INTEGRATED MANAGEMENT OF CHILDHOOD ILLNESS IN SIERRA LEONE:

SUCCESSES, CHALLENGES, AND OPPORTUNITIES

MOMENTUM Country and Global Leadership

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MOMENTUM works alongside governments, local and international private and civil society organizations, and other stakeholders to accelerate improvements in maternal, newborn, and child health services. Building on existing evidence and experience implementing global health programs and interventions, we help foster new ideas, partnerships, and approaches and strengthen the resiliency of health systems.

This report is made possible by the generous support of the American people through the U.S. Agency for International Development (USAID) under the terms of the Cooperative Agreement #7200AA20CA00002, led by Jhpiego and partners. The contents are the responsibility of MOMENTUM Country and Global Leadership and do not necessarily reflect the views of USAID or the United States Government.

Cover photo: Karel Prinsloo/Jhpiego

Suggested Citation

Thorp, Marguerite. 2022. *Integrated Management of Childhood Illness in Sierra Leone: Successes, Challenges, and Opportunities*. Washington, DC: USAID MOMENTUM.

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ACKNOWLEDGMENTS

MOMENTUM Country and Global Leadership is part of a suite of innovative awards funded by the U.S. Agency for International Development (USAID) to holistically improve voluntary family planning (FP) and maternal and child health (MCH) in partner countries around the world. The project focuses on technical and capacity development assistance to ministries of health and other country partners to improve outcomes.

The MOMENTUM Country and Global Leadership team would like to extend our gratitude to the officials and providers in Sierra Leone who participated in data collection. Their insights and candid feedback were extremely valuable in understanding the strengths and challenges of Sierra Leone's IMCI program, and their commitment to improving the health and welfare of children in Sierra Leone is both evident and admirable.

"Before, I was not trained about the IMNCI protocol. I didn't know how to diagnose common illnesses in children. But since after the training, I understood the protocol in managing most of the childhood illnesses."

— Facility-level participant

"I think [IMCI] is a rich document that, if implemented at the frontline level effectively and used well, will greatly improve child health in this district and in the country as a whole."

— District-level participant

ABBREVIATIONS

CHO	community health officer
CHW	community health worker
DHIS	District Health Information System
DHMT	District Health Management Team
DfID	Department for International Development (UK)
iCCM	integrated community case management
IDSR	integrated disease surveillance and response
IMCI	integrated management of childhood illness
IMNCI	integrated management of newborn and childhood illness (term for IMCI in Sierra Leone; used by participants)
IP	implementing partner
M&E	monitoring and evaluation
MCHA	maternal and child health aide
MOHS	Ministry of Health and Sanitation
NEMS	National Emergency Medical Service
NGO	nongovernmental organization
PHU	peripheral health unit
RMNCH	reproductive, maternal, newborn, and child health
RRIV	Report, Request, and Issue Voucher
SECHN	state-enrolled community health nurse
TWG	technical working group
UNICEF	United Nations Children's Fund
WHO	World Health Organization

1. INTRODUCTION

This report is the result of a multi-level consultation with health workers, administrators, and leaders in Sierra Leone regarding the implementation of integrated management of childhood Illness (IMCI). The MOMENTUM Country and Global Leadership team gathered diverse perspectives on IMCI in Sierra Leone, including successes, challenges, and opportunities for the future. In this report, we seek to describe the current state of IMCI implementation in Sierra Leone, share participants' recommendations for improvements, and offer topics for discussion to spur further action.

1.1. METHODS

Individual, in-depth interviews were conducted with 18 participants including those at the facility level (n=9), district level (n=7), and national level (n=2). All participants had received IMCI training, whether through dedicated IMCI training programs (n=15) or as part of their medical school curriculum (n=3).

Facility-level participants included four community health officers (CHOs), two state-enrolled community health nurses (SECHNs), two maternal child health aides (MCHAs), and a registered nurse; they included facility in-charges (managers), IMCI focal persons, and service providers without specific management responsibilities. CHOs receive bachelor's degrees from Njala University and are typically responsible for overseeing the facility operations, supervising other staff, coordinating with community stakeholders, and directly providing clinical care. Nine facilities were represented, including three community health posts, five community health centers, and one referral hospital.

District participants included IMCI and adolescent focal persons as well as supervising District Health Management Team (DHMT) members.

Two representatives from the Directorate of Reproductive, Maternal, Newborn, and Child Health (RMNCH) also participated. Interviews were conducted virtually, in English, between April 19–May 6, 2022. The median interview lasted 51 minutes (IQR: 43–60 minutes). Verbal consent was obtained for all participants.

This report contains direct quotes from interview participants. Where appropriate, we have designated the "level" of the participant quoted: (N) for national level, (D) for district level, and (F) for facility level. In some cases, where topics may be particularly sensitive, we have not specified the participant's level to preserve appropriate anonymity.

1.2. OVERALL STRENGTHS, CHALLENGES, AND RECOMMENDATIONS

FACILITATORS AND STRENGTHS

Participants agreed that one of the central strengths of Sierra Leone's IMCI program was the quality of supervision and mentorship. They felt that supervisors were generally well-trained and provided high-quality mentorship to facility-level providers. Other strengths included support from the United Nations Children's Fund (UNICEF), recent efforts to align sick child registers with IMCI guidelines, the IMCI protocol itself, and especially the IMCI chart booklet, which facility-level providers valued greatly.

Regarding the protocol itself, participants' attitudes toward IMCI were overwhelmingly positive. They emphasized its effectiveness and ease of use, commenting on how comprehensive, systematic, and thorough the protocol is, which improved their clinical confidence: "when you are doing IMNCI [integrated

management of newborn and childhood illness] you are bound not to miss any assessment" (D). They described IMCI as the "bedrock" (N) of child health and "very essential" (D), noting that IMCI can lead to more efficient or rational use of resources.

BARRIERS, CHALLENGES, AND RECOMMENDATIONS

Barriers and challenges to IMCI adherence and implementation are summarized below and also reviewed in greater detail in this report. We have attempted to highlight low-cost or cost-neutral options alongside the opportunities for increased investment. Wherever possible, we have shared recommendations proposed by multiple interview participants; in rare instances where participants were in agreement about needs and challenges but were less certain or less unified in their recommendations, the suggestions here may come from only one participant.

