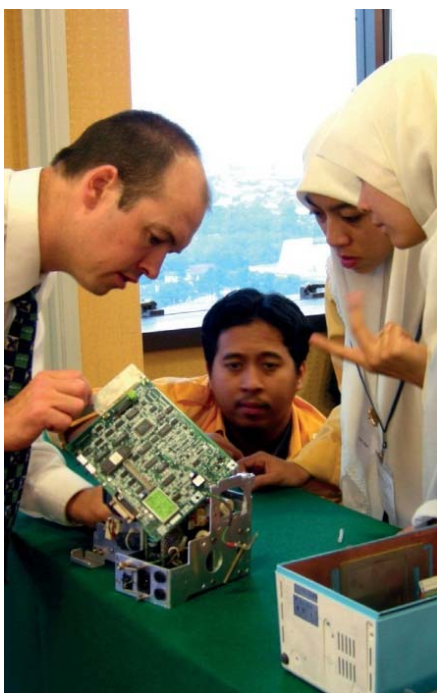




## Biomedical Engineering

- Maintenance
- Repair
- Testing & Calibration
- Management



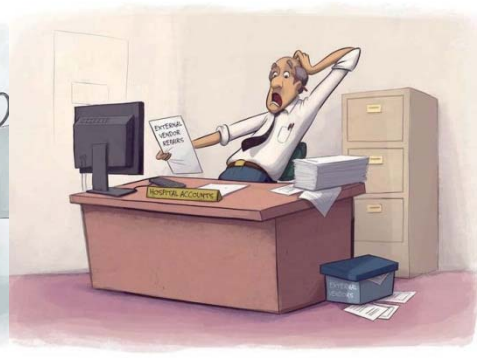
# Could your Biomedical Engineering service be improved? Are patients and staff trying to cope with...



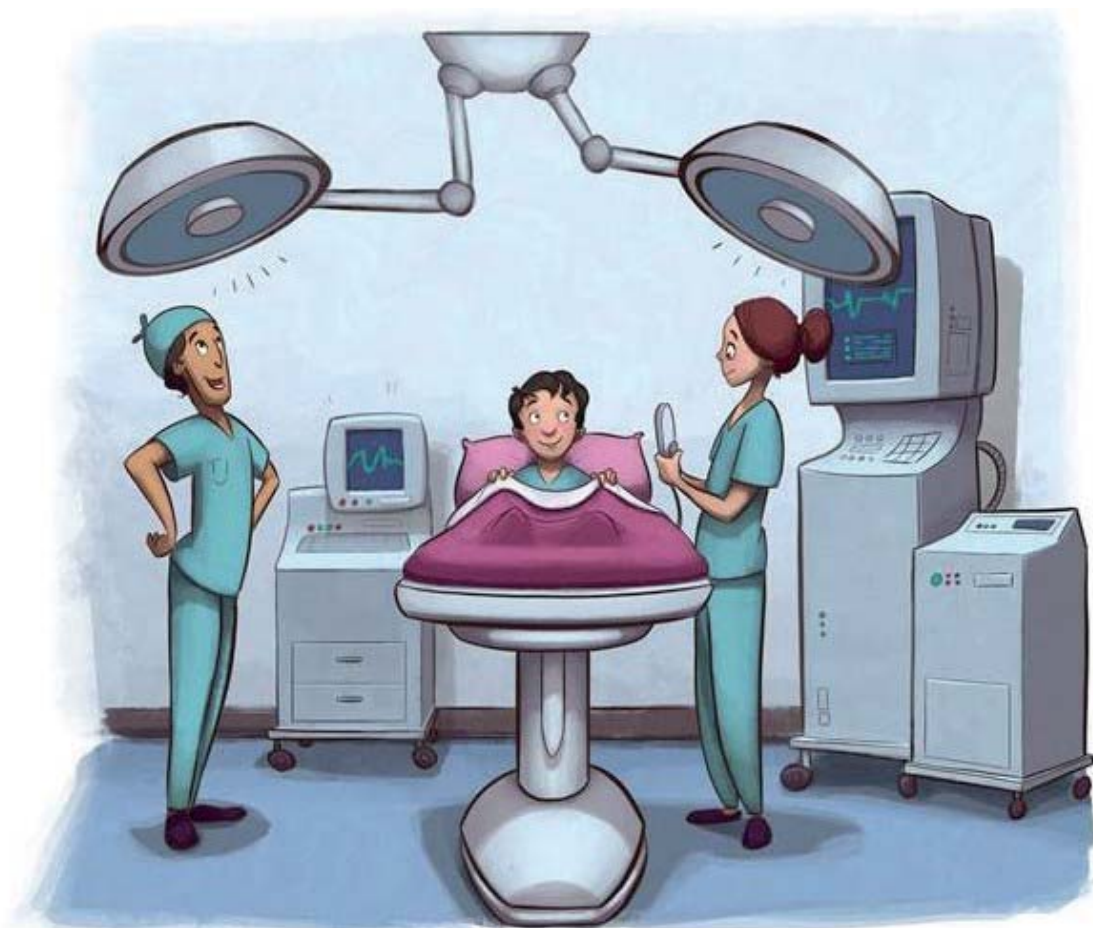
hazardous biomedical equipment?



