

LETTER TO THE EDITOR

Dedicated proning teams in the ICU

T.C. Roeleveld¹, H.J. de Vries^{1,2}, A. Girbes¹

¹Department of Intensive Care, Amsterdam UMC, Vrije Universiteit Amsterdam, Amsterdam, the Netherlands

²Amsterdam Cardiovascular Sciences Research Institute, Amsterdam, the Netherlands

Correspondence

T.C. Roeleveld - t.roeleveld@amsterdamumc.nl

Dear editor,

ICU departments in our country face numerous challenges in the current COVID-19 pandemic, including shortages of beds, ventilators and personnel. Luckily, various initiatives have emerged to tackle these challenges. In this letter, we would like to inform our fellow colleagues how we have solved one of the major problems in our ICU: the lack of personnel and time for adequate management of prone positioning by forming specialised 'proning teams'.

Ventilating patients in prone position, commonly known as proning (Dutch: 'buikligging'), is a well-established intervention in patients with acute hypoxic respiratory failure.^[1] Prone positioning improves ventilation in the dorsal lung fields, shifts perfusion away from collapsed lung regions and improves mobilisation of sputum. Current guidelines recommend proning patients with severe hypoxic failure, defined as having a PaO₂/FiO₂-ratio below 150 mmHg. Proning has improved patient outcomes, including mortality, independently from improved oxygenation.^[1]

However, there are several challenges to overcome for proning to be successful. During the proning procedure loss of airway and vascular access are looming and require immediate action. To prevent pressure ulcers patients are positioned facing left and right alternately. To support stable positions legs and arms are moved to support a straight back position. The procedure itself is labour-intensive and requires a coordinated effort of five trained professionals. The recent surge of patients in prone position causes logistical challenges with limited capacity of ICU nurses.

Professional Proning Team

The proning procedure is best performed using a repetitive standardised approach with all principles of crew resource management in mind. To reduce the workload of ICU nurses we looked for aspects of the proning procedure that could be replaced by other healthcare providers. We reached out to our

Human Resources department to look for suitable candidates to recruit. Since all internships for medical students and non-urgent surgery are cancelled, we initially focused on medical students with postponed internships and surgical residents. Many medical students are currently at home because internships have been cancelled, but they are eager to help their future colleagues in these challenging times. Having an abundance of medical students in our university clinic, we trained a second group of medical students to continue the proning team when surgical residents are no longer available.

We edited the hospital protocol to describe the tasks and responsibilities of the proning team members. The ICU nurse in our new protocol has a supervisory position and assists the physician at the head of the team. The medical students and surgical residents were trained in our simulation facilities with assessment of their adherence to protocol in emergency situations. During the training we repetitively practised the procedure with closed loop communication, planning and identification of problems, and creating awareness of the risks and possible emergencies.

Next, we analysed the position at the head of the proning team. ICU physicians were using multiple methods to reach the proning position and the risk of loss of airway is significant and disastrous in patients that are expected to benefit from proning. We reached out to the anaesthesiology department, acknowledging their experience in emergency airway management and guidance in a structured standardised protocol. Many anaesthesiologists volunteered and appreciate the possibility to support the Intensive Care with their expertise. Whilst evaluating the performance of the proning team, we found that positioning of the prone patients was diverse. Physiotherapists were included in the proning team to find the best position for each patient.

Currently ICU nurses and intensivists are supervising the proning procedure and assist in case of emergencies, having the flexibility to respond to emergencies with other patients.

Since the professional proning team is operational and performing the proning procedures in most patients, the workload for ICU nurses has decreased tremendously, whilst adherence to protocols improved and less adverse events, such as loss of ventilator connection or dislocated lines, are reported. Both nurses and physicians report high satisfaction with the proning team. We feel that the involvement of a multidisciplinary team, consisting of anaesthesiologist, physical therapists and surgical residents, has improved the quality of our proning procedures. This will be beneficial even after the current crisis.

Our recommendation is to analyse hospital protocols for repetitive, labour-intensive procedures, which can be performed under adequate supervision. Training is paramount to reach an adequate quality and high-risk procedures should be performed by the most experienced available professionals. Together, we can overcome the current challenges and perhaps even improve future care.

Disclosures

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References

1. Guérin C, Reignier J, Richard JC, et al. Prone positioning in severe acute respiratory distress syndrome. *N Engl J Med*. 2013;368:2159–68.

Prone teams method and protocol



https://njcc.nl/sites/nvic.nl/files/Draaiteams_werkwijze_en_protocol.pdf

Prone teams instructional video



<https://njcc.nl/draaien-ic-patient>