

# Electronic Maternity Facility Bookings

**Helen Paterson**

*Department of Women's and Children's Health, Dunedin School of Medicine, University of Otago  
PO Box 913, Dunedin, New Zealand  
helen.paterson@otago.ac.nz*

**Darren Klemp and Caroline Folland**

*Southern District Health Board  
Private Bag 1921, Dunedin 9054, New Zealand*

**Malcolm Briggs**

*Solutionsplus  
PO Box 36, Albany Village, Albany 0632, New Zealand*

## Abstract

*Maternity Plus™ is the Maternity Information System used in the Southern District Health Board (SDHB). It is used by Lead Maternity Carers (LMC) in the primary sector and Kew and Dunedin Hospitals in the secondary and tertiary sectors. At present all maternity bookings are completed by LMCs on paper and sent to the SDHB, that data is subsequently entered manually into the SDHB Maternity Plus system. Our goal is to integrate the electronic systems used to optimise efficiency and accuracy of data entry and use.*

## 1. Introduction

Maternity Plus™ is the Maternity Information System used by Dunedin Hospital in the secondary/tertiary sectors and with the support of the Midwifery and Maternity Providers Organisation (MMPO) by the Lead Maternity carers (LMC) in the Southern District Health Board region (SDHB).

At present all maternity bookings for the Queen Mary Maternity facility are completed by LMCs on paper and sent to the SDHB, that data is subsequently entered manually by administrative staff into the SDHB Maternity Plus system. This system has been in place long term and whilst effective has its drawbacks including the potential for error with the transcription of data and the additional time for data insertion.

With the combined use of the same program across primary to tertiary care, there was an opportunity to improve the system in accuracy and efficiency.

