Objectives

- Identify how hospitals have developed in the U.S.
- Differentiate among some important types of hospitals
- Hospital utilization
- Organizational structure of hospitals
- Challenges facing the hospital

Historical Development

- Identify how hospitals have developed in the U.S.
- Differentiate among some important types of hospitals
- Hospital utilization
- Organizational structure of hospitals
- Challenges facing the hospital
Before 1872
• Primarily religious and charitable hospitals
• Infirmities in poorhouses
• By 1873, estimated 178 such hospitals in the US.

Between 1870 and 1910
• Development of Biomedical science
• Evolution into physicians’ workshops
• Spectacular growth of hospitals to 4,300 in 1909

Between 1945-1980
• Second major growth era for hospitals
• Technology
• The Hill-Burton Act stimulated construction of rural hospitals
• Growth of hospital insurance

Hospital Construction
After 1980

- Changes in reimbursement mechanisms
  - Declining occupancy rates
  - Reduced length of stay.
- Average Length of Stay
  - ALOS is typically calculated for both commercial and Medicare patient populations. Usually, the nights are counted as single unit for length of stay.


Source: American Hospital Association

Average Length of Stay in Community Hospitals by State 2004

Source: The Lewin Group analysis of American Hospital Association Annual Survey data, 2004, for community hospitals
Occupancy Rates

- A measure of the utilization of a hospital's capacity

\[
\frac{\text{number of beds occupied}}{\text{total number of beds}}
\]

Source: HHS 2000

Which Hospitals Closed?

Number of Beds

Source: HHS 2000
Number of Hospital Beds and Occupancy Rates by Hospital Type, 1980-2000

*Includes specialty hospitals such as TH, Ob-Gyn, eye, ear, nose and throat, orthopedic, and chronic disease.

Source: American Hospital Association, personal communication.

More on Hospital Closures

Geographic Variation

Source: Dept. of HHS, 2003
Structural Developments

- Emergence of hospital systems, networks, and alliances
  - Horizontal Integration
  - Vertical Integration
- Systems of hospitals
  - Multi-hospital
  - Single, free standing hospitals
- Network
  - a group of hospitals, physicians, other providers, insurers and/or community agencies
- Alliance (usually formed to reduce costs)

Hospital Types

- Identify how hospitals have developed in the U.S.
- Differentiate among some important types of hospitals
- Hospital utilization
- Organizational structure of hospitals
- Challenges facing the hospital

Definition

- What a hospital is ...
  - licensed, certified, public or private, whether organized for profit or not, and devoted primarily for the diagnosis, treatment or care of patients admitted for overnight stay or longer in order to obtain medical care for illness, disease, injury, infirmity, or deformity.
- Registered Hospitals
- What a hospital is not ...
Hospitals Types

- General
- Specialty
- Rehabilitation and Chronic Diseases
- Psychiatric

Source: AHA

Community Hospitals

- Community hospitals are defined as all nonfederal, short-term general, and other special hospitals
- Include academic medical centers or other teaching hospitals
- Excluded are hospitals not accessible by the general public, such as prison hospitals or college infirmaries.

Some Community Hospital Statistics

<table>
<thead>
<tr>
<th>Description</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Number of All U.S. Registered Hospitals</td>
<td>5,801</td>
</tr>
<tr>
<td>Number of U.S. Community Hospitals</td>
<td>4,908</td>
</tr>
<tr>
<td>Number of Non-government Not-for-Profit Community Hospitals</td>
<td>2,998</td>
</tr>
<tr>
<td>Number of Investor-Owned (For-Profit) Community Hospitals</td>
<td>754</td>
</tr>
<tr>
<td>Number of State and Local Government Community Hospitals</td>
<td>1,156</td>
</tr>
<tr>
<td>Number of Federal Government Hospitals</td>
<td>243</td>
</tr>
<tr>
<td>Number of Nonfederal Psychiatric Hospitals</td>
<td>491</td>
</tr>
<tr>
<td>Number of Nonfederal Long Term Care Hospitals</td>
<td>140</td>
</tr>
<tr>
<td>Number of Hospital Units of Institutions (e.g. Prison Hospitals)</td>
<td>19</td>
</tr>
</tbody>
</table>

