TRAINING OF CYTOLOGY LABORATORY PERSONNEL

A. PROPOSAL FOR SIX MONTH TRAINING FOR A GROUP OF 14 NEW RECRUITS

The original proposal for the delivery of the training in Martinique was presented by Dr Alain Jouannelle, retired head of the Pathology Laboratory of the Centre Hospitalier Universitaire de Fort de France . Discussions were held during a visit in February 2004 that clarified points about the details of the programme and the methodology for submission of the proposal for funding through the Delegation a la Cooperation.
The following is the introduction and objectives as stated by in the course outline prepared by Dr Jouanelle:

The location of the training : *will be the premises of Fort de France,University hospital-La Meynard**.,***
The objectives : *to train 28 cytology professionals from 14 participating Caribbean countries and(to establish a web-based cytology reference and regional external proficiency testing system for countries of the Caribbean)*

This training would support the implementation of the strategic plan for cervical cancer prevention and control in the Caribbean, which aims to reduce cervical cancer mortality and decrease invasive cancer incidence in the Caribbean by strengthening the human resources capacity and improving the quality of the cytology services available in the region.

In endorsing the strategic plan in September 2003, the CARICOM ministers of health identified training of cytology professionals as an urgent priority.

The emergency response outlined in this application would facilitate the training of new recruits and provide refresher training for practicing cytology professionals.

The details of his course outline as proposed for the training is outlined in Appendix I

The project was favourably considered for funding.

.Financial resources used for the short-term cytology training programme came from a variety of sources: French Technical Cooperation, CAREC projects (PAHO funded Caribbean Cervical Prevention and Control and EU funded Strengthening of Medical Laboratories Services in the Caribbean), Regional PAHO offices and the governments of the 10 participating countries from which the 14 trainees originated.

B. TRAINING PROGAMME IN MARTINIQUE FOR CYTOSCREENERS SEPTEMBER 13 - DECEMBER 10, 2004

A follow up trip to Martinique was made in December 2004 for discussions with respect to the:

- training programme as it actually evolved (there were modifications from proposed course outlined in Appendix 1)
- assessment of the performance of the trainees
- and the expectations of the continued training in their respective countries.

Assessment of programme by Students

The students were very positive and enthusiastic about the experience at the training institution in Fort de France. A room at the School of Nursing had been converted to a classroom in which there was access to one microscope per student, as well as a training microscope that was connected to a monitor. This facilitated simultaneous viewing by the group of any material of interest. There was access to the internet in the class room setting and web based information was used to supplement other reference documents.

The trainees were of the opinion that the programme was well organised, the administrative support provided by Madame Peggy Croulard and Monsieur Lahely was excellent and the praise for Dr Jouanelle and his care and method of teaching was in the superlatives. They thought that fourteen was the maximum number the course should aim for, if it was repeated, since the chance for individual attention from the one tutor would be lost if the class was any larger. The interaction between the participants was very beneficial since they brought different levels of previous laboratory exposure to the situation. The benefit of having some members of the group capable of speaking French

was highlighted and mention was made of the advantages it brought in their housekeeping activities as well as communicating in the community.

They were very dissatisfied about the living accommodation, the facilities for provision of meals and other amenities was very challenging. Despite the support provided by the staff at Universitaire de Fort-de-France this was the most unsatisfactory part of the students' stay in Martinique. The view was also expressed that wider availability to computers in the class room or elsewhere would have been useful.

Schedule and content of the programme

The report on course content was developed from Dr Jouannelle's correspondence and interviews with the students.

The material as stated in the proposal by Dr Jouannelle was covered. The approach was to use projected slides from the American Tutorial of Cytology during the first 3 weeks. In the period the trainees viewed 700 slides projected 7 times. This was complemented with academic lectures. Testing on the projected slides started after the first 3 rounds of projection and the trainees were tested four times.

By the middle of the 3rd week (September 28, 2004) they were introduced to reading glass slides of gynae-cytopathology. This consisted of slides taken from the archives and workload of the Pathology laboratory of the Fort-de-France teaching hospital, selected to demonstrate the wide range of lesions encountered in cervical smears.

In addition, beginning the first week in November up to December the trainees were given 100 patient slides from a private pathology laboratory in Martinique (at least 7 slides per trainee). Trainees were to screen the slides given to them and make comments. If their result disagreed with that of the primary cytoscreeners, the trainees were challenged to defend their decisions to Dr Jouannelle . For all of these exercises there was sharing of the microscope views of abnormal cells through the tutor's microscope connected to a video camera and TV monitor.

