The background of the entire page is a repeating pattern of stylized pine needles, drawn with fine, parallel lines in a light gray color. The needles are scattered across the white background, creating a textured, natural feel.

EpiDoC's Annual Activity Report

2019

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Introduction

Established in March 2016, EpiDoC is a research unit that works in the fields of epidemiology, clinical and outcomes research, aiming at providing scientific information of excellence, gathering health and diseases issues and covering clinical, social, economic and human aspects of chronic non-communicable diseases.

Table 1 - EpiDoC's core team.

Helena Canhão, MD, PhD	Coordinator
Jaime da Cunha Branco, MD, PhD	Group Leader
Ana Maria Rodrigues, MD, PhD	Group Leader
Rute Dinis de Sousa, MSc, MBA	Unit Manager
Sara Simões Dias, PhD	Senior Statistician
Sofia Azeredo, PhD	Senior Statistician
Maria João Gregório, PhD	Post doc Researcher
Nuno Mendonça, PhD	Post doc Researcher
Jair Eletério, MD	Research Fellow
Catarina Nunes da Silva, MSc	Research Assistant

EpiDoC has experience in developing, testing and applying innovative forms of measuring health conditions and conducting interventional studies, using patient-oriented strategies, through new information and communication technologies (ICT), such as online platforms, apps and interactive TV.

This Unit has expertise in conducting surveys, chronic disease registries, observational studies and management of large databases including demographic, life habits, clinical, pharmacological, socio-economic, employment, quality of life, imaging, genetics and laboratorial data. We have also made a long-term investment in a population-based longitudinal cohort with imaging and blood samples.

Additionally, we are committed to help patients and vulnerable population groups to improve their health, namely the elderly population.

Our aim is to contribute to patient empowerment, to reduce inequities in health and to provide evidence for public health policies targeting vulnerable people, more specifically senior and diseased individuals.

EpiDoC Unit integrates the Comprehensive Health Research Center (CHRC) a research unit scored as Excellent by Fundação para a Ciência e a Tecnologia (FCT), and works in close collaboration with CEDOC's basic and translational research units and with pharmacoconomics and health economics researchers at the National School of Public Health, *Centro Médico Universitário de Lisboa's* (CMUL) affiliated hospitals and primary care centers and other institutions like *Faculdade de Ciências e Tecnologia* (NOVA-FCT), NOVA School of Business and Economics (NOVA-SBE), *Universidade Católica Portuguesa*, Norwegian University of Science and Technology (NTNU), University of Stavenger, Harvard Medical School, *Universidade de Aveiro*, *Universidade de Évora* (UE), *Instituto de Saúde Pública da Universidade do Porto*, Lisbon Institute of Global Mental Health (LIMGH), *Centro de Eletroencefalografia e Neurofisiologia Clínica* (CENC), *Instituto Politécnico de Setúbal*, *Hospital de Santo Espírito da Ilha Terceira* (HSEIT), *Sociedade Portuguesa de Reumatologia*, *Liga Portuguesa Contra as Doenças Reumáticas*, Patient Innovation Association, Value for Health CoLAB, *Administração Central dos Serviços de Saúde*, and Directorate-General of Health (DGS).

The main activities are:

✓ **Research**

- Clinical investigation of chronic non-communicable diseases;
- Research in the area of healthy and active ageing;
- Design, implementation and development of epidemiological and clinical studies (observational and interventional);
- Support of internal and external researchers to carry out research projects;
- Creation and validation of technological tools for collecting data, intervention and health promotion;
- Empowerment of vulnerable population groups (i.e. elderly, chronically ill, multimorbid) to improve their health;

- Development and support of EpiDoC cohort, with wide dissemination and communication of the health data that it generates and its impact on health policies.
- ✓ **Training and educational activities**
- Education and training in epidemiology and clinical research: through this unit, researchers (fellows, trainees, pre- and post-graduate students, doctoral and postdoctoral students, etc.) have access to database information and facilities including education and training in clinical research, epidemiology and cohort study design; dataset cleaning, analysis and interpretation.
 - The group leaders are responsible for teaching undergraduate medical students at NMS and post-graduate students at NMS and ENSP in the fields of Epidemiology, Clinical Research, Rheumatology, Health Innovation and Ageing. The Unit endorses mentorship, regular seminars, scientific courses and hands-on workshops to assure high quality research training.
 - Teaching and training strategies, using information and communication technologies (ICT, internet, online information, applications for smartphones and smart TV) for easy access and distribution, namely training programs and promotion of healthy lifestyles broadcasted on national TV, to the general population and special vulnerable groups.

✓ **Services to scientific community**

Our research Unit assists with the preparation and development of research designs: research problem conceptualization, protocols' development, study design selection, study setting, exposure definition and measurement, outcome definition and measurement, covariate and data sources selection, study size and power calculations. We can cover large, diverse, defined populations – selected for a disease, condition or procedure – to capture complete clinical information about them over time, including longitudinal information on clinical care, changes in clinical characteristics and conditions, and assessment of clinical care services and outcomes in health.

✓ Clinical Research Communication and Diffusion

EpiDoC and its group leaders are fully committed in sharing and providing open access to all generated knowledge and advancements. Main results are announced in academic health-related publications and websites, as well as in specialized peer-review journals. Our results have been published in scientific journals from different research fields, including epidemiology, nutrition, rheumatology, health economy, public health and medicine. Other dissemination activities include website, flyers, and the organization of different events and conferences.

✓ Networking and Collaborations

Our Unit relies on distinguished researchers and recognized professionals, plus on national and international collaborations, from the most diverse scientific and technological areas (medicine, psychology, nutrition, engineering, innovation, management, computer science, statistics, etc.) as well as with outstanding scientific institutions and technology companies, medical scientific societies, pharmaceutical companies and other private and public health institutions (NOVA Medical School, *Escola Nacional de Saúde Pública*, NOVA-SBE, NOVA-FCT, CATÓLICA Lisbon School of Business and Economics, *Instituto de Saúde Pública da Universidade do Porto*, LIMGH, CENC, HSEIT, UE, *Value for Health CoLAB*, *Sociedade Portuguesa de Reumatologia*, *Liga Portuguesa Contra as Doenças Reumáticas*, DGS, *Administração Central dos Serviços de Saúde*, NTNU, University of Stavanger, Harvard Medical School, Microsoft Portugal, Innowave, etc.). These collaborations bring together a wealth of experience in research, product development and scientific validation, chronic disease registries, observational studies and management of large databases, including a wide range of data: demographic, lifestyle, clinical, pharmacological, socio-economic, labor, quality of life and laboratory data.

In this 2019 annual report, activities were divided into three main groups: 1) Research, 2) Teaching and 3) Extension outside the university.



1. Research

Coordination of National and International Research Units/Networks

Coordination of Comprehensive Health Research Center (CHRC) – an Excellent FCT Research Unit

We have created, developed and established a new FCT Research Unit, the Comprehensive Health Research Center (CHRC). The CHRC is a new, national, center of excellence for research, training and innovation in health promotion, prevention, treatment, rehabilitation and healthcare services. CHRC provides a unifying environment for innovation and education in public health, lifestyles, nursing, rehabilitation and clinical research. CHRC integrates researchers from NOVA Medical School, National School of Public Health, *Universidade de Évora*, LIGMH, HSEIT and other institutions with distinct backgrounds and skills. In May 2019, CHRC was evaluated by *Fundação para a Ciência e Tecnologia* (FCT) as Excellent and funded with 3.5 Million euros for the next 4 years.

Application and Coordination of a new reference site of the European Innovation Partnership on Active and Healthy Aging (EIP-AHA)

In 2019, EpiDoC's group leader, Helena Canhão, led the application of a regional consortium promoted by NOVA University as coordinator of the EIP-AHA reference site, Lisbon AHA. This consortium integrates stakeholders from Academia (UNL, *Instituto Politécnico de Setúbal*, VOH.CoLAB), Public Institutions (*Comissão Coordenadora do Desenvolvimento Regional de Lisboa e Vale do Tejo* and 6 City Councils of the Lisbon metropolitan area), Companies (Glint, *José de Mello Saúde*, PLUX) and non-profit organizations (INATEL, *União das Misericórdias Portuguesas*, AMPMV, A.N.D.A.R., Alzheimer Portugal, *Liga Portuguesa Contra as Doenças Reumáticas*, *Plataforma Saúde em Diálogo*) for the development, adoption and scaling up of innovative practices for active and healthy ageing. This work is aligned with the strategic objectives of the European Innovation Partnership on Active and Healthy Ageing (EIP on AHA). As a result

of the peer-review and expert review process, our application was not only recognized as a reference site, but it was also given two out of four stars.

