Quality Improvement Report

Can admission notes be improved by using preprinted assessment sheets?

H M Goodyear, B W Lloyd

Abstract
Inpatient medical notes often fail to record important details of patient history and findings on clinical examination. To overcome problems with content and legibility of notes we introduced preprinted notes for the admission of children to this hospital. The quality of the information recorded for 100 children whose admissions were clerked with the preprinted notes was compared with that recorded for 100 whose admissions were recorded with the traditional notes. All case notes were selected randomly and retrospectively from traditional notes written from April to October 1993 and from preprinted notes written from October 1993 to April 1994. The quality of information was assessed according to the presence or absence of 25 agreed core clinical details and the number of words per clerking. In admissions recorded with the preprinted notes the mean number of core clinical details present was significantly higher than those recorded with traditional notes (24.0 v 17.6, p < 0.0001). Admissions recorded with the preprinted notes were also significantly shorter (mean 144 words v 184 words, p < 0.0001). The authors conclude that information about children admitted to hospital is both more complete and more succinct when recorded using preprinted admission sheets.

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Keywords: paediatric admissions, admission notes

Introduction
Junior doctors often fail to record important details of both a patient's history and findings of the clinical examination when writing inpatient medical notes in the traditional style. In an audit of medical inpatient notes Gabbay et al found review of systems, social history, drugs taken, and allergies to be consistently badly recorded. In October 1993 in an attempt to improve the quality of admission notes we introduced a set of preprinted notes for each child admitted to our hospital, either from the accident and emergency department or directly to the children's wards. We investigated the effect of this innovation on the completeness and the brevity of admission notes.

Methods
Junior doctors were closely involved with the design of the preprinted admission sheets. A set of sheets consists of 4 sides of coloured A4 paper preprinted with words and phrases prompting recording of core clinical details. In many sections of the sheets the doctor is required to ring the appropriate word or phrase and then write further details as necessary in the spaces provided. An example of a completed preprinted assessment form, giving fictional history and examination findings for an 18 month old girl who had a febrile convulsion is shown in the appendix.

Two hundred case notes of children admitted to this hospital were randomly selected (100 traditional notes written between April and October 1993 and 100 notes recorded on the preprinted sheets and written between October 1993 and April 1994). Each set of admission notes was assessed by one of us (HMG) with a proforma as a checklist for the presence or absence of the 25 core clinical details (box), previously agreed after considerable discussion in an audit meeting of quality of case notes. The number of words

Core clinical details
1 Name of child on every sheet
2 Date
3 Time
4 Age
5 Doctor’s name at end of first entry (clearly legible)
6 Presenting complaint(s)
7 Child’s wellbeing and activity in hours/days before admission
8 How much the child has been eating/drinking before admission
9 Drugs the child has been taking
10 Birth weight
11 Important perinatal problems
12 Previous medical history
13 Immunisation status
14 Developmental history
15 Details of health of siblings/parents
16 Social history
17 How ill the child is
18 Temperature
19 Perfusion
20 Heart sounds and femoral pulses
21 Signs of respiratory distress
22 Chest clear or not
23 Abdominal examination – masses
24 Central nervous system – conscious level
25 Problem list
per clerking was counted for each set of notes. In the preprinted notes each item circled was counted as one word. The results were analysed by unpaired Student’s t tests.

Results
Of the 200 randomly selected case notes obtained from the medical records department, those on the preprinted sheets were significantly shorter and recorded significantly more core clinical details than the traditional notes (table).

The name of the child on every sheet of paper (detail 1) was the only core clinical detail not to show any change in frequency of recording between the preprinted sheets and the traditional notes. In particular, the notes written on the preprinted sheets were superior in the following ways: they were four times more likely to be signed legibly by the admitting doctor at the end of the first entry (detail 5), three times more likely to record the child’s wellbeing and activity (detail 7), and three times more likely to record how well the child was perfused (detail 19). The following details were twice as likely to be recorded: how well the child was eating and drinking before admission (detail 8), drugs taken (detail 9), developmental history (detail 14), and social history (detail 16).

Discussion
Using preprinted admission sheets improved the quality of information recorded about children admitted to this hospital. These sheets contained significantly fewer words and therefore were presumably quicker both to write and to read. Over one year we found no disadvantages of preprinted assessment sheets compared with traditional style notes.

Both junior doctors and consultants in our department are enthusiastic about the new admission notes, which have become much neater and better organised. The structured nature of the preprinted notes helps to train junior doctors to write better notes, and in contrast to the variability in style of traditional admission notes, where to find particular details – for example, family history. Senior doctors can see at a glance what has been omitted. The colour coding of the preprinted sheets makes them easier to find in a thick set of notes.

An important element of our preprinted sheets are the spaces left for further detail. This design prevents doctors ringing words and phrases as a mechanical clerking exercise. We not only ask the junior doctors to record all the core clinical details but also emphasise that they must show judgement in the way that they record the appropriate additional details.

