

Annex 1A. Essential Packages as They Appear in Volumes 1 through 9

Supplemental material for: Jamison, D.T., A. Alwan, C.N. Mock, R. Nugent, D.A. Watkins, and others 2018. "Universal Health Coverage and Intersectoral Action for Health." In *Disease Control Priorities* (third edition). Volume 9, *Disease Control Priorities: Improving Health and Reducing Poverty*, edited by D.T. Jamison, H. Gelband, S. Horton, P. Jha, R. Laxminarayan, C.N. Mock, and R. Nugent. Washington, DC: World Bank.

Package 1 Essential Interventions for Maternal and Newborn Health

	Delivery platform ^a		
	Community worker or health post	Primary health center	First-level and referral hospitals
<i>Pregnancy</i>	1. Preparation for safe birth and newborn care; emergency planning		
	2. Micronutrient supplementation ^b		
	3. Nutrition education ^b		
	4. IPT ^b		
	5. Food supplementation ^b		
	6. Education on family planning	1. Management of unwanted pregnancy ^b	
	7. Promotion of HIV testing	2. Screening and treatment for HIV and syphilis ^b	
		3. Management of miscarriage or incomplete abortion and postabortion care ^b	
		4. Antibiotics for pPRoM ^b	
		5. Management of chronic medical conditions (hypertension, diabetes mellitus, and others)	
	6. Tetanus toxoid ^b		
	7. Screening for complications of pregnancy ^b		
	8. Initiate antenatal steroids (as long as clinical criteria and standards are met) ^b	1. Antenatal steroids ^b	
	9. Initiate magnesium sulfate (loading dose) ^b	2. Magnesium sulfate ^b	
	10. Detection of sepsis ^b	3. Treatment of sepsis ^b	
		4. Induction of labor postterm ^b	
		5. Ectopic pregnancy case management ^b	
		6. Detection and management of fetal growth restriction ^b	
<i>Delivery (woman)</i>	8. Management of labor and delivery in low-risk women by skilled attendant ^b	11. Management of labor and delivery in low-risk women (BEmNOC) including initial treatment of obstetric and delivery complications prior to transfer ^b	7. Management of labor and delivery in high-risk women, including operative delivery (CEmNOC) ^b

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Package 1 Essential Interventions for Maternal and Newborn Health (continued)

	Delivery platform ^a		
	Community worker or health post	Primary health center	First-level and referral hospitals
<i>Postpartum (woman)</i>	9. Promotion of breastfeeding ^b		
<i>Postnatal (newborn)</i>	10. Thermal care for preterm newborns ^b	12. Kangaroo mother care ^b	8. Full supportive care for preterm newborns ^b
	11. Neonatal resuscitation ^b		
	12. Oral antibiotics for pneumonia ^b	13. Injectable and oral antibiotics for sepsis, pneumonia, and meningitis ^b	9. Treatment of newborn complications, meningitis, and other very serious infections ^b
		14. Jaundice management ^b	

Note: Red type denotes urgent care, blue type denotes continuing care, black type denotes routine care. In this table, the community worker or health post consists of a trained and supported health worker based in or near communities working from home or a fixed health post. A primary health center is a health facility staffed by a physician or clinical officer and often a midwife to provide basic medical care, minor surgery, family planning and pregnancy services, and safe childbirth for uncomplicated deliveries. First-level and referral hospitals provide full supportive care for complicated neonatal and medical conditions, deliveries, and surgeries.

BEmNOC = basic emergency newborn and obstetric care; CEmNOC = comprehensive emergency newborn and obstetric care; HIV = human immunodeficiency virus;

IPTp = intermittent preventive treatment in pregnancy; pPRoM = preterm premature rupture of membranes.

a. All interventions listed for lower-level platforms can be provided at higher levels. Similarly, each facility level represents a spectrum and diversity of capabilities. The column in which an intervention is listed is the lowest level of the health system in which it would usually be provided.

b. The intervention effect was included in the Lives Saved Tool (LlST).

Package 2 Essential Interventions for Child Health

			Delivery platform ^a		
Community worker or health post		Primary health center	First-level and referral hospitals		
1. Promote breastfeeding and complementary feeding ^b					
2. Provide vitamin A, zinc, and food supplementation ^b					
3. Immunizations ^{b,c}					
4. Cotrimoxazole for HIV-positive children ^b		1. Antiretroviral therapy for HIV-positive children ^b			
5. Education on safe disposal of children's stools and handwashing ^b					
6. Distribute and promote use of ITNs or IRS ^b					
7. Detect and refer severe acute malnutrition ^b		2. Treat severe acute malnutrition ^b		1. Treat severe acute malnutrition associated with serious infection ^b	
8. Detect and treat serious infections without danger signs (iCCM ^d); refer if danger signs ^b		3. Detect and treat serious infections with danger signs (IMCI ^d) ^b		2. Detect and treat serious infections with danger signs with full supportive care ^b	

Note: Red type denotes urgent care, blue type denotes continuing care, black type denotes routine care. In this table, the community worker or health post consists of a trained and supported health worker based in or near communities working from home or a fixed health post. A primary health center is a health facility staffed by a physician or clinical officer and often a midwife to provide basic medical care, minor surgery, family planning and pregnancy services, and safe childbirth for uncomplicated deliveries. First-level and referral hospitals provide full supportive care for complicated neonatal and medical conditions, deliveries, and surgeries.

HIV = human immunodeficiency virus; iCCM = integrated community case management; IMCI = integrated management of childhood illness; IRS = indoor residual spraying; ITN = insecticide-treated net.

a. All interventions listed for lower-level platforms can be provided at higher levels. Similarly, each facility level represents a spectrum and diversity of capabilities. The column in which an intervention is listed is the lowest level of the health system in which it would usually be provided.

b. The intervention effect was included in the Lives Saved Tool (LiST).

c. Immunizations included in the standard package are those for diphtheria, pertussis, tetanus, polio, bacillus Calmette-Guerin, measles, hepatitis B, Haemophilus influenzae type b, pneumococcus, rotavirus.

d. Components of iCCM are treatments for diarrhea, pneumonia, and malaria; and of IMCI are treatments of diarrhea, pneumonia, malaria, AIDS (acquired immune deficiency syndrome), other infections, and severe acute malnutrition.

Package 3 Essential Package of Interventions for School-Age Children (Ages 5–14 Years)

Health area	Population	Community	Primary health center	School	Benefit of delivering interventions in schools
Physical health	—	Deworming	Deworming	Deworming	In endemic areas, regular deworming (following WHO guidelines) can be done inexpensively in schools now that the majority of deworming drugs are donated; there are reported benefits in school attendance as a result.
		Insecticide-treated net promotion	Insecticide-treated net promotion	Insecticide-treated net promotion	Education concerning the use of insecticide-treated nets in endemic areas is important because schoolchildren tend to use nets less often than do mothers and small children.
		Tetanus toxoid and HPV vaccination	Tetanus toxoid and HPV vaccination	Tetanus toxoid and HPV vaccination	Schools can be a good venue for administering tetanus boosters, which benefit not only young people themselves but also babies born to those young women.
		Oral health promotion	Oral health promotion and treatment Vision screening and provision of glasses	Oral health promotion Vision screening and treatment	Education on oral health is important; poor households generally cannot afford dental treatment. Vision screening and provision of inexpensive ready-made glasses boost school performance.
Nutrition	—	Micronutrient supplementation	—	Micronutrient supplementation	—
		Multifortified foods	—	Multifortified foods	—
				School feeding	School meals promote attendance and education outcomes.

Source: Fernandes and Aurino 2017 (chapter 25 in this volume).

Note: — = not available; HPV = human papillomavirus; WHO = World Health Organization. School-age children do not regularly come in contact with the health system unless they seek treatment. With the remarkable success of the Millennium Development Goals in increasing school enrollment and participation and the continuing focus on universal education with the Sustainable Development Goals, it makes sense to use schools to promote health in this age group and to deliver preventive and curative health interventions. These interventions are affordable and also the highest priority, given their health and educational benefits. Table 1.4 presents the cost of components of the essential package of investments for school-age children.

Package 4 Essential Package of Investments for Adolescents (Ages 10–19 Years, Approximately)

Health area	Population	Community	Primary health center	School	Benefit of targeting interventions to adolescents
Physical health	Healthy lifestyle messages: tobacco, alcohol, injury, accident avoidance, and safety	Adolescent-friendly health services	Adolescent-friendly health services: provision of condoms to prevent STIs, provision of reversible contraception, treatment of injury in general and abuse in particular, screening and treatment for STIs	Healthy lifestyle education, including accident avoidance and safety	National media messages on healthy life choices in formats designed to appeal to adolescents, combined with national policy efforts to support healthy choices (limiting access of adolescents to products most harmful to their health)
	Sexual health messages	—	—	Sexual health education	Additional health education in schools aimed at issues relevant to older ages, intended to supplement messages for younger children in the school-age package
				Adolescent-friendly health services	Provision of adolescent-friendly health services within schools or within health care facilities in ways that respect adolescent needs
Nutrition	Nutrition education messages	—	—	Nutrition education	—
Mental health	Mental health messages	—	Mental health treatment	Mental health education and counseling	—

Source: Horton and others 2017 (chapter 26 in this volume).

