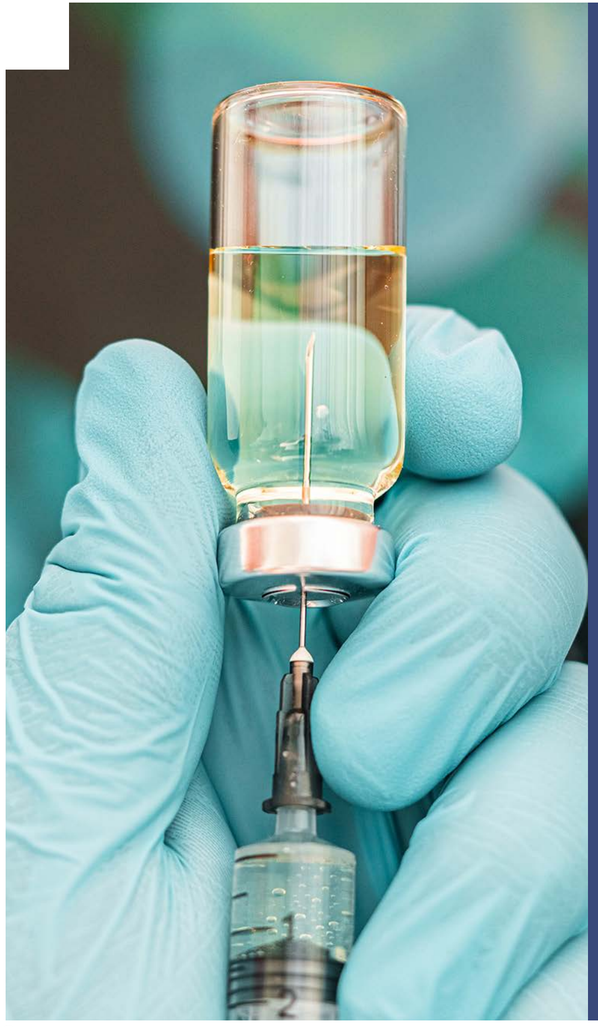
apiject™

Advancing Prefilled Drug Delivery Systems

Every year, patients across the world receive an estimated 40 to 50 billion medical injections.



Nearly all of the syringes used in these injections are filled with liquid medicine or liquid vaccine from small glass vials.

Vials and syringes are two of the greatest medical devices ever invented.

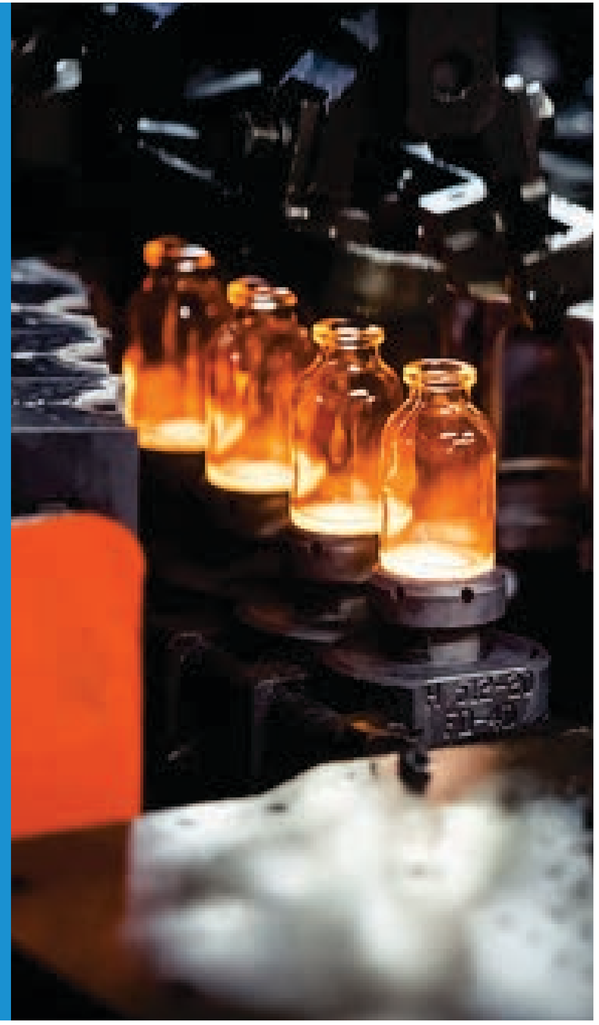
These drug delivery formats have been used worldwide for 150 years. They have saved countless lives.

