

Title:

Standardization of protocol for various cancers in resource-constrained settings

Full Name:

Himaprathyusha Parupalli

Name of the Institution:

MNJIORCC Osmania Medical College

State:

Telangana

Objective of your solution: (Briefly define the primary outcome of your solution to this challenge):

- **Dual-Track Oncology Care Model: A Standardized Framework for Aligning Curative and Palliative Treatment Pathways in Resource-Constrained Settings.**

To establish a scalable, protocol-driven oncology care framework that standardizes treatment intent (curative vs palliative), integrates it into MDT workflows, and ensures consistent communication with patients and caregivers. This model aims to reduce treatment default, avoid non-beneficial escalation of therapy, improve adherence, and optimize utilization of limited healthcare resources in high-volume centres.

Describe your solution / proposal: Provide a detailed account of your solution/ proposal to this challenge. You could type your solution/ proposal here. (Disclaimer: Solution/proposal should not exceed more than 300 words.):

In high-volume oncology centres, a large proportion of patients present with advanced disease. Despite repeated counselling, there is often a mismatch between clinical intent and patient expectations, leading to treatment default, repeated consultations, unnecessary admissions, and inappropriate escalation of therapies.

This proposal introduces a Dual-Track Oncology Care Model:

1. Curative Track: Protocol-driven treatment with defined milestones and periodic reassessment
2. Disease-Control / Palliative Track: Symptom-focused care prioritizing quality of life

At the initial MDT discussion, all patients are mandatorily classified into a treatment intent category. This is documented and communicated using a standardized Goal-of-Care sheet, outlining intent, expected outcomes, and limitations.

A trigger-based transition system ensures reassessment in cases of disease progression, poor response, decline in performance status, or repeated hospitalizations.

Standardized communication templates ensure uniform counselling across clinicians.

Example: A relapsed leukemia patient is transitioned early to the palliative track with clear expectations, preventing repeated ICU admissions and non-beneficial chemotherapy.

This model improves clarity, aligns expectations, reduces unnecessary interventions, and enhances efficiency in resource-limited oncology settings.

Full Name:

Foram Joshi

Name of the Institution:

Kidwai Memorial Institute of Oncology, Bengaluru

State:

Karnataka

Objective of your solution: (Briefly define the primary outcome of your solution to this challenge):

It is crucial to develop and implement structured, standardized protocols (SOPs) for cancer management to ensure consistent, efficient, and high-quality patient care in resource-limited settings. The objective is to promote regular protocol revision based on real-world institutional data, optimize the utilization of available resources, and integrate artificial intelligence for data management and clinical decision-making.

Describe your solution / proposal: Provide a detailed account of your solution/ proposal to this challenge. You could type your solution/ proposal here. (Disclaimer: Solution/proposal should not exceed more than 300 words):

It is essential for every cancer center to develop structured and standardized protocols (SOPs) for each malignancy to ensure efficient, consistent, and high-quality patient care. However, the mere existence of SOPs is not sufficient; regular revision and timely amendments are equally important. These updates should be guided not only by evolving global evidence but also by real-world institutional data, including patient outcomes, adverse events, and resource utilization.

Resource limited centers face significant challenges, including limitations in funding, workforce, medication availability, digital infrastructure, and data management. Therefore, strict adherence to international guidelines may not always be feasible. Instead, such centres must adopt an institutional approach focused on optimal utilization of available resources while continuously learning from institutional experiences and outcomes.

A multidisciplinary approach is crucial for successful implementation. Active participation from physicians, nurses, pharmacists, and administrative staff ensures that SOPs remain practical, adaptable, and patient-centered. Regular SOP review meetings, ideally conducted biannually, should involve all stakeholders to promote continuous quality improvement.

It is also essential to include structured data presentations during these biannual meetings. These presentations should systematically highlight existing challenges, treatment outcomes, resource utilization, and gaps in patient care. This approach enables informed and evidence-based discussions among departments. The meetings should focus not only on identifying problems but also on developing practical solutions tailored to the institution's available resources and encouraging collaborative ideas to overcome limitations through a team-based approach.

Additionally, awareness regarding external resources such as NGO funding, patient assistance programs, and government healthcare schemes is vital. Hospitals should also participate in community outreach programs to increase awareness about cancer care costs and encourage societal participation in resource mobilization. Furthermore, promoting clinical trial enrollment and encouraging the judicious use of cost-effective alternatives such as biosimilars can improve access to quality cancer care. Ultimately, integration of data-driven decision-making and AI-supported systems holds the key to delivering equitable and high-quality oncology care in resource-constrained settings.

The integration of artificial intelligence (AI) can play a transformative role in this setting. AI can assist in protocol development, streamline data entry, enable efficient digitalization of hospital records, and support real-time tracking of treatment outcomes, adverse events, and follow-up data. Access to longitudinal patient data can further help refine SOPs by incorporating patient-specific variables such as age, comorbidities, and financial constraints.

In our institution's Bone Marrow Transplant Center, we introduced a new concept of a quality-check SOP questionnaire aimed at achieving operational excellence. We developed a quick questionnaire based on nine categories to rank a transplant center according to its functioning and quality standards. It is crucial that such quality-check rankings are assigned at regular intervals to ensure consistent and quality functioning of the center. In my view, incorporating similar quality assessment protocols in every department, with rankings performed by an independent third party, is essential to encourage standardized functioning, ensure adherence to institutional norms, and deliver high-quality patient care. These protocols should also be regularly modified according to institutional data, outcomes, and changing healthcare needs.

Full Name:

Senthamizhan.VS

Name of the Institution:

Regional Cancer Center (RCC), Trivandrum

State:

Kerala

Objective of your solution: (Briefly define the primary outcome of your solution to this challenge):

• **FIT-ONCO Model: Financial Toxicity–Integrated Tiered Oncology Protocol**

To develop a standardized, patient-centered oncology framework that integrates clinical benefit, financial toxicity, and healthcare resource availability in order to reduce treatment abandonment, improve treatment completion, and deliver feasible evidence-based cancer care in resource-constrained settings.

