

Pacific Biomedical Network Meeting





NAME: ATAATA BINATAAKE

DESIGNATION: BIOMED ENGINEER

COUNTRY: KIRIBATI

TOPIC: PREVENTATIVE MAINTENANCE

Pacific Biomedical Network Meeting

Challenges

WHAT ARE THE CHALLENGES FACED BY YOUR BIOMEDICAL SERVICES RELATING TO YOUR SPECIFIC TOPIC?

- *No BME testing analyzers like Electrical safety analyzer*
- *Only few equipment has standard template or guideline for PM*
- *Limited knowledge on PM*
- *Overwhelmed with other non biomedical related tasks, no time to execute PM as per schedule*
- *Equipment (e.g lab machines, OT equipment, Radiology equipment) is constantly in use*
- *Unavailable of service manuals for many equipment*
- *Equipment constantly moved from one station to another*
- *Accessing sites for PM is difficult (transport, heavy tools to bring, limited funding)*

Opportunities & Development

- *WHAT ARE SOME OF THE OPPORTUNITIES AND DEVELOPMENTS THAT HAVE PROGRESSED IN YOUR BIOMED UNIT WITH REGARDS TO YOUR SPECIFIC TOPIC?*
 - *All recently installed equipment are now captured in the asset register*
 - *Schedule for PM has been developed*

Opportunities & Development

OLD ASSET REGISTER


A	B	C	J	K	L	M	N	O	P	Q	R	S	T	X	Y	Z		
BMENO	In service/Disposed	TITLE	Installation	WTY Exp	Cost (AUD)	Lifespan yrs	End of expected life	Replacement due	"Replaced" or blank	Replaced with New Asset N	Condition "Poor", "Fair"	Risk (Low, Medium, High)	PM (yes = 1 no = 0)	PM Frequency (6/12 mths)	Scheduled month name	PM Scheduled month	Operator Manual	Service Manual
K6056	In service	Absorber	1/01/2006			7	01/01/2013	Due for replacement								#N/A		
K7307	In service	Air Pump					00/01/1900	Check lifespan								#N/A		
K7328	In service	Amalgator					00/01/1900	Check lifespan								#N/A		
K7329	In service	Amalgator					00/01/1900	Check lifespan								#N/A		
K6055	In service	Anaesthetic Machine	1/01/2006			10	01/01/2016	Due for replacement								#N/A		
K7354	In service	Anaesthetic Machine					00/01/1900	Check lifespan								#N/A		
K7423	In service	anaesthetic machine	7/07/1905				07/07/1905	Check lifespan								#N/A		
K7442	In service	anaesthetic machine					00/01/1900	Check lifespan								#N/A		
K7528	In service	anaesthetic machine					00/01/1900	Check lifespan								#N/A		
K7532	In service	anaesthetic machine					00/01/1900	Check lifespan								#N/A		
K7285	Not in service	Analyser - Biochemistry					00/01/1900	Check lifespan								#N/A		
K7451	In service	Analyser - Biochemistry	10/10/2015				10/10/2015	Check lifespan								#N/A		

BMENO	In service/Disposed/Missing/Removed	TITLE	Installation date	WTY Exp	Purchase Cost (AUD)	Estimated replacement cost	Lifespan yrs	End of expected life	Replacement due	Condition "Poor", "Fair", "Good"	Risk (Low, Medium, High)	PM (yes = 1 no = 0)	PM by whom	PM Frequency (6/12/24 mths)	Rationale (eg batteries, known failures, risk, etc)	Scheduled month name	PM Scheduled month
K7357	In service	Anaesthetic Vapouriser	1/01/2015	1/01/2016		\$5,000	10	01/01/2025	OK		High	1	Contractor	24	risk	January	January
K7529	In service	Anaesthetic Vapouriser	1/01/2015	1/01/2016		\$5,000	10	01/01/2025	OK		High	1	Contractor	24	risk	January	January
K7531	In service	Anaesthetic Vapouriser	1/01/2015	1/01/2016		\$5,000	10	01/01/2025	OK		High	1	Contractor	24	risk	January	January
K7451	In service	Analyser - Biochemistry	1/01/2015	1/01/2016		\$50,000	7	01/01/2022	Due for replacement		High	1	BME	12	Risk, usage, parts	March	March
K7468	In service	Analyser - Biochemistry	1/01/2015	1/01/2016		\$15,000	7	01/01/2022	Due for replacement		High	1	BME	12	Risk, usage, parts	February	February
K7461	In service	Analyser - Blood Cell Counter	1/01/2015	1/01/2016		\$30,000	7	01/01/2022	Due for replacement		High	1	BME	12	Risk, usage, parts	March	March
K7894	In service	Analyser - Blood Cell Counter	28/11/2020	28/11/2021		\$50,000	7	28/11/2027	OK	Good	High	1	BME	12	Risk, usage, parts	March	March
K7422	In service	Analyser - Diabetic	1/01/2015	1/01/2016		\$1,000	7	01/01/2022	Due for replacement		Medium	1	BME	12	inspection	March	March
K7467	In service	Analyser - electrolyte	1/01/2015	1/01/2016		\$10,000	7	01/01/2022	Due for replacement		High	1	BME	12	Risk, usage, parts	March	March
K7524	In service	Analyser - electrolyte	1/01/2015	1/01/2016		\$15,000	7	01/01/2022	Due for replacement		High	1	BME	12	Risk, usage, parts	March	March
K8171	In service	Analyser - spotchem	10/10/2022	10/10/2023							Medium	1	BME	12	inspection	March	March
K7781	In service	Analyser - Biochem, tecno 168	21/05/2006	21/05/2007		\$15,000	8	21/05/2014	Due for replacement	Fair	High	1	BME	12	Risk, usage, parts	March	March
K7892	In service	Analyser - Chemiluminescence Immuno	28/11/2020	28/11/2021		\$30,000	10	28/11/2030	OK	Good	High	1	BME	12	Risk, usage, parts	March	March
K7911	In service	Analyser, DCA vantage	6/01/2019	6/01/2020		\$5,000	8	06/01/2027	OK	Good	Medium	1	BME	12	inspection	Jan/Jul	January
K7460	In service	Analyser, Gene Expert, TB tester	1/01/2016	31/12/2016		\$10,000	7	01/01/2023	Due for replacement		Medium	1	BME	12	inspection	March	March
K7883	In service	Analyser, Haematology Analyser, Auto	15/09/2020	15/09/2021		\$25,000	7	15/09/2027	OK		High	1	BME	12	inspection, parts	March	March
K7884	In service	Analyser, Haematology Analyser, Auto	15/09/2020	15/09/2021		\$25,000	7	15/09/2021	OK		High	1	BME	12	inspection, parts	March	March
K7286	In service	Analyser, Haemoglobinometer	1/01/2019	1/01/2020		\$5,000	7	01/01/2026	OK		Medium	1	BME	12	inspection, batteries	March	March
K7302	In service	Analyser, Haemoglobinometer	1/01/2019	1/01/2020		\$5,000	7	01/01/2026	OK		Medium	1	BME	12	inspection, batteries	March	March
K7542	In service	Analyser, Haemoglobinometer	1/01/2019	1/01/2020		\$5,000	7	01/01/2026	OK		Medium	1	BME	12	inspection, batteries	March	March
K7543	In service	Analyser, Haemoglobinometer	1/01/2019	1/01/2020		\$5,000	7	01/01/2026	OK		Medium	1	BME	12	inspection, batteries	March	March

