

# Improving the Variable Rate Intravenous Insulin Infusion (VRII) Protocol to Safely and Effectively Manage Hyperglycaemia in the Department of Critical Care

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## Background

There were frequent incidents of hypoglycaemia amongst critically-ill patients whilst on the Variable Rate Intravenous Insulin Infusion (VRII) protocol, resulting in patient safety risk and poor staff compliance in following the protocol, causing nurses to use their own judgement when titrating the infusion.

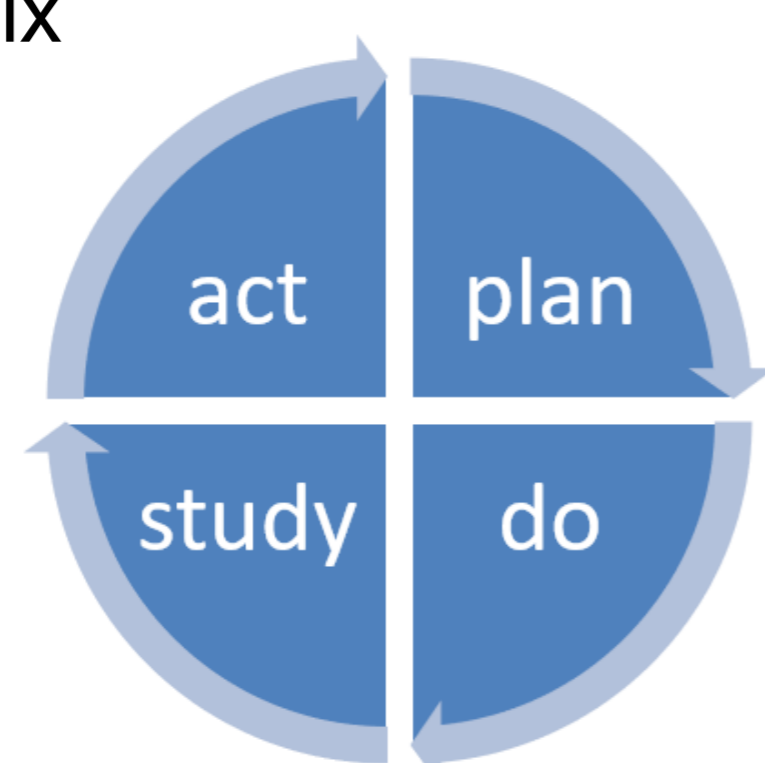
There is good evidence that targeting overly tight blood glucose control can lead to harm through frequent hypoglycaemic episodes.

## Aim

Reduce the incidence of hypoglycaemia amongst critically-ill patients on VRII by 50% by August 2023.

## PDSA cycle 1 New VRII Protocol

- 1a. Collecting and interpreting data from Datix reports and staff questionnaire.
- 1b. Making a new DCC VRII protocol and implementation in the ward.
- 1c. Audit on blood glucose results and compliance of staff.
- 1d. Additional guidelines and teaching on protocol based on staff feedback.

