Comprehensive Oxygen Management for the Prevention of Retinopathy of Prematurity: The Pediatrix Experience

Dan L. Ellsbury, MD*, Robert Ursprung, MD, MMSc

KEYWORDS

• Comprehensive Oxygen Management • Quality improvement
• Retinopathy of prematurity • Very low birth weight infants

In 2003, Chow and coworkers[1] described a striking reduction in retinopathy of prematurity (ROP) after implementation of a structured oxygen management protocol, focused on avoiding hyperoxia and repeated episodes of hypoxia-hyperoxia in very low birth weight infants. This publication generated much interest and discussion in the neonatology community including practices within Pediatrix Medical Group. Some Pediatrix Physician Groups adopted the general approach proposed by Chow and coworkers[1] with similar results,[2–4] as did a number of centers outside of Pediatrix.[5–7] Within Pediatrix Medical Group, discussions continued by intranet discussion forums and presentations at Pediatrix quality improvement conferences. In 2006, the basic principles of avoiding hyperoxia and repeated episodes of hypoxia-hyperoxia were expanded into a Pediatrix quality improvement initiative called ''Comprehensive Oxygen Management for the Prevention of Retinopathy of Prematurity'' (COMP-ROP).

COMP-ROP was enthusiastically received. Eighty neonatal intensive care units (NICU) formally participated in the initiative, with many more informally participating. The COMP-ROP Collaborative was loosely structured. NICUs were provided with a toolkit containing a basic description of the oxygen management process and multiple tools to facilitate rapid adaptation and implementation of the program within their centers.

Because of the uncertainties and controversies surrounding the definition of ''optimal oxygen saturation'' in extremely premature infants, rigid oxygen saturation

The Center for Research, Education, and Quality, Pediatrix Medical Group, 1301 Concord Terrace, Sunrise, FL 33323, USA
* Corresponding author.
E-mail address: Dan_Ellsbury@pediatrix.com

Clin Perinatol 37 (2010) 203–215
doi:10.1016/j.clp.2010.01.012 **perinatology.theclinics.com**
0095-5108/10/$ – see front matter © 2010 Elsevier Inc. All rights reserved.

limits were not mandated.[8,9] Emphasis was placed on NICU staff education, system-based approaches to decreasing hyperoxia, avoidance of large fluctuations in oxygen saturation, ensuring compliance with oximeter alarm use, and using oxygen saturation trending to assist and guide oxygen management efforts.

Between 2003 and 2008, a striking decrease in severe ROP (stage 3, 4, 5, or surgical) was seen in the Pediatrix Network. In infants with birth weights of 400 to 1500 g, severe ROP dropped from 11% in 2003 to 5.8% in 2008 (**Fig. 1**). During this time period, mortality rates remained stable. Necrotizing enterocolitis decreased, then increased during this time period, with 2008 rates very similar to 2003. This pattern was also seen in infants with birth weights greater than 1500 g, who were not included in COMP-ROP. Patent ductus arteriosus and patent ductus arteriosus ligation rates also fluctuated, with 2008 rates remaining similar to 2003. Oxygen use at 28 days of life and at 36 weeks postmenstrual age decreased from 2003 to 2008.

WHY WAS COMP-ROP SUCCESSFUL?

Why did this initiative succeed? Early adopters started the process after Chow and coworkers'[1] publication. The quality improvement infrastructure within Pediatrix Medical Group fostered the spread of this information, eventually formalizing the process as the COMP-ROP program. Berwick[10] describes seven guiding rules for diffusion of innovations, all of which were used in the events leading up to the COMP-ROP initiative and continued in the implementation of the program:

1. Find sound innovations: The structure of the Pediatrix system encourages, by intranet and conferences, continuous discussion and debate of new innovations found in the medical literature.
2. Find and support innovators: The ongoing communication and debate of new innovations includes discussion of the initial successes and difficulties with implementation of new ideas. Successful innovators could be identified despite the size of the network (almost 1000 physicians in 33 states, providing care for approximately 20% of infants receiving neonatal intensive care in the United States).

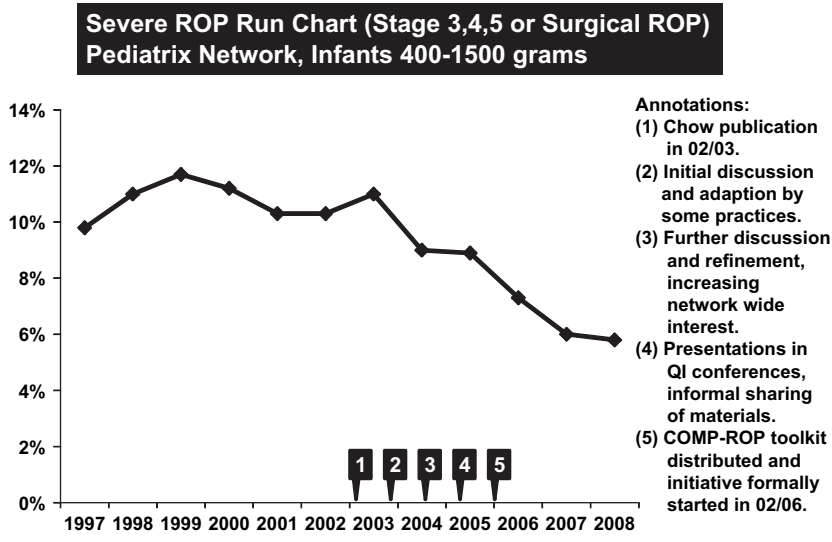

Fig. 1. COMP-ROP severe ROP annotated run chart.

Download English Version:

https://daneshyari.com/en/article/4151825

Download Persian Version:

https://daneshyari.com/article/4151825

Daneshyari.com