Pain and critical illness

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What I aim to cover

Acute Pain in ICU – the problem

Guidelines

- Evidence base
- Implementation

Chronic ICU related pain

A quick look at COVID-19

Acute Pain Management in the Critically Ill

40-50% ICU patients report moderate –severe pain at least half of stay

Chanques 2007, Payen 2007, Robelda 2016

Unique population?

Patients

- Asleep a lot of the time
- On opioids
- Communication barriers
- Procedural pain
- Complex medical/surgical history
- Renal/hepatic failure
- Limited mobility
- Restricted oral access
- Cardiovascular instability

- Many MANY have chronic pain prior to admission…

Environment

- 1-2-1 nursing (ish)
- Army of anaesthetists
- Intricate monitoring

- Hectic
- Life or death
- I'm an intensivist today
- 'Closed units'
- Nurses monitor, doctors prescribe…
- Sacrifice comfort for safety
- Pick apart sedation/delirium/pain

Types of pain

Mechanistic
Somatic
Visceral
Neuropathic
?Nociplastic

Temporal
Pain at rest
Procedural pain

Aetiological
Infection
Cancer
Surgery/Trauma
Devices
Ischaemia
Immobility
Wasting
Neurological pathology
Exacerbation of chronic pain

Don’t forget the biopsychosocial element of pain

Who is at particular risk?

Pain at Rest[1,2]

Length of Stay

Younger age

Number of Co-morbidi

Anxiety/Depression

Expectation of future poor QoL

Pain worse than expected

Look at the pre-procedure baseline scores in these studies!!!

Procedural Pain[3-8]

Chest tube removal
Arterial line insertion
Wound drain removal
Turning & repositioning
Hospital transport
Tracheal suctioning (oral care)
CVC insertion
Use of bladder catheter

Surgical/Trauma
Female
Prior opioid use

Desbiens 1996 Crit Care Med, Al Sutari 2014 J Res Med Sci, Arbour 2014 Clin J Pain, Chanques 2010, Kalfon 2020 Crit Care, Arroyo-Navoa 2008 Int Crit Care Nurs

Why is good pain management important?

'Hard outcomes' reduction in:

Sedative requirement

Duration mechanical ventilation

ICU length of stay (2.27d (1.58-2.96)

Pain intensity

Importantly also

No difference in constipation

CVS instability

Nosocomial infection

Acute opioid use

Laycock 2012

Payen 2009 (DOLOREA); Skrobik 2010; Awissi 2012; Dale 2013; Faust 2016

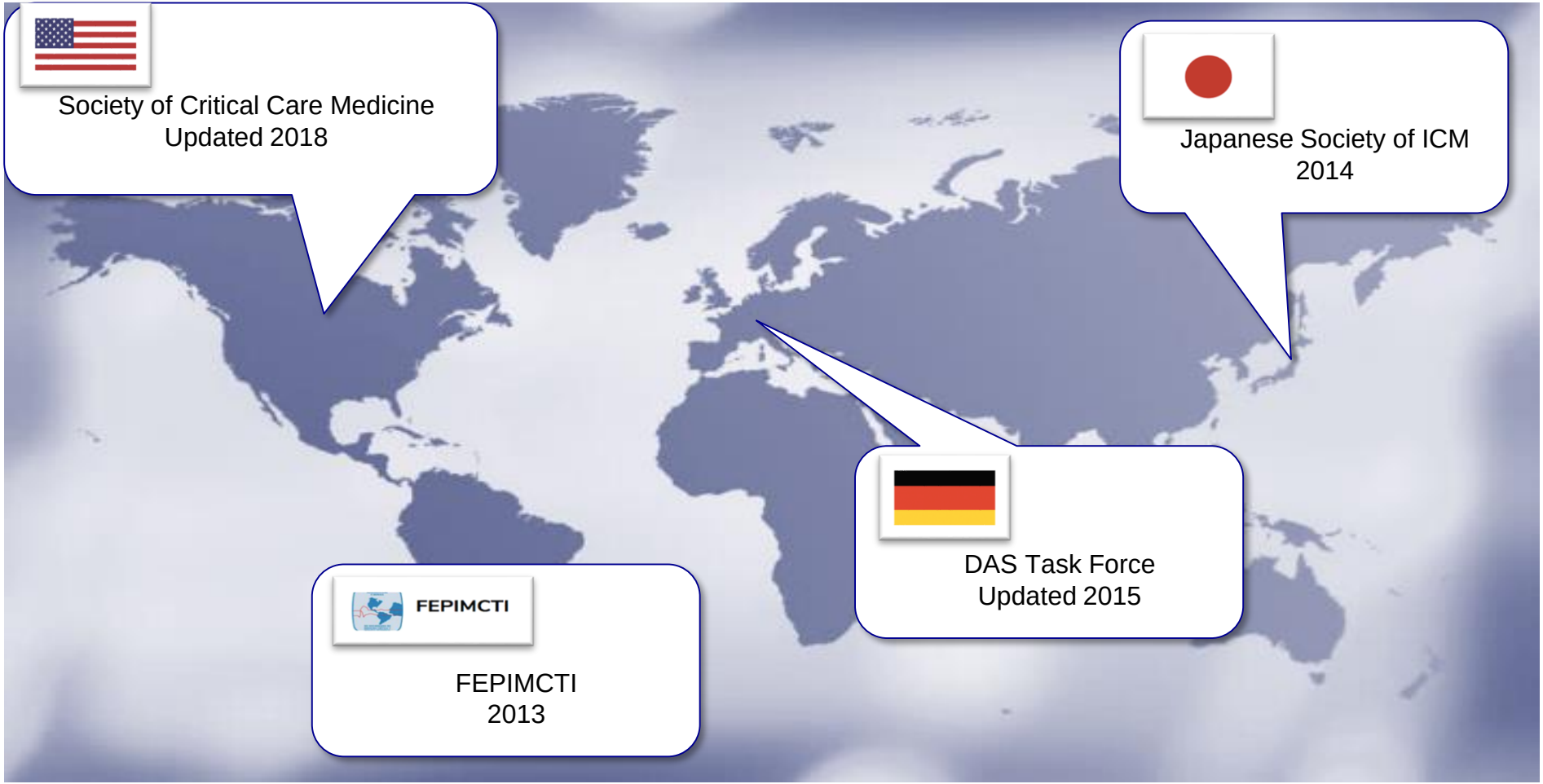
The Guidelines

Devlin et al. 2018
Critical Care Medicine

- ‘PADIS’ guidelines
- Assessment
- Management

2018 Clinical Practice Guidelines for the Prevention and Management of Pain, Agitation/Sedation, Delirium, Immobility, and Sleep Disruption in Adult Patients in the ICU (PADIS Guidelines)

The PADIS Guidelines provide a roadmap for developing integrated, evidence-based, and patient-centered protocols which can be implemented through the ICU Liberation Bundle.


