



The Pharmacist's Role in Combating Polypharmacy: A Focus on Geriatric Oncology

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Background/Introduction

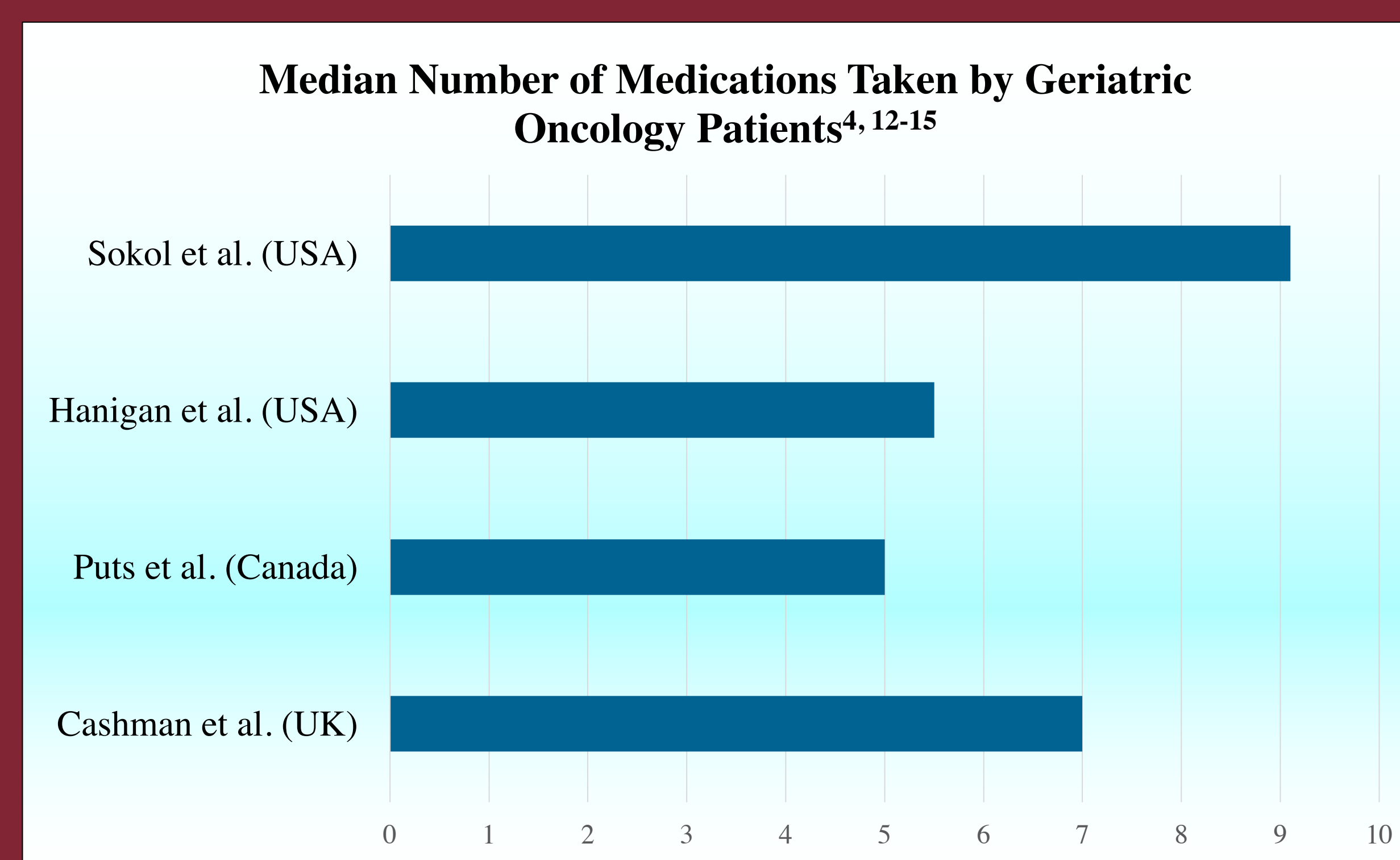
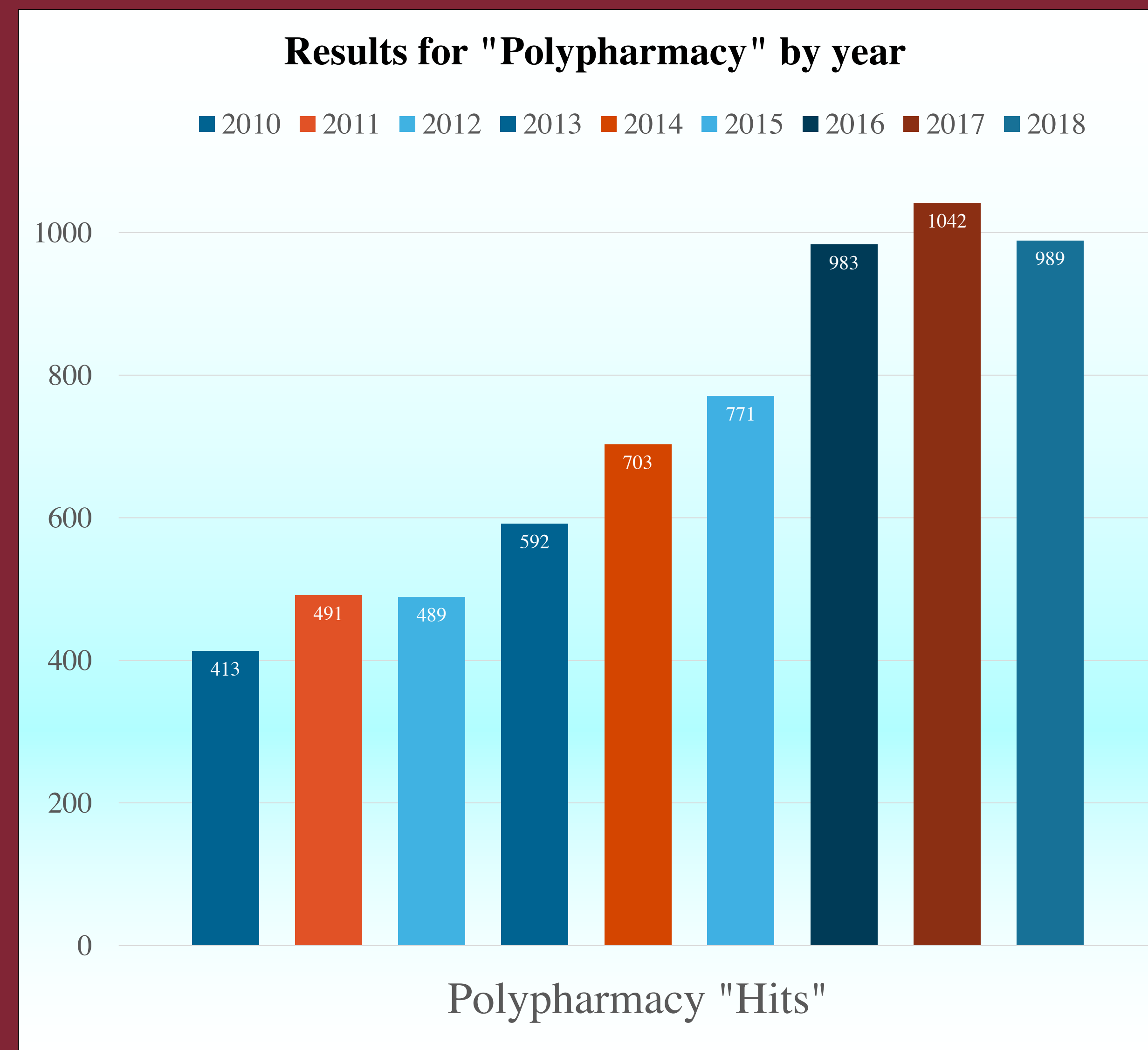
- *What is Polypharmacy?*
 - There are 24 different definitions of polypharmacy in use, dealing with both potentially inappropriate medications (PIMs) as well as an excessive number of medications¹
 - Conventional definitions of polypharmacy deal solely with the number of medications used; **The use of 5 or more medications regularly is one of the most common definitions of polypharmacy²**
- *How common is polypharmacy/use of potentially inappropriate medications (Poly/PIM)?*
 - In the U.S. in 2011-2012, **90% of adults 65 and older** reported taking at least one prescription in the prior 30 days, and **39% reported using 5 or more prescription drugs²**
 - In elderly patients with cancer, **11% to 96% were exposed to polypharmacy²**
- *What factors contribute to Poly/PIM?²*
 - Chronic disease states (i.e. diabetes mellitus)
 - Multimorbidity (having multiple chronic conditions)
 - End-of-life situations, managing symptoms with additional medications
 - Use of complementary and alternative medicine methods
 - Being elderly
 - **Cancer care (complex medication regimens with supportive care medicines)**
- *What outcomes are associated with Poly/PIM?^{3,6}*
 - Hospital admissions
 - Drug-drug interactions
 - Adverse drug effects
 - Increased healthcare costs
 - Increased length of stay
 - Delirium
 - **Chemotherapy-related toxicities**
 - Post-operative complications
 - Falls, disability, and frailty

