**S3 Table.** Political prioritization and integration of childhood cancer in national health systems: Cross-cutting challenges and sample country solutions

|  |  |  |
| --- | --- | --- |
| Domain | Challenges  | Programmatic Solutions |
|  |  | **El Salvador** | **Guatemala** | **Philippines** | **India** | **Ghana** |
| Governance | *Health system and policy environment*:* Insufficient governance capacities
* Weak or fragmented public health system

*Planning and priority setting*:* Competing health system priorities
 | * Integration into national pediatric hospital network and public sector infrastructure from program inception
* Horizontal system strengthening as nidus for improved coordination of childhood cancer program across care continuum
 | * Creation of independent governance and accountability structures for private, non-for-profit childhood cancer program
* Formal engagement of governmental partner (MSPAS) in policy and program development
 | * Incorporation of pediatric cancer into national UHC and NCD health system reforms
* National cancer control plan (PCCP) broadened to include childhood cancer
* Government designation of comprehensive cancer centers
 | * Distinct governance structures and channels of accountability for leading institution
* Institutional leadership of policy community for innovation and system reform
 | * Presence of strong institutional leaders for policy and advocacy on childhood cancer
* Centralized institutional oversight of childhood cancer care program; push for integration with system priorities
 |
| Financing | *Resource generation*: * Constrained public resources
* Inconstant financing flows
 | * Creation of public-private funding model to supplement public resources
* Foundation generation of novel philanthropic funds and revenues streams
* Engagement of civil society for coverage of indirect medical costs and mobilization of community donations
 | * Creation of public-private funding model to minimize reliance on steady government funding
* Novel and sustained channels of funding generated through private foundation (AYUVI)
* Early engagement of national and international philanthropic partners for financial support
 | * Mix of public and private resource generation
* Recent creation of public ‘sin tax’ to augment DOH revenues
* DOH pooling and allocation to public hospitals
* Corporate donor and philanthropic foundation supplementation of specific institutional or program budgets
 | * TMC resources derived from mix of dedicated channel of government funds (DAE), patient-specific public and private insurance schemes, corporate donations, private philanthropy
 | * Majority of total health expenditure from government sources, covers elements of in-hospital services at tertiary referral centers
 |
| *Resource distribution*:* Gaps in health coverage, limited financial risk protection
 | * Annual government budgetary allocation contingent on program reporting
* Dedicated government provision of funding for institutional overhead and select service costs at tertiary referral hospital (HNNBB)
 | * Annual government budgetary allocation based on program reporting
* Pooling and direct allocation of ear-marked funds by AYUVI
* Free coverage of direct and majority of indirect medical costs by UNOP/AYUVI
 | * Means-tested government subsidies (Z Benefit) for direct medical care for patients with ALL
* ‘No balance billing’ policies for indigent patients
* Variable provision of philanthropic support for indirect costs of care
 | * Comprehensive coverage of childhood cancer care at TMC, through institutional resources and supplementary support from ImPaCCT
* Wide variations in coverage within and across Indian public and private health sectors
 | * External donor support of childhood cancer program development
* Need for enhanced coverage of childhood cancer in NHIA
 |
| Service delivery | *Health workforce and infrastructure*: * Limited investment in human and infrastructural bases of childhood cancer care
 | * Construction of autonomous outpatient pediatric cancer center on government-donated land
* Utilization of public infrastructure and human resources through partnership with national referral hospital
* Foundation-supported competitive salary and professional opportunities to improve specialist retention
* Development of national training programs to improve primary care provider awareness of pediatric cancer
* Regional cooperative and international partnerships for specialized training, education, and research
 | * Construction of stand-alone hospital for pediatric cancer care
* Leverage of existing public medical and social services through external contracting as needed
* Participation in regionalized health workforce training for pediatric subspecialists
* Regional cooperative and international partnerships for education and research
* Regional standardization and evaluation of resource-adapted treatment protocols
