Article:
Sampson, F.C. orcid.org/0000-0003-2321-0302 and Johnson, M. (2023) Why is pain management so difficult in the Emergency Department? A systematic mixed studies review and thematic synthesis of staff perceptions of enablers and barriers to pain management within the Emergency Department. Emergency Medicine Journal. ISSN 1472-0205

https://doi.org/10.1136/emermed-2022-212759

Supplementary material: Table 1: characteristics of included studies.

Author & Country	Research question	Setting and patient group	Participants	Methods	Data analysis	Comments	Overview of results (concepts, theories or themes identified)
Qualitative							
Berben 2012 Netherlands	What are the facilitators and barriers to pain management for trauma patients in the chain of emergency care in the Netherlands	2 EMS ambulance services, 3 EDs (1 academic trauma centre, 1 teaching hospital, 1 regional general hospital) Trauma patients	Interviews N=10 2 EMS medical managers, 2 EMS protocol stakeholders, 3 ED medical managers, 3 ED nurse managers. Focus groups N=23. 2 x focus groups with paramedics (n=4) 3x focus groups (n=4,5,6) with ED staff nurses, physician, trauma surgeons.	Interviews and focus groups. Professional and organisational perspective.	Thematic content analysis	Includes prehospital but presents some results for EDs separately.	Identified five concepts: knowledge, attitude, professional communication, organisation aspects and patient input. Barriers (and enablers +ve): 1) Knowledge. Knowledge deficits on pain management, pain assessment based on expert opinion, pain treatment based on experience, not on protocols, fear for adverse events when administering opioids, knowledge on physiology of pain, new developments and effect of under-treatment (+ve). Pain assessment based on validated instruments (+ve). 2) Attitude. Pain is not life-threatening for the patient, pain 'part of the deal' and minor priority, resistance to use of validated pain assessments, doubts of validity of pain experience, pain doesn't influence choice of treatment. 3) Professional communication Inadequate multidisciplinary communication on pain, professional feedback on pain management (+ve) 4) Organisational aspects. Organisational feedback lacking, inadequate EMS analgesia protocol, protocol not used in ED, intertwined triage assessment and pain assessment in ED, no shared perspective on pain management, lack of follow-up in chain of emergency care, ED culture not focussed on patient comfort, surgeon mainly focused on injury treatment, emergency physician in ED is a facilitator (+ve), one guideline on pain management for chain of emergency care (+ve) 5) Patient input: patient refused pharmacological pain treatment, patient input enhances effective pain management (+ve)
Bergman 2012 USA	What is the process emergency nurses use when managing adults pain. Perceived barriers to demonstrating	6 EDs in Northern Florida Adult patients	Interviews N=15. All emergency nurses >1 year experience.	Open-ended interviews	Grounded theory		Identified three broad themes: overwhelmed, perceived non-cohesiveness and frustration. ED environment seen as barrier to process of helping nurses demonstrate caring when managing adult patient's pain. 1) Overwhelmed with volumes of critically ill patients who need prioritising and lack of staff to support them. Patients place higher priority on pain than nursing staff, who are dealing with 'life-threatening or more serious or severe injuries". Perceived lack of control with chaotic, uncontrolled

