Bridging Gap in Pain Management for Special Condition Consumers

Empowering Pharmacists and Physicians with Evidence-Based Insights on Acetaminophen Use

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Summary

This white paper explores the role of acetaminophen in pain management for Special Condition Consumers, which includes individuals with cardiovascular disease, gastrointestinal disorders, renal impairment, osteoarthritis, and the elderly. It highlights regional differences, particularly in China and Korea, and addresses the specific challenges of pain management in these populations. The paper emphasises the safety and efficacy of acetaminophen compared to other analgesics (nonsteroidal anti-inflammatory drugs, and opioids) and advocates its use as a first-line treatment. Drawing on evidence-based insights, it advocates for healthcare providers to work together to educate patients, counteract misinformation, and ensure adherence to clinical best practices, thereby improving pain management outcomes.

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A Global Canvas: Mapping Pain Management Practices

Definition of Pain and Pain Management

Pain is an essential physiological experience that alerts the body to potential or actual harm. The International Association for the Study of Pain defines pain as "an unpleasant sensory and emotional experience associated with actual or potential tissue damage".[1] Chronic and acute pain vary in their duration, intensity, and underlying causes, necessitating specific management strategies tailored to the type and source of pain.[2] Chronic pain lasts for more than three months and can be continuous or intermittent, affecting any part of the body. Common causes include conditions such as arthritis, back pain, fibromyalgia, and nerve pain[3]. Acute pain is normally sudden in onset, lasts for a limited period (usually lasts for less than 7 days but can extend beyond 30 days), and is most often related to surgery, trauma, and acute illness. Common causes include broken bones, dental work, headache, burns, and cuts.[4] Effective pain management is vital to maintaining patients' quality of life and includes both pharmacological and non-pharmacological approaches.[5] Pharmacological options often involve the use of analgesics, including acetaminophen, opioids, and nonsteroidal anti-inflammatory drugs (NSAIDs), while non-pharmacological methods may include physical therapy, acupuncture, and psychological interventions.[5]

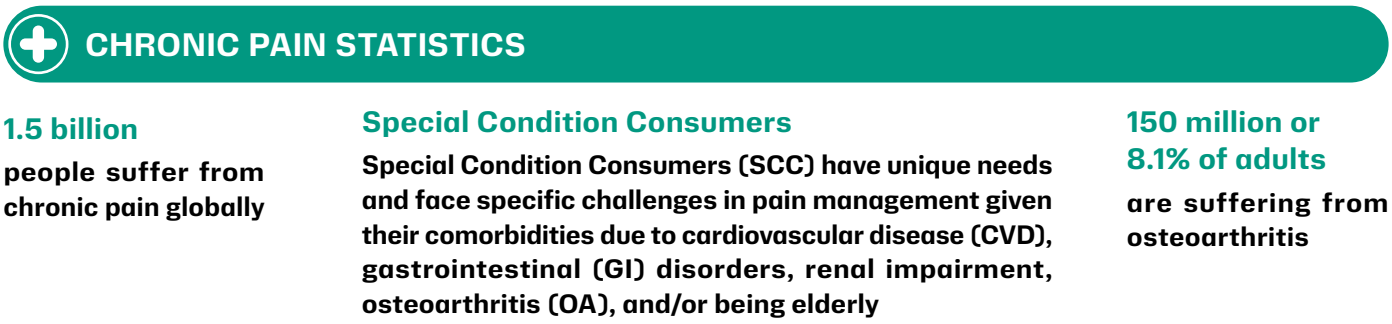
Definition of Special Condition Consumers (SCCs)

For the purposes of this white paper, Special Condition Consumers (SCCs) are individuals with specific health conditions/status, such as cardiovascular disease (CVD), gastrointestinal (GI) disorders, renal impairment, osteoarthritis (OA), and the elderly. In addition to having unique needs, these patients also face particular difficulties managing their pain, especially when using conventional analgesics because of the potential risks these treatments pose. Such groups often require tailored and more cautious pain management strategies.[6-10] Effective pain management for SCC aims to achieve pain relief while minimising adverse effects on comorbidities and overall health.

Global and Regional Prevalence of SCCs

Chronic pain is a global health issue that affects over 1.5 billion people, significantly impacting the ageing population worldwide.[11-13] In China, approximately 12% of the population are aged 65 and above (~172 million), and it is estimated to reach 26% (366 million) by 2050.[14] Osteoarthritis alone affects ~150 million people,[15] with knee osteoarthritis impacting 8.1% of adults,[16] while GI disorders such as gastroesophageal reflux disease, reflux esophagitis, digestive ulcer gastric ulcer, duodenal ulcer, and Helicobacter pylori infection are estimated to affect 10.5%, 5.4%, 2.5%, 4.5%, and 41.5%, respectively.[17] Based on a 2023 report, the prevalence of CVD was estimated at 330 million people, accounting for nearly 40% of all deaths,[18] while the chronic kidney disease (CKD) prevalence was ~150 million in 2019, and is expected to increase by 11.7% by 2029.[19] South Korea is expected to become a "super-aged society", with over 20% of the population being 65 years or older in 2025.[20] Similar to China, the prevalence of OA was reported to be 8.3% in 2021.[21] The reported prevalence of CKD in South Korea was 8.4% in 2021,[22] while the prevalence and incidence of CVD varied depending on their subtypes.[23] Data on the prevalence of GI disorders are limited to inflammatory bowel disease, the incidence of which is expected to increase significantly from 104 per 100,000 in 2018 to 150 per 100,000 by 2028.[24] These statistics (Figure 1) underline the need for effective pain management solutions tailored to these regions and populations.

