



Introduction

Welcome to "Sambhavna news", a newsletter for sharing news from the Sambhavna Trust Clinic. We hope to carry interesting information on different aspects of health and healthcare of the people in Bhopal poisoned by Union Carbide and its owner Dow Chemical. We aim to publish this four times a year and look forward to your comments, suggestions and queries if you have any. We would appreciate a small donation from you to cover the production cost of this issue.

Sambhavna Trust

The Sambhavna Trust is a registered NGO that runs the Sambhavna Trust Clinic close to the abandoned Union Carbide factory in Bhopal. The Clinic exclusively provides medical care to those exposed to poisonous gases in 1984 and those with chronic exposure to contaminated ground water. In the last 21 years, the Clinic has offered long term medical care to over 34 thousand persons through modern medicine, Ayurveda and Yoga. The Clinic also carries out medical research, runs a community health programme in the affected communities, grows medicinal plants, manufactures Ayurvedic medicines and maintains a library and documentation centre on all aspects of the disaster. Established in 1996, all costs for running the Clinic are borne by thousands of individual donors.

Nirgundi

A wayside shrub that could save lives in Bhopal.

Chronic pain in the large and small joints and in the muscles in different parts of the body (often causing functional disability) is one of the most prevalent complaints among the gas affected persons taking treatment at Sambhavna. As per records of the state government run hospitals and findings of medical researchers, analgesics have always been among the most prescribed medicines to the gas victims.

While the adverse effects of such long term analgesic use remain to be studied, it is known that unusually large number of gas affected people have been diagnosed with chronic renal diseases and renal failures. As per government records over 1145 persons with end stage renal disease have been paid ex-gratia amounts so far and the list continues to grow. Most recently the gas affected people have been promised assistance by the government for kidney and liver transplants. However, there is little to indicate that this alarming situation has caused any reduction in analgesic prescription or consumption in the gas affected population currently undergoing treatment.

At Sambhavna the extraordinary powers of an ordinary wayside shrub have been harnessed to provide relief from pain without any adverse impact. The plant with the botanical name *Vitex Negundo* is commonly known as Nirgundi. It is found to be growing in abundance on patches of wasteland near water bodies such as next to railway tracks and it is not uncommon to see them singly or in small thickets by the side of our familiar roads.

A google search yields close to 100 research papers mostly focusing on the analgesic, anti-inflammatory, muscle relaxant, antibacterial, antifungal, antioxidant, anticonvulsant, anticancer and hepatoprotective activities of Nirgundi. There is substantial documentation of the use of the root, leaves and flowers of this shrub as juice, decoction, powder, oil and

tincture for treatment of as many as 44 diagnoses and conditions including respiratory, gynecological and auto-immune disorders and as antidote to snake venom. It is mainly in south and southwest Asian countries that this shrub is used for its medicinal properties. In some of these countries its leaves are also used as a insecticide, larvicide and mosquito repellent.

At Sambhavna, Nirgundi leaves are used directly or boiled in water or are incorporated in to Sesame (Til) oil base through a rather lengthy process that takes about a week.



Nirgundi oil is meant for external application. It is effective in several painful conditions like backache, joint pain, and pain in limbs, neck and upper back regions. Data from last 12 years shows that out of 22,214 persons who received care at the Clinic, 16,780 (76 %) persons have been prescribed Nirgundi Oil. Since 2009 Nirgundi oil has completely replaced Diclofenac gel that was earlier used in the clinic. Persons receiving care at the clinic are provided with Nirgundi saplings and encouraged to grown in their homes and use it for their family and neighbours.

Other than using as Massage oil, fresh Nirgundi leaves are boiled to produce medicated steam or a decoction to be poured on painful parts. Fresh leaves are also ground

to make a paste to be used as a poultice for reducing swelling and pain due to Rheumatoid Arthritis or Spondylitis.

Nirgundi is also one of the main components of mosquito repellent sticks produced at Sambhavna. We have been using them since 2009 and they continue to remain effective against mosquitoes. A little research on google (of course keeping in mind to stick to dot edu and avoid dot com as much as possible) will show that almost all mosquito repellents available in the market are seriously harmful for human health.

