A STUDY OF THE INPATIENT CHARGE SYSTEM
AT HILLCREST BAPTIST HOSPITAL,
WACO, TEXAS

A Problem Solving Thesis

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ABSTRACT

A STUDY OF THE INPATIENT CHARGE SYSTEM
AT HILLCREST BAPTIST HOSPITAL,
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This study was undertaken to estimate the incidence
of inaccuracies and delays in an automated inpatient charge
system. A random comparison of clinical charts and state-
ments of patient charges revealed an approximately equal
occurrence of overcharges and undercharges to patients' ac-
counts.

The hospital was experiencing a five-day delay in the
preparation of final statements following a patient's dis-
charge. This compared to a three-day delay in the previous
manual system. Observation and analysis of the flow of charge
tickets during this study revealed that 98 per cent of patient
charges were posted to patients' accounts within three days
after the service was provided. The cause of the delay in
closing discharged patients' accounts was traced to the follow-
up verification of computer edit checks.

The major recommendation of the study involved the
creation of an additional computerized control file to assure
that all charge tickets prepared on the wards are posted to
patients' accounts.

ACKNOWLEDGMENTS

The writer wishes to express his appreciation to Alton Pearson, Administrator of Hillcrest Baptist Hospital, and members of his staff for their cooperation and many courtesies extended during the period of this study.

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CHAPTER I

INTRODUCTION

General Information

The fact that the majority of hospitals in the
United States are nonprofit institutions does not lessen
the importance of revenue to their operation.[1] Regardless
of the humanitarian goals of the organization, careful at-
tention is required to assure that revenues exceed costs if
the hospital is to maintain a continuing operation. As the
largest single source of hospital revenue, charges for indi-
vidual patient services deserve special management atten-
tion.[2]

There are primarily two areas of concern in a patient
charge system--accuracy and timeliness. Accuracy assures
that all goods and services are being charged at the correct
price to the patient who has received the service. Increased
demands for itemized statements by patients and third-party
payers place additional impetus on the requirement that the
individual be charged only for the services he has received.
Accuracy reflects a fairness to the individual patient that

instills goodwill for the hospital in the community by

contributing to the patient's image of the hospital's efficiency.

The timeliness with which patient charges are recorded is another matter that merits management concern. Habitual delays in posting charges to the patient's account result in delayed billings, a lagging cash flow, and increased clerical costs. Discharged patients' accounts require correction, insurance claims must be resubmitted, and the patients' impression of the efficiency of the hospital declines. Hospitals have long recognized the inevitability that some services provided late in the patient's period of hospitalization will not be posted to the patient's account prior to his discharge. The traditional approach has been to provide the patient an interim bill upon discharge, with a final bill to be forwarded at a later date. The time required to prepare this final bill largely determines the speed in which needed cash will be received by the hospital. Patients also seem more likely to ignore charges that are not posted to their accounts prior to their discharge from the hospital. A study conducted by one hospital disclosed that 35 per cent of their late charges proved uncollectable.[3]

Hospital Setting and History

Hillcrest Baptist Hospital is a voluntary, nonprofit, general hospital located approximately 100 miles south of Dallas-Fort Worth in the city of Waco, Texas. The present facility houses 320 beds and 60 bassinets. Owned and operated by the Baptist General Convention of Texas, it is one of two general hospitals serving a university-centered community of approximately 200,000 residents.

The history of Hillcrest Baptist Hospital began in 1909 when Dr. Joseph A. Barton, then Pastor of the First Baptist Church, recognized a need for a second hospital in Waco. Although the population of 25,000 was then being served by Providence Hospital, the rate of growth of this central Texas town pointed to an increased demand for hospital services. The hospital charter was filed in 1916, and work began on the construction of the new facility in 1917. Construction, slowed by World War I, terminated in the opening of the 65-bed hospital on May 25, 1920. Located three miles northwest of town, and accessible only by a single dirt road that occasionally deteriorated into a muddy bog, the new hospital was plagued with operational and financial difficulties during its early years. Nearly crippled by the

great depression of the 1930s, and unable to meet its cur-
rent financial obligations, it was feared that the hospital
would have to close its doors. The determination of its
founders, however, kept the hospital operational; and, in 1938,
an expansion and rehabilitation program was instituted that
eventually reversed the deteriorating financial conditions.

In 1951 an additional $835,000 building was con-
structed that increased the bed capacity to 204. A 1956 Ford
Foundation grant permitted a remodeling and construction pro-
gram that added a new surgical suite and physical therapy
department. In 1962, a $2.3 million building was added that
increased the hospital to its present size; and it provided
new facilities for the surgical, medical, maternity, and
youth divisions, as well as permitting relocation and expan-
sion of radiology, the laboratory, and the emergency room.[4]

Instead of being three miles from the town, Hillcrest
Baptist Hospital is now completely surrounded by the city of
Waco. Continuing growth of the patient population has dic-
tated the need for further expansion of the hospital. A new
$4.5 million construction program, to be completed in 1975,
will add fifty-nine patient treatment rooms and seven recov-
ery rooms, as well as provide for the relocation of the

emergency room and outpatient department from the fifth floor

of the existing building to the first floor of the new build-

ing. In addition, a new Surgery Department will double the

capacity of the existing department.[5]

Conditions Which Prompted the Study

In 1972, the hospital's inpatient charge system was

computerized. The previous manual system required a three-

day waiting period following a patient's discharge before

the final bill could be prepared. Early experience with the

new automated system indicated that this waiting period would

have to be extended to five days to allow sufficient time for

all charges to be processed, entered on the patient's account,

and subjected to an automated audit procedure. This addi-

tional delay in preparing final statements slowed the cash

flow from patient revenues during a period when cash availa-

bility was a prime consideration in meeting the demands of

the current construction project.

Since converting to an automated charge system, no

study had been conducted to determine whether patients were

being charged for all the goods and services being provided.

As the Assistant Administrator for Finance pointed out, a

loss of even 50 cents per patient each day in unrecorded

charges would result in a loss of over $50,000 in patient
revenue each year.[6]

Statement of the Problem

The problem is to determine methods for improving
the inpatient charge system at Hillcrest Baptist Hospital,
Waco, Texas.

Objectives

The objectives are:

1. Analyze the existing inpatient charge system.

2. Determine whether patients are being accurately
charged for services they receive during hospitalization.

3. Determine the source of suspected delays in the
processing of patient charges.

4. Provide recommendations for improving the accu-
racy and efficiency of the inpatient charge system (Appen-
dix A).

Criteria

This study should:

1. Provide a method of internal control that accounts
for all charge tickets prepared by ward personnel.

2. Provide a method for reducing the delay in the

preparation of final patient financial statements.

