and the patients remain symptom-free even during a follow-up check-up a year later. However, since these six kinds of Tibetan medicine did not eradicate the HP infections, Tibetan doctors who participated in the study easily interpreted the results as failure without any second opinion (Adams 2000b). Tibetan doctors inside and outside Tibet were also at the receiving end of legal disadvantages of ownership and marketing of the research products. According to Vincanne Adams, Tibetan doctors are vulnerable in two ways. She says, “First by entering into the market, they are potentially criminalized by transporting into the market both their drugs and their magical thinking. Second, entering the research field exposes them to the theft of their intellectual property” (Adams 2000b:670).

Dr. Narendra Bhatt in his interview with P. B. Mukharji said, “During the past 35 to 40 years, a large number of clinical studies have been carried out throughout the country. However, with the failure to incorporate ayurvedic principles into basic hypothesis construction and to focus on variables aligned to ayurvedic understanding, effective treatment guidelines are still missing. If well-researched treatment suggestions and guidelines were available, they would be of great help to practitioners of ayurveda, alleviate the suffering of patients, and unquestionably bring wider recognition to the system” (Mukharji 2006:301).

Interest and pressure of Chinese government to engage and seduce Tibetan doctors inside Tibet in global pharmaceutical businesses creates confusion and distortion towards the meaning and approach of research studies on Tibetan medicine. Vincanne Adams writes, “the growing presence of multinational pharmaceutical investments… even in remote parts of Tibet,… is in part the increasing desire of Tibetan doctors, pharmacists, bureaucrats to engage in global pharmaceutical capitalism has generated tensions around the meaning of ‘science’ when it comes to matters such as measuring the efficacy of Tibetan medicines, in contrast to those of western or bio-medicine” (Adams 2000b: 660). Therefore, we must look for an appropriate research methodology for Tibetan medicine and begin a comprehensive and rigorous research studies that explore the relationship and differences between Tibetan medicine and biomedicine as well as the complexities of the factors described above (Lewig et, al. 2002, Wallach et, al. 2002) keeping in the mind the views expressed by Dr. Bhatt..

**Research Methodology Processes**

Burning, cutting and rubbing gold to evaluate its purity content is a research process. This process helps to overcome the doubts about the purity of gold. However, there is a method of burning, cutting and rubbing gold to evaluate its purity, and the person who does that must be fully trained and knowledgeable. A researcher also involves himself in a similar manner, and may choose from various methods and models that may help to achieve the best research objectives.

There are two approaches to a research process. Both of these approaches have their place in research, and they have their strengths and weaknesses. The first is an unstructured approach,
and this type of inquiry is usually classified as qualitative research. For example, the “Analytical report of the patient's questionnaire forms on five major chronic disorders”, published by Men-Tsee-Khang, Dharamsala in 2011 is a form of qualitative research. This approach allows flexibility in all aspects of the research process. It is more appropriate to explore the nature of a problem, issue or phenomenon without quantifying it. The main objective in this approach is to describe the variation in a phenomenon, situation or attitude. It could be a description of an observed health status of a community in a given situation, testimony of patients regarding their experience in taking Tibetan medicine, and so on.

The second is a structured approach. It is classified as quantitative research since everything that forms a part of the research process, including the questions that researchers plan to ask to participants are pre-determined. For example, Clinical Trial of Tibetan medicine in the treatment of chronic hepatitis-B, published by the Clinical Research Department of Men-Tsee-Khang, Dharamsala, belongs to quantitative research. This method determines the extent of a problem, issue or phenomenon by quantifying the possible variations.

There are some important steps, one must follow in the research methodology process, and I will discuss problems as well as possibilities to find appropriate research methodology for Tibetan medicine in these steps:

**a) Formulating a research problem:**

This is the first and most crucial step in the research process. The purpose and problem statement of the research is the initial component in all research projects. The way one formulates a problem determines almost every step that follows. The purpose of research varies in different scientific disciplines, and therefore it is a complicated issue. The main aim is to decide what the researcher wants to find out.

The purpose statement identifies the type of study to be conducted and defines the specific area of research. The general purpose of conducting research on Tibetan medicine presumably is to prove the safety and efficacy of Tibetan medicine in a scientific manner, and to serve the preservation and promotion of the Tibetan medical tradition. Researchers must identify the purpose of the research study as precise as possible in order to achieve this objective in the long run. Such a statement helps the researcher to develop a clear understanding of his work. For example, a statement such as, to compare between Tibetan and Conventional diet advice in controlling Rheumatoid Arthritis could be the purpose statement.

There should be a clear distinction between the problem and the purpose. The problem is the aspect the researcher worries about, thinks about, and wants to find a solution. The purpose is to solve the problem. If there is no clear problem formulation, the purpose and methods are meaningless. There is something to consider while selecting a research problem to ensure that the research study remains manageable and keeps the researcher motivated. One should first select a topic of great interest to sustain the required motivation, and the selected topic should be
manageable within the time and resources at disposal. For example, one could first select the
disease that one is interested in pursuing research. Then one must question oneself and ask what
one wants to achieve through this study. It is important to check if there are enough funds to
cover all the costs, and if there are adequate levels of expertise. One must ensure that the
particular study adds to the existing body of knowledge, bridges current gaps and is useful for
policy formulation. One also must make sure that the data resource is available before finalising
the topic. This will help the researcher to sustain interest in the study.

A research problem usually refers to a difficulty that a scientific community or an organization
experiences. It may be a theoretical or a practical situation and it is the pre-requisite for all
research endeavours. It is one of the first statements, made in any research paper, which leads to
the proposal of a viable hypothesis. For example, several studies in the past found a high
incidence of high blood pressure among Tibetan communities. In our survey of the Dharamsala
Tibetan community in 1989, prior to our clinical study, we also found a high incidence of high
blood pressure among Tibetans above the age of 30 in association with a high intake of salted
butter tea. Since we identified high blood pressure as a major health hazard of our Tibetan
community through this survey, and since Tibetan medicine is believed to be effective in
controlling rLung and blood disorders, we chose to conduct a clinical trial as a pilot study on the
treatment of hypertension. It found that there was a close association of high blood pressure and
high salt intake in a similar survey in Lhasa in 2001.

At the stage of formulating the problem, ethical issues that may affect the study population needs
to be thoroughly examine. This is particularly important in the case of clinical trials. For
example, we took maximum care of our participants during the pilot study on hypertension. As
and when their diastolic blood pressure shot up to more than 110mmHg, we immediately advised
our patients to consult allopathic doctors at Delek Hospital for a more drastic treatment to control
their hypertension, and excluded them from our pilot study. Clinical research studies must not be
undertaken just for the sake of the researcher’s interest. It must serve the purpose such as to solve
major health problems of the society.

The informed consent is the first ethical issue in a clinical trial. For example, participants must
be trained and informed as much as possible about the trial on Tibetan medicine before the
consent form are signed and include only those participants who wish to take part in the study. It
is unethical to collect information without the knowledge of the participants and there should not
be a pressure of any kind on them when collecting an informed consent\(^9\). One has to be careful
about the sensitivities of the participants, and sharing information about participants with others
for purposes other than research is unethical. One must ensure that the information provided by
participant remains anonymous. For example, if Mr. X accepts to participate in a clinical trial on

\(^9\)All the participants were informed well before the study and informed consent were collected from all participants
during the clinical trial on type II Diabetes Mellitus with Tibetan medicine in 1998-2000. I was at that time Deputy
Director of the Research and Development Department of Men-Tsee-Khang as well as the main initiator and chief
investigator.
Tibetan medicine, then all the information provided by him must kept confidential at all times. We must respect the privacy of the individual participants. It is, absolutely, essential to get the declaration of consent (informed consent) signed by the individuals capable of giving their consent, prior to the clinical trial.

Research studies also should seek to contextualise their findings within the larger body of research. They must always be of high quality in order to produce knowledge that is applicable outside the research setting with implications that go beyond the group that has participated in the research. For example, if drinking hot boiled water is found to prevent asthma in a clinical trial, then this finding should be applied in the doctors’ consultation rooms so that patients can benefit directly from this research study.

b) Reviewing the literature

A literature review is an essential task in the initial stage of a study in order to acquaint oneself with the available body of knowledge in one’s area of interest. It is an integral part of an entire research process and makes a valuable contribution to every operational step. Reviewing literature can be time-consuming, discouraging and frustrating, but it is also rewarding. The process of reviewing the literature helps to understand the subject area better and thus helps to conceptualize research problem clearly and precisely. It also helps to understand the relationship between the research problem and the body of knowledge in the area.

A literature review can improve the methodology of the study. It helps the researcher if others have used procedures and methods similar to the one he is proposing, to know which procedures and methods have worked well for them, and what problems they have faced. Thus, one will be better positioned to select a methodology that is capable of providing valid answers to the research questions. A literature review broadens ones knowledge base in the research area. It ensures one to read widely on the subject area in which one is intended to conduct the research study. It also helps to understand how the findings of the study fit into the existing body of knowledge, and for that matter, researchers should rely on literature from professional journals.

c) The formulation of objectives and a hypothesis:

Objectives are the goals set out to attain in one’s study. They inform the reader about what a researcher wants to attain through the study. It is extremely important to word them clearly. Generally, one first constructs a hypothesis. One can test the validity of one’s assumptions with the help of a hypothesis that then becomes the basis of the enquiry. The hypothesis should base upon one’s own or someone else’s observation. It brings clarity, specificity and focus to a research problem. It indicates what specific aspects of a research problem to investigate. A hypothesis may enable one to formulate a new theory.