Objectives

- To summarize the associated negative outcomes of polypharmacy and potentially inappropriate medications (PIMs) in the geriatric oncology population
- To discuss useful and impactful pharmacist-lead interventions to prevent harm resulting from polypharmacy and PIMs

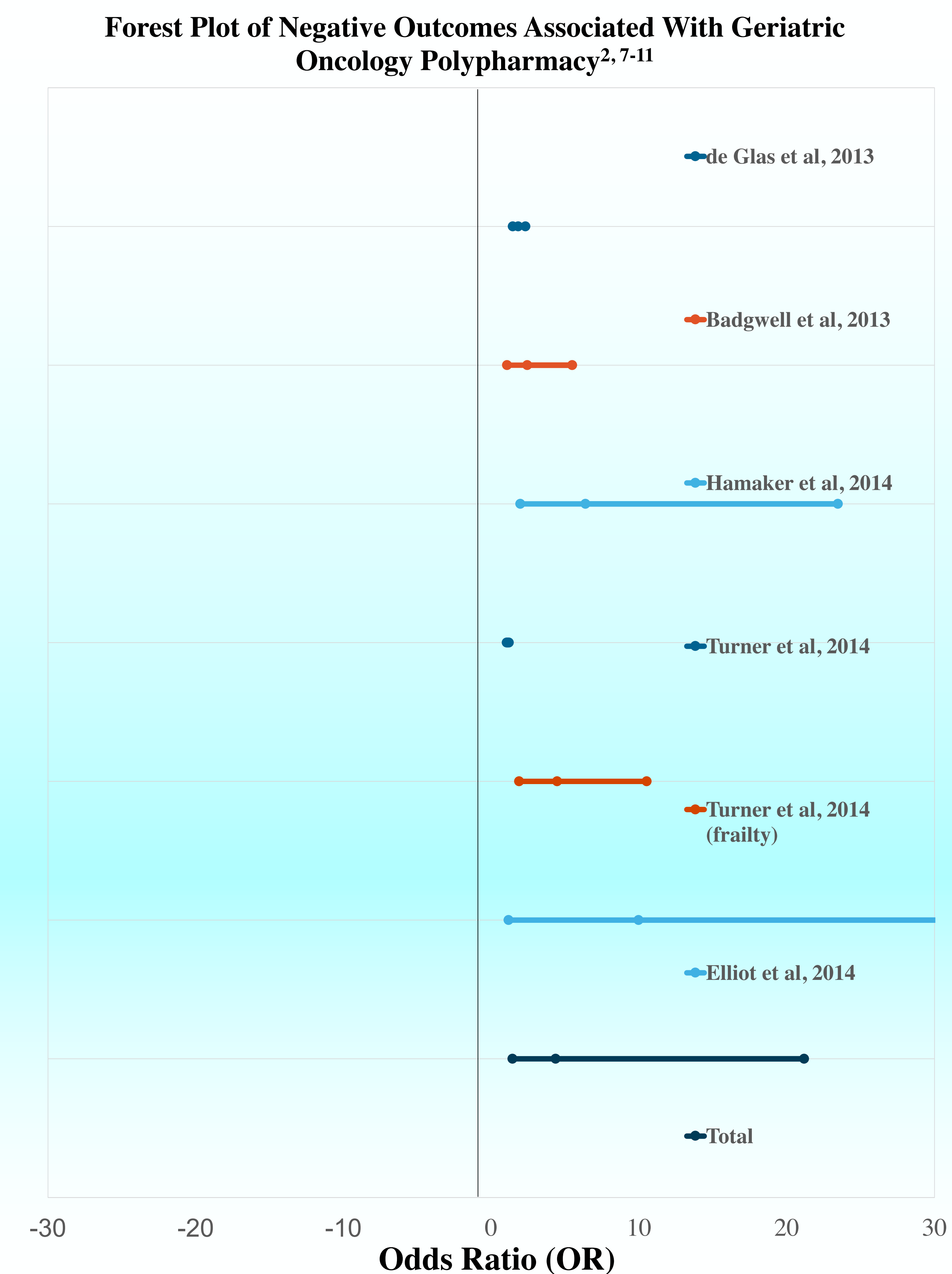
Methods

- A review of the literature was conducted using the Pubmed electronic database
- Search criteria included: articles published in the English language between the years of 2005-2019; using combinations of the words “Geriatric,” “Oncology,” “Polypharmacy,” and “Potentially inappropriate medications”
- Articles were individually screened twice for relevance via abstract review. Articles that did not meet relevancy were excluded.
- The most common themes, definitions, and ideas found throughout the relevant literature were included and summarized in this review.



Study Design

- This is a meta-analysis that builds on previous systematic reviews, such as *Sharma et al (2017)*, and further synthesizes data into meaningful tables for analysis, supporting the position that pharmacists are best equipped to intervene and combat polypharmacy
- A literature search was conducted using the Pubmed electronic database, with criteria as defined in the *Methods* section



Discussion

- Polypharmacy is an increasing concern as patients grow older and live longer. Elderly patients with multiple chronic conditions are at an increased risk for Poly/PIM.
- Medication regimens are becoming increasingly complex, especially in conditions that require many supportive care medications (i.e. cancer)
- **Methods for pharmacists to combat polypharmacy:**
 - Geriatric Assessment (GA)
 - Rational deprescribing
- **Tools to aid in the process:**
 - EHRs
 - Beer's list criteria
 - Screening Tool for Older People's Prescriptions (STOPP)
 - Medication Appropriateness Index (MAI) tool

Conclusion

- Poly/PIM are issues plaguing the care of elderly patients, especially those with cancer. The negative outcomes associated with poly/PIM are well elucidated.
- Pharmacists are uniquely positioned to hone in on Poly/PIM issues. Pharmacists can effectively and efficiently optimize medication regimens due to extensive pharmacotherapeutic training and education
- Opportunities exist for such optimization and review, such as MTMs, CMRs, in LTC facilities, in the community, ambulatory care settings, and at transitions of care (ex. discharge/transfer)

