INDIAN SOCIETY OF ONCOLOGY

E-NEWSLETTER AUGUST, 2022

In This Issue

INDIAN SOCIETY OF ONCOLOGY

Welcome ISO Members

Know your President

Dr. Ramesh S. Bilimagga
President – Indian Society of Oncology

Dr. Ramesh S Bilimagga the current president of our association assumed the office of ISO in the Mid-term conference held in Lucknow April 2022. He will be in the office till next year November when ICC is going to be held at Mumbai.

Our president is from rural background, Somwarpet-Kodagu District, which is very picturesque country side known for its natural beauty. He pursued his studies in Bangalore Medical College in 1966-1973. He joined Kidwai Memorial Institute of Oncology as Registrar in Radiology in 1975. Hence he did his masters degree in Radiotherapy (MDRT) and diploma in radio-diagnosis (DMRT) separately from Bangalore Medical College and Diploma in Radiation Medicine (DRM) from Radiation Centre in Mumbai in 1977. He continued in the Karnataka State Government service till 1989 and took voluntary retirement.

Thereafter along with few of his colleagues started a private venture in oncology, which was unique at that time, a private comprehensive cancer centre called Bangalore Institute of Oncology in 1990. Which institute grew leaps and bounds and spread throughout India, now having 26 centres catering to the oncology services in tier I & tier II cities. During his tenure as a president of IMA-Karnataka State branch he worked in anti-quackery moment and enables himself by acquiring Diploma in medical law and ethics from reputed National Law School in Bangalore in 2000.

His passion towards leadership in various associations is noteworthy; he served as chairman of Indian college of radiation oncology, President of Association of Radiation Oncology of India, and Vice-President of Federation of Asian Radiation Oncologists. He was also president of Brachytherapy Society of India and currently he is president Indian Association of Hyperthermic Oncology and Medicine (IAHOM), and also Indian Society of Oncology (ISO). Academically he worked as professor and HOD at MS Ramaiah Medical College and he is teacher for DNB students and he was a PhD guide.

He has completed Degree program in Artificial Intelligence from Great Lakes-Texas. Now pursuing his MBA last semester in Hospital Administration and Hospital Management at D Y Patil University-Pune.

He has passion towards trekking, shuttlecock, table tennis and golf. He promotes organ donations and girl child welfare in the society. He is a stanch Rotarian, served at President of Rotary city centre Bangalore. At present he is keenly engaged in mentoring junior radiation oncologists. He is President of Foundation for Sustainable Health India (FSHI), leading the anti-tobacco movement.
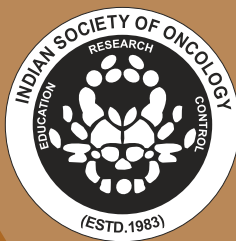
INDIAN SOCIETY OF ONCOLOGY

Welcome ISO Members

Message from Secretary

Dr. Arvind Krishnamurthy
Secretary – Indian Society of Oncology

Dear Members and Colleagues,

I welcome you all to yet another exciting new phase of the Indian Society of Oncology. (ISO) The ISO has come a long way since its formation in 1983. The ISO is in fact credited to being the first, largest and a hugely vibrant multi-disciplinary oncology society in India. I would like to acknowledge the contributions of the Past Presidents, the member of the Executive committees and other members to the continuing growth of our Society.

After a successful 3rd Mid-Term conference of ISO 2022 at Lucknow, we are now looking forward to ISMPO ISOCON 2022, the joint meeting of the Indian Society of Oncology (ISO) and the Indian Society of Medical and Pediatric Oncology (ISMPO) in Chennai from the October 28th to 30th 2022.

The entire Oncology Community of the nation has been patiently waiting for the 3rd Indian Cancer Congress, which has now been rescheduled (in view of the COVID -19 pandemic) to November 2023 at Mumbai.

With the assistance and support of the new Executive Committee and all its members, I have no doubt that the ISO will continue to grow from strength to strength towards achieving its larger vision and mission.

INDIAN SOCIETY OF ONCOLOGY

Welcome ISO Members

Welcome Editorial

Dr. Sumant Gupta, Delhi
Editor – ISO Newsletter

Dear Members,

It is a pleasure to present the quarterly Newsletter of Indian Society of Oncology for the Third Quarter of 2022. It has been trying times for all of us as the world comes out of the global Pandemic and slowly resumes to normalcy with the new normal. We left behind tragic times where we lost two office bearers, our Secretary Dr. Dhairyasheel Savant and Executive Committee Member Dr. G S Bhattacharya.

