European stakeholder learnings regarding biosimilars: Part I – improving biosimilar understanding and adoption

BioDrugs

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Online Resource 4. Structured literature review of biosimilar stakeholder understanding and perception research - Overview of study parameters and main results

Table I Knowledge and perceptions of physicians about biosimilars: overview of study parameters and main results of relevant literature								
Year	**Authors**	**Method**	**Therapeutic area/specialty**	**N**	**Country/ region**	**COI/ funding**	**Topics assessed**	**Main result(s)/conclusion**
Gastroenterology								
2014	Danese, S. *et al.*[1]	Survey	Gastroenterology	307	Europe (ECCO members)	B	• Awareness of biosimilar monoclonal antibodies • IBD specialists readiness to use these therapies • General aspects, interchangeability, traceability and regulatory issues,	• Majority had little or no confidence about the use of biosimilars • Majority expressed concerns about immunogenicity, safety and interchangeability, extrapolation of indications and automatic substitution

							extrapolation	
2016	Baji, P. *et al.*[2]	Discrete choice experiment	Gastroenterology	51	Hungary	A	• Preferences for biosimilars in ulcerative colitis	• Most gastroenterologists have concerns about using biosimilars. • Most are willing to consider using biosimilars to an increase in patient access to biological treatment
2016	Danese, S. *et al.*[3]	Survey	Gastroenterology	118	Europe (ECCO members)	B	• Evolution of IBD specialists' thinking about biosimilars one year after they became available in the European Union • Advantages and issues, interchangeability, substitution, extrapolation, confidence in use	• IBD physicians generally well informed and educated about biosimilars • Compared with 2013[1], now fewer concerns and more confidence about the use of biosimilars in clinical practice
2019	Malter, L.B. *et al.*[4]	Survey	Gastroenterology	200	Non-specified	E	• Educational and resource needs of clinicians caring for IBD patients	• Topic of biosimilars was among the areas of greatest educational need for practitioners in IBD
2019	Park, S.K. *et al.*[5]	Survey	Gastroenterology	151	Asia (via AOCC)	A	• Awareness regarding biosimilar monoclonal antibodies (advantages and issues, interchangeability, substitution, extrapolation, confidence in use)	• Participants were generally well informed about biosimilars • Compared to results of ECCO survey conducted in 2015[3], more concerns and less confidence about the use of biosimilars in practice
Rheumatology								
2015	Grabowski, D. *et*	Survey	Rheumatology	81	Canada	C/D	• Knowledge and attitudes towards	• 1/3 familiar with biosimilars, 1/3 agreed/strongly agreed to be

	al.[6]						biosimilars (familiarity, extrapolation, substitution)	comfortable with indication extrapolation • 88 % concerned/very concerned if a pharmacist had the ability to substitute without physician's approval
2016	Beck, M. *et al.*[7]	Survey	Rheumatology	116	France	B	• Knowledge, experience and opinions with regard to biosimilars • Barriers to and possible options to promote their prescription	• Little knowledge and lack of available information about biosimilars reported • Most common barriers: indication extrapolation and a lack of data about tolerability • Rather favourable towards the implementation of biosimilars, but a majority expressed a negative opinion about pharmacy substitution • Communication initiatives, experience and availability of clinical data can help overcome misunderstandings
2016	Gavan, S. *et al.*[8]	Semi-structured interviews	Rheumatology	11	UK	A	• Factors which influence when prescribing anti-TNF therapies	• Factors which may influence anti-TNF prescribing: cost, emergence of evidence, interpretation of clinical guidelines, patient involvement in decision making, desire for clinical autonomy, influence of clinical service commissioners
2016	Kellner, H. *et al.*[9]	Survey	Rheumatology	222	Finland, France, Germany, UK, Hungary, Italy, Ireland, Norway, Portugal, Spain, Sweden	B	• Perspectives and knowledge on biosimilars, including regulatory aspects and manufacturing principles • Comfort with prescribing biosimilars	• Knowledge and awareness about biosimilars is growing; high levels of comfort in prescribing biosimilars • Confusion still exists about definitions, regulations and manufacturing standards
2017	Gibofsky,	Survey	Rheumatology	131	US	D	• Familiarity with	• Knowledge gaps: a lack of

	A. *et al.*[10]						biosimilars, the concept of biosimilarity, and their approval process	understanding of biosimilarity, the availability of approved biosimilars • Education about biosimilars, extrapolation, and interchangeability needed
2019	Klink, A. *et al.*[11]	Survey	Rheumatology	54	US	E	• Experience with and perceptions of non-medical switching between RPs and their biosimilars in routine clinical practice	• Most common concerns for prescribing biosimilars were efficacy (43%), safety (41%), and patient's insurance policy constraint (31%) • Majority of switching appeared to be for non-medical reasons, and a minority of rheumatologists report cost-savings related to biosimilars
2019	Zhang, C. *et al.*[12]	Survey	Rheumatology	261	United Kingdom, France, Italy, Spain, Germany	A	• Perceptions of efficacy and safety for biosimilars relative to their RPs	• Biosimilars score lower on overall satisfaction compared to reference products and are less frequently associated with specific efficacy attributes compared to branded products
Dermatology								
2017	Barsell, A. *et al.*[13]	Survey	Dermatology	97	US	E	• Knowledge about and perception on biosimilars (awareness, definition, substitution, naming, prescribing behaviour)	• Only 37% of dermatologists aware that a biosimilar is highly similar to a licensed reference biological product • Only 25% would likely prescribe biosimilars, 38% would try biosimilars on a select group of patients before trying it on a majority of their patients • A biosimilar knowledge gap exists amongst dermatologists
2017	Manalo, I.F. *et al.*[14]	Survey	Dermatology	116	US	E	• Familiarity with biosimilars and interchangeability • Perspectives toward biosimilar properties, including	• 62.9% slightly-very unfamiliar with biosimilars • Concerns about safety issues when interchanging without provider knowledge

