

TOBACCO AND GUTKAA-

tobacco, which is the foremost cause of preventable death in the world today, and India, which is the secondlargest country in the world, with a billion plus population. This report is also an examination of the methods and tools available to reduce, prevent and control tobacco use. The total number of premature deaths caused by tobacco during the twentieth century has been estimated at about 100 million and, if current trends of tobacco use continue during the twenty-first century, the death toll is projected to go up to one billion. The World Health Organization (WHO), which provides these estimates, also predicts that India will have the fastest rate of rise in deaths attributable to tobacco in the first two decades of the twentyfirst century. Many of these deaths will occur in the productive years of adult life, as a consequence of an addiction acquired in youth. The compelling need to save many of these lives from falling prey to tobacco use addiction and the urgent imperatives of avoiding the huge health, economic, social and environmental burdens that would be imposed by tobacco on a nation that aspires for accelerated development,

If the evidence is clear that tobacco use is harmful and if the tools to prevent and control its use are available, why is it that tobacco control is challenging? The answer is very complex. There are numerous forces influencing a person's decision to use tobacco, or if that person is a tobacco user, the forces that drive continued use. The most important factor for tobacco use is the totality of industry activity, including advertising and promotion, organizational activity, support for ancillary activity and political action, which maintains the marketability and profitability of the product. Nonetheless, there is cause for optimism based on considerable public support for efforts to prevent and control tobacco use. According to estimates made by the WHO, currently about 5 million people die prematurely every year in the world due to the use of tobacco, mostly cigarette smoking. These deaths are currently divided somewhat evenly between developed and developing countries. More important is the fact that this epidemic of disease and death caused by tobacco is increasing very rapidly. By 2030, it is estimated that the number of premature deaths attributable to tobacco would double to 10 million deaths every year, with about 7 million of the deaths taking place in developing countries. Among people alive today in the world, about 500 million

would die prematurely due to tobacco use; most of these are children and young adults of today.² India's tobacco problem is more complex than probably that of any other country in the world, with a large consequential burden of tobacco-related disease and death.³ The prevalence of tobacco use among men has been reported to be high (generally exceeding 50%) from almost all parts of India (more in rural than in urban areas). Women from most parts of India report smokeless tobacco use and the prevalence varies between 15% and 60%.⁴ Among 13-15-year-old school-going children, the current use of any tobacco product varies from 3.3% in Goa to 62.8% in Nagaland.⁵ In the late 1980s, the number of tobacco-attributable deaths in India was estimated as 630,000 per year.⁶ On conservative estimates, the tobacco-attributable deaths currently range between 800,000 and 900,000 per year. The cost of the tobacco-attributable burden of just three groups of diseases—cancer, heart disease and lung disease—was estimated as Rs 277.611 billion

HISTORY –

The history of global tobacco trade is integrally linked with the history of India. It was to discover a sea route to this fabled land, reputed for its spices, silk and gems, that Christopher Columbus set sail in 1492. His wayward journey took him instead to America. This discovery of the New World was accompanied by the discovery of tobacco by Portuguese sailors. This plant, treasured by the American Indians for its presumed medicinal and obvious stimulant properties, was eagerly embraced by the Portuguese who then moved it to the Old World of Europe. Even though their quest for easy access to Indian spices was delayed by some years, the Europeans did not fail to recognize the commercial value of this new botanical acquisition.

When the Portuguese eventually did land on India's shores, they brought in tobacco. They introduced it initially in the royal courts where it soon found favour. It became a valuable commodity of barter trade, being used by the Portuguese for purchasing Indian textiles. The taste for tobacco, first acquired by the Indian royals, soon spread to the commoners and, in the seventeenth century, tobacco began to take firm roots in India. Thus, tobacco travelled to the real Indians from their curiously named American cousins, through the medium of European mariners and merchants who sailed the seas and spanned the continents in search of new markets and colonies. It was with the establishment of British.

