

# Make or buy: Pharmacoeconomic evaluation of gargle solutions used for SARS-CoV-2 sample collection

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## Background and importance

The SARS-CoV-2 pandemic has become a major public health issue around the world. Samples for viral detection are generally obtained through nasopharyngeal or oropharyngeal swabs. Several studies have investigated gargling as an alternative method for sample collection.

This offers various advantages for patients, particularly in the paediatric setting, as well as for healthcare personnel. Different media for gargling exist, which led to a pharmacoeconomic comparison of the available products.

## Aim and objectives

The aim of this study was to compare the cost of products, which can be used as gargling solutions for SARS-CoV-2 sample collection.

## Material and methods

Phosphate buffered saline (PBS) in tubes was requested by the laboratory department as a gargling solution for specimen collection in a clinical trial in children. Since no pharmaceutically approved PBS products are available, the pharmacy department could either compound the solution or commission a contract manufacturer. Physiological saline, available as a pharmaceutically approved product, could function as an alternative to PBS.

The prices of all three products and potential cost reductions were directly compared. Costs for pharmacy production were calculated, estimating an average production and packaging time of 26 hours for a batch of 1000 tubes, while running costs for available infrastructure were neglected.

## Conclusion and relevance

While the contract manufacturer delivers GMP certified products at high cost, non-certified pharmacy productions cannot reach these quality standards. Product changes, in this case from PBS to the equally validated physiological saline, act as a valuable measure aiming at cost reductions. Pharmacy departments play an important part in evaluating availability, practicability and particularly cost effectiveness of desired products and should thus be included in the decision making process.

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## Results

Cost component	Price (€)
Material costs	€ 40,12
Packaging costs	€ 131,92
Personnel costs	€ 1354,60
<b>Total costs</b>	<b>€ 1526,64</b>

Table 1: Detailed costs of PBS: pharmacy production of 1000 tubes

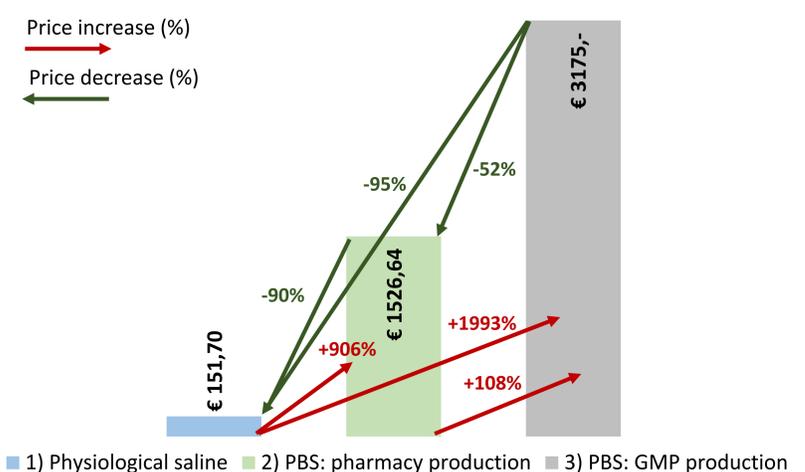


Figure 1: Comparison of costs for 1000 tubes of different gargle solutions

Product	Average cost per tube (€)	Price difference (%)	Cost reduction per 1000 tubes (€)
<b>1) Physiological saline</b>	0,15	-90,06 (vs. 2) -95,22 (vs. 3)	-1374,94 (vs. 2) -3023,30 (vs. 3)
<b>2) PBS: pharmacy production</b>	1,53	+906,35 (vs. 1) -51,92 (vs. 3)	-1648,36 (vs. 3)
<b>3) PBS: GMP production</b>	3,18	+1992,95 (vs. 1) +107,97 (vs. 2)	

Table 2: Comparison of costs for different gargle solutions