Figure 1: Pain statistics in SCCs



Global Pain Management Practices in SCCs

The World Health Organization (WHO) in 1986 created a WHO pain ladder as a guideline for the use of drugs in the management of pain. Therein it recommends non-opioids (e.g. acetaminophen or NSAIDs) for mild pain as the first step in the pain ladder.[25] It also suggests using adjuvants and alternative routes for pain relief when needed.[25] The WHO has updated this to incorporate a fourth interventional step, which involves invasive or minimally invasive techniques. The whole approach now includes bidirectionality.[25] Globally, the WHO pain ladder is used as a reference while prescribing medications for pain management.

Pain management practices in SCCs vary depending on the region and specific conditions, but they generally emphasise the use of acetaminophen as a first-line analgesic for mild-to-moderate pain due to its favourable safety profile (Table 1). In the elderly population, pain management has been particularly challenging. As people age, the risk of comorbidities such as OA, CVD, and renal impairment increases, which can complicate analgesic choices. Additionally, there is an increased risk of polypharmacy in the elderly and a change in the ability to metabolise drugs, leading to an increased risk of drug–drug interactions. The elderly are particularly vulnerable to the side effects of pain medications, including an increased risk of gastrointestinal bleeding, kidney damage, and cardiovascular events. Therefore, pain management in this group requires a careful, individualised approach.[9,10,26] Furthermore, the risk of fall, confusion, and sedation is high among these individuals, leading to an increased risk of adverse events.[27] The American Geriatric Society recommends acetaminophen as the preferred first-line analgesic for elderly patients due to its favourable safety profile, especially when compared to NSAIDs.[7,28] It does not pose the same risks for gastric irritation, bleeding, or kidney damage as NSAIDs, making it generally the more appropriate choice for pain management in older adults.[9] However, as with the elderly population, the dosage must be carefully monitored in renal disease patients, to avoid the accumulation of acetaminophen metabolites, which could potentially lead to liver toxicity.[29]

For patients with CVD, pain management must be carefully balanced to avoid exacerbating underlying heart conditions. In patients with CVD, opioids can pose a risk due to their potential to cause hypotension and respiratory depression, which may exacerbate cardiovascular instability.[30] NSAIDs are typically avoided due to their cardiovascular risks, fluid retention, kidney damage, and gastrointestinal bleeding.[31,32] When used in combination, NSAIDs can also reduce the cardioprotective effect of low-dose aspirin.[32] Numerous studies have highlighted acetaminophen's efficacy in managing pain in patients with CVD with a reduced likelihood of thromboembolic events or causing fluid retention.[10] Based on this evidence, clinical guidelines (e.g. those from the American Heart Association) typically recommend acetaminophen as the analgesic of choice for mild-to-moderate pain in individuals with CVD.[33]

Table 1: Pain management recommendations in SCCs

	Acetaminophen	NSAIDs	Opioids
Elderly patients	Generally safe at recommended doses, but risk of liver and kidney damage.	Effective but risk of GI bleeding, kidney damage, and cardiovascular issues.	Effective for severe pain, but risk of dependency, respiratory depression.
Patients with CVD	Safer than NSAIDs, but may still pose risks.	Increased risk of heart attack, stroke, and hypertension.	May increase the risk of CVD.
Patients with renal disease	Preferred option, but use lowest effective dose.	Should be avoided due to risk of kidney damage.	Use cautiously; some opioids may accumulate and cause toxicity.
Patients with GI disease	Excellent GI tolerability, low risk of GI bleeding and ulcers.	Higher risk of GI bleeding and ulcers.	Lower GI risk compared to NSAIDs, but other side effects.
Osteoarthritis	Often recommended as first-line treatment.	Effective but with GI and cardiovascular risks.	Effective for severe pain, but with risk of dependency.

No/Low Risk Medium Risk High Risk

For patients with OA, acetaminophen has been shown in clinical trial to be superior to placebo in relieving the pain of OA.[34] The efficacy of acetaminophen was found comparable to ibuprofen and naproxen in patients with OA of the knee in other clinical studies.[35,36] Acetaminophen is often prescribed to patients who cannot tolerate NSAIDs due to the associated adverse events.[37] For individuals with renal impairment, managing pain can be particularly challenging. Both NSAIDs and opioids carry significant risks in this population, making careful consideration of analgesic options crucial. NSAIDs can exacerbate renal dysfunction by impairing blood flow to the kidneys, increasing the risk of acute kidney injury or worsening CKD. As such, NSAIDs are typically contraindicated (and/or must be used with caution or under doctor supervision) in patients with moderate-to-severe renal disease.[10,38] Acetaminophen is the preferred option for patients with renal impairment, as it does not carry the same nephrotoxic risks as NSAIDs.[39] Studies have consistently shown that acetaminophen is effective in managing pain in patients with CKD, including those on dialysis, without significantly impacting kidney function.[10] However, doctors are recommended to refer to local clinical guidelines and the product label before prescribing it to patients with severe renal impairment.