The objective of a research project should aim at finding out the truth about something that has not been discovered as yet. To quote the great physicist David Bohm, “One of the most essential points of the scientific spirit is to acknowledge the fact, or the interpretation of the fact, whether
you like it or not.” This means not to engage in wishful thinking or to reject something just because you don’t like it.

The objectives of a research study must be clear and systematic and must include descriptions that are relevant to the study and exclude those irrelevant to the study. For example, the objective to study the improvement in liver function (Sangmo, 2007) was relevant information needed to assess the effectiveness of Tibetan medicine in the treatment of chronic hepatitis.

According to a case report from the Tibetan Autonomous Region (Adams et al. 2005), the goals of a collaborative research project with public health professionals in Lhasa, Tibet were twofold:

1. To conduct a three-phase project (including a feasibility study and a randomized clinical trial [RCT]) to determine how well the Tibetan medicine called zhibyedbcugcig11 (hereafter ZB11) works in comparison with a biomedicine called Misoprostol for prevention of postpartum haemorrhage (PPH);

2. To help Tibetans develop a self-sustaining infrastructure within their own medical institutions for conducting research at a level that would be acceptable to the international scientific community (including the PRC).

Such descriptions on the objectives of a study then provide a basis for predictions, sometimes in the form of a hypothesis concerning the relationships between and among variables.

d.) Preparing a research design

A research design is the conceptual structure within which research would be conducted. The function of the research design is to provide for the collection of relevant information with minimal expenditure of effort, time and money. The appropriate research design has to consider the objectives of the research study and the methods of data collection.

Pursuing a research project can be a challenging and rewarding experience. According to Nahin and Straus, investigators on complementary and alternative medicines are faced with either designing a trial of a single intervention that does not accurately reflect true clinical practice or undertaking a multifaceted intervention trial that is complicated to design and implement (Nahin. 2001:162).

The dilemma in selecting a particular research design also creates a challenge for researchers of traditional Tibetan medicine (Adams 2005). The first challenge in research designing with Tibetan medicine is to control the quality of Tibetan herbs, standardise the formulas of herbal pills and then to produce it according to good manufacturing practices (Aschoff.1997: 27,Boesi 2005/2006, Boesi 2007, Molvray 1988, Adams 2005, Schwabl. 1997:54). This is a pre-requisite for a success of the research studies on Tibetan medicine.

The next challenge is to motivate Tibetan doctors in the research study. In 1989, when as a researcher at Research Department of Men-Tsee-Khang in Dharamsala, I initiated a clinical
study of Tibetan medicine in the treatment of high blood pressure. It was the first such clinical research undertaken by Men-Tsee-Khang since its inception in 1961. At that time, we had no previous model of research studies to rely on, and it was not easy to search and review research literatures. It took several months for me and our team of young Tibetan doctors to discuss the need of clinical research on hypertension with our senior doctors and administrators, in order to obtain their continuous support. We were then encountered with the problems of selecting potent antihypertensive Tibetan herbal pills, and to select a suitable placebo to randomise the control and treatment group. During the study period, we also faced difficulties with keeping track of the participants. The stories of positive and negative experiences continued all along this pilot study. In the end, I understood that the initial reluctance from our senior doctors was basically due to incompatibility between the Tibetan medical system and the new research methodology, as well as our lack of knowledge and exposure to modern research and research methodology. Differences in exposure and familiarity with research methodologies among traditional Tibetan physicians and biomedical trained doctors pose significant challenges when it comes to translating ideas and designing research studies.

The names of the diseases and their classification in Tibetan medicine, as well as in Ayurvedic medicine, are often difficult to compare with the diseases in biomedicine (Nariandas 2006:2667). For example, the common term for cancer in Tibetan medicine is dras-nad, but sometimes it is difficult to compare these two names and the conditions they relate to (Meyer. 1997:15). Similarly, in Tibetan medicine, tsa-ba refers to the rise in body temperature, as well as to an inflammation or infection irrespective of the rise in body temperature. Such differences occur because bio-medically termed diseases do not often translate to a single disease in Tibetan medicine, but rather to a variety of different humoral imbalances that affect the strength and function of the digestive system, circulatory system, and so on. The complexities of naming disorders across the two different medical systems is a problem of epistemology and thus continue to be contested topics among Tibetan medicine scholars and researchers (Adams V.2000b, Adams V. 2005, Gerke B. 2011).

The concept of the so-called placebo effect is another challenge. In biomedicine, the placebo effect is often used to show that a given medicine does not really work (or works no better than a placebo—that is, it works no better than any medicine at all). In fact, in a placebo-based clinical study the importance is only given to physical remedies. This naturally excludes all non-physical potential benefits of the treatment, such as subjective effects involving human emotion. When we investigate closely our daily life, each and every one of us lives in the world of placebo, and one cannot always measure the observable facts like in a mathematical puzzle. These can be subjective or qualitative facts as well. These subjective facts are the ones that we share in our daily life with our family, friends, and communities by sharing love, affection, responsibilities, etc., and they help in improving our quality of life.

For further information, please contact Research Department (now Clinical Research Department) of Men-Tsee-Khang, Dharamsala.
Tibetan medicine holds that all substances are potentially medicinal and thus will have some effect on the body. This means that each and every individual reacts to an external stimulus in many different ways. For example, an infection with the same pathogen may not show an identical clinical picture in two different patients. Tibetan medical practitioners believe that the patients’ mental attitude and the doctor-patient relationship play a great role in the healing processes of any ailments. The nature and symptoms of the disease are identified based on the interactions between pathological processes and the inherent constitution of the patient and other risk factors. Tibetan medicine always sees a close connection of mind and body, whereas biomedicine distinguishes mind from body, and therefore the approach of curing a disease only by physical and pharmacological interventions has very little place in the Tibetan medical system. We tried to fit into the research design of Randomised Controlled Clinical Trial and due to these reasons, prior to the pilot study of Tibetan medicine in the treatment of hypertension in 1989, it took us several meetings among Men-Tsee-Khang doctors to discuss the concept of placebo and to find a placebo. We finally selected four Tibetan pills for the controlled group instead of a true placebo. In 1997, I initiated and designed another clinical study on Type 2 Diabetes by comparing the efficacy of Tibetan medicine in combination with a diet and exercise regimen in a treatment group with a controlled group that followed a diet and exercise regimen without medication. This clinical trial was preceded by Conference on Clinical Research in Tibetan Medicine, held in Dharamsala Men-Tsee-Khang in the year 1996 (R.D Department.1998). We did not use placebo group during this trial. Awareness is there these days among researchers of Tibetan medicine that RCTs are not just adequate methodology for the study of Tibetan medicine.

Determination of the number of trial subjects and the period required for a particular research study is also another challenge in research designing. The study design has to depend upon the prime objective of the information one would like to collect and in most cases, it is often impossible to include all the necessary information in one study. Statistically, the number of the sample patients must increase proportionately with the variables entered into the inclusive criteria of the study. The synergetic effect of multi-component Tibetan herbal pills often act slower than synthetic medicine and therefore, it often requires a longer time period to find its desirable result. Consequently, it becomes necessary to include more participants in its clinical trial. For example, 20 participants may not be a sufficient sample size, and six months may not be a sufficient time period to come to a clear conclusion on the study of any chronic diseases with Tibetan medicine. The chances of achieving results with a research study on a particular disease treated with Tibetan medicine therefore may require many years of hard work and commitment from everyone involved in it.

It is essential to avoid the chances of bias in research designing. The deliberate attempt either to hide what the researcher finds in his study or to highlight something disproportionately to its true existence is a bias. It is unethical to make wishful changes against the actual findings of the study. For example, if Kyuru 6 controlled blood sugar of only 50 participants in a research study, then it is unethical to claim its effect in controlling blood sugar of 100 participants. A team of
several disciplines, such as clinical pharmacologists, pharmacists, biostatisticians, physicians, healthcare workers and experts of traditional Tibetan medicine is essential in order to avoid all accidental findings and minimise bias. Investigators, sponsors and an ethical committee must carefully study the feasibility of the clinical trial prior to the development of the protocol, and each of them must understand their role and responsibility for the integrity of the research project on Tibetan medicine.

Another challenge is that of “Randomization.” Randomised Controlled Clinical Trials (RCTs) are still considered the golden standard of research methods in biomedicine. RCTs are especially challenging in a cross-cultural settings. Due to all the above reasons, some researchers believe that complementary medicines should be subject to the same methodological testing than the biomedical system because people who support this method see any other approaches as less rigorous and weaker to produce robust or hard evidence. Another group of researchers believe that RCTs reduces the whole essence of the complementary medical system. They argue that RCTs only reduce a therapy to some of its constituent parts and studies these in isolation(Carter 2003: 133-134). In the case of Homeopathy, Feder and Katzsuggest that “blinding and randomisation substantially distorts the context of homeopathic prescribing potentially weakening its effects”(Feder and Katz.2002:498-9).

