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Preface

for the foetus. One lady after reading this article rang up

Dr. Kabra and told him weeping that her child is suffering from cancer because she used insecticide spray in house for killing cockroaches when she was pregnant. Had I read your article before, my child would have not suffered.

Pingalwara Institution believes in the wellbeing of all people, so to make people aware of the hazards of above factors much literature is being published in *Bhagat Puran Singh Printing Press* and distributed free of cost at religious places, schools and colleges. I am thankful to *Miss Ritu Sharma* to edit this booklet.

To save inmates of Pingalwara from this dreadful disease and to educate farmers to do zero budget natural farming *Pingalwara Institution* has setup a model farm where crops and vegetables are grown without chemical fertilizers with good yield. Many farmers are following this pattern.

I request Sangat to donate generously for this noble cause.

Dr. Inderjit Kaur *Mukh Sewadar*, Pingalwara

80 Per cent of Cancers "Relate To Modern Life"

Gwalior, Jan. 8 (PTI)— Almost 80 per cent of the cancers in humans are related to modern life and caused by the surrounding environment which is laden with toxic and hazardous chemicals, bacteria and viruses, according to reports presented at a cancer conference here.

Environmental improvement will cost the one-fifth of the total amount being spent on treatment of cancers resulting from environment pollution, says Dr. P.P. Bhargava, a scientist at Cancer, Hospital and Research Centre, Gwalior, who submitted a paper at the Oncology-91 conference, organized by the Indian Society of Oncology, recently in Gwalior.

All material used for eating, drinking and smelling, natural and medical radiations and the environment in places of work can have cancerous agents, cancer specialists report.

Smoke from petrol, diesel, coal, wood, charcoal, cowdung, bidis and cigarettes and aerial spray are all potential carcinogens. Smoke from diesel is 30 times more harmful than smoke from petrol while un-burnt gases from old, inefficient vehicles are one of the greatest pollutants in the environment.

Inhaling the air in Delhi is equivalent to smoking one and a half cigarette packets a day, says Dr. Bhargava.

Tobacco smoke has nearly 3000 chemical compounds, of which many are carcinogenic.

Previously, the "hookah" was used in India and some other countries, in which the tobacco smoke passed through water before it was inhaled. This removed many of the toxic chemicals present in tobacco, which contains many harmful nitrosamines.

Water, which is as essential for survival as air, is becoming no less toxic with the continuous addition of industrial wastes, insecticides, pesticides and fertilizers to ground water.

Food, too, is becoming increasingly toxic with pesticides, insecticides and fertilizers finding their way to agricultural products.

During storage, groundnut, cotton seed, flour, rice, wheat, maize, tapioca and sweet potato develop fungal toxins, while some food colourants have been identified to be cancerous.

Recent surveys have also correlated cancers of some organs with occupations and conditions of work.

It has been observed that people engaged in building houses and ships, in industries connected with coal tar, nickel, copper, chromium, random and in bakeries have greater chances of getting lung cancer.

People working with vegetable oils or animal fats as well as diesel truck drivers have higher incidence of urinary bladder cancer.

Workers dealing with arsenic, shell oil, lamp black, x-rays and ultraviolet rays have been found to be more prone to skin cancer.

A study carried out by the national institute of occupational health showed that 73 per cent of workers in copper and chromium industries developed genetic changes after four years of continuous work in mines.

Intensive damage to chromosomes has been observed in the body cells of people working with red hot metals or dust, some of which affect their progeny.

The incidence of cancer in workers at the Indian rare earth limited, always, manufacturing thorium hydroxide has been found to be quite high, says Dr. Bhargava.

Tri-sodium phosphate, which is a good detergent, chlorofluorocarbons used as coolants for refrigeration and air conditioning, aerosol sprays, fire extinguishers, polyurethane foams and plastic foams, all part of modern living, are equally hazardous.

The Tribune, January 9, 1991

GM Crops Cause Cancer, Birth Defects, Says Expert S. P. Sharma

Dr. Johan Fagan, a leading US-based bio-medical researcher, has warned that the increased incidence of cancer and birth defects in Punjab might have been triggered by genetically modified (GM) crops and excessive use of pesticides.

Fagan, who had refused to accept the US government's dollar 1.6 million research grant to protest against the pushing of GM crops into the fields without sufficient research was here for five days, visiting rural areas of the Malwa belt to study the impact of such crops.

He said certain GM crops were found to have 12 to 14 per cent less of cancer-fighting isoflavones identified by the US department of agriculture.

Umendra Dutt, Executive Director, Kheti Virasat Mission, who has raised voice against multinationals dumping such hazardous technologies in developing countries, accompanied Fagan during his tour to the fields.

Fagan said the GM crops could be highly disruptive for the ecosystem, leading to the loss of biodiversity and disruption of the food chain, resulting in long-term harm to the environment economy and food security. This also resulted in soil pollution and increased incidence of cancer, birth defects and other diseases.

He said scientists as well as agriculturists in the US and some other countries had expressed serious concern

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about genetically engineered crops as bio-technological agriculture caused adverse effects on health. The mealy worm had come due to Bt cotton. Farmers across the US had resisted using genetically engineered seeds, but in India genetically engineered seeds were being used without assessing its impact.

Fagan said instead of following other countries blindly by introducing the GM crops, the Indian government should keep in mind that Western multinationals continued to attempt to cut losses by dumping such technologies in developing countries. Scientists have now developed much more effective and safer approaches, such as marker assisted breeding, which uses the most cuttingedge discoveries in modern genetic science to develop new and valuable crop varieties rapidly economically and safely.

Suseol, a Social Scientist and wife John Fagan, said Indian farmers should follow indigenous traditions instead of running after genetically engineered crops.

Dutt said the Kheti Virasat Mission was of the firm view that farmers in Punjab should consider the issues related to GM and Bt crops. The Punjab government and agriculture institutions that were promoting these crops should also reconsider their stand.

He urged farmer groups, consumer organizations and health professionals to join hands to stop the commercial release of Bt. Brinjal.

The Tribune, September 28, 2008

Cancer Experts for Ban On Cigarette Ads

Cancer specialists assembled here have unanimously endorsed President Sanjiva Reddy's suggestion to enact a legislation to discourage smoking by calling for a total ban on advertisements that seek to promote the sale of cigarettes, beedies and cheroots.