							interchangeability, extrapolation, and immunogenicity risk	
Oncology, haematology								
2014	Baer, W.H. *et al.*[15]	Survey	Oncology, haematology	450	United States, Mexico, Turkey, Russia, Brazil	D	• Access to rituximab and identified potential barriers to its use • Whether availability of a biosimilar to rituximab would improve access to, and use of, rituximab	• Less than 40% considered rituximab as easy to access from a cost perspective • Over half of physicians reported that they would increase use of rituximab if a biosimilar was available
2017	Nabhan, C. *et al.*[16]	Survey	Oncology	61	US	D	• Perceptions on biosimilars • Barriers to uptake is to develop strategies to increase chances of biosimilars' success in oncology	• Willingness to incorporate biosimilars in daily practice demonstrated • Educational gaps exist about efficacy and toxicity data, cost, reimbursement, and regulatory processes
2019	Giuliani, R. *et al.*[17]	Survey	Oncology	393	Europe (via ESMO), Asia, America, Africa, Australia	B	• Level of knowledge, understanding and comfort of use of biosimilars	• Most rate their general knowledge of biosimilars as average to very high • Potential increased risk of immunogenicity remains a significant concern of switching • Identified gaps in knowledge: biosimilar development, clinical trial design and endpoint selection, and requirements for extrapolation
2020	Hadoussa, S. *et al.*[18]	Survey	Haematology, oncology	107	Tunisia	A	• Knowledge and perceptions on biosimilars to identify problems related to	• Approximately 1/5 of physicians defines biosimilar as a chemical • About 29% do not differentiate between a biosimilar and a generic

							biosimilars and propose solutions for improvement	• Only 3.7% believe to be well informed about biosimilars • Health authorities should carry out training programs on biosimilars and introduce clear and effective legislation in order to allow better access to health care services
General practice								
2018	Micó-Pérez, R.M. *et al.*[19]	Survey	Primary care/general practice	701	Spain	E	• Awareness and training needs on biosimilars	• Biosimilar knowledge was low • Need of further training: information on biosimilars currently available in primary care, aspects regarding prescription, interchangeability and pharmacovigilance requirements
Multiple therapeutic areas								
2014	BioTrends research group[20]	Survey	Rheumatology, gastroenterology	184	France, Germany, US	D	• Biosimilar clinical trial requirements, adoption rates, pricing • Familiarity, substitution, extrapolation, uptake drivers, reimbursement • Concerns about and requirements for biosimilars	• Majority of participants say they are at least moderately familiar with biosimilars • Majority of participants in Europe believe that biosimilars are at least very similar to the RP. A significant portion of US participants believes there could be significant differences between a biosimilar and the RP
2014	Dolinar, R.O. *et al.*[21]	Survey	Nephrology, rheumatology, dermatology, neurology, endocrinology, oncology	470	France, Germany, Italy, Spain, UK	D (ASBM)	• Biosimilar naming, label transparency, physician choice	• Responses demonstrate the need for distinguishable non-proprietary names to be given for biologicals
2015	Gewanter, H.L. *et*	Survey	Dermatology, oncology,	399	Argentina, Brazil,	D (ASBM)	• Understanding and use of biosimilars	• 35% did not consider themselves familiar with biosimilars

	al.[22]		neurology, endocrinology, rheumatology, nephrology, haematology, oncology		Colombia, Mexico		• Concerns for the future related to biosimilars	• 94% thought a suffix would help ensure that their patients received the right medicine
2016	Hallersten, A. *et al.*[23]	Survey	Dermatology, endocrinology, gastroenterology, hematology, nephrology, oncology, rheumatology	210	France, Germany, Italy, Poland, Spain, Sweden, UK	D	• Preferences on type and detail of information in the biosimilar label • Use of info sources when prescribing biologics including biosimilars	• The label is an appropriate way to provide physicians with information about biologics • Physicians prefer more product-specific information in the biosimilar label
2016	Molinari, A.L. *et al.*[24]/	Survey	Neurology, nephrology, rheumatology, dermatology, endocrinology, oncology	376 US, 470 EU physicians	EU (Spain, UK, Italy, France, Germany) and US	D (ASBM)	• Differences in understanding of biologics and biosimilars in the US and Europe (naming)	• A significant portion of participants do not understand important differences between RPs and biosimilars • Confidence in prescribing and switching linked to naming
2017	Cohen, H. *et al.*[25]	Survey	Dermatology, gastroenterology, haematology-oncology, medical oncology, nephrology, rheumatology	1201	US	D	• Awareness, knowledge and perceptions of biosimilars (totality of evidence, extrapolation, interchangeability) • Perception of safety and efficacy • Preferred info sources • Physician interest	• Significant need for evidence-based education about biosimilars for physicians across specialities • Identification of five major knowledge gaps: defining biologics, biosimilars, and biosimilarity; understanding the approval process and the use of "totality of evidence" concept; understanding that the safety and immunogenicity of a biosimilar are comparable to the RP; understanding the rationale for extrapolation of indications; defining interchangeability and the related pharmacy-level substitution rules"

2017	Everaerts, M.[26]	Survey	Dermatology, rheumatology, gastroenterology	71	Belgium	D	• Knowledge, awareness, perceptions on biosimilars (frequency of received info on biosimilars and info sources, extrapolation, substitution, non-medical switching, prescribing decisions, physician choice)	• A clear gap between the Northern and Southern regions with respect to the frequency of information received, the knowledge level as well as the place of biosimilars in the treatment algorithm q [2] • The opinions about extrapolation of indication and switching were divided
2017	Hemmington, A. *et al.*[27]	Survey	Rheumatology, dermatology, gastroenterology, oncology and haematology	110	New Zealand	A	• Perceptions of biosimilars • Factors associated with the acceptance of biosimilars • Confidence in extrapolation, switching • Explaining a biosimilar to patients	• Most specialists generally positive about biosimilars; 54-74% confident in the safety, efficacy, manufacturing and pharmacovigilance of biosimilars. • Less confident about indication extrapolation and switching • Need for guidance on how to explain biosimilars to patients and written patient material
2017	Murby, S. *et al.*[28]	Survey	Dermatology, endocrinology, gastroenterology, nephrology, neurology, oncology, rheumatology	160	Australia	D (ASBM)	• Views on the naming, substitution and prescribing of RPs and biosimilars	• Most respondents agreed on distinct non-proprietary scientific names for biosimilars and reference products • Most agreed that robust data are needed to support substitution rather than clinically supervised switching. While the prescribers thought, incorrectly, that biosimilars and RPs are approved through the same regulatory process
2018	Jimenez-	Survey	Rheumatology,	35	Spain	E	• Degree of	• 63% did not know the existence of