3. Recommend procedures that are in conformance with generally accepted accounting principles.

Limitations

The study limitations are:

1. The scope of the study is limited to transactions affecting patients' accounts during the time they are classified as active accounts.

2. Modifications to the present system must be compatible with the existing automated data-processing equipment.

3. On-site observations of billing procedures are limited to one ward, three service departments, and the Data Processing Office.

Assumptions

The assumptions are:

1. The majority of hospital insurance plans will continue to require patients to pay a portion of their hospital charges.

2. Treatment provided patients is being accurately and completely recorded in the inpatient clinical records.

3. The hospital will be willing to incur additional costs to improve the accuracy of patient charges.

4. The hospital will continue to use IBM System/3 data-processing equipment in the inpatient charge system.

Factors Bearing on the Problem

The factors bearing on the problem are:

The potential loss of revenue due to billing errors is only a part of the problem. All inaccuracies in charges for patient services, regardless of their effect on total revenue, have a possible adverse effect on public relations.

There is a lack of employee confidence in the hospital's pneumatic tube system. Charge tickets transported between departments by pneumatic tube were frequently lost or unexplainably delayed for several days. In addition, the location of the pneumatic tube outlets was not always convenient for ward personnel. For example, the tube station on the second floor was located on the maternity ward. The feeling of disturbing patients on this ward made personnel from other wards on the floor reluctant to use the tube system.[7] The administrator was aware of the mechanical difficulties frequently encountered with the present system and planned to install a completely new system in approximately one year.[8]

Review of the Literature

The literature is replete with descriptions of systems

adopted by individual hospitals to charge patients for ser-
vices provided during their period of hospitalization. De-
spite modifications based on hospital size, volume of transac-
tions processed, and technical advances in data-collection
equipment, all these systems have evolved from a single time-
proven method. When a patient is admitted, the business of-
fice prepares a patient ledger card which is annotated with
charges as they are incurred by the patient. The room charges
are recorded, based upon the daily patient census. Charges
for items not included in the room rates are posted to the
ledger card when the business office is notified by the appro-
priate organizational element of the hospital that the sup-
plies or services have been provided to the patient.[9] Within
the framework of this basic system, hospitals have been able
to exercise leeway in tailoring a charge communication system
to the needs of their organization. Many small hospitals con-
tinue to find the manually posted ledger-card system sufficient
to meet their needs. In other hospitals, the patient ledger
card has evolved into a grouping of information stored in a
computer memory file.[10]

Perhaps the ultimate in sophistication has been reached
in a presently available system that is almost completely com-
puter controlled. By merely touching a lighted pen to a

cathode ray tube on the ward, a physician or nurse can point
to the medications to be administered to a patient, and in-
stantly the order is printed in the pharmacy while the charge
is being posted to the patient's account in the central com-
puter files.[11]

Systems that do not have this electronic communication
between the point of requisition and the point of charge have
been plagued by two types of errors.[12] Documentation occasion-
ally reaches the business office after the patient has been
discharged. This results in the need for interim statements,
corrections of previously closed accounts, adjustments of in-
surance claims, and deteriorated public relations. At other
times, charge slips are not prepared or are lost before they
are posted to the patient's account. This results in lost
revenue to the hospital. A frequently recommended method of
minimizing these late and lost charges is to include as many
services as possible in the daily room charge. Some hospitals
have gone so far as to charge a flat daily rate for hospital-
ization regardless of the services provided the individual
patient. Others have established a flat rate for a particular
surgical confinement.[13]

The literature continually stresses the importance of
internal controls in any inpatient charge system. In an

automated data-processing system, these controls involve de-
partments outside of the computer unit, as well as the com-
puter unit itself.[14] The computer is now accepted as the most
accurate accounting device the world has ever known, and the
chance of an error produced by the internal circuitry of the
machine is infinitesimal.[15] But the problem is people. Peo-
ple make mistakes in programming, preparing source documents,
and verifying exceptions rejected by the machine. Errors in
addition, multiplication, and copying--all common in a manual
system--have been replaced by the automated system's potential
for coding errors, keypunching errors, and failure to reject
absurd input.[16]

Most of the problems in poor computer systems result
from lack of input control. Several techniques have been de-
veloped to assure that all data is initiated. These include
prenumbered forms that are numerically accounted for, the pro-
duction of charges as a by-product of the requisition system,
and program controls within the computer functions to identify
inconsistencies in input data.[17]

Research Methodology

This study was carried out in four phases. The first
phase was conducted off-site and comprised a review of the
literature to determine the methods used by various hospitals

in recording patient charges and the problems normally en-
countered in using these systems.

The second phase consisted of an on-site investigation
to determine the effectiveness of the current inpatient charge
system. To determine whether patient services were accurately
billed, a random sample of thirty-three clinical records was
selected and compared with the corresponding itemized state-
ments of charges to the patients' accounts. These records
were selected from the file of patients discharged during
February, 1974--the most recent month for which clinical rec-
ords were available--and represented a total hospital stay of
240 days. To estimate the delay in posting charges to the
patients' accounts, a complete day's posting transactions were
compared with the dates the services were provided, as recorded
in the daily income journal. To determine the effectiveness
of the computerized audit program, the average number of rec-
ords subject to audit during a five-day period in February,
1974, was calculated and compared to the average daily number
of records requiring audit checks.

The third phase of the investigation consisted of on-
site observation of the flow of charge slips from the wards,
through the service departments, to eventual keypunching for
posting to the patients' accounts. Personnel involved in the

preparing and processing of charge slips were interviewed to determine the procedures currently employed in recording patient charges. The inflow of charge slips to the data-processing office for a complete 24-hour day was observed and tabulated to estimate delays in posting charges not attributable to the data-processing department. Another reason for this observation was to evaluate the methods of delivery and physical security involved.

The fourth phase of the investigation involved an analysis of the collected data to determine the effectiveness of the present system and to identify areas needing improvement.

Footnotes

[1]American Hospital Association, Hospital Statistics 1972 (Chicago: American Hospital Association, Inc., 1973), pp. 19-21.

[2]Ibid., p. 202.

[3]Lloyd A. Schlaeppi, "A Study of the Inpatient Charge System at Saint Joseph Hospital, Bryan, Texas" unpublished Master's thesis, Baylor University, Waco, Texas, 1973, p. 42.

[4]"50 Years of Community Health Service," Waco Tribune-Herald, May 24, 1970, Sec. G, p. 10.

