

## ORIGINAL RESEARCH

## Nurse management of 'same day' consultation for patients with minor illnesses: results of an extended programme in primary care in Catalonia

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### Abstract

**Aims.** This paper is a report of a study to assess the feasibility and efficacy of a programme of nurse management for patients requesting same day consultation for minor illnesses in primary care.

**Background.** The efficacy of such programmes has been demonstrated in randomized studies but there is little information on these programmes in highly populated areas.

**Methods.** Patients seeking same day consultation for one of 23 preselected minor illnesses (16 for adults, 7 for paediatric patients) from March 2009 to April 2010 were seen by trained nurses who followed predefined algorithms. If signs of alarm were detected, patients were referred to a general practitioner.

**Findings.** A total of 629,568 consultations were performed, 575,189 in adults and 54,379 in paediatric patients. Case resolution was achieved in 61.8% of adult and 75.6% of paediatric patients. In adults, the highest resolution rates (>90%) were obtained for burns, skin injury and emergency contraception, and the lowest for lower urinary symptoms (46.7%), sore throat (45.7%), pink eye (45.5%) and upper respiratory symptoms (41.4%). In paediatric patients, the highest resolution rates (>90%) were obtained for stomach cramps and burns and the lowest for cough (36.2%). A return to consultation during a 7-day period for the same reason as the first consultation was low, 4% for adults and 2.4% for paediatric patients.

**Conclusion.** An extended programme of nurse management for same day consultation of patients with minor illnesses showed an acceptably high rate of resolution and low rate of return to consultation. The application of such programmes in extensive areas is feasible and effective.

**Keywords:** nurse management of minor illnesses, nurse practitioner, nurses/midwives/nursing, primary care

## Introduction

The role of nurses in primary health care has evolved rapidly in the last two decades from performing some basic procedures and providing support to general practitioners to a more active role in decision-making concerning patient's health care and management of specific conditions (Marsh & Dawes 1995, Horrocks *et al.* 2002, Herbert *et al.* 2008, Reinhard & Young 2009, Rashid 2010). Some of these new roles include management of people with long-term diseases (i.e. diabetes, asthma and heart failure), preventive medicine, telephone helplines, and establishing a good liaison between hospital care and primary care (Hagan *et al.* 2000, Forbes & While 2009, Sutherland & Hayter 2009). A role that has attracted considerable interest in primary care is that of nurse management of patients with minor illnesses requesting 'same day' consultations. A wealth of evidence derived from both randomized trials and observational studies indicate that nurses are able to give patients with minor illnesses a high standard of care similar to that given by general practitioners (Marsh & Dawes 1995, Myers *et al.* 1997, Kinnerseley *et al.* 2000, Shum *et al.* 2000, Venning *et al.* 2000). No important differences were found between patients seen by nurses and those seen by general practitioners with respect to resolution of symptoms, referrals to secondary care, return to consultation, prescription rate, investigations ordered and patient's reported health status 2 weeks after the visit. Moreover, patient satisfaction was higher with nurses than with physicians, and nurses gave better information about the illness compared to general practitioners (Marsh & Dawes 1995, Myers *et al.* 1997, Kinnerseley *et al.* 2000, Shum *et al.* 2000, Venning *et al.* 2000).

Despite the evidence in favour of the role of nurses in providing care to patients with minor illnesses requesting same day consultation in primary care, introducing this new role of nurses in practice has been difficult in many settings for a variety of reasons. The most important of such reasons include having trouble coping with restrictive legislations, lack of awareness of the general population about nurse's skills and resistance to change. Herein, we report an observational study assessing the results of a recently developed programme of nurse management of same day consultations for minor illnesses in a large number of practices in Catalonia during a 1-year period. The objectives of the study were to assess the feasibility and efficacy of such a programme.

## The study

### Aims

The aim of this study was to assess the feasibility and efficacy of a programme of nurse management for patients requesting

'same-day' consultation for minor illnesses in primary care in a highly populated area.

