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Assessment and management of recurrent abdominal pain in the emergency department

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ABSTRACT

Recurrent abdominal pain accounts for a significant proportion of attenders and high impact users in the emergency department. Due to the heterogeneity of presentation and broad spectrum of possible causes, abdominal pain presents as a significant clinical challenge within the ED, particularly as distress and pain is commonly elevated. Patients in this group are routinely prescribed opiate based interventions and repeated investigations in a 'better safe than sorry' culture which saturates medically unexplained symptoms. This approach is contributing to the growing problem and fuelling a cycle of repeated attendance and failure to resolve. This article reviews the current clinical and psychophysiological understanding of recurrent abdominal pain, critiquing current guidelines and approaches to diagnosis and management. We offer an alternative evidence-based biopsychosocial approach using the mnemonic 'ERROR', recommending five steps to assessment and clinical management of recurrent abdominal pain in the emergency department.

Introduction

Attendances in Emergency Departments (ED) are increasing year on year, a statistic which is replicated internationally in other developed countries. The UK saw 23.5 million attendances in ED in 2016, an increase of 5.2% compared to 2015, or around 2210 people attending an ED department each day.[1] A recent review of 13 million ED attendances found that over 31,000 people attended ED more than 10 times in a year (high impact user status [2]), placing a significant economic burden healthcare systems [2, 3]. In the USA, the CDC reported 146.5 million ED attendances [4]. A separate article describing high impact users reported 568,000 patients attended ED four or more times over a year [5]. Patients with abdominal pain commonly make up one of the largest high impact user groups attending the ED, along with chronic obstructive pulmonary disease (COPD), nonspecific chest pain (NCCP), back pain, and headache[5]. In the UK and USA, around 8-9% of patients attending the ED who presented with abdominal pain [2, 4], 5% were those who repeatedly returned with recurrent, unresolved pain [2]. An over-represented yet poorly understood group, repeat attendances within the ED are purported to be reflection of unmet clinical need,[6]. Abdominal pain is a hallmark symptom of a plethora of long-term conditions (e.g. Crohn's disease, Colitis, Endometriosis, Irritable Bowel Syndrome), many of which feature acute phases that trigger ED attendance. This is despite the availability and expertise of community self-management to help patients during these phases. Severity of pain and purported health anxiety observed in the medical populations are likely factors in precipitating ED visits pain triggers a 'threat' response which then leads to action, which for a significant minority, is an ED visit.[6]

Whilst research and clinical services have evolved to effectively meet the needs of COPD and NCCP populations through development of service pathways and specialist rapid access clinics in some countries, recurrent abdominal pain remains a clinically neglected area in the ED. This may be attributed to the heterogeneity of abdominal pain and the multiple systems that could be implicated, a misunderstanding of the nature of pain, or the inherent difficulties of working with repeat attenders that trigger frustration and demoralisation in clinicians.[6] Sources of recurrent abdominal pain are difficult to diagnose without surgical intervention, partly due to the high-risk nature of indicated complaints such as bowel obstruction and appendicitis. Clinicians report the need to be 'better safe than sorry'. [6], feeling motivated to intervene despite previous attendances, interventions and consultations generating no effective resolution. US based research report patients are often prescribed opioids when presenting with high intensity abdominal pain in the ED which presents the problem of over-reliance due to the highly effective nature of the drug.[7] Pain, particularly abdominal pain, does not correlate well with the degree, variability and presence of likely causative illness or injury.[8] This presents difficulty in the effective assessment and management of pain in the ED settings in addition to over use of costly interventions and lack of alternative solutions for this group.

There is a vast gap in our knowledge of the characteristics and needs of the recurrent abdominal pain population, with little work done to characterise psychosocial complexity and how this might relate to treatment. This article reviews the current clinical and psychophysiological understanding of recurrent abdominal pain, critiquing current guidelines and approaches to diagnosis and management. We offer an alternative evidence-based biopsychosocial approach using the mnemonic 'ERROR', recommending five steps to assessment and clinical management of recurrent abdominal pain in the emergency department.

Clinical case examples

Case 1: Chronic pain (acute flare)

Patient A is a 48-year-old high impact user male with chronic pancreatitis following many years of frequent alcohol use. Patient A reports recurrent abdominal pain with frequent 'flares' of acute pain. Patient A was referred to the pain clinic from the ED, and was prescribed Oramorph for use PRN. Patient A continued to attend the ED when the pain became distressing, underpinned by belief that he would die if he did not seek urgent intervention in time. Patient A's help-seeking behaviour was influenced by psychosocial factors such as a familial history of early mortality, a recent loss of a friend to pancreatic failure and chronic loneliness. Despite high levels of contact with medical specialists, Patient A's pain and ongoing use of Oramorph was not monitored.