[5]Hospital Facility Plans, 1973-1980 (Waco, Tex.: Hillcrest Baptist Hospital, n.d.), pp. 1-2.

[6]Personal interview with W. A. Rampmeier, Assistant Administrator for Finance, Hillcrest Baptist Hospital, Waco, Texas, March 4, 1974.

[7]Personal interview with Mrs. Margaret Robinson, Unit Secretary, Ward 2-C, Hillcrest Baptist Hospital, Waco, Texas, March 8, 1974.

[8]Personal interview with Mack Hardin, Assistant Administrator, Hillcrest Baptist Hospital, Waco, Texas, March 15, 1974.

[9]American Hospital Association, Bookkeeping Procedures and Business Practices for Small Hospitals (Chicago: American Hospital Association, Inc., 1969), pp. 17-18.

[10]Hospital Financial Management Association, Managing the Patient Account (Chicago: Hospital Management Association, Inc., 1970), pp. 49-52.

[11]Thomas L. Robertson, "Tracking Down Lost Charges," Southern Hospitals, XL (February, 1972), 13-14.

[12]Gustav A. Killenberg, "Is There a Control Procedure Which Effectively Eliminates Late Charges?," Hospital Topics, L (June, 1972), 59.

[13]Ibid.

[14]Earl Soder, "Internal Controls for Your Computer Operation," Hospital Financial Management, XXVI (October, 1972), 21-25.

[15]Robert G. Schomo, "Testing Internal Control in an EDP System," Management Accounting, LIV (April, 1973), 39.

[16]Ibid.

[17]Soder, p. 23.

CHAPTER II

DISCUSSION

The Current Inpatient Charge System

At the time of this study, Hillcrest Baptist Hospital was using a modified requisition/charge-ticket system. Patient accounts were processed on a single IBM System/3 Model 10 computer with external disk storage. Input to the system was off-line and batch processed.

When a patient was admitted, the admissions office prepared a plastic five-line card embossed with the patient's name, account number, room number, age, sex, religion, date of admission, and attending physician. This card was retained on the ward throughout the patient's stay and was used to imprint all charge tickets. The account number assigned the patient was a 7-digit check number. The use of a terminal check digit allowed automatic rejection by keypunch equipment of the majority of inadvertent errors resulting from the improper recording or keypunching of the patient's account number.

The majority of charges to the patients' accounts originated at the nursing stations on the wards. Doctors'

orders were used by the ward nurse to prepare charge tickets. This task was frequently delegated to the unit secretary when the nurse felt that this individual had sufficient experience. In all cases, however, the completed forms were required to be verified and signed by the responsible nurse. At the time of this study, there were twenty-four different forms available on the wards for requesting supplies and services for the patient. Depending on the item to be ordered, one of the following forms (Appendix B) was completed:

1. Central Service Supplies.

2. Regular Drugs.

3. X-ray.

4. Radiotherapy/Radioisotope.

5. Electrocardiogram/Basalmetabolism.

6. Surgical Pathology.

7. Intravenous Therapy.

8. Blood Transfusion.

9. Physical Therapy.

10. Inhalation Therapy.

11. Laboratory Services.

   a. Cardiac Enzymes.

b. Special Chemistry.

c. Routine Chemistry.

d. Coagulation.

e. Hematology.

f. Serology.

g. Urinalysis.

h. Microbiology.

i. Bacti-sensitivities.

j. Spinal Fluid and Urine Chemistry.

k. Electrophoresis.

l. Miscellaneous Laboratory Services.

12. Personal Items.

13. Miscellaneous Charges.

Once completed, the form became a requisition and was sent to the appropriate service department. The service departments processing requisitions from the wards were:

1. Central Service.

2. Pharmacy.

3. Cardiology (EKG).

4. EEG Department.

5. Nuclear Medicine.

6. Physical Therapy.

7.   Inhalation Therapy.

8.   Radiology.

9.   Laboratory.

With the exception of the Pharmacy, each of these service departments maintained an embossed plastic card for each of the supplies or services they normally provided. This card was used to stamp each requisition with the name of the items provided, as well as the price code that had been previously programmed in the computer. The price codes for the more than 3,500 different drug items were handwritten on the requisition/charge ticket by pharmacy workers. There were two exceptions to this dual use of forms as both requisitions and charge tickets. Narcotics and certain emergency items were maintained in stocks on the wards. Narcotic issues were documented, using a series of overlapping forms that produced a charge ticket as a by-product of the entry in the stock issue record (Appendix C). These charge tickets were forwarded directly from the ward to the data-processing office for posting to the patients' accounts. The narcotic stocks were routinely replenished by the pharmacist, based upon issues recorded on the stock issue records. When items were furnished a patient from the ward's emergency stocks, a

charge ticket was prepared charging the patient's account,
and the service department's copy was used to replenish the
ward's stock.

In addition to the charges posted from ward requisi-
tions, data processing also received inpatient charge tickets
from the surgical, anesthesia, and recovery services and from
the emergency room. A single office prepared charge tickets
daily for patients undergoing surgical procedures that day.
These charges included an hourly rate for surgery, charges
for drugs administered during surgery, anesthesiology fees,
and an hourly recovery room rate. When patients were admit-
ted directly from the emergency room, the charges for the
emergency service, as well as the charges for drugs and sup-
plies furnished, were forwarded to the data-processing office
for posting to the patient's account.

All completed charge tickets were either carried to
the data-processing department or sent there through the
pneumatic tube system. When they arrived in the data-process-
ing office, the patient account number, price code, quantity,
and date were keypunched on computer cards. The charge
tickets were then grouped and numbered with a code indicating
the date they were keypunched, and were filed as supplementary

records.

At approximately midnight each day, all patient charges
that had been keypunched were processed on the computer. This
processing resulted in an update of the Charge Master File.
Summary statements were then printed by the computer showing
the current account balance on each patient's account. These
statements were sent to the cashier for use as interim state-
ments for patients who were scheduled to be discharged the
following day. Those statements not used were destroyed.

The record of charges was retained in the Master
Charge File for five days following the patient's discharge
from the hospital. During this period, each dismissed pa-
tient's account was subjected to a computerized audit program
that resulted in a list of suspicious charges or lack of
charges. This computer audit checked the patient's record
for the following potential errors:

1. Insufficient or excess number of room charges.

2. Excess of credits over charges for a particular
item.

3. Large charge amounts (limits based on type of
charge).

4. Recovery charged, but either operating room and/
or anesthesia missing.

5. Operating room charged, but either anesthesia and/or recovery missing.

6. Anesthesia charged, but either delivery room or operating room and/or recovery missing.

Data processing control clerks then used this audit listing to verify the accuracy of these charges.

