Background: Prescribing inappropriate pill splitting is not rare in clinical practice. To reduce inappropriate pill splitting, we developed an automatic warning system linked to a computerized physician order entry (CPOE) system for special oral formulation drugs in outpatient settings. We examined the impact of the warning system on inappropriate prescribing of pill splitting and assess prescribers’ responses to the warnings.

Methods: Drugs with extended-release or enteric-coated formulations that were not originally intended to be split were recognized as “special oral formulations”. A hard-stop system which could examine non-integer doses of drugs with special oral formulations, provide warnings to interrupt inappropriate prescriptions was integrated in CPOE in a medical center since June 2010. We designed an intervention study to compare the inappropriate splitting before and after the implementation of the warning system (baseline period January to May vs. intervention period 2010 June to 2011 August). During the intervention period, prescription changes in response to a warning were logged and analyzed.

Results: A total of 470,611 prescribed drug items with 34 different drugs with special oral formulations were prescribed in the study period. During the 15-month intervention period, 909 warnings for 26 different drugs were triggered among 354,523 prescribed drug items with special oral formulations. The warning rate of inappropriate splitting in the late intervention period was lower than those in baseline period (0.16% vs. 0.61%, incidence rate ratio 0.27, 95% CI 0.23–0.31, p<0.001). In resopnd to warnings, physicians had to make adjustments, of which the majority was changing to an unsplit pill (72.9%).

Conclusions: The interruptive warning system could avoid the prescriptions with inappropriate pill splitting. Accordingly, physicians changed their behavior of prescribing special oral formulations regarding inappropriate pill splitting. We suggest the establishment of such system to target special oral formulations with warnings to prevent inappropriate pill splitting.