Case 2: Recurrent abdominal pain

Patient B is a 34-year-old single female with recurrent abdominal pain. Her psychosocial background is complex: history of trauma, highly stressful home environment, low social support and chaotic coping style. Patient B attended the ED when she perceived her pain to be at 'crisis' level, despite no evidence of medical pathology. Patient B was diagnosed with 'medically unexplained symptoms' and discouraged from further attendance to the ED for this presentation. Patient B repeatedly expressed concerns something was being missed because 'something must be very wrong to be in this amount of pain'. When Patient B's distress escalated, she was branded an 'attention seeker'. Further investigations were performed, which did not reveal an underlying pathology, furthering her distress and perpetuating the cycle of ED attendance at crisis point only to find no resolution or no treatment plan.

Challenge of diagnosis

One of the clinical challenges with acute abdominal pain is the possibility of medical emergency and the necessity of appropriately in-depth clinical assessments for purposes of exclusion. Abdominal pain presenting in the ED is commonly separated into two domains; urgent (i.e. acute appendicitis, acute diverticulitis, bowel obstruction) versus non-urgent (non-specific abdominal pain, gastrointestinal disease, irritable bowel syndrome, no identified underlying pathology).[9] The literature has repeatedly shown that clinical evaluation alone is not sufficient to make a specific diagnosis, indeed, history, clinical exam plus laboratory tests cannot reliably diagnose, but can differentiate urgent from non-urgent[9]. In the absence of an acute abdomen, a measured clinical decision would suggest a transition towards informed case management, further observation, or referral rather than repeated investigation and an ongoing pursuit of the elusive definitive answer; it is neither necessary nor clinically appropriate. Further investigation risks iatrogenic injury.

The challenge of diagnosis is hampered by the variability and heterogeneity of symptoms potentially occurring within or across several physiological domains. Acute abdominal pain could be potentially attributable to gastrointestinal, gynaecological, urological origins or indeed none of the aforementioned in the case of non-specific abdominal pain, which accounts for up to 25% of those presenting with abdominal pain. A recent cohort study based in India examined the clinical profile of the abdominal pain patient within the ED, echoing the commonality and complexity commonly reported in the UK and US;[10] the quagmire that diagnosis of abdominal pain represents poses challenges to both patient and service provider in potential missed diagnosis, over or undue investigation, and iatrogenic risk [10] due to the ‘better safe than sorry’ culture[6]. This is particularly problematic for those with persistent symptoms whose belief in an on-going organic pathology are reinforced by further investigation and focus on ruling out organic causes.[11] This vicious cycle escalates economic costs, personal distress and increases the likelihood of return, as we see in both clinical case examples. Clinicians are not unaffected; each repeat attender represents a failed attempt at solution, which can quickly exhaust compassion and greatly impact the doctor-patient relationship, a key predictor of outcome internationally. [12,13]

Abdominal pain and associated symptoms may develop and persist over time, and a significant proportion of patients can be safely treated without further investigation.[9] However, due to the complex psychophysiology of abdominal pain, once symptoms become persistent, the likelihood of spontaneous resolution is low; if patients receive pain relief from attending the ED, this negative reinforcement is sufficient for many to continue to attend the ED as an appropriate avenue of support. As one patient reported, the ED is a “*place of safety*”.[14] Due to these inherent clinical challenges and the need to step outside the cyclical self-reinforcing pattern of repeat attendance, it is imperative that a pragmatic clinical assessment process is utilised with compassion, with caution in dismissing repeat attenders with ‘medically unexplained symptoms’. The focus of assessment should be to establish

urgency and identify underlying pathology, basing further clinical decisions and interventions solely on the outcome of these two objectives. However, lack of pathogenesis in the presence of high distress is often too compelling to resist a response of either repeated intervention or dismissal with a ‘diagnosis’ of medically unexplained symptoms; neither of which resolves recurrent abdominal pain.

‘Medically unexplained symptoms’

Medically unexplained symptoms, also known as ‘persistent physical symptoms’ [15] is a broad term used to describe individual symptoms or clusters of symptoms which persist in the absence of medical pathology to fully explain presenting physical symptoms. Around 45% of high impact users who present to the ED have no detectable medical pathology,[3] a high proportion of which include abdominal pain. Medically unexplained symptoms are characterised as multi-faceted, effecting functioning in cognitive, emotional, behavioural, affective and social dimensions. This term is perceived as pejorative and has been subject to significant controversy:[15] due to the uncertain nature of the term ‘medically unexplained symptoms’, many perceive this to undermine and invalidate the patient’s subjective illness experience, which can be distressing and impactful. Diagnosis through absence of a sufficient medical explanation erroneously dismisses the unequivocal influence of psychosocial factors inherent to any ‘biological’ experience and is scientifically questionable; those who present repeatedly with persistent physical symptoms are labelled as ‘attention seekers’ with medically unexplained symptoms, rather than recipients of ineffective or inadequate care [6] which is more accurately reflective of the experience of recurrent abdominal pain patients.