Coordination and participation in research funded projects

- 1) **“Improving Osteoporosis Treatment Adherence using ICTs: The Healthy Bone Program”**. Winner of the 2019 International Competitive Grant Program in Bone Research, supported by Amgen USA (150 000 USD). This project is also co-funded by a Research grant from Portuguese Society of Rheumatology (SPR) / Pfizer (10.000 euros). The project starts in January 2020.
- 2) **“Intelligent frailty pathways for the Portuguese elderly population and impact analysis of the telecare service SNS24 Proximidade Sénior - FrailCare.AI”**. This project is funded by FCT DSAIPA/DS/0106/2019 (237 000 euros). The project kick-off meeting was on December 4, 2019.
- 3) **“Revolutionizing Healthcare: Empowering patients by valuing innovation and promoting entrepreneurship: Patient2Entrepreneurship (P2E)”** – funded by FCT (231.100€).
- 4) **“Prevention of occupational disorders in public administration based on artificial intelligence – PrevOcupAI”**. This project is coordinated by NOVA FCT and is funded by FCT DSAIPA/AI/0105/2019 (239 000 euros). Helena Canhão is the principal investigator at NOVA Medical School and will lead the medical tasks of the project. The project starts in January 2020.
- 5) **“Optimizing the mental health and resilience of older adults that have lost their spouse via blended, online therapy – LEAVES”**. This project is coordinated by Roessingh Research and Development, NL and was funded by Active Assisted Living (AAL) European Funding Programme 2019 (1 490 000 euros). Helena Canhão is the

principal investigator at NOVA Medical School and the pilot design study leader. The project will start in February 2020.

- 6) **Stratified primary care for low back pain – SPLIT.** Funded by Portugal 2020 in a total of 147 000 euros, the SPLIT project is coordinated by Instituto Politécnico de Setúbal, and Helena Canhão is the Principal Investigator at NOVA Medical School (up to July 2020).
- 7) **“Impact of Dietary Protein on Disability in ageing Europeans (InDEPENDent)”** is funded by Marie Curie Sklodowska Action H2020 MGA MSCA-IF GA (up to Jul 2021) –147 815,00 euros. It is being developed by Nuno Mendonça (MSc, PhD), at NOVA Medical School, under the supervision of Helena Canhão.
- 8) **Personalized therapy for Rheumatic Diseases via machine learning – PREDICT** (PTDC/CCI-CIF/29877/2017, Coordinated by Instituto Superior Técnico, funded by FCT 240 000 euros (up to Dec 2020). Helena Canhão is the PI at NOVA Medical School.
- 9) **ARTificial Intelligence for BOne functioning Simulation, ARIBOS** – funded by a Portuguese Society of Rheumatology (SPR) Research grant (37 000 euros). Helena Canhão is the coordinator and PI of this project jointly developed with NOVA-FCT.
- 10) **No + Fracture Portugal Fracture Clinics Network Implementation** – funded by Grand Prize SPR 2018 (50 000 euros).
- 11) **PAASPORT – Prevalence, patient characteristics and patient’s quality of life** – understanding the impact associated to psoriatic arthritis and ankylosing spondylitis in Portugal – funded by Novartis (30 000 euros).
- 12) **Investigating the association of fluoride in drinking water in the epidemiology of skeletal ectopic calcifications and bone fragility in Portugal, FLEPIPORT**– funded by SPR research grant (7 500 euros).

- 13) **ReumaHEART** – a Portuguese population-based study – co-funded by a Research grant SPR (3 700 euros) and a SPR/Pfizer one (4 500 euros).

- 14) **Osteoarthritis and Adherence to Mediterranean Diet** – funded by a Research grant SPR (2 500 euros).

- 15) **Sleep duration and association upon rheumatic diseases** – a national population study – funded by a Research grant SPR (2 500 euros).

- 16) **Socioeconomic Status, Poverty and Rheumatic Musculoskeletal diseases** – funded by a Research grant SPR (2 500 euros).

- 17) **DigiAdherence – supporting senior people at home** – funded by Directorate-General of Health (15 000 euros).

- 18) **The burden and costs of food insecurity in Portugal** – funded by *Universidade NOVA de Lisboa* (12 000 euros).

- 19) **Exploiting Small-angle X-ray Scattering at ALBA to understand osteoporotic bone nanostructure and to enable the next generation of scaffolds for bone tissue generation. bl11 - NCD-SWEET, ALBA.** Project funded by ALBA and coordinated by Saba Abdulghani.

- 20) **“Releasing the power of users - articulating user interest to accelerate new innovative pathways in digital health and welfare sector”.** Norwegian Research Council funded project no. 299192. kr\$ 200,000.

- 21) **Inhibiting the jak-stat pathway as a strategy to treat osteopetrosis** – funded by Research grant SPR /Jakie (5 000 euros).

Conferences/meetings' organization

- Young European Research Universities (Yerun) Research Workshop. Health and Ageing. Digital Health and New Technologies. Lisbon, 17-June 18, 2019.
- Comprehensive Health Research Center (CHRC) FCT's Evaluators Panel Meeting. Lisbon, May 7, 2019.
- Comprehensive Health Research Center (CHRC) meeting. Lisbon, January 3, 2019.

Publications indexed in PubMed/Medline

- 1) Rama K, Canhão H, Carvalho AM, Vinga S. AliClu - Temporal sequence alignment for clustering longitudinal clinical data. BMC Med Inform Decis Mak. 2019 Dec 30;19(1):289. doi: 10.1186/s12911-019-1013-7.
- 2) Rodrigues J, Rodrigues AM, Dias SS, Sousa RD, Branco JC, Canhão H (2019) Psoriatic arthritis and Ankylosing Spondylitis Impact on Health-related Quality of Life and Working Life: A Comparative Population-Based Study. Acta Reumatol Port. 2019 Dec 27 [Epub ahead of print].
- 3) Laires PA, Serrano-Alarcón M, Canhão H, Perelman J. Multimorbidity and intention to retire: a cross-sectional study on 14 European countries. Int J Public Health. 2019 Dec 20. doi: 10.1007/s00038-019-01322-0. [Epub ahead of print].
- 4) Maia I, Monjardino T, Frias B, Canhão H, Cunha Branco J, Lucas R, Santos AC. Food Insecurity in Portugal Among Middle- and Older-Aged Adults at a Time of Economic Crisis Recovery: Prevalence and Determinants. Food Nutr Bull. 2019 Dec;40(4):504-513. doi:10.1177/0379572119858170.
- 5) Canet LM, Sánchez-Maldonado JM, Cáliz R, Rodríguez-Ramos A, Lupiáñez CB, Canhão H, Martínez-Bueno M, Escudero A, Segura-Catena J, Sorensen SB, Hetland ML, Soto-Pino MJ, Ferrer MA, García A, Glintborg B, Filipescu I, Pérez-Pampin E, González-Utrilla A, Nevot MÁL, Conesa-Zamora P, den Broeder A, De Vita S, Jacobsen SEH, Collantes-Estevez E, Quartuccio L, Canzian F, Fonseca JE, Coenen MJH, Andersen V, Sainz J. Correction: Polymorphisms at phase I-metabolizing enzyme and hormone

- receptor loci influence the response to anti-TNF therapy in rheumatoid arthritis patients. Pharmacogenomics J. 2019 Dec;19(6):582. doi: 10.1038/s41397-019-0084-2.
- 6) Melo A, Matias MA, Dias SS, Gregório MJ, Rodrigues AM, de Sousa RD, Canhão H, Perelman J. Is food insecurity related to health-care use, access and absenteeism? Public Health Nutr. 2019 Dec;22(17):3211-3219. doi: 10.1017/S1368980019001885. Epub 2019 Aug 6.
 - 7) Marques AJ, Rodrigues A, Dias S, Canhão H, Branco J, Vaz C. Fall determinants in the adult Portuguese: do chronic conditions change the risk of falling? Acta Reumatol Port. 2019 Nov 19. [Epub ahead of print]
 - 8) Caeiro C, Canhão H, Paiva S, Gomes LA, Fernandes R, Rodrigues AM, Sousa R, Pimentel-Santos F, Branco J, Fryxell AC, Vicente L, Cruz EB. Interdisciplinary stratified care for low back pain: A qualitative study on the acceptability, potential facilitators and barriers to implementation. PLoS One. 2019 Nov 15;14(11):e0225336. doi:10.1371/journal.pone.0225336. eCollection 2019.
 - 9) Mendonça N, Kingston A, Granic A, Jagger C. Protein intake and transitions between frailty states and to death in very old adults: The Newcastle 85+ Study. Age & Ageing. 2019 Nov 11; 49(1)32. doi:10.1093/ageing/afz142.
 - 10) Rodrigues AM and Canhão H (2019) Innovation and digital transformation to support clinical care and prevent osteoporosis related fractures. Acta Reumatol Port. 44 (3), 171-172. 2019 Nov 1.
 - 11) Laires P, Nunes C, Rodrigues A, Canhão H, Branco JC. PMS41 Projection of the prevalence of rheumatic diseases in Portugal through the first half of the 21st century. Value in Health. 2019 Nov 1; 22(3); S701. doi:10.1016/j.jval.2019.09.1585.
 - 12) Sánchez-Maldonado JM, Cáliz R, Canet L, Horst RT, Bakker O, den Broeder AA, Martínez-Bueno M, Canhão H, Rodríguez-Ramos A, Lupiañez CB, Soto-Pino MJ, García A, Pérez-Pampin E, González-Utrilla A, Escudero A, Segura-Catena J, Netea-Maier RT, Ferrer MÁ, Collantes-Estevez E, López Nevot MÁ, Li Y, Jurado M, Fonseca JE, Netea MG, Coenen MJH, Sainz J. Steroid hormone-related polymorphisms associate with the development of bone erosions in rheumatoid arthritis and help to predict disease progression: Results from the REPAIR consortium. Sci Rep. 2019 Oct 15;9(1):14812. doi: 10.1038/s41598-019-51255-0.

