

Preface to preview of JSSC Snake book 2015

[JSSC Snake book \(2015\) preview](#)

Snakes, Snakebites and Treatments

*An extensive & painstaking survey of
South 24 Parganas: 2008-2012*

We took about 50 pages selectively out of 244 pages of the English version of the book to give you a glimpse of this book. There is no continuity from one page to another. Please pay attention to the page numbers to see which article the page belongs to. There are three main articles written by

- | | |
|--|-----|
| 1. Bijan Bhattacharya (<i>about Snakes</i>) | 27 |
| 2. Dr. Nirmalendu Nath (<i>about block-wise snakebites in S 24 Parganas</i>) | 124 |
| 3. Dr. Samarendra Nath Roy (<i>about treatments</i>) | 182 |

Also there are also six introductions about JSSC's work over 25 years by 6 doctors and experts in the area of snakes and snakebites.

- | | |
|---|-----|
| 1. Congratulations to JSSC - Debkumar Chakrabarti | 17 |
| 2. Prologue, Introduction - Dr. Gaurab Roy | 19 |
| 3. Some Words, Some Thoughts – Dr. Tapas Kumar Bhattacharyya | 22 |
| 4. Do We Really Have Nothing To Do? - Dr. Prantar Chakraborty | 23 |
| 5. JSSC in IJPH - Dr. Dayalbandhu Majumder | 24 |
| 6. Snakebites and its Consequences - Dr. Basudev Mukherjee | 211 |

The details of the books can be found at: <http://www.jss-canning.org>

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[Where you can buy the books](#)

[Newspaper coverage of the books](#)

[Press Releases - Kolkata Press Club November 7, 2015](#)

Juktibadi Sanskritik Sanstha • Canning • 24 Paraganas

The background of the cover is a photograph of a rural scene. In the upper left, a small lizard is on a wall. In the center, a snake is coiled on a wooden door. To the left, another snake is on the ground. At the bottom, a large snake with black and yellow bands is coiled. The title 'Snakes Snakebites and Treatments' is written in a large, red, serif font, with 'and' in a smaller, italicized font. Below the title, the subtitle 'An exclusive field study report: 2008-2012' is in a smaller, black, sans-serif font. The editors' names are at the bottom in a black, sans-serif font. A small logo is in the bottom right corner.

Snakes Snakebites *and* Treatments

An exclusive field study report: 2008-2012

Edited by

Dr Basudeb Mukhapadhyay & Dr Dilip Kumar Som





In this book you will find an extensive survey of snakes and snakebites in South 24 Parganas during 2008 and 2012. Hundreds of tables, charts, graphics and pictures of different snakes and snakebite victims encapsulated in this book will surely make our dream *No more deaths from snakebites* come true in very near future.



Our work has been recognized by many people including Prof. David A Warrell, Hans Sloane Fellow of Royal College of Physicians, London and also WHO consultant for Snakebites.



Over Twenty five years of relentless work in teaching the villagers to identify venomous (~30%) snakes from the non-venomous (~70%) ones. JSSC managed to convince them over the years not to go to faith healers, instead go to the hospitals for proper treatment. That resulted in a large reduction of deaths due to snakebites in our area.

You will find eleven case histories of many successful treatments of snakebite victims at the Canning Subdivision Hospital written by Dr Samarendra Nath Roy who handled the cases himself.



JSSC Price: RS 750.00 (US \$ 20)

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Snakes, Snakebites and Treatments

**An extensive & painstaking survey of
South 24 Parganas: 2008-2012**

Editors

Dr Basudev Mukherjee & Dr Dilip K. Som

Co-Editors

Bijan Bhattacharya & Soumen Paul



JSSC

**Juktibadi Sanaskritik Sanstha
Canning Town, South 24 Parganas
www.jss-canning.org**

Snakes, Snakebites and Treatments

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Cover Theme: Indian house lizard eating a bug...

Wolf snake eating an Indian house lizard...

Common krait eating a Wolf snake...

Banded krait eating a Common krait...

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We Lost One of Our Leading Workers Jaydeb Mondal on April 18, 2014



Jaydeb caught two venomous Monocled cobras (Keute) from a nearby locality after receiving a call at our 'Snakebite Telephone Helpline'. He was on the way to drop them off at Sundarban Tiger Reserve (STR). He was unfortunately and accidentally struck by the snake on the boat and was brought to Gosaba rural hospital for treatment where he later died due to the unavailability of proper medicines at the right time. We have been striving to make the proper medicines available at rural hospitals for a long. We hope the day will come soon when people won't die of snakebites for lack of medicines.

Our respectful homage to Jaydeb and express our grief and heartfelt condolences to his bereaved family.

Our Work Draws International Attention

Prof. David A Warrell, Hans Sloane Fellow of Royal College of Physicians, London and also WHO consultant for Snakebites, visited Kolkata twice during the last two years to attend two conferences on the issues of snakebites in India.

Both the times during his presentations, he mentioned the English book *Snakebites of West Bengal* which was published by JSSC in 2011. He made particular reference to the work done by JSSC in this area, emphasizing that it was a very unique and extensive survey.

The first conference *Medicon International* was held at *Hayatt Regency Hotel, Kolkata* on October 21, 2013, organized by the *Association of Physicians of India and the Peerless Hospital*. The second conference was held at the *Kolkata School of Tropical Medicine* on December 8, 2014.

We Work with Pleasure and Pride

What is the object floating by! Who is stretched out inside the mosquito net? That is a Raft (made of Banana tress), better known as *Mandash*. It consists of a six feet by four feet makeshift raft on which the dead body of the snake bitten victim is laid. Such floating rafts are often seen on the rivers of the Sundarbans.



A piece of paper states the name of the person, the prize for resurrecting him to life and then the body is set afloat. While performing the last rites, lamentation or shedding of tears is taboo. Even after losing her husband a woman is forbidden to dress in the garb of a widow, break her conch-bangles; she has to forcibly imagine that her husband might be brought back to life by the faith healers (*Ojha* or *Fakir*). This is a strong belief prevalent in this region. Raft and Life are synonymous to the rural people. The fictitious tale of *Bebula and Lakbindar* written in the 17th

Century still holds in the district of South 24 Parganas firmly in its grasp. It is believed that snakes strike people in their sleep. In order to find the actuality, Juktibadi Sanaskritik Sanstha (JSSC) of South 24 Parganas entered into this world of snakes. Formed in 1986, this Organization started organizing different exhibition based programmes to make the villagers aware of the pitfalls of ignorance and superstitions like mantras, non-

Despite being a doctor in a hospital, Dr. Samarendra Nath Roy is a co-worker of the organization. Dr. Roy is one among those doctors who has always kept faith in the knowledge acquired from our observations. This is not from a bookish knowledge but from his own personal experience he has written – it is original thought. We thank him too. We also express our gratitude to the Superintendent of Canning Subdivision Hospital, Block Health Officer, assistant doctors, nurses, other health workers and the Health Department of the Govt. of West Bengal. Their encouragement and co-operation for years have not only enriched this book but has made the organization more mature and experienced.

