

Recommended Analgesic Regimens for MICE by Procedure Severity

Mild Pain (e.g., tail biopsy of mice >21 days of age, needle biopsy, percutaneous pellet implantation)

Drug	Dose mg/kg	Route	Frequency	Duration
meloxicam	5 - 10	SQ, PO	once	12-24 hours
carprofen	5 - 20	SQ	once	12-24 hours

Moderate Pain Minor surgical procedures (e.g., subcutaneous pump implantation, simple vascular cut down)

Drug	Dose mg/kg	Route	Frequency	Duration
meloxicam	5 - 10	SQ, PO	Q 12-24 hours	12-24 hours
meloxicam ER	5	SQ	Q 24 hours	1-3 days, as needed
carprofen	5 - 20	SQ	Q 12 hours	12-24 hours
buprenorphine	0.05 - 0.2	SQ	Q6-8 hours	24 hours
buprenorphine SR	0.5 - 1.0	SQ	once	24 hours
bupivacaine*	2	SQ at incision	once	4-6 hours

Severe Pain Major surgical procedures (e.g., laparotomy, thoracotomy, craniotomy, extensive tissue dissection)

Drug	Dose (mg/kg)	Route	Frequency	Duration
meloxicam	5 - 10	SQ, PO	Q24 hours	48 hours
meloxicam ER	5	SQ	Q 24 hours	3-5 days, as needed
carprofen	5 - 20	SQ	Q12 hours, Q24 w/ buprenorphine	48 hours
buprenorphine*	0.1 - 2	SQ	once	3-5 hours
buprenorphine SR	0.5 - 1.0	SQ	Q 72 hrs	3-5 days, as needed
bupivacaine*	2	SQ at incision	once	4-6 hours

* Agents are recommended in addition to the listed NSAIDs as a part of a multimodal analgesic regimen.

Mouse Analgesic Dosages

	Meloxicam	Meloxicam ER*	Buprenorphine	Buprenorphine SR*	Carprofen	Nocita	
Stock concentration (mg/ml)	5	2	0.3	1	50	13.3	
instructions for diluting	1ml meloxicam + 9ml NaCl	n/a	n/a	n/a	0.2ml carprofen + 9.8ml NaCl	1 ml Nocita + 1 ml sterile saline	
Diluted concentration for	0.5	n/a	n/a	n/a	1	6.65	
Dosage (mg/kg)	5 - 10	5	0.05 - 0.2	1	5 - 20	5.3	
Frequency	q 12 hrs	q 24 hrs	q 6-8 hrs	q 72 hrs	q 12 hrs	once	
MOUSE weight in grams	Dose SQ (ml)	Dose SQ (ml)	Dose SQ (ml)	Dose SQ (ml)	Dose SQ (ml)	Dose SQ (ml)	
	18	0.18 - 0.35	0.05	0.003 - 0.01	0.02	0.09 - 0.36	0.014
	19	0.19 - 0.38	0.05	0.003 - 0.01	0.02	0.10 - 0.38	0.015
	20	0.20 - 0.40	0.05	0.003 - 0.01	0.02	0.10 - 0.40	0.016
	21	0.21 - 0.42	0.05	0.004 - 0.01	0.02	0.11 - 0.42	0.017
	22	0.22 - 0.44	0.06	0.004 - 0.01	0.02	0.11 - 0.44	0.018
	23	0.23 - 0.46	0.06	0.004 - 0.02	0.02	0.12 - 0.46	0.018
	24	0.24 - 0.48	0.06	0.004 - 0.02	0.02	0.12 - 0.48	0.019
	25	0.25 - 0.50	0.06	0.004 - 0.02	0.03	0.13 - 0.50	0.020
	26	0.26 - 0.52	0.07	0.004 - 0.02	0.03	0.13 - 0.52	0.021
	27	0.27 - 0.54	0.07	0.005 - 0.02	0.03	0.14 - 0.54	0.022
	28	0.28 - 0.56	0.07	0.005 - 0.02	0.03	0.14 - 0.56	0.022
	29	0.29 - 0.58	0.07	0.005 - 0.02	0.03	0.15 - 0.58	0.023
	30	0.30 - 0.60	0.08	0.005 - 0.02	0.03	0.16 - 0.60	0.024
	31	0.31 - 0.62	0.08	0.005 - 0.02	0.03	0.16 - 0.60	0.025
	32	0.32 - 0.64	0.08	0.005 - 0.02	0.03	0.17 - 0.64	0.026
	33	0.33 - 0.66	0.08	0.006 - 0.02	0.03	0.17 - 0.66	0.026
34	0.34 - 0.68	0.09	0.006 - 0.02	0.03	0.17 - 0.68	0.027	
35	0.35 - 0.70	0.09	0.006 - 0.02	0.04	0.18 - 0.70	0.028	