Some Community Hospital Statistics (continued)

<table>
<thead>
<tr>
<th>Category</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Staffed Beds in All U.S. Registered Hospitals</td>
<td>987,440</td>
</tr>
<tr>
<td>Staffed Beds in Community Hospitals</td>
<td>825,966</td>
</tr>
<tr>
<td>Total Admissions in All U.S. Registered Hospitals</td>
<td>35,644,440</td>
</tr>
<tr>
<td>Admissions in Community Hospitals</td>
<td>33,813,589</td>
</tr>
<tr>
<td>Total Expenses for All U.S. Registered Hospitals</td>
<td>$426,849,488,000</td>
</tr>
<tr>
<td>Expenses for Community Hospitals</td>
<td>$383,735,757,143</td>
</tr>
<tr>
<td>Number of Rural Community Hospitals</td>
<td>2,167</td>
</tr>
<tr>
<td>Number of Urban Community Hospitals</td>
<td>2,741</td>
</tr>
<tr>
<td>Number of Community Hospitals in a System</td>
<td>2,260</td>
</tr>
<tr>
<td>Number of Community Hospitals in a Network</td>
<td>1,341</td>
</tr>
</tbody>
</table>

Teaching Hospitals

- The classroom of physicians, nurses, etc...
- Clinical education of medical students and residents
- Primary care to experimental, innovative, and technically sophisticated care
- Research
- Care for the indigent as well as general population
- Typically larger in size
- Approximately 6% of hospitals

State Owned Hospitals

- These hospitals typically have provided long-term psychiatric and chronic care
- Types of state-owned hospitals
  - Small non-profit hospitals
  - Larger and located in major urban areas
- Financed by general or specific taxes
General hospital terms & definitions

Acute Care

- patient is treated for an immediate and severe episode of illness, for the subsequent treatment of injuries related to an accident or other trauma, or during recovery from surgery
10

Inpatient and Outpatient

- Inpatient Surgery:
  - surgical services provided to patients who remain in the hospital overnight
- Outpatient Surgery:
  - surgical services provided to patients who remain in the hospital overnight
- Outpatient visit
  - care given to a person who is not bedridden. Also called ambulatory care

Percentage Share of Inpatient vs. Outpatient Surgeries 1981 - 2004

Source: The Lewin Group analysis of American Hospital Association Annual Survey data for community hospitals

Emergency Departments

- a hospital department responsible for the administration and provision of unscheduled medical or surgical care to patients in need of immediate attention
Emergency Department Visits - 2001


Percent of Hospitals Reporting Time on Ambulance Diversions in Last 12 Months

Source: American Hospital Association 2007 Survey of Hospital Leaders

Conditions Hospitals Reported as Number One Factor Contributing to Ambulance Diversions, January 2007

Source: American Hospital Association 2007 Survey of Hospital Leaders
Identify how hospitals have developed in the U.S.
- Differentiate among some important types of hospitals
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- Challenges facing the hospital

Inpatient Admissions in Community Hospitals 1981-2006

Average Length of Stay
Hospital Based Surgeries

Surgeries

Percent distribution of all-listed procedures for hospitalized patients by sex: United States, 2004 (source: CDC)

Hospital Organizational Structure

- Identify how hospitals have developed in the U.S.
- Differentiate among some important types of hospitals
- Hospital utilization
- Organizational structure of hospitals
- Challenges facing the hospital
Principle Departments of an Acute Care Hospital

1. Medical
2. Nursing
3. Dental
4. Diagnostic
5. Therapeutic

Organization: Typical Not-For-Profit Hospital

Some more organizational detail:

- **V.P. Finance**
  - Admissions office
  - Budget office
  - Cashier’s office
  - Credit and collection
  - General accounting
  - Internal audit
  - Patient accounting

- **V.P. Ambulatory Services**
  - Ambulatory health services
  - Communications disorder
  - Dental services
  - Emergency services
  - Employee health services
  - Hemodialysis center
  - Social services
Some more organizational detail

V.P. Support Services
- Engineering
- Communications
- Environmental issues
- Laundry
- Power plant
- Safety and security