- 13) Sanmarti R, Veale DJ, Martin-Mola E, Escudero-Contreras A, González C, Ercole L, Alonso R, Fonseca JE; ToSpace Study Group. Reducing or Maintaining the Dose of Subcutaneous Tocilizumab in Patients With Rheumatoid Arthritis in Clinical Remission: A Randomized, Open-Label Trial. *Arthritis Rheumatol.* 2019 Oct;71(10):1616-1625.
- 14) Caeiro C, Paiva S, Gomes L, Fernandes R, Canhão H, Rodrigues AM, Sousa R, Fryxell AC, Vicente L, Branco J, Cruz EB. AB1199 Barriers and facilitators to the implementation of a stratified model of care for low back pain patients in primary care in Portugal. *Ann Rheum Dis.* 2019 May 27;78:2060-2061. doi: 10.1136/annrheumdis-2019-eular.5930. Abstract only.
- 15) Neto A, Mourão AF, Oliveira-Ramos F, Gomes JM, Santos MJ, Campanilho-Marques R, Piotto D, Silva CA, Estanqueiro P, Fonseca JE, Tererri MT, Canhão H. SAT0509 Body mass index and disease activity in Portuguese and Brazilian juvenile idiopathic arthritis patients: results from Rheumatic Diseases Portuguese Register – Reuma.pt. *Ann Rheum Dis.* 2019 May 27;78:1344. doi: 10.1136/annrheumdis-2019-eular.6349. Abstract only.
- 16) Cruz EB, Gomes L, Branco J, Rodrigues AM, Fernandes R, Caeiro C, Paiva S, Pinto I, Moniz R, Canhão H. AB1254 Low-back pain chronicity in a primary care setting is associated with maladaptive psychosocial factors, other chronic pain condition and high levels of pain at baseline. *Ann Rheum Dis* 2019 May 27;78:2088. doi: 10.1136/annrheumdis-2019-eular.7670. Abstract only.
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- 18) Sepriano AR, Ramiro S, Araújo FC, Machado PM, Rodrigues AM, Gouveia N, Eusébio M, Canhão H, Branco J. Performance of referral strategies for spondyloarthritis: a

- population-based nationwide study. *Rheumatology (Oxford)*. 2019 Jun 1;58(6):1086-1094. doi: 10.1093/rheumatology/key436.
- 19) Canhao H, Masuko K, Nakamura H. Editorial: Nutrition and Metabolism in Rheumatic Diseases. *Front Med (Lausanne)*. 2019 May 8;6:101. doi: 10.3389/fmed.2019.00101. eCollection 2019. No abstract available.
- 20) Castelo-Branco L, Silva IP, Canhão H, Awada A. Promising Immuno-Oncology Treatments Beyond the 2018 Nobel Prize. *Acta Med Port*. 2019 Apr 30;32(4):251-257. doi: 10.20344/amp.12040. Epub 2019 Apr 30. No abstract available.
- 21) Torre C, Guerreiro J, Mendes Z, Miranda A, Bragança F, Cristino J, Canhão H, Branco JC. Low persistence with oral bisphosphonate treatment in postmenopausal osteoporosis. *Acta Reumatol Port*. 2019 Apr-Jun;44(2):114-125.
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- 23) Oliveira P, Zejnilovic L, Azevedo S, Rodrigues AM, Canhão H. Peer Adoption and Development of Health Innovations by Patients: National Representative Study of 6204 Citizens. *J Med Internet Res*. 2019 Mar 26;21(3):e11726. doi: 10.2196/11726.
- 24) Canet LM, Sánchez-Maldonado JM, Cáliz R, Rodríguez-Ramos A, Lupiáñez CB, Canhão H, Martínez-Bueno M, Escudero A, Segura-Catena J, Sorensen SB, Hetland ML, Soto-Pino MJ, Ferrer MA, García A, Glintborg B, Filipescu I, Pérez-Pampin E, González-Utrilla A, Nevot MÁL, Conesa-Zamora P, Broeder AD, De Vita S, Jacobsen SEH, Collantes-Estevez E, Quartuccio L, Canzian F, Fonseca JE, Coenen MJH, Andersen V, Sainz J. Polymorphisms at phase I-metabolizing enzyme and hormone receptor loci influence the response to anti-TNF therapy in rheumatoid arthritis patients. *Pharmacogenomics J*. 2019 Feb;19(1):83-96. doi: 10.1038/s41397-018-0057-x. Epub 2018 Oct 5. Erratum in: *Pharmacogenomics J*. 2019 Feb 14.
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- 27) Pereira E Silva R, Romão VC, Neves M, Garcia R, Oliveira S, Brites J, Ramos FO, Canhão H, Palma Dos Reis J, Pereira da Silva JA, Lopes T. Overactive bladder symptom bother and health-related quality of life in patients with systemic lupus erythematosus and primary Sjögren syndrome. *Lupus.* 2019 Jan;28(1):27-33. doi: 10.1177/0961203318811605. Epub 2018 Nov 12.
- 28) Chatzidionysiou K, Lukina G, Gabay C, Hetland ML, Hauge EM, Pavelka K, Nordström D, Canhão H, Tomsic M, Rotar Z, Lie E, Kvien TK, van Vollenhoven RF, Saevarsdottir S. Smoking and response to rituximab in rheumatoid arthritis: results from an international European collaboration. *Scand J Rheumatol.* 2019 Jan;48(1):17-23. doi: 10.1080/03009742.2018.1466363. Epub 2018 Sep 27.

Books and book chapters

- **Empowering patients to innovate.** Pedro Oliveira, Salomé Azevedo and Helena Canhão. Chapter 4 In *Responsible Innovation in Digital Health*. Edited by Tatiana Iakovleva, Elin M. Oftedal and John Bessant. Edward Elgar Publishing 2019. ISBN: 978-1-78897-505-6.

Conference by invitation

Helena Canhão

- Moderator at XXVII Jornadas Internacionais do Instituto Português de Reumatologia. December 5, 2019. Lisbon, Portugal.

- Closing session at 2019 A.N.D.A.R. Colloquium. Calouste Gulbenkian Foundation. November 29, 2019.
- Roundtable "SNS. Um Percurso". "SNS no Feminino" Conference. November 22, 2019. Lisbon, Portugal.
- "Patient involvement in the development of health solutions", presented at Panel 2: New instruments and strategies for health communication of XXV Encontro Nacional Comunicação e Saúde. October 29, 2019. Fundação Calouste Gulbenkian. Lisbon, Portugal
- Patient Innovation. EITHiEN Conference 2019. European Perspectives Meeting: the Needs of the Health Innovation Educator. Imperial College Business School, London UK, 17-18 October 2019.
- Patient Innovation. Leading innovation, changing lives. Sessão para Entrega de Prémios de Inovação MSD. Lisboa, 21 September 2019.
- EIT Health Think Tank Roundtable in Portugal - Optimizing Innovation Pathways: future proofing for success. Sintra, 19 September 2019.
- Carreiras Alternativas em Medicina: Investigação. FuturMed. Lisboa, 12 May 2019.
- Case study: The experience of NHS Wales. Value in Health. A compromise for all. Cimeira de Cascais. Carcavelos, 10 May 2019.
- Fractures prevention. Are you ready for the challenges? What solutions? From the clinical practice to the therapeutic objectives. Portuguese Congress of Rheumatology. Vilamoura, 3 May 2019.
- The impact of Spondyloarthritis. From physiopathology to clinics – the patient in the center of therapeutic decision. Portuguese Congress of Rheumatology. Vilamoura, 1 May 2019.
- Smart living at home – the older in the center of the system. e-Services Provision for the Seniors in the Cross Border eRegion Consultation. Skofja Loka, Slovenia 9 April 2019.
- Patient Care. Novas tecnologias em saúde. XIX Jornadas da Associação Nacional dos Doentes com Artrite Reumatóide (ANDAR). Lisboa, 6 Abril 2019
- H2020 Funding Opportunities. e-Services Provision for the Seniors in the Cross Border eRegion Consultation. Skofja Loka, Slovenia 9 April 2019.