	Pichardo, L. *et al.*[29]		gastroenterology, dermatology				knowledge about the regulation and variability in manufacturing processes in originator biologics	changes relative to the manufacturing process; 57% did not know the regulation about the comparability before/after manufacturing change • 94% identified this information as useful • Knowledge of this might increase confidence about biosimilars
2018	Karki, C. *et al.*[30]	Survey	Rheumatology, dermatology, gastroenterology,	677	UK, France, Germany, Italy, Spain	E	• Perceptions of cost pressure associated with biosimilars	• 25-36% of physicians listed payer pressure to use biosimilars as a concern • Physicians reported concerns with cost pressures from various sources in endorsing biosimilars • Understanding financial implications of and reasons to use biosimilars may help facilitate greater biosimilar access
2018	Shah-Manek, B. *et al.*[31]	Survey	Rheumatology, dermatology, gastroenterology	670	EU5	E	• Perceptions of biosimilars to gain insights on patient access	• Differences emerged in the perception of biosimilars across physician specialties • Tailored education targeted to specialty could enhance adoption of biosimilars
2018	Schwartz, Z. *et al.*[32]	Survey (as part of edu-cational program)	Rheumatology, gastroenterology, dermatology, allergology, immunology, primary care, oncology, other specialities	1546	Non-specified	B	• Competence and knowledge of biosimilars • Educational gaps related to biosimilar clinical application	• Identified gaps in clinicians' understanding about the efficacy, substitution, and indications of biosimilars
2019	Industry Standard Research/ ASBM[33]	Survey	Dermatology, endocrinology, gastroenterology, haematology oncology, immunology,	579	France, Germany, Italy, Spain, Switzerland, UK	D	• Familiarity with biosimilars • Prescribing, recording, adverse drug reaction reporting	• 40% of prescribers uncomfortable to switch a stable patient to a biosimilar, percentage increased to 58% when asked about switching a patient to a biosimilar for non-medical reasons, highlighting the impact of choice of

			nephrology, neurology, oncology, ophthalmology, rheumatology				• Automatic substitution, switching, physician choice	words/framing on HCP perception. The percentage increased to 73% when asked about a third party initiating a switch
2019	Karateev D. *et al.*[34]	Survey	Haematology, gastroenterology, oncology	206	Russia	C/D	• Levels of knowledge and attitudes towards biosimilars and key policies on their use • Level of interest in new information on biosimilars • What evidence drives treatment decisions	• 66% had positive impressions regarding the introduction of biosimilars • 80% lacked understanding of the differences between biosimilars and generics • Majority was negative about tender policies limiting choice of therapies for patients
2019	Teeple, A. *et al.*[35]	Survey	Rheumatology, dermatology, gastroenterology	297	US	D	• Level of familiarity with biosimilars • Experience with non-medical switching • Attitudes towards switching	• 84% of physicians did not want stable patients undergoing a switch • A majority of physicians anticipated a negative impact on patient mental health, treatment efficacy, patient safety and physician office management
Non-specified								
2016	Cassar, K. *et al.*[36]	Survey	Non-specified	132	Malta	A	• Perception and awareness on the concept of biosimilars	• Awareness on biosimilars in Malta is very low (6%) • 27% believes that patients can be safely switched between products during treatment
2016	Sidikou, O. *et al.*[37]	Survey	Non-specified	36	France	E	• Concerns raised about biosimilars in the medical community in the hospital related to infliximab	• Major concerns: pharmaceutical quality, safety (especially immunogenicity), efficacy (particularly in extrapolated indications) and interchangeability with RP

							biosimilars	

A: no declared COI, B: declared author COI (or disclosure of interest) (*e.g.* HCPs/academics providing advice/paid consultancy to industry), C: industry sponsoring/educational grant from industry to support independent research declared, D: research conducted by industry/lobby organization/consultancy, E: potential funding/COI not specified

Anti-TNF: anti- tumour necrosis factor, AOCC: Asian Organization of Crohn's and Colitis, ASBM: Alliance for Safe Biologic Medicines, COI: conflict of interest, ECCO: European Crohn's and Colitis Organization, ESMO: European Society for Medical Oncology, HCP: healthcare professional, IBD: irritable bowel disease, N: number participants, RP: reference products

Table II Knowledge and perceptions of pharmacists about biosimilars: overview of study parameters and main results of relevant literature

Year	Authors	Method	Therapeutic area/specialty	N	Country/ region	COI/ sponsoring	Topics assessed	Main result(s)/conclusion
2015	Fernandez-Lopez, S. *et al.*[38]	Survey	Pharmacists employed by dispensing organizations, managed care organizations, PBMs, consultants, manufacturers/ Non therapeutic area specific	93	US	D	• Awareness of and comfort level with biosimilars • Views on biosimilar naming conventions: impact of identical or different non-proprietary names on confidence levels in substituting interchangeable biologics	• Biosimilar naming may influence pharmacists, as majority of participants were most comfortable with biosimilars having the same non-proprietary name as the RP
2016	Cogora[39]	Survey and AdBoard	Hospital pharmacy/ Non therapeutic area specific	Survey: 200 AdBoard: 7	Survey: Belgium, France, Germany, Italy, Spain, UK, other non-specified EU	D	• Understanding of biosimilars • Ability to analyse analytical data relating to biosimilars • Needs when communicating	• Poor understanding of biosimilar data with *e.g.* the majority believing there are small differences in the amino acid sequence between biosimilars and RPs • Hospital pharmacists found neither analytical nor PK/PD data easy to interpret. Relative to PK/PD data, they find methods to analyse analytical

					countries/ AdBoard: Australia, Brazil, France, Germany, Italy, Mexico, UK		biosimilar data to clinicians • Survey results discussed in advisory board	attributes and methods to analyse functional attributes even more difficult • On average, participants didn't find it easy to communicate biosimilar data to clinicians
2016	Reilly, M.S. *et al.*[40]	Survey	Hospital and community pharmacy/Non therapeutic area specific	401 (60% hospital/ health system pharmacy, 40% primary care pharmacy)	US	D (ASBM)	• Views on labelling and naming of biosimilars	• Majority thought that RPs and biosimilars should have distinguishable non-proprietary scientific names and thought the name should include a unique suffix
2016	Tomaszewski D. *et al.*[41]	Survey	Pharmacists employed by managed care organization, hospital, manufacturer, chain pharmacy, academia, outpatient clinic, specialty pharmacy, independent pharmacy, mail order pharmacy/Haematology, oncology	781	US	A (funding by AMCP (non-profit pharmacy organization))	• Perceptions of biosimilar naming conventions and their impact on confidence to dispense biosimilars • Perception of burden created by laws and regulations requiring pharmacists to complete postdispense notifications	• Pharmacists preferred to use a non-proprietary proper name with a designated suffix • Levels of confidence in substituting a biosimilar for the RP were however highest when products share the same non-proprietary name • Majority reported perceptions of increased burden when required to provide a postdispense notification to prescribers when dispensing biosimilars