Society of Critical Care Medicine
Updated 2018
Japanese Society of ICM
2014
DAS Task Force
Updated 2015
FEPIMCTI
FEPIMCTI
2013

Pain Assessment

Self report	Behavioural	Proxy	Physiological
• Gold Standard • NRS	• BPS • BPS-NI • CPOT • CPOT Neuro • Well validated	• Limited if HCP • Moderate if family • Over-estimate	• Only to be used as a cue • Responses seen to non-nociceptive stimuli

Pain Assessment on ICU

Critical Care Pain Observation Tool

Indicator	Description	Score	
Facial expression	No muscular tension observed	Relaxed, neutral	0
	Presence of frowning, brow lowering, orbit tightening, and levator contraction	Tense	1
	All of the above facial movements plus eyelid tightly closed	Grimacing	2
Body movements	Does not move at all (does not necessarily mean absence of pain)	Absence of movements	0
	Slow, cautious movements, touching or rubbing the pain site, seeking attention through movements	Protection	1
	Pulling tube, attempting to sit up, moving limbs/ thrashing, not following commands, striking at staff, trying to climb out of bed	Restlessness	2
Muscle tension Evaluation by passive flexion and extension of upper extremities	No resistance to passive movements	Relaxed	0
	Resistance to passive movements	Tense, rigid	1
	Strong resistance to passive movements, inability to complete them	Very tense or rigid	2
Compliance with the ventilator (intubated patients)	Alarms not activated, easy ventilation	Tolerating ventilator or movement	0
	Alarms stop spontaneously	Coughing but tolerating	1
	Asynchrony: blocking ventilation, alarms frequently activated	Fighting ventilator	2
OR			
Vocalization (extubated patients)	Talking in normal tone or no sound	Talking in normal tone or no sound	0
	Sighing, moaning	Sighing, moaning	1
	Crying out, sobbing	Crying out, sobbing	2

Frequency of assessment?

Do we use this?

Gelinas 2006

PAINT

45 ICUs
750 patients
362 physicians

SEARCH

Anaesthesia
Journal of the Association of Anaesthetists of Great Britain and Ireland

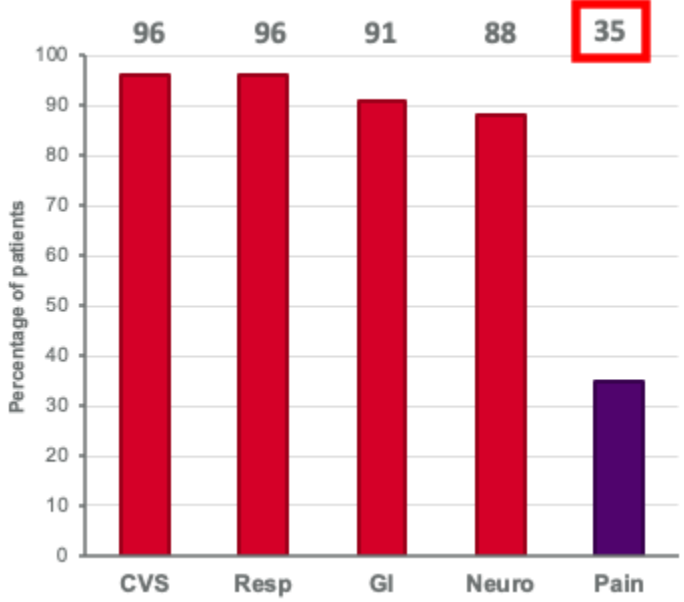
Anaesthesia. 2017 Jun;72(6):737-748. doi: 10.1111/anae.13786. Epub 2017 Feb 19.

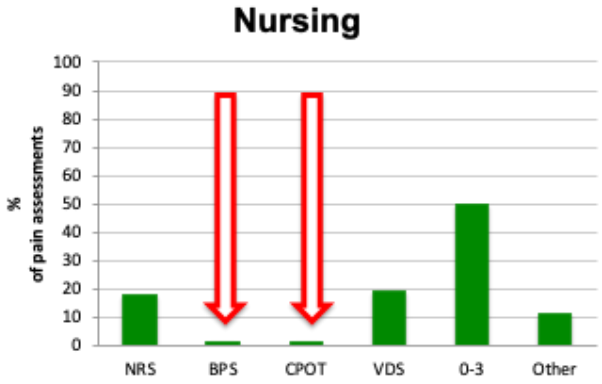
Pain Assessment in INTensive care (PAINT): an observational study of physician-documented pain assessment in 45 intensive care units in the United Kingdom.

Kemp HI[1], Bantel C[1,2], Gordon F[1], Brett SJ[1]; PLAN[3]; SEARCH[4], Laycock HC[1].

Collaborators (234)