Coordination and management: National- and district-level participants identified challenges in coordinating with implementing partners (IPs), who often reported to donors but not to the Ministry regarding their activities. As the community health worker (CHW) program in Sierra Leone restarts, coordinating its activities with IMCI priorities at the national, district, and facility levels will be essential to the success of integrated community case management (iCCM). **Key recommendations: (1) improve national-level coordination, restart quarterly child health stakeholder meetings / technical working groups (TWGs); and (2) improve iCCM coordination, establish standing meetings between CHW hub and child health staff at the national, district, and facility levels.**

Training: Participants at all levels identified gaps in training as key barriers to IMCI implementation. National- and district-level participants observed that, because not all providers are trained on IMCI, staff movement and reassignment leads to facilities without any trained staff. **Key recommendations: (1) for long-term change, begin to move IMCI to pre-service training; and (2) for near-term change, include district IMCI focal people on posting committees to minimize gaps in IMCI staffing.**

Supervision: As identified above, supervisions were cited by participants at all levels as a major strength of the program, but nearly all participants felt that supervisions were not frequent enough. They identified numerous potential benefits: increased adherence due to improved knowledge of IMCI; increased adherence due to greater motivation; and better data quality to inform supply chain and other policy decisions. **Key recommendations: (1) increase supervision frequency to monthly or quarterly; (2) ensure equity in formal supervision activities across partner-supported and unsupported sites; and (3) increase support for informal mentorship activities.**

Motivation: Participants did not identify provider motivation as a central issue in IMCI implementation, but questions regarding motivation did lead to discussion of a key barrier that was not included in the in-depth interview guide—provider pay. District- and facility-level participants explained that the majority of IMCI providers at the facility level are "not on pincode," meaning they receive no salary. **Key recommendations: (1) increase number of providers "on pincode," or receiving regular salary; and (2) explore non-monetary incentives, such as recognition for good performance, which may require improved data capacity.**

Referrals: IMCI requires a functional referral system to ensure that severely ill children can receive care at the appropriate facility. Participants reported that ambulances run by the National Emergency Medical Service (NEMS) are typically not functional, and guardians are forced to pay for public transport to higher-level facilities, often resulting in delays and sometimes in failure to refer. **Key recommendations: either (1) restore NEMS to full functionality; or (2) explore alternatives such as transportation vouchers.**

Supplies and equipment: Many participants felt that commodity supply, especially drug stock-outs, was a key barrier to IMCI implementation. Some participants also described challenges with infrastructure and facilities. The consequences of drug stock-outs included poor patient care, decreased motivation among providers, increased need for referrals, and displacement of cost onto caregivers. The explanations for and solutions to drug stock-outs are complex, but participants described a series of pain points that resulted in these stock-outs, including inadequate funding for procurement, centralized planning and distribution, poor quality of facility-level data leading to inappropriate distribution decisions, and overuse due to provider indiscretion and patient/caregiver demand. **Key recommendations: (1) increase resources available for drug procurement nationally; (2) end the "push system" and deliver medications based on facility ordering; and (3) increase supervision to ensure data quality in facility ordering.**

2. MANAGEMENT AND COORDINATION

2.1. NATIONAL LEVEL

ORGANIZATION, REACH

The focal person responsible for IMCI at the national level sits within the Child Health Program and the Expanded Program on Immunization, which is housed in the Directorate of Reproductive, Maternal, and Child Health, a directorate of the Ministry of Health and Sanitation (MOHS). Participants explained that IMCI is not a program in itself and does not receive specific funding, which contributes to some of the gaps in training and implementation.

One participant felt there was good political will in the Ministry:

"We have the political will. The minister also wants to see significant progress, not just for maternal health, but also for child health…. We're trying to do more advocacy for child health at the national level, to get it to be properly prioritized in all the strategic documents."

Officially, IMCI is implemented in all 16 districts of Sierra Leone. However, participants identified that lack of training and mentorship resulted in incomplete implementation at facilities.

FUNDING

There is no specific "envelope" or budget line item for national-level IMCI activities in Sierra Leone. Many activities therefore depend on donor support, such as training and supervision. Though the national MOHS does pay for drug procurement for under-5 children as part of the Free Health Care Initiative, participants agreed that there was not enough funding available for medicines, which contributed to stock-outs.

"The funding has been unpredictable, inadequate, and it's been disorganized, to be honest."

"The challenge has always been the medications that are bought are not enough, and they are not enough because the money they have to buy [medications] is what is available."

PARTNERS

The key partners supporting IMCI at the national level in Sierra Leone are UNICEF and the World Health Organization (WHO). Prior to COVID-19 restrictions, monthly meetings were held with MOHS child health staff and representatives of UNICEF and WHO. Several participants described UNICEF's support, including funding for training, supervision, and guideline revision. After a recent nationwide supervision program, UNICEF also supported analysis of supervision data. Otherwise, most partners supporting IMCI activities usually operate the district level, and coordinating these myriad partners is challenging for the national office. The quarterly TWG meetings used to be good venues for coordination, but the meetings have not been held since the start of the COVID-19 pandemic.

"Sometimes coordinating partners is also a big challenge in Sierra Leone."

"In a recent project supported by [a major donor], there were some partners that were contracted to operate at the district level. It becomes difficult to get visibility on what they are supporting. Most of the funding—which could have added to complement what UNICEF is doing—has gone to these partners operating at district level, and we don't have visibility of what they're doing…. There's limited feedback from them to the national level, because most of them are just reporting to their donors."

COORDINATION

TWGs held by programs throughout the MOHS provide the main venue for coordination between IMCI and other programs. The Child Health program tries to send representatives to other relevant TWGs (such as malaria or HIV TWGs), and likewise they invite representatives from those programs to child health TWGs. One participant described coordination efforts whenever IMCI guidelines are revised, such as inviting malaria focal people to ensure that malaria treatment guidelines and IMNCI protocols are aligned.

ADAPTATION OF IMCI GUIDELINES

In response to the 2019 change in IMCI guidelines, Sierra Leone drafted new guidelines in 2020, and conducted trainings for many providers in 2021. UNICEF had provided support for early adaptation of the new guidelines. However, participants at all levels agreed that training on the new guidelines had not been adequate. As one participant said, “I don't think there was much of a delay in its adaptation. I think the problem has been in the rollout, that's where there have been significant delays.” (N)

Facility-level participants all reported using the 2020/2021 guidelines, though some comments when discussing service provision suggested persistent confusion on new elements such as non-severe vs. severe pneumonia (i.e., defining severe pneumonia by respiratory rate).

Prior to the most recent adaptation, Sierra Leone had updated several times before, at least in 2013 and 2016 (participants suspected there were updates between adoption of IMCI in 2001 and 2013 but were unsure of the details). The 2016 version had included guidelines for treating newborns with possible serious bacterial infections, suggesting that adaptation had been rapid as well. All participants reported comfort with treating newborns 0–2 months of age, suggesting they were comfortable with possible serious bacterial infections guidelines.

2.2. DISTRICT LEVEL

DHMT STRUCTURE

Participants agreed that each district has an active, functional DHMT. These are led by the District Medical Officer and include a variety of program-specific focal people, including an IMCI focal person. DHMTs are responsible for coordinating and supervising all health activities in the district; they distribute drug supplies, conduct supervision visits, manage data collection, and coordinate IP activities. The IMCI focal person’s responsibilities include organizing and conducting IMCI trainings, conducting planned and ad-hoc supervision visits to facilities, liaising between national officials and the DHMT, participating in monthly in-charges meetings, ensuring data quality, and monitoring staffing plans to ensure facilities have adequately trained IMCI providers.

COORDINATION WITH OTHER PROGRAMS

Participants acknowledged that some disease-specific activities occur at the district level, as evidenced by focal people with specific responsibilities for malaria, TB, and nutrition. They attributed this in part to donor pressure: “most of those [disease-specific] programs that you're talking about have been supported by other supporting funds, like DfID [Department for International Development (UK)] and other NGOs [nongovernmental organizations] or partners” (D). However, they emphasized that the district strives for coordination and integration. Integrated supportive supervision, for example, is designed to monitor all activities at health facilities in one supervision visit, collating the checklists and priorities of various partners and disease-specific initiatives to support facilities in a coordinated way. Data management was offered as another example; though reports may be generated from the District Health Information System (DHIS) platform to send to disease-specific donors and

partners, the IMCI reporting tool is a single-stream reporting mechanism used by facilities, integrated across disease priorities.

"What we normally do as a district is to see how best we can integrate these programs and ensure we are all okay with happenings." (D)

IMCI FUNDING AT THE DISTRICT LEVEL

All district participants agreed that they did not have a specific budget line for IMCI. There are some funds managed at the district level (via the District Council), but DHMTs are expected to allocate these funds toward the priorities set by national policymakers. These funds are typically inadequate to fully address national priorities, and therefore there are few or no funds left over for other activities prioritized by district officials. The primary source of support for IMCI activities is the Free Health Care initiative, which ensures that IMCI medications are provided to under-5 children at no charge. However, for other activities, such as training and supervision, DHMTs are dependent on other sources such as the national government (which may intermittently support trainings or supervision programs) or external partners.

"As a district, whenever they [national] send budget, there are specifically lines that they want you to prioritize… like for this year, they are requesting that we do more of deliverables like construction and rehabilitation, rather than those others like trainings. So, we could not actually include [training] into our budget because of the ceiling that was given to us. It was too minimal." (D)

"For DHMT to be effective or function well, we do rely upon IPs [implementing partners] to help the situation. I do not have a specific budget line." (D)

PARTNER ENGAGEMENT

Nearly all district officials emphasized the importance of partner support for IMCI activities. The two areas of support described most frequently were supervision and IMCI training. District participants noted supervisions funded by the MOHS were only possible once or twice a year, and to conduct more mentorship visits, funding from IPs was essential. However, they noted at least two challenges: first, some partners tend to have their own checklists and agendas for supervision, so it was up to the DHMT to ensure integrated supervision; second, there were occasionally gaps left by partner support, such as only 84 of a district's 96 facilities being visited during a partner-conducted supervision program. With regards to training, participants again noted the absence of MOHS funding for adequate IMCI training activities, and they described several partners that funded training programs conducted by DHMT trainers. Other partner activities included paying CHWs, supporting monthly in-charges meetings at district headquarters, providing supplies for facilities, and requesting reports from district monitoring and evaluation (M&E) teams.

"As for every partner that is implementing IMNCI activities within the districts, they have to go through the district health management team, to work with the IMNCI focal person. If they have a training, we have districts trainers—myself, the district IMNCI focal person too—and then we coordinate with the national team to conduct the training." (D)

2.3. COMMUNITY LEVEL

INTEGRATED COMMUNITY CASE MANAGEMENT AND COMMUNITY HEALTH WORKERS

The iCCM and CHW program in Sierra Leone is currently "on hold," as described by several participants. Following the major Ebola outbreak in 2014–2015, the country invested heavily in CHW recruitment and training, but then ran out of available funds. The program is expected to restart this year, but with many

fewer CHWs than before (one participant estimated a decrease from 15,000 CHWs in the previous wave to 7,000 for the upcoming training).

iCCM and IMCI are linked at several levels. At a national level, the CHW "hub" is housed within the Directorate of Primary Health Care, distinct from the Directorate of RMNCH that supports IMCI programming. National-level participants reported that while they do not conduct joint planning, both directorates usually include representatives from the other in their own planning processes. Both iCCM and IMCI receive funding from UNICEF, and one UNICEF staff member serves as point person for both programs.

At a district level, one participant said that the IMCI focal person in the district took responsibility for iCCM and considered it part of his purview on supervision visits. Several described the referral system, whereby CHWs will refer patients to facilities and will therefore integrate iCCM and IMCI well, which should be active when CHWs are reactivated. Others, however, pointed out that the programs were housed within different directorates, which diffused responsibility for their activities. Participants expect that the new group of CHWs will be trained on iCCM by IMCI district trainers.

The facility-level linkages between CHWs and facility-based IMCI activities was strong when the CHW program was operational, and participants anticipate strong linkages in the future. Each CHW will be attached to a health facility and will report their case management data to that facility to be reported to the district level. Commodities, including medications, will be distributed from health facilities to CHWs, though several participants anticipated challenges with that system; because facilities are often stocked out of medications for their own needs, there may be resistance to supplying CHWs unless commodity supplies are increased significantly.

2.4. DATA AND HEALTH INFORMATION SYSTEMS

DATA FLOW AND REPORTS

Efforts have been made in Sierra Leone to streamline IMCI reporting: the IMCI registers and reporting tool were recently revised to align with IMCI guidelines.

There are two primary reporting streams for IMCI-related data: a weekly Integrated Disease Surveillance and Response (IDSR) report and a monthly IMCI report. For the weekly IDSR report, facility IMCI focal people and facility managers ("in-charges") review facility data, which is then submitted to the M&E team at the DHMT, who release a weekly surveillance report. This data includes high-priority areas like malaria cases and immunizations, including specific under-5 data. The monthly IMCI report is likewise prepared at the facility level and submitted to the district M&E team, who reviews the data and asks facilities to correct any discrepancies. The corrected data is then uploaded to a central DHIS, a national platform. Reports are generated from DHIS data and shared with district-level IMCI focal people. Participants said that this single, streamlined monthly report captures IMCI data and does not require facility staff to report on multiple streams for different programs; instead, the central DHIS data repository allows M&E teams to generate reports for various programs and partners.

FIGURE 1. REPORTING STREAM FOR IMCI-RELATED DATA IN SIERRA LEONE

MEETINGS AND IMPACT OF DATA

Community level: Some providers described regular meetings with community members that reviewed IMCI data (specifically number of cases with associated diagnoses). These were used to educate the community on health promotion issues and timely care-seeking, and they might also discuss drug availability or disease outbreaks.

Facility level: Several participants described facility-level meetings on IMCI issues, though not all facilities held regular meetings. They usually reviewed IMCI case number data at these meetings, both to ensure accuracy before submission to the district and to observe trends. One participant even described strategic planning in response to the data, such as planning outreach visits if monthly family planning visits were lower than usual.

District level: Most consistently reported were district-level meetings. In each district studied, a monthly meeting is held with all facility "in-charges" where IMCI case number data is discussed. Participants shared that the primary purpose of these meetings was to review monthly case reports and detect any errors or data quality problems. Occasionally, these meetings allowed for discussion of other issues including drug stock-outs, lack of staff training, or a shortage of register books. One participant reported that the meetings were not held for the past 2 months due to funding constraints.

National level: National-level meetings have been on hold since the start of the COVID-19 pandemic. One participant described a series of meetings that were held regularly prior to COVID-19, including bi-weekly internal Child Health unit meetings, monthly meetings with key partners (usually UNICEF and WHO representatives), and quarterly meetings with the national Child Health TWG, which included funding and IPs, central hospital representatives, and representatives of other programs. There is interest in restarting these national meetings.

Coordination and management—national level

Key recommendation:

Restart quarterly meetings of the TWG on child health to improve visibility of partner activities and coordination between partners and the Ministry.

Topics for further study:

- What worked well in the previous iterations of Child Health TWGs?
- What did not work well?
- How could the TWG be improved?
- What is required to restart meaningful meetings of the TWG?

Coordination and management—iCCM

Key recommendation:

As the CHW program restarts, ensure close coordination with IMCI at all levels:

- National: standing meetings between Child Health team and CHW hub, whether in the context of TWGs or separately.
- District: standing meetings between CHW program leaders and IMCI focal people.
- Facility: in addition to formal reporting, support informal communication structures (e.g., WhatsApp groups) to link CHWs and facility staff.

Topics for further study:

- Are standing meetings adequate for IMCI/iCCM coordination at national and district levels? (Are they necessary?)
- How can the Ministry continue to learn from this iteration of the CHW program?

3. TRAINING

3.1. BASIC FEATURES OF TRAINING

The vast majority of IMCI training in Sierra Leone is conducted as in-service trainings by district-level trainers. Usually, DHMT focal people will identify the need for an IMCI training, request funding from the MOHS or IPs, and then will organize the training for a group of participants in their district. There are currently no national training programs, so this "ad-hoc" organization of IMCI training tends to leave some gaps, especially when providers are rotated to different facilities.

In the three districts surveyed, estimates of training coverage varied. In one district, it was estimated that 15% of facilities had no one trained on IMCI; the other two districts reported all facilities had at least one trained provider. Because there were very few facilities with no one trained, participants in all three districts agreed that the larger problem was the large number of facilities (estimates ranged from 20%–60%) with only one IMCI-trained provider. This posed a risk if providers fell ill, were relocated, or were temporarily absent.

3.2. SHARING KNOWLEDGE

Given the number of providers who are not trained (but still care for under-5 children), many facility-level participants emphasized the importance of sharing knowledge with their untrained colleagues. They felt empowered by their own IMCI training to teach their peers, either informally (especially out of fear for their own occasional absence, if they are the only trained provider at their facility) and formally, in the case of participants who serve as chiefdom supervisors. They emphasized that the IMCI booklet is so useful that even untrained providers can follow the protocol, to some extent.

"Before I went for the training, I was using IMNCI, though I was not [yet trained]. But I was used to it. So I too, I'm doing that to my colleagues that have not been to the training…. Because [the booklet] is small, I will just give it out to them and say, just look and you will know [how to use IMNCI]." (F)

"I also try to mentor other people around me like some of my nurses so that they should do some of these things in case I'm not around. So, I try to mentor them and teach them some of the things I have learned from my teachers and from my supervisors." (F)

3.3. FUNDING FOR TRAINING

According to most participants, there is no consistent government funding for IMCI training activities. One participant reported that the last government-sponsored training in their district was in 2017. All other IMCI training activities are supported by partners, though there is no consistent schedule or frequency of partner-supported trainings. Participants emphasized the importance of that funding, but because it was inconsistent and unpredictable, there were often major gaps in provider training.

"We should be doing trainings supported by the government, but most times those things are not forthcoming." (D)

3.4. HOW TO IMPROVE TRAINING

Given the constrained budget, national- and district-level participants emphasized the importance of moving IMCI training to "pre-service" curricula. Participants predicted that if IMCI content is included in the initial

degree and certificate programs for service providers, they will be better prepared for their clinical work, they will derive greater benefit from future supervision and refresher trainings, and the Ministry can allocate scarce resources toward supervision and mentorship instead of initial trainings.

"This is also the way forward: WHO has been encouraging member states to go pre-service…. Not that in-service will be totally done away with, but it will be a little easier and it will be sustainable. It should just be supportive supervision, but you're not going to start from scratch to train people because that training costs a lot of money and it takes time if you really want people to grasp the whole concept of IMNCI." (N)

With regards to training in its current format, participants felt confident with the IMCI guidelines after their training. When asked for ways that training could be improved, several participants mentioned that the training was too short. Some highly experienced participants had trained when the training was longer, and they felt that the current training—often compressed to 6 or 7 days—was not adequate for many learners.

"I also want you people to increase the length of the training. Because you can train someone in 1 week, a whole lot of things are going to be taught… because we have slow learners, and we are also quick learners. So myself sitting here, I can pick up something, but the other colleague may not." (F)

Other suggestions to improve IMCI training emphasized follow-up after training (refresher trainings and supervision) and training more staff. Several participants emphasized that adequate stock levels and appropriate equipment would make their training more fruitful.

"When you have been taught something, and you have not been reminded [on a] quarterly basis or monthly basis, I think some do forget. And I want for us to be having frequent refresher training to ensure we do the right thing." (F)

Key recommendations:

- Move IMCI training to pre-service curricula at all health worker training institutions in Sierra Leone.
- Ensure IMCI focal people are part of district posting committee activities to minimize gaps in staffing.

Topics for further study:

- Is moving IMCI training to pre-service curricula feasible?
- How can this be achieved?
- What has been tried before? Were these efforts successful? Why or why not?

4. SUPERVISION AND MENTORSHIP

"We love supervision because it brings a lot of improvements in our work. Where we do mistakes, they correct us. The [next] time they come, they will see improvement." (F)

4.1. SUPERVISORS

Participants described a multi-layer system of supervisory support. National Child Health staff conduct supervision visits to DHMTs; DHMT supervisors, all of whom are IMCI-trained and some of whom are active service providers, conduct supervision at the facility level; and chiefdom supervisors, IMCI-trained service providers, conduct additional and more frequent supervision visits to facilities. Several participants described more informal support systems, such as a WhatsApp group for facility IMCI focal persons run by a district IMCI focal person. Chiefdom supervisors emphasized their close, frequent contact with other service providers, explaining that they would sometimes discuss cases via phone or conduct ad-hoc supervision visits separate from any national- or district-level campaign. Several participants mentioned MOMENTUM Country and Global Leadership project supervisors, also IMCI-trained clinicians, who had been visiting facilities frequently (often monthly) around the time of the interviews.

"What I'm suggesting is to take the chiefdom supervisor or some of the PHU [peripheral health unit] staff and train them, so that they will be a mentor at the various facilities… because they are almost always with these [providers] at field level. Like me, I'm always with them. Even after this interview, I'm planning to visit the next facility. They are always keeping in touch with them. They will be the best people to transfer this knowledge." (F)

4.2. ACTIVITIES INCLUDED IN SUPERVISION

Data review: The first supervision activity that most participants described was review of facility data. Supervisors would review the IMCI register and any weekly or monthly reports to find any potential reporting or service provision mistakes.

Observation: Participants agreed that observing providers with a patient was a central feature of supervision visits. The only occasions on which observation was not included in supervision was if there were no patients available to be seen (which happened to only one provider on their most recent supervision).

Stock/equipment review: Most participants had reviewed stock, supplies, and equipment at their recent supervision visit. Both district- and facility-level participants said that review of drug stocks allowed supervisors to identify stock-out issues and potentially intervene, though the same challenges that cause frequent stock-outs (inadequate supply at the district medical stores and the "push" system; see Supplies) hindered a timely response.

Feedback: All participants reported giving or receiving feedback at every supervision visit (or at meetings shortly thereafter). Supervisors emphasized the importance of supportive feedback, of "not policing" but rather encouraging and correcting. Facility-level participants all appreciated the feedback they received.

4.3. REPORTS

Based on the relevant checklists, supervisors prepare reports following each supervision visit, which are shared with facility leadership and DHMT members. Tasks that are relevant for district leadership are assigned, such as notifying the district pharmacist of drug stock-outs or requesting support from the environmental health unit for a facility's water, sanitation, and hygiene infrastructure. At the national level, supervision reports are shared with the Directorate of RMNCH and Directorate of Policy, Planning and Information. Two participants described

how these reports can be used by national staff to mobilize partner support. Finally, the reports are reviewed by supervisors prior to each subsequent supervision visit to assess progress.

4.4. STRENGTHS AND WEAKNESSES OF SUPERVISION

Participants described a variety of strengths of IMCI supervision in Sierra Leone. Generally, they emphasized that supervision offers a learning opportunity to providers that improves adherence. One participant described a specific improvement: her facility had previously had low rates of identifying malnutrition, but after a MOMENTUM supervision visit, their identification rates had increased. Two participants reported that stock-level reviews during supervision are especially helpful because they alert DHMTs to stock-outs. Two participants felt that the highly trained DHMT supervisors improved the efficacy of supervision visits. Two participants emphasized the benefits of on-site supervision where participants can fully focus on their work, in contrast to trainings that bring participants to district headquarters where they may face more distractions and obligations when they are "in town."

The number one weakness that participants reported is that there are not enough supervision visits. Participants agreed that monthly supervision would be preferable, but there is only enough official funding for visits once or twice a year; any additional visits are currently conducted by partners. Funding for supervision in addition to the once- or twice-yearly government-supported supervision comes from UNICEF and other district-level partners (including MOMENTUM), but there are often gaps in those campaigns. Three participants also mentioned that they do not have enough time when making supervision visits, and they should be able to spend a full day at one facility.

"We have a set of supportive supervisions that we do. The government has been sponsoring every six months…. And that is, again, not really forthcoming. It's scheduled to be twice a year, but most times, it's done once a year." (D)

"The mentorship training that we are doing is not enough, because we are just going and doing an hour." (F)

Key recommendation:

MOHS and partners should increase support for formal supervision activities, ensure equity in formal supervision activities across facilities, and create ways to support informal mentorship activities (even if informal activities are inequitable at first).

Topics for further study:

- What does an ideal supervision ecosystem look like?
- Should formal support be provided for informal networks (e.g., WhatsApp groups, peer mentorship)? How?
- Should partner resources for training be redirected to supervision?
- Can good supervision and mentorship replace the need for training, even before pre-service training is achieved?

5. SERVICE PROVISION

5.1. ADHERENCE

SELF-REPORTED ADHERENCE

Facility-level participants were asked the question, "What do you do when a sick child comes to your facility?" Their answers included a wide array of IMCI-associated actions, including reviewing objective data (e.g., vital signs and mid-upper arm circumference), targeted questioning of caregivers, physical examination, summary assessments, choosing treatments, counseling caregivers, and planning follow-up. The IMCI concept mentioned most often was looking for danger signs, a topic that was clearly very relevant and impactful for the service providers interviewed. They usually mentioned examining respiratory status to assess for pneumonia, and many commented on assessing for malnutrition as well. Dehydration and assessing for immunization status were less frequently mentioned without prompting from the interviewer.

Regarding counseling they provide to parents, participants described treatment-oriented counseling (such as drug administration and return-to-care precautions) and health promotion and preventive health counseling (such as encouraging use of bed nets and promoting good nutrition). Many participants appreciated the job aids in their IMCI booklet for this counseling, and several specifically mentioned health talks.

For assessing, classifying, treating, and counseling, many participants relied upon the Sierra Leone IMNCI chart booklet and its built-in job aids, which is considered appropriate in this context; supervisors encourage providers to always have the book available and to refer to it for every patient. Participants spoke very highly of the booklet, typically used it for every clinical encounter, and felt that it was so effective that providers untrained in IMCI could use the booklet to deliver acceptable care.

"We are not computers, our brains are not computers. They are expecting us to open the guide and look into the guide for us to do the right thing for the children. You cannot assume, Oh, I know everything…. It is an open book exercise. If the child is presenting with dehydration, open the area on dehydration, follow the steps on dehydration, and I think you'll be able to do the right thing." (F)

Participants described a standard 3-day follow-up plan that required patients and caregivers to return to the facility. If patients did not attend the facility for follow-up, many providers visited patients' homes themselves and several sent CHWs to make home visits.

Most providers interviewed typically see 10–15 sick children per day, which may increase during the rainy season. Very few providers reported concerns with their workload, and they reported good support from auxiliary staff to make that workload manageable. When asked if her workload interfered with high-quality service provision, one participant replied, "the more patients [I see], the more I will use IMNCI" (F).

ADHERENCE FACILITATORS

All participants had received training on IMCI, and nearly all providers cited training as a key factor in their own adherence and lack of training as a key barrier for others. However, many participants pointed out that supervision was equally key to their or others' adherence.

"If you know that 'my supervisors will be coming on a regular basis,' you'll feel more confidence, and when they come, you know if you have challenges, you will discuss it with them, they will guide you—then you feel more confidence in using the protocol. But if supervision is not regular, you may tend to just think that no one

is looking at me. No one is checking what I am doing, no one is seeing how I am doing. So you will feel less confidence in using your protocols." (D)

Aside from supervision, participants discussed other sources of motivation. Several cited internal motivation, or the importance of "loving your job." National- and district-level participants described recognition for good work as motivating; three participants hoped to implement "award" systems that would highlight facilities with strong performance as a way to improve motivation. They acknowledged the importance of high-quality data for this activity.

"You look at who is using IMNCI well, and let's say at the end of the quarter, we have a review and can we just say, okay, facility X has been using the protocol, excellent. This is the outcome of their child care activities. And then we give them a 'thank you' at the end of the quarter or at the end of the year. That's what we need to feel motivated. Sometimes it's not money, but a word of saying thank you, you have done well, keep it up." (D)

Confidence was also gained from observing good clinical outcomes, and many providers mentioned the IMCI chart booklet as a key factor in boosting their confidence.

ADHERENCE BARRIERS

Lack of training and infrequent supervision were cited as key barriers to adherence by nearly all participants, and some also pointed to lack of necessary commodities and equipment. But a few participants described a central challenge to adherence: lack of pay.

Several district- and facility-level participants described issues of salary and pay. A significant number of frontline providers—estimates ranged from 55%–80% in different districts—are "not on pincode," meaning they receive no regular salary from the MOHS. These unpaid providers are not limited to CHWs but include IMCI providers such as MCHAs based at facilities. Participants said that providers are less productive in providing IMCI services and are often forced to find other work, such as intermittent NGO projects, to support themselves.

"If you hire somebody to work for you, but they are not motivated, no allowances—the staff will not get the zeal or the enthusiasm to work according to how you are expecting him or her to work. Most of our staff are not on pincode, so you don't have strict hold on them for them to work. If you ask them, they say no, I don't have money, I'm going to look for money, I have family to support." (D)

"Of those that are working, it's only a few that are on pincode. Most of them are not on pincode, so we want that gap to be solved. Because if you satisfy those that are working, maybe they have that willingness to attend to patients…. How can you expect somebody working for a month without getting anything? That one is very serious." (F)

Key recommendation:

- In the long run, motivation must be improved by placing all providers on pincode.
- In the short run, motivation may be enhanced by awards and recognition of high-performing facilities.

Topics for further study:

- What are the prospects for paying providers more? Who are the decision-makers and how could this be achieved?
- What would be required to provide awards or recognition of high-performing facilities and/or providers? Is it feasible? Is it worth doing?

STAFFING

Throughout surveyed districts, three classes of providers serve under-5 children and can be expected to use the IMCI protocol once trained: CHOs, who have bachelor's degrees and usually serve as facility in-charges in addition to their service provision responsibilities, SECHNs, a cadre of trained nurses, and MCHAs. Midwives may provide care for newborns, but only up to 3 days of life and for routine checks at 7 days and 6 weeks. Midwives are not usually trained on IMCI; they are trained in emergency obstetric and newborn care.

