1. Foreword

Pain is inevitable. Suffering is optional. (Haruki Murakami)

The Japanese novelist might not necessarily have had physical pain in mind, but this quote is eminently applicable to acute pain of patients. Acute pain sensations accompany many diseases and all surgery. The prevention and treatment of pain have made great surgical progress possible, particularly over the past two centuries. All doctors have a responsibility to relieve pain and suffering. This responsibility is particularly applicable to doctors, usually anaesthesia providers, in treating perioperative pain.

All patients, whether from rich or poor countries, can experience pain. The International Association for the Study of Pain (IASP) declared that access to pain management is a fundamental human right. Yet, they found that pain management is inadequate in most of the world, including rich countries, due to a lack of access, knowledge deficits, stigma, inadequate national policies, status of pain medicine as specialist area, and restrictions to and unavailability of opioids and other drugs needed for the treatment of pain. This finding is also true for South Africa, where people live in both first- and third-world conditions. Recent studies showed that perioperative outcomes are far worse in Africa than in developed, richer countries. Pain most likely plays a role in this as adequate pain relief reduces inflammation and aids recovery, and may reduce the development of chronic postoperative pain.

People use the word 'pain' to describe emotional, psychological, social and other unpleasant human conditions. This emphasises that the nature of pain is not merely physical, but relates to individual patients as well as environmental factors. This should alert the medical practitioner to the physio-psycho-social aspects which need attention when physical pain is addressed and treated according to these guidelines.

Pain treatment requires an understanding of not only the physiology and nature of pain, but also the drugs and interventions available for treatment as well as the impact thereof on patients. The current opioid epidemic as seen in the USA is, to a large extent, the result of irresponsible and inappropriate prescribing of medication for postoperative pain. The SASA *Guidelines for the management of acute pain in specific scenarios* provides guidance on the effective and appropriate treatment of pain. Though it is not a protocol, it does provide information which can be adapted to the unique circumstances of each individual patient. Treatment and approaches within different clinical contexts are covered in these guidelines. Also, a health economic approach should be followed in limited resource contexts to ensure that pain treatment is affordable for both rich and poor patients.

The SASA *Guidelines for the management of acute pain in specific scenarios* comprehensively addresses the treatment of acute pain in a wide range of situations. We owe gratitude to a team

that spent countless hours reviewing and updating these guidelines to be aligned with current best practice in simple to sophisticated pain treatment. With these guidelines, SASA hopes to play a role in relieving the suffering of patients with acute pain.

Prof. Johan Diedericks

SASA Guidelines Convener

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2. Introduction

Welcome to the third edition of the *Guidelines for the management of acute pain in specific scenarios*. It has been revised, incorporating new drugs and recent advances in acute pain management. These guidelines are recommended for use by all medical practitioners involved in acute pain management of adults and children.

Guideline development and revisions thereof is a dynamic process. The Regulation Business Unit of the South African Society of Anaesthesiologists therefore would appreciate inputs on these guidelines from all sectors of the medical profession over the next few years. Contributions and opinions can be addressed to the SASA CEO via email (ceo@sasaweb.com), who will ensure that the contributors and councillors responsible for these guidelines, are informed.

The COVID-19 pandemic caused many challenges in completing this third edition review. However, through the dedication and perseverance of the contributors and councillors, we have produced an excellent guideline of international standard once again.

The South African Society of Anaesthesiologists appointed a consensus group of practitioners from varying specialities, with varying areas of expertise and interest, to update these guidelines, which cover a wide range of important clinical topics.

On behalf of the consensus group:

- Prof. Sean Chetty
- Dr Eric Hodgson
- Prof. Analee Milner
- Dr Anthony Travers
- Dr Cecile van Rooyen
- Prof. Johan Diedericks
- Dr Sudha Bechan
- Dr Faheem Baba
- Dr Anisa Bhettay
- Dr Annemie Burke
- Prof. Frans Smith
- Dr Chloe van den Bosch
- Dr Gary Simpson
- Dr Theresa Samuel
- Dr Karen van Zijl

List of acronyms

%	per cent
5-HT	5-hydroxytryptamine
AA	arachidonic acid
AACT	acceptance and commitment therapy
ABM	adjusted body mass
ACEI	angiotensin I converting enzyme inhibitor
ACT	activated clotting time
ACTH	adrenocorticotropic hormone
ADH	antidiuretic hormone
ADMA	asymmetrical dimethylarginine
ADP	adenosine diphosphate
AHN	acute herpetic neuralgia
AIDS	acquired immunodeficiency syndrome
AMPA	α-amino-3-hydroxy-5-methyl-4-isoxazolepropionic acid
ANP	acute neuropathic pain
ANS	autonomic nervous system
APTT	activated partial thromboplastin time
ARA	angiotensin II receptor antagonist
ARV	antiretroviral drugs
ASD	autism spectrum disorders
ASIC	acid-sensing ion channel
ATP	adenosine triphosphate
BBB	blood–brain barrier
bd	twice daily
BK	bradykinin
BMI	body mass index
BPS	behavioural pain scale
Ca^{2+}	calcium
CB1-2	cannibinoids
CBT	cognitive behaviour therapy
CGH	cervicogenic headache
CGRP	calcitonin gene-related polypeptide
CI	continuous infusion
CL	clearance
cm	centimetre

