

# MRSA Screening: Local Experience *A tale of two units*



Both units are located  
somewhere around here

*C Lai*

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Queen Elizabeth Hospital*



伊利沙伯醫院  
QUEEN ELIZABETH HOSPITAL

# MRSA Reduction Program in Unit A - 2007

- Launched as “Joint venture”
- 5 week intensive program
- First utilization of MRSA PCR in our hospital
  - (GeneOhm MRSA)
- Intervention:
  - Patient, staff, environmental screening



## ALL New admission to ICU

### Rapid Screening (PCR):

1. Nasal swab

### Conventional Screening (Agar):

1. Nasal Swab
2. Throat Swab
3. Axilla / perineum swab
4. Wound swabs, if present

Provisional result by PCR

Confirmatory result by culture (Agar)

Weekly Screening (Agar)

Discharge / Transfer-out  
(Pre-discharge screening by Agar)

*All screening agar is by ChromID*



# Interventions for MRSA carriers

- **Decolonize**
- **Signage**
- **Standard & Contact precautions**
- **Cohort or single room**

- **Weekly screening by Agar**
- **Patient is declared free from MRSA if weekly screening is negative for 3 times**



# Results – Patient Screening

- Patient screened: 49
- Preadmission carriage rate: 16%
- No nosocomial case during study period



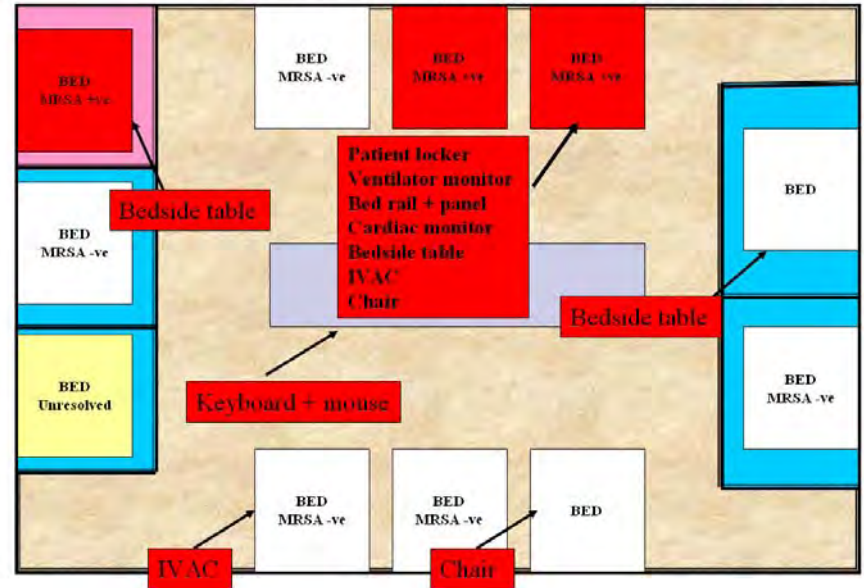
# Results – Staff screening

<b>Staff Group</b>	<b>No</b>	<b>Number of Screening Performed (Total number)</b>	<b>Positive Result</b>	<b>Positive Percentage</b>
<b>Doctors</b>		10 (16)	1	10.0%
<b>Nurses</b>		28 (66)	3	10.7%
<b>Supporting</b>		15 (17)	1	6.7%
<b>Physiotherapists</b>		3 (5)	0	0%
<b>Ward Steward</b>		0 (3)	----	N/A
<b>Total</b>		<b>56 (107)</b>	<b>5</b>	<b>8.9%</b>



# Results – Environment screening

Random sampling of “High touch” area



Date	Positive sites	No. of sites screened	% Positive
30th May	0	104	0
21st June	1	23	4.3
4th July	13	98	13.3
<b>Total</b>	<b>14</b>	<b>225</b>	<b>6.2</b>