Specialists from various countries said doctors and medical association, in the developing world should form a powerful lobby to fight tobacco companies and advise Governments that there was now overwhelming evidence to prove that smoking did lead to heart diseases, lung ailments and worst of all mouth and esophagus cancer.

The doctors said that cigarette advertisements encouraged people, especially the younger generation, to take to smoking as a status symbol, as sign of maturity and a fulfillment of the "perfect male image" desire.

The specialists, including W.H.O. experts like Dr. Higginson, Dr. Nigel Gray and Dr. C.A. Lynsell felt that the statutory warning printed on cigarette packets could have the salutary effect of breaking the smoking habit.

"This is purely a political problem and only Governments could fight against tobacco conglomerates which are indulging in high pressure advertising for sale of cigarettes," Dr. Nigel Gray Director of the International Union against Cancer (W.H.O.) said.

The Cinema, T.V, Radio and Sports were being effectively exploited by tobacco companies in their sales campaign influencing the youth, the doctors said pointing out "this is where legislation should be used to ban advertising."

The Tribune, December 8, 1979

Cancer in Colourful Jalebi, Peas

In India one man's meat is a million men's poison. That is, if the man happens to deal in foodstuff. Every third sample of food lifted by the Health authorities is adulterated. Not only that. Most of the colours which are used to brighten up adulterated or sub-standard food can cause cancer.

The yellow "jalebi" which makes your mouth water whenever you pass a sweet shop contains Matanil Yellow, a coal-tar dye which produces cancer. Every "jalebi" shop in Delhi uses this dye.

The bright green canned pass you relish so much in your "alumatar" or "matar-paneer" contains blue VRS, a carcinogen which causes cancer.

And so for "papad," the poor man's dessert in India, the cute-looking pink variety has Rhodamine-B, one of the deadliest carcinogens known. Such colours are added even to pulses to make them look brighter.

Magnitude

The glowing yellow "haldi" (turmeric) power which lends colour to your every vegetable has leadchromate which causes anaemia, paralysis and in young woman, abortion.

All this is from the data collected by the Union Government's Health Directorate.

The magnitude of this adulteration explosion can be judged from the item-wise percentage of food samples found adulterated in different States. According to the latest figures, 75 per cent of the non-alcoholic beverages examined by the Health authorities in Assam are adulterated. It is 62 per cent in Madras, 53 per cent in Andhra Pradesh, 46 per cent in West Bengal and 44 per cent in Orissa. The figures for milk are: 80.8 per cent in Assam, 75.6 per cent in Orissa, 66.6 per cent in Manipur, 57.7 per cent in West Bengal and 46.4 per cent in MP.

The percentage of adulterated samples of butter, ghee and ice-cream in different States is between 12 and 50 and of spices and condiments up to 46.8. The corresponding percentage of adulteration in cereals and cereal products fluctuates between 5 and 100. In the case of fruit products the percentages are: West Bengal 100, Assam 65.6 Orissa and Rajasthan 50 to take only four States. Even in such innocent looking items as tea, coffee, cocoa and chicory, the percentage of adulteration is as high as 36.3 in Orissa and 23 in Assam.

Mustard oil deserves special mention. It is a major cooking medium and all sorts of oils are used to adulterate it even Mobil oil and diesel oil. The most common adulterating ingredient for mustard oil is, however, argemone, popularly known as "bharbhanda" in U.P and "shialkanta" in West Bengal. It was supposed to cause epidemic dropsy and glaucoma only. But recent researches have proved that it causes cancer also. Often another harmful chemical compound, allyl isothiocynate, is added to mustard oil to give it pungency.

Adulteration, which the Health Directorate describes as a "widespread menace," is its deadliest in the urban areas. But the rural areas are also catching up with them fast, according to the Directorate.

The Prevention of Food Adulteration Act is not properly implemented in any State. The PFA Act of 1954 was amended in 1964 to make it more stringent. But things have not improved.

Indifference

The main cause of adulteration explosion in India seems to be the supreme indifference of the Centre and the State Governments. The State Governments do not bother

a bit about the proper implementation of the PFA Act. They say they have no funds. And at the centre, Health is at the bottom of the priority-pyramid.

This indifference can be illustrated from a few simple facts. The minimum number of food-testing laboratories needed in India is 500-one for each of India's 350 districts and one for each town. But there are only 63 laboratories in the country. Nearly all of them are "ill-staffed, ill-equipped and ill-spaced." Even in a major city like Bangalore, the food inspector can lift nothing except milk, ghee and butter because there are no testing equipment for any other foodstuff there. In Gujarat, the State Public Health Laboratory in Baroda has only one chemist in the pay scale of Rs. 195 Rs. 390 per month. The chemist of the Public Health Laboratory at Bhuj is in the pay scale of Rs. 150 Rs. 390.

The Union Government set up a two man committee sometime back to review the working of the PFA Act. The committee recommended that there should be a wholetime food inspector for every 25,000 people especially in the urban areas at least one whole time inspector for every 50,000 people to start with. But the number of whole-time Government food inspectors in all the States still adds up to only 43. That means: one inspector for 1.28 crore people.

Assam, Bihar, Gujarat, Kerala, M.P, Maharashtra, Rajasthan and UP have no whole-time food inspectors at all. There are whole-time Government food inspectors in only four States: Andhra Pradesh, Madras, Orissa and Punjab. In most States, the sanitary inspectors on the local Municipal and other bodies do the work of food inspectors. They are ineffective because their salary is absurdly low about Rs. 100 a month and because they spend most of their time looking after sanitation. Worried about the adulteration explosion, the Union Ministry has proposed to set up a separate unit at the Centre for the administration of the PFA Act and its rules and "to guide, co-ordinate and give leadership in the implementation of the programme to the States." The scheme will cost about Rs. 61.15 lakhs. But only a paltry Rs. 62,000 has been provided in the Budget estimates for 1969-70 for the scheme.

The Prime Minister, Mrs. Indira Gandhi, wrote to the Chief Ministers on April 14 expressing concern about this adulteration menace. She asked the CMs to examine the problem and let her know what should be done about it. The CMs have sent in their recommendations. But no step has been taken by the Health Ministry so for to translate them into action. Now it is up to the Prime <u>Minister to announce some quick and drastic step to check</u> adulteration. Will she do it? That's a 55,00,00,000 life question.