			(survey circulated to members of the Academy of Managed Care Pharmacy and the Hematology/ Oncology Pharmacy Association)					
2017	Adé, A. *et al.*[42]	Survey	Pharmacy/Non-specified	229	France, Quebec	E	• Knowledge (differences with generics) and views of biosimilars (nomenclature, immunogenicity management, patient informed consent, substitution)	• Pharmacists knew the main differences between generics and biosimilars • Key issues on biosimilars: clear nomenclature to avoid confusions, necessity of a list of biosimilar and interchangeable biologic drugs, responsibilities for immunogenicity risk management to be shared between pharmacists and physicians
2017	Beck, M. *et al.*[43]	Survey	Hospital and community pharmacy/Non therapeutic area specific	802	France	B	• Level of knowledge, experience and opinions regarding biosimilars • Perceived problems and solutions to promote prescription	• Low familiarity with biosimilars (half of community pharmacists not at all informed about biosimilars) • Questions about the manufacturing process, safety, substitution rules and the international non-proprietary name prescriptions • Healthcare cost savings main incentive for biosimilars • Main constraints: Patients' wishes to be treated with the RP and indication extrapolation • Need for accurate and comprehensive biosimilar information
2018	Adé, A. *et al.*[44]	Survey pre- and post-	Hospital pharmacy/Non therapeutic area	58	Quebec	E	• Impact of a training session on pharmacists'	• Significant knowledge improvement on biosimilar regulatory considerations (64% *vs.* 85%) and on biosimilar

		training session	specific				knowledge and views on regulatory and clinical considerations regarding biosimilars	clinical considerations (73% *vs.* 87%) reported • After the training session, pharmacists more comfortable to explain what is a biosimilar to a HCP/patient (43% *vs.* 100%) • The training session allowed pharmacists to improve knowledge on biosimilars
2019	Greene, L. *et al.*[45]	Survey	Managed care and specialty pharmacy /Non therapeutic area specific	300	US	C/D	• Perceptions regarding strategies to overcome barriers to biosimilar adoption	• Positive attitudes about the safety and efficacy of biosimilars • Proposed actions: prescriber education about evidence from switching studies, FDA guidance on pharmacy-level substitution • Lowest-rated strategies: requiring therapeutic drug monitoring when switching to biosimilars and using quotas to incentivize providers to prescribe biosimilars
2019	Pawlowska, I. *et al.*[46]	Survey	Hospital pharmacy/Non therapeutic area specific	61	Poland	A	• Opinions towards biosimilars and investigate their use in practice	• 88% of hospital pharmacists were concerned that biosimilars were not identical with the RP • Concerns about immunogenicity (48%) and pharmacokinetic properties (44%) • Positive perception about cost effectiveness of biosimilars • Pharmacist-led substitution deemed inappropriate • Need for more precise legal regulations relating to biosimilars, improved communication between physicians and pharmacists, and educational initiatives
2019	Willis, L. *et al.*[47]	Survey in context of	Pharmacy/Hematology, oncology	1023	Globally distributed	C	• Impact of online	• Education initiative led to greater

		edu-cational activity			survey		education on knowledge of the development and regulation of biosimilars, and how to incorporate biosimilars into practice	confidence in pharmacists' ability to incorporate biosimilars into practice • Foundational and case-based education is recommended to further improve knowledge
A: no declared COI, B: declared author COI (or disclosure of interest) (*e.g.* HCPs/academics providing advice to industry), C: industry sponsoring/educational grant from industry to support independent research declared, D: research conducted by industry/lobby organization/consultancy, E: potential funding/COI not specified								
AMCP: Academy of Managed Care Pharmacy, Anti-TNF: anti- tumour necrosis factor, ASBM: Alliance for Safe Biologic Medicines, COI: conflict of interest, EFCCA: European Federation of Crohn's and Ulcerative Colitis Association, N: number participants, RP: reference products								

Table III Knowledge and perceptions of nurses about biosimilars: overview of study parameters and main results of relevant literature

Year	Authors	Method	Therapeutic area/specialty	N	Country/ region	COI/ sponsoring	Topics assessed	Main result(s)/conclusion
2016	Thakur, K. *et al.*[48]	Survey-interviews	Rheumatology	149	France, Germany, Italy, Spain and UK	D	• Perceptions and preferences of the Benepali® autoinjector versus Enbrel MYCLIC® autoinjector	• Nurses reported a preference for the Benepali® autoinjector compared with the Enbrel MYCLIC® autoinjector for the majority of attributes assessed • Attributes such as 'easy to operate' and 'more intuitive/self-explaining to use' were highly rated
A: no declared COI, B: declared author COI (or disclosure of interest) (*e.g.* HCPs/academics providing advice/paid consultancy to industry), C: industry sponsoring/educational grant from industry to support independent research declared, D: research conducted by industry/lobby organization/consultancy, E: potential funding/COI not specified								
COI: conflict of interest, HCPs: healthcare professionals, N: number participants								

Table IV Knowledge and perceptions of patients (and caregivers[49] or parents[50]) about biosimilars: overview of study parameters and main results of relevant literature								
Year	**Authors**	**Method**	**Therapeutic area/specialty**	**N**	**Country/ region**	**COI/ sponsoring**	**Topics assessed**	**Main result(s)/conclusion**
Gastro-enterology								
2016	Attara, G. *et al.*[49]	Survey	Gastroenterology	423	Canada	E	• Perspectives of IBD patients and caregivers regarding biosimilars and how Canadian drug programs will manage these	• Participants (patients and caregivers) were quite familiar with biosimilars • Concerns around safety, efficacy, and regulatory process
2017	Peyrin-Biroulet, L. *et al.*[51]	Survey	Gastroenterology	1181	Europe (EFCCA members)	C	• Patients' perspectives concerning biosimilars (concerns, lower price, extrapolation, interchangeability, naming, substitution)	• Most patients not familiar with biosimilars • Doubts and concerns about the biosimilars' safety (47%) and efficacy (40.3%) • Patients wished to be informed and involved in decision-making concerning biosimilars
2017	Pineles, D. *et al.*[52]	Survey	Gastroenterology	121	Non-specified	E	• Perceptions and knowledge regarding biosimilars and willingness to switch to biosimilars	• Most were uncomfortable using a biosimilar that has not been evaluated in an IBD clinical trial • Majority was uncomfortable to switch to a biosimilar
2019	Chelle A.H.-D. *et al.*[53]	Survey	Gastroenterology	86	Non-specified	E	• Impact of patient education on the acceptance of a switch from infliximab RP to biosimilar in IBD	• At baseline, 77% of patients had never heard about biosimilars, 85% were in favour of switching and 61% expressed fears about biosimilar use • After education, 84% of patients said they knew about biosimilars, 93% were

							patients treated with RP	in favour of the switch and 39% were still concerned about their use •
2019	Coget, E. *et al.*[54]	Survey	Gastroenterology	64	Non-specified	A	• Knowledge about infliximab biosimilars and judgement concerning switching to a biosimilar	• Significant lack of knowledge of IBD patients about biosimilars • Most patients had a positive perception of biosimilar and accepted a switch after an interview with a clinical pharmacist • Patient education about biosimilars needed to organize a switch
2019	Haghnejad, V. *et al.*[55]	Survey after physician consul-tation	Gastroenterology	120	France	B	• Impact of a gastroenterologist's interview on IBD patients' acceptance for switching from infliximab RP to its biosimilar CT-P13 Inflectra®	• Organized information provided to the patient seems to contribute to enhance patient's biosimilar acceptance
2019	Petitdidier, N. *et al.*[56]	Survey	Gastroenterology	113	France	B	• Assessment of patients' perspectives in a prospective manner after switching from infliximab to CT-P13	• Patients' perspectives did not change after a switch • Patients' concerns about the use of biosimilars and the risks of switching with a significant improvement after switching
2019	Peyrin-Biroulet, L. *et al.*[57]	Survey	Gastroenterology	1619	Europe (EFCCA members)	C	• Assessment whether IBD patient perspectives concerning biosimilars have changed since the previous survey[51]	• Many patients with IBD remain unfamiliar with biosimilars • Patients have concerns about different aspects regarding biosimilars • More confident that biosimilars will impact the management of their disease • Patient education is still needed
Rheumatology								

2014	Berghea, F. *et al.*[58]	Focus groups	Rheumatology	14	Non-specified	A	• Knowledge, perceptions and attitudes vis-à-vis biosimilars in potential users (rheumatic patients with and without biological therapy)	• Patient's knowledge might be more profound than expected, socio-economic advantages of biosimilars seems to be fully understood • Physician should make the choice and assume the responsibilities
2014	Sekhon, S. *et al.*[59]	Survey	Rheumatology	208	Canada	B	• Perspectives of patients currently taking RP biologics on biosimilars and the possibility of being switched to them	• Lack of patient understanding • Patients hesitant to use biosimilars that are not tested in a North American population • Patients value their physicians' opinions
2016	Thakur, K. *et al.*[60]	Survey-interviews	Rheumatology	220	France, Germany, Italy, Spain, UK	D	• Patients' perceptions and preferences of the Benepali® autoinjector versus the Enbrel MYCLIC® autoinjector	• Patients reported a preference for the Benepali® autoinjector compared to the Enbrel MYCLIC® autoinjector
2017	Aladul, M.I., *et al.*[61]	Survey	Rheumatology	182	UK	A	• Knowledge and attitudes towards infliximab and etanercept biosimilars	• Participants had a good knowledge and understanding of biosimilars • Participants on biosimilars were confident and positive about biosimilars' safety, efficacy and switching • Participants on RPs more reluctant to switch to biosimilars. More clinical trials on switching, better communication and reassurance by HCPs, further involvement in decision making would increase acceptance of

								biosimilars
2018	Kovitwanichkanont T. *et al.*[62]	Survey	Rheumatology	127	Australia	A	• Awareness and attitudes to biosimilars	• Despite being unfamiliar with biosimilars, most patients would be comfortable taking biosimilars if recommended by their physician • +-1/4 were worried about unrecognised switching
2019	Claudia, C. *et al.*[63]	Survey	Rheumatology	336	Romania	B	• Knowledge and concerns on biosimilars • Expectations when receiving a biosimilar following the principle of shared-decision making	• Still a significant information gap concerning biosimilars among patients • Most concerns about the occurrence of adverse events • A need to improve patient education on biosimilars • Most patients rely entirely on their physician for prescribing the most appropriate product (indicating that shared-decision principle is more of a myth)
2019	Frantzen, L. *et al.*[64]	Survey	Rheumatology	629	France	A	• Patients' information about biosimilars and patients' incentives and deterrents to concur with the use of biosimilars	• Biosimilars largely unknown to patients • Information needed to improve patients' adherence to biosimilars and avoid a nocebo effect
2019	Petit, J. *et al.*[65]	Semi-directive interviews as part of edu-cational program	Rheumatology	5	Non-specified	A	• Efficacy of a multidisciplinary team intervention to reduce the nocebo effect among inflammatory arthritis patients with systematic switch infliximab RP to biosimilar	• Fears about efficacy and tolerability, need for information, importance of sharing experience of AE with HCPs, having the opportunity to switch back • A multidisciplinary patient education team where nurses have a prominent role is effective in reducing the nocebo effect when switching from RP to biosimilar

							infliximab (SB2)	
2019	Renton, W.D. *et al.*[50]	Interviews	Rheumatology	9	UK	A	• Patient and parent perceptions on non-medical biosimilar switching	• Paediatric patients and parents • Concerns: device type, colour of medication and device, if injections would sting more • Most families felt that there would be no significant difference in safety/efficacy
2019	Robinson, S. *et al.*[66]	Survey (informed by two interviews)	Rheumatology	26	Non-specified	A	• Optimal level of explanation, education and consent regarding switching • Experience of the process of switching	• General satisfaction with the switch process (letter prior to switch, appointment offered with specialist nurse, possibility to return to RP if necessary assured to patients) • Minority of patients dissatisfied and wanted more information • New side effects not a major problem, but perceived change in efficacy was • A substantial minority of patients would like to return to the RP • Support from the rheumatology service needs to be more available and patients should be empowered to use it
2019	Scherlinger, M. *et al.*[67]	Interview as part of switch program	Rheumatology	52	France	B	• Acceptance rate and factors influencing acceptance of the switch from RP etanercept to biosimilars SB4	• Main questions about similarity in efficacy and safety • Many patients asked about the switch experience of other patients • The majority reported a good switch experience
Dermatology								
2018	Azevedo, A. *et al.*[68]	Survey	Dermatology	108	Portugal	B	• Perspective on biosimilars (general opinion, regarding switching, extrapolation, price	• 70.4% did not know the definition of a biosimilar • Nearly 80% partially/totally agreed in using a biosimilar in order to reduce healthcare costs