At the end of the fifth day following discharge, the patient's computerized record was dropped from the Charge Master File and added to the Accounts Receivable Master File. At this time, final statements were prepared and sent to the business office for mailing to patients and third-party payers.

Evaluation of the Current
Inpatient Charge System

To determine whether charges were being accurately posted to the patients' accounts, a random sample of thirty-three accounts was selected from the discharge listings of the 1,305 patients discharged during the month of February, 1974. This sample represented a total of 240 patient days, with a range of individual hospital stays of from one to 43 days. Copies of the itemized final statements for these selected accounts were compared to the corresponding clinical

charts. Of the thirty-three accounts examined, eighteen

contained errors in charges. A total of forty-eight errors,

amounting to $171.08 in incorrect patient charges, was dis-

covered (Table 1).

TABLE 1

ERRORS IN 33 INPATIENT ACCOUNTS OF PATIENTS
DISCHARGED FROM HILLCREST BAPTIST HOSPITAL
DURING FEBRUARY, 1974

Service Department	Undercharges		Overcharges	
	Number	Amount	Number	Amount
Pharmacy	16	$21.91	12	$36.54
Laboratory	5	20.67	3	6.36
Central Services	1	1.33	3	23.32
Inhalation Therapy			4	20.14
Radiology	2	30.74	1	2.12
Recovery	1	7.95		
Totals	25	$82.60	23	$88.48

Of the eighteen accounts found in error, the dollar amount

of errors on individual accounts ranged from a low of 60

cents to a high of $28.10. The mean error of all thirty-

three accounts was $5.18.

Because the errors discovered in this sample were

approximately equally divided between overcharges and under-
charges, they tended to have a canceling effect. Multiple
errors occurred on twelve accounts, and, when their cancel-
ing effect was considered, the average error for all sampled
accounts was reduced to $3.28. The effect of these errors
on total hospital revenue was even less pronounced. Deduct-
ing the total undercharges from the total overcharges resulted
in a total net overcharge of $5.88, or $.0245 per patient day.

The apparent insignificance of billing errors on hos-
pital revenue, however, should not negate the effect on the
accuracy of individual patient accounts. Based upon the num-
ber of sampled records found in error, it can be shown at a
95 per cent confidence level that the percentage of inaccurate
accounts for patients discharged in February, 1974, was between
37.5 and 71.5 per cent. Even the lower limit of this estimate
represents an unacceptable accuracy level and invites criticism
from affected patients and third-party payers.

The purpose of selecting this sample was to determine
whether errors in patient billings were made, rather than to
estimate the exact percentage of inaccurate accounts. Like-
wise, a projection of the dollar amount of inaccurate billings,
or the net effect on February's revenue, was beyond the scope

of this study. The results of this sample of thirty-three
accounts can, however, be used as a pilot study for determin-
ing the required sample size for a more precise estimate of
the extent of billing errors during the month of February,
1974. Based upon the proportion of inaccurate accounts in
this sample, a random sample of 295 accounts would be required
to determine, within 5 per cent, the total number of inaccu-
rate accounts for patients discharged in February. A sample
of 256 patient accounts would be needed to estimate, within
one dollar, the amount of the average error on individual
patient accounts. The collection of such large samples would
be time-consuming and expensive. It required an average of
thirty minutes to compare entries in a clinical chart to the
corresponding billing statements. The refinement of estimates
resulting from such an extensive sample would be of little use
to the hospital administrator since it has already been de-
termined that an unacceptable percentage of accounts contained
errors.

    The audit of these thirty-three records included a
comparison of admission and discharge dates, as recorded in
the clinical chart, with room charges shown on the patients'
final statements. No errors in room charges were found.

The largest number of billing errors resulted from incorrect drug charges. Twenty-eight errors, totaling $58.45, were discovered. Eighty-one per cent of the undercharges were for drugs shown in doctors' orders and nursing notes without a corresponding charge to the patients' accounts. The remaining 19 per cent of undercharges resulted from credits to patients' accounts for returned drugs that were not previously charged to their accounts. These erroneous credits occurred despite a computer audit program designed to detect this type of inconsistency in individual accounts. Of the twelve drug overcharges, all but two resulted from charges for pharmaceuticals that were not administered to the patient. One overcharge resulted from the pharmacy charging the patient for the incorrect item. The remaining overcharge resulted from a failure to credit a patient for the unused portion of a prescription discontinued by the physician.

In Central Services, $21.20 of the total overcharge resulted from a double charge for patient monitoring equipment. The patient was in the Coronary Care Unit (CCU) at the time, and the cost of monitoring equipment already was included in the room rate. An additional charge was processed

as though he had occupied a room outside the CCU.

The $20.14 overcharge by Inhalation Therapy resulted from daily rental charges for standby oxygen equipment for the day patients were discharged from the hospital, regardless of discharge time. Since it was the hospital's policy not to charge the room rate for the day of discharge, this inconsistency in charge policy is a potential area for patients' complaints.

To determine the extent of late charges, a typical day's postings were selected and compared to the dates that the services being charged were provided. This comparison indicated that all but 2 per cent of the charges were posted to patients' accounts within three days (Table 2).

To estimate the amount of this delay attributable to wards and service departments, the inflow of charge tickets to the data-processing department during a 24-hour period was observed and tabulated. This 24-hour cycle began with the computer run at midnight on March 12, 1974. At that time, there were 403 charge tickets that had been delivered to the data-processing department, but they had not been keypunched. Over 90 per cent of these charges were for services

TABLE 2

AGE OF CHARGE TICKETS POSTED ON MARCH 5,
1974, AT HILLCREST BAPTIST HOSPITAL

Date Service Provided	Number Posted	Percentage
March 5	348	39.1
March 4	501	56.3
March 3	31	3.4
March 2	5	.6
Prior to March 2	5	.6
Total	890	100.0

provided that day, and only two charge tickets were more than
48-hours old. Both of these tickets were for laboratory tests
that required six to eight weeks to complete. Although the
billing copy is normally forwarded to the data-processing
office when the request for the test is received in the lab-
oratory, it was overlooked in these two cases. This oversight
caused a seven-day delay in the posting of these charges.
During the day of March 13, an additional 1,596 charge tickets
were received in the data-processing office. Of this daily
input, 98 per cent were less than two days old (Table 3).