delays due to equipment being out of service?



Are your external repair contracts costing too much?



FBE specialises in making world class biomedical engineering services:

- Equipment repairs are quickly & economically performed in-house
- Your facility runs more profitably
- Patients receive quality and timely care
- Staff enjoy working for you



## Who we are

### FBE Pty Ltd

Flinders Biomedical Enterprises (FBE Pty Ltd) is an Australian company owned by the Flinders Medical Centre Foundation in Adelaide, South Australia. Making use of the extensive capabilities of Flinders Biomedical Engineering and the South Australia Biomedical Engineering community, FBE Pty Ltd offers a range of services to develop and support technology used by hospitals and other medical facilities. We design and deliver world-class biomedical engineering services as well as on-the-job mentoring, improvement and management programs internationally.

We also research and develop new medical devices to save lives and improve the care of patients.

[www.fbe.com.au](http://www.fbe.com.au)



### Flinders Biomedical Engineering

Flinders Biomedical Engineering, as a joint Flinders Medical Centre/ Flinders University department, integrates Biomedical Engineering service delivery with teaching and research. This environment has created one of Australia's largest and most dynamic biomedical engineering services.

Since its formation in 1975, Flinders Biomedical Engineering has gained extensive experience in providing hospital / university based biomedical engineering expertise both in Australia and overseas, service delivery, and the development of new medical devices.

Recently the biomedical engineering facilities, of the public South Australian health institutions, have combined to form the South Australian Biomedical Engineering Service (SABME). This exciting development has greatly expanded the capabilities and resources available to Flinders Biomedical Engineering.

[www.fbe.org.au](http://www.fbe.org.au)





## Flinders Foundation

The Flinders Foundation (FF) supports the team of 3,500 medical staff and 400 medical researchers who save lives every day at the Flinders Medical Centre and Flinders University through ground-breaking research and cutting edge practices. With the support of the community, FMCF raises funds for grants, scholarships, research equipment, ward upgrades, new hospital equipment and the Flinders Centre for Innovation in Cancer.

[www.fmcfoundation.com.au](http://www.fmcfoundation.com.au)



## Flinders Medical Centre

Flinders Medical Centre (FMC) is a public teaching hospital and medical school, co-located with Flinders University. FMC has earned an international reputation as one of Australia's finest public teaching hospitals and as a centre for research excellence. Its services assist people across Australia, from Darwin in the Northern Territory to Mount Gambier in South Australia's south east.

[www.flinders.sa.gov.au](http://www.flinders.sa.gov.au)



FLINDERS  
MEDICAL  
CENTRE

## Flinders University

Flinders University was established in 1966, and has earned a reputation for its excellence in teaching and research. With faculties of Medicine Nursing & Health Sciences, Science & Engineering, Education Humanities & Law, and Social & Behavioural Sciences, Flinders University produces over two thousand graduates per year from 24,000 students. Strongly focused on collaboration and research, the university has developed networks of external links with stakeholders and the communities it serves.

