

Working Groups Activities and Progress Report

COST Action CA23142 – Delve-into-Pneumocystis

Grant Period 1 (1 November 2024 – 31 October 2025)

1. Overview

During the first Grant Period (GP1), COST Action CA23142 established four Working Groups (WGs) addressing complementary scientific and strategic priorities: clinical cohorts and patient registries (WG1), novel diagnostic methods (WG2), *Pneumocystis* physiopathology (WG3), and communication and dissemination (WG4). Their establishment at the Management Committee Kick-off Meeting in Seville in February 2025 provided the organisational framework for implementing the Action's objectives. The Annual Meeting in Wrocław in August 2025 enabled the review of progress, identification of research priorities and coordination of collaborative initiatives. GP1 was primarily devoted to establishing the methodological, organisational and collaborative foundations for the longer-term scientific programme.

2. WG1 – Clinical Cohorts of Patients

WG1, coordinated by Francisco J. Medrano (Spain) and Raimonda Matulionyte (Lithuania), focused on the infrastructure for collaborative clinical and epidemiological research. A multicentre patient registry and associated database were designed to facilitate harmonised collection of clinical information, biological samples and molecular characterisation data. Database development was reported as 80% complete; online access was not yet available. Ethical approval had been obtained from the coordinating centre, while procedures at other participating centres remained ongoing (milestone reported as 90% complete). Standard operating procedures for sample collection, handling, processing, storage and coding were under development (50% complete). At the Wrocław meeting, WG1 addressed the European registry, COPD exacerbations and *Pneumocystis*, and maternal–infant transmission. The Seville Training School on database and registry development strengthened relevant methodological expertise.

Assessment: WG1 made substantial progress towards a shared multicentre clinical research infrastructure, although online deployment, wider ethics approvals and standard operating procedures remained incomplete.

3. WG2 – Development and Evaluation of Novel Diagnostic Methods

WG2, coordinated by Gilles Nevez (France) and Yaxsier de Armas (Cuba), focused on improving diagnostic approaches and promoting methodological harmonisation. A survey of diagnostic practices was developed, and its results were presented at the Wrocław Annual Meeting. Scientific exchanges addressed strain-specific infections in transplant recipients and molecular diagnostic tools. The Wrocław Training School on digital PCR provided hands-on training in assay design, droplet generation and data interpretation, with strong participation from young researchers and Inclusiveness Target Countries. Two STSMs supported complementary expertise: conventional and

nested PCR detection in an Albanian–Polish exchange, and recombinant protein-based immunodiagnostic development in a Spanish–Portuguese exchange. Discussions also contributed to development of the collaborative DDBIOS initiative involving droplet digital PCR and biosensors.

Assessment: WG2 established an initial framework for diagnostic harmonisation, specialised training and innovation. Validated diagnostic tools and standardised inter-laboratory protocols remained future objectives.

4. WG3 – *Pneumocystis* Physiopathology

WG3, coordinated by Elena Charpentier (Spain), focused on host–pathogen interactions and the potential contribution of *Pneumocystis* infection or colonisation to respiratory disease. A physiopathology survey was developed and its results presented at the Wrocław Annual Meeting. Discussions addressed colonisation in chronic diseases, including COPD and lung cancer. Research outputs by Action members relevant to WG3 included a proteomic study of *P. jirovecii* colonisation in idiopathic pulmonary fibrosis, a scoping review of *Pneumocystis* infection in pregnancy, and work on antigenic variation during a suspected outbreak. International conference presentations also addressed maternal immunity and transmission, and inflammatory cytokine polymorphisms in COPD.

Assessment: WG3 consolidated a multidisciplinary research community and shared priorities. Although relevant scientific outputs were documented, the extent to which they resulted directly from new Action-supported collaborations cannot be established from the GP1 activity report.

5. WG4 – Communication and Dissemination

WG4, coordinated by Rocío Salsoso Rodríguez (Spain), developed the Action’s communication and dissemination infrastructure. The Science Communication Plan was approved by the Management Committee, fulfilling milestone M4.1 (100%). The official Action website was launched, fulfilling deliverable D4.1 (100%). Additional channels, including LinkedIn, newsletters, podcasts and audiovisual content, were planned for further development in GP2. The Action gained international visibility at TIMM-12 in Bilbao, where members chaired sessions, delivered invited presentations and presented posters. The Wrocław Annual Meeting also addressed stakeholder engagement and bioethical perspectives.

Assessment: WG4 achieved its principal reported GP1 milestones and established a basis for broader scientific visibility and stakeholder engagement.

6. Cross-WG Collaboration and Overall Impact

GP1 established complementary workstreams: WG1’s clinical registry and sample-management procedures are intended to provide resources for diagnostic research in WG2 and host–pathogen investigations in WG3, while WG4 facilitates communication and dissemination. Meetings, Training Schools and STSMs promoted knowledge exchange and professional links among institutions, including participation by young researchers and representatives from Inclusiveness Target Countries. Cross-WG integration was still at an early stage, with most documented work focused on shared priorities, procedures and preparatory infrastructure.

7. Conclusions and Priorities for GP2

The first Grant Period established the operational structure of all four WGs and generated tangible progress towards the Action's objectives. Priorities for GP2 include launching the clinical registry, completing standard operating procedures and ethics approvals, advancing collaborative diagnostic validation, developing integrated clinical and host-response investigations, and translating networking activities into measurable joint outputs such as protocols, multicentre studies, publications and competitive research proposals. The reported progress provides a foundation for transitioning from network development to more integrated scientific collaboration.