One of the major criticisms of the ‘medically unexplained symptoms’ term is the implied oversimplistic and reductionist concept of ‘disease’ (pathologically verifiable) in the face of the multidimensionality of ‘illness’ (subjectively experienced). This approach supports a dualistic view which endorses a ‘singular biomedical aetiology for all conditions’.[8] To suggest that any symptomatic experience is purely biomedical is scientifically refutable and lacking in credibility. Modern medicine has moved towards the biopsychosocial model of health, acknowledging the complex reciprocal interactions between multiple systems at physiological, psychosocial and environmental levels.[16]

A biopsychosocial model of recurrent abdominal pain

The complex psychophysiology of abdominal pain is often overlooked in the urgent care setting, despite establishment of the biopsychosocial model of abdominal pain in the 1990s. [8] Recurrent abdominal pain is acutely responsive to psychosocial and environmental factors owing to the unique modifying influence of the enteric nervous system and hypothalamic pituitary adrenal (HPA) axis.[17] The HPA plays a significant role in the activation of the autonomic system, including the neuron rich enteric nervous system when real or imagined ‘threat’ is perceived. Triggers of the threat response

may range from new or unfamiliar physical sensations, unmanageable levels of pain or historical interpersonal trauma which has resulted in heightened sensitivity in the threat detection system. In addition to the usual physiological changes associated with the release of sympathetic/parasympathetic nervous system hormones such as corticotropin releasing factor and epinephrine, the bidirectional 'brain-gut' link also triggers contractions in muscular structures of the abdomen.[17] Over time, interoceptive information is contextualised in terms of any prior history of pain/trauma, encoding of the experience through cognitive interpretation and emotional salience of the physical sensations, which heightens both pain and sensitivity to HPA activation. The complex reciprocal nature of these factors form the foundation of the biopsychosocial model of recurrent abdominal pain. It is well evidenced that cognitive, behavioural and emotional factors are imperative to the understanding of the pain experience;[18] hypervigilance to changes in physical sensation and focussed attention to pain and catastrophic fears have consistently been found to heighten the pain experience which triggers the pivotal stress response. Repeated activation of these complex HPA brain-gut pathways is hypothesised to facilitate the transition from acute to persistent abdominal pain, with or without an underlying pathology.[19] This may be conceptualised as a recurrent signalling error in the autonomic nervous system, sequale resulting from significant prior disruption to the network.

In this model, biological and psychological factors are seen to contribute to the clinical expression of abdominal pain, which is further moderated by psychosocial and environmental factors. The reciprocal nature of the relationship between these factors establishes a feedback loop, accounting for the variability in experience of illness. The biopsychosocial model is highly pertinent to recurrent abdominal pain where the noted absence of a peripheral medical explanation for pain is insufficient to eradicate pain and inflames rather than ameliorates patient anxiety regarding the origin of the pain, serving to neither treat nor reassure yet perpetuates help-seeking.

Current guidelines and evidence for the management of abdominal pain

Professional bodies have recognised that patients with recurrent acute abdominal pain attending the ED represent a clinically neglected group and guidelines for managing high intensity pain in the ED are needed. The Royal College of Emergency Medicine[20] recommend five possible interventions to meet needs more effectively and to reduce high impact user attendances in the ED which include the development of ED care plans, case management of patient needs, multi-disciplinary team conferences, and primary care involvement. Other organisations including International Association for the Study of Pain (IASP), National Institute for health and Clinical Excellence (NICE) and the American Academy of Emergency Medicine, echo recommendations by the RCEM, however, despite UK and US studies reflecting around 80% of ED attendances featuring pain as the key presenting symptom,[6, 21] pain is not a central consideration in RCEM guidelines or elsewhere.

The majority of evidence-based interventions targeting high impact user attendance in the ED utilise multidisciplinary team care plans, with moderate effects. Despite disparities in health care delivery globally, internationally based studies report care plans alone are unlikely to be successful; they can be difficult to develop, monitor and review in order to optimise the intervention, [22, 23] instead advocating for involvement of primary care and specialist clinics more closely aligned with the presenting problem.[23-25]

Pharmacological interventions such as antidepressants are also used to manage symptoms of abdominal pain and pain intensity on a globally, however evidence from USA, UK and Europe reflect that the evidence is not compelling. [26-30] Opioids have been shown to reduce the need for supplementary analgesics, with no increased clinical or life-threatening adverse events [27] however the longevity of opioid use to manage pain intensity is questionable given the addictive qualities and the opioid epidemic which has been well publicised; the U.S Centre of Disease and Prevention estimated that 47,600 deaths are attributed to overdoses of opioids in 2017 [31], increasing in many states compared to 2016 [32]). Evidence for the efficacy of managing long-term pain through opioids is severely limited and clinicians should refer to guidelines when prescribing [25].