We like to mention a few more names who helped and inspired us in many different ways: K. C. Gyne (IFS), Pradip Shukla (IFS), Pradip Vash (IFS), Subrata Mukherjee (IFS), Soumitra Dasgupta (IFS), Nilanjan Mallick (IFS) and Kishor S. Mankar (IFS).

After the decision to publish the book - 'Snake, Snakebites, its Treatment' was taken, all important matters starting - from collecting articles to sending those to Press. This was perfectly supervised by Dr. Dilip K. Som, an NRI. He has devoted much time and thought for enhancing the book. In this respect the person who accompanied him is Soumen Paul. He has in spite of being very busy, has given the final touches to the book. And thanks to Chayan Khan who worked hard on the pictures in this book and devoted a lot time only because of his love for our organization. Gora Dey of S. P. Communication Press has also contributed through his patience and efficiency in all areas including typesetting, layout and cleaning up our pictures taken with our inexpensive cameras.

We thank Soumyen and Mila Basu, Samiran Bhattacharya and Abdur Rahaman Ansary for translating a number of articles in this book from Bengali to English. We thank Ms. Gurjeet Singh for going over the whole script and finding many errors and omissions. Thanks also go to Malobika Chatterjee of Mono Translation Bureau, Kolkata for editing and proofreading a section of the book.

Lastly, we remember late Jaydeb Mondal, a warrior of the Science Movement and one of the experienced front line workers. Just after the completion of the survey and campaign programme, while setting a rescued Monocled cobra free in the forest of Sundarban, he was bitten by that snake and died in the hospital on the 18th April, 2014. In spite of

leaving his father, mother, wife, two children and neighbours in the throes of a deep tragedy, at an early age of 37, his work and teachings have made him immortal. Being unable to speak, just before breathing his last, he wrote two words addressing the doctors - 'More saliva in the throat, more AVS.' These are the Final Words of this book also. So by dedicating this book to Jaydeb Mondal who sacrificed his life for the service of mankind, we are also basking in his glory. With this, our appeal to the World Health Organization (WHO) and to the State Government is to declare 18th April, the day of Jaydeb's demise as the *Day of Fighting Against the Deaths due to Snakebites*.

How far this effort is successful to make the book 'Snakes, Snakebites and its Treatments' complete in all respects is left to the readers to judge

*On behalf of members and well wishers of
Juktibadi Sanaskritik Sanstha (JSSC)
Canning Town, South 24 Parganas, West Bengal*



Congratulations to JSSC

Debkumar Chakrabarti

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My long acquaintance with the *Juktibadi Sanaskritik Sanstha, Canning* (JSSC) has been from the time when I was working in the Department of Health & Family Welfare, Government of West Bengal as Joint Secretary. This organization has established their mark of devotion in a particular sphere, namely awareness of snakes & saving life from snakebites in the snake infested river basin of South 24 Parganas District. I believe that the contribution of the organization on the awareness programme to save people from snakebite deserves special mention. But many still remain unaware of their pursuit & contribution.

Since the past there has been co-existence of man and snake. But how much does man know about the snake, its varied moods and temperament, its behavioral pattern? Many people die of snakebites simply due to their ignorance about snakes. On many occasions this occurs because of lack of prompt and proper treatment when this snakebite mishap occurs due to lack of information, both on the party of the society and medical institutions.

It is known from the Government records that the number of snakebites in the years 2008, 2009 and 2010 were 19,051, 20,081 and 19,306 respectively and the number of deaths was 290, 282 and 265. Many more deaths may remain unrecorded. In the same three years, in our state, the number of death due to Malaria was 104, 74 and 47 respectively.

Prologue, Introduction or Morning Gargling

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Reptiles constitute an important part of the animal world and snakes are an essential part of it. Snakes are of different types and because of the warm climate almost 3300 types of snakes live in our state as well as in the country. On the other hand, because of the peculiar shape and behavior of snakes, the fact that some snakes are deadly venomous, fear, mystery, curiosity and enmity has grown in the human mind in human mind about snakes which, in the course of time, have turned into superstition, blind faith and popular practices. Snakes are generally peaceful and introvert. Only an attack or the fear of being attacked results in. Only six types of snakes in West Bengal are venomous. The modern treatment of snakebites, on the other hand, is available at least in the Block Primary Health Centre (BPHC) stage. If the relatives of the victim rushed him to the hospital and the proper treatment is discharged by the doctors, then it is possible to save the lives of the snake bitten. But in reality the reverse happens. Relatives run to *Ojhas* (faith healers) for their charms and incantations, to *Mazars* and temples, and in most of the cases incomplete treatment is rendered by the doctors. To deal with the various problems related to snakebites, such have to be taken care of first.

Apart from the cold upper Himalayan region, in the other parts of our state and country and also in the neighboring countries like Bangladesh and Thailand, I have seen, except some snake-friendly clans, the absolute

Some Words, Some Thoughts...

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Almost 25 years have passed since I paved my way with *Juktibadi Sanaskritik Sanstha, Canning* (JSSC). Besides the oath - 'No more deaths by snakebites', extensive awareness programme on snakes, lessen the dependence on *Ojha, Gunin* and spreading the information about modern treatment of snakebites were the main objectives of their movements. Extensive awareness camp in the locality was accompanied by culture and research on snakes. A movement got started with the support of people. This Publication, within the two covers, is a summed up picture of all those efforts. Genuine zeal and perseverance of the team members for years together surprised me.

There is no doubt that all the information gathered from the field survey will show the science workers a new way. City dwellers who live away from the rural belt, will be enlightened. Doctors will benefit and as a result will provide the right treatments.

Such Publications are long overdue. Besides showing my gratitude, I wish all success of this book. I believe that this book will be welcomed in schools and colleges, in particular.

Still you have miles to go, we too, as we are among those who have promised to do something for the Mankind.

Do We Really Have Nothing To Do About It?

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'Have you gone mad?' – my colleagues asked me when I joined hands with *Juktibadi Sanaskritik Sanstha, Canning* (JSSC) in 2002 and started to make the people of Sundarban aware about snakebites and the treatment of it. My reply was ready - 'Is it possible to work like this without being crazy?' After a decade I feel proud to be a member of this crazy group. Only those who have tried to do such work can realize how difficult is to create a reliable Census of snakes. This book is an authentic document of that impossible mission which was successfully done with the help of science and reasoning by mingling with the people of the society with an urge to do something for them. When, for the first time I started preparing myself for the speech about the treatment of snakebites, I felt the limitations of our present medical curriculum. In our MBBS course we had a superficial idea about snakes and their types during our study on forensic and state medicine. But unfortunately a doctor feels that he has no idea of proper treatment of a snake bitten person when for the first time he starts working in rural areas. I hope that the doctors will benefit from this endeavour of the JSSC, Canning. In this era of Social media my only request is - Kindly pass on our first hand information about snakes to the common people, so that no one, being unaware, dies an untimely death by snakebites.