At the same time, glass vials and traditional syringes come with two major problems.

The first problem is a fragile, unreliable supply chain.

The manufacturing infrastructure and raw materials sourcing needed to create, fill, and distribute glass vials and traditional syringes are inflexible, slow, and highly vulnerable to disruption.

COVID-19 has significantly heightened these supply chain problems.[1]



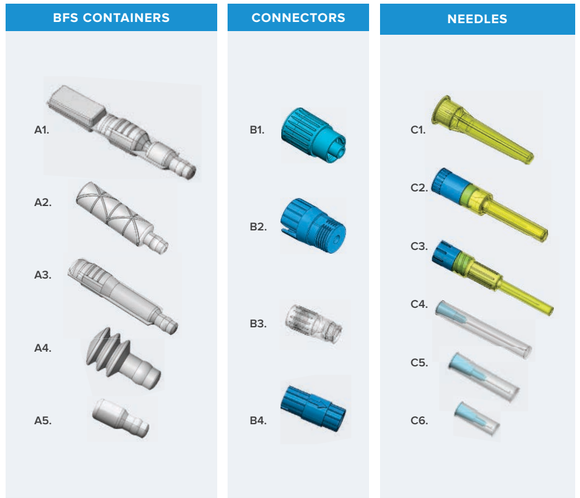
Traditional vials and syringes have a second major problem: unsafe medical injections.

Worldwide, and especially in Low- and Middle-Income Countries, many health workers reuse syringes across multiple patients. This spreads blood-borne diseases including HIV, hepatitis B, and others – and results in over 1 million needless deaths each year.[2]

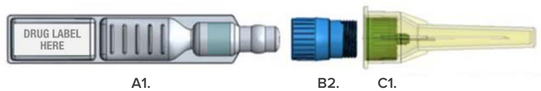
That is why Marc Koska, OBE, initially founded ApiJect.

ApiJect is a medical technology company, dedicated to eliminating syringe reuse and the resulting contamination of multi-dose vials, which together lead to unsafe injections.

ApiJect Component Platform



Selected Components (A1, B2 and C1)



Fully-Assembled Drug Delivery System

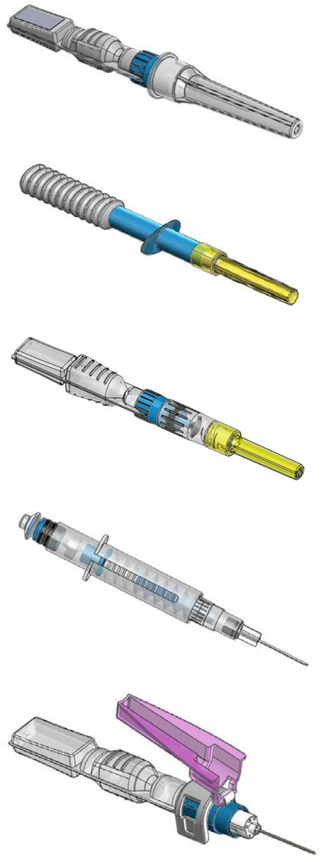
Marc, a successful syringe inventor and noted global injection safety activist for more than 30 years, has once again developed something new in the field.

It's not just a single product or a technology.

It's a flexible platform that can be used to develop and manufacture many kinds of drug delivery systems.