In conclusion we would like to say that there is



enough data to show that Nirgundi based medicines could be a safer alternative to synthetic analgesics particularly for those with toxic gas exposure. In the context of possible association between analgesic prescription and renal impairment in the gas affected population there is an urgent need for the health authorities to be open to the possibilities that a wayside shrub could well be a life saver.

Nirgundi Oil is also commercially produced and distributed by Sambhav Enterprises, Bhopal.

To order please call 73899 07369 or write to sambhavbhopal84@gmail.com

Malaria eradication by Community Health Volunteers

Half of the work of the Sambhavna Trust Clinic happens outside the clinic in the communities of the people affected by the gas disaster and contaminated ground water. Our six Community



Health Workers visit the communities every day and in the last 10 years they have inspired, educated and equipped over 100 volunteers in the community to work for the improvement of the health of the community. In 2009, we started working towards eradication of malaria in a population of about 40, 000 residing in 16 communities. This consisted of spreading awareness on the causes and consequences of malaria and what a people could do to eradicate malaria from their midst.

The main message we conveyed while creating awareness on malaria in the community was that everyone including children could play a central role in the prevention, diagnosis and

treatment of malaria. We put a lot of emphasis on explaining the science behind each of these aspects and provided training to a number of eager volunteers in each community.

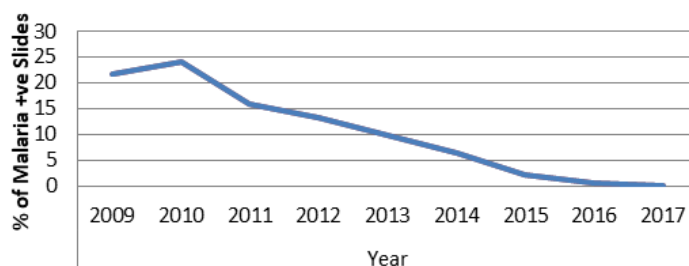
Training consisted of knowledge and skill sharing in preparing blood smear slides for detection of the parasite, providing medicines to persons with malaria and monitoring their response as well as in distributing prophylactics to those who were vulnerable. Health volunteers also became proficient health educators on malaria and played a leading role in bringing the community together to ensure that there were no mosquito breeding areas in their neighbourhood.

Before the monsoons every year, it became a routine for dozens of people to go all around their community and pour oil on stagnant pools or release Gambusia seedlings (obtained from the District Malaria Office) if they were deeper. Between the months of August and December, health volunteers would prepare pin prick blood slides for anyone in the community who came to them with complaints that could indicate Malaria. The slides would then be carried to the Sambhavna pathology lab and depending on the microscopy report, concerned health volunteers would be asked to provide medicines and prophylactics from their stock in the community.

The plot below shows how the percentage of Malaria positive slides from these communities fell to 0 after about seven years of work.



Drop in Malaria Prevalance from 2009-2017



Poison Papers

In the immediate aftermath of the disaster one of the major problems doctors faced in the treatment of gas victims was the paucity of medical information on Methyl Isocyanate exposure. Union Carbide, USA had carried out scientific investigations since the sixties at the Mellon Institute at University of Pittsburgh in USA on the toxic effect of Methyl Isocyanate exposure on living systems. Following the disaster Union Carbide withheld the results of the investigations at Mellon Institute claiming them to be 'trade secrets' and falsely claimed that Methyl Isocyanate was no more harmful than teargas. Later some of these secret reports got leaked. Below is an extract from one of the leaked reports that clearly shows that Union carbide management was well aware of the extreme toxicity of Methyl Isocyanate.

Mellon Institute Special Report Range Finding Tests on Methyl Isocyanate

Inhalation

A metered concentration of 62.5 ppm of methyl isocyanate killed 6 of 6 CFE female albino rats on either the first or second day after a 4- hour inhalation period in a 9 liter chamber while another group of six rats survived after 4 hours in a concentration of 31.2 ppm.