Bampoe S, Bantel C, Gooneratne M, Highton D, Hopkins P, Johnston C, Odor P, Kemp H, Laycock H, Martin D, O'Carroll J, Phillips S, Visram A, Siddique O, Burdett E, May R, Renwick S, Gray M, Spiro M, Luoma V, Chamarette H, Young T, Wagstaff D, Lewith H, Gowrie S, Bramall J, Collison L, Mansell J, Hamilton K, Leigh A, Dawson J, Morkane C, Balla P, Shukla B, Rublotta F, Cousins J, Magee D, Cashell C, Kooner G, Arnold G, Garnelo Ray V, Clancy O, Whitehead N, Kooner G, Handy J, Vizcaychipi M, Edwards Z, Davis-Hall M, Addy M, Jhanji S, Wigmore T, Christie L, Sidon L, Grover M, Panagoda P, Howells L, Cartwright C, Doyle R, Griffith M, Casely E, Holdgate A, Rich S, Henriksson M, Jaggar S, Tatham K, Kadry M, Finlay C, Pandit A, Mehdipour S, Ong C, Bidd H, Ramessur S, Anwar S, Blunt N, Williams H, Tosini C, Parini A, Kumar R, Ferrier V, Gupta A, Canavan A, Dickinson M, Carey B, Somasundaram K, De Silva S, Moghulm A, Dua K, McHugh B, Chapman R, Peck M, Sangam A, Al-Sahaf H, Gowripalann T, Kunnumpurath S, Mottaleb R, Fletcher K, Bhagwat M, Eeles A, Hunningher A, Nesbit F, Turton D, Barringer C, Dannatt P, Shenoy V, Keogh P, Krishnachetty B, Mendes F, Ferns J, Kennedy C, Sandru R, Husain N, Holler L, Barnes L, Thorburn P, Shippam W, Lee S, Mahgoub S, Bampoe S, Bantel C, Gooneratne M, Highton D, Hopkins P, Johnston C, Odor P, Kemp H, Laycock H, Martin D, O'Carroll J, Phillips S, Visram A, Siddique O, Burdett E, May R, Renwick S, Gray M, Spiro M, Luoma V, Chamarette H, Young T, Wagstaff D, Lewith H, Gowrie S, Bramall J, Collison L, Mansell J, Hamilton K, Leigh A, Dawson J, Morkane C, Balla P, Shukla B, Rublotta F, Cousins J, Magee D, Cashell C, Kooner G, Arnold G, Garnelo Ray V, Clancy O, Whitehead N, Kooner G, Handy J, Vizcaychipi M, Edwards Z, Davis-Hall M, Addy M, Jhanji S, Wigmore T, Christie L, Sidon L, Grover M, Panagoda P, Howells L, Cartwright C, Doyle R, Griffith M, Casely E, Holdgate A, Rich S, Henriksson M, Jaggar S, Tatham K, Kadry M, Finlay C, Pandit A, Mehdipour S, Ong C, Bidd H, Ramessur S, Anwar S, Blunt N, Williams H, Tosini C, Parini A, Kumar R, Ferrier V, Gupta A, Canavan A, Dickinson M, Carey B, Somasundaram K, De Silva S, Moghulm A, Dua K, McHugh B, Chapman R, Peck M, Sangam A, Al-Sahaf H, Gowripalann T, Kunnumpurath S, Mottaleb R, Fletcher K, Bhagwat M, Eeles A, Hunningher A, Nesbit F, Turton D, Barringer C, Dannatt P, Shenoy V, Keogh P, Krishnachetty B, Mendes F, Ferns J, Kennedy C, Sandru R, Husain N, Holler L, Barnes L, Thorburn P, Shippam W, Lee S, Mahgoub S.





Likely to get an assessment

Patient factors:

- Younger age
- Shorter length of stay
- Absence of an artificial airway
- Surgical patient
- Number of nursing assessments

Unit factors:

- Specialist Hospital
- Teaching Hospital

London is not alone…

Surveys

Belgian clinicians (nursing & physician)[1]
- n=1491, 101 ICUs
- 75% used validated sedation scales
- 11% used validated pain scales
- 80% used physiological parameters

Dutch nursing leads[2]
- n=84
- 6 % used CPOT, 5 % used BPS

German physician leads[3]
- n=214, response rate 82%
- 21% units reported use of pain scales

Observational studies

German ICU patients[4]
- n=868
- 57% no pain monitoring
- 22% had relevant pain

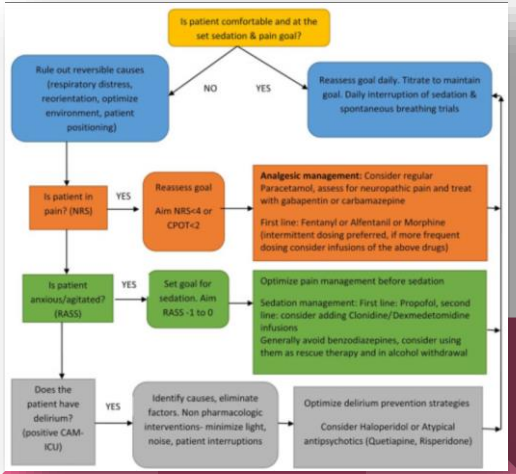
US ICUs[5]
- 8 units, n=138
- 46% validated pain scores
- 82% validated sedation scores

[1]Sneyers et al. 2014 Critical Care [2]Van der Woude et al. 2016 CCM [3]Martin et al. 2007 Critical Care [4]Luetz et al. 2014, PlosOne [5]Brophy et al. 2018 J Pharm Prac

How to manage pain in critical care

Analgosedation versus analgesia first

- Opiate based
- Protocol driven
- Stepwise
- In response to regular assessment

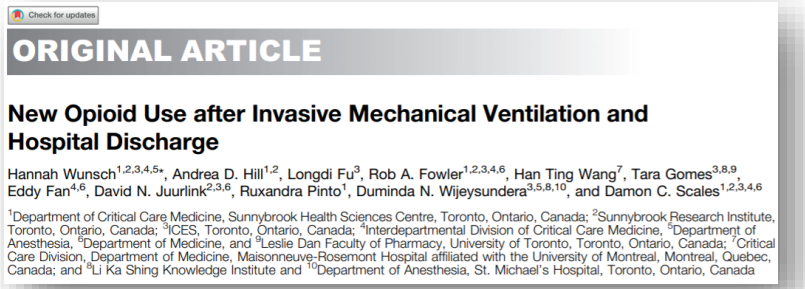


Opiates in ICU

- Any opiate/opioid
- Opiate spare where possible

- Chronic opiate use
- Contribution to delirium

Long term opioids post ICU



Check for updates

ORIGINAL ARTICLE

New Opioid Use after Invasive Mechanical Ventilation and Hospital Discharge

Hannah Wunsch[1,2,3,4,5*], Andrea D. Hill[1,2], Longdi Fu[3], Rob A. Fowler[1,2,3,4,6], Han Ting Wang[7], Tara Gomes[3,8,9], Eddy Fan[4,6], David N. Juurlink[2,3,6], Ruxandra Pinto[1], Duminda N. Wijeysundera[3,5,8,10], and Damon C. Scales[1,2,3,4,6]