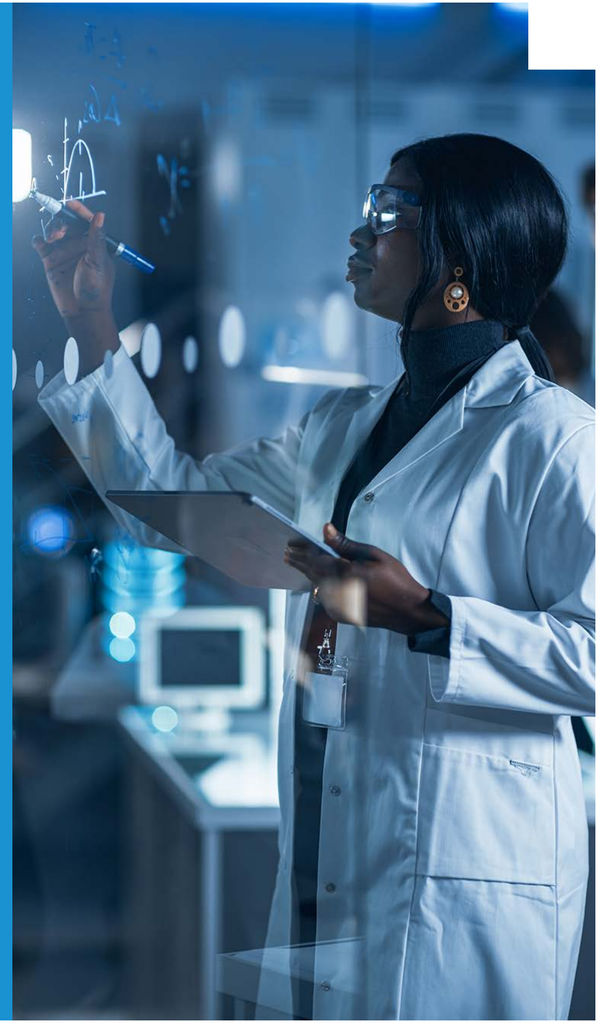
ApiJect drug delivery systems are designed to be single-use, non-reusable, prefilled devices.

But here's the unexpected part of the story.



All devices shown are concepts and not approved for production by any regulatory body.

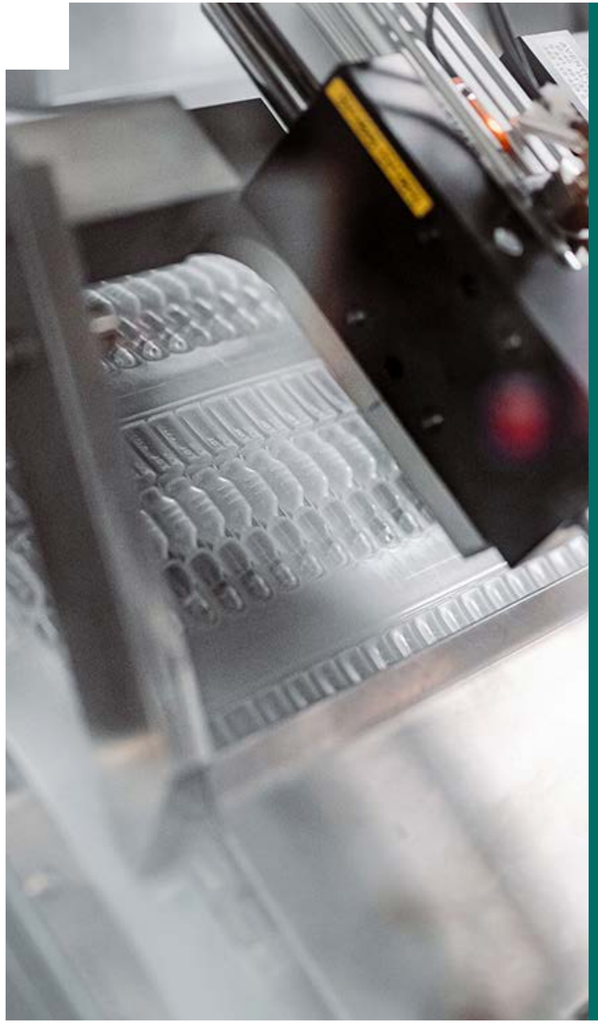
It turns out that Marc's solution to the syringe safety problem has the potential to greatly improve how pharma companies fill, finish, and deliver their liquid medicines and vaccines across the board.



In fact, drug delivery systems made using the ApiJect platform provide three benefits that typically don’t go together: rapid scale, economic efficiency, and a reliable, high-quality, advanced aseptic process.

The ApiJect platform does all this by combining two globally approved pharmaceutical technologies in an innovative way:

1) The Blow-Fill-Seal (BFS) aseptic filling process
2) Pen needles



Blow-Fill-Seal technology is proven and accepted by regulators worldwide for packaging a wide range of sterile liquids.

