

# IUPESM-HTTG Workshop on Radiological Equipment Maintenance Issues: In-House Maintenance Service vs. 3<sup>rd</sup> Party Maintenance Contracts

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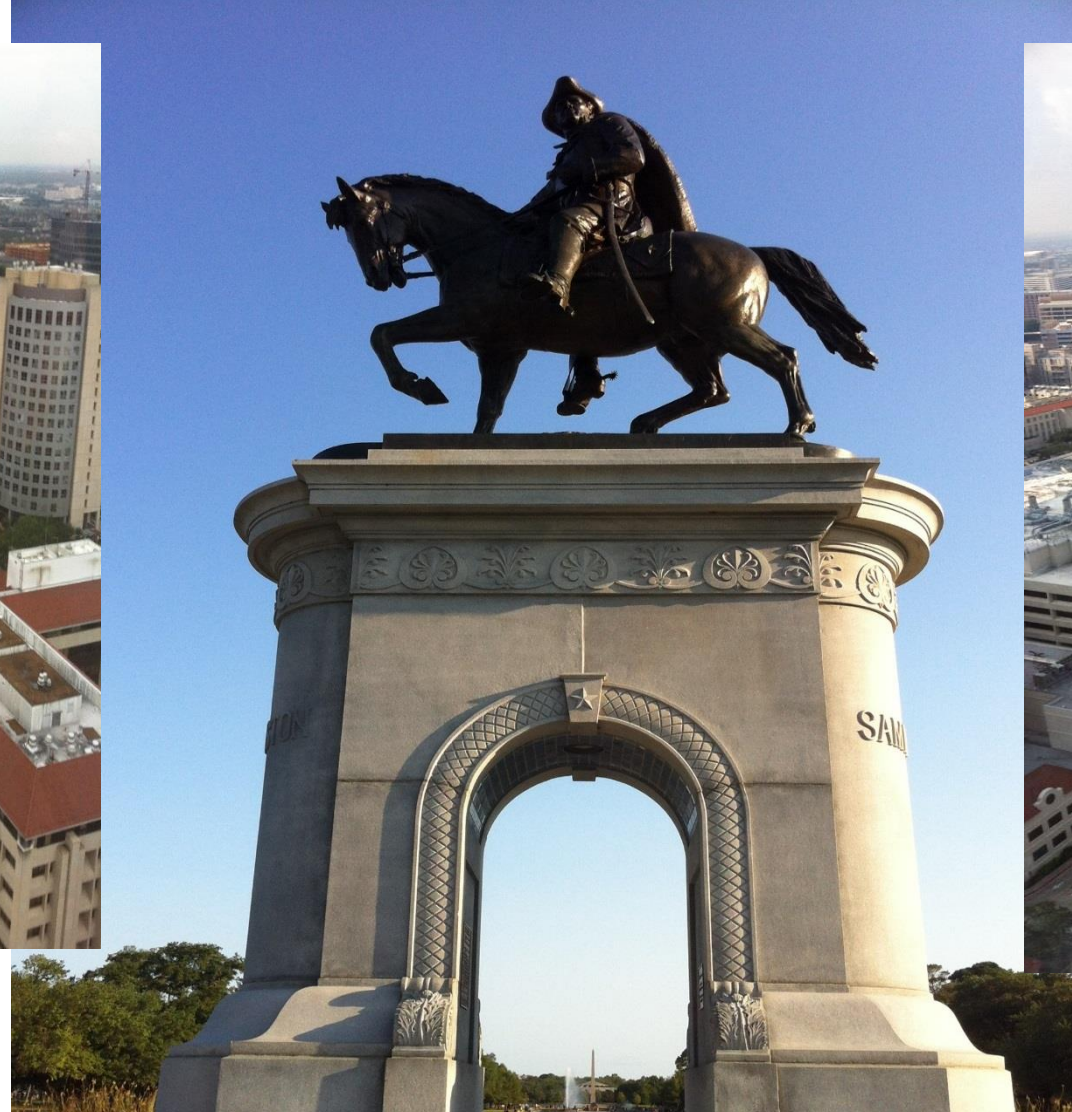
*Towards new horizons in  
biomedical engineering*