### Design

This is a quantitative observational study based on retrospective evaluation of data collected from patients included in a programme of nurse management of patients with minor illnesses.

### Sample/participants

All patients requesting 'same day' consultation for minor illnesses during a 1-year period (31 March 2009–1 April 2010) were included in the study.

### Programme of nurse management for 'same day' consultation of patients with minor illnesses

In 2009 the Institut Català de la Salut (ICS), the main healthcare provider in Catalonia enforced a programme of nurse management for patients with minor illnesses requesting 'same day' consultation in primary care. Before this programme was started, patients with minor illnesses requesting same day consultation were seen by general practitioners. This type of consultation represented a major workload for general practitioners. The programme was carried out in 284 primary care practices attending a population of approximately 5,800,000 inhabitants in Catalonia, in northeast Spain.

The programme was elaborated by a group of expert nurses and general practitioners and consisted of a protocol and 23 management algorithms of very common minor illnesses, 16 for adult and 7 for paediatric patients (Tables 1 and 2). Once the elaboration of the general protocol and management algorithms were completed, several training sessions were performed in all practices before the implementation of the programme began. The protocol included the following: assessment of main signs and symptoms, recognition of previous health problems and their treatments, identification of the main reason for consultation and application of predefined management algorithms. The algorithms included signs of alarm to identify patients with a potentially severe condition requiring consultation with a general practitioner, which was always available in each practice.

Once the programme started, all patients seeking 'same day' consultation were initially seen by a nurse. All nurses of each practice participated in the programme in turns, so that there was one nurse dealing with these patients 5 days per

**Table 1** Frequency of minor illnesses in adult patients evaluated in the 'same day' consultation nurse programme over a 1-year period classified according to 16 predefined diagnostic categories

| Category                    | Number of patients |
|-----------------------------|--------------------|
| Skin injury                 | 130,989 (22.8)     |
| Upper respiratory symptoms  | 118,470 (20.6)     |
| Sore throat                 | 67,550 (11.7)      |
| Lower urinary symptoms      | 49,996 (8.7)       |
| Acute diarrhoea             | 42,431 (7.4)       |
| Back pain                   | 35,059 (6.1)       |
| Increased arterial pressure | 23,632 (4.1)       |
| Pink eye                    | 21,485 (3.7)       |
| Burns                       | 18,540 (3.2)       |
| Tooth pain                  | 16,302 (2.8)       |
| Emergency contraception     | 13,652 (2.4)       |
| Twisted ankle               | 12,789 (2.2)       |
| Anxiety attacks             | 10,125 (1.8)       |
| Flu                         | 5927 (1.0)         |
| Skin fold dermatitis        | 5794 (1.0)         |
| Nose bleeding               | 2448 (0.4)         |
| Total                       | 575,189            |

Numbers in brackets are percentages.

**Table 2** Frequency of minor illnesses in paediatric patients evaluated in the 'same day' consultation nurse programme over a 1-year period classified according to seven predefined diagnostic categories

| Diagnosis       | Number of patients |
|-----------------|--------------------|
| Skin injury     | 25,140 (46.2)      |
| Cough           | 8999 (16.5)        |
| Runny nose      | 5664 (10.4)        |
| Diaper rash     | 4576 (8.4)         |
| Acute diarrhoea | 3980 (7.3)         |
| Stomach cramps  | 3262 (6.0)         |
| Burns           | 2758 (5.1)         |
| Total           | 54,379             |

Numbers in brackets are percentages.

week in all practices. If the patient's condition was included in one of the 23 minor illnesses with a predefined management algorithm, the nurse followed the algorithm. If signs of alarm were not present, the nurse completed the management algorithm, which in some cases required drug prescription. If signs of alarm were detected, the nurse referred the patient to the general practitioner for a same day visit. The protocol and management algorithms were included in the computerized medical system so that all steps could be followed easily at the time of writing in patients' electronic medical records.

### Data collection

Data from all patients requesting consultation for one of the 23 predefined minor illnesses with treatment algorithms

during the 1-year study period were obtained through the computerized medical record system.