Recent reviews of recommended non-pharmacological interventions for abdominal pain have reported mixed findings for a range of psychological therapies including cognitive behavioural therapy (CBT), behavioural therapy, hypnotherapy, psychodynamic therapy, and person-centred therapy [26, 27, 33, 34], however trials are limited by the absence of the psychophysiological components which are an essential underpinning to understanding this complex presentation.

Emerging service models

Recent advancements in high impact user service models are underpinned by Royal College of Emergency Medicine recommendations and good practice principles. Bristol Royal Infirmary,[34] have utilised award winning multi-pronged interventions such as multidisciplinary team monthly meetings, rapid access clinics, structured signposting and additional staffing from specialty wards, reporting 80% reduction in attendances. Other innovations in ED-based service re-design include the Aintree model,[2] which introduced the pivotal role of medical psychology into consultation, liaison, onward care, case management planning and signposting; while further providing a bespoke onward referral pathway to specialist psychological therapy, collectively purported to save £7 for every £1 spent (through cost avoidance). The Aintree ED Medical Psychology Service (part of a wider Clinical Health Psychology Department) incorporates a biopsychosocial approach to the management of persistent pain complaints, long-term conditions and medically unexplained symptoms. Where the

service aims to build capacity within the ED to better understand, identify and manage psychological/psychosocial issues that can frequently lead to repeated emergency presentations. Located within the ED MDT and working collaboratively with staff across the department (and more widely), effective patient needs-assessment and needs-driven care is supported through multiple mechanisms:

- a. Directly inputting into multidisciplinary care and triaged needs assessment, to inform effective medical care planning, case management and treatment;
- b. Providing training to ED medical staff and supporting the development of clinical guidance to support enhanced MDT assessment and clinical management of complex and persistent physical symptoms
- c. Provision of a weekly, specialist psychological assessment/formulation/treatment clinic, providing cognitive behavioural treatments for complex medical needs
- d. Development of clinical protocols, clinical management guidance and individual care plans (developed with medical colleagues), following case-by case assessment and clinical formulation activities, to inform pro-active clinical care (looking towards the clinical management of repeat ED attendances)
- e. Working closely with ED medical teams and mental health colleagues to arrange or signpost onward necessary treatment relating to needs identified by enhanced MDT assessment
- f. Supporting primary care patient management through the sharing of clinical management guidance with GPs
- g. Liaising with wider organisational partners (e.g. wider mental health systems locally and NWAS, seeking to support enhanced case management across the wider system)

The personal, patient centred approach seen in the Aintree model mirrors the Blackpool community outreach approach to frequent callers to 999; with a 93% reduction in attendances. Blackpool and Aintree models represent a shift towards a holistic patient centred biopsychosocial approach to management of complex patients and a de-medicalization of care in the ED. While none of these services have been developed specifically to target abdominal pain repeat attenders, they cater well to the needs of this group.

These new service models have not been tested in high quality trials. Clinical trials to date have focussed primarily on discrete presentations such as NCCP[33, 35] reporting that short, intensive treatments are as effective as longer-term treatment, however there is no conclusive evidence to demonstrate that these psychological therapies alone reduce medical investigations and healthcare costs.[36] Despite the evidence of singular focus interventions, it is evident that high-quality care should consist of a

multidisciplinary team collaborative care within a biopsychosocial approach when treating patients with abdominal pain, which, the evidence suggests, is more likely to be effective in reducing attendances and managing pain and symptoms. Patients with recurrent abdominal pain span three resource-intensive clinical consumer groups in the ED: high impact users, medically unexplained symptoms, and long-term conditions. Many will belong to more than one group and all are likely to present with complex needs. Currently, there are no specific protocols of care for persistent abdominal pain, or NHS endorsed clinical guidelines pertaining to the management of abdominal pain within or out of the ED setting, despite the commonly severe pain presentation and high healthcare utilisation of these populations in a strained NHS ED.

Clinical recommendations

Based on the evidence, guidelines, research and clinical practice reviewed here, the following sequential recommendations are made for ED clinicians. This approach utilises an ‘ERROR’ mnemonic, and has been developed to aid efficient assessment and management of recurrent abdominal pain, appropriate to patient need and directed at reducing unnecessary repeat attendance.

E: Exclude medical emergency

Patients with recurrent abdominal pain are not exempt from a medical emergency. Clinicians should exercise caution when assessing those with historically ‘unexplained/undiagnosed’ symptoms; it should not be assumed that those who have attended previously are immune from developing a bowel obstruction, appendicitis or similar. Urgent cases with identified pathology should be treated as per standard recommended guidelines dependent on diagnosis (e.g. National Institute for Clinical Excellence, Royal College of Emergency Medicine) and clinicians should ensure they are sufficiently skilled in detecting an acute abdomen.[10] Non-urgent cases, once defined as such (i.e. no signs or symptoms of acute abdomen) should be assessed and treated on an individual case-by-case basis; a thorough clinical assessment and consultation with relevant specialities should draw together the relevant factors that will inform whether further invasive tests or admission is necessary. A conservative approach to repeated investigation is recommended, with emphasis on deriving decisions based on medical evidence (or lack thereof) and collaborative care rather than a ‘better safe than sorry’ approach.