- Que Saúde Faz Sentido? Painel SIC Mulher / Expresso. Lisboa, 28 March 2019
- Patient entrepreneurship and Health Innovation Center. Lancaster Business School meeting. Lancaster, 21 March 2019.
- Breaking barriers on osteoporotic fractures. Prolia Amgen's launch event. Lisboa, 16 March 2019.
- Debate on Social Innovation through Knowledge Exchange (SIKE). SIKE international meeting. Lisboa, 13 March 2019.
- Patient Innovation. Jornadas Rarissimas. Moita, 28 February 2019.
- Patient Innovation. In4Med Congress. Coimbra, 23-25 February 2019.
- "The Place of Biomedical Engineering in Medicine and in the Pharmaceutical Sector". XIV National Meeting of Biomedical Engineering Students. Almada, 22 February 2019.
- Dialogue with patients: "Biosimilars: patients' perspective in the therapeutic decision". Lisboa, 13 February 2019.
- Expert Consultation "Enhance patient and family engagement for the provision of safer health care". World Health Organization (WHO) and National School of Public Health. Lisbon, 5-6 February 2019.
- Clinical Research. Resident Welcome Meeting at the Centro Hospitalar Lisboa Central (CHLC), Hospital D. Estefânia. Lisboa, 24 January 2019.
- Patient Innovation: innovative solutions developed by patients and informal caregivers. 2019 GEDII Annual Meeting. Porto, 18 January 2019.

Ana Rodrigues

- Ana M. Rodrigues participated in the Ciência 2019 - Science and Technology in Portugal Summit. Lisboa, 10 July 2019.

Nuno Mendonça

- Contribution of protein intake to transitions between frailty states in very old adults. 13th European Nutrition Conference, Federation of European Nutrition Societies (FENS). October 15, 2019.

Communications in congresses and conferences – oral presentations

- 1) Rodrigues AM. "Osteoblasto e osteoclasto: do osso ao efeito sistémico". XXVII Jornadas Internacionais do Instituto Português de Reumatologia. December 5, 2019. Lisbon, Portugal.
- 2) Sousa R (2019) From SNS24 to FrailCareAI - Making a long story, short. Impact of integrated health and social care services grounded on the assessment of frailty. December 4, 2019. Rome, Italy.
- 3) Vieira-Sousa E, Alves PT, Rodrigues AM, Teixeira F, Tavares-Costa J, Bernardo A, Pimenta S, Pimentel-Santos F, Gomes JL, Aguiar R, Videira T, Pinto P, Catita C, Santos H, Borges J, Sequeira G, Ribeiro C, Teixeira L, Ávila-Ribeiro P, Martins FM, Canhão H, McInnes IB, Ribeiro RM, Fonseca JE. A phase 3b randomized, double-blind, placebo-controlled, proof-of-concept trial of GOlimumab plus methotrexate (MTX) versus MTX monotherapy in improving DACTylitis in MTX-naïve psoriatic arthritis patients. American College of Rheumatology (ACR)/ Association for Rheumatology Professionals (ARP) Annual Meeting. November 8-13, 2019. Atlanta, United States.
- 4) Pereira AC, Canhão H. A Agenda de I&D em Saúde e o seu Financiamento. Fórum de Investigação em Saúde 2019 - Uma Convergência de Prioridades. Instituto Nacional de Saúde Doutor Ricardo Jorge. October 31, 2019. Lisbon, Portugal.
- 5) Mendonça N. Contribution of protein intake to transitions between frailty states in very old adults. 13th European Nutrition Conference, Federation of European Nutrition Societies (FENS). October 15, 2019. Dublin, Ireland.
- 6) Lemos M, Rodrigues AM, Dias S, Gregório MJ, Sousa RD, Canhão H, Fernandes FM. Lifestyles as short-term predictors of incident cerebro-cardiovascular disease (CCVD) in the adult Portuguese population. Encontro Primavera da Associação Portuguesa de Saúde Pública. Instituto Nacional de Saúde Doutor Ricardo Jorge. June 3 2019. Lisbon, Portugal.
- 7) Carreiras Alternativas em Medicina e Investigação. FuturMed. NOVA Medical School. May 12, 2019. Lisbon, Portugal.

- 8) Carmona-Fernandes D, Leonardo N, Casimiro RI, Castro A, Barreira SC, Santos PO, Fernandes AN, Cortes-Figueiredo F, Gonçalves CA, Cruz R, Fernandes ML, Ivo M, Pedro LM, Canhão H, Fonseca JE, Santos MJ. Atherosclerosis and bone loss in humans – results from deceased donors and patients submitted to carotid endarterectomy. XXI Congresso Português de Reumatologia. May 1-4, 2019. Vilamoura, Portugal.
- 9) Cruz M, Sepriano A, Dias S, Rodrigues AM, Canhão H, Gouveia N, Ramiro S, Eusébio M, Branco JC. Is there an association between metabolic syndrome and severity of hand osteoarthritis? Results from a nationwide study. XXI Congresso Português de Reumatologia. May 1-4 2019. Vilamoura, Portugal.
- 10) Neto A, Mourão AF, Ramos FO, Melo-Gomes J, Santos MJ, Campanilho-Marques R, Piotto D, Silva CA, Estanqueiro P, Fonseca JE, Terreri MT, Canhão H. Body mass index and disease activity in Portuguese and Brazilian juvenile idiopathic arthritis patients: results from rheumatic diseases Portuguese register. XXI Congresso Português de Reumatologia. May 1-4 2019. Vilamoura, Portugal.
- 11) Cruz EB, Fernandes R, Caeiro C, Rodrigues AM, Branco JC, Gomes L, Paiva S, Canhão H. Construct and discriminant validity of the European Portuguese version of the start back screening tool (SBT-PT). XXI Congresso Português de Reumatologia. May 1-4 2019 Vilamoura, Portugal.
- 12) Dialogue with patients' seminar. "Biosimilars: patients' perspective in the therapeutic decision". Panel: Elsa Frazão Mateus, Arisete Saraiva, Cláudia Monge and Ana Escoval. National School of Public Health. February 13, 2019. Lisbon, Portugal.

Communications in congresses and conferences – posters

- 1) Neto A, Mourão AF, Oliveira-Ramos F, Campanilho-Marques R, Estanqueiro P, Salgado M, Guedes M, Piotto D, Silva CA, Gomes JM, Cabral M, Conde M, Figueira R, Santos MJ, Fonseca JE, Terreri MT, Canhão H (2019). Association of Body Mass Index with Juvenile Idiopathic Arthritis Disease Activity: A Portuguese and

- Brazilian Collaborative Analysis with Data from Reuma.pt Registry. American College of Rheumatology (ACR)/ Association for Rheumatology Professionals (ARP) Annual Meeting. November 8-13, 2019. Atlanta, United States.
- 2) Laires PA, Nunes C, Rodrigues AM, Canhão H, Branco JC (2019). Projection of the prevalence of Rheumatic Diseases in Portugal Through the First Half of the 21st Century. ISPOR Europe 2019. November 2-6, 2019. Copenhagen, Denmark.
 - 3) Cruz M, Sepriano A, Dias S, Rodrigues AM, Canhão H, Gouveia N, Ramiro S, Branco JC. Is There An Association Between Metabolic Syndrome and Severity of Hand Osteoarthritis? Results from A Nationwide Study. Annual European Congress of Rheumatology, June 12-15 2019. Madrid, Spain.
 - 4) Neto A, Mourão AF, Oliveira-Ramos F, Canhão H. Body Mass Index and Disease Activity in Portuguese and Brazilian Juvenile Idiopathic Arthritis Patients: Results from Rheumatic Diseases Portuguese Register – REUMA.PT. Annual European Congress of Rheumatology, Annual European Congress of Rheumatology, June 12-15 2019. Madrid, Spain.
 - 5) Cruz EB, Gomes L., Branco JC, Rodrigues AM, Fernandes R, Caeiro C, Paiva S, Pinto I, Moniz R, Canhão H Short-term outcomes in low back pain patients treated in primary health care in Portugal. XXI Congresso Português de Reumatologia. May 1-4 2019. Vilamoura, Portugal.
 - 6) Vieira-Sousa E, Alves P, Rodrigues AM, Teixeira F, Tavares-Costa J, Bernardo A, Pimenta S, Pimentel-Santos F, Gomes JL, Aguiar R, Pinto P, Videira T, Catita C, Santos H, Borges J, Sequeira G, Ribeiro C, Teixeira L, Ribeiro R, Martins FM, Canhão H, Ribeiro RM, Fonseca JE. GO-DACT: A randomized double-blind placebo-controlled proof-of-concept Trial of golimumab plus methotrexate (MTX) versus MTX monotherapy, in improving dactylitis, in MTX naive psoriatic arthritis patients. XXI Congresso Português de Reumatologia. May 1-4 2019. Vilamoura, Portugal.
 - 7) António MS, Rodrigues AM, Teixeira F, Tavares-Costa J, Bernardo A, Pimenta S, Gomes JL, Aguiar R, Videira T, Pinto P, Santos H, Sequeira G, Teixeira L, Fonseca JE, Vieira-Sousa E. Assessment of digits' circumference in the Portuguese population to calculate the leeds dactylitis index. XXI Congresso Português de Reumatologia. May 1-4 2019. Vilamoura, Portugal.

