



Share & learn: Complexity blindness in community pharmacy

– When focusing on the difficult part causes us to miss the bigger picture

What is complexity blindness?

When trying to maximise patient safety, pharmacy professionals understandably focus attention on the more complex aspects of a task where they perceive the greatest likelihood of risk and error to be. For example, prescriptions requiring calculations, paediatric prescriptions, oral liquid medicines, handwritten prescriptions, high-risk medicines or unfamiliar formulations can all fall into this category along with many other examples.

However, focusing so closely on one complex aspect of a task can unintentionally reduce awareness of other important cues. This phenomenon can be referred to as “Complexity Blindness”. It occurs when attention becomes narrowly focused on the perceived challenge, causing other, often simpler, important safety checks to be overlooked.

Complexity blindness is a recognised human factors issue that can affect pharmacy professionals at any level of experience. It is not caused by a lack of knowledge, skills or competence. Instead, it happens because mental resources become heavily focussed on the complex task at hand. This can mean that insufficient capacity remains to maintain an overall view of the situation and identify other potential risks or errors.

Why does It matter?

Community pharmacy teams work in environments where interruptions, workload pressures and competing priorities are common. When a prescription contains an element that demands significant concentration, there is a risk that other safety-critical information is overlooked.

The challenge is not simply to complete the difficult task correctly. The challenge is to ensure that, having completed it, we step back and holistically consider whether the overall prescription and clinical picture make sense.

Correctly completing a calculation, deciphering a hand-written prescription or sourcing an unfamiliar product does not necessarily mean that the prescription itself is appropriate, legal or safe.

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Case study 1: A paediatric calculation

A prescription is received for a young baby requiring an oral liquid medicine.

The pharmacist immediately recognises several complexity factors:

- The patient is a baby
- The prescription is handwritten
- The medicine is supplied as a liquid
- A calculation is required to determine the volume to dispense

The pharmacist focuses on calculating the correct volume needed to achieve the prescribed dose. Considerable effort is devoted to checking the calculation and ensuring accuracy including a check from another team member.

The calculation itself is completed correctly.

However, because attention was concentrated on the calculation accuracy, a more fundamental question was missed:

"Is the calculated volume appropriate for a baby of this age?"

In this scenario, the dose prescribed meant an inappropriately large volume of medicine for the age of the baby. The excessive volume was thankfully noticed and queried by the parents, who contacted the pharmacy before the medicine was administered. No patient harm occurred.

The objective is not only to perform the calculation correctly but also to ensure the result is clinically plausible.

In this example after completing the calculation, an holistic review of the prescription should have happened: - reviewing the prescription as if it were written with a volume dose, instead of a dose in milligrams and taking time to consider:

- Does the dose make sense?
- Does the volume look reasonable?
- Can a child of this age tolerate this dose volume?

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Case study 2: Handwritten prescriptions

Example 1

A pharmacist receives a handwritten prescription.

The handwriting is difficult to read, and considerable attention is devoted to interpreting the prescriber's intentions. The pharmacist scrutinises the writing, considers possible medicines and eventually the prescription is successfully deciphered.

The pharmacist feels reassured that the difficult part has been completed successfully.

However, in focusing on deciphering the handwriting, attention has been diverted away from other critical checks, such as:

- Is the prescription legally valid?
- Does it contain all required legal particulars?
- Is the prescriber registered? (checking credentials)
- Does the signature appear genuine?
- Is there anything unusual about the presentation of the prescription?

The complex task of interpretation has effectively overshadowed important task of validation.

Even if a prescription is clear and readable, it may not be clinically appropriate. Likewise, it may be interpreted correctly but still be legally invalid.

In this scenario, the prescription was for a controlled drug and was in fact a forged prescription.

Being able to understand what a prescription says is only one part of the process.

Example 2

Another example involving a handwritten prescription, this time for methotrexate tablets.

In this scenario efforts were focussed on deciphering the prescribers handwriting and correctly picking up an issue with *daily* dosing. However, when adjusting the dose to *weekly* as part of the intervention, the total quantity dispensed was not altered. This meant the patient was dispensed enough methotrexate to last approximately six months instead of the intended one-month treatment.

Once the difficult interpretation task is complete, teams should consciously return to routine validation checks before proceeding.

Other situations where complexity blindness can occur

Complexity blindness is not limited to calculations and handwritten prescriptions. Similar patterns may occur when dealing with:

- High-risk medicines
- Unfamiliar medicines
- Poly pharmacy: patients prescribed multiple medicines
- Controlled Drugs
- Complex dosing regimens
- Medicines sourced through specialist pathways
- Prescriptions requiring extensive clinical checks
- Suspected forged or altered prescriptions
- Medicines shortages requiring alternative supply arrangements

Mitigating the risk

Build in a deliberate pause. After completing the complex element of a task, take a moment to consciously step back and:

- Ask: "Now that I've solved the difficult part, what else might I have missed?"
- Consciously revert to standard operating procedures (SOPs) or established checklists. With complex prescriptions, sometimes SOPs or steps on checklists can be circumnavigated unintentionally when checking a prescription clinically and legally.
- Ensure a whole-prescription sense check – focus on the prescription in its entirety rather than any individual element.

Recognise natural cognitive limits. Complexity blindness is a predictable human response under cognitive load. Recognising that anyone can be affected helps create systems and behaviours that reduce risk and support safer practice.

Key messages

The biggest risk is not always the most difficult part of the task.

In community pharmacy, we are trained to focus on complex calculations, difficult interpretations and high-risk medicines. While this focus is essential, patient safety also depends on our ability to step back and view the prescription as a whole and indeed see the person beyond the prescription.

Build in a deliberate pause; time to consider the prescription holistically. This allows time to identify any potential errors and help see important safety signals.

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