While research has shown that 72% of moderate pain occasions has an impact on daily life, a survey has revealed that 80% of people that had taken a painkiller at some point, had not received sufficient relief. What this means is that your customers may not be getting the pain relief they need.

With recent clinical data available about the efficacy and safety of OTC pain relief, there is now a need to re-evaluate the advice you give people to ensure it is up to date.

The data challenges some of the long-held beliefs and practices relating to the use of OTC analgesia. Taking this new information into account when recommending products for your customers will help them manage pain more effectively, and ensure that you aren’t withholding treatments that may be appropriate. Did you know, for example, that ibuprofen doesn’t need to be avoided in all asthmatics, and it is recommended by NICE, if a NSAID is needed (1200mg a day or less), as it has one of the most favourable thrombotic cardiovascular safety profiles of all NSAIDs? 

**What you’ll learn:**

- What causes pain to be felt and how it can be treated
- The range of OTC medications available and how they work
- An understanding of the common pains you’ll see in your pharmacy
- How to offer tailored and effective treatment advice that takes into account most up-to-date clinical data and guidelines
- How to ensure that a medication is appropriate and safe for each person
- Your role in dispelling some popular myths around OTC treatments.

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Understanding pain

Pain is described as an unpleasant sensory and emotional experience associated with actual or potential tissue damage, or described in terms of such damage. When tissues are damaged or stimulated, pain and inflammation causing chemicals such as prostaglandins are released that activate or sensitise sensory receptors — nociceptors. These nociceptors are present throughout the body, and detect pain.

The pain signals travel from the affected area to the brain. The brain can also send signals back to the nociceptors which can affect the intensity of pain that people feel.

Pain is complex, and it’s subjective, which means it is perceived differently by different people. It does serve an important function, it warns us of potential injury, or the extent of injury, and is often accompanied by protective reflexes which help prevent further damage.

Acute pain is usually associated with damage, and the pain resolves once the underlying injury has healed. However, poorly controlled acute pain can lead to chronic pain, so appropriate treatment is important to help prevent complications and this progression.

Chronic pain is not just defined by how long someone has suffered from pain, but is recognised as pain that persists beyond the period of healing where the underlying cause does not explain the presence and/or extent of pain. It can be continuous or intermittent, with or without acute exacerbations, it can disrupt sleep and normal living, and unlike acute pain, it serves no purpose. Chronic pain can lead to irritability, social withdrawal, and a depressed mood.

People usually seek advice about pain when it is new or unfamiliar, if the pain has worsened, or if it persists despite treatment.

Unsurprisingly, your customers with pain are likely to be looking for fast, effective relief that will enable them to get on with their daily lives. This is where you can help.
Treatment of pain

There are a number of treatment options available for people with pain depending on the type of pain they have. It's important for you to consider expert guidelines when providing advice, or recommending products to ensure that what you recommend is based on the best available evidence.

Patient preference and their circumstances should also be taken into account. Combined with information gathered from WWHAM questions, this will help you choose a suitable product to relieve their discomfort.

Nonsteroidal anti-inflammatory drugs (NSAIDs)

NSAIDs, such as ibuprofen, block the cyclooxygenase enzymes that help produce the pain and inflammation-causing prostaglandins. This happens both centrally (inside the brain) and peripherally (outside the brain).

NSAIDs, such as ibuprofen, are recommended as a first-line analgesic therapy for tension-type headaches (TTH) by the National Institute for Health and Care Excellence (NICE) and the British Association for the Study of Headache (BASH) guidelines.

NSAIDs, such as ibuprofen, are also recommended by NICE in combination therapy for treatment of acute migraine, with an oral triptan. Combination therapy of oral triptan and paracetamol is also recommended. Meanwhile, BASH recommends high doses of ibuprofen, plus or minus an antiemetic, for a first-line treatment of acute migraine.

Ibuprofen is also a first-line pharmacological option for non-specific lower back pain, and for period pain relief.

Moreover, a single dose of ibuprofen 400mg provides long-lasting relief for up to 8 hours.