Acetaminophen is generally considered to have excellent GI tolerability, making it a preferred analgesic for patients at risk of adverse GI events. Unlike aspirin and some NSAIDs, which can increase the risk of GI bleeding, acetaminophen is not associated with the risk of causing or worsening GI ulcers or related complications. Studies and meta-analyses have shown that acetaminophen does not damage the GI tract or significantly affect upper GI bleeding.[10]

Multimodal pain management strategies combining pharmacological treatments with non-drug therapies are often advocated to enhance pain control and the quality of life of SCCs. This approach is becoming a growing focus in global pain management practices, highlighting the importance of considering individual needs, comorbidities, and lifestyle factors.

Regional Perspectives on Pain Management

Spotlight on China and Korea: Unique Challenges and Needs

In countries such as China and Korea, regional healthcare practices (listed in the Annexure) and cultural differences influence the adoption of pain management strategies, particularly regarding the use of acetaminophen. As populations age and the prevalence of chronic conditions rises, these countries need to ensure effective pain management options for their SCCs. However, cultural factors, healthcare infrastructure, and medication accessibility all play a pivotal role in determining how pain relief is provided.

In China and Korea, cultural perceptions, healthcare infrastructure, and medication accessibility shape pain management strategies. The increasing ageing population in both countries underscores the need for safe, effective pain relief solutions that minimise adverse effects.[40,41]

China's Challenges and Needs

In China, traditional medicine continues to influence pain management, with many patients preferring herbal and alternative treatments over pharmacological interventions. However, increasing awareness and accessibility to evidence-based pain relief options such as acetaminophen are necessary to ensure optimal patient outcomes. Additionally, China faces regulatory challenges regarding over-the-counter (OTC) medication use, with concerns about improper dosing and patient education gaps that must be addressed through public health initiatives. Furthermore, misconceptions about acetaminophen's efficacy and safety contribute to underuse, with many consumers fearing liver toxicity despite strong evidence supporting its safety at recommended doses.

Korea's Challenges and Needs

In Korea, the proportion of SCCs has been steadily increasing over time, which will inevitably heighten the burden of pain management, as SCCs represent a population that requires significant pain management. The nation has a strong healthcare infrastructure, yet increasing the awareness of the healthcare stakeholders about acetaminophen's superior safety profile compared to NSAIDs is essential for guiding appropriate pain management strategies. Moreover, cultural tendencies favouring hospital-based care over self-medication may influence OTC drug consumption patterns, necessitating targeted education campaigns for both healthcare providers and consumers. Furthermore, healthcare providers should routinely evaluate and consider patient profiles before prescribing pain medications, a practice that is currently not rigorously followed.[42]

A survey indicated that Korean physicians remain divided in their preference for acetaminophen versus NSAIDs, with 45% of the study population taking NSAIDs despite the increased risks associated with their use in SCCs.[43] This underscores the importance of disseminating updated guidelines to improve prescribing practices and ensure safer pain management for at-risk populations.

Crafting Region-Specific Strategies for Better Care

A nuanced approach is needed to overcome these regional challenges and improve pain management in both China and Korea. This strategy involves:

- **Education**: Educating healthcare providers, including pharmacists, about the superior safety and efficacy of acetaminophen compared to NSAIDs in managing pain in SCCs
- **Public Awareness Campaigns**: Raising awareness among consumers about the potential dangers of inappropriate drug use and the benefits of acetaminophen in managing pain safely
- **Regulatory Support**: Strengthening regulations to ensure proper dosing instructions for acetaminophen, as well as promoting its availability in regulated pharmacy systems
- **Guideline Integration**: Incorporating acetaminophen into clinical guidelines for pain management specific to SCCs and advocating it as a first-line treatment option

By addressing these needs, the safety and effectiveness of pain management in these populations stand to improve significantly.

Power of Acetaminophen: A Trusted Ally in Pain Relief

Pharmacological Information and Approved Indications

Acetaminophen, also known as paracetamol, is a commonly used OTC analgesic for managing mild-to-moderate pain. Its indications include conditions such as OA, musculoskeletal pain, postoperative pain, and tension headaches.[44] Unlike NSAIDs, acetaminophen has no anti-inflammatory properties, but it is effective in relieving pain through central inhibition of prostaglandin synthesis – primarily within the brain and spinal cord.[45]

Redefining and Emphasising Safety and Drug–Drug Interactions at Therapeutic Doses

Acetaminophen is recognised for its superior safety profile compared to NSAIDs, particularly for patients with CVD, GI disorders, and renal impairment[10]. Systematic reviews highlight its efficacy in relieving pain while minimising risks of GI bleeding and cardiovascular events.[46,47] A meta-analysis comparing acetaminophen with NSAIDs found that acetaminophen was equally effective in reducing mild-to-moderate osteoarthritic pain while demonstrating superior GI safety.[45,48]

The limited drug–drug interactions of acetaminophen can be particularly beneficial for older adults and those with complex medication regimens. One of the most notable interactions is with warfarin, an anticoagulant, which can increase the risk of bleeding. Acetaminophen can increase the international normalised ratio (INR) in patients taking warfarin. Higher INR levels indicate a higher risk of bleeding. This interaction is especially concerning when acetaminophen is taken at high doses (more than 1300 mg/day) for several days. Elderly individuals, those who consume alcohol regularly, or have poor nutrition are at greater risk. However, the drug–drug interactions of NSAIDs and warfarin are considered more serious, with an increased risk of serious bleeding complications, particularly in the GI tract.

