

Domain: Interventions for inter-hospital referrals

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Brief Synopsis

There is a large body of evidence exploring interventions that seek to improve referral systems. These interventions must account for various levels of clinical acuity that each have different capacities for providing surgical services. The development of a national referral system is helpful in standardizing referrals between all levels of a health system and ensuring that the services, activities, and interventions supporting the referral system are organized, efficient, and cost-effective. Suggested interventions include assessing the current system (to inform new policy and national guidelines), improving communication between hospitals, and providing increased transportation options for referred patients.

Guidelines

1. WHO Management of health facilities: Referral systems

<http://www.who.int/management/facility/referral/en/>

This summary describes the common issues within the health system regarding referrals, as well as five key components of an effective referral system (Fig. 1) and roles of each component. Two sample tools (a referral form and register) and a glossary of common terms are also provided, which may be useful in policy writing and development.

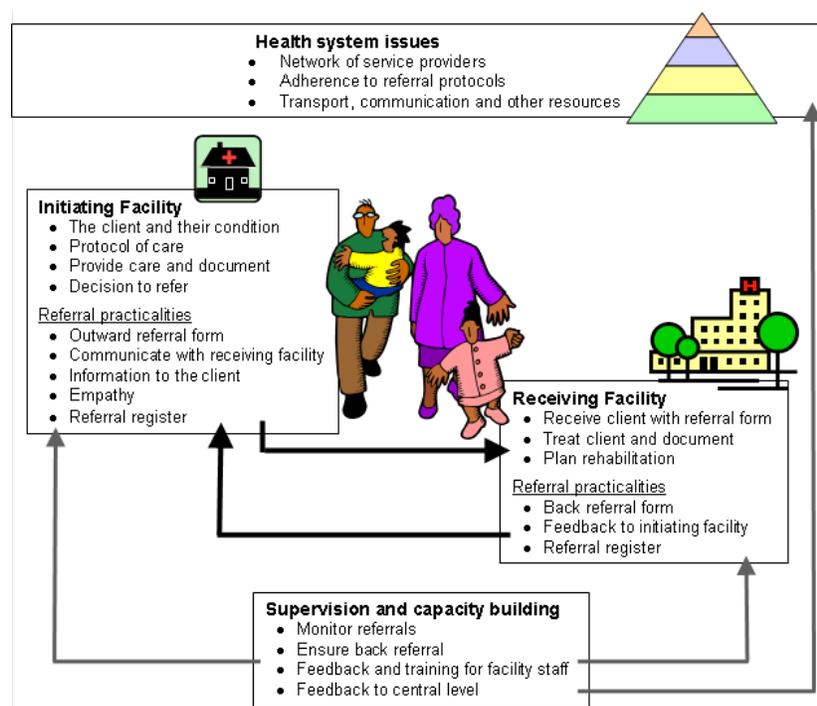


Fig. 1. Referral system flows from: *WHO Management of health facilities: Referral systems.*

Interventions:

PRIMARY INTERVENTIONS

1. Development of standardized referral system

References:

1. Kenya Ministry of Health. (2014). *Kenya health sector referral implementation guidelines*. Retrieved from <http://publications.universalhealth2030.org/uploads/ministry-of-health-referral-guidelines.pdf>
2. Kenya Ministry of Health. (2014). *Kenya health sector referral strategy 2014-2018*. Retrieved from <http://publications.universalhealth2030.org/uploads/ministry-of-health-referral-strategy.pdf>
3. Ministry of Health, Republic of Ghana. (2012). *Ghana Ministry of Health referral policy & guidelines*. Retrieved from Ministry of Health: <http://www.moh.gov.gh/wpcontent/uploads/2016/03/Referral-Policy-Guidelines.pdf>
4. Kapoor, R., Avendaño, L., Sandoval, M. A., Cruz, A. T., Sampayo, E. M., Soto, M. A., Crouse, H. L. (2017). Initiating a Standardized Regional Referral and Counter-Referral System in Guatemala: A Mixed-Methods Study. *Global Pediatric Health, 4*, 1-4. doi:10.1177/2333794x17719205

Web link(s):

<http://publications.universalhealth2030.org/uploads/ministry-of-health-referral-guidelines.pdf>
<http://publications.universalhealth2030.org/uploads/ministry-of-health-referral-strategy.pdf>
<http://www.moh.gov.gh/wp-content/uploads/2016/03/Referral-Policy-Guidelines.pdf>
https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5528915/pdf/10.1177_2333794X17719205.pdf

Type(s): National/policy, facility-based

Intervention description:

Organizing a technical working group to oversee the development of a national referral system, including policy describing the components and expectations for facilities and providers involved in such a system. Policy should be informed by an initial needs assessment (baseline study) of the existing system and referral practices. At a minimum, policy should ideally include:

- Framework for a referral system (including referral flow)
- ‘Mapping’ of all levels of the health system and functions of facilities at each level
- Protocols for identifying and making referrals, specific to facility level capabilities
- Definitions of the roles and responsibilities of all stakeholders (community health workers, clinical providers, local, regional, and federal ministries of health, NGOs, and private organizations). This should include expectations for:
 - patients and clinical providers involved in the referral chain

- providers and facilities involved in referral support (including communication, transportation, record and specimen transfer)
- funding from public and private partners
- organization and oversight from facilities and government entities
- Monitoring and evaluation plan

Both the Kenyan Ministry of Health and Ghanaian Ministry of Health have published national policy on referral system strategy and guidelines for their countries, which include these necessary components. Kapoor et al. (2017) conducted a needs assessment of a regional referral system in Guatemala and utilized results to help standardize tools, trainings and procedures of the existing referral system developed by the Ministry of Health.

Outcome: Coordinated and standardized plan for referral services

Organization: Ministry of Health and various stakeholders (including governmental organizations, NGOs, universities, professional societies, etc.)

Considerations:

- Improved patient access to appropriate level of care
- Cost-saving potential when patients are referred only for conditions requiring higher-level of care, as standardized
- Need both high-level and community support and commitment when developing policy and strategic framework
- Need proper financing, interventions, and resources to implement successfully
- May need to implement in a step-wise or regional fashion

SECONDARY INTERVENTIONS

1. Needs assessment

References:

1. Cervantes, K., Salgado, R., Choi, M., & Kalter, H.D. (2003). *Rapid Assessment of Referral Care Systems: A Guide for Program Managers*. Retrieved from <http://www.who.int/management/facility/RapidAssessmentofReferralCareSystems.pdf>
2. Font, F., Quinto, L., Masanja, H., Nathan, R., Ascaso, C., Menendez, C., . . . Alonso, P. (2002). Paediatric referrals in rural Tanzania: The Kilombero District Study – a case series. *BMC International Health and Human Rights*,2(1). doi:10.1186/1472-698x-2-4
3. Kapoor, R., Avendaño, L., Sandoval, M. A., Cruz, A. T., Sampayo, E. M., Soto, M. A., Crouse, H. L. (2017). Initiating a Standardized Regional Referral and Counter-Referral System in Guatemala: A Mixed-Methods Study. *Global Pediatric Health*, 4, 1-4. doi:10.1177/2333794x17719205

Web link(s):

<http://www.who.int/management/facility/RapidAssessmentofReferralCareSystems.pdf>

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC111197/pdf/1472-698X-2-4.pdf>

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5528915/pdf/10.1177_2333794X17719205.pdf

Type(s): Facility-based

Intervention description:

An assessment of the existing referral system can provide useful information in preparation for choosing and implementing relevant changes. The assessment will lend insight to how the system is structured, how it is intended to function, and the current realities of referral networks and functionality in facilities. Cervantes et al. (2003) describes three validated methodologies for studying referral systems: (1) population-based studies, (2) facility or community-based studies, and (3) record review and interviews. The manual describes in detail the components and activities of the third method, a cross-sectional study of medical record review and interviews with health providers and patient caretakers, including data sources, approaches to collection, and type of information needed from the needs assessment (Table 1.). A similar approach was taken by Font et al. (2002) in Tanzania, where the study team was able to characterize the pediatric referral practices in one district. Kapoor et al. (2017) also undertook a mixed-methods study of referral processes, including surveys, focus groups, and retrospective and prospective chart review in a region of Guatemala. This assessment allowed the study to successfully standardize a regional referral system.

Table 1. Potential Data Sources and Type of Information to be Collected, from: Cervantes et al. (2003)