							difference)	• Lack of studies in the European population and in psoriatic patients led most of the patients to somewhat/completely oppose to the use of biosimilars
2018	Ighani, A. *et al.*[69]	Survey	Dermatology	343	Canada	C	• Understanding and perceptions of biosimilars in patients, who were using either biologic therapies or nonbiologic therapies, and compare their responses	• Approximately 33.5% of biologic users were very/somewhat familiar with biosimilars • Most patients would be very/somewhat concerned if the government or insurance companies could dictate which biologic to prescribe
Endocrinology								
2014	Wilkins, R. *et al.*[70]	Survey	Endocrinology	3214	Non-specified	D	• Willingness to switch to a hypothetical less expensive insulin biosimilar	• Majority of patients willing to consider biosimilar insulines • Type 2 diabetes patients demonstrated slightly more willingness to use biosimilars than type 1 diabetes patients • Common patient concerns: efficacy and side effects of biosimilar compared to reference product, design of the delivery device
2019	Leonardi Reyes, F. *et al.*[71]	DCE	Endocrinology	200	Columbia	E	• Relative importance patients place on potential features of injectable osteoporosis treatments	• Patients expressed a strong preference for RPs for osteoporosis over biosimilar osteoporosis products, even when efficacy and safety between the two were assumed to be the same
2019	Malassigne, M. *et al.*[72]	Survey	Endocrinology	54	Non-specified	A	• Knowledge of diabetic patients concerning their therapy by insulin	• Lack of patients' knowledge and information concerning insulin therapy and biosimilars • Pharmaceutical interviews can improve

							glargine • Impact of a pharmaceutical interview on insulin glargine biosimilar patient acceptance	the acceptance of biosimilars switch
Oncology								
2019	Harvey, R.D. *et al.*[73]	Survey	Oncology	79	Non-specified	E	• Views on biosimilars and their potential to reduce costs	• Most patients agree that cheaper medications work as well as more expensive ones • Concerns among some patients that drug price may be a proxy for quality
2019	Ismailov, R.M., *et al.*[74]	Survey	Oncology	79	Colorado, US	E	• Patient knowledge and awareness of biosimilars	• Good level of knowledge and awareness of major topics concerning biosimilars
Multiple therapeutic areas								
2017	Badley, E. *et al.*[75]	Focus groups and survey	Rheumatology, dermatology, gastroenterology	44	Canada	E	• Perspectives on transitioning to a different biologic, including biosimilars • Information and resource needs of patients that would support them in taking an active and informed role in biologic treatment decisions	• Most participants only somewhat/not very confident in their knowledge of biosimilars and noted the need for credible information • About 50% were somewhat/very comfortable with switch to a biosimilar if approved by their physician • Most expected their physician to lead medication decisions
2018	Baudrant M. *et al.*[76]	Survey, semi-structured interviews	Gastroenterology, rheumatology	76 IBD, 25 rheum. and 5 internal medicin	Non-specified	E	• Patient willingness to switch	• Almost 90% of IBD patients had never heard of biosimilars • 56.6% would agree to switch • Main switch fear: loss of efficiency, they had a need for peer's feedback/to

				e				be convinced by the specialist • Patient discussion seems necessary to reduce the "nocebo effect"
2019	Teeple, A. *et al.*[77]	Survey	Rheumatology, dermatology, gastroenterology	1696	US	D	• Attitudes regarding non-medical switching to biosimilars among patients with autoimmune disease receiving a biologic	• 85% of patients concerned that biosimilars wouldn't treat their disease as well • 85% didn't want to switch to a biosimilar, 83% were concerned that switching may cause more side-effects
Non therapeutic area specific or non-specified								
2017	Wong-Rieger, D. *et al.*[78]	Survey	Non therapeutic area specific	2000 (sent to 2000 patients representing multiple diseases, +-200 had exposure to biologics)	Canada	E	• How naive and "informed" patients feel about biosimilar usage	• More than 40% reported no previous knowledge about biosimilars • 78% objected to switching with most opposition from naive patients • Oncology patients objected most to approval based on extrapolation • Patients reluctant to switch with implications for adherence to and confidence in their use
2018	Cvancarova Smastuen, M. *et al.*[79]	Survey	Non-specified	290	Norway	C	• Patients' experiences regarding being switched to an alternative medication • Possible associations between switching and health literacy	• Majority reported to be satisfied with being switched to a cheaper biosimilar medication (1/5 however reported being dissatisfied) • Patients' attitudes and level of satisfaction are associated with being given sufficient and necessary information concerning their health

2019	Barbosa, C.M.-M. *et al.*[80]	Survey	Non-specified	134	Non-specified	E	• Patient satisfaction after pharmacy-mediated replacement of etanercept RP prefilled syringe with biosimilar prefilled pen	• The change from RP etanercept to biosimilar product was acceptable for most patients • Mean overall satisfaction was higher among men, younger patients and those with shorter treatment duration
A: no declared COI, B: declared COI (or disclosure of interest) (*e.g.* HCPs/academics providing advice/paid consultancy to industry), C: industry sponsoring/educational grant from industry to support independent research declared, D: research conducted by industry/lobby organization/consultancy, E: potential funding/COI not specified								
COI: conflict of interest, EFCCA: European Federation of Crohn's and Ulcerative Colitis Association, HCPs: healthcare professionals, IBD: irritable bowel disease, N: number participants, RP: reference products								

Table V Overview of study parameters and main results of papers regarding knowledge and perceptions elicited in various stakeholder groups									
Year	**Authors**	**Method**	**Stakeholder(s)**	**Therapeutic area/specialty**	**N**	**Country/ region**	**COI/ funding**	**Topics assessed**	**Main result(s)/conclusion**
Gastro-enterology									
2017	Sullivan, E. *et al.*[81]	Survey	Physicians and patients	Gastroenterology	25 physicians, 136 patients	Germany	D	• Gastro-enterologists' motivation for prescribing biosimilars • Gastro-enterologists' treatment preferences in relation to prescribing behaviour • Patient attitudes to biosimilars	• >80% of gastroenterologists would prescribe a RP rather than biosimilar as 1st line therapy if unrestricted • Patients showed some reluctance to accept biosimilars, although of those receiving biosimilars, 79% were satisfied with the current treatment • Mentioned concerns: potential side effects, potential long-term problems, not knowing enough about the drug
2019	D'Amico, F. *et al.*[82]	Workshop	Physicians, nurses, psychologists, pharmacists, patients	Gastroenterology	7 physicians, 2 pharmacists, 1 methodologist, 1 psychologist 1 nurse, 1 member of EFCCA	Europe	C	• Viewpoints from the perspective of physicians, nurses, psychologists, pharmacists and patients	• Reducing the nocebo effect requires a multidisciplinary team-effort • Needed: improved knowledge about biosimilars and nocebo effect in HCPs and patients. Enhanced