References

1. Bushardt RL, Massey EB, Simpson TW, Arzall JC, Simpson KN. Polypharmacy: misleading, but manageable. *Clin Interv Aging*. 2008;3(2):283-9. PubMed PMID: 18686760; PubMed Central PMCID: PMC2546482.
2. Sharma M, Loh KP, Nightingale G, Mohile SG, Holmes HM. Polypharmacy and potentially inappropriate medication use in geriatric oncology. *J Geriatr Oncol*. 2016 Sep;7(5):346-53. doi: 10.1016/j.jgo.2016.07.010. Epub 2016 Aug 3. Review. PubMed PMID: 27498305; PubMed Central PMCID: PMC5037024. Maher et al. 2014 2015;11(7):040-7. Epub 2011 Jul 6. Review. PubMed PMID: 21741307.
3. Lee J, Chan A. Polypharmacy in elderly patients with cancer: clinical implications and management. *Lancet Oncol*. 2011 Dec;12(13):1249-57. doi: 10.1016/S1470-2045(11)70400-7. Epub 2011 Jul 6. Review. PubMed PMID: 21741307.
4. Maher RL, Hanlon J, Hajjar ER. Clinical consequences of polypharmacy in elderly. *Expert Opin Drug Saf*. 2014 Jan;13(1):57-65. doi: 10.1517/14740338.2013.827660. Epub 2013 Sep 27. Review. PubMed PMID: 24073682; PubMed Central PMCID: PMC3864987.
5. Alhawassi TM, Alatawi W, Alwhabi M. Prevalence of potentially inappropriate medications use among older adults and risk factors using the 2015 American Geriatrics Society Beers criteria. *BMC Geriatr*. 2019 May 29;19(1):154. doi: 10.1186/s12877-019-1168-1. PubMed PMID: 31142286; PubMed Central PMCID: PMC6542798.
6. Fried TR, O'Leary J, Towle V, Goldstein MK, Trentalange M, Martin DK. Health outcomes associated with polypharmacy in community-dwelling older adults: a systematic review. *J Am Geriatr Soc*. 2014 Dec;62(12):2261-72. doi: 10.1111/jgs.13153. Review. PubMed PMID: 25516023; PubMed Central PMCID: PMC4270076.
7. de Glas NA, Kiderlen M, Bastiaansen E, et al. Postoperative complications and survival of elderly breast cancer patients: a FOCUS study analysis. *Breast Cancer Res Treat*. 2013; 138(2):561-9. [PubMed: 23446810]
8. Badgwell B, Stanley J, Chang GJ, et al. Comprehensive geriatric assessment of risk factors associated with adverse outcomes and resource utilization in cancer patients undergoing abdominal surgery. *J Surg Oncol*. 2013; 108(3):182-6. [PubMed: 23804149]
9. Hamaker ME, Seynaeve C, Wymenga AN, et al. Baseline comprehensive geriatric assessment is associated with toxicity and survival in elderly metastatic breast cancer patients receiving single-agent chemotherapy: results from the OMEGA study of the Dutch breast cancer trialists' group. *Breast*. 2014; 23(1):81-7. [PubMed: 24314824]
10. Turner JP, Shakib S, Singhal N, et al. Prevalence and factors associated with polypharmacy in older people with cancer. *Support Care Cancer*. 2014; 22(7):1727-34. [PubMed: 24584682]
11. Elliot K, Toose JA, Geller R, et al. The prognostic importance of polypharmacy in older adults treated for acute myelogenous leukemia (AML). *Leuk Res*. 2014; 38(10):1184-90. [PubMed: 25127690]
12. Sokol KC, Knudsen JE, Li MM. Polypharmacy in older oncology patients and the need for an interdisciplinary approach to side-effect management. *J Clin Pharm Ther* 2007; 32: 169-75.
13. Hanigan MH, Dela Cruz BL, Thompson DM, Farmer KC, Medina P. Use of prescription and nonprescription medications and supplements by cancer patients during chemotherapy: questionnaire validation. *J Oncol Pharm Pract* 2008; 14: 123-30.
14. Puts MT, Costa-Lima B, Monette J, et al. Medication problems in older, newly diagnosed cancer patients in Canada: how common are they? A prospective pilot study. *Drugs Aging* 2009; 26: 519-36.
15. Cashman J, Wright J, Ring A. The treatment of comorbidities in older patients with metastatic cancer. *Support Care Cancer* 2010; 18: 651-55.