Note: — = not available; STI = sexually transmitted infection. Adolescents are the hardest group to reach because many are no longer in school and feel uncomfortable accessing health services predominantly designed for adults. They may fear lack of confidentiality, and in some cases (such as teen pregnancy) may be stigmatized by health care workers. The total costs of the school-age package are about US\$10 per child in the 5–14 years age group and US\$9 per adolescent in the 10–19 years age group. Table 1.4 presents the cost of components of the essential package of investments for adolescents.

Package 5 Essential Interventions for Reproductive Health

	Delivery platform ^a		
	Community workers or health post	Primary health center	First-level and referral hospitals
Information and education	1. Sexuality education		
	2. Nutritional education and food supplementation		
	3. Promotion of care-seeking for antenatal care and delivery		
	4. Prevention of sexual and reproductive tract infections	1. Detection and treatment of sexual and reproductive tract infections	
	5. Prevention of female genital mutilation (may be for daughters of women of reproductive age)	2. Management of complications following female genital mutilation	
	6. Prevention of gender-based violence	3. Post-gender-based violence care (prevention of sexually transmitted infection and HIV, emergency contraception, support and counseling)	
	7. Information about cervical cancer and screening	4. Screening and treatment of precancerous lesions, referral of cancers	1. Management of cervical cancer
Service delivery	8. Folic acid supplementation ^b		
	9. Immunization (human papillomavirus, hepatitis B)		
	10. Contraception: Provision of condoms and hormonal contraceptives ^b	5. Tubal ligation, vasectomy, and insertion and removal of long-lasting contraceptives ^b	2. Management of complicated contraceptive procedures

Note: Red type denotes urgent care, blue type denotes continuing care, and black type denotes routine care. In this table, the community worker or health post consists of a trained and supported health worker based in or near communities working from home or a fixed health post. A primary health center is a health facility staffed by a physician or clinical officer and often a midwife to provide basic medical care, minor surgery, family planning and pregnancy services, and safe childbirth for uncomplicated deliveries. First-level and referral hospitals provide full supportive care for complicated neonatal and medical conditions, deliveries, and surgeries.
HIV = human immunodeficiency virus.

a. All interventions listed for lower-level platforms can be provided at higher levels. Similarly, each facility level represents a spectrum and diversity of capabilities. The column in which an intervention is listed is the lowest level of the health system in which it would usually be provided.

b. The intervention effect was included in the Lives Saved Tool (LiST).

Package 6 Essential HIV/AIDS Intervention Package, by Delivery Platform

Intervention type	Delivery platforms ^a			
	Nationwide policies and regulations	Community health post or pharmacy	Primary health center	First-level hospital Second- and third-level hospitals
<i>Prevention</i>				
Legal and human rights	1. Laws and policies to protect and reduce stigma for key populations, with full decriminalization of LGBT population*	2. Gender-based violence counseling and rape-response referral (medical and justice)		
Structural interventions	3. Universal access to HIV testing, with immediate linkage to care and treatment and intensified outreach to populations at higher risk of infection 4. Universal access to drug substitution therapy for addiction 5. Brothels: Condoms required* 6. Needle exchange encouraged*			
Direct (biological) prevention			7. PrEP for discordant couples 8. Male circumcision service provision* 9. PMTCT (Option B+)	
Behavioral interventions: Prevention		10. HIV education and counseling for pregnant women, sex workers, IDUs, GBT males, and HIV+ persons and their partners* 11. Access to needle exchange for IDU* 12. Condom distribution* 13. Partner notification* 14. Adherence support for high-risk or failing patients		
Social marketing: Information, education, and communication	15. Promotion of condoms, VMMC, and testing at national and facility-based levels*			

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Package 6 Essential HIV/AIDS Intervention Package, by Delivery Platform (continued)

Intervention type	Delivery platforms ^a			
	Nationwide policies and regulations	Community health post or pharmacy	Primary health center	First-level hospital Second- and third-level hospitals
<i>Treatment</i>				
Treatment	16. Policies and guidelines to support all steps of HIV care continuum, including expanded testing through diverse strategies; linkage to care; ART initiation with support for adherence and retention; and performance and efficiency optimization through data-driven management, task shifting, and decentralization, as appropriate for level of epidemic	17. Community-based HIV testing and counseling (for example, through mobile units or venue-based testing)* 18. Household HIV testing and counseling in high-prevalence settings 19. Referral and navigation of HIV+ individuals to HIV care sites to ensure linkage	20. Provider-initiated counseling and HIV testing (as well as TB and STI testing) for all in contact with health care system in high-prevalence settings, including prenatal care* 21. ART initiation 22. Support for adherence and retention 23. Laboratory viral load monitoring	
Behavioral and structural interventions: Care		24. Adherence support including adherence clubs, community-based ART groups, text reminders, and other means 25. Nutrition, transportation, and financial reimbursement	26. Case manager	

Note: Interventions shown in orange indicate areas that are relatively neglected by governments. ART = antiretroviral treatment; GBT = gay, bisexual, or transgender; HIV = human immunodeficiency virus; HIV+ = HIV-positive; IDU = injection drug users; LGBT = lesbian, gay, bisexual, and transgender; Option B+ = a three-drug ART regime in pregnancy and postpartum for HIV-positive mothers; PMTCT = prevention of mother-to-child transmission; PrEP = preexposure prophylaxis; STI = sexually transmitted infection; TB = tuberculosis; VMMC = voluntary male medical circumcision.

a. All interventions listed for lower-level platforms can be provided at higher levels. Similarly, each facility level represents a spectrum and diversity of capabilities. The column in which intervention is listed is the lowest level of the health care system in which it would usually be provided.

Interventions marked with an asterisk (*) should be closely integrated with STI prevention and treatment interventions.

Package 6 Essential STI Intervention Package, by Delivery Platform

Platforms for intervention delivery						
	Nationwide, regional, and local health systems, policies and regulations	Community health post ^a	Pharmacies ^b	Primary health and reproductive health clinics ^c	First-level hospitals	Second-, and third-level hospitals ^d
Structural	<p>1. Organize, coordinate, and where possible, integrate programs for STI and HIV/AIDS into one national center and into regional centers, with essential funding and system support for local programs*</p> <p>2. National policies to enable prevention and treatment efforts for key populations*</p>	<p>3. Linkages to clinical services for FSW, MSM, sex partners of persons with STI/HIV*</p> <p>4. Training for police to ensure access to services for key populations, especially needle exchange*</p> <p>5. Home-based services and Internet use for partner notification, HIV diagnosis, and initiating HIV treatment in patients with HIV infection*</p>	<p>6. Training on syndromic treatment of STIs by pharmacists</p>			
Behavioral prevention	<p>7. Social marketing linked to education on STI/HIV risks, and on sexual health, including condom and safe sex promotion*^e</p> <p>8. National curriculum and policy regarding sexual health education (including online education)*</p>	<p>9. School-based sexual health education (STI/HIV risks, condom use, substance abuse, key vaccines, VMMC)*</p> <p>10. Condom promotion; Needle exchange for IDU*^f</p>				
Biomedical prevention	<p>11. Guidelines, funding, and social marketing for HPV and HBV vaccines; and for VMMC (adolescents, adults, infants)</p>	<p>12. School-based and health post provision of HPV and HBV vaccines, and linkage to or provision of VMMC services</p> <p>13. Access to needle exchange for IDU*</p> <p>14. Screening and treatment for major STIs among prison populations</p> <p>15. Preexposure antimicrobial prophylaxis in high risk populations*</p>		<p>16. Vaccine provision (HPV, HBV) (females and males)</p> <p>17. VMMC*</p> <p>18. Visual inspection with acetic acid for cervical dysplasia</p>		

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Package 6 Essential STI Intervention Package, by Delivery Platform (continued)

	Platforms for intervention delivery					
	Nationwide, regional, and local health systems, policies and regulations	Community health post ^a	Pharmacies ^b	Primary health and reproductive health clinics ^c	First-level hospitals	Second-, and third-level hospitals ^d
Diagnosis and treatment	19. Guidelines for expedited partner therapy via pharmacies		20. Syndromic-based treatment of STIs		21. Diagnosis and treatment of suspected pelvic inflammatory disease; viral hepatitis; ART, plus detection and treatment or referral of comorbidities, and some HIV comorbidities	22. Diagnosis and treatment of anal, oropharyngeal, and liver cancers; and other HIV comorbidities.

Note: Interventions shown in orange indicate areas that are relatively neglected by governments. Interventions marked with an asterisk (*) should be closely integrated with HIV prevention and treatment interventions.