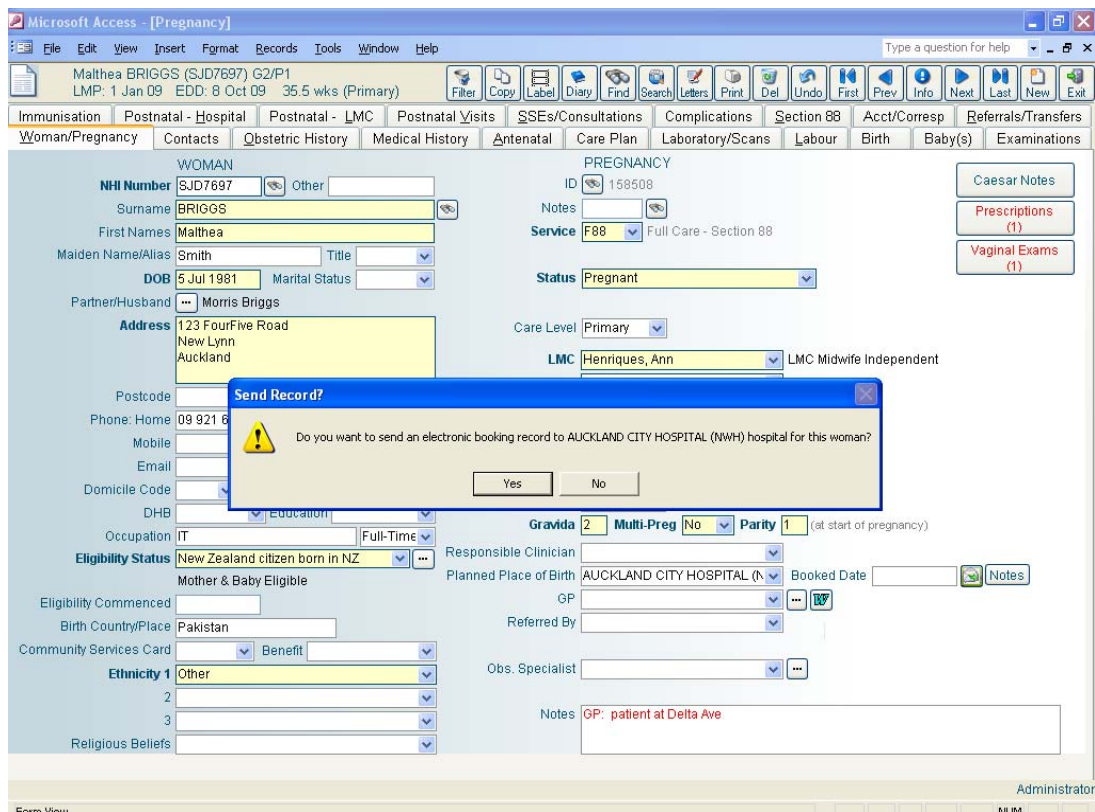
## 2. Objective

The SDHB along with local LMCs with the support of Maternity Plus™ developed a program, with the objective of integrating primary and secondary electronic systems, to optimise efficiency and accuracy of data entry and use.

## 3. Concept

Stage 1: An electronic facility booking will be sent to the SDHB when a woman provides her LMC with her planned place of birth. Figure 1 shows an example.

The electronic facility booking contains demographic and basic pregnancy information ( Woman/Pregnancy, Contacts, Obstetric history and Medical history tabs) used to electronically load a pregnancy record into Maternity Plus at the planned birthing facility. If the woman miscarries, decides to birth at home, or changes her plans to deliver at a different facility then an electronic facility booking cancellation can be sent to the facility. An electronic facility booking update will be sent whenever a change is made to the basic pregnancy information, e.g. if a woman's expected delivery date (EDD) or gravida is corrected in the LMCs system.



**Figure 1 - An electronic facility booking is sent to the planned place of birth**

Stage 2: The booking will be followed at a later stage by an Electronic Facility Admission. This admission will be an agreed content clinical record of the pregnancy held by the LMC at the time the woman is admitted.

To support the effective transfer of booking and admission information the electronic maternity record in Maternity Plus can be extended to include details of all activity (views and changes) with respect to a woman's pregnancy record and there is an ability to view the data as it existed at any historical point in time.

Stage3: Will enable the facility to send an Electronic Facility Discharge back to the LMC. This will include a complete (agreed) clinical record that can be loaded into the LMC's version of Maternity Plus from the secondary facilities labour, birth and postnatal record.

## 4. Process

The messages are transported between the LMC and the facility using HealthLink. The standard HL7 RSD messaging structure that is being used for this purpose means that an acknowledgement message (ACK) is sent from the facility back to the LMC on receipt of each new booking, update and cancellation message.

The electronic facility booking system allows facility staff to view each new booking prior to loading it into the system (see figure 2). If the woman already exists in the Maternity Plus system then the matching demographic details are displayed for the woman. If this is the first pregnancy at this facility for the woman, then the Patient administration system (PAS) is queried for existence of the NHI Number. If the woman exists in the PAS then demographic details of the woman are similarly displayed. If the facility staff are satisfied that the woman is the same then they will confirm this and load the new pregnancy into Maternity Plus.

### 4.1. Present project status

Stage 1, the electronic bookings system is operational and in secondary testing within Queen Mary Maternity, SDHB.

There is support and enthusiasm to progress to Stage 3.