For continuous assessment the trainees were given a test every ten days, For each test, the trainee was required to examine and write a report on 18 slides. The acceptability of

the tests was determined by Dr Jouannelle and any incorrect diagnoses discussed with the trainee.
Each trainee kept a log of all slides that were read by them, included in the log was the case identifier and the diagnosis they recorded for the slide. The logs will serve as a personal record for the trainees since they have taken these logs to their respective countries. They were also given a report card indicating the grades of assessments and an overall comment on their performance made by Dr Jouannelle, Principal Tutor.

Documents used in the training programme

The information on the reference material (Appendix II) was obtained from examination of the material that one of the trainees from Trinidad and Tobago, Mr Stanley Khan at the Port of Spain General Hospital obtained during the programme in Martinique. During a visit made to the laboratory on December 13, 2004 the opportunity was also used to meet with the pathologist and laboratory superintendent.

Quality Management Component of Training

During the period October 4-8, 2004 members of the PIU of the project Strengthening of Medical Laboratories Services (SLMS) conducted training that covered issues in Quality Management. The trainees were introduced to the guidance document for ISO 15189:2003 “Medical Laboratories – Particular requirements for quality and competence” produced by a sub-committee of the SMLS project for the Caribbean laboratory. This is based on the standards developed by Clinical Pathology (UK) Ltd. (See Appendix I for other reference material).

The trainees viewed several video presentations covering overview of quality assurance, quality control, care and use of a microscope. Presentations covered areas such as professionalism and ethics, competencies of a medical technologist and of cyto-screeners, safety in the laboratory, preventive maintenance, proficiency testing, sources of laboratory error.

The trainees participated in the writing/development of SOP for the Papanicoloau staining procedure, a flow chart for Pap Smear processing in the laboratory, a combined Pap smear request and report form based on one used at the Guyana Planned Parenthood Association and a Quality Manual for a Cytology Laboratory.

The students in the programme who had done staining of Pap smears prior to the training in Martinique were of a great help in developing the SOP for Pap stain.
During the visit in December, the students were encouraged to use the documents they generated in the training as templates for their particular laboratories. They were urged to discuss with the top management in the laboratories the draft quality manual for cytology and relate it to the quality manual for the entire laboratory. As well the protocols already in their laboratories must be examined and discussions held as to how to implement improvements.

Requirements for in- country training

The training of the cytology trainees will continue for an additional 12 weeks in their respective country laboratories. The requirements for the period of in-service training are that the trainees must receive, register stain and screen slides under supervision. At the end of the in-service period they should be able to screen 25 slides in a 5 hour work day with at least 95% accuracy.

To help to achieve this, the recommended minimum number of cases to be screened per week is one hundred. Where the laboratories normal intake does not allow this the trainees are required to use slides from the archive of their laboratories and screen and report on these. They will compare the results originally obtained with the results of their screening. If there are discordant results then the senior cytology person and the pathologist will need to discuss and come to an agreed report. The laboratory needs to have a documented policy in place to deal with instances of this sort. This latter exercise can be used by the laboratories to set up a review process to generate data for the error rate in their system.

An assessment record sheet has been sent to the laboratories to complete records for each student indicating screening speed achieved (number of slides per hour) as well as general comments on the attitude, and general proficiency of the trainee. The supervisors will be expected to submit these reports electronically to CAREC on a monthly basis to provide a means of monitoring the progress of the trainees.
It has been clearly stated that during the 3 month in-service training, re-screening of their work is mandatory. The trainees are not to sign out any reports-negative or otherwise.

APPENDIX 1

TUTORS AND THEIR QUALIFICATIONS

1)-Dr Alain Jouannelle.

Place of Birth: Fort de France .Martinique

High school degree A Level.1955.Fort de France .Martinique.

Citizenship : French

Medical studies : University of Paris from 1955 to 1963.

Residency in Surgical Pathology : Paris Medical School from 1963 to 1966.

Registrar in Pathology :Cochin Hospital, Paris from 1967 to 1969.

Lab of Pathology in Saint Denis, Reunion Island 1970.

Chairman of the department of Surgical Pathology : Fort de France teaching Hospital from January1971 to November 2003.

Teaching and training activities.

- Member of the steering committee of early detection of cervical cancer for PAHO between 1990 and 1997, and
- trainer of cytoscreeners (4 Trinidadians, 2 Barbadians. 2 Saint-Lucians, 1 Antiguan and 1 Vincentian).
- The lab of Surgical pathology has been a training place for residents in pathology of UWI who did their electives in Fort de France teaching hospital i.e. (2 Jamaicans, 1 Grenadian, 1 Vincentian, 1 Trinidadian) and also for résidents from Ireland and the UK.
- The lab is accreditated by the Royal College of Pathologists.