Describe your solution / proposal: Provide a detailed account of your solution/ proposal to this challenge. You could type your solution/ proposal here. (Disclaimer: Solution/proposal should not exceed more than 300 words.):

A. Background

In low- and middle-income countries, many cancer patients discontinue treatment due to:

- High out-of-pocket expenses
- Limited access to specialized centers
- Toxicity-related hospitalization costs
- Travel and lodging burden
- Inability to sustain prolonged therapy

The FIT-ONCO Model addresses these barriers through structured treatment tiering and financial integration.

B. Model Structure

The protocol follows a stepwise workflow:

Patient Registration → Clinical Assessment → Financial Toxicity Assessment → Resource-Tier Assignment → Protocol Selection → MDT Review → Treatment & Follow-up Audit.

C. Key Components

1. Clinical Benefit Score

Patients are stratified based on:

- Treatment intent
- Survival benefit
- Level of evidence
- ECOG performance status
- Disease biology

2. Financial Toxicity (FIT) Score

Financial risk is assessed using:

- Family income
- Insurance status
- Out-of-pocket treatment cost
- Travel burden
- Caregiver support
- Work loss risk
- Baseline debt

3. Resource-Tier Classification

Healthcare centers are categorized into:

- Tier 1: Apex oncology centers
- Tier 2: Regional cancer centers
- Tier 3: Peripheral/basic oncology units

D. Treatment Tiering

Each cancer protocol is divided into:

- Gold Protocol: Full guideline-standard therapy
- Silver Protocol: Evidence-based cost-modified therapy
- Bronze Protocol: Essential feasible treatment

This allows delivery of practical oncology care without compromising patient dignity or treatment intent.

E. Additional Features

- Multidisciplinary tumor board integration
- Financial counselling and navigation pathways
- Generic/biosimilar optimization
- Referral linkage systems
- Monthly toxicity and financial distress review

F. Expected Outcomes

The model aims to improve:

- Treatment completion rates
- Time to treatment initiation
- Quality of life
- Cost-effectiveness
- Patient satisfaction
- Survival outcomes

Conclusion

The FIT-ONCO Model provides a scalable blueprint for equitable oncology care by ensuring that cancer treatment remains clinically effective, financially sustainable, and realistically deliverable in resource-limited healthcare systems.

Full Name:

Habeeb K A

Name of the Institution:

VPS Lakeshore Hospital, Kochi

State:

Kerala

Objective of your solution: (Briefly define the primary outcome of your solution to this challenge):

1. Ensure equitable, timely, and standardized cancer care in resource-constrained settings
2. Reduce diagnostic and treatment delays through fast, streamlined diagnostic pathways
3. Implement simple, uniform, evidence-based treatment protocols for consistent care delivery
4. Strengthen task-based workforce utilization to maintain efficiency despite limited specialists
5. Improve treatment completion rates and reduce dropouts through active tracking and patient support systems

Describe your solution / proposal: Provide a detailed account of your solution/ proposal to this challenge. You could type your solution/ proposal here. (Disclaimer: Solution/proposal should not exceed more than 300 words.):

Standardizing cancer treatment protocols in resource-constrained settings such as India is essential to ensure equitable, evidence-based, timely, and affordable cancer care despite limitations in infrastructure, manpower, and finances. The aim is not inferior care, but the best possible care within available resources, reducing delays, variability, and treatment abandonment. In low-resource systems, outcomes depend less on sophistication and more on simplicity, standardization, and continuity.

1. Make Diagnosis Fast and Reliable

Focus on high-burden cancers like breast, lung, and cervix. Use basic investigations such as ultrasound, X-ray, blood tests, and biopsy. Designate fixed biopsy days to avoid delays. Ensure same-day sample collection, proper labeling, and immediate dispatch to pathology. Reports should return within 5 working days. Maintain a patient tracking register to prevent loss to follow-up.

Goal: No patient should wait weeks for diagnosis.

2. Simple, Standard Treatment Protocols

After diagnosis, follow uniform protocols using affordable, effective first-line regimens. Develop one-page guides for clinicians.

Example: Breast cancer → Surgery → AC/Docetaxel chemotherapy (8 cycles) → Hormonal therapy when indicated.

Include clear dosing and toxicity management.

Goal: Every patient receives a clear, standard plan.

3. Task-Based Care Delivery

Nurses manage chemotherapy delivery and checklists, junior doctors follow protocols, and senior doctors handle key decisions. Train staff in safe administration and use standardized monitoring tools.

Goal: System functions even with limited specialists.

4. Ensure Completion & Reduce Dropouts

Track patients actively, address barriers like cost and travel, and provide counseling at each visit.

Goal: Start and complete treatment.

5. Build Alliances & Fix Systems

Partner with NGOs, oncology societies, and generic drug suppliers to ensure continuity and affordability.

Conclusion

The key gap is delay, inconsistency, and dropouts. Simple, timely, and complete treatment saves more lives than complex but inconsistent care.

Full Name:

Dr Mohamed Thanish

Name of the Institution:

Stanley Medical College, Chennai

State:

Tamil Nadu

Objective of your solution: (Briefly define the primary outcome of your solution to this challenge):

To build a practical, tiered cancer treatment protocol system for resource-limited settings in India, using existing national networks, team-based collaboration, and locally relevant clinical research to make evidence-based cancer care something that can actually be delivered consistently, not just recommended on paper.

Describe your solution / proposal: Provide a detailed account of your solution/ proposal to this challenge. You could type your solution/ proposal here. (Disclaimer: Solution/proposal should not exceed more than 300 words.):

The real problem in resource-limited oncology is not that we lack knowledge. We have guidelines. What we lack is a reliable way to actually deliver on them. Picking up an NCCN booklet and handing it to a district hospital doesn't fix anything if the drugs aren't there, the diagnostic equipment isn't working, or the specialist isn't available.