The Indian Express, December 15, 1969.

Environmental Health Impact With Special Reference to Cancer

Dr. S.G. Kabra Indian Institute of Health Management Research & SDM Hospital, Jaipur ENVIRONMENTAL POLLUTION

* By Pesticides

* By Radiation

* By Tobacco

Health Impact

- * Carcinogenic— Substances that can produce cancer.
- * Mutagenic- can change the form, nature or quality of the subject.
- * Teratogenic— can cause malformation of a fetus.
- * Embryo-toxic- affects the fetus in the early stages of the pregnancy.
- * Feto-toxic— affects the fetus.
- * Hormone disruption— can disrupt the normal production of the hormones.
- * Neuro-toxic— can be injurious for the brain.
- * Thyro-toxic- can be injurious to the thyroid and regulates body growth and metabolism: the malfunctioning or congenital absence of this gland can cause goiter, cretinism, etc.

* Hepato toxic— can be injurious for the liver.

Health Impact

* Pesticides: There are known carcinogenic pesticides e.g. Those containing arsenic and other heavy metal. 13

* There are others that are probable carcinogenic.

- * Hormone mimics and hormone disrupters.
- * Folic acid antagonists.

Pesticide exposure

- * By contact- through skin.
- * By inhalation—air pollution.
- * By ingestion-water, edibles.
- * Through food chain.
- * Persistent Organic Pollutants.
- * Heavy metal contaminants- Arsenic, Cadmium, Chromium, Mercury, Lead.

Carcinogens and Teratogens

- * Like tobacco related cancers and birth defects there are pesticide related cancers and birth defects.
- * Tobacco related cancers- mouth, pharynx, larynx, lungs.
- * Radiation related cancers- blood & lymphoid tissue, childhood leukaemias.
- * Pesticide related cancers- thyroid, breast, uterus, lymphoma-leukaemia and esophagus.

Cancers in Punjab Source of data and information

- National Cancer Registry Program (ICMR) Hospital Based Registry Population Based Registry
- Districts surveyed in population based registry Bathinda, Faridkot, Muktsar, Patiala, Rupnagar.

<u>Cancers in Punjab-2002</u>						
* Source	Bhatinda	Patiala	Chandigarh			
* Acharya Tulsi RCC						
Bikaner	328	33				
* Govt. Med. Col.,						
Patiala	29	327				
* PGIMR (Histo.)						
Chandigarh	22	147	237			
* PGIMR (Cyto.)						
Chandigarh	18	105	389			
* MDOCT, Ludhiana	u 17	21				
* HBCR, Mumbai	1	5	9			
* PBCR, Delhi	7					
* All others	2	3	11			
* Total	424	641	646			

Mohan Dai Oswal Cancer Treatment & Res Foundation PBCR=Institute Rotary Cancer Hospital AIIMS Delhi

Min. Crude incidence of cancer per 100,000 population

		1
District	Male	Female
Bhatinda	28.4	43.2
Rupnagar	27.4	40.2
Patiala	33.5	33.6
Faridkot	19.8	32.3
Muktsar	17.2	32.1
Chandigarh	5.96	82.5

Leading 10 Cancers (In both sexes)
* Esophagus
* Gall bladder
* Lymphoma Leukaemia
* Liver
* In Woman Breast Cancer highest in all places.
Breast Cancer incidence and exposure to pesticides among women
Mathur V. Bhatnagar P, Sharma RG, Acharya V, Sexana

R. Department of Zoology, University of Rajasthan, Jaipur, India.

Persistent organic Pollutants are lipid soluble (soluble in fat) non-biodegradable and endocrine disrupters. Pesticides like DDT and its metabolites DDD and DDE, dieldrin, heptachlor and HCM and its isomers (alpha, beta and gamma were higher in blood of breast cancer patients when compared with normal women. The results indicated that organochlorine pesticides (Organochlorine pesticides are insecticides composed primarily of carbon, hydrogen and chlorine. They break down slowly and can remain in the environment long after application and in organisms long after exposure) analyzed were found significantly high in breast cancer patients irrespective of age, diet and geographic distribution.

Pesticide exposure and Cancer morbidity and mortality

- * PGI Chandigarh and Punjab Pollution Control Board Study.
- * Unequivocal association demonstrated between high exposure to pesticides/heavy metals and cancer morbidity and mortality in pesticide intensive cotton

cultivation area as compared to matched population low exposure area.

Pesticide exposure and Reproductive Health

- * Teratogenic
- * Embryo-toxic and Feto-toxic
- * Endocrine disrupters—estrogen mimics and estrogen disrupters
- * Folic acid antagonists
- * Androgen disrupters

Reproductive health impacts

- * High foetal loss in Punjab (spontaneous abortions, miscarriages, still births)
- * High female foetal loss
- * High rate of neural tube defects (anencphaly) and other congenital anomalies.
- * Deteriorating semen quality.

Foetal Loss/Females Foetal Loss

- * Primary sex ratio— ratio at conception (less number of females conceived-semen deterioration, estrogen disrupters)
- * Inutero foetal loss (early spontaneous abortion >females, miscarriage< >, Still births> males.
- * MTP (feticide) upto 12wks (80% equal 12-20 wks-sex selective female feticide.

Neural Tube Defect (NTD) and Females Foetal Loss

- * High incidence NTD in Rajasthan, Punjab and Haryana.
- * Brainless babies—80% females.
- * Known cause Folic Acid deficiency.

- * A nutritional Deficiency— an environmental insult selectively effecting female fetuses.
- * Nutritional deficiency in Rajasthan, Punjab and Haryana.
- * Pesticides as Folic Acid antagonists.
- * Estimated 5000 female babies lost/yr. in Raj.

Female feticide

We need to pay more attention towards feticide that happen on their own and not the ones that are carried out intentionally. In Punjab there is a very high rate of foetal loss and one of the reasons is the poor quality of the semen. The abortions can be spontaneous, or in the early stage, during the advance stage or miscarriage and finally the Still Birth.