Other potential drug interactions with acetaminophen are not considered clinically significant.[10,49,50] A comparison of drug–drug interactions of acetaminophen, NSAIDs, and opioids is presented in Table 2.

Table 2: Drug–drug interactions of acetaminophen, NSAIDs, and opioids

Drug interaction	Acetaminophen	NSAIDs	Opioids
Cardiovascular drugs (aspirin and clopidogrel)	Generally well tolerated when taken together without significant risk of cardiovascular events. Acetaminophen does not interfere with the antiplatelet effects of these drugs.	Can significantly increase the risk of gastrointestinal bleeding and cardiovascular events. NSAIDs can interfere with the antiplatelet effects of aspirin, reducing its efficacy in preventing heart attacks and strokes.	Do not typically interact in a way that affects cardiovascular risk, but they can increase the risk of CNS depression and other side effects.
Renal drugs (ACE inhibitors and angiotensin II receptor blockers)	Well tolerated and does not pose a significant risk of renal impairment.	Can reduce renal blood flow and impair kidney function, increasing the risk of renal failure.	Can exacerbate renal impairment, particularly in patients with pre-existing kidney conditions.
Gastric emptying retardants	Anticholinergic agents and narcotic analgesics can decrease the absorption rate, but this effect is of limited clinical importance.	Can delay gastric emptying, potentially exacerbating gastrointestinal irritation and increasing the risk of ulcers and bleeding.	Narcotic analgesics can retard gastric emptying, potentially decreasing the absorption rate of acetaminophen.
Accelerating gastric emptying agents	Cisapride can increase the absorption rate, but this effect is of limited clinical importance.	Cisapride can increase the rate of gastric emptying, potentially reducing gastrointestinal irritation.	Minimal interaction with accelerating gastric emptying agents such as cisapride.

Drug interaction	Acetaminophen	NSAIDs	Opioids
Anticonvulsants	Carbamazepine, phenytoin, and phenobarbital may increase NAPQI production through CYP2E1 induction. No strong evidence of hepatotoxicity.	Can induce liver enzymes (CYP450), potentially reducing NSAID effectiveness and necessitating dosage adjustments.	Can induce liver enzymes, potentially affecting opioid metabolism.
Antibiotics	Rifampicin and isoniazid can induce CYP2E1, leading to increased NAPQI production. No confirmed significant interactions.	Can induce liver enzymes, potentially reducing NSAID effectiveness and increasing the risk of hepatotoxicity	Minimal interaction with antibiotics such as rifampicin and isoniazid.
Antivirals	Zidovudine can inhibit glucuronidation, affecting acetaminophen processing.	Can increase the risk of haematologic toxicity, such as neutropenia and anaemia. Monitoring blood counts is recommended.	Minimal interaction with antivirals such as zidovudine.
Proton-pump inhibitors	No significant interactions.	Can reduce gastrointestinal side effects by decreasing stomach acid production, but long-term use may increase the risk of kidney damage and other side effects.	Can exacerbate gastrointestinal irritation caused by opioids.

No/Low Risk Medium Risk High Risk

Understanding Consumer Behaviour and Trust

Consumer preference for acetaminophen is driven by its well-established efficacy and safety. Education on proper dosing is crucial to maximising benefits while minimising risks. OTC painkillers are widely perceived as safe, accessible, and effective for managing common ailments. Their availability in pharmacies and convenience stores reinforces the belief that they pose minimal health risks. However, despite this broad acceptance, consumers – particularly those with underlying health conditions such as diabetes, GI disorders, and CVD – harbour concerns about potential side effects, drug resistance, and interactions with other medications. Many seek additional guidance when purchasing painkillers, but often find that pharmacists provide only basic dosage instructions, leaving them to rely on personal experience, brand reputation, or self-directed research through online sources such as YouTube channels and medical websites (Ipsos 2023 Report on Perception Understanding of the SCC's on Painkiller).

Trust plays a pivotal role in the selection of painkillers, with many consumers exhibiting strong brand loyalty influenced by family traditions, doctor recommendations, and past experiences. Well-established pharmaceutical brands are often perceived as safer and more reliable due to their long-standing presence and association with rigorous clinical testing. Doctors are still the most reliable source for drug advice, but consumers' attitudes towards pharmacists are divided; some appreciate their counsel, while others are sceptical and suspect business interests. This highlights an opportunity for brands to enhance credibility by aligning their messaging with healthcare professionals and ensuring that pharmacists are equipped with clear, evidence-based product information (Ipsos 2023 Report on Perception Understanding of the SCC's on Painkiller).

