

**THE EFFICACY OF INTRAVENOUS IODINATED CONTRAST  
MEDIA IN THE DIAGNOSTIC ACCURACY OF CRANIAL  
COMPUTED TOMOGRAPHY (CT) IN PATIENTS WITH A POSSIBLE  
MISSED DIAGNOSIS AT DR GEORGE MUKHARI HOSPITAL,  
PRETORIA.**

by

**DR C. MINNÉ**

**RESEARCH DISSERTATION**

**Submitted in fulfilment of the requirements for the degree of**

**MASTER OF SCIENCE**

in

**DIAGNOSTIC RADIOLOGY AND IMAGING**

in the

**FACULTY OF HEALTH**

at the

**UNIVERSITY OF LIMPOPO.**

**SUPERVISOR: Prof. M.E. Kisansa**

**CO-SUPERVISOR: Prof. N. Ebrahim**

**2011**

## Table of Contents

<b>Table of Contents</b>	<b>i</b>
<b>Declaration</b>	<b>iii</b>
<b>Acknowledgements</b>	<b>iv</b>
<b>Abstract</b>	<b>v</b>
<b>List of Tables</b>	<b>vii</b>
<b>List of Graphs</b>	<b>vii</b>
<b>Chapter 1</b>	
Introduction	1
<b>Chapter 2</b>	
Literature Review	2
<b>Chapter 3</b>	
Research Problem	10
Research Question	10
Aim	10
Objective	11
Structure of the Study	11
1. Study Design	11
2. Study Population	11
3. Sampling Procedures	12
4. Sample Size	12
5. Selection Criteria	13
<b>Chapter 4</b>	
Methodology	15
1. Data Collection	15
2. Data Evaluation	15
3. Bias	17
4. Reliability	17
5. Validity	18
6. Ethical Consideration	19
7. Data Analysis	19
<b>Chapter 5</b>	
Results	21
<b>Chapter 6</b>	
Discussion of Results	30

<b>Chapter 7</b>	
Summary	33
Recommendations	34
<b>References</b>	36
<b>Appendices</b>	39
<i>Appendix A</i>	
Clearance Certificate	40
<i>Appendix B</i>	
Application form for Proposed Research Project, University of Limpopo	41
<i>Appendix C</i>	
Data Sheets Examples	45
<i>Appendix D</i>	
Presentation of Results	47

## Declaration

I declare that the dissertation hereby submitted to the University of Limpopo, for the degree of MMED (Diagnostic Radiology) has not previously been submitted by me for a degree at this or any other university; that it is my work in design and in execution, and that all material contained herein has been duly acknowledged.

---

**C. Minné (Dr)**

---

**Date**

**Student number: 210438905**

## Acknowledgements

I would like to thank the following people for their invaluable assistance in completing this dissertation:

Professor Margaret E. Kisansa, Head of Department of Diagnostic Radiology and Imaging, University of Limpopo (Medunsa Campus), Dr George Mukhari Hospital.

Professor Nazeema Ebrahim, Associate Professor: Department of Radiography, University of Limpopo (Medunsa Campus)

Professor H. S. Schoeman, Biostatistician, University of Limpopo (Medunsa Campus), Clinstat, Biostatistics.

Dr N.Z. Makhanya and Dr F.E. Suleman Consultant Radiologists, Department of Radiology, Steve Biko Academic Hospital.

Mrs E. F. J. Barnard, Secretary Department of Diagnostic Radiology and Imaging, Dr George Mukhari Hospital.

Mrs S. C. Nel, Secretary, Clinstat, Biostatistics.

Dr M. C. Minné, my supportive, loving and patient husband.

Mr J. P. Grové, Mrs C. Grové, Mr M. C. Minné and Mrs D. Minné my dear encouraging parents.

## **Abstract**

### **Objective:**

The objective was to determine the incidence of missed pathology on normal non contrast enhanced cranial computed tomography (NECT).

### **Method:**

Records of cranial computed tomography scans done over a 12 month period at the Dr George Mukhari Hospital were evaluated by three readers. The NECT and contrast enhanced cranial computed tomography (CECT) were read at separate occasions and readers did not have access to a history, each other's interpretation or to their own interpretation of the NECT when the CECT was evaluated. The data was evaluated and analysed after the 3 readers had seen the cases individually. Interpretation discrepancies were resolved during a meeting between all 3 readers and consensus was reached. Cases with missed pathology on the NECT were evaluated retrospectively at a joint meeting between the 3 readers to determine whether the pathology was visible on the NECT and thus to determine the combined reader error rate.

### **Results:**

In this study 3.28 % of cases had pathology missed by 3 readers on the NECT. Retrospective viewing reduced this to 1.42% indicating a reader error of 1.85%. This incidence of missed pathology correlates with the most recent studies done. Having a thorough medical history of the patient and selecting those with clinical findings indicating the need for a CECT will reduce the incidence of missed pathology.

**Conclusion:**

Patients with a normal NECT and no fever, meningism, confusion, focal/lateralizing signs, a history of tuberculosis or tumours, or risk factors for dural venous sinus thrombosis have a very small chance of missed pathology on NECT. The risk of contrast induced adverse events outweighs the risk of missing pathology on a normal NECT provided there is no clinical indication necessitating a CECT.

Omitting unnecessary CECT will in turn reduce the risk of intravenous iodinated contrast and the radiation exposure to the patient. These two factors will ultimately reduce the running cost of the CT department and increase the throughput of patients. Alternatively omitting the NECT will reduce the radiation exposure to the patient.

Reporting errors can be reduced by assessing and managing risk factors in each department i.e. viewing conditions and workload.

## List of Tables

Table 1: Summary of outcomes	22
Table 2: Summary of missed diagnosis in Group D (after consensus was reached)	26
Table 3: Summary of cases reported as normal on NECT and abnormal on CECT	29

## List of Graphs

Graph 1	22
Graph 2	23
Graph 3	24
Graph 4	25
Graph 5	27
Graph 6	27

# Chapter 1

## *Introduction*

A conflict exists in the work place between radiologists and clinicians on when and whether a cranial contrast enhanced Computed Tomography (CECT) is indicated. It is well known in literature that isodense lesions and vascular abnormalities may be missed on a cranial noncontrast enhanced Computed Tomography (NECT) scan. Clinicians frequently request a NECT on patients with suspected intracranial pathology. Reasons for this may be that they underestimate the value of CECT or they may not suspect a space occupying or vascular lesion requiring CECT. The history received pertaining to a patient may be incomplete, unreliable or completely absent. The omission of a CECT may lead to misdiagnosis or delayed diagnosis in patients with possible intracranial pathology.

The flip side of the coin is, with improved CT technology, a NECT may be sufficient in picking up pathology or indirect signs indicating pathology, thus alerting the radiologist to the need for a CECT scan.

There are several other factors that need to be considered when deciding on the risk benefit ratio of intravenous iodinated contrast media namely:

- 1) The risk for adverse events after intravenous injection of iodinated contrast media.
- 2) The cost and time implications of doing a CECT.
- 3) Radiation exposure which would be doubled if a NECT and CECT scan is performed.

## Chapter 2

### *Literature Review*

We live in a technologically advanced age. Magnetic resonance imaging (MRI) has taken the place as the gold standard investigation when it comes to the evaluation of intracranial pathology. MRI is more sensitive than CT in identifying brain lesions in patients, especially those lesions smaller than 2 cm<sup>1</sup>. CT has a sensitivity of 32% compared to a 95% sensitivity of MRI<sup>2</sup>; however MRI is still not widely available, especially in developing countries<sup>3</sup>. MRI availability in the public health sector of the Republic of South Africa is limited to a few tertiary institutions, therefore clinicians and radiologists in many centres still have to rely on CT for its diagnostic capabilities.

Most pathological processes e.g. neoplasms, infections and vascular insults to the brain will result in alterations in the blood brain barrier which will lead to local oedema and enhancement of the brain parenchyma<sup>3,4,5,6</sup>. Imaging characteristics including enhancement patterns have been described for various pathological conditions<sup>3,4,5,6,7</sup>. It is well recognised that isodense lesions could be missed on noncontrast enhanced CT (NECT). Contrast enhanced CT (CECT) can show lesions undetectable on NECT, and CECT can also define the boundaries of lesions better<sup>4</sup>. A CECT can confirm the NECT diagnosis or shorten the list of differential diagnoses. A CECT could also change the diagnosis completely<sup>3,5</sup>.

In general policies for the use of CECT have been established in the seventies due to experiences with early generation CT scanners<sup>5,8</sup>. Some authors regarded CECT as unhelpful if the NECT was normal<sup>9</sup>. Later studies demonstrated that some pathology missed on NECT can subsequently be seen on CECT<sup>3,5</sup>. Some authors suggested the use of contrast media in normal NECT scans if there were focal signs<sup>3,5,8</sup> and others was of opinion that a CECT was as accurate as a NECT and CECT combined<sup>10</sup>.

Literature regarding the efficacy of intravenous iodinated contrast media in cranial CT is not abundant. Most of the large studies (more than 1000 patients) were done in the 1970's and 1980's<sup>6,9,11</sup>. A few smaller studies with 300-400 patients and a large study with 1900 patients were done in the 1990's<sup>5,8,12</sup>. One study was done with 547 patients published in 2003<sup>3</sup>. Studies showed that very little pathology was missed on the cranial NECT<sup>3</sup>; only 6% in older studies<sup>6</sup>, 0.5%<sup>3,5</sup> and 1.5 %<sup>8</sup> in the newer studies. Performing a cranial CECT changed the diagnosis in approximately 5% of cases in some studies by *Cowan et al*<sup>5</sup> and *Bernard et al*<sup>8</sup> and 2.5% in *Fayaz et al*<sup>3</sup>. CT technology has changed dramatically in the last few years. CT scanners offer increased resolution, decreased radiation, multiplanar imaging and post reconstruction processing functions.

The most recent study found in literature by *Fayaz et al*<sup>3</sup> investigating the usefulness of intravenous iodinated contrast media in cranial CT done in 1997 to 2001 had a total of 547 adult patients which were divided into three groups. The cranial scans were evaluated by 2 Radiologist with more than 10 years experience each, and scans were done on a third generation CT scanner. The first group of 496 patients had a normal NECT and no clinical indication for CECT e.g. lateralising signs. In this group only one patient (0.2 %) had an abnormal CECT, and a diagnosis of a Meningioma was made. The use of contrast media in this group could be omitted without a high risk of missed pathology. The second group had

16 patients of which 10 had a normal NECT. These patients had lateralising signs and contrast media was deemed necessary regardless of NECT findings. There were 12 patients with abnormal CECT, thus 2 patients (12.5%) had a normal NECT and an abnormal CECT, namely meningeal enhancement. In this group it would be negligent to omit intravenous iodinated contrast media. The third group had 30 abnormal and 5 equivocal cranial NECT. The latter were confirmed normal on NECT. In 7 of the 30 abnormal NECT the use of contrast media added to the differential diagnosis thus in 12 out of 35 patients contrast media changed the diagnosis. Overall, in this study, an abnormality was seen only on CECT in 3 out of 547 cases (0.5%) and it changed the diagnosis in 15 cases (2.7%). The clinicians in this study had limited access to an MRI and patients with demyelinating diseases, cranial nerve pathology, sella pathology, infection, metastasis and neoplasm were excluded. Excluding these patients from the study could have had a dramatic effect on the outcome of the study as many of these patients could present with apparently normal NECT and subsequent abnormal CECT. If such a patient had a normal NECT and for whatever reason a CECT would be omitted, pathology could be missed with devastating results. Another bias in this study could have occurred where NECT and CECT were evaluated at the same time. This created the opportunity where the reader could go back to the NECT after seeing pathology on the CECT and change their initial evaluation. The results of this study cannot be used in determining protocols in a setting where clinicians rely heavily on the use of CT as a first line investigation.

*Cowan et al*<sup>5</sup> reviewed 400 patients, of these 184 had a normal NECT and CECT. Only 1 case (0.5%) with a normal NECT was abnormal after intravenous contrast media. One of the 400 patients had an abnormal finding on MRI and could be seen retrospectively on CT and was thus removed. This gives the impression that scans were viewed retrospectively and

could have given an opportunity to introduce a bias. In the group with abnormal NECT 19 patient's diagnosis were altered after CECT. Two radiologists were used to evaluate the cranial CT. The readers had access to a history and this could have influenced the results. Patients with known neurological and neurosurgical conditions were excluded. This could have skewed the results as some of these patients may have had conditions like a Meningioma that could have been missed on NECT. The weakness of the *Cowan et al* study is the small number of normal cranial NECT entered into the study, if a larger sample size was used the outcome could have been different.

A study by *Bernard et al*<sup>8</sup> in 1991 had 300 patients evaluated by cranial CT. Patients were divided into two groups namely those with focal signs (212 patients) and those without (88 patients). One hundred and ninety three patients out of 300 had a normal NECT of which 3 had an abnormal CECT (1.5%). The final diagnoses made in these 3 patients were meningioma, infarct and multiple sclerosis. All 3 these patients had focal signs. From the group of 88 with no focal signs 60 patients had a normal NECT and CECT. There were 15 cases (5%) where the CECT either changed the diagnosis or limited the differential diagnosis. Two patients in this group did not have any focal signs. The protocol used in the department stated that patients with a haemorrhage, trauma or infarct do not receive a CECT as did patients with normal NECT and no focal signs. Patients with suspected metastases and recurrence of intracranial tumours were excluded from the study. Including these patients could have affected the results of this study, and in our setting these patients would have received both cranial NECT and CECT. Another concern is that patients with a normal cranial NECT without focal signs did not receive intravenous contrast media, in doing so we do not know how this could have affected the results. As with *Fayaz et al* the NECT and CECT were evaluated at the same time creating a possible bias. Inter reader variability and

reader error was also not addressed in this study as only one neuroradiologist evaluated the cranial CT scans done.

*Demaerel et al.*<sup>12</sup> did a large study in 1998 evaluating 1900 patients scanned on a third generation CT scanner over a 10 month period. These included both normal and abnormal NECT. They divided their patients into 2 categories. Category 1 contained patients with a clinical indication for CECT and were subdivided into 2 groups A and B. Category 2 contained patients subdivided into 4 groups A-D on their NECT findings. Scans were initially evaluated by registrars and a senior neuroradiologist. All reports were reviewed by a neuroradiologist and imaging findings were reevaluated when deemed necessary. Category 1 group A were patients with a clinical indication for a CECT and 45 patients in this group had an abnormal NECT and CECT, 121 had a normal NECT and CECT and 7 had a normal NECT and abnormal CECT. Group B were patients with a known primary tumour and a request was made to exclude metastases. In this group 72 had an abnormal NECT and CECT, 308 had a normal NECT and CECT, and only 3 patients had a normal NECT and abnormal CECT. In category 2 patients were divided into 4 groups according to the NECT findings. Group A (n=92) had an abnormal NECT, Group B (n=991) had a normal NECT and CECT. Group C (n = 255) had unsuspected abnormalities e.g. white matter changes and atrophy. Group D (n = 16) had a normal NECT and an abnormal CECT. A total of 26 (1.37 %) patients had a normal NECT and an abnormal CECT.

Other studies done on this topic are old and most of them conducted in the seventies. These studies' results cannot be applied in today's work environment as the CT scanners have changed remarkably in the recent years in terms of resolution and sensitivity to detect small lesions.

As with any drug, intravenous iodinated contrast media may have adverse reactions and is not without risk. Adverse reactions can be divided into general and organ specific reactions.

Organ specific adverse effects are nephrotoxicity, cardiovascular, pulmonary and neurotoxicity<sup>13, 14</sup>. General reactions can be subdivided into acute and delayed reactions, and acute reactions can be subdivided into mild, moderate and severe reactions. Mild reactions are nausea, vomiting, limited urticaria, extremity pain and have an incidence of 3% in non-ionic iodinated intravenous contrast media (NICM). Moderate reactions have an incidence of 0.2 - 0.4% with NICM and are severe vomiting, extensive urticaria, dyspnoea, rigors and laryngeal oedema. Severe reactions like pulmonary oedema, hypotension, unconsciousness, cardiac arrest and arrhythmias are seen in 0.04% of NICM doses injected (*Thomsen in Namasivayam*<sup>13, 14</sup>). A review of 48 fatal reactions was done by *Wysowski et al*<sup>15</sup> and revealed renal failure (58%) as the most common cause of death followed by anaphylaxis and allergy (19%). Cardiopulmonary arrest (10%), respiratory failure (8%) and cerebrovascular incidents and hypoxia (4%) accounted for a quarter of deaths<sup>15</sup>.

Delayed adverse reactions have a 2.8% prevalence<sup>16</sup> and occur between 1 hour and 1 week post injection of iodinated intravenous contrast media. These reactions are most commonly skin reactions but nausea, vomiting, headache, joint pain and fever have been described<sup>13, 14</sup>.

Extravasation of contrast media leads to burning pain, swelling, erythema and tenderness. In cases of extravasation of a large volume of contrast media blistering and sloughing of the skin may occur. In severe cases compartment syndrome may develop<sup>13, 14</sup>.

Contrast induced nephropathy (CIN) is the most common organ specific adverse reaction and is the acute decline in renal function. CIN is generally defined as either an increase in serum

creatinine of 0.5 mg/dl (44 $\mu$ mol/l) or of 25% from the baseline within 48 – 72 hours. In-patients who develop CIN have a 22 – 35% mortality rate and have a higher risk of dying within 5 years. Patients who developed CIN also have an increased risk of developing chronic renal disease<sup>17</sup>.

Doing a NECT followed by a CECT will double the radiation exposure to the patient.

Radiologists have the responsibility to keep Radiation exposure as low as reasonably achievable, also known as the ALARA principle. This is yet another reason for re-evaluating CT protocols in order to reduce unnecessary investigations leading to increased radiation exposure.

Every radiologist aspires to accurate work of a high standard. Unfortunately errors are part and parcel of daily work in general, and radiology reporting is no exception. There are many factors that play a role in reader error. These factors may not be the same for each person and practice and should be identified and managed to minimise risk to both the patient and radiologist. Inter reader variability has been demonstrated consistently in comparative studies and is a factor that could influence the results of NECT and CECT scan evaluation. Reader error can be classified as perceptual or cognitive errors. A perceptual error is when a feature is present on the image but not observed by the reader. Cognitive errors occur when the imaging feature is perceived but interpreted incorrectly. Perceptual errors are four times more common than cognitive errors<sup>18, 19</sup>

Errors can also be classified into false positive and false negative errors<sup>18, 19</sup>. False negative errors occur 5 times more commonly than false positive errors. Factors causing false positive and cognitive errors are more frequently due to a lack of radiological skill or knowledge than

to external factors. An incomplete history and unavailability of previous examinations can also play a role here. Perceptive and false negative errors are frequently due to external factors like poor viewing conditions, fatigue, poor quality examination and repeated interruptions causing a loss of concentration.<sup>19</sup> A lack of clinical information and inadequate training in a subspecialist field may also contribute to reporting errors<sup>18</sup>.

Throughput of patients can be increased if CECT were omitted in well selected normal NECT cases. Doing both NECT and CECT will take longer than doing only a NECT, not only because one scan is omitted but also the time spent preparing and injecting contrast media is omitted. This will in turn also reduce the cost involved for both the department and the patient. The cost reduction includes servicing and electricity, radiographer time and contrast media costs.

With these multiple factors in mind a few questions arose. 1. How much pathology would be missed if a CECT was omitted in a patients with a normal NECT? 2. Should a cranial CT be regarded as incomplete if a CECT was omitted, with the exception of trauma? 3. Did the advances in CT change the detectability of pathology on a NECT enough to reduce the need for CECT? 4. Should we re-evaluate the use of iodine containing intravenous contrast media? 5. Can a CECT reduce reader error?