2)-Dr Marie-Louise Tucker

Place of Birth:Cannes (France).

High school degree A level: Paris

Citizenship: French, American, Jamaican.

Language: perfectly bilingual English/French (.Mother Jamaican/Father American)

Medical studies: Paris medical school.

Internship: Paris, Montego Bay (Cornwall Regional Hospital).

1993 to 1997: Residency in surgical Pathology:/Paris medical school hospitals.

1998 to 1999: Residency in general medicine (paediatrics, infectious diseases, obstetrics).

2001 to 2003: registrar in Pathology: Argenteuil Hospital (Parisian region)

From November 2003 onwards : consultant pathologist Fort de France University Hospital.

N.G.O volunteer.

Oct 1999 to Jan 2000 :Nepal

Feb 2000: Oriental Timor

Oct 2000: Cambodia.

Nov 2000 to Feb 2001: Thailand

COURSE OUTLINE

A)-ONE-MONTH ACADEMIC TEACHING IN MARTINIQUE WITH TEACHING SLIDE SETS IN CYTOLOGY PREPARED BY EXPERT CYTOPATHOLOGISTS.

- Self contained slide-lecture program with transparencies and explanatory texts.
- Every day 2 hours of lecture about gynaecological cytopathology followed by 5-hours of projection and discussion of slides and transparencies
- Monday to Friday.
- Week end is free.
- This program includes 40 hours of lecture (10 hours a week) and 100 hours of slides projections (25 hours a week)

The following subjects will be dealt with:

1)-First week.

- Lecture:10 hours

- -Structure of a cell.
- **-**Structure of an epithelium and a connective tissue.
- -Histology and cytology of the epithelia of the vagina and uterus cervix and endometrium.
- -Inflammatory processes and their sequelae within the vagina and the cervix.

Projection: 25 hours

- -Cytology of the normal epithelia and benign proliferative reactions of the uterine cervix.

- -Cytology and histology of epithelial lesions of the uterus cervix.

2)-Second week -

- Lecture:10 hours.

- -Human papilloma virus related lesions of the uterine cervix.

- Projection: 25 hours.

- -Condylomata of the uterine cervix.

3)-Third week.

- Lecture:10 hours

- -Epidermoid carcinoma of the uterine cervix and related precancerous lesions.
- -Adenocarcinoma of uterus, endocervical canal and related precancerous lésions.

- Projection: 25 hours.

- **-**cytology of uterine adenocarcinoma.

4)-Fourth week.

- Lecture:10 hours.

- -Proliferative disorders and carcinoma of the endometrium

- Projection: 25 hours.

- -Endometrial aspiration and other cytology techniques for the detection of endometrial cancer and its precursors.
- -Problems in cytodiagnosis (female genital tract).
- -Look-alikes in gynaecological cytology.

B**)-FOLLOWED BY A TWO-MONTH CYTOLOGIC PRACTICAL TRAINING IN MARTINIQUE WITH CONVENTIONAL PAP SMEARS (GLASS SLIDES):**

To make the trainees evaluate the adequacy of the pap smears, and identify cytological lesions of the uterine cervix and the endometrium, in accordance with the Bethesda classification, be exposed to **:**

1)-First week : 7 hours

- -Lecture about professionalism and ethics.-
- -safety in the lab

- -registration of the pap smears.
- -filing system.
- -Computer literacy
- -Use of the microscope.
- -Cytology techniques.
- materials required.
- -fixation of the smear
- -Papanicolaou staining.
- -Control of adequacy according to Bethesda.
- -Normal pap smears.

2)-Second week : 7 hours

- -Inflammatory lesions of the cervix due to :
  - -Fungi infections.
  - -Trichomonas vaginalis.
  - -Herpes genitalis.
  - -HPV related lesions.
  - -Gardnerella vaginalis.
  - -Leucoplakia and parakeratosis

3)-Third week : 7 hours

- -Low grade squamous intra-epithelial lesions.

4)-Forth and fifth weeks : 14 hours

- -high grade squamous intra -epithelial lesions.
- -ASCUS.
- -Severe glandular dysplasia.

5)-Sixth and seventh weeks : 14 hours

- -AGUS.
- -Cervical adenocarcinoma.

6)-Eighth week: 7 hours

- -Endometrial adenocarcinoma.

This practical training will be completed by an evaluation at the end of this 3-month training.

C)-FOLLOWED BY A THREE-MONTH IN COUNTRY CYTOSCREENING, ON THEIR SETTINGS :

Based on the screening of the daily workload of conventional pap smears each trainee has to deal with in their country.
The competencies expected are that the trainees should be able to read 15 cases a day the first week, 20 cases the second week, 25 the third, 30 cases the fourth, 35 the fifth, 40 the sixth, 45 the seventh and 50 a day the eighth week of screening on their settings for the rest of the practical training.