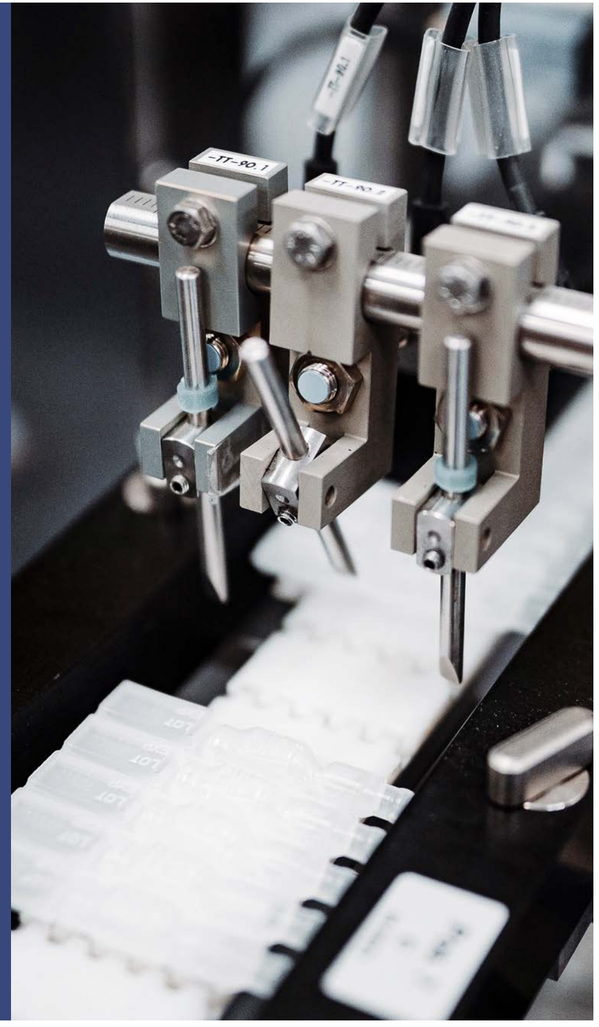
Each year, BFS provides billions of doses of vaccines, medicines, and other pharmaceuticals in aseptically filled plastic containers.[3]

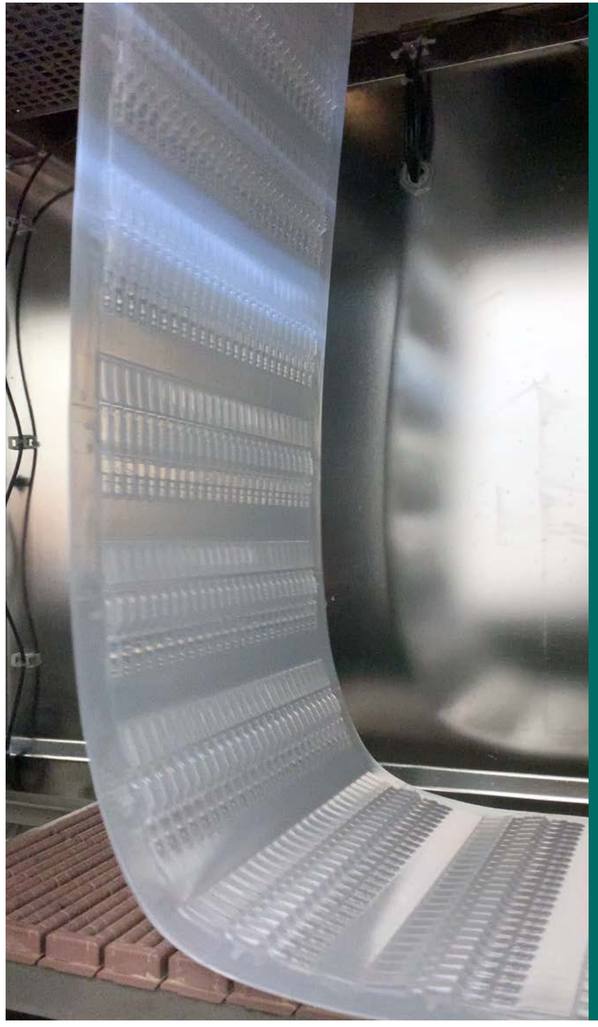
Marc Koska's insight was finding a way to combine BFS with pen-style needle hubs.

His elegantly simple approach: use a stabilizing plastic connector to marry the soft plastic BFS container with the hard plastic needle hub.

The result unites the safety and efficiency of automatically prefilled syringes with the economy of multi-dose vials and manually filled syringes.

This is exactly how our first product, the ApiJect Prefilled Injector, works.





Another major advantage of the ApiJect platform is accelerated scale.