FSW = female sex workers; HBV = hepatitis B virus; HIV/AIDS = human immunodeficiency virus/acquired immune deficiency syndrome; HPV = human papillomavirus; IDU = injection drug users; MSM = men who have sex with men; PrEP = preexposure prophylaxis; STD = sexually transmitted disease; STI = sexually transmitted infection; VMMC = voluntary male medical circumcision.

a. This platform involves extension of health services beyond conventional clinical platforms to reach high-risk populations.

b. Pharmacies are very accessible (proximity, short wait times, low cost) and provide much of the treatment for STI syndromes. Yet, adherence to STD treatment guidelines in pharmacies has been dismal (Chalker and others 2000). However, training of physicians, midwives, and pharmacy workers can lead to greatly improved STD syndromic management (Garcia and others 2012). After training of pharmacy workers, pharmacy-based STD syndromic management was cost-effective, when only program costs are used, and cost saving from the societal perspective (Adams and others 2003).

c. For this volume, we are assuming that most clinical service delivery at the primary care and reproductive health clinics level is provided by nurses. Primary health clinics in LICs and MICs tend to lack diagnostic testing but also have lower costs and are more accessible than hospitals.

d. Service delivery by physicians, physician assistants, or nurses. Specialist expertise includes reproductive health, laboratory capacity, obstetrics and gynecology, and pediatrics.

e. Curricula should include information on condoms, safe-sex promotion and provision, warning signs, and accessing care.

f. Sanchez and others 1998.

Package 6 Essential Hepatitis Intervention Package, by Delivery Platform

Intervention type	Delivery platform ^a				
	Nationwide policies and regulations	Community health post or pharmacy	Primary health care	First-level hospital	Second- and third-level hospitals
Hepatitis B vaccination	1. Policy for universal newborn and childhood vaccination		2. Delivery of hepatitis B vaccination including birth dose		
Interventions to reduce hepatitis transmission in health care settings	3. Policy for hepatitis B vaccination of health care workers		4. Vaccination of health care workers		
Harm-reduction services for IDU	5. Policy for the provision of harm-reduction services (including injection equipment and opioid substitution therapy) to IDU; use of this wording for HIV or STI safe injection* 6. Community services: IDU-friendly harm reduction with sufficient coverage				
Hepatitis testing services	7. National testing policy identifying priority groups for testing and setting a testing strategy	8. Hepatitis testing of individuals as identified in the national testing policy	9. Referral of persons with hepatitis infection to care		
Hepatitis treatment	10. Treatment guidelines		11. Referral of persons with hepatitis infection to assessment for treatment eligibility 12. Assuming sufficient training, initiation of hepatitis treatment and follow-up	13. Treatment of hepatitis B and C for eligible persons 14. Mentoring of primary-care personnel involved in treatment initiation and follow-up 15. Screening blood transfusion for hepatitis B and C	

Note: Interventions shown in orange indicate areas that are relatively neglected by governments. HIV = human immunodeficiency virus; IDU = injection drug users; STI = sexually transmitted infection. Interventions marked with an asterisk (*) should be closely integrated with HIV/AIDS and STI prevention and treatment interventions.

a. All interventions listed for lower-level platforms can be provided at higher levels. Similarly, each facility level represents a spectrum and diversity of capabilities. The column in which an intervention is listed is the lowest level of the health care system in which it would usually be provided.

Package 7 Essential Tuberculosis Intervention Package, by Delivery Platform

Intervention type	Delivery platform				Second- and third-level hospitals
	Nationwide policies and regulations	Community health post or pharmacy	Primary health center	First-level hospital	
Surveillance and disease detection	1. Passive case finding 2. Active case finding in high-burden countries	3. Symptomatic surveillance 4. Active contact tracing of TB-positive patients			
Data collection and patient tracking	5. Information systems				
Diagnosis and drug sensitivity testing	6. National guidelines promoting the provision of diagnostic labs; diagnostic technology including GeneXpert or culture for drug-susceptible TB; fixed/mobile X-ray; and training	7. Symptomatic diagnosis, local sputum smears 8. Referral for diagnosis and drug-susceptible TB tests	9. Sputum smears 10. Testing of children and household members and HIV+ individuals for case finding in both drug-susceptible and MDR-TB cases 11. Availability of fixed/mobile X-ray for diagnosis	12. GeneXpert/RIF ^a or culture for diagnosis of drug-susceptible TB	
Relapse and reinfection diagnosis					
Treatment of drug-susceptible TB	13. WHO guidelines: four-drug regimen for two months, then two drugs-regimen for four months	14. Provision and observation of treatment after one month at first-level hospital 15. Use of cell-phone SMS to support treatment adherence		16. Treatment of drug-susceptible TB until transmission is reduced (one month), then transfer of treatment to community level	
Treatment of drug-resistant TB	17. WHO guidelines: Multiple-drug regimen after drug-susceptible TB testing for nine months to two years		18. Provision of appropriate second-line drugs, monitoring 19. INH preventive therapy	20. Treatment until sputum is negative or GeneXpert is negative; treatment as outpatients after sputum is negative	21. Specialized treatment for treatment failures, MDR-TB, surgery
Coinfection with HIV		22. Provider incentives to improve quality of TB care	23. Referral or provision of HIV treatment as appropriate 24. Information systems to link diagnostic hospital care to outpatient and community care	25. Separate areas in health facilities for TB to avoid transmission to AIDS patients	

Note: Interventions shown in orange indicate areas that are relatively neglected by governments. HIV = human immunodeficiency virus; HIV+ = HIV-positive; INH = isoniazid; MDR-TB = multidrug-resistant tuberculosis; SMS = short message service (text messaging); TB = tuberculosis; WHO = World Health Organization.
a. GeneXpert/RIF refers to a new test that simultaneously detects *Mycobacterium* TB complex (MTBC) and resistance to rifampin (RIF).

Package 8 Essential Malaria Intervention Package, by Delivery Platform

Intervention type	Delivery platform ^a			
	Population-based health interventions	Community	Health center	Second- and third-level hospitals
<i>All malaria-endemic countries</i>				
Case management: Uncomplicated malaria (or fever)	1. Prophylaxis for travelers	2. Diagnosis with RDTs or microscopy, including parasite species 3. Treatment with ACTs (or current first-line combination) for malaria-positive individuals where diagnosis is available 4. Where both RDTs and microscopy are unavailable and malaria is common, presumptive treatment with ACTs for nonsevere suspected malaria; if severe, ACTs plus antibiotics 5. <i>Plasmodium vivax</i> : Chloroquine alone or chloroquine plus 14-day course of primaquine (for G6PD normal individuals) 6. Case investigation, reactive case detection, proactive case detection (including mass screening and treatment)		
Case management: Severe malaria		7. Single-dose rectal artesunate, then referral to first-level hospital		8. Parenteral artesunate, then full-course ACTs
Vector control: ITNs		9. ITNs available in health centers and antenatal clinics and via social marketing		
<i>Malaria elimination countries</i>				
		10. Mass drug administration to high-risk groups in geographic or demographic clusters 11. Single low-dose primaquine added to first-line treatment		
<i>Malaria control countries</i>				
Vector control: IRS		12. IRS in selected areas with high transmission and entomologic data on IRS susceptibility		
Vector control: Larviciding and water management		13. Larviciding and water management in specific circumstances where breeding sites can be identified and regularly targeted		
Mass drug administration		14. IPTp, IPTi, and SMC Sahel region		

Note: Interventions shown in orange indicate areas that are relatively neglected by governments. ACTs = artemisinin-combination therapies; G6PD = glucose-6-phosphate-dehydrogenase; IPTi = intermittent preventive treatment in infants; IPTp = intermittent preventive treatment of pregnant women; IRS = indoor residual spraying; ITN = insecticide-treated net; RDT = rapid diagnostic test; SMC = seasonal malaria chemoprevention.

a. All interventions listed for lower-level platforms can be provided at higher levels. Similarly, each facility level represents a spectrum and diversity of capabilities. The column in which an intervention is listed is the lowest level of the health care system in which it would usually be provided.

