Evaluating The Safer Prescription of Opioids Tool (SPOT) in clinical practice

Opioid conversion is complex and currently performed using tables of approximate equivalence. There is wide variability in clinician competence in performing these conversions. This is a source of prescribing error, and opioid switching may be a risk factor for overdose death[1].

The Safer Prescription of Opioids Tool (SPOT) was designed to allow clinicians to double-check opioid conversions safely, quickly, and conveniently at the patient's bedside, using a smartphone, tablet or computer. SPOT is a clinical decision support (CDS) tool, aimed at reducing errors in conversion and improving the efficiency of the double-checking process.

A safe and easy way to support you switching opioids

CE

Aim

The aim of the SPOT clinical utility study was to evaluate SPOT as a CDS platform in equianalgesic opioid dose conversion using clinical data across primary, secondary and tertiary care. SPOT was developed in accordance with the Scottish Palliative Care Guidelines' (SPCG) advice on equianalgesic prescribing[2]. The clinical utility study followed a mixed methods design.

Methods

The study population included all male and female patients in primary, secondary and tertiary care settings undergoing equianalgesic opioid switch under the Palliative Care Department at a Scottish Health Board. We also included patients in primary care undergoing equianalgesic opioid rotation.

SPOT recorded all conversion criteria, non-patient-identifiable demographic data, and the opioid conversion performed. The prescriber's calculated answer and the result from SPOT's answer were automatically stored in the SPOT database. The data collection period for the clinical study was 5 months.

Results

Opioid	As Index Opioid (n)	As Target Opioid (n)
Alfentanil	26	41
Buprenorphine	2	4
Codeine	16	3
Diamorphine	6	7
Dihydrocodeine	1	1
Hydromorphone	10	9
Fentanyl	0	29
Morphine	81	53
Oxycodone	68	63

Table 1: Opioids used during the study period, recorded as the starting (Index) and the resulting opiod (Target) of the equianalgesic switch.

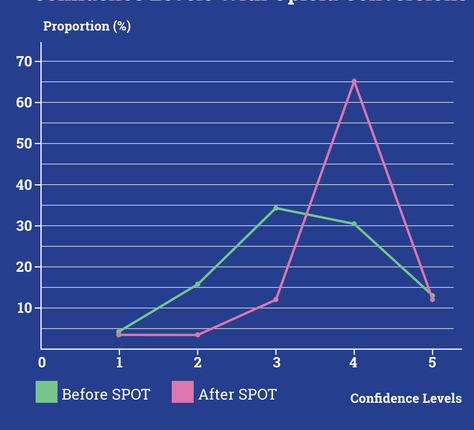

Table 2: Users' self-reported confidence with opioid conversions, before and after SPOT study.

Almost all users (98%) found it beneficial to their clinical practice and for patient safety to have an easy way to double-check their calculations.

Confidence in prescribing opioids was significantly higher in the post-SPOT study group than in the pre-SPOT study group (Table 2) (One-tailed t-test, t-value = -1.94004. p-=0.027).

Discussion

In contrast to tests of other equianalgesic opioid converter test protocols, our intention was to evaluate the clinical utility of a novel CDS, SPOT, using real-world patient conversion data from quantitative and qualitative aspects. The information gathered is intended to provide clarity on the real-world challenges of using technology for opioid conversions.

Reassuringly, almost all of those participating in the survey would double-check their calculations if there was a simple, quick and safe option to do so, reflecting the reality of the pressing clinical need in a high-risk prescribing environment. We found variable adherence to guidelines. For example, despite SPCG guidance to the contrary, not all of the respondents altered their choice of index opioid despite a reduced estimated glomerular filtration rate (eGFR).

Our initial survey identified low confidence and variable competence in performing equianalgesic opioid conversions. The second most commonly cited resource, 'own knowledge', likely reflects that the participants who volunteered to participate in the study had an interest in palliative medicine.

Whilst using SPOT increased End Users' confidence, we must be wary if there is an increase in confidence in conversion without a concomitant increase in the End-Users' capability.

Conclusion

This study evaluated the use of a novel CDS, SPOT, in clinical practice in vivo, using contemporaneous clinical data. SPOT improved self-reported confidence when End Users performed equianalgesic opioid dose conversion in palliative and end of life care settings.

SPOT is not designed to be a prescribing platform or 'do-it-all' tool; that responsibility rests with the prescriber. SPOT was found to appropriately improve End User confidence when prescribing opioids.

SPOT's role is as a support to the generalist making complex, high-risk, clinical decisions.

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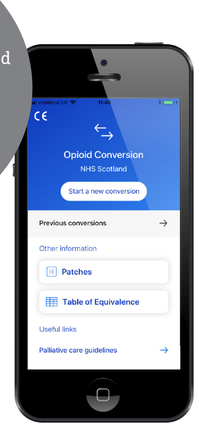
SPOT is a CE Marked Class I medical device

All conversions are recorded

Stores a list of previous conversions

SPOT Links directly to the SPCG 'Gold Standard' guidance



SPOT double-checks the calculation

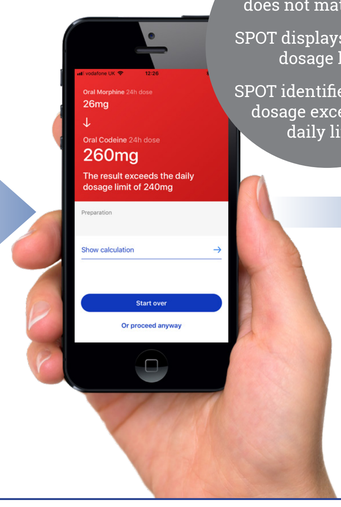
Available preparations are displayed for each opioid

Show calculation demonstrates the mathematical opioid conversion

Warns the user that their answer does not match SPOT

SPOT displays the daily dosage limit

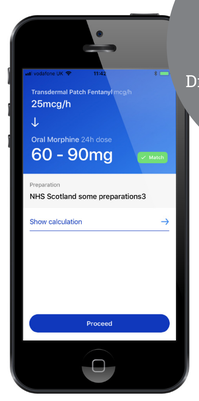
SPOT identifies that the dosage exceeds the daily limit



SPOT's 25 mcg/hr fentanyl patch equivalency

Range provided for all patch conversions

Displays location-specific opioid preparations



References

1. Webster, L., Fine, P. ; 2012 Review and Critique of Opioid Rotation Practices and Associated Risks of Toxicity, Pain Medicine, Volume 13, Issue 4, 1 Pages 562–570, https://bit.ly/2N2zTKg

2. NHS Scotland. 2009. Palliative Care Guidelines [Online]. https://bit.ly/1CRDVYZ Accessed 05/05/2018

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