So the starting point has to be an honest ground-level assessment. Which cancers are we actually seeing? At what stage are patients arriving? How can we reliably diagnose and what can we reliably give? Protocols have to be built around that reality, not around what we wish the reality was.

From there, the approach should be adaptation rather than adoption. ESMO's Magnitude of Clinical Benefit Scale is a genuinely useful tool here because it forces us to ask whether a treatment is worth it relative to its cost and side effect burden, which is exactly the question resource-limited settings need to be asking. Protocols built in tiers, defining both a minimum standard and a better standard, give institutions a realistic path forward.

Within India, the National Cancer Grid and ICMR are the right anchors. The NCG already connects more than 300 institutions. The work now is making that membership mean something through protocol compliance and outcome tracking. Global bodies like UICC and ESMO can offer expertise and implementation support without us simply importing guidelines that were never designed for our context.

Research priorities need to shift toward trials that study treatments Indian patients actually receive, because borrowing conclusions from cohorts that look nothing like our patients is a habit we need to break. Finally, training the next generation of clinical trialists and budding oncology residents through structured fellowship programs in trial methodology, GCP training, and biostatistics embedded within oncology residency is the long-term investment that makes all of this sustainable.

Full Name:

Monish Balaji S

Name of the Institution:

Kilpauk Medical College, Chennai

State:

Tamil Nadu

Objective of your solution: (Briefly define the primary outcome of your solution to this challenge):

Standardization of oncology protocols in resource-constrained settings

Describe your solution / proposal: Provide a detailed account of your solution/ proposal to this challenge. You could type your solution/ proposal here. (Disclaimer: Solution/proposal should not exceed more than 300 words.):

Standardization of protocol for various cancers in resource-constrained settings

Standardizing cancer treatment protocols in low-resource environments requires balancing evidence-based oncology with feasibility, affordability, and system capacity while ensuring equitable access to care.

1. Steps and considerations for standardizing protocols:

Develop tiered treatment guidelines based on resource levels (basic, limited, enhanced, maximal) so that care adapts to infrastructure availability.

Prioritize high-impact, cost-effective interventions such as early detection, essential surgery, and generic chemotherapy regimens.

Use simplified diagnostic algorithms that rely on widely available tools like histopathology, basic imaging, and immunohistochemistry.

Create national cancer registries to understand local disease burden and tailor protocols accordingly.

Implement task-shifting models where trained non-specialists support oncology care delivery.

Ensure continuous guideline updating based on local outcomes and feasibility assessments.

2. Required alliances for guideline development and adaptation:

Collaboration with global bodies like World Health Organization and International Agency for Research on Cancer for evidence frameworks and population-level guidance.

Engagement with professional societies such as National Comprehensive Cancer Network for protocol adaptation and benchmarking.

Partnerships with regional cancer centers, academic hospitals, and local oncology associations to ensure contextual relevance.

Involvement of multidisciplinary experts including surgical, medical, and radiation oncologists, pharmacists, and pathologists for consensus building.

3. Solutions to encourage research and cost-effective innovation:

Establish public-private partnerships to fund low-cost diagnostic and therapeutic innovations.

Promote clinical trials focused on de-escalation strategies and biosimilar drug use.

Develop open-access oncology research databases to share real-world outcomes from low-resource settings.

Incentivize frugal innovation in diagnostics, such as portable imaging and AI-assisted pathology tools.

Strengthen government funding for implementation science research to optimize existing therapies rather than only developing new ones.

Full Name:

Jarfin I M

Name of the Institution:

Gleneagles Health City, Chennai

State:

Tamil Nadu

Objective of your solution: (Briefly define the primary outcome of your solution to this challenge):

To create practical, evidence-based cancer protocols that deliver fair, affordable and dignified care even when resources are limited.

Describe your solution / proposal: Provide a detailed account of your solution/ proposal to this challenge. You could type your solution/ proposal here. (Disclaimer: Solution/proposal should not exceed more than 300 words.):

The solution should begin with resource-stratified protocols: essential, optimal and optional. Every common cancer should have a simple pathway covering diagnosis, staging, surgery, chemotherapy, radiation, palliative care, referral triggers and follow-up. These should be adapted from National Cancer Grid guidelines, not copied blindly, because a district hospital and a tertiary cancer centre cannot function with the same assumptions.

In Tamil Nadu, this can be linked to district day-care chemotherapy centres, government medical colleges, CMCHIS coverage, and virtual tumour boards so that patients in smaller towns are not punished for their location. Complex cases should move through a hub-and-spoke model, while standard breast, cervix, head-neck, colorectal and lung protocols can be safely delivered closer to home.

Alliances are needed with the National Cancer Grid, ICMR, Tata Memorial-style academic groups, ESMO/ASCO for adaptation, state oncology societies, pathologists, radiation oncologists, surgeons, palliative-care teams and patient advocates. Protocols must include cost, toxicity, logistics and quality-of-life—not only survival curves.

Research should be encouraged through low-cost pragmatic trials, biosimilar studies, real-world registries, dose-optimization studies and outcome audits from government hospitals. Roche can contribute responsibly through education grants, molecular testing access, patient-support programs, registry support and transparent partnerships without influencing prescribing.

Standardization should not mean rigid treatment; it should mean that every poor patient receives thoughtful, evidence-based care with the same seriousness as a rich patient.

Full Name:

Dr. Chilamkurty Maitreyi

Name of the Institution:

Stanley Medical College

State:

Tamil Nadu

Objective of your solution: (Briefly define the primary outcome of your solution to this challenge):

Problem statement: Cancer care in resource constrained settings is fragmented, inconsistent and often dependent on local physician experience rather than standardized evidence-based pathways. This leads to delayed treatment, irrational investigations, avoidable toxicity, financial catastrophe and unequal survival outcomes. The challenge is to create practical affordable and adaptable cancer treatment protocols with global evidence to local realities without compromising essential quality.