R - Review attendance and care plan

Patients who repeat attend with recurrent abdominal pain may already be ‘flagged’ on IT systems with care plans in place. Care plans should be accessed and adhered to as mandatory intervention. Those who have not been identified as high impact user but are attending over the local service threshold (approx. ≥ 5 -10 per annum) should be considered for referral to the high impact user multidisciplinary team. High impact user multidisciplinary teams should include representatives from core clinical groups who have designated roles either associated with high impact user intervention or referral in or

out of the ED to facilitate holistic care. This might include: ED consultant with special interest in high impact users, lead nursing staff, primary care physician, alcohol liaison, mental health liaison, medical psychology/ clinical health psychology, ambulance service operations.

Care plans should follow recommended Royal College of Emergency Medicine guidelines, developed with multi-disciplinary and specialist input, with compassion, and in collaboration with the patient. Such plans should ideally incorporate a biopsychosocial explanation of symptom patterns. Those who do not/have not reached threshold should progress to '*record relevant factors*'.

R – Record relevant factors

An assessment of relevant psychosocial factors (e.g. history of trauma, gender, psychological, social/family and living circumstances, mental health and suicide risk) will provide pertinent information to inform an accurate individualised intervention and onward referral to the most appropriate service. This should take place following exclusion of medical emergency and should be actioned by the assessing clinician once medical investigations have ceased; this role may be shared with non-medical nursing staff, however the responsibility to action lies with the assessing clinician and should not be delayed pending multidisciplinary input. Psychosocial information can be gathered using brief standardised forms, but should encompass more than risk. This forms the basis of a biopsychosocial formulation of symptoms and maintenance factors which will inform multidisciplinary team intervention planning.

O - Offer a credible explanation for pain

A credible explanation of the patient's experience of recurrent abdominal pain forms the foundation to successful management plan for recurrent abdominal pain. Dismissing patient distress or physical symptoms due to absence of a definitive medical diagnosis is insufficient and clinically unwise. A credible explanation of pain will reduce or halt cycles of ongoing distress and behavioural escalation for fear of 'something missed' (see case 2). Based on the Aintree/Blackpool models and practitioner guidelines for the management of persistent physical symptoms,[9,37] the following clinician intervention is recommended:

- Simply state the facts: there is no evidence of a medical emergency.
- Compassionately acknowledge the patient's pain, validate the patient's distress and recognise that pain is distressing, regardless of the origin.
- Offer a credible biopsychosocial explanation of the patient's pain (see box 1 for example script).
- Advise on factors that may inhibit recovery in the immediate future (e.g. diet, tension/anxiety/stress), offering supportive written information. This may include (a) overview of symptoms that need urgent re-evaluation (b) nutritional information (c) advice on

pharmacological self-management (d) information regarding mechanisms of pain (e) contact number for queries.

[insert box 1 here]

R - Refer on

Referral pathways are dependent on local/regional availability of services and therefore advance service mapping is imperative in each ED; especially to pain management. Consider the following referral pathways (services may differ):

- *Acute care:*
 - Referral to the ED multidisciplinary team for high impact users will trigger the development and implementation of a care plan which should act as a basis and gateway to other clinical services. This may be facilitated by mental health liaison, clinical health psychology liaison or other similar liaison role. Care plans regularly include adapted service pathways e.g. use of ambulatory care, GP community management plans and agreed patient self-management/behavioural plans. This should be reviewed in relation to the specific nature of the presenting problem.
 - Direct referral to a hospital assessment unit for further, non-urgent investigation or monitoring where presence of an underlying pathology is uncertain. This may be a medical assessment unit, clinical decision unit or observation unit; this is an essential part of the ERROR pathway to ensure appropriate assessment and care despite high impact user status
- *Primary care:* dependent on service infrastructure and pathways, secondary and tertiary services may require referral via the primary care physician as gatekeeper. Consider the following specialist services for referral:

Secondary care:

- *Rapid access specialty clinics:* where available, gynaecological/gastroenterology rapid access clinics offer 24hr-2 week wait clinic for assessment of new and follow-up patients, however adequate mapping of service pathways is inherent to the successful utilisation of these clinics. Where such provision is scarce or non-existent, the high impact user multidisciplinary team will assume a more pivotal role in securing individualised onward referral to specialty clinics. Patients who have progressed through specialty outpatient services and continue to present with recurrent pain must transition to the pain management service.