To maintain consumer trust, brands must communicate safety and efficacy effectively without triggering scepticism. Consumers respond best to messaging that emphasises benefits, such as fast pain relief or stomach-friendly formulations, rather than direct claims about safety. Tailored communication addressing concerns about drug interactions further reassure consumers, particularly those with chronic conditions. Strengthening pharmacist and doctor-led education, expanding digital engagement, and reinforcing transparent messaging will be key in maintaining consumer confidence and securing long-term brand loyalty in an increasingly health-conscious market (Ipsos 2023 Report on Perception Understanding of the SCC's on Painkiller).

Acetaminophen remains the preferred analgesic for SCCs due to its well-documented efficacy and safety.

Voices from the Frontline

Physicians' Perspectives: Personalising Pain Relief

IQVIA conducted insightful interviews with three prominent key opinion leaders and physicians to gather their valuable perspectives on pain management in SCCs within their respective practices. The esteemed participants included Dr Ban Tae Hyun from South Korea, Dr Liang Chen from China, and Dr Ho Kok Yuen from Singapore. By engaging with these distinguished professionals, IQVIA sought to gain a comprehensive understanding of current practices, challenges, and potential improvements in pain management for SCCs.

Physicians emphasise the importance of personalised pain management, recommending acetaminophen as the first-line analgesic for SCCs due to its established safety.[10]

Figure 2: Voices from the frontline

"Acetaminophen is generally used for mild to moderate pain including headaches, fever, joint pain, and neuralgia and as second line for joint pain and osteoarthritis"

Dr. Liang Chen
Attending Physician in Pain Medicine Centre, Peking University Third Hospital.

"For patients with chronic conditions, particularly those with reduced kidney function, acetaminophen is often the safest choice"

Dr. Ban Tae Hyun
Associate Professor, Department of Internal Medicine, College of Medicine, Division of Nephrology, Eunpyeong St. Mary's Hospital

"For patients on anti-coagulants, acetaminophen is preferred due to its minimal impact on bleeding risk, while NSAIDs are generally avoided"

Dr. Ho Kok Yuen
Consultant, Anaesthesiology and Pain Management, Mount Alvernia Hospital

In the evolving landscape of pain management, physicians must address the complex interplay of efficacy, safety, and patient-specific needs (Dr Ban, Dr Liang, and Dr Ho). Physicians follow a stepwise approach based on the WHO pain ladder, integrating multimodal analgesia and considering factors such as pain level, type, underlying conditions, and drug allergies (Dr. Ho). Acetaminophen remains one of the most recommended analgesics due to its well-established safety and minimal adverse effects. In patients with renal disease, Dr Ban noted: "When using other painkillers, the excretion of the drug is slow, and there are quite a few painkillers that cause nephrotoxicity or hyperkalaemia, leading to electrolyte imbalances, which makes treatment difficult. For example, even with short-term use of NSAIDs, patients may experience decreased renal function, high blood pressure, fluid retention, other electrolyte imbalances, and more gastrointestinal trouble. Opioid painkillers can also cause respiratory discomfort and decreased consciousness, which are key challenges when treating patients with renal disorders."

Dr Liang, from China, mentioned that acetaminophen was generally used for mild-to-moderate pain, including headache and fever, as second-line treatment for joint pain and OA and as an auxiliary medication for neuralgia and cancer pain. Acetaminophen is also used in the elderly and patients with CVD and GI disease, in view of the limited side effects versus NSAIDs. For patients on anticoagulants, acetaminophen is preferred due to its minimal impact on bleeding risk, while NSAIDs are generally avoided (Dr Ban, Dr Liang, and Dr Ho). Dr Ho opined: "Acetaminophen is generally a safe and well-tolerated analgesic for these populations, making it a preferred first-line option. It has minimal GI toxicity compared to NSAIDs and does not increase CV risk. However, caution is required in patients with hepatic impairment or chronic alcohol use due to hepatotoxicity risks."

Despite its advantages, acetaminophen is not without limitations (Dr Ban, Dr Liang, and Dr Ho). Its analgesic effect may be insufficient for moderate-to-severe pain, particularly in cases of neuropathic or post-surgical pain. "In the case of severe pain, acetaminophen may not sufficiently manage the pain, leading to an unsatisfactory response. In such cases, other medications may be used. If these medications initially respond well, it can be satisfying, but they often have a higher likelihood of causing other side effects. This can lead to complaints from patients, making it difficult to choose the proper drug. The decision to use acetaminophen or another medication should be carefully decided based on the patient's condition and the level of pain," explains Dr Ban. The challenge for clinicians is finding the right balance – maximising pain relief while ensuring patient safety. Additionally, physicians note that while acetaminophen is a widely available OTC, patients may unintentionally exceed the recommended doses. Dr Liang stated: "Some patients use multiple medications containing acetaminophen, leading to unintentional overdose and increased risk of liver damage."

The physician-observed side effects due to the use of acetaminophen were rare and included allergies, nausea, vomiting, hepatotoxicity, allergic reactions, gastrointestinal issues, and haematological toxicity. These side effects highlight the importance of adhering to the recommended dosage and seeking medical attention if any adverse symptoms occur (Dr Liang). In China, physicians notice that patients often use traditional Chinese medicine alongside acetaminophen, which can lead to side effects. Due to the unclear mechanism of action or composition of traditional medicine, it is challenging for physicians to assess these side effects. Dr Liang stated: "Patients are recommended to evaluate Chinese medicine by themselves. If they take it for a long time, there would be some side effects, but we will explain this to the patient." Regarding patient education, Dr Liang stressed the need to educate patients about drug interactions, reminding them to consult a doctor or pharmacist before using new medications and to have an updated medication list handy.

