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Abstract Title: Innovation In Health Care: Continuous Wireless Monitoring To Improve Management Of Critically Ill Patients: LIMS Study Preliminary Results

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Abstract:

Background: Wireless vital parameter continuous monitoring (WVPCM) is compared to regular nurse monitoring in order to provide data on the clinical and economic impact of critically ill patients (CIPs) in Internal Medicine Units (IMU). **Study Design:** Pilot prospective randomized controlled open-label multi-center study with WIN@Hospital wearable wireless system creating alerts on portable devices (ipad). **Experimental Arm:** CIPs with MEWS (Modified Early Warning Score) ≥ 3 and/or NEWS (National Early Warning Score) ≥ 5 at admission underwent WCPCM over the first 72 h. **Active Comparator:** CIPs with MEWS ≥ 3 and/or NEWS ≥ 5 at admission undergoing regular nurse monitoring. **Primary outcomes:** Reduction of major complications (MC) from 15% to 5%. **Secondary outcomes:** One day reduction in length of stay (LOS); reduced nurse monitoring time; accurate patient stratification and definition of end stage disease. **Statistical methods:** According to the preliminary study (Manerbio, 2016), 27% of hospitalized patients, of which 15% have MC, are critical (MEWS ≥3), and require monitoring. Clinical significance is set at 5% relative reduction in MCs in the experimental arm. 148 patients shall be recruited per arm (total 296; calculated by setting the alpha error at 5%, beta error at 20%, 80% test power, 5% loss). **Preliminary results:** Enrolled 145 and evaluable 125 patients (51 M/74 F), mean age 80.5 years, Comorbidity: Cumulative Illness Rating Scale CIRS-CI: 4, CIRS SI: 1.8. About 38% scored a BRASS (Blaylock Risk Assessment Screening Score) ≥20 indicating need for discharge planning requiring step-down care. More than 50% of patients present IIA index >3 indicating high dependency from nursing assistance. Nurses saved a minimum of 49,6 minutes to a maximum of 58,1 minutes on time spent monitoring each patient per day. A trend towards reduction of major complications in the experimental group appears to be seen (31% versus 45%). Decrease in re-admissions (7% versus 11%) and mortality (7.3% versus 23.9%) has been observed. More than 30% of the patients meet the criteria defining end stage disease. Preliminary results have failed to confirm the hypothesis regarding reduction LOS, showing increased LOS in the experimental arm (11.5 days versus 10.6 days), probably because BRASS>20 is higher in experimental arm (33.3% versus 22.2%). **Conclusions:** WVPCM, detecting early deterioration in CIPs, may facilitate timely response in at-risk patients, increasing safety and reducing costs.

Keywords: Acute Medicine, Internal Medicine core competencies, Poly-morbidity, Wireless monitoring system

Professional Biography)

Dr. Pietrantonio is the Medical Director of Internal Medicine Department at Castelli Hospital (polo H2), ASL ROMA 6, Rome, Italy. She received her medical degree from Catholic University of the Sacred Heart of Rome and she has completed residencies in Internal Medicine (Catholic University of Sacred Heart, Rome), Clinical Psicology (University "Sapienza" of Rome) and Cardiology (Torvergata University of Rome). She received the Masters on Health Service Management at Italian Institute of Health (Rome), Economics and Management of Health Care at Torvergata University-CEIS (Rome) and Clinical and Economic Governance of Health Facilities at Torvergata University-CEIS (Rome). Dr. Pietrantonio has served as President of Medécins Sans Frontières Italy from 1996 to 1999. She has a wide clinical experience in management of internal medicine patients, acute complex patients and emergencies. Moreover she is at the moment in charge of the coordination of the paths between different levels of intensity of care and is actively involved in the definition of the role of Internal Medicine Department in the future hospital. Besides the clinical activity, since 1995, as Project evaluation Specialist in medical programs, she held significant managerial and operational activities in Italy and in international projects in the field of health planning, financial analysis of public health systems, health projects evaluation, staff administration, management and budget presentation. She has a wide and continuous scientific production on national and international journals in Internal Medicine, Oncology, Management and Health Economics (41articles on national and international journals, 36 Oral Communications, 115 abstracts at national and international congress). She is participating since 1988 in national and international clinical trials and is coordinating National Clinical Studies since 1999. As a result of this expertise, she has been appointed to the Italian Journal of Medicine Elsevier Masson as Associate Editor and referee from 2006. She is Academic Editor of Plos One since 2018. By building quality initiatives, framework, and strategy over the years, she has developed a practical approach to educating medical students, residents, and practicing physicians about performance improvement in their practices. She is teacher at the Universities of Rome Sapienza, Tor Vergata and Roma 3 since 2001. She is presenting original contributions as Speaker and Organizer of scientific events of national importance since 2004.



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Any Comments: I'm interested in become member of the Organizing Committee of the Congress.