### Ethical considerations

The study was approved by the Institutional Review Board of the Institution. The study was made according to current regulations about data confidentiality. In the database, codes were used instead of patient's names.

### Data analysis

The main outcome measure of the study was case resolution. Case resolution was defined as completion of the management algorithm without the need of referral of the patient to the general practitioner. The secondary outcome measure was return to consultation, which was defined as requirement of new consultation in primary care, either with a nurse or general practitioner, for the same reason as the first consultation in a 7-day period. Comparison of frequencies of the different outcomes was performed with the chi-square test. The analysis was performed using the *SPSS 15 for Windows* (SPSS Inc, Chicago, IL, USA). Results are reported as percentages with 95% confidence intervals.

### Results

A total of 629,568 same-day consultations corresponding to the 23 predefined minor illnesses for adult and paediatric patients were performed during the 1-year period, which represents an average of 2469 visits per working day. The most common categories in adult patients were skin injury, upper respiratory symptoms and sore throat. The list and frequencies of each category in adult patients are shown in Table 1. The most common minor illnesses in paediatric patients were skin injury, cough and runny nose. The list and frequencies for each category in paediatric patients are shown in Table 2.

Case resolution for minor illnesses in adult patients was achieved in 61.8% of cases. The remaining 38.2% of patients were referred to a general practitioner. The highest resolution rates (>90%) were achieved for burns, skin injury and emergency contraception, while the lowest resolution rates (<50%) corresponded to lower urinary symptoms, sore throat, pink eye and upper respiratory symptoms (Table 3). Case resolution for minor illnesses in paediatric patients was achieved in 75.6% of cases ( $P < 0.001$ , as compared with 61.8% in adults). The highest resolution rates (>90%) were achieved for stomach cramps and burns, while the lowest resolution rate (<50%) corresponded to cough (Table 3).

**Table 3** Case resolution and return to consultation rates in adult and paediatric patients with minor illnesses seen in a 'same day' consultation nurse programme over a 1-year period classified according to predefined categories

| Category                    | Resolution %     | Return to consultation % |
|-----------------------------|------------------|--------------------------|
| <b>Adults</b>               |                  |                          |
| Burns                       | 93.5 (93.2–93.9) | 7.2 (6.9–7.6)            |
| Skin injury                 | 91.6 (91.5–91.8) | 7.5 (7.4–7.7)            |
| Emergency contraception     | 90.8 (90.3–91.3) | 0.4 (0.3–0.6)            |
| Skin fold dermatitis        | 71.3 (70.2–72.5) | 1.4 (1.0–1.8)            |
| Increased arterial pressure | 70 (69.4–70.6)   | 2.4 (2.2–2.7)            |
| Twisted ankle               | 66 (65.2–66.9)   | 1.5 (1.2–1.7)            |
| Nose bleeding               | 64.1 (62.1–65.9) | 4.0 (3.2–5.1)            |
| Acute diarrhoea             | 62.1 (61.7–62.6) | 1.3 (1.1–1.4)            |
| Anxiety attacks             | 55.3 (54.3–56.3) | 1.4 (1.1–1.7)            |
| Tooth pain                  | 54.1 (53.4–54.9) | 1.9 (1.6–2.2)            |
| Back pain                   | 51.4 (50.8–51.9) | 5.4 (5.1–5.7)            |
| Flu                         | 51.1 (49.8–52.4) | 1.0 (0.7–1.4)            |
| Lower urinary symptoms      | 46.8 (46.3–47.2) | 1.5 (1.3–1.7)            |
| Sore throat                 | 45.7 (45.3–46.1) | 1.3 (1.2–1.5)            |
| Pink eye                    | 45.5 (44.8–46.2) | 1.3 (1.1–1.6)            |
| Upper respiratory symptoms  | 41.4 (41.2–41.7) | 1.9 (1.8–2.0)            |
| Average                     | 61.8             | 4.0                      |
| <b>Paediatric patients</b>  |                  |                          |
| Stomach cramps              | 92.5 (91.5–93.3) | 0.8 (0.6–1.2)            |
| Burns                       | 91.7 (90.6–92.7) | 9.3 (8.3–10.5)           |
| Diaper rash                 | 88.8 (87.9–89.7) | 0.5 (0.3–0.8)            |
| Skin injury                 | 87.6 (87.2–88.0) | 2.7 (2.5–2.9)            |
| Acute diarrhoea             | 67.5 (66.1–69.0) | 1.1 (0.8–1.5)            |
| Runny nose                  | 62.3 (61.1–63.6) | 0.7 (0.5–1.0)            |
| Cough                       | 36.2 (35.3–37.2) | 1.5 (1.1–1.9)            |
| Average                     | 75.6             | 2.4                      |

