

1 **Supplementary tables**

2 **Table S1: Regional policies: data collection form**

Regional policies	Organisational unit	FTE	Information sources	Interaction with stakeholders	Time to policy implementation check	Internal communication	External communication	Other aspects
Regional formulary								Inclusion criteria
Prescribing centres selection								Guidance on prescribing centres selection
Procurement								Target population estimation
Actions on prescribing behaviour: NHS prescribing appropriateness								Information about reimbursement criteria
Actions on prescribing behaviour: clinical pathways								Detected critical issues Design and monitoring
Actions on prescribing behaviour: guidance on alternative treatments								Implemented actions: e.g. comparative evidence, guidance on prescribing behaviour Focus on any specific therapeutic area Interaction with health care professionals

3 FTE= Full-Time-Equivalent staff involved

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1 **Table S2: Perceptual analysis: data collection form for perceptual analysis**

AIFA's Data	Regional formulary	Prescribing centres selection	Procurement	Actions on prescribing behaviour: NHS prescribing appropriateness	Actions on prescribing behaviour: clinical pathways	Actions on prescribing behaviour: guidance on alternative treatments
Price and reimbursement Determina						
Drug registry form						
Innovativeness status						
Discount over list price						
Disease burden						
Alternative treatments						
Relative effectiveness and added therapeutic value						
Cost of alternative treatments						
Target population estimate						
Expected market share of the new medicine (3 years)						
Budget impact analysis						
Cost-effectiveness analysis						
Improved AIFA Horizon Scanning						

2 Respondents were invited to score:

- 3
- Full-Time-Equivalent staff involved (FTE): from 1 to 4, depending on the expected impact on FTE: 1=absent, 2=up to 10%,
- 4 3=up to 30%, 4=up to 50%
- Time to regional Policy Completion (TPC): from 1 to 4, depending on the expected impact on TPC: 1=absent, 2=up to 10%,
- 6 3=up to 30%, 4=up to 50%

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1 **Table S3: Regional formularies: inclusion criteria and prioritization**

Region	Inclusion criteria	Prioritization
Emilia Romagna	Relative effectiveness / safety profile National and international guidelines Reimbursed alternative options	Innovative medicines and indications Drugs for rare diseases Not-reimbursed drugs with specific clinical needs or required by health care organisations
Campania	Relative effectiveness / safety profile Cost-effectiveness Impact on prescriptions and spending caps	Innovative medicines and indications Drugs for rare diseases Drugs for HIV Medicines included into the A-PHT list Medicines with a drug registry New formulation / new dosages of already listed drugs
Puglia	Relative effectiveness / safety profile Cost-effectiveness Therapeutic innovativeness	-

2 A PHT: List of drugs directly distributed by health care organizations to the patients

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1 **Table S4: Prescribing centres: selection criteria**

Region	Selection criteria
Veneto	Specific criteria for each therapeutic area (e.g. disease-specific networks for oncology and oncohaematology)
Emilia Romagna	Bottom-up approach (the request comes from health care organisations) In general, the most relevant selection criteria are - infrastructural, technological, safety requirements - regional policies (e.g. direct distribution of medicines) - inclusion into the regional disease-specific networks
Campania	In general, expected number of eligible patients to treat For cancer medicines and drugs for rare diseases: inclusion into the relevant disease-specific network
Puglia	Expected number of eligible patients to treat Public health care centres preferred to private ones Infrastructural, technological and organisational requirements

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1 **Table S5: Procurement: eligible population estimates**

Region	Estimates of the eligible patients
Veneto	Number of patients already treated (if alternative treatments exist) New expected patients Spending caps on health care organisations (the Region is used to interact with the selected prescribing centres to make these estimates)
Emilia Romagna	Figures provided by the healthcare organisations (only in very specific cases the Region makes its own calculation) Interaction with the pharmaceutical companies
Campania	Figures provided by the pharmaceutical companies Internal regional estimates on grounds of: - volumes of prescribed alternative treatments, if they already exist - potential eligibility
Puglia	If alternative treatments already exist: consumption of alternative treatments If there are no alternative treatments: - epidemiological data - patient funnel on the grounds of reimbursement eligibility Figures provided by the pharmaceutical companies

