CHANGING ROLE OF THE EMERGENCY ROOM
AND ITS ACCEPTANCE BY HOSPITAL PERSONNEL

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ABSTRACT

The hospital, in response to the changing health care needs of society, has undergone numerous transitions, since its inception as an institution of refuge for the ailing indigent. One example is the development of a “protocol” method of patient care and its incorporation into an emergency room Acute Care Unit. It was the purpose of this study to assess the feasibility, efficiency, and acceptability of care provided by the protocol method for a large midwestern hospital.

Methods consisted of clinical analysis, personnel interviews, and data comparison with other protocol studies. Sample size totaled 1,683 patients. Analysis of results adjudged the protocol method to be a feasible, safe, and acceptable means of providing health care to patients.

INTRODUCTION

Through history, the hospital has reflected society’s health care needs and attitudes. During the Roman Empire, for instance, army hospitals were developed for wounded and ill soldiers; however, the concept was not embraced by the general society. The people thus relied upon traditional household medicine for their needs and ignored the potential benefits of emergency care (Scarborough, 1969).

In the eighteenth century, hospitals were viewed as a refuge for the ailing indigent (McLachlan and McKeown, 1971). Later, with the advent of anesthetics and antisepic procedures, they became institutions where the sick went to be cured rather than to die. As a result, middle and upper class patients began to utilize hospitals along with the poor (Shryocke, 1969). This trend has continued up to the present.

Today, mounting numbers of non-emergent* patients are

*Komaroff (1974a) classifies patients entering emergency rooms as either emergent or non-emergent patients. Emergent patients will suffer permanent impairment if not treated within one-half hour, while non-emergent patients will not.
creating crises in hospital emergency rooms (E.R.s) (Ginzberg, 1971; Komaroff, 1974a). This results in inefficient utilization of E.R. staff and facilities. To cope with this problem, "protocol" methods of patient care have been designed and incorporated into E.R. based Acute Care Units (A.C.U.) (Komaroff, 1974a and b).

The protocol method (Komaroff, 1974a and b; Bragg, 1972) employs clinical algorithms (C.A.s) to appraise and manage health problems. C.A.s concentrate on the patient's primary complaint; — his age, sex, past illnesses, and current medications determining the laboratory tests, and physical examination to be obtained. After data appraisal, proper treatment is specified by the C.A. It was the purpose of this study to assess the feasibility, efficiency, and acceptability of care provided by the protocol method.

METHODS AND MATERIALS

The study took place at a major metropolitan hospital in midwestern United States for four weeks in January 1975. The evaluation consisted of three parts:

I. Clinical Analysis:

A. Determination of the four most common complaints seen in the A.C.U. This assumes that a small number of illnesses are responsible for a large percentage of A.C.U. visits (Komaroff, 1974b).

B. Determination of the A.C.U. patient flow. This assumes that knowledge of the patient flow will identify bottlenecks in the system.

C. Determination of the time lag (time elapsed) between a patient entering the Unit and his examination. This assumes that a positive value accrues from examining patients rapidly. Speedy examination also eliminates patient backlog at a critical juncture in the system.

D. Determination of the time lag (time elapsed) between the patient's examination and the issuing of his final orders. This assumes the positive value of speedy patient examination will diminish, if the patient is forced to wait a prolonged time for final orders. In addition, rapid issue of final orders eliminates patient backlog at another important juncture.

E. Determination of the number of patients given a "nurse provisional treatment plan" and having it reviewed by physicians before being discharged. This assumes a small number of tasks represent a large percentage of work in the workup of non-emergent illnesses and that the tasks are performed almost identically well by either physicians or
trained non-physician personnel (Komaroff, 1974a and b).

F. Determination of the number of patients treated by the A.C.U. but who, in reality, belonged under E.R. jurisdiction. This assumes the protocol method is efficient, if the number of treated A.C.U. patients actually belonging under E.R. jurisdiction is small (arbitrarily, the maximum limit is set at 20% of the total A.C.U. patient load).

II. Personnel interviews:
   A. Patient interviews were conducted to ascertain their reaction to the A.C.U.’s care (personal communication). This assumes the patients’ reaction may influence their recovery.
   B. Nurse and physician interviews were conducted to determine the staff’s reaction to the Unit’s care (personal communication). This also assumes that staff attitudes may affect the delivery of care.
   C. Staff interviews were conducted to determine the protocol method’s feasibility in the delivery of health care (personal communication). This assumes that individuals involved with the provisional treatment plan are in an excellent position to comment on the feasibility of employing the protocol method in the future.