You will be surprised to know that for every 1000 births 50 babies are lost. In Punjab the rate of Still Births is also very high. The woman carries the child in her womb for 9 months and finally she gives birth to a dead baby. These come under fetitoxics. In fact the rate of spontaneous abortions, miscarriages and still births is very high. The point to be noted in this is high female foetal loss. Less female children are being conceived and more are being lost in simultaneous abortions. During the middle of the pregnancy period the losses are equal and in miscarriage more male babies are being lost. The reason of very high Rate of female foetal loss is excessive use of pesticides, environmental pollution and the deteriorating quality of the semen.

We have to look at the sex ratio at the time of

	(age-group 0-4)	2001 - 2003											910 903(-)							
			Total	905	955	939	906	853	787	867	967	941	606	894	941	785	884	943	882	950
	At birth		Urban	866	963	917	860	827	765	865	956	932	882	852	880	761	893	606	856	886
		2001-2003	Rural	888	932	903	861	876	816	662	939	880	929	908	940	780	849	972	853	948
<u>for Punjab</u>	c Ratio	2(922							
Now look at the data for I	Sex		India and bigger States	India	Andhra Pradesh	Assam	Bihar	Gujarat	Haryana	Himachal Pradesh	Karnataka	Kerala	Madhya Pradesh	Maharashtra	Orissa	Punjab	Rajasthan	Tamil Nadu	Uttar Pradesh	West Bengal

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conception, in Punjab 776 girls are born for every 1000 male child births. That means 224 girls are lost during conception itself. We can't call this female feticide because female feticide comes much later. Even then female feticide figures cannot be more than 24. Therefore 200 female foetal losses are due to environmental pollution towards which we need to pay more attention.

If we look at the data of sex ratio from 1980 to 1990 we see that for every 100 female babies born there were 110 male births. Sex determination test is done with the help of Ultra-sound which come into being in 1990, as these figures are of the period when sex-determination test was not available; it is obvious that. Female fetus were being lost even in the 80's add to that the female feticide and the increasing use of pesticides we find that the main cause of the foetal losses is the environment.

Primary sex ratio at the time of conception is normally 105 males to 100 females. But in Punjab it is already less and as said earlier the main cause of this is the semen deterioration and estrogen disrupters. Female feticide is possible only after 15 weeks of conception, it is not possible to do so before 15 week with the help of ultrasound and 80% of the abortions carried out are done before 12 weeks of conception. Therefore, we can say that in 80% of the abortions sex-determination test plays no part.

Normally we think that if there is any pollution in the environment; they should affect the male and female fetuses equally. But it is not so. For example in Punjab, Haryana and Rajasthan neural tube defects have been found to be maximum. In this again maximum are brainless children i.e. when the child is born the brain has not formed and 80% of these are females. We know the neural defect babies are born due to lack of folic acid. Folic acid is a vitamin which we take in the form of food. Neural tube defect babies are formed because of nutritional deficiencies. The nutritional deficiencies may be understood in a poor state like Rajasthan but Punjab is a rich state but still we find cases of nutritional deficiency. The fact is that the number of children born due to neural tube defects in Punjab and Rajasthan is the same. Why there is lack of folic acid in the pregnant women? This is due to folic acid antagonists that destroy folic acid. This is not a small problem. In Rajasthan 5000 fetuses are lost every year. You can well imagine their number in Punjab.

Pesticides are also the cause of many types of cancers. Like I said earlier hormone disruptors, POP's (Persistent Organic Pollutants). Women are particularly susceptible to these pesticides. Breast tissues are very sensitive and are easily affected by the pesticides. That is why there is maximum number of breast cancer cases in Punjab amongst the whole of India. This is because of the pesticides and heavy metals like cadmium, chromium, lead. Third is because of lack of folic acid. Intake of folic acid is alright but folic acid antagonists are destroying folic acid in the body resulting in the birth of brainless children.

You have to find a solution to this serious problem. I want to emphasize again on the deteriorating semen quality of men of Punjab. This will result in the

destruction of many generations to come. This has been proved with facts and figures and is beyond any doubt. How can pesticides affect the quality of the semen? We discussed Hormone destructors. There are of two types estrogens that effect women and there are androgens that affect men? This will become very clear with this example. There was an explosion in one of the factories in Italy. In that dioxin gas escaped into the atmosphere. This gas is also used in Punjab. There were respiratory problems, which were attended immediately. They have an excellent system of collecting data and they found that due to the effect of dioxin, the child sex ratio changed drastically. There were very few male child births. After the explosion only 40 male births were taking place for 60 female's births. The effect was so pronounced on the young men that throughout their life they were made incapable of producing male children. I wanted to draw your attention to this fact.

Que. Dr. Jasmine from the civil hospital clarified that the nutritional deficiency is very much prevalent even in Punjab. She cited her visits to schools and villages where there were many cases of ulcers and glossito stomatitis. These children are not getting wholesome food. This I find even in good public schools where the children are from well-to-do families. This is because they eat more of junk or fast foods and less of nutritional food. Even folic acid deficiency is there because children are not eating green and leafy vegetables.

Ans. Dr. Kabra clarified that the sex determination

by ultra sound did come in 1985 but it became available to the general public only in 1990, even after 15 weeks of pregnancy probability of correct sex determination by ultra sound is only 60%. If you say that some people take small boxes to the villages and carry out the tests. These tests can be accurate upto about 50% only. They might result in abortion of a male child.

Nutritional deficiency is at every place and it is due to unbalanced diet. Folic acid is also present in milk, so deficiency of Folic acid in Punjab is not due to lack of intake but due to pesticides that act as Folic acid antagonists and neutralize folic acid in the body. You have to accept that many fetuses are being lost due to the presence of pesticides; your problem is not foetal feticide but foetal losses. You have to decide whether you want to save 24 or 200 lives. The problem of foetal feticide has been over blown.

- Que. A student from medical college suggested that many cold drinks also contain pesticides, these could also be explained.
- Ans. Yes, why do you want to pay for something that contains pesticides and has no nutritional value. The question is how can we reduce its intake? This should be done at the individual level as well as on the social and government level. What can you do at the personal level is to reduce pesticides intake?
 - Fruits and vegetables are sprayed with pesticides. Therefore, these must be thoroughly washed, peeled and only then consumed.