- 8) Caeiro C, Paiva S, Gomes L, Fernandes R, Canhão H, Rodrigues AM, Sousa R, Branco JC, Fryxell A, Vicente L, Cruz EB. Interdisciplinary stratified care for low back pain – a qualitative study of general practitioners’ and physiotherapists’ perceptions regarding its upcoming implementation in Portugal. XXI Congresso Português de Reumatologia. May 1-4 2019. Vilamoura, Portugal.
- 9) Rodrigues AM, Canhao H. Short-term outcomes in low back pain patients treated in primary health care in Portugal XXI Congresso Português de Reumatologia. May 1-4 2019. Vilamoura, Portugal.
- 10) Rodrigues AM, Canhão H. Interdisciplinary stratified care for low back pain – a qualitative study of general practitioners’ and physiotherapists’ perceptions regarding its upcoming implementation in Portugal XXI Congresso Português de Reumatologia. May 1-4 2019. Vilamoura, Portugal.
- 11) Caeiro C, Paiva S, Gomes L, Fernandes R, Canhão H, Rodrigues AM, Sousa R, Branco JC, Fryxell A, Vicente L, Cruz EB. Interdisciplinary stratified care for low back pain – a qualitative study of general practitioners’ and physiotherapists’ perceptions regarding its upcoming implementation in Portugal. XXI Congresso Português de Reumatologia. May 1-4 2019. Vilamoura, Portugal.
- 12) Cruz EB, Canhão H, Branco JC, Rodrigues AM, Caeiro C, Fernandes R, Fryxell AC, Ribeiro C. Implementação de um modelo inovador de triagem, referência e tratamento estratificado de Fisioterapia em indivíduos com lombalgia- Protocolo SPLIT. 36.º Encontro Nacional de Medicina Geral e Familiar. March 13-16 2019. Braga, Portugal.
- 13) Cruz EB, Canhão H, Branco JC, Rodrigues AM, Fernandes R, Gomes LM, Pinto I, Ribeiro C. Lombalgia nos cuidados de saúde primários: Uma oportunidade para inovar no tratamento e melhorar resultados clínicos. 36.º Encontro Nacional de Medicina Geral e Familiar. March 13-16 2019. Braga, Portugal.

Other dissemination activities

- Ana Rodrigues presented a communication about the NOVAsaúde Ageing Group, which is coordinated by Helena Canhão. VI Jornadas NOVAsaúde 2019. December 12, 2019. Lisbon, Portugal.
- Ana Rodrigues attended the meeting on "Transformação Digital da Sociedade". Initiative was integrated in the Program "Redes de Universidades Europeias". NOVA University Rectorate. December 5, 2019. Lisbon, Portugal.
- Multimorbidity Think Tank - Managing Complex Patients with Cardiovascular Disease and Depression. Action priorities and future research directions for personalized healthcare of complex patients. November 20-21, 2019. Zurich, Switzerland.
- Ana Rodrigues and Helena Canhão attended the 3rd EULAR Registers and Observational Drug Studies (RODS) Meeting. October 18-19, 2019. Amsterdam, The Netherlands.
- Helena Canhão is a member of the working group of *Comissão de Coordenação e Desenvolvimento Regional (CCDR) Lisboa e Vale do Tejo Idade+*.
- Helena Canhão was nominated by *Fundação para a Ciência e Tecnologia (FCT)* as a rapporteur of the Research and Innovation Agenda for Health 2020-2030.
- Meeting of the Consultative Council of Tagus Academic Network for Knowledge (Tagus-Tank). May 14, 2019. Lisbon, Portugal.
- Helena Canhão was moderator at Cimeira de Cascais – Valor em saúde, um compromisso para todos. May 10, 2019. Cascais, Portugal.
- Evaluation of the Comprehensive Health Research Center by *Fundação para a Ciência e Tecnologia (FCT)*. May 7, 2019. Lisbon, Portugal.
- Helena Canhão is Corresponding Member of the National Academy of Portuguese Medicine. April, 2019.
- Helena Canhão attended "Associação Nacional dos Doentes com Artrite Reumatóide (ANDAR)" XIX Conference. Patient care. Panel: New Technologies in Health. April 6, 2019.

- Technology, Entrepreneurship and Innovation Policy Lab (TEIPL) Evaluation of Carnegie Mellon University final report. Project 1/7/2014-30 Nov 2018. March 25, 2019.
- Advisory board of AbbVie's Upatacitinib. March 22, 2019.
- The European Innovation Partnership on Active and Healthy Ageing published EpiDoc Unit's Commitment on Promoting and change life habits in elderly. March 22, 2019. Available at: https://ec.europa.eu/eip/ageing/commitments-tracker/a3/promoting-and-change-life-habits-elderly-0_en
- Helena Canhão was moderator of the Prolia denosumab Amgen's launch event. Breaking barriers on osteoporotic fractures. March 16, 2019. Lisbon, Portugal.
- Ana M. Rodrigues talked about the global impact of osteoporosis and fracture risk at Prolia denosumab Amgen's launch event. Breaking barriers on osteoporotic fractures. March 16, 2019. Lisbon, Portugal.
- Debate on Social Innovation through Knowledge Exchange (SIKE). Santa Casa da Misericórdia de Lisboa (SCML). March 13, 2019.
- Patient Innovation – In4Med Congress. Convento de São Francisco. February 22-25, 2019. Coimbra, Portugal.
- “The Place of Biomedical Engineering in Medicine and in the Pharmaceutical Sector”. NOVA School of Science and Technology. February 22, 2019. Almada, Portugal.
- XIV National Meeting Students Biomedical Engineering. The role of biomedical engineering in Portugal. NOVA School of Science and Technology. February 21-23, 2019. Almada, Portugal.
- Helena Canhão was Jury of Fundação para a Ciência e Tecnologia's (FCT) pitches. February 19, 2019. Lisbon, Portugal.
- Helena Canhão has attended the CoLAB meeting as Chairman of the Value Based Healthcare CoLAB Advisory Board. February 14, 2019. Lisbon, Portugal.
- Institute Precision Medicine and Ageing Meeting at NOVA Medical School's Rectorate. February 14, 2019. Lisbon, Portugal.
- Expert Consultation “Enhance patient and family engagement for the provision of safer health care”. Organized by World Health Organization (WHO) and National School of Public Health. Venue: Rectorate of *Universidade NOVA de Lisboa* -

Senate Room (Sala do Senado) Campolide Campus. February 5-6, 2019. Lisbon, Portugal.

- Helena Canhão was nominated, together with Professor Miguel Seabra, co-coordinator of CEDOC. February 4, 2019. Lisbon, Portugal.
 - Institute Precision Medicine and Ageing Meeting at NOVA Medical School's Rectory. January 24, 2019. Lisbon, Portugal.
 - Resident Welcome Meeting at the *Centro Hospitalar Lisboa Central (CHLC), Hospital D. Estefânia*. January 24, 2019. Lisbon, Portugal.
 - 2019 GEDII Annual Meeting. Patient Innovation: innovative solutions developed by patients and informal caregivers. January 18, 2019. Porto, Portugal.
 - Organization of Comprehensive Health Research Center (CHRC) meeting, January 3, 2019. Lisbon, Portugal.
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Complementarily to her role as EpiDoC's group leader, Helena Canhão has been nominated Chief editor of Portuguese Journal of Public Health; Chief editor of two supplement /research topics of *Frontiers in Medicine* (Active Aging and Disease Management, Nutrition and Metabolism in Rheumatic Disease); associate editor of *Frontiers in Medicine* (Rheumatology) and Guest associate editor of *Frontiers in Medicine* (Geriatric Rheumatology); and Associate Editor of *Acta Reumatológica Portuguesa*. She has is also Editorial Board Member of the *Arthritis Research Therapy* journal and the *European Journal of Medicine* (Rheumatology).