- *Pain clinic/pain management:* best practice would dictate that chronic pain patients (≥ 3 months pain duration) should be referred to a pain management service seamlessly, regardless of whether the patient is a high impact user, has medically unexplained symptoms or a long-term condition, if such services exist regionally. Where pain management services do not exist, referral to evidence-based treatments such as cognitive behavioural therapy should be facilitated as part of the individualised care plan.
- *Mental health services:* psychological therapy for anxiety and depression may be available through onwards referral via the general physician, mental health liaison team, or through the high impact user multidisciplinary team. Psychological outward referrals must be couched with the patient and explained appropriately in relation to their physical symptomology patterns and with consent. This should form part of a care plan which has utility beyond acute settings.

Tertiary care:

- *Clinical psychology clinics:* where these clinics are available, referral should be recommended as part of a care management plan or stand-alone referral if the patient is persistently distressed and disabled by their physical symptoms. This may be accessed through the ED multidisciplinary high impact user team, but the pathway will differ based on what services are available. Some clinics may accept direct referrals from the ED dependent on locality. Clinics offer evidence-based interventions targeted at decreasing distress, increasing quality of life and improving self-management of symptoms. Referral to these services should form part of the high impact user care plan if indicated and only with patient consent.

Clinical case outcomes

Case 1: Chronic pain (acute flare)

A multidisciplinary team reassessment of patient A's case triggered the development of a community care plan and supervised gradual withdrawal of Oramorph by the GP. An explanatory framework of pain and pain relief mechanisms were provided. Patient A successfully self-managed within the community and ceased to attend the ED during an acute flare of chronic pancreatitis, reporting significant reductions in pain and distress. Patient A reported the most useful intervention was increased knowledge around the relationship between pain and opioid use, where previously he had no understanding of these reciprocal mechanisms.

Case 2: Recurrent abdominal pain

An experienced consultant in the ED delivered a brief intervention based on the Aintree model: the consultant compassionately acknowledged that clearly something very painful was happening in her body and offered a credible explanation of the pain using a biopsychosocial model which incorporated her coping mechanisms, beliefs and emotional responses. The clinician asked patient B for permission to introduce a psychologist colleague from a specialist pain team who works with persistent pain. Following discussion with the psychologist, Patient B was able to gain an insight into the multifactorial issues contributing to pain and was provided with a compelling rationale to engage with a psychological intervention where previously she had refused.

Conclusions

Individuals with recurrent abdominal pain are likely to represent a complex group who pose clinical and logistical challenges to medical staff; high impact users are known to be labelled as ‘attention seekers’ who continue to attend despite no sign of ‘disease’, yet these groups divide opinion.[6] There are also those clinicians who feel powerless at the lack of effective services available for this group; they are under-resourced and perceiving themselves to be failing the patient. Those with recurrent pain often come with complex medical circumstances, resulting in extensive and expensive diagnostic tests and interventions that may be unnecessary and perpetuate the ‘better safe than sorry’ culture and risk serious iatrogenic injury. Put simply, repeat attendances of recurrent abdominal pain within the ED are a reflection of unmet need.[6] and we see this is on an international scale. This must be addressed. These patients are fearful and distressed, but warrant respect, compassion and understanding. Clinicians are under-resourced, lacking appropriate intervention and also bearing an emotional impact. A plausible explanation of recurrent abdominal pain is significant and demonstrable in the clinical cases and beyond. It is this which serves as a foundation for an individualised shared decision-making care plan to better meet needs, promote self-management in the community and avoid further reinforcing the cyclical high-pressure attendances in the ED.

Evidence suggests a number of approaches have yielded positive outcomes in terms of reducing attendance, however these models are reliant on cohesive interagency working and continuity in service pathways. Given the high risk of non-attendance where patients are referred between services it is critical that ED and pain clinic develop close liaison and run dedicated clinics.

Here we have outlined recommendations for clinical practice to reduce the number of high impact users using the ERROR mnemonic. These recommendations move towards addressing the unique and complex presentation of recurrent abdominal pain in the ED and retain dignity and respect of the patient. Staff attitudes are crucial to engagement. Clinicians should exclude a medical emergency, review

attendance and implement care plans. high impact users that do not have a care plans should have one developed through the high impact user multidisciplinary with specialist coordination and appropriate onward referral; the evidence in favour is overwhelming. Finally, the patient's pain should be openly recognised and distress validated: patients should be provided with a credible biopsychosocial explanation of their recurrent abdominal pain as part of a culture shift towards holistic high-quality care, affirmative diagnosis or otherwise.