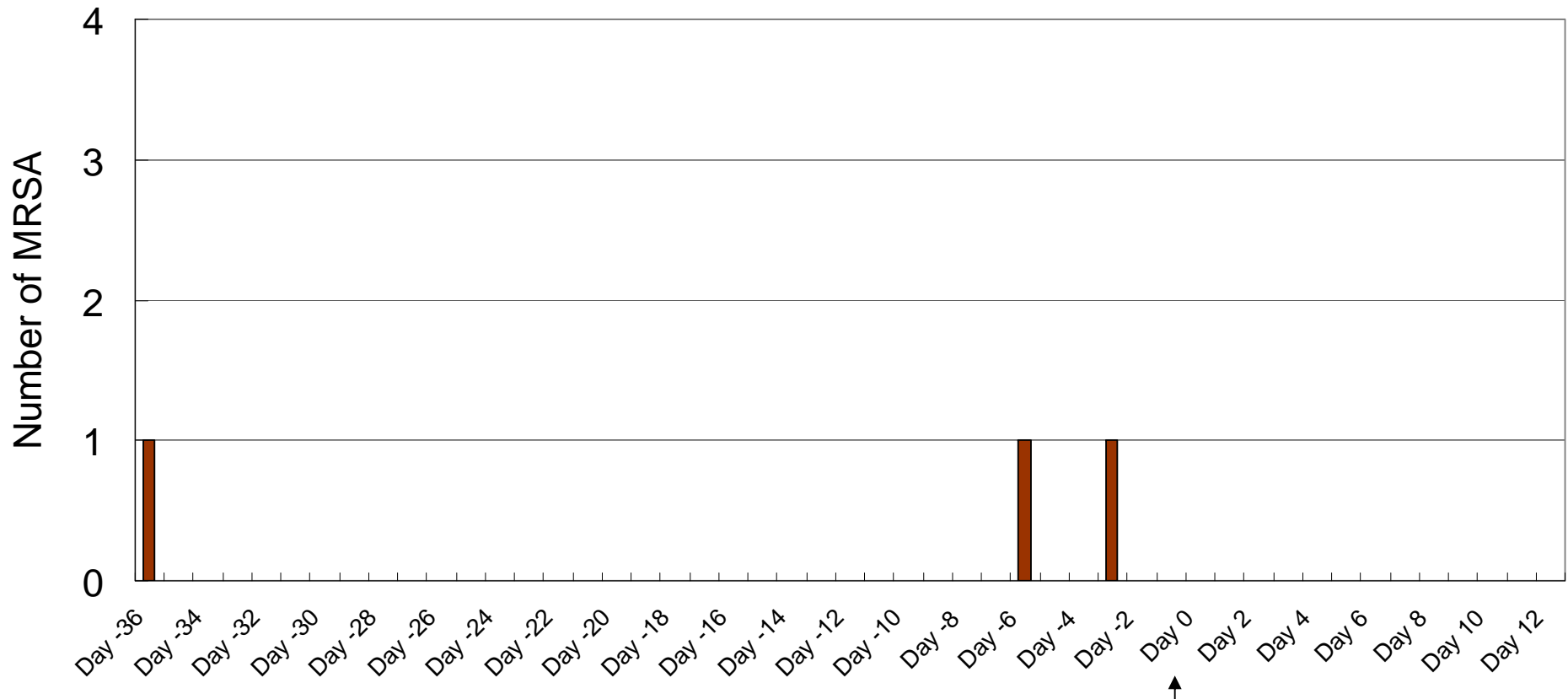


# Clustering in a Unit B

- Ward concern: 3 cases of MRSA in their ward
- These 3 MRSA isolates came from:
  - Blood
  - CSF
  - Wound
- Is it an outbreak?
- Do we need to do anything about it?