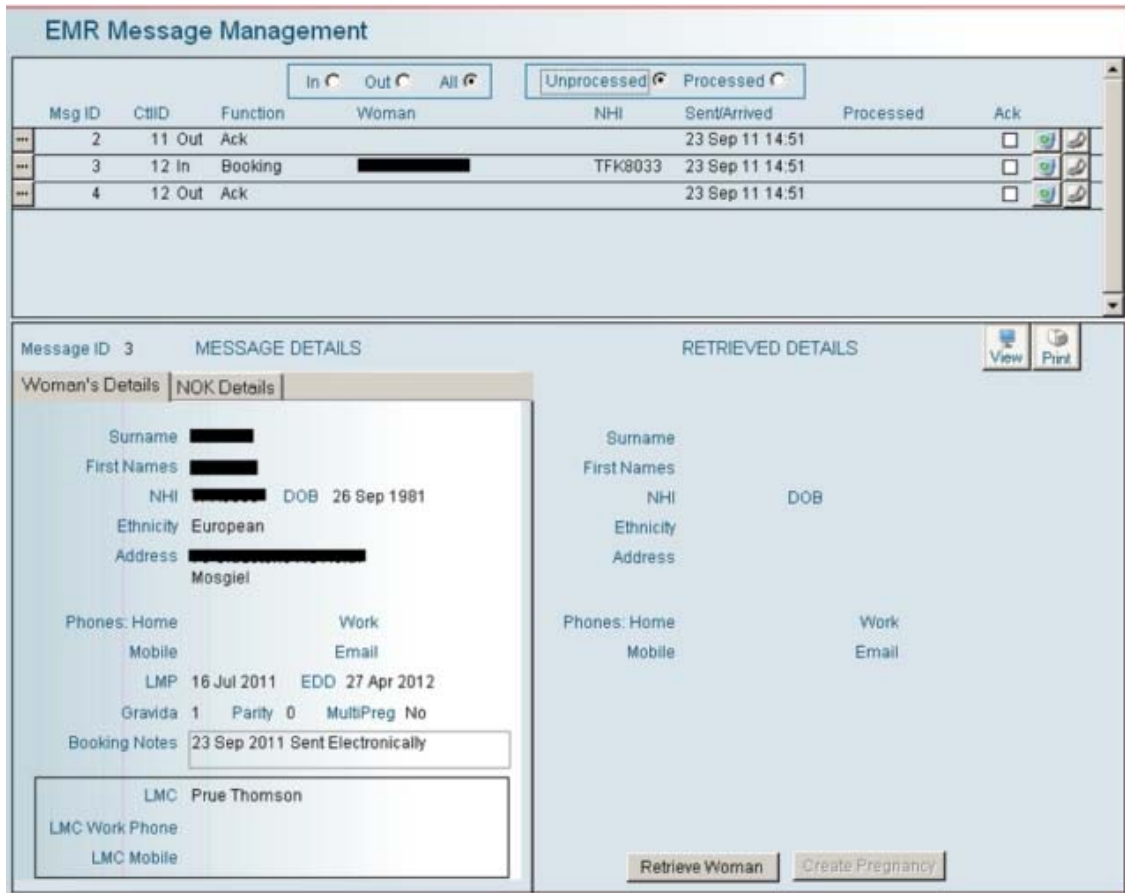


Figure 2 - EMR Message Management

## 5. Advantages

There are many advantages to this system, with the introduction of electronic facility bookings and discharges, both the LMC and the facility save time with transcription to and from paper, this should also reduce transcription errors.

The ease of updating the facility with information on miscarriage or women changing facility for their birth will optimise care for; the woman, produce improved accuracy in data collection for audit and enable a greater accuracy of capacity planning by the facility.

Data entry at point of care by the LMC should also improve the data accuracy, this will benefit both the LMC and the facility with regards to audit which is a vital part of standards review of for both Midwives and Obstetricians and essential to clinical governance processes designed to progress quality care within a facility.

## 6. Potential future developments

A number of additional features can be added as future stages of this initiative. For example there is potential to develop the ability for a facility to receive bookings from practitioners using systems other than Maternity Plus, such as a GP using MedTech, or an obstetrician using Incisive. This is possible as standard HL7 Referral messages have been used which are available in these other systems.

## 7. Acknowledgments

We would like to acknowledge the support of Prue Thompson and Sally McNeil, Dunedin based LMCs who have support the development of this project with significant time commitments. Georgia Grant the SDHBs Midwifery Maternity Plus advisor, and the Maternity Plus team specifically Ann Henriques.