# **Training RNs to Prepare Multiple Doses of BCG Vaccines** from Ampoules

# Singapore Healthcare Management 2016



NC Geetha Daniel, KK Women's and Children's Hospital ADN Giam Poh Eng, KK Women's and Children's Hospital DDN Teo Chor Cher, KK Women's and Children's Hospital ADN Thilagamangai, KK Women's and Children's Hospital

# INTRODUCTION

### **Background:**

BCG vaccine manufactured by Staten Serum Institut (SSI), was used in KK Hospital for many years. As the preparation of SSI vaccine is in multidose vial, the reconstituted vial is placed in ice-filled thermos flask to maintain cold chain of temperature of 2°C to 8°C. Prior to administration, the required dose is prepared in individual syringe to be administered to the neonate. Unused reconstituted vaccine in the vial can be kept in a



refrigerator in an ice-filled thermos flask for up to four hours as recommended by the manufacturer. According to Ministry of Health guidelines, BCG vaccine that is prepared in a syringe should not be kept longer than 30 minutes.

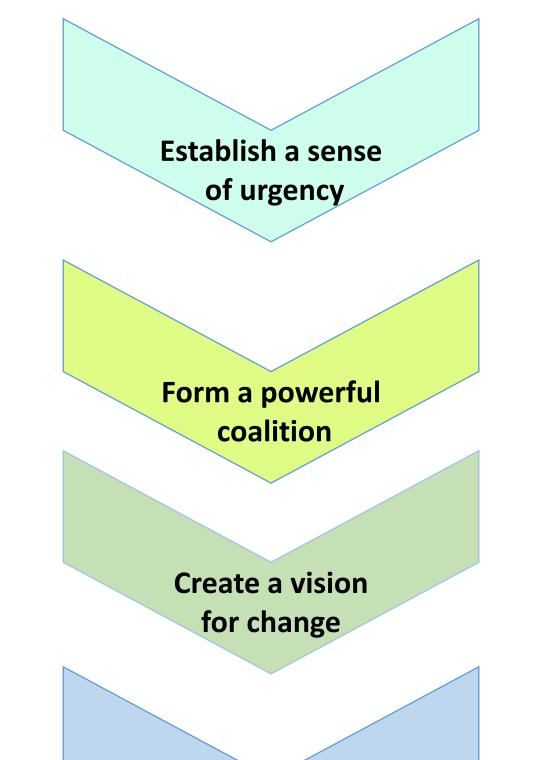
## **Current situation:**

As there is a worldwide shortage of SSI BCG vaccine, KKH Pharmacy and Therapeutic Committee decided to use multi-dose BCG vaccine manufactured by Japan BCG Laboratory. As the preparation of this BCG vaccine is in ampoule form, training had to be conducted for the Registered Nurses (RNs) to acquire the knowledge and skills in reconstituting, withdrawing and preparing multi doses of BCG vaccines.. The team discussed and developed the training materials and conducted training for the RNs.

# **Anticipated challenges:**

- 1. RNs are not familiar with the preparation of BCG vaccine from ampoules.
- 2. When the ampoule is broken, multiple doses had to be prepared in syringes immediately when reconstituted to prevent contamination from exposure.
- 3. Maintaining cold chain of prepared syringes of vaccines.

# **METHODOLOGY – KOTTER'S CHANGE MODEL**



- As the preparation of Japan BCG vaccine is in ampoules, there was an urgent need to train RNs to withdraw multi-doses of BCG vaccine from ampoules.
- The team comprise of Nurse Clinician and Assistant Director of Nursing from Nurses Development Unit and Assistant Director of Nursing in charge of obstetric wards.





07-06-2016 07:55





BCG Vaccine by Japan BCG Laboratories

Communicate the vision

> Empower action

**Create quick** wins

Build on the changes

- The Nurse Managers and senior nursing personnel were informed of the change in BCG vaccine preparation.
- The nurses were informed of the new stock of BCG vaccine and training would be conducted by the team.
- With reference to the product insert and literature, the team prepared the training slides and conducted 5 training sessions.
- In order to ensure the temperature within the cooler box is between 2°C to 8°C, trials were carried out to identify the suitable number and size of icepacks.
- When the change was implemented, the team gathered feedback from the nurses, reviewed the process and made minor changes to the steps in procedure.

• Support and guidance were provided during the preparation of multi-doses of new BCG vaccines in the clinical areas.

• With the discontinuation of the supply of BCG

Two fully frozen ice packs (19 x 10.5 x 3cm) and one (18.5 x 9.5 x 2.5cm) are used to maintain cold chain

Positioning of ice packs in the cooler box.



### Vaccine loaded syringes in the cooler box at temperature of 5°C



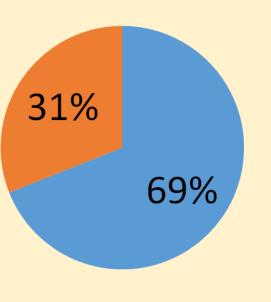
Make it stick

### vaccine in vial form, nurses are proficient in withdrawing multi-doses from ampoules.

# RESULTS

PERCENTAGE OF BCG TRAINED STAFF, TRAINED TO PREPREPARE BCG FROM AMPUOLE

Trained Untrained



The RNs were trained and competent in withdrawing multi-doses of BCG vaccines when preparation were in ampoules and maintaining cold chain. The training slides were disseminated to NMs to train the remaining nurses.

RNs were able to prepare multiple doses from a vaccine ampoule without contamination.

Cold chain was achieved by placing two fully frozen ice packs (19 x 10.5 x 3cm) at the bottom and one (18.5 x 9.5 x 2.5cm) at the side of a cooler box (4.7L).

## Training of RNs to prepare BCG vaccine from ampoule

# CONCLUSION

The Kotter's 8 step change model is a successful change management tool which was useful to change our practice. This initiative enabled us to maintain cold chain throughout the BCG administration process, ensuring patient safety.