Helena Canhão is also a regular reviewer in several Journals: *Arthritis and Rheumatology*, *Annals of Rheumatic Diseases*, *Arthritis Research Therapy*, *PLOS one*, *Rheumatology*, *Frontiers in Medicine*, *Acta Médica Portuguesa* and *Acta Reumatológica Portuguesa*.

2. Teaching and training activities

Pedagogic Coordination

- Epidemiology – Doctoral Programme in Medicine - NOVA Medical School
- Applications' Evaluation and Selection Committee for the PhD in Health Sciences (2019/2020)
- Epidemiology - Master's Degree in Epidemiology, Biostatistics and Health Research (EPIBIS) - National School of Public Health (ENSP-NOVA) and NOVA Medical School.
- Epidemiology and Methods in Clinical Research – Master's Degree in Management of Clinical Research (MEGIC) – NOVA Medical School, NOVA Information Management School and Aveiro University.
- Epidemiology for Clinical Research - Doctorate in Medicine (1st year) - NOVA Medical School.
- Epidemiology, in the Specialization Course in Hospital Administration – National School of Public Health
- Research Methodologies in Public Health 1, in the Specialization Course in Public Health – National School of Public Health
- Musculoskeletal system – Post-Graduate School of NOVA Medical School

Participation in pre-graduate teaching

- Sociology and History of Food – Bachelor's Degree in Nutrition Science (1st year) – NOVA Medical School.
- Nutritional Epidemiology – Bachelor's Degree in Nutrition Science (2nd year) – NOVA Medical School.

Participation in post-graduate teaching

- I Course on Outcomes Research - Health Outcomes Measurement in a Health Technology Assessment Context - National School of Public Health (ENSP-NOVA).
- Research Methodologies in Public Health - Specialization Course in Public Health (CESP) - National School of Public Health (ENSP-NOVA).
- Psychology and Functionalism – Specialization Course in Hand Therapy - *Escola Superior de Saúde do Politécnico de Leiria*.
- Rheumatology within the curricular unit "Médicocirúrgicas 1"- Integrated Master's Degree in Medicine (4th year) - NOVA Medical School.
- Scientific Thinking and Research - Doctorate in Medicine (1st year) - NOVA Medical School.
- Clinical Trials: Methodology - Doctorate in Medicine (1st year) - NOVA Medical School.
- Epidemiology Seminars, Quantitative Studies - Doctorate in Public Health - National School of Public Health (ENSP-NOVA).
- Post-graduate course on Management of Health-related Projects - *Instituto Superior de Psicologia Aplicada (ISPA)*.
- Four 2-hour-workshops on Low Back Pain: Clinic and Diagnosis for Primary Care Physicians of *ACeS Arco Ribeirinho* and *ACeS Arrábida*. Under the scope of the SPLIT project (LISBOA-01-0145-FEDER-023439).
- 2nd Year Interns Course. Sociedade portuguesa de Reumatologia. 8-9 March 2019.
- Research Module – Clinical Research Course for Medical Interns of SESARAM, EPE. 24-26 June 2019.

Supervision Activities

PhD supervision

- 1) Anabela Barcelos – Doctoral Program in Public Health – National School of Public Health. Supervision by Ana M. Rodrigues and Pedro Aguiar.
- 2) Cláudia Vaz Pessoa – “Impact of the implementation of biosimilars for the treatment of different rheumatic diseases perceived by the patients and by society (repercussion upon Patient Reported Outcomes and economic costs)” – Doctoral Program in Medicine – *Universidade da Beira Interior*. Supervision by Helena Canhão and Luis Taborda Barata.
- 3) Cristina Henriques – “Systemic lupus erythematosus in children – what can we learn more?” – NOVA Medical School. Supervision by Helena Canhão.
- 4) Cristina Ponte - “The role of ultrasound as a predictor of disease activity and response to therapy in Giant Cell Arteritis” – Doctoral Program in Medicine – Faculty of Medicine, *Universidade de Lisboa*. Supervision by Helena Canhão, João Eurico Fonseca and Rashid Luqmani (Oxford University).
- 5) Daniela Costa – Doctoral Program in Public Health – National School of Public Health. Supervision by Ana M. Rodrigues, Eduardo Cruz and Carla Nunes.
- 6) Diogo Ribeiro – “Epidemiology of Menière’s disease” – Doctoral Program in Biomedical Sciences – Faculty of Medicine, *Universidade de Lisboa*. Supervision by Helena Canhão, João Paço. and Cristina Caroça
- 7) Helena Santos Cabrita Carneiro – Spondylarthropaties - burden and costs – Doctoral Program in Medicine – NOVA Medical School. Supervision by Helena Canhão and Fernando Pimentel Santos.
- 8) Inês Caetano Santos – Oral health care as determinants of oral health, general health and quality of life – Doctoral Program in Health Sciences – NOVA Medical School. Supervision by Helena Canhão.
- 9) João Madruga Dias – Rheumatoid arthritis and ultrasound – Doctoral Program in Medicine – NOVA Medical School. Supervision by Helena Canhão.

- 10) Kelli Destri – Obesity burden and costs – International Doctoral Program in Global Public Health - National School of Public Health (ENSP-NOVA). Supervision by Ana M. Rodrigues, Maria João Gregório and Joana Alves.
- 11) Luís Castelo Branco – “Comparison of effectiveness in anti-pd1 checkpoint inhibitors in treatment of non-small cell lung cancer” – Doctoral Program in Public Health – National School of Public Health. Supervision by Helena Canhão and Ahmad Awada (Jules Bordet Cancer Institute Brussels, Belgium).
- 12) Luís Gomes – Low back pain – Doctoral Program in Health Sciences – NOVA Medical School. Supervision by Helena Canhão, Ana M. Rodrigues and Eduardo Cruz.
- 13) Maria João Aleixo – “Opportunistic infections amongst immunosuppressant patients” – NOVA Medical School. Supervision by Helena Canhão.
- 14) Mariana Lemos – Doctoral Program in Medicine – NOVA Medical School. Supervision by Bruno Heleno and Ana M. Rodrigues.
- 15) Rita Oliveira – “Assessing pain management of non-inflammatory rheumatic diseases: osteoarthritis, fibromyalgia and low back pain” – Doctoral Program in Biomedicine – NOVA Medical School. Supervision by Ana M. Rodrigues, Helena Canhão, and João Paço.
- 16) Vasco Romão – “Synovial pathobiology and patient stratification in rheumatoid arthritis (SynPathRA)” – Faculty of Medicine, *Universidade de Lisboa*. Supervision by Helena Canhão and Joao Eurico Fonseca.
- 17) Elsa Cristina Vieira de Sousa - "New perspectives on tumor necrosis factor inhibition for the treatment of psoriatic arthritis" - Doctoral Program in Medicine (Rheumatology) – *Universidade de Lisboa*. Supervision by Helena Canhão and João Eurico Fonseca. Concluded on December 20, 2019.
- 18) Diana Fernandes (MSc), FMUL – “Coupling of atherosclerosis progression and bone disturbances in inflammatory rheumatic diseases”. Supervision by Helena Canhão and João Eurico Fonseca – concluded in 20 February 2019.

Master's supervision

- 1) David Temporão Domingues Valente Lopes – “Análise preliminar de imagens com vista ao estudo da Hiperostose Esquelética Idiopática Difusa” - Master's in

Biomedical Engineering, FCT-NOVA. Supervision by Ana M. Rodrigues and Ricardo Vigário.

- 2) Dominik König Guerreiro – “Upregulation of Wnt regulators is associated with low bone mass in elderly Portuguese men and women” – Master's in Biomedical Engineering, FCT-NOVA. Supervision by Ana M. Rodrigues and Rui Neves-Silva.
- 3) Inês Tomás Rosa da Cruz Silvestre – “Multi Agent Functional Bone Simulation: A theoretical study” - Master's in Biomedical Engineering, FCT-NOVA. Supervision by Ana M. Rodrigues and José Manuel Fonseca.
- 4) Luiza Alba Freitas – “Epidemiology of Polypharmacy and Comorbidities” – Master’s Degree in Public Health – National School of Public Health. Supervision by Helena Canhão and Ana M. Rodrigues.
- 5) Sara Vieira – Predict applied to EpiDoC – Instituto Superior Técnico.
- 6) Tânia Figueiredo Gomes de Oliveira – “Characterization and evaluation of therapeutic donor management in people with non-inflammatory rheumatic diseases in Portugal: osteoarthritis and fibromyalgia”, Master’s Degree in Epidemiology – Faculty of Medicine, *Universidade de Lisboa* (concluded in 16 September 2019). Supervision by Helena Canhão and Osvaldo Santos.