At the end of the course the students should be able to:
1)-read 50 cases a day (ten cases an hour) of conventional pap smears which means one slide per patient according to the VCE specimen, during a working time of 5 hours devoted to the screening.
2)-Develop specialized skills in the screening of PAP smears for abnormalities e.g. inflammatory processes, benign disorders, precancerous lesions and carcinomas.
3)-Efficiently classify, file and store both slides and reports.
The rest of the day being devoted to the reception, registration and staining of the pap smears.

At the end of the 3-month in-country training.
-either the cytoscreener knowledge is evaluated on the settings.
-or the assessment is carried out in Martinique after a 15 days of daily cytoscreening of pap smears in Fort de France teaching hospital.
Requires official commitment from the country to use them as cytoscreeners.

PART TWO OF PROPOSAL FOR TRAINING

REFRESHER COURSE OF 14 CYTOSCREENERS
A)-Through a one or two-week academic teaching in Martinique similar to the academic teaching previously described for the training of the new recruits.

B)-Followed by a one or two-week screening of selected pap smears in accordance with the Bethesda classification and similar to the two-month practical training described for the training of the new recruits.

The duration of the training is to be discussed with Dr STEPHEN KING.
Assessment of the trainees at the end of the training.

APPENDIX II

TRAINING MATERIAL REFERENCES

I. Notes were made from the lectures presented by Dr A. Jouanelle on:
Gynae pathology-cells, inflammatory (smears), types of organisms causing inflammatory reaction, leucoplasia
Bethesda System-Introduction
Definitions-glossary

II. Normal Female Genital Tract-Anatomical with Electron and Light Microscope photomicrographs
Normal Vaginal Flora
Physiology associated with cyclic changes
Menopausal, Pre-pubertal Female
Pregnancy, Abortion
Bibliography associated with this hand out by RY Abrams and CI Ashworth covered articles between 1956 and 1976

III. Inflammatory Processes and their Sequelae within the Vagina and the Cervix
From Diagnostic Cytology and its Histopathology-Basic by Leopold Koss, Vol.I, IIIrd Edition, 1979

IV. Metaplasia and Repair- Unusual forms of Cervicitis, Histiocytes in Inflammation Bacterial and Fungal Infections, Female genital Tract Parasites, Virus (CMV, Herpes genitalis)

V. Blaustein's Pathology of the Female Genial Tract- 5th Edition by Robert J Kurman, Johns Hopkins University School of Medicine with 1410 illustrations

References 1. Bethesda System HPV-ALTS, J. National Cancer Inst. 92, 397-402
Anonymous 2001 Seer Program, www-seer.ins.nci.nih.gov/scientific
2. Management-and Clinical Follow up

Colposcopy and Cervical Biopsy
Diagnostic Evaluation, Treatment and follow-up of Patients with Abnormal Cytology;
Different Clinical uses of HPV Testing

V. The Bethesda System of reporting Cervical/ Vaginal Cytologic Diagnosis
Definition Criteria- Explanatory notes for Terminology and Specimen Adequacy by Robert J. Kurman and Diane Solomon, 1994
ISBN 0-387-94077-4 with 61 colour illustrations
Publisher-Springer Verlag, New York, 175 Fifth Avenue N.Y. NY10010, USA
Part I- Specimen Adequacy-Definition Criteria and Explanatory Notes
Part 2- Benign Cellular Changes-Descriptive Diagnosis, Definition, Infection, Reactive Changes, Cell Abnormalities
Contributors: Donald Henson, NCI; Patricia Sargo, Memorial Sloane Kettering Cancer Centre, New York; Michael Henry, National. Naval Medical Centre, Bethesda, MD; Christopher Crum, Brigham and Women's Hospital

VI. 2001 Bethesda System
Terminology for Reporting Results of Cervical Cytology for the Forum group members and the Bethesda 2001 Workshop
JAMA, April 24, 2002, Volume 287, 316; 2002, AMA (All Rights Reserved)

VII. NCI Bethesda System
Bethesda 2001- A revised System for reporting Pap Test Results by Diane Solomon

In addition each student was given a CD of several hundred selected slides from amongst those that were used in the teaching programme

Quality Management Section of training
Reference material to the students included modules from "Managing Laboratories to Assure Quality- A How to Guide", a CAREC publication;
"College of American Pathologists Cyto-pathology Checklist for Laboratory Accreditation Programme"
Relevant downloads from the internet.