According to Ernst, “randomised controlled trials of CAMs (complementary medicines) are often more difficult and methodologically challenging than RCT of other types of interventions. Due to the nature of most CAM modalities and the conditions they are used for, such RCT often need to be large, of long duration and require expensive therapists’ time. Inturn this means that CAM research is expensive and requires high levels of expertise in terms of trial design” (Ernst.2001:532). Dr. Bhatt holds the similar view on RCTs in Ayurveda. He says, “Phased studies for development of a new chemical entity do not stand to the test of scientific query and double-blind controlled clinical trials disrupt the scope of holistic evaluation of safety and efficacy of ayurvedic drugs and the results of studies that are incompatible with ayurvedic paradigm remain unacceptable and inconclusive or are perceived as negative. The data on these clinical studies and validation theories of ayurvedic formulation or treatment are incomplete and reflect poorly on Ayurveda, with very few exceptions” (Mukharji 2006:301).

In the case of a clinical trial on Tibetan medicine, Bazaron concludes, “The attempt to study Tibetan medicine by fragments, particularly methods and means of treatment without considering the entire system will result in accidental findings” (Bazaron 1989). Framing a new and an appropriate study design according to a Tibetan medical approach is therefore essential, and could be achieved by adopting several research designs in several studies in order to discover the potential of Tibetan medicine. The standard of RCTs is seductive as well as problematic for Tibetan medicine practitioners and policy makers (Vincanne Adams 2002b).

Fortunately, there are now increasing efforts to conduct biomedical clinical trials in cross-cultural settings. According to Adams et al (2005:268), “researchers are faced with the need to
develop even the most basic infrastructures for collaboration, including the development of institutional review boards (IRBs), informed consent (IC) procedures, data collection and management systems, and research protocols that are feasible in local settings”.

e) Tools for data collection

The construction of a research instrument or tool for data collection is the most important aspect of a research project because anything researchers say by way of findings or conclusions are based upon the type of information they collect, and the data collected is entirely dependent on the questions that the researchers ask the participants. The research tool provides the input into a study and therefore the quality and validity of the findings are solely dependent on it. The input of other experts, such as experts on bio-statistics is essential for the tools of data collection as well as for the processing and analysing all data. It is important here to consider the principles of Tibetan medicine and the experience of traditional Tibetan doctor at this stage of research process.

f) Collecting data

Data from which one will draw conclusions should be collected after formulating a research problem and developing a study design. When collecting data one might begin with interviews, mailing out a questionnaire, conduct experiments or make observations.

g) Processing and analysing data

Processing and analysing data involves a number of closely related operations which are performed with the purpose of summarizing the collected data and organizing these in a manner that they answer the research questions. Researchers detect errors and omissions in the collected data and correct them wherever possible. After this, researchers must arrange the data in groups or classes based on common characteristics and analyse it accordingly in descriptive ways or in a numerical manner. There are two types of data analysis: Qualitative and Quantitative.

Qualitative data analysis is a very personal process with few rigid rules and procedures. Researcher must first identify the main themes that emerge from the responses given by the participants because people use different words and language to express themselves. The researcher needs to carefully go through the descriptive responses given by participants to each question in order to understand the meaning they communicate. From these responses, the researcher develops a broad theme that reflects these meanings. It is important that the researcher select the wording of the theme in a way that accurately represents the meaning of the responses categorized under this theme. These themes become the basis for analysing the text of unstructured interviews. This is then followed by assigning codes to the main themes, classifying responses under these main themes, and finally integrating these themes and responses in the research report or research paper.
Quantitative Data Analysis is most suitable for well-designed and well-administered surveys or clinical trials using properly constructed and worded information. It can be done manually if the number of respondents is reasonably small and if there are not many variables to analyse. However, this is useful only for calculating frequencies and for simple cross tabulations. Manual data analysis is extremely time-consuming and the easiest way is to use computer analysis. Having knowledge of computers and statistics plays an important role here.

h) Writing a research paper:

Writing a report or research paper is the last, and often the most difficult step of the research process. The research paper informs the world what the researchers have done, what has been discovered and what conclusions have been drawn from the findings. Writing a scientific paper has its own format. This format helps to communicate to other researchers or scientists the results of the research study and it typically contains Title, Authors Name, Abstract, Introduction, Material and Methods, Results, Table and Graph, Discussions, Conclusion and Acknowledgement. One must write or publish a research paper on Tibetan medicine for a scientific journal by addressing these important aspects of research methodologies.

CONCLUSION

Since there are limited numbers of research papers on Tibetan medicine, it is necessary to conduct continuous research studies on different subjects of Tibetan medicine with the help modern research methodology. However, as discussed earlier, modern research methodology is not always the best model to study Tibetan medical approach. I would like to remind the practitioners and policy makers of Tibetan medicine of the interview with Dr. Narendra Bhatt, published in the journal Asian Medicine. In this interview, he said, “The progress of Ayurveda has lately been driven by modern scientific requirements and consumer demand. In this era of segmentation, Ayurveda is on the verge of losing its roots and is being driven towards herbalism. Efforts to provide a comprehensive approach are sporadic. Clinical expertise and observational knowledge are declining. This will be a great loss to ayurvedic science and practice in general” (Mukharji 2006:302). Therefore, we need to use and search for an appropriate research methodology that fits into Tibetan medical paradigm. Recommendations to combine qualitative and quantitative research approach might be useful for the research study of Tibetan medicine (Verhoef et al. 2005:208). Seven levels of research for oriental medicine as suggested by (Julliard et al.2007: 118-128), could also be useful to find viable research ideas to investigate the theory and practice of Tibetan medicine and the integration of Tibetan medicine and biomedicine.

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**CONTAGIOUS DISEASES**

*Nyen rim* or *dhub rimg*: Pestilence / Mahamara

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Homage to *Yumkharchhen Za tshogyal*, the requester of *nyen rim*;
Prostration to the second Buddha, *Guru Pema Junghney Rinpoche*, the speaker of *nyenrim*.
The *nyen* disease has not been explained in detail in any of the great medical texts, and even if it is explained, only a part of it is mentioned. It is not easily diagnosed through pulse and urine analysis, and so its treatment is also not that easy.

**The cause of this disease** is over indulgence in non-virtuous activities of the body, mind and speech on the part of people of the degenerative age which annoyed their deities, thereby turning them into devils/foes. The breaths exhaled by *Mamos* condensed into clouds, and simile to the contact of dry moxas with fire, this cause of this disease is fanned by conditions emanating the body of *Srinbu Tetehoho Parpata*, meaning life taker. This *srinbu* had lizard like head, long tail like that of a snake, many limbs like that of a centipede, and wings due to which it flew everywhere, and infiltrated into the body through body pores and nasal door. Similarly, a *srinbu* named *traag srin*, which is round in shape, red in color and has no feet, resides in the blood and runs through out the channels, due to which it acts as the causative factors of all *nyen* diseases and leprosy. Even this blood *srin* is also classified into seven types, out of which one is red as bronze, with thin body structure, and is not visible with naked eyes; in no time does this *srinbu* pervades throughout the body. This actual cause of the disease, the *srin* also has *loong*, *tripa*, *baekan*, and the three combined together as its causative conditions, due to which *gag lhog* which exist in the locality; seasons like autumn and early summer; diets and lifestyles like sweet and sour foods etc. and contaminating the cooking areas etc.; the eight section of gods, evil spirit like *nyen* cause disturbance among the blood *srin* of body which in turn consumes the bodily constituents, thereby causing *nyen* disease. And since this threatens life to a great extent, this is called *nyen*. Dairy products and sweet stuffs exacerbate this disease, while due to its rough quality; it can be eliminated by poisons.

*Nyen nagpo* shower contagious diseases like rain, due to which it should be eliminated instantly rather than treating it as there is no time to offer treatment. Even if, the external appearance of this disease may resemble a general contagious disease, if this severe disease is not treated with its specific treatment, other general treatments with diet, lifestyle, medication and external therapies may result in adverse effects and prove fatal to one's life. This also has three stages, out of which the latter one is more critical and powerful as compared to the former one: fever, contagious diseases, and *nyen* disease. For example, treating fever does not treat contagious diseases while treating contagious diseases singly does not treat *nyen* disease. Even if remedies like cool natured medicines treat fever, it does not necessarily treat *nyen* disease; for e.g. even if poison subsides the onset of *nyen* disease, it does not pacify fever; even if drinking water pacifies thirst, it does not satiate hunger; even if eating meat satiates our hunger, it does not pacify our thirst. Similarly, one remedial measure cannot pacify all kinds of diseases. Due to this reason, if one lacks knowledge in the field of fever treatment and still tries to pacify it, it will divert fever from its track in the case of unripened fever and borderline of fever; and lack of knowledge in the special treatment of contagious and *nyen* diseases may cause the danger of the remedies favouring the disease, thereby exacerbating the condition.
Classification of *nyen* disease:

Generally, the nature of this disease can be intense or mild, when classified on the basis of attack of the disease. This kind of disease manifests itself in different forms, out of which black *nyen* disease affects 1/4th of the world. The severity of the disease can be classified into three types:

i) abrupt fainting on attack of this disease, obstruction of the sensory organs on fainting, dumbness without any knowledge of location of pain, eyes rolling upward, immediate death before application of treatment. These are the symptoms of *nyen* disease, which is acutest in nature.

ii) attacked by the disease in the morning causing death in the evening, or the next morning and

iii) pain in the heart and lungs causing hallucination, strong desire to talk, run etc., and giving no response to treatment methods like medicine and external therapies; this kind of disease causes death in seven and nine days, and is called "the typical natured disease".

Since *nyen*, fever, and *loong* attack heart, life channel, and brain simultaneously, and cause disturbance, this disease even if treated, cannot be cured, and so it is called intense *nyen* disease. However, this disease does not manifest when one is protected with medicinal ingredients, mantras, amulets etc. Mild *nyen* diseases are also treatable and if treated diligently, the patient will survive. When this arrow-like *Nagpo Sumdril* (fever+contagious disease+loong) hits the target-like any part of the body, it adds to the classification of *nyen* disease on the basis of the affected area even though there is no differences in causes. For instance, to mention some, when this disease attacks head, it is called encephalitis; when it attacks throat, it is called diphtheria; when it attacks the skin, it is called herpes; when it attacks the muscles, it is called cholera; when it attacks the muscle tissues, bones and channels and decompose it, it is called cancer; when it attacks spinal cord, it is called meningitis.

**Symptoms of *nyen* disease:**

**A. General Symptoms:** unclear dreams, fatigue, painful eyeballs, heaviness in the body, irritation and tremor, headache, imbalanced body, shooting pain in the limbs, burning sensation in the hips, waist, joints & bones, frequent yawning and sneezing, shivering, heaviness & dullness of mind, thin, tight & fast pulsation, anxiety, restlessness, tinnitus, dizziness, body ache, horripilation, yellowish tongue, loss of appetite, and manifestation of symptoms of any of hot or cold diseases.

**B. Specific Symptoms:** swelling & pain in the 1st vertebra, blood shots in the eye lying downward, white eruption on the tongue & black spots beneath the tongue, blackening of the nose & ear tips, white spots on the shoulder, strong pulsation of the ring finger, reddish brown urine, pain from the day of attack, expectoration on the onset of pain, and expulsion of brownish phlegm on coughing. If all the above mentioned symptoms are present, the patient will not survive, and if only two or few symptoms are present, one will survive.
C. General Symptoms of nyen disease attacking the Vital Organs: The specific symptoms of nyen disease attacking the vital organs are mentioned in their respective chapters while the general symptoms are as follows: disturbed mind, anger and irritation without any reason, dreams of saints, sages & monks, body odor resembling that of a dead body, loss of taste in food & beverage, chest and back pain which turns red on palpation, and excessive sweating; in some cases, pulse beats halt, and pulse & urine indicate a disease-free health, the color of the urine is green with pale dirt formed inside the container; at the initial attack of the disease, the urine is red in color; in some, there are no bubbles but contains big steams. If a patient suffering from this disease survives, then the disease is an easy treatable one. Urine resembling putrid mustard oil with black contents indicates nyen disease; in most cases, big or shiny bubbles also indicate nyen disease. When symptoms associated with hot natured diseases are not subsided with cool natured factors as well as dairy products and sweet taste, it undoubtedly indicates that the symptoms are that of nyen disease.

General Mode of treating nyen disease:

Until the fever is completely ripened, performing venesection, purgation, inducing perspiration, administration of decoction and powder of medicines having cool and rough potency either take away the patient's life or make the disease difficult to treat. Due to this reason, the first mode of treatment is to destroy the mountain of nyen disease; the second mode of treatment is to extinguish the flame of the developing fever while the third mode of treatment is to be very careful with food and lifestyle at the stage of borderline of fever. At this stage, avoid prescribing camphor as it raises srog-loong; avoid venesection, dairy products & sweets until the disease is completely suppressed. Since the three dairy products & the three sweets are the wolves of the food; venesection of the heart veins is considered the wolf of therapies while camphor & saffron are the wolves of medication, these should be avoided.

Protection methods: For the physicians and attendants to the patient suffering from this disease, it is very essential to protect oneself and others by tying this amulet around the neck and reciting the mantras as mentioned in the amulet.
Death signs: i) shoulder pain and white patches on the shoulder, ii) red veins in the eyes, iii) strong pulsation of the ring finger, iv) swelling and pain in the first vertebra, v) reddening and blackening of nose and ear tips, and vi) white eruptions on the tongue & black spots beneath the tongue. Of all the above mentioned symptoms, presence of two or three symptoms indicate no danger to life; three or four indicate difficult to cure while five or six indicate death.

Besides if manifestation of symptoms like disappearance of head vapor, loss of lustre in the pupils and heat of the foot, or discharge of semen, obstruction or discharge of urine, and absence of sound from ears when covered, indicates death. Rough, tasteless, and black tongue indicates death as these are symptoms of heart affected by nyen disease. When this disease attacks brain, throat and leg, and also shows symptoms like hallucination, breathlessness and insanity, it indicates death. Yellow eyes, frequent yawning, discharge of tripa from the nose, hiccoughs, and anger, are symptoms of nyen affected spleen. Headache, facial palsy, formation of stains on the teeth, difficulty in sleeping and sitting, red eyes, perspiration, strong liver pulse, and nasal bleeding are the symptoms of nyen affected liver. If the body strength weakens after manifestation of these symptoms, the patient will not survive. And frequent extension and contraction of the limbs, and breathlessness are the symptoms of nyen affected lungs; if the tongue shortens and the mouth and nose turn cold, also indicate death. If the pulse of a patient suffering from a hot disease shows a cold natured pulse, the patient will die in three days as the heart is affected by fire element; and if the pulse of a patient suffering from a cold disease shows a hot natured pulse, the patient will die in three days as the kidneys are affected by water element. And if there is loss of body strength, degeneration of the sensory organs, loss of glow and radiance, this shows that the disease (be it of any kind) has affected a vulnerable part of the
body due to which survival is just not possible. When the following symptoms appear one will not survive as death is imminent: formation of hair on the tongue, drying of the tongue edges, retraction of the tongue, formation of black, red or yellow stains on the teeth, rising of the upper lips, eyes staring upward, formation of nasal crust, excessive unclear talks, and loss of facial glow. It is said that instead of treating with medicines and external therapies, one must heal the patient's mind, which implies to refusing to take the case, and inform the relatives to start arranging for funeral.

Conclusion: This is short information on nyen disease. Those interested in learning more about this disease can go through books like Men-ngag Lhen thab etc.

Management of Multiple Sclerosis in Tibetan Medicine

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1. Introduction:

The Tibetan medical system is one of the world's ancient sciences and it is known as Sowa Rigpa or the Science of Healing. Even today, it continues to enjoy widespread popularity all over the world. The Tibetan Medical Text is characterized with the Buddhist concepts of philosophy and psychology, and it lays great emphasis on the holistic approach of health to achieve mental and physical sound health.

MS disease is a part of rTsakar Ned in Tibetan Medicine. rTsakar Ned\(^\text{11}\) (MS) is caused when there is damage or injury in the channels (rTsa). The consciousness, rLung and blood flow in the channels. These channels sustain our life like the roots of a tree. Through this network of channel system, nutrition and other necessary substances are supplied to the whole body. Therefore, these channels are based or root of life.

This is extensively explained in the 4\(^{\text{th}}\) chapter in the 2\(^{\text{nd}}\) Tantra, 60\(^{\text{th}}\) chapter in the 3\(^{\text{rd}}\) Tantra of rGyud bZhi\(^\text{12}\), and the 86\(^{\text{th}}\) chapter of Man-ngag lhan thabs\(^\text{13}\).

The causes, conditions and symptoms mentioned in the Man-ngag rGyud\(^\text{14}\) text are very similar to MS, whereas there is a substantial difference in the treatments. In this case, it is very important to perform a proper diagnosis because it can be mistaken for some other nerve disorder such as paralysis, epilepsy, Rheumatoid Arthritis or Amyotrophic Lateral Sclerosis (ALS).

\(^{11}\)Channels/Nerve disorder.
\(^{12}\)This consists of four fundamental texts and is the most authoritative treatise on traditional Tibetan Medicine. It contains 156 chapters.
\(^{13}\) The Quintessential Tantra, the third chapter of rGyud-bZhi, is comprised of 92 chapters.
\(^{14}\) The supplementary work of the oral tantra by Desi-Sangye Gyatso (AD 1653-1705).
MS is one of the silent life-threatening diseases because the development of signs and symptoms is not easily recognized in the early stages. As the saying goes, “prevention is better than cure,” so it is essential to prevent this disease by maintaining both mental and physical equilibrium — for example, by avoiding stress, tension, depression, accidents and trauma.