Objective: To establish a Globally harmonized, resource stratified cancer care model that standardizes diagnosis, treatment, referral and supportive care while enabling innovation, research and equitable access across public and low resource healthcare systems.

Describe your solution / proposal: Provide a detailed account of your solution/ proposal to this challenge. You could type your solution/ proposal here. (Disclaimer: Solution/proposal should not exceed more than 300 words.):

CAN ACCESS -Standardized cancer care, Adapted for reality.

Cancer Adaptive Network for Accessible Standardized and Sustainable Solutions. It is a globally deployable oncology standardization framework that converts ideal cancer guidelines into resource adapted treatment pathways for low, middle and can be expandable to high income settings.

Work flow:

1. Tiered Care protocol: Instead of one gold standard only guideline can access creates 4 care tiers based on available diagnostics, medicines and infrastructure:

Tier 1: Essential/basic care

Tier 2: Limited resource optimized care

Tier 3: Enhanced resource care

Tier 4: Full comprehensive care

2. Global oncology alliance consortium-both international and national organizations.

International-WHO, ESMO, ASCO, NCCN, IARC, others.

National-National cancer grid of India, ISMPO, IOSICON, Other National societies, Government health ministries, regional cancer centres, academic institutions.

3. CAN DECIDE — MDT Micro-Board- A rapid digital tumour board where smaller hospitals, rural cancer centers and resource limited institutions to submit standardized patient case summaries through simplified case templates and receive evidence based multidisciplinary expert treatment recommendations within 24 hours, reducing delays, unnecessary referrals and treatment variability.

4. Cost first innovation lab-Encourages affordable research through: pragmatic clinical trials, biosimilar optimization studies, treatment de-escalation research, AI driven protocol redesign, real world evidence registries, local manufacturing partnerships.

5. Can score quality dashboard tracks-protocol adherence, time to treatment, avoidable referral delays, affordability index, survival outcomes.

Case solution: A 46-year-old female, rural area presents to a district hospital presented with a right breast lump, weight loss and back pain, diagnosed with HER 2 positive metastatic breast cancer. without CAN ACCESS: patient care delayed and inconsistent. The hospital has no standardized cancer protocol, PET CT is unavailable, Trastuzumab is unaffordable and no expert Tumour board is accessible. Referral to a tertiary cancer center takes 4-6 weeks during which her condition worsens, and her family faces severe financial distress.

With CAN ACCESS:-The hospital is identified as a Tier 2 resource constrained center, activating and adaptive evidence-based treatment protocol suited to available resources, Instead of Expensive ideal world requirements, CAN ACCESS recommends CT based Imaging, cost optimized treatment plan, bone supportive care and early palliative integration. Through CAN DECIDE, a digital expert tumour board, her case is reviewed within 12 hours by oncologists, confirming treatment with Taxane plus Biosimilar Trastuzumab and Zoledronic acid.

Outcome: Treatment begins within 5 days instead of 5 weeks, costs are significantly reduced, unnecessary referrals are avoided and patient receives standardized evidence-based cancer care close to home.

Full Name:

Anirudh

Name of the Institution:

SAIMS

State:

Madhya Pradesh

Objective of your solution: (Briefly define the primary outcome of your solution to this challenge):

Prime importance in current era , standardisation would bring to treatment, optimum therapy based on current diagnosis (use of IHC & Molecular methods) , priority to curative diseases , precision oncology , tissue agnostic therapies , therapy based on OFS/PFS & OS data (high value vs low value therapies). A well organised referral system and supportive care organisation would ensure follow-up and maintain dose intensity of therapy thus achieving maximum impact and helping fight cancer & its therapy-related morbidity.

Describe your solution / proposal: Provide a detailed account of your solution/ proposal to this challenge. You could type your solution/ proposal here. (Disclaimer: Solution/proposal should not exceed more than 300 words.):

Would like to first layout the framework:

1. Prioritise curative cancers
2. Adequate diagnostics
3. Stage wise treatment
4. Consider high value therapy
5. Avoid low value therapy
6. Ensure adequate standardised supportive care
7. Build referral's systems
8. Ensure audit systems

Key components:

First, I would like to set the intent for my therapy, secondly ensure provision for multi-disciplinary tour board discussion, thirdly make a list of eminent diagnostics (essential- CBC, LFT, RFT & Important - IHC, algorithmic based intervention, molecular- NGS) fourthly create with policy makers - awareness programmes, pharmaceutical giants Like Roche-Patient Assistance Programmes, encouragement for trial enrollment, in the final few aspects, I would like to ensure standardised Algorithmic, evidence backed therapies, care delivery pathway, involvement of stake holders in providing the best possible transition of care / referral. Also, amongst the nursing make drug delivery flawless by ensuring correct and optimum delivery. Also to make use of audits and promote auditing.

Full Name:

Sakthi Vignesh D

Name of the Institution:

Government Kilpauk Medical College (GKMC), Chennai

State:

Tamil Nadu

Objective of your solution: (Briefly define the primary outcome of your solution to this challenge):

The primary objective is to achieve maximal clinical output and treatment completion within resource-constrained settings by establishing cost-effective "minimum standards of care." This involves strategic drug rationing based on disease prevalence and available funds, prioritizing budget-conscious protocols, and minimizing wastage. The goal is to reduce the overall healthcare burden through rigorous toxicity management, tiered diagnostic pathways, and the utilization of national and international alliances to ensure equitable, sustainable oncology care.

Describe your solution / proposal: Provide a detailed account of your solution/ proposal to this challenge. You could type your solution/ proposal here. (Disclaimer: Solution/proposal should not exceed more than 300 words.):**SOP in resource limited settings:**

In resource limited settings, maximal output to be aimed from minimal resource available. For a given cancer, the minimal standard of care should be aimed, which is cost effective and rewarding, favoring cost-benefit analysis. There is no use in using Trastuzumab deruxtecan for one patient and depriving 10 patients who need trastuzumab. Effective rationing of drugs to be done, based on available fund & the prevalence of the disease in the area. Adequate stocking of drugs, to avoid stoppage of treatment midway planning to be done accordingly, so treatment completion is the priority.

