REPORT

PACIFIC REGIONAL WORKSHOP ON QUALITY ASSURANCE, REPAIR & MAINTENANCE OF EQUIPMENT IN RADIOGRAPHIC PRACTICE

&

PROTOCOLS OF GENERAL AND VASCULAR ULTRASONOGRAPHY

16th to 26th June 2009

Fiji School of Medicine
Suva, Fiji Islands

REPORT

Pacific Regional Workshop on Quality Assurance, Repair and Maintenance of Equipment in Radiographic Practice and Protocols of General and Vascular Ultrasonography

INTRODUCTION

The Fiji School of Medicine (FSM) is submitting this Report to the World Health Organization (WHO) for the organizing and convening of the Pacific Regional Workshop on Quality Assurance, Repair and Maintenance of Equipment in Radiographic Practice and Protocols of General and Vascular Ultrasonography from 16th to 26th June 2009 at the Fiji School of Medicine, Suva, Fiji Islands. The submission of this report is to provide a general overview of the proceedings of the two week training workshop and the expenses incurred for the organizing and convening of the workshop

OVERVIEW

FSM convened a 2-week workshop designed to teach the skills of Quality Assurance, Repair and Maintenance of Equipment in General Radiography and Protocols of General and Vascular Ultrasonography to radiographers from smaller centres in South Pacific nations. The two courses: the first on Radiography and the second on Diagnostic Ultrasound were held in June 2009 with 16 participants from 7 Pacific Island nations.

This 2009 educational activity was conducted between Tuesday 16th June and Friday, 26th June 2009 in partnership with:

- the World Health Organization (WHO),
- the International Society of Radiographers and Radiologic Technologists (ISRRT),
- the University Department of Rural Health (UDRH) University of Newcastle Australia.
- the University of South Australia, Adelaide, South Australia and
- the Auckland City Hospital, Auckland, New Zealand.

The teaching staff for this 2009 workshop included:

- Mr. Peter Lloyd, formerly Head of Radiography Dept, University of South Australia
- Mrs. Cynthia Cowling Director of Education, International Society of Radiographers and Radiologic Technologists (ISRRT) Australia;
- Mr. Nilesh Kumar, Specialist Vascular Sonographer, Auckland City Hospital, Auckland, New Zealand,
- Mrs. Maureen Philips, Lecturer in Sonography, University of South Australia, Adelaide, Australia
- Assoc. Prof. Anthony Smith, University Dept of Rural Health (UDRH), University of Newcastle, Tamworth, Australia,
- Assoc. Prof. Olusegun Ajibulu, Head of Medical Imaging Science Program, Fiji School of Medicine and

- Faculty of medical Imaging Science Program, Fiji School of Medicine, Suva, Fiji Islands.

Fourteen (16) participants from the Pacific undertook the workshop as follows:

- 4 radiographers working in Fiji,
- 2 trainee radiology registrars based at the Radiology Dept of CWM Hospital in Suva
- 3 radiographers from Solomon Islands
- 2 radiographers from Samoa and
- 2 radiographers from Kiribati and
- 1 radiographer each from
  - Vanuatu,
  - Tonga,
  - Nauru

The workshop which was organized into two main components of Radiography and Sonography had specific learning outcomes set out as follows:
For the Q/A workshop, the Specific Learning Outcomes were designed to enable the participants to:

- Carry out quality control tests on equipment
- Maintain and provide fault diagnosis on automatic processors
- Design and implement a QA program in their own workplace
- Deliver a similar workshop at their own workplace
- Improve efficiency and effectiveness of own workplace through QA
- Use problem solving skills to avoid excessive call out of service personnel
- Create benchmarks to provide improved image quality and departmental management

For the Ultrasound workshop, the Specific Learning Outcomes were designed to enable the participants to:

- Acquire factual knowledge and understanding of relevant physical principles of ultrasound, instrumentation, anatomy, physiology, pathology and therapeutic intervention.
- Acquire knowledge on the protocols of general, cardiac, obstetrics/gynaecological and vascular ultrasound.
- Acquire and understand some of the technical skills required in performing the above categories of ultrasound examinations.

Following from the stated outcomes, it was hoped that the participants would benefit significantly from the workshop by being able to carry out improved standard of radiography and ultrasonography across hospitals and health centres in their various countries, be able to reduce costs, improve detection rates of abnormalities, reduce repeats, improve their work environments, reduce radiation dose and improve radiation safety for their patients and staff

WORKSHOP CONTENT AND PROCESS

A copy of the final workshop programme is attached as ***Annex 1***. After a formal opening ceremony addressed by representatives from both FSM and WHO, the first week was devoted mostly to a series of lectures on Q/A in which structured materials were presented to the participants by power point presentations. The participants were also divided into small tutorial groups which were made interactive. They were also given directed learning exercises to test their understanding of the materials being taught. Lastly, the participants were exposed to a series of demonstrations and laboratory sessions and were equally able to have hands-on experience organized and supervised by the resource persons and the faculty of FSM. The face-to-face series of short lectures, small group teaching sessions and tutorials, as well as discussions on hands-on experience and exercises – all added value to the workshop. Morning quizzes were regularly given covering the previous day's work.