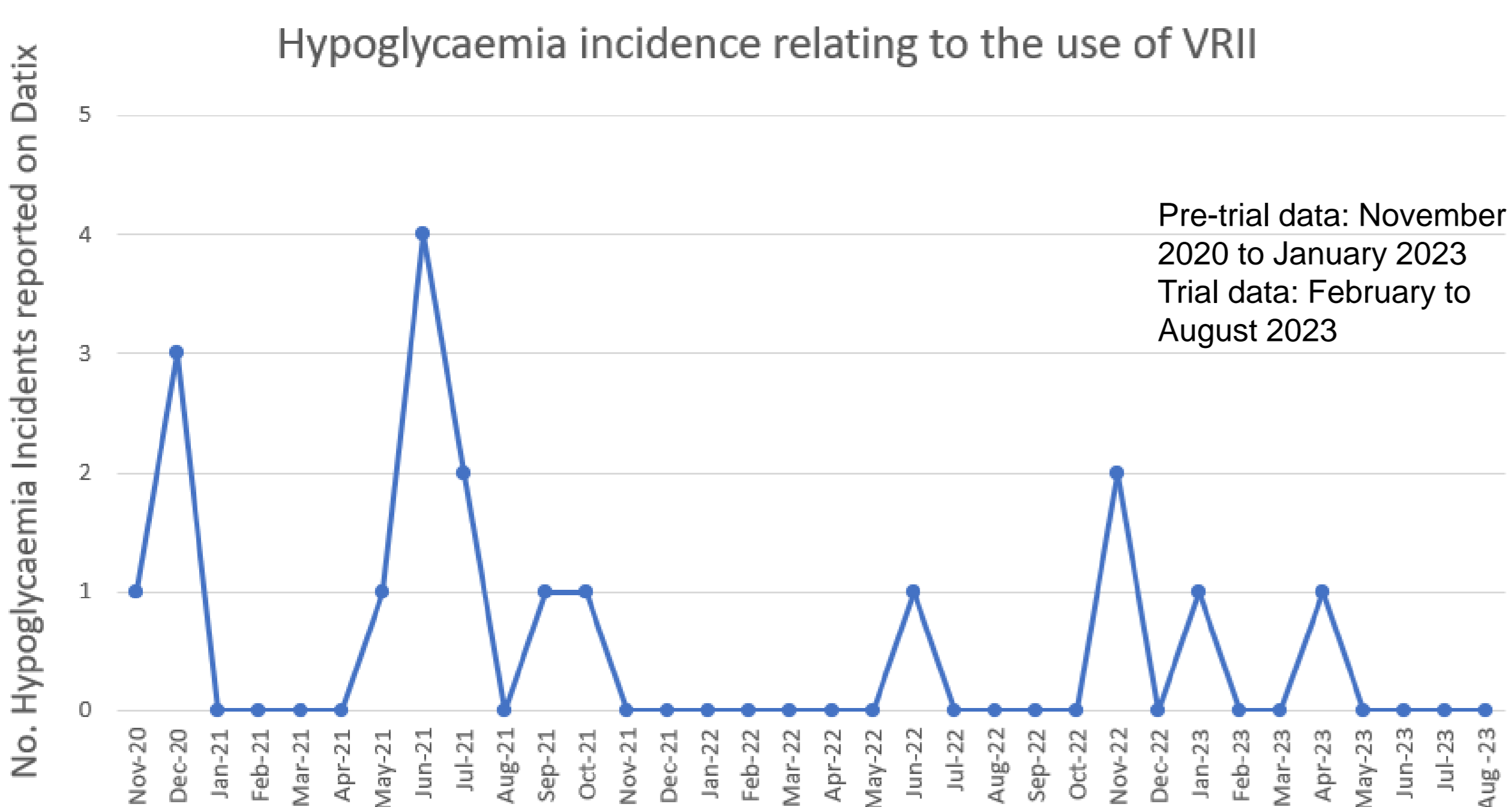


## PDSA cycle 2 Staff

- 2a. Preparing the team for the implementation phase — communication via email and safety briefs; prescription charts and protocols printed for each bed space.
- 2b. Micro teachings amongst staff and implementation.
- 2c. Obtaining feedback and analysis.
- 2d. Addressing feedback and doing refresher teachings amongst staff.