<i>Data Source</i>	<i>Type of Information</i>	<i>Study Objective(s)</i>
Patient Register	Date of the consultation, child's name, age, gender, name of the caretaker, cause for consultation, diagnosis (classification), identifying record number, and referral information	<ul style="list-style-type: none"> - Describe referral rates - Assess the level of compliance with referral - Identify main causes of referral
Patient Records	Cause for consultation, diagnosis (classification), and referral information	<ul style="list-style-type: none"> - Describe referral rates - Assess the level of compliance with referral - Identify main causes of referral
Summary Reports	Outpatient morbidity, admissions, and referrals made or received	<ul style="list-style-type: none"> - Describe referral rates - Identify main causes of referral
National Information System	Numbers of cases seen, the causes of outpatient and inpatient morbidity, referrals sent and received in health facilities, patient load, and referral rates	<ul style="list-style-type: none"> - Describe referral rates - Identify main causes of referral
Referral Slips	Name, age, address, clinical findings, diagnosis (classification), reason for referral, and treatment given	<ul style="list-style-type: none"> - Describe referral rates - Assess the level of compliance with referral - Identify main causes of referral
Caretaker Interviews	General information on the case (e.g., age, sex, community of origin, etc.), care-seeking and caregiving before coming to the facility, intentions to comply with referral, and recommendations for improved referral	<ul style="list-style-type: none"> - Assess the level of compliance with referral - Describe barriers to compliance with referral
Health Worker Interviews	Referrals, causes of referral, referral slips, and inventory of drugs and materials necessary for IMCI referral care	<ul style="list-style-type: none"> - Describe referral rates - Identify main causes of referral - Assess the level of compliance with referral - Describe barriers to compliance with referral
Focus Group Discussions	Childhood illness, care-seeking, treatment options, referral, barriers to compliance with referral, quality of care at the referral site, and recommendations for improved referral	<ul style="list-style-type: none"> - Describe barriers to compliance with referral

Outcome: Baseline data for referral system; improved understanding of needs in current system.

Organization: Ministry of Health, private organization

Considerations:

- Will inform the design of interventions and guide development of policy; useful in strategic planning and priority-setting
- Most useful when completed prior to the development of a national referral system and implementation of specific interventions
- Can be time-intensive

- May prioritize a needs assessment in particularly high-volume regions first then assess lower-volume facilities at a later time

2. Communication system improvement using mHealth and telemedicine

References:

1. USAID & EMAS Indonesia. (2015, July). *SijariEMAS REFERRAL EXCHANGE SYSTEM: Technical Report*. Retrieved from http://emasindonesia.org/assets/up/2017/01/TechnicalReport_SijariEMAS.pdf
2. den Hollander D., & Mars M. (2017). Smart phones make smart referrals: The use of mobile phone technology in burn care – A retrospective case series. *Burns*, 43(1), 190-194. <https://doi.org/10.1016/j.burns.2016.07.015>
3. Rahman, M. (2015). A model for a pre-hospital surgical referral system from BRAC health. In *The Lancet Supplementary Index*, 21. Retrieved from <http://www.thelancet.com/cms/attachment/2047689732/2058036745/mmc1.pdf>
4. WHO. (2010). Telemedicine: Opportunities and developments in member states: report on the second global survey on eHealth 2009. *Global Observatory for eHealth Series*, 2. Retrieved from http://www.who.int/goe/publications/goe_telemedicine_2010.pdf
5. Wootton, R. & Bonnard, L. (Eds.) (2015). Telemedicine in low-resource settings. *Frontiers in Public Health*, 3(3). doi: 10.3389/978-2-88919-505-3
6. Wootton, R., Patil, N.G., Scott, R.E., & Ho, K. (Eds.) (2009). *Telehealth in the Developing World*. London, UK: Royal Society of Medicine Press Ltd. Retrieved from <https://idlbnc-idrc.dspacedirect.org/bitstream/handle/10625/37334/IDL-37334.pdf>

Web link(s):

http://emasindonesia.org/assets/up/2017/01/Technical-Report_SijariEMAS.pdf
[http://www.burnsjournal.com/article/S0305-4179\(16\)30225-X/fulltext](http://www.burnsjournal.com/article/S0305-4179(16)30225-X/fulltext)
<http://www.thelancet.com/cms/attachment/2047689732/2058036745/mmc1.pdf>
http://www.who.int/goe/publications/goe_telemedicine_2010.pdf
<https://idl-bnc-idrc.dspacedirect.org/bitstream/handle/10625/37334/IDL-37334.pdf>
file:///Users/globsurg3/Downloads/Telemedicine_in_low-Resource_settings.PDF