After long we had the Mid-term ISO our first physical conference at Lucknow, which was a huge success and our new President and Secretary took charge of office for their term.

We have also tried to enhance the reading experience of our members by inviting guest articles from members. We hope that we will get more and more articles grom our ISO family!

I am also thankful to my Editorial Board comprising of esteemed colleagues from diverse disciplines, Dr. Richa Chauhan, an eminent radiation oncologist, Dr. Tanveer Abdul Majeed, a popular surgical oncologist and Dr. Damodar Gupta, Radiation Biology Safety Expert.

So Happy Reading to All and Waiting to Welcome you all to the ISO-ISMPO Conference in Chennai .

Editorial Board
Editor
Dr. Sumant Gupta

Member

Dr. Richa Chauhan   Dr. Tanveer A. Majeed   Dr. Damodar Gupta

INDIAN SOCIETY OF ONCOLOGY

OFFICE BEARERS - ISO

Meet our new office Bearers
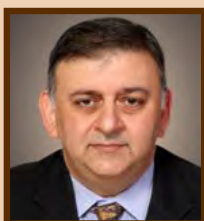
Dr. Ramesh S. Bilimagga
President

Dr. Arvind Krishnamurthy
Secretary

Dr. Sumant Gupta
Joint Secretary

Dr. Tanveer Majeed
Hon. Treasurer

Dr. Sanjeev Mishra
Immediate Past President

Dr. Rajendra Toprani
President (Elect.)

Executive Committee Member

Dr. Hemant Malhotra
Jaipur

Dr. Narayanankutty Warrier
Calicut

Dr. Richa Chauhan
Patna

Dr. M Vijaya Kumar
Mangalore

Dr. Kaustav Talapatra
Mumbai

Dr. Damodar Gupta
Delhi

INDIAN SOCIETY OF ONCOLOGY

Lens of a oncologist !!

Dr. Subhash Ranjan

FRCP(Edinburgh), FICP,

Senior Consultant Medical oncology , Mumbai

An alumnus from the GSVM Med College, Kanpur and Veteran Medical oncologist with Indian Navy for 3 decades.

Served on warship INS Majar & at INHS Asvini Navy Command Hospital, Army Hospital (R&R), Command Hospital (Eastern Command) and INHS Kalyani, Vizag. Had been part of Kargil War "Operation Vijay"

Hobbies: Nature & Wildlife, Photography and Aviation (Aircraft Flying)

Oncology & Artificial Intelligence

Dr. Kundan S. Chufal*

Dr Irfan Ahmad**

* Senior Consultant and Chief of Breast &
Thoracic Radiation Oncology Services

** Consultant, Breast & Thoracic Radiation Oncology Services

Department of Radiation Oncology,

Rajiv Gandhi Cancer Institute & Research Centre Rohini, New Delhi, India

Why should oncologists be AI literate?
What is Artificial Intelligence (AI)

We, as oncologists, invariably face many challenging scenarios every day. Whether the challenge is a process-driven or clinical scenario, they result in a delay in decision-making. Artificial intelligence (AI) can address many of these issues elegantly in the same way it does in many other sectors.

AI is a broad term that encompasses Data Science, Machine Learning (ML), and Deep Learning (DL). Before understanding AI, it is important to highlight what it is NOT. There are many rule-based complex computer programming algorithms which help in automating many of our routine tasks. These rules are predefined, and actions are sorted as per the rules. These rule-based algorithms are NOT AI; they are decision trees (as seen in treatment guidelines).