Beyond pharmacological considerations, the practicalities of clinical practice also influence pain management strategies. In many healthcare settings, limited consultation time means treatment decisions are often physician driven, with less opportunity for shared decision-making. "In outpatient settings, physicians rely on patient-reported pain scales such as the numerical rating scale, while in hospitalised patients, nurses and caregivers help monitor pain levels and medication adherence," shared Dr Ban. Pharmacists play an important yet indirect role, primarily advising on side effects, rather than making direct treatment recommendations. Dr Ho commented: "Pain

management is a multidisciplinary effort. I may involve the physiotherapist and psychologist in rehabilitation and behavioural interventions, respectively. The pharmacists help with medication reconciliation and monitoring for drug interactions and side effects, particularly for patients taking multiple medications. Family and caregivers provide critical support for medication adherence and lifestyle modifications."

Ultimately, the voices of frontline physicians highlight the essential role of acetaminophen in pain management while acknowledging its limitations. As one of the safest analgesics, it remains the cornerstone of treatment for many patients, particularly those with chronic conditions. However, its effectiveness depends on proper dosing and patient education, reinforcing the need for continued collaboration between healthcare providers, pharmacists, and patients to optimise pain management strategies.

Breaking Barriers: Addressing Misinformation and Misconceptions

Tackling Myths Around Acetaminophen Use

Misinformation regarding acetaminophen toxicity and renal impact persists. Studies confirm that, when used correctly, acetaminophen poses minimal nephrotoxicity and hepatotoxicity risks.[51,52] Common myths include concerns about hepatotoxicity at recommended doses and its efficacy compared to NSAIDs. Research demonstrates that acetaminophen remains a safer alternative compared to other analgesics for long-term use in SCC when taken as directed by a physician.[53,54]

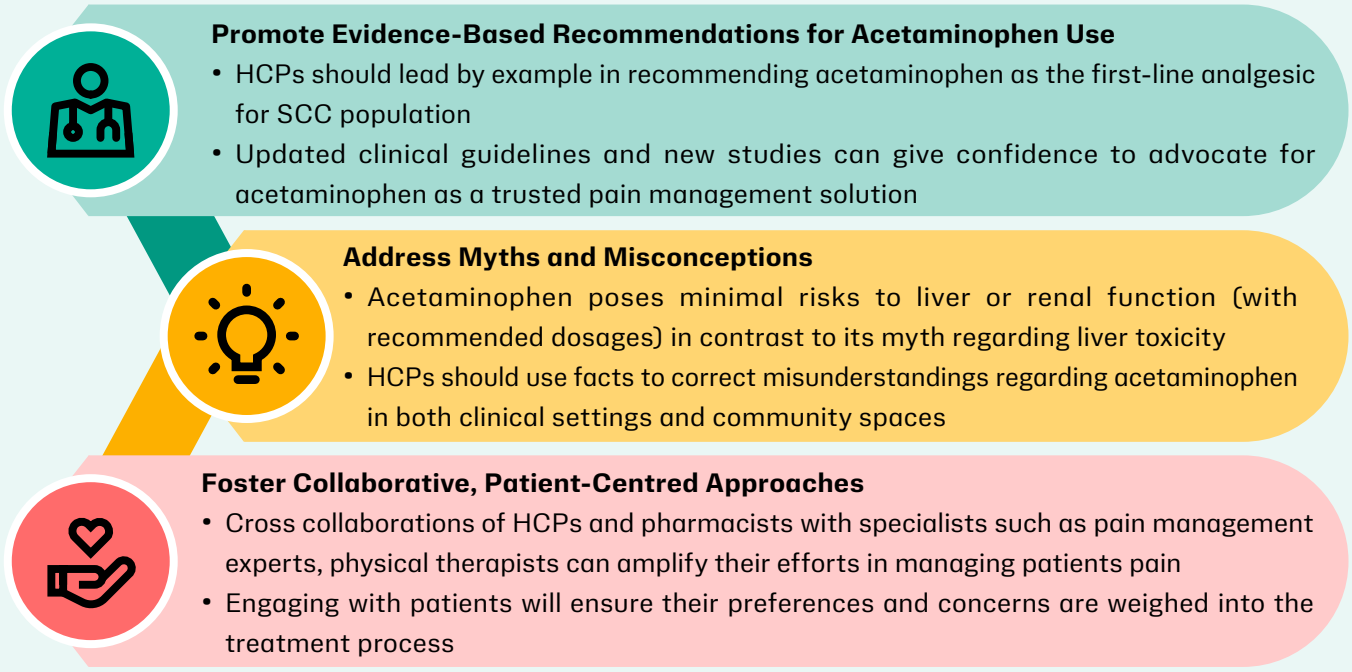
Building Trust Through Education and Clarity

Educational initiatives targeting both healthcare providers and consumers can enhance trust and adherence to safe pain management practices. Clear labelling, patient counselling, and physician advocacy for evidence-based analgesic use can dispel myths and promote safe acetaminophen consumption.[53,54]

Actionable Insights: From Knowledge to Impact

Advancing pain management for SCC requires a holistic, patient-centred approach that seamlessly integrates evidence-based recommendations, dispels misconceptions, and promotes stronger collaboration among healthcare professionals. To ensure optimal care for individuals with complex health conditions, it is crucial to act on the following insights (Figure 3).

