FEDERAL GOVERNMENT OF NIGERIA

HEALTH CARE WASTE MANAGEMENT PLAN (HCWMP)

FOR

ACCELERATING NUTRITION RESULTS IN NIGERIA

PROJECT

March 2018

Malnutrition in Nigeria:

Nigeria has very high rates of malnutrition that are unevenly spread across the country. Stunting, a measure of chronic malnutrition, and micronutrient deficiencies generate the highest burden. 43.6 percent of children under five years of age suffer from chronic malnutrition, with nine of the North East and North West States having child stunting rates that exceed 50 percent, while some States in the South have rates as low as 9 percent. 30 percent of Nigerian children and 20 percent of pregnant women are Vitamin A deficient, while 76 percent of children and 67 percent of pregnant women are anemic. Half of the children in the poorest 40 percent of the households are stunted. It is important to note that stunting rates are high even in the children from the highest income quintiles.

Women's lower status in the household is a strong determinant of her nutritional status as well as that of all children in her household.

Three main categories of factors contribute to the high chronic malnutrition rates in Nigeria:

(i) Inadequate access to health care, including family planning services: Access to health services remains low and inequitable. Only 26.7 percent children under 5 with diarrhea accessed care from a health provider, of which only 18.5% received ORS with Zinc supplementation. The high total fertility rate (5.8 births per woman in Nigeria) and high rate of adolescent pregnancies (30.8 percent of women aged 15-19 have begun childbearing) contribute significantly to chronic malnutrition. With the fetus competing with the adolescent mother for nutrients from her impoverished body stores, the mother is at immense risk of undernutrition, maternal mortality and adult anemia, while the offspring is at a higher risk for poorer birth outcomes, low micronutrient stores, low birth weight and stunting.

(ii) Inappropriate caring practices and poor environment for young children and for women during pregnancy: 23.7 percent of Nigerian children under six months of age are being exclusively breastfed, and only 16.5 percent are appropriately complementary fed, i.e. receive foods from four or more food groups daily and a minimum number of meals starting six months of age. These limiting behaviors are not due to food insecurity but rather inadequate knowledge and beliefs of how children should be fed.

(iii) Insufficient and poor quality food: Nigeria has considerable food security challenges. The total average expenditure on food between 2009 and 2010 was about 65 percent (NBS, 2012). The food distribution system in Nigeria remains largely inefficient due to factors such as crop seasonality, inadequate storage technology and facilities, inadequate transport and distribution systems, as well as market information. These factors create considerable spatial and seasonal variation in food production and availability and are responsible for considerable variations in food prices across the country. However, this is less of a determinant of poor nutritional outcomes than is the lack of access to diverse and micronutrient-rich foods.

Government Response:

The Federal Government approved and launched a multi-sectoral National Policy on Food and Nutrition in Nigeria in September 2016. This Policy provides the framework for addressing Nigeria's malnutrition challenge from the individual, household, community and up to the national level. It recognizes that a range of sectors need to play their specific roles to resolve this complex development challenge, and specifically covers health, agriculture, science and technology, education, trade, economy and industry as well as social protection.

The health sector has taken the lead in developing its sector-specific plan to address malnutrition. The "National Strategic Plan of Action on Nutrition" sets out costed, nutrition-specific interventions with measurable targets to be achieved at scale between 2014 and 2019. The National Health Act provides increased funding and political support for primary health care and was signed into law by The President of

Nigeria in December 2014. The Act specifies that all Nigerians shall be entitled to a Basic Minimum Package of Health Services (BMPHS), which include basic nutrition services.

Overview of Accelerating Nutrition Results in Nigeria (ANRiN) project:

The development objective of the ANRiN is to expand utilization of quality, cost-effective nutrition services for women of reproductive age, adolescent girls and children under two years in select areas of the Recipient's territory. In doing so, ANRiN will contribute to reducing chronic malnutrition (stunting and micronutrient malnutrition), to reduce maternal and child mortality rates and, over time, increase school completion and performance and improve labor force productivity in Nigeria.

The project will achieve its development objective following a two-speed approach. It will invest through focused technical assistance in medium to long term systems strengthening in Nigeria for planning, financing, implementing and monitoring high impact, cost effective interventions for improved nutrition outcomes. The larger share of the project cost will be invested in the provision of a core set of targeted, cost effective nutrition and adolescent health interventions, delivered through performance based contracts with non-state actors working in communities and through government health facilities by way of results based financing, with the aim of protecting Nigerian children from the devastating and lifelong effects of stunting. Twelve project states have been identified following a transparent selection process based on burden of malnutrition, geo-political representation, availability and commitment of resources for approved and costed nutrition plans and willingness to Borrow IDA for nutrition. These states are Abia, Akwa Ibom, Gombe, Kaduna, Kano, Katsina, Kogi, Kwara, Nasarawa, Niger, Oyo, and Plateau.

Towards systems strengthening, the project will focus on (i) social and behavior change communication for nutrition, including a performance-based contract with NIFAA at the federal level; (ii) multi-sectoral coordination and accountability for nutrition and adolescent health results; (iii) knowledge platform; (iv) research program; and (v) national nutrition information system for improved planning, monitoring and reporting of service delivery and outcomes.

The following basic package of nutrition services will be delivered through performance based contracts in all project States:

a. Behavior change communications to improve infant and young child feeding behaviors, namely, early and exclusive breast feeding (0-6 months) and appropriate complementary feeding (6-23 months).
b. Provision of a course of micronutrient powders to children 6-23 months to improve the quality of the food provided for complementary feeding.
c. Iron/folic acid supplementation for pregnant women, with a focus not only on provision to women but also counselling to improve compliance.
d. Intermittent presumptive treatment for malaria to pregnant women.
e. Zinc and oral rehydration solution (ORS) for treatment of diarrhea in children 6-59 months.
f. Vitamin A supplementation and deworming to children 6-59 months twice per year.
g. One innovation pilot per non-State actor.

In a subset of 1-2 project states, through an additional performance based contract with non-state actor, focused package of interventions will be deployed to delay the first pregnancy and to increase the birth spacing amongst adolescent girls. This will be done by way of counseling of adolescent girls and their influencers to delay first birth, improve child spacing.

Potential Environment and Social Impact of ANRIN

ANRiN is not anticipated to cause large scale, significant and/or irreversible environmental and social impact. The project will not finance land acquisition nor civil works at existing hospital or clinic sites. An EA category of B-partial is recommended for the project in view of the negligible, site specific and non-cumulative environmental risk due to the low volumes of municipal waste, and extremely low volumes of sharps and expired drugs that will be generated through service delivery in the project and which, can be easily managed while implementing the project.

The project envisages provision of Basic Package of Nutrition Services and a focused package of adolescent health services (enumerated in previous section). These services will largely be provided through performance based contracts awarded to non-state actors--two per project state and results based arrangements with public health facilities managed by the State Primary Health Care Development Agencies (SPHCDAs). The waste generated through the project will largely include municipal solid waste (packaging for IFA, deworming tablets, Vitamin A supplements, Oral Rehydration Therapy) with small quantities of sharps (injections, if a preferred mode for modern contraception and in the treatment of severely acute malnourished children with complications) and pharmaceutical waste (expired above-stated drugs and injectables).

A Primary Health Care Center is the first point of contact for most Nigerians and is expected to serve a population of 10,000 to 20,000 and as a referral center for four health clinics each. PHCs are usually 15-bedded facilities, and are is expected to offer services for maternal and new born care, family planning, immunization, tuberculosis, HIV/AIDS, malaria, curative care for infections and diseases. It is also expected to promote nutrition and food education, water and sanitation related behaviors, oral health, community mental health, adolescent health, preventive health through community outreach, safe waste disposal. Additionally, the PHC will also offer basic laboratory services, referral services for higher level of care, monitoring and supervision of health clinics and maintenance of PHC records and health management information system (refer to Annex 1). An assessment of quantum of health care waste generated from a sample of primary health care centers in the states of Nasarawa, Imo and Ondo states (of which, Nasarawa is a proposed project state for ANRiN) by the Nigeria State Health Project Investment (NSHIP) in the provision of all outpatient and inpatient services mandated in the PHC, indicates approximately 0.5 kg of sharps and 15 kgs -30 kgs of municipal waste generated per day, depending on uptake of services at a PHC. From this data, it may be extrapolated that the quantum of municipal waste generated in the provision of the basic package of nutrition services and focused package of adolescent health services in the implementation of the ANRiN project, would be extremely low. The volume of sharps generated through the project as waste is going to be miniscule given the small proportion of the overall target group, which will avail contraceptive injections or treatment of complications of severely acute malnourished children. Since FMOH has initiated specific measures to reduce wastage of drugs, also, the quantum of expired drugs through the project is expected to be very low.

Health Care Waste Management in Nigeria

Nigeria has demonstrated its commitment to mitigating adverse social and environmental impacts in the implementation of a range of World Bank projects. There are adequate legal and institutional frameworks in the country to ensure compliance with World Bank safeguards policies. On September 4, 2013, the Nigerian Federal Executive Council (FEC) approved a new National Strategic Healthcare Waste Management policy, including National Strategic Healthcare Waste Management Plan and Guideline for the country. The Ministers of Environment and Health jointly presented the memo seeking Council's approval for the adoption of the National Healthcare Waste Management policy, signaling a high level of commitment of the Government toward minimizing environmental risks from health care waste.

The National Strategic Healthcare Waste Management Plan (NSHWMP) documents the situational analysis of healthcare waste management in Nigeria, enumerating the health care system, qualifying the healthcare waste generated as a byproduct. It confirms the health care waste management practices or lack while appraising the institutional capacities for conforming with the ratified guidelines. A separate section of the plan provides recommendations for establishment of an institutional framework and for efficient and safe healthcare waste management in Nigeria. The final section of the document enumerates the five-year strategic National Action Plan for progressively improving healthcare waste management in Nigeria.

It is anticipated that the implementation of the plan will provide learning opportunities to strengthen coordination, operationalization and supervision of good healthcare waste management practices in the country.

Reviews of the status of healthcare waste management in Nigeria for the environment assessments conducted for the Saving One Million Lives (SOML) project; the Second HIV/AIDS Program Development Project (HPDP2); and the Nigeria State Health Investment Project (NSHIP) indicated similar challenges in the implementation of the NSHWMP.

- Lack of strict enforcement of existing provisions of the NSHWMP;
- Weak knowledge, capacities and accountabilities exist at all levels in the government and in communities for effective implementation of the plan resulting in inadequate waste segregation, treatment and disposal;
- Limited and unreliable resources for building and operationalizing an improved healthcare waste management system;
- Lack of reliable data and its use for improved management of healthcare waste

These challenges can be addressed through focused plans aimed at

- Establishing, capacitating and strengthening the institutional arrangements necessary at federal, state and local government levels for management of NSHWMP. This will entail fully leveraging hitherto disaggregated existing capacities under various health programs and projects at federal, state and LGA levels for implementing of the NSHWMP;
- Continuous capacity building of health care workers at all levels to rigorously implement the NSHWMP as per enumerated guidelines;
- Building awareness in communities (including patients and attendants) through targeted IEC on risks associated with medical wastes and their supportive role in its effective management;
- Leveraging financing available through various health programs and projects for sound implementation of NSHWMP; and
- Strengthening the monitoring and evaluation function to ensure strict compliance with the guidelines of the NSHWMP.

Proposed Health Care Waste Management Plan for ANRiN

Since OP/BP 4.01 is triggered for ANRiN, in compliance with the requirements of the World Bank's policies and procedures, ANRiN is expected to prepare a Healthcare Medical Waste Management Plan (HWCMP) to mitigate the limited environmental and social risks posed by the project.

ANRiN will support implementation of the NHWMP and its Guidelines in all public health facilities where the Basic Package of Nutrition Services and focused package of Adolescent Health services will be provided through the SPHCDAs and in communities by non-state entities through performance based contracts.