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1 **Table S6: Actions on prescribing behaviour**

Region	Implemented actions	Focus on specific therapeutic areas	Organisation of working groups with clinicians
Veneto	Comparative assessment document: place in therapy, relative effectiveness and safety, economic and organisation impact Guidance on prescribing behaviour	Yes, but not pre-specified	Yes, for oncologic and oncohaematology drugs
Emilia Romagna	Comparative assessment document Therapeutic guidelines and guidance Cost-effectiveness supporting therapeutic choice	Different areas, including oncologic and oncohaematology drugs, Antibiotics, Antidiabetics, Proton Pump Inhibitors, Medicines subject to therapeutic plans	Multidisciplinary working groups on many therapeutic areas
Campania	Indicators on NHS prescription appropriateness Guidelines and protocols for the appropriate use of innovative drugs Monitor of spending and NHS prescription appropriateness	Rare diseases, rheumatology, gastroenterology, dermatology	Rheumatology and cardiovascular diseases
Puglia	Comparative assessment document Dashboard to monitor prescribing behaviour and its consistency with expenditure targets Guidance based on cost-effectiveness	Areas with the highest expenditure growth rate (e.g. oncologic and oncohaematology drugs, immune diseases, diabetes)	HTA Panels

2 Therapeutic plans: forms compiled by specialists that provide guidance on prescriptions by general practitioners

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1 **Table S7: Horizon Scanning at regional level**

Region	Therapeutic area	HS activities
Veneto	Haematology, Oncohaematology, Oncology, Rare diseases, Antibiotics. In general, biologic drugs with a registry / therapeutic plan	Post CHMP positive opinion. Analysis of the assessment of other HTA Agencies
Emilia Romagna	Oncology, Oncohaematology, Rare diseases, Immunosuppressants	The HS mostly relies on AIFA's Report and is focused on the most critical medicines (e.g., gene therapies, cancer drugs, high-cost drugs)
Campania	Rare diseases	1. Quarterly identification medicines (both pre and post the CHMP positive opinion) 2. Selection: risk-benefit profile, other advantages for patients, costs, infrastructural requirements 3. Prioritization: impact on costs, health care organisations and clinical pathway 4. HTA mini report 5. Dissemination
Puglia	Therapeutical areas with the highest impact / expenditure growth rate (e.g. Oncology, Immunomodulators, Antithrombotic drugs, Antidiabetics, Antibiotics).	The HS mostly relies on AIFA's Report and information provided by the pharmaceutical industry

2 Registry: Drug registry includes eligibility, follow-up and treatment interruption forms the clinicians should compile. Therapeutic plans:

3 forms compiled by specialists that provide guidance on prescriptions by general practitioners.

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1 **Table S8: Information sources used by the regions for pharmaceutical policies**

Region	Regional formulary	Prescribing centres selection	Procurement	Actions on prescribing behaviour: clinical pathways	Actions on prescribing behaviour: NHS prescribing appropriateness	Actions on prescribing behaviour: guidance on alternative treatments
Current information available from AIFA (P&R Determina, Drug Registry, Therapeutic Plan, ...)						
Veneto	absent	✓	✓			
Emilia Romagna		✓			✓	✓
Campania	✓				✓	
Puglia		✓			✓	✓
Scientific literature						
Veneto	absent					✓
Emilia Romagna	✓					✓
Campania	✓					
Puglia	✓			✓		
Guidelines / Guidance at international and national levels						
Veneto	absent					
Emilia Romagna	✓					✓
Campania	✓					
Puglia				✓		
Regional sources (e.g. administrative databases, disease registries if any)						
Veneto	absent		✓		✓	✓
Emilia Romagna		✓	✓	✓		✓
Campania	✓		✓			✓
Puglia			✓		✓	✓
Pharmaceutical companies						
Veneto	absent					
Emilia Romagna			✓			
Campania		✓	✓			
Puglia	✓	✓	✓			

2 Drug registry includes eligibility, follow-up and treatment interruption forms the clinicians should compile. Therapeutic plans: forms

3 compiled by specialists that provide guidance on prescriptions by general practitioners

