Introduction

Ultrasound has become increasingly recognised as an ideal diagnostic tool for use in an acute medical setting. Clear clinical questions can be answered rapidly. Within a low-resource setting, laboratory and radiological diagnostics are often limited, both in availability and time delays for results. At Sibanor, X-ray was not available at any hospital for 100km. A basic ultrasound machine in the hand of a clinician with basic scanning skills may therefore be of great benefit.

Methods: Skill of Sonographers

UK-trained physicians with variable ultrasound training:
1. Gastroenterologist with extensive abdominal scanning experience.
2. Acute Physican trainee, with extensive basic ultrasound experience in a low-resource setting, (focused regional scans including ECHO)
3. GP with experience in low-resource setting focused scanning

Results

- 58 scans performed
- Median age 32 (range 17-80)

<table>
<thead>
<tr>
<th>System Scanned</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abdominal</td>
<td>13</td>
</tr>
<tr>
<td>Thorax</td>
<td>1</td>
</tr>
<tr>
<td>Echocardiography</td>
<td>10</td>
</tr>
<tr>
<td>Pelvis</td>
<td>24</td>
</tr>
<tr>
<td>Deep Veins of Leg</td>
<td>4</td>
</tr>
<tr>
<td>Soft tissues (leg, back, knee, neck, hand)</td>
<td>6</td>
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</tbody>
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Aims

1) To quantify the use of ultrasonography in a low-resource setting in terms of:
   a) Type of scan performed (which system)
   b) Diagnoses made by ultrasound

Discussion

- Fig 2 illustrates the diverse range of conditions identified on ultrasound scan
- Patient care was always enhanced; even if this meant explaining to the patient that their condition was untreatable
- Only 4 scans (7%) were normal; this suggests that ultrasounds were only requested with high index of clinical suspicion. It may also imply potential under-use of this resource.
- The scanner is currently broken after being donated, and used for several years. Difficulty in maintenance and surges in the electrical supply have been problems, highlighting the limitations of this tool.

Conclusions and Future Work

- Basic ultrasound training and access to a simple scanner can enhance clinical care in a low-resource setting.
- Locally set curriculum for focused scanning, based on local pattern of diseases will enhance the quality of service provided. Ongoing training/tele-consultation to maintain skills could be developed.
- This pilot study is likely to have underestimated the true range of cases identifiable by ultrasound scanning in this region.
- Efforts to obtain and maintain machines and provide clinical training may be a cost effective; further research, including from a health economic perspective, is necessary.

Methods 1:

Clinical Setting
- Sibanor Clinic, The Gambia
- A rural clinic with 15 inpatient beds, assessing 50-150 outpatients daily
- Life expectancy at birth 57-60
- Per capita annual expenditure on health $94

Locally Available Tests

<table>
<thead>
<tr>
<th>Test</th>
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<tbody>
<tr>
<td>Malaria (blood film and antigen test)</td>
</tr>
<tr>
<td>Haemoglobin</td>
</tr>
<tr>
<td>HIV test</td>
</tr>
<tr>
<td>Pregnancy test (not used routinely)</td>
</tr>
<tr>
<td>Blood glucose</td>
</tr>
<tr>
<td>Sputum AAFB</td>
</tr>
<tr>
<td>Fluid gram stain</td>
</tr>
</tbody>
</table>

Patient Selection

- 10 week period (Dec 2012-Jan 2013)
- Log of all USS scans recording:
  - Indication
  - System scanned
  - Findings
- Routine antenatal scans excluded from analysis, but pregnancy complications included

Analysis

- The findings from this exploratory study are presented simply as charts and percentages; formal statistical analysis not undertaken