V.P. Professional Services
- Dietary
- EKG (Electrocardiograph)
- EEG (electroencephalograph)
- Clinical laboratory
- Medical records
- Nuclear medicine
- Pharmacy
- Physical therapy
- Radiology
- Respiratory therapy

Some more organizational detail

V.P. Materials Management
- Central sterile supplies
- Mailroom
- Print shop
- Purchasing
- Store room

Director Nursing
- Escort service
- Patient units
- Special care units
- Recovery

Organization of Medical Staff
Example Layout of a Hospital System

Hospital
Diagnostic Center
Ambulatory Care Center
Doctor’s Office Building / Clinic

Example of a smaller hospital layout

Outpatients
Administrative Departments
Diagnostic & Treatment Departments
Public Amenities (Waiting Room etc.)

Inpatients
Service Departments
Diagnostic & Treatment Departments

Best Hospitals
An Aside

Source: Best Hospitals, U.S. News: www.usnews.com
### Top 10 U.S. Hospitals by Specialty

<table>
<thead>
<tr>
<th>Rank</th>
<th>Hospital</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Johns Hopkins Hospital, Baltimore</td>
</tr>
<tr>
<td>2</td>
<td>Mayo Clinic, Rochester, Minn.</td>
</tr>
<tr>
<td>3</td>
<td>Massachusetts General Hospital, Boston</td>
</tr>
<tr>
<td>4</td>
<td>Cleveland Clinic</td>
</tr>
<tr>
<td>5</td>
<td>UCLA Medical Center, Los Angeles</td>
</tr>
<tr>
<td>6</td>
<td>(TIE) Duke University Medical Center, Durham, N.C.</td>
</tr>
<tr>
<td>7</td>
<td>(TIE) University of California, San Francisco Medical Center</td>
</tr>
<tr>
<td>8</td>
<td>Barnes-Jewish Hospital, St. Louis</td>
</tr>
<tr>
<td>9</td>
<td>(TIE) New York-Presbyterian Hospital</td>
</tr>
<tr>
<td>10</td>
<td>(TIE) University of Washington Medical Center, Seattle</td>
</tr>
</tbody>
</table>

Source: U.S. News 2004

### Top 10 U.S. Cardiac Hospitals

<table>
<thead>
<tr>
<th>Hospital</th>
<th>Population Mortality Discharge</th>
<th>Technology</th>
<th>Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cleveland Clinic</td>
<td>73.2% 0.58 13,664 2.12 9</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mayo Clinic, Rochester, Minn.</td>
<td>88.2% 0.84 15,729 1.51 9</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Brigham and Women’s Hospital, Boston</td>
<td>32.4% 0.61 7,504 1.64 8.5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Duke University Medical Center, Durham, N.C.</td>
<td>34.8% 0.64 10,685 2.20 9</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Massachusetts General Hospital, Boston</td>
<td>31.3% 0.76 10,586 1.62 9</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Johns Hopkins Hospital, Baltimore</td>
<td>31.4% 0.79 6,153 1.76 9</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Emory University Hospital, Atlanta</td>
<td>18.1% 0.85 7,382 1.63 9</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Texas Heart Institute at St. Luke’s Episcopal Hospital, H</td>
<td>13.7% 0.8 10,425 1.39 9</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stanford Hospital and Clinics, Stanford, Calif.</td>
<td>18.3% 0.91 4,517 1.56 7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Barnes-Jewish Hospital, St. Louis</td>
<td>8.9% 0.91 11,177 1.49 9</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: Best Hospitals, U.S. News: www.usnews.com