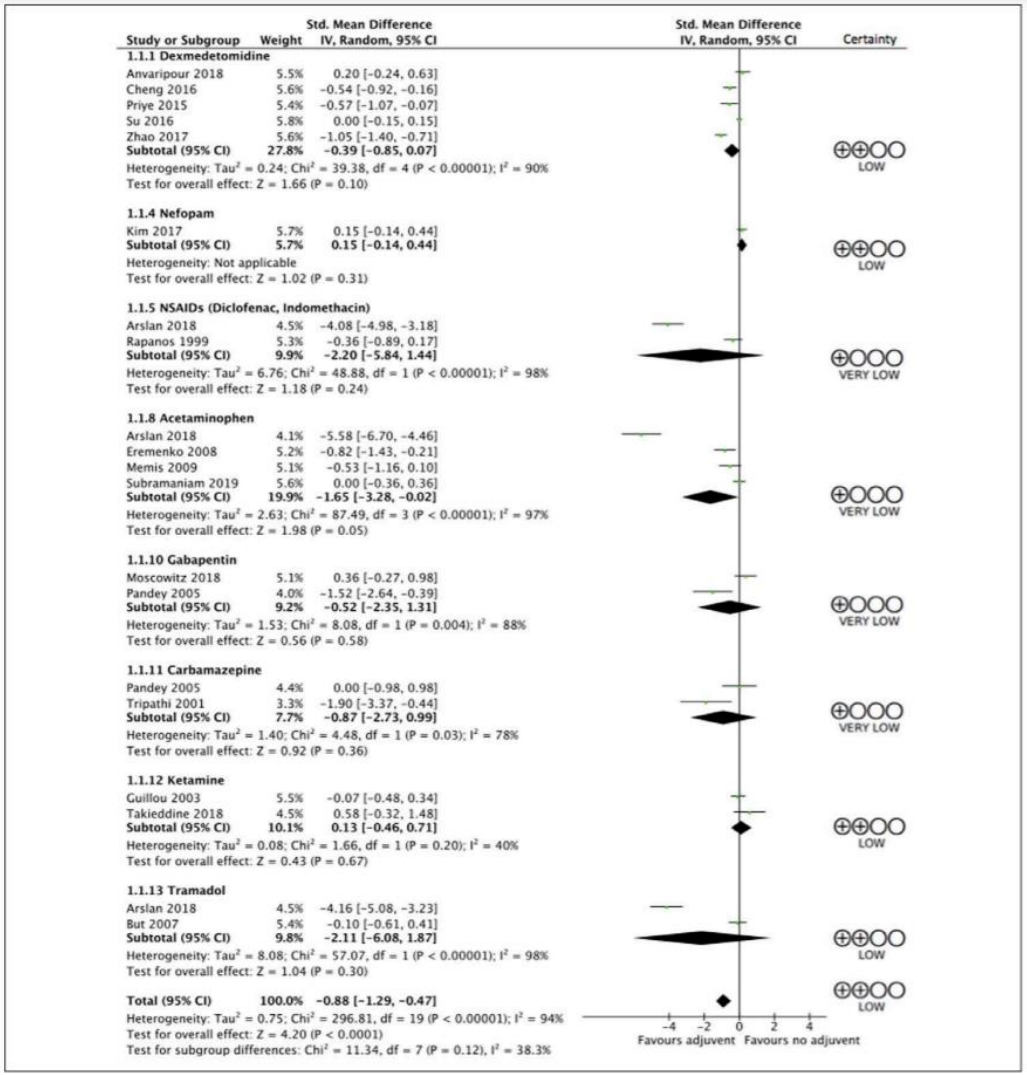
[1]Department of Critical Care Medicine, Sunnybrook Health Sciences Centre, Toronto, Ontario, Canada; [2]Sunnybrook Research Institute, Toronto, Ontario, Canada; [3]ICES, Toronto, Ontario, Canada; [4]Interdepartmental Division of Critical Care Medicine, [5]Department of Anesthesia, [6]Department of Medicine, and [7]Leslie Dan Faculty of Pharmacy, University of Toronto, Toronto, Ontario, Canada; [8]Critical Care Division, Department of Medicine, Maisonneuve-Rosemont Hospital affiliated with the University of Montreal, Montreal, Quebec, Canada; and [9]Li Ka Shing Knowledge Institute and [10]Department of Anesthesia, St. Michael's Hospital, Toronto, Ontario, Canada

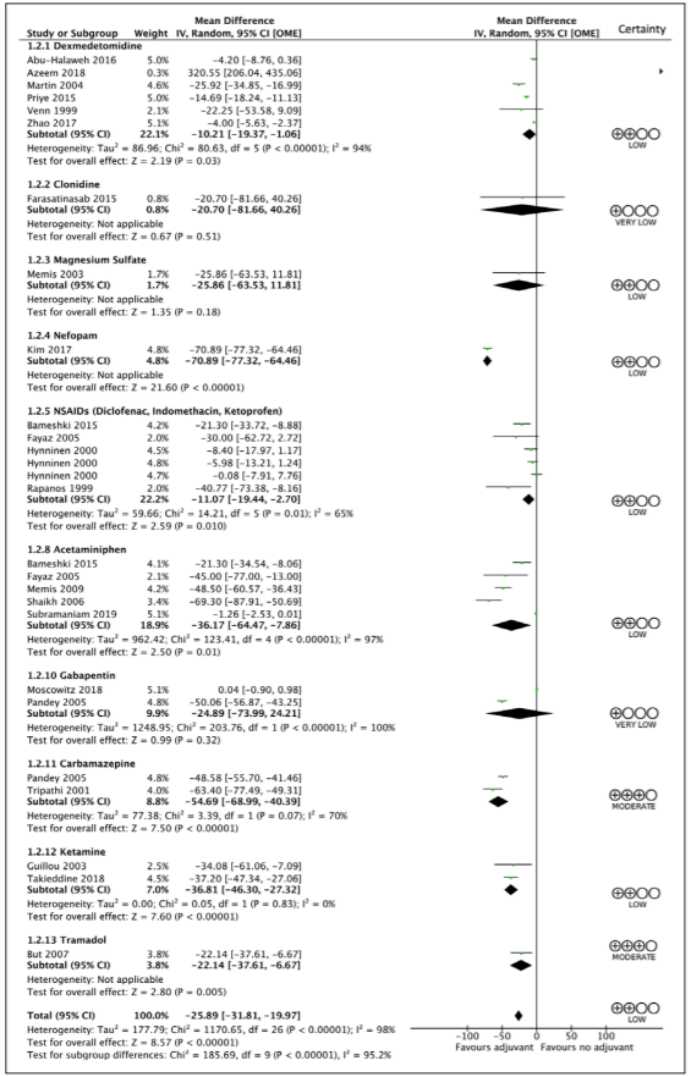
- Probably NOT associated
  - 25000 opiate naïve ICU survivors Canada[1]
    - 7 days post hospital discharge 20% (33% surgical/7.6% medical)
    - By 1 year 2.4%
  - >2500 ICU survivors (single centre)[2]
    - 1.6 % at 48 months
    - Risk factors: pre-admission use and high in hospital use

[1] Wunsch 2020 Am J Crit Care; [2] Yaffe 2017 J Int Care Med

Opioids and delirium?

