Pediatric emergency:
How simulation-based structural changes affect the clinic.

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Background:
Medical simulation allows you to test clinical cases by amplifying the experience of the operators[1].
Simulation 2.0 is aimed at testing structures to evaluate the effectiveness of the space.
In 2020 the SARS-CoV-2 pandemic became a public emergency.
The purpose of this study is to investigate the effectiveness of a simulated patient flow to support the management of the COVID-19 in the Pediatric Emergency Department (ED).[2]
The secondary aim was to evaluate the containment of the infectious risk through clinical analysis a one year after the structural changes[3].

Materials and methods:
A procedure (P1) was issued at the beginning of the pandemic.
However, a focus group was created to carry out an improvement project (QI).
The focus group organized a simulation following the guidelines set out in P1 document (SIM-P1).
Then analyzed data and came up with an improvement plan that was tested with a second simulation (SIM-Q1).
The variables considered were: potentially risky contacts; infection control and prevention measures (ICP).
Strengths and weaknesses were assessed for each organization.
After one year we extrapolated the number of positive rate in patients assigned to the low-risk pathway with subsequent interview; patients who changed pathway from low to high risk after medical evaluation and the reasons and positivity rate of operators.

Results:
The video recordings provided the opportunity to evaluate unplanned attendance, potentially risky contacts and the use of the ICP. Feedback forms and debriefings led to the identification of strengths and weaknesses.
The organization by the Q1 outclassed P1 by reducing unplanned attendance and potentially risky contacts.
Fewer than 10% of patients in the low infectious risk pathway who swabbed for hospitalization tested positive.
Furthermore, by interviewing the caregivers, we evaluated their behavior. Following our instructions, they had kept the mask, distances and hand hygiene.
The modification of the path from low to high risk after medical evaluation is mainly due to the onset of symptoms during the visit, therefore a variable that is poorly controllable with structural changes.
Finally, in the year evaluated, no operator tested positive.

Conclusion:
The first simulation allowed us to identify the weaknesses of the system which was already in place and which therefore exposed patients and staff to infectious risk and to apply correctives.

The second simulation made it possible to evaluate how the infectious risk had changed afterwards
the corrective actions hypothesized in response to proven deficiencies.
The evaluations of the infectious risk parameters evaluated after one year have allowed us to understand how the structural modifications performed after the simulations have affected the risk of infection.
This experience could be applied in others hospitals not only for SARS-CoV2 but for testing all infection control procedures.

Bibliography:

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