In many centres in South Africa CT is still the first line of diagnostic imaging investigation for intracranial pathology. For this reason these questions are still valid in today's work place. A diagnostically sound yet cost effective approach to cranial CT and the usage of intravenous iodinated contrast media with minimal risk to the patient is needed.

## Chapter 3

### *Research Problem*

Certain pathology is not visible on a NECT, but can be seen after a CECT<sup>4</sup>. Clinicians regularly request only a NECT of the brain. Intravenous iodinated contrast media pose a risk for adverse events e.g. contrast induced nephropathy and allergic reactions. Radiation exposure to the patient should be kept as low as reasonably achievable. Could including a CECT reduce the error rate in reporting cranial CT? Time and cost should also be considered in a busy department.

### *Research Question*

What is the incidence of missed pathology on a NECT reported as normal compared to a CECT?

### *Aim*

The aim of the study was to show the incidence of missed pathology on a normal NECT if a CECT would be omitted.

## ***Objective***

The objective was to determine the incidence of missed pathology on normal NECT. Three possible outcomes exist namely:

1. The study may show a significant incidence of missed pathology; this may be used to educate clinicians to the importance of a CECT.
2. The rate of missed diagnosis may be so small that it may not justify the cost and risk to the patient to do a CECT. Such an outcome would have the consequence of reviewing the current radiology protocols.
3. The study results may be indeterminate.

## ***Structure of the Study***

### ***1. Study Design***

This was a descriptive quantitative retrospective study of all patients who presented to the Dr George Mukhari Hospital's Diagnostic radiology department for a cranial NECT and CECT during the year 01 November 2006 to 31 October 2007. It commenced on the 1 January 2008.

### ***2. Study Population***

Patients of all ages who presented to the Dr George Mukhari Hospital's Radiology department for a cranial NECT and CECT over a one year period. These patients must have

met the inclusion criteria.

### ***3. Sampling Procedures***

In order to collect a large sample size convenience sampling was used. Therefore the records of all patients who received a cranial NECT and CECT and met the inclusion criteria was selected for the study. These records were evaluated. A large study population was preferable to increase the validity of the study. To achieve this in a limited time frame of one year evaluating the records of all the patients with NECT reported as normal would render the largest study population.

### ***4. Sample Size***

Statistics from the CT department of the Dr George Mukhari Hospital were evaluated over a four month period to determine the minimum sample size, from 28 February 2007 to 28 June 2007 (17 weeks). These statistics revealed that an average of 33 patients received a NECT and CECT per week, and included both normal and abnormal cranial CT scans done during this period. To estimate the percentage of normal cranial NECT literature was reviewed. During a study done by *Cowan et al* 380 patients were scanned of which 184 had normal cranial NECT (48%)<sup>5</sup>. A similar study of 1357 patients conducted by *Barrington et al* had 562 normal cranial NECT (41%)<sup>9</sup>. Assuming that a similar percentage of NECT (40%) would be normal and a 5% rate of missed diagnosis, a minimum sample size of 521 patients was decided on using the following formula:

$$n = \frac{z^2 \hat{p}(1 - \hat{p})}{d^2}$$

$$n = \frac{2.33^2 \times 0.4(1 - 0.4)}{0.05^2} = 521$$

$n$  is *sample size*

$z$  is from a standard table and is 2.33. It is related to the confidence level chosen namely 0.01.

$\hat{p}$  is the *proportion* of normal NECT namely 40% thus 0.4.

$d$  is the *difference* at an expected rate of 5% thus 0.05.

## 5. Selection Criteria

### Inclusion criteria

Records of all patients, suspected to have had intracranial pathology, referred for NECT and CECT and presented at the Dr George Mukhari Hospital's Radiology department. Patients were only entered into the study once. Patients that had cerebral atrophy were included into a subgroup in the study. Patients must have had a normal reported NECT.

### Exclusion criteria

The following patients were excluded from the study:

- Previous cranial radiotherapy
- Acute head injury
- Contraindication to intravenous iodine containing contrast media e.g. renal insufficiency

- Abnormal NECT
- Incomplete study or severe artefacts
- Clear white matter hypodensities
- Non physiological calcifications.

## Chapter 4

### *Methodology*

#### *1. Data Collection*

Records of all patients who had a NECT of the brain reported as normal followed by a CECT, at the Dr George Mukhari Hospital, were included in the study provided that they met the inclusion criteria. Records of patients who had cranial NECT and CECT were evaluated by the researcher and all cranial NECT reported as normal was collected for this study. Records of cranial CT scans done over a 12 month period were evaluated during this study. All cranial CT were done on a Toshiba Aquilion model TSX-101A multislice CT scan system. Records was retrieved and stored on an external hard drive. Scans were loaded onto the workstation used in the department for reporting CT scans. This computer has a high definition screen with 1600 x 1200 pixels and a high definition video card. Each patient received a study number which appeared on the data sheet with their initials.

In order to evaluate the efficacy of iodinated intravenous contrast media in the brain, only intracranial structures were evaluated. Bony abnormalities and pathology outside the skull was disregarded.

#### *2. Data Evaluation*

Data collected was evaluated by three readers namely the researcher and two consultants in

the Department of Radiology of the Dr George Mukhari Hospital. During the interpretation each reader completed a datasheet with the patient's study number, initials, age and interpretive data. The NECT and CECT were read at separate occasions and separate datasheets were completed. Readers did not have access to each other's interpretation or to a history. Readers also did not have access to their own interpretation of the NECT when the CECT was evaluated and visa versa. Two data sheets were thus completed on each patient by each reader one for NECT (Datasheet A) and one for CECT (Datasheet B). Data was transferred to a single datasheet after the evaluation of the cases (Data sheet C). The data was evaluated and analysed after the 3 readers had seen the cases individually. Interpretation discrepancies were resolved during a meeting between all 3 readers and consensus was reached. The readers also re-evaluated the cases with missed pathology on the NECT during this joint session. The NECT and CECT of these cases were evaluated and a decision was made as to the visibility of the pathology on the NECT. This would reflect reader error. Data was then amended according to the results of the joint reading session. The amended data was summarised in Data sheet D and analysed. Please refer to Appendix C for the format of the datasheets.

As the readers had to evaluate the brain CT scan during working hours and part of a normal working day (no dedicated research time was allocated for this research project), the readers evaluated the brain CT scan as work flow allowed over a period of 2.5 years. All the cranial NECT were evaluated before the cranial CECT. The joint meeting took place after all the brain CTs were evaluated. Between 10 and 50 scans were evaluated during a session.

Files of patients with missed pathology on NECT were retrieved and clinical information was reviewed. This was summarised in Table 3.

### **3. Bias**

The selection criteria may create a bias as convenience sampling was done. Patients excluded by certain exclusion criteria for example a patient only receiving a NECT for whatever reason could have had impacted on the study. This potential impact was unknown. No history was available to the readers as a clinical history would have created an interpretive bias in the reader.

A possible bias exist as the main researcher selected the cases entered into the study initially. To decrease this bias the researcher excluded only clearly abnormal cranial NECT and cases with subtle abnormalities were included. If a NECT was then reported as abnormal by 2 or 3 readers it was regarded as abnormal. There was an interval of two years from selecting the cases for the study and the main researcher reading the CT scans for the study.

Two consultants from the Radiology department of Dr George Mukhari Hospital acted as first and second readers, these consultants was not involved in the planning of this study in order to minimise bias that could have been created by the knowledge of literature and results found by other similar studies. NECT and CECT was read at different times in order to reduce a possible bias created by reading two similar CT scans directly after each other. This also prevented the reader from reviewing his or her first evaluation of the NECT and prevented them from changing the datasheet.

### **4. Reliability**

Reliability reflects the accuracy and consistency of the study<sup>20</sup>. A study was reliable when repeated by another investigator under the same conditions would yield the same results.

Reliability was increased by using three readers.

## ***5. Validity***

The validity of a study is the extent to which a research design was scientifically sound<sup>20</sup>. It refers to the accuracy and credibility of the study. Internal validity is about the project itself and is dependent on the design and study methods used. It addresses the issue of whether there were extraneous variables responsible for variations in the dependant variable<sup>20</sup>. In this study a potential extraneous variable could have been the computer and monitor used by the reader to evaluate the cases as a high definition screen is used in the CT reporting room. If the reader would have read the case on a screen with fewer pixels the quality of the image would have been degraded and lesions could have been missed. In order to eradicate this variable readers were obliged to view cases on the workstation in the CT reporting room (refer to data collection). Another two extraneous variables were identified namely 1. The time elapsed between injection of iodinated contrast media and the CECT. With different doctors rotating through the CT department during the year there might have been a difference in the timing of the CECT after the injection of contrast media. This variable cannot be controlled as this was a retrospective study. The influence might not be important as the contrast media is still seen several minutes after the injection. Many departments make use of hand injection thus the time delay is often not a constant. 2. The volume of intravenous contrast media used in our protocol is 50ml in adults or 1 ml/kg in children. There might have been a few cases that received a different amount of contrast media according to the doctor's discretion at the time of the CT. Reasons for this could be for instance an adult with a small stature coming for a CT. This variable could not have been controlled due to the retrospective study design. 3. Factors influencing the error rate in reporting e.g. work load. These factors are related to the work environment and could not be influenced.

External validity is the extent to which the conclusions reached can be generalized to the population studied<sup>20</sup>. Using a large sample size would have increased the external validity of this study.

## ***6. Ethical Considerations***

Permission was received from the superintendent of Dr George Mukhari Hospital as well as the Head of the department of Diagnostic Radiology and the MEDUNSA Research and Ethics committee (Clearance certificate can be found in Appendix A and the application form in Appendix B ). Since the patients were referred from different departments it was considered unnecessary to seek permission from the heads of the referring departments. All data was strictly confidential. Datasheets reflected only the patient's initials, age, gender, study number and date of CT scan.

## ***7. Data Analysis***

*(Please refer to Appendix D for data analysis forms)*

Gender and age distribution were compiled.

Cranial CT scans were interpreted independently by three readers. The “outcome” for the NECT and CECT were entered in separate columns on datasheet C. If any single reader of the three readers used, interpreted a scan as abnormal, the scan was entered as “Undetermined”. If two or three readers interpreted the scan as abnormal it was entered as “Abnormal”. All three readers had to concur that a scan was normal before it was entered as a “Normal” scan. This was done for both NECT and CECT.

The grand total of the sample of patients, before a consensus was reached between readers, was referred to as Group A (n = 726) (Datasheet C in appendix D). Group B (n = 675) was a subgroup of patients without cerebral atrophy. A subgroup of patients was identified with gross cerebral atrophy and was referred to as Group C (n = 51). The “undetermined” cases of Group A were reevaluated by the three readers at a joint reading session and consensus was reached. The assessments were adjusted accordingly. This “adjusted” data of Group A will be referred to as Group D (n = 701) and was captured on Datasheet D in Appendix D.

The number of normal, abnormal and undetermined outcomes were counted within each group, using the Statistical Analysis System (SAS). A summary of the results is reflected in Table 1. The SAS printout sheets are contained in Appendix D. A breakdown of the missed pathologies on NECT is reflected in Table 2.

Records of cases with missed pathology on NECT from group D, were requested from archives. These records were reviewed and summarised in Table 3.

## Chapter 5

### *Results*

*(Please refer to Appendix D for Datasheets and SAS printouts)*

A total of 992 patients scanned during a one year period were initially proposed as part of the study to reach a target of 520. Based on the fact that this is a retrospective study on “normal cranial NECT” scans, on evaluation of the scans initially selected, it was found that there were abnormal features that presented and these were eliminated from the study. These abnormalities were calcifications, white matter hypodensities, cerebral oedema or space occupying lesions. Cases of gross atrophy alone were included in a subgroup as it was felt that atrophy alone should not influence the identification of pathology or abnormal enhancement on a CECT scan. The sample has thus been reduced to a total of 726 patients of which 51 were in the subgroup with gross atrophy.

The gender distribution for the total sample size was almost equal with 47.9% female and 48.4% male. Twenty seven (3.7%) patients had an unknown gender as it was not recorded on the scan information. The age distribution was from 0.8 years to 83 years with a mean of 29.23 years.

**Table 1: Summary of outcomes**

NECT	CECT	Group A	Group B	Group C	Group D
Normal	Abnormal	16 (2.20%)	13 (1.93%)	3 (5.88%)	23 (3.28%)
Undetermined	Abnormal	10 (1.38%)	10 (1.48%)	0 (0%)	0
Normal	Undetermined	14 (1.93%)	11 (1.63%)	3 (5.88%)	2 (0.28%)
Undetermined	Normal	24 (3.31%)	20 (2.96%)	4 (7.84%)	0
Undetermined	Undetermined	8 (1.10%)	6 (0.89%)	2 (3.92%)	0
Normal	Normal	654 (90.08%)	615 (91.11%)	39 (76.47%)	676 (96.43%)
Total		726	675	51	701

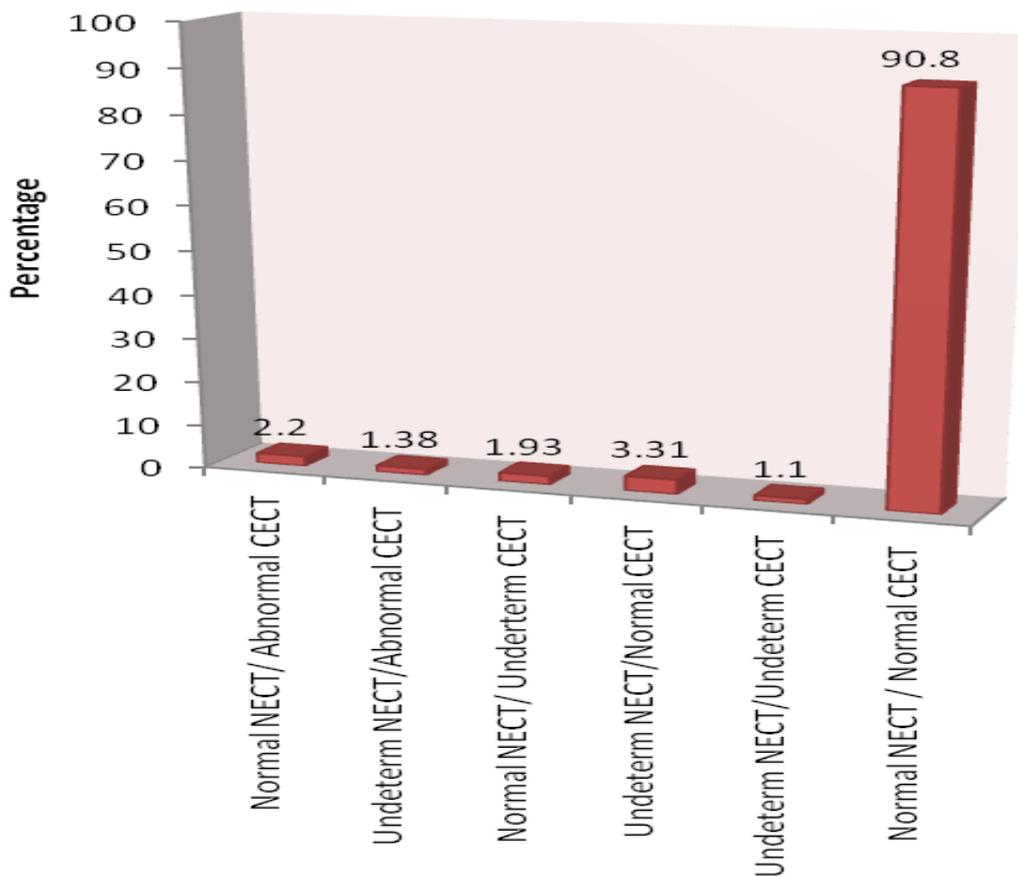
*Group A is the total sample population before 3 readers reached consensus*

*Group B is the subgroup without cerebral atrophy*

*Group C is the subgroup with gross cerebral atrophy*

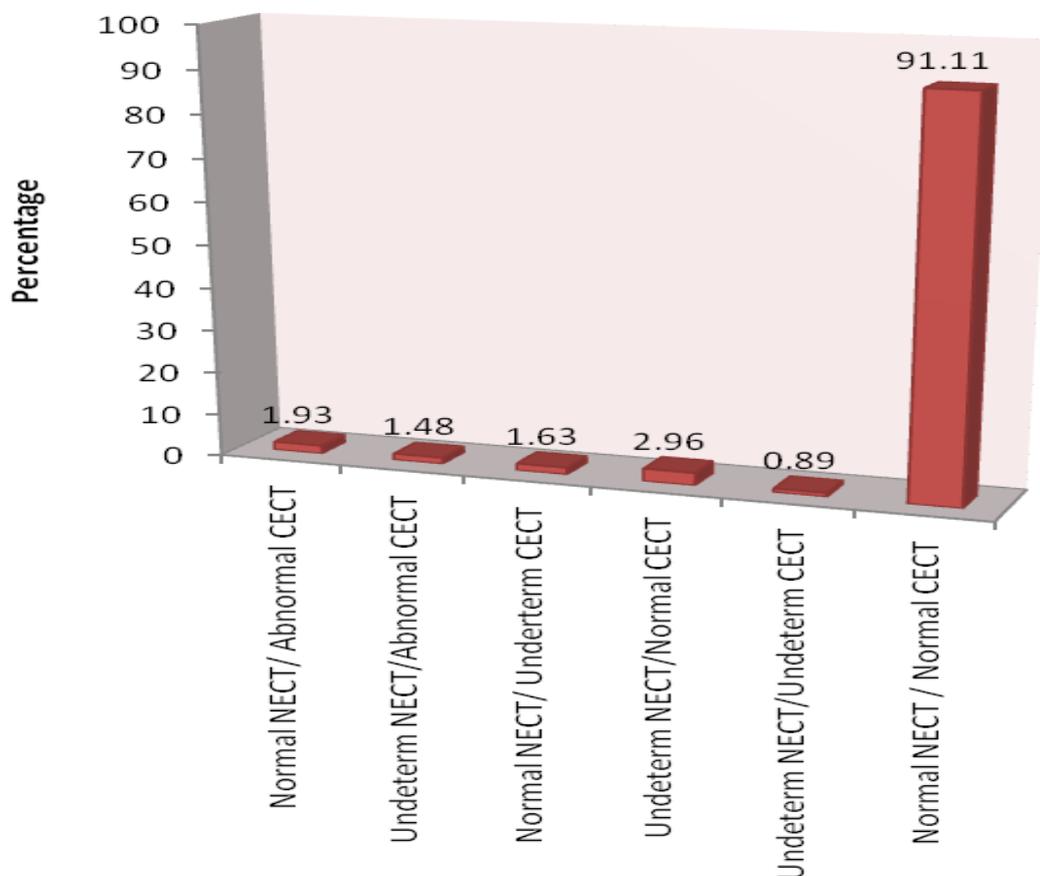
*Group D is the total sample population after the 3 readers reached consensus.*

**Refer to Table 1 and subsequent graphs for a summary of the different outcomes in the following discussion:**

**Graph 1: Summary of outcomes for Group A**

In Group A (n = 726) (refer to graph 1) a total of 16 (2.2%) were reported as normal by all three readers on the NECT and abnormal CECT by 2 or 3 readers. There were 10 cases (1.38%) where only one reader reported an abnormality on the NECT and 2 or 3 readers reported it abnormal on the CECT. In 24 cases (3.31%) in Group A one reader reported an abnormal finding on the NECT but after a CECT the case was reported as normal. There were 8 out of 726 cases where only one reader reported an abnormal NECT and CECT. Fourteen cases were reported normal by all the readers and abnormal by only one reader.