### Top 11 Cancer Treatment Hospitals

<table>
<thead>
<tr>
<th>Hospital</th>
<th>Population Mortality Discharge</th>
<th>Technology</th>
<th>Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>M.D. Anderson Cancer Center, Houston</td>
<td>74.4% 0.77 4,024 2.97 9</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Memorial Sloan-Kettering Cancer Center, NY</td>
<td>71.9% 0.73 5,275 2.32 6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Johns Hopkins Hospital, Baltimore</td>
<td>38.6% 0.52 1,712 1.76 7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dana-Farber Cancer Institute, Boston</td>
<td>41.4% 0.69 237 3.07 6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mayo Clinic, Rochester, Minn.</td>
<td>30.9% 0.86 3,598 1.31 7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>University of Chicago Hospitals</td>
<td>9.9% 0.69 1,686 1.64 7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Duke University Medical Center, Durham, N.C.</td>
<td>30.9% 0.81 3,062 2.55 7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>UCLA Medical Center, Los Angeles</td>
<td>8.6% 0.69 1,245 2.94 7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>University of Michigan Medical Center, Ann Arbor</td>
<td>6.6% 0.48 1,738 1.97 7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vanderbilt University Medical Center, Nashville</td>
<td>6.4% 0.71 1,024 2.24 7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>H. Lee Moffitt Cancer Center Tampa</td>
<td>3.2% 0.57 1,436 2.52 6</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Top 10 Pediatric Hospitals

<table>
<thead>
<tr>
<th>Hospital</th>
<th>Reputation score</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Children's Hospital of Philadelphia</td>
<td>58</td>
</tr>
<tr>
<td>2. Children's Hospital Boston</td>
<td>55.4</td>
</tr>
<tr>
<td>3. Johns Hopkins Hospital, Baltimore</td>
<td>55.4</td>
</tr>
<tr>
<td>4. Children's Hospital of New York-Presbyterian</td>
<td>18</td>
</tr>
<tr>
<td>5. Texas Children's Hospital, Houston</td>
<td>13.9</td>
</tr>
<tr>
<td>6. Rainbow Babies &amp; Children's Hospital, Cleveland</td>
<td>13.9</td>
</tr>
<tr>
<td>7. Children's Hospital of Pittsburgh</td>
<td>12.9</td>
</tr>
<tr>
<td>8. Children's Hospital Medical Center, Cincinnati</td>
<td>12.9</td>
</tr>
<tr>
<td>9. Children's Hospital, Denver</td>
<td>11.3</td>
</tr>
<tr>
<td>10. University of California, San Francisco Medical Center</td>
<td>10.5</td>
</tr>
</tbody>
</table>

### Top 10 Neurology & Neurosurgery Hospitals

<table>
<thead>
<tr>
<th>Hospital</th>
<th>Reputation score</th>
<th>Mortality ratio</th>
<th>Discharge to beds ratio</th>
<th>Disc R.N. to beds ratio</th>
<th>Tech services (of 7)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Mayo Clinic, Rochester, Minn.</td>
<td>68.3%</td>
<td>1.07</td>
<td>1.82</td>
<td>5.99</td>
<td>5.092</td>
</tr>
<tr>
<td>2. Massachusetts General Hospital, Boston</td>
<td>52.8%</td>
<td>1.09</td>
<td>1.80</td>
<td>5.39</td>
<td>5.390</td>
</tr>
<tr>
<td>3. Johns Hopkins Hospital, Baltimore</td>
<td>47.8%</td>
<td>0.70</td>
<td>2.55</td>
<td>3.55</td>
<td>3.555</td>
</tr>
<tr>
<td>4. New York-Presbyterian Hospital</td>
<td>49.9%</td>
<td>1.09</td>
<td>1.84</td>
<td>5.104</td>
<td>5.104</td>
</tr>
<tr>
<td>5. University of California, San Francisco Medical Center</td>
<td>33.3%</td>
<td>1.07</td>
<td>2.02</td>
<td>7.79</td>
<td>7.79</td>
</tr>
<tr>
<td>6. Cleveland Clinic</td>
<td>24.7%</td>
<td>0.67</td>
<td>2.12</td>
<td>7.77</td>
<td>7.77</td>
</tr>
<tr>
<td>7. Barnes-Jewish Hospital, St. Louis</td>
<td>13.3%</td>
<td>0.93</td>
<td>1.46</td>
<td>7.48</td>
<td>7.48</td>
</tr>
<tr>
<td>8. UCLA Medical Center, Los Angeles</td>
<td>13.0%</td>
<td>0.93</td>
<td>1.94</td>
<td>7.14</td>
<td>7.14</td>
</tr>
<tr>
<td>9. Hospital of the University of Pennsylvania, Philadelphia</td>
<td>15.2%</td>
<td>1.14</td>
<td>1.78</td>
<td>7.13</td>
<td>7.13</td>
</tr>
<tr>
<td>10. St. Joseph's Hospital and Medical Center, Phoenix</td>
<td>13.4%</td>
<td>1.06</td>
<td>0.91</td>
<td>7.01</td>
<td>7.01</td>
</tr>
</tbody>
</table>

