

Title	4. <i>Impact on clinical status of cystic fibrosis patients of persistent lung infections with hospital-acquired MRSA (HA-MRSA) and community-acquired (CA-MRSA): a multicenter longitudinal study.</i>
Project Coordinator	Silvia Campana, Biologist (s.campana@meyer.it)
Internal Collaborators	C. Braggion, MD – G. Taccetti, MD – F. Trevisan, MD – P. Cocchi, Biologist
Study design	Prospective, longitudinal multicentric study (Partners: Cystic Fibrosis Centre of Milano, Verona, Trieste, Gualdo Tadino, Roma Bambin Gesù, Soverato, Cerignola, Ancona, Palermo, Livorno).
Grant by	Italian Cystic Fibrosis Research Foundation (#11/2009: 2 years; E. 50.000)
Background and aims	The prevalence of MRSA infection in cystic fibrosis (CF) has been increasing worldwide. While HA-MRSA strains are known to be responsible for infections in hospitalized patients, the presence of highly virulent CA-MRSA is increasing globally. Recently CA-MRSA have emerged in the hospital, displacing classic hospital-associated strains in different settings including those with CF patients. The genetic background of MRSA strains, implicated in short- and long-term CF infections, is not known and there are no published studies on the varying pathogenic role of HA- or CA-MRSA in the evolution of lung function in CF patients. The main clinical aim of the study is to carry out a longitudinal evaluation of the different roles of chronic infection by CA- or HA-MRSA (characterized using molecular methods) on the clinical condition of CF patients (decline of FEV ₁ over time, nutritional status, number of respiratory exacerbations and antibiotic use).
Inclusion criteria	Patients with CF in regular follow-up (at least 4 doctor visits per year), which are colonized by MRSA in the studied period (4 yrs).
Exclusion criteria	Patients with CF colonized by bacteria different from MRSA.
Methods	MRSA strains isolated from patients attending 11 Italian CF centers will be collected and characterized to evaluate whether they represent HA-MRSA or CA-MRSA strains (SCC <i>mec</i> typing). They will be genotyped with Multi-Locus-Sequence-Typing in order to assess whether they belong to epidemic lineages and the production of dangerous toxins such as the Panton Valentine Leukocidin will be tested. One strains/patient/year will be collected from persistently colonized patients over a period of four years. Newly infected patients will also be included in the study. Incidence and prevalence of CA-MRSA and HA-MRSA will be assessed over a prolonged period of time. The study will evaluate whether there is a difference in decline of lung function (FEV ₁), in number of pulmonary exacerbation, and antibiotic use in patients who are persistently infected with CA-MRSA or HA-MRSA strains.
Expected results and anticipated output	Optimize the therapeutic approaches against pathogenic pulmonary infections in CF patient.
Start of recruitment	January 2007
End of experimental plan	December 2010
Publication on medical Journal	October 2011