Type(s): Facility-based, national/policy

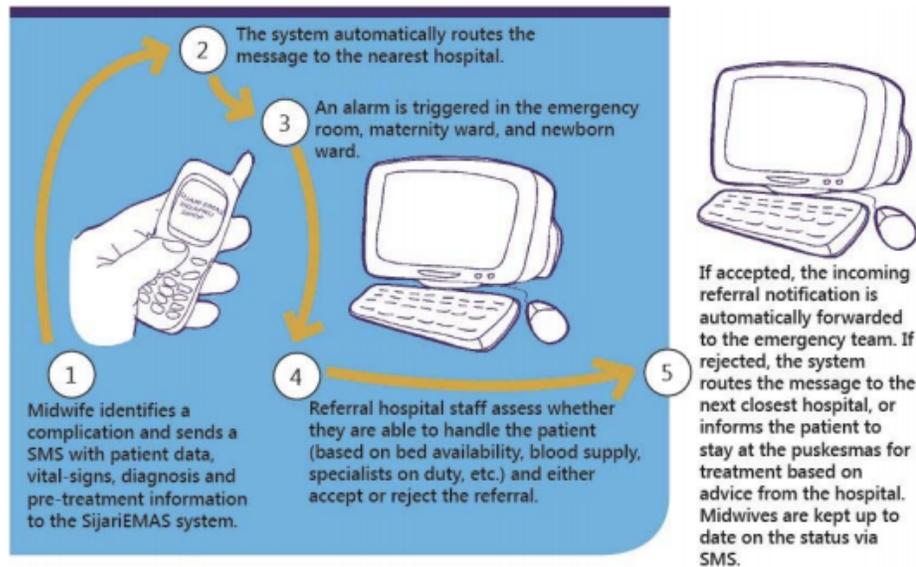
Intervention description:

A fully functional, inter-hospital communication system is central to the success of a strong referral network. Reliable telephone and internet services, mobile applications and telemedicine have been shown to increase communication between all levels of a health system, from community health workers to specialized hospitals offering complex surgical services. The use of mHealth technology and innovative technological platforms for pre-referral consultations and/or referrals is ideal, given the widespread use of mobile phones in developing countries. Telemedicine services have been shown to be particularly helpful in allowing providers to remotely assess, diagnose, treat, and follow-up with patients in real-time in LMICs. Many mHealth and telemedicine programs have been implemented successfully worldwide.

SijariEMAS is a computerized referral exchange system being used in Indonesia to improve emergency referrals of mothers and/or new-borns from midwives and community health workers. The system uses SMS text messaging, mobile and web applications, and automatic notifications to improve communication and coordination between facilities (Fig. 2). The system has helped increase emergency referrals and is now widely used among clinical providers.

Fig. 2. How SijariEMAS works, from: *SijariEMAS Referral Exchange System, Technical Report (2015)*.

Figure 2: How SijariEMAS works



BRAC Health has also implemented a cell-phone based referral system for surgical referrals for pregnant women in Bangladesh (2015). Similarly, den Hollander and Mars (2017) implemented a smartphone consultation system for assessing and referring burn wounds in South Africa. The system was shown to help improve pre-admission burn unit triage and reduced inappropriate referrals and admissions. Numerous examples of successful telemedicine programs in various countries and world regions are included in *WHO Telemedicine: Opportunities and developments in Member States* (2010) and *Telehealth in the Developing World* (2009). Many of these programs exemplify the utility of technology in improving referral processes in that they enable consults, diagnosis, clinical training and mentoring, and patient follow-up to take place via real-time video feed. Additional case studies focused on telemedicine are reviewed in *Telemedicine in Low-Resource Settings* (2015), including the pilot and subsequent scale-up of a nation-wide mobile telemedicine project in Botswana, known as the ‘Kgonafalo system.’ This system, which includes platforms for patient information upload, data sharing, and remote clinical visual inspection, provides support in four areas: oral health, dermatology, radiology, and cervical cancer screening services. All aspects of this initiative, which included economic research analysis, tendering and procurement processes, formation of public-private processes, and scaling activities, are described. For more information on other interventions and examples

of mHealth and telemedicine research, please visit the free resource repositories listed above at mhealthknowledge.org and mhealthevidence.org.

Outcome: Increase in appropriate referrals; quicker provider response to new referrals; avoid inappropriate referrals

Organization: Private organizations, NGOs

Considerations:

- Often requires minimal resources and maintenance, if existing infrastructure can be used. Ease of implementation will depend on scale, existing infrastructure, provider familiarity with technology, etc.
- Requires reliable network coverage and/or internet or cellular phone access to utilize the platform

3. Provision of reliable transportation

Please see Domain 'Pre-hospital transport' interventions for more information.

Additional Resources: Web links to resources for data repositories and toolkits:

1. Resource repository on mHealth
<http://www.mhealthknowledge.org/>
2. Evidence-based research on technology for health
<https://www.mhealthevidence.org/>
3. WHO Digital Health Atlas with MAPS (mHealth Assessment and Planning for Scale) toolkit download
<https://digitalhealthatlas.org/landing#scroll-to-head>