Providing advice on how to use the products will ensure they get the best out of the medicine. For example, OTC ibuprofen can be taken with water, rather than with food, as food can delay the onset of action and reduce the efficacy.

Discussion around identifying what may be causing a person's pain and how to manage it, will not only help bring them relief but also highlight the skills and knowledge of pharmacy teams.

In order to help you select an appropriate treatment it's useful to understand how the various classes of analgesics work and for which types of pain they are appropriate.
Paracetamol

The mode of action of paracetamol is not fully understood, however it is believed that it acts centrally to inhibit the cyclooxygenase enzymes that help to produce prostaglandins. But, unlike ibuprofen, it has no therapeutic anti-inflammatory effects. Paracetamol is recommended by NICE as a first-line choice for TTH, and in combination with an oral triptan for treatment of acute migraine.

Paracetamol is also recommended in guidelines and NICE clinical knowledge summaries (CKS) as a first-line choice for neck and shoulder pain, sprains and strains, and osteoarthritis.

Triptans

These are not analgesics, they are migraine specific treatments. They work by stimulating specific receptors in the brain therefore constricting blood vessels. Triptans (such as sumatriptan, the only triptan available OTC) are recommended in guidelines as a first-line choice for migraine, either on their own or in combination with an NSAID or paracetamol.

Opioids

Opioids, such as codeine, are centrally acting analgesics which work by binding to specific receptors in the central nervous system and reducing the perception of pain.

Opioids are recommended in NICE guidelines and CKS:
- With topical NSAIDs or paracetamol for osteoarthritis, (if paracetamol or topical NSAIDs alone are insufficient)
- With ibuprofen or paracetamol for neck pain
- As a second-line choice after oral NSAIDs for low back pain/sciatica (with or without paracetamol)
- With paracetamol for sprains and strains if necessary.

They are not recommended in NICE and BASH guidelines for use in headache or migraine as they can increase nausea and have addictive potential.

Topical heat rubs

These are also known as rubefacients, and can contain salicylates, nicotinates, benzydamine, camphor or essential oils.

They cause irritation of the sensory nerve ending in the skin. This is believed to alter the pain signals in the muscles and joints that contain these nerves. Rubefacients also widen the blood vessels, causing skin to redden and warm.

NICE does not support the use of rubefacients for the pain associated with osteoarthritis.

Heat patches

These are a non-drug option that provide superficial warmth. Heat may improve blood flow to the affected area, and it also interferes with pain signals to relieve the perception of pain, raises the temperature of the tissues and increases flexibility of muscles.

The application of heat may be helpful according to NICE guidelines as an additional non-drug option for certain shoulder pains and osteoarthritis pain. They can be recommended alongside drug treatment as they are unlikely to cause any interactions.
Exploring the evidence behind OTC pain relief efficacy

Studies have been conducted to compare the relative efficacy of many OTC pain relief treatments.

One way of comparing efficacy is to compare success rates. The success rate is defined as the proportion of participants getting good pain relief with active analgesia minus the proportion of participants getting good pain relief with placebo. This is expressed as a percentage of the maximum possible success rate (100 minus the response rate with placebo).21

A Cochrane review,* which are recognised as the highest standard in evidence-based healthcare resources,27 showed that the differences in the success rates of OTC analgesia for acute pain can range from 11% with aspirin 500mg up to 70% with combined ibuprofen 400mg and paracetamol 1000mg.21

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SUCCESS RATE – % ACHIEVING AT LEAST 50% MAXIMUM PAIN RELIEF

<table>
<thead>
<tr>
<th>Drug</th>
<th>Success Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ibuprofen 200 + paracetamol 500</td>
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</tr>
<tr>
<td>Dipyrone 500</td>
<td></td>
</tr>
<tr>
<td>Ibuprofen fast acting 400</td>
<td></td>
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<tr>
<td>Diclofenac potassium 50</td>
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</tr>
<tr>
<td>Ibuprofen 200 + caffeine 100</td>
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<tr>
<td>Ibuprofen fast acting 200</td>
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<td>Diclofenac potassium 25</td>
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<tr>
<td>Ibuprofen acid 400</td>
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<tr>
<td>Naproxen 500/550</td>
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</tr>
<tr>
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<tr>
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<tr>
<td>Naproxen 200/220</td>
<td></td>
</tr>
<tr>
<td>Aspirin 500</td>
<td>11%</td>
</tr>
</tbody>
</table>

