ISPOR Europe 2025
9-12 November 2025 | Glasgow, Scotland, UK

COMPARATIVE ANALYSIS OF COMPOSITE MATERIALS FOR HARD DENTAL TISSUE DEFECT RESTORATIONS FROM BUDGET FINANCING IN WARTIME IN UKRAINE

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Objectives: During wartime in Ukraine, the need for restoration of hard dental tissue defects has significantly increased, particularly among thousands of soldiers and others. There are light-cured composite materials (LCCM) registered in national market have different physico-mechanical properties and clinical effectiveness.

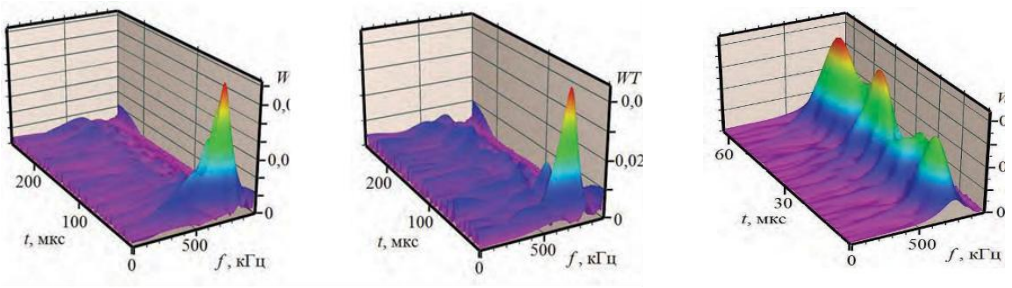
According to Resolution of the CMU dated 11.02.2025 «About use the budget financing for medical services for certain categories who defends(ed) the indepence, sovereignty and territorial integrity of Ukraine» N. 156, they have to receive free dental medical services, including LCCM restoration due to budget financing.

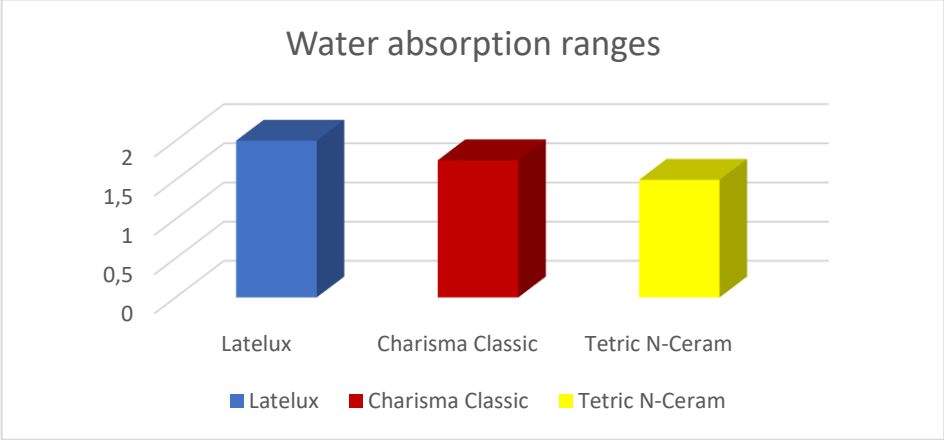
The aim of study was to compare the cost and clinical effectiveness of LCCMs used for the restoration of hard dental tissue defects during wartime in Ukraine.

Materials and Methods: We analyzed the data from two groups: 1. Control group: treated petients with the domestic composite *Latelux – 1*; 2. Experimental group: with two registered foreign composites: *Charisma Classic – 2 (Germany)* and *Tetric N-Ceram – 3 (USA)*. We evaluated water absorption and strength, using the acoustic emission method for LCCM. Also we compared prices of these composites (on May, 30, 2025).

Results: We established that the price range for LCCM was: *1.* 190 – 220 UAH, *2.*635 – 700 UAH, *3.* 850 – 930 UAH (1 Euro = 47.4 UAH). The water absorption was: 1. absorbed an average of 2 g water g per 1 gram *(g/g)*, 2. 1.75 g/g, 3. 1.5 g/g. The LCCMs were completely destroyed at wave amplitudes of 1. 60.75±9.24 MPa, 2. 141.19±9.81 MPa, 3. 164.44±20.42 MPa. The difference in rates water absorption among domestic and foreign LCCM were 14 – 33%; strength were 56 – 63%.

Images of acoustic emission signals generated in materials: Charisma, Tetric and Latelux





Conclusions: Cost result showed the domestic LCCM Latelux is 70–77% cheaper than foreign LCCMs so it is critical under conditions of limited budget financing in wartime. However, its inferior other parameters of LCCMs s may affect the long-term success of restorations, so it need next cost-effectiveness analysis.