Juktibadi Sanaskritik Sanstha, Canning in IJPH

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Although *Juktibadi Sanaskritik Sanstha, Canning* (JSSC), has published various books and other materials for mass awareness in the last 25 years, there were no science based publications till March, 2014. An article entitled 'Epidemiological Profile of snakebites in South 24 Parganas district of West Bengal with focus on under reporting of snakebite deaths' was published in Indian Journal of Public Health in March 2014 (Jan-Mar 2014 issue). Writers were Dayalbandhu Majumder, Avik Sinha, Salil Kumar Bhattacharyay, Rama Ram, Urmila Dasgupta, A. Ram and others. Although this was the largest survey (more than 19 lacs of people) by JSSC, we faced many problems to have this survey published in the journals. We must be grateful to Dr. Avik Sinha, Assistant Professor of Community Medicine for his effort in publishing this paper. To our surprise one internationally known magazine tried to intimidate us by saying - 'There is nothing new in this article, it is known to all that deaths from snakebites is a much neglected area in India.'

The conversation between the writer of this article and Prof. David A Warrell, an expert of World Health Organization, was quite surprising. Prof. Warrell felt sorry in telling me that the higher officers of the Central Health Ministry of the Indian Government were not at all ready to accept the deaths from snakebites as a Public Health Hazard in India. In

Snakes and Snakebites: A Survey

Bijan Bhattacharya

Rationalist and Social Activist

Juktibadi Sanaskritik Sanstha, Canning, S 24 Parganas

On behalf of JSSC, the authour of this article read a paper on the inter-relationship of Common kraits and Banded kraits at All Bengal Science Congress which was held during November 20 and 22, 2004 in Salt Lake, Kolkata.

Beginning of the Beginning

Any accidental death is always unfortunate, especially if it is caused by snakebites. The pain enhances to a great degree due to helplessness. Accident is inevitable and Man cannot avoid some accidents in spite of many advancements of science. But at the same time the rate of death by snakebites being reduced to almost zero is now within the grip of Science as well as Man. But we still see many people die from snakebites everyday in different corners of this world. At the beginning of our movement, the darkness of this ignorance seemed very thick. The efforts to keep this lamp of awareness burning have been a hard one. Good news is that we see

Beginning of a Difficult Task: A Survey

From the early morning, every team was excited to start the journey which was made up of 10 to 12 kilometers for the survey in every community. The main objectives of the survey were:

- To find the number of victims of snakebites in a year
- Types of snakes were there
- Number of deaths caused by snakebites
- Increase or decrease of the number of snakes
- Causes of deaths and above all
- To examine the symptoms after the bites of the venomous Common krait

Often the door to door survey ended at 1 or 2 pm. After that the team had a small meal and rested for a while. Then they started the process at 4 pm again. The spot was chosen by the Panchayat for the discussion programme with the villagers. This continued till 9 pm.



Survey about Snakes, Gosaba, 2009



Survey about Snakes, Sagar block, 2009

Sometimes nights were spent in the Panchayat office, sometimes in school buildings and even in the verandahs of villagers' houses. It should be mentioned that according to the census of 2011, the number of families residing at South 24 Parganas was 17,18,221. As two blocks were excluded from the project work, survey was done on nearly 13 lacs families. An extended survey was done for four years in spite of the uncertainty of food and shelter. Moreover, scorching sun and torrential rain were also an issue. In addition, there was the fury of the village chief - 'People live in the villages with beliefs of their own and you people, are coming early in the

Snakes found in the District (South 24 Parganas)

Information gathered from the survey regarding different types of snakes and their habitats are given in the Table 1 below. In the Table 1.1 the information about the family of the snakes are given.

Table 1

Snakes Live on Land	
Venomous	Non-Venomous
1. Shankhachur (King cobra) 2. Keute (Monocled cobra) 3. Gokhro (Spectacled cobra) 4. Shnakhamuti (Banded krait) 5. Kalaj (Common krait) 6. Chandrabora (Russell's viper)	1. Dnaras (Rat snake) 2. Hele (Striped keelback) 3. Pnuye (Worm snake) 4. Ghar Chiti (Wolf snake) 5. Udaykaal (Banded kukri) 6. Khetmete (Banded racer) 7. Mayal (Indian rock python)

Snakes Live on the Trees	
Venomous	Non-Venomous
1. Gechhobora (White-lipped pit viper)	1. Kalnagini (Ornate flying snake) 2. Knar Saap (Cat snake) 3. Bet Anchhra (Bronze Back) 4. Laudaga (Green Vine snake)

Snakes Live in Water	
Venomous	Non-Venomous
1. Nona-jal Keral (Hook-nosed Sea snake)	1. Jal Dhnora (Checkered keelback) 2. Meteli (Olive keelback) 3. Gaang Meteli (Smooth-scaled Water snake) 4. Nodir Kukurmukho nona bora (Dog-faced water snake)

Table 1.2
Brief Description of Snakes

Venomous Snakes Found on Land

King cobra (*Ophiophagus hannah*)

It is a venomous snake having the largest hood found in the world. Normally 12 to 15 feet long and lives in the dense forest. The type of its venom is Neurotoxin.



Wildlife Protection Act-1972: Schedule-2

Spectacled cobra (*Naja naja*)

It is a venomous snake having a hood, the back side of which is embossed with a U sign. It is 4 to 5 feet in length and prefers dry area to live. The type of its venom is Neurotoxin.



Wildlife Protection Act-1972: Schedule-2

Monocled cobra (*naja kaouthia*)

It is a venomous snake having a hood. It can be easily recognized by a round sign at the back side of the hood.

It is 5 to 6 feet in length and prefers to live near ponds or river. The type of its venom is Neurotoxin.

Wildlife Protection Act-1972: Schedule-2



Type 1



Type 2



Type 3



Type 4

Three Postures of Monocled cobra

1. Just curious about the surrounding
2. Cautious about the surrounding
3. Just about to bite with open mouth



D/H
N

Venomous Snakes: Where Do You Find Them?

The distribution of venomous snakes in different blocks and region are interesting and unique. For better understanding, South 24 Parganas district has been divided into two parts - blocks in the Sundarban Region and Other blocks of South 24 Parganas. Details are in the Tables 2 and 2.1 below.