All animals were conscious but poorly coordinated when removed from the inhalation chambers. Eye irritation was noted at both concentrations. Autopsy of victims revealed 60 to 90 % of hemorrhage of the lungs with clear fluid present in the pleural cavity. Two of the 6 survivors lost weight during the subsequent 2-week observation period and both had partial consolidation of the lung at sacrifice on the 14th day. All six rats had liver congestion evident at this time.

The LD50 of methyl isocyanate in a 4 hour inhalation period is calculated to be 44.2 ppm or .103 mg/liter.

Another group of 6 female 200 to 300 gram rats inhaled metered concentration of 2 mg/liter for 1 hour. Five of these animals were dead within 24 hours and the 6th died a day later. Autopsy disclosed that hemorrhage of the lung was the immediate cause of death.

Relief through Yoga

Well over 5000 individuals poisoned by Union Carbide have taken treatment through Yoga at Sambhavna in the last 20 years. People have found relief through Yoga alone or in combination with modern and Ayurveda systems of medical care for health problems as varied as Chronic Obstructive Pulmonary Disease, Dysmenorrhea, Acid peptic disease, Cervical spondylosis and Insomnia. Most treatment consisted of a combination of Yogasanas (postures) with or without Shodhankriyas (cleansing actions), Pranayama (breathing exercises) and Dhyana (meditation). The two short interviews below are representative of how individuals have found solutions for their acute and chronic health problems without taking potentially harmful medicines.

Rizwana Javed Ahmed 37/F

I started having pain in my lower back after the birth of my third child. It became first very painful and then impossible to do household chores such as washing clothes. I couldn't lift anything heavy like a bucket of water. And then I found doing Namaz too painful. I took iron and calcium tablets and painkillers for six weeks as advised by the two doctors I went to. But I did not get lasting relief from pain. Then my sister in law, who was taking treatment at Sambhavna, told me to go there. The doctor

who examined me at Sambhavna advised me to see the Yoga Therapist. After I started doing Yoga I could feel the effect within a week. After 15 days of Yoga I was completely free from low backache and did not have to take any painkillers. I now do 30 to 45 minutes of Yoga every morning. Curiously, after six weeks of Yoga practice my blood reports that earlier showed elevated TSH, now show normal levels!



Amreen 23/F

Three years back I started having a lot of difficulty in breathing along with persistent dry cough. I strictly avoided all food items that were supposed to be avoided and did my best to get better. I must have gone to more than 15 private clinics and hospitals but my problem got worse. I lost my appetite and my sleep was badly affected. When I came to Sambhavna few months back I was first treated with Allopathic medicines for a month and then advised to go for Yoga therapy. I began Yoga very earnestly and

used to do them as advised by the Yoga therapist for about an hour every day. Today as I continue with Yoga regularly I am free from cough and breathlessness, have regained my appetite and sleep and do not have to follow any diet restrictions. As a seamstress I need to work hard to make a living. For people like us, Yoga is a great boon, it does not cost money and provides sustained relief.



Very recently a study published in the Proceedings of the National Academy of Sciences (PNAS), USA revealed that between 2000 and 2015 human consumption of antibiotics in India more than doubled. In comparison, antibiotic consumption rose by 65 per cent in Pakistan, the same as the global rate reported by the prestigious journal.

In terms of figures of deaths due to infectious diseases, in several categories India has been at the top among Asian countries for several years. While figures of the overall burden of Antimicrobial resistance (AMR) in India are not available, it is estimated that annually 58,000 neonatal deaths are attributable to sepsis caused by drug-resistance to first-line antibiotics.

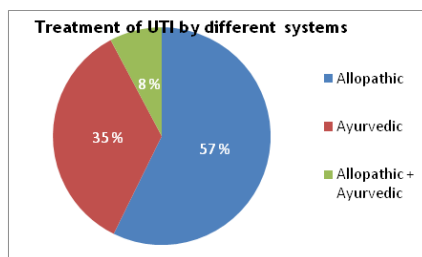
As warned by the World Health Organization, AMR is an increasingly serious threat to global public health. Without effective antibiotics, for prevention and treatment of infections, medical procedures such as organ transplantation, cancer chemotherapy, diabetes management and major surgery (for example, caesarean sections or hip replacements) become very high risk.

