STRENGTHENING THE REFERRAL SYSTEM FOR MATERNAL AND NEONATAL SURVIVAL

Connecting facilities to improve emergency care

TECHNICAL REPORT
JANUARY 2016

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EXECUTIVE SUMMARY

Despite efforts to improve the health system in Indonesia, women continue to face 'the three delays' in seeking, reaching and receiving care when an obstetric or neonatal emergency occurs. The Expanding Maternal and Neonatal Survival (EMAS) program aims to accelerate reductions in maternal and newborn mortality by improving the quality of care within health facilities and strengthening the referral system between health centers and hospitals.

EMAS implements a set of inter-related interventions to increase the efficiency and effectiveness of the referral system. These are based on, and designed to facilitate implementation of relevant Government policies, strategies or programs, and comprise of the following:

- **Referral performance standards and tools** to assess, monitor and improve referrals. The referral standard tools provide District Health Offices (DHOs) and facilities with a standardized mechanism to quantitatively assess their referral system, identify gaps, and measure progress. These tools are implemented by DHO Facilitative Supervision teams (PF) teams across EMAS-supported districts, on a quarterly basis.
- **Referral network MOU *(Perjanjian Kerjasama, or PKs)*** to strengthen linkages and formalize referral networks between *puskesmas* and hospitals. PKs provide the basis to strengthening the referral network by defining its governance—ensuring that all actors within a referral network have clearly defined and agreed roles and responsibilities. PKs are currently in place across 28/30 EMAS-supported districts. The process itself of PK development has proven to be useful.
- **An automated referral exchange system, SijariEMAS**, to improve communication and coordination of emergency referrals between midwives, puskesmas' and referral hospitals. SijariEMAS is introduced to a district after the PK has been developed. As of September 2015 the system is in use in 29/30 EMAS-supported districts. Where SijariEMAS has strong DHO support, such as in West Java, it is being used for the majority of emergency referrals made each month. However, its use has varied between quarters and continues to be low in several other districts.
- **Maternal and perinatal death audits (MPA)** at the district level to identify weaknesses or barriers in the health/referral system that may have contributed to maternal and perinatal deaths. EMAS has worked at a number of levels to support the routine implementation of the 2010 MPA National Guidelines, and to improve the quality of audits. While there has been progress, the level of support varies between districts, and despite EMAS efforts, the frequency and quality of MPAs is less than ideal. In many districts the key challenge to implementing the MPA guidelines is insufficient budget allocation.
- **Maternal and child health motivators (MKIA)** to help reduce financial barriers to emergency health care through promoting the uptake of social health insurance. EMAS uses volunteer MKIAs to address specific issues related to maternal and newborn survival at the village level, such as identification and monitoring of high-risk cases, promoting facility-based delivery and use of universal health insurance (JKN). MKIAs and Civic Forums have worked together to advocate for and address identified issues regarding referral, JKN registration and use, as well as service quality. This collaborative and proactive approach has helped overcome a number of barriers to families accessing JKN for delivery and neonatal care.

Overall results indicate steady progress for all referral interventions across EMAS-supported districts. Communication and coordination has improved, as evidenced by signed referral network PKs and use of SijariEMAS. The number and proportion of referrals managed by SijariEMAS has significantly increased over the course of EMAS, although there is wide variation between districts. The proportion of referrals responded to in a timely manner (within ten minutes) has hovered around 75%, although the total numbers involved have increased.

Aggregated referral performance standard results indicate that overall the referral system is becoming more efficient. By the end of EMAS Year 4 (September 2015), 90% of Phase 1 and 87% of Phase 2 districts were achieving over 80% of referral standards.

While MPAs are not yet "routine", the proportion of maternal deaths reviewed has steadily increased to 52% in Phase 1, and 48% in Phase 2 districts. There has been less progress in terms of neonatal death audits, with only 16% and 21% of deaths reviewed for Phase 1 and 2 districts respectively.

Coverage of key interventions can be used to indicate improved effectiveness of the referral system. While there has been progress in key interventions such as $MgSO_4$ for PE/E and antibiotics for suspected neonatal sepsis, this has been slower than hoped. However, if EMAS-supported facilities are compared to facilities not involved in the program/EMAS, the former have significantly higher rates of providing these life-saving interventions.

A number of lessons are evident to date. All initiatives need to work together to have the greatest effect on strengthening emergency referrals between facilities. The more facilities involved with interventions such as PKs, the better, and linking to EMAS accountability mechanisms—Pokja and Civic Forum—is also critical. Utilizing GoI policies, structures and funding has helped to promote sustainability of interventions.

1. INTRODUCTION

Although the health system across Indonesia includes large network of community midwives, community health centers (*puskesmas)* and hospitals, women and their families still face "the three delays" in seeking, reaching and receiving care when an obstetric or neonatal emergency occurs. Since the 1990s, the Government of Indonesia (GoI) has worked with communities to address delays in recognizing obstetric emergencies and seeking care. These initiatives have been scaled up nation-wide to mobilize villages to respond quickly in emergency (e.g., organize transport and funds, known as *Desa Siaga,* meaning 'alert village') and to increase awareness about birth preparedness and complication readiness (known as *Program Perencanaan Persalinandan Pencegahan Komplikasi* or P4K).[1] While the skilled birth attendance rate is an impressive 83% (Central Bureau of Statistics 2013), the challenge remains how to ensure timely referrals to facilities that provide comprehensive emergency obstetric and newborn care to end preventable deaths.

Weaknesses in the referral system have been identified as a key barrier to reducing maternal and newborn health. With a highly decentralized health system[2] and a flourishing private sector, referrals between midwifery clinics, *puskesmas* and hospitals have often been poorly coordinated and communicated. Midwives and families have been unsure where to seek emergency care—which can result in patients traveling to several different hospitals before receiving treatment. Hospitals and *puskesmas* have lacked standardized protocols for managing emergencies and referrals (including stabilization care before referrals). Too often, the result of these delays has been insurmountable when women do finally receive care. (Mize et al 2010, EMAS 2012). The Joint Committee on Reducing Maternal and Neonatal Mortality in Indonesia, found that *"the system of referral and emergency transfer of the mother from home to hospital in many areas of Indonesia, especially those with a low population density, has not proven effective in saving lives."* The committee recommended the establishment of clear, rapid referral links between certified BEmONC and CEmONC facilities throughout the country as an immediate priority. (National Academy of Sciences. 2013)

In 2011, USAID launched the Expanding Maternal and Neonatal Survival (EMAS) program[3] to accelerate reductions in maternal and newborn mortality by improving the quality of care within health facilities and strengthening the referral system to ensure efficient and effective referrals from the health center to the hospital. EMAS is a five-year program implemented across six provinces of Indonesia with the largest burden of maternal and newborn mortality. EMAS works directly with 150 hospitals, 300 *puskesmas* and with government and other stakeholders in 30 districts.

This document describes the EMAS referral system strategy, outlines the interventions involved and the progress towards strengthening the referral process for maternal and newborn emergencies.

2. EMAS REFERRAL SYSTEM STRENGTHENING APPROACH

Increasing the efficiency and effectiveness of referral systems between *puskesmas* and hospitals is one of the EMAS major objectives. The EMAS approach works to reduce delays in seeking care, referring to an appropriate facility, and providing care, with a focus both within each facility in the referral network and at the district level. At the same time, EMAS works to improve quality of care and emergency readiness within facilities—which in turn helps to expedite referrals.

Development of referral strengthening interventions

In 2012, EMAS conducted a baseline assessment of referral systems in ten EMAS-supported districts to help identify common issues and inform approaches to address these. This assessment identified issues important issues and constraints to effective emergency referrals, as outlined in Box 1.

Box 1: Key findings from EMAS referral assessment (2012)

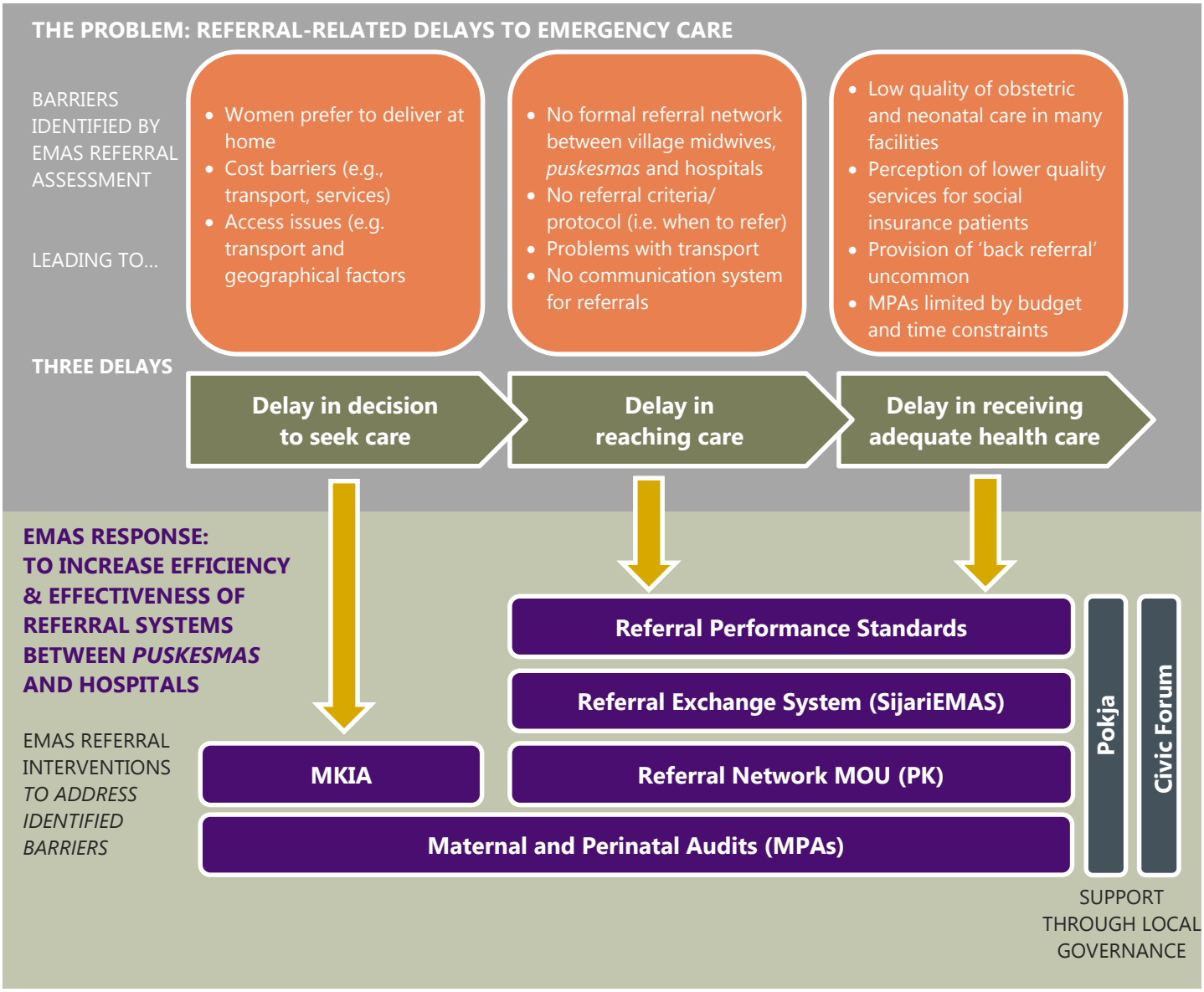
- Access to care in terms of cost, transport and women's preference to deliver at home;
- Low quality of BEmONC facilities, with no agreed criteria re when to refer a patient and problems with referral transportation;
- No established referral network or formal communication mechanism between village midwives, *puskesmas* and hospitals;
- Issues around reimbursement for Social health insurance, and perception of lower quality services;
- No standard recording/reporting referral cases, and no feedback/back referral; and
  MPAs were limited by budget and time constraints.

