Implementing a Clinical Pathway for Medication Administration via Enteral Feeding Tubes to Improve Clinical Nutrition Care

Integrating pharmacotherapy safety, hazardous drug handling and multidisciplinary nutrition care pathways

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DESCRIPTION OF THE INITIATIVE

Background: Enteral nutrition therapy plays a crucial role in the management of patients who cannot meet their nutritional needs orally. Besides providing essential nutrients, enteral feeding access often serves as a route for drug administration, which requires specific knowledge about drug compatibility and pharmacotherapy safety among healthcare professionals. Risks include inappropriate dosage-form manipulation, drug–nutrient interactions, tube occlusions, medication errors and therapeutic failure. Additional challenges arise with **hazardous drugs**, particularly in oncology patients, where patient safety and occupational exposure risks must both be addressed.

Rationale for the initiative: Safe enteral pharmacotherapy remains insufficiently embedded within clinical nutrition pathways. This project addresses that gap through implementation of a scalable multidisciplinary pathway integrating: standardized procedures, decision support tools, pharmacist-led intervention, education and quality monitoring, safe handling principles for hazardous drugs.

Objectives and scope: Implement and evaluate a hospital – wide enteral medication safety pathway, reduce medication errors and tube – related complications, improve continuity of care safety into enteral pharmacotherapy processes, generate a transferable model for wider adoption.

PLANNED ACTIVITIES & DELIVERABLES

The project will be structured across four sequential phases over 24 months, each with defined activities, milestones, and responsible parties. A Project Steering Committee comprising the Principal Investigator, heads of pharmacy, nursing, and clinical nutrition, and an external clinical expert will provide oversight and governance.

Outline the key steps of the project management plan:

Phase 1: Months 1 – 3: baseline assessment; stakeholder mapping; project team formation; gap analysis of current practice; ethics and institutional approval

Phase 2: Months 4 – 9: pathway formalisation and full hospital rollout; IT integration; formulary expansion; education programme launch; Crushing Factory – service for a safe medication preparation scale-up

Phase 3: Months 10 – 18: ongoing staff training delivery; patient discharge summary pilot; data collection and continuous monitoring; pharmacist consultation service expansion

Phase 4: Months 19 – 24: full outcome evaluation; health-economic analysis; dissemination (publications, conferences); development of replication toolkit for external adoption

What are the concrete deliverables of the project? Project deliverables will include implementation of a validated hospital-wide clinical procedure for safe medication administration via enteral access, supported by expansion of an electronic clinical decision-support module flagging contraindicated medications. The project will further strengthen the centralized pharmacist-led "Crushing Factory" service and optimize the hospital formulary by introducing at least 20 medicines or formulations suitable for enteral administration. A structured multidisciplinary education programme with competency assessment tools will be developed, alongside a standardized pharmaceutical discharge summary for patients with enteral access. A quality monitoring framework will support continuous safety surveillance. Interim and final outcome reports will provide clinical and health-economic evaluation, while dissemination will include peer-reviewed publications, conference presentations and an open-access replication toolkit to support adoption in other institutions.

What progress and achievements are possible in the next 12 and 24 months?

By 12 months, the clinical pathway, decision-support tools and scaled pharmacist-led preparation service will be operational across target wards, with full nursing training completed, early reductions in medication errors demonstrated, discharge summary pilot launched and interim outcome evaluation performed.

By 24 months, the project is expected to demonstrate major reductions in enteral medication-related risks, measurable clinical and health-economic benefits, hospital-wide implementation of discharge support, scientific dissemination through publications and conferences, and availability of a transferable implementation toolkit supporting adoption beyond the study centre.

RESOURCES & ENABLERS: multidisciplinary team: pharmacists, physicians, nurses, dietitians, IT specialists, health economist

Specify how the grant will be spent: development of training materials, printing, e-learning platform licenses, competency assessment tools, equipment upgrades, additional packaging materials, labelling systems, quality assurance supplies, outcome data collection tools, statistical analysis, health-economic modelling, open-access publication fees, conference travel and registration, toolkit design and printing, steering committee meetings, audit costs, project administration

What factors will make the project successful: A major strength of the project is its **high-value, low-cost implementation potential**, where relatively modest investment can generate substantial gains in patient safety, efficiency and health-economic benefit. Importantly, the **proposed solutions are practical, scalable and can be readily implemented in other hospitals**, further supporting broad adoption and impact.

RESULTS, EXPECTED OUTCOMES & IMPACT

How will the findings be implemented? Findings will be implemented through integration of the clinical pathway into routine hospital practice via standardized procedures, electronic prescribing safeguards, pharmacist-led review and the **Crushing Factory** service. Implementation among healthcare professionals will be supported through structured education, competency-based training, clinical decision-support tools and incorporation into staff onboarding and continuous professional development. For patients and carers, findings will be translated into practice through pharmaceutical discharge summaries and education supporting safe medication administration after discharge. The project will also support implementation in future practice through incorporation into training of medical, pharmacy and nursing students, helping embed safe enteral pharmacotherapy principles into healthcare education.

How will this project advance nutritional care in clinical practice in one or more of the following areas of clinical nutrition: The project advances clinical nutrition practice by demonstrating an effective multidisciplinary care pathway that integrates medication safety into nutrition management, supported by scalable implementation strategies, digital decision support and pharmacist-led interventions. Expected impact includes improved patient outcomes through fewer medication errors, reduced tube-related complications, safer handling of hazardous drugs, and better continuity of care, including patient and caregiver support at discharge. Health-economic benefits are anticipated through reduced drug waste, fewer adverse events and improved workflow efficiency. The project will also strengthen education of healthcare professionals through transferable training resources.

Is the project transferable to other care settings / geographical regions?

The innovative pharmacist-led **Crushing Factory** model can be scaled from a tertiary centre to smaller hospitals while maintaining core safety principles, further supporting transferability. Beyond local impact, the project will contribute to scientific evidence through publications and dissemination, provide a transferable implementation model for adoption in other institutions, and generate evidence that may inform future ESPEN and national clinical practice guidance.

☑ **Please tick to confirm the PEN letter of endorsement is attached.**
Incomplete submissions will not be considered.