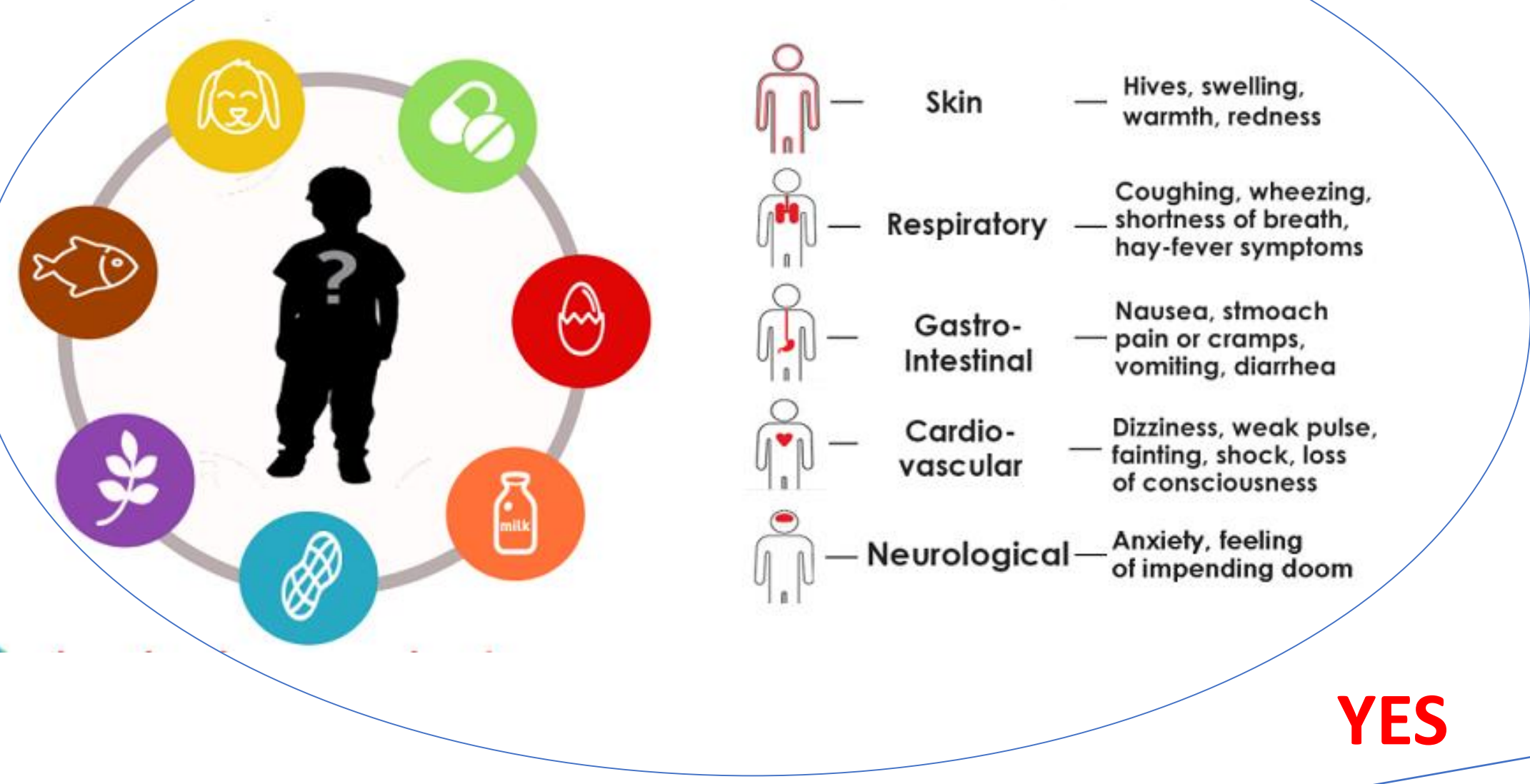


Anaphylaxis

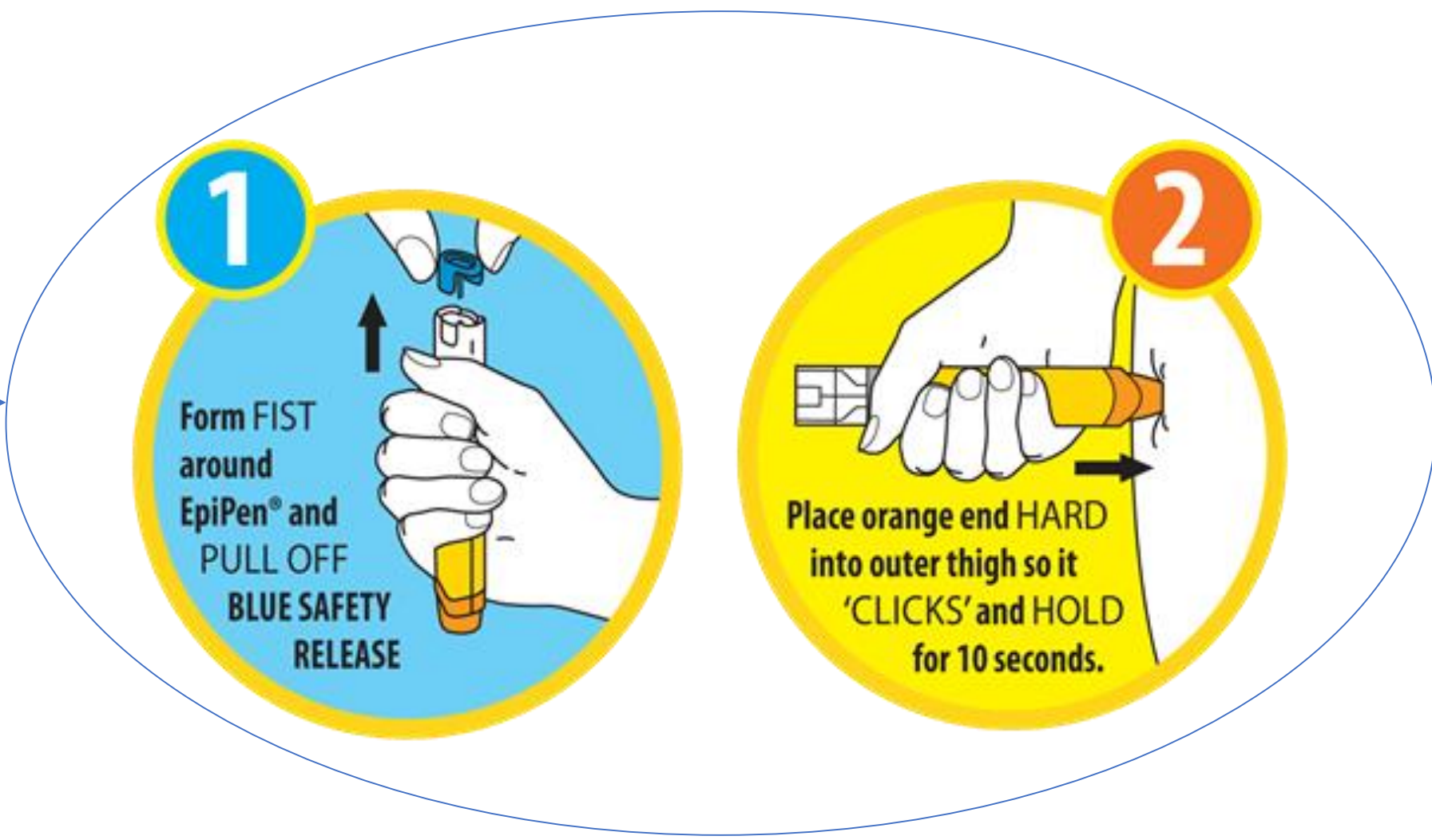
Causes & Symptoms



EpiPen & EpiPen junior



Application



YES

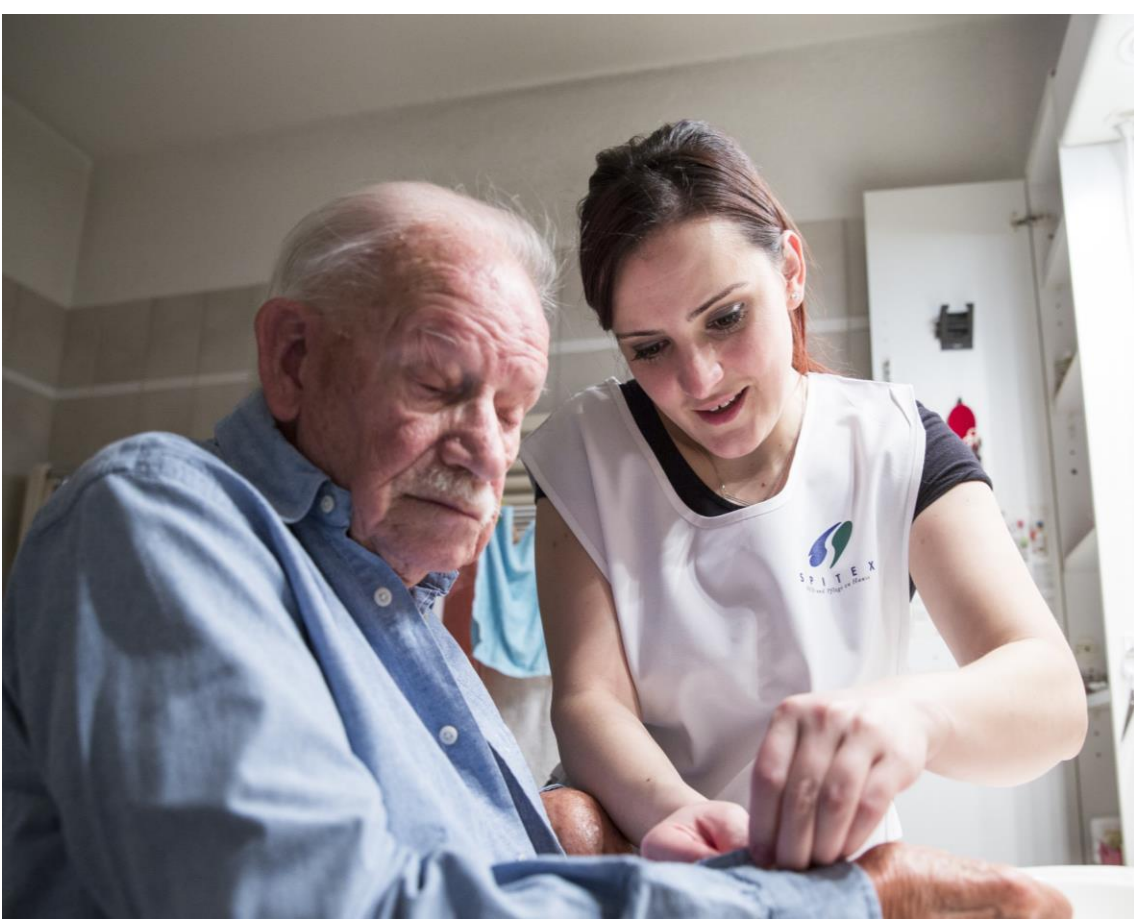
Availability?

NO

Personas & Problem Statement

**Klaus**, 85, Switzerland

- Retiree
- Daily income: 150\$
- Tremor in hands → struggles in EpiPen usage
- Afraid of needles



**Naomono**, 35, Uganda

- Field worker
- Daily income: 1\$
- EpiPen would be too expensive
- Doesn't know what anaphylaxis is
- Doesn't know how and when to use the EpiPen

**Indah**, 20, Indonesia

- Seamstress
- Daily income: 6\$
- EpiPen would be too expensive
- Doesn't know how and when to use EpiPen
- Storage conditions



**Marta**, 26, Peru

- Maid & cooking in community kitchen
- Daily income: 3\$
- Critical to technology & clinics
- EpiPen would be too expensive
- Doesn't know how to use the EpiPen

“How can I afford an easy and safe to use Device?”

