

Project Title

An Infallible System to Enhance Safety of Surgical Procedures: Electronic Surgeon Credentialing Management Module

Project Lead and Members

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Organisation(s) Involved

National University Hospital

Project Period

Start date: February 2018

Aims

To develop a fail-safe mechanism using an electronic surgeon credentialing management module

Background

See poster appended/ below

Methods

See poster appended/ below

Results

See poster appended/ below

Lessons Learnt

The electronic credentialing module led to higher awareness amongst proceduralists in ensuring that bookings were done under appropriately privileged proceduralists names' only. Compliance to privileging requirements improved vastly.

Conclusion

See poster appended/ below

Project Category

Technology, Automation, IT & Robotics Innovation

Keywords

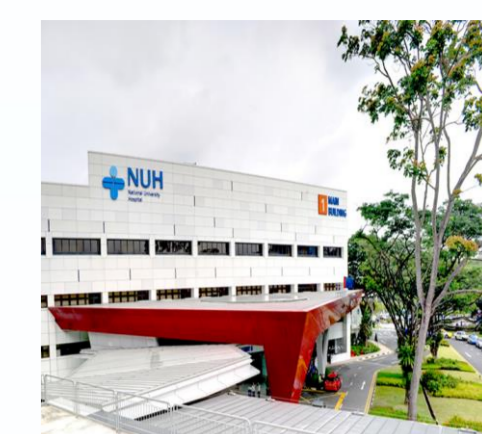
Technology, Automation, IT & Robotics Innovation, Safe Care, Accreditation, Compliance, Surgery, National University Hospital, Surgeons, Proceduralist, Clinical Privilege

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An Infallible System to Enhance Safety of Surgical Procedures: Electronic Surgeon Credentialing Management Module



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National University Hospital (NUH) is an academic medical center in Singapore with around 1200 beds and a comprehensive range of services. Different procedures of varying complexity, averaging 80000 annually, are being performed simultaneously everyday in 3 operating theatre complexes. Given these high number of procedures, it is of utmost importance that safety of surgical procedures is given the highest priority. NUH continuously ensures that procedures are performed by appropriately skilled/privileged proceduralists only. NUH has a doctor strength of 1411, of which 69% are specialists who require granting of specific clinical privileges to perform procedures independently. In order to complement the existing annual compliance audit of privileges, NUH has implemented a preemptive system by incorporating an electronic policing mechanism (Electronic Surgeon Credentialing Management Module) in the Optimized Operating Theatre Management (OOTM) System. The OOTM is the system used for booking procedures in the operating theater.

Brief Outline of Issue

With the Electronic Surgeon Credentialing Management Module in place, proceduralists will be prevented from listing/performing non-privileged procedures, thereby ensuring proceduralists' competency to protect patient safety and standard of care. It helps to protect proceduralists, departments & hospital in the event of potential medico-legal suit.

In preparation for the electronic module:

Assessment of Problem and Analysis of Its Causes

 Extensive mapping exercise for 16 procedural departments started.

 Mapping of the surgeons' names to the respective clinical privileges using the appropriate Ministry of Health surgical codes was a vital part, as this ensured the accuracy of the privileges' lists.

 The new module used the surgical codes to validate the surgeons' privileges when procedures were booked through OOTM.

Strategy for Change/Intervention

Roadshows were conducted for the clinicians and listing staff. In depth trainings sessions were held before the official roll out of the electronic module. Problems encountered along the way were:

- Funding issues
- OOTM data migration problems
- System enhancements
- Adjustments to the clinicians' privileges
- Resistance from staff