Based on the key referral assessment findings, EMAS developed a number of inter-related interventions to strengthen emergency referral systems. These include:

- **Referral performance standards** and tools in health facilities to assess, monitor and improve referrals;
- ***Perjanjian Kerjasama*** **(PK, or referral network memoranda of understanding** [MOUs]) to strengthen linkages and formalize referral networks between *puskesmas* and hospitals;
- A **referral exchange system, SijariEMAS**, to improve communication and coordination of referrals between providers and facilities;
- **Maternal and perinatal death pathway audits (MPA)** at the district level to identify underlying causes of maternal and newborn deaths, health system weaknesses and actions to help address these; and
- **Maternal and child health motivators (MKIA)** and community mobilization activities to help reduce financial barriers to emergency health care through promoting the uptake of social health insurance.

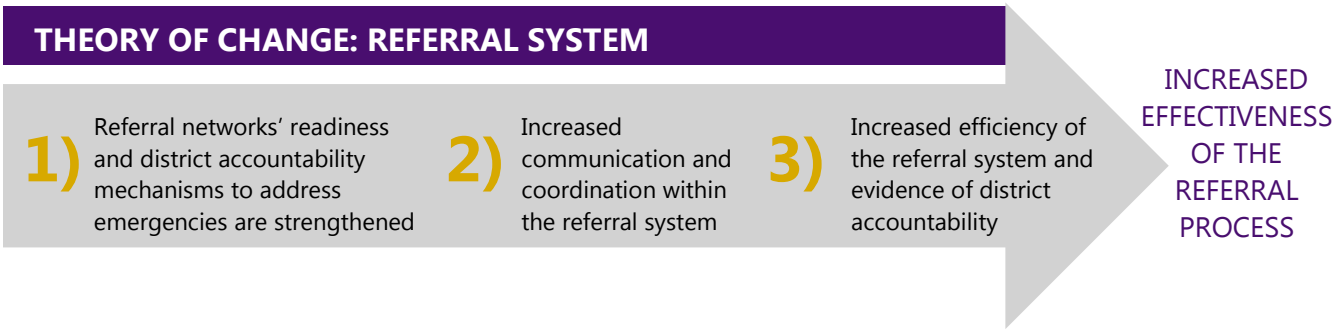
The development and linkages of the assessment findings and EMAS interventions is summarized in Figure 1 below. These referral-specific interventions are outlined further in section 3 of this document. Where GoI policies, strategies or programs relevant to these interventions existed, EMAS used these as a basis to develop user-friendly tools to support their implementation.

Figure 1: EMAS referral strengthening interventions



EMAS also developed a causal pathway (Figure 1) to monitor progress in strengthening the referral system (Figure 2).This outlines how EMAS expects that improved referral networks together with increased coordination, communication and efficiencies within the district referral system will in turn make the referral process more effective.

Figure 2: EMAS causal pathway for referral system strengthening



As EMAS referral interventions build upon each other, they are best implemented in an order that reflects the causal pathway. Pokjas should be in place before other interventions are implemented. The referral performance standards tools assess the critical elements of the referral system and should be implemented next to provide a baseline and identify areas for action. The PK needs to be developed before SijariEMAS can work successfully. Finally, MPA pathway audits can be used to identify weaknesses in the emergency referral system as a whole. Figure 2 below illustrates how EMAS interventions work together to strengthen the referral system.

The EMAS strategy to improve emergency referrals uses elements of governance, information and communication technology for development (ICT4D), quality improvement of health care services, civil society engagement, and community education and mobilization. EMAS also uses the cross-cutting approaches of mentoring and governance/accountability to support referral system strengthening.

Strengthening governance and advocacy

At the district level, EMAS mobilizes political commitment with civil society and governance/ accountability structures for maternal and newborn survival. Governance and accountability mechanisms underpin the EMAS program, including referral strengthening.

Working groups called **Pokjas** are formed and strengthened to help resolve issues that impact maternal and newborn survival. Pokjas are generally comprised of key influential individuals, such as the head of DHO, district heads, and representatives of professional organizations, businesses and civil society. This diverse membership enables Pokjas to resolve issues identified by communities, or supply-side barriers to service provision—including those outside of the direct control of health facilities or DHOs. For example, Pokjas can facilitate the drafting of local policies that support maternal and newborn health (MNH), and integrate referral strengthening activities into districts' annual plans and budgets. Pokjas facilitate the development of referral network MOUs (PKs) and monitor the referral system network. They also follow up on referral performance standards assessments and MPA processes and results (see relevant sections below). As such they are key to the successful implementation of referral system strengthening—as well as several other EMAS interventions to promote maternal and newborn survival.

Civic Forums, also called *Forum Masyarakat Madani* (FMM), help link with civic society and expand public participation in MNH. Civic Forums seek input from the community, help promote feedback mechanisms, and play an overall role in mobilizing communities to demand higher quality MNH services. They focus on generating and using information to advocate for action on maternal and

newborn deaths. In doing so, Civic Forums also serve as a monitoring/'watch dog' body for the quality of MNH services, including for referral. Civic Forums link to maternal and child health motivators (MKIA) in terms of identifying key barriers to MNH, as well as to the Pokja to help address these. This broader context is important for community awareness and improving referral services.

As part of the overall effort to improve health facilities' accountability for providing high-quality emergency care, EMAS initially supported hospitals to develop **Service Charters** and implement community feedback mechanisms. Service Charters provided information to the public on the standards/norms and expectations related to maternal and newborn emergency care, and were intended to serve as a basis for obtaining citizen feedback about the quality of health services.[4] EMAS also encourages Civic Forums to solicit feedback using informal approaches and ensure follow up actions are taken on identified issues.

3. EMAS INTERVENTIONS TO STRENGTHEN THE REFERRAL SYSTEM

This section outlines the EMAS interventions designed to strengthen the referral system for maternal and neonatal emergencies. These have been implemented in ten districts during Phase 1 (beginning May 2012), and then expanded into an additional 13 districts during Phase 2 (from September 2013) plus a further seven districts during Phase 3 (from January 2015).

EMAS uses peer-to-peer mentoring as an overall approach to capacity-building, including to strengthen the referral system. Staff from high performing facilities/entities (District Health Office (DHO) Facilitative Supervision (PF) teams, MPA teams, Pokjas and Civic Forums), mentor their counterparts in other districts in how to implement EMAS interventions (such as MPA, SijariEMAS and Referral Performance Standards—see relevant sections below).

EMAS has established criteria for when a facility/entity is ready to mentor others. Those relevant to referral strengthening are listed at Appendix 3. Compared to EMAS clinical mentoring (see clinical mentoring report), EMAS referral system mentoring is less structured and intensive. Referral mentoring usually involves mentors for each referral intervention (Referral performance standards, PK, SijariEMAS, MPA, Pokja, Civic Forum and MKIA) visiting their counterpart team in another district, orienting them to the system/tools and working with the mentee district to implement them for the first time.

Referral performance monitoring tools

To improve the quality of referrals, districts need to understand the critical elements of a referral system and where their performance needs to improve. While GoI guidelines for referral existed before EMAS, they were not widely implemented and lacked specificity.[5] Building on existing standards and Jhpiego's global experience, EMAS worked with the Ministry of Health (MOH) to compile a set of performance standards into performance monitoring tools (*alat pantau kinerja*) and related operational guidelines to facilitate their implementation.[6]

There are two sets of referral performance monitoring tools—one for hospitals (with 7 tools and 18 standards) and another set for *puskesmas* (with 6 tools and 17 standards). As outlined in Table 1 below, the tools assess a range of areas, including involvement in a referral system network, procedures for incoming referral notification, the availability of services and transport 24/7, and treatment protocols for referrals. The tools also cover some important district-level functions that affect referrals, such as the MPAs and the *puskesmas*' orientation of village and private midwives for emergencies and referrals.

Table 1: Outline of referral performance standards for *puskesmas* and hospitals

Puskesmas	**Hospital**
1. Maternal and neonatal emergency referral service network 1.1 *Puskesmas* established a network with other health providers and facilities in area 1.2 Cooperation Agreement includes minimum requirements 1.3 *Puskesmas* is active in the Working Group for Emergency	**1. Referral system network service for maternal and neonatal emergency** 1.1 Hospital joins a network with other facilities in one referral network 1.2 Collaboration agreement meets minimum requirements 1.3 Communication between facilities and providers in the network runs smoothly 1.4 Participation in Emergency Working Group
2. Pre-referral preparation in *puskesmas* 2.1 medical pre-referral is performed adequately 2.2 *Warga Siaga* is functioning to help in the emergency	**2. Emergency initial admission and 24-hour emergency room readiness** 2.1 Registration unit responds well and fast 2.2 ER functions 24 hours
3. Recognizing danger signs 3.1 Maternal and neonatal danger signs are recognized 3.2 Danger signs are responded immediately 3.3 Communication directory is available and functioning	**3. Use of ambulance in maternal and neonatal emergency** 3.1 Emergency ambulance service is available 24 hours 3.2 Ambulance provides services according to standards
4. Referral preparation package 4.1 Availability of Referral Preparation package (information, letters, forms) 4.2 Availability of 24 hour ambulance/vehicle 4.3 Availability of instruments and drugs 4.4 Communication available and functioning	**4. Maternal and perinatal audit (MPA)** 4.1 Identification of mortality in the hospital 4.2 Play a role in MPA process 4.3 Utilization of MPA results
5. Referral Service preparation 5.1 Referral service preparation 5.2 Checklists are used to refer each case	**5. Public accountability** 5.1 Utilization of Service Charter 5.2 Availability of feedback mechanism 5.3 Service monitoring recommendation by the Civic Forum is followed up by hospital
6. back (return) referral and feedback 6.1 Back referral is performed/ adequate services are available 6.2 Medical and Perinatal Audits are performed routinely 6.3 Service Charter is used	**6. Service quality technical assistance** 6.1 Regular technical assistance to lower-level facilities (e.g. *puskesmas*) 6.2 Emergency prevention screening service
	7. Back (return) referral 7.1 back referral for women/neonates 7.2 back referral is performed

These referral performance monitoring tools provide DHOs and facilities with an easy to use, standardized mechanism to quantitatively measure the effectiveness of their referral systems. By using the tools they can assess their referral system and identify gaps. Results of the assessment are discussed in the Pokja and an action plan is created. The Referral Operational Guidelines provide guidance to the DHO on how to strengthen the identified gaps in the referral system. Scores can be compared over time to measure progress at both individual facility level and district level, with a score of 80% or more considered satisfactory. The referral performance monitoring tools are implemented

by DHO Facilitative Supervision teams (*Penyelaian Fasilitatif,* or PF teams), as part of their routine quarterly monitoring.[7] EMAS strengthens the capacity of PF teams to be more effective in their roles through ongoing mentoring as well as cross-regional leaning and experience sharing. Strong mentors are paired with new, less experienced mentors, while experiences and best practices are shared through coordination meetings. In each new district, the mentor PF team (supported by EMAS as required) orientates the mentee DHOs, PF team and health facility staff to referral performance standards. They then work with PF team to conduct the first assessment of the referral system using the tools, which serves as the baseline assessment.