## PDSA cycle 3 Multidisciplinary Team involvement

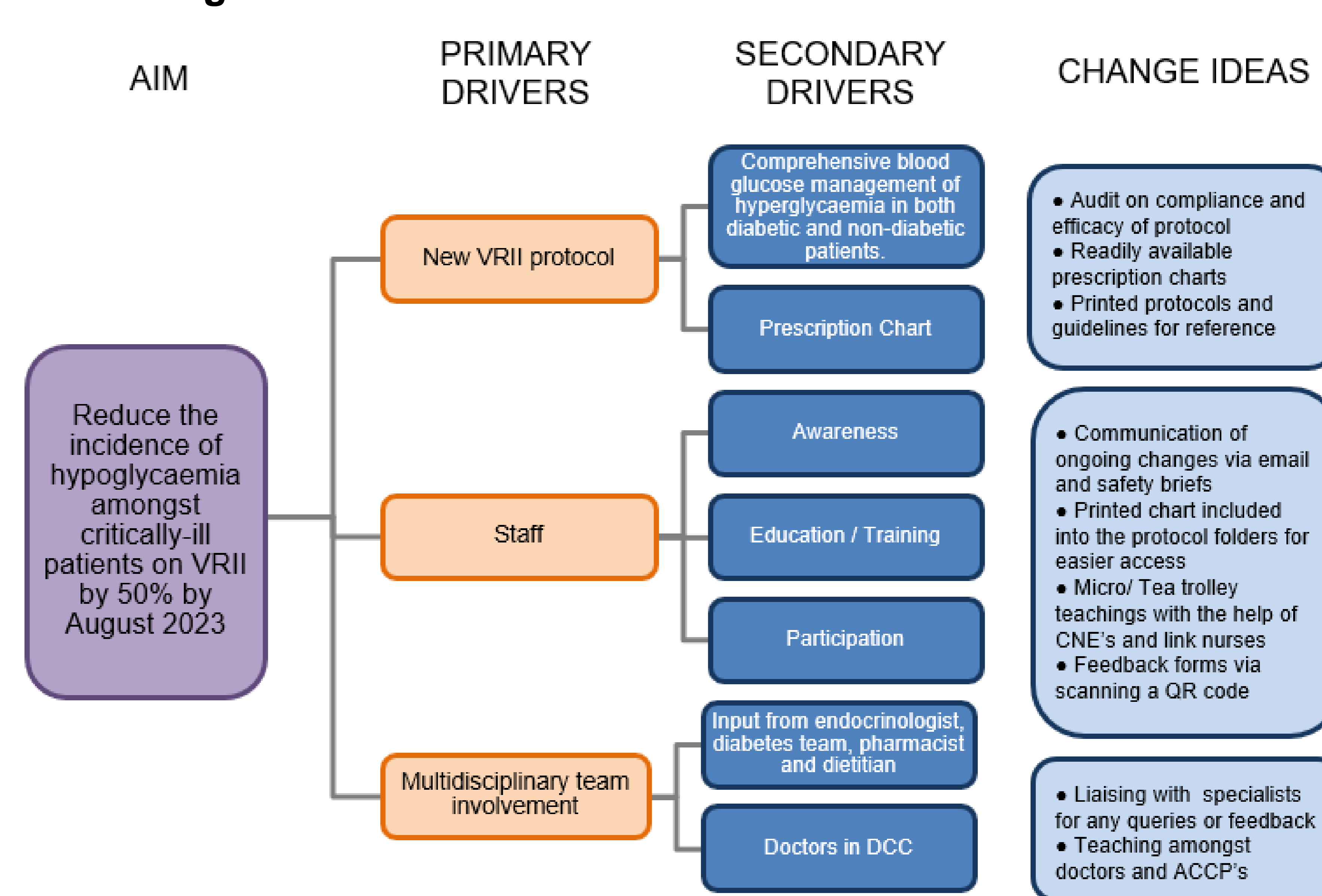
- 3a. Obtaining input from specialists.
- 3b. Rectifying the protocol as response to specialist feedback; disseminating information amongst DCC doctors and ACCP's.
- 3c. Teaching amongst DCC doctors and ACCP's.



## Results

- Significant decrease on hypoglycaemia incidence whilst on the new VRII protocol (Only 1 incident out of 23 patients trialled).
- Compliance rate from nurses needs to be improved.