One participant explained that the vast majority (perhaps 90%) of under-5 care is delivered by MCHAs. This designation is similar to a nursing aide; they are trained by districts and posted to PHUs or maternal and child health posts.

"90% of children are seen by the MCH aides…. These are nursing aides. [They] were supposed to be a stop-gap measure because there were not many nurses in the system…. So these are not from nursing schools or institutions. They are trained by the district so that it can man those facilities, especially in hard-to-reach areas." (N)

Several district-level participants stated that staff turnover is a key IMCI implementation barrier. With occasional exceptions, staff are supposed to move facilities every two to four years, and rotations can leave facilities with one or zero IMCI-trained providers. One participant explained that the IMCI focal person is not part of their district's "posting committee," and therefore IMCI training is not considered when placing staff in new postings.

"The challenges we have, though, is our staff do change. We recently recruited several new staff from the Maternal and Child Health School…. they are not too familiar with the policies for IMNCI. The focal person often goes to do supervision, but we think there needs to be an orientation or a form of training for those other health facility staff that have just been posted to the new centers." (D)

REFERRALS

Providers expressed a clear understanding that any danger sign in a child at a PHU was criteria for referral to a higher level of care. They also listed severe malnutrition (requiring admission), severe anemia (requiring blood transfusion), and severe pneumonia (requiring oxygen therapy) as reasons to refer to facilities with

these capabilities. Participants also reported that stock-outs at PHUs may lead to referrals for routine care, because higher-level facilities would be more likely to have basic medications in stock.

"We refer people because of our level…. We refer if the case is above us. [We decide] by assessing the patient. Maybe we are out of stock, we don't have the right drugs to treat, so we refer. They always tell us, early referral, early treatment, so we refer earlier." (F)

"These PHUs—these community health posts—they normally go out of stock of drugs [for] the treatment of malaria and a lot of pneumonia. So when they get critical cases, they do refer them to us at the higher level, the community health centers, so we normally see these children and put them on the right regimen and reassure they are good." (F)

All participants described a similar procedure for referrals, including standard referral forms or slips, pre-referral treatment, and making an attempt to arrange transport. Two participants also noted that pre-referral treatment is sometimes not possible due to medication stock-outs, so pre-referral treatment may only be given "if it's available" (F).

Several participants noted a challenge with transportation, because the ambulance program, the National Emergency Medical Services, "is no longer working." NEMS was previously able to provide transportation from PHUs to higher levels of care, and frontline providers could call a hotline and expect ambulance transport. However, in the absence of a well-funded NEMS program, providers described asking caregivers to pay for their own transportation, which often led to reluctance to accept a referral. One provider even reported paying for a patient's transport herself to ensure the child received prompt care.

"There are some challenges in referral due to NEMS. Now when our colleagues call for [an] ambulance, they find it difficult. Sometimes ambulances may be available, but sometimes there'll be no fuel. Or maybe the ambulances will be grounded." (D)

"[Sometimes] the ambulance is not available when you call him, he may say it is not available, ambulance is not okay. Sometimes we will even pull out our transport [funds] and give them [to the patient] if they say they don't have money, just for them to go. So like just for 10,000 [Leones; approx. $0.75], I give the patients." (F)

Key recommendation:

Either NEMS should be restored to full functionality, or MOHS and partners should identify ways to transport all children in need of referral.

Topics for further study:

- Why has NEMS stopped working well? Is it possible to reinvigorate the program?
- Is there a place for alternatives (such as transportation vouchers)? Would this meet the needs of IMCI providers and patients in Sierra Leone?

5.2. SUPPLIES

Interviews discussed equipment, medicines, and printed items essential to IMCI service provision. Except for pulse oximeters, few participants reported problems with equipment and printed materials, but many reported challenges with the drug supply.

ORDERING

Drug procurement and distribution for free health care commodities, including IMCI medications, is managed nationally. Supply decisions are made at a central level and shipments of medications are sent to district medical stores managed by district pharmacists. Pharmacists and DHMT members verify quantities upon delivery to the district. Supplies are then distributed to facilities based on a "pre-prepared matrix" (D) designated by national officials.

Data about stock and stock-outs, recorded in RRIV (Report, Request, and Issue Voucher) forms, flows from facilities to district pharmacists. If a facility reports a stock-out and the district has available buffer, they supply that facility directly. One district official discussed "reverse logistics," whereby the district finds a facility with excess stock and arranges for delivery to a facility with a stock-out. The district pharmacists enter RRIV data into a national logistics management system. District- and national-level participants said that this data is supposed to inform distribution quantities, though they described a variety of shortcomings in this system.

STOCK-OUTS

Participants at every level described frequent stock-outs at health facilities, including all seven district-level participants and all nine facility-level participants. The stock-outs were often long: one participant reported that their facility had no amoxicillin for 5 of the 12 months of 2021; another reported a 6-month zinc stock-out. In general, participants agreed that the quarterly drug distributions typically lasted only for 1 to 2 months of the intended 3-month period. Of the four consumables discussed in every interview, oral rehydration salts and zinc tended to be more available, while amoxicillin and gentamicin were less available. Participants also reported frequent stock-outs of artesunate, ampicillin, cotrimoxazole, malaria rapid diagnostic tests and paracetamol.

"They just supply. I don't know if it will even last for 1 month, and in 1 month it's finished. So that will take up to 3, 4 months or even 6 months [to replenish]." (F)

"The [quarterly] drugs they bring to us [finish] before even the second month ends." (D)

CONSEQUENCES OF STOCK-OUTS

Participants described significant consequences of stock-outs. Patients treated at frontline facilities are often forced to purchase medicines from private pharmacies. They may also be referred to a higher level of care, even if their illness is not severe, due to unavailability of medicines. Patients who are severely ill may not receive appropriate pre-referral treatment if medicines are unavailable. Participants reported that iCCM is also impaired by facility-level stock-outs, because facilities are reluctant to share scarce commodities. For these reasons, many participants listed drug stock-outs as a key barrier to successful implementation of IMCI.