Adapted from Moore et al 2015.21

*An overview of Cochrane review.
In addition, the review reported that fast-acting formulations of OTC ibuprofen have higher success rates compared to standard formulations,\textsuperscript{21} while another study showed that compared with standard ibuprofen, fast-acting formulations produced earlier pain relief and more patients achieved good pain relief.\textsuperscript{28}

\begin{center}
\begin{tabular}{l}
\hline
\textbf{SUCCESS RATE – % ACHIEVING AT LEAST 50% MAXIMUM PAIN RELIEF} \\
\hline
Ibuprofen 400 + paracetamol 1000 \\
Ibuprofen 200 + paracetamol 500 \\
Dipyrone 500 \\
\hline
Diclofenac potassium 50 \\
Ibuprofen 200 + caffeine 100 \\
Ibuprofen fast acting 200 \\
Diclofenac potassium 25 \\
\hline
Ibuprofen acid 400 \\
\hline
Naproxen 500/550 \\
Naproxen 400/440 \\
Paracetamol 500 \\
Dexketoprofen 25 \\
Ibuprofen acid 200 \\
Paracetamol 975/1000 \\
Dexketoprofen 12.5 \\
Aspirin 1000 \\
Aspirin 600/650 \\
Paracetamol 600/650 \\
Naproxen 200/220 \\
Aspirin 500 \\
\hline
\textbf{SUCCESS RATE (%)} & 0 & 10 & 20 & 30 & 40 & 50 & 60 & 70 \\
\hline
\end{tabular}
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Adapted from Moore et al 2015.\textsuperscript{21}
Exploring the evidence behind OTC pain relief efficacy

Another way of comparing efficacy is the number needed to treat (NNT). It is a scientific calculation which describes the number of participants who need to be treated with an active analgesic for one more person to have good pain relief than if the same number had been treated with placebo. So, the lower the NNT, the better.

The NNT is lower for ibuprofen 400mg at 2.5 compared to 3.6 for paracetamol 1000mg, meaning that more patients can have a beneficial outcome with ibuprofen than they will with paracetamol. The even lower NNT of fast-acting ibuprofen (2.1) shows the additional benefit that can be gained from these formulations.

The same review showed that ibuprofen 400mg plus paracetamol 1000mg had the lowest NNT of 1.5 of the interventions assessed. Understanding these key measures means you are able to compare the efficacy of different pain relieving medicines and choose the most effective ones for your customers if appropriate.

Adapted from Moore et al 2015. Bars show the 95% confidence interval, and the colour change is the point estimate.
As you can see, not all painkillers are equally effective, so when recommending a medicine, it’s important to consider this information to ensure your customers receive the pain relief they need.

NNT explained†

<table>
<thead>
<tr>
<th>Medicine</th>
<th>Number of people given the medicine</th>
<th>Approximate number of people with at least 50% pain relief</th>
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</thead>
<tbody>
<tr>
<td>Fast-acting ibuprofen (NNT 2.1)</td>
<td>100</td>
<td>48</td>
</tr>
<tr>
<td>Paracetamol (NNT 3.6)</td>
<td>100</td>
<td>28</td>
</tr>
</tbody>
</table>

Medicines in order of efficacy based on point estimate NNT from Cochrane review††

1. Ibuprofen 400mg plus paracetamol 1000mg
2. Fast acting ibuprofen 400mg
3. Ibuprofen 400mg
4. Paracetamol 1000mg
5. Aspirin 1000mg

†Based on point estimate NNT from Cochrane review. ††This is not an exhaustive list of all formats reviewed.
Despite the fact that more than 80% of people will experience a tension-type headache in their lifetime, headaches are often under-diagnosed and undertreated.

