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

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| 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 |