Table 2
13 Blocks of Sundarban Region

No.	Blocks	Spectacled cobra	Monocled cobra	Common krait	Banded krait	Russell's viper	King cobra
1	Canning 1		Yes	Yes			
2	Canning 2		Yes	Yes			
3	Basanti		Yes	Yes			Yes
4	Gosaba		Yes	Yes	Yes		
5	Kultali		Yes	Yes			
6	Joynagar 1		Yes	Yes		Yes	
7	Joynagar 2		Yes	Yes			
8	Mathurapur 1		Yes	Yes			
9	Mathurapur 2		Yes	Yes			
10	Kakdeep		Yes	Yes			
11	Namkhana		Yes	Yes			
12	Patharpratima		Yes	Yes			
13	Sagar		Yes	Yes	Yes		

Table 2.1
14 Other Blocks of South 24 Parganas

Blocks	Spectacled cobra	Monocled cobra	Common krait	Banded krait	Russell's viper	King cobra
Budgebudge 2		Yes	Yes		Yes	
Bishnupur 1		Yes	Yes		Yes	
Bishnupur 2		Yes	Yes		Yes	
Magrahat 1		Yes	Yes	Yes	Yes	
Magrahat 2		Yes	Yes		Yes	
Diamond-harbor 1		Yes	Yes		Yes	
Diamond-harbor 2		Yes	Yes			
Bhangar 1		Yes	Yes			
Bhangar 2	Yes	Yes	Yes		Yes	
Mandirbazar		Yes	Yes		Yes	
Kulpi		Yes	Yes			
Falta		Yes	Yes		Yes	
Baruipur		Yes	Yes	Yes	Yes	
Sonarpur		Yes	Yes	Yes	Yes	

treatment of *Ojhas* (faith healers) or by untested medicines totally depends upon the typical characteristics of these snakes.

In the case of Neurotoxin-venomous snakes (Common krait, Banded krait, King cobra, Spectacled cobra, Monocled cobra) the venom flows through ducts present beside the fangs and gets mixed with blood. Only the venom of Russell's viper (Haematotoxin) directly comes out of the fangs and gets mixed with blood as if a person is being injected. In fact all the vipers possess fangs of same type and all the venomous snakes have these two types of fangs. This adds to variety of bites.

Snakebites Occur in 3 Ways

1. **False bite:** In this type of bite, snakes do not open their mouth - just press with the front part of their mouth. This is done only to frighten the victim. It happens generally in the case of Monocled Cobra and Spectacled Cobra.
2. **Dry bite:** This is another state of snakebite. Venomous snakes lose their fangs at regular intervals and new fangs grow. During this stage they cannot pour venom fully and for hasty bites the venom cannot get mixed with the blood properly.
3. **True bite:** With the help of fangs if the venom is poured properly, only then the condition of the victim would be serious.



Two teeth of Russell's viper. On the left, you can see a small drop of venom on one tooth.

Monocled cobra and Spectacled cobra are on the top of the list of the first of bite. Monocled cobra fails to pour venom fully in the most cases due to haste. If ten people get bitten by ten Monocled cobras, only in one case the venom will be lethal. Here the first nine persons will suffer a little from the action of poisoning, but the possibility of death is almost nil. So these patients will get well by any untested treatments. It has already been said that Russell's viper can pour venom directly from fangs and this is the only snake which can bite while jumping. So it is able to pour the right amount of venom (42 mg) in most of the cases. To be more precise, because of its specialty of fangs Russell's viper is able to pour lethal doses of venom in nine cases out of ten. *Ojha* can save this one person only. Lastly, let us come to the aspect of Common krait. We know that Common krait gets into the bed and bites people while in sleep. As a result, if ten Common krait snakes bite ten persons then they get enough time to infuse lethal venom (1mg) to the body of each one.

Common krait - Deadliest Snake in Asia

Common krait is the only snake in Asia which is able to kill a person with such a meager amount of venom (1 mg). Thus the proverb goes: 'If *Domna* bites, then call the *Bamna*'. *Domna Chiti* is the other name of Common krait and *Bamna* means Priest. Thus it means if bitten by Common kraits, there is no possibility to survive and there is no alternative other than calling the Priest to perform the last rites. So the *Ojhas* (faith healers) cannot save a single Common krait bitten victim.

From the features of the snakebites mentioned above, the mystery behind the survival of a victim by the untested medicines can easily be understood. There are other varieties of snakebites which have been discussed afterwards. It is also true that we make one sided decisions and say- 'Those people are superstitious, ignorant and destroying themselves without taking the help of science.' But it is quite explicit from the survey report that more than 90% people do not know that anti-venom medicines have been discovered and is available in the hospitals free of cost. In addition, those people strongly believe that the doctors in the hospitals know the

Low Potency AVS in the Hospitals!!!

Our survey report of Canning 1 shows that in this Block, 10 persons died of snakebites during 2009 and 2011 even after applying AVS to the victims. We started to doubt the quality (potency) of AVS. As a result, on an average the required quantity of AVS for the recovery of patients had to be increased from 60 to 90 vials still without good response. With confusion the doctors had to refer some patients to other hospitals in Kolkata. But the most victims died on the way. Being doubtful about the supply of bad quality of AVS, JSSC for the first time drew attention of the administration and the Health Department. Later, the intervention of District Magistrate and the confiscation of the poor quality AVS proved to be true. Today, doctors know that this life saving drug can also be of poor quality due to various reasons.

From Tables 5 and 5.1 a deduction can be made that in South 24 Parganas the incidents of snakebites are considerably high in number where as the tendency to go to the hospitals for treatment is very low. As a result, cases of deaths are many. Again the virulence of venomous snakebites is a matter of concern, about 16 people per block. Among these, the increased number of bites by Common krait is alarming. This snake bites the human being in a helpless condition, that is, in sleep. The doctors and the villagers are almost in the dark about the symptoms of its bite. In addition to this, there is the dependence on *Ojhas* (faith healers) where as many as one thousand villagers are under the supervision of one single *Ojha*. This being the situation, it is necessary to take different steps and organize effective publicity campaign from the Government along with private endeavour.

Incidents of Non-Venomous Snakebites

From the survey-questionnaire, efforts were made to find out exactly what type of non-venomous snakes had bitten the victims. The description of the snakes from the eye-witness, the geographical situation, the time of bite, the description of the nature of wounds, species verification with the

this type of snakes cannot see at night, they move at nocturnally and so it can be said that most of the venomous snakes are active at night. Some other types of snakes possess Cone Cells and can see in broad day light, not in the darkness of night. Many of the non-venomous snakes are not included in this list.



Famous Herpetologist Romulus Earl Whitaker with JSSC members, 2012

With respect of the above mentioned reasons it is clear that snakes, either venomous or non-venomous, do have a fixed time that they bite because of this particular biological feature. According to the survey report 99% of the cases of bites by Common krait happen at night in bed between 10 pm and 4 am, that is within 6 hours. In only one percent of the cases Common krait, getting stuck in the fishing net kept inside the room, bite people in the morning.

The time in which Monocled cobra usually bites is divided into three phases. From 4 o'clock to 6 o'clock in the afternoon it is 30%, from 6 o'clock in the evening to 8 o'clock at night it is 15% and from 8 to 10pm, it is about 5% and finally from 4 o'clock in the morning to 8 o'clock in the morning it is 50%.