Since the point of service delivery in public health settings will be the PHCs under the ambit of SPHCDA, and given the negligible healthcare waste expected in project implementation, ANRiN will leverage the

institutional frameworks, systems, capacities and resources established and strengthened through complementing World Bank investments in the health sector in Nigeria, namely the Saving One Million Lives Program for Results Project, Nigeria State Health Investments Project and the Polio Eradication Support Project Additional Financing to facilitate implementation of the NSHWMP and its guidelines relevant to the PHCs.

Under SOML, the facility specific HCWM plans with prescribed implementation of preventive and/or mitigation measures for environmental risk and impacts identified in the provision of nutrition as well as maternal, neonatal and child health service delivery will adequately cover the risks posed in the implantation of ANRiN in these same primary health centers. The training programs of service providers to address weak knowledge and practices relevant to healthcare waste management will support robust implementation of the NSHWMP.

Similarly, ANRiN will also leverage the arrangements established under the Nigeria State Health Investments Project, especially in the states of Nasarawa and Gombe, which are common to both projects. The performance based contracts of NSHIP with PHCs will incentivize the service providers to comply with NSHWMP and its guidelines. The HCWM Specialist appointed in the SPHCDA will be leveraged to oversee coordination, planning, implementation and supervision of HCWM practices in these health facilities, while the Health Facility Committees will ensure implementation and regular monitoring of practices. In NSHIP states, the quality supervision checklists developed under NSHIP will provide data for the independent verification agencies to propose quality and quantity of results achieved by the project. In non-NSHIP states, the IVA will also review and report on compliance with HWCM guidelines. The costs associated with implementation will be borne from funds leveraged from SOML, NSHIP and reimbursed ANRiN project costs.

ANRiN's results based approach whereby SPHCDA will be reimbursed for quality and quantity of basic package of nutrition and focused adolescent health services rendered at PHCs in compliance with the NSHWMP and its guidelines and thereby environment safeguards policies of the Bank will be complementary to efforts of the SOML and NSHIP and Polio Eradication Support Project.

Similarly, the performance based contracts for the non-state actors under ANRiN for delivery of basic package of nutrition and focused adolescent health services in the communities of the 12 project states, which will factor in quality of service provision, will ensure compliance with requirements of the NSHWNP and its guidelines and accountability for the same.

The project will report on performance of the project with respect to the NSHWMP and its guidelines during each half-yearly implementation support mission to assess compliance with the agreed environment safeguards requirements of the project.

It was agreed that all project states will develop integrated, costed training plans for HWCM (Annex 4) using the NSHIP cascade approach, leveraging training opportunities available in other World Bank financed projects, for training of PHC officials in HWCM practices. Additionally, states will develop costed investment plans (Annex 5) to facilitate implementation of HWCM guidelines. These annual investment plans will be actioned using resources available with SPHCDA for implementation of World Bank financed projects, such as SOML, NSHIP, Malaria and ANRiN.

The specific aspects of NSHWMP and its guidelines relevant to the ANRiN project for deployment in PHCs are enumerated in Annex 2 of the document.

Stakeholder consultation

The Project Management Unit of ANRiN under the leadership of the Director, FMOH, organized a stakeholder consultation on Friday, March 9, 2018. Representatives from the FMOH, Federal Ministry of Environment (FMEnv), NSHIP, representatives from ten project states[1] along with World Bank officials participated in the stakeholder consultation. The NSHIP team explained the HCWM plan that is being deployed in all public health facilities in NSHIP states, from training, IEC, practice and M&E. All project states had been provided a questionnaire (Annex 3) to assess the status of HCWM compliance in their respective states. They key takeaways from the feedback to questionnaires and discussions with stakeholders were:

Training

- The NSHIP project has developed good training materials and IEC for HWCM, which has been used in a cascade down training plan in the NSHIP states
- Only Nasarawa has availed structured training in HWCM for public health professionals through NSHIP
- HCWM training from specific program perspectives such as polio immunization campaign or HIV/AIDS has been conducted in Akwa Ibom, Oyo, Plateau and Kogi states

HWCM implementation

- Health facilities do not measure or record the quantum and quality of health care waste generated in their facilities
- Municipal waste, infectious waste, toxic waste, liquid waste as well as sharps are generated in most primary health centers
- Largely waste is not segregated for lack of infrastructure like color coded bags and bins
- Puncture proof boxes for sharps are available in most health facilities
- Waste disinfection is variable across health facilities and depends on availability of disinfectant
- Usually waste is collected by attendants in PHCs and dumped in variably constructed deep burial pits in the health facilities and burnt
- In the state of Kogi and Nasarawa, waste is transported to disposed-off in incinerators
- During health care campaigns, HCW is incinerated in partnership with Government and privately owned facilities such as the University of Uyo Teaching hospital, Akwa-Ibom State, the National Veterinary Research Institute (NVRI) Vom, Plateau State and Dangote Group in Kogi State.

Budget for HCWM

- Only Kogi and Nasarawa states have a budget line for HWCM, which facilitates its practice.

[1] Abia, Akwa Ibom, Gombe, Kaduna, Kano, Kogi, Kwara, Nasarawa, Oyo and Plateau

Annex 1

Type of Service and Providers in Primary Health Centers

S/N	TYPE OF SERVICE	RECOMMENDED PROVIDER								
		CHO	N/M	CHEW	JCHEW	P/Tech	MR	EHO	MO	LT
HEALTH EDUCATION AND PROMOTION										
1	On prevailing health issues, problems and prevention	X	X	X	X			X	X	
2	Adaptation I.E.C/BCC materials	X	X	X	X			X	X	
3	Community Mobilization for Health	X	X	X	X			X	X	
HEALTH MANAGEMENT INFORMATION SYSTEM										
4	All data collected should be sent to the health facility staff to collect, collate and analyze.	X	X						X	
ROUTINE HOME VISITS AND COMMUNITY OUTREACH										
5	This services will be conducted in the health center and in the communities	X	X	X	X		X		X	
MATERNAL NEWBORN & CHILD CARE										
6	Identification of pregnant women	X	X	X	X		X		X	
7	Antenatal Care	X	X	X	X				X	
8	Delivery		X						X	
9	Basic Emergency Obstetric care (manual removal of placental, PPH etc)		X						X	
10	Post natal care	X	X	X	X				X	
11	Promotion of Exclusive Breast Feeding	X	X	X	X				X	
12	Care of the Newborn, clean delivery, cord care, male circumcision	X	X	X	X				X	
13	Newborn Resuscitation	X	X	X					X	
14	Growth monitoring	X	X	X	X				X	
15	Support for complementary feeding	X	X	X	X				X	
16	Support for Weaning	X	X	X	X				X	
FAMILY PLANNING										
17	Counselling and motivation for FP	X	X	X	X				X	
18	Dispensing of male and female Condoms	X	X	X	X				X	
19	Dispensing of contraceptives	X	X	X	X				X	
20	Dispensing Injectables	X	X						X	
21	Insertion of I.U.C.D	X	X						X	
PROMOTION OF PROPER NUTRITION AND FOOD EDUCATION										