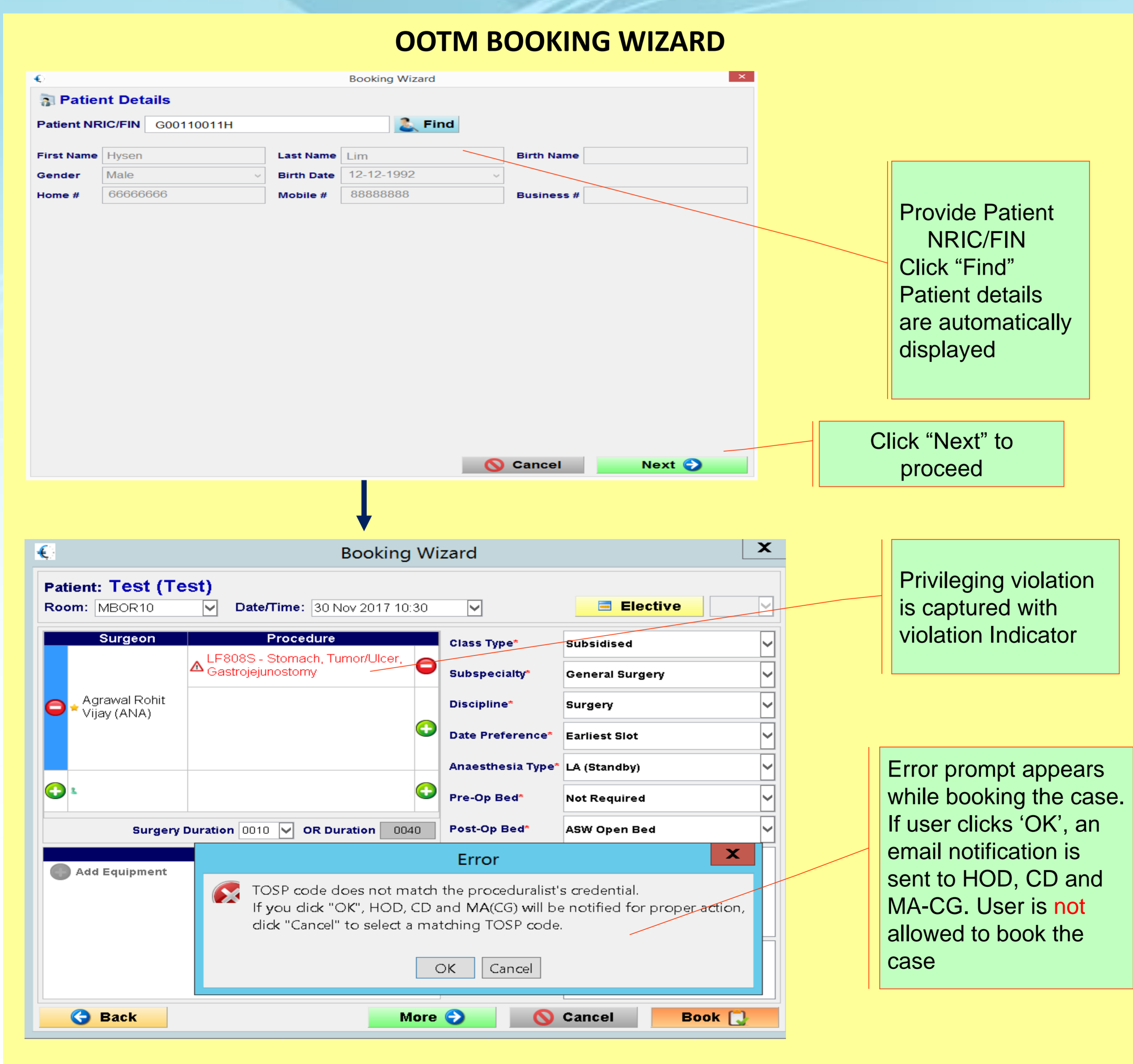
Above issues were resolved and the new module went live on 28 February 2018. The hard stop forcing function was switched off temporarily to avoid disrupting the current workflow in the operating theatre.

Measurement of Improvement

During the initial implementation period, 40%-60% of the daily procedure bookings in OOTM were being flagged. These were due to:

- ✓ Inappropriate booking of cases by consultants (i.e. consultants' privileges not updated)
- ✓ Residents listing procedures without the accompaniment of privileged consultants' names
- ✓ Wrong use of surgical codes
- ✓ Surgical codes not identified yet by departments

The hard stop forcing function remained switched off for troubleshooting. Flagged bookings were still allowed to go through but each case was investigated and highlighted to heads of departments for rectification. Medical Affairs- Clinical Governance, where required, updated the proceduralists' privileges in the system.



