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AI-Enabled Optimization of Heart Failure Patient Discharge Pathways: A Proposal for Implementation at the Hospital of Vallo Della Lucania, ASL Salerno

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Heart failure remains a leading cause of hospital readmission, especially in elderly populations with complex health needs. In this proposal, we outline a strategy for integrating artificial intelligence (AI) into the discharge process for heart failure patients at the Internal medicine ward of Vallo della Lucania hospital. The initiative combines predictive algorithms, natural language processing, and patient engagement tools to identify individuals at high risk of adverse outcomes, support clinicians in personalized discharge planning, and ensure coordination with territorial care services. By improving communication, automating follow-ups, and enabling remote symptom tracking, the AI-supported workflow seeks to reduce preventable readmissions, optimize resource use, and foster continuity of care between hospital and home. The proposed model aligns with national health objectives and offers a scalable framework for digital transformation in internal medicine.

Practical Actions Planned in the Project

1. Early Identification of High-Risk Patients

- AI algorithms will analyze medical records within the first 24–48 hours of admission.
- A personalized risk profile will be generated for each heart failure patient.

2. Discharge Decision Support

- The system will suggest the optimal timing for discharge.
- It will recommend the appropriate type of follow-up: outpatient cardiology, home care, or remote monitoring.

3. Automated Document Generation

- A Structured Discharge Letter Including:
- Key Diagnoses
- Current Therapies
- Risk Factors
- Post-Discharge Care Plan
- Automatically Sent to the Primary Care Physician and Community Services.

4. Activation of Territorial Health Services

- Automatic Referrals For:
- Community Nurses
- Home Cardiology Visits
- Cardiac Rehabilitation
- Nutritional and Educational Counseling

5. Patient Education and Engagement

- A Mobile App or Printed Guide With:
- Instructions on Diet, Medications, and Physical Activity
- Appointment calendar
- Symptom Tracking (e.g. weight, blood pressure, shortness of breath)

6. Post-Discharge Remote Monitoring

- Patients will Receive a Device or be Monitored via Smartphone.
- The AI System Will Analyze Daily Data and Flag Alerts Such As:
- Sudden Weight Gain
- Abnormal Heart Rate
- Missed Medication Doses

7. Weekly Reports for the Care Team

- The System Will Produce Summary Reports For:
- Cardiologist
- Internal Medicine Physician
- Community Nurse
- Hospital Administration

These actions not only aim to reduce rehospitalization risks but also improve patient quality of life and simplify the workflow for healthcare professionals.

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