- >4000 patients, >26,000 ICU days
- Opioid use associated with increased odds of transition to delirium (OR 1.45)
- Synthetic opioids less risk
- Inverse relationship between pain intensity and delirium
    - Not account for non-opioid analgesia
    - 25% pain assessments missing


Std. Mean Difference
Study or Subgroup Weight IV, Random, 95% CI
Std. Mean Difference
IV, Random, 95% CI
Certainty
1.1.1 Dexmedetomidine
Anvaripour 2018 5.5% 0.20 [-0.24, 0.63]
Cheng 2016 5.6% -0.54 [-0.92, -0.16]
Priye 2015 5.4% -0.57 [-1.07, -0.07]
Su 2016 5.8% 0.00 [-0.15, 0.15]
Zhao 2017 5.6% -1.05 [-1.40, -0.71]
Subtotal (95% CI) 27.8% -0.39 [-0.85, 0.07]
Heterogeneity: Tau² = 0.24; Chi² = 39.38, df = 4 (P < 0.00001); I² = 90%
Test for overall effect: Z = 1.66 (P = 0.10)
LOW
1.1.4 Nefopam
Kim 2017 5.7% 0.15 [-0.14, 0.44]
Subtotal (95% CI) 5.7% 0.15 [-0.14, 0.44]
Heterogeneity: Not applicable
Test for overall effect: Z = 1.02 (P = 0.31)
LOW
1.1.5 NSAIDs (Diclofenac, Indomethacin)
Arslan 2018 4.5% -4.08 [-4.98, -3.18]
Rapanos 1999 5.3% -0.36 [-0.89, 0.17]
Subtotal (95% CI) 9.9% -2.20 [-5.84, 1.44]
Heterogeneity: Tau² = 6.76; Chi² = 48.88, df = 1 (P < 0.00001); I² = 98%
Test for overall effect: Z = 1.18 (P = 0.24)
VERY LOW
1.1.8 Acetaminophen
Arslan 2018 4.1% -5.58 [-6.70, -4.46]
Eremenko 2008 5.2% -0.82 [-1.43, -0.21]
Memis 2009 5.1% -0.53 [-1.16, 0.10]
Subramaniam 2019 5.6% 0.00 [-0.36, 0.36]
Subtotal (95% CI) 19.9% -1.65 [-3.28, -0.02]
Heterogeneity: Tau² = 2.63; Chi² = 87.49, df = 3 (P < 0.00001); I² = 97%
Test for overall effect: Z = 1.98 (P = 0.05)
VERY LOW
1.1.10 Gabapentin
Moscowitz 2018 5.1% 0.36 [-0.27, 0.98]
Pandey 2005 4.0% -1.52 [-2.64, -0.39]
Subtotal (95% CI) 9.2% -0.52 [-2.35, 1.31]
Heterogeneity: Tau² = 1.53; Chi² = 8.08, df = 1 (P = 0.004); I² = 88%
Test for overall effect: Z = 0.56 (P = 0.58)
VERY LOW
1.1.11 Carbamazepine
Pandey 2005 4.4% 0.00 [-0.98, 0.98]
Tripathi 2001 3.3% -1.90 [-3.37, -0.44]
Subtotal (95% CI) 7.7% -0.87 [-2.73, 0.99]
Heterogeneity: Tau² = 1.40; Chi² = 4.48, df = 1 (P = 0.03); I² = 78%
Test for overall effect: Z = 0.92 (P = 0.36)
VERY LOW
1.1.12 Ketamine
Guillou 2003 5.5% -0.07 [-0.48, 0.34]
Takieddine 2018 4.5% 0.58 [-0.32, 1.48]
Subtotal (95% CI) 10.1% 0.13 [-0.46, 0.71]
Heterogeneity: Tau² = 0.08; Chi² = 1.66, df = 1 (P = 0.20); I² = 40%
Test for overall effect: Z = 0.43 (P = 0.67)
LOW
1.1.13 Tramadol
Arslan 2018 4.5% -4.16 [-5.08, -3.23]
But 2007 5.4% -0.10 [-0.61, 0.41]
Subtotal (95% CI) 9.8% -2.11 [-6.08, 1.87]
Heterogeneity: Tau² = 8.08; Chi² = 57.07, df = 1 (P < 0.00001); I² = 98%
Test for overall effect: Z = 1.04 (P = 0.30)
LOW
Total (95% CI) 100.0% -0.88 [-1.29, -0.47]
Heterogeneity: Tau² = 0.75; Chi² = 296.81, df = 19 (P < 0.00001); I² = 94%
Test for overall effect: Z = 4.20 (P < 0.0001)
Test for subgroup differences: Chi² = 11.34, df = 7 (P = 0.12), I² = 38.3%
LOW
-4 -2 0 2 4
Favours adjuvant Favours no adjuvent