Case resolution was defined as completion of the management algorithm without the need of referral to a general practitioner or secondary care. Return to consultation was defined as requirement of new consultation at practices for the same reason in a 7-day period. Categories are classified in decreasing order of resolution. Numbers in brackets are 95% confidence intervals.

Overall, the rates of return to consultation were low. In adult patients, rates ranged between 0.4% and 7.5%, with an average of 4.0% (Table 3). The lowest rate of return to consultation was observed in emergency contraception, whereas the highest was observed in burns. In paediatric patients, rate of return to consultation averaged 2.4% ( $P < 0.001$ , as compared with 4% in adults) (Table 3). The lowest rate was observed in diaper rash (0.4%), whereas the highest (9.3%) was observed in burns.

## Discussion

The current study has some limitations that should be mentioned. First, it has the problems inherent to retrospective

studies. However, it should be emphasized that all data were recorded in the computerized medical record of the patients at the time of consultation using a specifically designed software system, and data for retrospective analysis were obtained directly from the computerized record system. Secondly, patients returning to consultation for the same problem were identified through the computerized medical record of each patient. Because the computerized medical records include only information from primary care and not from secondary care, we cannot rule out that some patients could have had consultations in secondary care in the 7-day time period after the initial consultation. Therefore, the actual rate of return to consultation could be higher than that found in the current study. Third, the findings would have been strengthened by assessment of patient satisfaction. Unfortunately, however, patient satisfaction was not assessed in our study. However, it is worth mentioning that all studies that have analysed patient satisfaction of nurse management for minor illnesses have found very high rates of patient satisfaction, usually higher than those observed when patients are treated by general practitioners (Marsh & Dawes 1995, Kinnerseley *et al.* 2000, Shum *et al.* 2000, Venning *et al.* 2000).

In the current study, we report the results of an exceptionally large programme of nurse management for patients with minor illnesses requesting same day appointments in a primary care organization covering a highly populated area of Catalonia, in northeast Spain. In Spain, there is no exact equivalent to the nurse practitioner of UK or USA, but nurses get a university degree after 3 years of education in the School of Nursing (this will be changed to 4 years starting in 2010). Therefore, they have a sufficient theoretical and practical background to deal with management of patients with minor illnesses. On the other hand, in recent years the Spanish legislation has changed and nurses are now allowed to make prescriptions in specific circumstances. Therefore, the extensive available evidence, the educational background of nurses, and the change in legislation paved the way for the implementation of programmes of nurse management for patients with minor illnesses in primary care in Spain. Herein, we report the results of one of the first such programmes. Four crucial aspects were taken into account at the time of elaborating the programme: (1) to select a limited number of minor illnesses for adult and paediatric patients; (2) to prepare management algorithms for each minor illness selected; (3) to perform specific training sessions aimed at improving the knowledge of nurses about the different minor illnesses and their specific management algorithms, which were embedded in the computerized clinical record system; and (4) to have a general practitioner always available at each practice for consultation or patient referral.

### What is already known about this topic

- Randomized studies have found that nurses can give patients with minor illnesses a high standard of care, similar to that given by general practitioners.
- Patient satisfaction tends to be higher with nurses than that with general practitioners.