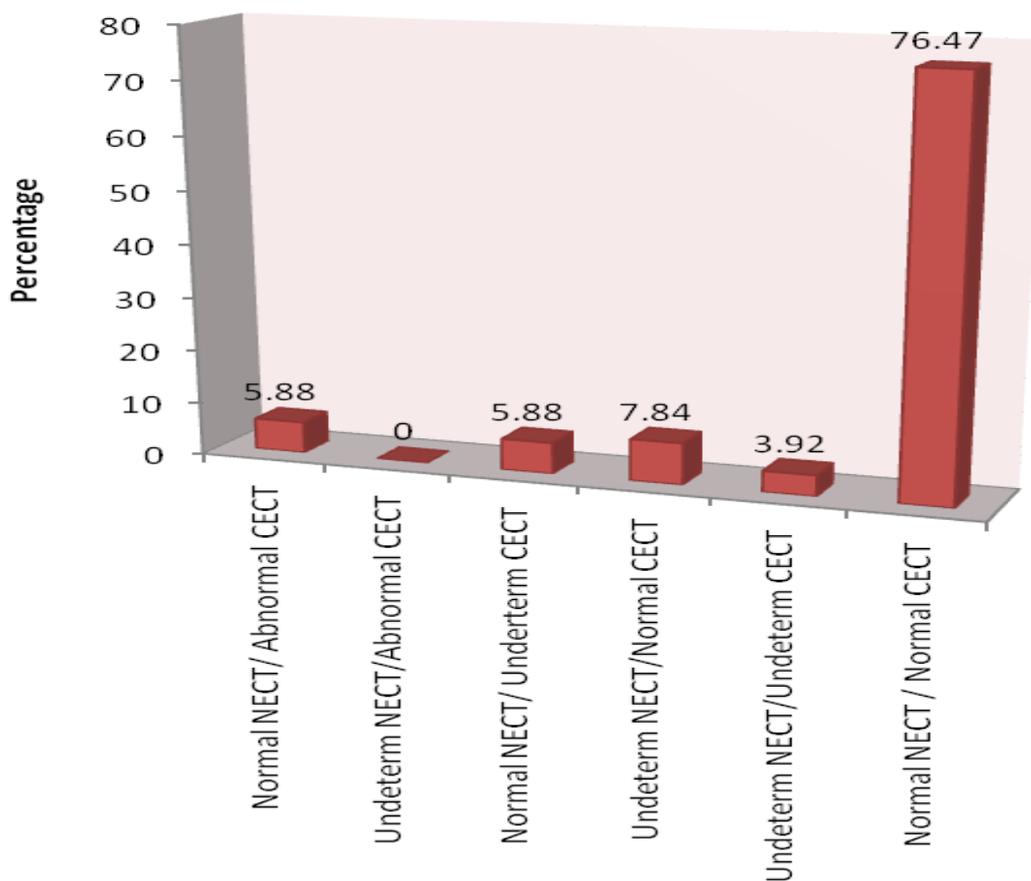
**Graph 2: Summary of outcomes for Group B**



Group B (n = 675) (refer to Graph 2: Group B) were patients without cerebral atrophy. In this group 13 (1.93%) cases were normal on NECT (reported by all 3 readers) and abnormal on

CECT (reported by 2/3 readers). There were 10 (1.48%) reported abnormal by 1 reader on NECT and subsequently abnormal CECT by 2 or 3 readers. There were 11 cases seen as normal on the NECT (all readers) and abnormal by only one reader on the CECT. In 20 (2.96%) the NECT was reported as abnormal by one reader and then a normal CECT by all readers, and 8 cases were read as abnormal on both NECT and CECT by only one reader.

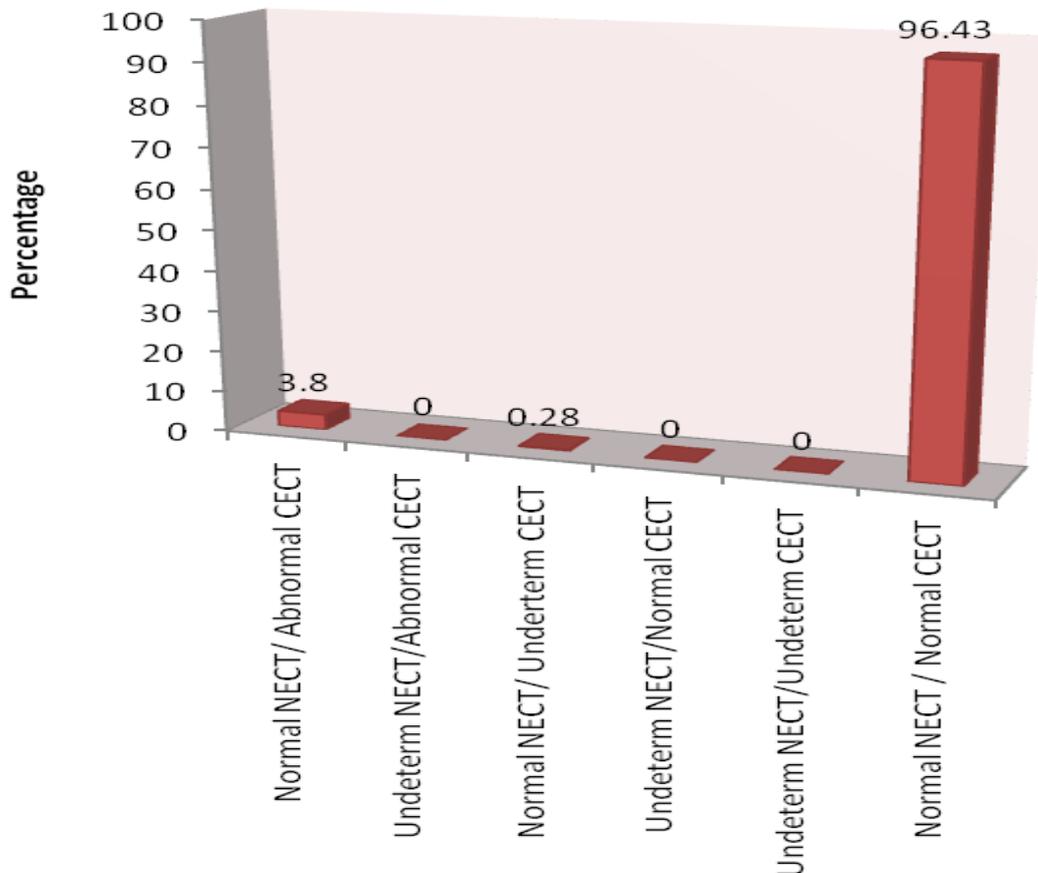
**Graph 3: Summary of outcomes for Group C**



In Group C (n = 51) (refer to Graph 3: Group C) 3 cases (5.88%) were reported normal on the NECT by all three readers and abnormal on the CECT. There were 3 cases reported normal on NECT by all readers and Abnormal on CECT by only one reader. In 4 cases one reader reported the NECT as abnormal and all readers reported these as normal on CECT. Two

cases were reported as abnormal on NECT and CECT by only one reader

**Graph 4: Summary of outcomes for Group D**



Group D (refer to Graph 4: Group D) is the total sample population after the 3 readers had reached a consensus. The data was amended as follows, after the joint reading session: 25 cases were removed from the study as they were regarded to have an abnormal NECT after consensus was reached. The grand total of cases was thus reduced to 701. There were 23 cases (3.28%) reported as normal on NECT and abnormal on CECT. These 23 cases were reviewed again retrospectively by the 3 readers at the joint session. Thirteen (1.85%) of these cases had an abnormal finding identified retrospectively and ten (1.42%) cases were still deemed normal on NECT. Consensus could not be reached on 2 cases (0.28%); these cases

were reported as abnormal by only one reader on CECT. The amended data is reflected in Datasheet D (Appendix D).

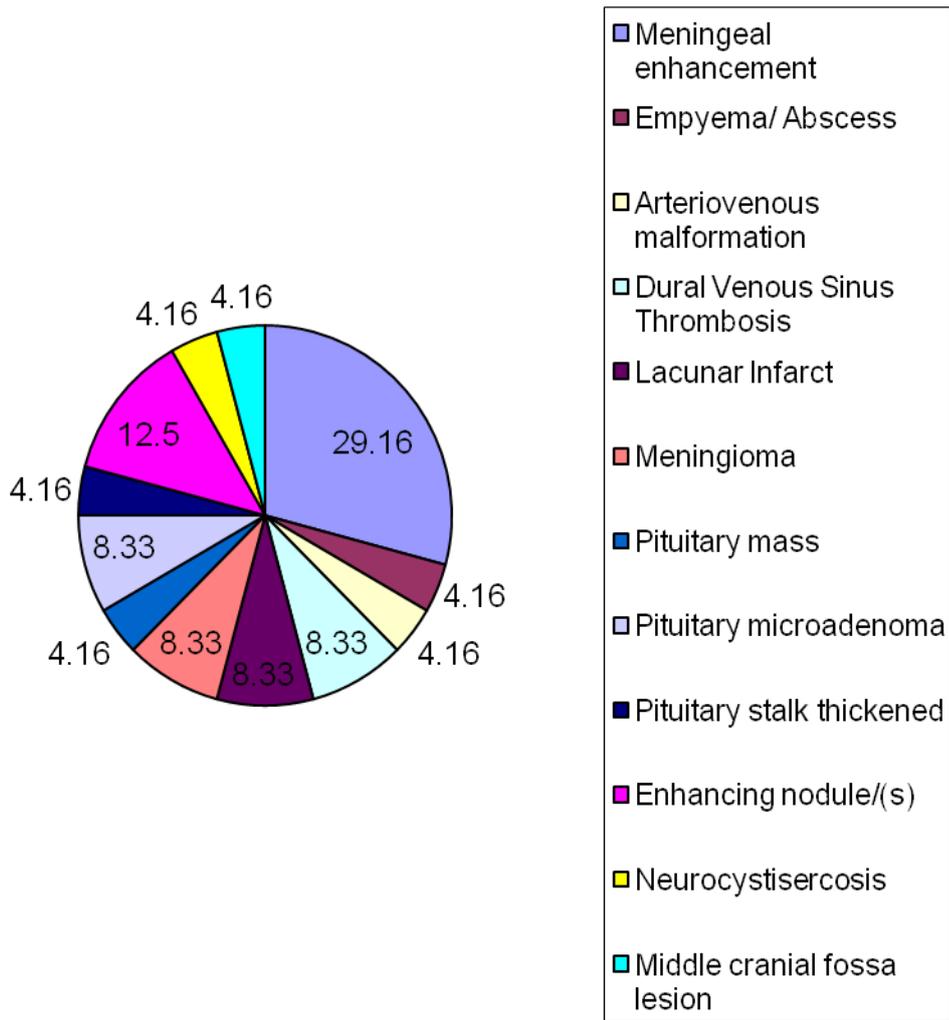
The diagnosis of the missed pathologies from Group D were meningitis (7 cases), abscess and empyema (1 case), meningioma (2 cases), venous sinus thrombosis (2 cases), vascular abnormality or malformation (1 case), infarcts (2 cases) and pituitary lesions (4 cases), enhancing nodules (3 cases), neurocystisercosis and a middle cranial fossa lesion in a patient with neurofibromatosis. A breakdown of these cases is given in Table 2, Graph 5 and 6.

**Table 2: Summary of missed diagnosis as made on CECT in Group D (after consensus was reached)**

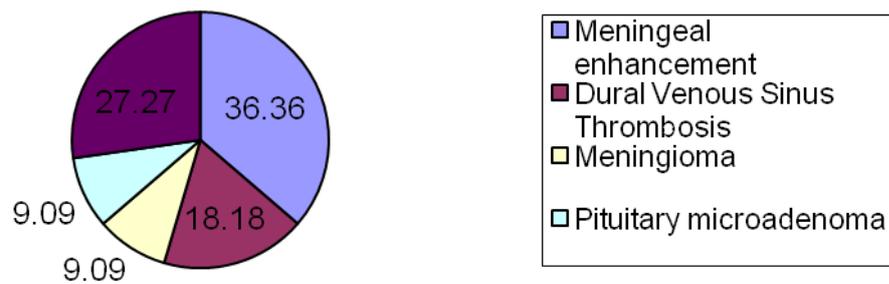
		All missed cases	Cases with pathology not visible on NECT retrospectively
Infective	Meningeal enhancement	7*	4*
	Empyema/ Abscess	1	
Vascular	Arteriovenous malformation	1	
	Dural Venous Sinus Thrombosis	2	2
Ischaemic	Lacunar Infarct	2	
Neoplastic	Meningioma	2	1
	Pituitary mass	1*	
	Pituitary microadenoma	2	1
Other	Pituitary stalk thickened	1	
	Enhancing nodule/(s)	3	3
	Neurocystisercosis	1	
	Middle cranial fossa lesion	1	
Total:		24	11

**\*One case had dual pathology: Meningitis and a pituitary mass**

**Graph 5: Summary of all cases with a missed diagnosis on NECT**



**Graph 6: Summary of cases with missed pathology not visible on NECT**



Records of the 23 cases from Group D with missed pathology on NECT were requested from archives, but only 15 files could be retrieved. Reviewing the records revealed 9 out of 15 cases had some history or clinical finding that would alert the radiologist to the need for a CECT i.e. 2 cases with recorded fever, 3 with focal signs, 3 with confusion, 1 was dehydrated, 3 with meningism and 3 with convulsions. In the group of patients where the pathology was not visible retrospectively on the NECT 7 out of 10 files were retrieved and 5 of these had some clinical indication for a CECT. Pathology missed in this group was meningeal enhancement, dural venous sinus thrombosis, pituitary microadenoma, meningioma and small enhancing nodules. Table 3 provides a summary of the information available in the files.

**Table 3: Information retrieved from files (Group D)**

	Initials	age		Date	Fever	Focal signs	Confusion	Dehydration	Meningism	Convulsion	Other	Diagnosis	Was lesion visible on NECT retrospectively
144	MA	70	F	30/11/2006	no	yes	unknown	unknown	unknown		headache, proptosis right, conjunctiva congested, bruit	right carotidocavernous fistula	yes
320	DJ	73	F	03/05/2007	no	no	yes	yes	unknown			transverse sinus thrombosis	no
350	SC	32	M	25/05/2007	no	no	no	no	unknown		low potassium		yes
359	MA	28	F	29/05	unknown	unknown	unknown	unknown	unknown		Galactorrhoea, infertility	Prolactinoma	yes
363	NA	20	F	30/05/2007	unknown	no	no	unknown	unknown	yes	convulsion , headache		yes
462	TFM	44	F	13/07/2007	no	unknown	no	unknown	unknown		blocked Left ear, painfull neck	left mastoiditis, Left internal jugular thrombosis extending up to sigmoid and transverse dural venous sinuses	no
584	BT	1	M	03/09/2007	yes	no	yes/ irritable	unknown	yes		delayed milestones	meningitis, cerebral oedema	no
585	HG	40	F	03/09/2007	unknown	no	no	no	no	yes	headache, seizures, dizziness, loss of balance	pituitary micro adenoma	no
695	ME	53	F	06/10	no	no	yes	unknown	yes			cryptococcal meningitis	yes
775	MS	34	F	13/12/2006	unknown	yes visual defect	no	unknown	unknown		headache	pituitary mass	yes
832	CB	19	M	8/1/2007	no	unknown	no	unknown	unknown	yes		2 enhancing nodules on CT	no
838	SJ	22	M	10/1/2007	no	yes	no	unknown	yes			Ring enhancing lesions -->TB	yes
934	ME	54	F	14/02/2007	no	no	no	unknown	unknown		headache, periodic loss of sense of smell	olfactory groove meningioma	no
964	MD	10	M	26/02/2007	yes	unknown	no	unknown	unknown		?hallucinating, lethargic	meningitis, ?cavernous sinus thrombosis	no
978	BP	16	F	28/2/2007	no	unknown	unknown	unknown	unknown		Neurofibroma on right side of face. Neurofibromatosis 1	Cavernous sinus mass? Meningioma	yes
52	PE	71	F	9/11/2006	No information prior to 2008 in the file								yes
190	MW	27	F	17/03/2007	file not retrieved								yes
295	MS	12	M	21/04/2007	file not retrieved								yes
418	AM	30	M	26/06/2007	file not retrieved								yes
529	ML	44	F	07/08/2007	file not retrieved								
642	MP	44	M	18/09	file not retrieved								no
814	MM	60	F	2/1/2007	file not retrieved								no
884	KJ		F	29/01/2007	file not retrieved								yes

## Chapter 6

### *Discussion of Results*

Patient with atrophy was included in the study as it was felt that atrophy per se would not influence the enhancement characteristics of pathology in the brain. It was however included as a subgroup because it could be argued that a patient with atrophy of the brain could present with dementia or confusion and the cranial NECT could not be reported as a normal scan. The subgroup was created to determine the influence it had on the results and to be able to remove it from the sample if it skewed the results. Including the Cases in subgroup B increased the percentage for the group of patients with: “Normal NECT/Abnormal CECT” from 1.93 to 2.2. This was not statistically significant and did not skew the results. Including patients with cerebral atrophy in the study sample did not change the results significantly.

After consensus was reached 3.28% (23 of 701 cases from Group D) had missed pathology on NECT. This number decreased to 1.42% (10 of 701 cases) when viewed retrospectively. There was a combined reader error rate of 1.85%. We have to keep in mind that these cases were evaluated with no clinical information available to the readers. A history would help the radiologist evaluating the CT, providing clues to specific areas to evaluate for pathology and guiding him/her to the need for a CECT.

The pathology missed in this study (Table 2) can be classified into one of four main groups namely 1) Infective: meningitis, empyema, abscesses. 2) Vascular: arteriovenous malformations, dural venous sinus thrombosis. 3) Neoplasms: meningioma, pituitary lesions 4) Ischaemic events: infarcts, lacunar infarcts. In many of these a clinical history would have guided the radiologist to the need for a post contrast CT, however if conditions like abscesses or neoplasms are missed it can have dire results for the patient.

When records of cases with a missed pathology from Group D were evaluated, it revealed the majority of

these patients had a history, or clinical findings, that would have alerted the radiologist to the indication for a CECT i.e. fever, focal signs, confusion, meningism and convulsions. This demonstrates the absolute necessity of an accurate history. The history should be considered when the decision is made on whether a CECT is indicated or not. If contrast media is then given in patients with apparent normal cranial NECT, when indicated according to the history and clinical findings, the incidence of potentially missed pathology on NECT can be reduced remarkably.

Although a history will guide the radiologist in deciding whether a CECT is indicated, in many departments however, clinical information provided on request forms are incomplete, inaccurate or absent<sup>9</sup> and the patient or family may not be able to provide the necessary information needed. This was evident in the number of unknown findings when the records were reviewed (see table 3). These cases may provide a challenge to the radiologist.

In 24 cases (3.31%) from Group A one reader reported the NECT study as abnormal but after the administration of contrast media reported it as normal. This demonstrates that in some cases contrast media will help to eliminate false positive cases, or help to confirm a normal scan in an equivocal NECT. This was also demonstrated in the study done by *Fayaz et al*<sup>3</sup>.