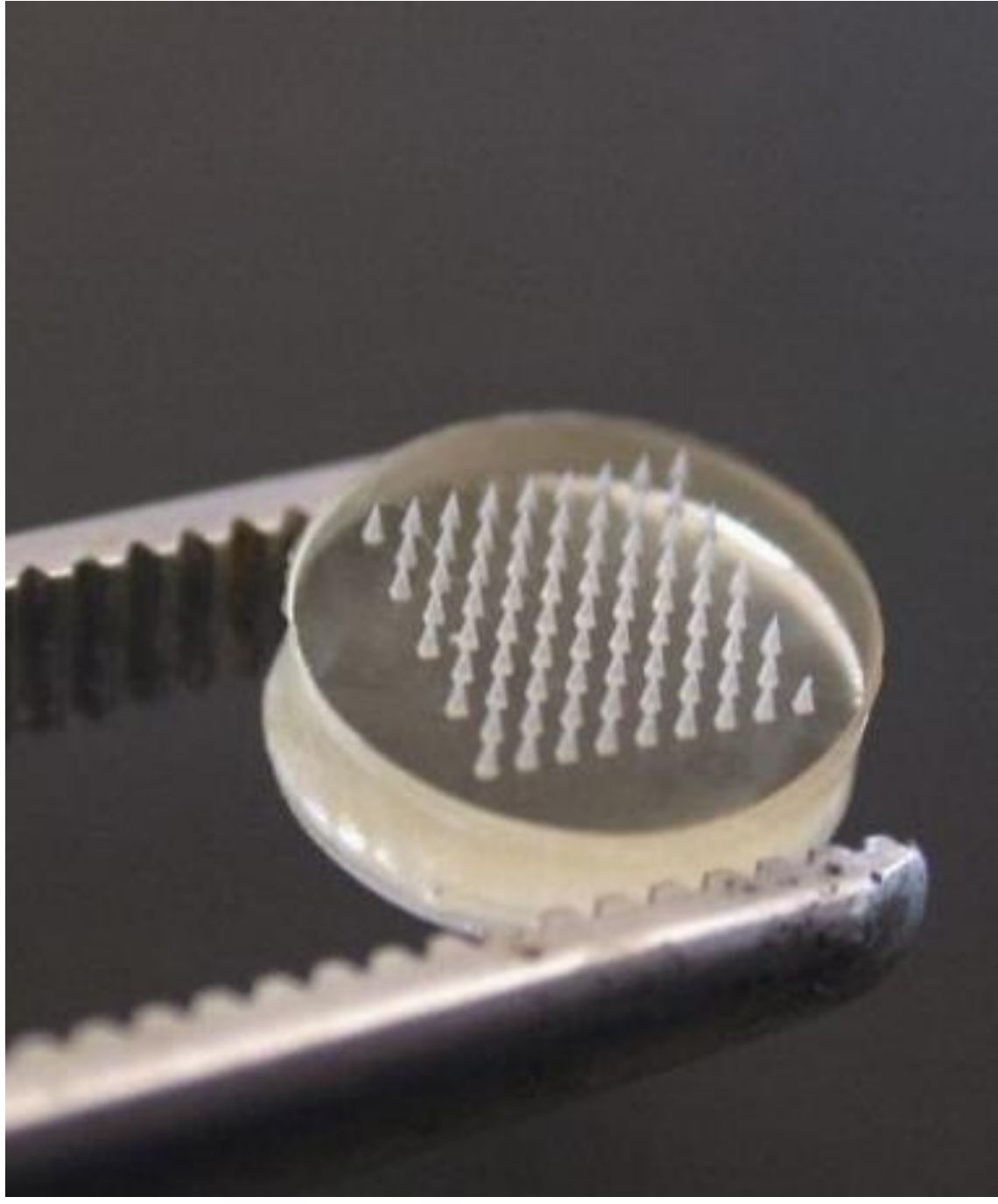