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1 **Table S9: Perceived impact of data sharing on FTE (continues on next page)**

Item / Region	All policies (mean value)					Prescribing centres selection					Regional formulary					Procurement					Actions on prescribing behaviour: guidance on alternative treatments					Actions on prescribing behaviour: clinical pathways									
	VE	E	CA	PU	Me	VE	E	CA	PU	Me	VE	E	CA	PU	Me	VE	E	CA	PU	Me	VE	E	CA	PU	Me	VE	E	CA	PU	Me					
	N	R	M	G	an	N	R	M	G	an	N	R	M	G	an	N	R	M	G	an	N	R	M	G	an	N	R	M	G	an	N	R	M	G	an
Target population estimate	3.5	4.0	3.6	3.6	3.7	2.0	4.0	4.0	4.0	3.5		4.0	4.0	3.0	3.7	4.0	4.0	4.0	4.0	4.0	4.0	4.0	2.0	4.0	3.5	4.0	4.0	4.0	3.0	3.8					
Budget impact analysis	3.3	3.4	3.8	4.0	3.6	4.0	3.0	3.0	4.0	3.5		4.0	4.0	4.0	4.0	4.0	3.0	4.0	4.0	3.8	3.0	4.0	4.0	4.0	3.8	2.0	3.0	4.0	4.0	3.3					
Cost-effectiveness analysis	3.0	3.6	3.6	3.4	3.4	4.0	3.0	2.0	3.0	3.0		4.0	4.0	4.0	4.0	3.0	4.0	4.0	2.0	3.3	3.0	4.0	4.0	4.0	3.8	2.0	3.0	4.0	4.0	3.3					
Cost of alternative treatments	3.5	3.4	3.2	3.4	3.4	4.0	2.0	1.0	3.0	2.5		4.0	4.0	3.0	3.7	4.0	4.0	4.0	3.0	3.8	4.0	4.0	3.0	4.0	3.8	2.0	3.0	4.0	4.0	3.3					
Price and reimbursement Determinants	3.5	3.4	3.8	2.8	3.4	4.0	3.0	4.0	2.0	3.3		4.0	4.0	2.0	3.3	4.0	2.0	3.0	2.0	2.8	4.0	4.0	4.0	4.0	4.0	2.0	4.0	4.0	4.0	3.5					
Drug registry form	3.3	3.6	3.8	2.8	3.4	4.0	4.0	4.0	2.0	3.5		4.0	4.0	2.0	3.3	3.0	2.0	3.0	2.0	2.5	4.0	4.0	4.0	4.0	4.0	2.0	4.0	4.0	4.0	3.5					
Alternative treatments	4.0	3.4	3.4	2.8	3.4	4.0	3.0	2.0	2.0	2.8		3.0	4.0	2.0	3.0	4.0	4.0	3.0	2.0	3.3	4.0	4.0	4.0	4.0	4.0	4.0	3.0	4.0	4.0	3.8					

2 Values range from 1 to 4, depending on the expected impact on FTE (Full-Time-Equivalent staff involved): 1=absent, 2=up to 10%, 3=up to 30%, 4=up to 50%.

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1 **Table S9: Perceived impact of data sharing on FTE**