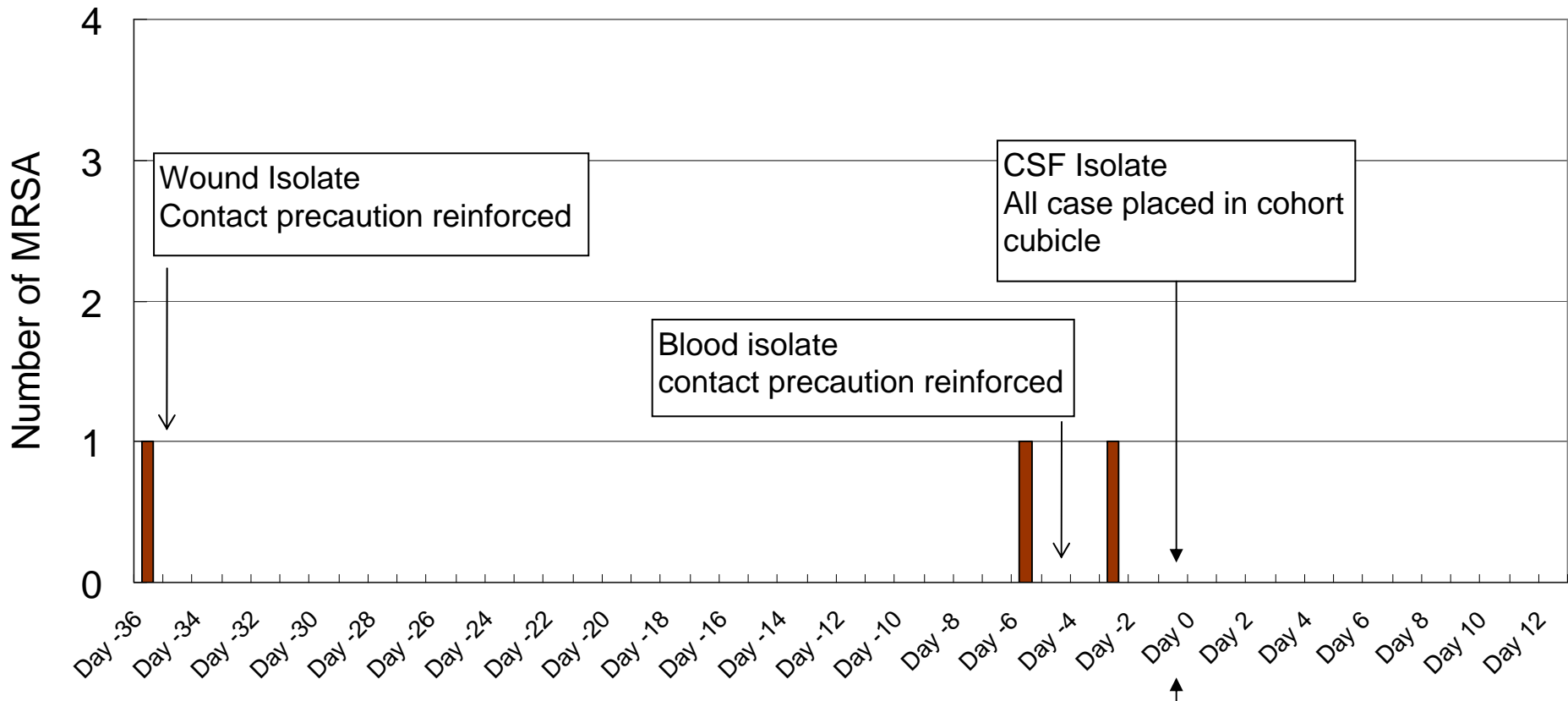






Enquiry from Ward

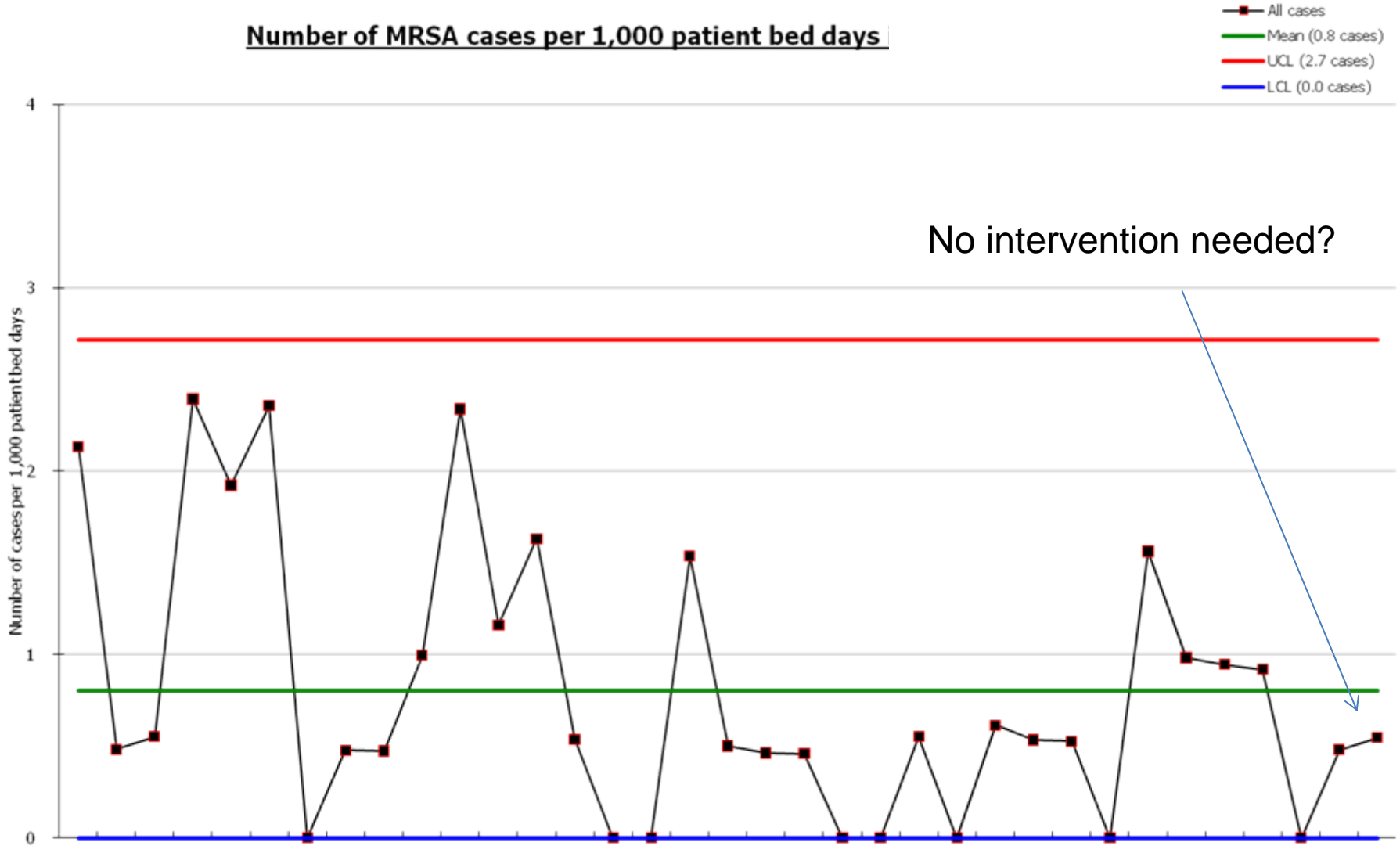




Enquiry from Ward



# Number of MRSA cases per 1,000 patient bed days



No intervention needed?