The pneumatic tube system was used to send 202 of

TABLE 3

AGE OF CHARGE TICKETS RECEIVED BY DATA-PROCESSING
DEPARTMENT, HILLCREST BAPTIST HOSPITAL, ON
MARCH 13, 1974

Date Service Provided	Number Received	Percentage
March 13	1,142	71.6
March 12	423	26.5
March 11	15	.9
Prior to March 11	5	.3
Undated tickets	11	.7
Total	1,596	100.0

these 1,596 charge tickets to the data-processing office.
The remainder were handcarried by ward and service department
personnel. The data-processing office received 73 per cent
of this day's input between 7:30 A.M. and 4:00 P.M. No charge
tickets were received between 11:00 P.M. and 7:30 A.M. Tickets
prepared during this shift accumulated for delivery to the
data-processing office the next day. Since keypunch operators
did not work after midnight, this delay was not significant.
This tendency to accumulate charge tickets, however, carried
over to the daytime operations in some departments. During
the 24-hour observation period, seven wards and four service

departments made only one delivery of charge tickets to the data-processing office. These wards were 1A, 2B, 2C, 4A, Obstetrics, Recovery, and ICU. The service departments were Radiology; Inhalation Therapy; Physical Therapy; and EKG.

There was no designated deposit area for these incoming charge tickets. Some tickets were delivered directly to keypunchers, others were placed on the top of the keypunch machines, while still others were given to personnel in the adjacent business office. Some tickets were found pushed under the curtain of the cashier's cage after the business office had closed for the night. Due to the crowded conditions in the data-processing office, and the volume of paperwork being processed by that office, charge tickets could easily fall behind pieces of equipment and become lost or delayed.

One of the primary reasons cited for retaining accounts in an active status for five days following discharge was to permit their continued exposure to the computer audit program prior to preparation of a final statement.[1] The data-processing manager felt that the proper place for a thorough audit check in the total billing and accounts receivable system was prior to the preparation of final statements.[2] Corrections to accounts made after the accounts had been transferred to

accounts receivable required reprocessing of statements sent
to patients and to third-party payers.

Since it has already been determined that late charges
presented no significant obstacle to shortening the period
that accounts were retained in an active status, a study was
undertaken to determine if the number of corrections result-
ing from computer audit warranted retaining accounts in an
active status for five days. Because the timing of the audit,
rather than its efficacy, was the only point in question, no
effort was made to determine the dollar amount of corrections.
Instead, only the number of account corrections required was
tabulated. The number of discharged patients' accounts re-
tained in an active status was compared to the number of
charges requiring audit verification and the number of actual
account corrections (Table 4). During the five-day period of
this test, an average of 229 discharged patients' accounts
were being held in an active status. Each day, an average of
39 suspect charges that appeared on these accounts required
manual verification and resulted in 7.8 account corrections
per day. This equated to an average of 3.4 account corrections
for every 100 accounts that were being held in an active
status following patient discharge. While an account correc-
tion rate in excess of 3 per cent justifies continuation of

TABLE 4

DISCHARGED PATIENTS' ACCOUNTS AUDITED DURING
THE PERIOD MARCH 8, 1974, TO MARCH 12, 1974,
AT HILLCREST BAPTIST HOSPITAL

Date of Audit	Accounts Subjected to Audit	Charges Requiring Manual Verification	Corrections Based on Audit Checks
March 8	222	41	10
March 9	241	41	0
March 10	240	36	0
March 11	223	37	16
March 12	220	40	8

the audit program, it does not represent a sufficient deter-
rent to making these corrections after final billing. By pro-
gramming these same audit checks on the Accounts Receivable
Master file, monitoring of account inconsistencies could con-
tinue beyond the present five-day period until final payment
of the account.

Even though accounts were being retained in an active
status for five days, some corrections based upon the computer
audit were made after the account was transferred to Accounts
Receivable. Audit listings were printed daily, even though
control clerks did not work on weekends. On Saturday, March 9,

and Sunday, March 10, a total of 104 accounts were transferred

from the Master Charge file to the Accounts Receivable Master

file. Though these accounts had remained active for five days

following the patients' discharges, twenty transactions on

these accounts appeared on the Saturday and Sunday audit list-

ings. Since there were no control clerks available to verify

these charges prior to final billing, all required corrections

were made directly to the Accounts Receivable Master file on

the following Monday. This had the same effect as a program

that would audit active accounts for three days and finalized

accounts for two days. The only difference was that the final

statements that required correction had not yet been mailed,

since the business office was also closed on weekends.

Although all charge ticket forms were prenumbered,

these numbers were not being used as a control device. This

was understandable since the large number of input sources

and the different types of forms in use would have made ac-

counting for the issue and use of prenumbered forms virtually

impossible. The fact that these forms were not being con-

trolled was not adequately communicated throughout the orga-

nization. Some wards and service departments sent their void

forms to the data-processing office, while others made no

attempt to account for unused forms. When void forms were received in the data-processing office, they were boxed and retained for a limited period of time. The control clerks in the data-processing office felt that the reason for accepting void forms was to discourage wasteful use of uncompleted forms by ward personnel.[3]

Alternatives for Improving the Inpatient Charge System

Ideally, all charges should be posted to a patient's account the same day that the service is provided. These charges should also be 100 per cent accurate; that is, the correct amount should always be charged to the correct account. Based upon the analysis of the current inpatient charge system at Hillcrest Baptist Hospital, several alternative courses of action are available to the hospital administrator in order to move closer to this ultimate goal of speed and accuracy.

There are several options available to decrease the amount of time required to post a charge to a patient's account. Emphasis can be placed upon the processing time by the ward, service department, data-processing office, or any combination of these three.

The time required to prepare charges on the ward and

forward them to the service departments or data-processing office could be shortened in several ways. A decision had already been made prior to this study to improve the pneumatic tube system. This pneumatic tube service, if extended to all ward stations and service departments, should encourage the forwarding of requisition-charge slips as they are prepared. Other alternatives, available immediately, should also be considered. A hospital messenger service would accelerate the flow of charge tickets. One individual could make several rounds of all wards and service departments each day to pick up completed charge tickets and deliver them to the next processing point. This alternative would, however, increase processing costs by requiring the addition of one full-time employee. The simplest way to improve the flow of charge tickets would be to require that each ward secretary and a designated individual in each service department, upon completion of their workday, deliver all charge tickets prepared during their shifts to the next processing points. Although this method would not be as effective as a pneumatic tube or messenger system, it would insure that the maximum delay in any one department was not greater than eight hours.