From 4 pm to 6 pm the rate of bites is 3%, from 6 pm to 8.00 pm 30%, from 8 pm to 10 pm 2%, from 4 am to 8 am 20% and from 8 am to 12 pm it is 45%.

It has already been said that as it gets dark, venomous snakes go out in search of food. Again if the sky remains overcast with cloudy they become

Non venomous Snakebite May Look Like a Venomous Snakebite (Mimicry in the World of Snakes)

There is mimicry even in the world of snakebites that was unknown till recent times. Among non-venomous snakes, both Checkered keelback and Wolf snake leave the marks of two fangs after bites.

Snakebite of a non venomous snake looks like a snakebite of venomous snake



*Bite of a Wolf snake
(non venomous)*



*Bite of a Checkered keelback
(non venomous)*

The reason behind this is the presence of two fangs at the end of the jaws on either side which help them to grab the prey. If any of them bites with the mouth fully open to catch a prey, it leaves two fang marks and when it bites in fear it bites with the front side of the jaws leaving many fang marks. It should be specially observed that from the two types of wounds, blood comes out and clots. It has been noticed that just because of less force, the fang marks in many cases are indistinct. In this case, between the two fang marks there prevails a considerable distance of more than two centimeters, specially in the case of Checkered keelback, which differentiates them from venomous snakes.



Two back
teeth

A non non-venomous snake with two strong back teeth can sometimes only leave two spots, when it bites with wide open mouth, giving an impression that the bite is from a venomous snake.

nature and environment or at the time of movement the colour of the snake somewhat changes. It is only by holding a snake in the hands, you can understand the formation of scales along with other physical features. Catching a snake is very dangerous, especially venomous snakes. So the description of how a moving snake can be identified at a glance is briefly described below along with some other related information.

Table 11
Identifying Venomous Snakes at a Glance

Snakes	Snake's Hood	Length	Special Sign	Movement	Venom	Amt of Venom
King cobra	Found	10-12 ft.	A symbol like ^ behind the head	Diurnal	Neuro-toxic	12 mg
Spectacled cobra	Found	4-5 ft.	A 'U' mark behind the head	Nocturnal	Neuro-toxic	15 mg
Monocled cobra	Found	5-6 ft.	A 'O' mark behind the head	Nocturnal	Neuro-toxic	15 mg
Common krait	No	3-5 ft.	Twin lines of white colour below 3 inches from the head up to the tail	Nocturnal	Neuro-toxic	01 mg
Banded krait	No	5-6 ft.	Whole body is covered with black-yellow strip of about 1 inch long	Nocturnal	Neuro-toxic	10 mg
Russell's viper	No	3-4 ft.	Triangular Head. 3 rows of round spots from head to tail	Nocturnal	Hemato-toxic & low quantity of Neuro-toxic	42 mg

Some Features of These Six Important Snakes



Common krait



Spectacled cobra



Monocled cobra



King cobra



Russell's viper



Banded krait

King cobra: Experts opinion - It is the only snake having intelligence, so before laying eggs it prepares holes or a dwelling place and can stay for a long time with its hood expanded. It lives in pairs.

Spectacled cobra: It can stay for a long time with its hood expanded and is relatively timid. The number of bites is less in comparison to other snakes.

Monocled cobra: A short tempered snake which cannot stay for a long time with expanded hood. Its tendency to bite is much higher than that of other snakes. But this species of snakes are found very timid in the forest of Sundarban. It does not expand its hoods even when passing by any human being and it is quite different to the habit of this type of snakes found in locality.

Common krait: Generally it is not seen before 8 pm. After biting in bed, it immediately leaves the place and also treads over sleeping persons.

Banded krait: This snake is lazy in nature and its movement is less. It is the notion of the villagers that if a person dies by the biting of Banded

By the laws of nature, snakes, by eating snakes protect our lives and ensure our safety. Again by eating rats along with other insects, snakes help us to get financial benefit. So, the more snakes are around you, the more safety and profit for you.

The next couple of pages contain a few pictures of this prey/predator chain system.



Common krait eating a Wolf snake



Rat snake eating a Russell's viper



A Banded krait eating a Common krait



Monocled cobra eating a Rat snake



Mongoose eating a fish



Snake eating a fish

Snakebites: Observations and Reflections

Study on 27 blocks of S 24 Parganas, West Bengal

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On behalf of JSSC, the authour of this article read a paper on this subject at the 22nd West Bengal Science and Technology Congress held during February 28 and March 1, 2015 at North Bengal University.

Abstract

Snakebite which is considered by WHO as one of the 'neglected tropical diseases' causes havoc across the districts of South 24 Parganas. An epidemiological field survey on Snakebite was conducted on 27 blocks with 3644 'gram sansad' in the district of South-24 Parganas, West Bengal to assess the intensity of the problem between 2006 and 2011. Total number of snakebites, number of deaths due to snake- bite was 12206 and 535 respectively. The mortality rate among snakebite victims was 43.82 per thousand snakebite cases in a year. The highest incidence of snakebite was found below the age group 20 years. The survey reveals that 65.60 per cent of victims lost their life due to venomous snakebite between June and September. Majority of the snakebites (44.72 per

cent) were encountered on the bed. The concentration of Common krait in South 24 Parganas is the primary reason for high mortality due to snakebite in the district. Among the snakebite victims 14.25 per cent went to traditional healers and 18.83 per cent received hospital treatment, while 5.14 per cent neither went to Ojhas (faith healers) nor to hospital and 50.13 per cent went to hospital after consulting the Ojhas. The observation with respect to epidemiological survey was supported by the findings from tele-helpline data. As per queries through telephone help line in 2011, the total number of snakebite and the number of deaths due to snakebite were 503 and 50 respectively in 13 districts of West Bengal. It was observed that Russell's viper was found more or less in all the 13 districts of West Bengal while Common krait is mainly found in South – 24 Parganas.

Preface

Birth and death are two vital events in human life. The first one is a pleasant one while the second one brings sorrow to the family. This deep mental distressful affair becomes more pathetic if the death of the dear one is from a snakebite. There exist various superstitions about snakes and snakebite patients among the rural people. The rural people still now believe that the presence of venom in the human body due to snake-bite could be eliminated by the traditional healers (*Ojhas*) or by the application of a sucker-stone generally known as 'venom stone' in the wounded part of the body. A section of the rural people even believes, the human body (dead) caused by a venomous snake may be reanimated if the body after being floated in the river is able to draw attention of a master exorcist. Juktibadi and Sanaskritik Sanstha, Canning (JSSC) estimated that only in 4 blocks of South 24 Parganas, the number of deaths between 1993- 2002 due to snakebite was around 349 and most of the deaths occurred due to high dependence on quacks and exorcist (JSSC 2007).