Package 8 Essential Intervention Package for Adult Febrile Illness, by Delivery Platform

Intervention type	Delivery platform ^a				
	Nationwide policies and regulations	Community health post or pharmacy	Primary health center	First-level hospital	Second- and third-level hospitals
Case management: All fevers	1. Standard practice guidelines 2. Essential medicines, including relevant antibacterials		3. Evaluation for malaria with RDT or microscopy (see malaria interventions) 4. If negative for malaria, referral if fever persists beyond seven days	5. Clinical history and examination to identify source of fever 6. Evaluation for malaria and HIV 7. Treatment for the apparent cause and reevaluation after one week	8. Reference diagnostics for major causes of nonmalarial fever
Case management: Severe febrile illness			9. Prereferral antimicrobial according to standard practice guidelines (for example, extended-spectrum cephalosporin)	10. Emergency management of septic shock with intravenous fluids, supplemental oxygen, and antimicrobial according to standard practice guidelines 11. Clinical history and physical examination to identify source of fever 12. Blood culture before antimicrobial; hemoglobin and glucose measurement 13. Treatment of apparent cause	14. Reference diagnostics for major causes of nonmalarial fever
Prevention: Vaccines	15. National policy on typhoid vaccines 16. National policy on control of brucellosis and leptospirosis in livestock				
Prevention: Nonvaccine measures	17. National policies on control of sources of nationally important causes of nonmalarial fever (such as vector control for arbovirus infections) 18. National policies on interruption of transmission of nationally important causes of nonmalarial fever (for example, management of occupational exposure to <i>Coxiella burnetii</i> among abattoir workers)				

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Package 8 Essential Intervention Package for Adult Febrile Illness, by Delivery Platform (continued)

Intervention type	Delivery platform ^a				
	Nationwide policies and regulations	Community health post or pharmacy	Primary health center	First-level hospital	Second- and third-level hospitals
Surveillance	19. Nationwide or sentinel site surveillance to identify major causes of severe febrile illness, especially bloodstream infections 20. Assurance that national recommendations for antimicrobial management of severe febrile illness match etiologic findings				

Note: HIV = human immunodeficiency virus; RDT = rapid diagnostic test.

a. All interventions listed for lower-level platforms can be provided at higher levels. Similarly, each facility level represents a spectrum and diversity of capabilities. The column in which an intervention is listed is the lowest level of the health care system in which it would usually be provided.

Package 9 Essential Intervention Package for Neglected Tropical Diseases, by Delivery Platform

Intervention type	Delivery platform ^a				
	Nationwide policies or regulations	Community health post or pharmacy	Primary health care	First-level hospital	Second- and third-level hospitals
Preventive chemotherapy	1. Integrated guidelines and strategy on the coordinated use of preventive chemotherapy for NTDs	2. Mass drug administration for lymphatic filariasis, onchocerciasis, schistosomiasis, soil-transmitted helminthiases, trachoma, and food-borne trematodiases as appropriate			
Innovative and intensified disease management	3. Integrated guidelines and strategy for skin-related NTDs including (in addition to those listed elsewhere in this table) Buruli ulcer and mycetoma	4. Lymphedema management 5. Early detection and treatment of Chagas disease, human African trypanosomiasis, leprosy, and leishmaniases 6. Total community treatment for yaws		7. Hydrocele and trichiasis surgery	
Vector ecology and management	8. Integrated vector management guidelines and strategy	9. Sustained vector management for Chagas disease, dengue, and visceral leishmaniasis			
Veterinary public health services	10. Not covered in <i>DCP3</i> chapter; for interventions for the control of echinococcosis and rabies, see World Bank (2012).				
Water, sanitation, and hygiene	11. See interventions in chapter 9 of <i>DCP3</i> volume 7 (Hutton and Chase 2017).				

Note: *DCP3* = *Disease Control Priorities*, third edition (Jamison and others 2015–18); NTDs = neglected tropical diseases.

a. All interventions listed for lower-level platforms can be provided at higher levels. Similarly, each facility level represents a spectrum and diversity of capabilities. The column in which an intervention is listed is the lowest level of the health care system in which it would usually be provided.

Package 11 Essential Package of Interventions: Interventions Targeted Toward the Prevention or Management of Shared Risk Factors for Cardiovascular and Respiratory Disease

Personal health services, by delivery platform							
Condition	Fiscal interventions	Intersectoral interventions	Public health interventions	Community based	Primary health center	First-level hospital	Referral and specialized hospitals
All conditions	<ol style="list-style-type: none"> 1. Large excise taxes on tobacco products^a 2. Product taxes on sugar-sweetened beverages 	<ol style="list-style-type: none"> 3. Improvements to the built environment to encourage physical activity^b 4. School-based programs to improve nutrition and encourage physical activity <p>5. Regulations on advertising and labeling tobacco products</p> <p>6. Actions to reduce salt content in manufactured food products</p> <p>7. Ban on trans fatty acids</p>	<ol style="list-style-type: none"> 8. Nutritional supplementation for women of reproductive age^c 9. Use of mass media concerning harms of specific unhealthy foods and tobacco products 	<ol style="list-style-type: none"> 10. Use of community health workers to screen for CVD using non-lab-based tools for overall CVD risk, improving adherence, and referral to primary health centers for continued medical management 	<ol style="list-style-type: none"> 11. Opportunistic screening for hypertension for all adults^d 12. Screening for diabetes in all high-risk adults,^e including pregnant women 13. Combination therapy^f for persons with multiple risk factors to reduce risk of CVD 	<ol style="list-style-type: none"> 14. Tobacco cessation counseling and use of nicotine replacement therapy in certain circumstances 	—

Note: Red type denotes urgent care; blue type denotes continuing care; black type denotes routine care. — = none; CVD = cardiovascular and respiratory disease; ACEI = angiotensin-converting-enzyme inhibitors.

- a. For fiscal and intersectoral policies that address CVD attributable to indoor and outdoor sources of air pollution, see chapter 1 of *DGP3* volume 7.
- b. Data are from high-income countries only.
- c. Aimed at preventing gestational diabetes and low birthweight.
- d. Treatment with generic drugs is recommended, guided by the severity of hypertension or the presence of additional risk factors.
- e. High risk is typically defined as individuals who are older, have high blood pressure, or are overweight or obese (as measured for example by waist circumference).
- f. Where available, fixed dose combination therapy is preferred.

Package 11 Essential Package of Interventions: Disease-Specific Interventions

		Personal health services, by delivery platform			
Disease condition	Fiscal, intersectoral, and public health interventions	Community based	Primary health center	First-level hospital	Referral and specialized hospitals
Ischemic heart disease, stroke, and peripheral artery disease ^a	—	—	<p>15. Long-term management with aspirin, beta-blockers,^a ACEi, and statins (as indicated) to reduce risk of further events</p> <p>16. Use of aspirin in all cases of suspected myocardial infarction</p>	<p>17. Use of unfractionated heparin, aspirin, and generic thrombolytics in acute coronary events</p> <p>18. Management for acute critical limb ischemia with unfractionated heparin and revascularization if available, with amputation as a last resort</p>	<p>19. Use of percutaneous coronary intervention for acute myocardial infarction where resources permit</p>
Heart failure	—	—	<p>20. Medical management with diuretics, beta-blockers,^b ACEi,^b and mineralocorticoid antagonists^{b,c}</p>	<p>21. Medical management of acute heart failure</p>	—
Diabetes	—	<p>25. Diabetes self-management education</p>	<p>23. Treatment of acute pharyngitis (children) to prevent rheumatic fever^d</p> <p>24. Secondary prophylaxis with penicillin for rheumatic fever or established rheumatic heart disease</p> <p>26. Prevention of long-term complications of diabetes through blood pressure, lipid, and glucose management as well as consistent foot care</p> <p>27. Screening and treatment for albuminuria</p>	—	<p>28. Retinopathy screening via telemedicine, followed by treatment using laser photocoagulation</p>
Kidney disease	<p>29. If transplantation available, creation of deceased donor programs^e</p>	—	<p>30. Treatment of hypertension in kidney disease, with use of ACEi or ARBs in albuminuric kidney disease^e</p>	—	—

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Package 11 Essential Package of Interventions: Disease-Specific Interventions (continued)

Personal health services, by delivery platform				
Disease condition	Fiscal, intersectoral, and public health interventions	Community based	Primary health center	Referral and specialized hospitals
Respiratory disease	—	31. Self-management for obstructive lung disease to promote early recognition and treatment of exacerbations 32. Exercise-based pulmonary rehabilitation for patients with obstructive lung disease	33. Annual flu vaccination and five-yearly pneumococcal vaccine for patients with underlying lung disease 34. Low-dose inhaled corticosteroids and bronchodilators for asthma and for selected patients with COPD^a	35. Management of acute exacerbations of asthma and COPD using systemic steroids, inhaled beta-agonists, and, if indicated, oral antibiotics and oxygen therapy 36. Management of acute ventilatory failure due to acute exacerbations of asthma and COPD; in COPD, use of bilevel positive airway pressure preferred

Note: Red type denotes urgent care; blue type denotes continuing care; black type denotes routine care. — = none; ACEI = angiotensin-converting enzyme inhibitors; ARB = angiotensin receptor blocker; COPD = chronic obstructive pulmonary disease.

- a. Not applicable to peripheral artery disease.
- b. Applicable to heart failure with reduced ejection fraction.
- c. Data from high-income countries only.
- d. Use available treatment algorithms to determine appropriate antibiotic use.
- e. Inhaled corticosteroids are indicated in patients with COPD who have severe disease or frequent exacerbations.

