

# Neonatal Discharge Planning: Could Unscheduled Reviews be reduced in the First Six Weeks of Life?

## Abstract:

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## Abstract

The postnatal period offers an opportunity to provide information and education to new mothers. We analysed factors associated with unscheduled presentations of newborns to local primary care, maternity and paediatric services over a 3 week period to assess whether these could be targeted with discharge planning educational interventions. Data was collected prospectively from electronic databases and manually from patient records in the maternity hospital. Two hundred and seventy six patients under 6 weeks of age presented to the three services. Half of these visits were unscheduled 137 (49%). 40(29%) of those that were unscheduled were felt to represent benign neonatal variants whilst 28 (20%) presented with feeding problems. Eighty one (59.3%) patients were discharged home, and this was unaffected by referrer patterns; GPs 19 (56%), Nurses 13 (57%) or parents 77 (67%). At least 40 (29%) of reviews were felt to be inappropriate and could have been prevented. There is room for cost saving and quality improvement of the service through education.

## Introduction

Being discharged home with a baby is daunting for new parents. There are numerous opportunities to provide education and information to families at discharge, at the public health nurse initial review and opportunistically when infants present to medical practitioners. Discharge planning is increasingly recognised as an important function of any neonatal service. There are currently no clear guidelines on neonatal discharge planning in Ireland. The HSE recommends that all parents receive a 'Caring for your Baby' booklets at their first Public Health Nurse visit, but its efficacy is dependent on many factors including the timing of the visit, parental literacy and English comprehension. The AAP recommends parental education about common neonatal illnesses at discharge, with the aid of a physician checklist<sup>2,3</sup>. Parents concerned about their newborn baby may seek advice from a number of sources. The family's general practitioner provides the majority of post-discharge care and advice, with scheduled checks at 2 and 6 weeks. Many maternity services provide a 24 hour emergency service during the first two weeks of life, with an additional daytime outpatient service and walk in clinic up to 6 weeks of age on weekdays. Finally, parents may present to the local Paediatric Emergency Department, most of which provide a 24 hour service to all children under the age of 16 years.

The Rotunda hospital provides emergency care for infants delivered in the hospital up to 6 weeks of age. In 2013, there were 3000 paediatric OPD (POPD) patient contacts to the Rotunda POPD (from approximately 9000 deliveries). Current hospital systems do not facilitate data collection on what proportion of these reviews are unscheduled, nor on how many could be avoided. The very large number of patient contacts raised the question as to why they present, and whether interventions such as discharge planning could reduce this workload. In addition, parents and babies may access paediatric emergency departments or their general practitioner for medical assessment and support. Maternity hospitals discharging patients generally do not have access to data on how often and why neonates present to these services. This audit was carried out to identify the volume of reviews that were unscheduled and the key reasons for unscheduled neonatal reviews of babies 6 weeks and younger across three models of medical care in our catchment area: a busy maternity hospital (the Rotunda), a local tertiary paediatric hospital (Children's University Hospital, Temple St) and a representative busy local GP practice.

## Methods

Data was collected concurrently over a 3 week period in all 3 health care facilities. It was collected from the electronic database from the paediatric hospital and the GP practice. It was collected manually at each POPD clinic in the maternity Hospital. Data on age, reason for presentation, source of referral and subsequent admission to hospital were obtained.

## Results

Two hundred and seventy six patients under 6 weeks of age presented to the three services over a three week period from (24/2/14 to 16/3/14). Almost half of these visits were unscheduled (137/49%), 85% of which were for term babies. Over half of infants with unscheduled attendances to the maternity hospital had been referred by either their public health nurse or their GP, compared with 44% of children attending the Paediatric ED. Very few infants were referred to the paediatric hospital by public health nurses, and none to the GP, although the numbers in this group are small as only 6 babies presented to the GP practice over the 3 week period. The overall admission rate to hospital following presentation to the three medical services was 32/137(23.3%). Seventy two percent (n=23) of these were admitted to the Children's University Hospital and 28% to the Rotunda Hospital. Sixty percent of infants subsequently admitted to

the hospital attended the hospital without a primary care review, approximately 1/3 had been seen by their GP and overall, 7% were referred by the public health nurse. As noted previously, the majority of public health nurse referrals were to the maternity service.

## Discussion

A certain proportion of all unscheduled reviews are thought to be unnecessary. A literature review on the topic reveals very little published data, particularly on term babies. There have been studies done into rates of unscheduled review and readmission of preterm infants. Recently, a neonatal research group reported reduced readmission rates among parents of preterm infants who were more involved in the care of their newborn in the NICU<sup>4</sup>. Other studies have shown associations between readmission rates of late preterm infants and maternal age, maternal smoking and longer hospital stay<sup>5</sup>. In the UK, studies have shown similar risk factors for presentation of older children to the ED for unscheduled reviews. A survey conducted in a London Paediatric Emergency Department revealed that 19% of patients had no knowledge of their GP's surgery hours and 50% had made no prior attempt to contact their GP. Half of the attendances were felt to be inappropriate for management in an ED. A further study in the US showed that improved access to primary care decreased ED attendances and hospitalisation of children. These studies were performed over 20 years ago indicating that this problem is not new, nor is it confined to our population. A more recent but similar study found that convenience is often a significant factor in the use of the Emergency Department for non-urgent complaints<sup>6</sup>.

Among our population, a high proportion of reviews were for benign neonatal variants, and all were discharged following review. Although the majority of unscheduled attendances were self referrals (74/137 or 54%), a significant proportion were triggered by General Practitioners and Public Health Nurses. Fifty six percent of those referred by a GP and 57% of those referred by a nurse were discharged home without formal follow up. The second most common reason for review was feeding difficulties. Overall 16% of infants attending services presented with feeding difficulties. Neonatal sepsis is a potentially life-threatening emergency that needs early paediatric assessment in an emergency department. Only 19% of attendances to the Paediatric ED were due to possible sepsis. 10% of all maternity hospital presentations were due to suspected infection which is concerning as the maternity hospital OPD is not the best place for these patients to receive ongoing care. Unwell infants with suspected sepsis assessed in maternity hospitals often have to undergo transfer to paediatric hospitals, via the Paediatric Emergency Department. Eleven point six percent (n=16) of infants presented with respiratory symptoms. Respiratory disease can be unpredictable and there is often a low threshold for admission. This level of paediatric review may be unavoidable. It is reassuring that the patterns of respiratory presentation seems appropriate, avoiding exposure of in- and outpatient vulnerable neonatal population to infectious viral pathogens.

This study is the first to simultaneously investigate why and how neonates under 6 weeks present to three different healthcare settings. It was decided to look at concurrent presentations, as there is significant seasonal variation in infant presentations for medical review in this cohort. The majority of infants did not present with infectious or respiratory symptoms. Benign neonatal variants and feeding issues comprised nearly 50% of unscheduled presentations to both the maternity and paediatric hospitals. Parents may not be fully aware of the options available to them in seeking medical attention and where it may be appropriate to bring the infant. There may be a role for increased parental education about normal newborn variants and feeding patterns. It may also be worthwhile to target the infant less than 6 weeks as part of continuing professional education for healthcare workers in the community setting. Most of the conditions identified during this study did not require immediate or emergency review. It is sometimes difficult for practitioners trained in paediatrics to identify the infant who is at serious risk without the benefits of hospital supports. However, many of the presentations identified in this study did not require a hospital review, and a proportion did not present to the most appropriate hospital setting. There is a role for increased information, and possibly education, about how and where best to manage our youngest patients.

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Comments: