



IMPACT REPORT

The right care at the right time

Building a national referral system
in Sierra Leone



KING'S GLOBAL HEALTH PARTNERSHIPS

King's Global Health Partnerships (KGHP) works with health facilities, academic institutions and governments to strengthen health systems and improve the quality of care in four countries: Somaliland, Sierra Leone, the Democratic Republic of Congo and Zambia.

We bring together expertise from King's College London, the UK's National Health Service (NHS) and our international partners to educate, train and support healthcare workers; strengthen healthcare and training institutions; and enhance national health policies and systems.

OUR PARTNERS

We are delighted to have collaborated with the many partners who worked alongside us to enable the successful development of the referral system.

Ministry of Health and Sanitation, Sierra Leone

At the Ministry of Health and Sanitation (MOHS), we are particularly grateful to:
Dr Matthew Vandy, Director of Hospital and Ambulance Services;
Mr Emile Koroma, Director of Human Resources for Health;
Mary Fullah, Acting Chief Nursing and Midwifery Officer;
Dr Brima Kargbo, Chief Medical Officer in 2017;
Dr Kwame Oneill, Director of Health System Strengthening 2017-2018;
Rev. Canon. Dr. T. T. Samba, Chief Medical Officer 2017-2018.

National Emergency Medical Service

The National Emergency Medical Service (NEMS) is the first prehospital emergency medical system to be established in Sierra Leone, and one of few structured, fully equipped, and free-of-charge prehospital services on the African continent. Colleagues at NEMS have played an integral role in the development of the referral coordinator network. We would particularly like to thank: Mr Abdul Rahman Wurie, CEO of NEMS and Mr Abu Bakar T Jalloh, Director of Operations, NEMS.



ACRONYMS

BPEHS	Basic Package of Essential Health Services
CPES	Comprehensive Program for Ebola Survivors
FHCI	Free Healthcare Initiative
KGHP	King's Global Health Partnerships
M&E	Monitoring and Evaluation
MOHS	Ministry of Health and Sanitation
NaCOVERC	National Covid-19 Emergency Response Centre
NEMS	National Emergency Medical Service
NGO	Non-governmental organisation
WHO	World Health Organization

Referral: ensuring access to high quality, integrated health care

The challenges of Sierra Leone's healthcare system are well-known: chronic underfunding and a shortage of qualified workers, coupled with a significant burden of both communicable and non-communicable diseases. The health system's resilience has been tested on many occasions. Between 2014 and 2016, Sierra Leone was hit by an Ebola outbreak and since 2020 has been managing the Covid-19 pandemic.

When Sierra Leoneans get sick, they may face a number of obstacles before accessing the care they need. For rural communities, these obstacles often relate to the cost and availability of transportation, state of repair of the roads and distance to a health facility. Even when a sick person is able to make it to a health facility, they may not receive

the care they require. Healthcare workers may not be available who are skilled to provide the specialist care a patient may need. Accessing health care at the right place and right time is particularly important for obstetric and paediatric emergencies, where rapid intervention can prevent death and disability. There is a clear association between the time taken to reach a hospital and risk of death for mothers and new-borns with severe complications.

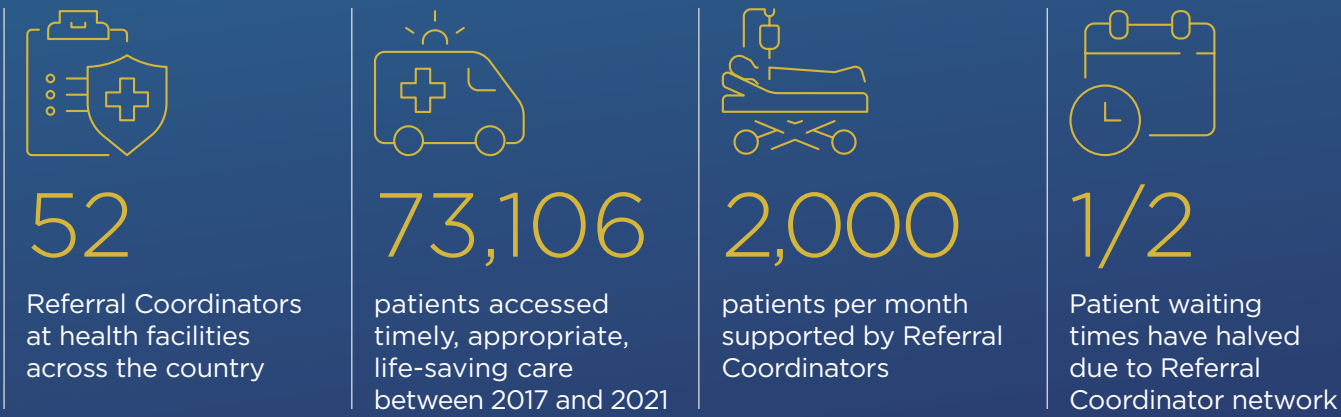
A strong referral system is essential to any emergency care health system. The referral system coordinates patient care between different levels of the health system, ensuring that patients are transferred quickly to more specialist emergency, critical or operative care, if this is needed.



WHY IS A STRONG REFERRAL SYSTEM IMPORTANT?

- Reduces delays patients may face in accessing appropriate treatment; this is vital for emergency care
- Builds patient trust in the health system
- Enables patients to move through the health system from primary to tertiary level where they can access specialist care
- Prevents tertiary facilities from being used for needs that can be managed at the primary or secondary levels
- Improves communication between health facilities

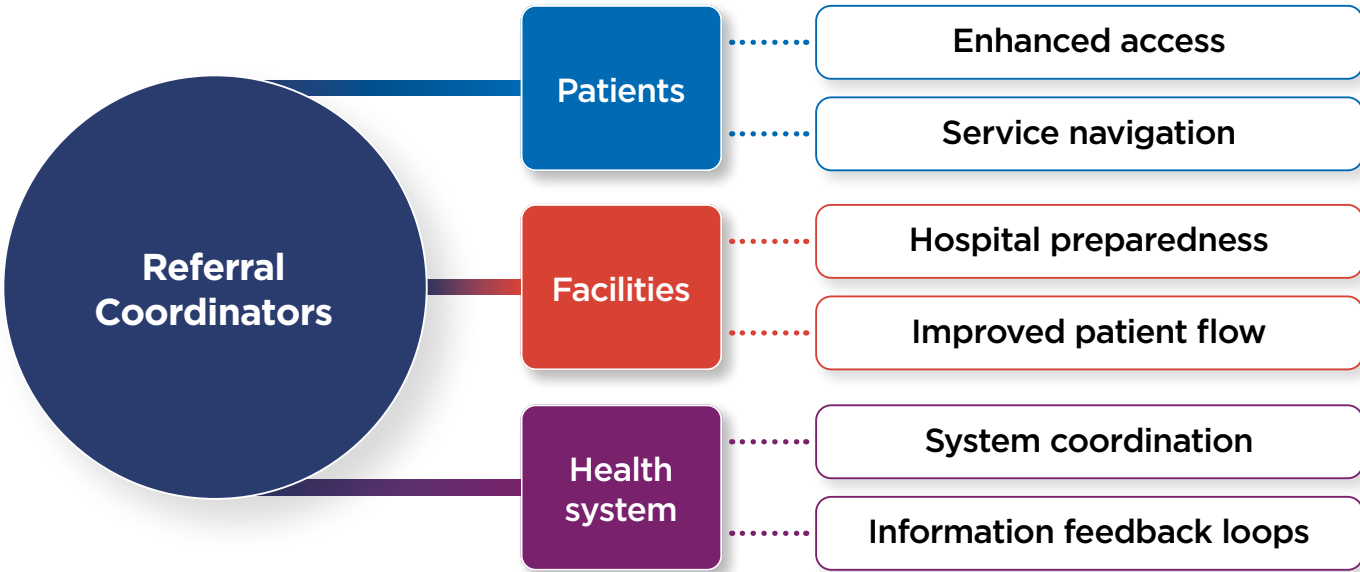
IMPACT OF THE REFERRAL SYSTEM:



The Government of Sierra Leone established the country’s first referral system in 2017. Between 2017 and 2021, King’s Global Health Partnerships (KGHP) actively supported the development of the system, enabling over 73,000 patients to access timely, appropriate, life-saving care. Many of these patients were women and children. In 2021, the referral system was integrated into the ambulance service and is now managed and funded by the Government of Sierra Leone.

There are now a total of 52 Referral Coordinators, located at health facilities across the country, who provide an important linkage between the referring hospital, the ambulance service, and the receiving hospital. Each time an ambulance is dispatched by the National Emergency Medical Service (NEMS), Referral Coordinators ensure that the receiving hospital is prepared for the patient, thereby reducing waiting times on arrival. They also advocate on behalf of patients and feedback information to the referring facility about patient treatment and outcomes. The Referral Coordinators take care of around 2,000 patients per month.

Benefits of referral for patients, facilities and the health system



The referral process

The health system in Sierra Leone is organised as follows:

At the primary level:

 **616**
Maternal and Child Health Posts (MCHP)

 **320**
Community Health Posts (CHP)

 **227**
Community Health Centres (CHC)

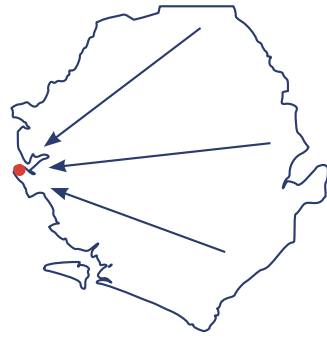
At the secondary level:

 **14**
District and regional hospitals providing secondary care and comprehensive emergency obstetric and newborn care

At the tertiary level:

 **4**
Tertiary referral hospitals, all based in the Western Area, providing specialist care

1 The decision to refer:



The referral process begins with a clinical decision that a patient can't be managed at the facility and requires more specialist care elsewhere. While the Referral Coordinators have clinical backgrounds, all clinical decisions – including the decision to refer – are made by the doctor in charge. Usually patients are referred from a district or regional hospital to one of the tertiary facilities in Freetown.

2 Organising transport:



Once the decision is made, the doctor informs the Referral Coordinator, who has two roles. First, they organise transport for the patient – either calling for an ambulance through NEMS or supporting the patient's family to find another option. The Referral Coordinator gives the NEMS call centre staff all the information they need to be able to dispatch an ambulance.

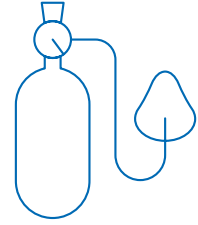


3 Communication:



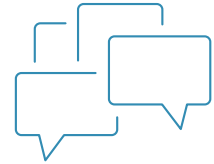
The Referral Coordinator from the sending facility then calls their counterpart at the receiving facility. This receiving Referral Coordinator takes down the patient's demographic and clinical information in a referral form. The Referral Coordinator's clinical training is vital. Thanks to their training, they can confidently ask questions about the patient's diagnosis and likely care options, and quickly understand what services the patient will need.

4 Facility Readiness:



Once they understand the patient's needs, the receiving Referral Coordinator assesses whether their facility can meet those needs. For example, an obstetric emergency might require a surgeon, a midwife and a blood bank. The receiving Referral Coordinator assesses the current state of their facility. Is there a surgeon and a midwife on duty today? Is the blood bank functional? The relevant clinicians are informed in advance about the incoming patient's needs. Without the Referral Coordinator checking facility readiness, patients can be taken on long journeys to hospitals that ultimately might not have what they need – and risk being referred again. These lost hours heighten the risk of lives being lost.

5 Patient Arrival:



When the patient arrives, the Referral Coordinator is waiting for them. They accompany the patient throughout their stay at a hospital, providing guidance on how to access services and advocating for their rights. Some patients, for example, might not be aware of their right to free health care, or know how to navigate payment for services. Referral Coordinators support patients up until discharge and ensure that they can access follow up appointments.

Who are the Referral Coordinators?



The 52 Referral Coordinators have a background in nursing or community health and are based at district and tertiary hospitals across Sierra Leone. The Referral Coordinators are trained to collect data, advocate on behalf of patients, and to communicate and coordinate. They receive mentoring and coaching from the central Referral Coordinator Management team, now based at NEMS in Freetown.

About Free Health Care Initiative



The Free Health Care Initiative (FHCI) has been one of the most significant reforms in the Sierra Leonean health sector. The FHCI aimed to reduce out-of-pocket payments for health care. The FHCI enables four patient groups to access free care: pregnant women, lactating mothers, children under 5 years, and Ebola Disease Survivors. Destitute patients are considered an informal FHCI group by many, but not all, facilities.



Data for decision making across the health system



Referral Coordinators undertake bed monitoring daily: allowing hospital management to make key decisions about resource allocation in their facility

The data generated by the Referral Coordinators provides important insights about service availability and utilisation. For example, this data is used to inform the Ministry of Health and Sanitation about which hospitals are at capacity, and which have spare beds. It informs the ambulance service if essential medical equipment is working at a regional hospital; and allows Medical Superintendents and hospital leaders to understand the resource needs of their hospital.

A dedicated Monitoring and Evaluation (M&E) Officer joined the referral team (which was supported by KGHP) in 2017, working to analyse and disseminate the system's data, with a focus on enabling data driven decision-making at health facility and at national level.

When a patient is referred, the Referral Coordinator at the receiving facility completes a referral form, capturing demographic and

clinical data, alongside data about the referral itself, such as the time of referral, arrival in the receiving facility, and first engagement with a healthcare worker.

This paper referral form is then entered into a database. We used the CDC's Epi Info¹, which can be customised and used offline. While this two-stage process is less efficient, paper forms are the norm in health facilities, and allow Referral Coordinators to take the paperwork to clinicians on the wards then enter data when they have the time.

Referral Coordinators also undertake bed monitoring daily: tracking the number of beds available across adult care, maternity, paediatric, Special Care Baby Units, and – since the Covid-19 pandemic – in isolation units. This data allows hospital management to make key decisions about resource allocation at their facility.

“We have made use of the data [from the Referral Coordinators each month]. We know that the hospital is mostly overwhelmed – meaning we have most times over 100% bed occupancy. But once the Referral Coordinator system shares their report with us, we now have independent evidence to show to the public, as well as the authorities and our supervisors at Ministry [of Health and Sanitation] level, to say this is what's happening. It's not just the facilities telling [them] this. It is independent organisations telling you that we are overbooked, we are overwhelmed, and most of the time our occupancy is over 120%. [This] gives credibility to the facility... so that our supervisors will listen.”

DR MUSTAPHA, MEDICAL SUPERINTENDENT, OLA DURING CHILDREN'S HOSPITAL

RC Kenema

Name of [REDACTED]

Adult

- Beds Capacity: 166
- Current inpatients: 84
- Available beds: 82

Paediatric

- Beds Capacity: 87
- Current inpatients: 62
- Available beds: 25

Total

- Beds Capacity: 253
- Current inpatients: 146
- Available beds: 107

Remarks

+ Type text message

¹ THE CENTER FOR DISEASE CONTROL AND PREVENTION'S (CDC) EPI INFO IS A PUBLIC DOMAIN SUITE OF SOFTWARE TOOLS DESIGNED FOR DATA MANAGEMENT FOR PUBLIC HEALTH PRACTITIONERS AND RESEARCHERS. [HTTPS://WWW.CDC.GOV/EPIINFO/INDEX.HTML](https://www.cdc.gov/epiinfo/index.html)



A monthly report is produced for each facility in the network. The report includes data on:

- Number of referrals across the country, disaggregated by facility and patient outcome
- Bed occupancy for each facility, disaggregated by adult, maternity and paediatric
- An analysis of the services that referred patients require at each facility
- Trends in the data, such as malaria prevalence during the rainy seasons.

These monthly reports allow hospital managers to see trends at their facility and plan for the future, based on year-to-year and facility-to-facility comparisons. Many facilities make changes to the allocation of beds for different patients and use the data to advocate to the MOHS for specific resources.

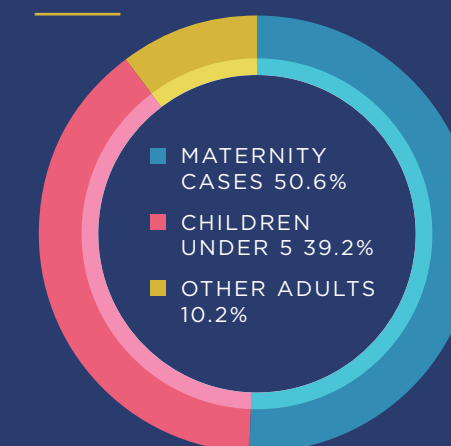
WHO IS ACCESSING EMERGENCY CARE? A SNAPSHOT

Analysis of a year's referral data (Youkee et al, 2020, preprint) from 1st November 2017 until 31st October 2018 allows us to understand who is accessing emergency care.

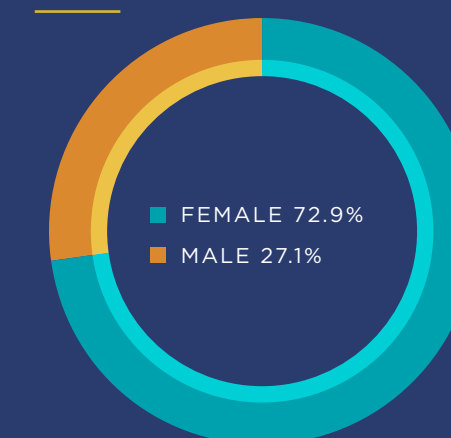
14,266

Over a one-year period, 14,266 incoming referrals were recorded nationwide.

Groups being reached:



Division by gender



93.8%

Of all 14,266 referrals, 93.8% survived and left the hospital

Evolution of Sierra Leone's Referral System



Ebola survivors needed support in accessing their rights under FHCI

2015: DEVELOPMENT OF THE REFERRAL SYSTEM IS IDENTIFIED AS A GOVERNMENT PRIORITY FOR HEALTH

In 2015, the Government of Sierra Leone developed the Basic Package of Essential Health Services (BPEHS), reviewing the health system and prioritising areas for investment. Referral was recognised as a 'systems' challenge, but at the time there was no funded action plan to address the issue.

and the Ministry of Social Welfare, Gender and Children's Affairs, the programme sought to meet survivors' health and psychosocial needs; build livelihoods; reintegrate them into their communities; and address the risk of resurgence associated with possible Ebola viral persistence in survivors.

A key pillar was the introduction of a referral system, and the creation of survivor advocates, who identified survivors' health needs and connected them to care. NGO partners in several facilities recruited Referral Coordinators, establishing the basis of the system. KGHP recruited two Referral Coordinators, working at Connaught Hospital and 34 Military Hospital in Freetown. Together these two Referral Coordinators enabled 261 Ebola survivors to access care.

2016: CARING FOR EBOLA SURVIVORS: THE ORIGINS OF THE REFERRAL SYSTEM

The unprecedented Ebola outbreak in West Africa between 2014 and 2016 resulted in 8,706 confirmed cases and 3,956 deaths in Sierra Leone. In November 2015, the President of Sierra Leone declared that Ebola survivors should access free health care via the existing Free Health Care Initiative (FHCI). However, many survivors and health care workers were not aware of the FHCI. It became clear that Ebola survivors needed support in accessing their rights under FHCI.

In 2016, the Government of Sierra Leone launched the Comprehensive Program for Ebola Survivors (CPES) which aimed to strengthen health care facilities and provide health care services for patients with post-Ebola complications. Headed jointly by MOHS

2017: WIDENING ACCESS TO ALL PATIENTS

An impact assessment of the first phase of CPES showed that there had been significant improvements in mitigating the health care challenges of survivors. A key recommendation was that all FHCI patients should be able to access the services of the Referral Coordinators.

KGHP was selected by CPES to expand its work and manage the whole Referral

Coordinator network. We recruited 16 Referral Coordinators, all nurses or Community Health Officers. The Chief Medical Officer wrote to the senior MOHS team with his intention to integrate the Referral Coordinators into district and regional hospitals, anticipating the role of the Referral Coordinators in the National Emergency Medical Service, which was still in its planning phase. The Referral Coordinators were posted to the 12 district and regional hospitals nationwide and to the four tertiary hospitals in Freetown.

Recognising that all FHCI patients would benefit from supported referrals, MOHS again expanded the scope of the Referral Coordinator role to support access to secondary and tertiary health services for all FHCI patients. Months later, the remit was expanded again to support all referred patients.

2018: THE LAUNCH OF THE NATIONAL EMERGENCY MEDICAL SERVICE (NEMS)

In October 2018, NEMS was launched by the MOHS. Initially implemented by the Italian NGO, CUAMM, the system provides free ambulance transportation from peripheral health units to hospitals for all patient in emergencies who need specialist care elsewhere.

The Referral Coordinators' remit expanded once more. Referral Coordinators stepped in to prepare hospitals for every NEMS ambulance, and to support the NEMS Operations Centre to redirect patients by providing real-time service availability information.

2018-2020: EXPANDING THE NETWORK

KGHP continued to manage the network with funding from the World Bank and the UK's Foreign Commonwealth and Development Office. The MOHS reaffirmed its commitment

to bring the Referral Coordinators onto the government payroll by September 2020.

In this period, the number of Referral Coordinators increased from 18 to 34 across 18 facilities. This allowed 24-hour services in the tertiary hospitals in Freetown and weekend coverage for district hospitals. The average monthly referrals increased from 1,500 to 2,250 patients, and we estimate that the average waiting time for patients to be seen by clinicians at the receiving hospitals decreased by 50%.

2020: DEMONSTRATING VALUE IN THE CONTEXT OF COVID-19

In March 2020, the Covid-19 pandemic hit Sierra Leone, and the responsibilities of the Referral Coordinators shifted again. The Government of Sierra Leone reacted quickly to the threat and mobilised the emergency care system. In preparation for seriously unwell Covid-19 patients, Referral Coordinators undertook rapid assessments of their facilities: reviewing the availability of oxygen, isolation beds and medication. The pandemic also demonstrated the need for the Referral Coordinators to provide 24-hour care at more facilities, as Covid-19 infection prevention measures reduced the number of beds available. In order to meet the growing need, the team expanded to 52 Referral Coordinators across 24 facilities.

2021: INTEGRATION INTO NEMS

In March 2021, KGHP stepped back from the management of the network and was delighted to witness the integration of the Referral Coordinators into NEMS. Fully managed and funded by MOHS, all 52 Referral Coordinators and the management team will continue to provide critical support to Sierra Leonean patients in need of emergency care.



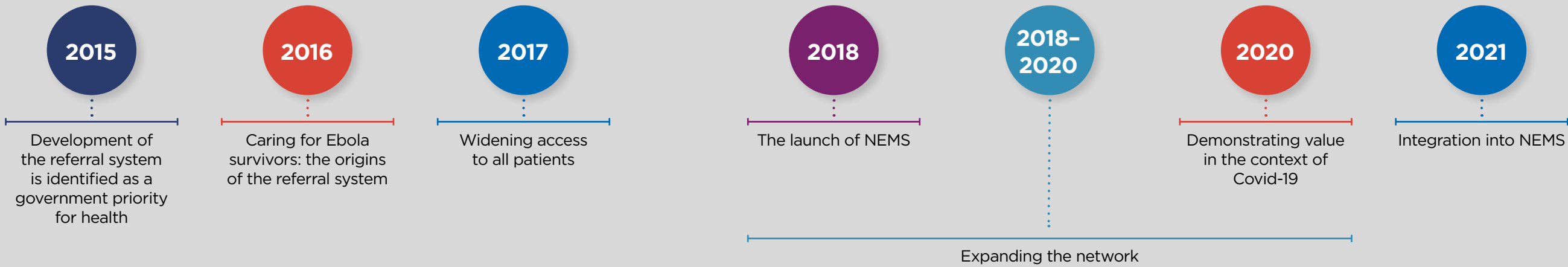
The scope of the Referral Coordinator role was expanded to support all referred patients



The average waiting time for patients to be seen by clinicians at the receiving hospitals decreased by 50%



The Covid-19 pandemic demonstrated the need for the Referral Coordinators to provide 24-hour care at a greater number of facilities



Partnering for success: Our learning and recommendations



Matrons and Medical Superintendents valued the Referral Coordinators' work and were invested in their success

The Referral Coordinator network evolved over four years from a team of 16 to 52 Referral Coordinators across every government hospital nationwide. Supporting over 2,000 patients every month, the network has been fully integrated into the MOHS. We identify five key factors behind this success:

1: THE DEVELOPMENT OF THE SYSTEM WAS DRIVEN BY THE GOVERNMENT OF SIERRA LEONE AND BY HOSPITAL MANAGERS

The Referral Coordinator network was a government initiative from the outset, but was managed from 2017 to 2021 by NGO partners, primarily by KGHP.

With the introduction of the Comprehensive Program for Ebola Survivors in 2016, the nascent referral system enabled survivors to access care despite stigma and supported them to manage multiple health conditions. This provided the blueprint for the current system.

The Referral Coordinators are “filling a critical gap in the current health system,” Dr Brima Kargbo, then Chief Medical Officer, wrote in October 2017. In a letter to senior MOHS staff, Dr Kargbo outlined his plans to build on the “tangible success” of CPES, particularly the Referral Coordinators. He called for district hospitals to integrate the Referral Coordinators into their teams.

The lack of funding for the roles meant that this was not easy. But this letter proved invaluable in the eventual integration of the Referral Coordinators.

Despite the Chief Medical Officer's letter, many people across the health system viewed the Referral Coordinators as an NGO project rather than a MOHS initiative supported by implementing partners. This led to reduced support and resource allocation by health facilities and by the MOHS.

At KGHP, we identified this as a key challenge to the system's impact and sustainability. Working with the management of each health facility, we identified ways for Medical Superintendents and Matrons to take greater responsibility for the Referral Coordinators in their hospital. The Matrons became the line managers of the Referral Coordinators. Recruitment and induction were jointly managed by the Matrons and by the Referral Coordinator management team.

Over time, management of the Referral Coordinators – and therefore the whole system – has transitioned from KGHP to hospital managers. We saw that Matrons and Medical Superintendents valued the Referral Coordinators' work and were invested in their success. Several Medical Superintendents and Matrons spoke about this value to the MOHS, which paved the way for the system's integration into NEMS.



2: THE SYSTEM WAS FLEXIBLE AND RESPONSIVE

The National Referral System has its roots in the 2013-2015 Ebola outbreak. Coordinators facilitated the transfer of suspect, probable and confirmed cases of Ebola between Primary Health Units and Ebola treatment centres as determined by clinical necessity and bed availability.

Sierra Leone's referral system then adapted to meet the needs of Ebola survivors to access specialist care in Freetown. Under the CPES program, Referral Coordinators were placed in each district hospital (including Freetown's three tertiary facilities and the 34 Military Hospital) to facilitate care for survivors and to act as a focal point for patients.

The National Referral System was launched in 2017 and now supports all patients to access secondary and tertiary health services.

When the Covid-19 pandemic struck Sierra Leone in March 2020, the National Covid-19 Emergency Response Centre (NaCOVERC) needed to know which facilities were ready to receive Covid-19 patients. With Referral Coordinators in every Government hospital nationwide, the team rapidly assessed the availability of medication, isolation beds and oxygen. Within three days, NaCOVERC had up-to-date information to plan their response.

As the cases began to surge in Sierra Leone, the Referral Coordinators sent daily updates on the availability of hospital beds to NaCOVERC. This meant that – in real time – NaCOVERC knew how the outbreak

was unfolding around the country: how many people were isolated, how many beds each hospital had free. Crucially this system meant they could also monitor non-Covid-19 patients, identifying which facilities had empty maternity wards and which were overcrowded.

At every stage, the Referral Coordinator team has adapted its priorities to support the changing health needs of the patients and of the wider health system in Sierra Leone.

3: TRUST WAS BUILT THROUGH EFFECTIVE COMMUNICATION

Prior to the Referral Coordinators, each district and regional hospital had its own referral process. With different criteria for referrals and patient admission, patients had to navigate a confusing, inconsistent care system.

Coordination has enabled a cohesive system which patients and healthcare workers can understand and navigate effectively.

Referral Coordinators have gained the trust of health workers and patients because they have:

- Acted as advocates for patients, ensuring they received appropriate, quality care
- Acted around the clock: emergencies happen anytime, so a 24/7 system was essential in larger facilities
- Built strong relationships with healthcare workers, including doctors, nurses, ambulance staff, and other Referral Coordinators
- Collected high quality data for the patient and the referral process
- Had access to simple communication tools, including a phone, laptop, and internet



During the Covid-19 pandemic, Referral Coordinators sent daily updates on the availability of hospital beds, informing NaCOVERC about how the outbreak was unfolding across the country



Referral coordinators acted as advocates for patients, helping them navigate care

“The Referral Coordinators have really enhanced the referral process in terms of speed and in terms – to some extent – of accuracy. In terms of speed, coordinating the transfer of patients is really enhanced: making sure they collect the referrals from the clinician and organising transport, communicating with the receiving facility. All those things have added speed to the way in which referrals are sent... The impact of [increased] speed is that it enhances patient survival ... Time is so important to the management of patients. Clinicians will be happy to receive patients in time, but also the patients' survival is also important. The patients appreciate the way in which their management is carried out, especially if it [enhances their chance of] survival.”

DR MUSTAPHA, MEDICAL SUPERINTENDENT AT OLA DURING CHILDREN'S HOSPITAL

2 CAVIGLIA M, PUTOTO G, CONTI A, TOGNON F, JAMBAI A, VANDY MJ, YOUKEE D, BUSON R, PINI S, ROSI P, HUBLLOUE I, DELLA CORTE F, RAGAZZONI L, BARONE-ADESI F. ASSOCIATION BETWEEN AMBULANCE PREHOSPITAL TIME AND MATERNAL AND PERINATAL OUTCOMES IN SIERRA LEONE: A COUNTRYWIDE STUDY. BMJ GLOB HEALTH. 2021 NOV;6(11):E007315. DOI: 10.1136/bmjgh-2021-007315. PMID: 34844999; PMCID: PMC8634006.



The Referral Coordinators reduced the time for patients to access the right care



KGHP's added value helped shift ownership so that the Referral Coordinator network is now entirely government run.

4: THE SYSTEM DELIVERED AND DEMONSTRATED IMPACT

The Referral Coordinator team's greatest impact has been for patients requiring emergency care. For patients with conditions that require rapid intervention to avert death and disability (or for which delays of hours can worsen prognosis or render care less effective), the service has been life-saving. By preparing hospitals for the arrival of patients, we estimate that the Referral Coordinators reduced the average waiting time to be seen by clinicians at the receiving hospitals by 50%.

Mr Wurie, CEO of NEMS, says that the Referral Coordinators' greatest contribution lies in *"reducing the time for patients to get from initial phone call to the right care, as you don't need to waste time referring to hospitals that don't have the equipment a patient needs."* By advocating for patients' rights, especially FHCI, the *"Referral Coordinators act as a patients' family."*

During the pandemic, the Referral Coordinators undertook service mapping for Covid-19 at every district and tertiary facility, ensuring that the NaCOVERC knew the capacity and challenges nationally. In addition, they provided daily bed occupancy² statistics to the Emergency Operations Centre. This gave decision makers a daily update on the

inpatient case numbers nationwide and ensured that resources could be allocated to those facilities with significant Covid-19 caseloads. Hospital managers used this data to reorganise their hospitals: in Kenema, the number of isolation beds was raised from 8 to 13 in response to the daily figures. And in Kailahun, the figures were used to advocate for bed numbers to be increased to 68 in the isolation ward.

5: THE SYSTEM RESULTED FROM A MULTI-STAKEHOLDER PARTNERSHIP WITH A CLEAR SHARED VISION

KGHP has been a partner to the Ministry of Health and Sanitation in Sierra Leone since 2011 and provided support to the CPES programme for Ebola Survivors, from which the Referral Coordinator network evolved. Our roles and responsibilities have shifted from direct implementation to shared ownership and now the Referral Coordinators network is entirely government-run.

We identify two essential conditions which allowed KGHP to add value. The first is the end goal of integration into the Government's system which was clear from the outset. The second is our embedded nature and long-term partnership with actors across the wider health system.

Since the beginning of the project, a small Referral Coordinator management team worked with the network to build capacity. The team enabled the Referral Coordinators to:

- **Increase their impact** through training and mentoring of the Referral Coordinators, reviewing referral systems and driving efficiency
- **Prove their impact** by analysing and sharing data for decision making
- **Adapt and respond** quickly to changes in the context such as Covid-19

KGHP, working closely with WHO, also contributed technical expertise to the system's design and implementation. We recruited a UK clinician for 12 months to support the system's set up, establishing reporting structures and developing the Referral Coordinators' roles. Clinical advice on the referral system – not just on patient referrals – delivered significant value.

The Referral Coordinator team knew from the start that they needed to develop strong relationships with the facilities where they were placed. The success of the system is in part due to their ability to build trust and prove their usefulness.

PRE-HOSPITAL CARE IMPROVES THE SURVIVAL RATE OF MOTHERS AND NEWBORNS

A 2-hour threshold is internationally recognised for obstetric emergencies to access healthcare. The development of emergency medical services in the African context has the potential to address the geographical and transportation barriers that contribute to the delay in reaching care, thereby reducing avoidable deaths associated with obstetric emergencies.

A recent study using the Sierra Leonean Referral Coordinator data, is the first to directly document nationwide prehospital operational times in relation to obstetric emergencies in a low-income country. The results, based on more than 6000 obstetric emergency referrals, highlight significant differences countrywide in NEMS operational times. There is a clear association between increasing prehospital time and maternal and perinatal mortality. Any reduction of prehospital times, even exceeding the 2-hour threshold, could translate into improved maternal and neonatal outcomes, a clear imperative to invest in prehospital transportation infrastructure in low-income countries.

Future opportunities for the system

The Referral Coordinator team has already demonstrated its impact and its ability to adapt to a changing health landscape. Now integrated into NEMS, the team will continue to support Sierra Leonean patients for years to come.

EXPAND THE HOSPITALS WITH 24/7 CARE

There is significant opportunity to develop the system, delivering even greater impact. At present, only three tertiary and three regional hospitals have Referral Coordinators 24/7; others are covered only during the day. The data shows that many emergency patients arrive at night, when there is no one to prepare the hospital for their arrival. Expanding the system to 24/7 care in the busiest hospitals will save lives.

ESTABLISH REFERRAL UNITS IN EMERGENCY CARE ROOMS

Emergency Care Rooms are being established in hospitals nationwide by MOHS. This is a vital process to upgrade the emergency care system. Establishing a Referral Unit within these Rooms, staffed by the NEMS Referral Coordinators, will ensure that the system is cohesive.

FURTHER IMPROVE DATA ANALYSIS

The Referral Coordinators support 2,000 patients each month. The data that the team gathers is extremely rich, including data on demographic characteristics, conditions, emergency referrals and clinical outcomes. The team continues to create monthly reports

on the data for stakeholders. However, it could be analysed and utilised more effectively in collaboration with Directorate of Policy, Planning and Information and we encourage closer integration.

DEVELOP A TRAINING CURRICULUM FOR REFERRAL COORDINATORS

Referrals are an essential part of a well-functioning health system, and well-trained Referral Coordinators will be needed for many years. KGHP would like to support the development of a specific training curriculum, which would build the skills of the next generation of Referral Coordinators. We also recommend building understanding among other healthcare workers – doctors, nurses, paramedics – about the value of the system.

ENCOURAGE DONOR INVESTMENT IN OTHER INTEGRATED HEALTH SYSTEM SOLUTIONS

An indicator of a strong health system is its ability to respond to a range of health needs. Any health system needs to provide both basic care close to people's homes, and more specialised care for acute illness. We would like to see more donor investment in integrated solutions – like Sierra Leone's referral system – which connect communities via primary care to high-quality emergency, critical and operative care whenever it is needed.

THANKS AND ACKNOWLEDGEMENTS

The National Referral Service has always been an initiative of the Ministry of Health and Sanitation. It is thanks to the Ministry's leadership and guidance that over 73,000 patients have received faster, better care since 2017. KGHP has been privileged to be the implementing partner for the National Referral System over this time.

The National Emergency Medical System is an exceptional example of focus and commitment to saving lives. Thank you to the fantastic team who has worked alongside us. We are delighted that the Referral Coordinators are now a team within NEMS, serving patients across Sierra Leone every day.

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