Package 12 Essential Cancer Intervention Package^a

Cancer type/ Number of deaths, ages 0–69 years, 2012 (thousands)	Platform for intervention delivery			
	Nationwide policies, regulation, or community information	Primary health clinic or mobile outreach	First-level hospital ^b	Specialized cancer center/unit ^c
All cancers 3,230	Education on tobacco hazards, value of HPV and HBV vaccination, and importance of seeking early treatment for common cancers Palliative care, including, at a minimum, opioids for pain relief ^d			
Selected tobacco-related cancers (oral, lung, and esophagus) 900	Taxation; warning labels or plain packaging; bans on public smoking, advertising, and promotion; and monitoring	Cessation advice and services, mostly without pharmacological therapies		
Breast cancer 280				Treat early-stage cancer with curative intent ^e
Cervical cancer 180	School-based HPV vaccination	Opportunistic ^f screening (visual inspection or HPV DNA testing); treat precancerous lesions	Treat pre-cancerous lesions	Treat early-stage cancer
Colorectal cancer 210			Emergency surgery for obstruction	Treat early-stage cancer with curative intent
Liver cancer 380		Hepatitis B vaccination (including birth dose)		
Childhood cancers 80^g				Treat selected early-stage cancer with curative intent in pediatric cancer units/hospitals

Note: Cancer totals are rounded to nearest 10,000. Education and basic palliative care are relevant for cancers at all ages. HBV = hepatitis B virus; HPV = human papillomavirus.

a. **Red type** denotes emergency care.

b. First-level hospitals are referred to as district hospitals in some countries.

c. Some interventions may take place at first-level hospitals, by a specialized surgeon visiting once per month, for example.

d. Palliative care should be available at all levels specified in the table and in the home.

e. Early-stage cancer generally refers to stages I and II.

f. Screening is opportunistic when a test is requested by a patient or offered by a practitioner to a patient attending for another reason. Organized screening is a well-defined process including formal invitations to participate, recalls, reminders, tracking results, ensuring follow-up, monitoring, and reporting program performance results.

g. Including some solid tumors.

Package 13 Intervention Priorities for Mental, Neurological, and Substance Use Disorders by Delivery Platform

		Platforms for intervention delivery				
		Health care platforms				
Target area	Population platform	Community platform	Self-care	Primary health care	First-level hospital care	Specialized care
All MNS disorders	Awareness campaigns to increase mental health literacy and address stigma and discrimination	Training of gatekeepers (community workers, police, teachers) in early identification of priority disorders, provision of low-intensity psychosocial support, and referral pathways	Physical activity	Screening and proactive case finding of psychosis, depression, and anxiety disorders	Diagnosis and management of acute psychoses	ECT for severe or refractory depression
	Legislation on protection of human rights of persons affected by MNS disorders	Self-help and support groups (for example, for alcohol use disorders, epilepsy, parents of children with developmental disorders, and survivors of suicide)	Relaxation training Education about early symptoms and their management Web- and smartphone-based psychological therapy for depression and anxiety disorders	Diagnosis and management of depression (including maternal) and anxiety disorders* Continuing care of schizophrenia and bipolar disorder	Management of severe maternal depression* Management of depression and anxiety disorders in people with HIV, and people with other NCDs*	Management of refractory psychosis with clozapine
Child mental and developmental disorders	Child protection laws	Workplace stress reduction programs and awareness of alcohol and drug abuse	Web- and smartphone-based psychological therapy for depression and anxiety disorders in adolescents	Management of depression and anxiety disorders in people with HIV, with other NCDs*	Diagnosis of childhood mental disorders such as autism and ADHD	
	Child protection laws	Parenting programs in infancy to promote early child development Life skills training in schools to build social and emotional competencies Parenting programs in early and middle childhood (ages 2-14 years) Early child enrichment/preschool education programs Identification of children with MNS disorders in schools	Web- and smartphone-based psychological therapy for depression and anxiety disorders in adolescents Parent skills training for developmental disorders Psychological treatment for mood, anxiety, ADHD, and disruptive behavior disorders*	Screening for developmental disorders in children Maternal mental health interventions Parent skills training for developmental disorders Psychological treatment for mood, anxiety, ADHD, and disruptive behavior disorders*	Stimulant medication for severe cases of ADHD Newborn screening for modifiable risk factors for intellectual disability	
			Improve the quality of antenatal and perinatal care to reduce risk factors associated with intellectual disability			

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Package 13 Intervention Priorities for Mental, Neurological, and Substance Use Disorders by Delivery Platform (continued)

Target area	Platforms for intervention delivery			
	Population platform	Community platform	Self-care	Health care platforms
	Primary health care	First-level hospital care	Specialized care	
Neurological disorders	Policy interventions to address the risk factors for cardiovascular diseases, for example, tobacco control Improved control of neurocysticercosis		Self-managed treatment of migraine Self-identification/management of seizure triggers Self-management of risk factors for vascular disease (healthy diet, physical activity, tobacco use)	Diagnosis and management of epilepsy and headaches Screening for detection of dementia Interventions to support caregivers of patients with dementia Management of prolonged seizures or status epilepticus Diagnosis of dementia and secondary causes of headache Surgery for refractory epilepsy
Alcohol and illicit drug use disorders	Regulate the availability and demand for alcohol (for example, increases in excise taxes on alcohol products, advertising bans) Penalize risky behaviors associated with alcohol (enforcement of BAC limits)	Awareness campaigns to reduce maternal alcohol use during pregnancy	Self-monitoring of substance use	Screening and brief interventions for alcohol use disorders Opioid substitution therapy (methadone and buprenorphine) for opioid dependence Management of severe dependence and withdrawal Psychological treatments (CBT) for refractory cases*
Suicide and self-harm	Control the sale and distribution of means of suicide (such as pesticides) Decriminalize suicide	Safer storage of pesticides in the community and farming households	Web- and smartphone-based treatment for depression and self-harm	Primary health care packages for underlying MNS disorders (as described above)* Planned follow-up and monitoring of suicide attempters* Emergency management of poisoning Treatment of comorbid mood and substance use disorder* Specialist health care packages for underlying MNS disorders (as described above)

Note: Red type denotes urgent care; blue type denotes continuing care; black type denotes routine care. Recommendations in bold = best practice; recommendations in normal font = good practice. ADHD = Attention Deficit Hyperactivity Disorder; BAC = blood alcohol concentration; CBT = cognitive behavioral therapy; ECT = electroconvulsive therapy; HIV = human immunodeficiency virus; MNS = mental, neurological, and substance use; NCDs = noncommunicable diseases.

*There is no fixed time period for the management of these complex conditions; for example, in the management of depression, some individuals need relatively short periods of engagement (for example, 6-12 months for a single episode) at the one end, while others may need maintenance care for several years (for example, when there is a relapsing course).

Package 14 Essential package of interventions for musculoskeletal disorders in low- and middle-income countries

Intersectoral policies	Population-based health services	Community	Health centers	First-level hospitals	Referral and specialty hospitals
1. Improvements to the built environment to encourage physical activity	3. Media campaigns to encourage nutrition and physical activity and to reduce tobacco and alcohol use	4. Training, retraining, and exercise programs that address musculoskeletal injuries and disorders	5. Calcium and vitamin D supplementation for primary prevention of osteoporosis in high-risk individuals*	7. Calcium and vitamin D supplementation for secondary prevention of osteoporosis	10. Urgent, definitive surgical management of orthopedic injuries (e.g., by open reduction and internal fixation)
2. Tobacco and alcohol control policies			6. Exercise programs for upper extremity injuries and disorders	8. Combination therapy, including low-dose corticosteroids and generic disease-modifying antirheumatic drugs (including methotrexate), for individuals with moderate to severe rheumatoid arthritis 9. Basic first-level hospital care for orthopedic injuries (e.g., closed reduction, external fixation)	11. Elective surgical repair of common orthopedic injuries (e.g., meniscal and ligamentous tears) in individuals with severe functional limitation

* High-risk individuals are those with multiple risk factors including: advanced age, personal history of fracture, parental history of hip fracture, current tobacco use, excessive alcohol use, low body weight, or long-term glucocorticoid use (e.g., for rheumatoid arthritis).

Package 15 Essential package of interventions for congenital and genetic disorders in low- and middle-income countries

Intersectoral policies	Population-based health services	Community	Health centers	First-level hospitals	Referral and specialty hospitals
1. Fortification of food products with folate and iron		3. EPI vaccination series (diphtheria, pertussis, tetanus, polio, BCG, measles, hepatitis B, Hib, and rubella)	5. PMTCT of HIV (Option B+) and syphilis	8. Targeted screening for congenital hearing loss in highrisk children* using otoacoustic emissions testing	12. Repair of cleft lip and palate
2. Iodization of salt		4. IEC on folic acid and iron supplementation (all women of reproductive age)	6. Screening and management of diabetes in pregnancy (gestational diabetes or preexisting Type 2 diabetes) 7. Folic acid and iron supplementation for all pregnant women	9. Universal newborn screening for congenital endocrine or metabolic disorders (e.g., congenital hypothyroidism, phenylketonuria) that have high incidence rates and for which long-term treatment is feasible in limited resource settings 10. In settings where sickle cell disease is a public health concern, universal newborn screening followed by standard prophylaxis against bacterial infections and malaria 11. In settings where specific single-gene disorders are a public health concern (e.g., thalassemias), retrospective identification of carriers plus prospective (premarital) screening and counseling to reduce rates of conception	13. Repair of club foot

Notes: The first-level hospital platform includes outpatient specialist care and routine pathology services (e.g., newborn screening) that cannot be feasibly delivered at lower levels.