- 2. Wheat is also sprayed with pesticides. Therefore, do not buy wheat flour from the market. Buy wheat, wash it thoroughly and then get it ground for your consumption.
- 3. Use of pesticides has to be decreased. The action for this has to come from Government. One of the alternatives is organic farming.
- Que: A student in agriculture from Khalsa College Amritsar said that very scary data about the use of pesticides has been given. We know that for controlling pests and insects we have to use pesticides. In case we want to ban the pesticides what is the alternative? Secondly, in organic farming how do we control the pests and insects?
- Ans: Sh. Umendra Dutt from Kheti Virasat Mission informed that in Andhra Pradesh 1,80,000 hectares of organic cotton farming was being undertaken and cotton demands maximum use of pesticides. Organic farming is holistic approach and cannot be explained in a few words. Pesticides are used in organic farming also but they are not made from chemicals instead they are made from organic matters like neem paste, "go-mutra", "Dhatura" "Akk" etc. Giving an example of pest control in cotton cultivation, he said that the cotton fields also home weaver birds. These birds are very effective pest controllers. In organic farming the nature helps in pest control.
 - Adding to the effect of the pesticide usage he said that during their visit to the village of Bathinda,

Muktsar and Moga districts they found that in addition to the foetal losses, there is large number of issueless couples in the villages. This is also the results of pesticides.

- Que. A teacher from Bhagat Puran Singh Adarsh School, Manawala thanked Dr. Kabra for all the information. She requested for some guidelines to put these plans into action.
- Ans. The question is how do we force the government to take action as they are already aware of the problems. For this we need a mass movement. First of all the farmers must be convinced that pesticides are harmful and that we can do without them by resorting to organic farming. Once the farmers are convinced we can force the bureaucracy and government into action. This has to be a mass movement. You cannot depend upon old people to do this, young people must step forward and take on this responsibility. Once you are convinced that the Government policies are harmful then a beginning has been made.

Cancer Prevalence in India

Source : ICMR (Indian Council of Medical Research)

Data is based on 29 population based and 29 hospital based Registries. The estimated prevalence and mortality in the past three years, State/UT wise is given below:

Estimated Prevalence Cancer cases in India by State/ UT-All sites-2012 to 2014)-Both sexes

States	2012	2013	2014
Andaman &			
Nicobar Islands	880	894	905
Andhra Pradesh*	202229	209366	216901
Arunachal Pradesh	3061	3132	3204
Assam	67820	68556	69290
Bihar	247647	256449	265535
Chandigarh	2470	2530	2593
Chhattisgarh	60936	62980	65084
Dadra &			
Nagar Haveli	837	886	941
Daman & Diu	627	700	778
Delhi	39196	40055	40932
Goa	3419	3494	3568
Gujarat	142885	147064	151366
Haryana	59729	61346	63007
Himachal Pradesh	16107	16462	16822
Jammu & Kashmir	29841	30855	31899
Jharkhand	78481	81070	83733
Karnataka	144385	148192	152092
Kerala	79473	82004	84779
Lakshadweep	156	164	171
Madhya Pradesh	172299	177649	183143
Maharashtra	263719	269652	275672
Manipur	5722	5649	5578
Meghalaya	6515	6639	6768
Mizoram	2390	2430	2469
Nagaland	4307	4353	4401
	26		

Odisha	98817	101190	103612
Pondicherry	3007	3132	3263
Punjab	64815	66182	67570
Rajasthan	162176	166706	171340
Sikkim	1384	1456	1541
Tamil Nadu	167533	169641	171744
Tripura	8198	8480	8798
Uttar Pradesh	473592	488554	503924
Uttaranchal	24027	24767	25529
West Bengal	215771	221635	227676
Total	2854451	2934314	3016628

Prevalence (10 years of duration) is assumed to be 2.7 times of Incidence cases (2009-2011 PBCR report).

* The data is not segregated for Andhra Pradesh and Telangana.

Estimated Mortality cancer cases in India by State/ UT-All sites-(2012 to 2014)-Both sexes

States	2012	2013	2014
Andaman &			
Nicobar Islands	143	145	148
Andhra Pradesh*	32956	34119	35347
Arunachal Pradesh	499	510	522
Assam	11052	11172	11292
Bihar	40357	41792	43272
Chandigarh	403	413	423
Chhattisgarh	9930	10263	10606
Dadra &			
Nagar Haveli	136	144	153
Daman & Diu	102	114	127
Delhi	6387	6529	6670
Goa	557	569	581
Gujarat	23285	23966	24667
Haryana	9734	9998	10268
Himachal Pradesh	2625	2683	2741
Jammu & Kashmir	4863	5028	5198
Jharkhand	12790	13211	13646
Karnataka	23529	24150	24785

Kerala	12951	13363	13816
Lakshadweep	25	27	27
Madhya Pradesh	28078	28951	29846
Maharashtra	42976	43943	44924
Manipur	932	920	909
Meghalaya	1062	1082	1103
Mizoram	389	396	402
Nagaland	702	709	717
Odisha	16103	16490	16885
Pondicherry	490	510	532
Punjab	10563	10785	11011
Rajasthan	26429	27168	27922
Sikkim	226	237	251
Tamil Nadu	27302	27645	27988
Tripura	1336	1382	1434
Uttar Pradesh	77178	79616	82121
Uttaranchal	3916	4037	4160
West Bengal	35163	36118	37103
Total	465169	478185	491598
	• 1	10 1 11	

Based on Cancer incidence cases and Pooled M/I ratio of Mumbai data (2009-2011) report.

* The data is not segregated for Andhra Pradesh and Telangana.

Crude mortality rate per lakh population as per Mumbai Population Based Cancer Registry for male and femails during 2001 to 2011 is as below:

Year	Crude Mortality Rate		
	Male	Females	
2001-2003	34.4	37.1	
2004-2005	36.4	40.1	
2006-2008	38.3	43.2	
2009-2011	33.1	38.0	

The increase in the number of cancer in the country may be attributed to larger number of ageing population, unhealthy life styles, use of tobacco and tobacco products, unhealthy diet, lack of better diagnostic facilities etc.

How Common Sense Can Help Prevent Cancer? Dr. D. J. Jussawalla

It is believed that the constant exposure of different parts of the body to a variety of irritants in an important causative factor in the origin of specific types of cancer. If this makes sense, then commonsense should dictate that whenever possible, such extraneous factors when identified should be eliminated.

