

Quality Improvement Initiative to Reduce Intravenous Line-related Infiltration and Phlebitis Incidence in Pediatric Emergency Room

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In this article, there are few minor corrections in the manuscript, which have now been corrected and reposted online. Corrections were made in Abstract, images, and main text.

OLD ABSTRACT:

ABSTRACT

Objective: To reduce the incidence of infiltration and phlebitis by 50% over 2 months among children admitted to the emergency room (ER) of a tertiary care hospital.

Method: The study was conducted in the pediatric ER of a tertiary care hospital in North India. All children aged >28 days, receiving intravenous (IV) medication and/or fluids, were enrolled between June (2017) and September (2017). Existing practices of IV line insertion and maintenance were observed and recorded. The visual infusion phlebitis score and infiltration assessment scale were to grade the extent of two. The intervention classified as "IV line insertion and maintenance bundle" included the introduction of low-cost mobile sterile compartment trays, audit and feedback, organizational change, introduction of infection control nurse and quality improvement (QI) team formations were implement in different Plan-Do-Study-Act (PDSA) cycles. Reduction in the "incidence of phlebitis and infiltration" was outcome measures while "scores on checklist of IV line insertion and IV line maintenance and administration of drugs" were process measures.

Result: The process measures, for IV line insertion, maintenance and administration of drugs through IV line, revealed an increase in scores on the checklist. There was a significant decrease in the incidence of infiltration and phlebitis from 82.9 and 96.1% to 45 and 55%, respectively, postimplementation of all PDSA cycles.

Conclusion: Multifaceted QI IV line insertion and maintenance bundle reduced the incidence of infiltration and phlebitis. These interventions when integrated into daily work bundles along with continuous education and motivation help in sustaining the goal and attaining long-term success.

Keywords: Infiltration, Pediatric emergency, Phlebitis, Quality improvement.

NEW ABSTRACT:

ABSTRACT

Aim and objective: To reduce the incidence of infiltration and phlebitis by 50% over 2 months among children admitted to the emergency room (ER) of a tertiary care hospital.

Materials and methods: The study was conducted in the pediatric ER of a tertiary care hospital in North India. All children aged >28 days, receiving intravenous (IV) medication and/or fluids, were enrolled between June (2017) and September (2017). Existing practices of IV line insertion and maintenance were observed and recorded. The visual infusion phlebitis score and infiltration assessment scale used to grade the extent of the two. The intervention classified as "IV line insertion and maintenance bundle" included the introduction of low-cost mobile sterile compartment trays, audit and feedback, organizational change and introduction of infection control nurse. These interventions were implemented in sequential Plan-Do-Study-Act (PDSA) cycles. Reduction in the "incidence of phlebitis and infiltration" were the outcome measures while "scores on checklist of IV line insertion and IV line maintenance and administration of drugs" were the process measures.

Result: The process measures, for IV line insertion, maintenance and administration of drugs through IV line, revealed an increase in scores on the checklist. There was a significant decrease in the incidence of infiltration and phlebitis from 82.9% and 96.1% to 45% and 55%, respectively, after implementation of all PDSA cycles.

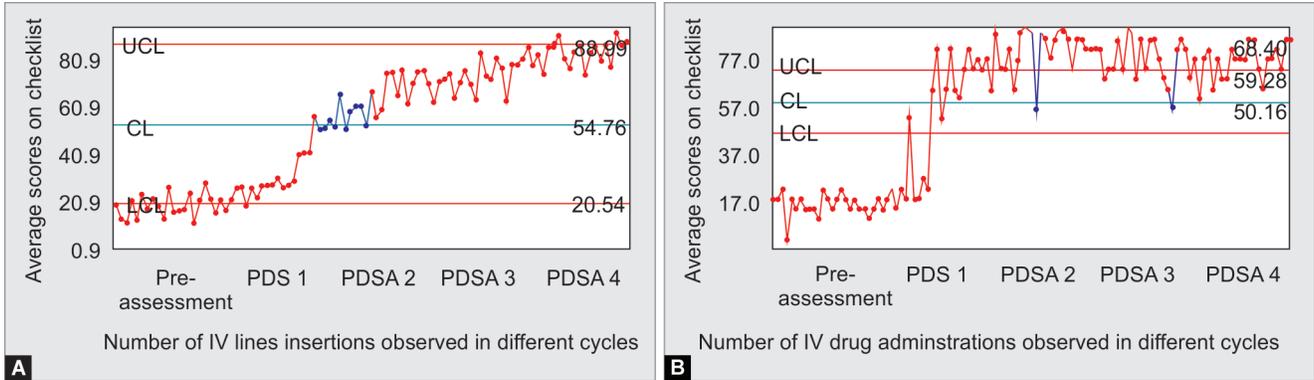
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Keywords: Infiltration, Pediatric emergency, Phlebitis, Quality improvement.