The referral performance monitoring tools and Operational Guidelines are currently used in all EMAS Phase 1 and Phase 2 districts. The tools have also been introduced to Phase 3 districts, with support from Phase 1 and Phase 2 PF mentors. Districts conduct quarterly assessments to measure and monitor referral system performance, with results and action plans reviewed by Pokja every 4-6 months.

Overall, improvements across all referral performance standards have been seen over time (see results section). The referral performance monitoring tools have been well received by PF teams, as they enable them to conduct a comprehensive, objective assessment of the referral system and MNCH program. DHOs have found the tools to be user-friendly, and have noted they outline a clear pathway to improve referral system performance. DHOs have been very receptive to the process of monitoring the referral system and identifying areas for strengthening, with several districts allocating their own funds to support the assessments. In addition, Serang, Cirebon and Banyumas districts have taken steps to expand the use of these tools and assessment process beyond EMAS-supported facilities.

While there were some initial challenges in rolling out the tools, such as ensuring the PF teams were well-functioning and that the tools were implemented properly, these have largely been resolved. Some districts continue to experience challenges related to scheduling the PF teams, or replacing PF team members who have been transferred to other positions. Where there has been staff turn-over, EMAS has worked to ensure the new teams are strengthened to maintain progress.

In addition to helping districts to implement referral system performance monitoring tools, EMAS has developed and provided a package of job aids for limited support *puskesmas'*, which includes referral system performance monitoring tools. PF teams are introducing these tools to all *puskesmas* in EMAS districts throughout 2015. The tools will allow *puskesmas* to undertake self-assessments, identify gaps and make required improvements. EMAS has also held workshops designed/aimed to increase communication and collaboration between *puskesmas*, and generate commitment for mutually strengthening the referral system.

Referral network MOUs (Perjanjian Kerjasama, PK)

Ensuring that all actors within a referral network have clearly defined roles and responsibilities, which are fully understood and agreed upon, is critical to the efficiency of the referral system. As there was previously no formal network between health facilities within a district,[8] EMAS began by facilitating the development of *Perjanjian Kerjasama* (PKs)—single, unifying memoranda of understanding (MOUs) signed by health facilities who agree to participate in the district referral network.

PKs provide the basis to strengthening the referral network by defining its governance. PKs:

- Formally define the roles, responsibilities and expectations of (public and private) hospitals and *puskesmas*, local government and the civic forum regarding referral. This includes identifying which hospitals are PONEK[9] and which will accept social health insurance patients;
- Define the referral flow/patterns within a district;
- Improve communication, collaboration and coordination among facilities;
- Provide the basis for promoting accountability of district government in terms of responsibility for providing quality health services; and
- Formally integrate private facilities and providers into the district referral system.[10]

While each district defines the referral network according to their needs and context, EMAS specified seven minimum components of a PK which cover the basic elements of a strong referral network (See Box 2). These components are reviewed as part of the Referral Performance Standards on a quarterly basis.

The PK is developed via a workshop with a variety of inter-sectoral stakeholders. Overall DHOs are responsible for ensuring PKs are in place, with the process of development facilitated by the Pokja. The steps for developing a district PK are outlined in Appendix 5. Both the DHO, Pokja and the *Bupati* (Mayor) sign the final document. The Pokja also reviews the PK every quarter in terms of the number of signed facilities, plus any other relevant issues.

In Phase 1, the referral network initially focused on EMAS-supported facilities, with PKs developed for EMAS target hospitals and a select number of *puskesmas*. In Phase 2 EMAS decided to expand the referral network to involve *all* health facilities in a district, in order to have a greater impact on strengthening referrals. This resulted in 'comprehensive PKs', which involve all hospitals, *puskesmas*, the Red Cross, private practice midwives, plus BPJS[11] and laboratories (as required) in their development.[12] In Phase 2 and 3 EMAS districts, all *puskesmas* have been involved in the development of PKs[13] and the JKN standard Operating Procedures for referral have been integrated into PKs from the outset (see MKIA section). The existing district PKs for Phase 1 districts are being revised to progressively add the remaining *puskesmas* and facilities/practitioners and reflect the mandated referral patterns resulting from the introduction of national health insurance (JKN).

Box 2: Comprehensive PK Components

1. Referral mechanism agreed between facilities: how will facilities refer from each level
2. Flow of referrals between facilities: this is especially important when there is more than one hospital
3. Tasks and functions, according to the role and authority of each facility in the network
4. Flow of data, including mortality reporting and auditing
5. Social insurance finance mechanism; agree on mechanism/s for the district
6. Communication modes and mechanisms among facilities
7. Development of medical and non-medical networks (*pambinang*): agree on mechanism/technical assistance for skills and program supervision among facilities.

Districts have found the *process* of developing and expanding PKs to be very valuable. Developing a PK brings together large groups of stakeholders across public and private facilities, DHO, BPJS and

Civic Forum to discuss and agree upon referral processes (often for the first time), and helps to identify challenges and gaps.

EMAS-supported districts are seeing the benefits of having a PK. In Bulukumba, the comprehensive PK has helped to strengthen BEmONC services by mandating that emergency medical supplies and drugs must be available. Bulukumba has also reported that compliance to the PK has strengthened the quality of services offered by private midwives. In some districts such as Serang, Cirebon and Semarang, the process of developing the comprehensive PK has led non-EMAS supported hospitals to implement SijariEMAS. Being involved in the PK can also help to network and support midwives. In addition to *puskesmas* staff becoming more familiar with networked hospitals and their staff, inclusion of clinical rotation for *puskesmas* staff at referral hospitals in the PK (component 7, see Box 1) can help to mobilize funds for this activity.

While PKs provide the foundation for a functional, effective and sustainable referral system, there have been some challenges in their implementation. Overall, achieving 'comprehensive PKs' has been complex and time-consuming due to the effort needed to sign up the large number of individual facilities involved. This is particularly so for districts with large numbers of hospitals. For example, Bogor (West Java) took longer to reach agreement between 40 hospitals and 101 health centers.[14] Some districts, such as Sidoarjo and Tuban, have found meeting the requirements of a PK to be challenging. In addition, some health facilities (particularly private hospitals) initially declined to sign up to the PK, which prevents optimal referrals. The introduction of universal health insurance (JKN) in early 2014 (see section on MKIA below) was another challenge, as remapping referral pathways and revising PKs to reflect the JKN/BPJS mandated referral patterns required significant work. Also, it has taken time to shift established behaviors, such as establishing the role of hospitals to oversee/supervise *puskesmas,* and hospitals communicating information back to *puskesmas* on referred cases.

Referral exchange system—SijariEMAS

All district referral systems are required to have a mechanism for communication between facilities. To help improve communication around emergency referrals between midwives and referral hospitals, EMAS developed an automated referral exchange system called *Sistem Informasi Jejaring Rujukan Maternal dan Neonatal*, or 'SijariEMAS'. EMAS worked with the MOH to ensure SijariEMAS aligned with relevant policies and existing health information systems.

In SijariEMAS, midwives send messages (by SMS, mobile or web application, or phone/call center) about a potential referral case to the system. The message is automatically routed to the nearest hospital, as per the agreed PK referral flow. This hospital either accepts or rejects the referral, and can provide information on stabilizing the patient. If the referral is declined, the system re-routes it to the next hospital in the system (as outlined in the PK) until the case is accepted. The details of the development, various models and full functionality of this innovative system are detailed in the EMAS Program Brief entitled, "SijariEMAS Referral Exchange System."

SijariEMAS improves referrals by:

- Improving coordination between health facilities during the referral process;
- Improving readiness of hospitals (within the referral network) to deal with incoming emergency maternal and newborn referrals;
- Ensuring that referrals are routed to a hospital in an efficient manner to prevent patients being referred/presenting to multiple hospitals before treatment is received; and
- Encouraging the exchange of emergency case referral information between health providers (back referral).

In this way, SijariEMAS addresses a number of barriers to seeking and receiving life-saving obstetric and neonatal care, including delays in knowing where to seek care and delays reaching a facility that is equipped, staffed and able to respond (i.e., it stops patients from having to travel to multiple hospitals before being admitted).

SijariEMAS is introduced to a district after the PK has been developed, with support from SijariEMAS mentors from earlier EMAS phases.[15] The implementation of SijariEMAS involves installation of the system, entering the agreed referral pathways, plus orienting hospitals, *puskesmas* and community midwives to its use, as well as IT staff to its operation and maintenance.

SijariEMAS is currently used in all 30 EMAS districts, and has been well-received by providers and facilities and DHOs. Several facilities and DHOs have covered costs of installing and operating the system. Where SijariEMAS has strong DHO support—such as in Karawang and Bogor districts in West Java, over 1000 referrals are being made through the referral exchange system each month. The DHO in Tangerang has stated that SijariEMAS has provided a breakthrough to stop the hospital tour that patients previously faced, and that was a contributing factor in many maternal and neonatal deaths. Further details on use of SijariEMAS are provided under the results section.

There is a significant level of interest and enthusiasm about SijariEMAS, both within and beyond EMAS-supported districts. For example, in Serang the DHO expanded SijariEMAS to cover all *puskesmas* within the district. West Java is implementing SijariEMAS in five additional districts with its own funding. There is also interest in implementing the system from non-EMAS target areas. For example, West Sumatra's PHO has allocated funds to strengthen their referral system based on the EMAS approach and has started to roll SijariEMAS out in some districts. Jakarta's Provincial Health Office has also expressed interest in SijariEMAS.

While SijariEMAS has been successful in some areas, its use has varied between quarters and continues to be low in several other districts. While challenges and constraints to the use of SijariEMAS vary by district, common constraints include facilities having established referral preferences to other facilities, or issues with poor internet connectivity or telecom delays in delivering SMS messages. Some hospitals/DHOs have not had strong commitment to using the system, or have reported HR constraints. EMAS continues to investigate ways to address identified barriers, such as developing a SijariEMAS dashboard for DHO and stakeholders to monitor and accelerate its use, and providing short term technical IT assistance to help resolve technical problems at the district as well as national levels.