III. Data comparison with other A.C. U. studies. This permits any meaningful similarities in data to be identified.

RESULTS

Sample size totaled 1,683 patients. The four most common presenting complaints were:

Upper respiratory infection .................. 485 (29%)
Abdominal pain ............................ 122 (7%)
Urinary tract infection .................... 109 (6%)
Gynecological .............................. 103 (6%)
N = 1683 Total: 819 (49%)

Upon entering, the patient reported to the triage nurse and proceeded in accord with the flow in Diagram I. The mean total time spent by a patient in the A.C.U. was 119 minutes; of this total, only a mean of 12.5 minutes was spent waiting for examination, whereas a mean of 106.5 minutes was spent waiting for final orders (Table 1). Of the 1,683 patients entering the A.C.U., 159 (9%) were referred to other medical units. Of the remaining total, 1,463 (87%) were given a nurse provisional treatment plan and had it reviewed by a physician before being discharged, while only 61 (4%) were
DIAGRAM I
DIAGRAM OF ACUTE CARE UNIT PATIENT FLOW

(1) Enter
(2) Report to Triage Nurse
Vital Signs Entered by Nurse

(2a) Acute Care Unit Desk
(2b) Emergency Room
(2c) Intensive Care
(2d) Pediatrics in Emergency Room
(2e) Less Than 18 Years of Age
(2f) Contraceptive Information

(3) Fill Out Forms
Wait for Examination

(4) Examination by Nurse or Physician
(Determined by C.A.)

(4a) No Laboratory Tests
(4b) Laboratory and Diagnostic Tests

(5a) Discharge
(5b) Admit Health Center
(5c) Transfer to Another Physician
(5d) Further Consultation

(6a) Emergency Room
(6b) Acute Care Unit

(7a) Within 24 hrs.
(7b) After 24 hrs.
Diagram I
Diagram of Acute Care Unit Patient Flow

Patient enters the E.R. and reports to the triage nurse (1, 2). Here, using the presenting symptoms or vital signs of the patient, the nurse selects the appropriate C.A. The C.A. assists the nurse in screening the patient for the A.C.U., E.R., or Intensive Care (2a, b, and c). If the patient is under 18 years of age, has an eye problem, or requests contraceptive information, the appropriate referral or appointment is made by the nurse (2d, e, and f).

If the C. A. determines the patient can be treated by the A.C.U., he is directed to the A.C.U. desk and waiting room (3). Here the patient completes the appropriate forms (home address, race, sex, next of kin, etc.) and waits for examination. The examination may be administered by either a nurse or physician, as specified by the C. A. (4). Laboratory and diagnostic tests, if required by C. A. or examiner, are also administered at this time (4a, b).

Upon completion of the examination and any tests, the patient returns to the waiting room to await further instructions (5). These instructions, based upon clinical data and the examiner’s medical experience, are usually determined by the C. A. However, instructions deviating from the C. A. may be issued, if the appropriate physician has been consulted and permission obtained.

Final instructions include the patient’s discharge, admittance to the Health Center, transfer of care to another physician, or further consultation (5a, b, c, and d). If further consultation is required, the patient is either transferred immediately to E.R. (6a) or asked to return to the A.C.U. (6b). Should the patient be requested to return, the C. A. specifies whether it should be within or after 24 hours (7a, b).

Table 1: Time Lags in Patient Flow

<table>
<thead>
<tr>
<th></th>
<th>From Entering A.C.U. Until Examination (min.)</th>
<th>From Examination Until Discharge (min.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A.M. SHIFT</td>
<td>15</td>
<td>86</td>
</tr>
<tr>
<td>P.M. SHIFT</td>
<td>10</td>
<td>127</td>
</tr>
<tr>
<td>Average</td>
<td>12.5</td>
<td>106.5</td>
</tr>
<tr>
<td>Total Average Visit Time (min.): 119</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

treated but adjudged to actually be under E.R. jurisdiction.

Fifty-one patients were interviewed. Forty-seven (92%) responded that the triage algorithm/nurse provisional treatment method of care was as good or better than that of their regular physician. Eleven nurses (the entire A.C.U. nursing staff) and six residents
were interviewed. Of these, all nurses (100%) and five residents (83%) expressed approval of the Unit's method of care, and complete confidence in its ability to assess and treat patients (Table 2).

