TITLE- AI-Powered Self-Management and Rapid Access Multidisciplinary Team (MDT) Tool for Post-Discharge Care

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IAPEN INDIA ASSOCIATION For Parenteral and Enteral Nutrition

Description of the initiative- An AI (Artificial Intelligence)-powered tool optimizes post-discharge care over four weeks by integrating continuous monitoring, automated risk stratification, and real-time MDT communication. Building on a pilot study in India and Sri Lanka, it aims to enhance patient outcomes and reduce readmissions. The target is to reach 300,000 patients across seven SAARC nations (Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan, Sri Lanka) within three years, leveraging scalable digital health technology.

Background -Globally, 15-20% of discharged patients face adverse events within 30 days (Muscaritoli, M. et al, (2021)- ESPEN practical guideline, often due to poor follow-up or non-adherence (Forster et al., 2003). Disease related malnutrition influences patients clinical outcomes, quality of life. In South Asia, readmission rates for chronic conditions, consequent to malnutrition reach 20-25%, worsened by resource constraints (Jha et al., 2019). A pilot with 425 patients—250 in urban India and 175 in rural Sri Lanka over period from July to dec 2024, as a part of collaboration between IAPEN INDIA Association for Parenteral and Enteral Nutrition and South Asian Association of Parenteral and Enteral Nutrition, tested a basic AI tool (rule-based risk alerts and SMS prompts). It reduced readmissions from 22% to 19% and improved adherence by 22%, proving AI's potential in diverse settings. **Rationale for the initiative-**High readmission rates and limited healthcare access in SAARC nations highlight need for scalable solutions. The pilot's 14% readmission reduction and 15% MDT efficiency gain, alongside global AI success (e.g., 30% reductions; Bates et al., 2014), justify expansion. This aligns with priorities for universal health coverage and digital health, supporting a 300,000-patient target. **Objectives and scope-** To enhance and deploy an AI-powered tool for post-discharge care, reaching 300,000 patients across SAARC nations over three years, reducing readmissions by 15-20% (vs. 14% in pilot). Increase adherence by 25-30% (vs. 22% in pilot). Reduce time-to-intervention for addressing malnutrition and complications by 30%. Ensure cost-effectiveness and adaptability for diverse healthcare settings.

Planned activities & deliverables-Outline of steps of the project management plan to be taken- Year 1 (Months 1-12): Upgrade AI with machine learning (e.g., random forest models) and multilingual NLP chatbots; deploy to 10,000 patients in India and Sri Lanka. **Year 2 (Months 13-24)**: Expand to 100,000 patients across SAARC, evaluate efficacy in a 5,000-patient cohort, and refine AI with real-world data. **Year 3 (Months 25-36)**: Scale to 300,000 patients, integrate into national health systems, and ensure sustainability via partnerships.

Concrete deliverables of the project?- Enhanced AI tool, comprehensive dataset (n=305,000), 20% reduction in readmission, final report, three peer-reviewed publications. **Achievement possible in next 12 and 24 months?-**Validated by a 425-patient pilot, this tool targets 300,000 SAARC patients in three years. The 40,000 Euro grant enhances AI and initiates scale-up, promising a 15-20% readmission drop and improved care, reshaping regional health systems as well as opens doors to integration in worldwide healthcare setups.

Resources & enablers- Teams: Clinical (5 physicians, 10 nurses, 3 dietitians, 3 physiotherapists, 5 case managers), Technical (5 AI developers, 3 data scientists, 3 IT specialists), Research (3 statisticians, 2 health economists. **Budget- 40,000 Euro Grant**: Technology (20,000 Euros): AI upgrades and rural infrastructure. Scale-Up (12,000 Euros): Initial deployment and evaluation. Dissemination (8,000 Euros): training, publications, policy advocacy. **Key Success Factors:** Pilot-informed scalability (e.g., rural adaptations). Alignment received for partnerships from SAARC health representatives for scalability across all 7 countries as well as approval for data privacy and usage.

Category	Subcategory	Budget (€)	Details
AI Upgrades (50%)	Software Development	7,000	Coding, testing AI models
	Licensing/Tools	2,000	AI platforms, APIs
	Maintenance	1,500	Updates, bug fixes
Rural Infrastructure (20%)	Hardware	3,000	Servers, devices for rural sites
	Connectivity	2,000	Internet setup, satellite links
Scale-Up (30%)	Technical Support	1,000	On-site IT assistance
	Initial Deployment	4,000	Logistics, staffing, pilot site prep
	Logistics	2,000	Transport, installation
	Staffing	1,500	Temporary field workers
	Pilot Site Prep	1,500	Facility adjustments
Evaluation	Data Collection	2,000	Surveys, sensors
	Analysis	2,000	Statistician fees, software
	Reporting	1,000	Dashboards, summaries
Dissemination (20%)	Training	2,500	Workshops, trainers
	Workshops	2,000	Venue, materials
	Travel	1,000	Expert fees
Publications	Writing/Editing	3,000	Reports, articles
	Printing/Distribution	1,000	Journals, handouts
Policy Advocacy	Events	1,500	Conferences, panels
	Materials	500	Policy briefs, presentations

Results/outcomes & expected impact- Scaling to 300,000 patients, project expects a 15-20% reduction in readmissions, a 25-30% adherence improvement, and malnutrition addressed in 36,000 patients. These outcomes promise enhanced patient recovery, reduced healthcare costs, and improved quality of life across nations. **Implementation**- Findings will be implemented through a phased rollout: Year 1 upgrades AI tool and targets 10,000 patients in India and Sri Lanka; Year 2 expands to 100,000 patients with efficacy evaluations; Year 3 scales to 300,000, integrating the tool into national health systems via partnerships. Real-world data will refine the AI, while training and policy advocacy (supported by the 40,000 Euro grant) ensure adoption by healthcare providers and governments.

Advancing Patient/Nutritional Care- The project advances patient care by providing continuous monitoring, automated risk stratification, and real-time MDT coordination, ensuring timely interventions for chronic conditions and high-risk profiles like malnutrition. For nutritional care, it targets 36,000 malnourished patients with tailored follow-up (e.g., dietitian input via NLP chatbots), improving adherence to nutritional plans and reducing related complications, especially in resource-limited settings. It aligns with EU (European Union) health priorities like digital transformation and malnutrition prevention and here so in post discharge patients.

Impact on Clinical Practice-Its Innovation-The project is innovative as it will streamline clinical workflows by saving MDT time (15% in the pilot), enabling faster decision-making through AI-driven insights. Clinicians shift from reactive to proactive care, using real-time data to prioritize high-risk patients. The tool's integration into health systems will standardize post-discharge protocols across urban and rural settings, enhancing care consistency. **Innovation-** This project is innovative as first SAARC-wide AI-powered MDT tool, combining machine learning (e.g., random forest models) and multilingual NLP chatbots for scalable, personalized care. Its adaptability to diverse urban-rural contexts and focus on both chronic disease and malnutrition set it apart from traditional post-discharge solutions

Influence on Nutrition Policy- Yes, health ministry in India, Sr Lanka have shown interest, it's likely to influence policy by providing a scalable model for nutritional care, backed by a dataset of 305,000 patients and three peer-reviewed publications. Its focus on malnutrition (36,000 cases) and digital health aligns with universal health goals, offering evidence for policy frameworks that prioritize post-discharge nutrition support globally. **Transferability-** Yes, its digital infrastructure and adaptability make it transferable beyond SAARC, AI's multilingual capabilities and focus on scalable offering European nations, and global healthcare set ups, a blueprint to address high readmission rates and healthcare disparities in diverse settings, aligning with global health goals.

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