Post-Doc supervision

- 1) Nuno Mendonça (MSc, PhD), NMS – “Impact of Dietary Protein on Disability in ageing Europeans (InDEPENDent)” – funded by Marie Curie Skłodowska Action H2020 MGA MSCA-IF GA. Supervision by Helena Canhão (up to Jul 2021).

Research fellow supervision

- 1) Jair Antunes Eletério Neto, MD – Computed tomography-based structural rigidity analysis (CTRA) as a predictor of vertebral fractures in post-menopausal women – NOVA Medical School. Supervision by Ana Rodrigues.

Supervision of other post-graduate projects

- 1) Flávio Bruno Oliveira Rodrigues - "Avaliação da influência dos determinantes de saúde na população idosa Portuguesa com vida ativa" – Specialization Course in Public Health – National School of Public Health. Supervision by Helena Canhão and Ana M. Rodrigues.
- 2) Maria João Gonçalves – “Are depressive symptoms associated with new-onset Low Back Pain?” Clinical Scholars Research Training (CSRT), Harvard Medical School Portugal Program. Supervision by Helena Canhão.
- 3) Mário Jorge Amaro de Jesus Farinhó – "Associação entre a adesão à dieta mediterrânica e a função nos doentes com osteoartrose do joelho na população adulta Portuguesa" - Specialization Course in Public Health – National School of Public Health. Supervision by Ana M. Rodrigues.
- 4) Maria Lua Nunes – "Patient Innovation-patients and caregivers develop innovative solutions and can sometimes save their lives", EIT Health Module within the Master's Degree in Innovation in Healthcare: Advanced Quantitative Tools for Healthcare Innovation, EIT Health Summer School Program. Supervision by Helena Canhão (concluded in October 2019)
- 5) Marta Lemos – “Doenças cérebro-cardiovasculares: estilos de vida como fatores protetores de novos eventos a curto prazo na população adulta portuguesa” – Specialization Course in Public Health – National School of Public Health (concluded in 2019). Supervision by Helena Canhão.

Participation in jury committees

Master Thesis Defense Jury

- Ana M. Rodrigues integrated the Jury Committee of the Master Thesis of Ana Rita Durão da Graça Godinho Sofio – Master's Degree in Biopharmaceutical Sciences – *Faculdade de Farmácia, Universidade de Lisboa*. December 19, 2019.

- Ana M. Rodrigues integrated the Jury Committee of the Master Thesis of Tânia Figueiredo Gomes de Oliveira – Master’s Degree in Epidemiology – Faculdade de Medicina, Universidade de Lisboa. September 16, 2019.

PhD Thesis Defense Jury

- Helena Canhão integrated the Jury Committee of the PhD Thesis of Marco Aurélio Cardoso Sarmiento – Doctoral Program in Medicine (Orthopedics) – Faculty of Medicine, *Universidade de Lisboa*, July 2019.
- Helena Canhão integrated the Jury Committee of the PhD Thesis of Ricardo Jorge de Oliveira Ferreira – Doctoral Program in Health Sciences – *Universidade de Coimbra*. December 16, 2019.

Member of Monitoring PhD Thesis Board

- Pedro Manuel Fernandes, Doctoral Program in Medicine (Orthopedics), Faculty of Medicine, *Universidade de Lisboa* (concluded in February 2019).
- Diogo Pires, Doctoral Program in Public Health, ENSP, *Universidade NOVA de Lisboa* (ongoing).

3. Extension outside the university

Scientific societies and associations

- Helena Canhão participated in the roundtable at the Award Ceremony of "Prémios SANTA CASA Neurociências 2019". November 26, 2019. Lisbon, Portugal.
- Helena Canhão participated in the Panel "Basic, preclinical and translational research" at the Trends & Tribulations' Meeting on the subject "O Papel dos Departamentos Médicos da Indústria Farmacêutica na Sociedade". *Associação dos Médicos Portugueses da Indústria Farmacêutica (AMPIF)*. July 4, 2019.
- Helena Canhão contributed to the White Paper on "Departamentos médicos da Indústria Farmacêutica". *Associação dos Médicos Portugueses da Indústria Farmacêutica (AMPIF)*. July 4, 2019.
- Helena Canhão is nominated corresponding member of the National Academy of Portuguese Medicine. April, 2019.
- Helena Canhão is a member of the Portuguese Working Group of the European Cooperation One Million Genes: "Towards access to at least 1M sequenced genomes in Europe by 2022".
- Helena Canhão is a member of the Epidemiology European League Against Rheumatic Diseases (EULAR) standing Committee.
- The European Innovation Partnership on Active and Healthy Ageing published EpiDoc Unit's Commitment on Promoting and change life habits in elderly. March 22, 2019. Available at: https://ec.europa.eu/eip/ageing/commitments-tracker/a3/promoting-and-change-life-habits-elderly-0_en
- Helena Canhão is a member of Portuguese Clinical Research Infrastructure Network (PTCrin).
- Helena Canhão is a member of the Scientific Commission of *Associação Nacional dos Doentes com Artrite Reumatóide (A.N.D.A.R.)*.

Services to the community

- Participated in the 4th Patient Innovation Award Ceremony under the scope of the EIT Health Summit. December 2-3, 2019. Paris, France.
- Patient Innovation. 6th Conference on the subject Machines and Computers: Safety of Medical Devices. Meeting in the context of the Patient Safety Campaign at Centro Hospitalar Universitário de Lisboa Central. November 28, 2019. Lisbon, Portugal.
- Helena Canhão talked on how to enhance patient and family engagement for the provision of safer health care. Conference on the subject: “Máquinas e Informáticas: Segurança dos Dispositivos Médicos”; under the scope of the patient safety campaign of *Centro Hospitalar Universitário de Lisboa Central*. November 28, 2019. Lisbon, Portugal.
- Jury of the Award "Ideias que Mudam o Mundo". A total of 29 applications were assessed. Bayer. November 11, 2019.
- Helena Canhão participated as a lecturer in “INCLUIR Project” – promoted by INFARMED and ENSP 2019. A program to train and capacitate members of patient associations about clinical research and clinical trials.
- As Portuguese Society of Rheumatology President-elect, Vice-President of the Portuguese League Against Rheumatism (patient association) and Member of the Advisory Board of A.N.D.A.R. (patient association), Helena Canhão participated in training sessions directed to patients with rheumatic diseases.
- Helena Canhão is also a member of the Advisory board of the Project actions to eat better, a member of the Jury of “Prémios Sociedade Civil Bayer”.
- Seminar in Science at Arquitecto Cosmelli Sant'Anna Library (BACS). Program for children between the ages of 5 and 11. January 18, 2019. Lisbon, Portugal.

Consulting

- “The study of the burden and costs of osteoporosis and osteoporosis-related fractures in post-menopausal women in Portugal”. A collaboration between the Comprehensive Health Research Center (CHRC), integrated within NOVA Medical School, NOVA-SBE and the Health Economics Group from the Division of Health Research of Lancaster University. The project has been sponsored by Amgen.
- Member of Amgen's Advisory Board on Primary Health Care. December 19, 2019. Coimbra, Portugal.
- Helena Canhão attended Novartis’ Advisory Board meeting on the subject "Non-radiographic spondyloarthritis". November 28, 2019.
- As a member of Pfizer's Tanezumab Advisory Board, Helena Canhão has presented a communication to that board on the subject "Impacto da Osteoartrose nos Doentes – Perspectiva Portuguesa". November 27, 2019.
- Project on Psoriatic Arthritis – funded by Novartis.
- Project on Heart Failure – funded by AstraZeneca.
- Project on the subject "Estudo de Custo e Carga da Depressão Refratária" – funded by Janssen.
- Helena Canhão is nominated a member of Novartis’ Advisory Board on Rare Diseases. May 10, 2019.
- Helena Canhão is nominated a member of AbbVie’s Advisory Board on Upatacitinib. March 22, 2019

Coordination and/or participation in training activities other than academic ones

- Ana Rodrigues contributed to the coordination and participated in two classes of the Clinical Course in Osteoporosis by Sociedade Portuguesa de Osteoporose e Doenças Ósseas Metabólicas. September 21, 2019. Lisbon, Portugal.

- Ana Rodrigues contributed to the coordination and participated in two classes of the Clinical Course in Osteoporosis by Sociedade Portuguesa de Osteoporose e Doenças Ósseas Metabólicas. May 18, 2019. Porto, Portugal.