Monthly data



# Infection Control Measures

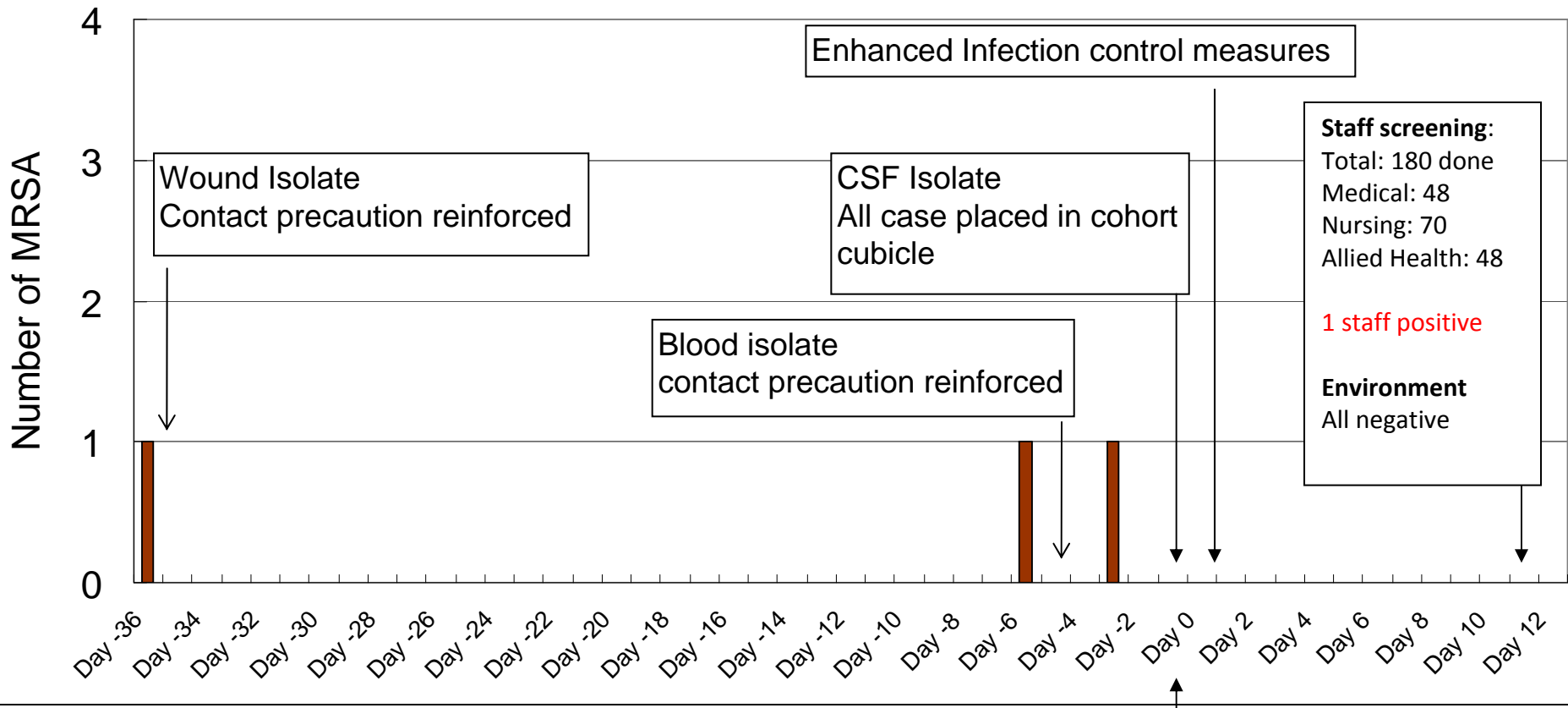
Action	Details	Outcome
Cohort the patients	<ul style="list-style-type: none"><li>● Cohort in cubicle</li><li>● Physical barrier</li><li>● Designated staff &amp; Equipment</li></ul>	<ul style="list-style-type: none"><li>● Fully compliance during daily ward visits</li></ul>
Reinforce stringent standard and contact precautions	<ul style="list-style-type: none"><li>● Gown, gloves &amp; Caps</li></ul>	<ul style="list-style-type: none"><li>● Fully compliance during daily ward visits</li></ul>
Reinforce hand hygiene	<ul style="list-style-type: none"><li>● Focus the importance of HH specifically on the high risk procedures</li><li>● Hand hygiene audit performed during ward visit</li></ul>	<ul style="list-style-type: none"><li>● Compliance increased from 76% to 90%</li></ul>



# Infection Control Measures

Action	Details	Outcome
Visitor education	<ul style="list-style-type: none"><li>●PPE requirement and hand hygiene</li></ul>	<ul style="list-style-type: none"><li>●100% compliance</li></ul>
infection control policing	<ul style="list-style-type: none"><li>●Real time feedback</li></ul>	<ul style="list-style-type: none"><li>●27 ward visits was conducted</li></ul>
Intensified environmental decontamination	<ul style="list-style-type: none"><li>●Virkon and disposable wipers</li><li>●Separate items for the cleansing inside the cohort and non cohort cubicles</li><li>●Increase frequency</li></ul>	<ul style="list-style-type: none"><li>●Fully comply with their protocol</li></ul>
Mother screening	<ul style="list-style-type: none"><li>●Nasal (ChromID)</li></ul>	No positive finding