In order to abolish these prevailing superstitions from the mental frame of rural people JSSC for the last 20 years has been organizing various programmes in various blocks of South 24 Parganas. So far, three different but related programmes have been adopted by JSSC. First, estimation of the number of deaths caused by snakebite in this snake prone district. Second, adoption of sustained awareness campaign about snake and treatment of snakebite patients in the district. Third, inauguration of 'Help-Line' on 'Snakebite' with a wider coverage of South Bengal. The estimation

each household. In other words the five island-blocks around forest boundary is featured by the co-existence of human settlement and reserved forest. The area is in low-lying nature and infested with various species of snakes. Consequently, snakebite is a common problem in these areas and results in death in many cases.

The demographic and socio-economic condition of the people living in these 27 blocks are described with the help of four parameters; a) density of population b) female literacy rate, c) the percentage of household living below the poverty line d) percentage of population with access to electricity e) length of surface roads per sq. km. and f) human development index. The value of the six parameters with respect to twenty seven blocks are presented in Table 1.1

Table 1.1
Socio-economic indicators of 27 blocks: S 24 Parganas

Block	Popula-tion per sq. km. 2001	% of house hold with electricity	Paved roads per sq. km.	Female literacy rate 2001	Poverty ratio	Human development index	
						Score	Rank
Zone I							
Budgebudge 2	2224	42.00	4.97	64.01	34.04	0.60	16
Bishnupur 1	1774	28.79	1.74	60.61	16.59	0.65	6
Bishnupur 2	2333	39.44	4.82	64.54	10.82	0.66	3
Sonarpur	1388	37.24	2.61	61.07	23.36	0.64	7
Zone - II							
Baruipur	1554	34.26	0.86	59.17	26.04	0.62	10
Bhangar 1	1330	20.16	0.70	51.05	28.22	0.55	26
Bhangar 2	1281	14.51	1.05	57.78	17.20	0.61	11
Falta	1696	28.30	1.01	61.86	21.56	0.61	12

Diamond Harbour 1	1949	22.52	2.32	56.93	24.27	0.61	14
Diamond Harbour 2	1729	22.95	1.04	61.50	27.30	0.65	4
Kulpi	1151	11.03	0.48	55.59	52.64	0.57	20
Mograhata 1	1918	14.52	2.09	56.54	28.41	0.60	15
Mograhata 2	1914	15.59	2.04	55.85	29.26	0.62	9
Mandir Bazar	1551	15.60	1.95	53.29	29.90	0.56	22
Zone - III							
Canning 1	1302	13.80	0.73	47.79	31.05	0.64	8
Canning 2	912	3.09	0.26	40.36	50.32	0.51	28
Joynagar 1	1672	15.21	1.75	53.57	39.57	0.61	13
Joynagar 2	1123	5.80	0.64	45.35	42.60	0.55	25
Mathurapur 1	1118	11.18	2.06	52.53	34.43	0.57	21
Mathurapur 2	872	5.75	0.60	54.89	39.59	0.59	17
Kakdweep	947	12.82	1.21	59.05	34.91	0.65	5
Namkhana	433	5.80	0.31	67.63	48.17	0.58	19
Zone - IV							
Basanti	689	0.44	0.46	44.33	64.89	0.50	29
Gosaba	751	0.92	0.13	56.60	38.03	0.54	27
Sagar	658	1.29	0.59	67.12	44.36	0.55	24
Pathar Pratima	595	0.72	0.23	60.64	49.13	0.56	23
Kultali	614	0.15	0.41	44.58	46.36	0.59	18

Source: District development report South 24 Parganas 2010, Census of India 2001

According to census 2001 the total population of the district South 24 Parganas is 69.06 lacs. The decadal growth rate of population of the district

Table 4.3
District wise number of queries by the callers for seeking
advice with respect to snakebites 2010 & 2011

Districts	Venomous snakebites		Non-Venomous snakebites		Total	
	2010	2011	2010	2011	2010	2011
Burdwan	3	3	7	6	13	9
Birbhum	1	1	-	4	1	5
Bankura	3	2	-	3	3	5
East Midnapore	9	6	25	7	34	13
West Midnapore	20	16	14	12	34	28
Howrah	2	8	1	2	3	10
Hooghly	3	-	4	3	7	3
North 24 Pgs	6	12	10	14	16	26
South 24 Pgs	60	97	192	291	252	388
Nadia	1	1	3	6	4	7
Murshidabad	4	-	8	8	12	8
South Dinajpur	1	-	-	1	1	1
Jalpaiguri	1	-	-	-	1	-
Purulia	-	-	1	-	1	-
TOTAL	114	146	265	395	379	503

Source: Ibid

Note: Excluded one phone call about venomous bite from Tripura

It is observed that in both the year most of the phone calls were from South 24 Parganas. However, parents and relatives of snakebite patients of distant districts such as Jalpaiguri, Purulia, West Dinajpur, Burdwan also

Snakebites and its Cure

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On behalf of JSSC, the authour of this article read a paper on this subject at the 4th annual conference of Toxicological Society of India which was held during November 20 and 22, 2014 at Tropical School of Medicine, Kolkata.

Preface

Before we start with the topic 'Snakebites and its treatments', let's talk about something regarding public health. Like the third-world countries, we too have a number of problems regarding public health. We have lots of national planning in our country for public health for diseases like Malaria, Kala-azar (black fever or Visceral leishmaniasis), Dengue, or Tuberculosis. On the other hand even though according to Whitaker snakebites claimed 49000 lives per year, snakebites and related problems have never been included in the public health programme.

This problem becomes more acute when we become aware of the fact that the doctors as students 'did not get proper training regarding snakebite victims. Later when they as young doctors join government hospitals they feel very helpless to treat the snakebite patients at night who come in from various areas. Generally their intention at that time is to refer the patients to bigger hospitals as soon as possible. In many cases even if they start treating these patients their treatment is not satisfactory. So the side effects of the disease become complicated. On the other hand due to the superstitions and ignorant attitude of the illiterate and poor villagers, the dependence on *Ojha* and *Gumini* is increasing. So there are many incidents when villagers proceed to the *Ojhas* (*faith healers*) instead of taking them to bigger hospitals.

Our state has another problem because all the bigger and better medical colleges and hospitals are in Kolkata. So when these patients are being referred to these hospitals a lot of useful time is lost. As a result it is difficult to differentiate a snakebite patient from other patients with deadly diseases. As a result the patients reach a more complicated state beyond the primary symptoms. These death-bound patients need ventilation, dialysis etc. for improvement, the scope of which is hardly found. The young doctors start depending only on ventilation or dialysis to treat snakebite patients and never know anything better.

As a general physician for 25-26 years in Sunderban region I got the chance to treat hundreds of snakebite patients besides general patients in Canning Subdivision hospital.

These incidents are written here based on the data from those incidents. We need to keep in mind that only 10 incidents are of venomous snakes out of 100 snakebite incidents in a year.

Some Incidents of Snakebites and its Treatments

Here are the details of some of the patients treated in Canning Hospital.

First Patient

Aziz Ali Laskar

Age 45, Bansrra, J. M. Bad, Jibantola, S 24 Parganas.

