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INTRODUCTION

- Ethical pharmaceutical products may continue to be prescribed and dispensed in Japan even after they become available as over-the-counter (OTC) products in retail drug stores. These products are often described as OTC *ruiji-yaku*, or literally “OTC analogue products”.
- When physicians prescribe OTC analogue products they are reimbursed under the national health insurance system with a similar coinsurance rate as non-OTC analogue pharmaceuticals and physicians may claim a prescribing fee. Moreover, OTC analogue products prescribed by physicians are typically dispensed by pharmacies that dispense ethical pharmaceutical products and those pharmacies may claim a dispensing fee in addition to collecting a reimbursement fee for the drug itself.
- Discussions are ongoing about whether to continue the policy of reimbursing OTC analogue products at a similar level as other pharmaceuticals or to increase their coinsurance level. A report released by Japan’s Institute for Health Economics and Policy (IHEP) in March 2019 that re-examined the scope of public health insurance funding in Japan highlighted OTC analogue products as an area where a reduction in reimbursement coverage might be considered.¹
- This research examines the prescribing and dispensing of molecules for which OTC products are available in Japan based on real world data to help understand how changes in reimbursement policy may affect healthcare expenditures in Japan. Findings are extrapolated to the national patient population to gauge the overall volume of prescribing molecules for which OTC products are available in Japan by therapy area.

METHOD

- The prescribing of 71 molecules for which OTC products are available in Japan was examined for fiscal year 2018 using the Medi-Scope insurance claims database. Medi-Scope is an insurance claims database available through Kyowa Kikaku Ltd., a subsidiary of INTAGE Healthcare Inc., which includes longitudinal data for approximately 6.7 million unique patients in Japan.²
- Below is a list of the 71 molecules included in this analysis by therapy area:

| Therapy Area(s) | # of Molecules | Molecules Included |
|---|----------------|---|
| Nasal preparations, decongestants, anti-allergics, antihistamines, cough and cold preparations, etc. (ATC Codes: C04A, G04D, R01A, R03A, R05A, R06A, S01G, etc.) | 21 | acitazanolast, ambroxol, azelastine, bepotastine, beclometasone dipropionate, bromhexine, cetirizine, dimemorfan, ebastine, emedastine, epinastine, eprazinone, fexofenadine, flavoxate, loratadine, mequitazine, oxymetazoline, pemirolast, sodium cromoglicate, tranilast |
| Drugs for acid related disorders; drugs for functional GI disorders (ATC Codes: A02B, A03A, A06A, N01B, N07X, etc.) | 18 | cetraxate, cimetidine, famotidine, gefarnate, hyoscine butylbromide, sofalcone, loperamide, nizatidine, oxethazaine, pirenzepine, ranitidine, roxatidine, sodium picosulfate, teprenone, timentidine bromide, tiqizium bromide, trimebutine, troxipide |
| Antifungals for topical use (ATC Codes: D01A, G01B, etc.) | 11 | amorolfine, bifonazole, butenafine, clotrimazole, isoconazole, lanoconazole, miconazole, neticonazole, oxiconazole, sulconazole, terbinafine |
| Anti-inflammatory and anti-rheumatic products; topical products for joint and muscle pain (ATC Codes: M01A, M02A, etc.) | 9 | diclofenac, felbinac, ibuprofen, ibuprofen piconol, indomethacin, ketoprofen, loxoprofen, piroxicam, ufenamate |
| Antivirals (ATC Code: D06D) | 2 | aciclovir, vidarabine |
| Corticosteroids for systemic use; Corticosteroids; Dermatological preparations (ATC Code: H02A) | 3 | hydrocortisone, prednisolone, triamcinolone acetoneide |
| Other (ATC Codes: A12B, S01R, C10A, A11F, C01X, C04, etc.) | 7 | calcium L-aspartate hydrate, econazole, ethyl icosapentate, , pranoprofen, polyene phosphatidyl choline, vitamin B12, nicotine |