"If the drugs are not available, this is being written on a piece of paper, given to the caregiver, to go to any of the nearby drugstores to buy. So if it's not available at the health facilities, they ask the caregiver to buy to treat their children." (D)

EXPLANATIONS FOR STOCK-OUTS

National level – funding: National-level participants pointed to funding allocations for Free Health Care initiative drugs. According to one, procurement used to be supported by DfID/Foreign, Commonwealth & Development Office (UK), but the government of Sierra Leone has gradually taken over responsibility to pay for commodities. Both reported that the funds available have been inadequate.

"We've not had enough funds as a country to procure most of the essential medicines that are required in the facilities." (N)

National level – central planning: Many participants reported that the "push system" resulted in a disconnect between requests made by districts or facilities and the drugs that were delivered. They felt that stock-outs and RRIV submissions were unrelated to the supplies they received, resulting in undersupply of many key commodities and oversupply of others.

"The district pharmacist sends reports to Freetown on a monthly basis, indicating which drugs the district needs. But again, I don't believe if the national medical store really looks at those reports. Because each time they are sending drugs, I think they're just trying to empty what they have in their stores down to the district." (D)

"Because it is a blanket distribution that they are doing, some facilities are overstocked, while some facilities run out of drugs within the first 2 weeks of supply." (D)

Facility level – inaccurate data: several national- and district-level participants explained this demand and supply mismatch by pointing to poor data and inaccurate quantification at the facility level. If monthly stock reports are inaccurate, they explained, then the national medical stores will not be able to avoid stock-outs at the facility level.

"To be honest, the quantification is poor right from the lower level coming up." (N)

"Maybe the in-charges at the center, they do not even try to order according to how they the facility is consuming the drugs. Some do not know how to do it." (D)

Facility level – overprescribing: two participants suggested that stock-outs were due in part to overprescribing of medications. Both felt that adherence to IMCI guidelines would help reduce this over-usage.

"Before the implementation of IMNCI, some [providers] were misusing the drugs… If someone has not been trained on IMNCI, and that person sees a child that presents with only cough and cold, that person can use amoxicillin, though he or she doesn't need to use any antibiotics on that particular case. There was a kind of drug wastage." (F)

Facility level – community demand: several participants reported that high number of patients and patients' overuse of services contributed to stock-outs. One national-level participant posited that patients anticipated drug shortages and stock-outs, so when they heard that drugs were available, they were more likely to attend clinic even if their need was not severe.

"The risk of that system is that whenever medicines become available in the community, there's a likelihood that people will come in and actually complain as being sick, even if they're not, because they know that the medicines are not enough, they're not going to last for long, and everybody will come and try to get their own piece of it and their own share." (N)

RECOMMENDATIONS TO REDUCE STOCK-OUTS

For the most part, participants' solutions to the problem of stock-outs aligned with their preferred explanation of those listed above. Many participants made the suggestion to increase funding for essential medicines. Some suggested the national government should increase funding, while others suggested increasing donor support.

"I also want the donor organizations to help any increment of the provision of essential drugs used for the treatment of most of the illnesses our children who present at the health facility, because sometimes we do go out of stock of some drugs at the facility. We really want to be having that in abundance because if we have them, I think our kids will be having a very good healthcare." (F)

A few participants also suggested reducing demand by training more providers and educating the community (and some facility-level participants reported trying this by educating the community about stock-outs).

"I have been putting measures in that at my own level…. I sometimes engage the community in explaining to them…. And I also engage the staff. I tell them the usage of drugs, or the purpose for you to use a specific drug. Like amoxicillin can be only given to a child when the breathing rate is above the normal range." (F)

Many participants recommended ending the "push system," and instead allowing facilities to order precisely the supplies they need from their district stores, which would be able to order from the national stores. They acknowledged that this shift depends on quality data.

"What I would like to recommend is that when each district has its own procurement officer, and we deal directly with him within the districts, I think we [will] have solved some of these problems in drug stock-outs." (D)

Key recommendation:

In addition to increased funding for drug procurement, drug supply systems must move away from the "push" system to allow facilities and districts to order supplies as needed, which may require training at the facility level on accurate quantification and ordering.

Topics for further study:

- Is this feasible?
- What are the barriers to ending the push system? What is the way forward?

6. CONCLUSION

Participants at all levels of the health system agreed that IMCI has tremendous potential to improve child health in Sierra Leone. They applauded the efficacy and ease in using the IMCI protocol and chart booklet, and providers felt that supervision visits were a valuable intervention to promote their learning and protocol adherence. However, several key barriers prevent the protocol and the program from reaching its full potential, including coordination and management challenges, inconsistent training opportunities, insufficient resources for supervision, low or no pay for providers, dysfunctional referral systems, and stock-outs of key medications. To address these challenges, participants suggested the following solutions:

- **COORDINATION AND MANAGEMENT:** (1) restart quarterly Child Health stakeholder meetings / TWGs; and (2) establish standing meetings between CHW hub and Child Health staff at the national, district, and facility levels.
- **TRAINING:** (1) for long-term change, begin to move IMCI to pre-service training; and (2) for near-term change, include district IMCI focal people on posting committees to minimize gaps in IMCI staffing.
- **Supervision:** (1) increase supervision frequency to monthly or quarterly; (2) ensure equity in formal supervision activities across partner-supported and unsupported sites; and (3) increase support for informal mentorship activities.
- **MOTIVATION:** (1) increase number of providers "on pincode," or receiving regular salary; and (2) explore non-monetary incentives, such as recognition for good performance, which may require improved data capacity.
- **REFERRALS:** either (1) restore NEMS to full functionality, or (2) explore alternatives such as transportation vouchers.
- **SUPPLIES AND EQUIPMENT:** (1) increase resources available for drug procurement nationally; (2) end "push system" and deliver medications based on facility ordering; and (3) increase supervision to ensure data quality in facility ordering.

We anticipate the results and recommendations contained in this report—gathered from national- and district-level IMCI managers and supervisors, as well as facility-level IMCI service providers—will inform regional and global partners and stakeholders in a forthcoming learning exchange meeting to strengthen operationalization of IMCI.

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