Understanding data needs for HTA in Sub-Saharan Africa – a framework and Ghana case study

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+ Alex Winch

Setting Health Priorities 2018
Why? I

- Ghana is moving to universal health coverage (UHC)
- National Health Insurance Scheme (NHIS) has been established for some years.
- Money available for the NHIS is finite and scarce
- UHC will require money spent on the NHIS to be prioritised wisely to maximise health returns on investment
Why? II

• For **evidence-informed priority setting**, policymakers need answers to ....
  ✓ Where is money being spent in the health system?
  ✓ How are health services being used?
  ✓ What is the general ‘health’ of the population?

• Need to **combine this evidence** in order to understand:
  ✓ What is the value for money of current and future investments in the health system?
  ✓ Where can we make the most health gains?

• HTA is the **international gold-standard tool** for combining this information for evidence-informed priority setting in healthcare decision-making

• The Government of Ghana is committed to **institutionalising HTA** for priority setting.
What do we mean by ‘evidence’?

**Clinical Efficacy**
*Does it work?*

**Epidemiology**
*Who is affected and how?*

**Cost**
*How much does it cost?*

**Equity**
*Are particular groups affected?*

**Service use**
*What is the level of consumption?*

**QoL**
*Does it improve quality of life?*

**Data for HTA**
Data – some issues

- lack of high-quality available evidence in many LMICs
- any HTA model is only as good as the data that populates it
- local evidence is often more available for some parameters (epidemiology, some costs) than others (e.g. QoL, clinical efficacy)
- countries starting their HTA journey can begin by using a combination of local and international data
- long-term planning for ‘institutionalising’ HTA should include strengthening of data collection mechanisms
Aim

To identify and describe the sources and quality of accessible data to support HTA in Ghana
How?

- **Existing framework** (Downey et al 2018)
  - epidemiology
  - clinical efficacy
  - costs
  - service use and consumption
  - quality of life
  - equity
- identified and described **data sources**
  - existing knowledge
  - views of stakeholders
  - searches of the literature and internet
## Ghana – hypertension HTA I

<table>
<thead>
<tr>
<th>Aspect</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Epidemiology</strong></td>
<td>- Prevalence of hypertension ➝ Ghana Statistical Service (GSS) &amp; DHS Census Data (2012,2014)</td>
</tr>
<tr>
<td>Prevalence of hypertension, mortality estimates, probabilities of incidence of CVD, diabetes, incidence of related complications</td>
<td>- Mortality rates ➝ WHO estimated life table for Ghana</td>
</tr>
<tr>
<td></td>
<td>- Annual probabilities of incidence of CVD + diabetes ➝ international literature</td>
</tr>
<tr>
<td></td>
<td>- Baseline estimates of the incidence of CVD ➝ multivariate analysis of primary care data, black African patients in UK (QRisk2 algorithm)</td>
</tr>
<tr>
<td><strong>Clinical efficacy</strong></td>
<td>- Meta-analyses ➝ international literature for black African population (not specifically Ghanaian)</td>
</tr>
<tr>
<td>Effectiveness of AHM; incidence of adverse events</td>
<td></td>
</tr>
<tr>
<td><strong>Cost</strong></td>
<td>- Unit costs of service ➝ NHIS price for drugs on the essential medicines list, NHIS tariffs</td>
</tr>
<tr>
<td>antihypertensive medicines; interactions with the health system</td>
<td>- Daily dose and healthcare intervention assumptions ➝ recommendations in Ghana Standard Treatment Guidelines for hypertension</td>
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## Ghana – hypertension HTA II

<table>
<thead>
<tr>
<th>Aspect</th>
<th>Source</th>
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</thead>
<tbody>
<tr>
<td><strong>Service use</strong></td>
<td>- NHIS protocols</td>
</tr>
<tr>
<td>use of services for healthcare seeking; treatment of adverse events</td>
<td>- expert opinion</td>
</tr>
<tr>
<td><strong>Quality of life</strong></td>
<td>- Disability weights → 2004 Global Burden of Disease (GBD) study</td>
</tr>
<tr>
<td>disability-adjusted life years</td>
<td></td>
</tr>
<tr>
<td><strong>Equity</strong></td>
<td>- Model did not consider equity</td>
</tr>
<tr>
<td>impact of geography, gender, socio-economic status, or other differentiating factors on health outcomes</td>
<td>- Results could be disaggregated by geography and/or urban vs rural using DHS data in future analyses</td>
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</tbody>
</table>
## 1. Epidemiology