[www.flinders.edu.au](http://www.flinders.edu.au)

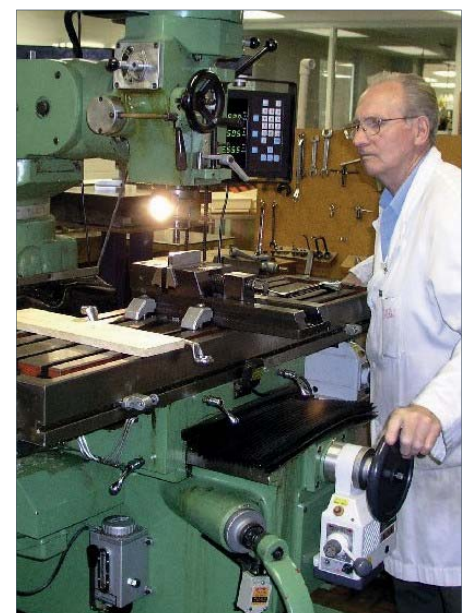
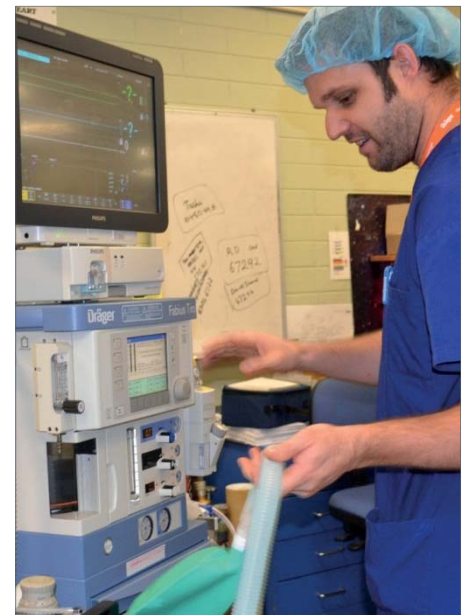




## Biomedical engineering service delivery

As an operational hospital / university based biomedical engineering service since 1975, Flinders Biomedical Engineering has extensive experience to assist clients in:

- Biomedical device acquisition and disposal
- Specification preparation.
  - Preparation of written specifications for the purchase of assets or contracted services
- Tender assessment
  - Including technical, financial and operational assessment of tenders submitted for the supply of assets or services
- Commissioning newly acquired biomedical devices
- Decommissioning of retiring biomedical devices
- Technology support
  - Planned maintenance
  - Unscheduled maintenance
- Clinical services
  - The provision of biomedical engineering expertise during or prior to a clinical procedure is a skill often provided by an in-house biomedical engineering resource such as Flinders Biomedical Engineering
- Modification of biomedical devices to suit particular needs.





## Biomedical engineering capacity building

- Collaborative programs, involving mentoring of biomedical engineering technicians and managers, have included Australian and overseas components.
- Consultancy services have been delivered in several countries, for:
  - Evaluation of biomedical engineering services
  - Advice on biomedical engineering training options
  - Expert consultation to industry and medical device developers
- FBE specialises in tailoring programs to suit the particular needs of clients. Mentoring programs can be run in the client's workplace. Topics are individually structured to the client's needs and can focus on biomedical technology, management, life sciences, occupational safety or other issues relating to the establishment or operation of biomedical engineering facilities.
- Mentoring programs are effective:
  - They are delivered by experienced practicing biomedical engineering personnel
  - Course material is provided to all participants
  - Participants undergo short examinations upon completion

## Papua New Guinea

FBE staff provided consultancy and mentoring to Biomedical Engineering Technicians, in 2003 and 2005, through the AusAID funded Medical Equipment Management in the Pacific (MEMPP) project and the Papua New Guinea Health Sector Support program.

## China

The director of Flinders Biomedical Engineering visited Shandong Province to advise the Department of Health on the establishment of biomedical engineering departments.

## Australia, Alice Springs

Flinders Biomedical Engineering delivered peer to peer assessment and support of the organisation and operation of the biomedical engineering department in Alice Springs Hospital during a period of restructuring in 1999. Alice Springs Hospital services an area of one million square kilometres in Central Australia.



## Hong Kong

Flinders Biomedical Engineering advised the Hong Kong Electrical and Mechanical Services Department regarding a model for restructuring biomedical engineering activities throughout Hong Kong. Instruction was provided for visiting engineers by Flinders Biomedical Engineering and collaborating South Australian partners on medical imaging equipment in 2002.