True AI is when these algorithms learn rules by themselves with the help of historical data (Figure 1), and when presented with new information, they predict the answers based on the learned rules(1).
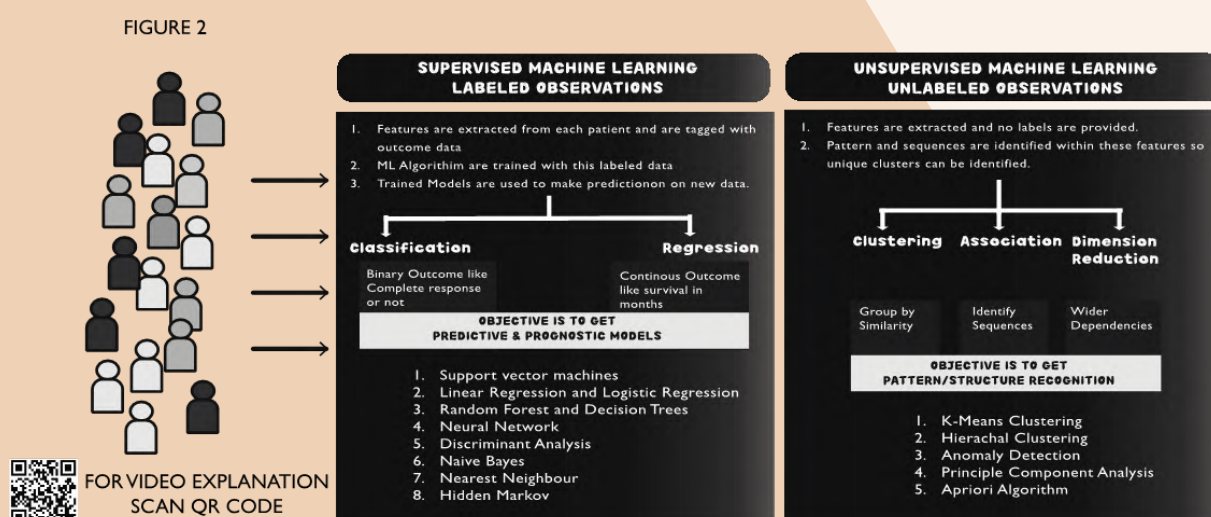
FIGURE I

FOR VIDEO EXPLANATION
SCAN QR CODE
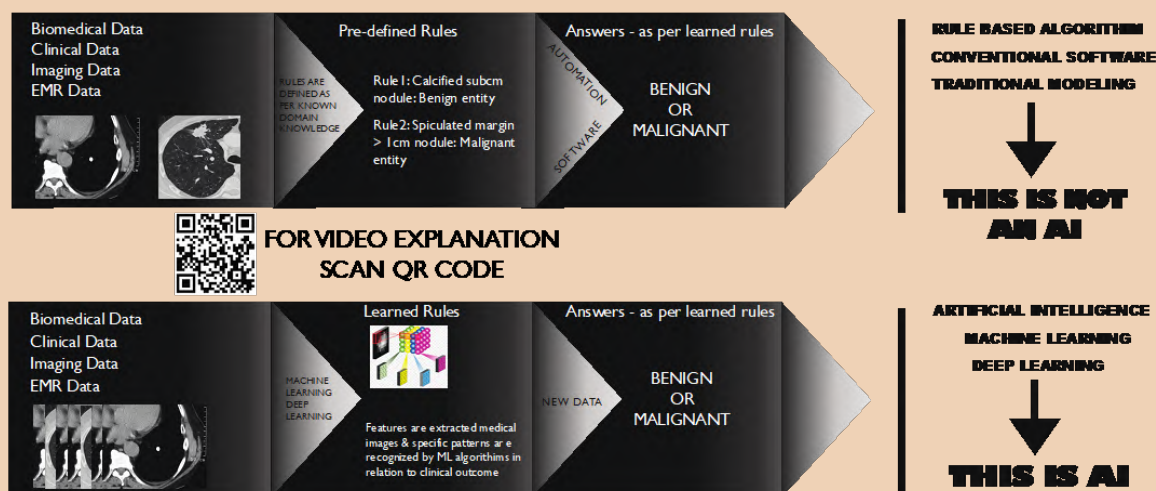
Oncology & Artificial Intelligence

Healthcare Data

To make AI algorithms learn, we must train them. And for training, we need data, a LOT of data. This data needs to be clean & pre-processed, in neat columns and rows, making it easier for these algorithms to ingest. This is a challenge, as most data from the health care sector is chaotic and noisy. All AI algorithms are useless if we cannot provide clean data, and as a first step, we clinicians need to adopt a system where we can digitise and store our data in a way which can be fed into the algorithm. This data should (ideally) be collected prospectively, along with our routine clinical work. There will be inertia initially (and if you have juniors working with you, perhaps resistance too!), but it quickly becomes a part of the usual routine once we get used to it and will yield future rewards.

