

ASSOCIATION OF AMERICAN MEDICAL COLLEGES

COUNCIL OF TEACHING HOSPITALS

ADVISORY PANEL

MARCH 6, 1980

WASHINGTON, D.C.

PRESENTED BY

CHARLES T. WOOD

MASSACHUSETTS EYE AND EAR INFIRMARY

STATISTICAL DATA BASE

USED FOR DETERMINING: (A) BUDGETING
(B) STAFFING PATTERNS (C) REIMBURSEMENT (D) FORECASTING

- PATIENT VISITS AND PROCEDURES
- DISCHARGE STATISTICS
- PATIENT DAYS
- HOURS OF SERVICE
- RELATIVE WORK UNITS → *Clinical Care Units*
- LENGTH OF STAY BY DIAGNOSIS
- UTILIZATION AUDITS

LENGTH OF STAY BY PHYSICIAN BY DIAGNOSIS

O.R. TIME BY PHYSICIAN BY DIAGNOSIS

ANCILLARIES AND TESTS BY DIAGNOSIS

MASSACHUSETTS EYE AND EAR INFIRMARY

MARCH, 1980

STATISTICAL DATA BASE

(CONTINUED)

(OUTPATIENT CLINICS AND ANCILLARY SERVICES)

PATIENT VISITS

- CERTAIN GENERAL CLINICS
- EMERGENCY ROOM

PROCEDURES

- SPECIALTY CLINICS
- SPECIALTY LABS
- RADIOLOGY

HOURS OF SERVICE

- O.R.
- ANESTHESIA
- RECOVERY ROOM
- AMBULATORY SURGERY

RELATIVE WORK UNITS

- GENERAL LABS

MASSACHUSETTS EYE AND EAR INFIRMARY
MARCH, 1980

STATISTICAL DATA BASE
(CONTINUED)

(DAILY ROUTINE SERVICES)

DISCHARGE STATISTICS

- ⊙ ADMITTING
- ⊙ MEDICAL RECORDS
- ⊙ SCHEDULING
- ⊙ CASHIER
- ⊙ SOCIAL SERVICES
- ⊙ OTHER

PATIENT DAYS

- ⊙ DIETARY
- ⊙ LAUNDRY
- ⊙ ROUTINE PHARMACEUTICAL AND MEDICAL SUPPLIES
- ⊙ OTHER

RELATIVE WORK UNITS

LENGTH OF STAY

C.C.U. BY DIAGNOSIS BY DAY



NURSING
&
PHYSICIANS



DAILY
ROUTINE
SERVICES

MASSACHUSETTS EYE AND EAR INFIRMARY
MARCH, 1980

COST PER PATIENT

DIRECT COST + APPORTIONED OVERHEAD
EXPECTED NUMBER OF DISCHARGES

=

HOSPITALIZATION COST (FEE)

\$2,482,708
11,800

=

\$210.40

*basic one-time
cost*

MEEI
BUDGET FY '80

MASSACHUSETTS EYE AND EAR INFIRMARY
MARCH, 1980

COST PER PATIENT DAY

DIRECT COST + APPORTIONED OVERHEAD

EXPECTED NUMBER OF PATIENT DAYS

\$2,714,829

54,280

=

DAILY ROOM COST (RATE)

=

\$50.02

MEEI
BUDGET FY '80

MASSACHUSETTS EYE AND EAR INFIRMARY
MARCH, 1980

COST PER CLINICAL CARE UNIT

INPATIENT NURSING DEPARTMENT COST

+

INPATIENT PHYSICIAN COST

+

APPORTIONED OVERHEAD

EXPECTED NUMBER OF CLINICAL CARE UNITS

\$4,610,997

765,348

=

COST PER C.C.U. (FEE)