There should be performed guidelines & checklist for administering chemo regimen. Guidelines framed keeping the budget restraints based on adequate rationing of drugs, minimizing the hospital stay, avoid strain on the already over-burdened manpower. Stricter pre-chemo checklists be prepared, such that toxicity of chemo regimen are duly addressed and patients do not get admitted for chemo related toxicity, further increasing the healthcare costs. Hence dosing should be in such a way that is cost-effective and not giving any toxicity & not adding up to healthcare costs. Premedications can be changed to tablets as much as possible, usage of steroids and olanzapine, instead of costly NK-1 antagonists, 5-HT3 antagonists.

Drug recycling to be followed whenever possible (like olanzapine). While mixing chemo regimens, wastage of drug vials should be minimized, dose can be reduced to a nearest vial available (care taken dose intensity is not compromised & efficacy is not compromised). Alternatively, patients taking same chemo regimen can be pooled together such that wastage of chemo is avoided. Effective follow-ups (phone calls & clinic visits), to identify toxicity in initial grades and rectify it as early as possible and reduce the healthcare costs.

Regarding diagnostic methods, provisions should be made to diagnose disease with the available resources, whenever possible chest x-ray & USG-abdomen can be used to rule out mets. MRI & CT can be used instead of PET-CT. PET-CT can be used in cases where there is diagnostic dilemma. Memorandum of Understanding can be put with private labs for sophisticated tests such as IHC, flowcytometry, cytogenetics, NGS.

Alliance with national, international cancer organisation, medical professional & experts:

We can try to collaborate with national & international organisation, then formulate plan for cost-effective diagnostic methods and treatment protocols according to the resource constraints in a particular setting. Can frame a minimum standard requirement criteria for diagnosing & treating a disease, which could be practised by local doctors & nurses, thereby ensuring no compromise of care even in resource limited setting.

Government & policy makers can make efforts to note gap-analysis to check lacunae in infrastructure, manpower, drugs & consumables. Fund allocated to build infrastructure to address at least the minimum requirements. Manpower to be adequately appointed & periodic training & CME given to improve the workflow and patient care. Cost-effective drugs identified and stocked adequately to prevent shortage. Meeting with expert in the field can be arranged & online multispecialty tumor board can be arranged, for effective discussion & improving care of patient.

Provision can be made to enroll the hospital in national grids, so that drugs can be procured at a wholesale cheaper rate. Can make use of insurance schemes, Ayushman Bharat schemes and PAP programs given by MNC companies and try to give effective standard of care.

Periodic updation of treatment regimen & procedures in insurance packages, so updated guidelines can be followed at a affordable cost & under insurance.

Solutions to encourage & support research to find cost-effective & innovative solutions:

International accredited societies (NCCN, ESMO) can try to adopt few low-income countries and formulate guidelines according to their needs. They can help to research cheaper alternative chemo regimens & compare their efficacy with current standard of care. They can perform non-inferior studies with alternate cheaper regimen.

Plan for more studies on drug repurposing like olanzapine, metformin, and aspirin.

They can formulate guidelines and teach doctors & nurses, how to work efficiently & improve outcomes in resource-limited setting.

Can formulate an easy-to-follow guideline on toxicity assessment & management, so that supportive care related hospital costs are reduced.

Full Name:

Reshma Abraham

Name of the Institution:

Manipal hospital, Bangalore

State:

Karnataka

Objective of your solution: (Briefly define the primary outcome of your solution to this challenge):

In the context of standardising cancer protocols in resource-constrained settings, how can India address upstream factors that can help in shaping delivery of standard protocols to all, i.e., standardising patient awareness of the current standard of care, so patients understand what treatment they are receiving, recognize when their doctor offers alternatives, and can make informed choices.

Describe your solution / proposal: Provide a detailed account of your solution/ proposal to this challenge. You could type your solution/ proposal here. (Disclaimer: Solution/proposal should not exceed more than 300 words.):

1. A voice supported multilingual NCG guided app/website (based on various agricultural advisory architecture). The patient speaks in their language; the app responds in voice. One-tap photo upload of pathology and imaging reports, with AI extraction features. Simple personalised pathway information in their vernacular language, all similar to NCCN patient guidelines. More FAQs about that particular cancer. Eg. simple things like if neoadjuvant therapy is needed in the patient's disease setting. Patient-initiated virtual MDT request where the proposed plan appears to deviate (especially useful in 1st line treatments). Cancer specific survivor peer-support meetings integrated into the app, run by trained volunteer survivors. NCG trained ASHA and ANM model household navigation, similar to the model used for antenatal care and TB DOTS. Per-task incentive of Rs.200 per cancer navigation visit. ASHA workers help households' complete documentation, upload reports, and access the app.

2. This will ensure that patients in rural and 2 tier cities also receive the care as in metro cities which regularly have MDTs. In this era people should not be unaware of their treatment options they have atleast. This approach will also help patients to understand and make informed choices with their treating physicians.

3. That being said, there are many layers to standardisation and India has resource gaps rather than constraints. Financial support being major pillar. The corruption-and-misallocation within healthcare and outside is well-documented. Cancer treatment may not be the best investment for a growing economy, however it is important to still allocate real time funding, in the era of expensive treatment protocols, we can't offer the same 10 chemo drugs in the formulary which was planned 10 years ago and talk about standardisation.

Full Name:

Livin T

Name of the Institution:

Madurai Medical College, Kanyakumari

State:

Tamil Nadu

Objective of your solution: (Briefly define the primary outcome of your solution to this challenge):

You really have to assess what is actually functioning in your hospital today. And it's not about doing everything perfectly; it's about maximizing what you have.

Describe your solution / proposal: Provide a detailed account of your solution/ proposal to this challenge. You could type your solution/ proposal here. (Disclaimer: Solution/proposal should not exceed more than 300 words.):

Standardizing cancer care when you lack robust infrastructure means totally ditching the one-size-fits-all fantasy. You really have to assess what is actually functioning in your hospital today. And it's not about doing everything perfectly; it's about maximizing what you have.