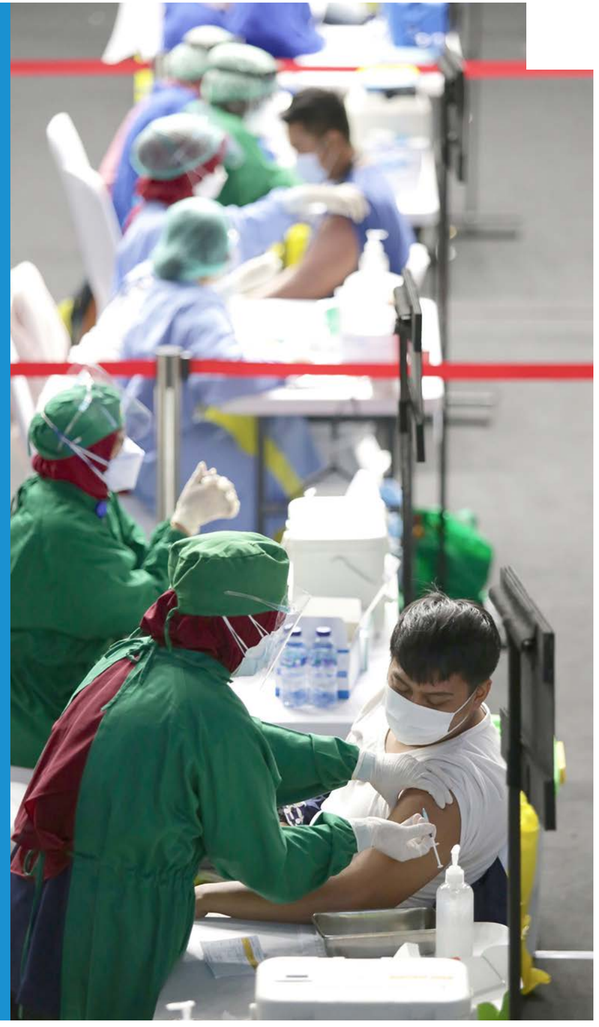
While manufacturing and filling a glass vial can take many weeks as it winds through a multi-facility supply chain, BFS can make the container, fill it with the drug, and seal it in 3-16 seconds. A single BFS production line can manufacture up to 15 million units a month.

The U.S. Government has recognized the power of our BFS-based platform.

ApiJect has been contracted to help create emergency capacity and drug delivery systems for the nation's COVID-19 response.

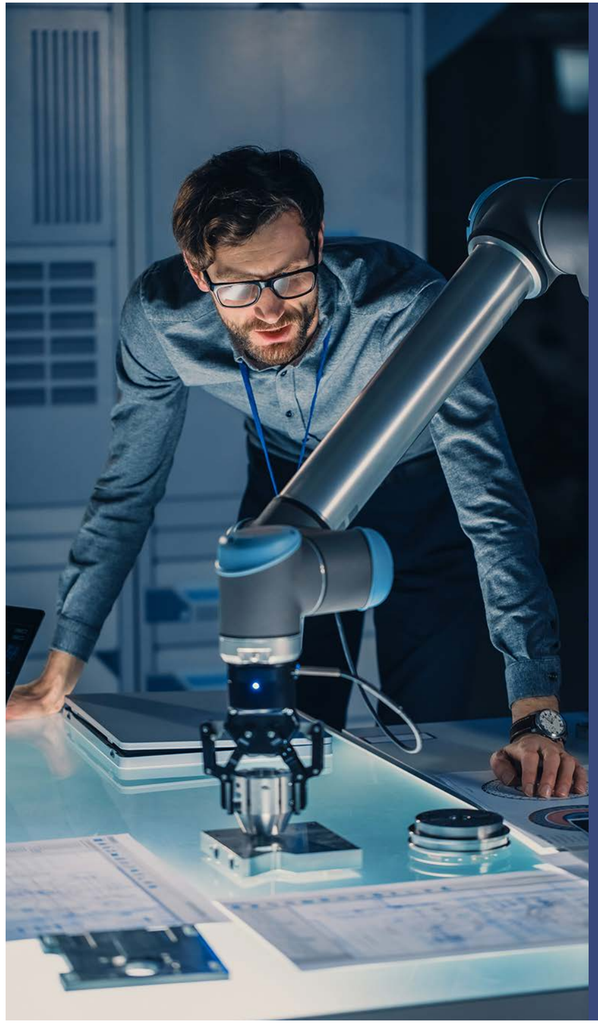
In a similar way, the global health community is quickly coming to see the value of our platform, as well.