									communication when transferring information to patients or HCPs
2019	Fenwick, S. *et al.*[83]	Survey	Nurses and patients	Gastroenterology	101 nurses, 151 patients	UK and Germany	D	• Patients' and nurses' preferences for the Imraldi® versus Humira® or Enbrel MyClic® autoinjectors	• Nurses and patients preferred the Imraldi® autoinjector over the Humira® and Enbrel MyClic® autoinjectors • Considerations: ease of use, ease of grip, button-free initiation mechanism
Rheumatology									
2014	Sewak, N.P.S. *et al.*[84]	Interviews	KOLs and payers	Rheumatology	Non-specified	France, Germany, Italy	E	• How stakeholders perceived the introduction of anti-TNFs biosimilars	• KOLs want to treat more patients within the same budget • Treatment naïve patients are considered most suitable for anti-TNF biosimilars • Automatic substitution not favoured by any respondents
2014	White, R. *et al.*[85]	Interviews	Physicians and payers	Rheumatology	14 physicians, 6 payers	EU	E	• Expectations of biosimilars • How biosimilars can influence payer and physician decision-making • What must manufacturers do to achieve success	• Awareness of biosimilars amongst physicians was low • 35% of physicians indicated to consider prescribing biosimilars for RA within one year of launch

2016	Piercy, J. *et al.*[86]	Survey	Patients and physicians	Rheumatology	261 patients, 50 physicians	Germany	D	• Satisfaction, understanding, attitudes towards being prescribed biosimilars or RPs • Rheumatologists reported matching data on patients who completed the survey	• Biosimilar treated patients less satisfied that their current treatment was controlling their condition than RP treated patients and had lower treatment understanding
2017	Funahashi, K. *et al.*[87]	Survey	Patients and physicians	Rheumatology	4151 patients, 32 physicians	Japan	A	• Knowledge regarding biosimilars • Interest in or experience with using biosimilars • Physicians: about experience of biosimilars and future plans for use, conditions of biosimilar usage	• 13% of patients knew about biosimilars, 63% would rely on their physician's judgement regarding choosing biosimilars • 60% of physicians replied that they plan to use biosimilars to be released in the future if regular and detailed safety information is received
2017	Jorgensen, T.S. *et al.*[88]	Workshops and interviews as part of Parker model	Patients, physicians, nurses, medical secretary, public stakeholders	Rheumatology	16 patients, 2 physicians, 2 nurses, 1 medical secretary, 4 public stakeholders	Denmark	B	• Impact of performing a non-medical switch from etanercept originator to a biosimilar	• Implementing a switch involves dialogue and clear communication combined with logistic and background info to all stakeholders
2017	Radtchenko, J. *et al.*[89]	Survey	Physicians and practice managers	Rheumatology	24 physicians, 20 practice managers	US	A	• Perceptions to identify areas of opportunity to	• 51% understood the concept of interchangeability

								support biosimilar adoption	between biosimilars and RPs • 76% unaware of compatibility requirements for RPs after a manufacturing change • Only 40% believed biosimilars match safety and efficacy of RP
2017	van Overbeeke, E. *et al.*[90]	Survey	Physicians and patients	Rheumatology	41 physicians and 121 patients	Belgium	B	• Knowledge and perception • Factors that influence choice • Switch considerations	• Rheumatologists convinced that there can be differences between RPs and biosimilars, questioning the safety and efficacy of biosimilars • Physician concerns about interchangeability and extrapolation of indications • Safety as major concern of patients • Patients trust in physician's decision to start or switch to a biosimilar
2017	Waller, J. *et al.*[91]	Survey	Physicians and patients	Rheumatology	50 physicians, 261 patients	Germany	D	• Physician motivation for prescribing biosimilars • Physician treatment	• Reluctance from patients to accept biosimilars • Need to educate patients and rheumatologists who

								preferences in relation to prescribing behaviour • Patient attitudes to biosimilars	are unsure • Cost and desire for experience are factors driving physicians to prescribe biosimilars
2018	Marona, J. *et al.*[92]	Survey	Physicians and patients	Rheumatology	51 physicians, 22 patients	Non-specified	A	• Perspectives concerning biosimilars in the context of non-medical switch	• All considered to be at least reasonably informed • Almost half had only a mild/ moderate confidence in the switching process • Patients' main worries about switching were safety and efficacy. Most were at least moderately confident about biosimilars' efficacy and safety, most didn't change the degree of satisfaction after switching
2018	Robinson, K. *et al.*[93]	Survey	Physicians, pharmacists, patient representatives	Rheumatology	598 providers, 17 patient representatives	US	A	• Knowledge of and attitudes towards biosimilars • Persisting gaps towards enhanced patient care	• 49% of HCPs indicated that they have fair/poor knowledge about differences between biosimilars and RPs, 66% lacked knowledge of the regulatory pathway for biosimilars • 78% of physicians report willingness to prescribe biosimilars • Greatest concern

									among patients: being forced to switch due to payer restrictions
Oncology, haematology									
2015	Gardiner, R.B. *et al.*[94]	Interviews and focus groups	Budget holders and physicians	Oncology	Non-specified	EU5	E	• How budget holders and clinicians perceive the incoming oncology biosimilar mAbs	• Physicians apprehensive of biosimilar mAbs
2017	McCarthy, T. *et al.*[95]	Survey pre- and post-education and training package	Nurses, pharmacists	Haematology, oncology	> 100 participants	UK	C (Cancer Vanguard Pharma Challenge)	• Concerns of key stakeholders • Materials to assist NHS trusts in safe and timely biosimilars adoption • Impact of training on biosimilar perceptions	• Significant improvement in understanding of the concept of biosimilars following the training • Areas agreed to focus on included adoption timeline tool, Trust Policy Template, web-based interactive training package, Q&A document, patient information leaflet • The project highlighted the benefits of pharma industry and NHS working collaborations
2017	Murphy, P. *et al.*[96]	Survey in education program	Pharmacists, nurses, physicians	Haematology, oncology	130 (46% pharmacists, 48% nurses, 6% physicians)	UK	C (Cancer Vanguard Pharma Challenge)	• Development and validation of an education programme that addresses knowledge gaps in biosimilarity	• Biosimilar understanding amongst HCPs in hemato-oncology is highly variable • Training demonstrated to significantly improve