UPDATED ASSET REGISTER

Opportunities & Development

- *Partial PM has commenced – basic cleaning following recently developed guidelines*


MINISTRY OF HEALTH AND MEDICAL SERVICES
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 GOVERNMENT OF KIRIBATI

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Location & Area	<input type="checkbox"/>	<input type="checkbox"/>	Inspection and PM	<input type="checkbox"/>
Description of Device	<input type="checkbox"/> Steam Steriliser		Inspection only	<input type="checkbox"/>
BME Number	<input type="checkbox"/>		Brand	<input type="checkbox"/>
Serial Number	<input type="checkbox"/>		Model	<input type="checkbox"/>

Test equipment – Type (Select item used)	Make	Model	Serial #	Test equipment – Type (Select item used)	Make	Model	Serial #
Electrical Safety Tester	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

PRIOR TO COMMENCING IPM	Yes	No	N/A
Pre IPM inspection by BME – does equipment seem to work OK?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Any operator/user/BME concerns? If Yes, details of concerns and actions taken: <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Task	INSPECTION TASKS			PREVENTATIVE MAINTENANCE TASKS			Yes	No	N/A	
	Pass	Fail	N/A	Pass	Fail	N/A				
Overall Functional Status	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Ensure the pressure relief valve works freely	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
General condition	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Clean the inner parts including the drain mesh filter	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Cleanliness	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Check for water leaks	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Noise level acceptable/normal?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Check for any signs of electrical overheating	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
IPM and BME asset labels affixed	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Inspect and clean the water tank	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
				Replace the water with clean fresh distilled or deionized water	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
				Check door seal condition	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
				Lubricate door close/opening mechanism	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
				Check the chamber internals for hairline cracks	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
				Replace the sterile air filter if applicable	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

NOTES

Hour/cycle counter reading if applicable:

OTHER PM TASKS PERFORMED

PERFORMANCE VERIFICATION

Parameter measured	Specification (units)	Result	Pass	Fail
Chemical indicator test load	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

ELECTRICAL SAFETY

Electrical safety – non-medical equipment:	Readings	Limiting values for AS3760:2010
Visual inspection of external mains parts and integrity of device casing	<input type="checkbox"/>	Secure cord grips, AS/NZ plug-top, cabling undamaged
Protective earthing test	<input type="checkbox"/> Ω	<1.0 Ω
Insulation resistance test	<input type="checkbox"/> MΩ	>1MΩ (if fitted with heaters then 0.1MΩ) (If MOV then test using 250VDC, otherwise use twice mains voltage typically 50V)
Earth Leakage current	<input type="checkbox"/> uA	<5mA (nominal condition)

STATUS AFTER IPM

Safe For Use
 Non-Compliant
 Beyond Economical Repair
 Pending
 Waiting For Parts
 Not found

Condition: Good Fair Poor
 Total work hours:

BME signature: _____ Date: _____
 Customer signature: _____ Date: _____

ADDITIONAL NOTES

- This form can be used for Inspection only tasks or full Inspection and PM (including performance verification).
- Inspection and PM - includes Operator/User/BME concerns, Inspection, Performance Verification and Electrical Safety Tests
- Inspection Only - includes Inspection Tasks IE for asset audit and minimum requirement purposes.
- This form is locked for general editing but results may be filled in electronically.
- No need to complete a work request form if using this form.
- Once completed submit for data entry.

Recommendations

- 3 MAIN RECOMMENDATIONS FOR YOUR COUNTRY **(PRIORITY AREAS)**
 - BME docs (especially donation policy) to be revised, endorsed and implemented
 - Provision & training on BME special analysers & development of PM standardized guideline for all equipment
 - Exploring new partners (technical/development partners)