Tibetan doctors diagnose MS by anamnesis, urine analysis, pulse reading, checking the tongue and eyes and pressure points. MS patients are treated by giving herbal pills, advice on diet and behavior, breathing and stretching exercises. In some cases it is treated by hormey\(^{15}\) and golden hammer\(^{16}\) on particular points. Massage with warm sesame oil and \(rTsa\) \(Juk^{17}\) cream is also recommended. Besides the treatment from a Tibetan doctor, the patient is also advised to continue consultations and treatments from his or her western doctor.

2. The Relationship between the Three Energies and MS:

According to Tibetan Medicine philosophy, it is important to understand that human beings have both a psychological (mental consciousness) and a biological (the three energies, seven bodily constituents) constitution. The three energies (\(rLung\), \(Tripa\), \(Badkan\), or wind, bile and phlegm) are present in every human being. These energies are responsible for all the functions and biological activities of our body and mind, and the balance of body and mind depends on the proper functioning of the three energies.

2.1. The Relationship between MS and \(rLung\) energy:

\(rLung\) energy is the vital principle of the body and it has a direct relationship to the mind and to our physiological state. All of the movements of the body and its organs, respiration, swallowing and digestion of food, feelings and emotions such as nervousness, fear, anxiety and pain are governed by \(rLung\) energy. \(rLung\) has the nature of the air element; therefore, it is pervades in the entire body.

There are five types of \(rLung\) energy. If the \(Srogzin\) or life-sustaining \(rLung\), which resides in the crown chakra, is disturbed, one can suffer from mental instability. This also causes weak memory and can damage the clear perception of the sensory organs. Therefore stress or tension can affect the nervous system and give rise to MS. The attachment and desire is the cause of \(rLung\) energy.

2.2. The Relationship between \(Tripa\) energy and MS:

\(Tripa\) energy is the bodily heat energy. It is related to the fire element. It enhances digestive heat, absorption and assimilation of food. It has responsibility in retaining our body temperature,

\(^{15}\)A traditional medicated pack heated in sesame oil. The pack is composed of the powder of nutmeg and carum carvi Linn and helps to control \(rLung\) disorders.

\(^{16}\)An instrument, which is approximately 20 cms. long with a two cm. extension at a right angle, with a golden tip. The tip of the hammer is heated by fire and applied to selected points.

\(^{17}\)A channel ointment composed of mixed medicinal herbs and oil.
intelligence, understanding and courage. The anger is the main cause of disturbances in Tripa energy. Infection, inflammation and fever are the result of an increase of heat in the liver and gallbladder. Untreated fever can affect the normal functioning of the brain and can cause inflammation in the channels. The anger, which has the characteristics of fire “burns up” the body constituents and affects the rLung energy, which in the end may cause damage to the channels.

2.3. The Relationship between Badkan energy and MS:

Badkan energy is responsible for retention of the fluids in the body, such as the lymphatic system, mucus and gastric and intestinal juices. It comprises mainly of the earth and water elements. It is the basis of the development of all of the energies of the body. It stabilizes the mind, helps one to sleep and connects and lubricates the joints. Closed-mindedness results in Badkan energy. A Badkan disorder leads to obscuration of the mind (lacking of thinking clearly) and weakens the concentration. The normal functioning of sensory consciousness depends upon the brain because Badkan resides in the head.

3. The Formation of the Channels:

3.1. Three main channels:

The channels are like the roots of a tree, which extend all over the body. According to the 4th chapter of the Explanatory Tantra, there are three main channels, which develop from the fetal umbilical cord.

- The first channel develops upward to form the brain. It corresponds to the water system and Badkan energy in the body. Badkan arises from closed-mindedness and is located in the brain. This channel regulates the left side of the body. It is called Kyang-ma or white channel. There are approximately 24,000 Kyang-ma channels.

- The second channel develops in the central part of the body to form Srog rTsa or the life channel. It corresponds to the blood circulation. The blood circulates through the heart to all parts of the body. Tripa energy controls the heat of the body and arises from anger. This channel governs the right side of the body, brain and mind and is known as Ro-ma or red channel. There are approximately 24,000 Ro-ma channels.

- The third channel develops downward to the lower part of the body to form the secret channel, which corresponds to the sexual organs, and it causes attachment. Attachment gives rise to rLung energy. It is the central or Uma channel and is called the blue channel. There are approximately 24,000 U-ma channels.

3.2. Five rTsa-khor or Five Chakras:

According to the Tantric text, there are five rTsa khor or five chakras.
• The Crown chakra, which corresponds with life-sustaining \textit{rLung} energy. It resides in the crown of the head and is responsible for the clear perception of sense organs and memory. It is surrounded by five hundred minor channels.

• The Throat chakra, which corresponds with ascending \textit{rLung} energy. It is located in the thoracic region and is responsible for speech.

• The Heart chakra resides in the heart region and corresponds with pervasive \textit{rLung} energy. It is responsible for the blood circulation throughout the body.

• The Navel chakra is in the stomach region. It corresponds to the fire-like \textit{rLung} energy. It helps in digestion of food particles.

• The Root chakra is in the perinatal region and corresponds to the downward \textit{rLung} energy. It is responsible for the proper function of reproductive organs. Five hundred minor channels surround each of the five chakras. These channels branch out and extend to the entire body and help to sustain our life.

\textbf{3.3. Two Life Channels:}

3.3.1. White Channels - Nervous system: According to the classic medical text \textit{rGyud-bzhi}, the brain is compared to the ocean from which networks of functional channels branch downwards connecting to the vital and vessel organs and other sensory organs. The white channels of life run from the base of the brain down to the spinal cord; from the life channels, 19 major channels branch out, consisting of 13 hidden channels and 6 visible channels. These channels have responsibility for the total coordination of mind and body.

13 Hidden Channels:

Of the 19 major channels, 13 are hidden (called “hanging silk thread”) and they are connected with the hollow and solid organs.

i. Four \textit{Lung} channels are connected with the heart and small intestine.

ii. Four \textit{Tripa} channels are connected with the lungs, colon, liver and gall bladder

iii. Four \textit{Badkan} channels are connected with the stomach, spleen, kidneys and urinary bladder.

iv. The combination of the three channels of \textit{rLung}, \textit{Tripa} and \textit{Badkan} is connected with the reproductive organs.

6 visible channels: These three pairs of channels are connected with the brain and extend to the limbs. Any injury in these channels results in dysfunction of the limbs and nerve disorders. These three channels are:

i. Two \textit{Bu Ghu Chen} or the tubular channels: The hollow tubular channels branch at the posterior fontanel to spread all over the body.
ii. Two *Ja jey* or the lameness channels: The two channels of lameness arise from the right and left occipital lobe branches through the spinal cord to the arms and the legs.

iii. Two *Rat na* or the Precious channels: These channels arise from the head and branch off behind the earlobes to the arms.

![Formation of channels](image)

**Fig. 1** Formation of channels

3.3.2. Black channels - Blood Channels: From the base of the life channels, there are 24 major black channels which branch upward. These 24 black channels consist of 8 channels connected with the internal organs and 16 channels, which branch to the limbs. The black channels are responsible for the production and development of blood and muscles.

4. Causes and Conditions:

According to the *rGyud-bzhi*, there are three main causes for all illnesses. These are: 1. Distant cause; 2. Near cause; and 3. Immediate cause. The distant cause is ignorance; the near cause is the three mental poisons of desire, hatred and delusion and the immediate cause is the three principal energies which are *Lung*, *Tripa* and *Badkan*.

The causes for Multiple Sclerosis mentioned in the *rGyud-bzhi* text are:

i. Due to strenuous physical activity, there will be an increase in the body temperature. Untreated epidemic fever becomes a poison for the channels.
ii. Injury or damage to the channels caused by external objects, such as an injury occurring to the head or neck from an accident, a fall or striking a wall.

iii. Stress, depression and too much tension can affect the normal functioning of mind and body and lead to disturbances in the channels.

5. Signs and Symptoms:

From my experience there are some common signs and symptoms of MS. These includes unstable walking, low energy, feeling weakness in the limbs, difficulty in reading and writing, stammering, blurred vision, degeneration of the muscle tissue of the arm, calf and leg, stiffness in the fingers, numbness and weak memory.

According to the *rGyud-bzhi* text, there are different signs and symptoms of MS, which can be classified as hot, cold and specific symptoms.

- **Hot MS symptoms:** MS combined with *Tripa* energy is hot. The patient will experience muscle cramps and pain due to inflammation.

- **Cold MS symptoms:** MS with *Badkan* and *rLung* energy has a cold nature. The patient will experience stiffness in the muscles, numbness, difficulty in movements of the limbs, retaining water in the joints, frequent urination, fatigue and constipation.

