



17. Polypharmacy

François Noël, September 2020

Several studies indicate that the prescription of multiple medications, or polypharmacy, is increasingly common in clinical practice, particularly among older adults (> 65 years). This practice deserves careful evaluation because the risk of adverse effects and harm increases approximately linearly with the number of drugs used (Viktil et al., 2007). In the case of the elderly, the risk is even greater due to physiological decreases in renal and hepatic function and lower lean body mass, in addition to other factors such as cognitive decline (Masnoon et al., 2017). In the current context of COVID-19, polypharmacy has also been pointed out by some authors as a risk factor for the development of severe cases of this pandemic (McKeigue et al., 2020; McQueenie et al., 2020). To assess the impact of this practice, we must first define what polypharmacy is. Unfortunately, once again, there is a plethora of definitions, and the lack of consensus makes it difficult to estimate the prevalence of polypharmacy and its consequences, such as drug interactions and poor treatment adherence. Indeed, it has been shown that the prevalence of polypharmacy in older adults can vary from 13% to 92%, depending on the definition used and the characteristics of the population studied (Maggiore et al., 2010, cited by Taghy et al., 2020).

The definition given by the WHO, “*the administration of many drugs at the same time, or the administration of an excessive number of drugs”*, is clearly too vague (WHO, 2004), although it does include two interesting elements, as noted by Taghy et al. (2020). The first part of the definition suggests the administration of “many” medications, but does not specify a number, and raises the issue of the temporal dimension according to which polypharmacy should be considered. The second part of the definition refers to an “excessive” number of drugs, thus introducing the more qualitative notion of inappropriate drug use. Seeking a possible consensus in the literature regarding a more objective definition of polypharmacy, Masnoon et al. (2017) conducted a systematic review. Among the 138 definitions they found, the most common (46.4%) was the numerical definition of “*at least five different medications per day*”.

Although numerical definitions are the most common, Taghy et al. (2020) observed that these definitions have been enriched and refined over time to include new characteristics and concepts linked to prescription quality (appropriate, rational vs. inappropriate), duration, or context of therapy. This qualitative approach departs from stricter definitions limited to the number of drugs consumed and challenges the prejudice that polypharmacy is always dangerous or indicative of poor care, by highlighting the importance of the clinical context underlying the prescription and by proposing the concept of “appropriate polypharmacy” (Cadogan et al., 2016).



To conclude, note that it may be useful to distinguish polypharmacy from polypharmacology, which, in its more restricted sense, can be considered as the modulation of different pharmacological targets by a single drug to achieve a desired therapeutic effect (Hopkins, 2012). Such drugs are called “multi-target” agents, as discussed in a [previous entry of this glossary](#).

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