Comparing a Telepathology and Distance Medical Education Program in East Africa

EVALUATING THE CHALLENGES OF E-HEALTH PROGRAMS FOR DEVELOPING COUNTRIES

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Summary

- Introduction to RAHP
- Design
  - Medical Education Program
  - Telepathology Program
- Results
- Challenges: local vs. program factors
- Strengths: local vs. program factors
- The Way Forward
Remote Access for Health Professionals (RAHP)

- An initiative of the Aga Khan Health Board for the USA
- In collaboration with the Aga Khan Hospitals in Dar es Salaam, Nairobi, Kisumu and Mombasa
- Grant funds provided by the Aga Khan Foundation
- Projects areas include pathology, radiology, pain management, nursing training, orthopedics
RAHP Objectives

- Promote evidence-based medicine in developing countries
- Build capacity to provide an increased number of services and improve the quality of care
- Encourage locally-driven academic activities
- Utilize ICT to bridge gaps in clinical care and medical education
RAHP E-Health Activities

- Distance medical education
  - Support for PGME program
  - Nursing training
  - Radiology CME

- Telepathology program
  - AKH-Dar with Mass. General Hospital
  - Regional Network in East Africa
RAHP Website

Custom-designed site to be the central portal of all e-health activity

User-friendly, site with access to

- Library of cases and articles
- Modules for each participant group
- Access to other programs i.e. telepathology, Hinari

www.Remotehealth.org

Remote Access for Health Professionals (RAHP)

A learning and consultative platform for healthcare professionals from around the world.

Access to Remote Health Access for Health Professionals (RAHP) is limited to:

- Members of Ismaili Health Professionals Association (IHPA)
- Employees and students of healthcare institutions who are IHPA’s partner organizations.
- Individuals who have been invited to participate in activities and discussions offered at this website.
### Remote Access for Health Professionals (RAHP)

**iPath - The Tele-Teaching Server of the Department of Pathology, University of Basel**

Files uploaded since you last logged in on 2010-04-06 19:25:10.653

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<td>Interpretation of Emergency Head CT</td>
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Medical Education Program

- **Context**
  - Aga Khan Hospital in Dar es Salaam
  - 80-bed hospital in an urban center with graduate medical education in family medicine
  - 1.5 faculty for 12 residents

- **Resources**
  - Computers with internet, printer
  - Program Director and nurse managers providing oversight
  - Participants - family medicine residents and nurses
  - Faculty – US-based academic physicians
    - [www.remotehealth.org](http://www.remotehealth.org)
Medical Education Program Design

- **Course Design**
  - 3 week modules
  - Asynchronous, threaded discussion
  - Remote faculty post questions and cases
  - Participants are expected to answer questions and contribute to discussions at least twice weekly
  - Participants use hospital computers
  - Take time from the work day to participate
**IDENTIFY ANATOMY**

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<tbody>
<tr>
<td>Nacruddin</td>
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<td></td>
<td>Hello Students</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Let's start our topic today with the Basic Anatomic Structures identified on TWO (Frontal and Lateral) views of chest.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Slides attached show these views with labels showing various anatomic parts identified on these views. There are some structures that are labeled with Numerics instead of name of the anatomic part. See if you can recognize those parts. (I would like you all to post your answers by Thursday) I will post my key on Thursday.</td>
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<td></td>
<td></td>
<td>Nacruddin</td>
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<tr>
<td>Ilwayway_hussein</td>
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DSC00554.JPG 1874 KB (34 views)
DSC00555.JPG 812 KB (8 views)
Great! Nice to hear from you all and thank you for your input. I hope you were all able to download at least one of the articles I posted as a reference for this forum.

At any point during this course, please feel free to ask for clarifications or ask questions.

Let’s begin with the case:

A 37-year-old female with no significant past medical history, presents to your clinic complaining of a non-productive cough for 4 weeks. She has not tried any medications for her cough.

I would like each of you to post what questions you would like to ask her, and for each question tell us why you would like that information.

- Dr Talib

Posted: Sep 13, 2007

I am Dr Wilfred Kaizige, 3rd year Family Medicine Resident, I work in the hospital as part of training, mainly in the family medicine clinic as well as emergency room.

At the end of this course I should be able to make a good work-up of a patient with chronic cough, reach a diagnosis and give proper treatment.