There are a variety of different types of headache, including: tension-type headache (TTH), migraine, cluster headache, and medicine overuse headache. Recognising the differences between the most common headaches is important when it comes to recommending appropriate treatments.

TTH, often referred to as the common headache, can happen when muscles in the head and neck send pain signals to the head. This can be caused by physical stress (such as poor posture) and emotional tension, which trigger the release of pain-causing substances, such as prostaglandins, from these muscles. These then activate the nociceptors to send pain signals, which results in TTH.

Symptoms may include mild-to-moderate pressing or tightening pain on both sides of the head. There may also be some sensitivity to light or sound too. TTH can last from 30 minutes to as long as 7 days, however, people with TTH are usually still able to carry on with everyday living.

In 10% of people TTH recurs frequently, and in 2-3% of adults it is chronic, occurring on more days than not.

Some examples of potential triggers include stress, poor posture, skipping meals and dehydration.

Ibuprofen 400mg liquid capsules are clinically shown to provide faster and more effective headache relief compared to 1000mg standard paracetamol. Standard ibuprofen starts relieving headache within 15 minutes. Fast-acting ibuprofen formulations (sodium ibuprofen and ibuprofen liquid capsules) start to get to work in 10 minutes.

Remember, treatments containing codeine are not recommended in NICE and BASH guidelines for people with headache as they can increase nausea and have addictive potential.

If stronger pain relief is required, ibuprofen plus paracetamol combination can be used.

It can be helpful to advise customers to try to identify potential trigger factors and avoid these by changing their lifestyle if possible.

NSAID, such as ibuprofen, and paracetamol are both recommended as options for first line analgesic therapy for TTH by NICE, whereas BASH suggests ibuprofen but advises that paracetamol appears less effective. A single 400mg dose of ibuprofen provides long-lasting pain relief for up to 8 hours.

<table>
<thead>
<tr>
<th>Percentage of subjects obtaining meaningful relief by 30 minutes and complete relief at 3 hours</th>
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<tr>
<td>Subject (%)</td>
</tr>
<tr>
<td>Ibuprofen 400mg Liquid Capsules</td>
</tr>
<tr>
<td>Paracetamol 1000mg</td>
</tr>
<tr>
<td>Ibuprofen 400mg Liquid Capsules</td>
</tr>
<tr>
<td>Paracetamol 1000mg</td>
</tr>
</tbody>
</table>

Ibuprofen 400mg n= 60, Paracetamol n= 62, *P<.001 for Ibuprofen versus Paracetamol.

Adapted from Packman et al 2000.
It’s not clear exactly what causes migraine, but it is thought to be due to temporary changes in the brain’s chemicals, blood vessels and nerves. Nevertheless, around 1 in 10 people experience migraine, and it is about twice as common in women than men.

For some people, migraine attacks are associated with certain triggers, which can be:

- Emotional — stress, anxiety, tension
- Physical — tiredness, poor posture, low blood sugar
- Dietary — missed meals, dehydration, alcohol
- Environmental — bright lights, smoking, flickering screens.

Symptoms of migraine include moderate-to-severe pulsating pain that usually affects just one side of the head. There will also be at least one of the following symptoms: nausea/vomiting, sensitivity to light or sound. Up to 30% of people with migraine also have an aura 5-60 minutes before their headache, where they may experience visual disturbances such as flickering lights/zigzags.

Migraine can typically last for 4-72 hours, and it can have a major impact, stopping people from being able to do everyday tasks.

NICE recommends combination therapy to treat acute migraine: an NSAID (such as ibuprofen) and an oral triptan, or an oral triptan with paracetamol.

BASH recommends high doses of ibuprofen, or aspirin, with or without an antiemetic which can help with nausea/vomiting.

As getting pain relief early in a migraine can be important, product format is critical, so if you recommend an ibuprofen liquid capsule it starts to get to work in 10 minutes to relieve pain.