There has also been significant work required to re-program the referral maps that underpin SijariEMAS to reflect JKNs' mandated referral pathways and expanded 'comprehensive' PKs.

Maternal and perinatal death audits (MPA)

Understanding the underlying causes of maternal and newborn deaths is critical for targeting interventions to help reduce mortality. MPAs help districts to identify health system weaknesses that may have contributed to maternal and perinatal deaths. For example, did the family wait too long before seeking care in an emergency? Was a patient referred too late? Was an ambulance unavailable? Was there a delay at the *puskesmas* or hospital in providing life-saving care? From this information, actions can be identified to help prevent similar issues from re-occurring in the future.

The MPA is a nationally mandated process, outlined in the updated MOH 2010 MPA National Guidelines.[16] While these guidelines require districts to complete MPAs, they have not been conducted on a regular basis. An EMAS (baseline) assessment in 2012 found that no district conducted a full audit on every maternal death.[17]

Since 2012, EMAS has worked at multiple levels to support the implementation of systematic/routine MPAs and improve their quality. Key activities include:

- Development of guidelines to help districts operationalize and fully implement the 2010 MPA Guidelines;
- Support for a series of MPA refresher workshops with provincial and district staff to reinforce the 2010 guidelines in EMAS focus districts;
- Work with districts to align their MPA guidelines to the 2010 National MPA guidelines;
- Use of mentors to build MPA team capacity to follow 2010 MPA Guidelines;
- Help to districts to develop action plans to overcome barriers to conducting MPAs, such as engaging experts from other districts provinces, central level to participate in audits; and
- Work with professional organizations to develop written standards calling for audits.

EMAS also ensures MPA findings are shared with Pokjas and Civic Forums in each district, and that these groups are actively following up on action plans and helping to address identified weaknesses in referral system. The Referral Performance Standards also checks whether MPAs are performed routinely.

As of the end of December 2015, all 30 districts across Phases 1, 2 and 3 have aligned their MPA guidelines to be consistent with the 2010 MPA guidelines. The results section provides details on MPA implementation over the course of EMAS.

While DHOs in EMAS districts are generally supportive of the MPA process, the level of support varies between districts. In Tangerang, Tegal and Karawang, DHOs have taken an active role and MPA teams are aiming to audit all maternal and newborn deaths in the district. Karawang DHO has allocated funding for MPAs to be conducted each month of the year to help achieve this. In districts where MPA processes have improved, changes have been made to address issues identified by the process. Some district governments have allocated funds for emergency drug supplies, and in others facilities have

improved processes, such as requiring the attendance of a pediatrician during a C-section. Deli Serdang reported that audits have helped to facilitate more effective hand-over of patients during shift changes. In Langkat, there has been a noticeable improvement in recording patient information, allowing for more informed health service provision. Increased involvement of the Pokja has also led to additional support for improving MNH services. For example, in Tegal the Pokja encouraged hospitals to follow the MPA team recommendations to improve the management of emergency patients and monitor high risk pregnant women.

Despite ongoing efforts by EMAS, progress in improving the frequency and quality of district-level MPAs has been slow (although there has been some variation in quality across districts). The main challenge to districts implementing the MPA guidelines is insufficient budget allocation. Funding for the MPA process comes from district budgets, but many districts do not allocate enough funding to conduct a sufficient number of MPAs to audit every maternal death. In fact most districts only allocate enough for one-four MPAs per year. Other constraints include policy problems, and/or a lack of prioritization. In some districts the availability of MPA team members has been limited, reducing the number of maternal and neonatal deaths reviewed. There have also been challenges in terms of timely and accurate information flow from facilities to the DHO regarding deaths, and challenges related to data recording and incomplete forms. EMAS has discovered that in some districts DHOs were conducting MPAs using outdated guidelines, which use a more resource intensive process than the 2010 MPA guidelines.

These persistent challenges are likely to require significant time and commitment in order to make significant progress in this area. EMAS continues work at a number of levels across EMAS districts to address challenges and improve processes to strengthen the MPA process. Efforts include continuing to advocate for increased budget allocations for MPAs and collaborating with professional organizations (POGI, IDIA) and MOH to develop a written statement calling for all maternal and a selection of newborn deaths to be audited with the involvement of clinical specialists. EMAS also continues to support provincial MPA teams to facilitate and monitor the MPA process across districts, assisting them to utilize best practice case examples to support changing policy and budgetary constraints.

Maternal and child health motivators (MKIA) and promotion of universal health coverage

Although EMAS does not focus heavily on community-level health education activities, it uses maternal and child health motivators, *motivator kesehatan ibu dan anak* (MKIA), to address specific issues in their communities related to maternal and newborn survival. MKIA are individual volunteers at the village level[18] who work to address specific issues in their communities related to maternal and newborn survival, such as awareness of danger signs in pregnancy, identification and monitoring of high-risk cases, as well as encouraging delivery in health facilities and social health insurance uptake. In addition to being a source of information for pregnant women, MKIA can become the 'eyes and ears' in the community and are well positioned to advocate on their behalf. MKIA serve as a bridge between the community and Civic Forums, meeting every three months to share problems they have observed regarding referral, JKN registration and use, service quality and other issues related to EmONC. Analysis and recommendations from these meetings are shared at district level through Pokja meetings. (See EMAS brief on Civic Forums for further detail).

As of December 2015, a total of 4,059 MKIA are actively assisting pregnant women across EMAS districts. MKIA have been widely accepted by their communities, and strong MKIA from Phase 1 and 2 are mentoring new MKIA in Phase 3 districts as required.

Civic Forums and MKIA also help to create an enabling environment to support the referral system at village, sub-district and district levels. They have worked together to identify and address a number of barriers to maternal and newborn emergency care, such as mapping and supporting village ambulances to transfer emergency referrals, conducting blood drives for emergency blood transfusion availability and coordinating with community-based health providers to ensure all pregnant women are identified and high-risk individuals are monitored. For example, in Serang the Civic Forum and MKIA developed an SMS-based system to monitor vulnerable and high risk pregnant women in their villages. In Bandung, MKIAs successfully advocated for a *"rumah tunggu"* decree in one remote village that will help facilitate transportation of women to a health facility prior to the onset of labor.

A key role of MKIA is to raise awareness and uptake of social health insurance (SHI) schemes. This directly supports the EMAS sub-objective of minimizing financial barriers to seeking and receiving emergency care. This has been a complex issue over the past several years as the GoI has implemented a number of SHI schemes, including *Jampersal, Jamkesmas, Jamkesda* and JKN (national health insurance).[19] In 2012, EMAS conducted a situational analysis around social health insurance in six provinces. This analysis found that cost was a barrier to women accessing MNH, there was a general lack of awareness about the advantages of social insurance, and that a number of barriers prevented women from using *Jampersal* and other schemes (EMAS and University of Indonesia, 2012).[20] To help address these challenges, MKIA conducted outreach activities in communities, such as campaigns to raise community awareness of *Jampersal* and counselling women to help them understand and encourage its use.

In January 2014, universal health coverage (*Jaminan Kesehatan Nasional* or JKN) was launched, replacing *Jampersal* and extending health coverage to all uninsured. *Badan Penyelenggara Jaminan Sosial Nasional* (BPJS, the social security Agency that administers JKN), implemented a communication strategy about JKN down to the sub-district level. However, this left communities confused about JKN eligibility/registration requirements and processes. Through Civic Forums and MKIA, EMAS helped to prepare communities for the change-over to JKN.[21]

MKIA have been very active in providing assistance to help pregnant women understand and access JKN. The collaborative and proactive approach between Civic Forums and MIKA has helped overcome some barriers to JKN utilization and kept many families with insurance coverage. For example, some MKIA have arranged for BPJS staff to conduct additional information sessions within communities. MKIA have also initiated solutions to potential barriers, such as assisting women to obtain the identification cards required for accessing JKN. In Semarang, MKIA have helped arrange for JKN registration premiums for "near poor" families to be paid for through a community fund *(rukun warga)*. In Serang district, the Civic Forum collaborated directly with BPJS regarding barriers regarding JKN. This resulted in individuals being able to use a family card to quality for JKN (in the absence of their own) as well as newborns being covered from birth as opposed to 7 days. EMAS continues to document field experiences with JKN, based on feedback from MKIAs and Civic Forums, to allow sharing with policy makers at district, provincial and national level.

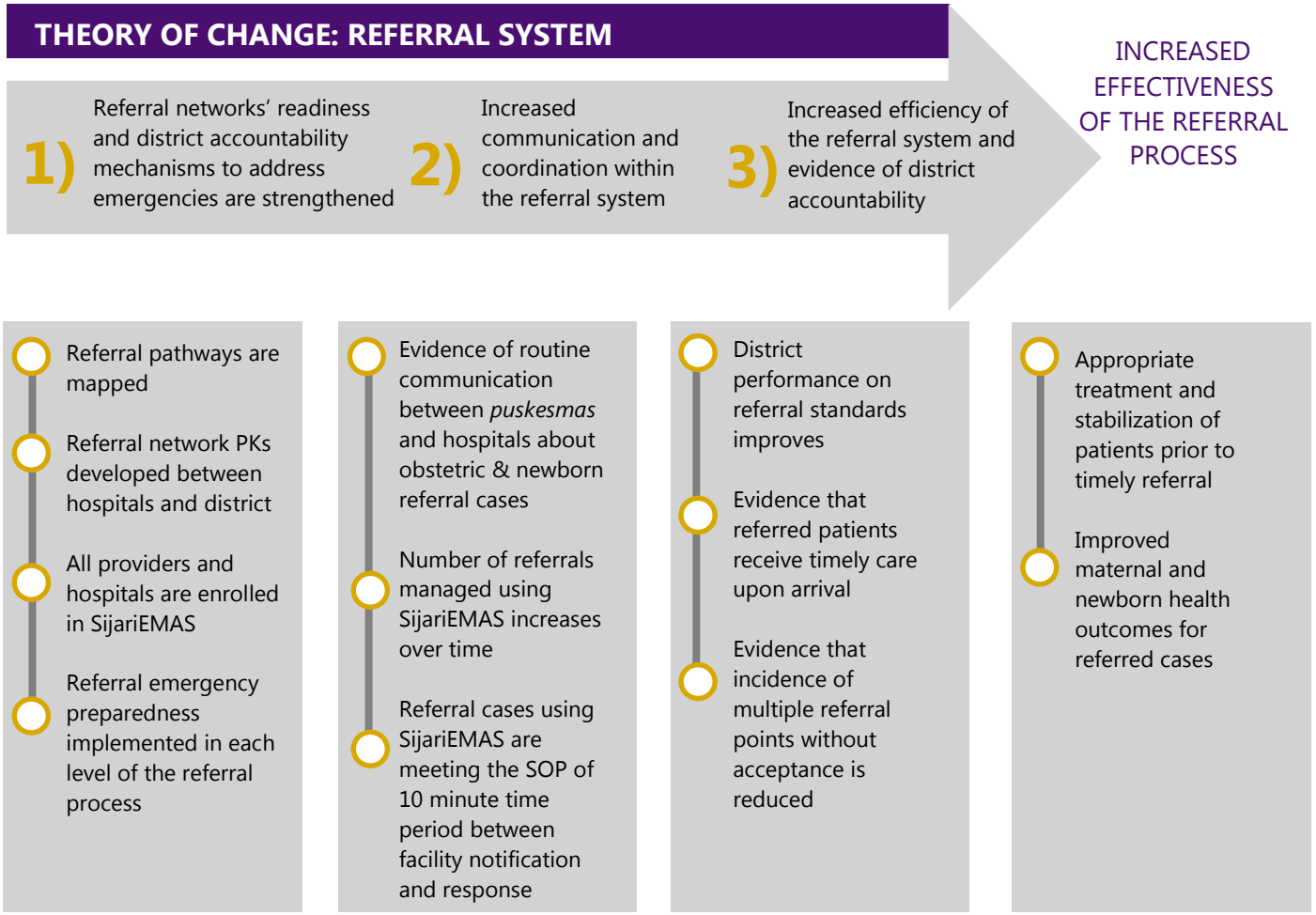
On the supply side, patients using national health insurance schemes are not always accepted by health facilities or may perceive they don't receive the same standard of care as those paying user fees. EMAS has also worked with private facilities help address their challenges around accepting social health insurance, such as clarifying responsibilities and the reimbursement process. EMAS has also convened meetings between BPJS and districts to clarify rules and regulations related to maternal and newborn referral processes, facilitate their involvement in PK agreements, as well as to share ideas on how to implement JKN with private hospitals. In addition, EMAS has worked closely with PHOs to help devise solutions to emerging challenges regarding JKN.