S/N	TYPE OF SERVICE	RECOMMENDED PROVIDER								
		CHO	N/M	CHEW	JCHEW	P/Tech	MR	EHO	MO	LT
22	Identification of locally available food stuff	X	X	X	X				X	
23	Home, School and Communal Gardening	X	X	X	X			X	X	
24	Nutritional Education, including food hygiene,	X	X	X	X				X	
25	Screening for nutrition related problems (PEM, Anemia, Goiter)	X	X	X	X				X	
26	Nutrition assessment e.g. mid–upper arm circumference and identification of malnutrition in children and adults	X	X	X	X				X	
27	Food demonstration	X	X	X	X				X	
IMMUNIZATION										
28	Identification of eligible pregnant women and children	X	X	X	X		X		X	
29	Provision of routine immunization, TT, BCG, OPV, DPT, YF, MV etc.	X	X	X	X				X	
30	Participation in immunization campaigns	X	X	X	X		X		X	
31	Immunization trend follow up	X	X	X	X		X		X	
32	Assist in the provision of routine immunization	X	X	X	X		X		X	
33	Assist in the management of Adverse Effect following Immunization.	X	X	X	X		X		X	
34	Assist in the identification of Acute Flaccid Paralysis (AFP)	X	X	X	X		X		X	X
HIV/AIDS										
35	Voluntary Counselling and Testing (Trained Personnel only and Lab Personnel)	X	X	X					X	X
36	Follow-up care for PLWA	X	X	X	X				X	
37	Treatment of opportunistic infections	X	X						X	
38	Community/home based care and support	X	X	X	X				X	
TUBERCULOSIS										
39	Preliminary diagnosis	X		X	X				X	X
40	Case tracing	X		X	X		X		X	
41	Case management (For TB Centres)	X		X		X			X	
MALARIA										
42	ITNs	X	X	X	X	X	X	X	X	
43	IPT for pregnant women		X						X	
44	Treatment for children	X	X	X	X				X	
CURATIVE CARE										
45	Diarrhea	X	X	X	X				X	
46	Respiratory Infections	X	X	X	X				X	
47	Skin diseases	X	X	X					X	
48	Anemia	X	X	X	X				X	

S/N	TYPE OF SERVICE	RECOMMENDED PROVIDER								
		CHO	N/M	CHEW	JCHEW	P/Tech	MR	EHO	MO	LT
49	Minor Accidents	X	X	X	X				X	
50	Worm Infestation	X	X	X	X				X	
51	Measles	X	X	X	X				X	
52	Neonatal Tetanus	X	X						X	
53	Whooping cough	X	X	X					X	
54	STI	X	X	X	X					X
55	All conditions as listed in the standing order for the cadre of staff	X	X	X	X	X	X	X	X	X
ESSENTIAL DRUGS										
56	Stock management	X				X				
57	Replenishment of drug stock from LGA and distribution to lower levels			X	X	X				
58	Dispensing of drugs	X	X			X			X	
WATER AND SANITATION										
59	Promotion of personal and community hygiene	X	X	X	X			X	X	
60	Advising and training community on potable water and protection of water source	X	X	X	X			X	X	
61	Pest control services	X	X	X	X			X	X	
62	Advice and training on safe excreta disposal	X	X	X	X			X	X	
63	Advice and training on safe refuse disposal	X	X	X	X			X	X	
ORAL HEALTH										
64	Advice on care of the mouth and teeth	X	X	X	X				X	
65	Treatment of mild oral /dental conditions	X	X	X					X	
COMMUNITY MENTAL HEALTH										
66	Mental Health Education	X	X							
67	Advice and Counselling on prevention of drugs and substance abuse	X	X	X	X				X	
68	Early identification of mental health disorder	X	X						X	
REFERRALS										
69	Counselling and motivation for referral	X	X						X	
70	Effecting referrals for all cases above the level and following up (2-way referral)	X	X	X	X				X	
71	Mobilizing support as required from the community (VDC/WDC) to effect referrals	X	X	X	X				X	
MAINTENANCE OF PHC RECORDS										
72	House numbering (as appropriate) and issuance of child and adult health cards			X	X		X			

S/N	TYPE OF SERVICE	RECOMMENDED PROVIDER								
		CHO	N/M	CHEW	JCHEW	P/Tech	MR	EHO	MO	LT
73	Community census and at risk registration			X	X		X		X	
74	Completion of cards; routine and notifiable disease forms, HMIS register and summary forms	X	X	X	X	X	X	X	X	
75	Basic data analysis &	X	X						X	
76	Collection of community based statistics on demography and health events including births and deaths	X	X	X	X		X		X	
MONITORING										
77	Will be done by Primary Health Centre staff who should be at least 1 level higher than that at the Health clinic.	X	X	X		X	X	X	X	
SUPERVISION										
78	Will be done by Primary Health Centre Staff who should be at least one level higher than that at the Health Clinic.	X	X	X	X				X	
WASTE DISPOSAL										
79	Use of safety boxes and color coded bins based on WHO standards recommendations	X	X	X	X	X	X	X	X	X
80	At least 'Burn and bury'	X	X	X	X	X	X	X	X	X
OTHERS										
81	Provision of DOTs treatment and support for TB, Malaria and Leprosy	X	X	X					X	
ADOLESCENT HEALTH										
82	Counselling and support	X	X	X					X	
83	Treatment of ailments	X	X	X					X	
BASIC LABORATORY SERVICES										
84	Must provide all services									X

Annex 2

Health Care Waste Management options applicable for primary healthcare facilities based on Healthcare Waste Management Plan for the Nigeria State Health Investment Project, 2011

HWCM minimization

To reduce the amount of hazardous HCW generated at Primary Health Care (PHC) facilities in Nigeria;

- The use of recyclable materials and products should be encouraged;
- Encourage a preference for oral alternatives in place of injections in treatment when appropriate;
- Ensure good management and control practices especially in the purchase and use of pharmaceuticals; and
- Enforce a rigorous and careful segregation of HCW at source.

Segregation

Correct waste segregation is the fundamental first step for efficiently and effectively managing HCW. Proper segregation of waste at source will also reduce the quantity of waste requiring treatment prior to final disposal.

Courtesy: JSI/MMIS

Infectious and other hazardous waste must be segregated at source and put in appropriate color- coded containers/bags as recommended by the National HCWM Guidelines. In particular, sharps must be segregated from other HCW at their point of generation.

	
	Recommended segregation and color coding system in Nigeria

Important elements specific to the segregation of sharps include:

- Sharps boxes, should be used strictly for sharps. Where there is a difficulty in getting sharps boxes, the use of recycled cardboard boxes is acceptable if it is puncture resistant, securely in place, easy to insert sharps, contains sharps without risk of spillage, and is well labelled.
- No healthcare waste other than sharps should be deposited in sharps containers. When a disposable syringe is used, the packaging should be placed in the general waste bin and the used syringe in the sharps container.
- Syringes and needles must be discarded of immediately following use without needles being removed from syringe, recapped, bent or broken before disposal (except where the healthcare facility has appropriate needle cutters/removers in place).
- The whole combination must be inserted into the safety box directly after use. If removal of the needle is required, special care must be taken.

Color Coding

The color coding system for HCW as recommended by the Nigeria National Healthcare Wastes Management Guidelines document is black, yellow and red in primary healthcare facilities, and black, yellow, red, and brown in secondary and tertiary healthcare facilities, and is one of the efficient ways of achieving segregation of waste and for sorting out items such as paper, plastic, glass and metal for recycling.

Color coding for plastic bags should correspond or match whenever possible the waste containers.

It is essential that clinical and related wastes are properly segregated, packaged, labelled, handled and transported to minimize risk to waste handlers and the community, such as needle stick injuries and transmission of infectious diseases.

Recommended color coding system for primary HCFs in Nigeria

Black	Yellow
Non-risk waste of category	• infectious waste and highly infectious waste • sharps collected in yellow, puncture-proof containers

Recommended color coding system for secondary HCF in Nigeria

Black	Yellow	Red	Brown
Non-risk waste of category	• infectious waste and highly infectious waste • sharps collected in yellow, puncture-proof containers	• highly infectious waste	• pharmaceutical waste, some chemical waste, heavy metal wastes

Class	Labelling	International symbols
1.	« Danger! Hazardous infectious waste »	
2.	« Danger! Contaminated sharps, do not open »	
3.	« Danger! Anatomical waste, to be incinerated or deeply buried »	
4.	« Danger! To be discarded by authorized staff only »	
5.	« Danger! Highly infectious waste, to be pre-treated »	
6.	« Danger! Radioactive waste »	

Courtesy: Draft National Healthcare Waste Management Guidelines for Nigeria

- All waste bags or containers should be labelled with basic information in English and the local language of the area where the HCF is located. Basic label information should include type of waste in the container; name of the ward/facility, date of collection and, warning of hazardous nature.
- Provide Color-coded refuse bags & bins (Black, yellow and red for the primary healthcare facilities) and (black, yellow, brown and red for the General Hospitals.

- Ensure the provision of Sharps boxes to the healthcare facilities, and these must be available at the points of wastes generation.
- Introduce segregation code of practice to be followed in each hospital.

- Training - Continuous training of staff.
- Reinforce on-job training and supervision.

HCW Collection

After proper segregation is performed, it is important that routine collection of waste is conducted. Health care waste collection must be performed on a regular schedule by designated personnel and carried out along well-defined routes within the HCF.

- When full, all health care waste containers must be sealed to prevent spilling during handling and transportation
- Bins/boxes and collection receptacles must not be overfilled and must be transported in carts well fitted to prevent spillages.

Courtesy: JSI/MMIS

- Sanitary staff and cleaners should always wear Personal Protective Equipment (PPE) including, as a minimum, overalls or industrial aprons, nose mask, heavy-duty gloves, and safety boots.
- Regulations and supervisory arrangements must be set in-place to ensure that personnel utilize PPE when on duty.
- No bags should be removed unless they are labelled with their point of production (hospital and ward or department) and contents.
- The bags or containers should be replaced immediately with new ones of the same type.
- A supply of fresh collection bags or containers should be readily available at all locations where waste is produced.
- Containers for waste collection should meet the following requirements:
    - Non-transparent; Impervious to moisture;
    - Sufficient strength to prevent easy damage during handling or use;
    - Leak resistant;
    - Close-fitted lids;
    - Fitted with handles for easy manipulation;
    - Light weight and convenient;
    - Designed to minimize physical contact.

- Nursing and other clinical staff should ensure that waste bags are tightly sealed when three- quarters full by tying the neck or sealing tag. Bags should not be closed by stapling.
- Sealed sharps containers should be placed in a labelled, yellow infectious health-care waste bag before removal from the hospital ward or department.
- Wastes should not be allowed to accumulate at the point of production.
- Routine programs for waste collection should be established as part of the hospital's waste management plan (daily or as frequently as is necessary) and should be transported to a central storage site or treatment site.
- Collection carts should be easy to load and unload, have no sharp edges that could damage waste bags or containers, and be easy to clean.
- Water and hand-wash materials must be readily available for healthcare waste handlers to wash their hands after handling HCW.