Another possible alternative for eliminating delays in forwarding charges is to forward the data-processing copy

of all charge tickets directly to the data-processing office.
at the same time that the original is forwarded to the ser-
vice department. Although this would decrease the handling
of charge tickets and provide for prompt account posting, it
presents several problems. It would require that price in-
formation be coded on the ward or in the data-processing
office. The number of different charge codes in use would
slow processing in these departments and increase the chance
of error. Also, any changes or cancellations made by the
service departments would require a correction entry to revise
the original account posting. Most importantly, forwarding
charges directly to data-processing would eliminate an effec-
tive internal control device, since there would be no assur-
ance that a charge copy would be forwarded for each requisi-
tion.

The time required to post charges once they are re-
ceived in the data-processing office could be shortened by
employing an additional shift of keypunchers from midnight
to 7:00 A.M. to use keypunch equipment normally found idle
during that time period, or by adding additional keypunchers
to the day shift. Observation of the procedures in use indi-
cated that the nightly backlog of unprocessed charges was

largely a matter of timing. Keypunchers were not preparing cards for charge tickets as they were received during the day. Charge tickets were batched for keypunching by the evening shift, while the day shift keypunchers worked on other computerized data. Keypunchers on the evening shift devoted their time to processing the charges received during the day and did not have time to complete the large number of charge tickets delivered to the data-processing office at the completion of the day shift. If charges had been keypunched as they were received during the day, the backlog of unprocessed charges observed at midnight would not have occurred. The addition of one keypunch operator during the day shift would permit the processing of all charge tickets as they are received during the day and allow keypunchers on the evening shift to concentrate on charge tickets received after 5:00 P.M. Although elimination of the observed backlog requires less than a full-time employee, this individual could be further utilized in the processing of the additional data recommended elsewhere in this study.

The accuracy of the present system could be improved either by manually checking the computer output or by developing additional internal controls within the system. A manual

check of final statements against an independent record of
treatment is the most obvious method of checking accuracy.
This was the system that was used in this study--the verifica-
tion of charges against entries on the patients' clinical
charts. There are several drawbacks to using such a manual
check. Primarily, it is time-consuming, tedious, and subject
to additional human error. Based upon the experience of this
study, it would require a minimum of two full-time employees
to perform a 100 per cent audit of final statements against
clinical records. In addition, such an audit would not detect
billing errors if the same errors were made in the clinical
records.

A much more effective method of insuring accuracy
would be to use the computer to check for inaccurate billings.
This would require the construction of a computerized control
file created from information obtained as close as possible
to the source of the initiation of charge requests. This
file would be used to insure that all charge tickets prepared
on the ward were ultimately posted to the correct patient's
account. In order to create a control file, an additional
carbon copy of all requisition/charge tickets should be re-
tained by all wards, surgery, and the emergency room. (These

were the only departments authorized to initiate a requisi-
tion for goods and services for a patient. All other depart-
ments merely acted upon requisitions prepared elsewhere.)
These extra copies could be retained at the point of initial
preparation for twice-daily collection by a representative
of the data-processing office. The preprinted form number
and patient account would be keypunched from these forms and
the data added to the control file, thus establishing a file
of charges that have been initiated but not posted to the
patient's account. When the data-processing copy of the charge
ticket is received by the data-processing office, the pre-
printed form number would be keypunched along with the informa-
tion currently coded. All charges to patients' accounts would
then result in a search of the control file. When the com-
puter locates the charge in the control file, the information
on that charge could be dropped from the control file and the
charge information added to the Master Charge file.

The creation of a control file would eliminate many
of the areas of concern highlighted during this study. Spe-
cifically, it would accomplish the following:

1. It would eliminate the requirement to hold all
accounts in an active status because of late charges being

received on a few patients. The number of outstanding charges on any account could be determined at any time. Accounts of discharged patients could be transferred to the Accounts Receivable Master file immediately when no outstanding charges appeared in the individual account control file. If a patient's account had not cleared the control file in two days after the patient's discharge, the computer could be programmed to print a list of charge ticket numbers of outstanding charges not yet posted to the patient's account. The account could then be manually verified using the control copy of the original charge ticket.

2. The need to make corrections after final statements had been prepared and sent to patients and third-party payers would be reduced. Effective checks of all account postings would be accomplished before the final statements were prepared.

3. The administrator would be able to determine the amount of outstanding charges at any time by simply totaling the control file. This would provide a clearer picture of current revenue production.

4. There would be less dependence on the present audit program. The current audit checks could be continued

as another check of account accuracy, but the control file
would permit the detection of errors beyond the present capa-
bilities of the audit program.

5. There would be no need to account for the issue
and sequence of prenumbered forms. The form number would be-
come a control device only when the form was completed in the
requesting department. The sequence in which the forms were
used would be unimportant and void forms would only be re-
quired if the charge was cancelled in a service department.

6. There would be no requirement to employ control
clerks on weekends since accounts requiring manual verifica-
tion would not be automatically transferred to accounts re-
ceivable.

There are two disadvantages to creating a computer-
ized control file. Additional work is created in collecting
control copies of requisition/charge tickets and in keypunch-
ing the resulting control data for computer input. Also, a
control file requires additional computer storage space. To
partially overcome the first disadvantage, the previously
recommended additional keypunch operator could collect and
process the control forms. There is also sufficient storage
capabilities within the present computer system to accommodate

the increased data input.

Footnotes

[1]Personal interview with Edward Moore, Data Process-
ing Manager, Hillcrest Baptist Hospital, Waco, Texas, March 4,
1974.

[2]Ibid.

[3]Personal interview with Mrs. LaVerne Landers, Data
Processing Control Clerk, Hillcrest Baptist Hospital, Waco,
Texas, March 14, 1974.

CHAPTER III

CONCLUSIONS

Summary

The majority of patients' accounts selected for
analysis during this study contained errors in charges.
These errors were approximately evenly divided between un-
dercharges and overcharges, and no conclusions were drawn
concerning their effect on total hospital revenues. It
was concluded, however, that errors in charges did affect
a significant proportion of individual patient accounts.
These errors either overstated or understated the total
charges for the period of hospitalization.

Observation of the present inpatient charge system
revealed internal controls designed to assure that a charge
ticket was initiated for patient charges and that the charge
was posted to the correct account. The most effective con-
trol appeared to be the creation of charge tickets as a by-
product of the requisition system. With the exception of
narcotics and emergency stocks, it would have been extremely
difficult to provide goods or services to a patient without
preparing a requisition/charge ticket. Even though narcotics

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and emergency stocks were available on the ward, their issue
documentation and restockage were dependent on preparation
of a patient charge ticket. Other controls in use were check
digit numbers to minimize postings to the wrong account and
an audit program that guarded against some common inconsis-
tencies in charge data.