The Indian market for tobacco products, however, has some characteristics rather different from most other markets. India has a large, highly integrated tobacco industry, which involves the cultivation of several varieties of tobacco, the manufacture of different tobacco products, including unprocessed and chewing tobacco, and an extensive distribution and retail system. Over the years, a combination of strong prices, domestic consumption, good export demand for tobacco and low prices of other crops helped the growth of tobacco from a cash crop to a manufacturing industry linked with commercial considerations. The tobacco industry in India includes the production, distribution and consumption of (i) leaf tobacco, (ii) smoking products such as cigarettes and beedis and (iii) various chewing tobacco products. These factors present policy-makers with an unenviable dilemma. On the one hand, it is a robust and largely irrigation-independent crop, provides substantial employment, has significant export potential and, most importantly, is a source of ever-growing tax revenues. On the other hand, there are public health concerns about the effects of tobacco use with health advocacy groups and consumer-led lobbies asking for more controls on tobacco. In spite of its proven adverse implications for public health, the industry sustains itself in many quarters on the grounds of its contribution to employment and national production. The organized sector of the industry, dominated by multinational corporations, is at the forefront of canvassing support for the sector. The unorganized sector too exploits its emotive appeal as a mass employer of the poor, especially rural women.

Side effects-

Tobacco use is a main cause of oral cancer and a preventable cause of premature death in India. According to Global Adult Tobacco Survey (GATS) 2010 report, the majority of 60% Indian tobacco users use only smokeless tobacco. In recent years, a combination of areca nut and tobacco has been introduced in India known as gutkha (chewable tobacco form). Gutkha is consumed in most parts of India as a mouth freshener. *Tobacco specific nitrosamines (TSNAs)*: Carcinogenic TSNAs in various tobacco products are responsible for numerous cancers. Gutkha products have four TSNAs, namely (i) N'-nitrosonornicotine (NNN), (ii) N'-nitrosoanatabine

(NAT), (iii) N'-nitrosoanabasine, and (iv) 4-(methylnitrosamino)-1-(3-pyridyl)-1-butanone (NNK).

The presence of nicotine is the main reason of addiction and resultant maintenance of chronic gutkha consumption habit.³⁴

Metabolically activated TSNAs induce mutations in susceptible genes by forming DNA adducts, leading to tumor initiation. Tumor growth is promoted by binding of nicotinic acetylcholine receptors and TSNAs leading to deregulated cell proliferation which increases the survival and metastasis

Areca nut-specific nitrosamines (ASNAs): Areca nut is the most abundant ingredient of gutkha, composed of tannins, alkaloids, free fatty acids, polysaccharides, fibers, and minerals like copper. Among the chemical constituents of areca nut, alkaloids are the most important biological carcinogens. The nut contains alkaloids like arecoline, arecaidine, guvacine, and guvacoline.

(A) Alkaloids: Alkaloids are chemically reduced pyridines. Areca nut contains primarily two biologically relevant alkaloids: arecoline and arecaidine. The most common alkaloid of areca nut is arecoline (1,2,4,5-tetrahydro-1-methylpyridinecarboxylic acid; molecular weight 155.19 Da) followed by arecaidine (1,2,5,6-tetrahydro-1-methyl-3-pyridinecarboxylic acid; molecular weight 141.17 Da). Some other alkaloids are also present in minor amounts in areca nut such as guvacine, guvacoline, and arecolinidine.¹¹ Arecaidine stimulates collagen synthesis and proliferation in a dose-dependent manner and higher concentrations being cytotoxic.³⁷ Arecoline and arecaidine synthesize greater concentration of collagen to promote submucous fibrosis.

(B) Polyphenols: Two major polyphenols of areca nut include catechin and flavonoids. During chewing of gutkha, oxidation of polyphenols stains the oral soft tissue and hard tissue in typical red color. They stabilize collagen fibers and retard their degradation process.

(C) Tannins: Tannins are polyphenols that are capable of precipitating collagen proteins. The outer portion of the areca nut predominantly contains gallotannic acid that cause cross linking of collagen fibers and making them resistant to collagenase enzyme.

Genotoxicity and carcinogenesis

TSNAs in the saliva of chewers are derived from tobacco. Areca nut and catechu are capable of generating superoxide anion and hydrogen peroxide at pH >

9.5. During this procedure, ROS concentration increases as soon as the areca nut and catechu polyphenols mix together in presence of slaked lime in the saliva of gutkha chewers. The formation of high level of ROS close to the traumatized oral mucosa can cause direct damage to the tissue.