Author & Country	Research question	Setting and patient group	Participants	Methods	Data analysis	Comments	Overview of results (concepts, theories or themes identified)
	caring when managing adult patients' pain.						working environment. Juggling several patients at once whilst aware of pressures in the department. 2) Non-cohesiveness. Perception that some nurses may be more or less caring, and a lack of teamwork in working relationship with administrators, other nursing staff or emergency physicians. 3) Frustration at patients attending inappropriately or seeking narcotics. Distrust of patients and desensitization towards patients with pain. Frustration with patient inability to use pain scales or meet expectations for pain relief.
Bennetts 2012 Australia	Understand current practice, enablers and barriers to pain management in Australian EDs	6 EDs in Australia All ED patients	Interviews N=5 (regional doctors). Focus groups N=5 2x focus groups with metropolitan doctors (n=8, n=9) 3 x focus groups with nurses (n=8 metropolitan, n=9 regional, n=8 metropolitan paediatric).	Semi-structured interviews	Open coding process		Themes were categorised into 4 sections, summarised below: 1) Current pain management practices: Pain management not a top priority unless to expedite diagnosis. Doctors felt nurse-initiated protocols reduced their involvement in pain management. Recognised patients not getting optimal pain management. Reliance on individual knowledge and skill rather than guidelines. Few reviews of pain management practice. 2) Enablers to implementing best-practice pain management: strong evidence for change needed to achieve 'buy-in' from staff and enable change to be driven from within. Pain management champion key enabler to effecting change. Education seen as enabler by some staff groups. Multifaceted approach needed. 3) Barriers to implementing best practice. Lack of time and resources (staffing). Politically driven hospital policies and indicators are given higher priority. National opioid administration legislation leads to delays in timely administration. Requirement for patients to have a bed prior to having opioids. Organizational culture of hospital or ED resistant to change. Rapid staff turnover limits opportunity for guideline implementation. High level of emergency doctor's confidence in ability and passing on entrenched practices. Patient factors. 4) Participants' experiences of change in emergency department practices. Staff engagement important and change needs to be driven by clinical managers. Need to be driven from within the ED.

Author & Country	Research question	Setting and patient group	Participants	Methods	Data analysis	Comments	Overview of results (concepts, theories or themes identified)
Chafe et al 2016 Canada	Explore current barriers to improving the assessment and treatment of pain within paediatric ED	1 paediatric ED	Interviews N=17 (8 ED nurses, 9 ED physicians) Focus group with 14 triage nurses.	Semi-structured interviews and focus group	Thematic analysis	Also interviewed parents and patients. Post-intervention	Identified list of factors impacting pain management: 1) Lack of awareness from staff that performance is still a problem – felt initiatives had been implemented and didn't recognise that department still underperforming. 2) Staffing/patient flow issues – staffing levels and busyness impact on ability to manage pain well. 3) Being too focussed on medication – too little attention given to non-pharmacological methods to reduce pain. 4) Type of medical condition impacting pain treatment – nurses have less confidence treating certain conditions and fear that medication may hamper diagnosis. 5) accuracy of pain assessment – staff questioned the value of relying solely on patient-reported scores. 6) current medical directive which does not address severe pain – need for nurses to have protocols to access to wider range of analgesia.
Fry 2015 Australia	Understand the role of confidence and self-efficacy in nursing care to older people in pain after long bone fracture	4 EDs in Sydney, Australia. Older patients with long bone fracture and cognitive impairment	Focus groups N=16. 80 ED nurses.	Focus groups	Thematic analysis		Confidence and self-efficacy through experience. Experience gives nurses confidence to give pain relief and give nurse initiated analgesia. Lack of experience, feedback mechanisms and knowledge makes pain management harder. Confidence and self-efficacy as a balancing act: complexity of delivering opiates to older people due to safety issues. Nurses have limited ability to initiate opioid analgesics in this population. Confidence and self-efficacy gained through practice, get to understand when patient is in pain. Lack of feedback from patients seen as limiting confidence and self-efficacy, as nurses are advocate for patient in getting pain relief. Confidence and self-efficacy will influence care practices and drive nursing action.
Gauntlett-Gilbert 2015 UK	Explore ED clinicians' attitudes to patients with chronic pain in depth.	1 ED Chronic pain patients	Focus groups N=3. 20 participants (10 nurses, 8 physicians, 1 physiotherapist, 1 ward manager)	Focus groups	Inductive thematic analysis	Not primary research question	Three main themes: 1) System failures – patients go to ED as nowhere else to go, ED staff don't feel ED is right place for them 2)Mismatch of individual vs institutional needs – ED is an acute environment, not set up for dealing with chronic conditions, patients see ED as panacea where they will get tests and access to specialists, ED staff want to fix people, staff struggled to understand the patient story without their history. 3) Clinical challenges – ED staff don't have time to hear full history, difficult to discern whether any new acute pain, don't

Author & Country	Research question	Setting and patient group	Participants	Methods	Data analysis	Comments	Overview of results (concepts, theories or themes identified)
							have time to deal with them and give them the empathy they deserve.
Gorowara-Bhat 2016 USA	Understand ED nurses perceptions of assessing older-patients' pain	1 adult ED. Older patients	Interviews. N=20 ED nurses. No details of participant observation.	In-depth interviews and participant observation.	No specific methodology mentioned. Immersion, coding, categorizing, extracting themes, interpreting.		"Challenge" statement of nurse reports of barriers faced in assessing pain: 1) reported pain of patients –subjective in nature 2) pain reporting in elderly – multifaceted and complex 3) reported pain and observed patient behaviour – mismatch 4)Pain rating scale – oversimplified assessment/treatment of pain 5) protocol guidelines/reassessment – difficult to implement. 6) Over-medication in the ED is rampant "Strategies"
Shaban 2011 Australia	What are the barriers and enablers to implementing interventions recommended for best practice pain management in ED	9 EDs included in the National Emergency Care Pain Management Initiative in Australia Adults and paediatrics	Interviews. N=14 (11 nurses, 1 doctor, 1 pharmacist and 1 quality manager).	Semi-structured interviews and document analysis	Content analysis.	Not primary research question	Three main themes emerged: 1) Staff perceptions about existing practices and the need for change. Need for staff to recognise deficiencies in existing practice using audit as staff generally believe they are doing well. Feedback seen as important motivator in order for staff to see improvements. 2) Staff attitudes towards practice improvement. nurses not willing to accept pain score in absence of visible signs. Staff burnt out and desensitised to pain due to pressures of workload. 3) Organisational characteristics acting as enablers and barriers. Implementation of change easier with buy-in from all staff groups and organisational commitment. Time seen as most significant barrier, with high staff turnover rate and staff working long hours affecting pain management. Regular auditing and education seen as key to sustainability of pain management interventions.
Wilsey B 2008b USA	Impediments to care of patients with chronic pain in the ED.	4 hospitals in Sacramento, CA. Chronic pain patients	Interviews N=24 Emergency physicians	Structured/semi-structured interviews	Constant comparison method of analysis.	Interview schedule very structured, based on literature outside the ED.	System barriers (time limitations, limited priority for treating chronic pain in the ED, frequent flyers perceived as opioid seekers and therefore ignored, patients attending ED due to insurance issues, patients attending ED due to not having primary care physician). Physician barriers (annoyance at having to care for patients with chronic pain, belief that patients with chronic pain are drug seekers, belief that chronic pain patients attending the ED are addicted to pain medication, belief in pathology, concern about diversion of opioids to black market, reluctance to prescribe opioids where pain is not explained).

