

Additional file 8 – List of barriers and enablers per cluster mapped to the attributes of the ICON Framework and grouped in sub-categories

Barriers and enablers of time-dependent metrics (n=80) mapped to the attributes of the ICON Framework and grouped in sub-categories

	Barrier	Enabler
REGULATORY INFLUENCES (ICON ATTRIBUTE), n=50 (63%)		
Long term strategic planning and standardised care pathways		
Standardised cancer care pathways at National level	(lack of)	
Long-term National strategic planning document and clarity of the strategic anchoring of efficiency metrics		
Laws and legislation		
Legislation supporting cancer data collection		
Legislation regarding cancer registration managed by National cancer entity		
Different strategies/regulations between regions/ provinces/ territories and federal/national		
National approach regarding cancer data/cancer registries		
National approach regarding cancer data	(lack of)	
National approach regarding cancer registry	(lack of)	
Limited population coverage in cancer registries		
National cancer registries used for quality monitoring		
Semi-automatic data flows in Cancer Registration programme		
National cancer registries used to support decision-making of the MoH		
Maturity of data ecosystem		
Developed data ecosystem		
Electronic health record	(lack of)	
Interoperability (lack of interoperability leading to data siloing)	(lack of)	
Nation-wide unique patient identifier (UPI) for data linkage	(lack of)	
Centralization of data collection by one organization		
Accessibility of data from Primary Health Care	(lack of)	
Systematic and harmonised data collection		
Systematized data collection	(lack of)	
Regular consolidation and report of data	(lack of)	
Availability of data for secondary use, including performance measurement		
Inclusiveness - Patient retain power over their data		
Strategy implemented regarding data sharing	(lack of)	
Access to clinical data secondary uses	(lack of)	
Reporting mechanisms to National Health Institutes	(lack of)	
Quality assurance mechanisms, with penalties to hospitals not complying		
Metrics are collected but are not publicly reported		

POLITICAL INFLUENCES (ICON ATTRIBUTE), n=16 (20%)

Political will		
Political will	(lack of)	
National law of low quality and needing revision		
Time investment required to develop Cancer Registries		
Political organisation		
Mandates between National/ federal and regional /provinces/territories		
Inclusiveness and collaboration at decision-making		
External political pressure		
International pressure, namely from Europe		
INTERCOMMUNITY/ INTERORGANIZATIONAL/ INTERSECTORAL RELATIONSHIPS, n=13 (16%)		
Coordination with Primary care		
Data reporting not useful for clinical work		
Clarity regarding implementation and shared responsibilities among stakeholders	(lack of)	
COMMUNITY INFLUENCES, n=1 (1%)		
Peer organizational pressure		

Barriers and enablers of coordination of care metrics (n=52) mapped to the attributes of the ICON Framework and grouped in sub-categories

	Barrier	Enabler
REGULATORY INFLUENCES (ICON ATTRIBUTE), n=39 (75%)		
Oncology nurse specialists		
Legal framework for the professional role of oncology nurses	(lack of)	
Variability across jurisdictions of cancer nurses' scope of practice		
Role of mandated focal point/care coordinator underexplored		
Multidisciplinary teams		
Regulation of multidisciplinary teams profiles and responsibilities	(lack of)	
Heterogeneous regulation of multidisciplinary teams across regions/jurisdictions		
Quality assurance mechanisms favour use of multidisciplinary teams		
Certification procedures ensure minimum requirements for multidisciplinary teams		
Standardised care pathways support the institutionalisation of multidisciplinary teams		
Centralisation of care		
Multi-disciplinary organization of cancer care at hospital-level		
Centralisation of cancer care in specialized centres	(lack of)	
Task sharing and shifting		
Regulation concerning task shifting and task sharing	(lack of)	
Harmonisation concerning task shifting and task sharing	(lack of)	
Professionalisation of a family medicine specialization in oncology (General Practitioners in Oncology (GPOs))		
POLITICAL INFLUENCES (ICON ATTRIBUTE), n=6 (12%)		
Political will	(lack of)	
Availability of nurses	(lack of)	
COMMUNITY INFLUENCES, n=3 (6%)		
National Association of Oncology Nurses established and engaged		
Patient advocacy organizations and NGOs support by providing care coordinators		
INTERCOMMUNITY/ INTERORGANIZATIONAL/ INTERSECTORAL RELATIONSHIPS, n=3 (6%)		
Communication to primary care		
REGIONAL/ NATIONAL/ GLOBAL INFLUENCES ON HEALTH, n=1 (2%)		
Unpopularity of nurses job after COVID-19 pandemic		

Barriers and enablers of patient-reported metrics (n=46) mapped to the attributes of the ICON Framework and grouped in sub-categories

	Barrier	Enabler
POLITICAL INFLUENCES (ICON ATTRIBUTE), n=21 (46%)		
Political will	(lack of)	
Funding	(lack of)	
National approach to systematic data collection	(lack of)	
Unclear strategic purpose and use		
COMMUNITY INFLUENCES, n=10 (22%)		
Low levels of health literacy		
Societal advocacy groups with no connection to the health care system		
Advocacy efforts by patient groups and NGOs		
Organizations' will to include patient perspectives		
REGULATORY INFLUENCES (ICON ATTRIBUTE), n=10 (22%)		
Standardised approach	(lack of)	
Use of standardised tools (National or International)		
No embedding in existing cancer registries or databases		
Enforcement mechanisms	(lack of)	
Feedback mechanisms	(lack of)	
INTERCOMMUNITY/ INTERORGANIZATIONAL/ INTERSECTORAL RELATIONSHIPS, n=5 (11%)		
Linking up the use of metrics to other functions		
Scale up of successfully run pilot projects		