

## **Patient safety in the time of the pandemic: redesigning activities to face the emergency and learning for the future**

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### *Context*

Tuscany North-West Trust is the Health System which organizes and manages the health and social-health services for the provinces of Massa-Carrara, Lucca, Pisa and Livorno in Italy, for a catchment area of about 1 million and 200 thousand inhabitants. It is organized into 10 districts and has 13 hospitals, of which 5 are medium-sized and 8 are small.

Patient safety activities are organized into 4 areas and inspired by the systemic approach of ergonomics and human factors (Bellandi et al 2007, 2011): 1) the identification, analysis and prevention of patient safety incidents, 2) the application and monitoring of ministerial recommendations (RM) and patient safety practices (PSP), 3) accident analysis and prevention, 4) training and innovation of care and support processes.

The health emergency from Covid-19 has led to a series of reorganizations of the health and social-health services in the pandemic waves that followed in 2020-21-22, which together with the organization of the huge vaccination campaign that started in the last days of the 2021 have put a strain on the health service, causing a considerable increase in the workload for a majority of the staff, as well as an impact on the activities for patient safety and service quality (Wu et al, 2020).

### *Objectives*

To report the real practice experience in patient safety management during the Covid pandemic within a big health system, part of the Italian National Health Service. The staff of the Patient Safety Unit, together with the network of quality and safety facilitators (FQS), made up of about 600 clinicians working in the operational and functional units, have redefined objectives and working methods that are described in summary, together with the results obtained in this work.

### *Methods*

In 2020, the priorities concerned the application of the new rules and emerging evidence regarding the prevention, management and treatment of Covid, as well as support to local health and social-health structures for the prevention and risk management of Covid in fragile patients. In 2021, support was added to the organization and management of the anti-Covid vaccination campaign, through the re-adaptation and application of the safety elements taken from RM and PSP, together with the identification and analysis of cases of possible adverse event and reaction in cooperation with pharmacovigilance.

Between the end of 2020 and the beginning of 2021, priorities were also reactivated for topics relevant to patient safety according to updated risk assessment, such as inpatient suicide prevention, prevention and management of restraint, inpatient falls prevention. The programs for the prevention of infections from multi-resistant micro-organisms, transfusion safety, risk management associated with implantable devices, aggression prevention, integration of safety in the transition to digital health as well as in the design and management of care pathways were also restarted.

The prevailing methods of cooperative work have passed through videoconferencing platforms, both on commercial products with which the Trust has equipped itself for training and crisis management, and free systems for conducting work groups. A section dedicated to the pandemic emergency was opened on the Trust intranet with the real-time publication of all the documents of the crisis unit, the official newsletter sent by email and chats on free applications to provide rapid communications for all personnel, through the formal structures and informal networks established during the emergency.

### *Main results*

Despite a considerable reduction compared to 2019, the accident analysis and prevention activities continued throughout the health system and in all clinical areas both in 2020 and in 2021. In 2020, 317 audits were conducted on significant events and 818 revisions of morbidity and mortality, of which about a quarter dedicated to Covid cases. In 2021 the numbers reached 419 and 1117 respectively. The sentinel events were 25 in 2020 and 27 in 2021, a slight increase compared to the series of previous years; the most frequent type of sentinel event was the fall in hospitalized patient (14 in 2020 and 15 in 2021). 3 audits and 3 mortality and morbidity reviews were conducted on cases selected by the claims management committees, with at least one improvement action agreed with the structures involved, reporting the results of the analyzes in 3 seminars with the maternal-infant, medical and surgical departments.

The annual survey on the application of the 19 RM and 35 PSP through self-assessments gathered the compliance of 88% of the 308 operational and functional units of the Trust. PSP not yet applied or applied in part resulted: the recently introduced bundle to support the habit of working "with bare and clean hands" in contact with patients, avoiding the improper use of gloves and of jewels (11 structures not applied, 36 partially); the safety bundle for the prevention and management of delirium (11 n.a. and 26 in part) and nutritional risk (11 n.a. and 32 in part). With regard to RM, a very limited number of structures (5 n.a. and 11 in part) reported critical issues in the management of intra and inter-hospital transport and the most recent RM related to safety in the management of solid pharmaceutical forms (5 n.a. and 31 in part).

To supplement the self-assessments, 21 patient safety walkarounds (Frankel et al, 2003; Terranova et al, 2019) were conducted in as many hospital and territorial structures, for a joint and in-depth verification with the managers and the FQS.

For the management of the pandemic emergency, 22 protocols were produced and updated, in some cases with the coordination and in all with the technical contribution of the Patient Safety Unit. For the other priority topics for patient safety, new or updated procedures were created, accompanied by dedicated training sessions for: in-patients suicide prevention, restraints avoidance, falls prevention, sepsis prevention and management.

Lastly, 8 training events were organized and conducted, repeated in several editions, both for updating the quality and safety network and to accompany the application of the protocols for managing the pandemic and the new procedures. The main teaching method was synchronous online, integrated with individual and small group supervision on the job, with follow-up meetings regarding the experiences of applying systems analysis of patient safety incidents or effective implementation of safe practices.

Finally, we supported the activities for the digital transition of patient safety requirements. During 2021, updates to the electronic medical record were released which include: a module for the structured reconciliation of home medications upon admission which allows the selected drugs to be automatically transferred to the hospital medications record and to the discharge letter; thromboembolic risk stratification forms; guidance for the complex discharges and continuity of care of the Covid and non Covid cases. The complete integration of the electronic medical record in the operating room register was started, as well as the loading and unloading of implantable devices, with the feeding of clinical registers (e.g. the Italian Arthroprosthesis Register - RIAP). The electronic bed map, designed in 2019 for the transfer of patients from ED to hospitalization as part of the handover project, was the reference tool for managing long term beds for non-severe Covid cases. Finally, with the release of the new version of the emergency room management software, requirements relating to the assessment of the risk of allergy to triage have been introduced and to improve the traceability of the therapies prescribed and administered.

For the anti-Covid vaccination campaign, the quality and safety network contributed to the organization of vaccination points, the integration of safety elements, on-site visits conducted in all 15 vaccination points, as well as the collection and analysis of events and adverse reactions, which made it possible to continuously improve processes in terms of efficiency and safety, in cooperation with central authorities.

### *Discussion/perspectives*

The Covid pandemic has certainly complicated risk management activities in a large healthcare organization, which has been hit hard by all the pandemic waves. The commitment has notably grown qualitatively and quantitatively, yet our safety and quality network has managed to maintain the performance of high standards that emerged during our risk assessment. The flexibility, professionalism and commitment of the staff made it possible to rapidly change the usual working methods, adapting to a new normality. These changes and the very high workloads have certainly led to psycho-physical stress on the staff, which still needs to be adequately evaluated in order to be able to undertake actions to support and re-establish well-being in the workplace (Wu et al, 2020(2)). The available outcome data related to patient safety refer to compensation claims and show us a decline in both 2020 and 2021. Similarly, infections with multidrug-resistant germs decreased slightly during 2020 and 2021. On the other side, the impact of the pandemic both on preventable mortality and morbidity from Covid, as well as for other diseases which diagnosis and treatment were delayed due to Covid pressure on healthcare services have been dramatic, even though evidence is still quite limited to patients in residential facilities (Brown et al, 2021), unvaccinated patients (Bernal et al 2021), chronic diseases (Chudasama et al, 2020). It is essential to keep the memory of what happened in order to better manage possible pandemic events in the future, including patient safety management experiences such as the one reported in this work.

### **Keywords**

Patient safety, Crisis Management, Covid pandemic

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## **Title of the oral communication**

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