There were 14 (1.93%) cases from Group A where only one reader reported the CECT as abnormal and 8 (1.10%) cases where one reader reported both NECT and CECT as abnormal. This discrepancy between readers demonstrates that reporting radiological images is very subjective and dependant on multiple factors. Pattern recognition in diagnostic radiology is a challenge and despite having had 3 readers per case it is evident that making a conclusive diagnosis is not always possible<sup>9</sup>. Missed diagnosis may be attributed to several factors namely: 1) Pathology may be isodense on NECT to the surrounding parenchymal structures. 2) There may be no secondary signs indicating pathology. In most cases the pathology per se might not be visible on NECT but because of secondary signs i.e. oedema or mass effect, the radiologist will identify that there is pathology present. 3) Cognitive reader errors can occur when the radiologist sees an abnormal

finding but interpret it as a normal variant or a normal structure. 4) Perceptive reader errors occur when the abnormal finding is overlooked. There are many factors that will influence the accuracy of a radiologist's report. Some of these factors are poor quality examination, fatigue, failure to consult previous investigations, incomplete/ inaccurate clinical history, and poor viewing conditions. Aberrations identified in our study could have been repeated interruptions and distractions, fatigue from reading multiple cranial CT in short periods of time and long periods between reading sessions due to workload and shortage of staff and workstations. However as this was not the aim of the study, these factors were not investigated. We have to keep in mind that most of these factors are present in most departments and therefore the results of the study can be generalised to all radiology departments.

## Chapter 7

### *Summary*

In a technologically advanced world with MRI as gold standard for imaging intracranial pathology, the CT scan has not outlived its use yet. In many centres MRI is not readily available and CT remains the first line investigation. The technology of the CT scanner itself has also improved remarkably. It is generally the belief that intravenous iodinated contrast media adds to the diagnostic capabilities of a CT scan.

Unfortunately the use there of is not without risk to the patient and we should always keep the risk-benefit ratio in mind when making this decision. For this reason we are sometimes faced with the question whether or not to give iodinated intravenous contrast media. In this study 3.28 % of cases had pathology missed by 3 readers on the NECT and an additional 1.38% had pathology missed by 2 readers on NECT. Although retrospective viewing is not standard practice in radiology it was done to determine the reader error rate in this study. This resulted in a reduction of the “missed pathology rate” from 3.28 % to 1.42% indicating a reader error of 1.85%. Bear in mind that readers were blinded to the clinical history. This incidence of missed pathology is similar to previous studies<sup>8,12</sup>. Having a thorough medical history of the patient and selecting those with an indication for a CECT will reduce the incidence of missed pathology.

Patients with a normal NECT and no fever, meningism, confusion, focal or lateralizing signs, a history of tuberculosis or tumours, or risk factors for dural venous sinus thrombosis has a very small chance of missed pathology on NECT. The risk of contrast media induced adverse events outweighs the chance of missing pathology on a normal NECT provided there is no clinical indication necessitating a CECT.

Reducing the amount of CECT done in the department will in turn reduce the radiation exposure to the population and it will reduce the number of scans the CT department will have to perform. Less intravenous iodinated contrast media will be used in the department. These two factors will ultimately reduce the running cost of the CT department. The incidence of contrast media induced complication will be lower because a smaller number of patients will receive iodinated intravenous contrast media. It will also reduce

the scan time of a large number of patients and thus the turnover of patients scanned can be increased.

## ***Recommendations***

The following new protocol is recommended for cranial CT investigations at Dr George Mukhari Hospital:

- 1) Patients with an abnormal NECT should receive a CECT.
- 2) Patients with the following clinical findings or history should receive a CECT:
  - a. Fever
  - b. Acute confusion.
  - c. Meningism
  - d. Focal /lateralizing signs.
  - e. Risk factors for dural venous sinus thrombosis e.g. episode of dehydration and hypercoagulable states.
  - f. A history suggestive of a vascular abnormality or subarachnoid haemorrhage.
  - g. History of a malignancy elsewhere.
  - h. History of Tuberculosis.
  - i. Convulsions (ideally these patients should receive a MRI)
- 3) Patients with a normal NECT and none of the above mentioned clinical findings or history, or any other indication for a CECT, do not need a CECT. Clinicians should reassess the patient and consider requesting a MRI if a structural abnormality is still considered.
- 4) Alternatively the NECT could be omitted and only a CECT could be performed to reduce the radiation dose.

Regular risk assessment and management is recommended in order to reduce reporting errors. Factors to address are staff shortages, workload, repeated interruption and the availability of consultants. A complete clinical history is vital and clinicians should be encouraged to provide a comprehensive history. A prospective study can be done to assess the risk for reporting error in the department in order to address this

and reduce reporting errors.

## References

1. Goldstein JD, Zeifer B, Chao C, Moser FG, Dickson DW, Hirschfeld AD, Davis L. CT appearance of primary CNS lymphoma in patients with acquired immunodeficiency syndrome. *J Comput Assist Tomogr* 1991; 15: 39.
2. Bronen RA, Fulbright RK, Spencer DD, Spencer SS, Kim JH, Lange RC, Sutilla C. Refractory epilepsy: Comparison of MR imaging, CT and histopathologic findings in 117 patients. *Radiology*. 1996; 201: 97-105.
3. Fayaz AC, Osama MAS, Hana A, Mehraj S. Contrast-enhanced cranial computed tomography in magnetic resonance imaging era. *Medical principles and practise*. 2003; 12: 248-251.
4. Huckman MS. Clinical Experience with the intravenous infusion of iodinated contrast material as an adjunct to computed tomography. *Surgical neurology*. 1975; 4: 297-318.
5. Cowan I, MacDonald S. How useful is contrast enhancement after a normal unenhanced computed tomography brain scan? *Australasian Radiology*. 1999; 43: 448-450.
6. Albertyn LE. Rationales for the use of intravenous contrast medium in computed tomography. *Royal Australasian College of Radiologists*. 1989; 33: 29-33.
7. Kramer RA, Janetos GP, Perlstein G. An approach to contrast enhancement in computed tomography of the brain. *Radiology*. 1975; 116: 641 – 647.
8. Bernard MS, Hourihan MD, Adams H. Computed tomography of the brain: Does contrast enhancement really help? *Clinical Radiology*. 1991; 44: 161-164.
9. Barrington NA, Lewtas NA. Indications for contrast medium enhancement in computed tomography of the brain. *Clinical Radiology*. 1977; 28: 535-537.
10. Butler AR, Krichef II. Noncontrast CT scanning: limited value in suspected brain tumour. *Radiology*. 1978; 126: 689 – 693.
11. Latchaw RE, Gold LH, Tourje EJ. A protocol for the use of contrast enhancement in cranial computed tomography. *Radiology*. 1978; 126 (3): 681-687.

12. Demaerel Ph, Buelens C, Wilms G, Baert AL. Cranial CT revisited: do we really need contrast enhancement? *Eur Radiol.* 1998; 8:1447-1451.
13. Namasivayam S, Kalra MK, Torres WE, Small WC. Adverse reactions to intravenous iodinated contrast media: a primer for the radiologist. *Emerg Radiol.* 2006; 12: 210-215.
14. Namasivayam S, Kalra MK, Torres WE, Small WC. Adverse reactions to Intravenous Iodinated Contrast Media: An Update. *Curr Probl Diagn Radiol.* 2006; 35: 164-169.
15. Wysowski DK, Nourjah P. Deaths attributed to x-ray contrast media on U.S. death certificates. *AJR.* 2006; 186: 613-615.
16. Munechika H, Hiramatsu Y, Kudo S, Sugimura K, Hamada C, Yamaguchi K, Katayama H. A prospective survey of delayed adverse reactions to iohexol in urography and computed tomography. *Eur Radiol.* 2003; 13: 185-194.
17. Cronin RE. Contrast-induced nephropathy: pathogenesis and prevention. *Pediatr Nephrol.* 2010; 25: 191-204.
18. European Society of Radiology Board [homepage on the internet]. Austria: European Society 2004 [cited 2011-01-09]. Risk management in Radiology in Europe IV. Available from: [http://www.myesr.org/html/img/pool/ESR\\_2006\\_IV\\_Riskmanagement\\_Web.pdf](http://www.myesr.org/html/img/pool/ESR_2006_IV_Riskmanagement_Web.pdf)
19. Royal College of Radiologists; Great Britain. Risk management in clinical radiology. London: Royal College of Radiologists; 1995.
20. Struwig FW, Stead GB. Understanding reliability and validity. In: Struwig FW, Stead GB. Planning, designing and reporting research. Cape Town: Pearson Education South Africa, 2001: 129-148.

## Appendices

# Appendix A

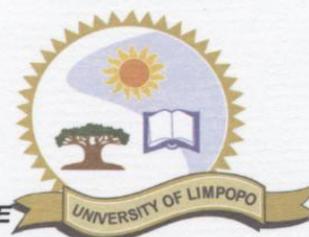
## UNIVERSITY OF LIMPOPO

Medunsa Campus

**MEDUNSA CAMPUS RESEARCH & ETHICS COMMITTEE**

**FACULTY OF HEALTH SCIENCES**

**CLEARANCE CERTIFICATE**



P O Medunsa  
Medunsa  
0204  
SOUTH AFRICA

**MEETING: 05/2007 PROJECT NUMBER: MCREC/M/83/2007: PG**

Tel: 012 - 521 4000  
Fax: 012 - 560 0086

**PROJECT Title:** The efficacy of intravenous iodinated contrast media in the diagnostic accuracy of cranial Computed Tomography (CT) in patients with a possible missed diagnosis at Dr George Mukhari Hospital, Pretoria

**Researcher:** Dr C Minné  
**Supervisor:** Dr ME Kisansa  
**Co-supervisor:** Prof N Ebrahim  
**Hospital Superintendent:** Dr Benganga (Dr George Mukhari Hospital)

**Department:** Diagnostic Radiology & Imaging  
**School:** School of Medicine  
**Degree:** M Med (Rad Diagn)

**DATE CONSIDERED:** October 30, 2007

**DECISION OF THE COMMITTEE:**

REPC approved the project.

**DATE:** October 30, 2007

**PROF GA OGUNBANJO**  
**DIRECTOR: RESEARCH & CHAIRPERSON**



- |                 |                                                                                                                                               |
|-----------------|-----------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Note: i)</b> | Should any departure be contemplated from the research procedure as approved, the researcher(s) must re-submit the protocol to the committee. |
| <b>ii)</b>      | The budget for the research will be considered separately from the protocol. PLEASE QUOTE THE PROTOCOL NUMBER IN ALL ENQUIRIES.               |

*African Excellence - Global Leadership*

## Appendix B

APPLICATION FORM FOR PROPOSED RESEARCH PROJECT  
IN THE FACULTY OF MEDICINE  
UNIVERSITY OF LIMPOPO  
Medunsa Campus



### A. PARTICULARS OF APPLICANT/CHIEF RESEARCHER

First Name: CORNELDA Surname: MINNE Title: DR.  
Department: DIAGNOSTIC RADIOLOGY Tel: \_\_\_\_\_

### B. DETAILS OF RESEARCH PROJECT

(Tick appropriate block(s) with a 'x')

- 1.a New project  or : Continuation of project   
1.b Independent research :  or : Contract research   
Post-graduate research:  or : Undergraduate research :

Degree (specify) M.MED. (RADIO DIAGN)

At which university is the degree registered? University of Limpopo, (Medunsa Campus) UNIV. OF LIMPOPO - MEDUNSA CAMPUS.

- 2.a. Title of project: THE EFFICACY OF INTRAVENOUS IODINATED CONTRAST MEDIA IN THE DIAGNOSTIC ACCURACY OF CRANIAL COMPUTED TOMOGRAPHY (CT) IN PATIENTS WITH A POSSIBLE MISSED DIAGNOSIS AT  
b. Co-workers (Not for post-graduate research. See Guidelines) DR. GEORGE MUKHARI HOSPITAL

Name	Department/Institution	Signature

- c. Research Co-ordinator (In the case of independent or contract research)

Name (to be filled in)	Department/Institution	Signature

- d. Supervisor (In the case of post-graduate research)

Name	Department/Institution	Signature
<u>DR. ME. KISANSA</u>	<u>RADIOLOGY DGMH</u>	<u>[Signature]</u>

## e. Co-supervisor (In the case of post-graduate research)

Name	Department/Institution (to be filled in 4 boxes)	Signature (to be filled in 4 boxes)
PROF N. Ebrahim	RADIOGRAPHY - (UNIV. OF LIMPOPO MEDUNSA CAMPUS)	<i>N. Ebrahim</i>

Hospital Superintendent/Health Care Manager

Name	Department/Institution (to be filled in 4 boxes)	Signature (to be filled in 4 boxes)
DR B A BENKATLA	DR GEORGE MUKHARI HOSPITAL	<i>B. A. Benkatla</i>

## g. Other involved departmental heads

Name	Department/Institution	Signature

## C. SPECIAL REQUIREMENTS

Will the research involve the following:

	Yes	No		Yes	No
Experimental animals		X	Approval from Animal ethics Committee attached (separate application form required)		X
Special apparatus		X	Is it available at Medunsa? N/A		
Special drugs (medicaments)		X	Explanation of who will supply the drugs attached N/A		
Radio isotopes		X	Completed radio Isotopes form attached (Appendix 4) N/A		
Special laboratory facilities		X	Is it available at Medunsa? If no, attach a statement of requirements N/A		
Electron microscopy		X	Completed Electron microscope form attached (Appendix 3) N/A		
Health care services		X	Signature of health care manager attached N/A		
Statistical analysis	X		Has a statistician been consulted? If yes, attach form. (Appendix 2) If no, explain.	X	

## D. ETHICAL ISSUES

## 1. indemnity

STATISTICAL ANALYSES
----------------------

The Chairperson  
 Research Ethics and Publications Committee  
 Faculty of \_\_\_\_\_  
 Box \_\_\_\_\_  
 UNIVERSITY OF LIMPOPO  
 Medunsa Campus

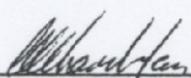
Dear Sir/Madam ✓

**STATISTICAL ANALYSES**

I have studied the research protocol of Dr C. Minne

titled: THE EFFICACY OF INTRAVENOUS IODINATED CONTRAST MEDIA IN THE DIAGNOSTIC ACCURACY OF CRANIAL COMPUTED TOMOGRAPHY (CT) IN PATIENTS and I agree to assist with the statistical analyses. NORMAL UNENHANCED CT AT GEORGE MUKHARI HOSPITAL, PRETORIA

Yours sincerely,

  
 Signature: Statistician

D. C. CHAMBERLAIN  
 Name in block letters

20/7/2007  
 Date

If a hospital (human, dental or veterinary) will be involved, please attach the written approval of the Superintendent. Should the use of the service laboratories be required, attached a letter of consent of the hospital management that this is in order.

Consent

Will patients/human volunteers form part of the experiment/trial/survey? If so, kindly modify the attached form specifically for your project. Appendix

#### C. BUDGET

Who will finance this project? (Tick appropriate block with a ✓)

University of Limpopo (Medunsa Campus)	Health Department	Self	<input checked="" type="checkbox"/>	Other (specify)

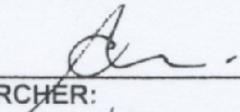
Please indicate the institutions where application has been made for financial support or where it is intended to apply for financial support.

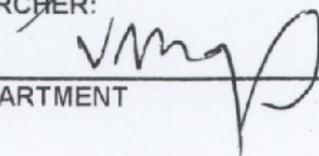
MRC	NRF	CSD	Other (specify)

NB: Approval of the research project does NOT imply that the requested funds will be made available to the applicant.

#### G. DECLARATION BY RESEARCHER(S)

Should this project be approved, I/we fully understand the conditions under which I am/we are authorized to carry out the above-mentioned research. I/we guarantee to ensure compliance with these approved conditions. Furthermore, I/we undertake not to change the procedure as detailed in the protocol but will submit a further application to the Research Committee if changes become necessary

SIGNATURE:  DATE: 23/07/2007  
CHIEF RESEARCHER:

SIGNATURE:  DATE: 23/07/2007  
HEAD OF DEPARTMENT

## Appendix C: Datasheet Examples

### Datasheet A

#### NONCONTRAST CT

Study number: \_\_\_\_\_

Initials: \_\_\_\_\_

Date of scan: \_\_\_\_\_

Age: \_\_\_\_\_

Gender: \_\_\_\_\_

CT Normal/ Abnormal: \_\_\_\_\_

Diagnosis: \_\_\_\_\_

Reader signature: \_\_\_\_\_

Date of evaluation: \_\_\_\_\_

Datasheet B

## CONTRAST ENHANCED CT

Study number: \_\_\_\_\_

Date of scan: \_\_\_\_\_

Age: \_\_\_\_\_

Gender: \_\_\_\_\_

Number of lesions seen: \_\_\_\_\_

Indirect signs (e.g. oedema, mass effect): \_\_\_\_\_

Pathology: Focal / Diffuse / Nonspecific

Diagnosis: \_\_\_\_\_

CT Normal/ Abnormal: \_\_\_\_\_

Reader signature: \_\_\_\_\_

Date of evaluation: \_\_\_\_\_

## Appendix D: Presentation of Results

MEDUNSA R MINNE: 2010  
 PROGRAM FILE RIA.sas \*\*\* DATA FILE DATA RECORDING.dat  
 PRE AND POST CONTRAS: GROUP A  
 PRINTOUT NUMBER 2

The FREQ Procedure

### PRE\_READER\_1

PRE_READER_1	Frequency	Percent	Cumulative Frequency	Cumulative Percent
ABNORMAL	33	4.55	33	4.55
NORMAL	693	95.45	726	100.00

### PRE\_READER\_2

PRE_READER_2	Frequency	Percent	Cumulative Frequency	Cumulative Percent
ABNORMAL	6	0.83	6	0.83
NORMAL	720	99.17	726	100.00

### PRE\_READER\_3

PRE_READER_3	Frequency	Percent	Cumulative Frequency	Cumulative Percent
ABNORMAL	3	0.41	3	0.41
NORMAL	723	99.59	726	100.00

### Pre\_OUTCOME

Pre_OUTCOME	Frequency	Percent	Cumulative Frequency	Cumulative Percent
NORMAL	684	94.21	684	94.21
Undetermined	42	5.79	726	100.00

### Post\_READER\_1

Post_READER_1	Frequency	Percent	Cumulative Frequency	Cumulative Percent
ABNORMAL	34	4.68	34	4.68
NORMAL	692	95.32	726	100.00

MEDUNSA R MINNE: 2010  
PROGRAM FILE RIA.sas \*\*\* DATA FILE DATA RECORDING.dat  
PRE AND POST CONTRAS: GROUP A  
PRINTOUT NUMBER 2

The FREQ Procedure

Post\_READER\_2

Post_ READER_2	Frequency	Percent	Cumulative Frequency	Cumulative Percent
ABNORMAL	9	1.24	9	1.24
NORMAL	717	98.76	726	100.00

Post\_READER\_3

Post_ READER_3	Frequency	Percent	Cumulative Frequency	Cumulative Percent
ABNORMAL	35	4.82	35	4.82
NORMAL	691	95.18	726	100.00

Post\_OUTCOME

Post_ OUTCOME	Frequency	Percent	Cumulative Frequency	Cumulative Percent
ABNORMAL	26	3.58	26	3.58
NORMAL	678	93.39	704	96.97
Undetermined	22	3.03	726	100.00

MEDUNSA R MINNE: 2010  
 PROGRAM FILE RIA.sas \*\*\* DATA FILE DATA RECORDING.dat  
 PRE AND POST CONTRAS: GROUP B  
 PRINTOUT NUMBER 3

The FREQ Procedure

PRE\_READER\_1

PRE_READER_1	Frequency	Percent	Cumulative Frequency	Cumulative Percent
ABNORMAL	27	4.00	27	4.00
NORMAL	648	96.00	675	100.00

PRE\_READER\_2

PRE_READER_2	Frequency	Percent	Cumulative Frequency	Cumulative Percent
ABNORMAL	6	0.89	6	0.89
NORMAL	669	99.11	675	100.00

PRE\_READER\_3

PRE_READER_3	Frequency	Percent	Cumulative Frequency	Cumulative Percent
ABNORMAL	3	0.44	3	0.44
NORMAL	672	99.56	675	100.00