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International Union for Physical and Engineering Sciences in Medicine

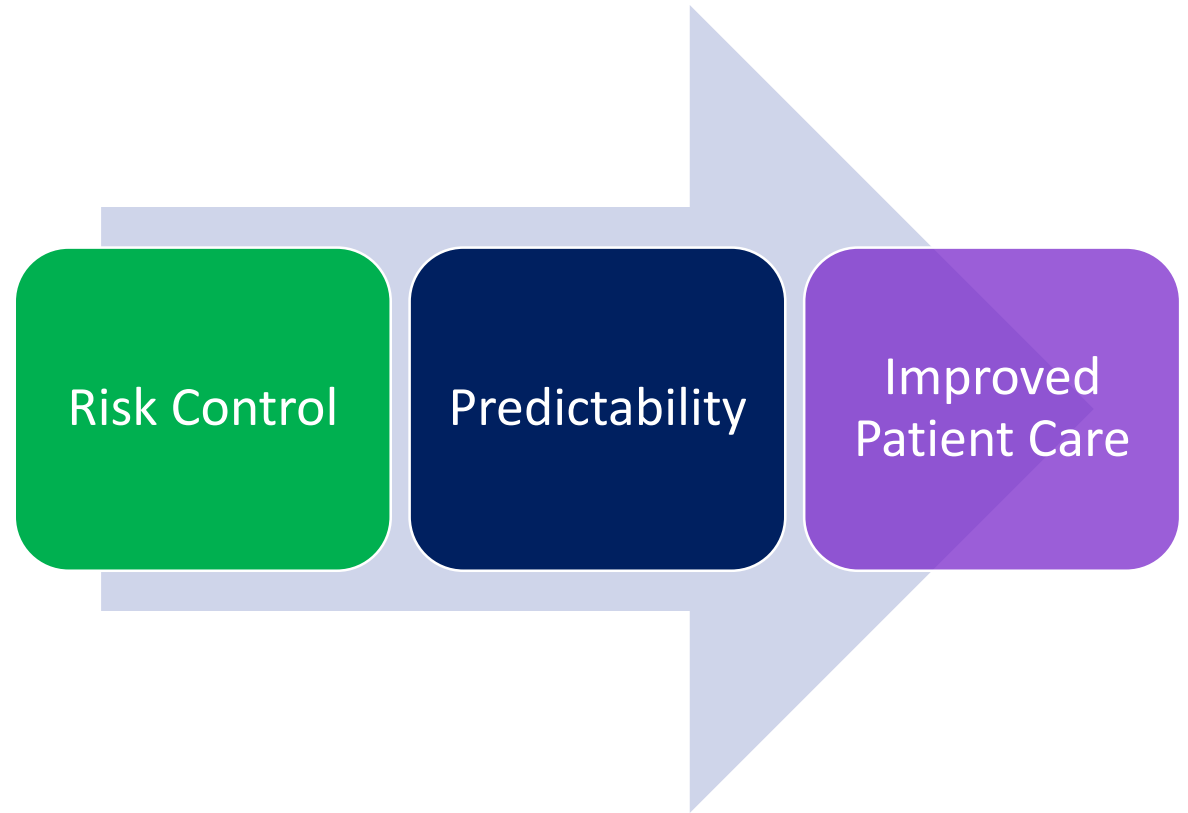




Greetings from the Largest Medical Center in the World  
The Texas Medical Center, Houston, Texas, USA

# Health Technology Management

What are our deliverables?