=

\$6.02

MEEI
BUDGET FY '80

MASSACHUSETTS EYE AND EAR INFIRMARY
MARCH, 1980

CLINICAL CARE UNIT

RELATIVE VALUE UNIT BY DIAGNOSIS
BY POINT IN PROGRESS TOWARD RECOVERY

WEIGH RELATIVE EFFORT INVOLVED IN
INDIVIDUAL TASKS OF DIRECT PATIENT CARE

EXPRESS THIS RELATIONSHIP BY ASSIGNING
VALUE POINTS OR UNITS OF TIME

MASSACHUSETTS EYE AND EAR INFIRMARY
MARCH, 1980

EXCERPT FROM C.C.U. DATA COLLECTION FORM

----- WORK CATEGORIES -----

<u>PATIENT</u>	<u>PROC CODE</u>	<u>DIET</u>	<u>TOILET</u>	<u>VITAL SIGNS</u>	<u>RESP NEEDS</u>	<u>SUCTION</u>	<u>BATH</u>	<u>ACTIV- ITY</u>	<u>TREAT- MENTS</u>
XXX	9983	8	2	2	8	12	2	2	4
XXX	8020	2	2	4	0	0	2	2	1
XXX	4030 5110 5015	8	2	2	2	4	2	2	4
XXX	4035	8	0	2	8	8	2	2	2
XXX	9983	1	0	1	2	2	2	0	2
XXX	4030	12	2	4	8	12	4	2	4

MASSACHUSETTS EYE AND EAR INFIRMARY
MARCH, 1980

CLINICAL CARE UNIT CURVES

EYE/ENT PROCEDURES

PROCEDURE	DAY OF		CONVALESCENT										DAY OF
	ADMISS.	SURGERY	3	4	5	6	7	8	9	10	11	12	
CATARACT EXTRACTION	15	18	14	10	10	6							6
CORNEAL TRANSPLANT	15	21	19	16	12	6							6
LARYNGECTOMY	5	6	50	36	34	28	17	14	12	8	6		6
TONSILLECTOMY AND ADENOIDECTOMY	3	24	11										5

MASSACHUSETTS EYE AND EAR INFIRMARY
MARCH, 1980

CLINICAL CARE UNIT CURVES
(GENERAL HOSPITAL DIAGNOSES)

<u>DIAGNOSIS</u> OR <u>PROCEDURE</u>	<u>DAY</u> <u>OF</u> <u>ADM.</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6</u>	<u>7</u>	<u>8</u>	<u>9</u>	<u>10</u>	<u>11</u>	<u>12</u>	<u>13</u>	<u>14</u>
CA BREAST/COMPLETE MASTECTOMY	2	5	18	24	13	9	7	6	4*	4	4*			
HODGKINS DISEASE	13	14	9*	9	9	9	9	9*						
STAPHYLOCOCCUS BACTERIAL PNEUMONIA	41	37	37	28	28	19	10*	10	10	10*				
SIMPLE DISLOCATION OF KNEE/MENISCECTOMY	3	21	27	17	7*	7	7*							

*INDICATES THAT DISCHARGE USUALLY TAKES PLACE IN PERIOD FROM ONE ASTERISKED DAY TO THE OTHER ASTERISKED DAY.

MASSACHUSETTS EYE AND EAR INFIRMARY
MARCH, 1980

INTER-HOSPITAL COMPARISONS
GENERAL OR SPECIALTY HOSPITAL BY DEPARTMENT

MEDICINE	OPHTHALMOLOGY
SURGERY	OTOLARYNGOLOGY
PEDIATRICS	UROLOGY
CARDIAC SERVICE	OTHER

STANDARD RELATIVE VALUE UNITS (C.C.U'S)
BY DIAGNOSIS BY LENGTH OF STAY (DAY)

MASSACHUSETTS EYE AND INFIRMARY
MARCH, 1980

INTER-HOSPITAL COMPARISONS (CONT.)
(ALSO INTRA-HOSPITAL & PROFESSIONAL COMPARISONS)

NEED STANDARD BASE

- PATIENT VISITS AND PROCEDURES
- DISCHARGE STATISTICS
- PATIENT DAYS
- HOURS OF SERVICE
- RELATIVE WORK UNITS
- LENGTH OF STAY BY DIAGNOSIS
- UTILIZATION AUDITS

MASSACHUSETTS EYE AND EAR INFIRMARY
MARCH, 1980

INTER - HOSPITAL COMPARISONS (CONTINUED)

(ALSO INTRA-HOSPITAL & PROFESSIONAL COMPARISONS)

1. HOURS OF NURSING PER C.C.U.

(A) HOURS OF R.N.'s

(B) HOURS OF L.P.N.'s

(C) HOURS OF AIDES

2. COST PER C.C.U. BY SERVICE (ALSO NURSING STATIONS)

(A) COST OF DIRECT CARE

(B) COST OF NURSING SUPPORT

(C) COST OF EDUCATION
ETC.