If nausea is a problem, you can consider recommending a formulation that dissolves on the tongue.

*Refers to absorption.
Toothache refers to pain in and around the teeth and jaws that’s usually caused by tooth decay, however it can sometimes be caused by a lost filling, or a broken tooth. The pain can be severe or mild, and may be constant or come and go, and when a lower molar tooth is affected, the pain can often feel like it’s coming from the ear.

Good dental hygiene will help prevent toothache and the following advice might be useful for your customers:

- Limit intake of sugary foods and drinks
- Brush teeth twice a day using a fluoride toothpaste
- Clean between teeth using dental floss and, if necessary, use a mouthwash
- Don’t smoke — it can make some dental problems worse
- Have regular dental check-ups.

For people who have had toothache for more than one or two days, it’s important to advise them to visit the dentist to address the cause of the problem, as the longer it is left the worse it will get. Left untreated, the dental pulp can become infected leading to an abscess which will result in severe continuous pain.

Ibuprofen or paracetamol can be recommended to relieve the pain, and a topical local anaesthetic gel may also help for those aged over 12 years.

However, when helping to recommend a product, consider that research shows that a single 400mg dose of ibuprofen provides long-lasting relief for up to 8 hours, and an OTC ibuprofen and codeine fixed dose (in one tablet) combination provides greater pain relief than an OTC paracetamol, plus codeine, plus caffeine combination. [adapted from McQuay et al. 1992]

*In a dental pain study.
Back pain

The back is the part of the body most commonly affected by musculoskeletal problems by adult patients in the UK, affecting around 1 in 3 adults each month. Around half of joint and back pain sufferers are 46-65 years old of which 46% have back pain.

For most people, back pain isn’t caused by an underlying medical condition, but is triggered by everyday activities, such as lifting, carrying or pulling heavy objects, twisting or bending awkwardly, overstretching, slouching in chairs, overusing muscles or driving/sitting for prolonged periods.

In addition to recommending suitable medication, the following advice may be useful. Losing weight can help reduce strain on the back and wearing flat shoes with cushioned soles can ease pressure. Avoid sudden movements as these can strain the muscles. Also they could find ways to reduce any stress or anxiety as these can exacerbate back pain. Consider seeing an osteopath or having a back massage — manipulation can help as part of their overall treatment package.

Oral NSAIDs, such as ibuprofen, are recommended as a first-line option for non-specific lower back pain. It is important to note, however, that NICE recommends that paracetamol should not be offered alone for back pain.

It is estimated that osteoarthritis (OA) causes joint pain in 8.5 million people in the UK, and while it can affect any joint, the hand is one of the most commonly affected areas. The incidence of OA increases with age and usually occurs in people 50 years and over – in fact, 60% of people over the age of 65 have been reported to have moderate-to-severe OA in at least one joint.

The cause of osteoarthritis is not well understood; however, it is known that a series of traumas to the joints can trigger compromised repair processes, which in some people causes pain, swelling, inflammation and problems moving the joint.

Joints may also become painful after use and become swollen or tender. They may also be stiff in the morning, but this usually lasts for less than 30 minutes.

As a consequence, OA can affect the ability to move or do everyday tasks, but although OA is a chronic condition, people can manage their symptoms and improve their ability to use their joint.

Topical NSAIDs and/or paracetamol are recommended by NICE as first line treatments for OA in addition to core treatments.