It was the month of August. At around 2 am while sleeping, the snake bit him on the back of his neck.



He could understand and recognise the bite. After the snake was recognised he first went to the local *Gurin* and then to Sarberia for treatment with 'venom stone'. When he was having stomach ache, vomiting, drooping of eyelids and uneasiness he was brought to Canning Hospital.

First day

Time	Symptoms	Treatment
8 am	Froth coming out from mouth, almost senseless, responds mildly when called, speech distorted, eyes cannot be opened, inability to swallow, breathing trouble, heart rate 68 per minute, BP 110/70, breathing rate 16 per min but irregular, breathing through muscles of belly, numbness of chest muscles, nothing abnormal in lung and heart.	300 ml. of saline water mixed with 10 vials of anti-venom to be pushed in the vein for 40 mins. Saliva is to be cleaned with machine by turning patient's head to a side. Oxygen should be put. Along with hydrocortisone, Deriphyllin, Rantac, Neostigmine (2 vials), Atropin injection to be pushed in veins.
8.30 am	JSSC members motivated me to treat this patient. Then the patient could respond to a call in a better way, trying to say through sign language, breathing has become normal to a great extent, saliva secretion has reduced.	Next 2 vials of antivenom have been pushed in veins. As before 10 vials of antivenom were mixed with saline water. Two Neostigmine and one Atropine were given along with that.
9.30 am	Urinated, heart rate is 80 per min but a bit irregular, BP 110/80. Bodyache especially in hands, feet and joints, breathing rate 16 but regular. Speaking lightly, blurred vision, double vision.	5 vials of antivenom in saline water were given for two hours more, also given antibiotic Cefritrikson (one gram twice in vein)- a toxoid.

10.30 am	The patient was better than before, breathing rate 16-18 per min, regular, responding to calls, trying to get up and open the oxygen tube. BP 110/70, heart rate normal -82 per min, breathing organs were clear.	Was not permitted to open the oxygen tube.
12 noon	Trying to open the oxygen tube, wished to get up and sit, urinated, and wanted to have water.	Not allowed to drink, 5 vials of antivenom with saline water were given, continued for two hours.
2 pm	The patient wanted to sit up, to speak in distorted voice, body ache, asking to open the oxygen tube.	3 more vials of antivenom were given, oxygen had been stopped.
After 5 pm	It was found the breathing organ was clear, BP was 110/80, heart rate normal 80 per min, urinated. Wanted to have water, speech became clearer, eyes were fatigued, and problem in swallowing, body ache was there.	Taking of food and water was not allowed, 1 bottle of 5% Dextrose was given through veins, antivenom stopped, saline water continued slowly.
8 pm	Took water getting up, speech was much clear, problem in swallowing still there, eyes were less fatigued, wanted to have food, Horlicks and biscuits were given at night.	No more antivenom given, total 40 vials given, 2 bottles 5% Dextrose given whole night.

Second day

9 am	Took tea, drooping of eyelids and problem to swallow persist, normal excretion, pushing of saline water stopped.	Other medicines continued.
1 pm	Took boiled liquid rice, small amount at night too, problem of the eyes and swallowing is reducing.	Paracetamol 500 mg. was given for body ache.

Conclusion

For a snakebite patient it is important to know whether it's a case of snakebite or not. Also it is important to know if the bite is from a venomous or non-venomous snake, or whether something could be made out by examining the wounds. In case of Russell's viper whether a 20-minutes' blood test or WBCT is needed or not.

From the symptoms it is needed to make a graph. But the essential and final thing to treat a snakebite patient is the courage, confidence and mental strength of the doctor. In case of venomous cobra or Russell's viper treating the patient quickly after observing the wound and symptoms can get maximum success. But in case of common krait the patient will never appear before a doctor with same type of symptoms. Considering the season, time of the day, common krait-prone area if the patient can be treated immediately after fixing the bite of the snake, he/she can be saved. Here treatment means application of right amount of anti-venom in right time.

In case of Russell's viper the wound, the symptoms can largely be identified by WBCT. So in this case if right amount of anti-venom could be started then not only death but failure of kidney could be defied too. Else because of kidney failure the patient may survive with prolonged treatment, but the burden of ill health remains with him/her for life and prevent him/her from living a fit normal active life.

From personal experience as a doctor it can be said that the reasons of death of a snakebite patient are – delay in reaching hospital, delay in applying anti-venom for many reasons, inability to apply right amount of anti-venom in right time, wasting time in transferring the patient to distant hospitals for better treatment and the thought of the necessity of dialysis or ventilation if needed remaining with the doctor always etc.

Proper Application of AVS

Snakebite Patient	Quantity of AVS
Below 10 years	19
10-14	55
15-19	24
20-24	24
25-29	13
30-34	15
35-39	4
40-44	6
45-49	1
Above 50	3
Total	164

Note: Up to 14 vials of AVS are used for 45.12 percent patients.

Source: Register of Snakebites patient: Canning Subdivision Hospital



A Medical board on the Common krait issue has been formed

From the left: Dr. Ujjal Haldar, Dr. Amitava Pyne, Dr. Pranab Mondal.

Far right: Dr. Indranil Sarkar, Super, Canning Subdivision Hospital, 2014

Snakebites and Its Consequences

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Preface

In the third world underdeveloped countries incidences of snakebite cases are still huge and it is creating a very complicated medical and social problem specially in the rural areas. It is an embarrassment to this civilized world. For this very reason WHO has declares it as a 'neglected area of public health'.¹ Generally the incidences are much more in the rural tropics where transport and communication system is very poor as it creates an emergency medical condition. The victims are usually rural poor day-labourer or agricultural labourers residing in dilapidated mud houses, somehow manage their bare existence in the remote areas and maintaining an unhealthy low quality of life. It is a fact that we spend a huge sum of money to save a moribund cancer patient, whereas a toddler otherwise healthy succumbs to death at the morning, unknowing without getting any opportunity to protect himself or herself while in deep sleep, receiving a bite of Common krait (*Cerrulus Bungarus*) at the dead of night. And this incidences happened in huge quantities throughout rural India specially in rural West Bengal. There are several reasons for this malady. The most important part is the problem of poverty of people complicated with transportation problem from the remote village to the snakebite treatment centre where adequate amount of AVS (antivenom serum) is available.

the life of the patient. Besides we take care of the local wound surrounding the bite but there may be other general physical symptoms like vertigo, vomiting, nausea, severe body ache etc. for which the patient requires some medicine also. At the time of discharge of the patient we advise them to be careful for any allergic reactions and some symptoms regarding Pituitary insufficiency i.e. a notorious complicated endocrinal problem that may occur due to Viper bites. Beside that there e may be bleeding from other sites of the body.