<table>
<thead>
<tr>
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<th>Collection method</th>
<th>Equity aspect</th>
<th>Website</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Burden of Disease</td>
<td>BoD</td>
<td>IHME</td>
<td>HIS</td>
<td>Yes</td>
<td><a href="http://www.healthdata.org/ghana">http://www.healthdata.org/ghana</a></td>
<td>Disaggregated data – need to apply</td>
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<tr>
<td>Disease profiles</td>
<td>DHIMS</td>
<td>GHS, CHIMG</td>
<td>HIS</td>
<td>Yes</td>
<td><a href="https://www.facebook.com/CHIMIGH/?fref=ts">https://www.facebook.com/CHIMIGH/?fref=ts</a></td>
<td>Access – permission required</td>
</tr>
<tr>
<td>Ghana HIS indicators</td>
<td>GHS mostly</td>
<td>Measure</td>
<td>Collation</td>
<td>No</td>
<td><a href="https://www.measureevaluation.org/his-strengthening-resource-center/country-profiles/ghana">https://www.measureevaluation.org/his-strengthening-resource-center/country-profiles/ghana</a></td>
<td>Reports, Raw data?</td>
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## 2. Clinical efficacy

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</thead>
<tbody>
<tr>
<td>Trials of interventions</td>
<td>Published literature (e.g. PubMed)</td>
<td>Few trials in Ghana (Odame SR)</td>
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<tr>
<td>Efficacy - trials</td>
<td>Trials</td>
<td>Published literature (e.g. PubMed)</td>
<td>Few trials in Ghana (Odame SR)</td>
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<tr>
<td>Pan African Clinical Trials Registry</td>
<td>Register No</td>
<td>International Clinical Trials Registry Platform (ICTRP)</td>
<td>Regional register of clinical trials conducted in Africa</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Efficacy – systematic reviews</td>
<td>-</td>
<td>Access is provided by IP recognition</td>
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<td></td>
<td></td>
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<tr>
<td>Safety</td>
<td>?</td>
<td>Adverse event reporting system?</td>
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<td></td>
<td></td>
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<tr>
<td>Medical research</td>
<td>No</td>
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## 3. Costs

<table>
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<th>Comment</th>
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</thead>
<tbody>
<tr>
<td>Medicines prices</td>
<td>NHIS list</td>
<td>NHIA</td>
<td>Central decisions</td>
<td>No</td>
<td><a href="http://www.nhis.gov.gh/News/what-you-need-to-know-about-nhis-medicines-list-4130">http://www.nhis.gov.gh/News/what-you-need-to-know-about-nhis-medicines-list-4130</a></td>
<td></td>
</tr>
<tr>
<td>Health services</td>
<td>NHIS tariffs</td>
<td>NHIA &amp; GHS</td>
<td>Central decisions</td>
<td>No</td>
<td>Benefits package <a href="http://www.nhis.gov.gh/benefits.aspx">http://www.nhis.gov.gh/benefits.aspx</a></td>
<td>Not current for tariffs, Cost manual is underway, based on the JLN model</td>
</tr>
<tr>
<td></td>
<td>Private health insurance</td>
<td>PHI bodies</td>
<td>Claims</td>
<td>Possible</td>
<td><a href="http://www.nhis.gov.gh/phis.aspx">http://www.nhis.gov.gh/phis.aspx</a> See IQVIA?</td>
<td>(KNUST)</td>
</tr>
<tr>
<td>OOP costs</td>
<td>DHS</td>
<td>--</td>
<td>Survey</td>
<td>Yes</td>
<td>See 2014 report (also in HTA model)</td>
<td>Access to raw data?</td>
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## 4. Service use