Item / Region	All policies (mean value)					Prescribing centres selection					Regional formulary					Procurement					Actions on prescribing behaviour: guidance on alternative treatments					Actions on prescribing behaviour: clinical pathways									
	VE	E	CA	PU	Me	VE	E	CA	PU	Me	VE	E	CA	PU	Me	VE	E	CA	PU	Me	VE	E	CA	PU	Me	VE	E	CA	PU	Me					
	N	R	M	G	an	N	R	M	G	an	N	R	M	G	an	N	R	M	G	an	N	R	M	G	an	N	R	M	G	an	N	R	M	G	an
Expected market share of the new medicine (3 years)	3.5	3.6	3.6	2.6	3.3	4.0	3.0	4.0	2.0	3.3		4.0	4.0	2.0	3.3	4.0	4.0	4.0	2.0	3.5	4.0	4.0	2.0	4.0	3.5	2.0	3.0	4.0	3.0	3.0					
Relative effectiveness and added therapeutic value	3.3	3.6	3.0	3.2	3.3	4.0	3.0	1.0	3.0	2.8		4.0	4.0	3.0	3.7	3.0	4.0	3.0	2.0	3.0	4.0	4.0	3.0	4.0	3.8	2.0	3.0	4.0	4.0	3.3					
Innovativeness status	3.0	3.6	3.2	2.8	3.2	3.0	3.0	3.0	2.0	2.8		4.0	4.0	2.0	3.3	3.0	3.0	4.0	2.0	3.0	4.0	4.0	2.0	4.0	3.5	2.0	4.0	3.0	4.0	3.3					
Disease burden	3.0	3.2	3.6	2.8	3.2	4.0	3.0	3.0	2.0	3.0		3.0	4.0	2.0	3.0	2.0	3.0	3.0	2.0	2.5	4.0	3.0	4.0	4.0	3.8	2.0	4.0	4.0	4.0	3.5					
Discount over list price	3.5	3.0	3.0	2.8	3.1	4.0	2.0	2.0	2.0	2.5		4.0	4.0	2.0	3.3	4.0	2.0	4.0	2.0	3.0	4.0	4.0	3.0	4.0	3.8	2.0	3.0	2.0	4.0	2.8					
Mean score	3.4	3.5	3.5	3.1	3.3					3.0					3.5					3.2					3.8					3.3					

2 Values range from 1 to 4, depending on the expected impact on FTE (Full-Time-Equivalent staff involved): 1=absent, 2=up to 10%, 3=up to 30%, 4=up to 50%.

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1 **Table S10: Perceived impact of data sharing on TPC (continues on next page)**

Item / Region	All policies (mean value)					Prescribing centres selection					Regional formulary					Procurement					Actions on prescribing behaviour: guidance on alternative treatments					Actions on prescribing behaviour: clinical pathways									
	VE	E	CA	PU	Me	VE	E	CA	PU	Me	VE	E	CA	PU	Me	VE	E	CA	PU	Me	VE	E	CA	PU	Me	VE	E	CA	PU	Me					
	N	R	M	G	an	N	R	M	G	an	N	R	M	G	an	N	R	M	G	an	N	R	M	G	an	N	R	M	G	an	N	R	M	G	an
Alternative treatments	4.0	3.0	3.4	4.0	3.6	4.0	3.0	2.0	4.0	3.3		3.0	4.0	4.0	3.7	4.0	3.0	3.0	4.0	3.5	4.0	3.0	4.0	4.0	3.8	4.0	3.0	4.0	4.0	3.8					
Price and reimbursement Determina	3.5	3.0	3.8	4.0	3.6	4.0	3.0	4.0	4.0	3.8		3.0	4.0	4.0	3.7	4.0	3.0	3.0	4.0	3.5	4.0	3.0	4.0	4.0	3.8	2.0	3.0	4.0	4.0	3.3					
Cost of alternative treatments	3.5	3.2	3.2	4.0	3.5	4.0	3.0	2.0	4.0	3.3		3.0	4.0	4.0	3.7	4.0	3.0	4.0	4.0	3.8	4.0	4.0	4.0	4.0	4.0	2.0	3.0	2.0	4.0	2.8					
Innovativeness status	3.0	3.4	3.4	4.0	3.5	3.0	3.0	3.0	4.0	3.3		4.0	4.0	4.0	4.0	3.0	4.0	4.0	4.0	3.8	4.0	3.0	3.0	4.0	3.5	2.0	3.0	3.0	4.0	3.0					
Budget impact analysis	3.3	3.4	3.0	4.0	3.4	4.0	4.0	3.0	4.0	3.8		3.0	4.0	4.0	3.7	4.0	4.0	4.0	4.0	4.0	3.0	3.0	2.0	4.0	3.0	2.0	3.0	2.0	4.0	2.8					
Discount over list price	3.5	3.2	2.8	4.0	3.4	4.0	3.0	2.0	4.0	3.3		3.0	4.0	4.0	3.7	4.0	4.0	4.0	4.0	4.0	4.0	3.0	2.0	4.0	3.3	2.0	3.0	2.0	4.0	2.8					
Target population estimate	3.5	3.2	3.4	3.4	3.4	2.0	4.0	3.0	4.0	3.3		3.0	3.0	3.0	3.0	4.0	3.0	4.0	4.0	3.8	4.0	3.0	3.0	4.0	3.5	4.0	3.0	4.0	2.0	3.3					

2 Values range from 1 to 4, depending on the expected impact on TPC (Time to policy completion): 1=absent, 2=up to 10%, 3=up to 30%, 4=up to 50%.