Lethal Dose

The Lethal dose of any poison transferred by snakebite is determined by the amount of venom necessary to kill a mouse. For human being it is LD₅₀. There is tremendous debate among the scientists (White, Bush, 1987) whether it is possible to determine the lethal dose by using a mouse as an indicator for human being. As human being is a very complicated animal, it is not possible to estimate the damage that snake venom could do to our metabolism based on the experiment on mice. Doctors at Canning Hospital also confirms this points from a number of case studies.

Conclusion

Dr. Hati first did a survey regarding snakebites in West Bengal in the year 1992 in the Burdwan district.⁷ After that the next survey work was started by the members of the *Canning Juktibadi Sanaskritik Sanastha* in the year 2007 in two phases in the 18 blocks of 24-Parganas district. This is not only a survey but it has a multipurpose objectives apart from the survey. All sorts of publicity and propaganda for awareness of snakebite treatment has been done. In this programme we freely interacted with the villagers and resourceful persons in all the blocks of 24 Parganas which was partially funded by the Government of West Bengal, Department of Health and Family Welfare in their NRHM scheme. Actually we are working in this area for the last thirty years. Today we are successful to a great extent to make this a priority for the training of the physicians and other non-medical staffs. Gradually the physicians working in the remote rural health centres are aware of their responsibilities regarding snakebite management. They are showing much more interest, courage and confidence in tackling the problems created at snakebite management. We expect in future the condition would improve further.

We hope the readers will judge the strength of these book. Dr. Majumdar and his co-researchers prepared an article and published it⁹ in a journal that is available in the internet. This article is based on the data of survey done by JSSC workers with the help of NRHM funding of Government of West Bengal, Department of Health and Family Welfare⁸. Government of West Bengal from its 'Disaster Management Department' published a small article in its pamphlet¹⁰ that is useful. However we do not know who would be the target readers of this book but we expect physicians, paramedical staffs and those who are related to snakebite management of various health agencies would be interested to enquire about these writings along with researchers in this field and all educated non-specialists who have some interest regarding this matter.

References

1. Snakebite-Wikipedia, the free encyclopedia
en.m.wikipedia.org/wiki/Snakebite also from:
http://www.who.int/neglected_diseases/en
2. *Harrison's Principles of Internal Medicine*, Vol. II, 18th edition, 2014
3. Snakes don't scare residents in seven villages of West Bengal - Oneindia <http://www.oneindia.com/2008/09/17>
4. The RIGHT Way to Deal with Snakebites- Ask Dr. Simpson,
www.medindia.net/Feb14,2008 also from Snakebite management in India, the first few hours: A guide for primary care physicians. J Indian Med Assoc 2007;105:324,326
5. The National Medical Journal of India, Vol. 25, No. 3, 2012
6. *Principles and Practice of Davidson's Medicine*, 19th Edition, 2002
7. Hati AK, Mandal M, De MK, Mukherjee H, Hati RN. Epidemiology of snakebite in the district of Burdwan, West Bengal. J Indian Med Assoc 1992; 90:145-7
8. Government of West Bengal, Department of Health and Family Welfare, Swasthya Bhavan
9. *Epidemiological profile of snakebite in South 24 Parganas* by D. Majumdar et.al.-2014 www.ncbi.nlm.nih.gov/pubmed/24748352, Indian Journal of Public Health, Volume 58, Issue 1, January-March, 2014
10. Government of West Bengal, Disaster Management (Training Module of the Medical Officers), CMOH South 24 Parganas, 2014

Appendix 1

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Appendix 2

Some Other Activities of JSSC

It is true that *Juktibadi Sanaskritik Sanstha, Canning* has concentrated more on snake, snakebites and its Treatment but besides this, making provision for health services in the remote areas of Sundarban, arrangement of roving Science Fair for the mass, 10 km Walk on the 15th August, two Workshops in a year, imparting education from class one to class eight in the villages, making Self-help Group for the women and encouragement in games and sports, assistance through phone or Help line in the case of snakebite, rescue of injured or trapped snakes are some of their regular activities.

Helpline For Snakebites: This important job began in 2009. It was not pre-planned but in response to the direct demand of the rural people, this activity started. Be it day or night, we attend Phone calls of snake bitten cases from different parts of West Bengal. This 24 hours service is being provided by JSSC without any remuneration.



No more deaths by snakebites - Road Show at Alipurduar in 2012

Ashok Bandyopadhyay Memorial Coaching Centre: Coaching is provided here from class 1 to VIII free of cost. 50 students, apart from education, take part in songs, road shows, mime, campaigning about snakes etc. With the aid of some benevolent persons, this coaching centre is running in the remote village of Biswanath Bhattacharjee Dighir Paar Agricultural Centre. In every month Health Examination is done and medicines are given accordingly. Courtesy: Canning S. D. Hospital.



Reba Sen Memorial Children Library: This was established in 2014 for the rural students. This library is being run by the donation of some eminent persons.



*Dr. Gaurab Roy with the microphone at Reba Sen Memorial Children Library
From right: Bimal Roy, Dr. Dilip K. Som, Pradip K. Mitra (ex-director, Akashbani,
Kolkata),
Tapan K. Roy (Principal), Dr. Chandranath Das Gupta.
On the back: Sanjay Banerjee (Shiliguri), 2 Dighir Paar, 2014*

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General References

1. Epidemiological profile of snakebite in south 24 Parganas district of West Bengal with focus on underreporting of snakebite deaths.
- *Indian J Public Health*: 2014 Jan-Mar; 58(1):17-21, Dayalbandhu Majumder, Abhik Sinha, Salil Kumar Bhattacharya, Rama Ram, Urmila Dasgupta, A Ram
2. Warrell D. A.: *Snakebite*. *Lancet* 2010; 375: 77–88
3. Warrell D A: *Clinical management of snakebite in southeast Asian region*. *SE Asian Journal of Tropical Medicine and public health*. 1999;30:1-84
4. Government of India: Central Bureau of Health Intelligence. *Health Status Indicators, National Health Profile 2007 and 2008 (Provisional): 3.1.2.9 State/UT wise Cases and Deaths Due to Snakebite in India*. 107–8
5. Mahapatra et al: *Snakebite Mortality in India: A Nationally Representative Mortality Survey*, *PloS, Neglected Tropical Diseases*. April 2011.
6. Hati A. K., Mandal M, De M. K., Mukherjee H, Hati R. N.: *Epidemiology of snakebite in the district of Burdwan, West Bengal*. *J Indian Med Assoc* 1992; 90(6):145-147
7. World Health Organization (South East Asia Regional countries), New Delhi office publication (*Guideline for Snakebite management*), 2010, Page: 89
8. www.whoindia.org/LinkFiles/Chemical_Safety_Snakebite_Protocols_2007.pdf
9. www.indiansnakes.org/snakes-checklist
10. www.who.int/neglected_diseases/en
11. www.jss-canning.org

Contact us

Please call us or email us to know more about our organization and our activities.

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Snakebite Helpline

Please contact us regarding any snakebite victim at:
963-599-5476 and 973-382-2825