

**Article title:** The Use of Evidence to Design an Essential Package of Health Services in Pakistan: A Review and Analysis of Prioritisation Decisions at Different Stages of the Appraisal Process

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**Supplementary file 1.** Values Used for Each Intervention for Each Decision Criteria (Evidence and Evidence Quality)

**Abbreviations:** DCP, Disease Control Priorities; EUHC, Essential Universal Health Coverage; TWG, technical working group; NAC, National Advisory Council; EPHS, Essential Package of Health Services; IIP, immediate implementation package; World Health Organization; HiB, Haemophilus influenzae type b; BCG, Bacillus Calmette-Guéri; IRS, indoor residual spraying; HPV, human papillomavirus; STIs, sexually transmitted infections; TB, tuberculosis; WASH, water, sanitation and hygiene; G6PD, glucose-6-phosphate dehydrogenase; BEmONC, Basic Emergency Obstetric and Newborn Care; PLHIV, people living with HIV; IMAI, integrated management of adolescent and adult illness; CVD, cardiovascular disease; COPD, chronic obstructive pulmonary disease; ACEi, angiotensin-converting enzyme inhibitor; ARBs, angiotensin receptor blockers; IV, intravenous; CEmONC, Comprehensive Emergency Obstetric and Newborn Care; ART, antiretroviral treatment; NTDs, neglected tropical diseases; ECD, early childhood development; ARV, antiretroviral; IMCI, Integrated management of childhood illness; IUCDs, IDU, intravenous drug user; MSM, men who have sex with men; MDR, multidrug-resistant tuberculosis; XDR, extensively drug-resistant tuberculosis; C, community; HC, health centre; FLH, first-level hospital; RH, referral hospital; ICER, incremental cost-effectiveness ratio

DCP3 Code	Intervention name	Cost-effectiveness	Budget impact	Burden of disease	ICER quality	Current coverage
C1	Antenatal and postpartum education on birth spacing	High	Low	Medium	Medium	High
C10	Education on handwashing, personal hygiene and safe disposal of children's stool	High	Low	High	Medium	High
C11	Pneumococcus vaccination	Medium	Medium	High	High	High
C12	Rotavirus vaccination	Medium	Low	High	High	High
C14	Vitamin A and zinc for children	Medium	High	High	Low	High
C16	Childhood vaccination series (diphtheria, pertussis, tetanus, polio, BCG, measles, hepatitis B, HiB, rubella)	High	Medium	High	Medium	High
C17	Indoor residual spraying	Medium	Medium	High	Medium	Low
C18	Education of schoolchildren on oral health	Medium	High	Medium	Low	Low
C19	Vision pre-screening by teachers; vision tests and provision of ready-made glasses on-site by eye specialists	Medium	High	High	Low	Low
C2	Counselling of mothers on providing thermal care for pre- term new-borns (delayed bath and skin to skin contact)	High	Low	Medium	Medium	Low
C20	School based HPV vaccination for girls	Low	Low	Low	High	No
C21	Mass drug administration (NTDs)	Low	High	Medium	Low	No
C23	Adolescent-friendly services for STIs	Medium	Low	Medium	Low	Low
C24	Life skills training in schools	Low	High	High	Low	Low
C27a	Provision of iron and folic acid supplementation to pregnant women, and provision of food or caloric supplementation to pregnant women in food-insecure households	High	High	High	Medium	High
C27b	Provision of iron and folic acid supplementation to pregnant women, and provision of food or caloric supplementation to pregnant women in food-insecurity households	High	High	High	Medium	High
C28	Community-based HIV testing and counselling (for example, mobile units and venue-based testing), with appropriate referral or linkage to care and	High	Low	Low	Medium	Low
C30a	Provision of condoms to key populations, including sex workers, men who have sex with men, people who inject drugs, transgender populations, and prisoners	High	Low	Medium	Medium	Low
C30b	Provision of Disposable syringes who inject drugs (IDU)	High	Low	Medium	Medium	Low