PRE\_OUTCOME

PRE_OUTCOME	Frequency	Percent	Cumulative Frequency	Cumulative Percent
NORMAL	639	94.67	639	94.67
Undetermined	36	5.33	675	100.00

POST\_READER\_1

POST_READER_1	Frequency	Percent	Cumulative Frequency	Cumulative Percent
ABNORMAL	29	4.30	29	4.30
NORMAL	646	95.70	675	100.00

MEDUNSA R MINNE: 2010  
PROGRAM FILE RIA.sas \*\*\* DATA FILE DATA RECORDING.dat  
PRE AND POST CONTRAS: GROUP B  
PRINTOUT NUMBER 3

The FREQ Procedure

POST\_READER\_2

POST_READER_2	Frequency	Percent	Cumulative Frequency	Cumulative Percent
ABNORMAL	8	1.19	8	1.19
NORMAL	667	98.81	675	100.00

POST\_READER\_3

POST_READER_3	Frequency	Percent	Cumulative Frequency	Cumulative Percent
ABNORMAL	30	4.44	30	4.44
NORMAL	645	95.56	675	100.00

POST\_OUTCOME

POST_OUTCOME	Frequency	Percent	Cumulative Frequency	Cumulative Percent
ABNORMAL	23	3.41	23	3.41
NORMAL	635	94.07	658	97.48
Undetermined	17	2.52	675	100.00

MEDUNSA R MINNE: 2010  
PROGRAM FILE RIA.sas \*\*\* DATA FILE DATA RECORDING.dat  
PRE AND POST CONTRAS: GROUP D  
PRINTOUT NUMBER 5

The FREQ Procedure

PRE\_READER\_1

PRE_READER_1	Frequency	Percent	Cumulative Frequency	Cumulative Percent
NORMAL	701	100.00	701	100.00

PRE\_READER\_2

PRE_READER_2	Frequency	Percent	Cumulative Frequency	Cumulative Percent
NORMAL	701	100.00	701	100.00

PRE\_READER\_3

PRE_READER_3	Frequency	Percent	Cumulative Frequency	Cumulative Percent
NORMAL	701	100.00	701	100.00

PRE\_OUTCOME

PRE_OUTCOME	Frequency	Percent	Cumulative Frequency	Cumulative Percent
NORMAL	701	100.00	701	100.00

POST\_READER\_1

POST_READER_1	Frequency	Percent	Cumulative Frequency	Cumulative Percent
ABNORMAL	23	3.28	23	3.28
NORMAL	678	96.72	701	100.00

MEDUNSA R MINNE: 2010  
 PROGRAM FILE RIA.sas \*\*\* DATA FILE DATA RECORDING.dat  
 PRE AND POST CONTRAS: GROUP D  
 PRINTOUT NUMBER 5

The FREQ Procedure

POST\_READER\_2

POST_READER_2	Frequency	Percent	Cumulative Frequency	Cumulative Percent
ABNORMAL	14	2.00	14	2.00
NORMAL	687	98.00	701	100.00

POST\_READER\_3

POST_READER_3	Frequency	Percent	Cumulative Frequency	Cumulative Percent
ABNORMAL	21	3.00	21	3.00
NORMAL	680	97.00	701	100.00

POST\_OUTCOME

POST_OUTCOME	Frequency	Percent	Cumulative Frequency	Cumulative Percent
ABNORMAL	23	3.28	23	3.28
NORMAL	676	96.43	699	99.71
Undetermined	2	0.29	701	100.00

MEDUNSA R MINNE: 2010  
 PROGRAM FILE RIA.sas \*\*\* DATA FILE DATA RECORDING.dat  
 PRE AND POST CONTRAS: GROUP C  
 PRINTOUT NUMBER 4

The FREQ Procedure

PRE\_READER\_1

PRE_READER_1	Frequency	Percent	Cumulative Frequency	Cumulative Percent
ABNORMAL	6	11.76	6	11.76
NORMAL	45	88.24	51	100.00

PRE\_READER\_2

PRE_READER_2	Frequency	Percent	Cumulative Frequency	Cumulative Percent
NORMAL	51	100.00	51	100.00

PRE\_READER\_3

PRE_READER_3	Frequency	Percent	Cumulative Frequency	Cumulative Percent
NORMAL	51	100.00	51	100.00

PRE\_OUTCOME

PRE_OUTCOME	Frequency	Percent	Cumulative Frequency	Cumulative Percent
NORMAL	45	88.24	45	88.24
Undetermined	6	11.76	51	100.00

POST\_READER\_1

POST_READER_1	Frequency	Percent	Cumulative Frequency	Cumulative Percent
ABNORMAL	4	7.84	4	7.84
ABNORMAL1	1	1.96	5	9.80
NORMAL	46	90.20	51	100.00

MEDUNSA R MINNE: 2010  
 PROGRAM FILE RIA.sas \*\*\* DATA FILE DATA RECORDING.dat  
 PRE AND POST CONTRAS: GROUP C  
 PRINTOUT NUMBER 4

The FREQ Procedure

POST\_READER\_2

POST_READER_2	Frequency	Percent	Cumulative Frequency	Cumulative Percent
ABNORMAL	1	1.96	1	1.96
NORMAL	50	98.04	51	100.00

POST\_READER\_3

POST_READER_3	Frequency	Percent	Cumulative Frequency	Cumulative Percent
ABNORMAL	5	9.80	5	9.80
NORMAL	46	90.20	51	100.00

POST\_OUTCOME

POST_OUTCOME	Frequency	Percent	Cumulative Frequency	Cumulative Percent
ABNORMAL	3	5.88	3	5.88
NORMAL	43	84.31	46	90.20
Undetermined	5	9.80	51	100.00

MEDUNSA R MINNE: 2010  
 PROGRAM FILE RIA.sas \*\*\* DATA FILE DATA RECORDING.dat  
 GENDER RATIO: GROUP A  
 PRINTOUT NUMBER 1

The FREQ Procedure

SEX

SEX	Frequency	Percent	Cumulative Frequency	Cumulative Percent
F	348	<del>49.79</del> 47,9	<del>348</del>	<del>49.79</del>
M	351	<del>50.21</del> 48,1	<del>699</del>	<del>100.00</del>
Unknown	27	3,7		
Frequency Missing = 27				

The SAS System

16:23 Monday, December 22, 2008

PRE AND POST CONTRAS: GROUP C  
 PRINTOUT NUMBER 1

The FREQ Procedure

PRE_OUTCOME	POST_OUTCOME	Frequency	Percent	Cumulative Frequency	Cumulative Percent
NORMAL	ABNORMAL	3	5.88	3	5.88
NORMAL	NORMAL	39	76.47	42	82.35
NORMAL	Undetermined	3	5.88	45	88.24
Undetermined	NORMAL	4	7.84	49	96.08
Undetermined	Undetermined	2	3.92	51	100.00

MEDUNSA R MINNE: 2010  
 PROGRAM FILE RIA.sas \*\*\* DATA FILE DATA RECORDING.dat  
 PRE AND POST CONTRAS: GROUP A  
 PRINTOUT NUMBER 2

The FREQ Procedure

Pre_OUTCOME	Post_OUTCOME	Frequency	Percent	Cumulative Frequency	Cumulative Percent
NORMAL	ABNORMAL	16	2.20	16	2.20
NORMAL	NORMAL	654	90.08	670	92.29
NORMAL	Undetermined	14	1.93	684	94.21
Undetermined	ABNORMAL	10	1.38	694	95.59
Undetermined	NORMAL	24	3.31	718	98.90
Undetermined	Undetermined	8	1.10	726	100.00

MEDUNSA R MINNE: 2010  
 PROGRAM FILE RIA.sas \*\*\* DATA FILE DATA RECORDING.dat  
 PRE AND POST CONTRAS: GROUP B  
 PRINTOUT NUMBER 3

The FREQ Procedure

PRE_OUTCOME	POST_OUTCOME	Frequency	Percent	Cumulative Frequency	Cumulative Percent
NORMAL	ABNORMAL	13	1.93	13	1.93
NORMAL	NORMAL	615	91.11	628	93.04
NORMAL	Undetermined	11	1.63	639	94.67
Undetermined	ABNORMAL	10	1.48	649	96.15
Undetermined	NORMAL	20	2.96	669	99.11
Undetermined	Undetermined	6	0.89	675	100.00

MEDUNSA R MINNE: 2010  
 PROGRAM FILE RIA.sas \*\*\* DATA FILE DATA RECORDING.dat  
 PRE AND POST CONTRAS: GROUP D  
 PRINTOUT NUMBER 5

4

The FREQ Procedure

PRE_OUTCOME	POST_OUTCOME	Frequency	Percent	Cumulative Frequency	Cumulative Percent
NORMAL	ABNORMAL	23	3.28	23	3.28
NORMAL	NORMAL	676	96.43	699	99.71
NORMAL	Undetermined	2	0.29	701	100.00

[Type text]

## DATASHEET C

[Type text]

					PRECONTRAST					POSTCONTRAST				
STUDY NO	INITIALS	AGE	SEX	DATE	READER 1	READER 2	READER 3	OUTCOME		READER 1	READER 2	READER 3	OUTCOME	
2	PO	60	F	1/11/2006	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
5	BT	15MO	M	1/11/2006	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
7	MF	46	F	1/11/2006	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
8	MM	12	M	1/11/2006	NORMAL	ABNORMAL	NORMAL	Undetermined		NORMAL	NORMAL	NORMAL	NORMAL	
13	MK	9MO	M	2/11/2006	NORMAL	ABNORMAL	NORMAL	Undetermined		NORMAL	NORMAL	NORMAL	NORMAL	
14	KT	16	M	2/11/2006	ABNORMAL	NORMAL	NORMAL	Undetermined		ABNORMAL	NORMAL	ABNORMAL	ABNORMAL	Meningeal enhancement next to abn bone
15	MK	15	M	2/11/2006	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
16	KA	27	M	2/11/2006	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
19	SA	59	M	4/11/2006	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
21	SX	3MO	M	4/11/2006	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
23	TT	10MO	M	5/11/2006	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
32	MS	35	M	6/11/2006	ABNORMAL	NORMAL	NORMAL	Undetermined		NORMAL	NORMAL	ABNORMAL	Undetermined	
35	TB	17	M	7/11/2006	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
36	LR	54	M	7/11/2006	ABNORMAL	NORMAL	NORMAL	Undetermined		NORMAL	NORMAL	NORMAL	NORMAL	
37	NP	26	M	7/11/2006	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
40	MJ	38	M	7/11/2006	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
41	TL	37	F	8/11/2006	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
43	TN	39	F	8/11/2006	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
44	CO	5	F	8/11/2006	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
47	MP	31	F	8/11/2006	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
48	MG	15	F	8/11/2006	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
49	MB	26	M	8/11/2006	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
50	NT	18MO	M	8/11/2006	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
51	MQ	23	F	8/11/2006	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
52	PE	71	F	9/11/2006	NORMAL	NORMAL	NORMAL	NORMAL		ABNORMAL	NORMAL	NORMAL	Undetermined	Lacunar infarct
53	BK	49	F	9/11/2006	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
55	MA	31	F	10/11/2006	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
57	KC	37	M	10/11/2006	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	

[Type text]

## DATASHEET C

[Type text]

					PRECONTRAST					POSTCONTRAST				
STUDY NO	INITIALS	AGE	SEX	DATE	READER 1	READER 2	READER 3	OUTCOME		READER 1	READER 2	READER 3	OUTCOME	
64	TW	59	M	13/11/2006	NORMAL	NORMAL	NORMAL	<b>NORMAL</b>		NORMAL	NORMAL	NORMAL	<b>NORMAL</b>	
69	MM	52	M	15/11/2006	NORMAL	NORMAL	NORMAL	<b>NORMAL</b>		NORMAL	NORMAL	NORMAL	<b>NORMAL</b>	
72	MN	9	F	15/11/2006	NORMAL	NORMAL	NORMAL	<b>NORMAL</b>		NORMAL	NORMAL	NORMAL	<b>NORMAL</b>	
75	MT	28	M	16/11/2006	NORMAL	NORMAL	NORMAL	<b>NORMAL</b>		NORMAL	NORMAL	NORMAL	<b>NORMAL</b>	
77	MS	25	M	16/11/2006	NORMAL	NORMAL	NORMAL	<b>NORMAL</b>		NORMAL	NORMAL	NORMAL	<b>NORMAL</b>	
78	MJ	33	F	16/11/2006	NORMAL	NORMAL	NORMAL	<b>NORMAL</b>		NORMAL	NORMAL	NORMAL	<b>NORMAL</b>	
79	MM	36	F	17/11/2006	NORMAL	NORMAL	NORMAL	<b>NORMAL</b>		NORMAL	NORMAL	NORMAL	<b>NORMAL</b>	
83	MK	16	F	17/11/2006	NORMAL	NORMAL	NORMAL	<b>NORMAL</b>		NORMAL	NORMAL	NORMAL	<b>NORMAL</b>	
84	UM	45	M	17/11/2006	NORMAL	NORMAL	NORMAL	<b>NORMAL</b>		NORMAL	NORMAL	NORMAL	<b>NORMAL</b>	
85	SL	45	F	19/11/2006	NORMAL	NORMAL	NORMAL	<b>NORMAL</b>		NORMAL	NORMAL	NORMAL	<b>NORMAL</b>	
88	MB	0	F	20/11/2006	NORMAL	NORMAL	NORMAL	<b>NORMAL</b>		NORMAL	NORMAL	NORMAL	<b>NORMAL</b>	
91	SN	2	M	20/11/2006	NORMAL	NORMAL	NORMAL	<b>NORMAL</b>		NORMAL	NORMAL	NORMAL	<b>NORMAL</b>	
104	SM	38	M	22/11/2006	NORMAL	NORMAL	NORMAL	<b>NORMAL</b>		NORMAL	NORMAL	NORMAL	<b>NORMAL</b>	
106	MJ	22	M	22/11/2006	NORMAL	NORMAL	NORMAL	<b>NORMAL</b>		NORMAL	NORMAL	NORMAL	<b>NORMAL</b>	
110	ME	34	M	23/11/2006	NORMAL	NORMAL	NORMAL	<b>NORMAL</b>		NORMAL	NORMAL	NORMAL	<b>NORMAL</b>	
115	MN	53	M	24/11/2006	NORMAL	NORMAL	NORMAL	<b>NORMAL</b>		NORMAL	NORMAL	NORMAL	<b>NORMAL</b>	
122	NL	31	M	24/11/2006	NORMAL	NORMAL	NORMAL	<b>NORMAL</b>		NORMAL	NORMAL	NORMAL	<b>NORMAL</b>	
123	LF	62	F	25/11/2006	NORMAL	NORMAL	NORMAL	<b>NORMAL</b>		NORMAL	NORMAL	NORMAL	<b>NORMAL</b>	
124	SA	13	F	25/11/2006	NORMAL	NORMAL	NORMAL	<b>NORMAL</b>		NORMAL	NORMAL	NORMAL	<b>NORMAL</b>	
125	KS	28	M	25/11/2006	NORMAL	NORMAL	NORMAL	<b>NORMAL</b>		NORMAL	NORMAL	NORMAL	<b>NORMAL</b>	
130	MW	37	M	27/11/2006	NORMAL	NORMAL	NORMAL	<b>NORMAL</b>		NORMAL	NORMAL	NORMAL	<b>NORMAL</b>	
132	TJ	56	F	28/11/2006	NORMAL	NORMAL	NORMAL	<b>NORMAL</b>		NORMAL	NORMAL	NORMAL	<b>NORMAL</b>	
136	MT	31	F	28/11/2006	NORMAL	NORMAL	NORMAL	<b>NORMAL</b>		NORMAL	NORMAL	NORMAL	<b>NORMAL</b>	
140	WN	30	F	29/11/2006	NORMAL	NORMAL	NORMAL	<b>NORMAL</b>		NORMAL	NORMAL	NORMAL	<b>NORMAL</b>	
141	HB	32	M	30/11/2006	NORMAL	NORMAL	NORMAL	<b>NORMAL</b>		NORMAL	NORMAL	NORMAL	<b>NORMAL</b>	
143	MA	30	M	30/11/2006	NORMAL	NORMAL	NORMAL	<b>NORMAL</b>		NORMAL	NORMAL	NORMAL	<b>NORMAL</b>	
144	MA	70	F	30/11/2006	NORMAL	NORMAL	NORMAL	<b>NORMAL</b>		NORMAL	<b>ABNORMAL</b>	<b>ABNORMAL</b>	<b>ABNORMAL</b>	AVM
145	SM	27	F	1/12/2006	NORMAL	NORMAL	NORMAL	<b>NORMAL</b>		NORMAL	NORMAL	NORMAL	<b>NORMAL</b>	
146	MG	37	F	2/12/2006	NORMAL	NORMAL	NORMAL	<b>NORMAL</b>		NORMAL	NORMAL	NORMAL	<b>NORMAL</b>	

[Type text]

## DATASHEET C

[Type text]

					PRECONTRAST					POSTCONTRAST				
STUDY NO	INITIALS	AGE	SEX	DATE	READER 1	READER 2	READER 3	OUTCOME		READER 1	READER 2	READER 3	OUTCOME	
107 B	ML	43	F	3/12/2006	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
148	BT	4	M	4/12/2006	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
149	PV	16	F	4/12/2006	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
154	NJ	2	M	5/12/2006	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
155	AT	2	M	5/12/2006	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
156	MS	40	M	5/12/2006	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
157	DA	10	M	5/12/2006	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
158	MH	2	M	5/12/2006	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
159	MJ	18	M	6/12/2006	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
160	DB	28	M	6/12/2006	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	ABNORMAL	NORMAL	Undetermined	Meningitis
161	MS	2	M	6/12/2006	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
162	ST	60	F	8/12/2006	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
163	DC	38	F	8/12/2006	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
164	MM	20	F	8/12/2006	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
165	NE	54	F	8/3/2007	NORMAL	NORMAL	NORMAL	NORMAL		ABNORMAL	NORMAL	NORMAL	Undetermined	White Matter Hypodensity
166	MC	?	?	8/3/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
167	MZ	41	F	8/3/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
168	ML	13	M	8/3/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
169	TL	44	F	8/3/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
170	MN	13	F	8/3/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
171	MS	49	F	10/3/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
172	MT	9MO	M	12/3/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
173	JM	34	M	13/3/2007	ABNORMAL	NORMAL	NORMAL	Undetermined		NORMAL	NORMAL	NORMAL	NORMAL	
174	MS	38	F	13/3/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
175	PM	27	F	13/3/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
177	MM	32	M	13/3/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
179	GM	66	M	13/3/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
180	RE	77	F	14/3/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
181	MK	8	F	14/3/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	

[Type text]

## DATASHEET C

[Type text]

					PRECONTRAST					POSTCONTRAST				
STUDY NO	INITIALS	AGE	SEX	DATE	READER 1	READER 2	READER 3	OUTCOME		READER 1	READER 2	READER 3	OUTCOME	
182	RK	36	M	14/3/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
184	TL	34	M	15/3/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
186	MS	38	F	15/3/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
187	ME	39	M	15/3/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
189	NMJ	43	F	17/03/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
190	MW	27	F	17/03/2007	NORMAL	NORMAL	NORMAL	NORMAL		ABNORMAL	NORMAL	ABNORMAL	ABNORMAL	Meningitis
192	MW	45	M	19/03/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
193	TP	7	M	19/03/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
194	MA	2	M	19/03/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
197	EY	17	M	20/03/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
198	MS	44	M	21/03/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
199	MM	19	M	21/03/2007	ABNORMAL	NORMAL	NORMAL	Undetermined		NORMAL	NORMAL	NORMAL	NORMAL	
200	KK	19	M	22/03/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
201	NV	50	F	22/03/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
202	MK	17	M	22/03/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
204	MY	44	F	22/03/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
205	KF	58	M	23/03/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
206	TN	70	F	23/03/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
207	MML	29	F	23/03/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
211	RB	4	F	23/03/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
212	SM	44	F	23/03/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
213	NN		F	26/03/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
215	MA	7	F	26/03/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
216	SV	52	F	26/03/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
217	MK	3	M	26/03/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
220	ML	47	F	27/03/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
221	H	25	F	27/03/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
222	KM	71	F	27/03/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
223	RM	18	F	28/03/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	