MASSACHUSETTS EYE AND EAR INFIRMARY
MARCH, 1980

INTER-HOSPITAL COMPARISONS (CONTINUED)

(ALSO INTRA-HOSPITAL & PROFESSIONAL COMPARISONS)

3. COST BY DIAGNOSIS
 - (A) SERVICE
 - (B) INDIVIDUAL
 - (C) RELATED GROUPINGS
4. NUMBER OF C.C.U.'S BY DIAGNOSIS
5. LENGTH OF STAY BY DIAGNOSIS
6. DISCHARGES BY DIAGNOSIS
7. UTILIZATION AUDITS

MASSACHUSETTS EYE AND EAR INFIRMARY
MARCH, 1980

INTER-HOSPITAL COMPARISONS (CONTINUED)

(ALSO INTRA-HOSPITAL & PROFESSIONAL COMPARISONS)

8. PLANNING AND FORECASTING

- (A) NUMBER OF BEDS
- (B) O.R. UTILIZATION
- (C) O.R. TIME
- (D) ANESTHESIA
- (E) OTHER ANCILLARIES

MASSACHUSETTS EYE AND EAR INFIRMARY
MARCH, 1980



association of american medical colleges

Advisory Panel on Combining Clinical and Financial Data

Agenda
March 6, 1980

Chairman's Welcome

Hospital Presentations

New York Hospital
Beth Israel Hospital
Johns Hopkins Hospital
Massachusetts Eye and Ear Infirmary
Rush-Presbyterian-St. Luke's Medical Center
Evanston Hospital
Duke University Hospital

Lunch

Issue Discussion

- o In a COTH study of case mix:
 - what financial data should be tied to patient clinical data--charges, costs, or charges reduced to costs?
 - should the financial data be obtained from existing sources (e.g., patients bills, cost reports) or should a cost finding methodology be established?
 - what types of case mix comparisons should be presented in project reports circulated to the membership?

Advisory Panel on Combining
Clinical and Financial Data

March 6, 1980

Meeting Participants

Beth Israel Hospital (Boston)
David Dolins
Associate General Director

Duke University Hospital
Richard Peck
Administrative Director
William Summers
Hospital Controller
Robert Winfree
Deputy V.P. for Planning

Evanston Hospital
Martin Drebin
V.P. Finance
David Shade
Ernst and Whinney
George Whetsell
Ernst and Whinney

Hospital of the University of Pennsylvania
Mark Levitan
Executive Director
Catherine Murphy, R.N.
Administrative Resident

The Johns Hopkins Hospital
Irvin Kues
V.P. Finance and Management Systems

Massachusetts Eye and Ear Infirmary
Charles Wood
Director
Karin Swanson
Assistant to the Director

The New York Hospital
Frank Ravenna
Associate Director
Michael Sniffen
Operating Director-Program
Planning

Rush-Prebyterian-St. Luke's Medical Center
Truman Esmond
V.P. Finance
Cindy Barnard
Systems Analyst

AAMC Staff
James Bentley, Ph.D.
Peter Butler
John A.D. Cooper, M.D.
Joseph Isaacs
Charles Kahn
Richard Knapp, Ph.D.
Michael McShane, Ph.D.

AAMC
Advisory Panel
on Combining
Clinical and Financial Data

Duke University Hospital

Since early 1978, Duke University Hospital has been exploring ways by which clinical and financial data could be combined and analyzed to produce "management information". We consider ourselves fortunate in that we have several strong "foundations" in terms of existing data systems which we believe will assist us in achieving our objective. Our primary objective at the moment is to create a systems environment that will allow us to produce intra-hospital management data and analyses. Implicit within our objective is the desirability of making the system flexible enough that it can be used for inter-hospital comparative analysis.

