

'MediSnap' App is Proving to be a Lifesaver for Paramedics

The MediSnap app has now solved a problem regularly faced by paramedics, by helping them to quickly determine a patient's medication history during emergency callouts. Donegal paramedic Declan Watters, who developed the app, talks to Michael McHale about the positive feedback he has received since the app recently went live and future plans, including his pursuit to get approval from the Health Products Regulatory Authority.

What medication are you taking?' It's a question that medical professionals ask time and time again. However, in an emergency, the answer may not always be that clear. For paramedics, it is often a patient's loved ones who are tasked with giving an answer – even when they may not know it themselves.

Similarly, elderly people may know what their daily tablet intake looks like but might be less familiar with what each pill is for. 'My doctor told me to take them' is an all-too-common refrain heard by those on the frontlines.

Paramedic Declan Watters, from Letterkenny, Co. Donegal, has come across situations like this quite often, and sometimes on several occasions during a single shift. The challenge it presents in delivering crucial care inspired him to find a more reliable way to source this vital information.



Regulatory approval would allow the app to be promoted as a medical tool, according to Declan Watters.

"The tablets we're seeing day in and day out – we know what they're for," he told *'Emergency Services Ireland'*. "However, there are certain tablets that may have a different generic name that might catch us out."

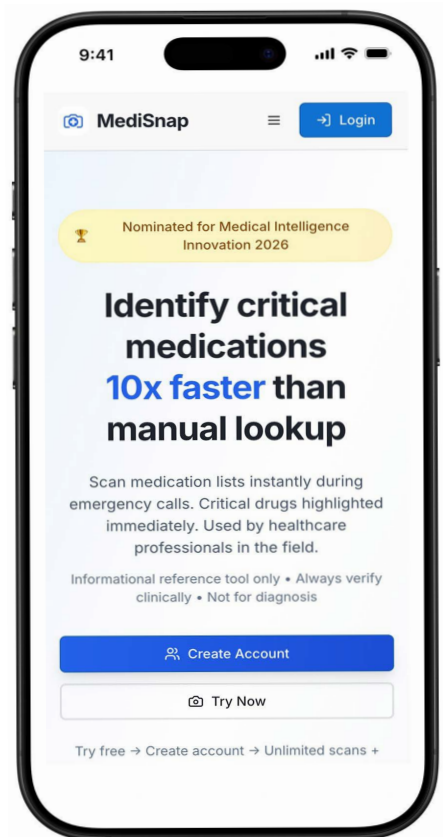
The dilemma, he added, often leaves paramedics resorting to Google for answers. More recently, artificial intelligence (AI) has emerged as another far-from-reliable source. Early last year Declan tested AI's ability to give him the answers he was looking for. He took a photo of some medications and uploaded it onto the AI platform ChatGPT. The information it provided about the drugs was lengthy and detailed, but there was no way to check its accuracy.

It was that need to verify AI's response that led to the development of a new app that frontline medical professionals can use to provide accurate, reliable information about medicines in real time.

MediSnap works by the user taking a picture of packaging, prescription labels or blister packs on their phone, then uploading the image to the app. Within a few seconds they receive critical information on what the medicine contains and its uses. After discussing the concept of the app, a silent partner came on board and the process of building a reliable, accurate database of medicines started.

THREE-TIER VERIFICATION

The app works using a three-tier verification system. Tier one refers to Optical Character Recognition – the method in which the app converts the information in uploaded images into readable and editable text. Tier two analyses key words that indicate how and why this drug is being used, such as 'dispense', 'routine', 'daily', etc. The third tier of the app analyses the



dosage information provided.

Combined, the data it provides can give a clear picture of how the patient may be using a certain medication. If any error is found in the overall analysis, the tiered structure of the app kicks in to alert the user.

"Take, for example, paracetamol, which typically comes in 500mg tablet form. "If the app reads 'paracetamol 5,000 milligrams', it doesn't matter what tier one and tier two say, the app will throw back an error because tier three is coming up as 5,000 milligrams instead of 500 milligrams," Declan explained.

Using the tiered structure also

helps to decipher wording on pharmacy-printed labels that may have faded over time. To continue Declan's example, even if some of the letters of 'paracetamol' are no longer legible on the bottle of medicine, other information the app receives, such as contents and dosage, will feed into its database of medicines. As a result, the app will be able to assess that the medicine is likely to be paracetamol.