But before we zero in on lung cancer let's take an all-round view of the disease— a variant form of basic living matter called 'cells' which ultimately proves lethal to the rest of our body,

Cancer may thus be regarded as an abnormal type of living tissue. The surprising thing is not why this change occurs in a few cells of a few individuals, but why such a shift is not seen more frequently in more of us.

Cancer can occur in all kinds of living things and is not just restricted to mankind for to the animal kingdom.

In the normal course of events, the cells in our blood and the cells forming our tissues die and are constantly being replaced every month, this aging dying and substitution by new cells, is however under strict control. Thus, the number of cells which die, are replaced more are less by the same number of new born units. As soon as this balance is reached no further young cells are produced. The exact controlling factors of "family—planning" are not known, but are believed to be chemical.

If however, such replacement cells keep on being added without restraint, they eventually crowed together

into a heap and appear as lumps of "flesh".

These abnormal cells also need blood to obtain oxygen and food and it often happens that this disorderly but quick growth ultimately outstrips the amount of nutrition it can obtain. The central part of the mass then dies and the breakdown appears as a sore we thus have two fundamental appearances in cancer—a 'lamp' and a 'sore'.

When these cells are seen under the microscope they appear different to the trained eye of the histopathologist different from the appearance presented by normal cells. Occasionally, one may find normal looking cells also, formed into lumps. These are the "simple tumours" which are not cancerous as a rule is surrounded by a capsule, which contains them within a boundary wall. All functions of and changes in living tissues are dependent upon chemical reactions that trigger them into being. The study of this subject is called Bio-Chemistry. It is clear that in cancer, these bio-chemical factors also would be abnormal and analysis of these factors should prove illuminating.

ENVIRONMENTAL FACTS

Living tissue being under chemical control can be affected by environmental and other extraneous influences, which are also mainly chemical in nature. A study of these external agents can be very rewarding. Much attention is thus being paid today to epidemiological studies (investigation of environmental factors and local customs.) World-wide observations have proved that there is a markedly higher incidence of certain specific types of cancer in different countries. Thus, we have a high frequency of stomach cancer in Japan, lung cancer in Europe and North America, mouth and throat cancer in South-east Asia, liver cancer in African Republics and cancer of the bladder in Egypt.

SMOKING & CANCER

Let us examine just one of these environmental factors indicated today: Cigarettes smoking: it has been shown by many epidemiologists that the number of cigarettes smoked by an individual varies directly with the frequency of lung cancer observed in a given group. True, it has not yet been proved experimentally that tobacco can produce cancer in man, though it is known to do so in the laboratory animal. Then again, the argument is presented that all men who smoke do not develop cancer. There is a reason for this state of affairs. There are fundamental, inherent, built-in protective germs that flight chemicals and other enemies of life. But these safety factors vary in their fighting powers in different individuals. Even in an epidemic, for example, all persons exposed to an infective agent are not stricken by the disease. Commonsense dictates that expert statistical evidence should be respected but habits die-hard. Men will die young and yet keep arguing about 100 per cent proof is wanting to incriminate cigarette smoking as a causative agent of cancer of the lungs.

When tobacco is burnt, particularly the cut of tobacco that goes into a cigarette, the temperature at the lit-end rises to 600° C and more. At this temperature, a chemical known as 4, 3-benzpyrene along with other

similar substances are produced and can be identified in the tobacco tar. This is one of the well, known cancerproducing agents known to science today. In the dyestuff and other associated industries, where similar cancer producing agents are known to be produced, legislation has been passed in many western countries disallowing the continued production or use of methods. Intermediate or by products, that might possibly contaminate factory workers in one way or other.

It has been calculated that smoke from English and American cigarettes can produce 4 U. gm. of 4, 3-benzpyrene per 500 cigarettes. This figure increase to 6 U. gm. for the French and to 11 U. gm. In the case of the black tobacco used in some brands. The head-stream of smoke from an average American cigarette contains 28.8 mg. of tar. Assuming that only 50 per cent of the smoke particles get deposited in the breathing passages, a person inhaling smoke from 20 cigarettes will take 100 gm. of tar into his respiratory system (100 gm. is roughly a tea-cup full). This tar contains small amounts of benzpyrene and similar chemicals which are known to produce cancer.

As interesting piece of investigation was carried out in the U.S.A., England and a Scandinavian country. The cigarette stubs thrown away in the streets were collected and their lengths measured. The average stubs discarded in the U.S.A was found to be 30 m. m. in length, in England this figure was down to 18 mm. and in the Scandinavian country it was only 12 mm.

In this context it is relevant to note that the frequency of death from lung cancer in England is twice that in the U.S.A. and about 20 per cent less than in the Scandinavian countries. A greater amount of lung cancer is found in countries where the cigarette is smoked down to the end. Cancer of the lungs seems to occur more frequently in cigarette smokers than in Cigar and Pipe smokers and it has been found on investigation that 90 to 98 per cent or cigarette smokers inhale smoke while for Pipe and Cigar smokers this figure drops down to between 5 per cent. You may reach your own conclusions from these facts. From a study of 40,000 British physicians, Doll and Hill found that those who smoked 25 cigarettes daily ran the risk of developing lung cancer 40 times greater than the non-smokers. In England in 1915, 1.5 lung cancer deaths per 1,00,000 males were recorded. In 1955 this figure had climbed upto 61 per 1,00,000-an increase of 40 times in 40 years. These figures closely follow the increase in cigarette smoking by Englishman during that period. In the U.S.A. this figure had increased by a factor of 8, in the past 20 years. An analysis of health statistics of 2,50,000 U.S. Govt. Life Insurance Policy holders (mainly war veterans) has shown that the death rate from lung cancer was 10 times higher in smokers.

Also, there was a greater incidence of other lung diseases, heart disorders, stomach ulcers and liver trouble among smokers.

In Denmark, this rise in death-rate from cancer of the lung has been most pronounced and on investigation it was revealed that 78 per cent of all adult males in that country succumbed to this. It has often been mentioned by the pro-smoking brigade that the increase in lung cancer can be explained on the basis of increased industrial fumes and exhaust smoke present in the atmosphere of industrial areas of the country.