4. RESULTS

To look more closely at how referral interventions increase the effectiveness of the referral system, EMAS has defined the expected results along the causal pathway (see Figure 3) and monitors these to ensure that change is occurring.

This section provides a summary of progress made to date to strengthen the referral system, based on the logic of the causal pathway and results from the EMAS PMP. Overall results show steady progress across nearly all referral interventions in both Phase 1 and Phase 2 districts.

Figure 3: EMAS causal pathway for referral system strengthening



Strengthened referral networks readiness and district accountability mechanisms to address emergencies

The district accountability mechanisms of Pokja and Civic Forum are currently in place for all Phase 1, 2 and 3 districts. All (100%) of Phase 1 and Phase 2 districts, have Pokjas and Civic Forums that meet the EMAS mentoring criteria. (See Appendix 3) For Pokjas this includes meeting quarterly to review

progress within referral systems and to develop action plans. This is also the case for two Phase 3 districts in terms of Pokja, and one Phase 3 district in terms of Civic Forum.

Referral network readiness is evidenced by mapping of referral pathways and development of PKs—which have been well accepted by districts and facilities. As of December 2015, a PK is in place in each of the 30 EMAS districts. In some areas, EMAS has introduced cross-regional PKs to address administrative barriers of referrals made between facilities in close proximity to one another but across district or provincial lines. As of December 2015, four cross-regional PK have been signed with non-EMAS districts.[22]

The enrollment of providers and health facilities in SijariEMAS also provides evidence of referral network readiness. As of December 2015, 30 EMAS supported districts are using SijariEMAS to facilitate emergency referrals, with a total of 34,693 midwives and doctors have been registered in SijariEMAS and the system installed in 173 EMAS-supported hospitals and 1338 *puskesmas*.

A number of the referral standard tools assess facilities' preparedness for emergency referrals (See Appendix 4). *Puskesmas* are assessed on a range of issues including pre-referral preparation, recognition of danger signs, and availability of pre referral items such as transport and drugs. Nearly all *puskesmas* have scored over 75% across these tools. The lowest scores were for 'Preparation pre-referral', which assesses identification and screening of at risk women, social insurance registration and whether *Warga Siaga* (alert citizens) regarding village ambulances and blood donors, are functioning. While the majority of hospitals had high scores (over 80%) for 'emergency room readiness and initial admission of emergencies', 6 districts scored less than 50% on 'ambulance utilization', indicating problems with availability of an ambulance 24/7 or provision of ambulance services according to standards.

Increased communication and coordination within the referral system

EMAS tracks increases in routine communication between *puskesmas* and hospitals regarding obstetric and newborn referral cases through SijariEMAS.[23] As shown in Table 2, the number of referrals managed using SijariEMAS has increased significantly over time, and more than doubled between Years 3 and 4.

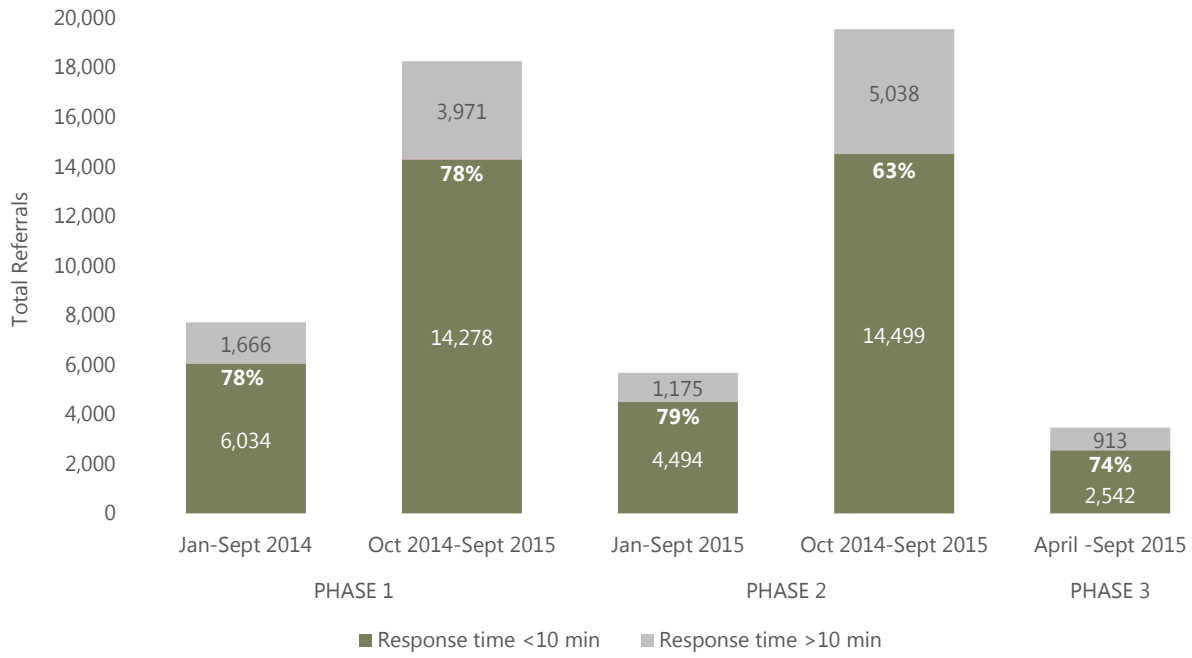
Table 2: Number of referrals through SijariEMAS by program year

EMAS Program Year	Total referral cases facilitated by SijariEMAS
Year 2 (September 2012–October 2013)	6,717
Year 3 (October 2013–September 2014)	14,774
Year 4 (October 2014–September 2015)	33,052

The time taken for hospitals to respond to referral notifications can be used to assess referral communication efficiency. EMAS routinely collects data on the number and percentage of referral cases using SijariEMAS that hospitals respond to within 10 minutes (the benchmark response time). Aggregate results for this PMP indicator are provided in Figure 4 below. While the percentage of referrals responded to by hospitals within 10 minutes has varied between quarters (ranging from 65

to 88%) this indicator has remained relatively consistent over time—at around 75–80% across Phases). In Year 4, overall hospitals responded to 76% of incoming referrals within 10 minutes.

Figure 4: Aggregated hospital response time to referrals through SijariEMAS, by EMAS Year and Phase

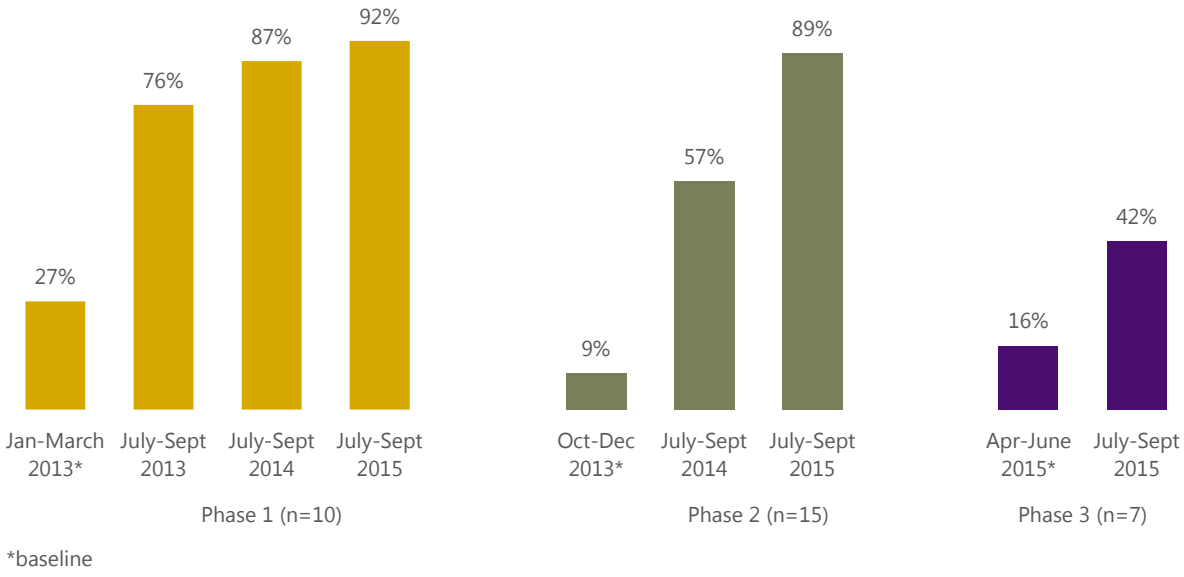


Increased efficiency of the referral system and evidence of district accountability

Aggregate results of quarterly district Referral Performance Monitoring assessments provide an indication of referral system efficiency and effectiveness across EMAS-supported districts, and can be used to track progress over time. As shown in Figure 5, there have been significant improvements in these standards across all districts and Phases since baseline. By end of EMAS Year 4 (September 2015), 90% of Phase 1 districts, and 87% of Phase 2 districts were achieving more than 80% of referral performance standards. Phase 1 districts have consistently achieved higher percentages across the referral standards compared to Phase 2 districts. At this early stage in implementation, Phase 3 districts are scoring quite low, although scores have improved in the most recent quarter and two districts have scored in the high seventies.