The major weakness in internal control was a lack of
checks to assure that once a charge ticket was initiated,
and the goods or services provided, it continued through the
system until it reached the patient's account. There was no
mechanism by which the data-processing office personnel could
assure they had received all the charge tickets prepared on
the wards.

Late charges did not appear to be a significant prob-
lem. More than 98 per cent of charges were received in the
data-processing office within two days and were posted to the
individual patient accounts within three days of the date the
services were provided. This delay could be further reduced
by placing a higher priority on keypunching charge tickets
in the data-processing office. By a greater utilization of
the keypunch machines during the day shift, it was estimated
that 98 per cent of patient charges could have been posted

to the patients' accounts within forty-eight hours after the goods or services were provided.

The major reason for the delay in final billing of discharged patients was found to be the audit program. The five-day hold on patient accounts allowed additional time after the three-day posting delay to receive an audit print-out, make the necessary corrections, and verify the adequacy of these corrections by assuring that they did not appear on the audit printout on the fifth day. The number of correc-tions resulting from these audit checks was insufficient to justify this five-day hold on discharged patients' accounts. The audit program could have been used on accounts after they were finalized with corrections made directly to accounts re-ceivable.

Recommendations

The following modifications to the present inpatient charge system are recommended:

1. A control file, as described in Chapter II, be created to improve internal control.

2. An additional keypuncher be hired to keypunch charge tickets received in the data-processing office during the day shift, to twice daily collect control copies of

requisition/charge tickets from the wards, surgery, and the

emergency room, and to keypunch data from these control

forms.

    3.   Accounts of discharged patients be closed immedi-

ately upon clearing the control file. Accounts that have not

cleared the control file in two days should be printed with

a list of outstanding charges for manual verification.

    4.   The present audit program be programmed in the

Accounts Receivable Master file to permit continued checks

of account corrections made directly to this file.

    5.   Ward secretaries and responsible individuals in

each service department be instructed to deliver all requisi-

tion/charge tickets to the next processing point prior to the

completion of their shift. A central deposit box near the

cashier's office should be constructed for the deposit of the

data-processing copy of completed charge tickets.

    6.   The present hospital policy be enforced to insure

that patients are not charged the daily service charge for

standby services on the day of discharge.

APPENDIX A

DEFINITIONS

DEFINITIONS

Accuracy.--A quality of exactness that assures that
overcharges and/or undercharges occur on less than one per
cent of final statements.

Active account.--An account of a patient who is hos-
pitalized, or an account of a patient who has been discharged
but whose account has not been finalized and transferred to
Accounts Receivable.

Check digit.--A number containing an extra predeter-
mined terminal digit. When the number is punched on key
punch equipment with self-checking capabilities, the equip-
ment performs a mathematical computation using the digits
in the key number, and the answer is the check digit. If
the computer check digit is different from the predesignated
check digit, the machine signals an error condition to the
operator.[1]

Efficiency.--Ability to process a transaction with a
minimum combined expenditure of time, money, materials, and
manpower, while attaining a predetermined level of accuracy.

Final statement.--A statement of account prepared at
the time the patient's account is finalized and transferred
to Accounts Receivable.

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Interim statement.--A statement of account on an

active account that reflects all charges and credits re-

ceived as of the time the statement is prepared.

Internal control.--The plan of organization and all

of the coordinate methods and measures adopted within a hos-

pital to safeguard its assets, check the accuracy and relia-

bility of its accounting data, promote operational effi-

ciency, and encourage adherence to prescribed managerial

policies.[2]

Footnotes

[1]Soder, p. 24.

[2]American Institute of Certified Public Accountants,
Auditing Standards and Procedures (New York: American Insti-
tute of Certified Public Accountants, 1963), p. 27.

APPENDIX B

SAMPLE REQUISITION/CHARGE FORMS USED

AT HILLCREST BAPTIST HOSPITAL

6B 01403

DATE		USE FOR REGULAR DRUG ORDERS ONLY	SEND ☐ CHARGE ONLY ☐ CHARGE & REPLACE ☐	
CODE	QUAN.	DRUG AND STRENGTH	CHECK HERE IF STAT. ☐	HOW GIVEN	DOSAGE FREQUENCY
REQUESTED BY		REMARKS:			

HILLCREST BAPTIST HOSPITAL
WACO, TEXAS
DATA PROCESSING

REGULAR DRUGS CHARGE

50

J. S. BARNETT, INC. — WACO

4A 39211

CATH W/O CATH	ASPIRATION	O. B. PADS	4 x 4	T.E.D. STOCKINGS
ST. URETH	TRACHEOTOMY	UNDER PADS	MICRO TAPE 1/2"	THORACIC PUMP
FOLEY TRAY-FR.	LUMBAR PUNCTURE	AIR RING	MICRO TAPE 1"	TOOMEY
DRAIN BAG	COLONIC TRAY	KLEENEX	MICRO TAPE 2"	ASEPTO
IRRIGATION	ENEMA	LOTION	PRN TRAY	TRACH-CARE TRAY
CATH PLUG	FLEETS	SUTURE REMOVAL	INHALATOR	
PREP TRAY	GLY-H₂O ENEMA	GLYCERIN SWABS	GOMCO	
PERI-CARE TRAY	MATERNITY KIT	POWDER	LEVINE	
CUT DOWN	PERI-PAD	ABD	COLON TUBE	

DATE		DISCHARGE ☐	REQ. BY
		REFUND ☐	
		CREDIT ☐	

HILLCREST BAPTIST HOSPITAL
WACO, TEXAS
DEPT. COPY

CENTRAL SERVICE

3G 07742

52

V		V	CHECK IF SPECIFIC TEST ORDERED ONLY			DATE:		V	ADDITIONAL TESTS
	URINALYSIS		AMOUNT		EPITH CELLS				QUAN. PROTEIN
	MICRO ONLY		APPEARANCE		CASTS(lpf)				QUAL. PREG. TEST
	PRE. OP.		COLOR						QUAN. PREG. TEST
	STAT		pH.		MUCUS				QUAL. UROBILINOGEN
	CATH.		PROTEIN		CRYSTALS				QUAN. UROBILINOGEN
	VOIDED		GLUCOSE		WBC'S(hpf)				PORPHOBILINOGEN
LAB NO.			KETONES		RBC'S(hpf)				CALCIUM
			HEMOGLOBIN		BACTERIA				BENCE-JONES PROTEIN
			SP. GRAVITY		OTHER				BILE
									DIAGNEX BLUE
REQ. BY:						TECH.			OTHER:
			NURSE				DATE:		
							TIME:		