HCW Storage

Storage is the time lapse between the productions of the waste until collection for final disposal. Consideration for storage must be based on the classification or type of waste being dealt with and the potential risk of infection to health-care workers, waste disposal staff, and the public.

The following rules should be observed for proper storage of HCW in Nigeria:

- Initial packaging should take place where HCW is generated.
- Non-risk HCW should always be stored in a separate location from the infectious / hazardous HCW in order to avoid cross-contamination.

The Nigeria National Guidelines for HCWM recommends the under-listed characteristics for infectious and hazardous waste storage facilities for health-care waste:

- Impermeable, hard-standing floor with good drainage;
- Easy to clean and disinfect, with a water supply;
- Easy access for staff in charge of handling the waste;
- Locked to prevent access by unauthorized persons;
- Easy access for waste-collection vehicles;
- Protected from the sun;
- For storage periods more than 24 hours, temperature must not exceed +10 degrees Celsius. (The storage of biological waste might require much lower temperatures);
- Inaccessible for animals, insects, and birds;
- Good lighting and at least passive ventilation;
- Outside the proximity of fresh food stores or food preparation areas; and,
- Convenient to a supply of cleaning equipment, protective clothing, and waste bags or containers.
- Provide secured storage with adequate chambers for infectious, non-infectious, and food waste

HCW Handling/Internal Transport

Health-care waste should be transported by the quickest possible route, which should be planned before the journey begins.

- Every effort should be made to avoid unnecessary handling of HCW;
- Hazardous HCW must be packaged in a closed yellow or red bag, tied and placed into sturdy container
- Waste that has the potential to leak must be double bagged
- All waste bags should be in place and intact at the end of the transportation

- Provide secured storage with adequate chambers for infectious, non-infectious, and food waste
- Personnel handling/transporting HCW must wear PPE (i.e. gloves, lab coat, etc.)
- Have spill clean-up material available or, at minimum, know where it is (i.e. absorbent pads, bleach solution, etc.)

Off-site Transport

When transporting waste off-site, it is important that:

- Vehicles should be kept locked at all times, except when loading or unloading;
- When transporting hazardous waste, vehicles and containers must be cleaned and disinfected daily with an appropriate disinfectant;
- Waste bags should be placed in containers (e.g. cardboard boxes or wheeled, rigid, lidded plastic or galvanized bins), before being placed directly into the transportation vehicle;
- Any vehicle used to transport health care waste should fulfil the following design criteria:
    - Suitable size for the amount of waste;
    - designed such that the load is retained even if the vehicle is involved in a collision;
    - include a system for securing the load during transport;
    - possess a separate compartment in the vehicle for spare plastic bags, suitable protective clothing, cleaning equipment, tools, disinfectant, and "spill," and,
    - able to be easily cleaned and have no sharp edges to damage waste containers.
- Provide securely designed transport vessel for off-site transport

HCW Treatment

Proper treatment and disposal of healthcare waste is necessary to ensure that its impact on the environment and human health is minimized or eliminated. Unfortunately, environment friendly, safe and affordable options for treatment and disposal are not readily available for every situation in Nigeria.
The first step in HCWM is to ensure that all non-risk (general) waste is safely sent to the municipal waste management system. The remaining fraction of hazardous and highly hazardous health care waste should be treated and disposed appropriately to meet the following objectives:

- ✓ destruction of viable infectious organisms
- ✓ destruction/transformation of used or expired pharmaceuticals and chemicals
- ✓ destruction of sharps and other materials capable of causing physical injuries
- ✓ decomposition of radioactive waste materials
- ✓ final disposal / destruction of body parts, tissues, blood and other organic material
- ✓ avoidance or minimization of secondary impacts from the disposal system

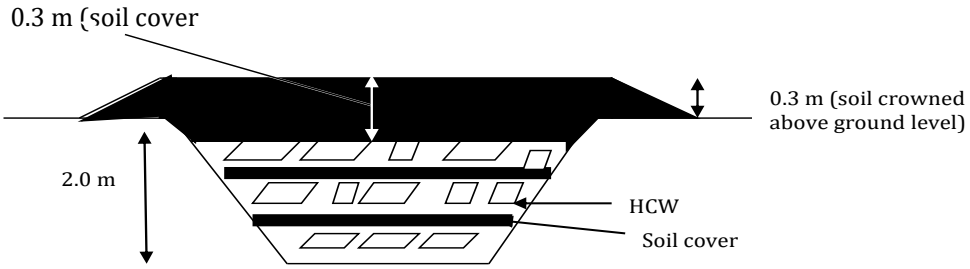
Decisions regarding treatment technology should be made at hospital level; however responsible personnel for waste management in the hospital should be in close contact with the regulatory/supervisory authority.

- All non-hazardous HCW not designated for recycling should be collected and managed with the general *municipal waste.*
- Burning in low temperature incinerators, preferably a well-designed, constructed and managed **De-Montfort Waste Disposal Unit (DWDU)** – is satisfactory whenever this can be made available for a primary health center. However, this option is not satisfactory environmentally and should be only considered a short-term solution to the HCW treatment.

A De-Montfort Waste Disposal Unit

Disposal in Burial Pit

Burying HWCM in specially constructed pits (lined with impermeable materials such as clay) is for the present moment probably the most affordable and acceptable option for PHCs. This option has the advantage that it can be made available immediately, is cheap to provide, and the personnel can be easily trained on how to manage it in an environmentally sound manner. Of course, it has its drawbacks—pollution of air, soil and water; spread of diseases by rodents and insect vectors (when soil-cover is not appropriately utilized); trespass by human beings and animals. A guideline on the safe construction and operation of a HCW burial pit (as designed by the consultant) is provided below.



Disposal Procedural Steps

- Provide secured appropriately lined pits for final disposal of incineration ash.
- Transportation of incineration ash and non-hazardous and treated hazardous waste (that has been rendered non-infectious) to engineered designated (sanitary) land fill sites.