One of the main foundations that we have available to us is the existing Duke Hospital Information System. This is a comprehensive on-line-real-time hospital information systems network that electronically links all of our inpatient care units (39), clinics, emergency department, 9 diagnostic and treatment ancillary departments, multiple support departments, the business office, and component parts of hospital financial management. The basic functions of this system include the admissions/discharge/transfer functions, order entry from all nursing stations with selective result reporting, and nursing care plans. An in-house medical record abstract function exists along with a strong billing and accounting interface to the off-line, batch Integrated Patient Accounting System (IPAS). The system has been operational at Duke University Hospital since the fall of 1976 and has experienced evolving change since its activation. The data base of the system contains demographic, clinical and financial data. In the past year, the scope of the system has been expanded to include a faculty profile application for the Office of the Vice President for Health Affairs and a position management system (PMS) which contains data on the 4,000 FTE employees of Duke University Hospital. The position management system has the potential to serve as a key component of a total "management information system" particularly with respect to productivity ~~and disease indices~~.

The patient accounting/patient billing system serves the three major divisions of Hospital Financial Management (patient accounting division, patient accounts division, and budgets and financial analysis). The financial "flow" essentially begins with the DHIS system which then feeds financial (billing) information to IPAS. The revenue information contained within the IPAS system is then integrated with the University's general ledger system to produce both institution-wide expense and revenue statements.

The patient accounting division receives daily, weekly and monthly reports from the IPAS system. The major functions of this division include audit and grants and contracts billing. Among the numerous reports generated by the IPAS system for this division include the error and attention reports, inpatient list report, daily revenue distribution report, weekly revenue summary, revenue analysis for all service codes, period and revenue by county, and period and revenue summary by financial class.

The patient account services division has as its major functions the billing and accounts receivable processes. The major reports that are used in this division include the daily patient "strip" bill, and the itemized final bill plus computer generated claims forms (approximately 20 variations). Additionally, the aged trial balance report is generated by the IPAS system as is the insurance follow-up report and the bad debt report. It is worthy of note that the 6/30/79 actual receivables were at 60.9 days.

The budgets and financial analysis division is essentially the predominate financial management interface to general (hospital administration) management. The principal reports used by this division include the patient mix by type report and a report entitled 'Analysis of Revenue Adjustments'. A third report used by this division is the analysis of accounts receivable by financial classification. The DHIS system through the Medical Records Department provides medical records statistics to this division which serve as resource data for both the Medicare cost report and the Duke Endowment report. Information received from Medical Records includes days of care by service, age, and by geographic origin. The types of data contained within these reports is essentially implicit in the title of the report.

With respect to combining clinical and financial data into meaningful management information, we view a concept of case mix analysis as being the most viable bridge mechanism. Our first priority is to compose an approach which will permit appropriate intra-hospital analysis. We want to be in a position to measure and explain the reasons for change in hospital costs from "period to period", and to be able to quantify the character and mission of a tertiary care teaching hospital.

The "care monitoring system" developed by Arthur Andersen and Company in collaboration with Providence Hospital and Michigan Blue Cross Blue Shield appears to be a system that can be adapted to the Duke University Hospital environment. The system is available both with diagnosis related groups developed at Providence Hospital as well as incorporation of the Yale DRG's.

In brief summary form, this case mix analysis system identifies the price effects of changes in medical practices and shifts in the condition, disease mix and volume of patients treated. Variances are reported in a diagnosis-based perspective along prescribed lines of medical organization and responsibility. One of its features is that Hospital Administration can view departmental budgets exclusive of patient and physician demand variables and the system covers every medically significant test and procedure.

Within the framework of this system, the cost effects of any differences in care are attributed to one of five causative factors. These factors include physician practice, patient condition, patient volume, patient mix and price.

The system includes 127 data elements, and the data sources which feed the system include the medical record, the patient bill, the medical record abstract and the utilization review worksheet. The diagnosis groups total approximately 348 derived from the nearly 12,000 codable diagnoses in the ICDA system.

