An evaluation framework for attributing and quantifying health workforce and community impacts from socially-accountable health professional education

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Some background ...

Socially-accountable health professional education (SAHPE) institutions specifically develop student selection, curriculum and extended community-based training strategies to produce graduates trained & dedicated to strengthening local health systems and improving the health of community members equitably across all socio-economic, ethnic and cultural divides.

However, very little published literature around the impact of SAHPE on local health workforce and communities ...

A major reason is the lack of consensus on methods for undertaking an impact evaluation of multi-faceted, complex programs such as SAHPE.

2 Philippines and 2 Australian ‘SAHPE’ medical schools took on the challenge:

1. University of the Philippines Manila School of Health Sciences – Palo (SHS-Palo)
2. Ateneo de Zamboanga University, School of Medicine (ADZU-SOM), Philippines
3. James Cook University College of Medicine & Dentistry, Queensland, Australia
4. Flinders University School of Medicine, South Australia, Australia
Our ‘PIMS’ team ...

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Our EF approach ...

Developed using the 5 key principles of Impact Evaluations:

1. Local partners to provide content validity on interview and survey questions, while international partners to provide methodological and statistical direction

2. Overall evaluation framework (EF) to have a mixed-methods approach (2 quantitative and 2 qualitative studies) to evaluate the potential range of health workforce and community health impacts

3. EF to involve data collection from key local stakeholders (SAHPE students, graduates and faculty, local health services, community)

4. Quantitative studies involved a counter-factual (non-SAHPME graduates; communities serviced by non-SAHPME graduates)

5. Use a SAHPE program Logic Model as the ‘road map’ for both study design and study questions
Figure 1: Program logic model for socially-accountable health professional education (SAHPE)

Theory of change for how socially accountable health professional education (SAHPE) institutions collaborating under THEnet contribute to health equity

Faculty has a process for critical reflection on the curriculum based on periodic assessment of, and accountability towards, the needs of its students and reference population (local communities and health systems)

SAHPE philosophy of THEnet
- School’s mission, values, governance and strategies are needs-based: centered on addressing health issues and social determinants of health among target populations, strengthening local health systems, and reducing health inequities
- School has a participatory approach: governance and strategies are planned with meaningful input from all relevant stakeholders, particularly local government and communities, with a primary focus on the priority health and social needs of local communities

SAHPE activities
- Faculty
  - Includes representatives from the geographic/cultural profile of the reference population
  - Community-based practitioners are recruited and trained as student preceptors
  - Staff development programs responsive to community needs
- Learners
  - Taught the principles of socially accountable medical practice
  - Targeted recruitment policy to actively encourage & support culturally, socially or geographically disadvantaged students
- Curriculum
  - Curriculum tailored to priority local community need
  - Local government has input into the School’s curriculum content and teaching activities
  - Integrates basic & clinical sciences with principles of population health and social sciences
- Pedagogy
  - Student-centered and problem-based pedagogic methods
  - Service-based learning occurs as a shared responsibility between the medical school, community and the local health system
  - Students trained to recognize and take action on health disparities
- Research
  - Reflects priority community health issues and the health of underserved groups
  - Has a focus on participatory methodologies & research partnerships with local communities
- Community service
  - The School engages and supports community and community health service providers in a manner which strengthens local health services and promotes the aspirations of community members
  - The School plays a role in advocacy and policy reform
  - The School gives community a voice on health service reform

SAHPE outcomes
- Transformed graduates
  - New SAHPE graduates have positive intentions for community-based service, and to address local health inequities
  - Registered graduates engaged in client advocacy & broader health reform
  - New SAHPE graduates have the appropriate clinical, social, and cultural competencies to address priority health needs
  - Registered SAHPE graduates adopt professional behaviors and choose their career and geographic practice location to address local health workforce needs

Regional impacts
- ‘Fit-for-purpose’ medical workforce
  - Little or no geographic areas of health workforce shortage
  - Culturally competent health service delivery that is cognizant of the social determinants of health
  - All cultural and social groups in reference area have access to health services
  - Responsive in addressing health inequities in the reference population

Long-term goals
- Health equity and improved health outcomes*
  - Priority health needs are addressed in reference area
  - Continuous reduction in systemic, socially produced or preventable differences in the health of reference populations

*While recognizing that health is determined by more than access to health services and a responsive health system, we believe both factors can make a significant contribution to population health and health equity.
Our EF approach ...

Also involved ‘complexity-aware’ strategies and software in both the qualitative and quantitative studies:

• Qualitative studies (focus groups and interviews as part of a case study of each school) involved ‘Process Monitoring of Impacts’ and ‘Outcome Harvesting’ techniques

• Quantitative studies collected data for analytic software packages able to analyze and display complex patterns and interactions (‘UCINET/NET-DRAW’ for social network analysis data; “QGIS” for GIS data)
Conceptual Framework

PHILIPPINES IMPACT PROJECT

REVIEW OF THE HEALTH EQUITY LITERATURE

Initial literature search
- PubMed
- Ovid
- Google Scholar

Key articles, words and terms identified

EXTENSIVE LITERATURE SEARCH

1. Evidence on social accountability training for low-resource health workers
2. Indicators of health equity
   a. Child & maternal health
   b. Adult health (chronic and infectious diseases)
   c. Health system
3. Philippines health education, NRH and health policies since 1980