There are some common areas of the referral standards where districts fall short. These include hospitals' technical support for *puskesmas* and village/private midwives, the provision or recording of back referrals to the referring midwife/doctor (by both hospitals and *puskesmas*), as well as public accountability (hospitals).

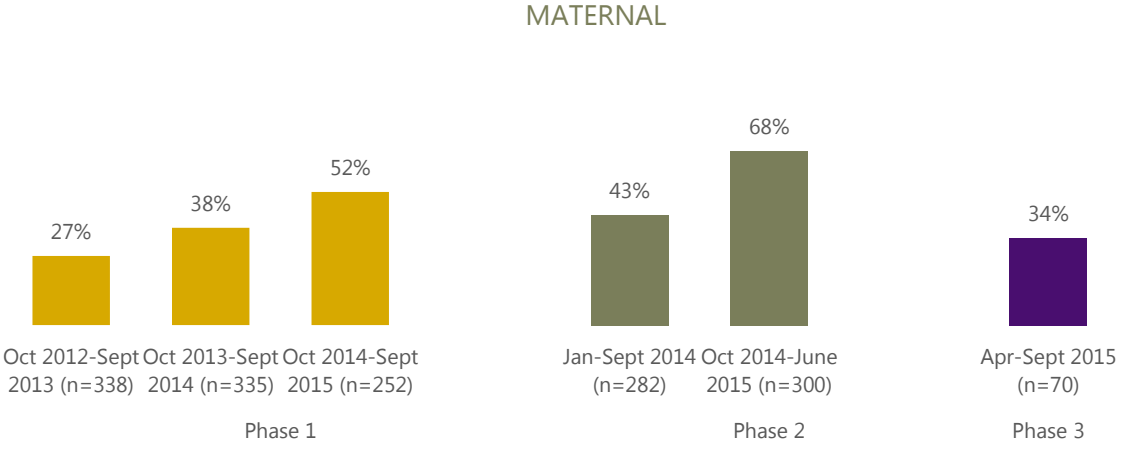
Figure 5: Average percentage of referral performance standards achieved, by EMAS phase[24]

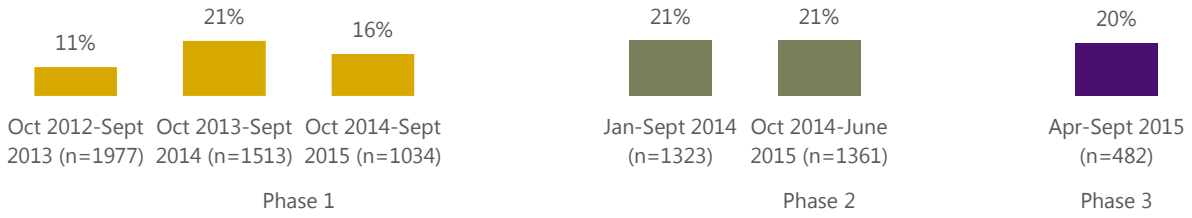


*baseline

Conducting routine MPAs provides evidence of district accountability, particularly when the MPA results and action plans are followed up by Pokjas and Civic Forums. Figure 6 below shows progress regarding the percentage of maternal and newborn deaths reviewed by MPA process in Phase 1, 2 and 3 districts over the life of EMAS. While MPAs are not yet routine, there has been an increase in percentage of maternal deaths audits conducted over time. Progress on neonatal death audits has been much slower, with a slight decrease reported in both Phase 1 and 2 districts between Years 3 and 4. Phase 2 facilities have consistently reported slightly higher percentages of MPAs than Phase 1 facilities. This trend is reflected in the scores for the referral performance standards MPA tool. The results for Phase 3 districts reflect the early stage of implementation and the related lack of funding for audits to be conducted on a regular basis. A number of districts are showing growing commitment to conducting MPAs, with several districts auditing 100% of maternal and neonatal deaths during Year 4, although not consistently.

Figure 6: Percentage of all maternal and newborn deaths reported and reviewed by the MPA process in Phase 1, 2 and 3 districts





Increased effectiveness of the referral process

As outlined in the EMAS causal pathway (see Appendix 1), improved network readiness and district accountability, communication and coordination, and efficiency of the referral system should result in increased effectiveness of the referral process, as indicated by appropriate treatment and stabilization of patients prior to timely referral, as well as improved maternal and newborn health outcomes for referred cases.

EMAS tracks progress in providing life-saving interventions to stabilize women and newborns before referral to a higher level of care—in particular, the provision of at least one dose of $MgSO_4$ for women with severe PE/E, and at least one dose of antibiotics for newborns with suspected severe infection. These PMP indicators are tracked at the hospital level and measure the percentage of women and newborns that arrive at EMAS-supported hospitals having already received at least one dose of these medications. Data from EMAS-supported hospitals shows that while there has been progress over time, increasing coverage of these interventions has been slow and remains much lower than desired. Over the past year (October 2014–September 2015), 52% of women with PE/E received $MgSO_4$ prior to referral to Phase 1 hospitals, while for Phase 2 districts, this percentage was 40%. However the proportion of newborns referred with infection that were given an antibiotic before referral to the hospital has been slower to improve. For the same period, 20% of Phase 1 hospitals and 15% of Phase 2 hospitals reported that newborns with suspected severe infections had received antibiotics before referral.

As this data reflects all referrals regardless of their origin, EMAS has looked in-depth at these two indicators in a subset of 24 hospitals to see if there was any difference in facilities that have/have not received EMAS support. As shown in Table 3 below, the analysis found that women with severe PE/E were much more likely to have received $MgSO_4$ if they were referred from EMAS-supported facilities. Likewise, newborns with suspected infection were more likely to have received an antibiotic when referred from an EMAS-supported facility. This analysis also found that the highest numbers of newborns (37%) were referred by private midwives, who are currently prohibited from storing antibiotics by Indonesian law. This helps to explain why coverage of this indicator has been difficult to increase.

Table 3: Provision of $MgSO_4$ for severe PE/E and newborn antibiotics pre-referral, by origin of referral

Origin of referral to RSUD within district	% of severe PE/E cases which received $MgSO_4$ before referral (n= 1215 of 1365)	% of newborns with suspected sepsis cases which received antibiotic before referral (n=243 of 258)
***Puskesmas* (EMAS Full Support)**	**72%**	**16%**
Puskesmas (Limited EMAS Support)	38%	6%
Private Midwife	13%	7%
Hospital (EMAS-Supported)	**73%**	**76%**
Hospital (Not supported by EMAS)	31%	39%
General Clinic ("Klinic Umum")	17%	9%
Other	12%	14%

Cases referred from EMAS-supported facilities were most likely to be stabilized before referral

The comprehensive EMAS Program Evaluation (in 2015–16) will provide additional evidence regarding the effectiveness of the EMAS referral strengthening strategy. The evaluation will collect data on the quality of referral services provided in EMAS facilities and whether the effectiveness of and efficiency of the referral process has been strengthened.

Successes associated with implementing a comprehensive approach

EMAS referral strengthening interventions are inter-related and reinforce each other as outlined in the causal pathway—no single intervention stands out as being relatively more or less critical for strengthening the referral system. Together, EMAS interventions provide districts with an ongoing continuous improvement cycle for their referral systems: conducting assessments, identifying issues, working to overcome these, and repeating the assessment.

When used together as planned, the interventions have built-in cross checks to asses if all elements are in place and how well they are functioning. The referral standards tools assess important elements of the referral system, such as PK and MPA process, and identify gaps and areas for improvement. For example, in Year 2 assessments conducted by PF teams highlighted shortcomings in PKs, such as exclusion of private midwives, or no reference to relevant communication channels. Likewise, the MPA process helps to identify any gaps in the system (based on events leading to a maternal or neonatal death).

Linking the regular assessments to governance and accountability mechanisms takes this interconnection one step further. Using Pokjas as a central point to review all of components and assessments of referral system each quarter (PK, MPA data, referral performance assessments and related action plans) allows them to develop a current and complete picture of the referral system, and identify existing areas of weakness. If a Pokja is comprised of key, influential members and is functioning well, it can successfully implement changes (e.g., budget, policies) to resolve key barriers that impact MNH. Through the work of Pokjas, regulations and decrees supporting MNH have been

signed and disseminated in 17 districts in EMAS in Year 4. Examples of success from specific districts' Pokja are outlined in Box 3 below.

Civic Forums have worked closely with MKIA to help reduce maternal and neonatal deaths, and have also helped promote pregnant women to register for JKN. EMAS has encouraged FMMs to focus on its 'watch dog' role—gathering feedback, plus monitoring actions and improvements following maternal and newborn deaths in their districts. For example, following three maternal deaths in Bulukumba in 2014, the Civic Forum used a coordinated strategy to raise awareness and take action on this matter. They worked with media, held discussions with RSUD director and Ob-Gyn, and influenced the DHO to conduct MPA to further investigate the reasons behind the deaths. In Gowa the FMM has also pushed for the DHO to conduct MPAs into maternal deaths.

Box 3: Pokja success stories regarding referral

- In Banyumas, the Pokja encouraged the DHO to replicate EMAS approaches in an addition 12 *puskesmas* over 2013–14, using its own budget. They aim to cover another 39 *puskesmas* in the district by the end of 2015. The Pokja influenced the allocation of Rp. 750,000,000 (~USD 55,000) for MNH in 2014. They have also successfully passed a local regulations and a *Perda KIBBLA*, which aims to increase the skills of health providers, improve the quality of health facilities, and strengthen the referral system.
- In Cirebon, the Pokja was able to effect the reactivation of the district MPA team as well as significant budget allocations to support for maternal and newborn emergency care. In April–June 2015, the Cirebon Pokja advocated to the DHO to establish a SijariEMAS call center.
- In Asahan, resources and a decree have been issued to better support the referral system and clinical services.
- In Pinrang, the Pokja successfully advocated for local budget to cover operational expenses for PF teams, the MPA process and costs of routine Pokja meetings.
- In April–June 2015, the Labuan Batu Pokja successfully advocated for increased DHO funding for MNH for 2016.
- In Sidoarjo, the Pokja gained funding commitment from the DHO to introduce and replicate EMAS approaches in 18 limited support *puskesmas*.

EMAS referral strengthening interventions have also led to improved communication and collaboration between all health facilities within districts, which did not exist prior to EMAS. This has been successful for both small districts (e.g., 1–2 hospitals and 16 *puskesmas*) through to large districts such as Bogor (with 40 hospitals and 101 *puskesmas*). Total coverage PKs, with involvement of private facilities, have led to examples of public-private partnerships, such as private hospitals using their own funds to supervise and support nearby health centers.

In addition, as each referral strengthening intervention is implemented by a different group, the load and responsibility is shared. This also means if one area/group is not performing well, the referral system as a whole will continue to function (although not optimally) at the district level.

The following case studies illustrate how different elements of the EMAS comprehensive approach have impacted on referral system performance to date.