IMAGES:

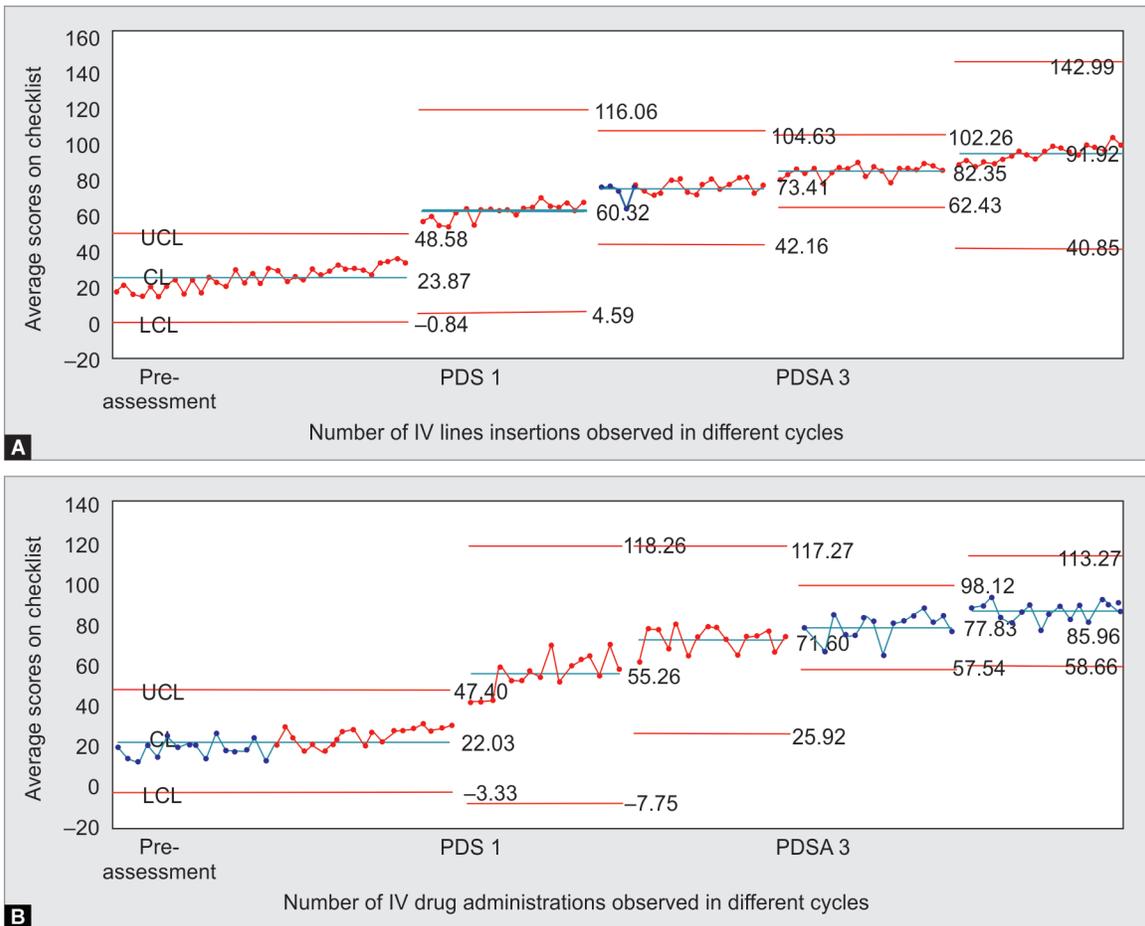
Fig 4 and Fig 5

In Figure 4 A part inside labeling line "Number of IV lines insertion observe din" Change to "Number of IV lines insertion observed in" correct figure mentioned below:



Figs 4 A and B

In Figure 5 A part inside line "Number of IV lines insertion observed in" Change to "Number of IV lines insertions observed in" in B part "Number of IV lines insertion observed in" Change to "Number of IV drug administrations observed in".



Figs 5A and B

TEXT CORRECTION:

In introduction second paragraph 1st line, "The causes of IV cannula induced phlebitis includes cannulation.....shape the bundle.¹⁴" change to "The causes of IV cannula induced phlebitis include cannulation..... shape the bundle.¹⁴"

In Materials and Method 1st paragraph 9th line "Children >28 days, receiving" change to "Children aged >28 days, receiving"

Line 33 "administration, though" change to "administration, by nurses although"

In heading IV Line Insertion and Maintenance Bundle first paragraph line 4 "low-cost steel tray (Fig. 2)," change to "low-cost stainless steel tray (Fig. 2),"

Line 7 "after scrubbed" change to "after it was scrubbed"

Fig 3A and B: caption B "of phlebitis" Change to "of infiltration"

The correct caption is: Figs 3A and B: (A) Line graph depicting incidence of infiltration within 24, 24–48, 48–72, 72–96 hours; (B) Line graph depicting incidence of infiltration in 24, 24–48, 48–72, 72–96 hours