- **Specific MS Symptoms:**

  i. Symptoms of MS connected with the head or brain are: facial palsy, dizziness, unclear mind, drowsiness, loss of memory, severe headache, insomnia, vomiting, stammering, tinnitus, weak sense organs, skin irritation, inability to bear loud noise and loss of power in the limbs.

  ii. Symptoms of MS connected with the abdominal area are: talkativeness, trembling, thirst, feeling numbness on one side of the body, stiffness, a feeling of swelling, incontinence or difficulty with both feces and urine, feeling hot like fire or cold like stone, bending of the body like a bow or being erect like a horn and stiff like wood, or displaying many changing symptoms.

  iii. Symptoms related with the limbs are: stiffness in the muscle tissues, numbness, a prickling sensation or atrophy of the limbs and difficulty in movement, losing power in the muscles.

  iv. Symptoms related with external causes such as weapons are: swelling of the particular part of the body where an external object hit it; swelling with inflammation, which is the hot type; and with *rLung* and *Badkan* combination it is the cold type.

  v. Symptoms of MS associated with *rLung* are trembling, yawning, dry mouth and inattentiveness.

  vi. Symptoms of MS associated with *Tripa* are the production of body heat, an increase in fever and experiencing more pain in the body.

  vii. Symptoms of MS associated with *Badkan* are coldness of the body and swelling.

  viii. Symptoms of MS associated with triple energies: Different symptoms will manifest due to the combination of all three energies.
6. Diagnosis:

6.1. Questioning:
In our medical system it is essential to communicate with the patient. This will help the physician to get clear information about the patient’s illness. Various questions will be asked such as taking the patient’s history in order to find out the causative factors of an illness, to check the location of their symptoms, and finally to find out the signs and symptoms.

6.2. Urine analysis:
The urine of an MS patient will show the characteristics of either rLung, Tripa or Badkan, and it is associated with disorders of organs such as the urinary bladder, kidney and stomach.

The urine of an MS patient with associated disorders:

If the MS patient is stressed, the color is whitish-blue with large bubbles. If there is inflammation, the urine is a red-yellow color, with unstable bubbles, a bad smell and thick sediment. Urine with thick whitish sediment after it has cooled is a sign of kidney disorder. A watery color without bubbles or with bubbles disappearing quickly, a thick white sediment and a bad smell is a sign of a bladder infection. If there is a red-yellowish color, thick sediment and a bad odor, then the MS is associated with fever. A golden brown color like black tea is a sign of gallbladder and liver disorders. Thick bubbles and the odor of food is a sign of undigested food.

6.3. Tongue diagnosis:
In general MS patients complain of having a mostly dry, thick, and sticky tongue, with cracks. The tongue should be checked both on top and underneath. Looking at the topside gives information associated with the three energies and organs. The underside of the tongue gives information about blood pressure, heart problems, lungs and thyroid.

Characteristics of the tongue of an MS patient associated with the three energies are:

i. The tongue of an MS associated with a rLung disorder – red like a strawberry, dry, rough, thick, coarse, with teeth marks and swollen.
ii. The tongue of an MS associated with a Tripa disorder - thick with yellow coating
iii. The tongue of an MS associated with a Badkan disorder – pale, whitish with sticky coating, moist.

6.4. Eye diagnosis:
Many MS patients complain of weak eyesight, unclear or double vision, tired and dry eyes.

Characteristics of the eyes of an MS patient associated with the three energies are:

i. The eyes of an MS associated with a rLung disorder: red, dry, tired and itchy.
ii. The eyes of an MS associated with a Tripa disorder: yellow sclera and red lining.
iii. The eyes of an MS associated with a Badkan disorder: pale and swollen.
6.5. Pulse diagnosis:
Pulse reading is an art of Tibetan doctors. Generally, the MS pulse is weak, slow, empty and sometimes difficult to feel.

Characteristics of the pulse of an MS patient associated with the three energies are:

i. The pulse of an MS associated with a \textit{rLung} disorder: empty, floating with intermittent beats.
ii. The pulse of an MS associated with a \textit{Tripa} disorder: fast and overflowing with taut beats.
iii. The pulse of an MS associated with a \textit{Badkan} disorder: sunken, slow with weak beats.

It is important in the pulse reading to recognize whether MS has a hot or cold nature. If the pulse characteristic is strong, overflowing, rolling, fast, taut and firm, this indicates a hot disorder; whereas if it is weak, sunken, declining, slow, loose or empty, this indicates a cold disorder. If the MS is associated with inflammation, the pulse will be fast, strong and rolling. There are many MS patients with bladder infections; in such cases, the bladder pulse is strong but the kidney pulse is mostly weak.

7. Treatment:
Tibetan doctors treat and manage MS patients by emphasizing dietary and lifestyle advice, prescribing herbal pills, giving massage on specific points, and in many cases, MS is treated by moxibustion or the golden hammer technique.

7.1. Dietary advice:
Dietary restriction is as important as medicine. Dietary advice is given depending upon the type of MS and its associated disorders. MS patients with \textit{rLung} disorders are recommended to eat food that is nutritious and has a warm nature. MS patients with \textit{Tripa} disorders are recommended to eat light food with a cold nature. MS patients with \textit{Badkan} disorders are recommended to eat warm and light foods.

MS patients with a \textit{rLung} disorder are advised to take warm soup prepared from vegetables or broth from bones, nettle soup, garlic, onions, ginger, warm cow’s milk, butter, lamb, beef, basil, cloves, fish, almonds, walnuts, sesame oil, sunflower oil and olive oil. Foods to be avoided for MS patients with \textit{rLung} are: coffee, strong black tea, mint tea, chilled drinks, pork, sour foods, an excess of sweets like chocolate, cold food, beans, soybeans and green beans.

MS patients with a \textit{Tripa} disorder are advised to take curds made from cow’s or goat’s milk, fresh grains, porridge, corn, millet, rice, apples, kiwis, watermelon, olives, oranges, pineapple, spinach, turnips, beet root, bitter gourd, carrots and broccoli. Foods to be avoided for MS patients with \textit{Tripa} are: oily food, fatty food, ghee, mustard oil, animal fat, coconut, avocado, lemon, almonds, peanuts, walnuts, chicken, lamb, chili peppers, black cardamom, cloves, garlic, hot peppers, nutmeg, coffee and alcohol.
MS patients with a *Badkan* disorder are advised to eat fish, courgettes, celery, beet root, olive oil, sunflower oil, kiwis, cooked vegetables, honey, lamb, warm water and ginger. Foods to be avoided for MS patients with *Badkan* are: cauliflower, cabbage, raw food, salad, potatoes, unripe fruits, beans, corn, millet, barley, wheat, coca cola or cold sweet juices, chocolate, ice cream, cheese and chilled food.

**7.2. Lifestyle advice:**
MS patients are advised to practice mindfulness meditation, daily breathing and stretching exercises. Since MS is connected with the channels and brain functioning, it is essential to follow regular breathing and stretching exercises to keep the energy flowing and to prevent stiffness or tension in the muscles.

MS patients with *Lung* disorders are advised to stay in warm places, have a calm and relaxed mind, spend time with near and dear family or friends, take regular walks and stay positive in mind. MS patients with *Tripa* disorders are advised to stay at normal room temperature and not remain too long in hot or sunny places, to avoid strong physical exercise like lifting heavy things or running. Good rest is necessary and they should avoid anger. MS patients with *Badkan* disorders are advised to engage in regular exercise, stay in warm and dry places and not to sleep during the day.

Mindfulness: This is a very important subject in Tibetan Medicine. As mentioned in the *rGyud-bzhi* text, the root cause of all our suffering is ignorance. An ignorant mind cannot view true phenomena and falls into illusion. A mind with illusions causes misunderstanding, misperception and is easily misled. The main cause for illusions is a lack of awareness and closed-mindedness. An unaware mind disturbs the nervous system, mental consciousness and the brain, which can influence the MS disorder. Thus the practice of mindfulness can help to clarify illusions, misconceptions and ignorance. This will have a positive effect on MS patients.

Mindfulness can be practiced by *shiney*\(^9\) or peaceful meditation. The practice of mindfulness helps to produce a stable mind, which can find solutions, is free from worries, and can accept problems and let them go.

Tibetan Breathing exercises: Breathing is a technique to open the blocked channels of mind and body. Breathing exercises can restore one’s regular energy by cleaning the three main channels (*ro-ma, u-ma, Kyang-ma*). There are many different ways of breathing. One of the best methods is the practice of *rLung Ro Gu Trug*. It is a centuries-old practice from Tibet. The best time for this exercise is during the early morning, in clean air and on an empty stomach.

With the right index finger, close the left nostril; inhale deeply through the right nostril and hold as long as possible. Then shift the index finger to the right nostril, slowly release the breath through the left nostril. Repeat this three times. Then repeat the sequence using the same

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\(^{9}\)In Sanskrit it is called *Samatha*, a single-pointed meditative concentration developed through the technique of settling the mind.
procedure but reversing the order, inhaling through the left nostril and exhaling through the right. This exercise will relieve blocked channels, headache, back pain, neck pain, muscle stiffness, and helps respiration, clears the mind, regulates the body-mind energy, balances the emotions and opens blocked chakras. Consequently it can help to heal MS.

Tibetan Stretching exercises: *Lus-Jong* is known as Tibetan exercise. *Lus* means body and *Jong* means exercise. This method is used to clean the channels by performing physical exercise. This is done by moving the limbs, head, neck, organs and all of the tense parts of the body. Many physical problems are solved by this technique. It will bring balance to the mind and body. This exercise also helps to relieve painful and tense parts of the body. As a result, MS patients can move their limbs better, have a balanced walk, have more flexible muscles and feel more comfortable.

