

Appendix 2

Perceived barriers, enablers and proposed targeted strategies to advance academic clinical cancer research in Portugal

TICD Framework Domains	BARRIERS	ENABLERS	Potential implementation strategies
1. BEHAVIOUR FACTORS: Recruiting to academic clinical trials			
Compatibility	<ul style="list-style-type: none"> • Narrow eligibility criteria • Expectation to use Investigational Medicinal Products from the shelf 		<ul style="list-style-type: none"> • Creation of multicentre national networks • Provide information, education and feedback
2. INDIVIDUAL HEALTH PROFESSIONAL FACTORS			
<u>2.1 Knowledge and skills</u>			
Domain knowledge	<ul style="list-style-type: none"> • Lack of experience and guidance 	<ul style="list-style-type: none"> • Training material provided by regulatory agencies and through European channels 	<ul style="list-style-type: none"> • Improve dissemination of training material • Provide support and directed guidance
Awareness and familiarity	<ul style="list-style-type: none"> • Underappreciation of added value of engagement of the Portuguese network with international networks 		<ul style="list-style-type: none"> • Develop a dissemination strategy to recognise this added value
Skills needed to adhere	<ul style="list-style-type: none"> • Lack of experience and guidance 	<ul style="list-style-type: none"> • Advice from regulatory agencies 	<ul style="list-style-type: none"> • Develop educational strategies
<u>2.2 Cognitions (including attitudes)</u>			
Attitudes towards clinical trials in general	<ul style="list-style-type: none"> • Lack of acknowledgment of academic research's potential 	<ul style="list-style-type: none"> • Motivation and interest 	<ul style="list-style-type: none"> • Develop educational strategies
<u>2.3 Professional behaviour</u>			
Nature of the behaviour	<ul style="list-style-type: none"> • Delayed responsiveness to feasibility assessments and recruitment issues • Healthcare professionals' misperceptions of patients' needs 		<ul style="list-style-type: none"> • Provide support to researchers • Improve effective communication with patients
3. PATIENT FACTORS			
Patient needs	<ul style="list-style-type: none"> • Some patients' demands may hinder adherence 		<ul style="list-style-type: none"> • Improve communication with patients
Patient beliefs and knowledge	<ul style="list-style-type: none"> • Limited patient's access to adequate information 		<ul style="list-style-type: none"> • Promote activities to enhance patients' health literacy regarding clinical trial participation • Raise awareness and disseminate available clinical trials information more broadly
4. PROFESSIONAL INTERACTIONS			
Communication and influence	<ul style="list-style-type: none"> • Lack of engagement of the Portuguese network with international networks • Clinicians do not engage with translational researchers 		<ul style="list-style-type: none"> • Engage with international networks • Obtain endorsement by professional organisations or opinion leaders

Referral processes	<ul style="list-style-type: none"> Portuguese hospitals are frequently contacted by the sponsor at an advanced stage of the clinical trials (or not at all) 		<ul style="list-style-type: none"> Engage with international networks
5. INCENTIVES AND RESOURCES			
Availability of necessary resources	<ul style="list-style-type: none"> Limited availability of screening procedures and/or treatments as part of the standard of care 		<ul style="list-style-type: none"> Develop a more targeted approach by study sponsors to identify research questions well-suited for Portugal
	<ul style="list-style-type: none"> Insufficient protected time dedicated to research 		
	<ul style="list-style-type: none"> High workload of clinicians 	<ul style="list-style-type: none"> Law n. 1739/2024, 14 February, which determines measures providing Clinical Research Centres of the National Health Service with greater capacity and autonomy 	
	<ul style="list-style-type: none"> Lack of technical support to researchers 	<ul style="list-style-type: none"> Possibility to ask advice to EMA 	
Financial incentives and disincentives	<ul style="list-style-type: none"> Appropriate requirements regarding patient compensation 		<ul style="list-style-type: none"> Improve national funding opportunities to improve compensation for research sites
	<ul style="list-style-type: none"> Insufficient investment on academic trials Limited funding opportunities 		<ul style="list-style-type: none"> Establish strategic partnerships with foundations, academic institutions, and non-governmental organisations to boost funding availability
	<ul style="list-style-type: none"> Lack of access to innovative treatments in academic clinical trials 		
6. CAPACITY FOR ORGANISATIONAL CHANGE			
Mandate, authority, accountability		<ul style="list-style-type: none"> Implementation of autonomous management in health institutions (Law nr. 1739/2024, 14 Feb 2024). 	
Priority of necessary change	<ul style="list-style-type: none"> Insufficient prioritisation of academic trials 		<ul style="list-style-type: none"> Engage leaders or managers, consider providing training for managers Persuade those responsible to change their priorities Ensure expedited contract agreements and overall facilitation of financial aspects, for instance related to procedures or travel pay if these expenses would already be on the hospital

			side (outside of the clinical trial).
7. SOCIAL, POLITICAL AND LEGAL FACTORS			
Economic constraints on the health care budget	<ul style="list-style-type: none">• Limited investment in academic cancer clinical research		<ul style="list-style-type: none">• Engage policy-makers to prioritise and invest in academic cancer clinical research
Legislation	<ul style="list-style-type: none">• Regulatory authorities are slower than in several European countries, making the country less competitive.		<ul style="list-style-type: none">• The new European Clinical Trials Regulation (CTR), implemented since January 31, 2025, aims to streamline and harmonise the process for conducting clinical trials across EU Member States.
Payer or funder policies		<ul style="list-style-type: none">• The existence of a National Health Service that supports all the costs incurred by a cancer patient is an added value that gives Portugal international competitiveness.	<ul style="list-style-type: none">• Increase public investment and enhance access to clinical trials by cancer patients. This potential increase in the competitiveness of the public health service benefits the competitiveness of the national health system as a whole, which includes private hospitals, and of the country itself.