## Malaysia

### Situational analysis, 2000

Flinders Biomedical Engineering provided a Situational Analysis of the Services of one of Malaysia's leading Biomedical Engineering companies.

- Workforce organisation & skills
- Technology management
- Physical resources
- Management structure
- Spare parts logistics

### Mentoring program, 2002

Following the situational analysis, FBE teamed with ECRI and established a collaborative program to increase the skills and knowledge of Malaysian Biomedical Engineers both in Malaysia and Adelaide:

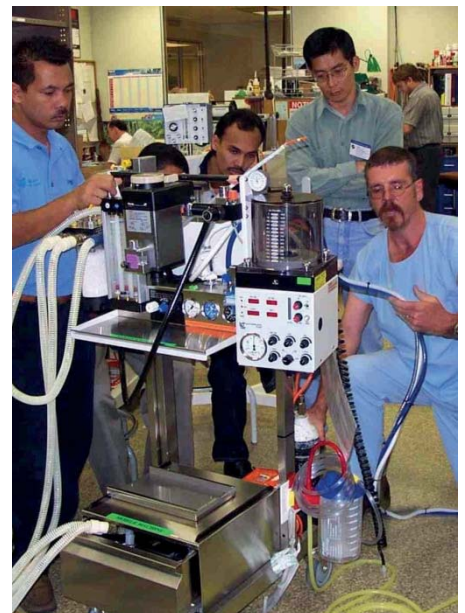
- Experienced FBE staff mentored biomedical engineers and technicians on the job in Malaysia throughout 2002.
- Groups of Malaysian biomedical technicians received training in the theory of biomedical engineering at Flinders University and Flinders Biomedical Engineering.
- Topics included: cardioverters, spectrophotometry, balances, water baths, laboratory incubators, laboratory analysers, centrifuges, liquid & gas chromatography, blood gas analysers, microscopes, light sources, etc.

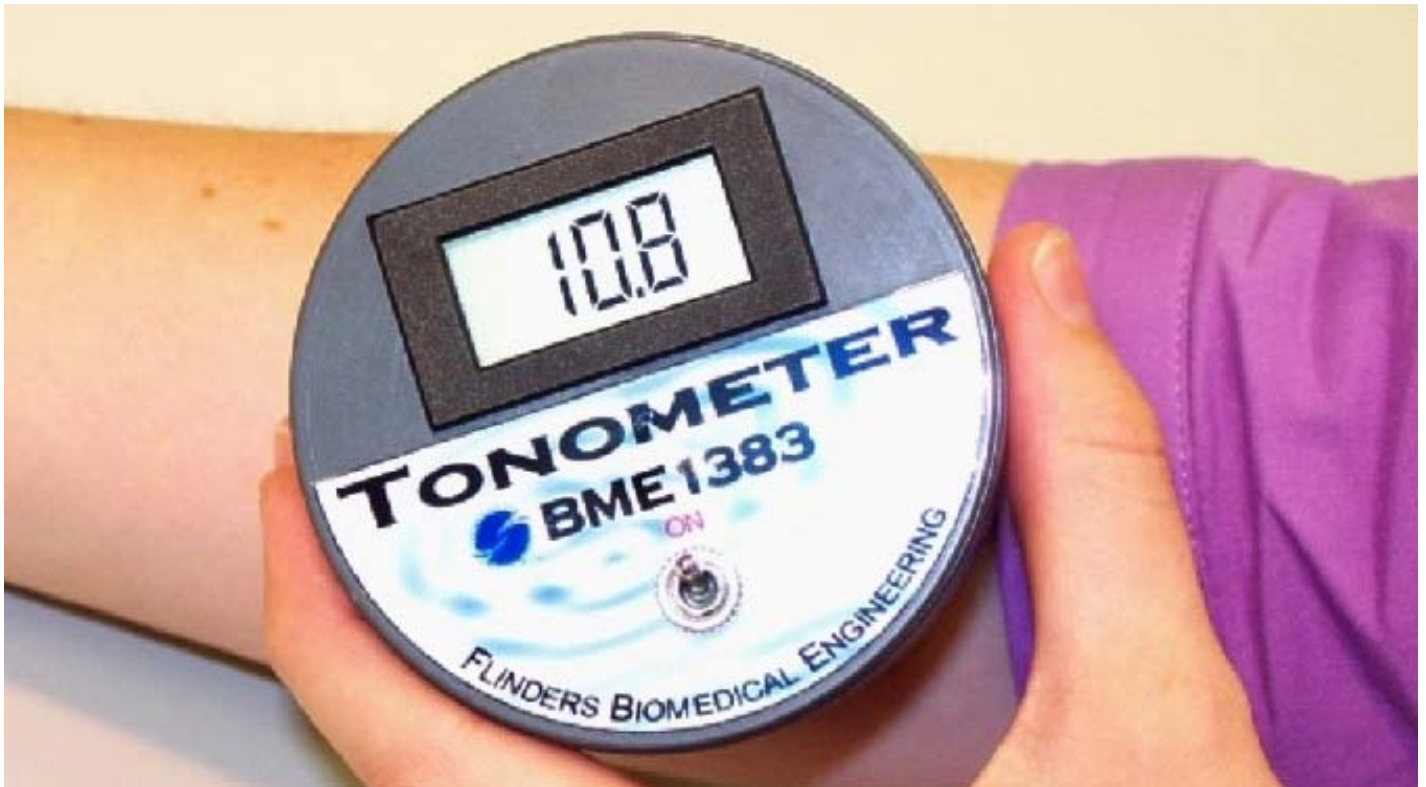
### World-class biomedical showcase development 2008-2012