The second week concentrated on series of lectures and group teaching and tutorials in the area of ultrasonography in the mornings. The afternoon sessions were devoted mostly to demonstrations and hands-on experiences supervised by the teaching staff. The faculty started with protocols of general ultrasound studies in order to maximise participants' exposure to common cases generally seen in their various centres.

Participants were made to spend a lot more time having supervised group discussions and hands-on experience in both the Q/A and ultrasound workshops. The participants also had to learn more about committing themselves to new ways and strategies of motivating their colleagues to sharing their vision of establishing and running efficient Q/A programmes on their return to their respective centres. This was accomplished by means of organizing the participants into groups for a variety of tasks on Q/A and Ultrasound techniques and making them have brain-storming sessions, followed by each group making a short presentation on their suggestions and recommendations.

The workshop faculty felt that the increased time for 'hands-on' participation increased learning opportunities. This feeling was confirmed by the faculty's agreement that there was enthusiasm across the class in terms of knowledge and skills gained during the two-week period.

The nature of the workshop made formal assessment difficult, but assignments were marked and appropriate feedback given for both the Q/A and the ultrasound workshops. A final summative test for each component of the two workshops was also marked. This allowed the faculty to give feedback to workshop participants and to produce a final grade for each student. All participants received a certificate to show that they had taken part in the workshop.

FACULTY RECOMMENDATIONS

- **Undertake appropriate follow-up activities with 2009 workshop participants.**

  How course participants fair when they return home depends on each individual's situation and enthusiasm. Hence, it is important to undertake appropriate follow-up activities with the 2009 workshop participants. Those returning to a department without a prior Q/A Program in place should be able to use their new knowledge and skills to build a useful Q/A program and service for their departments for better radiology outcome. This they will be able to do with a supportive supervisor and Management of their hospitals. They should also be able to teach the skills of Q/A to their colleagues and be able to improve the health and safety issues in relation to radiation matters, reduce imaging costs and provide effective service. In the area of Ultrasound, the participants should be able to raise standards and aid quick and easy detection of lesions that will assist in efficient patient management by clinicians. Participants at the end of the workshop agree that their radiography and ultrasound practice would definitely benefit from insights gained during the workshop.

  To help address the considerable variability in how well the workshop graduates might be able to take advantage of their new skills, the faculty would like to carry out follow-up visits to this year's participants. As in previous workshops of this nature, the follow-up visits to course participants were useful in providing insight for the faculty as to how to do things better. Follow-up visits in several cases also allowed the faculty to inform local radiology managers and doctors about the WHO-sponsored programme (many were unaware of it) and to seek their support.

Secure funding for a further radiography workshop in 2010.

The workshop faculty would like to offer a similar course (radiography + ultrasound) again in 2010 if funding can be found and if there are more radiographers who are eligible to attend. Ideally the faculty would like to emphasize more on techniques and protocols of ultrasound, as this is where the perceived need is greatest in the South Pacific.

Make appropriate changes to the 2009 workshop content and process.

- **Decrease the volume of teaching and focus more on key topics.**

The major message for the workshop faculty this year was that they are still trying to teach too much, in a limited time, to people who while keen to learn have a range of background knowledge which is in some cases quite limited. A possible course in 2010 would focus on major or key topics per day with more background explanations and appropriate revision, and with brief handouts describing the essential points to be remembered for each topic.

- **Ensure that all workshop participants are trained radiographers.**

It was disappointing to have on the workshop one untrained radiographer from Tonga (although he has been working as an X-ray Assistant for years). It was observed that he was fairly behind the other participants to be able to meet the aims of the programme. This was probably due to the fact that Tonga lacked qualified radiographers in her workforce.

Annex 1

WEEK 1

Quality Assurance Workshop Time-Table, June 2009

Date	Time	Activity	Persons Responsible
Tuesday	0800-0845	Registrations	
	0900-1000	Opening Ceremony	All
	1000-1030	Morning Tea	
	1030-1100	How to, the methodology of the workshops	CC
	1100-1130	Pretest	CC
	1130-1200	What is QA?	PL
	1200-1300	Lunch	
	1300-1500	Review of Basics (Imaging)	TS
	1500-1515	Break	
	1515-1630	Group Discussions/Presentations "What is currently in place in participants' hospitals"	TS, OA
	1630-1700	Feedback and Review, day one/ pre test return	All
Wednesday	0900-0945	QA, Cost Effectiveness and Dose Reduction	CC
	0945-1015	Radiation and Health Safety	CC
	1015-1045	Accessory Equipment	PL
	1045-1100	Break	
	1100-1300	Practical Session 1 (Tasks 5,6, 7 from QA Workbook)	TS, PL, CC
	!300-1400	Lunch	
	1400-1430	Reject Film Analysis	TS
	1430-1515	X ray Equipment	TS
	1515-1530	Break	
	1530-1700	Practical Session 2 (Tasks 1, 11, 14 from QA Workbook)	TS, PL, CC
Thursday	0900-0945	Image Processing - the automatic processor	FSM Faculty
	0945-1045	Group Discussions - How can we implement a QA program?	TS, PL, OA
	1045-1100	Break	
	1100-1300	Practical Session 3 (Task 18, 25, from QA Workbook)	TS, PL. CC
	1300-1400	Lunch	
	1400-1430	Creating an Exposure Chart	FSM Faculty
	1430-1630	Practical Session 4 (Tasks 24, 26, 27 from QA Workbook)	TS, PL,CC
	1630-1700	Plenary Session and Feedback, day three	ALL
Friday	0900-0945	Repair and Maintenance	PL, CC