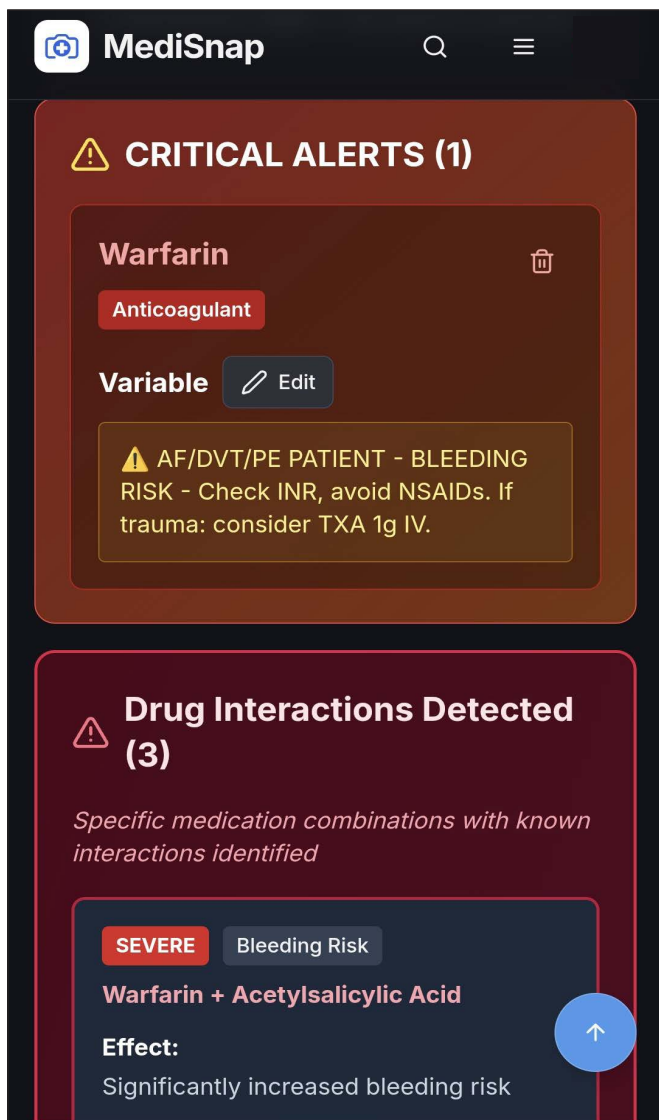
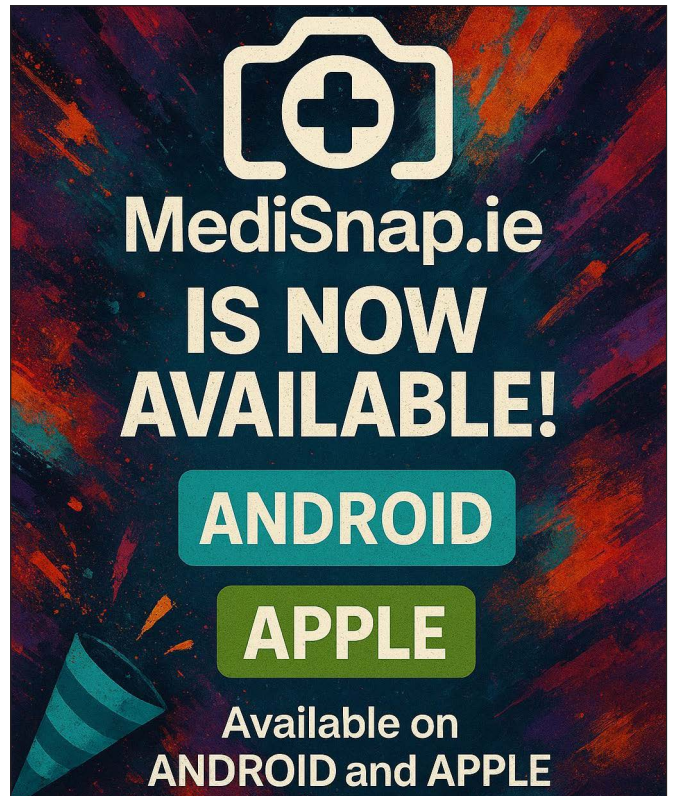
RELIABLE DATABASE OF MEDICINES

Before becoming a paramedic, Declan worked in the pharmaceutical sector for several years. He also had a Bachelor of Science degree in computer programming. All of these experiences and skills have proved useful in his new venture.