					PRECONTRAST					POSTCONTRAST				
STUDY NO	INITIALS	AGE	SEX	DATE	READER 1	READER 2	READER 3	OUTCOME		READER 1	READER 2	READER 3	OUTCOME	
224	MG	7	M	28/03/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
225	MD	60	M	28/03/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
226	MJ	18	M	29/03/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
227	MP	28	M	29/03/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
228	BM	36	F	29/03/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
229	NA	6	F	29/03/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
230	BF	52	M	29/03/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
231	MP	5	F	30/03/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
232	MA	48	F	30/03/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
233	MT	41	M	31/03/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
236	MG	42	M	02/04/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
239	MF	30	M	03/04/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
241	MR	23	M	04/04/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
242	SO	5	M	04/04/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
244	MJ	31	M	04/04/2007	NORMAL	NORMAL	ABNORMAL	Undetermined	Abnormal Pituitary fossa	NORMAL	NORMAL	ABNORMAL	Undetermined	Abnormal Pituitary fossa
245	MF	71	F	04/04/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
246	SA	51	M	04/04/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
249	MR	18	M	05/04/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
250	MA	31	M	05/04/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
252	ME	57	F	06/04/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
253	GJ	39	M	06/04/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
255	SH	62	F	08/04/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
256	LM	27	F	08/04/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
257	SH	37	M	09/04/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
258	MW	63	M	09/04/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
259	KM	8	F	09/04/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
261	ML	22	M	10/04/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
262	MG	7	F	10/04/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
263	JS	37	F	10/04/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	

[Type text]

## DATASHEET C

[Type text]

					PRECONTRAST					POSTCONTRAST				
STUDY NO	INITIALS	AGE	SEX	DATE	READER 1	READER 2	READER 3	OUTCOME		READER 1	READER 2	READER 3	OUTCOME	
264	MM	50	F	10/04/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
265	MO	3	M	10/04/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
266	PG	43	F	10/04/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
268	MM	78	M	10/04/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
270	MM	44	M	11/04/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
271	QE	57	F	11/04/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
272	NB	53	F	12/04/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
274	LT	1	M	12/04/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
277	MI	30	M	13/04/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
278	MV	30	M	13/04/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
279	KS	25	M	14/04/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
280	MS	38	M	16/04/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
281	TG	1	M	16/04/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
282	MD	2	M	16/04/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
283	KR	50	F	14/04/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
285	MT	2	M	17/04/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
286	MT	12	M	17/04/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
289	BP	9	F	19/04/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
290	MM	4	M	19/04/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
291	MK	14	M	20/04/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
293	MM	31	M	20/04/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
295	MS	12	M	21/04/2007	NORMAL	NORMAL	NORMAL	NORMAL		ABNORMAL	ABNORMAL	ABNORMAL	ABNORMAL	Empyema/ Abscess
296	MK	5	F	21/04/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
297	OD	49	M	21/04/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
298	LW	47	M	23/04/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
299	MM	17	M	23/04/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
300	MJ	2	F	23/04/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
301	ML	62	M	23/04/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
302	MA	26	F	23/04/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	

[Type text]

## DATASHEET C

[Type text]

					PRECONTRAST					POSTCONTRAST				
STUDY NO	INITIALS	AGE	SEX	DATE	READER 1	READER 2	READER 3	OUTCOME		READER 1	READER 2	READER 3	OUTCOME	
303	ML	21	F	23/04/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
304	KZ	24	F	23/04/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
305	MED	68	F	24/04/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
309	MK	18	F	25/04/2007	NORMAL	ABNORMAL	NORMAL	Undetermined		NORMAL	NORMAL	NORMAL	NORMAL	
310	NM	4	F	26/04/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
311	MK	2	M	26/04/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
312	MP	41	M	26/04/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
314	MT	10	M	28/04/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
318	MI	1	F	30/04/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
319	MD	11	F	03/05/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
321	TS	2	M	04/05/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
323	ST	9	F	06/05/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
324	MO	14	M	06/05/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
328	WK	1	F	07/05/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
330	TK	8MO	M	07/05/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
331	MJ	74	M	07/05/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
332	MS	44	M	07/05/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
333	MS	28	F	08/05/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
334	MR	2	F	08/05/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
336	SM	9	F	08/05/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
337	MJ	15	M	08/05/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
338	ML	44	F	23/05/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
339	ML	19	M	23/05/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
340	RL	45	F	23/05/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
341	CF	33	F	23/05/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
342	ND		F	23/05/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
343	LM	39	F	24/05/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
345	TN	4MO	M	24/05/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
347	MD	28	M	24/05/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	

[Type text]

## DATASHEET C

[Type text]

					PRECONTRAST					POSTCONTRAST				
STUDY NO	INITIALS	AGE	SEX	DATE	READER 1	READER 2	READER 3	OUTCOME		READER 1	READER 2	READER 3	OUTCOME	
348	LJ	1	M	24/05/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
349	RI	11	F	24/05/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
351	MO	5	M	26/05/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
353	MO	11MO	M	28/05/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
354	KB	17	M	28/05/2007	ABNORMAL	NORMAL	NORMAL	Undetermined	Large Cisterna Magna	NORMAL	NORMAL	NORMAL	NORMAL	
355	MS	8	M	29/05/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
357	M	13	F	29/05/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
358	SP	30	M	29/05/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
359	MA	28	F	29/05/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	ABNORMAL	Undetermined	Pituitary fossa lesion
362	VN	38	F	30/05/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
363	NA	20	F	30/05/2007	NORMAL	NORMAL	NORMAL	NORMAL		ABNORMAL	NORMAL	ABNORMAL	ABNORMAL	Pituitary stalk thickened
365	SL	18	F	30/05/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
366	MK	10	M	31/05/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
368	BV	32	M	31/05/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
369	ME	46	F	31/05/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
372	LJ	32	M	01/06/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
373	ML	1	F	02/06/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
374	NG		F	02/06/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
375	SL	30	M	03/06/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
377	AT	13	M	04/06/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
378	PS	48	M	04/06/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
379	BC	22	F	05/06/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
380	MT	16	M	05/06/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
381	KK	3	M	06/06/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
383	MG	40	F	06/06/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
384	ML	20	M	07/06/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
385	SM	44	F	07/06/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
386	KJ	24	F	08/06/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	

[Type text]

## DATASHEET C

[Type text]

					PRECONTRAST					POSTCONTRAST				
STUDY NO	INITIALS	AGE	SEX	DATE	READER 1	READER 2	READER 3	OUTCOME		READER 1	READER 2	READER 3	OUTCOME	
387	GS	11	M	11/06/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
388	SI	8	M	11/06/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
389	MB	8MO	F	13/06/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
390	MK	19	F	13/06/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
391	TE	53	F	15/06/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
392	PP	35	M	17/06/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
393	NK	4	F	18/06/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
395	MC	35	F	18/06/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
397	MW	26	F	18/06/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
398	JJ	55	M	18/06/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
399	CS	6	M	19/06/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
400	MI	45	F	19/06/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
401	MJ	21	F	19/06/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
402	MJ	32	M	19/06/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
403	DK	22	M	20/06/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
404	KT	17	M	20/06/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
405	MS	73	M	20/06/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
406	MM	37	F	20/06/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
407	NA	38	F	20/06/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
408	MK	14	F	21/06/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
409	MJ	36	F	22/06/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
411	SN	10	F	22/06/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
413	BS	45	F	24/06/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
414	TM	43	M	24/06/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
415	MJ	29	F	26/06/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
417	TE	32	F	26/06/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
418	AM	30	M	26/06/2007	NORMAL	NORMAL	NORMAL	NORMAL		ABNORMAL	NORMAL	NORMAL	Undetermined	Lacunar infarct
419	MJ	65	M	26/06/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
420	SF	45	F	27/06/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	

[Type text]

## DATASHEET C

[Type text]

					PRECONTRAST					POSTCONTRAST				
STUDY NO	INITIALS	AGE	SEX	DATE	READER 1	READER 2	READER 3	OUTCOME		READER 1	READER 2	READER 3	OUTCOME	
421	BB	21	M	28/06/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
422	SH	35	F	28/06/2007	ABNORMAL	NORMAL	NORMAL	Undetermined		ABNORMAL	NORMAL	ABNORMAL	ABNORMAL	Focal Meningitis
423	BN	28	M	28/06/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
424	MM	9MO	M	28/06/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
425	TJ	48	M	28/06/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
426	MT	63	F	28/06/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
427	RV	54	F	28/06/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
428	MB	23	M	29/06/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
429	MJ	34	F	30/06/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
432	HJ	18	M	02/07/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
434	ME	59	F	03/07/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
435	NL	2	M	04/07/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
436	CG	5MO	F	05/07/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
437	DD	29	M	05/07	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
439	PS	30	M	05/07/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
440	MJ	26	M	05/07/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
443	DK	1	F	09/07/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
445	NN	15	F	09/07/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
447	MA	3MO	F	09/07/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
449	ZA	27	M	09/07/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
452	MR		F	10/07/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
453	SJ	21	M	10/07/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
454	MF	10	F	11/07/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
455	KA	61	F	11/7/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
458	MS	3	M	12/07/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
459	TV	35	F	12/07/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
460	TH	17MO	M	13/07/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
461	MM		F	13/07/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	

[Type text]

## DATASHEET C

[Type text]

					PRECONTRAST					POSTCONTRAST				
STUDY NO	INITIALS	AGE	SEX	DATE	READER 1	READER 2	READER 3	OUTCOME		READER 1	READER 2	READER 3	OUTCOME	
462	TFM	44	F	13/07/2007	NORMAL	NORMAL	NORMAL	NORMAL		ABNORMAL	NORMAL	ABNORMAL	ABNORMAL	Sigmoid sinus thrombosis
465	MG	34	M	16/07/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
466	BM	9	F	16/07/2007	ABNORMAL	NORMAL	NORMAL	Undetermined		NORMAL	NORMAL	NORMAL	NORMAL	
467	BI	51	F	18/07/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
468	MO	1	F	18/07/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
470	MJ	36	F	19/07/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
473	RV	25	F	20/07/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
474	MN	1	F	20/07/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
475	LJ	33	F	20/07/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
477	TA	28	F	21/07/2007	ABNORMAL	NORMAL	NORMAL	Undetermined		NORMAL	NORMAL	NORMAL	NORMAL	
480	TL	46	M	23/07/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
481	MJ	37	M	23/07/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
482	PR	28	M	24/07/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
484	MC	51	F	24/07/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
485	CM	38	M	25/07/2007	NORMAL	ABNORMAL	NORMAL	Undetermined	Thickened Meninges	NORMAL	NORMAL	NORMAL	NORMAL	
489	KB	54	M	26/07/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
490	MB	8	F	26/07/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
493	SR	48	F	27/06/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
494	PJ	53	M	27/07/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
495	MT	36	F	27/07/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
497	BB	1	M	27/07/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
498	RE	27	F	27/07/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
500	NT	12	M	30/07/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
501	MD	13	F	30/07/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
502	MJ	24	M	30/07/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
503	JT	44	F	30/07/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
504	MT	20	F	31/07/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
507	DK	8	M	01/08/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
508	JS	36	F	01/08/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	

[Type text]

## DATASHEET C

[Type text]

					PRECONTRAST					POSTCONTRAST				
STUDY NO	INITIALS	AGE	SEX	DATE	READER 1	READER 2	READER 3	OUTCOME		READER 1	READER 2	READER 3	OUTCOME	
511	IY	43	F	02/08/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
513	MF	23	F	02/08/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
514	ML	29	F	02/08/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
516	ML	36	F	02/08/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
518	MJ	48	M	03/08/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
519	MS	28	M	03/08/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
520	LG	31	F	03/08/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
521	LJ	44	M	29/07/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
522	MK	13	M	03/08/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
523	MM	33	F	04/04/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
524	MM	36	M	06/08/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
525	MR	52	F	06/08/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
527	BE	36	F	07/08/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
529	ML	44	F	07/08/2007	ABNORMAL	NORMAL	NORMAL	Undetermined		NORMAL	NORMAL	ABNORMAL	ABNORMAL	Lacunar infarct
530	NR	34	F	07/08/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
531	NP	19	M	07/08/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
533	NH	69	F	07/08/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
534	RM	46	F	08/08/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
535	SJM	30	M	10/08/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	ABNORMAL	Undetermined	
536	MK	6	M	10/08/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
537	KF	56	F	10/08/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
538	CA	45	M	11/08/2007	ABNORMAL	NORMAL	NORMAL	Undetermined		ABNORMAL	NORMAL	ABNORMAL	ABNORMAL	Meningitis
540	MEM	28	F	13/08/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
541	MG	53	M	13/08/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
542	BS	21	F	13/08/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
543	MM	31	M	13/08/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
544	ML	23	F	14/08/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
545	MK	3MO	M	17/08/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
546	MP	57	M	17/08/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	

					PRECONTRAST					POSTCONTRAST				
STUDY NO	INITIALS	AGE	SEX	DATE	READER 1	READER 2	READER 3	OUTCOME		READER 1	READER 2	READER 3	OUTCOME	
547	MJ	25	F	17/08/2007	NORMAL	NORMAL	NORMAL	<b>NORMAL</b>		NORMAL	NORMAL	NORMAL	<b>NORMAL</b>	
548	BO	23	M	19/08/2007	NORMAL	NORMAL	NORMAL	<b>NORMAL</b>		NORMAL	NORMAL	NORMAL	<b>NORMAL</b>	
549	PJ			20/08/2007	NORMAL	NORMAL	NORMAL	<b>NORMAL</b>		NORMAL	NORMAL	NORMAL	<b>NORMAL</b>	
550	KJ	68	M	20/08/2007	NORMAL	NORMAL	NORMAL	<b>NORMAL</b>		NORMAL	NORMAL	NORMAL	<b>NORMAL</b>	
552	SQ	4	F	20/08/2007	NORMAL	NORMAL	NORMAL	<b>NORMAL</b>		NORMAL	NORMAL	NORMAL	<b>NORMAL</b>	
554	MFM	33	F	20/08/2007	NORMAL	NORMAL	NORMAL	<b>NORMAL</b>		NORMAL	NORMAL	NORMAL	<b>NORMAL</b>	
556	MD	49	F	21/08/2007	NORMAL	NORMAL	NORMAL	<b>NORMAL</b>		NORMAL	NORMAL	NORMAL	<b>NORMAL</b>	
557	MK	7	M	21/08/2007	NORMAL	NORMAL	NORMAL	<b>NORMAL</b>		NORMAL	NORMAL	NORMAL	<b>NORMAL</b>	
558	MK	4	M	21/08/2007	NORMAL	NORMAL	NORMAL	<b>NORMAL</b>		NORMAL	NORMAL	NORMAL	<b>NORMAL</b>	
559	KL	36	F	21/08/2007	NORMAL	NORMAL	NORMAL	<b>NORMAL</b>		NORMAL	NORMAL	NORMAL	<b>NORMAL</b>	
560	MJ	44	M	21/08/2007	NORMAL	NORMAL	NORMAL	<b>NORMAL</b>		NORMAL	NORMAL	NORMAL	<b>NORMAL</b>	
562	MR	55	M	23/08/2007	NORMAL	NORMAL	NORMAL	<b>NORMAL</b>		NORMAL	NORMAL	NORMAL	<b>NORMAL</b>	
563	MT	8MO	M	23/08/2007	NORMAL	NORMAL	NORMAL	<b>NORMAL</b>		NORMAL	NORMAL	NORMAL	<b>NORMAL</b>	
564	SH	17	M	23/08/2007	NORMAL	NORMAL	NORMAL	<b>NORMAL</b>		NORMAL	NORMAL	NORMAL	<b>NORMAL</b>	
565	CM	16	M	24/08/2007	NORMAL	NORMAL	NORMAL	<b>NORMAL</b>		NORMAL	NORMAL	NORMAL	<b>NORMAL</b>	
566	MN	23	F	24/08/2007	NORMAL	NORMAL	NORMAL	<b>NORMAL</b>		NORMAL	NORMAL	NORMAL	<b>NORMAL</b>	
567	MG	34	F	25/08/2007	NORMAL	NORMAL	NORMAL	<b>NORMAL</b>		NORMAL	NORMAL	NORMAL	<b>NORMAL</b>	
570	MV	17	M	27/08/2007	NORMAL	NORMAL	NORMAL	<b>NORMAL</b>		NORMAL	NORMAL	NORMAL	<b>NORMAL</b>	
571	LA	29	M	29/08/2007	NORMAL	NORMAL	NORMAL	<b>NORMAL</b>		NORMAL	NORMAL	NORMAL	<b>NORMAL</b>	
572	MFK	56	F	30/8/2007	NORMAL	NORMAL	NORMAL	<b>NORMAL</b>		NORMAL	NORMAL	NORMAL	<b>NORMAL</b>	
573	ME			30/08/2007	<b>ABNORMAL</b>	NORMAL	NORMAL	<b>Undetermined</b>	White Matter hypodensity	NORMAL	NORMAL	NORMAL	<b>NORMAL</b>	
574	KSP	31	F	31/08/2007	NORMAL	NORMAL	NORMAL	<b>NORMAL</b>		NORMAL	NORMAL	NORMAL	<b>NORMAL</b>	
575	DD	39	M	31/08/2007	NORMAL	NORMAL	NORMAL	<b>NORMAL</b>		NORMAL	NORMAL	NORMAL	<b>NORMAL</b>	
576	MP	31	M	31/08/2007	NORMAL	NORMAL	NORMAL	<b>NORMAL</b>		NORMAL	NORMAL	NORMAL	<b>NORMAL</b>	
577	SP	48	M	01/09/2007	NORMAL	NORMAL	NORMAL	<b>NORMAL</b>		NORMAL	NORMAL	NORMAL	<b>NORMAL</b>	
578	SM	20	M	02/09/2007	NORMAL	NORMAL	NORMAL	<b>NORMAL</b>		NORMAL	NORMAL	NORMAL	<b>NORMAL</b>	
579	NW	18	M	02/09/2007	NORMAL	NORMAL	NORMAL	<b>NORMAL</b>		NORMAL	NORMAL	NORMAL	<b>NORMAL</b>	
580	MR	9MO	M	02/09/2007	NORMAL	NORMAL	NORMAL	<b>NORMAL</b>		NORMAL	NORMAL	NORMAL	<b>NORMAL</b>	
582	ML	27	F	03/09/2007	NORMAL	NORMAL	NORMAL	<b>NORMAL</b>		NORMAL	NORMAL	NORMAL	<b>NORMAL</b>	

[Type text]

## DATASHEET C

[Type text]