Resources & Human Capacity Development

- Ensuring mandatory budgeting for HCWM by Healthcare Facilities
- Development of the capacity of healthcare personnel, HCW waste handlers, and HCW waste treatment personnel to appropriately manage HCWM
- Regular trainings and re-trainings of personnel on HCWM techniques
- Provision of awareness materials on HCWM in healthcare facilities and ensuring that they are put in strategic locations in the healthcare facility, and at the points of HCW generation.

- Ensuring that HCWM Committees are setup in healthcare facilities and that they carry out their functions effectively (the Chief Medical Officer of the facility must be the leader of this committee)
- Ensuring that all healthcare facilities appoint/designate a specific officer to be in-charge of HCWM
- Development of supervisory capacity and monitoring mechanism for the implementation of a well-developed HCWM Plan for healthcare facilities (including records keeping mechanisms)
- Awareness creation and capacity development in the communities on the dangers associated with improper HCW handling and disposal
- Support and development of mechanisms for private institutions to be involved in HCW collection, transport, treatment and disposal process
- Standardization of transport facilities for the management of HCW

Recordkeeping

- The HCWM Officer must have a fully completed internal HCW manifest ready before transporting the waste to the designated disposal location.
- All details (type, weight, quantity, etc.) of the HCW must be filled prior to movement of the wastes for disposal
- A copy of the HCW manifest must be kept at the HCF a copy by the HCW Officer.

Spillages

Spills should be cleaned-up if:

- The supplies to absorb and bag the spilled material is available
- Use Bleach, diluted 1:10 with water: to decontaminate the spill area and to clean/decontaminate equipment used in spill response. Cover the spilled area with absorbent pad or paper towels and then pour diluted bleach over the towels; let to stand for 30 minutes and the clean-off
- To reduce the number of employees at risk of exposure: Restrict access to the area of the spill; Provide warnings of hazards and advice about special requirements
- Proper PPE must be worn whilst cleaning spills

Procedures for Reporting and Tracking Spillages

- Inform the immediate supervisor of the unit if any personnel are involved in a spill or cleanup.
- The supervisor must immediately maintain restriction to the area of the accident.
- Information of the spill should be passed to all personnel in a calm and organized manner.
- Personnel of the unit in which the accident occurred should implement appropriate clean-up. It is recommended that health care facilities be provided with US EPA Mercury Clean-up Kits (one of the most effective mercury clean-up kits; containing procedures for best handling of spills and environmentally sound disposal of broken chemical containers).
- The incident should be finally communicated to the records department of the health facility for documentation and lessons learned.

Note: If it is a larger chemical or non-chemical spill there will be an increase in personnel required for effective clean-up and a more organized clean-up approach.

Prevention of Spillage

Containers and items should be placed in secure areas and marked “breakable handle with care”. Behavioural patterns are a factor of good or ineffective safety practices. Personnel need hospital chemical safety trainings and should be educated on the use of material safety data sheets (MSDS) for the identification of chemical in their facilities.

Annex 3

QUESTIONNAIRE ON HEALTH CARE WASTE MANAGEMENT PRACTICES IN PRIMARY HEALTH CARE FACILITIES IN ANRiN STATES

Name:
Designation: Date:
Name of State:

KNOWLEDGE & CAPACITY

1. Are you aware of the National Health Care Waste Management Plan and guidelines of the Government of Nigeria and do you have copies?

   Response:_____
   _____
   _____

2. Has any training on the Nigeria Strategic Health Care Waste Management Plan and guidelines issued by Government of Nigeria in 2013 been conducted in your state in the last two years (2015-16 and 2016-17)?

   Response:_____
   _____
   _____

3. Are there any structured HWCM training programs for service providers of primary health care centers in your state?

   Response:_____
   _____
   _____

4. Have any service providers of primary health care centers in your state been trained in Health Care Waste Management? Who provided the training - World Bank supported projects (e.g. NSHIP; SOML; Malaria project; HIV/AIDS project or Polio Project)? Or other development partners? Specify

   Response:_____
   _____
   _____

5. Are there any training manuals or materials available on health care waste management at SPHCDA in your state?
   Response:_____
   _____
   _____

6. Do the Primary Health Care facilities in your state have posters or IEC materials guiding on correct practices for segregation, disinfection and disposal of healthcare waste?

   Response:_____
   _____
   _____

SEGREGATION PRACTICES

7. What are the different types of waste generated in Primary Health Care facilities in your state?

   Response:_____
   _____
   _____

8. What is the approximate volume (in kilograms or other appropriate measure) of
   a. Municipal (e.g. food, paper, bottles/cans etc.) waste generated per day in one PHC in your state?
      Response: _____

   b. Sharps (e.g. needles/syringes, scalpels, blades, broken glass etc. in number of safety boxes) generated per day in one PHC in your state?
      Response: _____

9. Do health facilities in your state use color coded bins for waste disposal?
   Response:_____
   If yes, what is the color of bins for:
   a. collecting municipal waste
   b. Response:_____
   c. sharps generated in a PHC in your state?
      Response: _____

DISINFECTION

10. How is infectious waste (e.g. anatomical parts, blood, gauze, bandages etc.) usually disinfected at PHC level in your state?
    Response: _____

11. Is the municipal waste from PHCs also disinfected in your state?
    Response: _____

COLLECTION

12. Is there a dedicated place earmarked for collection of the following waste for disposal in a PHC in your state, if yes, where?
    a. Municipal waste? Response: _____
    b. Sharps? Response: _____
    c. Other infectious waste? Response: _____

13. Who is responsible for collecting waste from all sections of PHC facilities in your state?
    Response: _____

14. How frequently is all the waste from all departments in a PHC collected?
    Response: _____

ON-SITE STORAGE

15. What is the maximum time HCWs are stored before being treated / disposed of on-site or transported off-site.
    Response: _____

16. Do you have storage facilities for HCW in PHC facilities in your state?
    Response: _____

TRANSPORTATION

17. Are there dedicated vehicles for the transportation of health care waste from PHC facilities in your state? Specify.
    Response: _____

DISPOSAL

18. How are the following wastes disposed in PHCs in your state?
    a. Municipal waste?
       Response: _____
    b. Sharps?
       Response: _____
    c. Other infectious waste?
       Response: _____