**TABLE 2: RESPONSE FINDINGS**

<table>
<thead>
<tr>
<th>Reaction to Acute Care Unit</th>
<th>Confidence in Acute Care Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Positive %</td>
<td>No.</td>
</tr>
<tr>
<td><strong>PATIENTS</strong> (N=51)</td>
<td>92</td>
</tr>
<tr>
<td><strong>NURSES</strong> (N=11)</td>
<td>100</td>
</tr>
<tr>
<td><strong>RESIDENTS</strong> (N=6)</td>
<td>83</td>
</tr>
</tbody>
</table>

N. A. = Not Available

**TABLE 3: PRESENTING COMPLAINTS**

<table>
<thead>
<tr>
<th>Complaint</th>
<th>Acute Care Unit</th>
<th>Kaiser - Inglewood Clinic*</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>%</td>
<td>No.</td>
</tr>
<tr>
<td>Upper Respiratory Infection</td>
<td>29</td>
<td>485</td>
</tr>
<tr>
<td>Abdominal Pain</td>
<td>7</td>
<td>122</td>
</tr>
<tr>
<td>Urinary Tract Infection</td>
<td>6</td>
<td>109</td>
</tr>
<tr>
<td>Gynecological</td>
<td>6</td>
<td>103</td>
</tr>
<tr>
<td>Total</td>
<td>49</td>
<td>819</td>
</tr>
</tbody>
</table>

*(Komaroff, 1974b)*
In a comparable study at the Kaiser-Inglewood Clinic, presenting complaint data were (Table 3) (Komaroff, 1974b):

<table>
<thead>
<tr>
<th>Complaint</th>
<th>Rank</th>
<th>Percentage</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Upper respiratory infection</td>
<td>1st</td>
<td>797 (27%)</td>
<td>1267 (44%)</td>
</tr>
<tr>
<td>Abdominal pain</td>
<td>2nd</td>
<td>289 (10%)</td>
<td></td>
</tr>
<tr>
<td>Urinary tract infection</td>
<td>14th</td>
<td>87 (3%)</td>
<td></td>
</tr>
<tr>
<td>Gynecological</td>
<td>12th</td>
<td>94 (3%)</td>
<td></td>
</tr>
</tbody>
</table>

Other findings show the mean time lag between a patient entering the A.C.U. and his being examined was 14 minutes (Greenfield, 1974a). Others report that 70-89% of protocol treated patients were discharged without significant deviance from the protocol disposition decision (Komaroff, 1974b; Winickoff, 1974; Greenfield, 1973), whereas only 2-11% of the protocol treated patients were discovered to be actual E.R. cases (Table 4) (Bragg, 1972; Winickoff, 1974; Greenfield, 1973).

**TABLE 4: COMPARISON of TIME LAGS, DISCHARGED PATIENTS, and TRUE EMERGENCY ROOM CASES**

<table>
<thead>
<tr>
<th>Time Lag Between Patient Entering A.C.U. and Examination</th>
<th>%</th>
<th>No.</th>
<th>Time(min.)</th>
<th>%</th>
<th>No.</th>
<th>Time(min.)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>1683</td>
<td>12.5</td>
<td></td>
<td>212</td>
<td>.14</td>
</tr>
</tbody>
</table>

Patients Given Provisional Treatment Plan Or C. A. Treatment

Patients Treated But Were True Emergency Room Cases

N.I. = Not Included

*(Bragg, 1972; Winickoff, 1974; Greenfield, 1973, 1974a)*
DISCUSSION

Comparison of our data with other protocol studies indicates certain parallels, namely:
1. Time elapsed between patients entering the A.C.U. and their being examined (12.5 min. in this study, 14 min. in others)
2. Percentage of patients treatable by the protocol method (theoretically 87% in this study, 70-89% in others)
3. Percentage of patients treated by the A.C.U. but actually belonging under E.R. jurisdiction (4% in this study, compared 2-11% in others)
4. Patient, nurse, and physician response to provisional treatment or protocol method (this study as well as others indicates an almost unanimously positive response).

These similarities in data soundly support the conclusion reached by other authors; namely, that the protocol method is a feasible, safe, and acceptable means of providing health care to non-emergent patients (Komaroff, 1974a, b and c; Winickoff, 1974; Greenfield, 1973, 1974a and b).

In addition, other advantages of the protocol method include (Komaroff, 1974a):
1. Improving the basic education and comprehension of pathophysiology in medical students by studying the logic built into the protocols.
2. Providing medical-legal safeguards by stating explicitly what was and was not administered to the patient and by representing tested, validated standards of care.

However, the protocol method has its shortcomings. The most apparent is the tremendous amount of time the patient spends waiting for final orders. Experience suggests the delay stems from the turnabout time required for laboratory tests. Accordingly, the protocol method's efficiency might be improved, if the turnabout time for tests was reduced. A potential solution includes assigning a special laboratory fulltime to the A.C.U. Further research is necessary, however, before the final conclusion can be determined.

CONCLUSIONS

The protocol method established in an Emergency Room based Acute Care Unit is adjudged to be a feasible, safe, and acceptable means of providing health care to non-emergent patients. Further research is recommended, to determine if increased protocol
efficiency would result from attaching a fulltime laboratory to the Acute Care Unit.

BIBLIOGRAPHY


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