*Use 23G needles when using ER/SR analgesics

	Meloxicam	Meloxicam ER*	Buprenorphine	Buprenorphine SR*	Carprofen	Nocita	
Stock concentration (mg/ml)	5	2	0.3	1	50	13.3	
instructions for diluting	1ml meloxicam + 9ml NaCl	n/a	n/a	n/a	0.2ml carprofen + 9.8ml NaCl	1 ml Nocita + 1 ml sterile saline	
Diluted concentration for	0.5	n/a	n/a	n/a	1	6.65	
Dosage (mg/kg)	5 - 10	5	0.05 - 0.2	1	5 - 20	5.3	
Frequency	q 12 hrs	q 24 hrs	q 6-8 hrs	q 72 hrs	q 12 hrs	once	
MOUSE weight in grams		Dose SQ (ml)	Dose SQ (ml)	Dose SQ (ml)	Dose SQ (ml)	Dose SQ (ml)	Dose SQ (ml)
	18	0.18 - 0.35	0.05	0.003 - 0.01	0.02	0.09 - 0.36	0.014
	19	0.19 - 0.38	0.05	0.003 - 0.01	0.02	0.10 - 0.38	0.015
	20	0.20 - 0.40	0.05	0.003 - 0.01	0.02	0.10 - 0.40	0.016
	21	0.21 - 0.42	0.05	0.004 - 0.01	0.02	0.11 - 0.42	0.017
	22	0.22 - 0.44	0.06	0.004 - 0.01	0.02	0.11 - 0.44	0.018
	23	0.23 - 0.46	0.06	0.004 - 0.02	0.02	0.12 - 0.46	0.018
	24	0.24 - 0.48	0.06	0.004 - 0.02	0.02	0.12 - 0.48	0.019
	25	0.25 - 0.50	0.06	0.004 - 0.02	0.03	0.13 - 0.50	0.020
	26	0.26 - 0.52	0.07	0.004 - 0.02	0.03	0.13 - 0.52	0.021
	27	0.27 - 0.54	0.07	0.005 - 0.02	0.03	0.14 - 0.54	0.022
	28	0.28 - 0.56	0.07	0.005 - 0.02	0.03	0.14 - 0.56	0.022
	29	0.29 - 0.58	0.07	0.005 - 0.02	0.03	0.15 - 0.58	0.023
	30	0.30 - 0.60	0.08	0.005 - 0.02	0.03	0.16 - 0.60	0.024
	31	0.31 - 0.62	0.08	0.005 - 0.02	0.03	0.16 - 0.60	0.025
	32	0.32 - 0.64	0.08	0.005 - 0.02	0.03	0.17 - 0.64	0.026
	33	0.33 - 0.66	0.08	0.006 - 0.02	0.03	0.17 - 0.66	0.026
34	0.34 - 0.68	0.09	0.006 - 0.02	0.03	0.17 - 0.68	0.027	
35	0.35 - 0.70	0.09	0.006 - 0.02	0.04	0.18 - 0.70	0.028	

Rat Analgesic Dosages

	Meloxicam	Meloxicam SR	Buprenorphine	Buprenorphine SR	Carprofen	Nocita	
Stock concentration (mg/ml)	5	2	0.3	1	50	13.3	
instructions for diluting	4 ml meloxicam + 6 ml NaCl	n/a	n/a	n/a	1 ml carprofen + 9 ml NaCl	n/a	
Diluted concentration for	2	n/a	n/a	n/a	5	n/a	
dosage (mg/kg)	2	4	0.1-0.5	1.0 - 1.2	5	5.3	
frequency	q 12 - 24 hr	q 72 hr	q 6 hr	q 72 hr	q 12 hr	once	
RAT weight in grams		Dose SQ (ml)	Dose SQ (ml)	Dose SQ (ml)	Dose SQ (ml)	Dose SQ (ml)	
	250	0.25	0.50	0.08 - 0.43	0.25	0.25	0.10
	260	0.26	0.52	0.09 - 0.45	0.26	0.26	0.10
	270	0.27	0.54	0.09 - 0.47	0.27	0.27	0.11
	280	0.28	0.56	0.09 - 0.48	0.28	0.28	0.11
	290	0.29	0.58	0.09 - 0.50	0.29	0.29	0.12
	300	0.30	0.60	0.1 - 0.52	0.30	0.30	0.12
	310	0.31	0.62	0.10 - 0.53	0.31	0.31	0.12
	320	0.32	0.64	0.11 - 0.55	0.32	0.32	0.13
	330	0.33	0.66	0.11 - 0.57	0.33	0.33	0.13
	340	0.34	0.68	0.11 - 0.58	0.34	0.34	0.14
	350	0.35	0.70	0.12 - 0.60	0.35	0.35	0.14
	360	0.36	0.72	0.12 - 0.62	0.36	0.36	0.14
	370	0.37	0.74	0.12 - 0.63	0.37	0.37	0.15
	380	0.38	0.76	0.13 - 0.65	0.38	0.38	0.15
	390	0.39	0.78	0.13 - 0.67	0.39	0.39	0.16
	400	0.40	0.80	0.13 - 0.68	0.40	0.40	0.16
410	0.41	0.82	0.14 - 0.70	0.41	0.41	0.16	
420	0.42	0.84	0.14 - 0.72	0.42	0.42	0.17	