Enquiry from Ward



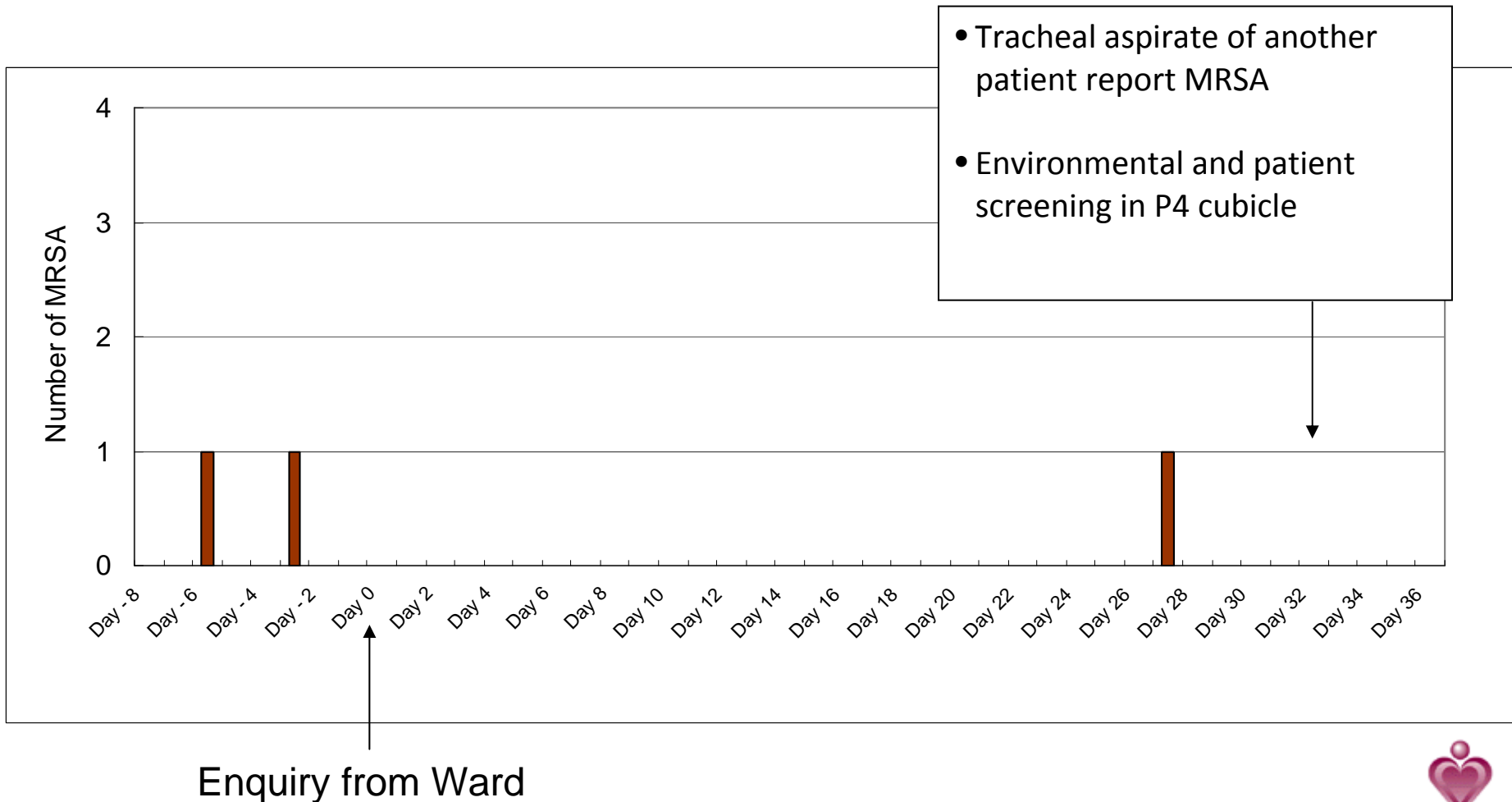
# Screening results:

	Wound swab	Blood	CSF	Staff 1
FOX	R	R	R	R
ERY	R	R	R	R
CIP	R	R	R	R
CLI	IR	IR	IR	R
FDA	S	S	S	R
VAN (MIC)	S (1.0)	S (1.0)	S (1.0)	S (2.0)
SCCmec	V	V	V	Non-Type IV/V
PVL gene	Neg	Neg	Neg	Neg
spa type	t1081	t1081	t1081	t037