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# Clinical Engineering



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# CLINICAL ENGINEERING

HANDBOOK

JOSEPH D. YADIN

ACADEMIC PRESS SERIES IN BIO

## New Strategic Directions in Acquiring and Outsourcing High-Tech Services by Hospitals and Implications for Clinical Engineering Organizations and ISOs

**Donald F. Blumberg**  
President, D.F. Blumberg & Associates, Inc.  
Fort Washington, PA

- To maintain all equipment through an internally organized and operated biomedical engineering and management information system (MIS) support organization
  - To outsource all or a portion of these maintenance, repair, and technical support services to the original equipment manufacturer (OEM) or independent third-party maintenance (TPM) organizations
  - To expand services offered to other hospitals; in essence, to move in to the provision of third-party maintenance services in an attempt to increase economies of scale
- To the extent that all or a portion of maintenance, repair, and related support services is outsourced, the following three options are available for outsourcing:
- The OEMs that are beginning to offer service on an array of different products and technology on a multivendor service basis
  - Independent service organizations (ISOs) providing third-party maintenance services for one or several OEMs' products
  - A full turnkey or facility manager or site manager to manage and/or service all or a portion of the equipment at the hospital/health care site.

Until recently it has been extremely difficult for the hospital and health care users, the OEMs, and the ISOs to fully understand and make use of these options and alternatives. Recent extensive benchmarking studies by the author and D.F. Blumberg & Associates (DFBA) of the service of both general high-technology equipment used in the hospitals and specific medical electronics technology, as well as research into the size and dimensions of these market opportunities, has enabled an assessment and evaluation of these issues to be made. This information is presented below.

## Medical equipment maintenance programme overview

WHO Medical device technical series

# In Making Health Technology Service Decision we should consider:

- ❑ Inventory class to be maintained,
- ❑ Goals and Objectives,
- ❑ Resources available locally.