					PRECONTRAST					POSTCONTRAST				
STUDY NO	INITIALS	AGE	SEX	DATE	READER 1	READER 2	READER 3	OUTCOME		READER 1	READER 2	READER 3	OUTCOME	
584	BT	1	M	03/09/2007	NORMAL	NORMAL	NORMAL	NORMAL		ABNORMAL	ABNORMAL	NORMAL	ABNORMAL	Meningitis
585	HG	40	F	03/09/2007	NORMAL	NORMAL	NORMAL	NORMAL		ABNORMAL	NORMAL	ABNORMAL	ABNORMAL	Pituitary microadenoma
586	MC	38	M	04/09/2007	ABNORMAL	NORMAL	NORMAL	Undetermined		NORMAL	NORMAL	NORMAL	NORMAL	
587	NZ	28	F	04/09/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
588	MP	21	F	04/09/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
589	MM	57	F	04/09/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
590	MM	30	F	04/09/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
591	KR	52	f	05/09/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
592	MA	38	F	05/09/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
593	SD	52	M	05/09/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
594	MJ	15	F	05/09/2007	ABNORMAL	NORMAL	NORMAL	Undetermined	Colpocephaly	NORMAL	NORMAL	NORMAL	NORMAL	
595	MMM	51	F	06/09/2007	ABNORMAL	NORMAL	NORMAL	Undetermined		NORMAL	NORMAL	NORMAL	NORMAL	
596	MK	5	M	06/09/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
597	KL	34	F	06/09/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
600	LM	18	M	07/09/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
603	SC	30	F	08/09/2007	ABNORMAL	NORMAL	NORMAL	Undetermined		NORMAL	NORMAL	NORMAL	NORMAL	
604	MM			10/09/2007	ABNORMAL	NORMAL	NORMAL	Undetermined		NORMAL	NORMAL	NORMAL	NORMAL	
605	TM	6	M	10/09/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
606	MN	2MO	F	10/09/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
654	MO	20	M	10/09/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
607	PV	32	M	10/09/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
609	MRS	61	F	10/09/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
612	PK	22	M	11/09/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
613	MP	41	F	11/09/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
614	NP	2	M	11/09/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
615	NA	26	M	11/09/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
616	VH	65	M	11/09/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
617	NG	18	F	12/09/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
618	MP	59	F	12/09/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	

					PRECONTRAST					POSTCONTRAST				
STUDY NO	INITIALS	AGE	SEX	DATE	READER 1	READER 2	READER 3	OUTCOME		READER 1	READER 2	READER 3	OUTCOME	
619	NT	33	F	13/09/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
620	RSS	37	F	13/09/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
621	MA		M	13/09/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
622	MK		M	14/09/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
623	MJ	30	M	14/09/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
624	MT	14	M	14/09/2007	ABNORMAL	NORMAL	NORMAL	Undetermined		ABNORMAL	NORMAL	ABNORMAL	ABNORMAL	AVM
625	MH	33	M	14/09/2007	ABNORMAL	NORMAL	NORMAL	Undetermined		NORMAL	NORMAL	NORMAL	NORMAL	
626	MR		F	14/09/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
627	SD	1	M	14/09/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
629	MP	26	F	16/09/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
631	KT	28	M	17/09/2007	NORMAL	ABNORMAL	NORMAL	Undetermined		ABNORMAL	ABNORMAL	ABNORMAL	ABNORMAL	Abscess
632	MS	19	M	17/09/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
633	MR	33	F	17/09/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
634	MG	7	F	17/09/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
635	PA	63	M	17/09/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
636	SE	24	F	17/09/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
637	MA	23	F	18/09/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
638	MM	28	F	18/09/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
639	MK	5	M	18/09/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
640	KL	12	F	18/09/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
641	MM	6	F	18/09/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
642	MP	44	M	18/09/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	ABNORMAL	Undetermined	Enhancing nodule
643	BG	37	M	18/09/2007	ABNORMAL	NORMAL	NORMAL	Undetermined		ABNORMAL	NORMAL	ABNORMAL	ABNORMAL	Lacunar infarct and White matter changes
644	MX	5	M	18/09/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
645	NT	18	F	19/09/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
646	MN	4	F	19/09/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
647	DD	47	M	19/09/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
648	KT	15	M	19/09/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	

[Type text]

## DATASHEET C

[Type text]

					PRECONTRAST					POSTCONTRAST				
STUDY NO	INITIALS	AGE	SEX	DATE	READER 1	READER 2	READER 3	OUTCOME		READER 1	READER 2	READER 3	OUTCOME	
649	MR	3	M	19/09/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
650	MT	29	M	20/09/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
651	RC	34	M	20/09/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
652	NL	10	F	20/09/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
653	KM	1	F	20/09/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
657	MC	41	M	21/09/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
658	MK	10	M	21/09/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
659	MS	21	M	21/09/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
661	MP	65	M	21/09/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
662	NT	22	F	21/09/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
663	MJ	29	M	22/09/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
665	BQ	2	F	23/09/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
666	MJI	19	M	23/09/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
668	MG	20	M	25/09/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
669	MK	21	F	25/09/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
670	SL	3	F	26/09/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
671	MG	20	F	26/09/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
672	NL	27	F	27/09/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
673	TO	5	M	1/10/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
674	TP	2	F	02/10/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
675	NM	6	M	02/10/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
676	ML	14	F	01/10/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
678	TD	16	F	03/10/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
679	MM		F	03/10/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
680	SG	26	F	03/10/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
681	KS	10	M	03/10/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
682	RA	67	F	03/10/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
685	EL	15	F	04/10/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
686	MP	30	M	04/10/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	

[Type text]

## DATASHEET C

[Type text]

					PRECONTRAST					POSTCONTRAST				
STUDY NO	INITIALS	AGE	SEX	DATE	READER 1	READER 2	READER 3	OUTCOME		READER 1	READER 2	READER 3	OUTCOME	
687	MT	15	M	04/10/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
688	TS	2	M	04/10/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
690	NO	27	F	04/10/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
691	MS	51	F	05/10/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
694	BT	2	M	05/10/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
695	ME	53	F	06/10/2007	NORMAL	NORMAL	NORMAL	NORMAL		ABNORMAL	NORMAL	NORMAL	Undetermined	Cystic Lesion
698	RA		M	09/10/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
700	MT	5	M	10/10/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
702 B	SM	45	F	10/10/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
701	AP	6	F	10/10/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
703	BJ	3	F	11/10/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
704	LM	35	M	11/10/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
705	MT	31	M	11/10/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
706	ME	36	F	11/10/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
707	MS	27	M	11/10/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
711	LS	12	M	13/10/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
712	MM	16	F	13/10/2007	ABNORMAL	NORMAL	NORMAL	Undetermined	?Lacunar infarct	NORMAL	NORMAL	NORMAL	NORMAL	
714	MT	25	M	15/10/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
715	CE	24	F	15/10/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
717	MK	18	M	17/10/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
718	MPT	44	F	17/10/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
720	MK	16	M	17/10/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
721	MA	32	F	18/10/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
723	MB	4	F	20/10/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
724	MD	36	F	20/10/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
726	GM	48	F	20/10/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
728	ME	55	F	22/10/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
729	ML	60	M	22/10/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
730	TM	34	F	22/10/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	

[Type text]

## DATASHEET C

[Type text]

					PRECONTRAST					POSTCONTRAST				
STUDY NO	INITIALS	AGE	SEX	DATE	READER 1	READER 2	READER 3	OUTCOME		READER 1	READER 2	READER 3	OUTCOME	
731	MO	2	M	22/10/2007	NORMAL	NORMAL	NORMAL	<b>NORMAL</b>		NORMAL	NORMAL	NORMAL	<b>NORMAL</b>	
732	ES	25	F	22/10/2007	NORMAL	NORMAL	NORMAL	<b>NORMAL</b>		NORMAL	NORMAL	NORMAL	<b>NORMAL</b>	
733	CO	31	M	23/10/2007	NORMAL	NORMAL	NORMAL	<b>NORMAL</b>		NORMAL	NORMAL	NORMAL	<b>NORMAL</b>	
734	AP	2	M	23/10/2007	NORMAL	NORMAL	NORMAL	<b>NORMAL</b>		NORMAL	NORMAL	NORMAL	<b>NORMAL</b>	
736	MM	22	F	22/10/2007	NORMAL	NORMAL	NORMAL	<b>NORMAL</b>		NORMAL	NORMAL	NORMAL	<b>NORMAL</b>	
737	MP	4	M	22/10/2007	NORMAL	NORMAL	NORMAL	<b>NORMAL</b>		NORMAL	NORMAL	NORMAL	<b>NORMAL</b>	
738	BJ	38	M	23/10/2007	NORMAL	NORMAL	NORMAL	<b>NORMAL</b>		NORMAL	NORMAL	NORMAL	<b>NORMAL</b>	
741	NP	17	F		NORMAL	NORMAL	NORMAL	<b>NORMAL</b>		NORMAL	NORMAL	NORMAL	<b>NORMAL</b>	
742	MT	50	F	24/10/2007	NORMAL	NORMAL	NORMAL	<b>NORMAL</b>		NORMAL	NORMAL	NORMAL	<b>NORMAL</b>	
743	TG	33	F	24/10/2007	NORMAL	NORMAL	NORMAL	<b>NORMAL</b>		NORMAL	NORMAL	NORMAL	<b>NORMAL</b>	
744	NS	37	M	25/10/2007	NORMAL	NORMAL	NORMAL	<b>NORMAL</b>		NORMAL	NORMAL	NORMAL	<b>NORMAL</b>	
745	MT	6	M	25/10/2007	NORMAL	NORMAL	NORMAL	<b>NORMAL</b>		NORMAL	NORMAL	NORMAL	<b>NORMAL</b>	
746	TK	8	M	25/10/2007	NORMAL	NORMAL	NORMAL	<b>NORMAL</b>		NORMAL	NORMAL	NORMAL	<b>NORMAL</b>	
747	KM	8	F	25/10/2007	NORMAL	NORMAL	NORMAL	<b>NORMAL</b>		NORMAL	NORMAL	NORMAL	<b>NORMAL</b>	
748	MV	31	F	25/10/2007	NORMAL	NORMAL	NORMAL	<b>NORMAL</b>		NORMAL	NORMAL	NORMAL	<b>NORMAL</b>	
750	NK	21	F	26/10/2007	NORMAL	NORMAL	NORMAL	<b>NORMAL</b>		NORMAL	NORMAL	NORMAL	<b>NORMAL</b>	
751	PO	24	M	26/10/2007	NORMAL	NORMAL	NORMAL	<b>NORMAL</b>		NORMAL	NORMAL	NORMAL	<b>NORMAL</b>	
753	NME	29	F	28/10/2007	NORMAL	NORMAL	NORMAL	<b>NORMAL</b>		NORMAL	NORMAL	NORMAL	<b>NORMAL</b>	
754	KD	52	F	28/10/2007	NORMAL	NORMAL	NORMAL	<b>NORMAL</b>		NORMAL	NORMAL	NORMAL	<b>NORMAL</b>	
755	MD	15	F	28/10/2007	NORMAL	NORMAL	NORMAL	<b>NORMAL</b>		NORMAL	NORMAL	NORMAL	<b>NORMAL</b>	
759	SP	38	M	30/10/2007	NORMAL	NORMAL	NORMAL	<b>NORMAL</b>		NORMAL	NORMAL	NORMAL	<b>NORMAL</b>	
760	PA	42	F	30/10/2007	NORMAL	NORMAL	NORMAL	<b>NORMAL</b>		NORMAL	NORMAL	NORMAL	<b>NORMAL</b>	
763	MM	26	F	31/10/2007	NORMAL	NORMAL	NORMAL	<b>NORMAL</b>		NORMAL	NORMAL	NORMAL	<b>NORMAL</b>	
764	MC	26	F	31/10/2007	<b>ABNORMAL</b>	NORMAL	NORMAL	<b>Undetermined</b>		<b>ABNORMAL</b>	NORMAL	<b>ABNORMAL</b>	<b>ABNORMAL</b>	Meningitis
766	ME	29	F	12/12/2006	NORMAL	NORMAL	NORMAL	<b>NORMAL</b>		NORMAL	NORMAL	NORMAL	<b>NORMAL</b>	
768	MC	9	F	12/12/2006	NORMAL	NORMAL	NORMAL	<b>NORMAL</b>		NORMAL	NORMAL	NORMAL	<b>NORMAL</b>	
770	MC	28	F	13/12/2006	NORMAL	NORMAL	NORMAL	<b>NORMAL</b>		NORMAL	NORMAL	NORMAL	<b>NORMAL</b>	
771	CJ	72	M	13/12/2006	NORMAL	NORMAL	NORMAL	<b>NORMAL</b>		NORMAL	NORMAL	NORMAL	<b>NORMAL</b>	
772	ME	56	M	13/12/2006	NORMAL	NORMAL	NORMAL	<b>NORMAL</b>		NORMAL	NORMAL	NORMAL	<b>NORMAL</b>	

					PRECONTRAST					POSTCONTRAST				
STUDY NO	INITIALS	AGE	SEX	DATE	READER 1	READER 2	READER 3	OUTCOME		READER 1	READER 2	READER 3	OUTCOME	
774	MS	6	M	13/12/2006	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
775	MS	34	F	13/12/2006	NORMAL	NORMAL	NORMAL	NORMAL		ABNORMAL	NORMAL	ABNORMAL	ABNORMAL	Pituitary mass
777	SG	47	F	13/12/2006	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
778	RJ	41	M	14/12/2006	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
779	NB	16	M	14/12/2006	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
780	CT	20	M	14/12/2006	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
781	MS	60	M	15/12/2006	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
782	SS	9	F	15/12/2006	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
784	TS	7	M	18/12/2006	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
785	MW	47	M	18/12/2006	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
786	MU	3	M	18/12/2006	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
787	NN	46	F	18/12/2006	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
789	TL	26	F	18/12/2006	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
790	DW	21	M	18/12/2006	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
791	NM	53	F	18/12/2006	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
792	TS	64	M	19/12/2006	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
793	MS	6	M	19/12/2006	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
794	MS	78	F	19/12/2006	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
795	MA	26	F	20/12/2006	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
796	TM		M	21/12/2006	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
797	PM	63	M	21/12/2006	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
798	MAM	59	F	21/12/2006	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
799	MH	58	F	23/12/2006	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
800	MP	39	M	24/12/2006	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
801	TM	26	M	27/12/2006	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
802	NJ	33	M	27/12/2006	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
803	LP	32	F	27/12/2006	ABNORMAL	NORMAL	NORMAL	Undetermined	Early oedema	ABNORMAL	NORMAL	NORMAL	Undetermined	
804	PH		M	27/12/2006	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
806	BP		M	28/12/2006	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	

					PRECONTRAST					POSTCONTRAST				
STUDY NO	INITIALS	AGE	SEX	DATE	READER 1	READER 2	READER 3	OUTCOME		READER 1	READER 2	READER 3	OUTCOME	
807	RC	37	F	31/12/2006	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
810	MM	54	F	1/1/2007	NORMAL	NORMAL	ABNORMAL	Undetermined	Infarct	ABNORMAL	NORMAL	ABNORMAL	ABNORMAL	Infarct
813	NP	21	M	2/1/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
814	MM	60	F	2/1/2007	NORMAL	NORMAL	NORMAL	NORMAL		ABNORMAL	ABNORMAL	NORMAL	ABNORMAL	Meningitis
815	KE	37	M	2/1/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
817	SB	24	M	3/1/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
818	KM	35	F	3/1/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
821	MB	23	F	3/1/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
822	GP	17	F	4/1/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
824	PO	6		5/1/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
826	TE	38	F	6/1/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
828	MB	17MO		8/1/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
830	SW	37	M	8/1/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
832	CB	19	M	8/1/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	ABNORMAL	Undetermined	
833	MJ	43	M	9/1/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
834	JJ	35	M	9/1/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
835	MF	33	F	9/1/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
837	LG	2		10/1/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
838	SJ	22	M	10/1/2007	NORMAL	NORMAL	NORMAL	NORMAL		ABNORMAL	ABNORMAL	ABNORMAL	ABNORMAL	Abscess
839	NM	31	F	12/1/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
840	ML	2		13/1/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
841	MZ	2	F	14/1/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
843	FM	54		15/01/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
844	KM	21		15/01/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
847	MM	47	F	17/1/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
848	TE	44	M	17/1/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
849	MO	2	F	17/1/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
850	JV	27	F	17/1/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
851	MD	54	F	17/1/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	

[Type text]

## DATASHEET C

[Type text]

					PRECONTRAST					POSTCONTRAST				
STUDY NO	INITIALS	AGE	SEX	DATE	READER 1	READER 2	READER 3	OUTCOME		READER 1	READER 2	READER 3	OUTCOME	
852	MP	43	M	17/1/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
854	NL	14	F	18/1/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
855	MM	42		18/1/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
856	MO	9		19/1/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
858	SJ	41	M	20/1/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
860	AI	51	M	20/1/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
862	NT	28		20/1/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
863	MC	28	M	22/1/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
864	MM	34	M	22/1/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	ABNORMAL	Undetermined	
865	MJ	25	M	22/1/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
866	MG	2		23/1/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
867	MP	41	M	24/1/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	ABNORMAL	Undetermined	Tiny enhancing nodule
868	NE	51	F	24/1/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
870	ME	55	F	25/1/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
871	MT	12		25/1/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
872	ZS	17		25/1/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
873	KT	17		25/1/2007	ABNORMAL	NORMAL	NORMAL	Undetermined		ABNORMAL	NORMAL	NORMAL	Undetermined	AVM choroid
875	MO	9		25/1/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
876	NS	29	F	25/1/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
880	RL	51		26/1/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
881	SK	16		26/1/2007	ABNORMAL	NORMAL	NORMAL	Undetermined	Small lacunar infarct	ABNORMAL	NORMAL	ABNORMAL	ABNORMAL	Meningitis
883	NG	3		29/01/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
884	KJ		F	29/01/2007	NORMAL	NORMAL	NORMAL	NORMAL		ABNORMAL	NORMAL	ABNORMAL	ABNORMAL	
885	SM		M	29/01/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
886	OO	5		29/1/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
889	SG	12		30/1/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
894	NL		M	01/02/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
896	KE	47	F	02/02/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	

[Type text]

## DATASHEET C

[Type text]