HILLCREST BAPTIST HOSPITAL
WACO, TEXAS
CHART COPY
URINALYSIS

J. S. BARNETT, INC. - WACO

3B 14508

RBC_____m   BLASTS _____%   SED RATE
WBC_____m   PROMYELOCYTE___%   UNCORRECTED
                                  _____mm/hr
HGB_____Gm   MYELOCYTES___%   CORRECTED
HCT_____%   JUVENILE_____%   _____mm/hr
                BANDS_____%   PLATELETS
INDICES: SEGS_____%   _____
MCV_____m3   EOSINOPHILES__%   RETIC
MCH_____m   BASOPHILES___%   _____%
MCHC_____%   LYMPHOCYTES__%   NORMOBLASTS
                MONOCYTES___%   _____%

DATE ORDERED_____ DATE TO BE DONE_____
NURSE'S SIGNATURE _____

☐ CBC
☐ RBC   ☐ DIFF   ☐ INDICES
☐ WBC   ☐ PLATELET   ☐ _____
☐ SED RATE   ☐ RETIC
             ☐ HBG-HCT   _____

MORPHOLOGY: COMMENTS:
☐ NORMAL
☐ HYPOCHROMIA
☐ POLYCHROMATOPHILIA
☐ POIKILOCYTOSIS
☐ ANISOCYTOSIS
☐ MICROCYTOSIS   LAB NO.
☐ MACROCYTOSIS   TECH.

HILLCREST BAPTIST HOSPITAL
WACO, TEXAS
CHART COPY
HEMATOLOGY

J. S. BARNETT, INC. – WACO

25A 14692

DATE	DATE TO BE DONE	☐ WALK ☐ PORTABLE ☐ WHEEL ☐ STRETCHER CHAIR ☐ ARMS	X-RAY NO.

X	TEST	X	TEST	X	TEST	X	TEST
	ABD SER		C. SPINE		KUB		RIBS
	COLON		ESOPHAGUS		L. SPINE		SINUS
	CARDIAC SERIES		FACIAL BONES		MYELOGRAM		SKULL
	CHEST		G.B. ORAL		PELVIS		T. SPINE
	CHOLANGIO-GRAM		IVP		PELVIS & HIP		UPPER G. I. SERIES

DIAGNOSIS: _____ HT.

WT.

REASON FOR EXAM:_____

OTHER SPECIFY

PREVIOUS X-RAY AT HILLCREST ☐ YES ☐ NO	DATE OF BIRTH	SIGNATURE

HILLCREST BAPTIST HOSPITAL
WACO, TEXAS
CHART COPY
X-RAY

55

2E 05146 0

ELECTROCARDIOGRAM	V	PRIORTY	BASALMETABOLISM (BMR)
IS PATIENT ON MEDICATION YES ☐ NO ☐		ROUTINE	
HAS PATIENT HAD ☐ QUINIDINE		SURGERY	
☐ DEMEROL			
HT._____ WT._____ ☐ DIGITALIS		TODAY	HT. _____ WT. _____
INTERPRETING PHYSICIAN:		STAT	
REQUESTING PHYSICIAN:		TOMORROW	
DATE	TECH.	REPEAT	SIGNED:

DATE

MASTER'S TEST ☐

☐ AMBULATOR
☐ WHEEL CHAIR
☐ BEDSIDE

HILLCREST BAPTIST HOSPITAL
WACO, TEXAS
CHART COPY
EKG - BMR

HENSON'S INC. - WACO   45511-2

2P 02310

X	MODALITY	X	MODALITY	X	TREATMENT	OTHER:	DATE	DIAG.	CARDIAC: YES NO
	MOIST HEAT		MASSAGE		DAILY				
	DIATHERMY		NECK TRACTION		BID				
	WHIRLPOOL		PELVIC TRACTION		ONCE WEEK				
	PARAFFIN BATH		ELECT. STIM.		TWICE WEEK				
	ZOALITE		EXERCISE:		3X WEEK				
	ULTRASOUND				OTHER:				
	MEDCOSONLATOR								
			GAIT: AMBULATION CRUTCHES			DATE ORDERED:	M.D.	BY:	

HILLCREST BAPTIST HOSPITAL
WACO, TEXAS
DEPT. COPY

PHYSICAL THERAPY

APPENDIX C

SAMPLE NARCOTICS ISSUE/CHARGE FORM

USED AT HILLCREST BAPTIST HOSPITAL

RECEIPT
NARCOTIC AND BARBITURATE ADMINISTRATION RECORD

HILLCREST BAPTIST HOSPITAL
WACO, TEXAS

16		A.M. / P.M.				
15		A.M. / P.M.				
14		A.M. / P.M.				
13		A.M. / P.M.				
12		A.M. / P.M.		BIBLIOGRAPHY		
11		A.M. / P.M.				
10		A.M. / P.M.				
		A.M. / P.M.				
DATE	TIME	ROOM NO.	PATIENT'S NAME	PHYSICIAN		ADMINISTERED BY

HILLCREST BAPTIST HOSPITAL
WACO, TEXAS

NARCOTIC AND BARBITURATE
PHARMACY CHARGE

ADDRESSOGRAPH	Atropine Amp (1/120 or 1/150 gr)	Codeine ½ gr Amp	Codeine 1 gr Amp	Demerol Amp 25 mg	Demerol Amp 50 mg	Demerol Amp 75 mg	Demerol Amp 100 mg	Dilaudid Amp 2 mg	Dilaudin Amp 4 mg	Levo-Dromoran Amp	Luminal (Phenobarb) 2 gr Amp	Mepergan Tubex	Morphine Amp 1/4 gr	Morphine Amp 1/6 gr	Nembutal Sod. Amp 100 mg/2 c.c.	Pantopon Amp 1/3 gr	Phenergan Amp 25 mg	Scopolamine Amp (1/120 or 1/200 gr)	Seconal Sod. Inj. 100 mg	Talwin Amp 30 mg	Talwin Amp 60 mg	Thorazine Amp 50 mg	Vistaril Inj. 100 mg Vial	
	600-395	650-010	650-002	650-036	650-044	650-051	650-028	650-069	650-077	650-127	655-100	650-135	650-143	650-150	655-035	650-200	602-904	603-316	655-134	603-639	603-647	603-845	604-140	

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