ROS and oxidative stress induce cell proliferation and apoptosis. Chronic use of gutkha induce oral potentially malignant disorders and subsequent malignancy.

The genotoxic effects are most likely caused by the combination of tobacco and ASNAs in gutkha. TSNAs are procarcinogens that ultimately convert into carcinogens. DNA bases have some nucleophilic sites that react with metabolites. Some studies stated that microsomal cytochrome P450 (CYP) system activates tobacco mutagens like polycyclic aromatic hydrocarbons (PAHs), N-nitrosamines, aromatic amines, and benzene. Metabolism of carcinogens converts them into harmful reactive species which leads to DNA damage. DNA repair mechanism maintains the DNA integrity and prevents cancer development. These smokeless products are affecting the DNA repair pathway leading to genotoxicity and eventually cell death.

The quantity of ROS can cause cellular damage as well as DNA damage. The TSNAs can cause DNA mutation and by altering the protein function may cause oral carcinogenesis.

CANNABIS

Anashca, Banji, Bhang, Blunt, Bud, Cannabis, Cannabis sativa, Charas, Dope, Esrar, Gaga, Ganga, Grass, Haschisch, Hash, Hashish, Herbe, Huo Ma Ren, Joint, Kif, Marie-Jeanne, Mariguana, Marihuana, Marijuana, Marijuana Médicale, Mary Jane, Medical Marijuana, Pot, Sawi,

Cannabis is an herbal drug that is made from the Cannabis plant. It contains chemicals called cannabinoids. Cannabinoids affect the central nervous system, which includes the brain and nerves. Cannabinoids are found in the highest levels in the leaves and flowers of cannabis. These are the parts of the herb that are used to make medicine. Don't confuse cannabis with hemp. Hemp is a similar plant, but it is grown for the rough parts of the plant (the fiber) as well as for the seeds. Hemp contains very low levels of delta-9-tetrahydrocannabinol (THC), less than 0.3%. Both hemp and cannabis also contain other cannabinoids that are sometimes used as medicine. See specific topics for information on cannabidiol (CBD), cannabidivarin (CBDV), cannabigerol (CBG), and tetrahydrocannabivarin (THCV).

Some people take cannabis extract by mouth or as a spray to be applied under the tongue for pain and symptoms of multiple sclerosis.

Some people inhale cannabis for nausea, vomiting, an eye disease called glaucoma, and many other conditions, but there is no good scientific evidence to support these uses.

Some people also use cannabis to feel good. In this case it is used as a 'recreational drug' and is either taken by mouth or smoked (inhaled).

In the U.S., cannabis is illegal under federal law. It is classified as a Schedule I controlled substance. But some states including California, Colorado, Washington, Oregon, Arizona, and others have legalized or decriminalized the use of cannabis. Some countries such as Canada have legalized cannabis use as well.

When taken by mouth: Cannabis is **POSSIBLY UNSAFE** when taken by mouth, long-term and in large amounts. Regularly taking large amounts of cannabis over a long period of time might cause a disorder called cannabinoid hyperemesis syndrome or CHS. CHS leads to severe, repeated bouts of nausea and vomiting that don't respond to typical anti-nausea medicine. In a few reports, CHS has been linked to severe complications that caused death. There isn't enough information to know if cannabis is safe to use in moderation or for short periods of time.

When sprayed into the mouth: A specific cannabis extract spray (Sativex, GW Pharmaceuticals) is **POSSIBLY SAFE** when applied under the tongue. Side effects may include headache, dizziness, drowsiness, dry mouth, nausea, and paranoid thinking. This cannabis extract spray is available as a prescription-only product in the U.K. and Canada. It has not been approved as a prescription product in the U.S.

