**Application of Lean Six Sigma methodology to a school based immunization project in Italy**

**Cadeddu C (1), Poscia A (1), Parente P (1), Kheiraoui F (1), Frisicale E.M (1), La Milia D.I (1), Ungari J (1), Di Stefano F (1), Bartolucci S (1), Annona C (2), Bonanno V (3), Casuccio N(4), D'Amici A.M (5), D'angelo C (4), Fraioli A (6), Iacovelli A (7), Mangia M (8), Mazzucco W (3), Moliterni E (2), Palmeri S (3), Spadea A (5), Boccia S (1), Ricciardi W (1).**

**1 - Public Health Department. Università Cattolica del Sacro Cuore di Roma**

**2 - U.O. Igiene, Epidemiologia e Sanità Pubblica, ASM Matera**

**3 - Department of Scienze per la Promozione della Salute e Materno-Infantile "Giuseppe D'Alessandro, Università degli Studi di Palermo**

**4 - U.O.C. Sanità Pubblica, Epidemiologia e Medicina Preventiva, ASP PALERMO**

**5 - U.O.S. Medicina Preventiva per l'età Evolutiva 4° Distretto, ASL RMA**

**6 - U.O.S. Medicina Preventiva per l'età Evolutiva 2° Distretto, ASL RMB**

**7 - U.O.S. Medicina Preventiva per l'età Evolutiva 3° Distretto, ASL RMB**

**8 - U.O.C. Medicina Preventiva per l'età Evolutiva, ASL RMB**

**Background:** Lean Six Sigma (LSS) is an improvement methodology that uses a systematic and reproducible approach to provide quality improvement. As teenagers are a difficult target for immunization campaign, we applied LSS to a primary immunization pilot programme in Italian secondary schools to improve health promotion awareness, especially for the Vaccine Preventable Diseases.  
**Methods:** The "VacciniAmo le scuole" (Let's vaccinate the school) project was performed in 4 Italian secondary schools in collaboration with the four in charge Local Health Units (LHUs). The LSS 5-stage system (DMAIC: Define, Measure, Analyse, Improve, Control) was applied as follows: D-drafting of the project charter, M-assembling of baseline data with translation of the problem into quantifiable terms using Critical-To-Quality characteristics (CTQs), A-identifying possible causal relationships between inputs and the CTQs, I-suggesting solutions to the problem, C- developing of control systems to ensure that improvements are maintained. Theproject started in September 2014 and the complete analysis will be available in September 2015.  
**Results**: After the definition of baseline coverages for the different settings (LHU, schools), the project charter indentified the implementation of “Vaccine Day” (one or more educational and informative meetings at school about vaccinations for parents and children) and "Vaccination Days" (one or more days in which each LHUs dedicate at least an ambulatory for the vaccination of the involved students). The project that involved more than 1600 students and parents, was very welcome (students mean score=8.4, SD: 1.2; min 2- max 10). Critical steps are represented by the connection between LHUs and schools and the active involvement of parents.

**Conclusions:** The application of LSS methodology to our pilot project was beneficial in terms of improved knowledge and quality of educational approach to vaccination. First results suggest an improvement in vaccination rates to be confirmed in the following analysis.

**Main messages:** LSS methodologies confirmed to have the potential to produce significant improvement also in health promotion programs.

Far-reaching implications could be seen if control systems are maintained and project is extended in other Italian schools.