Artesunate injections as treatment for severe malaria *Practical aspects*

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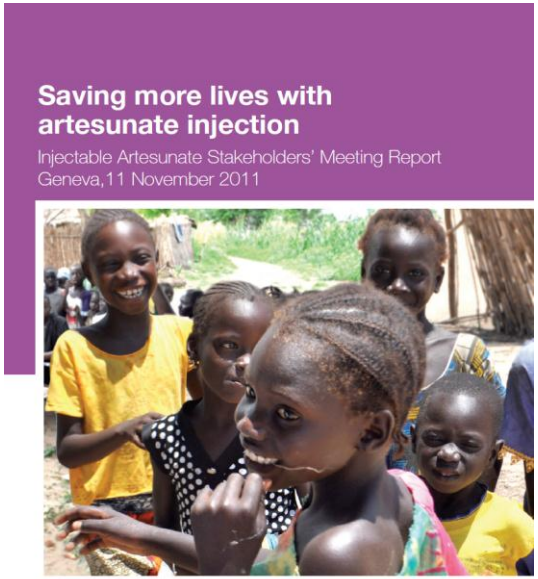
Artesunate injections for severe malaria

- WHO recommended treatment, also for African children & pregnant
- WHO prequalified source available
- relative mortality reduction compared to quinine:
  34,7 % in the SEQUAMAT trial and 22,5 % in the AQUAMAT trial
- support material available:



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CAMPAIGN FOR ACCESS TO ESSENTIAL MEDICINES

(4) www.msf.org/msf/articles/2011/04/malaria-making-the-switch.cfm
(5) www.msfaccess.org/content/meeting-report-saving-more-lives-artesunate-injection

Parenteral artesunate: FAQ's

- AS inj for patients only vomiting ?
- AS inj after pre-referral treatment with AS
- Time interval last injection and oral ACT ?
- Is there flexibility in time schedule ?
- Pre-calculated doses: why often higher ?
- Why should AS be used immediately after preparation?
- Preferred mode IV administration ?
- Can other solutions be used ?
- What if larger or smaller volumes used ?
- Why should IV be administered slowly ?
- Can AS inj solution be given oral (NG tuben,..)?

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1421 patients treated with AS injections & documented, in 9 MSF projects (1) 2011-2012

AGE	**n**
0- 11 months	310
12-59	892
≤ 5 y	209
?	9
WEIGHT	**n**
< 5 kg	63
5-15 kg	1157
16-50 kg	152
>50 kg	42
?	7

ROUTE	n	%
IV	1238	87,1
IM	179	12,6
IV & IM	4	0,3
DURATION		
< 24 hr	259	18,3
24 hr	823	58,1
25-48 hr	163	11,5
49-72 hr	76	5,4
> 72 hr	95	6,7
?	5	

(1)DRC, CAR, Niger, S Sudan, Chad, Nigeria, Sierra Leone, Somalia, Guinea-C

NUMBER OF DOSES		
n inj	n patients	**% pts**
1	80	**5,7**
2	178	**12,6**
3	858	**60,8**
4	155	**11,0**
5	64	**4,5**
6	23	**0,4**
7	30	**2,1**
8	19	**1,3**
9	3	**0,2**
10	0	**0,0**
11	1	**0,1**

OUTCOME		
CURED	1265/1350	**93,7**
DIED	66 /1350	**4,9**
OTHER	19 /1350	**1,4**
UNKNOWN	71 /1350	**5,2 %**

ARTESUNATE INJECTION FOR SEVERE MALARIA

WHO RECOMMENDED TREATMENT

PRODUCT DESCRIPTION

Artesunate powder: **60mg** + 1 ampoule sodium bicarbonate + 1 ampoule saline solution.

Dose: 2.4 mg/kg

Can be given by intravenous route (IV) or intramuscular route (IM).
IV is the preferred route of administration.

1 WEIGH THE PATIENT

2 CHECK VIALS NEEDED

Weight	5 kg-25 kg	26-50 kg	51-75 kg	76-100 kg
60 mg vial	1	2	3	4

3 RECONSTITUTE

- Artesunate powder + bicarbonate ampoule (immediately before use)

4 DILUTE

- Volume for dilution

	IV	IM
Bicarbonate solution volume	1 ml	1 ml
Saline solution volume	5 ml	2 ml
Total volume	**6 ml**	**3 ml**
Artesunate 60mg solution concentration	10 mg/mL	20 mg/mL

- Reconstituted artesunate + saline solution (or dextrose 5%)

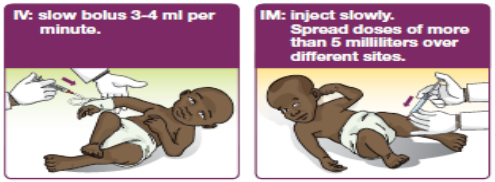
⚠ Water for injection is not an appropriate dilutant

5 CALCULATE THE DOSE

- Calculate and withdraw the required dose **in ml** according to route of administration:

For intravenous route (IV)	For intramuscular route (IM)
$\frac{\text{2.4 mg x body weight (kg)}}{\text{IV artesunate solution concentration 10 mg/ml}}$	$\frac{\text{2.4 mg x body weight (kg)}}{\text{IM artesunate solution concentration 20 mg/ml}}$
Round up to the next whole number	Round up to the next whole number
Example:	**Example:**
Dose needed (ml) for 8 kg child: $\frac{2.4 \times 8}{10} = 1.92\text{ml}$ Round up to **2 ml**	Dose needed (ml) for 8 kg child: $\frac{2.4 \times 8}{20} = 0.96\text{ml}$ Round up to **1 ml**

6 ADMINISTER



7 DOSING SCHEDULE

Give **3 parenteral doses** for a minimum of 24 hours once started, irrespective of the patient's ability to tolerate oral medications earlier:

- **Dose 1: on admission (0 Hours)**
- **Dose 2: 12 hours later**
- **Dose 3: 24 hours after first dose**

- If the patient **can** take oral medication, prescribe a full 3-day course of recommended first line oral Artemisinin Combination Therapy (ACT).
- If the patient **cannot** take oral medication, continue with parenteral treatment (one dose a day), for a maximum of 7 days, until oral medication can be given.

- Evaluate the patient's progress regularly.

IMPORTANT

- **Prepare a fresh solution for each administration.**
- **Discard any unused solution after use.**

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Thank you !

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