Phase 1 District Case Study: Commitment to referral system strengthening in Pinrang

Pinrang district (South Sulawesi) has consistently stood out in terms their determination to put in place an effective and efficient referral system. Since the initiation of EMAS activities in Pinrang district in mid-2012 (Phase 1), stakeholders have worked hard to ensure a strong referral network.

The *Bupati* of Pinrang is very committed to achieving MDGs 4 and 5, and has demonstrated his support through key actions seeking to improve maternal and newborn health and survival within his district. He has signed a regulation concerning maternal and neonatal health, which means that hospitals and the DHO have a legal mandate to undertake activities and provide life-saving equipment. He has also requested that every sub-district and village head identify pregnant women to ensure that safe deliveries in facilities occur in the district.

The *Bupati* has also signed a decree to improve MPAs within the district. The Pinrang MPA team also has a high commitment to reducing maternal and neonatal mortality, and aims to review every maternal death and at least 25% neonatal deaths every month. The MPA team presents and shares their recommendations with facilities in order to address some of the identified causes of these deaths. Throughout the duration of EMAS, the Pinrang *Pokja* has complemented these efforts, initiating regulations and decrees put in place by the *Bupati*. Pinrang has an effective Pokja, which has been able to secure sufficient district budget to cover operational expenses for PF teams, the MPA process and costs of routine Pokja meetings. The Civic Forum is also functioning well, and has collaborated with MKIAs to organize blood drives.

To regularly monitor and measure progress across the referral system, the Pinrang district PF team conducts referral standard performance assessments every quarter, which are funded by local government funds (rather than EMAS funds) as part of DHO monitoring and evaluation activities. Pinrang has steadily increased referral assessment scores over the course of the EMAS program, achieving 99% of referral performance standards in Year 4. The PF team follows up assessment results with facilities and provides support to help improve their performance.

With strong commitment and coordination from the highest levels of the district and below, Pinrang serves as an example of how a referral can and should function to ensure women and newborns receive timely care when needed. Pinrang District was recognized through the UN Public Service Awards in 2015 for the achievement of the Lasinrang District Hospital in improving perinatal care.

Phase 2 district case study: Karawang referral communication success story

Karawang (West Java) provides a good example of how a large district has used a strong PK, and effective use of SijariEMAS to improve communication around referrals. As a Phase 2 district, Karawang commenced implementing EMAS interventions in September 2013.

A key factor in Karawang's success is the strong commitment and leadership from the DHO. In addition to the *Bupati* signing decrees regarding Pokja and PF team, in early 2015, a local regulation (*Perda*) was issued which allows pregnant women to register their babies in JKN prior to delivery to ensure they are covered under the insurance mechanism from birth.

Karawang has a comprehensive PK, which has been signed by all health facilities in the district. The district is also an excellent example of how to optimally use SijariEMAS, as it consistently manages one of the highest total numbers, as well as percentages of referrals through the system. Karawang launched SijariEMAS September 2013, integrated with a dedicated 24 hour emergency call center at the DHO. This call center allows the DHO to monitor hospital response time, coordinate with hospitals when delays occur, and revise SijariEMAS formatting/ programming when needed in order to improve referral efficiency. The system is linked to 18 hospitals and 51 *puskesmas*, with a total of 1560 health staff registered in SijariEMAS. The *Bupati* of Karawang has issued a regulation that referrals must be managed through SijariEMAS. As a result, 78% of emergency referrals utilize the system—an average of over 50 each day. The vast majority (90%) of these referrals are responded to within 10 minutes. Karawang has been recognized for its use of SijariEMAS in helping to reduce maternal and newborn mortality through the Public Service Information System Public Service Innovation (*Sistem Informasi Inovasi Pelayanan Publik*, SINOVIK) award by the GoI Ministry of Administrative and Bureaucratic Reform.

Karawang's performance on referral standards increasingly rapidly from a baseline of 22% in October–December 2013 to all referral facilities in Karawang achieving 94% of the referral performance standards in September 2015 (end of Year 4). Karawang shows that with strong commitment and leadership, improving communication and coordination around referrals is possible even in a large and densely populated district.

Challenges associated with implementing a comprehensive approach

Having a number of inter-related intervention is more complex and time intensive to implement, and therefore requires greater support. All interventions need to be sequenced correctly and progressing well for the referral system to function optimally. Weaknesses in one or more interventions will limit or delay significant improvements in the referral system (and in turn, patient outcomes). For example, if a Pokja not working well, barriers such as limited budget for MPA can persist.

In addition, implementing numerous interventions requires strong commitment and support from a number of actors—*Bupati*, DHO, management and staff from health facilities, as well as CSOs. If this is not present, progress will be limited. Commitment from key individuals can also be impacted by turn-over of positions, particularly those in key leadership roles.

5. SUSTAINABILITY

The EMAS referral strengthening approach promotes sustainability. From the outset, EMAS approaches have been designed and implemented to operationalize and optimize existing, yet poorly functioning referral systems. By the end of the program, EMAS intends to leave in place referral networks that efficiently and effectively stabilize and refer emergency cases. These referral networks will serve as models and mentors for other districts.

EMAS considers sustainability to be related to a set of factors—political support and commitment, capacity, financial resources, owners, and champions. A description of these factors as they relate to referral strengthening, together with the progress made to date, is provided below.

Commitment and political support for the EMAS referral strengthening is strong. Ensuring the referral system works effectively is an element of the MOH's 'National Action Plan for Accelerating Reductions in MMR'. At the national level, EMAS referral approaches are have been incorporated into the "Guidelines for Improving Collaboration within Maternal and Newborn Health Services at Basic and Referral levels" (Collaborative Improvement Guidelines). In 2016, a "Ministerial Decree of BEONC and CEONC and Collaborative Management of Maternal and Newborn Emergency Care from primary level to referral level" (*Permenkes Ponek, Poned, den Manajemen Kolaborosi Pelanyanan Gadar Maternal dan Neonatal Primer Dasar dan Rujukan)* will be issued for these guidelines.[25] Developed by the MOH Directorate for Referral Health Services (*Bina Upaya Kesehatan Rujukan,* BUKR), the *Permenkes* (Ministerial Decree) will incorporate all EMAS referral strengthening interventions—including PKs for referral networks, PF teams, use of a communication mechanism,[26] referral performance standards and tools, Pokjas, MKIAs, Civic Forums, and mentoring. Once signed by the Minister, the *Permenkes* and will serve as umbrella policy support for EMAS referral approaches to be rolled out across Indonesia to improve clinical services and referral systems. It will also provide a legal basis by which provinces and districts can be held accountable for implementing these approaches and through which funding can be allocated (e.g. APBD). Relevant EMAS *puskesmas*-related standards and tools are also planned to be included in the national BUK *Dasar* accreditation manual, which is currently under development.

EMAS referral approaches also have strong support from provinces and districts. *Bupatis* have issued decrees (SKs) regarding Pokjas, PKs, MPA teams as well as lists of mentors at district level. A number of *Bupati* have emerged as **champions** for EMAS approaches. In Tangerang, the *Bupati* has issued a regulation outlining the elements of the referral system that need to be in place—all of which were EMAS approaches. In Bulukumba, the *Bupati* has integrated the PK into the district's health regulations. A number of provinces and districts have begun/are interested in replicating aspects such as SijariEMAS in other facilities and districts.

EMAS has tapped into existing **resources** at the provincial and district level, with districts increasingly funding referral activities. Facilitative Supervision has its own line item within district budgets, which is used to support implementation of referral performance assessment tools. The costs of Pokjas and PK workshops are covered by DHO budgets. Where possible, EMAS has used existing district budgets to cover the costs of implementing SijariEMAS (hardware, internet, training costs),[27] and a number of districts have self-funded expansion of SijariEMAS, including in non-EMAS supported districts. For example, West Java intends to expand SijariEMAS across the entire province. In addition, the use of MKIA has been replicated in North Sumatra using Aisyiyah funds, and a number of districts have made

progress in ensuring sufficient allocations in their budgets for MPAs to take place at frequent intervals. Going forward, the integration of EMAS referral interventions into the national Collaborative Improvement Guidelines enables DHOs to request funds to support these approaches. Districts and provinces will draw upon APBD funds to continue to develop/monitor network MOUs.

Owners, including DHOs and PHOs, have been directly involved in implementing referral strengthening activities from the beginning, and EMAS approaches are fully integrated into DHO and health facility systems. EMAS has developed tools to help districts to operationalize existing GOI policies, standards and guidelines, such as MPA and referral guidelines. EMAS tools are implemented using existing staff/structures. For example DHO staff comprise PF teams to undertake quarterly assessments of district referral systems. District staff are also mentoring their peers in how to use these. In addition, DHOs are leading and taking ownership of EMAS referral strengthening interventions such as SijariEMAS and coordination of mentoring.

EMAS has built the **capacity** of districts regarding the referral system. For example, there are now 23 Facilitative Supervision teams which regularly conduct assessments using the Referral System Standards and tools independent of EMAS support. West Java will be the first province to independently manage entire mentoring process for referral systems. District staff are also managing SijariEMAS with only limited support from EMAS. As such, EMAS will leave in place a set of well-functioning referral networks that are able to mentor others in implementing referral standards, developing network MOUs, facilitating audits, rolling out SijariEMAS, developing Civic Forums and MKIAs, monitoring services and establishing Pokjas (within and beyond their districts). DHOs are now equipped with the right sets of tools and mentors to manage expansion without EMAS direct involvement. EMAS has developed detailed guidelines outlining processes for implementing referral strengthening referral standards, PKs, SijariEMAS, MPA, MKIA, etc, to assist with replicating these referral interventions. Budgets to sustain these approaches are being allocated in EMAS districts, and non-EMAS districts have already begun replicating these approaches with their own funds.

Despite the significant progress towards sustainability, some challenges remain. For example, EMAS continues to explore options for a national owner of the SijariEMAS system platform, which is currently hosted and funded by EMAS. There is also ongoing work required to improve the frequency and quality of MPAs. While the Collaborative Improvement Guidelines are a major step in ensuring the sustainability of referral strengthening approaches, EMAS continues to work to get these endorsed at the district level (through individual *SK Bupati*, *Peraturan Bupati (*Perbup) or *Peraturan Daerah*) to further support their sustained implementation. EMAS also continues to identify additional referral mentors, with the goal of developing three complete mentor teams per district, as well as help prepare PHOs to coordinate the mentoring process independently.

6. LESSONS LEARNED AND RECOMMENDATIONS

Interventions to strengthen the referral systems are interrelated and build on each other each other. For example, SijariEMAS won't work effectively if it is not based on a strong PK. Implementing one or two interventions in isolation will not have a significant impact on improving a district's referral system. For example, implementation of referral performance assessments is necessary to identify gaps in the system, but will not improve it without the other interventions.

Governance and accountability mechanisms have helped improve districts' referral systems. Strong Pokjas have demonstrated that they can play an important role in following up on and resolving various challenges, gaps and issues identified within facilities and referral systems. For this to happen, the Pokja needs to include the most strategic and influential membership possible. While Pokjas may need ongoing support to optimize their functioning and effectiveness, this investment is worth-while due to their ability to effect change.