 | * Early government investment in specialized workforce training, including a recognized pediatric oncology fellowship and specialty nursing training program
* ALLMAP and Z benefit package allocate funds for training of allied health professionals at designated treatment sites
* Establishment of national pediatric oncology professional society and participation in Western Pacific cooperative group promote standardization and evaluation of context-specific care protocols
 | * Robust programs of pediatric oncology specialty training across the country
* Centers of excellence in childhood cancer care
* NCG adoption of uniform clinical standards, distributed training programs, and cooperative research infrastructure
* Recent establishment of Indian Pediatric Oncology Group (InPOG) for cooperative clinical trials in pediatric cancer
 | * Limited investment in infrastructure related to childhood cancer care
* Regional cooperative and international partnerships for specialized training, education, and research, mainly in Africa and India
 |
| *Essential medicines and health technologies*: * Erratic supply of essential medicines for cancer
* Cost-related access barriers
 | * Government adoption of WHO Essential Medicines List, legislation on right to access essential medicines
* Foundation purchase of non-formulary or high-cost drugs, per international guidelines
* Government approval process for independent procurement of non-formulary pediatric cancer drugs
 | * Foundation (AYUVI) procurement of all essential medications and technologies, per WHO EMLc and international professional guidelines
* UNOP audits of institutional use and oversight of supply management
 | * ALLMAP ring-fenced funding for chemotherapy drugs for leukemic patients; remainder fall under general Medicines Access Program
* Coordinated professional-civil society advocacy for drug price reductions and enhanced coverage
 | * Strong domestic generic drug production supports availability and decreases prices; however, weak pharmacovigilance of drug provenance and quality
 | * Strong pharmacovigilance from the Ghana National Drugs Program within the Ministry of Health
* Prices monitored by GNDP and MOH
* 70% of generic drugs imported from India/China
* National Drug Policy adapted from the WHO Essential medicines list
 |
| Care access & utilization | *Social determinants and access to care*: * Treatment abandonment due to socioeconomic and cultural barriers
* Diagnostic and treatment delays due to limited diagnostic capacities and weak referral pathways
 | * Primary care teams (ECOS) as node for early cancer detection and referral
* Philanthropic (ASAPAC) support to families for indirect costs of care
* Service devolvement to primary care tier for shared-care models in palliation, supportive care, survivorship
 | * De-concentration of outpatient services to satellite clinics
* Direct relationships with referring hospitals for newly diagnosed cases
* Centralized referral of pediatric cancer care for MSPAS and public sector (unclear for private sector)
 | * Decentralization of care to a network of accredited treatment centers to improve access
* Earlier detection improved from large national public awareness campaigns
* Network of designated pediatric cancer sites improved coordination and effective use of available resources (decentralized but regionalized care)
 | * TMC foundation (ImPaCCT) support for indirect costs of care (nutrition, accommodation, vocational training, family psychosocial services)
 | * Civil society support to expand primary care capacities for early recognition and referral
* Philanthropic support of indirect costs of care through international civil society and foreign aid
 |
| Health information systems | *Surveillance and data management*:* Lack of reliable epidemiologic and outcome data to adjudicate system performance
 | * Early investment in modular electronic medical record on open access platform
* Integration of pediatric cancer-specific EMR into public children’s hospital
* Creation of population-based pediatric cancer registry, incorporated into MOH data
 | * Guatemalan Pediatric Cancer Registry initiated in 2014
* Retrospective archiving into an electronic health database at UNOP
* Routine use of institutional data to for quality improvement projects and future strategic planning
 | * Established regional population-based cancer registry (Manila/Rinzal), ongoing development of national registry
* Circumscribed database created for monitoring of ALLMAP and Z benefits package recipients
 | * Operation of 28 population- and 7 hospital-based registries under the National Cancer Registry Program; ongoing efforts to improve data quality and expand coverage
 | * Institution-specific data on childhood cancer outcomes; no population-based registration or national reporting of childhood cancer incidence or outcomes
 |