* High-risk individuals are those who either have craniofacial abnormalities at birth or who have a family history of hearing impairment.

Package 16 Essential Injury and Occupational Health Policies

Domain of action	Fiscal and Intersectoral Policy			Information, education, and communication
	Taxes and subsidies	Infrastructure, built environment, and product design	Regulation	
<i>Road safety</i>				
Overall	Subsidized public transportation	Mass transport infrastructure and land use (bus rapid transit, rail)	Adoption and enforcement of harmonized motor vehicle safety standards	
Pedestrian safety		Increased visibility, areas for pedestrians separate from fast motorized traffic		Increased supervision of children walking to school
Motorcycle safety		Exclusive motorcycle lanes	Mandatory use of daytime running lights for motorcycles Mandatory motorcycle helmet laws	
Bicycle safety		Increased visibility, lanes for cyclists separate from fast motorized traffic		Social marketing to promote helmet use by child bicyclists
Child passenger safety			Legislation for and enforcement of child restraints (including seats)	
Speed control		Traffic-calming infrastructure (for example, speed bumps), especially at dangerous road segments	Setting and enforcement of speed limits appropriate to function of roads	
Driving under the influence of alcohol			Setting and enforcement of blood alcohol concentration limits	
Seatbelt use			Mandatory seatbelt use laws for all occupants	Social marketing to promote seatbelt use
<i>Other unintentional injury</i>				
Drowning			Legislation and enforcement of use of personal flotation devices for recreational and other high-risk boaters	Parental or other adult supervision (for example, use of crèches) in high-risk areas Swimming lessons for children
Burns		Safer stove design		
Poisoning		Child-resistant containers		Information, education, and communication for safe storage of hazardous substances

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Package 16 Essential Injury and Occupational Health Policies (continued)

Domain of action	Fiscal and Intersectoral Policy			Information, education, and communication
	Taxes and subsidies	Infrastructure, built environment, and product design	Regulation	
<i>Violence</i>				
Child maltreatment			Corporal punishment ban	Parent training, including nurse home visitation, for high-risk families
Youth violence				Social development programs that teach social skills and incorporate training for parents Information sharing between police and hospital emergency departments
Gender-based violence and intimate partner violence	Microfinance combined with gender equity training			School-based programs to address gender norms and attitudes Interventions for problem drinkers (who are also abusive partners) Advocacy support programs (for example, to increase availability and use of shelters for at-risk women)
Cross cutting for multiple types of injury	Reducing availability and harmful use of alcohol through increased taxation and decreased availability of outlets	Dispensing alcohol in plastic rather than glass that could be used as a weapon	Stricter licensing laws and reduced availability of firearms	
<i>Occupational safety and health</i>				
		Engineering controls to decrease release of silica and other toxins Safe injection devices, such as blunt-tip suture needles	Enforcement of safety standards Formalization of large informal sectors in low- and middle-income countries	Training in hazard recognition and control relevant to the work performed (for example, task-based training for hazardous tasks) Effective use of available personal protective equipment Occupational health workforce development

Note: Interventions for treatment—for example, trauma care for injured people—are covered in other *DCP3* volumes and are not addressed here.

Package 17 Essential Environmental Policies

Domain of action	Fiscal and Intersectoral Policy			Information, education, and communication
	Taxes and subsidies	Infrastructure and built environment	Regulation	
<i>Water and sanitation</i>	<p>Targeted subsidies to poor and vulnerable groups</p> <p>Incentives for private sector to become more involved with WASH for supply chain and service provision</p>	<p>Quality WASH facilities in schools, workplaces, public spaces, and health care facilities</p>	<p>Defined WASH standards per setting (household, outside household)</p>	<p>National awareness campaigns (for example, on handwashing)</p> <p>WASH behavior-change interventions, such as community-led total sanitation</p>
<i>Outdoor air pollution</i>	<p>Fuel taxes</p> <p>Fines for residential trash burning</p> <p>Fines for not controlling construction dust</p> <p>Tax polluters</p> <p>Cap and trade policies for specific pollutants (for example, SO₂)</p> <p>No more subsidies for coal</p>	<p>Relocation of industrial sources, such as brick kilns</p> <p>Municipal trash collection</p> <p>Diesel to CNG transition for fleets</p> <p>Movement toward banning solid fuels in cities</p> <p>Regular street cleaning to control dust</p>	<p>Diesel retrofits</p> <p>Coal to natural gas transition</p> <p>Brick kiln retrofits for emissions control</p> <p>PM, SO₂, and NO₂ emissions control</p> <p>Acceleration of Euro standards for vehicles</p> <p>National regulation to reduce household emissions to outdoors</p> <p>Construction and road dust controls</p> <p>Adoption of European Union fuel standards</p>	<p>Updated health information systems to include vulnerability, adaptation, and capacity assessment</p>
<i>Household air pollution</i>	<p>Advanced biomass stove subsidies</p> <p>Targeted and expanded LPG and other clean fuel subsidies to the poor</p> <p>Subsidies for clean alternatives to kerosene</p> <p>Campaigns for middle class to give up subsidies intended for poor</p>	<p>Improved ventilation as part of building codes and norms</p> <p>Enhanced clean fuel distribution networks</p> <p>Electrification as a health measure</p> <p>Application of modern digital technology to enhance access to household clean fuel</p>	<p>Lower barriers and expanded licensure requirements for clean fuel distribution</p> <p>Kerosene ban</p> <p>National regulation on clean household fuels to match UN SE4ALL goals</p> <p>Smoke-free communities</p>	<p>Ventilation</p> <p>HAP health effects education</p> <p>Promotion of kitchen retrofits to encourage HAP-reducing interventions and behaviors</p>
<i>Chemical contamination</i>		<p>Regulations on hazardous waste disposal covering land, air, and water</p>	<p>Arsenic: monitoring of groundwater supplies and provision of alternatives if needed</p> <p>Asbestos: banning of import, export, mining, manufacture, and sale</p> <p>Mercury: monitoring and reduction or elimination of use in artisanal mining, large-scale smelting, and cosmetics</p> <p>Established and enforced toxic element emissions limits for air and water</p> <p>Restricted access to contaminated sites</p> <p>Strict control and movement to selective bans of highly hazardous pesticides</p>	<p>Notification of public of locations of contaminated sites</p>

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Package 17 Essential Environmental Policies (continued)

Fiscal and Intersectoral Policy				
Domain of action	Taxes and subsidies	Infrastructure and built environment	Regulation	Information, education, and communication
<i>Lead exposure</i>	Concessionary financing for remediation of worst conditions	Minimization of occupational and environmental exposures in maintaining, renovating, and demolishing buildings and other structures with lead paint	Ban on lead paint and leaded fuels Ban on lead in water pipes, cookware, drugs, food supplements, and cosmetics Reduction in corrosiveness of drinking water National take-back requirements for collecting used lead batteries Regulations governing land-based waste disposal Risk-based limits for lead in air, water, soil, and dust	Lead poisoning training for health care providers
<i>Global climate change</i>	Carbon tax or cap and trade (mitigation) Subsidies to renewable energy	Mitigation policies and incentives, including land-use plans, building design, transportation, to reduce GHGs Resilient design in buildings and infrastructure (adaptation) Consideration of climate change in public health infrastructure (mitigation and adaptation)	Energy efficiency and fuel efficient vehicles (mitigation) Mainstreaming of climate change into public health planning and programs, and into health system policies and plans Methane control regulations	Early warning and emergency response systems

Note: CNG = compressed natural gas; GHG = greenhouse gas; HAP = household air pollution; LPG = liquefied petroleum gas; NO₂ = nitrogen dioxide; PM = particulate matter; SO₂ = sulfur dioxide; UN SE4ALL = United Nations Sustainable Energy for All program; WASH = water, sanitation, and hygiene. Interventions for treatment (for example, oral rehydration solution for diarrhea) or other individual-level medical services (for example, deworming, growth monitoring) are covered in other *DCP3* volumes and are not addressed here. Interventions in this table include those that have been shown to be cost-effective or cost-beneficial in low- and middle-income countries or for which such cost-effectiveness or cost-benefit can be logically concluded from high-income or other data. For water and sanitation, many of the policy-level interventions mentioned do not have such evidence; however, the individual items promoted by these policies (for example, filters, piped water, boreholes, private latrines) do have a strong evidence base. Unlike interventions with only health benefits, however, many if not most interventions in environmental health bring a range of other benefits lying outside the health sector, for example, time savings, property values, IQ enhancement, and so on. Cost-effectiveness measured solely in health terms, therefore, can be misleading with regard to total social benefit-cost relationships.