The more health facilities collaborating in the referral network, the more effective the referral system will be. In Phase 1, EMAS only supported selected *puskesmas* but it soon became clear that it would be difficult to improve referrals and clinical outcomes of referred women with this approach. All facilities, particularly those with high maternal and newborn deaths, need to be involved in the referral network to improve maternal and newborn emergency care and help save lives. This is formalized through 'total coverage' PKs.

Peer-to-peer mentoring is an effective way to introduce processes and tools and help strengthen district referral systems. As is the case with clinical mentoring, using champions to mentor their peers has worked well. While less structured than clinical mentoring, teams from earlier EMAS Phases have successfully helped new districts establish systems and implement tools such as SijariEMAS and Referral Standards performance assessments.

Progress of the referral strengthening interventions has been uneven between interventions and across districts. PKs have been well accepted by districts but progress on MPAs has been slower than hoped. SijariEMAS has been well utilized in some districts but not others. Strong DHO support and leadership increases the effective use of EMAS interventions.

The process of introducing EMAS interventions improves communication and coordination. For example in developing the (total coverage) PK and referral pathways for SijariEMAS, all health facilities within the district have to talk to each other, sign on, and agree. This process helps to improve communication even before the SijariEMAS system is in place.

EMAS interventions are more likely to be sustainable when implemented with district funding and through existing structures. DHO PF teams are used to implement referral performance tools, and district funding is used to conduct MPAs, install SijariEMAS etc. EMAS developed tools to facilitate the implementation of existing policies and guidelines. Incorporation of EMAS referral approaches into the 'Ministerial Decree of BEONC and CEONC and Collaborative Management of Maternal and Newborn Emergency Care from primary level to referral level' will further promote their sustainability.

- **The performance standards and monitoring tools provide a continuous improvement process to guide districts in improving their referral systems.** Because no referral network concept existed before the PKs were developed, the tools help focus on specific elements of a functional referral system. They are valuable tools that allow Districts to track progress for the facilities and district. Conducting them on a regular basis maintains focus on this issue.

APPENDIX 1: EMAS RESOURCES FOR REFERRAL SYSTEM STRENGTHENING

Title	Languages
Technical Guidelines on PK between facilities *Pedoman Teknis PK antar Fasilitas*	Bahasa Indonesia
Technical guide SijariEMAS *Panduan Teknis SijariEMAS*	Bahasa Indonesia
MPA Facilitation Guide AMP *Panduan Fasilitasi AMP*	Bahasa Indonesia
Operational Guidelines (Referral) *Panduan Operasional*	Bahasa Indonesia
Referral Performance Standards	English

APPENDIX 2: EMAS MENTORING CRITERIA RELATED TO REFERRAL STRENGTHENING

A Penyelaian Fasilitatif (PF) Team is able to begin mentoring when:

- The team conducts assessments of the referral system on a quarterly basis
- The PF Team is able to analyze the results of the quarterly assessments, and creates action plans
- The team has developed a strategy to engage all *puskesmas* in the assessment process
- The team is using facilitative supervision funds to conduct the assessments.

A MPA team is able to begin mentoring when:

- The MPA team is structured and has a decree that reflects the 2010 MOH guidelines
- The MPA Team carries out the MPA process as described in the 2010 MOH guidelines (MPA report filed confidentially in *Dinkes*, assessment team identified in decree, assessment team meets regularly)
- Team has demonstrated it is auditing at maternal deaths and neonatal deaths

SijariEMAS Teams are able to begin mentoring when:

- System is deployed and functioning
- Technical Team (IT DHO, midwife, doctor in IGD Hospital and IT Hospital) is trained and able to operate and troubleshoot the systems
- Communication SOP for using SijariEMAS at hospital in place.
- Systems are being used :
    - 90% MCH provider data are registered and oriented in district.
    - At least 1 hospital with 60% of emergency referral response time under SOP threshold.
    - At least 25% of MNH referrals in the district are being facilitated through SijariEMAS

A Pokja is able to begin mentoring when:

- Includes members from local government, in addition to health officers
- Includes representatives of professional organizations, businesses, and civil society
- Pokja has a legal basis/SK *Bupati*
- Pokja has a work plan
- Conducts quarterly meetings to review progress within facilities and referral systems and to develop action plans
- Is able to integrate solutions within SKPD work plans (Renja) and budgets (RKA)
- Has initiated the drafting of regulations that are needed to support reductions in MMR and NMR

A Civic Forum is able to begin mentoring when:

- Works together with professional organizations and Working Groups/POKJA, including the media
- Is involved in collecting citizen feedback through a participatory method
- Has participated in meetings with local government to formulate MMR policy
- Has participated in the development of service charters
- Is directly communicating with the Motivator KIA in the sub-districts

APPENDIX 3: REFERENCES

Central Bureau of Statistics (Badan Pusat Statistik—BPS), National Population and Family Planning Board (BKKBN), and Kementerian Kesehatan (Kemenkes—MOH), and ICF International. 2013. *Indonesia Demographic and Health Survey 2012*. Jakarta, Indonesia: BPS, BKKBN, Kemenkes, and ICF International.

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APPENDIX 4: ENDNOTES

1 *Desa siaga* was introduced in the mid-1990s and has been scaled up nationally since 2006. It helps communities prepare for emergencies in advance by establishing: a registry of pregnant women; a financial support scheme to help cover medical costs; a network of vehicle owners willing to transport pregnant women; a pool of blood donors; and a family planning post. P4K has been in place since in 2008. It involves placing P4K stickers outside a pregnant woman's house, indicating her name, due date, delivery attendant, support person, as well as vehicle owner and blood donors if required. A number of reviews have found that found that *Desa Siaga* and P4K have not been implemented optimally (e.g., very few blood donation groups were formed and implementation of the pregnancy notification sticker outside houses was variable).

2 Indonesia has 500 autonomous districts which are responsible for delivering health services.

3 For more information, visit emasindonesia.org.

4 Health facility Service Charters are required by public service law and standard regulations. They are also assessed as part of the national health facility accreditation process.

5 While several guidelines on referral existed prior to EMAS, they were for general referrals rather than emergencies, not being used at the district level, or were implemented in isolation. They also tended to be very broad and therefore not very practical for health facility or administrative staff.

6 This involved significant effort at district and national levels for drafting, consulting with stakeholders and field testing materials.

7 DHOs lead the process of identifying and putting in place Facilitative Supervision teams, which are formalized by a Decree. PF teams may already exist, or a new team can be developed. PF teams are also used to assess clinical services.

8 In some areas there were referral-related agreements between a small number of facilities, or existing agreements did not cover the basic elements of a strong referral network.

9 *Pelayanan Obstetri Nenonatal Emergenci Komprehensif,* or Comprehensive Emergency Obstetric and Neonatal care (CEmONC)

10 Including private health facilities in PKs allows the referral network to be comprehensive. There are large numbers of community-based and private midwives connected to the referral network through the midwife coordinator at each *puskesmas*, plus SijariEMAS. For example, in Kota Semarang there are 800 private practice midwives whose role and authority are detailed in the PK.

11 *Badan Penyelenggara Jaminan Sosial Nasional*, the social security Agency that administers universal health insurance (JKN).

12 Managers of all facilities are invited and oriented to the PK, but a some private facilities did not initially want to sign the PK. Reasons for this include a lack of understanding that the referral network was not only for the poor on social insurance mechanisms.

13 In smaller districts, all *puskesmas* are included in the outset, whereas in large districts, limited support *puskesmas* and other health facilities are progressively added.

14 Total coverage has been achieved by several other districts with over 20 hospitals, including Sidoarjo, Malang, Deli Serdang and Banyumas.

15 In Phase 1, EMAS ICT specialists led the roll out of SijariEMAS in conjunction with teams from each district.

16 The 2010 MPA guidelines specify that districts must have a *Bupati* decree to establish and authorize a team to conduct MPAs. MPA teams comprise a DHO representative, senior

midwife/nurse, an Ob/Gyn and/or pediatrician. The guidelines also specify regular assessments (but not the frequency) and other aspects of the process. These guidelines replace larger and more complex audits.

17 The 2012 assessment of the MPA process in ten EMAS districts indicated that no district conducted full audits on every maternal death, and few districts audited perinatal deaths. Instead, MPA review teams conducted audits on selected deaths 1–4 times a year.

18 MIKA are community members, identified in collaboration with the Civic Forum. They are often affiliated with a variety of institutions/organizations, such as Muhammadiyah/Aisyiah. MKIA receive orientation and support from EMAS/Civic Forum in basic MNH issues and social insurance schemes.

19 *Jamkesmas* was national social insurance for the poor, with a cap on number of beneficiaries in each district; *Jamkesda* was district-level social insurance for people not covered by Jamkesmas; and *Jampersal,* introduced in 2011, was universal maternity insurance to provide free health care during pregnancy, childbirth and post-partum period, regardless of socioeconomic status. These mechanisms were replaced by JKN (universal health insurance) in 2014.

20 While there were some issues with its socialization and coverage, *Jampersal* required deliveries at a health facility and resulted in significant uptake of maternal health services. This analysis found a number of issues with each mechanism and that the fragmented nature of SHI at district level lead to confusion about eligibility, enrollment requirements and coverage of the various programs—for both beneficiaries and providers. Similar problems were also found by similar studies conducted by UNFPA and Gajah Mada University.

21 In 2014, EMAS held a Regional Workshop with BPJS to help Civic Forums better understand the JKN scheme and policy (e.g, mother and baby were automatically covered under *Jampersal* whereas with JKN family members have to register; *Jampersal* was free but JKN requires a small premium). Civic Forums provided information on what community members were entitled to under JKN and new processes, and supported MKIA to begin raising awareness of JKN.

22 Cross-regional PKs have been signed between: Pasuruan district and Kota Pasuruan in East Java; Pinrang, Pare-Pare district, Pare-Pare City, Enrekang, Sidrap, and Barru districts in South Sulawesi; Tegal district, Tegal City and Pemalag District in Central Java; and Pekalongan district and three hospitals in Pekalongan city.

23 This PMP indicator was added in EMAS Year 3.

24 Not cumulative indicator

25 EMAS has worked closely with MOH BUKR to support the development of the 'Guidelines for Improving Collaboration within Maternal and Newborn Health Services at Basic and Referral levels' (also called 'Collaborative Improvement Guidelines', or *Pedoman Kolaborasi Pelayananan Kegawatdaruratan Ibu dan BBL tingak Dasar dan Rujukan*). The Collaborative Improvement Guidelines were enacted under a Ministerial Decree in late 2014. As a Ministerial Decree rather than a guideline, the content will be more enforceable. EMAS continues to support the MOH to finalize the guidelines and will also support their dissemination.

26 SijariEMAS is included in the Ministerial Decree as a good example of a clear communication mechanism, rather than mandated.

27 EMAS has been able to influence the budget planning process so that more district funds are allocated to cover the basic system cost. Districts have also funded dedicated staff to manage/oversee the system.