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Contribution of authors

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REFERENCES

- [1] Baker C. Accident and Emergency Statistics: Demand, Performance and Pressure: House of Commons Library, 2016.
- [2] Dr Foster. High intensity users reducing the burden on accident and emergency departments. https://www.telstrahealth.com/content/dam/telstrahealth/pdfs/Dr-Foster_High-Intensity-Users-Report.pdf (accessed May 15 2019), 2018.
- [3] Jacob R, Wong ML, Hayhurst C, et al. Designing services for frequent attenders to the emergency department: a characterisation of this population to inform service design. *Clin Med* 2016;16(4):325-329. doi:10.7861/clinmedicine.16-4-325.
- [4] Centers for Disease Control and Prevention. U.S. National Hospital Ambulatory Medical Care Survey (Emergency Department Summary Tables) <https://www.cdc.gov/nchs/fastats/emergency-department.htm> (accessed October 11 2019). 2016
- [5] Jiang, H. J., Weiss, A. J., & Barrett, M. L. (2006). Characteristics of Emergency Department Visits for Super-Utilizers by Payer, 2014: Statistical Brief# 221.
- [6] Daniels J, Osborn M, Davis C. Better safe than sorry? Frequent attendance in a hospital emergency department: an exploratory study. *Br J Pain* 2018;12(1):10-9. doi:10.1177/2049463717720635.
- [7] Rummans TA, Burton MC, Dawson NL. How good intentions contributed to bad outcomes: the opioid crisis. *Mayo Clin Proc* 2018;93(3):344-350. doi:10.1016/j.mayocp.2017.12.020.
- [8] Drossman DA. Gastrointestinal illness and the biopsychosocial model. *Psychosom Med*. 1998;60(3):258-67.
- [9] Gans SL, Pols MA, Stoker J, et al. Guideline for the diagnostic pathway in patients with acute abdominal pain. *Dig Surg* 2015;32(1):23-31. doi:10.1159/000371583
- [10] Chanana L, Jegaraj MA, Kalyaniwala K, et al. Clinical profile of non-traumatic acute abdominal pain presenting to an adult emergency department. *J Family Med Prim Care* 2015;4(3):422. doi:10.4103/2249-4863.161344.
- [11] Salmon P. Conflict, collusion or collaboration in consultations about medically unexplained symptoms: the need for a curriculum of medical explanation. *Patient Educ Couns* 2007;67(3):246-54. doi:10.1016/j.pec.2007.03.008.
- [12] Souza, P. P., Salata Romão, A., Rosa-e-Silva, J. C., Candido dos Reis, F., Nogueira, A. A., & Poli-Neto, O. B. Qualitative research as the basis for a biopsychosocial approach to women with chronic pelvic pain. *Journal of Psychosomatic Obstetrics & Gynecology*, 2011; 32(4): 165-172. DOI: 10.3109/0167482X.2011.607523

- [13] McGowan, L., Luker, K., Creed, F., & Chew-Graham, C. A. (2007). 'How do you explain a pain that can't be seen?': The narratives of women with chronic pelvic pain and their disengagement with the diagnostic cycle. *British journal of health psychology*, 2007; 12(2): 261-274. doi.org/10.1348/135910706X104076
- [14] Daniels J, Sheils E. A complex interplay: cognitive behavioural therapy for severe health anxiety in Addison's disease to reduce emergency department admissions. *Behav Cogn Psychother* 2017;45(4):419-26. doi:10.1017/S1352465817000182.
- [15] Marks EM, Hunter MS. Medically unexplained symptoms: an acceptable term? *Br J Pain* 2015;9(2):109-14. doi:10.1177/2049463714535372.
- [16] Engel GL. The need for a new medical model: a challenge for biomedicine. *Science* 1977;196(4286):129-36. doi:10.1126/science.847460.
- [17] Mayer EA, Tillisch K. The brain-gut axis in abdominal pain syndromes. *Annu Rev Med* 2011;62:381-96. doi:10.1146/annurev-med-012309-103958.
- [18] Eccleston C, Morley SJ, Williams AD. Psychological approaches to chronic pain management: evidence and challenges. *Br J Anaesth* 2013;111(1):59-63. doi:10.1093/bja/aet207.
- [19] Weijenborg PT, Gardien K, Toorenvliet BR, et al. Acute abdominal pain in women at an emergency department: Predictors of chronicity. *Eur J Pain* 2010;14(2):183-8. doi:10.1016/j.ejpain.2009.04.005.
- [20] The Royal College of Emergency Medicine. Best Practice Guidelines: Frequent attenders in the Emergency Department, [https://www.rcem.ac.uk/docs/RCEM%20Guidance/Guideline%20-%20Frequent%20Attenders%20in%20the%20ED%20\(Aug%202017\).pdf](https://www.rcem.ac.uk/docs/RCEM%20Guidance/Guideline%20-%20Frequent%20Attenders%20in%20the%20ED%20(Aug%202017).pdf) (accessed sept 15 2019) 2017.
- [21] Todd KH, Ducharme J, Choiniere M, et al. Pain in the emergency department: results of the pain and emergency medicine initiative (PEMI) multicenter study. *J Pain* 2007;8:460-6. doi:10.1016/j.jpain.2006.12.005.
- [22] Helliwell PE, Hider PN, Argagh MW. Frequent attenders at Christchurch hospital's emergency department. *N Z Med J* 2001;114:160.
- [23] Pillow MT, Doctor S, Brown S, et al. An emergency department-initiated, web-based, multidisciplinary team approach to decreasing emergency department visits by the top frequent visitors using patient care plans. *J Emerg Med* 2013;44(4):853-60. doi:10.1016/j.jemermed.2012.08.020.
- [24] Pines JM, Hilton JA, Weber EJ, et al. International perspective on emergency department crowding. *Acad Emerg Med* 2011;18:1358-13570. doi:10.1111/j.1553-2712.2011.01235.x.