- The number of patients prescribed each molecule and characteristics of those prescribed each molecule such as age, type of facility visited, region, and generic versus branded prescriptions were examined and summarized.
- Lastly, findings on the prescribing and dispensing of the molecules were extrapolated to the nationwide patient population using data available on the number of patients presenting by age in a typical month from the Ministry of Health, Labor, and Welfare’s 2017 Patient Survey.³

RESULTS

OTC Analogue Product Prescribing by Age Group & Therapy Area

- Nearly 20% of patients in the Medi-scope claims database in fiscal year 2018 were prescribed a molecule for which an OTC product is available in Japan. Moreover, **the top 20 (out of 71) products comprised about 80% of all prescriptions** of molecules for which an OTC product is available in terms of persons prescribed each product.
- Nonsteroidal anti-inflammatory and pain drugs such as loxoprofen (19.6%) and diclofenac (4.3%), cough remedies such as ambroxol (9.6%) and dimemorfan (3.0%), and anti-allergy / antihistamines such as fexofenadine (6.2%) and epinastine (5.3%) comprised the majority of OTC analogue prescriptions.
- As shown in Table 1, **allergy and cold medications and nonsteroidal anti-inflammatory and pain medications combined represented about 75% of all prescriptions** in terms of persons prescribed each product.

Table 1: Breakdown by Drug Category / Age Group

| | Total | 0-14 years old | 15-64 years old | 65 or older |
|-----------------------------|-------|----------------|-----------------|-------------|
| Allergy / cold medications | 45.4% | 65.6% | 36.3% | 24.0% |
| NSAIDs and pain medications | 29.0% | 14.8% | 37.1% | 42.3% |
| GI treatments | 12.7% | 4.5% | 15.1% | 17.8% |
| Corticosteroids | 6.7% | 12.7% | 4.2% | 4.0% |
| Antifungals | 2.1% | 0.7% | 2.5% | 2.4% |
| Antivirals | 0.8% | 0.7% | 0.8% | 0.8% |
| Other | 3.4% | 1.0% | 4.0% | 8.7% |
| TOTAL | 100% | 100% | 100% | 100% |

OTC Analogue Product Prescribing by Age Group & Therapy Area (continued)

- However, when observed by age, the prescribing of molecules for allergies and colds and corticosteroids for which OTC products are available in Japan was substantially higher among those aged 0-14. In contrast, the **prescribing of molecules for anti-inflammation / pain and GI treatments for which OTC products are available in Japan was substantially higher among those aged 15 or older** and highest among those aged 65 and older.

Characteristics of OTC Analogue Prescribing

- Little or no difference was observed in the prescribing of molecules for which an OTC product is available in Japan compared to ALL products** in terms of prescribing characteristics such as age, type of facility visited, region, and generic versus branded prescriptions. However, molecules for which OTC products are available in Japan were somewhat more likely to be generic products (53.5% vs. 49.7%).

Estimate of National Volume of Prescribing by Therapy Area

- When extrapolated to the national level, the breakdown of prescriptions by category for molecules for which an OTC product is available in Japan changes due to the low representation of elderly persons in the Medi-Scope claims database. As shown in Figure 1 and Figure 2, while allergy and cold medications represented the highest proportion of prescribing for the Medi-Scope claims database, when extrapolated to the national level **NSAIDs and pain drugs represent the highest proportion of prescribing** – or about 38% of all prescriptions among prescriptions of molecules for which an OTC product is available in Japan.

Figure 1: Breakdown of Prescribing by Drug Category for Molecules for which an OTC Product is Available in Japan (Medi-Scope claims database, 2018)