Figure 3: Actionable insights



Promote Evidence-Based Recommendations for Acetaminophen Use: Healthcare providers, including physicians and pharmacists, have the responsibility to lead by example in recommending acetaminophen as the first-line analgesic for SCCs. Leveraging updated clinical guidelines and continually staying abreast of new studies will help professionals confidently advocate for acetaminophen as a trusted pain management solution. By making these recommendations clear, we not only align with best practices but also foster patient trust and adherence to safe pain management protocols.

Address Myths and Misconceptions: One of the most significant challenges in pain management today is the persistence of myths surrounding acetaminophen, especially concerns about liver toxicity and its general efficacy compared to other analgesics such as NSAIDs. The truth is that when used correctly – adhering to recommended dosages – acetaminophen poses minimal risks to liver or renal function and is highly effective for managing mild-to-moderate pain. Tackling these misconceptions head-on through proactive education campaigns is essential. Healthcare professionals must be equipped with the facts to correct misunderstandings in both clinical settings and community spaces. Initiatives can range from direct patient counselling to broader public awareness campaigns about the safe use of acetaminophen. Clarity and transparency can cultivate an environment where patients feel more confident in their treatment choices.

Foster Collaborative, Patient-Centred Approaches: Pain management is rarely a one-size-fits-all solution, and it thrives in an interdisciplinary environment where various healthcare professionals work together to tailor treatment plans to the individual needs of each patient. Physicians and pharmacists play pivotal roles, but their efforts can be greatly amplified through collaboration with other specialists, such as pain management experts, physical therapists, and nurses. For instance, pharmacists can provide ongoing support by educating patients about the safe use of acetaminophen and other analgesics, while physicians can design personalised care strategies that account for underlying conditions. Furthermore, engaging patients in shared decision-making ensures that their preferences and concerns are central to the treatment process. This holistic, team-based approach ensures that SCCs receive comprehensive care and ultimately achieve the best pain management outcomes.

Closing the Loop: Shaping the Future of Pain Management

As we look towards the future of pain management, clearly a unified, patient-centred approach will lead the way in transforming care for SCCs. From the perspectives of healthcare professionals on the frontlines to the emerging trends in regional pain management practices, there is a need for evidence-based strategies, cultural sensitivity, and personalised care. By fostering education, dismantling myths, and advancing collaborative care, SCCs can be given more reassurance and perspective on the safety and efficacy of acetaminophen in pain management.

The call to action is clear: Healthcare professionals must come together, leveraging the latest research, practical insights, and clinical expertise to optimise pain relief for SCCs. This includes prioritising acetaminophen as the first-line treatment, tackling misinformation about its safety, and advocating for regulatory support facilitating safe and effective analgesic use.

Promoting evidence-based recommendations for acetaminophen use, addressing misconceptions, and fostering collaborative approaches among healthcare providers are key to advancing pain management.

Key Takeaways: Advancing Pain Management for SCCs

This white paper has explored the essential role of acetaminophen in managing pain for SCC, reaffirming its well-established safety and efficacy. We have also highlighted regional disparities in pain management practices and the need for a more tailored, evidence-based approach to meet the unique needs of these populations.

A United Call to Action for Healthcare Professionals

- Physicians and pharmacists are at the forefront of optimising pain management. By working together, they can significantly improve patient outcomes through the following initiatives:
  - » **Empowering Patients with Knowledge** – Educating patients on the safe and effective use of analgesics fosters informed decision-making and better health outcomes
  - » **Championing Acetaminophen as the First-Line Choice** – Given its favourable safety, acetaminophen should be prioritised as the preferred analgesic for SCCs
  - » **Combating Misinformation** – Addressing myths and misconceptions through targeted awareness campaigns ensure that patients and healthcare providers rely on credible, evidence-based information
  - » **Ensuring Adherence to Clinical Best Practices** – Following established guidelines in prescribing and recommending analgesics enhances patient safety and treatment efficacy
  - » **Collaborating with Regulatory Bodies** – Working alongside policymakers to improve accessibility, labelling, and public awareness of acetaminophen ensures that safe pain relief is available to those who need it most

By taking these proactive steps, healthcare professionals can bridge existing gaps in pain management, ensuring SCC populations receive safe, effective, and accessible pain relief worldwide. Let us work together to transform pain management for a healthier future.

Author contributions

Stephanie Victoria Tay Choo Gek is Associate Manager Medical Affairs for Selfcare at Kenvue APAC. She led the strategic direction and regional alignment of the project, ensuring medical relevance and impact.