CNP	central neuropathic pain
CNS	central nervous system
CO	carbon monoxide
COX	cyclo-oxygenase
coxib	selective COX-2 inhibitor
CPR	cardiopulmonary resuscitation
CrC	creatinine clearance
CRPS	chronic regional pain syndrome
CS	caesarean section
CSD	cortical spreading depression
CSE	combined spinal and epidural
CSF	cerebrospinal fluid
CT	computed tomography
CV	cardiovascular
CH	cluster headache
DMME	daily milligram morphine sulfate equivalent
DRG	dorsal respiratory group
DVT	deep vein thrombosis
EBP	epidural blood patch
EMLA	eutectic mixture of local anaesthetics
eNOS	endothelial nitric oxide synthase
Entonox	nitrous oxide 50% in oxygen
EP1-4	prostaglandin E2 receptors
ETTH	episodic tension-type headache
FDA	Food and Drug Administration
FLACC scale	face, legs, activity, cry, consolability
FPS	FACES pain scale
g	gram
GA	general anaesthetia
GABA	gamma-aminobutyric acid
GCA	giant cell arteritis
GFR	glomerular filtration rate
GH	growth hormone
GI	gastrointestinal
GIT	gastrointestinal tract
HAART	highly active antiretroviral therapy
HCU	high care unit

HGF	hepatocyte growth factor
HH	hypnic headache
HITT	heparin-induced thrombocytopenia and thrombosis
HIV	human immunodeficiency virus
HS	hyperserotoninergic syndrome
HSV	herpes simplex virus
IASP	International Association for the Study of Pain
IBS	irritable bowel syndrome
ICP	intracranial pressure
ICU	intensive care unit
IHS	International Headache Society
IIH	idiopathic intracranial hypertension
IL	interleukin
IM	intramuscular
IMI	intramuscular injection
IN	intranasal
INR	international normalised ratio
IO	intraosseous
IV	intravenous
IVI	intravenous injection
kg	kilogramme
LA	local anaesthetic
LAST	local anaesthetic toxicity
LD	loading dose
LMA	laryngeal mask airway
LMWH	low-molecular-weight heparin
LPH	low intracranial pressure headache
MAD	mucosal atomisation device
MAOI	monoamine oxidase inhibitor
Mcg	microgram
MD	maintenance dose
mg	milligram
mg/kg	milligram per kilogram
MI	myocardial infarction
MIAs	mechanically insensitive afferents/nociceptors
ml	millilitre
mm	millimetre

MME	milligram morphine sulphate equivalents
Mmol/l	millimol per liter
MOBID	Mobilization-Observation-Behavior-Intensity-Dementia
MOH	medication overuse headache
N/A	not applicable
N_2O	nitrous oxide
NA	noradrenalin
Na^+	sodium
NIPS	Neonatal Infant Pain Scale
NK-1	neurokinin 1
NMDA	N-methyl-D-aspartate
NNT	numbers needed to treat
NO	nitric oxide
NPO	nil per os
NRI	noradrenaline reuptake
NRS	numeric rating scale
NSAIDs	nonsteroidal anti-inflammatory drugs
NTS	nucleus tractus solitarius
OFA	opioid-free analgesia
OIH	opioid-induced hyperalgesia
ON	occipital neuralgia
OSA	obstructive sleep apnoea
OTC	over-the-counter
OWS	opioid withdrawal syndrome
p.o.	per os/orally
$PaCO_2$	partial pressure of carbon dioxide
PACSLAC	Pain Assessment Checklist for Seniors with Limited Ability to Communicate
PACU	postanaesthetic care unit
PAG	periaqueductal grey matter
PAINAD	pain assessment in advanced dementia
PCA	patient-controlled analgesia
PCEA	patient-controlled epidural analgesia
PDPH	postdural puncture headache
PE	pulmonary embolism
PET	preeclampsia
PF	preservative free

PG	prostaglandin
PGD2	prostaglandin D2
PGE2	prostaglandin 2
PGF2α	prostaglandin F2 alpha
PGG2	prostaglandin G2
PGH2	prostaglandin H2
PGI2	prostacyclin
PHN	postherpetic neuralgia
PK-PD	pharmacokinetic-pharmacodynamic
PLA2	phospholipase A2
PMA	post menstrual age
PMC	post conceptual age
PNP	peripheral neuropathic pain
PNS	peripheral nervous system
PO_2	partial pressure of oxygen
PPI	proton pump inhibitor
PR	per rectal
PRN	per request needed
RCT	randomised control trial
RR	respiratory rate
RVM	rostral ventromedial medulla
Rx	treatment
SAH	subarachnoid haemorrhage
SAMF	South African Medicines Formulary
SBP	systolic blood pressure
SC	subcutaneous
SIH	spontaneous intracranial hypotension
SL	sublingual
SNRI	serotonin and noradrenalin reuptake inhibitor
SR	slow-release
SRI	serotonin reuptake inhibitor
SSRI	selective serotonin uptake inhibitor
Stat	immediately
TAP	transversus abdominis plane
TCA	tricyclic antidepressants
TD	trans dermal
TENS	transcutaneous electrical nerve stimulation

TIA	transient ischaemic attack
TNF	tumour necrosis factor
tNSAIDs	traditional nonsteroidal anti-inflammatory drugs
TRP	transient receptor potential
TRPA	transient receptor potential ankyrin
TRPV1	transient receptor potential vanilloid 1
TRPV2	transient receptor potential vanilloid type-2
TTH	tension-type headache
TXA2	thromboxane A2
UFH	unfractionated heparin
UP-3	uvulo-palato-pharyngoplasty
UWC	use with caution
UWECO	use with extreme caution
VAS	visual analogue scale
Vd	volume of distribution
VDS	verbal discriptor scale
VNRS	verbal numeric rating scale
WDR	wide dynamic range