

# PROCAINE HCL FOR INJECTION

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## Purpose:

- Local anesthetic of the ester family
- Sodium channel blocker, NMDA receptor blocker, nicotinic acetylcholine receptor antagonist, serotonin receptor antagonist

<https://go.drugbank.com/drugs/DB00721>

## Conditions Treated:

- Pain

## Storage:

- Procaine USP 99% powder should be stored in dry, cool, dry conditions and the certified expiry date up to 10 years. The powder should be stored in a large quantity in smaller bottles of 100g each. Ensure an appropriate amount is present in each bottle. Allow bottles to stand at room temperature for 30-60 minutes before opening the bottle to prevent condensation, which will add moisture to the procaine.
- Preservative-free 2% procaine solution should be stored in a cool, dry place.

## Equipment Required:

- Pyrex beakers, various sizes, e.g. 100ml, 250ml
- Volumetric flasks graduated cylinders for measurement up to 1000ml, 100ml, 250ml.
- 10ml sterile syringes
- Magnetic stirrer with Teflon coated magnetic stir bars stirring rods
- Digital scales with calibrations, 100g or 1000g capacity accurate to 1mg
- Laminar flow cabinet (for dispensing drugs or solutions that cannot exceed beyond 1 mg)
- Stainless steel droppers, various sizes

## Mixing Procedure:

1. All equipment that will come into contact with the medication must be sterilized (e.g. clean with 70% isopropyl alcohol or use autoclave).
2. Determine the volume of procaine 2% solution you want to prepare (see table below).
3. Calculate the number of vials required. Please based on dilution factor and volume to be prepared. Add the required weight of procaine (calculated from dilution factor and volume).
4. Place the correct number of vials into the dilution bottle and add 100ml of dilution fluid. Make sure all vials are being used (not just the first vial).
5. Add water saline or water to dilution (see table), approximately 500ml of the final volume. Check additive fluid volume to greater the final volume.

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6. If sodium ~~chloride~~ 0.9% solution is being used, add the correct volume of this until (based on ~~the table~~).
7. Stir to dis~~olve~~ all the ingredients (manually or with magnetic stirrer).
8. Once dis~~olved~~, if magnetic stirrer is being used, remove the magnet.
9. Transfer ~~procaine~~ solution to previously prepared magnetic graduated cylinder or volumetric flask. Add up to the final volume with sterile water or saline, according to the formula being used.
10. Pour contents back into bottle for final stirring. Solution is now ready to administer.

## Procaine 20mg/ml

Prepared with 0.9% ~~Sodium Chloride~~

Final Volume (ml)	Procaine 20mg/ml (mg)	Sodium 0.9% (ml)	Mixed Approx. % Filled with
10	200	0.3	1
50	1000	1.5	5
100	2000	3.0	10
250	5000	7.5	25
500	10000	15.0	50

## Procaine 20mg/ml

Prepared with 0.9% ~~Sodium Chloride~~

Final Volume (ml)	Procaine 20mg/ml (mg)	Sodium 0.9% (ml)	Mixed Approx. % Filled with
10	200	0.3	1
50	1000	1.5	5
100	2000	3.0	10
250	5000	7.5	25
500	10000	15.0	50

## Procaine 20mg/ml

Prepared with Sterile Water, ~~NaCl~~, ~~Procaine~~ and 0.9% ~~Sodium Chloride~~

Final Volume (ml)	Procaine 20mg/ml (mg)	Sodium 0.9% (ml)	NaCl 0.9% (ml)	Mixed Approx. % Filled with
10	200	0.3	0.3	1
50	1000	1.5	1.5	5
100	2000	3.0	3.0	10
250	5000	7.5	7.5	25
500	10000	15.0	15.0	50

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## Procaine 20mg/ml

### Prepared with S

Final Volume (ml)	Procaine 20mg/ml	Acetate 0.9mg/ml	NaCl 0.9%	Sodium Acetate 0.9%
10	200	0.4	1	1
50	1000	20	5	5
100	2000	40	10	10
250	5000	100	25	25
500	10000	200	50	50

\* See appendix A for supporting research

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## APPENDIX A

Research supporting ~~extension of expiration date up to 18 months or beyond~~:

1. Journal of Pharmaceutical and Biomedical Analysis, Volume 38, 2005, February, Page 394-398
2. Mayo Clinic Proceedings, November 2000, 75(11):1479-1481
3. Journal of Pharmaceutical Sciences, Vol. 95, No. 7, July 2006

Conclusions:

- Procaine solution stored at ~~ambient temperature for 18 months~~ maintains 79% potency.
- ~~Procaine with Procaine solution~~ can be extended by ~~18 months beyond the published expiry~~