The benefits of the preprinted notes have been sustained over one year. Others reported that monthly audit of randomly selected notes led to a considerable improvement in medical inpatient notes over one year, which, however, was not sustained when monitored over three years. We are confident that the improvements observed in our admission notes will be sustained for the following reasons: continued use of preprinted notes, an introductory teaching session about the notes for all new junior doctors, and daily feedback to junior doctors on the morning ward round.

Preprinted assessment sheets have been used in specialist units in managing specific conditions such as asthma. We have found no published account of their use for general medical, surgical, or paediatric admissions. We are continuing to modify the sheets and have recently introduced integrated inpatient paediatric notes which incorporate them. (Integrated notes are shared among doctors, nurses, and staff from other disciplines.) Preliminary studies of integrated notes have suggested considerable benefits of their use.

We continue to monitor our inpatient notes to see if the integrated notes further improve the quality of inpatient paediatric care compared with the preprinted notes alone.

The preprinted assessment sheets improve the quality and probably reduce the length of admission clerking. Different departments would choose different core clinical details, but with suitable modifications preprinted admission sheets could be used widely.

<table>
<thead>
<tr>
<th>Mean numbers (95% confidence interval) of core clinical details recorded and words per clerking in 200 sets of notes for paediatric inpatients</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Outcome</strong></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Core clinical details</td>
</tr>
<tr>
<td>Words per clerking</td>
</tr>
</tbody>
</table>

**Children’s Department Assessment Form**

<table>
<thead>
<tr>
<th>Name and hospital No</th>
<th>A N Other 665544</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>18 months</td>
</tr>
<tr>
<td>Date and time</td>
<td>3/5/94 14.15</td>
</tr>
</tbody>
</table>

**Presenting complaint(s)**

- Fit

**History of presenting complaint(s)**

Well this morning, woke up from lunchtime sleep at 13.30 feeling hot. Sitting on settee when eyes became glazed and rolled up. All 4 limbs began to shake. Lasted for less than 2 minutes. Afterwards, floppy and drowsy until arrived in casualty at 14.00. No previous episode.

**Drugs taken in recent hours or days**

- Nil

**Activity in last hours**

- Normal
- Definitely reduced
- Very little

**Food in last hours**

- Normal
- Definitely reduced
- Very little

**Fluid in last hours**

- Normal
- Definitely reduced
- Very little

**Previous medical history**

- Birth weight: 7lbs 4oz
- Pregnancy or perinatal problems: No or detail:
- Immunisations up to date: Yes or detail:
- Previous serious illnesses: No or detail:
- UTI - age 8/12. Investigations “normal”

**Development**

- Latest motor skill: Sits unsupported Crawls Cruises Walks Runs
- Latest language skill: Babbles Single words Two word combinations Short sentences Conversation
- School progress: Preschool No problems or detail:
- Development: Normal Abnormal If abnormal then detail:

**Family history**

- Mother: Well or detail:
- Father: Well or detail:
- Siblings:
  - Age: 7 M
  - Sex: Male
  - Atopic eczema (mild)
  - 5 F
  - 3 F
  - Mother had febrile convulsions as a child

**Social history**

- Comfortable home
- Other comments: Father works night shifts
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<table>
<thead>
<tr>
<th>Name of child</th>
<th>A N Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>How ill is the child?</td>
<td>Well (Not very ill) Moderately ill Very ill</td>
</tr>
<tr>
<td>Rash</td>
<td>Blood pressure (if needed)</td>
</tr>
<tr>
<td>Weight 10 kg</td>
<td>Temperature 39.1°C</td>
</tr>
<tr>
<td>Perfusion Good Reduced Very poor</td>
<td></td>
</tr>
</tbody>
</table>

**Heart**
- Murmur
- Femoral pulses
- Blood pressure (if needed) 80/40

**Chest**
- Chest clear
- Signs of respiratory distress

**Abdomen**
- Testes
- Masses

**CNS**
- Conscious level

**Other relevant findings on examination**
- Hip abduction
- Relevant ENT findings

**Problem list**
1. First febrile convolution
2. Tonsillitis
3. Previous UTI

**Initial management plan**
- **Investigations** (ring when done)
  - FBC
  - U/E & Cr
  - Blood culture
  - Blood gas tensions
  - Urine microbiology/culture
  - Chest x ray
  - LP
  - Others: Throat swab
- **Observations**
  - TPR Peak flow Blood pressure O₂ saturation Others: 4 hourly, 1 hourly temperature
  - Normal diet Clear fluids Special diet Intravenous fluids
  - Detail if needed:
  - Amoxycillin 125 mg tds
  - Paracetamol 120 mg 4 hourly prn
  - Febrile fit handout given to parents

**Name of doctor** A J Smith

UTI = urinary tract infection, CNS = central nervous system, ENT = ear, nose, and throat, FBC = full blood count, U/E & Cr = urea and electrolytes and creatinine, TPR = temperature, pulse, and respiration, nad = no abnormality detected, tds = thrice daily, prn = as required
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