Author & Country	Research question	Setting and patient group	Participants	Methods	Data analysis	Comments	Overview of results (concepts, theories or themes identified)
Shoqirat N 2019 Jordan.	Understand the nurses perspective of barriers to pain management in the ED.	ED in teaching hospital in Jordan. All patients	Interviews n=12 ED nurses with minimum 3 months ED experience	Semi-structured interviews.	Thematic analysis		Identified two 'categories'. Focuses on patient as a barrier. Category 1: Patient types, subcategories patients who are violent, patients with relatives who are violent, patients whose expectations may not be realistic. Patients who are violent, or have violent relatives affect pain management by affecting the ED environment negatively and creating distractions. Some patients had unrealistic expectations of how long it could take for pain to be controlled. Category 2: The taxing emergency environment. Staff shortage and inappropriate skillmix to deal with pain management. Physician dominance of pain management. Perception that physicians should manage pain undermined nursing role in pain management.
Donnelly 2019 Australia	Understand the perceptions of emergency nurses in the management of acute abdominal pain	ED in a large tertiary public hospital in Australia. Patients with abdominal pain	Interviews n=9 ED nurses with minimum 2 years ED experience.	Semi-structured interviews	Thematic analysis (Braun & Clarke)		Identified four main themes: centrality of diagnosis; busyness and patient management; systems issues; communication challenges. Developing and confirming a diagnosis is key to the management of patients with abdominal pain. Patient care plans depended upon the diagnosis. Patient volumes and flow affect pain management and capacity to manage pain relief and other care needs were affected by how busy the unit was. High quality communication and interprofessional practice are key enablers to good pain management. The nature of the ED is counter to good 'fundamental care' and pain management (physical environment, policies, procedures and staff mix)
Davidson et al 2021. Australia	Barriers and enablers ED clinicians face when providing care to patients with lower back pain. (Also other questions)	ED clinicians in one ED in Australia. Patients with lower back pain.	Interviews with 2 senior staff, 4 focus groups with total of 19 ED staff.	Semi-structured interviews and focus groups	Thematic analysis		Separated barriers into patient, clinician and service level as follows: Patient level – chronicity of condition, patient co-morbidities, patient expectations of care (strong pain relief), emotions, limited function. Clinician level – expectations of care and outcomes, fear of exacerbating patient's condition, inappropriate referrals to different professions and poor communication between services. Service level – access to resources, bed availability, service priorities (higher-need patient presentations), ED set-up (spaces don't enable mobility or function assessment), lack of follow-up options, staffing , treatment limitations.

Author & Country	Research question	Setting and patient group	Participants	Methods	Data analysis	Comments	Overview of results (concepts, theories or themes identified)
Quantitative data							Interpretation relating to themes
Tanabe & Buschmann 2000 USA	What are the barriers to pain management identified by emergency nurses?	Illinois Emergency Nurses Association members.	305/1000 Emergency Nurses	Questionnaire	Rated 13 potential barriers from 0-100% reflecting how frequently respondent feels it presents a barrier in their practice.		See table below: comparison of staff surveys
Duignan & Dunn 2009 Republic of Ireland.	Determine what factors present barriers to pain management in EDs	5 EDs in 4 counties of ROI.	81 /105 Emergency Nurses	Questionnaire (based on Tanabe & Buschmann) and free text comments	As Tanabe & Buschmann.		See table below: comparison of staff surveys
Pretorius 2015 New Zealand	What are the barriers or enablers to the ED nurses' ability to provide optimal pain management for their patients?	Emergency nurses. College of Emergency Nurses New Zealand members	States 172/197 as assumes survey had been sent to other nurses.	Questionnaire (based on Tanabe and Buschmann) and free text comments			See table below for summary of barriers. Enablers reported as follows (% agreeing with statements): Nurse-initiated analgesia protocols improve PM (97%) PM courses improve nursing management principles (95%) PM champion improve pain assessment, PM and nursing knowledge of pain (86%) Treating pain as 5th vital sign contributes to optimal PM care (86%) Posters of pain assessment tools improve accuracy of PS assessment and documentation of PS (76%) Regular audits on PM motivate nurses to achieve goal of optimum PM (51%)
Tsai et al 2007 Taiwan	Explore perceived barriers to pain management among emergency nurses in Taiwan.	Emergency nurses in 9 EDS from 4 regions of Taiwan.	249/328 emergency nurses	Questionnaire (modified version of Tanabe & Buschmann)	14 item		See table below: comparison of staff surveys
Wilsey 2008. USA	Assess the influence of several	4 hospitals in Sacramento, CA.	34 physicians, 44 nurses (1 did not respond.)	Questionnaire	Mean agreement score with 15 questions on	Questions taken from work on	Responses aimed to look at agreement between physicians, nurses and patients and are only reported graphically.