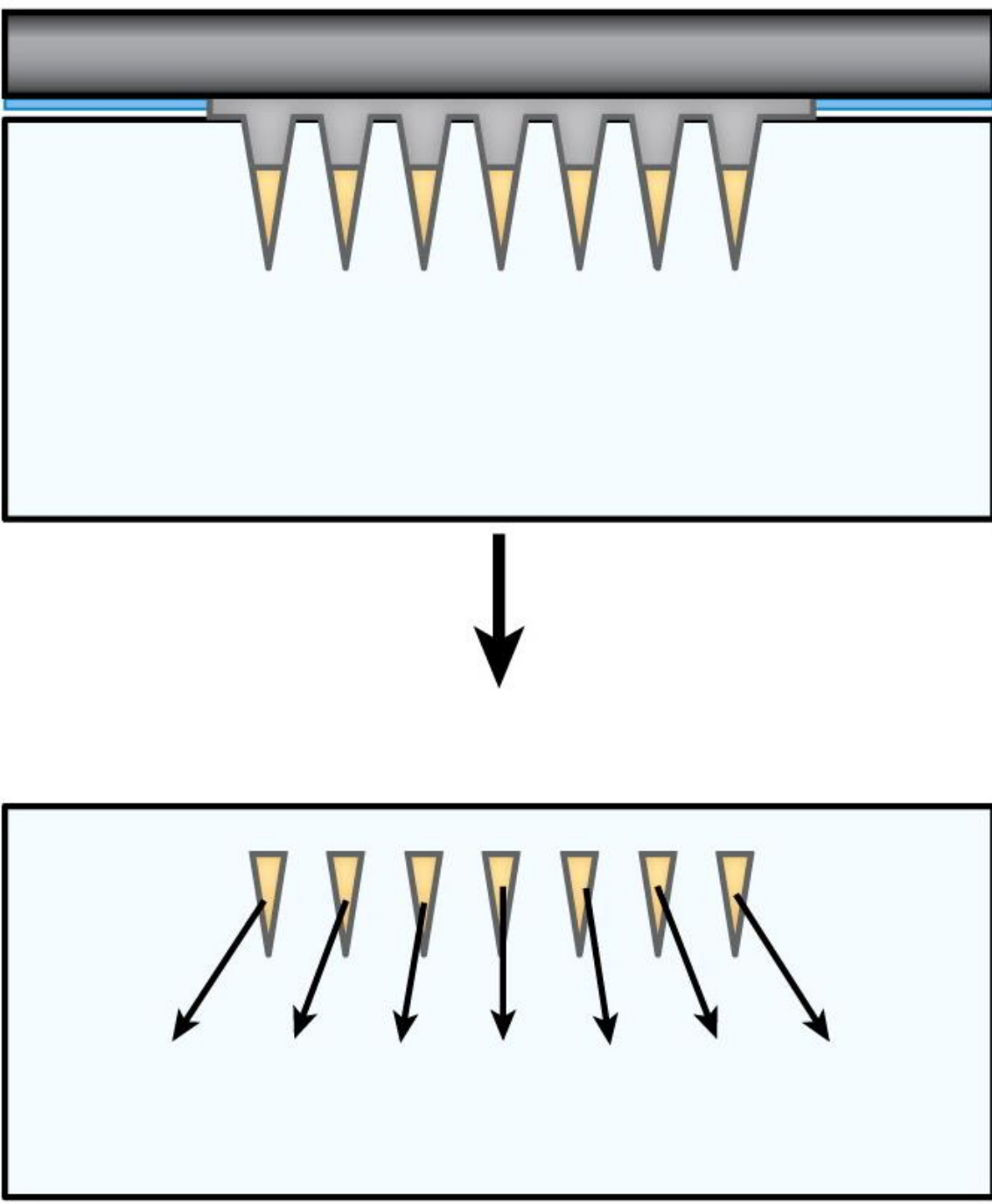
Challenges