*Note: t1081 were also isolated from other departments / hospitals during the same period*



# Just when we thought everything is fine...





# Further actions:

Patient screening	<ul style="list-style-type: none"> <li>● 34 patients screened</li> <li>● Nasal / umbilical / wound</li> </ul>	<ul style="list-style-type: none"> <li>● No positive findings</li> </ul>
“Targeted” Staff screening	<ul style="list-style-type: none"> <li>● 28 Staff screened</li> <li>● Nasal / Throat</li> <li>● (Medical: 3; Nursing: 22; Physio: 3)</li> </ul>	<ul style="list-style-type: none"> <li>● 1 MRSA in throat</li> <li>● Decontamination offered and was cleared at the follow up screening.</li> </ul>
New staff screening	Total 6 done (Medical: 6)	<ul style="list-style-type: none"> <li>● No positive findings</li> </ul>
Patient admission screening	<p>Screen the patient upon admission (nasal, axilla, umbilicus)</p> <p>Weekly screen for long stay patient</p>	<ul style="list-style-type: none"> <li>● No positive findings on weekly screening</li> <li>● 1 patient detected upon admission screening</li> </ul>

*Note: all screening done by ChromID*



# Screening results:

	Wound swab	Blood	CSF	Staff 1	T/A	Staff 2
FOX	R	R	R	R	R	R
CIP	R	R	R	R	R	R
ERY	R	R	R	R	R	S
CLI	IR	IR	IR	R	IR	S
FDA	S	S	S	R	S	S
VAN (MIC)	S (1.0)	S (1.0)	S (1.0)	S (2.0)	S (1.0)	S (1.5)
SCCmec	V	V	V	Non-Type IV/V	V	V
PVL gene	Neg	Neg	Neg	Neg	Neg	Neg
spa type	t1081	t1081	t1081	t037	t1081	t1081



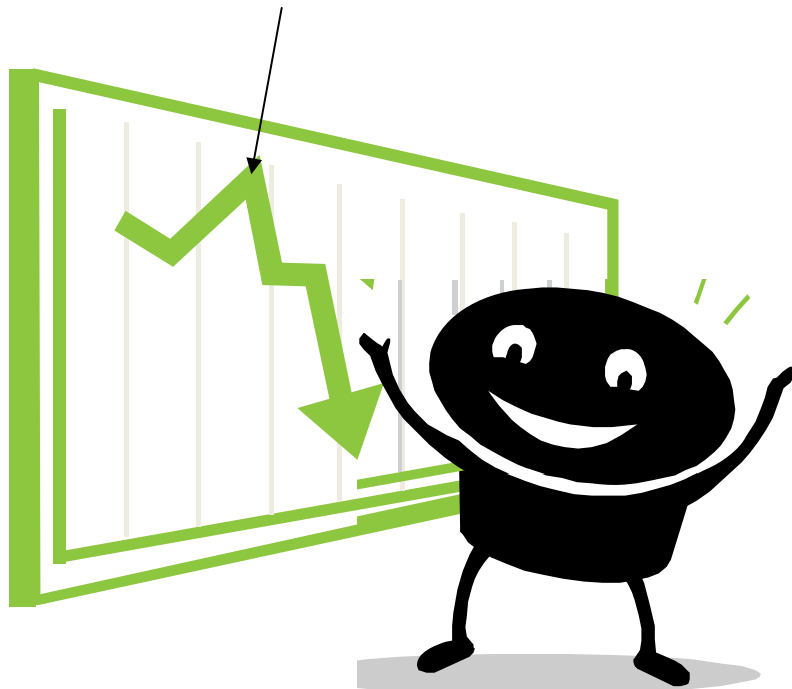
# Experience gained: Level up

- MRSA controlled in both cases
  - Unit A – focused, proactive, non-outbreak setting
  - Unit B – focused, reactive, “outbreak” setting
- The “success story” is a result of
  - *Intensive* collaboration between ICT, laboratory & clinical counterpart
  - Enhanced infection control measures
- High hand intervention
- Not easily sustainable



# Thank You

MRSA BSI



ICO

\$\$ from P4P



HCE