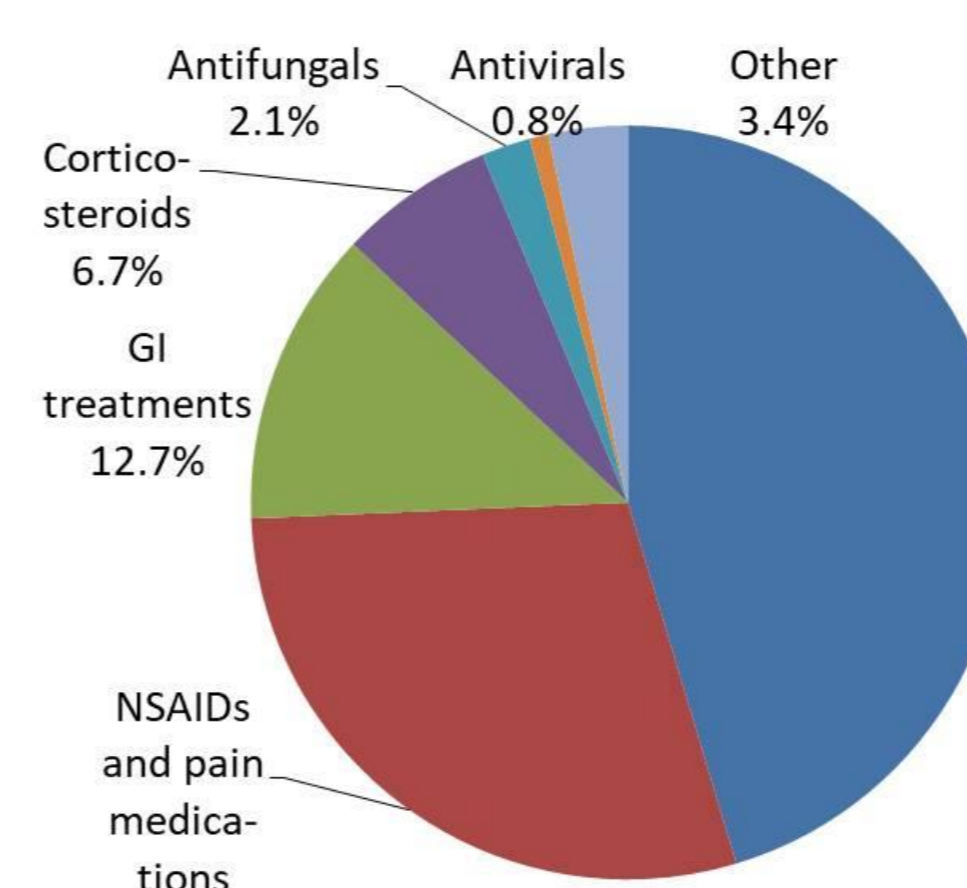
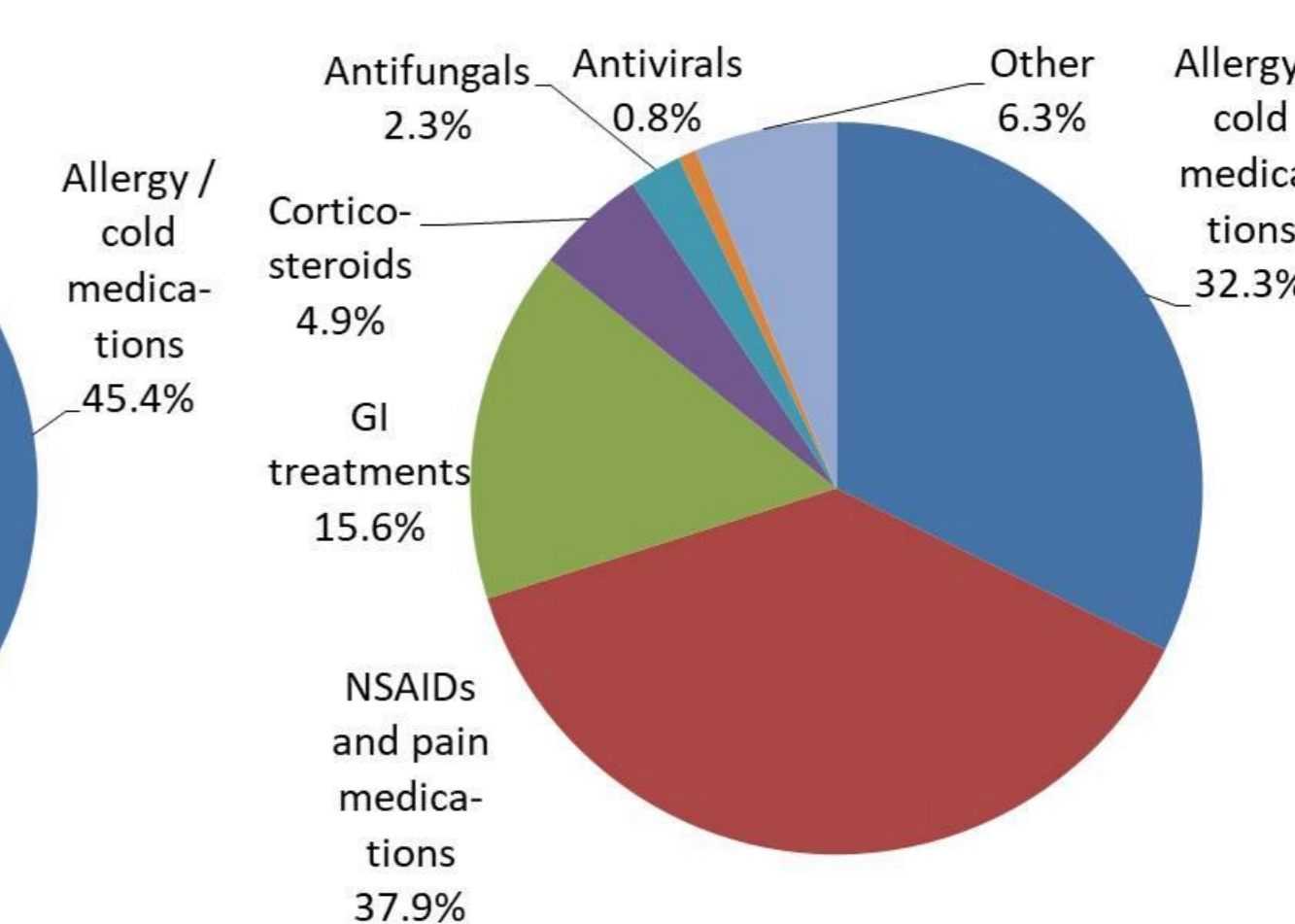