In 2014, a high-profile UK expert group estimated that if present trends continue, there would be 10 million deaths annually due to AMR, more than deaths attributable to cancer today. Reduction of antibiotic use is one of the major ways in which the issue of AMR can be addressed globally and nationally. Worldwide data show that countries with a higher consumption of antibiotics show higher rates of AMR.

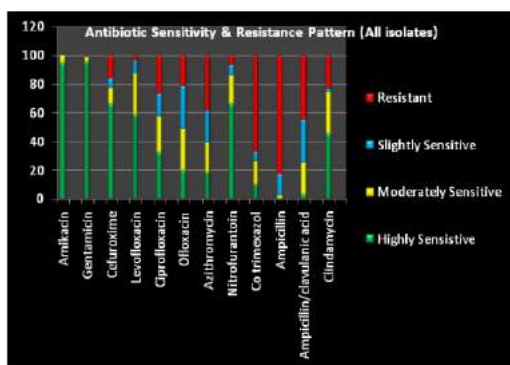
At the Sambhavna Clinic we pay serious attention to AMR and do our best to reduce antibiotic consumption among the over 34 thousand persons registered for long term care.

Here are a few practical things that we do:

Use Herbal Substitutes: A significantly large proportion (43 %) of the persons with infectious diseases are seen and treated by Ayurveda physicians who use herbal preparations whose effectiveness is monitored through microscopic and microbiological examinations. We have found Ayurvedic prescriptions to be particularly helpful in cases of UTI where AMR is frequent.

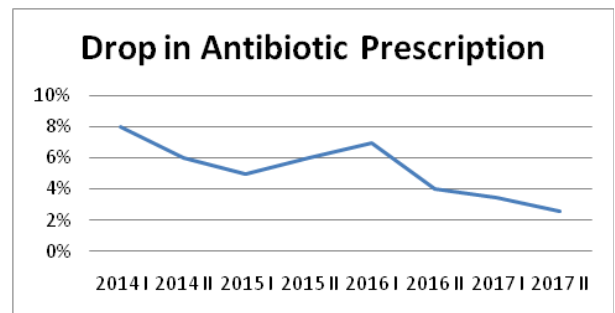


Review Pattern of Sensitivity and Resistance: Our laboratory



scientist Prachi Gupta presents the prevalent pattern of sensitivity and resistance such as the one below from the last 7 months of last year to help doctors prescribe antibiotics better.

Integration of Antibiotic Protocol: In December 2016 we focused on strict implementation of the Antibiotic protocol of the Clinic. In October 2016 data was presented at the weekly meeting of staff on cases in which the doctors were supposed to order culture/sensitivity before prescribing antibiotics but had not. The laboratory scientist was entrusted with the responsibility of constant monitoring of antibiotic use in violation of the protocol. This had significant positive impact on rational prescription of antibiotics. Finally, in May 2017 alerts were incorporated in to the computerized system of clinical data (Sambhavna is among few health care centres in the country that has a computerized system for entering and processing of clinical data of each patient.) so that doctors would be reminded of the protocol every time they prescribed an antibiotic. This last step has brought down Antibiotic prescription to an all-time low of 2.6 %



We would be happy to receive suggestions from readers on how we can contribute more to dealing with AMR. And of course, we will be happy to share our practical experience in dealing with issues of AMR.

Do write to us at : sambhavnabhopal@gmail.com

A brief format to be used when consulting with patients

The patient will talk, The doctor will talk.
The doctor will listen while, the patient is talking.
The patient will listen while, the doctor is talking.

The patient will think that the doctor knows what the doctor is talking about.
The doctor will think that the patient knows what the patient is talking about.

The patient will think that the doctor knows what the patient is talking about.
The doctor will think that the patient knows what the doctor is talking about.

The doctor will be sure.
The patient will be sure.
The patient will be sure.
The doctor will be sure.

Shouldn't hurt a bit, should it?

Glenn Colquhoun

Glenn Colquhoun (1964 –) is a doctor (general practitioner), poet and children's writer from New Zealand. He contributed to the non-fiction book *Being a Doctor: Understanding Medical Practice*. Exploring the principles of modern medicine, the book uses clinical tales to advance the holistic training of medical professionals.