- Easy and correct application
- Safe device
- Short storage life of 12-18 months
- One-time usage only
- Too expensive

New Features

- Subcutaneous administration of Epinephrine via microneedles
- Dissolving needles upon body fluid contact
- Microneedles contain exact dosage
- Enhanced stability of Epinephrine
- Space efficient
- Protective storage box

The solution - EpiPatch



Main Problems solved

- Easy usage (patch like application)
- Safe usage (eliminated sharp waste and easier application)
- Cheaper manufacturing (less drug wasting and simpler technology)
- Cheaper transportation and storage (smaller size, extended shelf life and enhanced Epinephrine stability)

Limitations

- Unethical to perform effectiveness studies
- EpiPen already working well in developed countries
- Lower acceptance (undressing depending on application site of patch) in some cultures

Appropriateness Evaluation

|             | EpiPen                                                                                                                                                                             | EpiPatch                                                                                                                                                                                                                |
|-------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Performance | <ul style="list-style-type: none"><li>- Mishandling</li><li>- Pushing EpiPen strong enough into thigh</li><li>- Waiting 3 seconds for successful Epinephrine delivery</li></ul>    | <ul style="list-style-type: none"><li>+ Improved effectiveness<ul style="list-style-type: none"><li>- Correct application easily performed</li><li>- Leave patch on skin until doctor's appointment</li></ul></li></ul> |
| Cost        | <ul style="list-style-type: none"><li>- 30\$ production cost + brand capital costs</li><li>- Replacing costs every 12-18 months</li></ul>                                          | <ul style="list-style-type: none"><li>+ Lower production costs of patch → improved accessibility</li><li>+ Reduced replacing costs</li></ul>                                                                            |
| Durability  | <ul style="list-style-type: none"><li>- Shelf life of 12-18 months</li><li>- Return used device to medical facility</li></ul>                                                      | <ul style="list-style-type: none"><li>+ Increased shelf life</li><li>+ Can be disposed</li></ul>                                                                                                                        |
| Usage       | <ul style="list-style-type: none"><li>- Training/Introduction needed</li><li>- Hesitation to use injector (needle phobia)</li><li>- Possible injuries due to mishandling</li></ul> | <ul style="list-style-type: none"><li>+ Easy application</li><li>+ No training needed</li><li>+ No needle phobia</li></ul>                                                                                              |

References

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