19. What is the usual frequency of waste disposal from PHC facilities in your state?
    Response: _____

20. How is waste usually transported from PHC facilities to dumpsites in your state?
    Response: _____

RECORD KEEPING

21. Is there an internal Health Care Waste Manifest (i.e. details on type, volume and weight, generated; type and volume transported, commissioned waste contractor; volume treated and disposed etc.) for PHC facilities in your state?
    Response: _____

22. Who is responsible for the Health Care Waste Manifest in PHC facilities in your state?
    Response: _____

23. Do PHC facilities in your state have waste management committees or a staff designated to handle HCW?
    Response: _____

MONITORING AND EVALUATION

24. Do PHC facilities in your state have/ implement a monitoring plan to check for effectiveness and compliance with regulatory requirements?
    Response: _____

INFRASTRUCTURE & FINANCING

25. What proportion of PHCs in your state on an average lack
    a. IEC materials for practicing HCWM? Response: _____
    b. Template for HCW data entry Response: _____
    c. Color coded waste collection bins? Response: _____
    d. Personal protective gear (Aprons, boots, masks) for waste handlers? Response: _____
    e. Consumables such as color-coded bags, gloves, hypochloride/bleach? Response: _____
    f. Dedicated waste collection room? Response: _____
    g. Deep burial pits? Response: _____

26. Is any dedicated budget available to PHCs per annum for implementation of HWCM as per the National Strategic Health Care Waste Management Plan and Guidelines issued by Government of Nigeria?
    Response:_____
_____

Thank you for your cooperation.

Annex 4

INTEGRATED HWCM MONITORING PLAN

An effective control of HCW and monitoring of HCFs should be carried out regularly, in order to maintain and improve management of the waste. Measures should be adopted to ensure that problems and risks involved are identified while enhancing safety and preventing the development of future problems.

Compliance and enforcement with legislation shall be ensured through co-coordinating and regulatory bodies. These bodies should include NPHCDA, FMEnv, SEPAs, and SPHCDAs. They shall undertake regular monitoring of these facilities, with the aim of establishing long-term sustainability in HCWM.

The bodies shall ensure compliance with the following:

- Segregation i.e. sharps, pathological, hazardous and radioactive waste from other waste. Picture stickers shall be used in rural areas for identification;
- Storage into appropriate, labelled and adequate containers for both internal and external storage;
- Collection routines including packaging and labelling;
- On-site treatment procedures like sterilisation, disinfection and incineration. It should be ensured that the incinerator plant continually burns its materials at a temperature of 1200°C and above to eliminate the release of dioxins;
- Transportation i.e. needs and conditions including certification;
- Worker safety measures; and
- Appropriate disposal techniques and approved disposal sites.

To ensure effective record keeping, each health institutions shall keep records on:

- The type and volume or weight of health care waste generated;
- The means of transportation, type and volume transported;
- Commissioned waste contractor (company name, type of license; and
- Disposal method(s) - volume incinerated, volume treated and disposed.

Table 7.0 Summary of monitoring plan with indicative costs

S/N	WHAT IS BEING MONITORED	WHY	WHEN	HOW	INSTITUTION RESPONSIBLE	COST ($USD)
1	HCWM Monitoring and evaluation program	To check effectiveness and compliance	Quarterly	Verification of monitoring and evaluation program reports	PIU/NPHCDA/SPHCDA/SMOH/LGAs	

2	HCWMP implementation i) Trainings ii) Use of SOPs iii) Internal Packaging and Storage iv) External packaging and storage v) Transportation of HCW vi) Treatment and disposal of HCW	To verify if HCWMP is being implemented, and to check implementation progress.	Bi-annual	Organized supervisory missions; stakeholder conference meetings	PIU/NPHCDA/SPHCDA/SMOH/LGAs contractors and consultants.	
Total						

Annex 5

INTEGRATED TRAINING PLAN FOR HEALTHCARE WASTE MANAGEMENT

Training Cascade

Capacity Needs	Training Level	Trainer	Trainee Group	Duration	Cost ($USD)
• Basic knowledge about medical waste • Proper handling of healthcare waste; • Establishing a healthcare waste management plan and system; • Operationalizing a healthcare waste maintenance plan	State Level	1. PMU staff 2. Identified Master Trainers	1. PIU officials 2. SMOH officials 3. SPHCDA officials	1 day	
	LGA Level	1. Identified PIU officials 2. Identified SMOH officials 3. Identified SPHCDA officials	LGA officials	1 day	
	Ward Level	Identified LGA officials	PHC nominee	1 day	
	PHC Level	PHC nominee	PHC staff	1 day	

State Training Plan

Name of ANRiN State	No: of officials to be trained			No: of batches @20 persons per batch	Total no: of Trainers per batch @ 2 per batch	Cost ($USD)
	PIU	SMOH	SPHCDA			

LGA Training Plan

Name of LGA	No: of officials to be trained	No: of batches @20 persons per batch	Total no: of Trainers per batch @ 2 per batch	Cost ($USD)

Ward Training Plan

Name of LGA	No: of officials to be trained	No: of batches @20 persons per batch	Total no: of Trainers per batch @ 2 per batch	Cost ($USD)

PHC Training Plan

Name of PHC	No: of officials to be trained	No: of batches @20 persons per batch	Total no: of Trainers per batch @ 2 per PHC batch	Cost ($USD)

Training Schedule

Trainee batch	Month 1				Month 2				Month 3				Month 4				Month 5				Month 6			
	W1	W2	W3	W4	W1	W2	W3	W4	W1	W2	W3	W4	W1	W2	W3	W4	W1	W2	W3	W4	W1	W2	W3	W4
State																								
LGA																								
Ward																								
PHC																								

Annex 6

Integrated Operating Cost per PHC per month for HWCM

Item	Unit cost	No: of Units	Total Cost ($USD)
Color coded bins			
Color coded plastic bags			
Puncture proof sharps container			
Weighing Machines			
Bleach			
Personal Protective Equipment (PPEs) i.e. Gloves, Personal Boots, Safety Goggles, Mask etc.			
Register for maintaining records			
Sub-Total			
Contingency			
Grand Total			