7.3. Tibetan Herbal pills:
The formulae of the compounds in Traditional Tibetan Medicine are unchanged. In the *rGyud-bzhi* text there are several different medicines recommended for MS. These are: *Samnor, Mutik 25, Agar 20, Sangden 25, Jumar 25 or Ratna Sampel*. Besides these medicines, it is essential to prescribe medicines to balance humoral disorders, which are associated with MS. For example, in the case of MS associated with *Tripa* (inflammation or fever), it is important to treat the *Tripa* disorder at the same time to reduce the symptoms of MS disease. Many MS patients have a weak digestive system and a bladder infection. Therefore, it is helpful to give medicines or advice to help the digestion and to get rid of the infection.

7.4. External Therapy:
Most commonly MS patients are weak, have low energy, and have very tense and stiff muscles. For that reason, it is very useful to give warm oil massage, *hormay* or *sTsa jug* massage. Even giving simple pressure point massage helps to stimulate the energy. In the *rGyud-bzhi* text, it mentions the following external treatments:

If MS affects the legs, use moxibustion on the 14th Tibetan vertebra (L1) one *tson* to the left and right side of L1. For hands or arms, use heat therapy on the collarbone and two *Ja-jey* points. For hips and knees, use heat therapy on the soles of the feet. For the shoulders, both inner and outer joints of the shoulder and two *Rat-na* points should be treated by moxibustion. For MS with *rLung*, treat by giving moxibustion or golden hammer therapy on the first Tibetan vertebra (C7), *Srog sTsa* (T5), *Ning sang* (T6) and warm *hormey* on the soles of the feet and palms. After receiving any heat therapy, the patient should take nutritious food. For MS associated with *Tripa*,

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19 This refers to physical exercise in which all of the limbs, head, neck, organs and tense parts of the body are moved. It helps to clean the channels and clear the mind.
20 Traditionally, the practice of moxibustion has been to burn a small cone of dried herbs (Tawa or Anaphalis busua) on the surface of selected points on the body in order to help cure chronic joint problems. It is a hot type of treatment.
21 This is a unit of measurement in Tibetan Medicine, and refers to the distance between the tip of the thumbnail and the first joint of the thumb.
a cleansing therapy is needed. For MS with Badkan disorders, bathing in hot springs is recommended. It is highly recommended that MS patients also go for physiotherapy.

**Conclusion:**

Consequently the closest definition for MS disease is a part of rTsakar Ned in Tibetan Medicine. The direct translation of medical terms used in Traditional Ancient Medicine into western medicine would result in the loss of meaning and essence of the particular term. From my point of view, it is important for each system to keep its own terms and give proper definitions. There are differences as well as similarities in the two systems. Both systems can be beneficial for treating diseases.

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**ENDEGERED HIMALAYAN PLANTS AND ITS CULTIVATION**

Importance of Medicinal Plants cultivation

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**Introduction:**

Ever since humankind existence on this planet, he has had to depend on nature for sustenance and survival without the background knowledge of sciences, working through primitive's methods. Gradually he learned how to light fire and as result, he gained knowledge of how to cook foods. Eventually, he progressed and developed thinking by instinctive and intuitive ideas; through accumulated knowledge, he discovered certain remedies for common ailments from the
natural resources. He found and developed various remedies to heal ailments. As this was happening all over the world in different groups of people, different ethno-healings methodologies came to exist in the world. Empowered by these ideas of knowledge he experimented and tested natural remedies for ailments and as a result, he developed and constructed ideas of reasoning. He learned and imparted the knowledge of the efficacy of natural remedies for particular illnesses and recorded this in documents and that in time developed into the various traditional systems.

For thousands of years, he recorded therapies and made standard text to practice medicine usually within his own community. The knowledge was passed on from generation to generation by transmissions. By and large there are innumerable systems of traditional medicines all over the world. The each system has its own version of diagnosis, treatments and explanation of the action of each medicine. Every region or every corner of the world has its own specialty within medicine. Thus, many medical systems have developed from various civilizations of humankind.

The late 1940s people became more aware and conscious about their health. There was more stress and various knowledge sciences proved beneficial by improving quality of life. Medical science is one of the most important branches of science which refers to the body of knowledge ascertained by observation, experimentation, systematic and critical testing with the sole aim of helping human beings to maintain a healthy life. Everyone, whether rich or poor, superior or inferior depends on medical science for cure, and to prevent and protect them from illness or suffering. As mentioning earlier, as result of developments in science, the numbers of indigenous systems evolved with different logic and techniques of healing but with the same aims. The objectives and goals are to heal and cure the mental and physical illness of human beings.

Tibetan medical system is not just folk medicine or a primitive form of medicine as most of people think. It was developed from the beginning of its civilization and has been preserved and practiced for more than 2500 years. It is one of the ‘Five Major Studies’ in Tibet, which was a unique aspect of the Tibetan culture. Tibetan medicine is invented and standardized by courageous great kings, scholars, saints, and physicians of Tibet. It is through their efforts which has laid down the solid foundation; based on extracting the essence from other traditional healings systems. The authentic medical text "rGyud-bZhi" (Four Tantras) was compiled exclusively with numerous factors taken into consideration like geographical climates, conditions and the human body compositions. It is still able to preserve, promote and continue this tradition.

Tibetan medicine is a science, art and philosophy that consist of a holistic approach to health. It is a science because the principle foundation, build in a systematic and logical framework, are based on the understanding of our body and its connection to environment. It is an art because it uses various diagnostic methods to identify various problems and a treatment to maintain optimal health. It is a philosophy because it holds the key Buddhist inspections of the principles of humanity, karma and moral codes. The understanding of these puts Tibetan medicine in a place to help those whose conditions are being ignored by other systems.
The ancient physicians of Tibetan medicine had the great fortune to have a nearly inexhaustible wealth of plants species to draw on in preparation of their drugs. The Shelgong-Sheltreng (Compact Crystal Rosary) by the renowned Tibetan doctor and scholar Deuma Geshi Tenzin Phutso reordered 1176 medicinal plant 2294 sub-types of medicinal plants in it, and The Flora of Tibet, recorded by Tibetan doctors in Tibet about the 6000 plant species. Its covers only a part of real of Tibetan medicine, which stretches from northwards to Mongolia and beyond, eastwards to Schuan and Yunnan and west to Ladakh and Trans-Himalayans belts. The Tibetan doctors in exile in India collected their plants in the southwest in such areas as Kashmir, Ladakha, Nepal, Sikkim and Himachal Pradesh (northern India) even from Tibet. As result, the Tibetan doctors inside Tibet and outside Tibet enjoy having more than 10,000 plants species at their disposal.

**Importance of various vegetations occurring in alpine high altitude areas**

A natural wealth of flora in the alpine and high altitudes regions in particularly Outer and Inner Himalayans belt, home for many plants species are depleting due to alarming rate of unseasonable weather events and global warming on the planet. The unseasonable weather events and global warming not only affects the alpine temperate vegetation but also Tropical and sub-Tropical vegetations. As a result, the some regions in the high-altitudes areas have become a barren desert. The lower altitudes area or hills and plains have also become barren with sparse vegetation. Another added factor is that of grazing cattle; wild and domestic herbivores affect vegetation in high altitudes areas. Therefore many areas of high altitude tends to develop into a desert due to unseasonable weather events, global warming, the human impact and overexploitation, in particularly overgrazing, avalanches and decreased snow fall in winter.

It is very important to study and to learn about various vegetations of plants and their habitats, landscapes, adaptations and association of other plants before cultivating the plant. After thoroughly studied and awareness of vegetations of plants and make a protocol for each plant for cultivation program about their ranged, altitudes, location, topography, climates etc. Therefore, study of vegetation site of plant is topmost priority for cultivating and conserving the plants.

Flowing are the vegetation occur in Tibet and Trans-Himalayans belts

1. *Cold Steppes vegetations*
2. *Pastoral Semi-desert vegetations*
3. *Giant Kobresia Bogs vegetations*
4. *Pigmy Kobresia turf vegetations*
5. *Alpine Cushion Vegetations*
6. *Conifer Forests vegetations*
7. *Birch Forests vegetations*
8. *Subalpine Herb Meadows vegetations*
9. *Alpine Humid pasture vegetations*
10. *Dwarf Scrub vegetations*
11. *Species Rich Shrubberies vegetations*
12. Montane Caragana-Artemisia Scrub Steppes vegetations
13. Subalpine Tussock Grass Steppes vegetations
14. Subalpine Pastoral Semi-deserts Vegetations
15. Cold deserts vegetations

The significance of essential limbs of Tibetan medicine:

Tibetan medicine stresses the importance of medicinal taste, potency, quality and utility, which is related to very significant consideration the essential limbs of medicinal plants in order to the prime therapeutics efficacy.

Right Habitat:

The growing sites or habitat should be clean and fragile with free of pollution, wastes, and garbage. Plants should be growing abundantly in their natural sites. The cool-warm potency should be in acquiescence with the inherent cool-warm potency of herbs or plants. For instance, the cool potency herbs grow on the site of mountain facing north is more effect to hot disorders where as the warm potency herbs grown on mountain facing south is more effect to cold disorder. The natural sites of plant should be blessed by Buddha and high spiritual practitioners, whose innate power effects the herbs and gives them more power to eliminate disorders.