We have to lean on resource-stratified frameworks like those from ASCO or the NCCN. But instead of chasing novel targeted biologics, the focus needs to shift hard toward surgical optimization.

Getting clear margins and doing a proper lymphadenectomy following D2 gastrectomy principles from the Japanese Gastric Cancer Association can drastically improve survival even without pricey adjuvant regimens.

To make these guidelines function locally, you can't just copy them. Health systems need to form alliances with organizations like ESMO. By applying the ESMO Magnitude of Clinical Benefit Scale, formulary committees can fund only the generic cytotoxic drugs that offer actual survival benefits. They can safely ignore the low-value expensive agents. And institutional twinning programs where high-income centers mentor regional hospitals are incredibly effective for establishing functional tumor boards.

We really must push for pragmatic clinical trials locally. Strict Phase III trials usually exclude the patients we actually see in these clinics anyway. But running studies on drug repurposing or hypofractionation makes a tangible difference. Just look at the IDEA collaboration. They proved that 3 months of oxaliplatin-based chemo for colon cancer worked just as well as 6 months. Running trials focused on surgical and medical de-escalation saves critical resources and reduces patient morbidity.

Full Name:

R Neelakandan

Name of the Institution:

Madurai Medical College, Kanyakumari

State:

Tamil Nadu

Objective of your solution: (Briefly define the primary outcome of your solution to this challenge):

Improvement in adherence to standardized cancer treatment protocols across participating health care facilities resulting in better quality and consistency of cancer care.

Describe your solution / proposal: Provide a detailed account of your solution/ proposal to this challenge. You could type your solution/ proposal here. (Disclaimer: Solution/proposal should not exceed more than 300 words.):

Cancer care in resource-constrained settings requires a practical and standardized approach to ensure that patients receive effective treatment despite limitations in infrastructure, workforce, and finances. The first step is to assess available resources, including diagnostic facilities, treatment equipment, medications, and trained personnel. Based on these resources, evidence-based treatment pathways should be adapted from established international guidelines while prioritizing interventions that provide the greatest clinical benefit. Clear referral systems, multidisciplinary tumor boards, and continuous training of healthcare professionals are essential to maintain consistency in patient management. Regular audits and outcome monitoring can further improve quality of care.

Successful standardization also depends on strong partnerships with national and international organizations. Collaboration with organizations such as the World Health Organization, Union for International Cancer Control, national cancer institutes, professional oncology societies, and academic centers can support the development of locally relevant guidelines. These alliances facilitate knowledge sharing, training programs, telemedicine consultations, and access to technical expertise. Engagement of surgeons, medical oncologists, radiation oncologists, pathologists, nurses, pharmacists, and public health experts ensures that protocols are comprehensive and feasible.

To promote cost-effective and innovative treatment solutions, governments and institutions should encourage clinical research focused on local healthcare challenges. Establishing cancer registries, supporting multicenter studies, and fostering collaborations between universities, hospitals, and industry partners can generate valuable evidence. Investment in generic medicines, affordable diagnostic technologies, digital health platforms, and implementation research can improve access while reducing costs. Sustainable funding mechanisms and international research grants should also be pursued. Through standardization, collaboration, and research-drive in innovation, resource-limited healthcare systems can deliver higher-quality cancer care and improve patient outcomes.

Full Name:

Jagga Sankalp Harish

Name of the Institution:

Kidwai Memorial Institute of Oncology, Bengaluru

State:

Karnataka

Objective of your solution: (Briefly define the primary outcome of your solution to this challenge):

To develop standardized, evidence-based, and resource-adapted cancer treatment protocols that ensure equitable and high-quality care in resource-constrained settings.

To promote collaboration with national and international oncology organizations for guideline development, training, and capacity building.

To encourage cost-effective research and innovation that improves cancer outcomes while optimizing the use of limited healthcare resources.

Describe your solution / proposal: Provide a detailed account of your solution/ proposal to this challenge. You could type your solution/ proposal here. (Disclaimer: Solution/proposal should not exceed more than 300 words.):

Standardization of cancer treatment protocols in resource-constrained settings is essential to provide equitable, evidence-based, and cost-effective cancer care. Protocols should be developed using a multidisciplinary approach involving medical, surgical, and radiation oncologists, pathologists, radiologists, palliative care specialists, nurses, and pharmacists. Before implementation, healthcare systems should assess available infrastructure, workforce, diagnostic facilities, radiation services, and drug availability. Protocols should prioritize common regional cancers and adapt international guidelines such as ASCO, ESMO, and NCCN according to local resources rather than creating entirely new systems.

Treatment pathways should be tiered into basic and optimal care levels depending on available facilities. Patient-related factors such as age, ECOG performance status, comorbidities, affordability, and treatment tolerance must always be considered. For example, in locally advanced rectal cancer, total neoadjuvant therapy (TNT) may be modified in elderly or frail patients, and short-course radiotherapy or oral capecitabine-based regimens can be used where resources are limited.

Strong alliances with national and international cancer organizations, academic institutes, and major cancer centers such as Tata Memorial Centre are important for guideline development, training, tele-oncology support, and collaborative clinical trials. Organizations like ASCO and ESMO can help adapt evidence-based practices for low-resource settings.

To encourage research, governments, NGOs, academic institutions, and pharmaceutical companies should provide grants, mentorship, and funding opportunities for investigator-initiated studies focused on affordable therapies and innovative treatment strategies. Training programs, conferences, and research grants for young oncologists can promote meaningful research and improve cancer care outcomes in underserved populations.

Full Name:

Varsha V

Name of the Institution:

Manipal Hospitals, Bangalore

State:

Karnataka

Objective of your solution: (Briefly define the primary outcome of your solution to this challenge):

International guidelines by ESMO/ASCO/NCCN for cancer care are complex and difficult to adapt uniformly in India, especially in resource constrained settings. There are various challenges from affordability, accessibility, applicability, poor infrastructure to lack of skilled health care professionals. Cancer care should not be just restricted to tier one cities, private sector or regional cancer centres. Right to cancer care should be a fundamental right, irrespective of financial status.