					PRECONTRAST					POSTCONTRAST				
STUDY NO	INITIALS	AGE	SEX	DATE	READER 1	READER 2	READER 3	OUTCOME		READER 1	READER 2	READER 3	OUTCOME	
897	MT	3MO	M	02/02/2007	NORMAL	NORMAL	NORMAL	<b>NORMAL</b>		NORMAL	NORMAL	NORMAL	<b>NORMAL</b>	
898	LM		F	02/02/2007	NORMAL	NORMAL	NORMAL	<b>NORMAL</b>		NORMAL	NORMAL	NORMAL	<b>NORMAL</b>	
899	BM	46	M	02/02/2007	NORMAL	NORMAL	NORMAL	<b>NORMAL</b>		NORMAL	NORMAL	NORMAL	<b>NORMAL</b>	
900	MA	7	F	02/02/2007	NORMAL	NORMAL	NORMAL	<b>NORMAL</b>		NORMAL	NORMAL	NORMAL	<b>NORMAL</b>	
901	CK	13	F	03/02/2007	NORMAL	NORMAL	NORMAL	<b>NORMAL</b>		NORMAL	NORMAL	NORMAL	<b>NORMAL</b>	
905	MI		M	06/02/2007	NORMAL	NORMAL	NORMAL	<b>NORMAL</b>		NORMAL	NORMAL	NORMAL	<b>NORMAL</b>	
906	MM	49	F	06/02/2007	NORMAL	NORMAL	NORMAL	<b>NORMAL</b>		NORMAL	NORMAL	NORMAL	<b>NORMAL</b>	
908	BP	42	F	07/02/2007	NORMAL	NORMAL	NORMAL	<b>NORMAL</b>		NORMAL	NORMAL	NORMAL	<b>NORMAL</b>	
909	MJ	6	M	07/02/2007	NORMAL	NORMAL	NORMAL	<b>NORMAL</b>		NORMAL	NORMAL	NORMAL	<b>NORMAL</b>	
910	SB	2	M	07/02/2007	NORMAL	NORMAL	NORMAL	<b>NORMAL</b>		NORMAL	NORMAL	NORMAL	<b>NORMAL</b>	
911	MB	71	M	07/02/2007	NORMAL	NORMAL	NORMAL	<b>NORMAL</b>		NORMAL	NORMAL	NORMAL	<b>NORMAL</b>	
912	SD	42	F	07/02/2007	NORMAL	NORMAL	NORMAL	<b>NORMAL</b>		NORMAL	NORMAL	NORMAL	<b>NORMAL</b>	
913	MM	5	M	07/02/2007	NORMAL	NORMAL	NORMAL	<b>NORMAL</b>		NORMAL	NORMAL	NORMAL	<b>NORMAL</b>	
916	JR	62	F	07/02/2007	NORMAL	NORMAL	NORMAL	<b>NORMAL</b>		NORMAL	NORMAL	NORMAL	<b>NORMAL</b>	
917	KT	41	F	07/02/2007	NORMAL	NORMAL	NORMAL	<b>NORMAL</b>		NORMAL	NORMAL	NORMAL	<b>NORMAL</b>	
918	MT	4	F	08/02/2007	NORMAL	NORMAL	NORMAL	<b>NORMAL</b>		NORMAL	NORMAL	NORMAL	<b>NORMAL</b>	
920	GB	39	F	08/02/2007	NORMAL	NORMAL	NORMAL	<b>NORMAL</b>		NORMAL	NORMAL	NORMAL	<b>NORMAL</b>	
921	MB	65	M	08/02/2007	NORMAL	NORMAL	NORMAL	<b>NORMAL</b>		NORMAL	NORMAL	NORMAL	<b>NORMAL</b>	
923	NS	39	M	08/02/2007	NORMAL	NORMAL	NORMAL	<b>NORMAL</b>		NORMAL	NORMAL	NORMAL	<b>NORMAL</b>	
924	NB	32	M	09/02/2007	NORMAL	NORMAL	NORMAL	<b>NORMAL</b>		NORMAL	NORMAL	NORMAL	<b>NORMAL</b>	
925	MB	48	M	09/02/2007	NORMAL	NORMAL	NORMAL	<b>NORMAL</b>		NORMAL	NORMAL	NORMAL	<b>NORMAL</b>	
928	NA	50	F	11/02/2007	NORMAL	NORMAL	NORMAL	<b>NORMAL</b>		NORMAL	NORMAL	NORMAL	<b>NORMAL</b>	
929	SC	25	M	11/02/2007	<b>ABNORMAL</b>	NORMAL	NORMAL	<b>Undetermined</b>		NORMAL	NORMAL	NORMAL	<b>NORMAL</b>	
933	SW	8	m	13/02/2007	NORMAL	NORMAL	NORMAL	<b>NORMAL</b>		NORMAL	NORMAL	NORMAL	<b>NORMAL</b>	
934	ME	54	F	14/02/2007	NORMAL	NORMAL	NORMAL	<b>NORMAL</b>		<b>ABNORMAL</b>	NORMAL	<b>ABNORMAL</b>	<b>ABNORMAL</b>	Meningioma
935	SM	27	F	14/02/2007	NORMAL	NORMAL	NORMAL	<b>NORMAL</b>		NORMAL	NORMAL	NORMAL	<b>NORMAL</b>	
936	SJ		M	14/02/2007	NORMAL	NORMAL	NORMAL	<b>NORMAL</b>		NORMAL	NORMAL	NORMAL	<b>NORMAL</b>	
937	TJ	39	F	14/02/2007	NORMAL	NORMAL	NORMAL	<b>NORMAL</b>		NORMAL	NORMAL	NORMAL	<b>NORMAL</b>	
939	RL	20	F	15/02/2007	NORMAL	NORMAL	NORMAL	<b>NORMAL</b>		NORMAL	NORMAL	NORMAL	<b>NORMAL</b>	

[Type text]

## DATASHEET C

[Type text]

					PRECONTRAST					POSTCONTRAST				
STUDY NO	INITIALS	AGE	SEX	DATE	READER 1	READER 2	READER 3	OUTCOME		READER 1	READER 2	READER 3	OUTCOME	
941	MG	22	M	18/02/2007	NORMAL	NORMAL	ABNORMAL	Undetermined		NORMAL	NORMAL	ABNORMAL	Undetermined	
942	MC	31	F	19/02/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
943	TS	35		19/02/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
944	NS	62	F	19/02/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
946	ME	40	F	19/02/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
947	KR	2	M	20/02/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
948	TG	27	M	20/02/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
949	KM	23	M	20/02/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
950	MJ	65	M	21/02/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
952	NW	27	M	21/02/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
953	MT	7	M	21/02/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
954	LN	8	F	21/02/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
956	SI	9	F	21/02/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
958	ME	48	F	22/02/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
960	MJ	59	M	24/02/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
961	NMQ	23	F	25/02/2007	NORMAL	ABNORMAL	NORMAL	UNSURE		NORMAL	NORMAL	NORMAL	NORMAL	
962	NT	4	F	25/07/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
963	NB	47	F	26/02/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
965	MN	8	M	26/02/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
966	SG	42	F	26/02/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
968	RS	57	M	27/02/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
969	SD	34	F	27/02/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
970	RI	9	F	27/02/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
971	MC	38	M	27/02/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
972	NM	56	F	27/02/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
973	MS	31	M	27/02/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
974	MA	44	M	28/2/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
976	NN	6	F	28/2/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
977	MJ	1	M	28/02/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	

[Type text]

## DATASHEET C

[Type text]

					PRECONTRAST					POSTCONTRAST				
STUDY NO	INITIALS	AGE	SEX	DATE	READER 1	READER 2	READER 3	OUTCOME		READER 1	READER 2	READER 3	OUTCOME	
978	DT	16	F	28/2/2007	NORMAL	NORMAL	NORMAL	NORMAL	Cavernous sinus mass	ABNORMAL	ABNORMAL	ABNORMAL	ABNORMAL	Abscess
979	KG	9	F	28/2/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
981	MW	52	M	2/3/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
982	RS	61	M	2/3/2007	ABNORMAL	NORMAL	NORMAL	Undetermined		ABNORMAL	NORMAL	NORMAL	Undetermined	
984	MF	48	F	5/3/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
985	VM	24	M	5/3/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
986	SM	38	M	6/3/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
987	PE	21	F	6/3/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
988	HM	1MO	F	6/3/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
989	MD	58	F	7/3/2007	NORMAL	NORMAL	NORMAL	NORMAL		ABNORMAL	NORMAL	NORMAL	NORMAL	
990	RB	4	M	7/3/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
991	BM	4	F	7/3/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	
992	MT			08/03/2007	NORMAL	NORMAL	NORMAL	NORMAL		NORMAL	NORMAL	NORMAL	NORMAL	



[Type text]

## DATASHEET D

[Type text]

477	TA	28	F	21/07	NORMAL	NORMAL	NORMAL	<b>NORMAL</b>		NORMAL	NORMAL	NORMAL	<b>NORMAL</b>		
485	CM	38	M	25/07	NORMAL	NORMAL	NORMAL	<b>NORMAL</b>	atrophy	NORMAL	NORMAL	NORMAL	<b>NORMAL</b>		
529	ML	44	F	07/08	<b>ABNORMAL</b>	<b>ABNORMAL</b>	<b>ABNORMAL</b>	<b>ABNORMAL</b>		<b>ABNORMAL</b>	<b>ABNORMAL</b>	<b>ABNORMAL</b>	<b>ABNORMAL</b>	Lacunar infarct	
535	SJM	30	M	10/08	NORMAL	NORMAL	NORMAL	<b>NORMAL</b>		NORMAL	NORMAL	NORMAL	<b>NORMAL</b>		
538	CA	45	M	11/08	<b>ABNORMAL</b>	<b>ABNORMAL</b>	<b>ABNORMAL</b>	<b>ABNORMAL</b>		<b>ABNORMAL</b>	<b>ABNORMAL</b>	<b>ABNORMAL</b>	<b>ABNORMAL</b>	Meningitis	
573	ME			30/08	<b>ABNORMAL</b>	<b>ABNORMAL</b>	<b>ABNORMAL</b>	<b>ABNORMAL</b>	White Matter hypodensity	<b>ABNORMAL</b>	<b>ABNORMAL</b>	<b>ABNORMAL</b>	<b>ABNORMAL</b>		
584	BT	1	M	03/09	NORMAL	NORMAL	NORMAL	<b>NORMAL</b>		<b>ABNORMAL</b>	<b>ABNORMAL</b>	NORMAL	<b>ABNORMAL</b>	Meningitis	NO
585	HG	40	F	03/09	NORMAL	NORMAL	NORMAL	<b>NORMAL</b>		<b>ABNORMAL</b>	NORMAL	<b>ABNORMAL</b>	<b>ABNORMAL</b>	Pituitary microadenoma	NO
586	MC	38	M	04/09	NORMAL	NORMAL	NORMAL	<b>NORMAL</b>		NORMAL	NORMAL	NORMAL	<b>NORMAL</b>		
594	MJ	15	F	05/09	NORMAL	NORMAL	NORMAL	<b>NORMAL</b>	Colpocephaly	NORMAL	NORMAL	NORMAL	<b>NORMAL</b>		
595	MMM	51	F	06/09	NORMAL	NORMAL	NORMAL	<b>NORMAL</b>		NORMAL	NORMAL	NORMAL	<b>NORMAL</b>		
603	SC	30	F	08/09	<b>ABNORMAL</b>	<b>ABNORMAL</b>	<b>ABNORMAL</b>	<b>ABNORMAL</b>	WM changes	<b>ABNORMAL</b>	<b>ABNORMAL</b>	<b>ABNORMAL</b>	<b>ABNORMAL</b>		
604	MM			10/09	NORMAL	NORMAL	NORMAL	<b>NORMAL</b>		NORMAL	NORMAL	NORMAL	<b>NORMAL</b>		
624	MT	14	M	14/09	<b>ABNORMAL</b>	<b>ABNORMAL</b>	<b>ABNORMAL</b>	<b>ABNORMAL</b>		<b>ABNORMAL</b>	<b>ABNORMAL</b>	<b>ABNORMAL</b>	<b>ABNORMAL</b>	AVM	
625	MH	33	M	14/09	<b>ABNORMAL</b>	<b>ABNORMAL</b>	<b>ABNORMAL</b>	<b>ABNORMAL</b>	lacunar	<b>ABNORMAL</b>	<b>ABNORMAL</b>	<b>ABNORMAL</b>	<b>ABNORMAL</b>		
631	KT	28	M	17/09	<b>ABNORMAL</b>	<b>ABNORMAL</b>	<b>ABNORMAL</b>	<b>ABNORMAL</b>	contrast changed dx	<b>ABNORMAL</b>	<b>ABNORMAL</b>	<b>ABNORMAL</b>	<b>ABNORMAL</b>	neurocystisercosis	
642	MP	44	M	18/09	NORMAL	NORMAL	NORMAL	<b>NORMAL</b>		<b>ABNORMAL</b>	<b>ABNORMAL</b>	<b>ABNORMAL</b>	<b>ABNORMAL</b>	Enhancing nodule Rt frontal	NO
643	BG	37	M	18/09	<b>ABNORMAL</b>	<b>ABNORMAL</b>	<b>ABNORMAL</b>	<b>ABNORMAL</b>	WM - contrast added	<b>ABNORMAL</b>	<b>ABNORMAL</b>	<b>ABNORMAL</b>	<b>ABNORMAL</b>	Lacunar infarct and White matter changes	
695	ME	53	F	06/10	NORMAL	NORMAL	NORMAL	<b>NORMAL</b>		<b>ABNORMAL</b>	<b>ABNORMAL</b>	<b>ABNORMAL</b>	<b>ABNORMAL</b>	Cystic Lesion-neurocystisercosis	YES
712	MM	16	F	13/10	NORMAL	NORMAL	NORMAL	<b>NORMAL</b>		NORMAL	NORMAL	NORMAL	<b>NORMAL</b>		
764	MC	26	F	31/10	<b>ABNORMAL</b>	<b>ABNORMAL</b>	<b>ABNORMAL</b>	<b>ABNORMAL</b>		<b>ABNORMAL</b>	<b>ABNORMAL</b>	<b>ABNORMAL</b>	<b>ABNORMAL</b>	Meningitis	
775	MS	34	F	13/12/2006	NORMAL	NORMAL	NORMAL	<b>NORMAL</b>	Pituitary mass	<b>ABNORMAL</b>	<b>ABNORMAL</b>	<b>ABNORMAL</b>	<b>ABNORMAL</b>	meningitis & pituitary mass	Pituitary mass - yes meningitis - no
803	LP	32	F	27/12/2006	<b>ABNORMAL</b>	<b>ABNORMAL</b>	<b>ABNORMAL</b>	<b>ABNORMAL</b>	Early oedema	<b>ABNORMAL</b>	<b>ABNORMAL</b>	<b>ABNORMAL</b>	<b>ABNORMAL</b>		
810	MM	54	F	1/1/2007	<b>ABNORMAL</b>	<b>ABNORMAL</b>	<b>ABNORMAL</b>	<b>ABNORMAL</b>	Infarct	<b>ABNORMAL</b>	<b>ABNORMAL</b>	<b>ABNORMAL</b>	<b>ABNORMAL</b>	Infarct	
814	MM	60	F	2/1/2007	NORMAL	NORMAL	NORMAL	<b>NORMAL</b>		<b>ABNORMAL</b>	<b>ABNORMAL</b>	NORMAL	<b>ABNORMAL</b>	Meningitis	NO
832	CB	19	M	8/1/2007	NORMAL	NORMAL	NORMAL	<b>NORMAL</b>		<b>ABNORMAL</b>	<b>ABNORMAL</b>	<b>ABNORMAL</b>	<b>ABNORMAL</b>	2 x enhancing nodules	NO
838	SJ	22	M	10/1/2007	NORMAL	NORMAL	NORMAL	<b>NORMAL</b>		<b>ABNORMAL</b>	<b>ABNORMAL</b>	<b>ABNORMAL</b>	<b>ABNORMAL</b>	meningitis and ring enhancing lesion	YES
864	MM	34	M	22/1/2007	NORMAL	NORMAL	NORMAL	<b>NORMAL</b>		NORMAL	NORMAL	NORMAL	<b>NORMAL</b>		

[Type text]

## DATASHEET D

[Type text]

867	MP	41	M	24/1/2007	NORMAL	NORMAL	NORMAL	<b>NORMAL</b>		NORMAL	NORMAL	NORMAL	<b>NORMAL</b>		
873	KT	17		25/1/2007	<b>ABNORMAL</b>	<b>ABNORMAL</b>	<b>ABNORMAL</b>	<b>ABNORMAL</b>		<b>ABNORMAL</b>	<b>ABNORMAL</b>	<b>ABNORMAL</b>	<b>ABNORMAL</b>	AVM choroid	
881	SK	16		26/1/2007	NORMAL	NORMAL	NORMAL	<b>NORMAL</b>		NORMAL	NORMAL	NORMAL	<b>NORMAL</b>		
884	KJ		F	29/01/2007	NORMAL	NORMAL	NORMAL	<b>NORMAL</b>		<b>ABNORMAL</b>	NORMAL	<b>ABNORMAL</b>	<b>ABNORMAL</b>	Meningioma	YES
929	SC	25	M	11/02/2007	NORMAL	NORMAL	NORMAL	<b>NORMAL</b>		NORMAL	NORMAL	NORMAL	<b>NORMAL</b>		
934	ME	54	F	14/02/2007	NORMAL	NORMAL	NORMAL	<b>NORMAL</b>		<b>ABNORMAL</b>	NORMAL	<b>ABNORMAL</b>	<b>ABNORMAL</b>	Meningioma	NO
941	MG	22	M	18/02/2007	<b>ABNORMAL</b>	<b>ABNORMAL</b>	<b>ABNORMAL</b>	<b>ABNORMAL</b>		<b>ABNORMAL</b>	<b>ABNORMAL</b>	<b>ABNORMAL</b>	<b>ABNORMAL</b>		
961	NMQ	23	F	25/02/2007	<b>ABNORMAL</b>	<b>ABNORMAL</b>	<b>ABNORMAL</b>	<b>ABNORMAL</b>		<b>ABNORMAL</b>	<b>ABNORMAL</b>	<b>ABNORMAL</b>	<b>ABNORMAL</b>		
978	DT	16	F	28/2/2007	NORMAL	NORMAL	NORMAL	<b>NORMAL</b>	Cavernous sinus mass	<b>ABNORMAL</b>	<b>ABNORMAL</b>	<b>ABNORMAL</b>	<b>ABNORMAL</b>		YES - hypodense middle cranial fossa lesion
982	RS	61	M	2/3/2007	NORMAL	NORMAL	NORMAL	<b>NORMAL</b>		NORMAL	NORMAL	NORMAL	<b>NORMAL</b>		
24	KR	31	F	5/11/2006	NORMAL	NORMAL	NORMAL	<b>NORMAL</b>	ATROPHY	NORMAL	NORMAL	NORMAL	<b>NORMAL</b>		
82	NA	63	M	17/11/2006	NORMAL	NORMAL	NORMAL	<b>NORMAL</b>	ATROPHY	NORMAL	NORMAL	NORMAL	<b>NORMAL</b>		
87	ML	32	M	20/11/2006	<b>ABNORMAL</b>	<b>ABNORMAL</b>	<b>ABNORMAL</b>	<b>ABNORMAL</b>	ATROPHY	<b>ABNORMAL</b>	<b>ABNORMAL</b>	<b>ABNORMAL</b>	<b>ABNORMAL</b>	gliosis	
142	MN	13	F	30/11/2006	NORMAL	NORMAL	NORMAL	<b>NORMAL</b>	Atrophy	<b>ABNORMAL</b>	<b>ABNORMAL</b>	<b>ABNORMAL</b>	<b>ABNORMAL</b>	enhancing nodule	NO
320	DJ	73	F	03/05	NORMAL	NORMAL	NORMAL	<b>NORMAL</b>	ATROPHY	<b>ABNORMAL</b>	NORMAL	<b>ABNORMAL</b>	<b>ABNORMAL</b>	Transverse & sigmoid sinus thrombosis	NO
350	SC	32	M	25/05	NORMAL	NORMAL	NORMAL	<b>NORMAL</b>	ATROPHY	<b>ABNORMAL</b>	NORMAL	<b>ABNORMAL</b>	<b>ABNORMAL</b>	meningitis	YES - ill defined SSS
583	RR	33	F	03/09	NORMAL	NORMAL	NORMAL	<b>NORMAL</b>	ATROPHY	NORMAL	NORMAL	NORMAL	<b>NORMAL</b>		
749	MG			26/10	NORMAL	NORMAL	NORMAL	<b>NORMAL</b>	ATROPHY	NORMAL	NORMAL	NORMAL	<b>NORMAL</b>		
808	TM	31	M	31/12/2006	<b>ABNORMAL</b>	<b>ABNORMAL</b>	<b>ABNORMAL</b>	<b>ABNORMAL</b>	ATROPHY	<b>ABNORMAL</b>	<b>ABNORMAL</b>	<b>ABNORMAL</b>	<b>ABNORMAL</b>		
932	MF	59	M	13/02/2007	NORMAL	NORMAL	NORMAL	<b>NORMAL</b>	ATROPHY	NORMAL	NORMAL	NORMAL	<b>NORMAL</b>		
887	PG	1	1	29/1/2007	NORMAL	NORMAL	NORMAL	<b>NORMAL</b>	ATROPHY	NORMAL	NORMAL	NORMAL	<b>NORMAL</b>		
964	MD	10	M	26/02/2007	NORMAL	NORMAL	NORMAL	<b>NORMAL</b>	ATROPHY	NORMAL	<b>ABNORMAL</b>	<b>ABNORMAL</b>	<b>ABNORMAL</b>	MENINGITIS	NO