Mean Difference
Study or Subgroup Weight IV, Random, 95% CI [OME]
Mean Difference
IV, Random, 95% CI [OME]
Certainty
1.2.1 Dexmedetomidine
Abu-Halaweh 2016 5.0% -4.20 [-8.76, 0.36]
Azeem 2018 0.3% 320.55 [206.04, 435.06]
Martin 2004 4.6% -25.92 [-34.85, -16.99]
Priye 2015 5.0% -14.69 [-18.24, -11.13]
Venn 1999 2.1% -22.25 [-53.58, 9.09]
Zhao 2017 5.1% -4.00 [-5.63, -2.37]
Subtotal (95% CI) 22.1% -10.21 [-19.37, -1.06]
Heterogeneity: Tau² = 86.96; Chi² = 80.63, df = 5 (P < 0.00001); I² = 94%
Test for overall effect: Z = 2.19 (P = 0.03)
LOW
1.2.2 Clonidine
Farasatinasab 2015 0.8% -20.70 [-81.66, 40.26]
Subtotal (95% CI) 0.8% -20.70 [-81.66, 40.26]
Heterogeneity: Not applicable
Test for overall effect: Z = 0.67 (P = 0.51)
VERY LOW
1.2.3 Magnesium Sulfate
Memis 2003 1.7% -25.86 [-63.53, 11.81]
Subtotal (95% CI) 1.7% -25.86 [-63.53, 11.81]
Heterogeneity: Not applicable
Test for overall effect: Z = 1.35 (P = 0.18)
LOW
1.2.4 Nefopam
Kim 2017 4.8% -70.89 [-77.32, -64.46]
Subtotal (95% CI) 4.8% -70.89 [-77.32, -64.46]
Heterogeneity: Not applicable
Test for overall effect: Z = 21.60 (P < 0.00001)
LOW
1.2.5 NSAIDs (Diclofenac, Indomethacin, Ketoprofen)
Bameshki 2015 4.2% -21.30 [-33.72, -8.88]
Fayaz 2005 2.0% -30.00 [-62.72, 2.72]
Hynninen 2000 4.5% -8.40 [-17.97, 1.17]
Hynninen 2000 4.8% -5.98 [-13.21, 1.24]
Hynninen 2000 4.7% -0.08 [-7.91, 7.76]
Rapanos 1999 2.0% -40.77 [-73.38, -8.16]
Subtotal (95% CI) 22.2% -11.07 [-19.44, -2.70]
Heterogeneity: Tau² = 59.66; Chi² = 14.21, df = 5 (P = 0.01); I² = 65%
Test for overall effect: Z = 2.59 (P = 0.010)
LOW
1.2.8 Acetaminiphen
Bameshki 2015 4.1% -21.30 [-34.54, -8.06]
Fayaz 2005 2.1% -45.00 [-77.00, -13.00]
Memis 2009 4.2% -48.50 [-60.57, -36.43]
Shaikh 2006 3.4% -69.30 [-87.91, -50.69]
Subramaniam 2019 5.1% -1.26 [-2.53, 0.01]
Subtotal (95% CI) 18.9% -36.17 [-64.47, -7.86]
Heterogeneity: Tau² = 962.42; Chi² = 123.41, df = 4 (P < 0.00001); I² = 97%
Test for overall effect: Z = 2.50 (P = 0.01)
LOW
1.2.10 Gabapentin
Moscowitz 2018 5.1% 0.04 [-0.90, 0.98]
Pandey 2005 4.8% -50.06 [-56.87, -43.25]
Subtotal (95% CI) 9.9% -24.89 [-73.99, 24.21]
Heterogeneity: Tau² = 1248.95; Chi² = 203.76, df = 1 (P < 0.00001); I² = 100%
Test for overall effect: Z = 0.99 (P = 0.32)
VERY LOW
1.2.11 Carbamazepine
Pandey 2005 4.8% -48.58 [-55.70, -41.46]
Tripathi 2001 4.0% -63.40 [-77.49, -49.31]
Subtotal (95% CI) 8.8% -54.69 [-68.99, -40.39]
Heterogeneity: Tau² = 77.38; Chi² = 3.39, df = 1 (P = 0.07); I² = 70%
Test for overall effect: Z = 7.50 (P < 0.00001)
MODERATE
1.2.12 Ketamine
Guillou 2003 2.5% -34.08 [-61.06, -7.09]
Takieddine 2018 4.5% -37.20 [-47.34, -27.06]
Subtotal (95% CI) 7.0% -36.81 [-46.30, -27.32]
Heterogeneity: Tau² = 0.00; Chi² = 0.05, df = 1 (P = 0.83); I² = 0%
Test for overall effect: Z = 7.60 (P < 0.00001)
LOW
1.2.13 Tramadol
But 2007 3.8% -22.14 [-37.61, -6.67]
Subtotal (95% CI) 3.8% -22.14 [-37.61, -6.67]
Heterogeneity: Not applicable
Test for overall effect: Z = 2.80 (P = 0.005)
MODERATE
Total (95% CI) 100.0% -25.89 [-31.81, -19.97]
Heterogeneity: Tau² = 177.79; Chi² = 1170.65, df = 26 (P < 0.00001); I² = 98%
Test for overall effect: Z = 8.57 (P < 0.00001)
Test for subgroup differences: Chi² = 185.69, df = 9 (P < 0.00001), I² = 95.2%
LOW
-100 -50 0 50 100
Favours adjuvant Favours no adjuvant

PADIS guidance

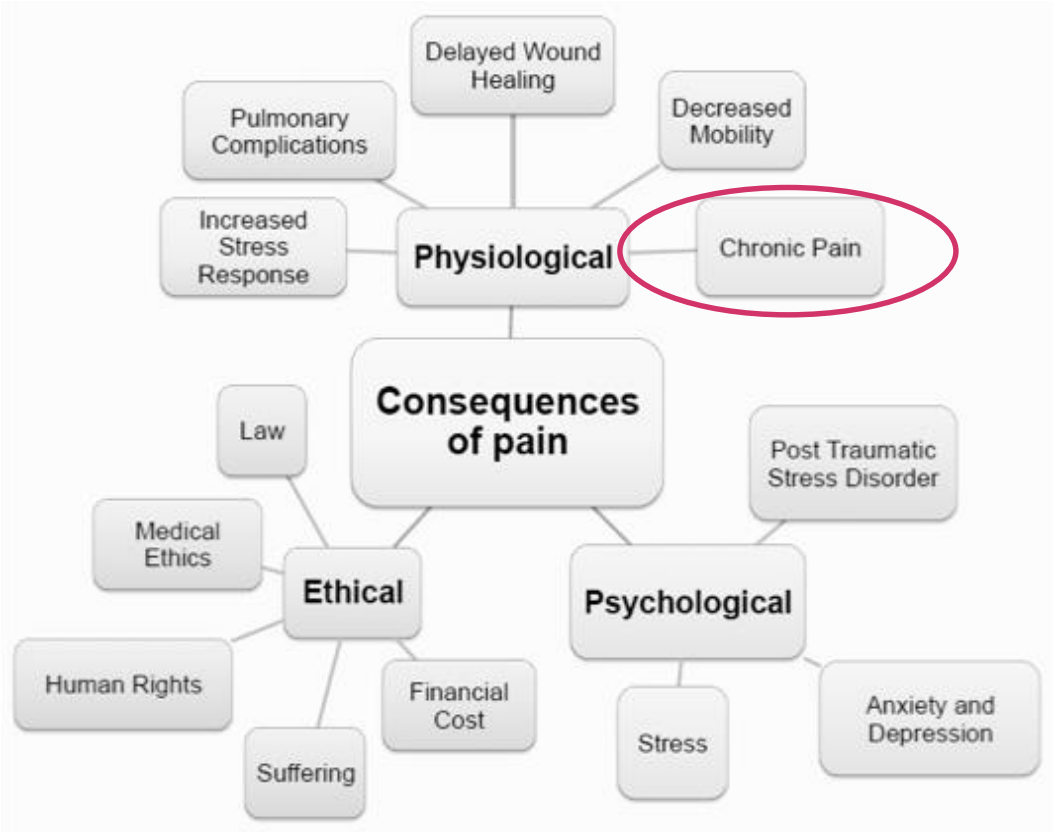
Pharmacological	Non- Pharmacological
• Paracetamol • Nefopam • Ketamine • Gabapentin/Pregabalin • IV lidocaine (suggest NOT) • NSAIDs (suggest NOT) • Regional anaesthesia – not assessed in SR	• Massage • Music • Cold • Relaxation • Cybertherapy/hypnosis – not enough evidence yet