Health ministries everywhere understand the impact of a technology that can quickly and reliably deliver single-dose, safe injections of essential medicines and vaccines to people in Low- and Middle-Income Countries.



In addition, pharmaceutical companies are increasingly recognizing the flexible performance of the ApiJect platform.

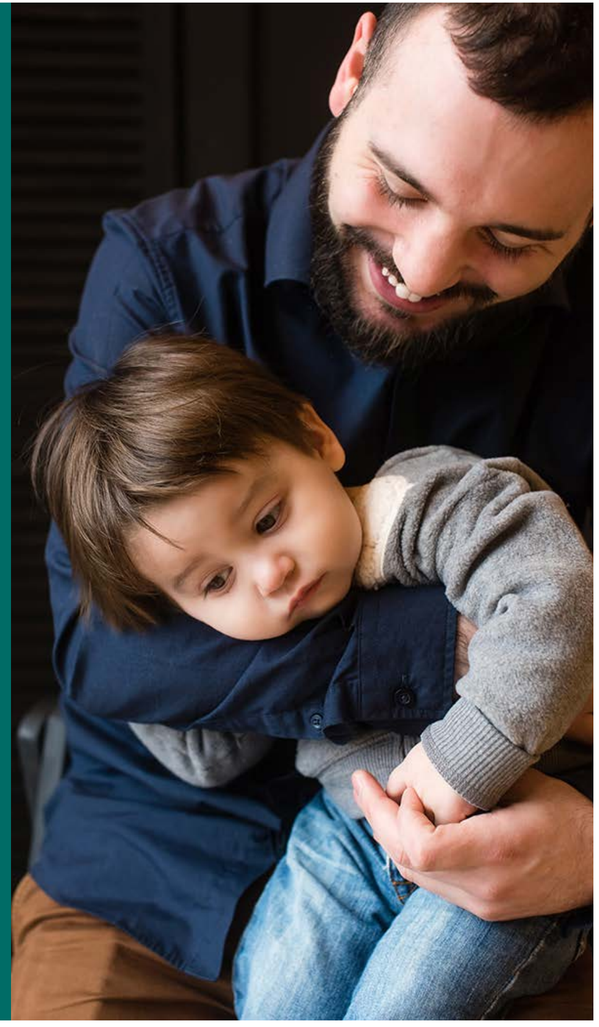
Today, ApiJect works with several leading pharma companies to custom-design BFS drug delivery systems for their liquid medicines and vaccines, and then assist them in manufacturing those delivery systems with their drug products.



We continue to invest significant resources into R&D so that we can serve an expanding range of drug products and develop better solutions for drug delivery challenges for pharma partners around the world.

ApiJect believes the time has come to change how the world delivers and injects sterile liquid medicines and vaccines.

We're doing our part to enable safe injections, global access, economic efficiency, and design flexibility to both the world's pharmaceutical companies and its governments, for the health of people everywhere.



References and Citations

[1] Syringe shortage: Laura Strickler and Sarah Fitzpatrick, NBC News: "Supply chain headache? Hundreds of millions of syringes will be needed to vaccinate U.S.," May 8, 2020; https://www.nbcnews.com/news/us-news/supply-chain-headache-hundreds-millions-syringes-will-be-needed-vaccinate-n1203506

Fill-finish capacity: "Influenza vaccine response during the start of a pandemic." Report of the Third WHO informal consultation held in Geneva, Switzerland, 7–9 June 2017. Geneva: World Health Organization; 2018. Identifies fill-finish capacity as a "bottleneck" in drug delivery capacity. License: CC BY-NC-SA 3.0 IGO.

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"The COVID-19 Vaccine Supply Chain: Potential Problems and Bottlenecks," Poole Thought Leadership (ncsu.edu). Jan. 5, 2021: https://poole.ncsu.edu/thought-leadership/article/the-covid-19-vaccine-supply-chain-potential-problems-and-bottlenecks/

[2] Benedetta Allegranzi, The burden of unsafe injections worldwide: highlights on recent improvements and areas requiring urgent attention. WHO. Patient Safety Presentation. 2013.

[3] "Blow-Fill-Seal Solutions," Rommelag, p. 3. https://www.rommelag.com/fileadmin/user_upload/Files/Service/Downloads/en/ROMM_BRO_210x297_Engineering_Produkt_24S_EN_WEB_ES.pdf

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