When inhaled: Cannabis is **POSSIBLY UNSAFE** when inhaled. Smoking or vaping cannabis can cause various breathing problems such as wheezing and coughing. Some reports suggest that smoking cannabis might cause air-filled cavities in the lungs. These air-filled cavities can cause symptoms such as chest pressure, soreness, and difficulty breathing. Use of e-cigarettes and other vaping products containing THC has been linked to serious lung injury in some people. Smoking cannabis can also cause headache, dizziness, drowsiness, dry mouth, nausea, and paranoid thinking. Smoking cannabis might also increase appetite, increase heart rate, change blood pressure, and impair mental functioning. Some reports suggest that smoking cannabis may also increase the risk of heart problems such as heart attack and abnormal heart rhythm. Regularly smoking large amounts of cannabis for a long time may cause

PAN MASALA- Pan masala is a mixture of betel nut (supari), lime, catechu (katha) with various flavouring agents which is being consumed by millions all over India at the cost of Rs 1 or 2. It is estimated by Global Adult Tobacco Survey 2010 that nearly 22 crore Indians who chew tobacco also chew areca nut. The growing market of Pan Masala can be gauged by the intensity of its advertisement on TV and other forms of media. Dr Pankaj Chaturvedi, professor and surgeon at TMH said “Pan Masalas main constituent betel nut has been declared as a Group I carcinogen by the International Agency for Research on Cancer (IARC) since 1985 and all the other constituents are also harmful to the human body. Pan Masala is a mixture of many other ingredients that includes coloring agent and chemicals. The aim of this review was to know the harmful effects of the Pan Masala product rather than pure areca nut alone.”

The study further reveals that pan masala affects almost every part of the human body even without coming in direct contact. Chewers have poor dental hygiene, burning sensation, decreased mouth opening, pre-cancerous spots which have high chance of converting to oral cancer. “It damages kidneys, testes and even causes abnormalities in sperms. Appearance of withdrawal symptoms after 2-3 hours of abstinence in regular users shows the highly addictive nature of pan masala

Alcohol side-effects-

Digestive and endocrine glands

Drinking too much alcohol can cause abnormal activation of digestive enzymes produced by the pancreas. Buildup of these enzymes can lead to inflammation known as pancreatitis. Pancreatitis can become a long-term condition and cause serious complications.

Inflammatory damage

The liver is an organ which helps break down and remove harmful substances from your body, including alcohol. Long-term alcohol use interferes with this process. It also increases your risk for chronic liver inflammation and liver disease. The scarring caused by this inflammation is known as cirrhosis. The formation of scar tissue destroys the liver. As the liver becomes increasingly damaged, it has a harder time removing toxic substances from your body.

[Learn more about alcohol-related liver disease »](#)

Liver disease is life-threatening and leads to toxins and waste buildup in your body. Women are at higher risk for developing alcoholic liver disease. Women’s

bodies are more likely to absorb more alcohol and need longer periods of time to process it. Women also show liver damage more quickly than men.

Sugar levels

The pancreas helps regulate your body's insulin use and response to glucose. When your pancreas and liver aren't functioning properly, you run the risk of experiencing low blood sugar, or hypoglycemia. A damaged pancreas may also prevent the body from producing enough insulin to utilize sugar. This can lead to hyperglycemia, or too much sugar in the blood.

If your body can't manage and balance your blood sugar levels, you may experience greater complications and side effects related to diabetes. It's important for people with diabetes or hypoglycemia to avoid excessive amounts of alcohol.

Central nervous system

One of the easiest ways to understand alcohol's impact on your body is by understanding how it affects your central nervous system. Slurred speech is one of the first signs you've had too much to drink. Alcohol can reduce communication between your brain and your body. This makes coordination more difficult. You may have a hard time balancing. You should never drive after drinking.

As alcohol causes more damage to your central nervous system, you may experience numbness and tingling sensations in your feet and hands.

Drinking also makes it difficult for your brain to create long-term memories. It also reduces your ability to think clearly and make rational choices. Over time, frontal lobe damage can occur. This area of the brain is responsible for emotional control, short-term memory, and judgement, in addition to other vital roles.

Chronic and severe alcohol abuse can also cause permanent brain damage. This can lead to Wernicke-Korsakoff syndrome, a brain disorder that affects memory.

Dependency

Some people who drink heavily may develop a physical and emotional dependency on alcohol. Alcohol withdrawal can be difficult and life-threatening. You often need professional help to break an alcohol addiction. As a result, many people seek medical detoxification to get sober. It's the safest way to ensure you break the physical addiction. Depending on the risk for withdrawal symptoms, detoxification can be managed on either an outpatient or inpatient basis.