Author & Country	Research question	Setting and patient group	Participants	Methods	Data analysis	Comments	Overview of results (concepts, theories or themes identified)
	recognized barriers from other venues to treating chronic pain as perceived by ED patients and providers				beliefs and experiences about the treatment of chronic pain in emergency departments.	barriers to chronic pain from other settings, and other issues considered unique to the ED	Questions related to chronic pain only. All agreed that treatment of chronic pain in the ED is not a priority.
Ali et al. 2013 Canada	Explore factors that facilitate or hinder pain management in paediatric ED	Physicians who were members of the Paediatric Emergency Research Canada's database.	102/206 paediatric emergency physicians	Questionnaire	% reporting perceived barriers and ideal changes to optimize pain management	Unclear how questions were developed.	Main conclusions: (N=102) Main barrier lack of time/disruption of flow (55%), education issues, ED "culture" (37%), Staffing/human resources issues (31%) Difficulty identifying and quantifying pain (22%) Lack of access to medications (16%). Main enablers (N=79): Increased access to drugs (32%), improved policies and procedures (30%), Increased education for physicians and RNs (25%), Improved triage policies/procedures (14%), improved pain measurement (13%)
Rampanjato et al. 2007 Central Africa	Study various factors influencing the administration of analgesics	ED in large city hospital	28/28 ED nurses.	Survey	Yes/no response to 5 questions regarding management of pain	Unclear how questions were developed	5 Questions: n reporting yes/ N 1 Did you receive training in PM during your nursing studies at the nursing institute? 21/28 2) Are you capable of assessing pain? 5/28 3) Did you learn how to manage acute pain during your training? 26/28 4) Did you feel that cultural factors influenced your attitude towards pain management? 13/28 5) Are you for any reason afraid to administer morphine or other opioid compounds to patients? 19/28
Louriz et al. 2016 Morocco	Explore barriers regarding pain management in EDs	ED physicians from 11 hospitals	86/110 ED physicians	Questionnaire	Perceived barriers to pain management. Unclear what results indicate. 13 questions.	Unclear how questions were developed. Unclear what the meaning of many statements were	The most commonly cited barriers related to medical staff: inadequate pain assessment (93%), inadequate experience/ knowledge on pain control (91-93%), time constraints (81%) and reluctance to use opioids (80%) Barriers related to the health care system (strict regulation of opioids (83%), limited stock of different types of analgesics (79%) and inadequate staffing (78%)) were next, with patient related barriers lowest (reluctance to report pain (35%), reluctance to take analgesic (28%)). Interestingly, insufficient communication with patient was reported as a physician-related barrier in 48% of cases

Author & Country	Research question	Setting and patient group	Participants	Methods	Data analysis	Comments	Overview of results (concepts, theories or themes identified)
							and insufficient communication with medical staff reported as a patient-related barrier in 63%.
Thomas et al. 2015 Canada	Describe perceived barriers and attitudes toward implementation of pain treatment protocols at triage	Triage nurses at 3 paediatric EDs	126/147 triage nurses	Questionnaire			Perceived barriers and facilitators to triage initiated pain protocol implementation (n=125 respondents, % reporting as barrier (B) or facilitator (F): monitoring capability – 78% B, 10% F time – 74% B, 18% F access to medications - 66% B 39% F physicians 38% B space - 36% B administrators - 22% B Other nurses - 19% B 50% F Own comfort level 11% B 47% F Own knowledge 2% B 46% F
Admassie et al. 2022. Ethiopia	Assess emergency nurse's perceived barriers to pain management	Volunteer nurses from 8 EDs	153/188 volunteer nurses	Questionnaire	20 perceived barriers to pain management. 5 point scale of frequency (never – routinely)	Unclear how questions were developed.	Most frequently reported barriers reported were 1) ED overcrowding (3.24 on 5 point frequency scale), 2) nursing workload in ED (3.16), lack of pain assessment protocols (2.5) and lack of protocols/guidelines for pain assessment (2.14).
Hamalainen et al 2022. Finland	What challenges in acute pain management are perceived by emergency nurses (also other questions)	Registered nurses working in ED at 5 University hospitals.	101/320 nurses	Questionnaire	36 pain management questions with 5-point Likert scale of strongly agree to strongly disagree	Stated questions 'based on previous research and literature'.	Difficult to identify which of the 36 questions relate to challenges. Questions discussed as challenges by the author include: Factors that complicate or affect pain management (% responding strongly agree or agree, n=101)) Workload (80%) Patient reluctance to take analgesics (81%) Conflict with patients (56%) Missing IV line (88%) Lack of allergy information (68%) Doctor delay (88%) Doctor reluctance to prescribe analgesics (66%). Doctor inexperience (73%) Nurse lack of knowledge (55%)
Lea Mortnesen	Potential barriers and facilitators	Health care professionals	134/170 nurses and doctors		Unclear. Methods state that nine survey questions	Survey questions developed	Most important reasons for suboptimal treatment of pain or anxiety. (n=134) Unclear how results correspond to Likert scale.