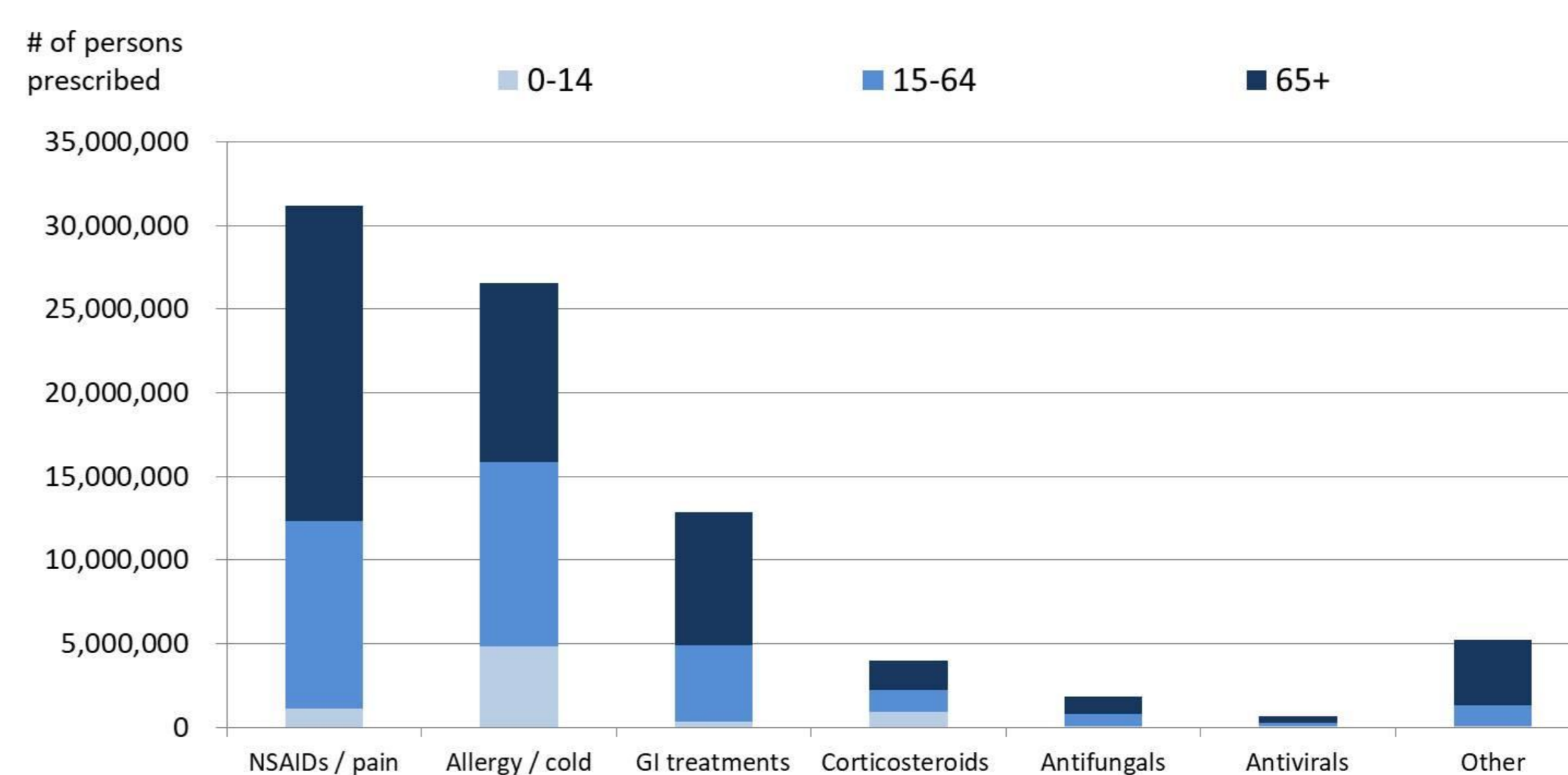


