# The Share of Discharged Patients Returning to the Same Kind of Place Is 0.885 for Those Who Came from Home and 0.524–0.646 for Those from Geriatric Health Facilities, Nursing Homes, and Social Welfare Facilities — the Share Discharged Home Falls from 0.956 at Ages 40–44 to 0.458 at 90+, but the Mix of Places Before Admission Explains Only 0.454 of That Fall, Less Than Half [M091]

**Age difference in the share discharged home = part from the mix of places before admission + part within people from the same place ── What separates them is where people came from versus differences among people from the same place**

Yuuki YAMAGISHI (山岸 勇輝) ／ Independent Researcher
ORCID 0009-0006-8587-3450
September 2026 ／ CC BY 4.0

## Abstract

**Using Table 93 (place before admission × destination after discharge), Table 96 (destination × age), and Table 89 (place before admission × age) of the Ministry of Health, Labour and Welfare's Patient Survey (discharges in September 2023), this paper looked at how far the destination after discharge is set by where patients came from, and how much of the age difference in the share discharged home the mix of places before admission explains. No new mathematical theorem and no new law are claimed.**

First, the tables are consistent. In Table 93 both the destinations and the places before admission sum to the total (rounding difference at most 0.1 thousand), and the totals of Tables 96 and 89 match the total row and column of Table 93 (Section 3).

Second, **of the 1,388.2 thousand discharges in September 2023, 0.885 of those who came from home returned home, and 0.524 of those from geriatric health facilities, 0.567 of those from nursing homes, and 0.646 of those from social welfare facilities returned to the same kind of facility. Of those from another hospital or clinic, 0.436 went home and 0.236 to another hospital or clinic** (Section 4).

Third, **the share whose destination was "other (death, unknown, etc.)" is lowest for those from home, 0.043, and 0.159–0.286 for those from other hospitals and facilities** (Section 4).

Fourth, this is the core of the paper. **The share discharged home falls by 0.498, from 0.956 at ages 40–44 to 0.458 at 90+. Expected from the mix of places before admission alone (if the share discharged home for each place before admission did not depend on age), it falls by 0.226, from 0.871 to 0.645, which is 0.454 of the actual fall.** The rest corresponds to age differences among people from the same place (Section 5).

Fifth, **the actual share exceeds the expectation from ages 1–4 to 70–74 and falls below it from 75–79, by 0.188 at 90+.** At 90+, 0.645 came from home, and 0.191 had "other (death, unknown, etc.)" as their destination (Section 5).

Sixth, what separates them is **where people came from versus differences among people from the same place**. "Older people cannot go back home" calls two things by one name: more people being admitted from facilities and elsewhere, and people who came from home returning home less often; in the fall to 90+, the latter is larger.

---

**Scope note**: **This paper claims no new mathematical theorem and no new law** — places before admission and destinations after discharge are in public tables, and this paper only computed destination shares by place before admission and split the age difference into the part from the mix of places before admission and the rest. **This paper is a structural interpretation of the shape of numbers in public aggregate data; it is not medical advice, not a diagnosis, and not a treatment recommendation. The author is not a physician. Decisions about individual health should be discussed with a physician or a medical institution. This is a preprint that has not been peer reviewed. It does not address where patients should be discharged to, whether home or facilities are better, or whether hospitals, facilities, or care are good or bad.** The destination "other" combines death, unknown, and the like, and this paper does not separate them. It does not blame people who were hospitalized, their families, or care workers. The "expectation from the mix of places before admission alone" assumes that the share discharged home for each place before admission does not depend on age; that share by age is not in the tables, so the remaining part (differences among people from the same place) is not measured directly. Why the share discharged home falls with age cannot be separated with these tables. The survey covers discharges in one month, September 2023. Prefectures and medical institutions are not compared. **About the data**: the Patient Survey (Ministry of Health, Labour and Welfare) was taken from e-Stat and used under the Government of Japan Standard Terms of Use (Version 2.0); the shares and expectations in this paper were processed from it. What this paper adds: **computing the share returning to the same kind of place from the combination of place before admission and destination after discharge, and showing that the mix of places before admission explains 0.454 of the fall in the share discharged home from ages 40–44 to 90+.**

## 1. Notation and question

- **Share returning to the same kind of place**: for each place before admission, the share whose destination after discharge was the same kind of place.
- **Expectation from the mix of places before admission alone**: an age group's shares by place before admission multiplied by the all-ages "share discharged home for each place before admission" and summed.
- **Share explained by the mix**: the fall in the expectation divided by the actual fall, from ages 40–44 to 90+.

**Question**: How far is the destination after discharge set by where patients came from? When older people are discharged home less often, is it because more are admitted from facilities and elsewhere, or because people from the same place go to different destinations?

**Observation 1.1**: M009 used the discharge tables of the same Patient Survey to show that the "average length of stay" is the average of the people who are discharged. This paper uses the same discharge tables to look at the places before and after.

---

## 2. Preview and design

**Written honestly**: the design was decided after looking at the tables.

| | Content |
|---|---|
| Tables | Patient Survey 2023, national volume, Table 93 (place before admission × destination after discharge), Table 96 (destination × sex and age group), and Table 89 (place before admission × sex and age group); discharges in September 2023 |
| Noticed in the preview | No table has place before admission × destination × age together. So an expectation from the mix alone was built from the age-specific shares by place before admission (Table 89) and the all-ages destination shares (Table 93), and compared with the actual values (Table 96) |
| Noticed in the preview (2) | At age 0, newborns fall under "other" as place before admission, and the share from home is as low as 0.360. Age 0 was left out of the age comparison |
| Comparison | Destination shares by place before admission, and the actual and mix-only expected share discharged home by age |

---

## 3. Data and checks

**Calculation 3.1** The 3 retrieved files were fixed by SHA-256, and the following were checked.

- Table 93 is for September 2023, in thousands. Places before admission and destinations each have 7 top-level categories. Destinations minus the total are at most 0.0, and places before admission minus the total at most 0.1 thousand (rounding).
- The columns of Tables 96 and 89 are in the same order as Table 93, and their totals match the total row and column of Table 93. Age groups (0 to 90+ and unknown) minus the total are at most 0.3 thousand.