Figure 2. Critical factors in planning a maintenance programme

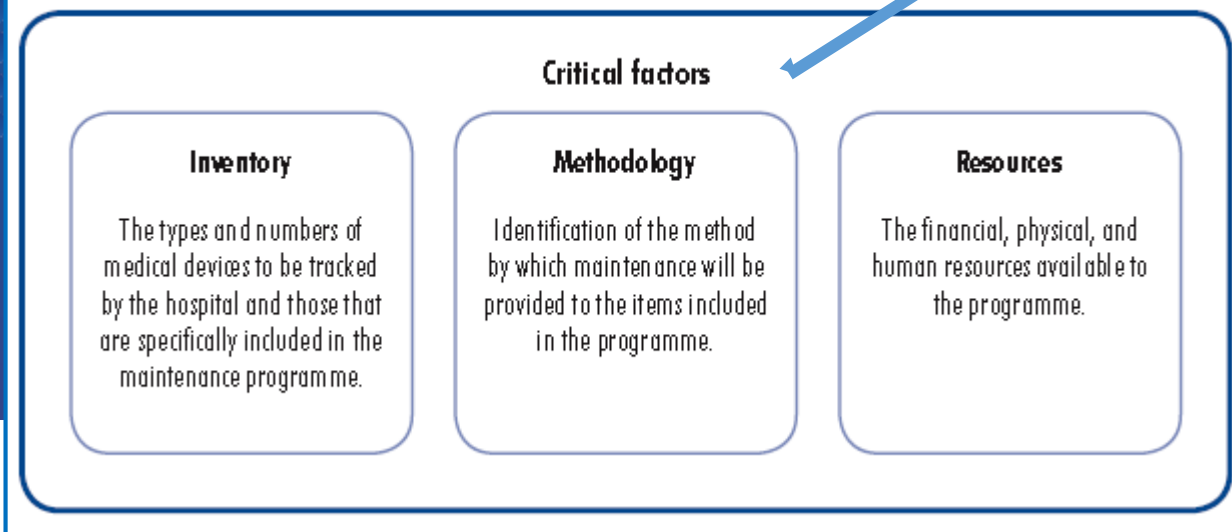
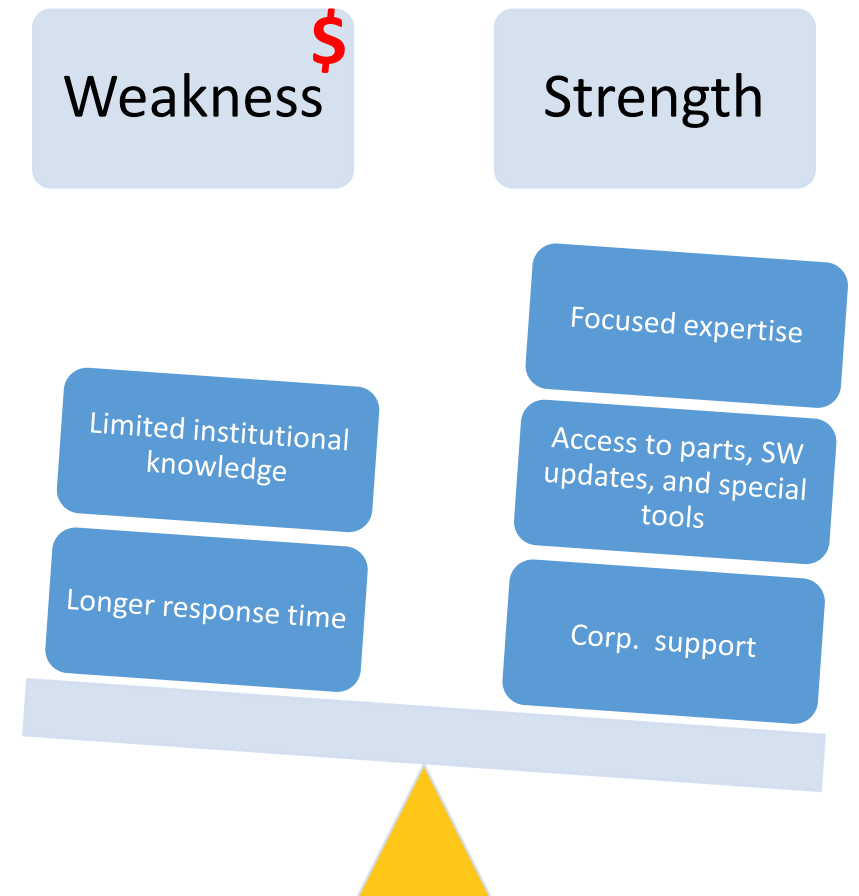
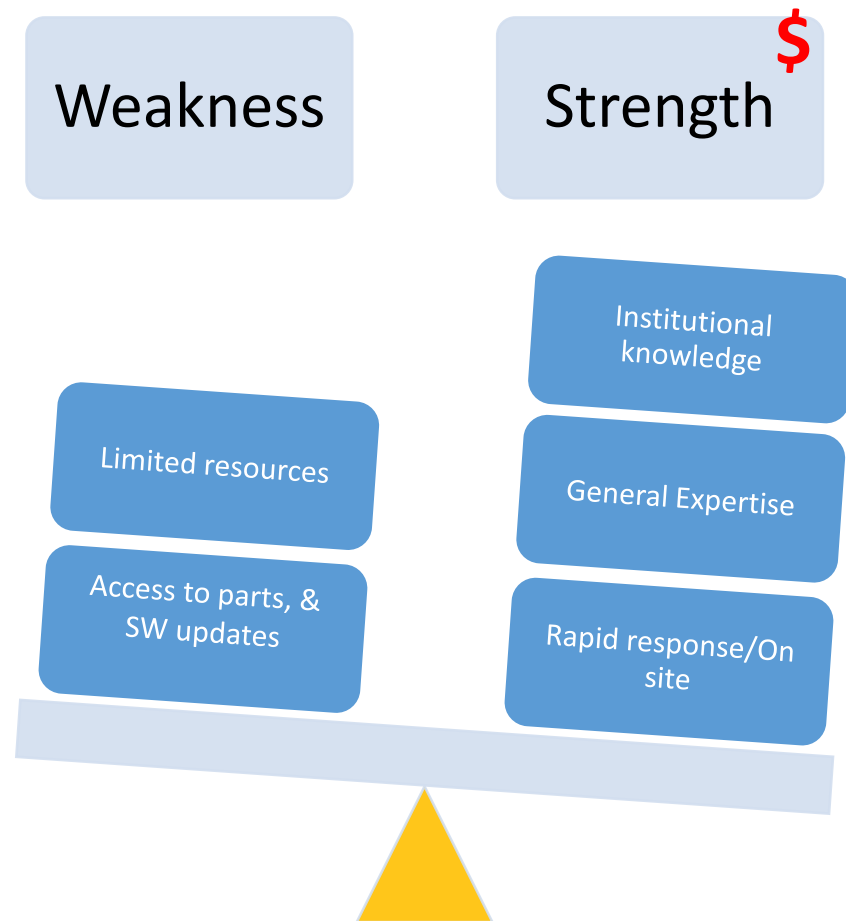