Three diagnosis of chronic cough are:- Pulmonary tuberculosis, Chronic obstructive pulmonary disease and malignancy like bronchogenic carcinoma.
Telepathology Program

DESIGN
## Local Pathology Resources

<table>
<thead>
<tr>
<th>Smaller Centers</th>
<th>Aga Khan University Hospital - Nairobi</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tanzania has</td>
<td>5 full time pathologists and one part time with specialty services</td>
</tr>
<tr>
<td>○ 15 pathologists in the entire country</td>
<td></td>
</tr>
<tr>
<td>○ No immunohistochemistry lab</td>
<td></td>
</tr>
<tr>
<td>Western provinces of Kenya have only 2 pathologists</td>
<td>Capacity to do immunohistochemistry</td>
</tr>
<tr>
<td>Smaller centers have general pathologists</td>
<td>8-10 x the volume of specimens</td>
</tr>
</tbody>
</table>
Telepathology Requirements

- Multi-headed microscope
- Color Digital Camera
- PCI/graphics card and software
- Access to iPath University of Basel telepathology/telemedicine server
- On-site training for pathologists on capturing photographs and uploading images to iPath
Telepathology Program

Static images
Uses ipath hosted by the University of Basel
Evolved from an east-west collaboration to an East Africa regional network

Started as a collaboration between Mass. General Hospital and Aga Khan Hospital in Dar es Salaam
Expanded to include hospitals in Nairobi (tertiary care), Kisumu, Mombasa
Welcome to the iPath section for RAHP

The Primary Objective of Remote Access for Health Professionals (RAHP) is to promote evidence based practice of medicine in East Africa.

RAHP is an initiative of the Aga Khan Health Board for USA in partnership with Aga Khan Hospitals in Dar es Salaam, Nairobi, Kisumu and Mombasa and supported by a grant from the Aga Khan Foundation. All information available through the Remote Access for Health Professional (“RAHP”) program is provided by individuals who may or may not be licensed to practice in your respective home country; they therefore do not authorize their opinions (medical or otherwise) to be used as the basis for your decision concerning any diagnosis rendered and/or medical treatment, practice or procedure undertaken either by or for any third party. Therefore, RAHP discussions, online or otherwise, are meant for educational purposes only, and are not meant to serve as a substitute for your own clinical judgment as a healthcare professional. If you choose to use the information available through RAHP, you agree to do so at your own risk, and agree to indemnify and hold harmless the individual(s) and/or their home country institution(s)/employer(s) from any liability that may directly or indirectly result from your use of any information obtained or made available through RAHP. We therefore strongly encourage you to exercise utmost professional judgment in evaluating any information, and we encourage you to confirm any information, made available through RAHP with other credible sources before undertaking or utilizing any such information. While the Aga Khan Health Board and its affiliates (collectively the “Board and
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<td>case</td>
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<td>2010-04-12</td>
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<tr>
<td>286585</td>
<td>axillary lymph node</td>
<td>case</td>
<td>akhpatho</td>
<td>2010-04-10</td>
</tr>
<tr>
<td>286158</td>
<td>lung biopsy</td>
<td>case</td>
<td>akhpatho</td>
<td>2010-04-06</td>
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<tr>
<td>284892</td>
<td>pneumatosis intestinalis (H 299/10)</td>
<td>case</td>
<td>sprasad</td>
<td>2010-03-26</td>
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<tr>
<td>284651</td>
<td>ovarian mass (H 268/10)</td>
<td>case</td>
<td>sprasad</td>
<td>2010-03-24</td>
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<tr>
<td>281797</td>
<td>skin lesion on upper arm</td>
<td>histopathology</td>
<td>jivaji</td>
<td>2010-03-04</td>
</tr>
<tr>
<td>281326</td>
<td>parotid mass</td>
<td>case</td>
<td>ssayed</td>
<td>2010-03-01</td>
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</table>
5 month old female baby with a scalp lesion for 3 months. An ulcerated skin ellipse measuring 2.3x0.9cm with underlying tissue up to 0.7cm was submitted. On dissection, the entire underlying tissue was firm and yellow in color.

Annotations

ssayed
2018-04-12 14:51
I think this is a Juvenile Xanthogranuloma. Age, site and histology fit the picture.
28 yr. Female
left side breast lump, Giant Fibroadenoma vs Phylloides tumor.
9x6cm lump left breast, encapsulated.
Conclusion: Fibroadenoma
Request for second opinion.

Annotations
akhptho 2006-05-03 19:18
Regarding Gross findings of AKP 174/08:
Histo tech's findings:
Received an ovoid piece of tissue, size 7x6x5cm, well circumscribed, firm in consistency.
c/s: whitish tumor, tissue infiltrating within the fibrous tissues, some areas are gray colored. No cystic lesion seen.
# Results: Medical Education Program