OOTM BOOKING WIZARD

Patient Details
 Patient NRIC/FIN: G00110011H
 First Name: Hyson, Last Name: Lim, Birth Name: [blank]
 Gender: Male, Birth Date: 12-12-1992
 Home #: 66666666, Mobile #: 88888888, Business #: [blank]

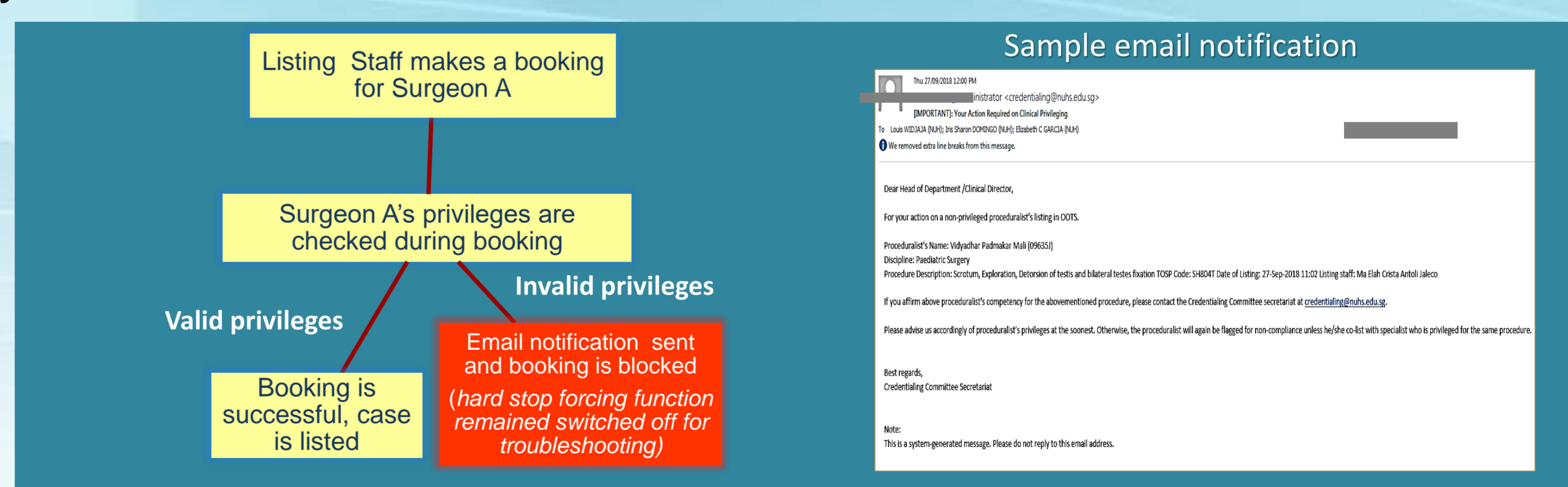
Provide Patient NRIC/FIN
Click "Find"
Patient details are automatically displayed

Click "Next" to proceed

Booking Wizard
 Patient: Test (Test)
 Room: MBOR10, Date/Time: 30 Nov 2017 10:30, Elective

Privileging violation is captured with violation Indicator

Error prompt appears while booking the case. If user clicks 'OK', an email notification is sent to HOD, CD and MA-CG. User is **not** allowed to book the case



A significant reduction in the number of daily flagged bookings from OOTM was seen one year after the module went live.

Effects of Change

To date, only 5%-10% of the daily bookings are being flagged. Also, as a result of the enhanced privileged check, the compliance audit for privileges showed zero noncompliance rate in 2019 and 2018 as compared to 3.1% in 2017.

Lessons Learnt

The electronic credentialing module led to higher awareness amongst proceduralists in ensuring that bookings were done under appropriately privileged proceduralists names' only. Compliance to privileging requirements was also reinforced.

A hard stop forcing function was placed for failed validation. Booking was not allowed to proceed and was flagged for noncompliance. An email notification was sent to heads of departments and privileging administrators from MA-CG.

A member of the NUHS