Table 3. Service agreement types

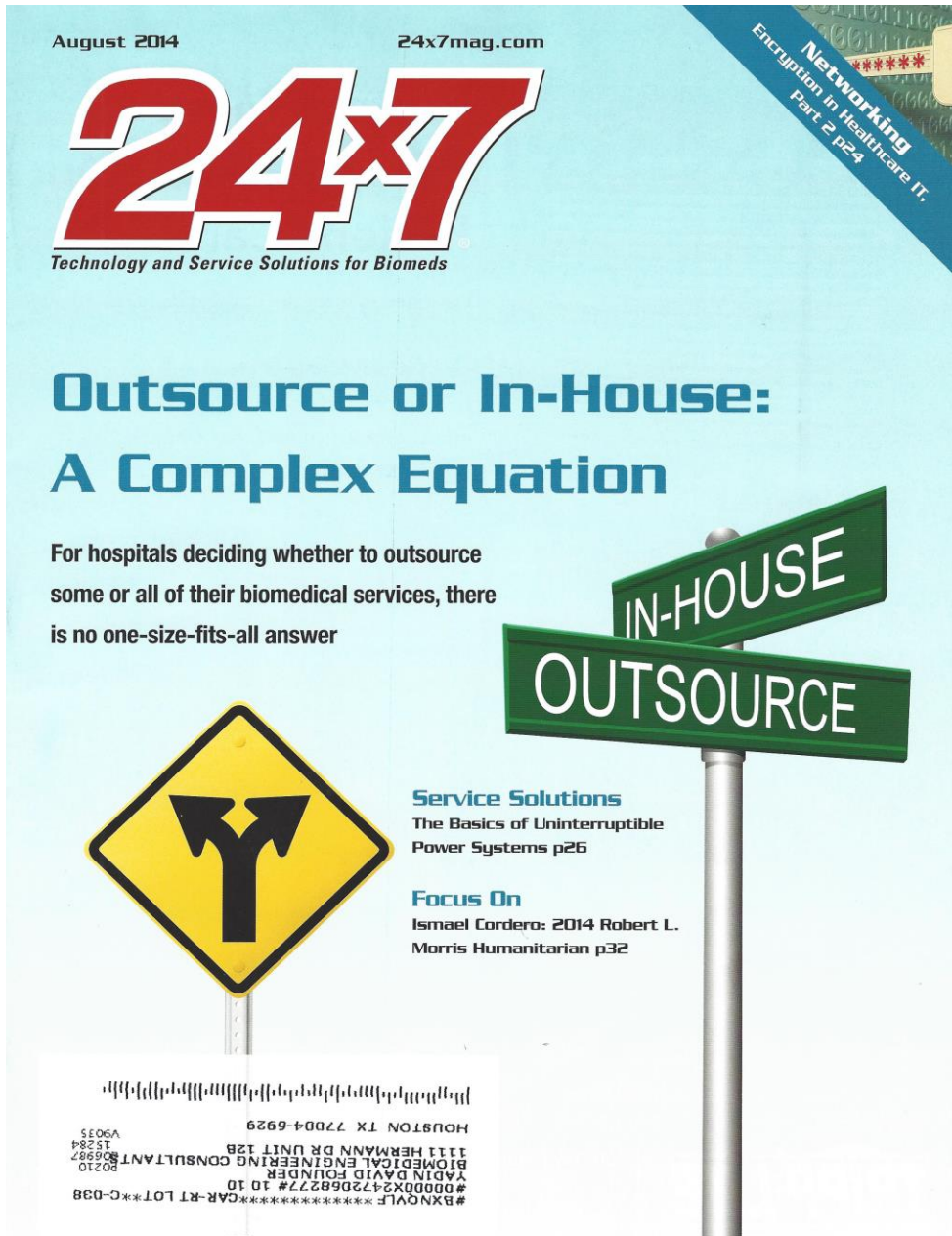
Type	Description	Rates (cost)
Full service	Quick response available at all times	Fixed
Time and material service	Varying response time available as needed	Hourly charge plus cost of parts
Shared responsibility	Internal staff provides initial response and repair. External staff follows up as and when required.	