Objective: To develop resource-adapted and standardized comprehensive cancer care, across different levels of government healthcare systems in India.

Describe your solution / proposal: Provide a detailed account of your solution/ proposal to this challenge. You could type your solution/ proposal here. (Disclaimer: Solution/proposal should not exceed more than 300 words.):

1. Simplification of international cancer treatment guidelines by an expert multidisciplinary team (MDT) involving medical, surgical, and radiation oncologists, pathologists and palliative care specialists. Along with primary care providers (pharmacologists, physicians, paediatricians, general surgeons, ENT specialists and non-communicable disease medical officers) to ensure protocols are practical and easy to implement.
2. Easy-to-follow algorithms for various common cancers with simple flow charts of warning signs and symptoms, diagnostic workup, risk-stratification, treatment, adverse-events management and follow-up.
3. Provide roles to each sector of healthcare:
 - A) Primary health care centre: to focus mainly on symptom-based screening, village and community education, identification of adverse events, treatment compliance and referral.
 - B) Community healthcare centres have medical specialists, laboratory and imaging facilities, hence can support diagnosis and begin treatment, if feasible. Biopsies can be sent to district hospitals for histopathological examination.
 - C) District hospitals / Government medical college can initiate treatment, provide supportive and palliative care, MDT discussion for complex cases and coordinate referral to designated tertiary/ regional oncology centres for advanced treatment.
4. Color-coded referral pathways for timely identification of vulnerable patients
 - a. Green: Local management
 - b. Yellow: Delayed or planned referral
 - c. Red: Immediate referral to higher centres
5. Collaborations between national (ICMR, ICON, ISMPO, NCG) and international organizations (ESMO, ASCO, NCCN) are essential for developing and implementing evidence-based cancer treatment guidelines in limited settings. Regular CMEs, workshops, hands-on training programs, online modules and assessments can help healthcare providers understand and implement these protocols in their daily practice.
6. To promote cost-effective research: Maintain patient databases and cancer registries which can be accessible online. Encourage research on affordable treatments, generic drugs, biosimilars, low-cost and effective diagnostics. Use of technology such as AI and tele-oncology for research and patient care. Support from pharmaceutical companies and national cancer programs can immensely strengthen affordable cancer research.

Conclusion: With growing burden of cancer in India, it's time to decentralize and standardize cancer care. Resource adapted standardization of protocol will promote efficient clinical decision making by complete utilization of available resources, reducing financial toxicity and improving patient care.

Full Name:

Dr. Chirag Gajera

Name of the Institution:

JNMC, Belagavi

State:

Karnataka

Objective of your solution: (Briefly define the primary outcome of your solution to this challenge):

To develop and implement evidence-based, cost-effective, and adaptable cancer treatment protocols for resource-constrained settings that ensure equitable access to quality care while optimizing available healthcare resources and improving patient outcomes.

Describe your solution / proposal: Provide a detailed account of your solution/ proposal to this challenge. You could type your solution/ proposal here. (Disclaimer: Solution/proposal should not exceed more than 300 words.):

1. Standardization of cancer treatment protocols in resource-limited settings requires adaptation of evidence-based guidelines according to local disease patterns, available infrastructure, workforce capacity, and affordability. Key steps include establishing multidisciplinary expert committees, defining essential diagnostic and treatment pathways, prioritizing high-impact interventions, ensuring availability of essential medicines, and creating monitoring systems for quality improvement.
 2. Collaboration with national and international organizations such as ministries of health, national cancer institutes, professional societies, and global cancer networks is essential. Partnerships with organizations including World Health Organization, Union for International Cancer Control, and national oncology societies can support guideline development, training programs, capacity building, and implementation strategies. Engagement of oncologists, surgeons, radiation specialists, pathologists, nurses, and public health experts ensures practical and multidisciplinary recommendations.
 3. Research can be encouraged through government funding, academic–industry collaborations, multicenter clinical studies, and real-world evidence generation. Priority areas include low-cost diagnostic methods, simplified treatment regimens, locally relevant clinical trials, tele-oncology models, and innovative technologies for cancer care delivery.
 4. Solutions should focus on strengthening healthcare infrastructure, improving access to molecular diagnostics, developing regional cancer centers, promoting education and training, and implementing digital health platforms. These approaches can improve consistency of care, reduce disparities, and enable sustainable cancer treatment delivery in resource-constrained environments.
-

Full Name:

Joshua John Uzagare

Name of the Institution:

Christian Medical College, Vellore

State:

Tamil Nadu

Objective of your solution: (Briefly define the primary outcome of your solution to this challenge):

To ensure every patient receiving fluoropyrimidine chemotherapy in India has access to biologically guided dosing, irrespective of geography/treatment setting. PRAGATI (Precision Risk Assessment Guided Approach for Therapy Individualization) aims to establish a nationally scalable precision-dosing framework using dried blood spot-based DPD phenotyping to identify patients at high risk of severe toxicity, enable risk-stratified treatment initiation, and improve treatment efficacy. By reducing severe toxicity, financial and time toxicity, and barriers to specialized testing, PRAGATI seeks to increase access to personalized cancer care across India, with the opportunity for future expansion to other anticancer therapies.

Describe your solution / proposal: Provide a detailed account of your solution/ proposal to this challenge. You could type your solution/ proposal here. (Disclaimer: Solution/proposal should not exceed more than 300 words.):

PRAGATI (Precision Risk Assessment Guided Approach for Therapy Individualization) is a decentralized precision-dosing framework developed to make safer fluoropyrimidine (FP) therapy accessible across India. Up to 1/3rd patients experience severe FP toxicity (1). Pretreatment DPYD genotyping is recommended, but applicability is limited by cost, availability, and the ability to predict only a minority (<10%) of Actionable toxicity events (2). DPD phenotyping using Uracil and Uracil/Dihydrouracil(U/UH₂) provides a direct functional assessment of FP metabolism, is cheaper(5\$—) and faster (7\$— shorter TAT) than genotyping, but is limited by complex sample-handling requirements (3,4). PRAGATI leverages dried blood spot (DBS) to overcome these barriers and transform empirical BSA based approach to biologically guided precision-dosing.

