Reduction of Prescription Errors in Neonatal Intensive Care Unit: A Quality Improvement Initiative

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To the Editor: Prescription is an important component of medication administration. Errors in prescription-writing, an indisputable source of medication errors [1, 2], may prove fatal for vulnerable neonates [3, 4]. This Quality Initiative (QI) project, conceptualised on Point-of-Care Quality Improvement model [5], was prompted by an incidence of under-dosing for not accounting the extra drug volume needed to flush the extension-line in prescription. We aimed to improve the proportion of correct prescriptions from the existing 65% to 100% over 6 mo (July–December 2019) in neonates receiving treatment in our neonatal unit.

A QI team was constituted and baseline data were collected over 4 wk (01.07.2019–01.08.2019). The proportions of correct prescriptions and printed prescriptions were taken as outcome and process measures, respectively. The correctness and completeness of prescriptions were determined by an indigenously devised checklist. All prescriptions were prospectively assessed every fourth-day by the designated team member with calculation of process and outcome measures. Baseline data analysed using fishbone diagram and Pareto chart revealed that illegible handwriting, inability to remember components of a prescription and failure to account the extra volume for extension lines were the 20% causes that determined 70% of prescription errors.

During the intervention-phase of 16 wk (02.08.2019–21.11.2019), 8554 components of 611 prescriptions were assessed for correctness. Plan-Do-Study-Act (PDSA) cycle-1 (02.08.2019–29.08.2019) involved training of residents regarding the uniform use of printed prescriptions and a single reference source for drug dosage (IBM® Micromedex®

Neofax® manual). PDSA-2 (30.08.2019–26.09.2019) involved the development and use of a preformatted prescription template. In PDSA-3 (27.09.2019–24.10.2019), a decision to use only 100 cm extension lines and addition of this order to the prescription template was made. PDSA-4 (25.10.2019–21.11.2019) involved two-person verification of each prescription. At the end of four sequential PDSA cycles, the proportion of correct prescriptions improved from 65% to 76.2%, 80%, 95.8% and 100%, respectively, and the proportions of printed prescriptions improved from 0% to 77.3%, 95%, 96% and 100%, respectively. During the sustenance-phase (22.11.2019–31.12.2019), 3612 components of 258 prescriptions were checked for correctness. Both the process and outcome measures remained 100% all throughout.

In this QI initiative, the use of simple, locally-devised problem-oriented PDSA ramps resulted in complete elimination of prescription errors.

Compliance with Ethical Standards

Conflict of Interest None.

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