Author & Country	Research question	Setting and patient group	Participants	Methods	Data analysis	Comments	Overview of results (concepts, theories or themes identified)
2021. Denmark	among healthcare professionals for treating paediatric pain & anxiety.	(HCPs) in two EDs	working in the ED		were used but this was not reflected in the results tables. Used 5 point or 7 point Likert scale.	following preliminary qualitative interviews with 9 ED staff.	HCPs are reluctant because of fear of overdose (58.9% HCPs lack knowledge to the different treatment possibilities (56.7%) Children or parents cannot co-operate (55.2%) HCPs lack clinical acquaintance to recognize pain/anxiety among children (48.5%) Administration of medication is too time consuming (14.9%) Other patients have greater need for treatment (13.4%) Top 3 enablers: more education (69.4%), more time to every patient (55.2%), standardized treatment regime (50%)

Supplementary material. Table 2: comparison of staff surveys where questions were comparable

	Author, year, country	Duignan 2009 ROI		Tanabe 2000 USA		Tsai 2007 Taiwan		Pretorius 2015 NZ		Louriz 2016 Morocco		Mapped theme
		Mean score [1]	Rank /13	Mean score [1]	Rank/13	Mean score [2]	Rank/14	% saying yes [3]				
1	Responsibility of caring for other acutely ill patients in addition to a patient with pain	51.5	3	47	3	4.3	1	83%	1			Culture/context
2	Lack of time to adequately assess and control pain	52.59	2	44	4=	3.4	4	81%	2	81%	1	Culture/context
3	Patients' reluctance to report pain	39.93	7	33	6=	2.5	10=	77%	3			Attitude/belief
4	Patients' reluctance to take opioids	22.96	11	NR	NR	2.5	10=	62%	7			Attitude/belief
5	Inadequate assessment of pain and pain relief	45.49	6	48	2	3.5	3	65%	6			
6	Inadequate staff knowledge of pain management principles	39.62	8	44	4=	2.8	6	67%	5	93%	1=	Knowledge/ organisational
7	Nursing staff reluctance to give opioids	26.23	10	NR	NR	2.4	13=	26%	13			Knowledge/ organisational
8	The inability to medicate until a diagnosis is made	56.85	1	53	1	2.7	7=	35%	9			Knowledge/ organisational
9	The inability to determine an adequate history/allergies	31.23	9			2.5	10=	24%	14			Culture/context

10	Lack of IV access	16.62	13	NR	NR	2.1	14	34%	10			Other
11	Inability to monitor for side effects when patients leave the department for diagnostic procedures	45.92	4	NR	NR	3.0	5	33%	11			Other (safety)
12	Time to find narcotic keys	21.48	12	7	13	2.6	9	27%	12			Organisational
13	Need for frequent monitoring post-IV opioids*	-	-	-	-	-	-	37%	8			Other
14	The use of alcohol or other recreational drugs	45.5	5	33	6=	3.6	2	68%	4			Other
15	Doctors reluctance to order opioids*	-	-	-	-	2.7	7=	-	-			Knowledge/ organisational

Values reported in the columns are not like-for-like. Definitions of values reported are highlighted in individual columns.
NR – not recorded
*Additional questions added to modified questionnaire
[1] How frequently you feel it presents a barrier, using the Likert scale (0= never interferes, 100-always interferes with pain management)
[2] How frequently you feel it presents a barrier, using the Likert scale (0= never happens, 5-always happens)
[3] Do the following statements describe barriers for you in providing optimal pain management?