PADIS guidance for Procedural Pain

- Opioid at lowest effective dose
- Local anaesthetic (actually suggest against)
- Entonox

Chronic ICU related Pain

Why is good pain management important?



Laycock 2012

Chronic pain in survivors

Prevalence

Where is the data from

Pre-morbid pain

Tools for measurement

Timelines

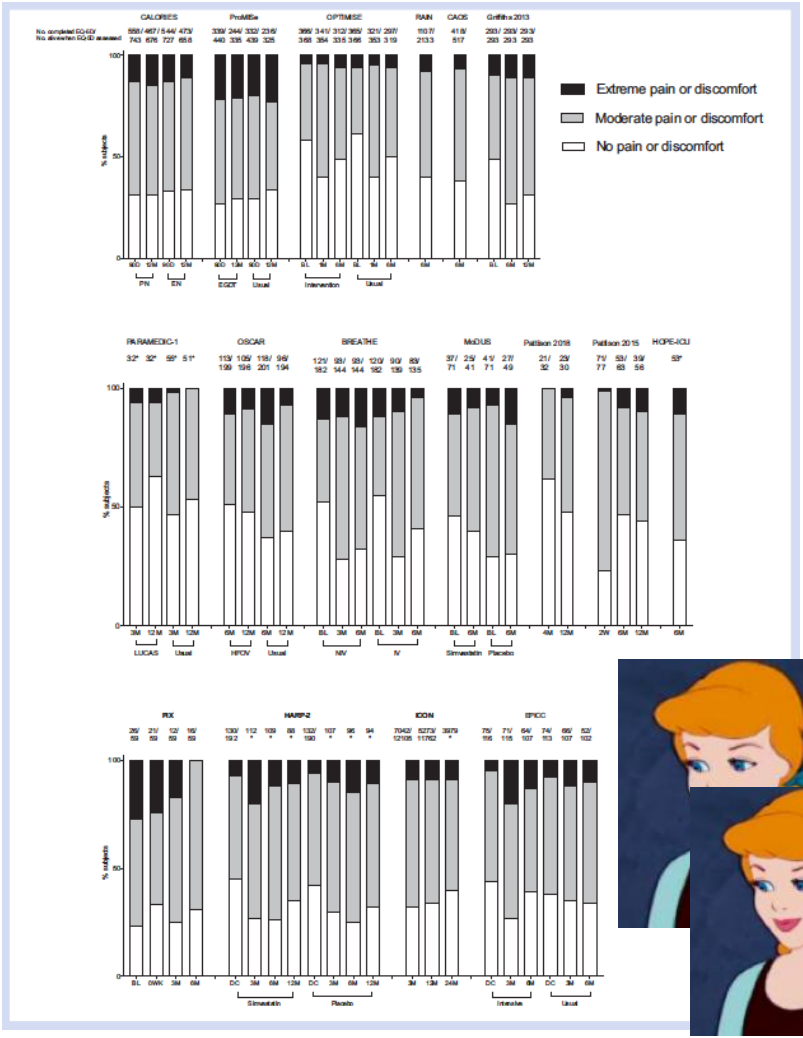
Cohorts

Risk Factors

Table 3 Results of the studies. †Percentage of patients on pain medication. ICU LOS, intensive care unit length of stay.

Study	Incidence or prevalence of pain (%)				Possible risk factors for persistent pain
	At 3 months	At 6 months	At 12 months	At 24 months	
Archer and colleagues[18]				36	Fear of movement, pain catastrophising
Battle and colleagues[19]		44			Increasing age, severe sepsis
Baumbach and colleagues[21]		33.2			Pain during or before ICU stay
Baumbach and colleagues[20]		n/a			Small fibre deficits
Boyle and colleagues[22]		28			Longer hospital and ICU LOS, longer ventilator hours
Jeitziner and colleagues[23,†]		22	15		Pain during or before ICU stay, agitation after ICU stay
Langerud and colleagues[12]	49.2		38.2		Severity of illness, organ failure, ventilator time >12 days, ICU LOS >15 days
Hayhurst and colleagues[24]	77		74		n/a
Carrie and colleagues[25]	62		30		n/a

Makinen 2020 BJA



BJA

British Journal of Anaesthesia, 123 (2): e372–e384 (2019)

doi: 10.1016/j.bja.2019.03.025
Advance Access Publication Date: 22 May 2019
Review Article

Chronic pain in critical care survivors: a narrative review

Harriet I. Kemp[1,*], Helen Laycock[1], Alice Costello[2] and Stephen J. Brett[1]

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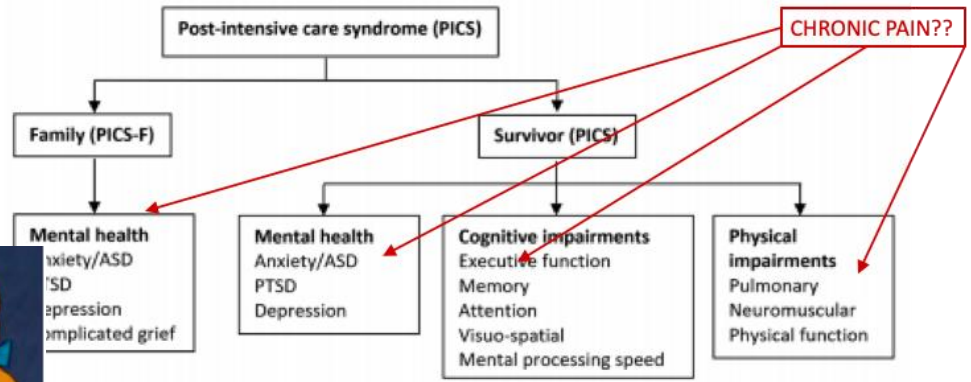