Ensuring the app has a vast and reliable database of medicines has been a key element of its success to date. When Declan first began sharing the app with other paramedics in its 'beta' mode, the feedback he received from them was invaluable.

"If a paramedic contacts me now and says, 'this tablet isn't on it' I'm delighted, because I know that what we're doing is working, and I'll get that medication put on the database," he said.

"Our system is not just pulling rubbish from the ether and firing it out. We're controlling what it's gathering, and we have the checks in place."



POSITIVE USER FEEDBACK

As MediSnap continues to gain popularity, feedback from users has given its owners ideas for further innovations to improve its usability and usefulness. "We've just recently opened up the database for a search, so users can do a quick reference for a medication now instead of scanning it."

The database currently contains over 2,000 medications, including data on variations in brand names as generic versions of common treatments emerge. The app is also able to read information in other languages such as Spanish and Ukrainian, including the Cyrillic alphabet.

"If you type in the name of the medication, it'll come back with the indications and contraindications - when to give it and when not to give it. That's very handy as quick reference guide for the emergency services," Declan added.

Information included in the database has been taken from sources directly linked to pharmacists as well as official medicine lists from Ireland's Health Products Regulatory Authority (HPRA). Other features added through user feedback include options to include a patient's allergies, edit dosage information, and changes to the number of images that can be uploaded per patient.

"Initially you're only able to take one photo per patient, but you might have a nursing home that has four pages (of medical information per patient). For every photo taken, the app had been reading it as a different patient.

"Now you can upload as many pictures as you want, and they'll be added into the patient's profile. The text the app provides can be copied so you can have it on your phone's notepad app. If you're going in for a clinical handover, you'll have everything there."

The app also has an option to download the patient's information onto a PDF which can then be printed out when necessary. "This is coming from my own experience of going into houses, and family members having a handwritten list of medications - they're protecting it like it is gold dust. They don't give it to you, because it is the only one they have."

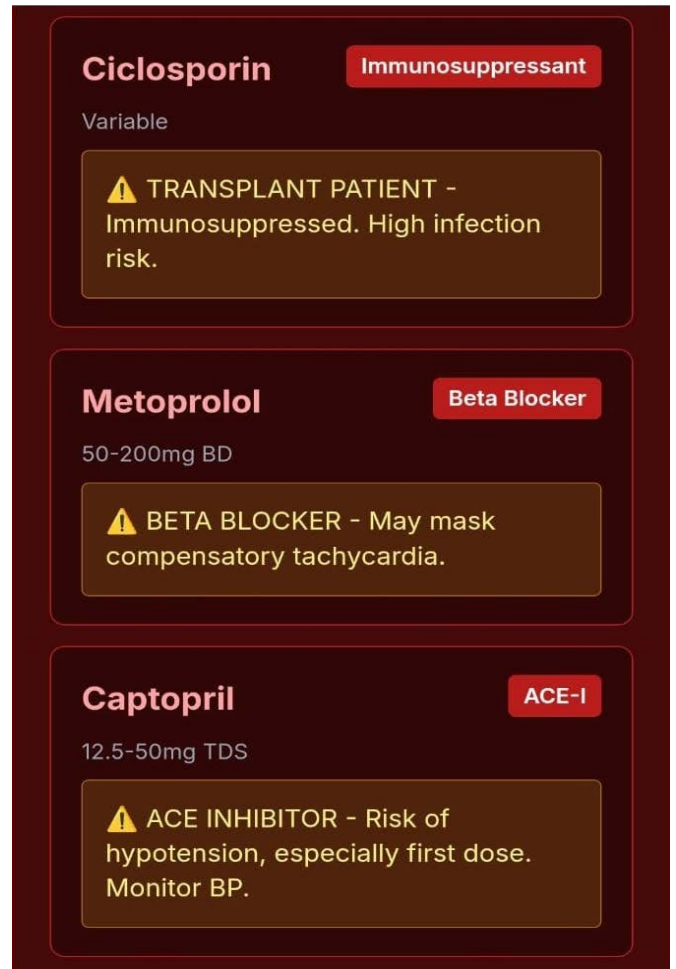
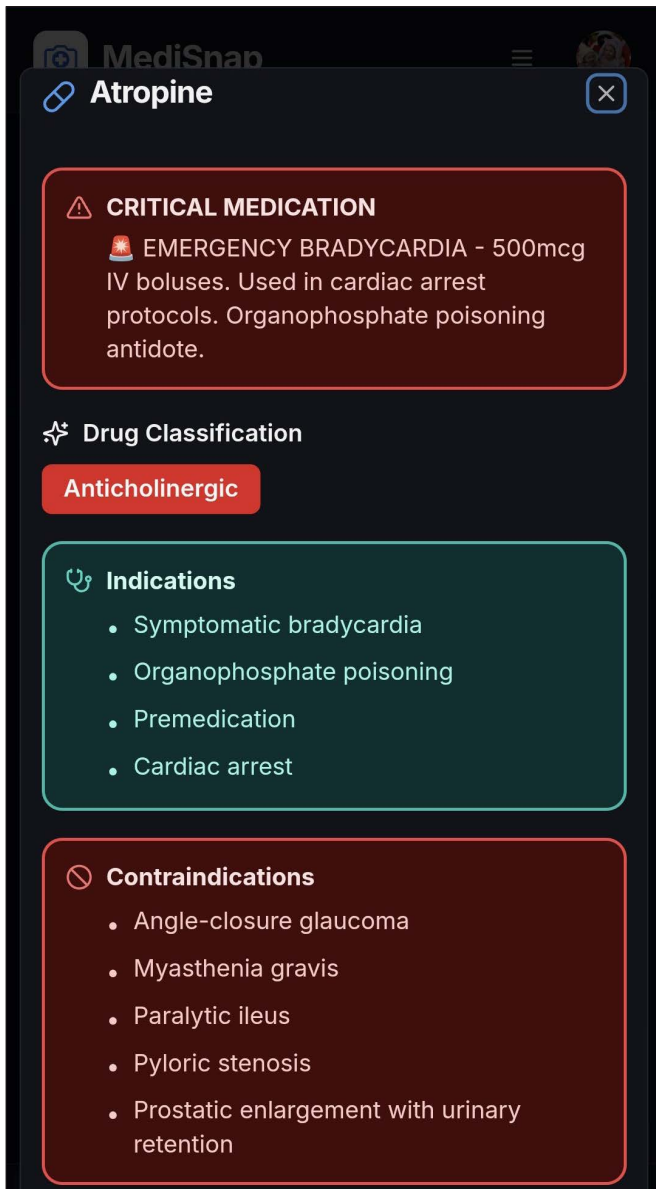
HUGE INTERNATIONAL INTEREST