Media

- Interview on International Collaborations and the use of the LASA database. Vrije Universiteit Amsterdam. December 4, 2019. Amsterdam, The Netherlands.
- “Osteoporose, a doença silenciosa que afeta 800 mil portugueses”. Sábado. October 20, 2019. Available at: <https://www.sabado.pt/ciencia---saude/detalhe/osteoporose-a-doenca-silenciosa-que-afeta-800-mil-portugueses>
- “10 factos sobre a osteoporose que tem de saber”. SAPO Lifestyle. October 20, 2019. Available at: <https://lifestyle.sapo.pt/saude/noticias-saude/artigos/10-factos-sobre-a-osteoporose>
- In the scope of osteoporosis, "Fracturas dão sinal tardio". Correio da Manhã. October 19, 2019.
- Interview on Rheumatic Diseases to Saúde em Directo. Canal S+. October 23, 2019.
- Debate on aging: A idade é só um número? Fronteiras XXI, RTP3. October 23, 2019.
- In the scope of the XXI Portuguese Congress of Rheumatology, “As doenças reumáticas são das mais frequentes em Portugal”. Expresso. May 6, 2019. Available at: <https://expresso.pt/sociedade/2019-05-06-As-doencas-reumaticas-sao-das-mais-frequentes-em-Portugal-diz-Helena-Canhao> \ | "gs.c29wgi
- Doenças Autoimunes. Sociedade civil, Episode 79. RTP2. April 30, 2019.
- Coração 3D: uma nova esperança. Correio da Manhã. April 28, 2019.
- O futuro da medicina será impresso em 3D. Jornal de Notícias. April 10, 2019. Available at: https://www.jn.pt/noticias-magazine/interior/o-futuro-da-medicina-sera-impresso-em-3d-10781970.html?target=conteudo_fechado
- Há mais exigência para as mulheres na saúde? Expresso. April 5, 2019. Available at: <https://expresso.pt/sociedade/2019-04-05-Ha-mais-exigencia-para-as-mulheres->

na-saude-" \| "gs.3zdjle and at <https://expresso.pt/sociedade/2019-04-05-A-mulher-na-saude-e-muito-importante-atira-Helena-Canhao#gs.3zdtch>

- Será que as mulheres estão a tomar conta da saúde? Expresso. March 30, 2019.
- Associação Nacional de Doentes com Artrite e outros Reumatismos Infantis e Juvenis (ANDAI) and The Portuguese Society of Rheumatology (SPR) celebrate the First World Day of Rheumatic Disease Children/Youth in Portugal. SIC. March 18, 2019.
- Construir conhecimento na área da Osteoporose. Saúde em dia, S+. Season 3, Episode 10. March 15, 2019. Available at: <https://www.saudemais.tv/video/85071-saude-em-dia-t03-e010-01>
- Talk about women, elderly and technology. TV Kuriakos. March 12, 2019.
- Mentioned on Patient Innovation's Twitter. March 8, 2019. Available at <https://twitter.com/PatientInnov/status/1104063858728148993>
- Que Saúde faz sentido? Tecnologia: por onde passa o futuro da medicina? Helena Canhão, Sofia Couto Rocha. Expresso, January 19, 2019.
- Que Saúde faz sentido? Tecnologia: por onde passa o futuro da medicina? Helena Canhão, Sofia Couto Rocha. SIC Mulher, Recorded on January 18, 2019.
- Que Saúde faz sentido? Tecnologia: por onde passa o futuro da medicina? Helena Canhão, Sofia Couto Rocha. SIC, Recorded on January 15, 2019.
- Interview about "Que Saúde faz sentido? Tecnologia: por onde passa o futuro da medicina?". Published in Expresso, January 19, 2019.
- Interview about "Que Saúde faz sentido? Tecnologia: por onde passa o futuro da medicina?". Aired on SIC Mulher, Recorded on January 18, 2019.
- Que Saúde faz sentido? Tecnologia: por onde passa o futuro da medicina? Aired on SIC, Recorded on January 15, 2019.

Awards

- Our Group Leader, Helena Canhão, was distinguished in the book "100 women in Science" from "Ciência Viva" (2019).
<http://www.cienciaviva.pt/mulheresnaciencia/index.asp?id=866>

4. Other relevant activities

Clinical activity

EpiDoC's coordinator, **Helena Canhão**, is also a Senior Consultant of Rheumatology. In January 2018, she started to develop her clinical activity at CHULC – Hospital Curry Cabral (before that she was Senior Consultant of Rheumatology at CHULN – Hospital de Santa Maria). Helena was the first Rheumatology specialist at CHULC, and for that she's establishing a new rheumatology clinical unit at Hospital Curry Cabral (HCC), namely the outpatient clinics for rheumatic patients. At CHULN, she was former coordinator of the Pediatric Rheumatology Unit. At CHULC, she's collaborating with the pediatricians at Hospital D. Estefania (HDE). They've established "transition appointment" for adolescents/early adults with rheumatic diseases. At HDE they two appointments before the transfer of the patient to the adults' clinics at HCC.

Ana Rodrigues is the head of the Rheumatology Unit at Hospital de Santo Espírito da Ilha Terceira, Azores. Investigator of many research projects (osteoporosis, ageing) and clinical trials, she is group leader of Epidemiology of Chronic Diseases and Ageing at the EpiDoC Unit, CEDOC|NMS-NOVA. She is assistant lecturer of Rheumatology at Lisbon University. She is member of the committee of drugs and pharmacy of Terceira Hospital and head of the Osteoporosis working group of the Portuguese Society of Rheumatology.

Jaime Branco is the Director of NOVA Medical School, EpiDoC's Rheumatic Diseases and Ageing group leader and the head of the Rheumatology Service at Hospital Egas Moniz, Centro Hospitalar de Lisboa Ocidental, EPE. He is responsible for the Rheumatology Department at CUF Descobertas Hospital since 2002.

5. Visual Overview

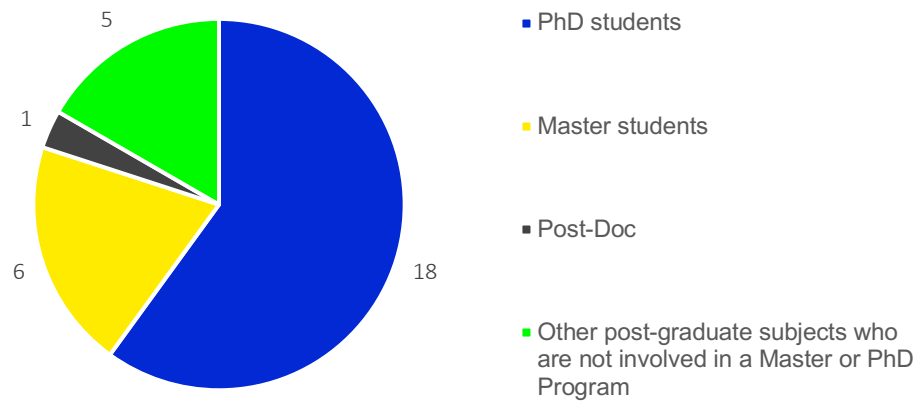


Figure 1: External manpower in training or involved in any type of post-graduate research under EpiDoC's scope.

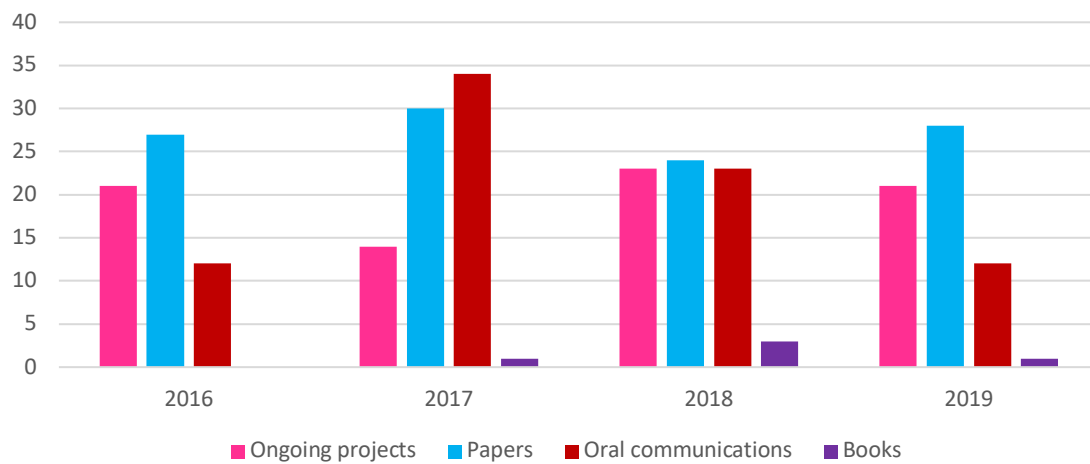


Figure 2: EpiDoC's outputs over the last four years. Four important scientific productivity indicators are depicted: ongoing projects, published scientific papers, oral communications, and books.