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1 **Table S10: Perceived impact of data sharing on TPC**

Item / Region	All policies (mean value)					Prescribing centres selection					Regional formulary					Procurement					Actions on prescribing behaviour: guidance on alternative treatments					Actions on prescribing behaviour: clinical pathways									
	VE N	E R	CA M	PU G	Me an sco re	VE N	E R	CA M	PU G	Me an sco re	VE N	E R	CA M	PU G	Me an sco re	VE N	E R	CA M	PU G	Me an sco re	VE N	E R	CA M	PU G	Me an sco re	VE N	E R	CA M	PU G	Me an sco re					
Relative effectiveness and added therapeutic value	3.3	3.0	3.4	3.6	3.3	4.0	3.0	2.0	3.0	3.0		3.0	4.0	4.0	3.7	3.0	3.0	3.0	3.0	3.0	4.0	3.0	4.0	4.0	3.8	2.0	3.0	4.0	4.0	3.3					
Cost-effectiveness analysis	3.0	3.2	3.2	3.4	3.2	4.0	3.0	3.0	3.0	3.3		3.0	4.0	4.0	3.7	3.0	4.0	2.0	3.3	3.0	3.0	3.0	4.0	3.3	2.0	3.0	2.0	4.0	2.8						
Disease burden	3.0	3.2	3.6	2.8	3.2	4.0	3.0	2.0	2.0	2.8		3.0	4.0	2.0	3.0	2.0	3.0	4.0	2.8	4.0	3.0	4.0	4.0	3.8	2.0	4.0	4.0	4.0	3.5						
Drug registry form	3.3	3.2	3.4	2.4	3.1	4.0	4.0	3.0	4.0	3.8		3.0	4.0	2.0	3.0	3.0	3.0	2.0	2.8	4.0	3.0	4.0	2.0	3.3	2.0	3.0	3.0	2.0	2.5						
Expected market share of the new medicine (3 years)	3.5	3.2	3.0	2.2	3.0	4.0	4.0	3.0	2.0	3.3		3.0	3.0	2.0	2.7	4.0	3.0	4.0	2.0	3.3	4.0	3.0	2.0	3.0	3.0	2.0	3.0	2.0	2.5						
Mean score	3.3	3.2	3.3	3.4	3.3						3.3						3.4						3.4						3.5						2.9

2 Values range from 1 to 4, depending on the expected impact on TPC (Time to policy completion): 1=absent, 2=up to 10%, 3=up to 30%, 4=up to 50%.

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1 **Table S11: Perceived impact of an improved Horizon Scanning on FTE and TPC**

Item / Region	TPC					FTE				
	VEN	ER	CAM	PUG	Mean score	VEN	ER	CAM	PUG	Mean score
Regional formulary		4.0	4.0	4.0	4.0		3.0	3.0	3.0	3.0
Actions on prescribing behaviour: clinical pathways	4.0	2.0	4.0	4.0	3.5	4.0	3.0	4.0	3.0	3.5
Procurement	3.0	3.0	4.0	4.0	3.5	3.0	3.0	4.0	3.0	3.3
Actions on prescribing behaviour: guidance on alternative treatments	4.0	3.0	3.0	4.0	3.5	4.0	3.0	3.0	3.0	3.3
Prescribing centres selection	2.0	3.0	4.0	4.0	3.3	2.0	2.0	4.0	2.0	2.5
Mean score					3.6					3.1

2 Values range from 1 to 4, depending on the expected impact on TPC (Time to policy completion) and FTE (Full-Time-Equivalent staff
 3 involved): 1=absent, 2=up to 10%, 3=up to 30%, 4=up to 50%.

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