<table>
<thead>
<tr>
<th>Graduate Medical Education</th>
<th>Nursing Education</th>
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<tbody>
<tr>
<td>o Chronic Cough</td>
<td>o Fever Management</td>
</tr>
<tr>
<td>• 1&lt;sup&gt;st&lt;/sup&gt; week – 6 residents</td>
<td>• 1&lt;sup&gt;st&lt;/sup&gt; week – 9 participants</td>
</tr>
<tr>
<td>• 2&lt;sup&gt;nd&lt;/sup&gt; week – 3 residents</td>
<td>• 2&lt;sup&gt;nd&lt;/sup&gt; week – 2 participants</td>
</tr>
<tr>
<td>• 3&lt;sup&gt;rd&lt;/sup&gt; week – no participants</td>
<td>• 3&lt;sup&gt;rd&lt;/sup&gt; week – no participants</td>
</tr>
<tr>
<td>o Chest Xray Basics</td>
<td></td>
</tr>
<tr>
<td>• 1&lt;sup&gt;st&lt;/sup&gt; week – 8 residents</td>
<td></td>
</tr>
<tr>
<td>• 2&lt;sup&gt;nd&lt;/sup&gt; week – 3 residents</td>
<td></td>
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</table>
## Results: Telepathology Program

### AKH-Dar and MGH
- **15 cases posted in first 5 months (3 per month)**
  - 4 complete diagnoses
  - 8 partial diagnosis
  - 3 non-diagnostic
- **Responses included**
  - Differential diagnosis
  - Most likely diagnosis
  - Related article for reference

### Regional Network
- **7-12 cases per month**
- **Participation from public hospitals**
- **Microscope used for daily teaching rounds**
- **Stimulated educational activities among pathologists**
Challenges
## Challenges: Medical Education Program

<table>
<thead>
<tr>
<th>Local Factors</th>
<th>Course-Related</th>
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<tbody>
<tr>
<td>• Change in leadership</td>
<td>• No prior relationship with students</td>
</tr>
<tr>
<td>• Lack of protected time</td>
<td>• Not enough description of expectations and evaluation</td>
</tr>
<tr>
<td>• Slow and inconsistent internet access</td>
<td>• No tangible incentive or career impact i.e. certification</td>
</tr>
<tr>
<td>• Service-driven environment</td>
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</table>
### Challenges: Telepathology Program

<table>
<thead>
<tr>
<th>Local</th>
<th>Program-related</th>
</tr>
</thead>
</table>
| • Partial and non-diagnostic cases  
  ○ Technical artifacts  
  ○ Absence of immunohistochemistry and flow cytometry  
  ○ Limited clinical information  
| • Initially lacking IT support  
| • No protocols to ensure a minimum amount of data (i.e. gross picture, clinical information)  
| • Limited number of pathologists to generate static images |
Strengths
### Strengths: Medical Education Program

<table>
<thead>
<tr>
<th>Local Factors</th>
<th>Program-Related</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Clear need for educational support</td>
<td>- Committed, enthusiastic and responsive faculty</td>
</tr>
<tr>
<td>- Computer access</td>
<td>- Locally-relevant topics chosen by local leadership</td>
</tr>
<tr>
<td>- Internet access</td>
<td>- Simple interface</td>
</tr>
</tbody>
</table>
## Strengths: Telepathology Program

<table>
<thead>
<tr>
<th>Local</th>
<th>Program -Related</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Geographically isolated pathologists were in need of professional support, second opinions</td>
<td>• Simple equipment and online platform</td>
</tr>
<tr>
<td>• Committed and consistent local leadership</td>
<td>• Onsite visit by MGH pathologist to train and build relationships</td>
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<td></td>
<td>• Timely responses from collaborating pathologists triggered by email from ipath</td>
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## The Way Forward

<table>
<thead>
<tr>
<th>Telepathology</th>
<th>Medical Education</th>
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<tbody>
<tr>
<td>• Building local capacity to do more ancillary testing</td>
<td>• Need a blended curriculum with on-site visits to form personal relationships</td>
</tr>
<tr>
<td>• Develop protocols for information required</td>
<td>• More attention to expectations, evaluation</td>
</tr>
<tr>
<td>• Intermittent visits by collaborating pathologists</td>
<td>• Require protected time</td>
</tr>
<tr>
<td>• Training lab techs to assist in uploading images</td>
<td>• Provide certification</td>
</tr>
<tr>
<td></td>
<td>• Locally-driven monitoring</td>
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Summary

- Immediate success of E-Health programs can be measured by the level of engagement.

- Our Telepathology and Medical Education programs had very different levels of engagement.

- The Medical Education program lost more than half of its participants by the second week.

- Whereas the Telepathology program continues to grow in cases posted and in number of participants.
Lessons Learned

- A meaningful way to evaluate the challenges faced by e-health programs is to separate those that are locally-driven and those that are program-related.

- Focusing on program-related challenges is empowering and provides opportunities for success.

- The RAHP program plans to expand the telepathology program and is working on a blended curriculum for medical education.
Thank you

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