### What this paper adds

- An extended programme of nurse management for patients with preselected minor illnesses requesting same day consultation in largely populated areas is both feasible and effective.
- Nurses were trained and used predefined management algorithms.

### Implications for practice and/or policy

- Specific programmes of nurse management of patients with minor-illnesses should be implemented, particularly in busy primary care centres of highly populated areas.
- Such programmes may also be helpful in diagnosing unrecognized conditions (i.e. arterial hypertension) and for health education purposes (i.e. diet, obesity).

The results of the current study including over 600,000 patients during a period of 1 year indicate that nurses can perform 'same day' consultations of patients with minor illnesses with high resolution rates and low rates of return to consultation. The most common categories of minor illnesses in adult patients were skin injury, upper respiratory symptoms, sore throat, lower urinary symptoms, acute diarrhoea and back pain, which accounted for approximately 72% of all consultations. In paediatric patients, the most common categories were skin injury, cough and runny nose, which were responsible for approximately 73% of all consultations.

The highest resolution rates (>90%) in adults were obtained for burns, skin injury, and emergency contraception, whereas the lowest (<50%) were obtained for lower urinary symptoms, sore throat, pink eye and upper respiratory symptoms. This difference in resolution rates might be related to the fact that the former categories correspond to conditions associated with traditional nurse practice, whereas the latter correspond to categories that require experience with exploratory manoeuvres and prescription of drugs which may be less familiar to nurses despite the training sessions performed and existence of management algorithms. Nevertheless, it is

important to emphasize that the algorithms of the latter categories had abundant signs of alarm aimed at deriving potentially high-risk patients to general practitioners. Thus, the relatively low resolution rates obtained could be due, at least in part, to strict coping with the management algorithms.

The highest resolution rates (>90%) in paediatric patients were obtained for stomach cramps and burns and the lowest (<50%) for cough. As with adult patients, differences in resolution rates of minor illnesses in paediatric patients might be related to familiarity with the condition and/or strict coping with the management algorithm.

Return to consultation for the same problem in a 7-day time frame was low overall. In adult patients, the rate of return to consultation was >3% only in four categories: back pain, nose bleeding, skin injury and burns (4, 5.4, 7.2 and 7.5%, respectively). In paediatric patients, the rate of return to consultation was >2% only for skin injury and burns.

There are two important aspects of this study that deserve a comment. First, selection of minor illnesses was made on the basis of simplicity and high incidence. Some minor illnesses chosen were very simple, but nonetheless constitute a major workload for primary care centres, as shown in Tables 1 and 2. Therefore, the high resolution rates obtained may be explained, at least in part, on this basis. Second, we believe that management algorithms were crucial to the achievement of high case resolution rates and low rates of return to consultation and the overall success of the programme. Moreover, management algorithms were important in the identification of patients who required consultation with the general practitioner.

In conclusion, the results of the current study confirm previous findings from randomized studies indicating that nurse management of 'same day' consultation for patients with minor illnesses in primary care is not only feasible but also effective. Our results extend the observations obtained in randomized studies to the daily practice in a large primary care setting indicating that nurse management of patients with minor illnesses is associated with high rate of resolution and low rate of return to consultation. The consistency of the findings of the different studies indicate that nurses should have an important role in the management of patients of acute 'minor' conditions and programmes of nurse management should be implemented in primary health care to fulfil this role, particularly in busy primary care centres of highly populated areas. The importance of educating nurses in the diagnosis and management of minor illnesses and the accessibility of management algorithms cannot be overemphasized and appears to be key to the success of these types of programmes.

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## Conflict of interest

No conflict of interest has been declared by the authors.

## Author contributions

NF, AV and GA were responsible for the study conception and design. YL, MD and CB performed the data collection. NF, GA and MD performed the data analysis. NF and CB were responsible for the drafting of the manuscript. NF, AV, GA, YL, MD and CB made critical revisions to the paper for important intellectual content. MD provided statistical expertise.

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