*Access to appropriate information, activity and exercise, and weight loss if appropriate.
Sprains and strains

Although sprains and strains are often grouped together, they have different symptoms. With sprains, there is pain around the joint, tenderness, swelling and bruising, whereas with strains there is muscle pain and spasm, weakness, swelling, inflammation and/or cramping.\textsuperscript{17}

A sprain is due to tearing or stretching of the ligament when too much force is applied to the joint: ankles, knees, wrists and thumbs are common sprain sites.\textsuperscript{17}

A strain is a tear or stretch of the muscles caused by stretching or contracting the muscle too much: the foot, back and hamstrings of the leg are the muscles most likely to get strained.\textsuperscript{17}

Mild sprains and strains should clear up within several weeks, while severe injuries may take months to heal.\textsuperscript{17}

Up to 50\% of musculoskeletal problems in the pharmacy are likely to be sprains and strains, with the ankle most often affected.\textsuperscript{17}

A topical NSAID (such as ibuprofen gel) can be applied to the affected area, or paracetamol can be taken. Oral ibuprofen can be recommended 48 hours after the injury if needed— it is best to avoid it before this time, as it may delay healing.\textsuperscript{17}

You may find the mnemonics PRICE and HARM\textsuperscript{17} useful to remember how to treat sprains and strains.

Think \textbf{PRICE}

\textbf{P}rotect against further damage — for example, for foot or ankle injuries, recommend they wear supportive footwear, such as high-top, lace-up shoes.

\textbf{R}est — rest the affected area and advise customers to avoid activity for 48-72 hours after their injury.

\textbf{I}ce — recommend they apply ice wrapped in a damp towel to the affected area for 15-20 minutes every 2-3 hours during the day for the first 48-72 hours after their injury.

\textbf{C}ompress — recommend customers use an elasticated or tubular bandage during the day to support the damaged area and control swelling.

\textbf{E}levate — advise them to raise the injured area, e.g. by supporting on a pillow, until their swelling is reduced.

Avoid \textbf{HARM}

It can be easy to cause further damage to a sprain or strain, so in the first 72 hours after injury, recommend customers avoid the following:

\textbf{H}eat — steer clear of heat patches, hot baths or saunas.

\textbf{A}lcohol — alcohol is known to dilate blood vessels which increases blood flow and therefore the amount of swelling and bleeding in an injured area.

\textbf{R}unning — or other exercises that may worsen their injury.

\textbf{M}assage — customers may not realise it but this can increase bleeding and swelling.
Period pain is common and is a normal part of the menstrual cycle, affecting between 50–90% of menstruating women. It is usually felt as painful muscle cramps in the abdomen, which can also spread to the back and thighs.

It occurs when the muscular wall of the womb tightens (contracts) to encourage the womb lining to shed away as part of the monthly period. When this happens, it compresses the blood vessels lining in the womb, which temporarily closes off the blood supply to the womb.

This lack of oxygen triggers the womb to release chemicals that trigger pain.

The body also produces prostaglandins which encourage the womb muscles to contract more, which further increases the pain.

NICE recommends that an NSAID, such as ibuprofen, should be used as the first line management for period pain relief.
Children’s headache

Research has shown headache to be the most common cause of pain in a child aged over 7 years, and up to 50% of 7 year olds and up to 80% of 15 year olds have experienced at least one headache.

Children’s headaches usually start suddenly, with the child quickly becoming pale and listless, and often feeling sick, or vomiting.

Headache in children tends to be of a much shorter duration than adult’s headaches, but they can also affect their stomach, so tummy ache is a common complaint.

Ibuprofen or paracetamol can be recommended as first line treatments. Both medicines are generally well tolerated and have equal status in national and international guidelines.

Children’s fever

A fever in children is a temperature of 38°C or over. Fever can make children irritable, restless or lethargic and can cause loss of appetite, sleep disruption and crying. Most fevers are caused by infections or other illnesses, and the high body temperature makes it more difficult for the bacteria and viruses that cause infections to survive. Some examples of common conditions that may cause fever include:

- Respiratory tract infections
- Ear infections
- Urinary tract infections
- Flu
- Tonsillitis
- Chicken pox
- Whooping cough.

For parents, it can be extremely worrying if their child has a high temperature, however, it is common and often clears up by itself without treatment.