Package 18 The Essential Surgery Package: Procedures and Platforms^{a,b}

Type of procedure	Platform for delivery of procedure ^c		
	Community facility and primary health center	First-level hospital	Second- and third-level hospitals
Dental procedures	<ol style="list-style-type: none"> 1. Extraction 2. Drainage of dental abscess 3. Treatment for caries^d 		
Obstetric, gynecologic, and family planning	<ol style="list-style-type: none"> 4. Normal delivery 	<ol style="list-style-type: none"> 1. Cesarean birth 2. Vacuum extraction/forceps delivery 3. Ectopic pregnancy 4. Manual vacuum aspiration and dilation and curettage 5. Tubal ligation 6. Vasectomy 7. Hysterectomy for uterine rupture or intractable postpartum hemorrhage 8. Visual inspection with acetic acid and cryotherapy for precancerous cervical lesions 	<ol style="list-style-type: none"> 1. Repair obstetric fistula
General surgical	<ol style="list-style-type: none"> 5. Drainage of superficial abscess 6. Male circumcision 	<ol style="list-style-type: none"> 9. Repair of perforations: for example, perforated peptic ulcer, typhoid ileal perforation 10. Appendectomy 11. Bowel obstruction 12. Colostomy 13. Gallbladder disease, including emergency surgery 14. Hernia, including incarceration 15. Hydrocelectomy 16. Relief of urinary obstruction: catheterization or suprapubic cystostomy 	
Injury ^e	<ol style="list-style-type: none"> 7. Resuscitation with basic life support measures 8. Suturing laceration 9. Management of non-displaced fractures 	<ol style="list-style-type: none"> 17. Resuscitation with advanced life support measures, including surgical airway 18. Tube thoracostomy (chest drain) 19. Trauma laparotomy^f 20. Fracture reduction 21. Irrigation and debridement of open fractures 22. Placement of external fixator; use of traction 23. Escharotomy/fasciotomy (cutting of constricting tissue to relieve pressure from swelling) 	

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Package 18 The Essential Surgery Package: Procedures and Platforms^{a,b} (continued)

Type of procedure	Platform for delivery of procedure ^c		
	Community facility and primary health center	First-level hospital	Second- and third-level hospitals
		24. Trauma-related amputations 25. Skin grafting 26. Burr hole	
Congenital			2. Repair of cleft lip and palate 3. Repair of club foot 4. Shunt for hydrocephalus 5. Repair of anorectal malformations and Hirschsprung's Disease
Visual impairment			6. Cataract extraction and insertion of intraocular lens 7. Eyelid surgery for trachoma
Nontrauma orthopedic		27. Drainage of septic arthritis 28. Debridement of osteomyelitis	

Sources: This list of essential surgical procedures is based on the authors' judgment in light of the burden, implementation feasibility, and cost-effectiveness information contained in *DCP3* volume 1, *Essential Surgery*. Earlier assessments of essential surgical interventions also provide useful information (WHO 2015b; Luboga and others 2009; Mock and others 2004, 2010).

a. Red type implies emergency procedure or condition.

b. All procedures listed in this table are discussed in *DCP3*, volume 1, *Essential Surgery*, with three exceptions, which will be covered in other *DCP3* volumes: male circumcision, visual inspection and treatment of precancerous cervical lesions, and eyelid surgery for ocular trachoma.

c. All of the procedures listed under community health and primary health centers are also frequently provided at first-level and second-level hospitals. All of the procedures under first-level hospitals are also frequently provided at second-level hospitals. The column in which a procedure is listed is the lowest level of the health system in which it would usually be provided. Not included in the table are prehospital interventions, such as first aid, basic life support procedures, or advanced life support procedures done in the prehospital setting. Health systems in different countries are structured differently, and what might be suitable at the various levels of facilities will differ. In this table, *community facility* implies primarily outpatient capabilities (as would be used to provide the elective procedures such as dental care), whereas *primary health center* implies a facility with overnight beds and 24-hour staff (as would be needed for procedures such as normal delivery). *First-level hospitals* imply fairly well-developed surgical capabilities with doctors with surgical expertise; otherwise, many of the procedures would need to be carried out at higher-level facilities. *Referral and specialized hospitals* (which could also be considered as second- and third-level hospitals) imply facilities that have advanced or subspecialized expertise for treatment of one or more surgical conditions, not usually found at lower-level facilities.

d. Treatment for caries can include one or more of the following, depending on local capabilities: silver diamine fluoride application, atraumatic restoration, or fillings.

e. Trauma care includes a wide variety of procedures. Not included in the list of essential procedures would be procedures that are more applicable at higher-level facilities: repair of vascular injury, open reduction and internal fixation, drainage of intracranial hematoma other than through burr hole, or exploration of neck or chest.

f. Trauma laparotomy applicable at first-level hospitals: exploratory laparotomy for hemoperitoneum, pneumoperitoneum, or bowel injury; specific procedures include splenectomy, splenic repair, packing of hepatic injury, and repair of bowel perforation.

Package 19 Essential Package of Rehabilitation Interventions

Platform for delivery			
Intervention area	Community ^a	Primary health center	Hospital ^b
Musculoskeletal system	<p>Transfer training</p> <p>Mobility training (including gait training)</p>		<p>Prescription^c of mobility techniques customized to the condition and individual</p> <p>Acute mobilization—inpatients and outpatients</p>
	<p>Basic lower limb, upper limb, and trunk/spine exercise and symptom management programs according to standard protocols based on presentation</p> <ul style="list-style-type: none"> • Joint mobilization • Stretches/range of movement • Strengthening 	<p>Simple lower limb, upper limb, and trunk/spine exercise and symptom management programs based on diagnosis (condition specific)</p>	<p>Prescription^c of lower limb, upper limb, and trunk/spine exercise and symptom management programs customized to the condition and individual</p> <p>Postamputation management</p> <ul style="list-style-type: none"> • Stump care • Limb positioning
	<p>Body repositioning for</p> <ul style="list-style-type: none"> • Pressure area care • Supportive seating, in wheelchairs <p>Upper limb functional retraining</p> <ul style="list-style-type: none"> • Functional gross and fine motor movement patterns • Compensatory strategies 	<p>Ponseti clubfoot treatment</p>	<p>Prescription^c of upper limb functional retraining techniques customized to the condition and individual</p> <p>Prescription^c of scar and contracture management techniques to optimize range of movement</p>
Cardiorespiratory system	<p>Cardiac rehabilitation (such as recommendations for physical activity, nutrition, and risk factor management)</p> <p>Breathing exercises to improve respiratory function, including sputum clearance techniques</p>		<p>Prescription^c of a cardiac rehabilitation program customized to the condition and individual</p> <p>Chest function interventions, including sputum clearance techniques</p>

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Package 19 Essential Package of Rehabilitation Interventions (continued)

Intervention area	Platform for delivery		
	Community ^a	Primary health center	Hospital ^b
Neurological systems and communication	<p>Basic swallow retraining/interventions</p> <p>Speech and communication interventions</p> <ul style="list-style-type: none"> • Interventions for aphasia and ataxia • Sign language • Other alternative mechanisms of communication <p>Cognitive interventions</p> <ul style="list-style-type: none"> • Training in basic-level cognitive functions • Cognitive compensatory strategies (techniques and provision of assistive products) • Early stimulation for children 		<p>Prescription^c of swallow retraining techniques customized to the condition and individual</p> <p>Acute swallow management for inpatients</p> <p>Prescription^c of speech and communication techniques customized to the condition and individual</p> <p>Prescription^c of cognitive interventions customized to the condition and individual</p>
	Mechanical stabilization and assistive products	<p>Prosthesis review and referral to hospital if indicated</p> <p>Splinting and orthosis review and referral to hospital if indicated</p> <p>Upper limb positioning</p> <ul style="list-style-type: none"> • Slings • Casting <p>Provision and training in the use of assistive products, assistive technology, and compensatory strategies for</p> <ul style="list-style-type: none"> • Mobility, activities of daily living, and skin care • Vision loss (such as white canes, braille displays, magnification, and other aids) • Communication devices 	<p>Fabrication, fitting, and training in the use of a prosthesis^d</p> <p>Splinting and orthosis^e for upper limb, lower limb, and spine immobilization and stability</p> <p>Postoperative splinting and orthosis^e</p> <p>Compression therapy^f for postamputation management, burns, and vascular and lymphatic conditions</p> <p>Provision and training in the use of assistive products, assistive technology, and compensatory strategies for</p> <ul style="list-style-type: none"> • Hearing aids and hearing loops^d

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Package 19 Essential Package of Rehabilitation Interventions (continued)

Intervention area	Platform for delivery		
	Community ^a	Primary health center	Hospital ^b
Cross-cutting areas	Self-care training Early childhood development rehabilitation interventions (such as motor, sensory, and language stimulation) Environmental modifications (such as a grab rail or ramp installation)		Prescription ^c of self-care techniques customized to the condition and individual

Note: This table identifies a package of essential rehabilitation interventions that an effective rehabilitation system must be able to provide. The interventions selected are based on expert opinion from key stakeholders representing a broad range of rehabilitation disciplines.