### Top 10 Kidney Hospitals

<table>
<thead>
<tr>
<th>Hospital</th>
<th>Reputation score</th>
<th>Mortality ratio</th>
<th>Discharge to beds ratio</th>
<th>Disc R.N. to beds ratio</th>
<th>Tech services (of 5)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Massachusetts General Hospital, Boston</td>
<td>31.1%</td>
<td>0.75</td>
<td>1.151</td>
<td>1.151</td>
<td>5.151</td>
</tr>
<tr>
<td>2. Brigham and Women's Hospital, Boston</td>
<td>29.4%</td>
<td>0.65</td>
<td>0.95</td>
<td>1.64</td>
<td>5.64</td>
</tr>
<tr>
<td>3. Mayo Clinic, Rochester, Minn.</td>
<td>25.2%</td>
<td>0.83</td>
<td>1.408</td>
<td>1.51</td>
<td>5.151</td>
</tr>
<tr>
<td>4. Johns Hopkins Hospital, Baltimore</td>
<td>25.1%</td>
<td>0.73</td>
<td>0.912</td>
<td>1.76</td>
<td>4.5</td>
</tr>
<tr>
<td>5. New York-Presbyterian Hospital</td>
<td>24.0%</td>
<td>1.22</td>
<td>2.239</td>
<td>1.41</td>
<td>5</td>
</tr>
<tr>
<td>6. Cleveland Clinic</td>
<td>23.1%</td>
<td>0.74</td>
<td>1.03</td>
<td>1.22</td>
<td>5</td>
</tr>
<tr>
<td>7. UCLA Medical Center, Los Angeles</td>
<td>18.5%</td>
<td>0.63</td>
<td>1.07</td>
<td>1.04</td>
<td>5</td>
</tr>
<tr>
<td>8. Duke University Medical Center, Durham, N.C.</td>
<td>16.0%</td>
<td>0.85</td>
<td>1.18</td>
<td>2.55</td>
<td>5</td>
</tr>
<tr>
<td>9. Barnes-Jewish Hospital, St. Louis</td>
<td>12.0%</td>
<td>0.77</td>
<td>1.981</td>
<td>1.46</td>
<td>5</td>
</tr>
<tr>
<td>10. Hospital of the University of Pennsylvania, Phila</td>
<td>12.4%</td>
<td>0.55</td>
<td>0.79</td>
<td>1.79</td>
<td>5</td>
</tr>
</tbody>
</table>
Top 10 Best U.S. Hospitals

1. Johns Hopkins Hospital, Baltimore
2. Mayo Clinic, Rochester, Minn.
3. UCLA Medical Center, Los Angeles
4. Cleveland Clinic
5. Massachusetts General Hospital, Boston
6. New York-Presbyterian Univ. Hosp. of Columbia and Cornell
7. Duke University Medical Center, Durham, N.C.
8. University of California, San Francisco Medical Center
9. Barnes-Jewish Hospital/Washington University, St. Louis
10. Brigham and Women’s Hospital, Boston


Challenges

- Identify how hospitals have developed in the U.S.
- Differentiate among some important types of hospitals
- Hospital utilization
- Organizational structure of hospitals
- Challenges facing the hospital Industry

Finances

Percent Hospitals with Negative Total Margins

- Graph showing percent hospitals with negative total margins from 2000 to 2005.
Nursing Shortage

RN Employment by Type of Employer

Projected RN Shortage

Projected Demand and Supply of RNs

Other Challenges

- Falling construction and number of beds
- Mergers and horizontal integrations
- Competition with other providers and insurance industry
- Change of technology
- Aging population
What is likely to happen?

- More integration
- Increased cost of hospital care
- Increasingly larger units within hospitals for patients requiring similar treatments
- Hospitals will increasingly specialize in the types of patients they can best care for...

Source: Anthony Kovner: Health Care Delivery in the U.S., 2002