A simple (50 µL) venous DBS sample can be collected at any oncology center and transported via existing postal/courier networks to regional LC-MS/MS laboratories without necessitating rapid plasma processing or cold-chain infrastructure. This will provide access to biologically guided fluoropyrimidine dosing without traveling to specialized centers for patients treated in resource-limited settings. Evidence supporting DBS stability and feasibility was presented at the IATDMCT,2025 conference(5).

Using validated uracil thresholds, patients can be stratified before treatment initiation according to toxicity risk. Data from our center has shown a strong association between elevated pretreatment uracil levels and severe toxicity, while many toxicity events were not identified by DPYD genotyping alone (6). High-risk individuals may receive individualized starting doses, followed by fluoropyrimidine therapeutic drug monitoring (TDM) by the same DBS platform to reduce severe fluoropyrimidine-related toxicity, prevent avoidable hospitalizations, enable exposure-guided dose optimization during subsequent treatment cycles to improve efficacy while reducing toxicity (7).

By reducing financial and time toxicity, treatment-related morbidity, and dependence on centralized testing infrastructure, PRAGATI offers an affordable, scalable, and patient-centered solution that can bring precision fluoropyrimidine therapy to every patient/cancer center in India. The same framework could subsequently be expanded to other anticancer therapies, creating a foundation for accessible precision oncology nationwide.

References:

1. Nalder M, et al. Routine, prospective DPYD genotyping guided dose-individualisation for patients receiving fluoropyrimidines. *J Clin Oncol.* 2024;42(16 Suppl):12121. DOI: 10.1200/JCO.2024.42.16_suppl.12121.
2. Amstutz U, et al. CPIC Guideline for DPD genotype and fluoropyrimidine dosing. *Clin Pharmacol Ther.* 2018;103:210-216. DOI: 10.1002/cpt.91.
3. Laures N, et al. Impact of uracil-based DPD phenotyping on reducing severe fluoropyrimidine toxicity. *Pharmaceutics.* 2022;14:2119. DOI: 10.3390/pharmaceutics14102119.
4. Maillard M, et al. Impact of pre-analytical processes on plasma uracil testing for DPD deficiency. *Br J Clin Pharmacol.* 2023;89:762-772. DOI: 10.1111/bcp.15536.
5. Vandenbroucke K, Stepman H, Stove C. Capillary dried blood microsampling is not suited for DPD phenotyping. *Clin Chem Lab Med.* 2026. DOI: 10.1515/cclm-2026-0146.
6. Uzagare JJ, John AO, Singh A, et al. A two-step pre-treatment screening strategy combining enzyme phenotyping and targeted DPYD genotyping. *J Clin Oncol.* 2026;44(Suppl 19):306. DOI: 10.1200/JCO.2026.44.19_suppl.306.
7. Launay M, Schmitt A, Ciccolini J. Bringing 5-FU monitoring home: microsampling as the next step beyond DPD deficiency screening. *Expert Opin Drug Metab Toxicol.* 2026;22:1-3. DOI: 10.1080/17425255.2026.2615387.

Full Name:

Abhishek V Honawad

Name of the Institution:

Regional Cancer Centre, Trivandrum

State:

Kerala

Objective of your solution: (Briefly define the primary outcome of your solution to this challenge): Making Immunotherapy More Accessible and Affordable:

To develop and implement standardized, resource-stratified cancer treatment protocols across diverse cancer types in resource-constrained settings, through multidisciplinary collaboration, international alliances, and innovation-driven research.

Describe your solution / proposal: Provide a detailed account of your solution/ proposal to this challenge. You could type your solution/ proposal here. (Disclaimer: Solution/proposal should not exceed more than 300 words.):

Standardizing Cancer Treatment Protocols in Resource-Constrained Settings

Cancer care inequity present in low- and middle-income countries (LMICs) can be attributed to absent or non-contextual guidelines, limited infrastructure, and workforce shortages. Bridging this gap requires a structured, stepwise approach.

Firstly, we need a comprehensive situational analysis mapping the available infrastructure, workforce capacity, diagnostics, and essential medicines across facilities.

Then we can use the Adopt and Adapt strategy - adopt existing resource-stratified frameworks and adapt them to local epidemiology and resource realities.

We can establish multidisciplinary tumor boards at designated regional centers to drive protocol adherence.

In this era of Artificial Intelligence, we need to integrate the available tools which are clinical decision support systems to standardize care delivery even with limited trained personnel.

For the high burden of cancers in particular, we need to develop disease-specific pathways and prioritize cost effective interventions for the same.
Finally, we need to mandate regular protocol reviews using real-world outcomes data from local registries

Key Alliances Required

We will need to form alliances between the various international (such as WHO, UICC, ASCO, ESMO, NCCN) and national organizations (such as ICMR, NCI, NCCP). To conduct studies and generate local evidence for understanding the real-world conditions faced by patients in LMICs, we need the support of Indian organizations - IARC, INCTR. Finally, we need to collaborate with the drug companies and generic medicine manufacturers “ to negotiate affordable, tiered pricing deals and ensure that essential cancer medicines remain consistently available in resource-limited settings

Encouraging Cost-Effective Research

We can run practical clinical trials that test treatments that are already available locally, rather than waiting for expensive imported therapies. We need to support research into affordable generic drug versions and lower-cost biosimilars as alternatives to high-priced biologics. We need to build partnerships with the other LMICs such as Brazil to share what already works in their countries and that have developed affordable cancer care models so that we can adopt their strategy and adapt in other LMICs.