The AI Techniques: ML, DL and Natural Language Processing (NLP)

FIGURE 2

ML comprises various data analysis algorithms that help extract valuable features from complex data and predict the outcome of interest. It can be divided into Unsupervised ML (UML) or Supervised ML (SML) (Figure 2). UML is usually used to extract features (clinical, imaging, genetic, along with many other features) without focusing on the outcome. The goal is to discover features which can divide the populations into unique clusters (unbiased by our clinical judgement) and could demonstrate a difference in clinical outcomes. Once we have these features, we use them to define a predictive and prognostic model for our outcome of interest by using SML methods(1).

NLP

ML algorithms can use imaging and genetic data with relative ease compared to clinical data. Although clinical data is human readable, it is tough for machines to comprehend it until we pre-process it manually. If we have a massive pile of clinical data, manual pre-processing becomes a herculean task, and it is often impossible to decipher helpful information. In this situation, NLP significantly extracts valuable information from the narrative text to assist clinical decision-making. For example, it can read Chest X-ray reports and alert us about antibiotic use (2) or could automatically alert us if there are some issues with laboratory results (3).

Oncology & Artificial Intelligence

Deep Learning: a more advanced ML technique

A neural network with a single layer of nodes (each node is a mathematical linear regression expression) to capture non-linear patterns in data is classically used as one of the SML methodologies. Deep learning is the broader and deeper extension of this classic neural network. In most cases, deep learning is used in conjunction with complex medical images with a vast amount of numerical data in each image. One commonly used algorithm in this context is Convolutional Neural Network (CNN).

Medical images are taken as input, and relevant, helpful information is extracted from those images. It is correlated with the clinical outcome of interest, and finally, we have a fully trained model which can predict the outcome based on medical images. This whole feature extraction process from medical images and model building is fully automated without human intervention. This is also one of the drawbacks, as this entire process works as a 'Blackbox', where we do not have any access to the logic of decision-making.

However, recent advances have somewhat weakened this criticism by plotting the weights of different layers of CNN into the image and thus highlighting the area most helpful in decision making. This allows us to understand and confirm the biological basis of decision-making. For example, in lung cancer, a pre-treatment CT scan can be used to predict the survival outcome (4, 5) and post-SBRT risk of relapse as well as radiation pneumonitis (6, 7).

AI: Clinical Application

The clinical application of these AI methodologies is vast and can be applied at any specific point in the cancer care continuum, from early detection to outcome prediction.

1. Early detection & diagnosis: In breast cancer (using a Mammogram) (8) and Lung cancer (using Low Dose Screening CT scan) (9), suspicious lesions are automatically annotated in the images and classified as malignant or benign so that further diagnostic interventions can be done.

2. Treatment: Clinical decision-making is a field that is being studied extensively. We do not have any reliable model that can replace an experienced clinician in making treatment decisions today. Frankly speaking, we may never have this kind of scenario in the future either. However, we can aim to build AI models that can assist clinicians in their decision-making to smoothen the clinical workflow and thus improve the patient's clinical outcome. Along similar lines, we are developing a CNN model based on Chest X-Ray images (Figure 3A) to predict the suitability of left-sided breast cancer patients who require adjuvant RT for cardiac sparing (using Deep Inspiration Breath Hold) techniques(10).

3. Outcome prediction and prognosis evaluation: This field is being extensively used. Classifying Breast cancer or Lung cancer based on relevant medical images into the distinct molecular group is one part of it and predicting pathological response to neoadjuvant treatment strategies is another part (4, 5). Our group is working on a project where we aim to predict a complete pathological response after surgery in patients with oesophageal cancer (Figure 3B) undergoing neoadjuvant concurrent chemo-radiotherapy (11).

## Oncology & Artificial Intelligence
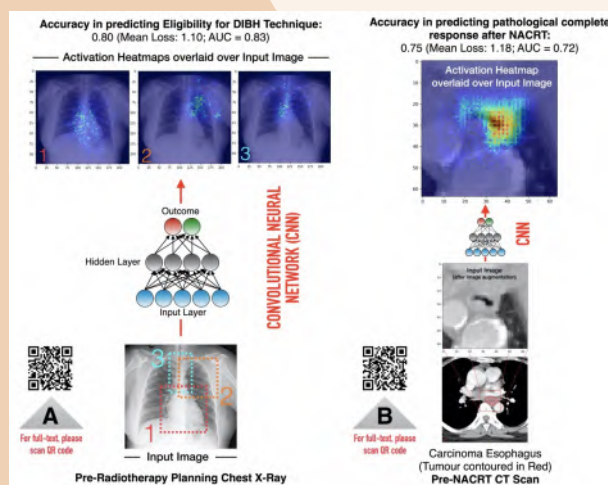
Summary

The application of Artificial Intelligence in all oncological specialities across every aspect of the cancer care continuum is the future and cannot be ignored. However, to harness its true potential, we need to understand its capabilities as well as its limitations and must prepare to be AI-ready by adopting modern clinical data recording practices. The promise of AI will be delivered when we have models customised to our needs, assisting us in caring for our patients.