Nevertheless, it’s important to be aware of warning signs of serious illness, and the traffic light system is a useful reference.
Children’s fever

**RED** High risk of serious illness if they have any of the following features:

- Appears ill to a healthcare professional.
- Pale or mottled, or ashen or blue.
- No response to social cues. Unable to rouse, or if roused does not stay awake.
- Weak, high-pitched, or continuous cry.
- Grunting. Tachypnoea (respiratory rate of 60 breaths per minute or more). Moderate or severe chest indrawing.
- Reduced skin turgor.
- Temperature of 38°C or higher in children 0–3 months of age.
- Status epilepticus. Focal neurological signs. Focal seizures.

**AMBER** Intermediate risk of serious illness if they have any of the following features:

- None of the red symptoms or signs.
- Pallor reported by parent or carer.
- Does not respond normally to social cues. Does not smile. Wakes only with prolonged stimulation. Decreased activity.
- Nasal flaring. Tachypnoea (respiratory rate more than 50 breaths per minute in children aged 6–12 months, and more than 40 breaths per minute in children over 12 months of age). Oxygen saturation equal to or less than 95% in air. Crackles.
- Poor feeding in infants.
- Dry mucous membranes. Capillary refill time of 3 seconds or more.
- Reduced urine output (in infants ask about wet nappies).
- Tachycardia:
  - More than 160 beats/minute under 1 year of age.
  - More than 150 beats/minute 1–2 years of age.
  - More than 140 beats/minute 2–5 years of age.
- Temperature of 39°C or higher in children 3–6 months of age.
- Rigors.
- Fever for 5 days or more.
- Swelling of a limb or joint - not weight bearing or not using a limb.
Children’s fever

**GREEN** Low risk of serious illness if they have the following features:

- None of the amber or red symptoms or signs.
- Normal colour of skin, lips, and tongue.
- Responds normally to social cues. Content and smiles. Stays awake or wakens quickly.
- Strong normal cry or not crying.
- Normal skin turgor and eyes, moist mucous membranes.

Ibuprofen can be given first line if the child is distressed by the fever or underlying illness. However, if they aren’t distressed, there’s no need to use antipyretics to reduce a fever.

The aim of treating fever in children is to make the child comfortable rather than focusing on lowering temperature. Ibuprofen starts to relieve fever in 15 minutes, and in children, ibuprofen is more effective than paracetamol in reducing fever from four hours post dose. Both medicines are generally well tolerated and have equal status in national and international guidelines.

Ibuprofen has a lower relative risk of upper GI complications compared with some other NSAIDs.

In addition to reassurance and perhaps recommending an anti-pyretic, it’s helpful to provide some useful advice:

- Offer regular drinks/water
- Dress the child appropriately to their surroundings to prevent overheating or shivering
- Avoid using tepid sponging to cool the child
- Check on the child regularly including during the night, check for rash
- Look out for worrying symptoms using the traffic light system.

![Graph showing mean temperature difference versus time.](image)
Dispelling myths surrounding pain management

In addition to choosing the most effective medicine for people, another important role for pharmacy teams is ensuring that the medicine is appropriate and safe for each person. Dispelling myths about diseases and treatments is part of that process, and by providing this information it ensures that people know the facts when deciding what medication to use. Consider the following myths and reflect on your understanding.

**MYTH 1**

All NSAIDs have the same GI risk

This is incorrect. The risk of GI problems varies depending on the NSAID, and ibuprofen has a low GI risk compared with some other NSAIDs.

### RELATIVE GI RISK OF NSAIDs

<table>
<thead>
<tr>
<th>LOWER RISK</th>
<th>HIGHER RISK</th>
</tr>
</thead>
<tbody>
<tr>
<td>IBUPROFEN</td>
<td>TOLMETIN</td>
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<tr>
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<tr>
<td>DIFLUNISAL</td>
<td></td>
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<tr>
<td>FENOPROFEN</td>
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<tr>
<td>ASPIRIN</td>
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<tr>
<td>SULINDAC</td>
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<tr>
<td>NAPROXEN</td>
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<tr>
<td>INDOMETHACIN</td>
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<tr>
<td>PIROXICAM</td>
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<tr>
<td>KETOPROFEN</td>
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</tbody>
</table>