Chronic pain in survivors

Prevalence → Characterisation

Where is the data from

Pre-morbid pain

Tools for measurement

Timelines

Cohorts

Risk Factors

Nociceptive

- Arthralgia
- Myalgia

Neuropathic

- Large fibre
- Small fibre

'Nociplastic'

Even basic data e.g. body site of pain is unknown

PAIN CRITICAL Study

The Academy of Medical Sciences

A longitudinal observational study to

- Characterisation of type, sites, impact
- Identify risk factors associated with de novo chronic pain
- Deep phenotyping of a cohort e.g. QST, skin biopsy, questionnaire-based

Cold Detection Threshold (CDT)

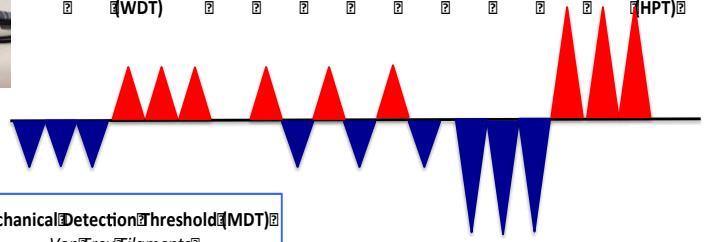
Thermal Sensory Limen (TSL)

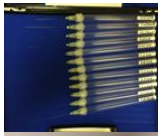
Paradoxical Heat Sensation (PHS)

Cold Pain Detection (CPT)

Warm Detection Threshold (WDT)

Heat Pain Detection (HPT)





Mechanical Detection Threshold (MDT)
Von Frey Filaments

Mechanical Pain Threshold (MPT)
Mechanical Pain Sensitivity (MPS)
Pin Prick

Dynamic Mechanical Allodynia (DMA)
Brush Allodynia

Vibration Detection Threshold (VDT)
128Hz tuning fork on bony prominence

Pressure Pain Threshold (PPT)
Algometer

Chronic pain in survivors

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- Myalgia

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‘Nociplastic’

Management

Context

Inter-disciplinary

Evidence from trials

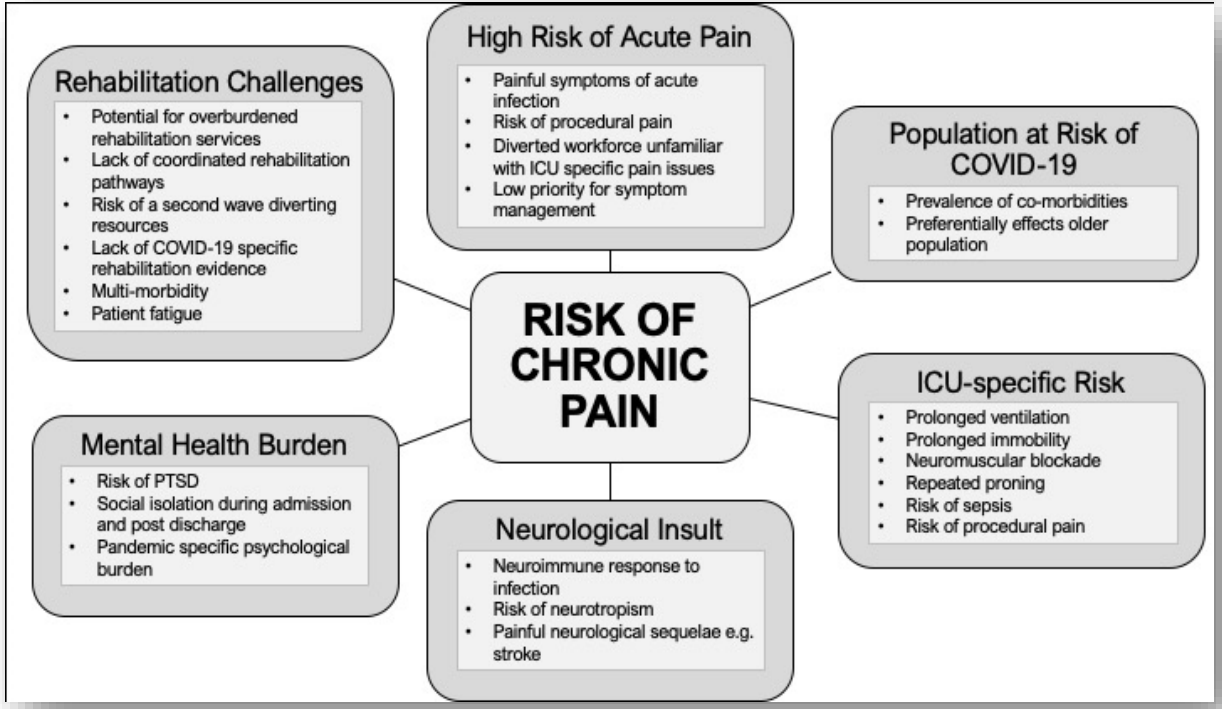
Transitional management

The along came COVID-19

EDITORIALS

Chronic pain after COVID-19: implications for rehabilitation

Harriet I. Kemp[1,*], Eve Corner[2] and Lesley A. Colvin[3]



- Worsening of chronic pain
- Common feature of long COVID
- In general no correlation between disease severity and pain
- Multisite:
  - Headache
  - Chest pain
  - Myalgia/Arthralgia
  - ?SF Neuropathy

PHOSP-COVID

Improving long-term health outcomes

Evans 2021 Lancet Resp

Acute pain associated with COVID-19 in ICU

- Lower implementation ABCDEF bundles - 45% assess pain[1]
- A call for novel ‘ABCDEF-R bundles’
- Further investigation of remifentanil and volatiles
- Potential use of EEG/pupillometry

[1]Liu 2021 Crit Care Explor [2]Chanques 2020 Int Car Med

Research Priorities in ICU and pain

Acute Pain

- Lack of RCTs for acute pain interventions
- Service research into implementation of best practice
- Transition to chronic pain

Chronic Pain

- Characteristics and mechanisms of chronic pain – both musculoskeletal and neuropathic
- Role of pain on other life-limiting functional sequelae of critical illness
- Factors associated with a risk of developing chronic pain in survivors
- Lack of long-term follow up cohorts
- Alteration of trajectory of pre-existing chronic pain conditions

Thank you
Any Questions?

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Prof Lesley Colvin
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Funders:
AAGBI
AMS
NIHR