References:

1. Jiang F, Jiang Y, Zhi H, Dong Y, Li H, Ma S, et al. Artificial intelligence in healthcare: past, present and future. Stroke Vasc Neurol. 2017;2(4):230-43.

2. Fiszman M, Chapman WW, Aronsky D, Evans RS, Haug PJ. Automatic detection of acute bacterial pneumonia from chest X-ray reports. J Am Med Inform Assoc. 2000;7(6):593-604.

3. Miller TP, Li Y, Getz KD, Dudley J, Burrows E, Pennington J, et al. Using electronic medical record data to report laboratory adverse events. Br J Haematol. 2017;177(2):283-6.

4. Aerts HJ, Velazquez ER, Leijenaar RT, Parmar C, Grossmann P, Carvalho S, et al. Decoding tumour phenotype by noninvasive imaging using a quantitative radiomics approach. Nat Commun. 2014;5:4006.

5. Hosny A, Parmar C, Coroller TP, Grossmann P, Zeleznik R, Kumar A, et al. Deep learning for lung cancer prognostication: A retrospective multi-cohort radiomics study. PLoS Med. 2018;15(11):e1002711.

6. Baek S, He Y, Allen BG, Buatti JM, Smith BJ, Tong L, et al. Deep segmentation networks predict survival of non-small cell lung cancer. Sci Rep. 2019;9(1):17286.

7. Adachi T, Nakamura M, Shintani T, Mitsuyoshi T, Kakino R, Ogata T, et al. Multi-institutional dose-segmented dosiomic analysis for predicting radiation pneumonitis after lung stereotactic body radiation therapy. Med Phys. 2021;48(4):1781-91.

8. Mao N, Yin P, Wang Q, Liu M, Dong J, Zhang X, et al. Added Value of Radiomics on Mammography for Breast Cancer Diagnosis: A Feasibility Study. J Am Coll Radiol. 2018.

9. Binczyk F, Prazuch W, Bozek P, Polanska J. Radiomics and artificial intelligence in lung cancer screening. Transl Lung Cancer Res. 2021;10(2):1186-99.

10. Chufal KS, Ahmad I, Sharief MI, Dwivedi A, Bajpai R, Miller AA, et al. Convolutional Neural Network to predict Deep Inspiration Breath Hold eligibility using Chest X-Ray. Radiotherapy & Oncology. 2021;161:S560-S1.

11. Chufal KS, Ahmad I, Dwivedi A, Bajpai R, Miller AA, Chowdhary RL, et al. Deep learning using Pre-NACRT imaging can predict pathological response in esophageal cancer. Radiotherapy & Oncology. 2021;161:S1530 - S1.
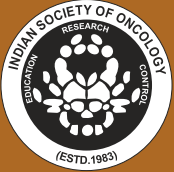
INDIAN SOCIETY OF ONCOLOGY

ISO Orations (3rd Mid-Term Conference ISO 2022, Lucknow)

Sir Dorabji Tata Oration 2022
Topic: Changing trends in the management of cancer In India- A Surgical oncologist perspective
Orator: Dr. M Vijayakumar, Mangalore

ISO Past President Oration
Topic: Learnings from Four Decades of, My Experiments with Cancer
Orator: Dr. Dinesh Pendharkar, Delhi

INDIAN SOCIETY OF ONCOLOGY

Winners - 3rd Mid-Term Conference ISO 2022, Lucknow

1st Rank - Dr. Fatima Khan
Title : BRCA1 Promoter methylation and its immunohistochemical co-relation in sporadic breast cancer of females-observations from a tertiary care centre of Northern India
Institute: King George Medical University, Lucknow

2nd Rank - Dr. Raunaq Puri
Title : Impact of induction chemotherapy antecedent to long course neoadjuvant concurrent chemo-radiotherapy on clinical outcomes of patients with carcinoma rectum: Retrospective audit from a tertiary cancer center
Institute: Dr Ram Manohar Lohia Institute of Medical Sciences, Lucknow