- Interventions in red are considered acute and urgent.
- All interventions assigned to a given level also should be available at higher levels.
- Medications (such as pain medication to assist with pain management, and antispasmodic medication to assist with tone or spasticity) are not included here, but they may be essential adjuncts to these interventions.
- Interventions have been broadly categorized into intervention areas for the purposes of readability; however, substantial overlap exists in interventions between categories. For example, a person may require mobility training for musculoskeletal, cardiorespiratory, and neurological conditions; however, within the package it has been categorized under the musculoskeletal system intervention area.

A glossary of intervention terms is available in annex 15A.

a. The rehabilitation interventions in the community may need to be delivered by a specialized rehabilitation provider, whereas others may be delivered by generalist community-health workers or other care providers. The level of skill required of the provider depends on the complexity of a person's needs. Where warranted, interventions should be done under the prescription or supervision of a specialized rehabilitation provider based in the community or in the hospital setting.

b. Hospital-based rehabilitation interventions, in first-level and third-level hospitals, are highly variable across countries. Thus, first-level and third-level hospitals are considered as a single delivery setting for the purposes of this package.

c. A rehabilitation prescription is the provision of interventions customized for an individual's condition or specific needs, for ongoing self-management, or to be carried out by another provider. Education is provided to the individual and others involved in the individual's care to enable them to carry out the prescribed interventions safely and effectively. Such education may include instruction on correct technique, precautions, and specifications of the regime. Prescription and education usually require the input of a specialized rehabilitation provider.

d. This intervention also can occur in outpatient settings, although it usually takes place in hospitals.

e. This intervention requires access to immobilizing materials (such as thermoplastic, casting, or locally sourced materials) and knowledge of fabrication and application principles, techniques, and precautions.

f. This intervention can be done only if the providers are adequately trained in compression bandaging or garment fitting and provision and only if they are aware of precautions and contraindications. It is usually provided in a specialist outpatient service setting (such as a burn unit, plastic surgery facility, or vascular clinic).

Package 20 Delivery Platforms for the Essential Palliative Care Interventions

Delivery platform			
Intervention	Intersectoral	Mobile outreach or home care	Health center (PHC) hospitals
Control of chronic pain related to serious, complex, or life-limiting health problems	<ul style="list-style-type: none"> Routine social assessment Income and in-kind support^a 	<ul style="list-style-type: none"> Surveillance and emotional support by community health workers as often as needed (sometimes daily) Visits by PHC nurse or doctor as needed 	<ul style="list-style-type: none"> Oral immediate-release morphine and other essential medicines and simple equipment for prevention and relief of chronic pain
Control of other types of physical and psychological suffering ^b related to serious, complex, or life-limiting health problems	<ul style="list-style-type: none"> Routine social assessment Income and in-kind support^a 	<ul style="list-style-type: none"> Emotional support and suffering surveillance by community health workers as often as needed (sometimes daily) Visits by PHC nurse or doctor as needed 	<ul style="list-style-type: none"> Essential medicines and simple equipment for prevention and relief of other types of physical and psychological suffering Psychological counseling
Control of refractory suffering (chronic pain, other types of physical and psychological suffering ^b that have not or cannot be controlled at lower level)	<ul style="list-style-type: none"> Routine social assessment Income and in-kind support^a 		<ul style="list-style-type: none"> Oral immediate-release morphine and injectable morphine and other essential medicines and simple equipment for prevention and relief of chronic pain and other types of physical and psychological suffering^c Psychological counseling^c Essential medicines and simple equipment for prevention and relief of acute pain^c
Acute pain related to surgery or serious injury	—	—	—

Note: PHC = public health care. — = this type of care not provided in this setting.

a. Support provided only for patients living in extreme poverty and for one caregiver per patient.

b. Physical suffering includes breathlessness, fatigue, weakness, nausea, vomiting, diarrhea, constipation, pruritus, bleeding, and wounds. Psychological suffering includes anxiety or worry, depressed mood, confusion or delirium, and dementia.

c. Care devolves to lower level once effective treatment is established.

Package 21 Pathology Tiers

Laboratory features	Tier 1	Tier 2 (includes tier 1 capabilities)	Tier 3 (includes tier 2 capabilities)	Tier 4 (includes tier 3 capabilities)
Tests and test categories	<p>POCT and single-use tests: malaria, tuberculosis, urinalysis, pregnancy, blood glucose, hemoglobin/hematocrit, ESR, blood typing</p> <p>Slide microscopy: malaria, wet preparation, stool parasites</p> <p>Preparation of FNAC and tissue specimens to send to tier 2 facilities</p>	<p>Many routine diagnostic and prognostic tests</p> <p>Clinical biochemistry</p> <p>urea and electrolytes, HBA1c for diabetes, liver, renal, bone, and lipid profiles</p> <p>Hematology</p> <p>complete blood counts, CD4 count, simple coagulation studies and thalassemia tests, support for whole blood transfusion</p> <p>Microbiology culture</p> <p>blood, urine, cerebrospinal fluid, sputum; simple antimicrobial susceptibility testing; serology for hepatitis A, B, or C and common infections</p> <p>Anatomic pathology</p> <p>FNAC, tissue biopsies and surgical excisions—processing, H&E stain and interpretation</p> <p>Hospital autopsy</p>	<p>All routine and some specialized tests</p> <p>Clinical chemistry</p> <p>Endocrine tests: thyroid; cardiac markers, troponin, BNP; dynamic function tests, GTT; tumor markers: AFP, Ca-125, blood gases; therapeutic drug monitoring; serum and urine electrophoresis</p> <p>Microbiology</p> <p>Additional antimicrobial susceptibility testing, fungal cultures, mycobacterial cultures, viral load</p> <p>Hematology</p> <p>More advanced blood analysis, for example, component therapy, hemolysis, bone marrow studies, hematological malignancies, immunological studies</p> <p>Anatomic pathology</p> <p>Same as for tier 2, but with special stains including immunohistochemistry: ER, PR for breast cancer</p> <p>Specialized autopsy</p>	<p>Specialized services as appropriate, surveillance, toxicology studies, support for transplantation, rare tumors, nutritional studies, support for clinical trials, mutational studies (cytogenetics, molecular analysis), gene analysis</p>
Staffing	Laboratory technicians supervised by general pathologist from distance	General pathologist, laboratory technicians, laboratory assistants; one of technicians manages laboratory	<p>Mono-specialty pathologists, clinical scientists, specialized laboratory technicians, laboratory assistants, dedicated laboratory manager, possibly laboratory information systems coordinator, quality care manager</p> <p>Facilities and responsibilities for education and training of all levels of medical and nonmedical staff</p>	<p>Same as for tier 3 plus clinical trial specialists, data specialist</p> <p>Additional specialist educational capacity</p>
Communication infrastructure	Paper or electronic, mobile	Paper or electronic or laboratory information system	Electronic or laboratory information system; telepathology (optional)	Same as tier 3 but more data linkages to trials and registries
Equipment	<p>Simple microscope</p> <p>Rapid diagnostic tests</p> <p>POCT and single-use tests</p>	<p>Automated blood and biochemistry analyzers; microbiology analyzers and incubators; blood typing including refrigerators; tissue processor and microtome for anatomic pathology</p>	<p>Automated tissue processor, equipment for full autopsy, immunohistochemistry station</p>	<p>Molecular biology and cytogenetics</p> <p>Immunofluorescence</p> <p>Electron microscopy for renal disease</p>

table continues next page

Package 21 Pathology Tiers (continued)

Laboratory features	Tier 1	Tier 2 (includes tier 1 capabilities)	Tier 3 (includes tier 2 capabilities)	Tier 4 (includes tier 3 capabilities)
	Specimen and patient identification FNAC and biopsy fixation			Possible biobanking for research
Turnaround time	Rapid, POCT, and single-use tests: 0–3 hours Send-outs, several days	An hour to several days	Routine: 1 hour to several days Complex: 7 days Autopsy: 30–60 days	Same as tier 3
Networks and surveillance	Accumulates and forwards incidence data to higher tier	Report to emerging disease, AST, cancer, and other NCD registries	Links to emerging disease, AST, cancer, and other NCD registries	Research on disease incidence trends, including AST and emerging diseases

Note: AFP = alpha-fetoprotein; AST = antimicrobial susceptibility testing; BNP = brain natriuretic peptide; Ca-125 = cancer antigen 125; ER and PR = receptor tests for breast cancer; ESR = erythrocyte sedimentation rate; FNAC = fine needle aspiration cytology; GTT = glucose tolerance test; H&E = hematoxylin and eosin stain (basic histopathology test); HBA1c = glycated hemoglobin test; NCD = noncommunicable disease; POCT = point-of-care tests.

Assumptions

1. Tiers may be adjusted as necessary to reflect the local burden of disease or local practice patterns and availability of trained staff.
2. Changes in technologies over time can shift tests and workloads across tiers.
3. Tests are examples (as applied to broad groups of infectious disease, cancer, and other NCD) and are not an exhaustive list.