Adapted from Herch et al. 2000.
OTC Ibuprofen has the same GI risk as prescription ibuprofen

MYTH 2

OTC ibuprofen has a lower risk of GI issues than prescription doses.63,64

• The degree of mucosal damage is generally dose-dependent.63

• Evidence suggests that the risk of GI events for OTC ibuprofen in eligible patients is at a lower level than for prescription doses.63,64

Adapted from Lanza et al. 1984.64

MYTH 3

Ibuprofen should only be taken with food

For OTC NSAIDs, there is no evidence that food protects the stomach from gastro-intestinal (GI) side effects.6 Unaware of this, people may still believe that all OTC NSAIDs, such as ibuprofen, must be taken with food.

Taking analgesics with food can delay absorption and is likely to reduce the effectiveness for acute pain.7 Given this information, you are able to recommend that your customers take OTC doses of ibuprofen with water, if appropriate.65

Please refer to individual SPC for specific information on dosing and administration. There are some special warnings and contraindications regarding GI safety of ibuprofen (including those with pre-existing GI conditions) – please see SPC for full details.
Myth 5: NSAIDs should be avoided in all asthmatics

Asthma affects 1 in 11 people in the UK and such customers may believe they cannot take ibuprofen because of the risk of an asthma attack, but this happens in just 7% of asthmatics.

The Global Initiative on Asthma says NSAIDs are not generally contraindicated unless there is a history of previous reactions to NSAIDs or aspirin. Ibuprofen should generally only be avoided in those asthmatics who have experienced an asthma attack after taking aspirin, or other NSAIDs.

Myth 5: Ibuprofen causes heart problems

Media reports could mean that some people worry that ibuprofen, like some other NSAIDs, can commonly cause heart problems. However, different NSAIDs affect the heart differently: low doses of aspirin can protect the heart, while some prescription-dose NSAIDs can increase the chances of developing heart problems.

When used at OTC doses (up to a maximum of 1200mg per day) and over a short period, ibuprofen is one of the NSAIDs with the lowest risk of causing heart problems. In fact, if an NSAID is needed, ibuprofen (1200mg or less) is recommended by NICE as suitable for people who are at increased risk of heart disease.
Test your knowledge

<table>
<thead>
<tr>
<th>Question</th>
<th>Options</th>
<th>Answer</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Which of the following medicines is an anti-inflammatory?</td>
<td>Ibuprofen, Paracetamol</td>
<td></td>
</tr>
<tr>
<td>2. Which of the following medicines should not be used alone for lower back pain?</td>
<td>Ibuprofen, Paracetamol</td>
<td></td>
</tr>
<tr>
<td>3. Should ibuprofen be avoided in all people with asthma?</td>
<td>Yes, No</td>
<td>No</td>
</tr>
<tr>
<td>4. Should codeine be avoided in people with headache or migraine?</td>
<td>Yes, No</td>
<td>Yes</td>
</tr>
<tr>
<td>5. How long can the pain-relieving effect of 400mg ibuprofen last?</td>
<td>Up to 8 hours, Up to 6 hours, Up to 4 hours</td>
<td>Up to 8 hours</td>
</tr>
<tr>
<td>6. According to a Cochrane review, which of the following has the highest success rate for acute pain?</td>
<td>Paracetamol 100mg, Ibuprofen 400mg plus paracetamol 1000mg, Ibuprofen 400mg</td>
<td>Ibuprofen 400mg plus paracetamol 1000mg</td>
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<tr>
<td>7. How quickly does fast-acting ibuprofen start to get to work?</td>
<td>10 minutes, 20 minutes, 30 minutes</td>
<td>10 minutes</td>
</tr>
<tr>
<td>8. According to a Cochrane review, which of the following has the lowest NNT?</td>
<td>Paracetamol 1000mg, Ibuprofen 400mg, Fast acting ibuprofen 400mg</td>
<td>Paracetamol 1000mg</td>
</tr>
</tbody>
</table>

*Based on absorption.