Symptoms of alcohol withdrawal include:

- anxiety
- nervousness
- nausea
- tremors
- high blood pressure
- irregular heartbeat
- heavy sweating

Seizures, hallucinations, and delirium may occur in severe cases of withdrawal.

Digestive system

The connection between alcohol consumption and your digestive system might not seem immediately clear. The side effects often only appear after there has been damage. And the more you drink, the greater the damage will become.

Drinking can damage the tissues in your digestive tract and prevent your intestines from digesting food and absorbing nutrients and vitamins. As a result, malnutrition may occur.

Heavy drinking can also lead to:

- gassiness
- bloating
- a feeling of fullness in your abdomen
- diarrhea or painful stools

For people who drink heavily, ulcers or hemorrhoids (due to dehydration and constipation) aren't uncommon. And they may cause dangerous internal bleeding. Ulcers can be fatal if not diagnosed and treated early.

People who consume too much alcohol may also be at risk for cancer. People who drink frequently are more likely to develop cancer in the mouth, throat, esophagus, colon, or liver. People who regularly drink and use tobacco together have an even greater Trusted Source cancer risk.

Circulatory system

Alcohol can affect your heart and lungs. People who are chronic drinkers of alcohol have a higher risk of heart-related issues than people who do not drink. Women who drink are more likely to develop heart disease than men who drink.

Circulatory system complications include:

- high blood pressure
- irregular heartbeat
- difficulty pumping blood through the body
- stroke
- heart attack
- heart disease
- heart failure

TEA AND COFFEE

Coffee is **LIKELY SAFE** for most healthy adults when consumed in moderate amounts (about 4 cups per day).

Coffee containing caffeine can cause insomnia, nervousness and restlessness, stomach

upset, nausea and vomiting, increased heart and breathing rate, and other side effects.

Drinking unfiltered coffee can increase total cholesterol, low-density lipoprotein (LDL) cholesterol, and levels of another type of blood fat called triglycerides. This might increase the risk of developing heart disease. Using coffee filters helps to reduce these effects on cholesterol.

Caffeinated coffee is **POSSIBLY UNSAFE** when taken by mouth for a long time or in high doses (more than 4 cups per day). Drinking large amounts of caffeinated coffee might cause headache, anxiety, agitation, ringing in the ears, and irregular heartbeats. Drinking more than 6 cups daily might cause "caffeinism" with symptoms such as anxiety or agitation. Also, people who drink a lot of caffeinated coffee every day may need to drink more coffee to get the same effects. They may also become "dependent" on coffee to the point that they develop withdrawal symptoms if they suddenly stop drinking it.

There is some concern that drinking more than 5 cups of coffee per day might not be safe for people with heart disease. But for people who don't have heart disease, drinking several cups daily does not seem to increase the chance of developing a heart problem. There is also concern that occasional coffee drinking might trigger a heart attack in some people. People who usually don't drink more than one cup of coffee daily and also have multiple risk factors for heart disease seem to have an increased risk for heart attack within an hour after drinking coffee. But people who regularly drink greater amounts do not seem to have this risk.

There is some concern that drinking coffee might increase the risk of some types of cancers. However, there is no good evidence that coffee increases the risk of any type of cancer. Scientists continue to look at this.

Coffee is also **POSSIBLY UNSAFE** when given rectally as an enema. Coffee enemas have been linked to cases of severe side effects, including death.

Special Precautions & Warnings:

Pregnancy and breast-feeding: Caffeinated coffee is **POSSIBLY SAFE** for pregnant women in amounts of 3 cups per day or less. This amount of coffee provides

about 300 mg of caffeine. Consuming larger amounts during pregnancy or when breast-feeding is **POSSIBLY UNSAFE**. Drinking more than 3 cups per day during pregnancy has been linked to an increased risk of miscarriage, premature birth, and low birth weight. These risks increase as the amount of coffee the mother drinks during pregnancy increases. Also, caffeine can pass into breast milk, so nursing mothers should closely monitor caffeine intake to make sure it is on the low side (1-2 cups per day). High intake of caffeine by nursing mothers can cause sleep problems, irritability, and increased bowel activity in breast-fed infants.