## Driver Diagram



## Outcome Measure

incidence of hypoglycaemia whilst on VRII to aid patient safety

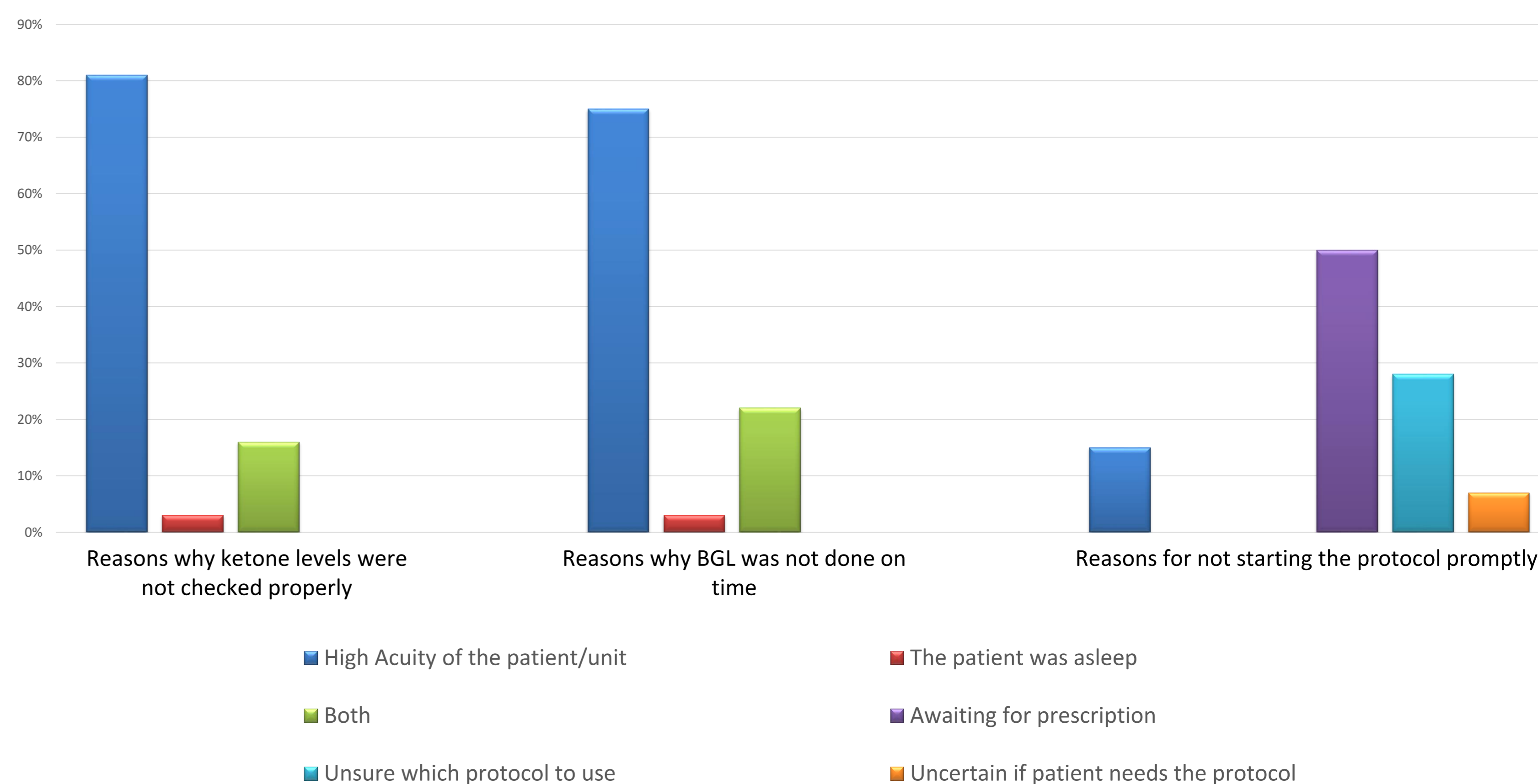
## Process Measure (1)

Number of Datix generated related to VRII-induced hypoglycaemia

## Process Measure (2)

Rate of staff compliance on using the new VRII protocol

## Post-trial Staff Survey



## Next Steps

- Formalising the departmental policy
- Consultation and approval stage (Ratification by Trust Policy Approval Group)
- Dissemination and Implementation
  - Further staff teaching particularly for new starters.
  - Printing of prescription charts.