FBE, together with ECRI and our client, created a joint venture to design and form the biomedical engineering departments, in nine of Kuala Lumpur's large public hospitals. The joint venture had responsibility for providing biomedical engineering services to the hospitals, and this was delegated to FBE personnel. The joint venture appointed FBE personnel as department heads, selected local biomedical engineers and technicians as assistant/trainee managers and departmental staff, and introduced world-best practices and procedures into the departments.

In the following months/years, the performance and efficiency of the departments excelled and they became world-class centres of excellence in biomedical engineering, and our client became the leading concession company in Malaysia:

- Running costs decreased
- Staff job satisfaction increased
- Staff turnover decreased
- Equipment availability increased
- Nurse's and doctor's confidence in the service increased
- Contract fee-reduction penalties decreased





## Precision instrument calibration

Flinders Biomedical Engineering operates a National Association of Testing Authorities (NATA) registered balance and piston pipette calibration laboratory.

This expertise was displayed when FBE and ECRI collaborated to establish Asia's first NATA registered pipette and balance calibration laboratory for a client in Malaysia in 2006.

This involved:

- Making a standalone laboratory system (including a quality management system) in Australia
- Designing the Malaysian laboratory, including:
  - Layout
  - Significant structures
  - Equipment
- Transporting the standalone laboratory to Malaysia
- Installing and commissioning the laboratory, including:
  - Test equipment
  - Quality management system and procedures
  - Data storage and processing systems
- Instructing Malaysian laboratory staff in:
  - Quality system theory and operation
  - Test equipment operation
  - Pipette servicing and calibration
  - Balance calibration
  - Interpreting test results
- A NATA assessment was successfully conducted at the completion of the project

The installation of this calibration facility enabled our client to perform its balance and pipette calibration work in-house as well as gain external calibration work.