	1000-1200	Practical Session 5 (Tasks 2, 6, 7, from Maintenance Workbook)	TS, CC, PL
	1200-1300	Lunch	
	1300-1400	The Chest X ray	CC
	1400-1600	Practical Problem Solving Exercises	TS, OA, CC
	1600-1630	Plenary Session and Feedback, day four	ALL
Saturday	0900-0930	Post Test	PL
	0930-1100	Discussion – Future considerations. Creating long term solutions. Developing your own train the trainer course	TS, OA, CC
	1100-1130	Tests results and review	CC, PL
	1130-1230	Feedback, Questions, Open discussion	All
	1230	Close	

CC = Cynthia Cowling, TS = Tony Smith, OA = Olusegun Ajibulu, PL = Peter Lloyd

WEEK 2

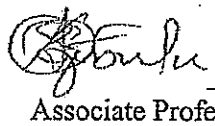
Ultrasound Workshop Time-Table, June 2009

Day	*Time*	*Activity*	*Persons Responsible*
Monday am	9.00	Introduction and Overview of the Workshop	MP
	9.15	Ultrasound Physics and Instrumentation – Lecture and demonstration	MP, OA, NL
	10.30	*Break*	
	10.45	Upper Abdomen – large vessels, pancreas, liver, gallbladder, bile ducts, spleen etc - lecture, demonstration,	MP
Monday pm	12.30	*Lunch break*	
	1.00	Upper abdomen, hands on practice and discussions + time for cool drink	MP, NL
	4.00	Image interpretation quiz and discussion	MP, OA
Tuesday am	8.30	Renal and Bladder – lecture, demonstration and discussion	NL, MP
	10.00	*Break*	
	10.15	Hands on Scanning and discussions - renal	NL, MP, OA
	11.30	Female pelvis, lecture and demonstration	OA, NL
Tuesday pm	12.30	*Lunch Break*	
	1.00	Hands on scanning and discussions, renal and pelvis + time for cool drink	OA, NL
	3.30	Quiz and discussions	NL, OA, MP
Wednesday am	8.30	Male pelvis and prostate –lecture	NL,
	9.00	Scrotum –lecture and discussions	NL, MP
	10.00	*Break*	
	10.15	Breast – lecture	MP
	11.00	Thyroid gland and salivary glands –lecture and demonstration, discussions and hands –on	MP, NL
Wednesday pm	12.30	*Lunch Break*	
	1.00	1st trimester pregnancy, lecture and discussion	NL,
	2.00	2nd trimester pregnancy, lecture and discussion	MP
	3.30	Quiz and discussions + cool drinks (? Hands on)	OA, NL, MP
Thursday am	8.30	3rd trimester pregnancy, lecture and discussion	MP
	9.30	Doppler physics and haemodynamics - lecture	NL
	10.30	*Break*	
	10.45	Carotids lecture and demonstration	MP, OA
	11.30	Hands-on	MP, NL
Thursday pm	12.30	*Lunch Break*	
	1.00	More Hands-on	OA, NL, MP
	2.00	DVT – lecture and demonstration	NL,
	3.00	Hands-on	MP, OA
	4.00	Quiz and discussions	NL, MP, OA
Friday am	8.30	Leg arteries – lecture and demonstration and hands-on	NL, OA
	10.30	*Break*	
	10.45	Leg veins – lecture and demonstration and hands on	NL, MP
Friday pm	12.30	*Lunch Break*	
	1.00	Discussion and review of the week. Final Quiz	MP, NL, OA
	4.00	End	

MP= MAUREEN PHILIPS NL= NILESH KUMAR OA= OLUSEGUN AJIBULU

We hereby confirm that the above information is accurate.

Submitted by:



Associate Professor Olusegun Ajibulu
Coordinator, Medical Imaging Science Programme
Workshop Coordinator, FSM.

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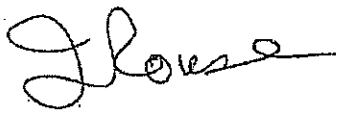

Professor Ian Rouse
FSM Dean

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