The Fuel Research Station staff of London analyzed the contamination of air with smoke and coal gas in a number of English and Danish towns. The chemical 43benzpyrene was found in the Copenhagen atmosphere in a concentration of 0.54 U gm. in summer and 1.54 U. gm. in winter, per 100 cubic metre of atmospheric air. This figure was lower than that found in English provincial towns and much less than figures obtained for London. But the frequency of lung cancer was much higher in Copenhagen than in London, though the atmospheric pollution was less. Thus, even though atmospheric pollution does play a part in the development of lung cancer, cigarette smoking is obviously a much bigger culprit,

Investigations of the smoking habits of Danish school children revealed, from a survey of over 3,000 children. That 4 out of 5 boys and 1 out of 2 girls smoking Forty per cent of the boys started smoking at the age of 9. A campaign against smoking by school children has thus been organized in many countries.

Propaganda and information do not appear to have much effect, as shown in Edinburgh in 1958, where about £ 50,000 was spent for one campaign. The follow-up study showed that:

1. There was no increase in the number of non-smokers.

2. There was no change in the ratio of heavy to moderate smokers.

3. There was no increase in the knowledge that cigarettes

are an important factor in the development of cancer.

4. There was no desire to change smoking habits amongst any group of people.

This shows that ingrained habits and customs die hard and are difficult to change.

The only positive gain was that public sentiment was roused against young people starting to smoke. The Committee which carried out this campaign reported that long term propaganda should be utilized and permanent information should be provided to school children and young people.

In various laboratories throughout the world, work is going on to produce a change in the chemical and physical properties of tobacco in order to reduce or remove the dangerous substances present in the smoke.

The recorded rise in lung cancer incidence in European cities has been followed around 12 years later by a closely paralleled increase in the country towns and later, in sparsely populated rural areas also. This graph exactly follows the increase in cigarette smoking in the cities, towns and rural areas.

The Indian Express, February 17, 1978

Sound Eating Habits May Prevent Cancer Soni Sangwan

Did you know that the bitter taste in some peanuts is caused by a toxic substance that can give you cancer of the liver?

Grilled and tandoori meats, fried food and even the air we breathe, all have been found to contain toxins that can damage the DNA (Deoxyribo Nuclic Acid) and increase one's risk of getting cancer.

The bitter taste in peanuts is caused by aflatoxins, a fungus. When these aflatoxins, reach the liver they are broken down into epoxide which is carcinogenic.

"Even the little time that epoxide remains in the body before being flushed out damages the DNA", explained Dr. Neeta Singh, Department of Bio-Chemistry, All India Institute of Medical Sciences.

The Methyl Nitrosamines found in non-vege-tarian foods, particularly red meats is also carcinogenic.

Charred food tandoori food and fried food also contains a carcinogenic substance, polycyclic aromatic hydrocarbons.

These polycyclic aromatic hydrocarbons are also found in smoke and exhaust fumes.

If ingested through breathing, they accumulate in the lungs leading to inflammation, irritation and may over a period of time cause cancer.

But while 85 per cent cancers are caused by environmental and life style factors, the good news is that this makes them preventable to a great extent. Scientific evidence points to the carcinogenic nature of several foods, if taken in excess, but newer evidence offers some relief. "It is the dose alone that makes a poison".

"Too much of anything can cause harm but sensible eating and changes in the lifestyle can protect you to a great extent. Eat what you like, but not too much," explained Dr. Singh.

Proving that lifestyle plays an important role in the type of cancers one can get is the fact that in the United States, where the average diet contains less fibre, the rate of cancer of the colon is high.

In India, where more people use tobacco, either by smoking it or chewing it, there is greater incidence of oral cancer.

"Since it is difficult to spot cancer at the early stages, it is important to try and reduce one's risk to the disease by making small changes in one's lifestyle," Dr. Singh said.

She has charted out 10 steps than can reduce your chances of getting cancer.

"My advice to people is to have a varied diet. Include something from every food group in your diet because a lot of foods also have beneficial effects," she added.

Vegetables and fruits, especially those rich in vitamin A (riboflavin) and vitamin C (citric acid), may help in protecting against cancers of the throat, stomach and lungs.

Foods rich in these vitamins are sweet potatoes,

carrots, cabbage, green peppers, oranges, strawberries, peaches, tomatoes and watermelons.

High fiber foods can offer protection from colon cancer. Include potatoes, popcorn, whole wheat breads, cereals, rice and beans in your diet.

Food to avoid includes smoked or cured meats which have a chemical to increase their shelf life which is carcinogenic.

To reduce fats in the diet fats can cause cancers of the breast, colon and prostrate-avoid butter margarine and rich desserts.

Instead eat lean meats, skinned chicken, low fat milk and skimmed milk products.

Alcohol and tobacco are the two items that must be avoided. Alcohol and smoking cause cancers of the liver, mouth, throat, stomach and possibly breast.

Last and not the least, Dr. Singh, said that detection at the earliest stage can greatly increase chances of cure. He cautioned against ignoring any alteration in the body. Any change viz. abnormal bleeding, growth, change in bowel movement, blood in the stools or problems in swallowing must be reported to the doctor, he added.

(The Hindustan Times, June 30, 1999)

PINGALWARA DIARY

(UPTO DECEMBER, 2016)

Services rendered by Pingalwara Institution for the service of the suffering humanity are:-

1. Homes for the Homeless

There are 1764 patients in different branches of Pingalwara now a days:-

(a) Head Office, Mata Mehtab Kaur Ward,

Bhai Piara Singh Ward	374 Patients
(e) Manawala Complex	854 Patients
(b) Pandori Warraich Branch, Amritsar	82 Patients
(c) Jalandhar Branch	39 Patients
(d) Sangrur Branch	228 Patients
(f) Chandigarh (Palsora) Branch	94 Patients
(g) Goindwal Branch	93 Patients
Total	1764 Patients

2. Treatment facilities

- (a) **Dispensary & Laboratory:-** Pingalwara has a dispensary and a laboratory for the treatment of patients. It has an annual expenditure of about Rs.90 lakhs. Medicines are also distributed free of cost to the poor and needy people.
- (b) Medical Care Staff:- Experienced medical staff like Nurses, Pharmacists and Laboratory Technicians are available for the care of the Pingalwara residents.
- (c) Blood-Donation Camps:- A Blood Donation Camp is organized on Bhagat Ji's Death Anniversary every year. The blood is used for Pingalwara residents and road accident victims.