Figure 2: National-Level Estimate of Breakdown of Prescribing for Molecules for which an OTC Product is Available in Japan



- Figure 3 shows a national level estimate of the prescription volume for each drug category in terms of persons prescribed molecules for which an OTC product is available in Japan. Among molecules for which an OTC product is available in Japan, it is estimated that over 30 million persons are prescribed NSAIDs and pain drugs and over 25 million persons are prescribed allergy or cold medications in a given year in Japan. This represents **about 29% and 25% of all patients seen in Japan in a given year**, respectively, based on the Ministry of Health, Labor, and Welfare’s 2017 Patient Survey.

Figure 3: National Level Estimate of Prescribing by OTC Drug Category



CONCLUSIONS

- Despite being available in retail drug stores in Japan, OTC analogue products are still commonly prescribed by physicians and dispensed by pharmacies for the treatment of pain, coughs, skin disorders, and allergies in Japan.
- Additional research is needed to understand how changes in the coinsurance level of OTC analogue products may affect the **behavior of Japanese patients** in terms of their likelihood to visit a physician when symptoms present – including prior to, after, and in the absence of a visit to a retail drug store where OTC products are available.
- Moreover, research is needed to understand how the **prescribing of Japanese physicians** may change if their patients are faced with a higher coinsurance level for OTC analogue products.
- Lastly, it may be beneficial to consider the **potential impact of increasing the coinsurance level of OTC analogue products** in Japan on important factors such **patient outcomes, duration of illness, and adherence to the recommended usage** for those products.

CAVEATS / LIMITATIONS

- While the findings presented provide an overview of the usage of molecules for which an OTC product is available in Japan that may serve as a reference for the ongoing discussions, the Medi-Scope claims database does not include claims from the national insurance programs managed by local municipalities in Japan which covers most retired and self-employed persons. As such, the database includes only a limited number of persons aged 65 or older. Because of this, estimates for that age group may be imprecise.
- Next, it is important to note that not all preparations and formulations of the molecules examined are available as OTC products and the approved indications may differ for some products. Future research should take that issue into account when considering changes in patient and physician behavior.

REFERENCES

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