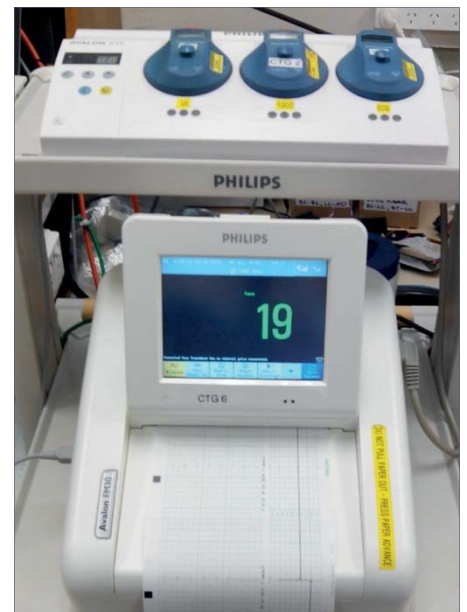


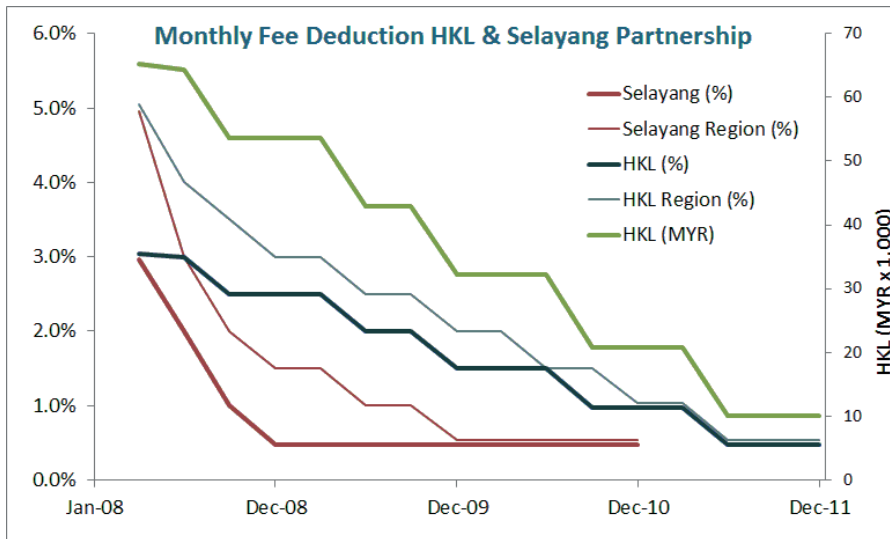


# Improving technology management

As a working hospital / university based biomedical engineering service, Flinders Biomedical Engineering has expertise in technology and information management. This expertise is available to assist clients with:

- Monitoring and analysing technology performance to determine its continuing effectiveness and make recommendations on replacement or withdrawal from service.
- Evaluation of new equipment and technology to determine clinical suitability & efficacy.
- Developing structured programs for the maintenance of biomedical devices.
- Monitoring and controlling the performance and costs of biomedical devices.
- Controlling the performance and cost of biomedical device maintenance contracts.
- The procurement, storage, cataloging and stock control of components and parts used in biomedical engineering activities.
- Developing, monitoring and controlling biomedical engineering departments including the generation, implementation and review of ongoing work procedures and methods to achieve operational objectives.
  - Financial management
  - Strategic management
  - Functional management
  - Human resource management
  - Risk management
- Examine incidents and accidents involving biomedical devices.
- Monitor and evaluate biomedical device hazard information services and the implementation of appropriate remedial actions.
- Train biomedical device users in the safe and effective use of devices.
- Establish biomedical device preventative maintenance procedures, to:
  - Maximise device availability
  - Minimise failure risk
  - Minimise cost

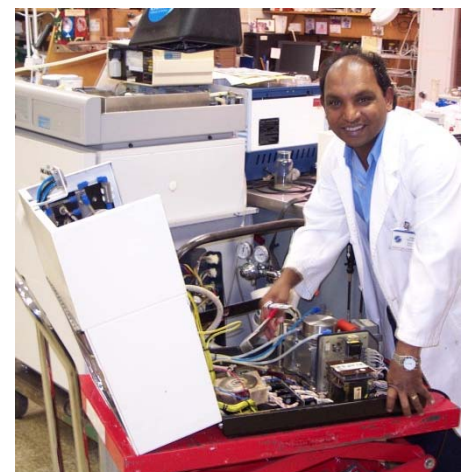




## What FBE can do for you

FBE offer to partner with you to:

- Provide your biomedical engineering needs
- Reform your biomedical engineering departments
  - Develop competent international level biomedical staff
  - Create highly productive workshops
  - Instill world's best practices
  - Establish a professional model of hospital technology management
  - Increased capability
    - Reduced reliance on vendor service contracts
    - Improved equipment reliability
    - Increased equipment operating time
  - Lower overall running costs
- Recruit, train and mentor biomedical engineering managers and staff
  - Raising their capability
  - Enabling them to operate world class biomedical engineering departments
- Complete lifecycle management of your medical equipment
  - Planning medical equipment replacement
  - Manage medical equipment purchases
    - Use our buying power



## Get started with FBE

FBE will tailor a program to suit your organisation. Please contact us to discuss a scoping study on your biomedical engineering service and transforming it into a world class showcase

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