<table>
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<tr>
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<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>DHIMS</td>
<td>GHS, CHIMG</td>
<td>HIS</td>
<td>Possible</td>
<td><a href="https://www.facebook.com/CHIMGH/?ref=ts">https://www.facebook.com/CHIMGH/?ref=ts</a> Centre for Health information Management Ghana</td>
<td>Access – permission required</td>
</tr>
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</table>
## 5. Quality of life

<table>
<thead>
<tr>
<th>HTA-related information</th>
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<th>Collection method</th>
<th>Equity aspect</th>
<th>Website</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>DALY</td>
<td>Global BoD study</td>
<td>IHME</td>
<td>Database</td>
<td>NA</td>
<td><a href="http://www.healthdata.org/ghana">http://www.healthdata.org/ghana</a></td>
<td>no local disability weights</td>
</tr>
</tbody>
</table>

**Data Source**: Global BoD study

**Institution**: IHME

**Collection method**: Database

**Equity aspect**: NA

**Website**: http://www.healthdata.org/ghana

**Comment**: no local disability weights
## 6. Equity

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<tr>
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<th>Equity aspect</th>
<th>Website</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>DHIMS</td>
<td>GHS</td>
<td>Database</td>
<td>Districts</td>
<td>GHS access only</td>
<td>?</td>
</tr>
<tr>
<td>Equitable Strategies</td>
<td>EQUIST tool</td>
<td>Unicef</td>
<td>Collation</td>
<td>Districts</td>
<td><a href="http://www.equist.info/en/dashboard">http://www.equist.info/en/dashboard</a></td>
<td>considering adoption, recent study tour in India</td>
</tr>
</tbody>
</table>
Summary

- Data sources for the six domains vary in **extent and quality**
- Ghana has several **large data sources** to support HTA (e.g. DHS) → quite rigorous quality assurance processes
- Few accessible data sources for **costs and service use**
- **NHIS** is a potentially rich source of data on these but has access limitations
- Almost no data for the domains of **quality of life and equity**

- Suggest ways HTA proponents may overcome data limitations in availability and quality.
Implications

- Some HTA **data gaps**
  - More data are available for **monitoring** (e.g. data for SDGs) but may not be
    - adequate to inform HTA
    - available in disaggregated form to enable specific analyses
  - Support recent initiatives for the **routine collection** of
    - comprehensive and reliable data
    - easily accessible (e.g. in electronic format)
  - **Commitment to HTA** will require concerted efforts to
    - leverage existing data sources (e.g. NHIS) and
    - develop and maintain new data (e.g. local health utility estimates)
Activity!

Epidemiology
Costs
Quality of Life
Equity

1. Where would you find the data?  
2. What are the key gaps?  
3. How do you verify the data?
Epidemiology

- demographics - gender, age, location, income
- vital statistics - births, deaths (age, cause)
- burden of disease - mortality, morbidity, DALY

  e.g. neonatal mortality rate, under-five mortality rate, full immunisation coverage, institutional deliveries, and rates of both communicable (TB and HIV) and non-communicable diseases (NCD)

- level of data (national and sub-national)
- quality assurance processes
Epidemiology - questions

1. Where would you find the data?
   - MoH, Health service, sponsors
   - access to disaggregated (raw) data
   - currency of data
   - de-identified data (e.g. insurance claims)

2. What are the key gaps?
   - all diseases (e.g. NCD)
   - prevalence vs. incidence
   - private health system

3. How do you verify the data?
   - use of international and comparison → triangulation
   - quality assurance processes
   - representativeness and sampling
Costs

Direct health system costs:
- hospitalisation costs/inpatient care
- medicines
- medical Supplies and equipment
- laboratory supplies e.g. testing kits and other consumables
- medical care services/personnel, i.e. clinicians, nurses
- transport operating costs
Costs - questions

1. Where would you find the data?
   - Primary data collection? Any good examples of collecting and making publicly available? Enhancing transparency on costs? Any innovative ways of collecting cost data?
   - How useful are the international costing databases/costing tools? – OneHealth? WHO CHOICE? – Is there any discussion on adapting the ‘prices’ stated by global donors to costs?; Private sector cost databases and data kept by them?; Is UHC and move to National Health Insurance models across Africa an opportunity to systematically collect cost data, and centrally housed?
   - Would you use existing literature? – How accurate are those costs? – What steps would you take to mitigate (Adjustion for inflation/deflation etc.?/ is medical inflation different to other measures of inflation in your health system RPI/CPI etc.)?