From the three perspectives of diagnosis, physician and department, seven reports are generated for the purpose of monitoring and analyzing patient care changes. These reports include (1) cost of care by diagnosis group and by service, (2) care summary by cost center, (3) care analysis by procedure, (4) patient profile, (5) length of stay analysis, (6) inpatient activity by physician, and (7) procedure utilization analysis.

At present, the financial management division of the Hospital is the predominate user of "management data". Manually generated analyses of the various reports mentioned earlier are provided to hospital administration. In the future we view hospital administration, hospital departmental administration, clinical departmental administration and financial management as being the integrated "users" of combined clinical and financial data analysis.

With respect to inter-hospital comparative analyses, we have not yet defined the "types" of comparisons that we think would be appropriate. Conceptually, we would wish empirically to measure differences in acuity between types of hospitals (tertiary versus "community" hospitals). We would view peer group comparative analysis on factors other than inconclusive indicators as being most appropriate. Historical indicators such as days of care rendered, number of ancillary procedures performed, and "cost per patient day", all to various extents disregard the need aspect of the provision of patient care. We need to focus on the patient as the product. Services ordered should be viewed as integral components of the treatment of a patient condition. We also feel that we should focus on the hospital's cost-effectiveness as measured by its cost per patient in each diagnosis group.



association of american medical colleges

February 20, 1980

Mr. Truman Esmond
Vice President, Finance
Rush-Presbyterian-St. Luke's
Medical Center
1753 W. Congress Parkway
Chicago, Illinois 60612

Dear Truman:

As you know, the 1979 COTH Spring Meeting recommended that the Association sponsor or conduct studies to describe the impact of the intensity of patient care on teaching hospitals. Implementation of this recommendation began in June, 1979 and continues as a major activity of the Association's Department of Teaching Hospitals. These staff efforts are guided by the Ad Hoc Committee on the Distinctive Characteristics and Related Costs of Teaching Hospitals which is chaired by Mark Levitan, Executive Director of the Hospital of the University of Pennsylvania.

At its January 3rd meeting, the Ad Hoc Committee recommended "that the Association's staff develop a comprehensive work plan to include project feasibility, project deadlines, and an estimated project budget for a study of the characteristics and costs of teaching hospitals." In developing this study plan, staff have reached the point at which key decisions need to be made, especially decisions concerning the type of financial information that is to be collected and merged with data on the clinical characteristics of patients. To provide a sound information base for these decisions and to ensure that the study plan is responsive to member needs, the Association invites you (and/or representatives of your hospital) to participate in an advisory panel which will meet from 10:00 a.m. to 4:00 p.m. on Thursday, March 6th at the AAMC offices.

Eight COTH members have been invited to participate in this meeting, see Attachment A. The purpose of the morning session of the meeting will be to review each hospital's present efforts to develop management information which brings together financial and patient clinical data. To accomplish this, you (or your representatives) are requested:

- to present a fifteen minute presentation outlining the following:
 - the clinical and financial data which are combined in your information system;
 - the present use management makes of this data; and

February 20, 1980

--the types of inter-hospital comparisons, if any, which you would be interested in making with your present information system; and

- to prepare a two or three page handout summarizing your oral presentation. Additional handouts and data displays are also welcome. An overhead projector and flipchart will be available for your use.

After lunch, the discussion will focus on three topics: what financial data should be tied to patient clinical data -- charge, costs, charges reduced to costs? Should this financial data be derived from present information sources (e.g., patient bills and Medicare cost reports) or should a new cost finding methodology be developed? And, what kinds of case mix comparisons should be presented in project reports circulated to the membership?

I appreciate the fact that the case mix data systems you are developing may involve several key people in different departments in the various hospitals invited to this meeting. Therefore, while the AAMC will pay the travel costs for only one representative for each invited hospital, you are welcome to include additional hospital representatives at your own cost. To ensure that adequate luncheon and accommodation requirements are arranged, please complete the meeting registration form, Attachment B, at the earliest possible date and return it to Peter Butler, Department of Teaching Hospitals, Suite 200, One Dupont Circle, N.W., Washington, D.C. 20036.

Sincerely,

Richard M. Knapp, Ph.D.
Director
Department of Teaching Hospitals

/mjb
Attachments

cc: James A. Campbell, M.D.