- (d) Ambulances: Ambulances with basic Medical aid are available for victims of road accidents on G.T. Road, round the clock and provide facilities for taking Pingalwara patients to the hospital.
- (e) Artificial Limb Centre:- There is an Artificial Limb
 Centre at Manawala Complex, dedicated to the memory of Bhagat Ji which provides free of cost
 Artificial Limbs to Polio-affected and amputee cases.
 8137 needy people have benefitted till April 2016.
- (f) Physiotherapy Centre:- A Physiotherapy Centre equipped with State-of-the-art equipment is functioning in the Manawala Complex since June 2005. On an average 80 patients are treated everyday.
- (g) Operation Theatres:- There is a well equipped
 Operation Theatre in Bhai Piara Singh Ward Amritsar
 for general surgery and A Micro Surgery Operation
 Theatre in Manawala Complex where Cochlear
 Implants and major operations are carried out.
- (h) Dental, Eye, Ear & Ultrasound Centres:- These Centres have been set up to provide these services to Pingalwara residents, sewadars and their families.

3. Education

Pingalwara Society is running five Educational Institutions for the poor and needy children.

(a) Bhagat Puran Singh Adarsh School, Manawala
 Complex:- This school provides free education to
 723 students from the poor and deprived sections of the society. They are provided with free books and

uniforms. Children being brought up by Pingalwara Society are also studying in this school.

- (b) **Bhagat Puran Singh Adarsh School, Buttar Kalan** (Qadian):- This school is dedicated to the sweet memory of Bhagatji. 452 students are getting free education under the able guidance of well qualified teachers. The school also provides financial help to students who have finished their school studies and are aspiring for higher studies.
- (c) Bhagat Puran Singh School for Special Education, Manawala Complex:- This school is providing Special Education to 205 Special children.
- (d) Bhagat Puran Singh School for the Deaf:- Bhagat Puran Singh School for Deaf Children is functional at the Manawala Complex since May 2005. The school is equipped with state-of-the-art training aid and has 150 children on its rolls.
- (e) Bhagat Puran Singh School for Special Education, Chandigarh (Palsora):-This school caters to the needs of Special adults of the branch.
- (f) **Vocational Centre:-** This Centre is providing free training in embroidery, stitching, craft work, making washing powder, candle making, painting, etc. Young girls from the villages of surroundings areas are the main beneficiaries.
- (g) **Computer Training:-** Computers are available in all the schools for academic and vocational training.
- (h) **Hostel facilities:-** There are separate hostels for boys and girls in Manawala Complex. Many girls are

pursuing higher studies in different colleges.

4. Rehabilitation

- (a) Marriages:- After being educated, boys and girls at Pingalwara are married to suitable partners. 40 girls and 4 boys have been married off till date.
- 5. Environment Related Activities
 - (a) Tree Plantation:- Bhagat Puran Singh Ji was deeply concerned about the degradation of the environment. A vigorous campaign of tree plantation is started every year on Bhagat Ji's Death Anniversary. Each year 15,000 to 22,000 trees are planted in various schools, colleges, hospitals, cremation grounds and other public places. These include Amaltas, Kachnar, Behra, Champa, Arjun, Sukhchain, Chandni, Zetropa, Kari-patta were distributed to different institutions.
 - (b) Nursery:- Pingalwara has its own Nursery where saplings of various plants and trees are prepared. Every year, the aim of nursery is to grow more than 54 different kinds of saplings every year.
- 6. Social Improvement Related Activities
 - (a) Awareness:- Pingalwara has played an important role in spreading awareness about the evils in the society. This has been done by printing literature on religious, social and environmental issues at the Puran Printing Press Amritsar and is being distributed free of cost. It has an annual expenditure of printing and publicity is about 1 crores 50 lakhs rupees.
 - (b) **Puran Printing Press:-** The Printing Press has been updated with an Offset Press.

(c) Museum and Documentaries:- A Museum, and a number of documentaries have been prepared on Pingalwara activities as well as on zero budget natural farming. The C.D.s are freely available from Pingalwara.

A feature film produced by Pingalwara Society Amritsar EH JANAM TUMHARE LEKHE (Punjabi) on Rev. Bhagat Puran Singh Ji, founder Pingalwara and his struggle not only for selfless services of wounded humanity but for Environment Crisis also, will prove a beacon for the generations yet to come after us.

7. Help to the victims of Natural Calamities

Pinglwara makes an effort to provide succour to the victims of natural calamities like floods, earthquakes and famines. Aid was sent for the earth-quake victims in Iran, Tsunami disaster victims, Leh landslide and flood affected areas.

8. Cremation of unclaimed dead-bodies

Pingalwara cremates unclaimed dead bodies with full honour.

9. Dairy Farm

120 cows and buffalos at Manawala Complex provide fresh milk to the Pingalwara residents.

10. Old Age Homes

Old age homes at Sangrur and Manawala Complex of Pingalwara caters to the needs of elderly people.

11. Projects Completed and Under Construction

Since 1997 ambitious projects of Sangrur, Palsora at Chandigarh and Manawala Complex have been completed. In the year 2009 new buildingsAdministrative Block, Puran Printing Press, Deaf School, T.B. Ward at Manawala Complex and at Head Office and a New Administrative Block have also been completed.

In the year 2013, a new modern Bhagat Puran Singh School for Special Education in Manawala Complex of Pingalwara and a new Block for Pingalwara patients in Pandori Warraich Branch is under construction and is fast coming up.

Other Details:

- a) All India Pingalwara Charitable Society is a Registered Society, registered by Registar of Companies vide letter No. 130 of 1956-1957 as amended vide No. A-28/4540 dated 07-07-1998.
- b) All donations to Pingalwara are exempted under Section 80 G of Income Tax-IIAmritsar letter No. CIT-II/ASR/ ITO (Tech.)/2011-12/4730 dated 11/12 January, 2012.
- c) PAN Number of the All India Pingalwara Charitable Society is AAATA 2237R
- d) FCRA (Foreign Contribution Regulation Act) 1976 Registration No. of Pingalwara is 115210002

Wahe Guru Ji Ka Khalsa

Wahe Guru Ji Ki Fateh

Dr. Inderjit Kaur,

President,

All India Pingalwara Charitable Society (Regd.), Tehsilpura, G.T. Road, Amritsar. (Punjab).