CASE STUDIES

A. Evolution of the training program
   1. Document analysis around the origin and evolution of ADZU-SOM and UPM-SHS
   2. Summary of the ADZU-SOM and UPM-SHS curriculum

B. Program effects
   1. Interviewing HS, staff, students, alumni, health critics, community members
   2. Available documents describing effectiveness (theses, research studies and project reports)

C. Graduate effects
   Survey of graduates (and final year students?)
   Unit of analysis: medical graduates from ADZU and UPM-SHS (and sister schools)
   Method: Survey with T-test group analysis
   Variables:
   - career data position, training, retention
   - graduation data
   - practice location data
   - e-try to medical school data

GRADUATE COMPARISON STUDY

REGIONAL IMPACT STUDY

Unit of analysis: Philippine health districts

Method: Non-randomized controlled trial using GIS to compare changes in population health and health system indicators over four points in the last 15 years (eg: 2000/2005/2010/2016)

Variables:
- income and age
- antenatal care
- immunization
- chronic and infectious diseases
- health system indicators

COMMUNITY IMPACT STUDY

Community surveys will be compared

Method: Non-randomized controlled trial using social network analysis survey on low, high, and high impact communities

Variables:
- economic and cultural status
- organizational health knowledge
- attitude to health
- health behavior

FINDINGS EXPRESSED IN A PROGRAM LOGIC MODEL
Health workforce outcomes

(Retrospective Graduate Outcome Survey)

ADZU-SOM and SHS-Palo graduate characteristics in relation to conventional medical school graduates in the same region:

ADZU-SOM and SHS-Palo graduates are more likely to:
- have chosen their school due to the community-engaged curriculum
- report positive attitude to community service
- report greater preparedness for practicing in local communities
- work in a Rural Health Unit
- work in Public / Municipal Health
- work as Government hospital Medical Officers and Residents, but less likely to work as Specialists and in Private hospitals

Specific to ADZU-SOM
- Graduates more likely to have chosen their school due to a desire to help others

Specific to SHS-Palo
- Graduates had significantly lower NMAT score at entry than conventional school graduates, but very similar scores on Physician Licensure Exam after graduation
- Graduates more likely to be working in remote villages and small rural towns
- Grads stay in their 1st job, and also their current job, for significantly more years
Regional health workforce outcomes (GIS map of graduate practice locations)

Practice locations for graduates from ADZU-SOM (red dots) and a conventional medical school (purple dots); both located on the island of Mindanao
Regional health workforce outcomes (GIS map of graduate practice locations)

Practice locations for graduates from **SHS-Palo** (red stars) and from a conventional medical school (purple diamonds); both located in the Eastern Visayas
Regional health workforce outcomes

Compared to graduates of a more conventional medical school in a geographically similar region, both ADZU-SOM and SHS-Palo graduates are:

• >4 times more likely to be currently practising in smaller communities (<100,000 pop.)

• >3 times more likely to be currently practising in lower socio-economic communities (2-6 income classification)

• Practising across double the proportion of rural municipalities in the respective region
Community outcomes
(Community impact survey of recent Mothers)

SELECTED COMMUNITY TYPES:
1) 5 communities with practising graduates from SHS-Palo or ADZU-SOM, including 3 with community-based students (n = 494)
2) 5 communities with practising graduates from ‘conventional’ medical schools in similar region; including 2 with hospital-based students (n = 333)

Comparisons showed significantly (p<0.05) higher levels of pre- & post-natal care, and health outcomes of the mother’s youngest child ...

- Mother received 1st pre-natal AND post-natal check-ups as recommended
- HP discussed the lab results of Mother’s blood and urine samples
- Youngest child received Vitamin K soon after birth
- Child received full number of vaccinations (DPT, Polio, Measles & Hep B)
- Child less likely to be of low birth-weight (<2,500g)
- Mother more likely to provide breast-milk to youngest child at 6 months of age
Community outcomes – access to health professionals

Communities with SAHPE graduates (SNA map)

Communities with non-SAHPRE graduates (SNA map)

“Who do you [mothers] go to when your child gets sick?”
Qualitative Case Study findings

• ADZU-SOM & SHS-Palo have created ‘community-orientated’ consciousness amongst final year students and graduates

Local health staff & community members reported many instances of ADZU-SOM & SHS-Palo students and graduates:

• strengthening local health services across each of the WHO’s “6 Building Blocks of quality health systems”

• producing additional health, economic and social benefits to their community (via new health services and programmes, community development projects, public health initiatives)

• broadening access to these additional health, economic and social benefits across all community subgroups
Conclusions

EF collected evidence SAHPE institutions shape and train their students to make significant and wide-ranging impacts …

Across their local health systems:

• “Fit-for-purpose” students and graduates whom improve health equity and coverage, and can treat & prevent common health issues
• Increased health workforce recruitment & retention in rural and/or lower socio-economic areas

Across their local communities:

• Strengthened health services, social cohesion, health infrastructure, improved child & maternal health outcomes – often in communities which had not previously received them (fulfilling the concept of universal access to health)

Main message: Appropriately-designed, multi-study, mixed-methods EFs can successfully evaluate the health workforce and community impacts from complicated health-orientated programs such as SAHPE
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