									participants understanding and confidence in biosimilars
2019	Cook, J.W.*et al.*[97]	Survey and interviews	Physicians, pharmacists, advanced practice providers	Oncology	77 (55 physicians, 16 pharmacists, 9 advanced practice providers)	US	B	• Understanding of biosimilars • What information clinicians need prior to biosimilar adoption	• Understanding of biosimilars was low • Educational needs are high • 40% increase in clinicians' prescribing likelihood after a biosimilar is designated as interchangeable
2019	Gary, C. *et al.*[98]	Delphi method	Patients and HCPs	Haematology	50 patients, 22 HCPs	France	A	• Consensus on the important information that should be given to patients during an initial consultation • To what extent cost and biosimilar choice needs to be discussed	• Patients and HCP are aware of the increasing cost of the drugs and the economic impact on society • Most patients trust their HCP in the choice of the most efficient therapy
Multiple therapeutic areas									
2016	Tanabe, K. *et al.*[99]	Survey	Physicians and pharmacists	Rheumatologists, oncologists	220 physicians, 90 pharmacists	Japan	E	• Extent of awareness and understanding of biosimilars	• Awareness of biosimilars was low • 58-73% showed intent to prescribe biosimilars. Main reasons: reduction of burden on patients, confirmed similarity in efficacy/safety

2016	Jacobs, I. *et al.*[100]	Survey	Patients, caregivers, general population	Gastroenterology, rheumatology, dermatology, oncology, haematology	3198	France, Spain, Germany, Italy, UK, US	D	• Levels of awareness, usage, and knowledge of biosimilars • Perceptions of biosimilars compared to originator biologics • Perceived benefits and drawbacks of clinical trials • Impact of advocacy groups on patients' willingness to try a biosimilar	• Awareness of biosimilars was low (6% in general population, 20-30% in diagnosed advocacy group) • Immediate need exists for patient education about biosimilars and clinical trials • Gaps in knowledge about biosimilars included safety, efficacy, and access
2016	Pasina, L. *et al.*[101]	Survey during a series of educational interventions (presentations)	Hospital specialists and pharmacists	Rheumatology, gastroenterology, nephrology, paediatrics, hospital pharmacy	446 specialists and 133 pharmacists participated/ 214 specialists, 36 pharmacists completed the survey	Italy (in the 15 Local Health Units of the Lombardy Region)	A	• Attitude to prescribing biosimilars • Opinion about the quality, efficacy and safety of biosimilars	• Knowledge of the scientific principles for biosimilar approval considered poor by most of specialists • 41% of specialists compared with 8% of hospital pharmacists had doubts about the scientific validity of extrapolation of indications, requiring a clinical trial in each indication • Main doubts: supposed lesser efficacy of

									biosimilars and concern for the higher risk of adverse drug reactions
2017	Chapman, S.R. *et al.*[102]	Survey	Consultants, registrars, pharmacists, nurses	Dermatology, diabetology, gastroenterology, rheumatology	243	UK	A	• Knowledge and attitudes towards infliximab and insulin glargine biosimilars • Factors influencing prescribing • HCPs' attitudes compared with the utilisation of biosimilars in UK hospitals	• Well informed about biosimilars with high level of awareness • Safety and efficacy concerns higher in switching than in initiating biosimilars • Personal experience of biologics as well as discipline-specific guidance probably influenced prescribers' responses
2017	O'Callaghan, J. *et al.*[103]	Survey	Physicians and pharmacists	Community pharmacy, general practice, dermatology, endocrinology, gastroenterology, haematology, nephrology, neurology, oncology, rheumatology	102 specialists, 253 GPs, 125 community pharmacists	Ireland	B	• Awareness of and attitudes to biosimilars (compared to generics, familiarity, naming, pharmaco-vigilance, prescriber behaviour, substitution, prescriber concerns, medical information sources)	• The majority of specialists and pharmacists claimed to be very familiar/familiar with the term biosimilar, 60% of GPs were unable to define or had never heard of the term • Majority of specialists opposed pharmacist-led substitution of biological medicines, some thought it could be appropriate if agreed with the clinician in advance
2018	Aladul, M.I. *et*	Semi-structured	Healthcare consultants,	Gastroenterology, rheumatology,	22	West Midlands	A	• Perceptions and perspectives	• Good knowledge of biosimilars and were

	al.[104]	interviews	nurses, pharmacists	endocrinology		area UK		towards biosimilar infliximab, etanercept and insulin glargine • Potential barriers and facilitators to biosimilar prescribing	content to initiate them • Disagreed with biosimilar substitution at pharmacy level and multiple switching • Identified barriers: safety and efficacy concerns, patients' opinion and how cost savings are shared were the identified barriers • Suggested facilitators: real-life data and financial incentives
2019	Aladul, M.I. *et al.*[105]	Survey	Medical consultants/ registrars, nurses, pharmacists	Dermatology, diabetology, gastroenterology, rheumatology	243	UK	A	• Knowledge and attitudes towards infliximab and insulin glargine biosimilars	• Medical consultants/registrars and pharmacists had safety and efficacy concerns when switching patients compared to initiation. • Nurses had similar levels of safety and efficacy concerns about initiation • HCPs more comfortable with the initiation of biosimilars than switching
Non-specific/non-specified									
2014	Dylst, P. *et al.*[106]	Semi-structured interviews	Physicians, authorities, academia, industry, pharmacists,	Non-specific	19 (2 physicians, 2 pharmacists, 1 patient)	Belgium	B	Barriers that impede the uptake of biosimilars in Belgium	• Lack of confidence towards biosimilars • Uncertainty about the interchangeability and substitution of

			patients						biosimilars
A: no declared COI, B: declared COI (or disclosure of interest) (*e.g.* HCPs/academics providing advice/paid consultancy to industry), C: industry sponsoring/educational grant from industry to support independent research declared, D: research conducted by industry/lobby organization/consultancy, E: potential funding/COI not specified									
Anti-TNF: anti- tumour necrosis factor, COI: conflict of interest, EFCCA: European Federation of Crohn's and Ulcerative Colitis Association, GP: general practitioner, HCPs: healthcare professionals, KOL: Key opinion leaders, NHS: United Kingdom National Health Service, RA: Rheumatoid Arthritis, RP: reference products									

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