# In House program

# 3<sup>rd</sup> Party







# Support of Radiation Emitting Technology Requires Cross Disciplines Collaboration

IFMBE Agreement on mutual recognition of qualifications for clinical engineers

International Register of Clinical Engineers BIOMEDEA, September 2005 (Page 5)

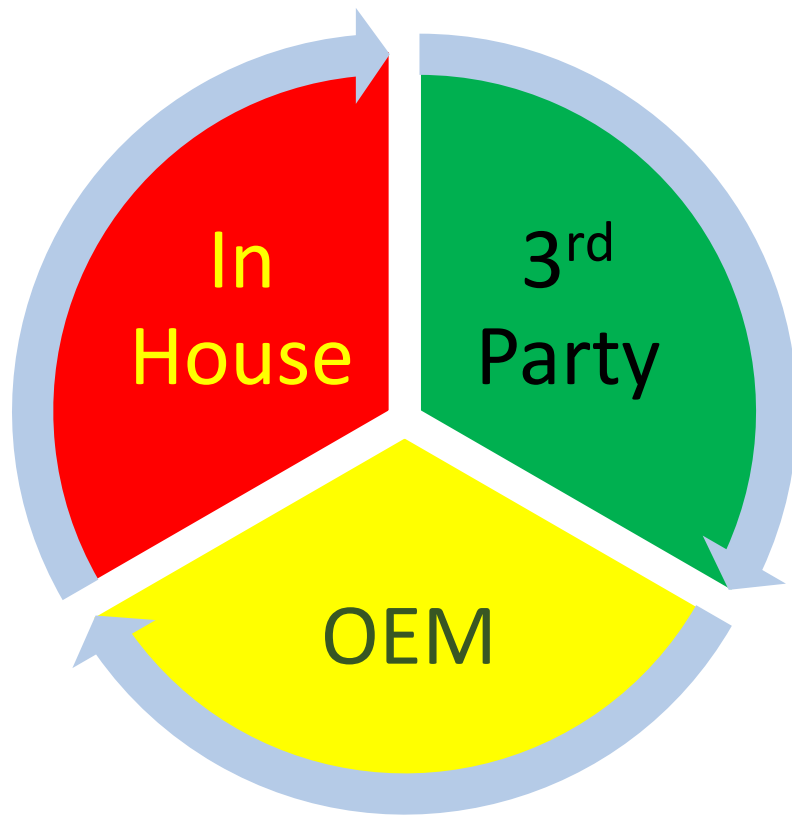
## • 3. Role of the Clinical Engineer

(...the Physicist...the Radiation Safety Officer)

- 3.1 The clinical engineer is involved at many levels in the safe, appropriate and economical use of technology in the health care system...the professional engineer is responsible for areas extending from design and maintenance of hardware to quality control and, where appropriate, the interpretation of signals from medical instrumentation. Some of the principal areas of responsibility can be outlined as follows.
- 3.2 An Advisory Service on Available Technology.
- 3.3 Evaluation and Purchase.
- 3.4 Maintenance.
- 3.5 Hazard prevention.
- 3.6 Clinical measurement.
- 3.7 General technical support and facilities.
- 3.8 Education and training.
- 3.9 Research and Development.



Depending on **local conditions**,  
Radiation Emitting Technology Requires  
**Cross Disciplines (in house)** and, at Times,  
**Cross Service-Provider Collaboration**



**Overall loyalty**  
**Financial incentives**  
**Expertise**  
**Safety and Quality Indicators**