2. What are the key gaps?
   - Proprietary data – lack of transparency and price negotiation? Good way for the private sector to engage together?
   - Opensource costing tools – OneHealth? WHOCHOICE? – Reliance on costs stated by global donors; Cost databases and data kept by them?
   - Primary data collection? – Key challenges – Key ways to overcome this? – Do you outsource? – What kind of constraints are there – Do you have enough costing experts?

3. How do you verify the data?
   - Do you meet with MoH policy makers?
   - Do you meet with Treasury officials?
   - Do you meet with academics who’ve undertaken previous studies related to the field?
   - reviews?
Quality of life

Health Related quality of life → how a given intervention affects quality of life (QoL)

1. Disability adjusted life years (DALYs)
   - capture the disability associated with living with a given condition, and the alleviation of disability after an intervention
   - alternative to the QALY
   - many LMIC use GBD estimates (if no local QoL data)
   - does not easily allow for modelling of different disease states
   - value judgements for DALY weights → international, not local, experts

2. Quality adjusted life years (QALYs)
   - European Quality of life 5 dimensions (EQ5D)
   - most commonly used generic QoL measure
   - cornerstone of HTA in many countries
   - issues with transferring EQ5D datasets across countries
Quality of life - questions

1. *Where do you find the data?*
   - acceptability of using non-local data
   - use other (e.g. UK/US/Thailand/Zimbabwe) data → intermediate step to developing own QoL
   - any local projects to incorporate local data for decision-making

2. *What are the key gaps?*
   - DALY or QALY?
   - + deaths averted
   - Reasons for choice

3. *How do you verify the data?*
   - Concept is difficult to understand
   - Need to explain to policy makers
Equity

- Absence of avoidable or remediable differences among groups of people
- Defined *socially, economically, demographically, or geographically*
- *Health inequities* therefore involve more than inequality with respect to health determinants, access to the resources needed to improve and maintain health or health outcomes.

- Data regarding *equitable and equal access*, and *utilisation of services* is essential to allow for ethical information to be considered in the decision-making process alongside evidence of cost effectiveness

- Data may be extrapolated from large survey samples which links demographic information such as gender, age, geographic location, urban or rural dwelling, and socio-economic status to health behaviours and experiences
Equity - questions

1. Where would you find data?
   • DHS surveys
   • Primary data collection
   • Expert opinion/ interviews with stakeholders
   • Civil society and advocacy groups

2. What are the key gaps?
   • key dimensions important for your country? (e.g. poor, women, regions, tribes)
   • reasons for data gaps (e.g. funding constraints)
   • access to quantitative data

3. How do you verify the data?
   • Expert opinion; stakeholder engagement process
   • How to incorporate ‘equity’ into an economic evaluation or HTA process
     • explicit in analysis e.g. extended CEA
     • explicit in decision making - can override CE threshold
   • novel or innovative approaches?
Take home I

- World Health Assembly resolution on HITA - encourages member states to strengthen routine collection of health system data as a necessary step towards achievement of UHC
- NHIA has a finite budget so need to optimise available funds for most health can use HTA!
- but….HTA relies on local data (UK ≠ Ghana) → use local data to drive local priority-setting
- Data collection mechanisms in Ghana and SSA countries:
  - some issues - comprehensiveness and quality
  - not all data needed are currently collected
Take home II

**data that does exist**
- ensure quality assurance
- comprehensive and representative
- up to date

**data that does not exist**

**short term**
- can use data from other neighbouring countries
- clinical consensus
- note the limitations (uncertainty analysis)

**long term**
- start to plan studies to plug these gaps → primary data collection for e.g. costs and QoL
- can questions be added to the DHS?
- could adding QoL and costs to studies and clinical trials become routine?
Acknowledgements

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