- [25] IASP. Principles of Emergency Department Pain Management for Patients with Acutely Painful Medical Conditions, Vol. 2019: <https://s3.amazonaws.com/rdcms-iasp/files/production/public/Content/ContentFolders/GlobalYearAgainstPain2/AcutePainFactSheets/8-Emergency.pdf> (Accessed May 11 2019) 2011.
- [26] Ford AC, Lacy BE, Harris LA et al. Effect of Antidepressants and Psychological Therapies in Irritable Bowel Syndrome: An Updated Systematic Review and Meta-Analysis. *Am J Gastroenterol* 2019;114(1):21-39. doi:10.1038/s41395-018-0222-5.
- [27] Peiro AM, Martínez J, Martínez E et al. Efficacy and tolerance of metamizole versus morphine for acute pancreatitis pain. *Pancreatology* 2008;8(1):25-9. doi:10.1159/000114852.
- [28] Ona XB, Comas DR, Urrútia G. Opioids for acute pancreatitis pain. *Cochrane Database Syst Rev* 2013(7). doi:10.1111/apt.14108.
- [29] Dowell D, Haegerich TM, Chou R. CDC Guideline for Prescribing Opioids for Chronic Pain — United States, 2016. *MMWR Recomm Rep* 2016;65(No. RR-1):1–49. doi:10.15585/mmwr.rr6501e1.
- [30] Norton C, Czuber-Dochan W, Artom M et al. Systematic review: interventions for abdominal pain management in inflammatory bowel disease. *Aliment. Pharmacol. Ther* 2017;46(2):115-25. doi:10.1111/apt.14108.
- [31] Scholl L, Seth P, Kariisa M, Wilson N, Baldwin G. Drug and Opioid-Involved Overdose Deaths – United States, 2013-2017. *Morb Mortal Wkly Rep*. ePub: 21 December 2018. <https://www.cdc.gov/drugoverdose/data/statedeaths.html>
- [32] Centre for Disease Control and Prevention. *Drug Overdose Deaths* [online] Available at: <https://www.cdc.gov/drugoverdose/data/statedeaths.html> (Accessed 02 Sep. 2019). 2017
- [33] van Dessel N, den Boeft M, van der Wouden JC, et al. Non-pharmacological interventions for somatoform disorders and medically unexplained physical symptoms (MUPS) in adults. *Cochrane Database Syst Rev* 2014(11):CD011142. doi:10.1002/14651858.CD011142.pub2.
- [34] McGuire S, Daniels J. The evidence for hospital based psychological interventions in the emergency department: a systematic review. In submission. 2019
- [35] Care Quality Commission. Under pressure: safely managing increased demand in emergency departments. 2018 https://www.cqc.org.uk/sites/default/files/20180716_underpressure-winterpressures.pdf
- [36] Lessard MJ, Marchand A, Pelland M, et al. Comparing two brief psychological interventions to usual care in panic disorder patients presenting to the emergency department with chest pain. *Behav Cogn Psychother* 2012;40(2):129-147. doi:10.1017/S1352465811000506.

[37] Jones B, de C Williams AC. CBT to reduce healthcare use for medically unexplained symptoms: systematic review and meta-analysis. *Br J Gen Pract* 2019;69(681):e262-e269. doi:10.3399/bjgp19X701273.

Box 1: Physician script

Hello Miss Jones, we have had your blood and CT scan results now and the results are clear – they don't raise any concerns. I can see you have had a gastroscopy 4 weeks ago, and you've had an endoscopy over the last couple of months too. Looking at all these results they really do rule out lots of possibilities – which is good. Considering all of these results together, there is no indication for surgery or any new medical treatment; they couldn't find anything to worry about – which is great news.

Now, I'm not suggesting you're not unwell, as you obviously are – no one seeks to come to A&E if they're not. What these results do tell us is that stress is very likely to be playing a big part in these ongoing symptoms for you. We see that a lot.

There are very close relationships between stress and physical sensations and feelings in the gut. Stress can commonly cause really very severe levels of pain in the stomach and it can obviously be very stressful living with such persistent pain. So, considering all we know now and what we can now rule out– i.e. no evidence of gallstones, ulcers, reflux disease, bowel disease or anything else like that, I do think that stress is very likely to be playing a significant role in your ongoing pain problems. This not unusual, and is precisely why we have a psychologist working within the hospital.

I'd like to give them a call and ask them to come and have a quick chat with you or offer you an appointment while you're here; then we'll be able to explore the best treatment options for you. Are you happy for me to do this?