3rd Rank - Dr. Damini Singh
Title : Study of Aberrant DNA methylation of the transcription factors in AML and MDS
Institute: King George Medical University, Lucknow

INDIAN SOCIETY OF ONCOLOGY

Highlights of 3rd Mid-Term Conference ISO 2022, Lucknow

More then **300+** Delegates has participated in The Conference

Now the
Indian Society of Oncology (ISO)
as a full member of the
Union for International Cancer Control (UICC)

uicc
global cancer control

Proud member

Dear Arvind Krishnamurthy,

It is my pleasure to welcome **Indian Society of Oncology** as a member of the Union for International Cancer Control (UICC). Thank you very much for joining our community.

By uniting over 1,200 members from more than 173 countries, UICC has consolidated its position as the world's leading international cancer organisation. Our activities are shaped by the World Cancer Declaration which sets out a framework to help reduce the global cancer burden by 2025, including through the adoption of the 2017 Cancer Resolution. UICC is committed to supporting the achievement of these goals by:

Uniting and supporting the cancer community – Through our convening activities, such as the World Cancer Congress (Geneva, Switzerland in October 2022), the World Cancer Leaders' Summit, which took place virtually in October 2021, as well as World Cancer Day (4 February). As a member, you are entitled to discounts and additional networking opportunities at our events. The World Cancer Leaders' Summit 2021 Report can also provide you with further information.

Coordinating capacity building projects – When there is a need for developing capacity building for cancer professionals, UICC is committed to stepping up and to working with multisectoral partners in order to create those opportunities. As the world continues dealing with the pandemic, we have to keep exploring and providing new ways to connect with and learn from each other. I invite you to explore our Virtual Dialogues, apply for a Fellowship, or access our Online Learning.

Ensuring that cancer control continues to be a priority in the world health and development agenda – Through our advocacy efforts, we encourage global leaders to make the strongest possible commitments for health and to secure the inclusion of cancer and other non-communicable diseases within these agreements. Working with members in-country, we hold governments and other stakeholders accountable to drive action on cancer control. Most recently, the team has expanded UICC's thematic areas of work addressing Antimicrobial Resistance and Tobacco Control.

As a UICC member, you will be kept informed of all our activities through our newsletters, regular updates on our website, as well as by means of our social platforms. I also encourage you to engage your colleagues to participate in UICC activities to extend our opportunities within your organisation.

UICC would like to hear more about your organisation and about your ideas on how to work together more closely as to make your membership the most valuable; therefore, you are encouraged to write to the Membership Team at any time.
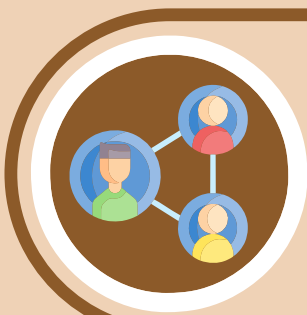
Thank you for your commitment to us and the global fight against cancer.

Yours sincerely,

Dr Cary Adams
Chief Executive Officer
Union for International Cancer Control (UICC)

INDIAN SOCIETY OF ONCOLOGY

MEMBERS, LET'S CONNECT

HAVE YOU UPDATED YOUR MEMBERSHIP INFORMATION?
PLEASE VISIT THE LINK AND FILL UP THE FROM SO THAT
WE CAN ALL KNOW ABOUT YOUR UPDATED INFORMATION

EMAIL AT: HONSECRETARYISO@GMAIL.COM

DO YOU WISH TO SEND WRITE - UPS,
ARTICLES AND PHOTOGRAPHS
FOR NEWSLETTER? YOU CAN SHARE
YOUR WRITE-UPS, IDEAS AND
PHOTOGRAPH OF EVENTS BY SENDING

EMAIL AT: HONSECRETARYISO@GMAIL.COM

Know more details visit our website
www.indiansocietyofoncology.com

Contact Us

Dr. Arvind Krishnamurthy
Honorary Secretary
Email: drarvindkrishnamurthy@yahoo.co.in
Email: honsecretaryiso@gmail.com
Website: www.indiansocietyofoncology.com

Conference Managed by:

MICE IDEAS
Meetings·Incentives·Conferences·Exhibitions

12 years of Excellence

Rajesh Sharma
M: 9374073512
E: rajesh@miceideas.in

Leader in Physical, Hybrid & Virtual Conferences