DCP3 Code	Intervention name	Cost-effectiveness	Budget impact	Burden of disease	ICER quality	Current coverage
C32	Routine contact tracing to identify individuals exposed to TB and link them to care	Low	Low	Low	Low	High
C33	Test for G6PD deficiency	Low	Low	Low	Low	Medium
C3a	Management of labour and delivery in low-risk women by skilled attendant (CL)	High	Low	High	Low	Low
C3b	Basic neonatal resuscitation following delivery (CL)	High	Low	High	Low	Low
C3c	Management of labour and delivery in low-risk women by skilled attendant (PHC)	High	Low	High	Low	High
C3d	Basic neonatal resuscitation following delivery (PHC)	High	Low	High	Low	High
C34	Environmental management for malaria	High	Medium	High	Low	Low
C4	Promotion of breastfeeding and complementary feeding by community health workers	High	Low	High	Medium	High
C41	Mass drug administration (malaria)	High	High	High	Low	No
C43	Early detection and treatment of leishmaniasis, dengue, chikungunya, rabies, trachoma and helminthiasis.	Medium	Low	Medium	Low	Medium
C45	Identify and refer patients with high risk	None	None	None	None	High
C46	In the context of an emerging infectious outbreak, provide advice and guidance on how to recognize early symptoms and signs and when to seek medical attention	Medium	Low	Medium	Low	High
C47	Exercise-based pulmonary rehabilitation	Medium	Low	Low	Low	No
C48	Self-managed treatment of migraine	Low	Low	Medium	Low	No
C5	Tetanus toxoid immunization among schoolchildren and women attending antenatal care	High	Low	Medium	Medium	High
C50	Parent training of high-risk families, including nurse home visitation for child maltreatment	Medium	High	High	Low	Low
C51	WASH behaviour change interventions, such as community led total sanitation	Low	Medium	Medium	Low	High
C53a	Identification/screening of the early childhood development issues motor, sensory and language stimulation	Medium	High	High	Low	Low
C53b	ECD rehabilitation interventions	Medium	High	High	Low	Low
C56	Interventions for wheelchair users	None	None	None	None	No
C8	Acute severe malnutrition management	Low	High	High	Low	High
C9	Integrated community case management	Medium	Low	Low	Low	Low
FLH1	Care for foetal growth restriction	Medium	High	High	Low	Medium
FLH10	Surgical termination of pregnancy by maternal vacuum aspiration and dilatation & curettage	Low	Low	Low	Low	Low
FLH11	Care for severe childhood infections	Medium	High	High	Low	Medium
FLH12	Severe acute malnutrition management	Medium	Low	Low	Medium	Medium
FLH13	Early detection and treatment of early-stage cervical cancer	Medium	Low	Low	Medium	Low
FLH14	Insertion and removal of contraceptives	Medium	Low	Medium	Low	Low
FLH15	Tubal ligation	Low	High	High	Low	Low
FLH16	Vasectomy	Medium	Low	Medium	Low	Low
FLH17	Referral of cases of treatment failure for drug susceptibility testing; enrolment of those with MDR-TB for treatment per WHO guidelines (either short- or long-term regimen)	High	Low	High	Low	High
FLH18	Evaluation and management of fever in clinically unstable individuals using WHO IMAI guidelines, including empiric parenteral antimicrobials and antimalarial and resuscitative measures for septic shock	High	Low	High	Medium	Medium
FLH2	Induction of labour post-term	Medium	Low	Medium	Low	Medium
FLH20	Management of acute coronary syndromes	Low	High	Medium	Low	Medium

DCP3 Code	Intervention name	Cost-effectiveness	Budget impact	Burden of disease	ICER quality	Current coverage
FLH22	Management of acute exacerbations of asthma and COPD using systemic steroids, inhaled beta-agonists and if indicated oral antibiotics and oxygen therapy	Low	High	Medium	Medium	Low
FLH23	Medical management of acute heart failure	Medium	Low	High	Medium	Medium
FLH24	Bowel obstruction management	High	Low	Medium	Low	Medium
FLH25	Calcium and vitamin D supplementation for secondary prevention of osteoporosisE264	Low	High	High	Low	Low
FLH26	Combination therapy, including low-dose corticosteroids and generic disease-modifying antirheumatic drugs (including methotrexate), for individuals with moderate to severe rheumatoid arthritis	High	Low	Medium	Low	Medium
FLH27	In settings where sickle cell disease is a public health concern, universal newborn screening followed by standard prophylaxis against bacterial infections and malaria	Medium	Low	Low	Medium	Low
FLH28	In setting where specific single-gene disorders are a public health concern (for example thalassemia), retrospective identification of carriers plus prospective (premarital) screening and counselling to reduce rates of conception	Medium	Low	Low	Low	Low
FLH3	Jaundice management with phototherapy	Medium	Low	Low	Low	Medium
FLH30	Intoxication/poisoning management	Medium	Low	Low	Low	Low
FLH31	Appendectomy	Low	Medium	Medium	Medium	High
FLH32	Assisted vaginal delivery using vacuum extraction or forceps	Medium	Low	Medium	Medium	Low
FLH33	Craniotomy for trauma	Medium	Low	Low	Medium	Low
FLH34	Colostomy for acute bowel obstruction/volvulus and injuries.	High	Low	Medium	Low	Medium
FLH35	Escharotomy or fasciotomy	Medium	Low	High	Medium	Low
FLH36	Management of non-displaced fractures	High	Low	High	Medium	Medium
FLH37	Hernia Repair	Medium	Low	Medium	Medium	Medium
FLH38	Hysterectomy for uterine rupture or intractable postpartum haemorrhage	High	Low	Medium	Medium	High
FLH39	Irrigation and debridement of open fractures	Medium	Low	Medium	Low	Medium
FLH4	Eclampsia management with magnesium sulphate, including initial stabilization at health centres	Medium	Low	High	Medium	High
FLH40	Management of osteomyelitis, including surgical debridement	Medium	Medium	High	Low	Medium
FLH41a	Management of Septic Arthritis	Medium	Low	Low	Medium	Low
FLH41b	Placement of External Fixation and Use of Traction for Fractures	Medium	Low	Low	Medium	Low
FLH42	Relief of urinary obstruction by catheterization for fractures	High	Low	High	Low	High
FLH43	Removal of gallbladder, including emergency surgery	Medium	Low	Medium	Low	Medium
FLH44	Repair of perforations (for example perforated peptic ulcer, typhoid ileal perforation)	High	Low	High	Low	High
FLH45	Resuscitation with advanced measures	Medium	Low	Medium	Low	Low
FLH46	Basic Skin grafting	Medium	Low	Low	Medium	Low
FLH48a	Trauma laparotomy	High	Low	High	Medium	High
FLH49	Trauma-related amputations	High	Low	High	Low	Medium
FLH5	Maternal sepsis management	Medium	Low	Medium	Medium	Medium
FLH50	Tube thoracostomy	Medium	Low	Low	Low	Medium
FLH52	Compression therapy for amputations, burns, and vascular or lymphatic disorders	Medium	Low	Low	Medium	Medium
FLH53	Evaluation and acute management of swallowing dysfunction	Medium	Low	Low	Low	Medium
FLH57	Prevention and relief of refractory suffering and acute pain related to surgery, serious injury or other serious, complex or life-limiting health problems	None	None	None	None	Low

DCP3 Code	Intervention name	Cost-effectiveness	Budget impact	Burden of disease	ICER quality	Current coverage
FLH58	First level hospital pathology services	None	None	None	None	Medium
FLH6	Management of new-born complications infections, meningitis, septicaemia, pneumonia and other very serious infections requiring continuous supportive care (such as IV fluids and oxygen)	High	Low	High	Medium	Medium
FLH7	Preterm labour management	Low	Medium	Low	Medium	Medium
FLH8	Management of labour and delivery in high-risk women, including operative delivery (CEmONC)	Low	High	High	Low	Medium
FLH9	Surgery for ectopic pregnancy	High	Low	Medium	Medium	Medium
HC1	Early detection and treatment of neonatal pneumonia with oral antibiotics	High	Low	High	Medium	High
HC10	Screening and management of diabetes (gestational diabetes or pre-existing type II diabetes)	Low	Low	Low	Medium	Low
HC11	Management of labour and delivery in low-risk women (BEmONC), including initial treatment of obstetric or delivery complications prior to transfer (Also included in Surgery package of services)	High	High	High	Low	High
HC12	Detection and treatment of childhood infections with danger signs (IMCI)	High	High	High	Low	Low
HC13	Among all individuals who are known to be HIV+, immediate ART initiation with regular monitoring of viral load for	Low	Low	Low	Medium	Low
HC14	Psychological treatment	Low	High	Medium	Medium	Low
HC16	Post gender-based violence care	Low	Medium	Medium	Low	Low
HC17	Syndromic management of common sexual and reproductive tract infections (for example urethral discharge, genital ulcer and others)	Medium	High	High	Low	High
HC19	For individuals testing positive for hepatitis B and C, assessment of treatment eligibility by trained providers followed by initiation and monitoring of ART when indicated	Low	High	High	Medium	Low
HC2	Miscarriage and abortions management	Low	Low	Medium	Low	Medium
HC20	Hepatitis B and C testing of high-risk individuals identified in the national testing policy with appropriate referral of positive individuals to trained providers	Medium	Medium	Medium	Low	Low
HC21	Partner notification and expedited treatment for common STIs including HIV	High	Medium	High	Medium	Medium
HC23	Provider-initiated testing and counselling for HIV, STIs and hepatitis for all in contact with the health system in high- prevalence setting, including prenatal care with appropriate referral/ linkages to care including immediate ART initiation for those testing positive for HIV	Medium	High	High	Medium	Medium
HC24	Hepatitis B vaccination for high-risk populations, including healthcare workers, IDU, MSM, household contacts and partners with multiple sex partners	Medium	Low	Low	Medium	Low
HC25	Medical male circumcision	Medium	Medium	Medium	Low	Low
HC26	For PLHIV and children under five who are close contacts or household members of individuals with active TB, perform symptom screening and chest radiograph; if there is no active TB, provide isoniazid preventive therapy according to current WHO guidelines	High	Medium	High	Medium	Low
HC27	Diagnosis of TB and first-line treatment	High	Low	High	Low	High
HC28	Screening for HIV in all individuals with a diagnosis of active TB; if HIV infection is present, start (or refer for) ARV treatment and HIV care	High	Low	Medium	Low	Low
HC29	Latent-TB screening and IPT for PLHIV	High	Low	Medium	Low	Low
HC3	Management of premature rupture of membranes, including administration of antibiotics	Low	Low	Low	Low	Low

DCP3 Code	Intervention name	Cost-effectiveness	Budget impact	Burden of disease	ICER quality	Current coverage
HC30	Fever management for clinically stable	Medium	Low	Low	Low	High
HC32	Provision of insecticide nets to U5 children and pregnant women attending health centres	High	Low	Medium	Medium	Medium
HC33	Identify and refer for progressive illness **	None	None	None	None	Medium
HC36	Long-term combination therapy for persons with multiple CVD risk factors, including screening for CVD in community setting using non-lab-based tools to assess overall CVD risk	Low	Medium	Medium	Low	Low
HC37	Low-dose inhaled corticosteroids and bronchodilators for asthma and for selected patients with COPD	Low	Low	Low	Medium	Low
HC38	Provision of aspirin for all cases of suspected acute myocardial infarction	Medium	Low	Low	High	Low
HC39a	Screening and ACEi or ARBs for kidney disease	Low	Low	Low	Low	Low
HC41	Secondary prophylaxis for rheumatic fever	Low	Low	Low	Low	Low
HC42	Treatment of acute pharyngitis for rheumatic fever	High	Low	Medium	Low	High
HC45	Opportunistic screening for hypertension	Medium	High	High	Medium	Low
HC46	Tobacco cessation counselling	High	High	High	Medium	No
HC48	Support for caregivers of dementia patients	Medium	Low	Low	Medium	No
HC49	Bipolar disorder management	Low	Medium	Low	Low	No
HC4a	Provision of condoms and hormonal contraceptives, including emergency contraceptives	High	Low	High	Medium	Low
HC4b	Provision of condoms and hormonal contraceptives, including insertion and removal of contraceptives (PHC)	High	Low	High	Medium	Low
HC50	Management of depression and anxiety disorders with psychological and generic antidepressants therapy	Low	High	Medium	Low	Low
HC53	Screening and brief alcohol intervention	Low	Low	Low	Low	No
HC55	Primary prevention of osteoporosis	Low	Low	Medium	Low	Medium
HC56	Screening for congenital hearing loss	Low	Medium	Medium	Medium	Low
HC57a	Dental extraction (PHC)	Medium	High	High	Low	Medium
HC57b	Dental extraction (FLH)	Medium	High	High	Low	Medium
HC58a	Drainage of dental abscess (PHC)	Low	High	Medium	Low	Low
HC59	Drainage of superficial abscess	Low	Medium	Medium	Low	Medium
HC5a	Counselling on kangaroo care for new-borns (CL)	Medium	Low	Low	Low	Low
HC5b	Counselling on kangaroo care for new-borns (PHC)	Medium	Low	Low	Low	Low
HC6	Management of neonatal sepsis, pneumonia and meningitis using injectable and oral antibiotics	High	Low	Low	Medium	Low
HC60	Non-displaced fractures management	Low	Low	Low	Low	Low
HC61	Resuscitation with basic life support measures	None	None	None	None	Low
HC62	Suturing laceration	Low	Low	Low	Low	Medium
HC63a	Treatment of caries (PHC)	Low	High	Medium	Low	Low
HC64	Basic management of MNIs and disorders	Low	Low	Low	Low	Low
HC66	Psychosocial support and counselling	Low	Low	Low	Low	Low
HC67	Expanded palliative care and pain control measures, including prevention and relief of all physical and psychological symptoms of suffering	None	None	None	None	Low
HC68	Health centre pathology services **	None	None	None	None	Low
HC7	Pharmacological termination of pregnancy	High	Low	High	Low	Low

DCP3 Code	Intervention name	Cost-effectiveness	Budget impact	Burden of disease	ICER quality	Current coverage
HC9a	Screening of hypertensive disorders in pregnancy	Low	Low	Low	Low	High
HC9b	Screening and management of hypertensive disorders in pregnancy	Low	Low	Low	Low	High
P5	Systematic identification of individuals with TB symptoms among high-risk groups and linkages to care (active case finding)	Low	Medium	Medium	Medium	High
RH1	Full supportive care for preterm new-borns	High	Low	High	Medium	Medium
RH2	Specialized TB services, including management of MDR- and XDR-TB treatment failure and surgery for TB	Medium	Low	Medium	Low	Medium
RH3	Management of refractory febrile illness including etiologic diagnosis at reference microbial laboratory	Medium	Low	Low	Low	Medium
RH4	Management of acute ventilator failure due to acute exacerbations of asthma and COPD	Low	Low	Low	Medium	Low
RH5	Retinopathy screening via telemedicine, followed by treatment using laser photocoagulation	Medium	Low	Low	Medium	Low
RH6	Use of percutaneous coronary intervention for acute myocardial infarction where resources permit	Low	Medium	High	Low	Low
RH7	Treatment of early-stage breast cancer with appropriate multimodal approaches (including generic chemotherapy) with curative intent for cases detected by clinical examination	Low	Low	Low	Medium	Medium
RH8	Treatment of early-stage colorectal cancer with appropriate multimodal approaches (including generic chemotherapy) with curative intent for cases detected by clinical examination	Low	Low	Low	Medium	Low
RH9	Treatment of early-stage childhood cancers (such as Burkitt and Hodgkin lymphoma, acute lymphoblastic leukaemia, retinoblastoma and Wilms tumour) with curative intent in paediatric cancer units or hospitals	Low	Low	Medium	Medium	Low
RH10	Elective surgical repair of common orthopaedic injuries (for example meniscal and ligamentous tears) in individuals with severe functional limitation	High	Medium	High	Medium	Low
RH11	Urgent, definitive surgical management of orthopaedic injuries (for example open reduction and internal fixation)	Medium	Low	High	Medium	Low
RH12	Repair of cleft lip and cleft palate	Low	Low	Low	Low	Medium
RH13	Repair of club foot	High	Low	Medium	Low	Low
RH14	Cataract extraction	Low	Medium	High	Medium	High
RH15	Repair of anorectal malformations and Hirschsprung's disease	Medium	Low	Low	Low	Low
RH16	Repair of obstetric fistula	Medium	Low	Medium	Low	Low
RH17	Ventriculoperitoneal Shunt	Medium	Low	Low	Low	Low
RH18	Surgery for Trachomatous Trichiasis	Medium	Low	Medium	Medium	Medium
RH19	Referral level hospital pathology services	None	None	None	None	Medium
RH20	Speciality pathology services	None	None	None	None	Medium