Right time of collection:

The collection of medicinal plants at specific times is a very important consideration to Tibetan medicine for the effectiveness of medicine for different ailments. The various parts of the plants such as root, stem, branch, leaf etc. are collected in their own period, when their potency in its supreme and prime. The root, branch and stem are should be collected during late phase of autumn, when all other parts falls or dry. The leaf, latex and shoot are collect in the late phased of summer or rainy season. While flower, fruit and other aril parts picked up during early autumn after maturation. The bark, cortex and resin are collected and extracted when shoots sprouts in the middle or the late phase of spring. Plants used as emetic are collected during late phase of spring, the power of fire and air elements, which are the stronger influence on sprouting of seedling. As a result, specific plant has acquired an ascending effect. Likewise, the plant which is used for purgative need to collected in phase of late autumn, because the power of earth and water elements are predominant and the stronger at root, this specific plants has a descending power of effect.

Removal of poison (Coarse potency):

The each plant has coarse potency in its parts of morphology characteristics; such as root, stem, branch, leaf etc. The coarse potency of medicinal plant impairs the digestive heat and affects the therapeutic benefit of that particular disorder. It is very necessary to remove the coarse potency of collected medicinal plant to minimize the side affect and smoothing potency of the medicine in order to restore the digestive heat. The medicine is more effective for specific disorder with
removable of coarse potency. The example that possess coarse potency such as the back of root, pith of stem, node of a branch, petiole of a leaf, sepal of a flower and apocarps and endocarp of a fruit present coarse potency.

Method of Drying Process:

It is very important to have proper drying process according to the nature of the medicinal plants in order to have required medicinal effects. The collected herb are cleaned by washing before drying if needed and then the stem, branch and root chopped into pieces immediately after collection and dried in properly to maintain its potency. The cool potency herbs are dried in the shade and cool wind, whereas the herbs with warm potency are dried in the sun and nearby fire. Likewise, warm potency herbs should not exposed to cool breeze and cool potency herbs should not be exposed to fire and the sun. The medicinal plants should be free from smoke, moisture, insects, fire and contamination substances. If the drying processes are following systematically in order, the crude drugs will retain their potency and superior qualities.

The timely utilization of plants:

It is unwise to keep collected medicine for many years in the storage. Generally, any kind of medicinal substance has its own time of utilization. The medicinal substance derived from the herbs should not be exceeding one year of storage, particularly the leaf and flowers. After one year, the herbs lose their therapeutic potency. It is very important to replace the dried herbs by fresh stock of herbs every year and indeed herbs should be used within the same year of collection. However, there is special method to maintain the therapeutic potency, to keep herbs longer during for utilization. The concentrated decoction of herbs or plants can be preserved for more than a year without losing its potency.

The strength of Medicine:

The diversity of medicinal plants is vast and abundant in the nature. Nature gives us enough remedies for solving the different ailments that exist on this planet but not for self-indulgence. The strength of medicine also depends on its own medical efficacy. As each system has develop since the very existence of civilization and each culture has its own way of management through various processes and methods in order to achieve the supreme an efficacy and effectiveness of medicine in its struggle against various diseases. One of the factors to strengthen medicinal plants is correct identification and analysis of therapeutic value and medical efficacy through research, particularly in clinical research for specific diseases. Tibetan medical treaties prophesied long time ago “All the visible herbs or plants growing above the ground should be used in medicine because after about five hundred decades, the medicine like aromatic plant medicine, precious mineral and stone will become rare and will difficult to find immediately. If found, the poor patients unable to afford them. Even if obtained from remote areas this will not help by the time the patients would succumb to illness.” Considering the above reasons of that prophesied and as are evident, there is a growing interest and demand for Traditional medicine.
The weakness and problems of medicine:

The weakness and problems of medicine faced for many years continues even while practicing it in modern time. To solve and eradicate the problems in medicine and its practice, more research and analysis in the fields of various medical systems is required. It is very important that a lot of research needs to be done on the various systems of traditional healing with the help of modern advanced techniques, specific to the particular disease. Human beings are more concerned and aware of the importance of health unlike primitive times. But today there are also new diseases that come up and research into their treatment is still ongoing. The different traditions of medicine should be part of that flight against different diseases.

The cultivation & conservation of medicinal plants:

It is very important for those who practice any kinds of healing to be responsible for promoting and sustaining medicinal plants in the wild. Those who deal with medicine have a great responsibility for the utilization and conservation of medicinal plants and through various means such as academic education to impart knowledge about importance of medicinal plants in rural areas. They should provide the necessary equipment to conserve and sustain medicinal plants in their native environments. Rural people have their own knowledge and experience about medicinal plants from their ancestors. Practitioners are utilizing herbs for the composition of medicine increase every year and as a result, some of the commonly used medicinal herbs are becoming increasingly rare. The main reason for scarcity of medicinal herb is plants, is that material demand is greater than the supply for commercial orientated purposes. There is a limit to how much medicinal plants can naturally grow in nature. Some the plants are critical to many medicine systems. Also some of these plants are becoming smaller in population due to disturbance in nature, over harvesting and changing climatic condition or due to man-made problems. There is also natural destruction and shrinking of native habitats due to natural calamities and disasters. People should know how to harvest medicinal plants; the untimely collection of medicinal plants, especially herbs. The collection of medicinal plants before their flowering time and improper collection of medicinal plants will lead to their depletion. As a result of these malpractices many of herbs become scarce, rare, endangered or are on the verge of extinction. Today WWF has made criteria, a red list for some plants not permitted to be exploited for any means, especially for commercial purposes. It is high time for all of us to initiate and take the right steps or prompt action to prevent such kind of malpractice that threatens very survival of medicine plants and leads to degradation of their environment.

Mahatma Gandhi has rightly said;

"There is enough in this world for every ones need, but not for every one's greed."
Therefore, by using the herbs for the sole purpose making money is wrong. Such perceptions not only affect humanitarian causes but also threaten the very survival of their environment. It also ultimately affects and harm patients who need to benefit from such medicinal plants.

It is time for us to take steps to conserve and cultivate medicinal plants in nature in their organic form without dealing with bio-chemicals. The best method is to initiate the cultivation of medicinal plants are by using modern techniques using natural compost manures in their natural habitat in order to have good quality and potency of medicine. This is, sometime known as biodynamic agriculture such methodologies may be useful in persevering medicinal herbs.

There are some advantages in cultivating medicinal plants:

a) **Prevents the extinction of rare medicinal plants (Herbs):**
   Studies of high altitude plants, vegetation and the awareness of the variety of vegetation that occur in alpine regions help to prevent the extinction of endangered plants, in their natural habitat. Many of the plants can be protected through awareness and information about the climate changes and ecological destruction of the plants of alpine high altitudes. Overgrazing, unseasonable weather events, global warming and human impacts destroy the many areas in alpine regions. Some of medicinal plants that are over used become rare. Plants are adapted to their local environment; some herbs are adapted to extreme climates with specific ecology, should be cultivated where it growing to prevent the extinction in nature. Where some plants exist naturally in small populations, it is hoped that by cultivation, the population would increase and an increase in diversity could be cultivated.

b) **Saving environment for the future:**
   There are many natural calamities happening in the world. The one of factor is destruction the environments by deforestations, over harvesting, fluctuations in the population in plants and unseasoned weather conditions. To overcome these problems there needs to be started re-forestation programs and train to local people and inhabitant of these areas through In Situ conservation and ex Situ conservation by using modern biodynamic systems. These two methods are best for the propagation of plants in that eco-system level so that it can be conserved on a long-term basis. Those plant populations can be conserved in the wild that is in their natural habitat.

c) **Improving the economical condition of the societies:**
   There should be systematic programs for the local, rural, and urban areas to create the awareness and importance of plants in our life but also the city people should have awareness of the degradation and depletion of natural resources by exploitation and misuse in the world. In particularly, people should know or be aware of the significance of nature and give it a very special place in their lives. To challenge and overcome the degradation of nature, one must to give training to people particularly those who are more associated with the nature such urban, rural, and local inhabitants, on how to plant
medicine herbs. These kinds of programs are undertaken by NGO and other societies and through educating rural people it leads to improving their living standard and benefits entire communities.

d) **Able to compounding medicine in time:**
The preparation of medicine depends on availabilities of medicinal ingredients in nature. The vegetation should not be disturbed by overuse, grazing exploitation, commercial purpose, in particularly the medicinal plants, used in sustainable ways. Practiced collection using good procedures, would mean that eventually medicinal plants will be not verge of extinction and endangered in their natural habitat.

**Conclusion:**

The statement given by His Holiness the Dalai Lama

“Our planet is our house, and we must keep it in order and take care of it, if we are really concern about happiness for ourselves, our children, our friends and others sentient beings who share this green house with us”

Thus, we have great responsibility to make this Earth a greener place with everlasting resources for the poor and desperate patient who are in need of the treatments from medicinal plants.

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