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Annexure

Current pain management guideline for general population and SCC in China

No.	Article (Chinese)	Article (English)	Target group	Cite (URL) for better view, please use Google Chrome.
1	非创伤性软组织疼痛急诊管理专家共识（2022）	Expert consensus on emergency management of non-traumatic soft tissue pain	General population	https://lcjz.whuhzzs.com/data/article/lcjz/preview/pdf/lcjzzz-23-3-169.pdf
2	非阿片类镇痛药治疗慢性疼痛病中国指南（2023）	Chinese guidelines for the treatment of chronic pain disorders with nonopioid analgesics	General population	https://rs.yiigle.com/cmaid/1476382
3	老年卒中疼痛全周期康复中国专家共识（2022）	Chinese Expert Consensus on Full-Cycle Rehabilitation of Pain in Elderly Stroke Patients	CVD (Stroke)	https://doaj.org/article/2ff3d222219a4619909d7abbcb2bef7e
4	中国偏头痛诊治指南（2022）	Chinese Migraine Diagnosis and Treatment Guidelines	CVD (Migraine)	https://www.cnki.com.cn/Article/CJFDTotal-ZTYZ202212001.htm
5	国家基层糖尿病神经病变诊治指南（2024）	National guidelines for the diagnosis and treatment of diabetic neuropathy in primary care	CVD (Diabetic neuropathy)	https://rs.yiigle.com/cmaid/1502465
6	中国成人急性腹痛解痉镇痛药物规范化使用专家共识（2021版）	Chinese Expert Consensus on the Standardized Use of Antispasmodic and Analgesic Drugs for Acute Abdominal Pain in Adults	GI (Acute Abdominal Pain)	https://rs.yiigle.com/cmaid/1329156
7	慢性腹痛基层诊疗指南（2019）	Guideline for primary care of chronic abdominal pain	GI (Chronic Abdominal Pain)	https://rs.yiigle.com/cmaid/1153279
8	痛风诊疗规范（2023）	Recommendations for the diagnosis and treatment of gout in China	Renal (Gout)	https://rs.yiigle.com/cmaid/1471591
9	慢性肾脏病早期筛查、诊断及防治指南（2022）	Guidelines for early screening, diagnosis, prevention and treatment of chronic kidney disease	Renal (CKD)	https://rs.yiigle.com/cmaid/1378367
10	老年骨质疏松性疼痛诊疗与管理中国专家共识（2024）	Chinese Expert Consensus on the Diagnosis, Treatment, and Management of Pain in Elderly Patients with Osteoporosis	Osteoarthritis	https://www.qqhryxyfsdyyy.org.cn/_upload/article/files/a0/9e/09c456bd4fc2bb0a957378f4c4f5/b145ed6d-1225-471e-b508-7790dc538fa0.pdf
11	中国骨关节炎诊疗指南（2024）	Chinese guidelines for diagnosis and treatment of osteoarthritis	Osteoarthritis	https://rs.yiigle.com/cmaid/1512095
12	骨关节炎临床药物治疗专家共识（2021）	Expert consensus on clinical drug treatment of osteoarthritis	Osteoarthritis	https://www.sinomed.ac.cn/article.do?ui=2021400544
13	老年人慢性肌肉骨骼疼痛管理中国专家共识（2023）	Expert consensus on management of geriatric chronic musculoskeletal pain	Geriatric (Osteoarthritis)	https://rs.yiigle.com/cmaid/1478345
14	老年人疼痛治疗临床药学服务专家共识（2023）	Expert Consensus on Clinical Pharmacy Services for Pain Management in the Elderly	Geriatric	https://www.cnki.com.cn/Article/CJFDTotal-ZTYZ202306001.htm

Annexure

Current pain management guideline for general population and SCC in Korea

No.	Article (Korean)	Article (English)	Target group	Cite (URL) for better view, please use Google Chrome.
1	고은미, 만성통증 관리를 위한 심리 중재법의 효과 (2024)	Eunmi Ko, Effectiveness of Psychological Intervention for Chronic Pain Management	General population	https://www.stressresearch.or.kr/journal/view.php?number=1000
2	만성통증의 관리	Management of Chronic Pain	Geriatric	https://www.ekjm.org/upload/42848561.pdf
3	병원간호사회_ HNA, 근거기반 임상간호실무지침-통증간호 (2018)	Hospital Nurses Association_ HNA, Evidence-Based Clinical Nursing Practice Guidelines-Pain Nursing	General population	https://khna.or.kr/home/data/200905/5_tong_all.pdf
4	골관절염	Osteoarthritis	Osteoarthritis	https://health.kdca.go.kr/healthinfo/biz/health/gnrlzHealthInfo/gnrlzHealthInfo/gnrlzHealthInfoView.do?cntnts_sn=1988
5	관절염 통증 줄이는 건강수칙 6가지	Six Health Rules to Reduce Arthritis Pain	Arthritis	https://m.jaseng.co.kr/etc/healthInfoView.asp?idx=987&Page=1&Location_Branch_Code=10000
6	관절염 환자를 위한 운동	Exercise for Arthritis Patients	Arthritis	https://jkma.org/journal/view.php?doi=10.5124/jkma.2024.67.9.573
7	신경계 중환자실에서의 통증 조절 및 진정	Pain Control and Sedation in the Neurological Intensive Care Unit	General population	https://www.jkna.org/upload/pdf/jkna-41-3-169.pdf

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