Since a beta version of MediSnap was released online, the app has been downloaded thousands of times, not just in Ireland, but as far afield as the US, South Africa and across Europe. The app’s website (Medisnap.ie) has been viewed around 250,000 times by 19,000 unique users to date.

MediSnap is available on the Apple store and Google Play, and around 25,000 images have been uploaded and scanned through the app so far. To comply with data protection regulations, the images remain saved on the user’s phone, and cannot be accessed by Declan or others working on the app.

Due to the international appeal of MediSnap, any drug indications or contradictions it outlines may differ from guidelines given by the Pre-Hospital Emergency Care Council (PHECC), the organisation that sets out the standards of care for Irish ambulance personnel.

“When you get the indications or the contraindications, they may be different from what PHECC have on file, but we point that out. You must accept the terms and conditions before you can use the app. We’re making the practitioner take responsibility for how they’re using the app. We cannot stress enough that it’s not to lead how you treat your patient.”



REGULATORY APPROVAL

In the future, Declan hopes to get approval for the app from the HPR. He is currently in discussions with Enterprise Ireland to see if funding can be provided for a regulatory expert to work with him on assuring that the app meets all of the required standards.

The app is classified as an educational device, but regulatory approval would allow its owners to promote the technology as a medical tool. Jumping this hurdle would open the door to Declan pitching the app to the Health Service Executive (HSE) here in Ireland, and other similar agencies across the world.

With greater investment and further success, Declan hopes that he will in time be able to expand MediSnap with the rollout of a consumer-focused version of the app. “MediSnap Home would be suitable for someone with elderly patients or relatives,” he explained. “My own father was very ill. He’s since passed away. However, even as a paramedic and knowing the conditions, but I was getting flustered when an ambulance came to the house.”

Similar to the version designed for medical professionals, MediSnap Home would allow users to upload and scan images of medicine lists and packaging. “Information provided by the app could then be sorted into categories and edited, as prescriptions and doses change, for an individual’s loved ones.”

Declan believes that this could be particularly useful for carers and healthcare assistants, including those who visit multiple patients in their homes every day. “When family members ring for an ambulance, it’s a normal day for us, but it’s panic stations for them. Having this information written out and available would help a lot of people.”