---

## 4. Where people came from and where they go

**Calculation 4.1** Destination after discharge by place before admission (Table 93, total, shares)

| Place before admission | Discharges (thousand) | Home | Other hospital/clinic | Same kind of facility | Other (death, unknown, etc.) |
|---|---|---|---|---|---|
| Home | 1207.3 | 0.885 | 0.055 | | 0.043 |
| Other hospital/clinic | 94.1 | 0.436 | 0.236 | | 0.208 |
| Geriatric health facility | 14.5 | 0.062 | 0.103 | 0.524 | 0.221 |
| Nursing home | 24.7 | 0.049 | 0.093 | 0.567 | 0.211 |
| Social welfare facility | 22.6 | 0.053 | 0.097 | 0.646 | 0.159 |

**Observation 4.2**: **0.885 of those from home went home, and 0.524–0.646 of those from geriatric health facilities, nursing homes, and social welfare facilities returned to the same kind of facility. Of those from another hospital or clinic, 0.436 went home and 0.236 to another hospital or clinic.** Those from long-term care hospitals number only 1.4 thousand, and their shares move a lot with rounding, so they are not listed.

**Observation 4.3**: **The share whose destination was "other (death, unknown, etc.)" is lowest for those from home, 0.043, and 0.159–0.286 for those from other hospitals and facilities.**

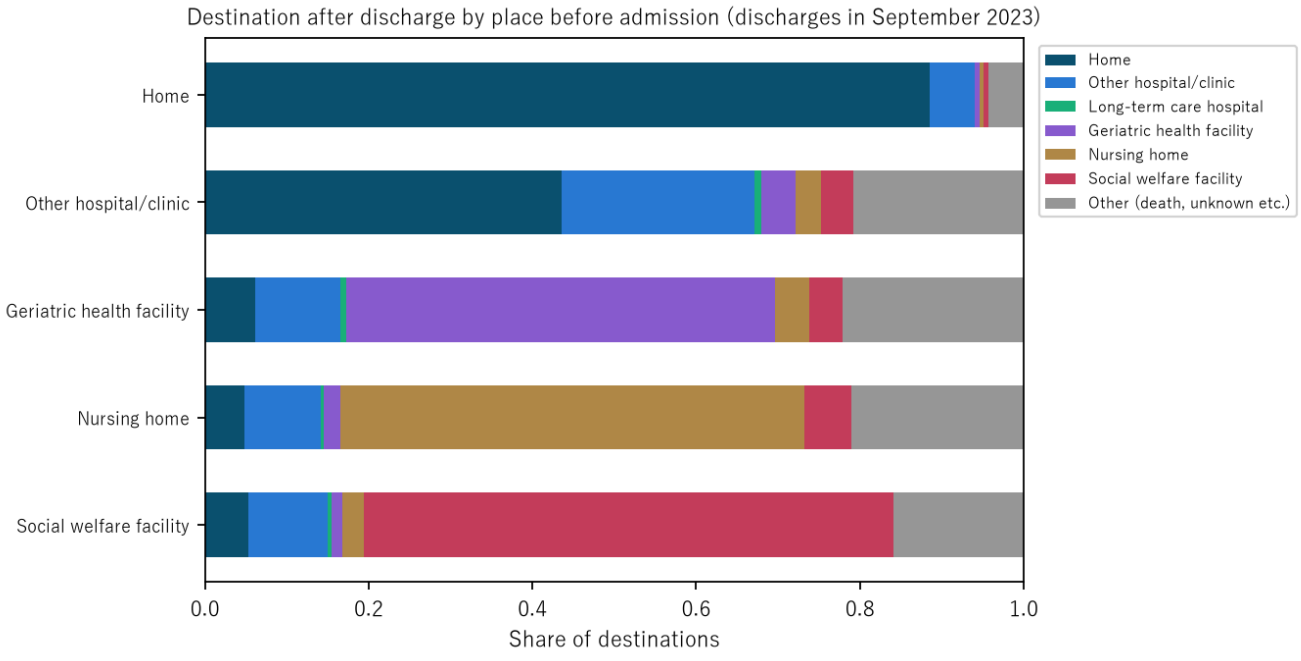


**Figure 1**: Shares of destinations after discharge by place before admission (discharges in September 2023).

---

## 5. The core — how much the mix of places before admission explains

**Calculation 5.1** Share discharged home: actual and expected from the mix of places before admission alone

| Age | Discharges (thousand) | From home | Home (actual) | Home (mix-only expectation) | Difference |
|---|---|---|---|---|---|
| 1–4 | 26.3 | 0.985 | 0.981 | 0.883 | +0.098 |
| 40–44 | 34.2 | 0.968 | 0.956 | 0.871 | +0.085 |
| 70–74 | 163.1 | 0.915 | 0.862 | 0.841 | +0.021 |
| 75–79 | 178.3 | 0.891 | 0.823 | 0.826 | -0.003 |
| 80–84 | 172.7 | 0.845 | 0.745 | 0.796 | -0.050 |
| 85–89 | 141.1 | 0.759 | 0.624 | 0.737 | -0.113 |
| 90+ | 119.0 | 0.645 | 0.458 | 0.645 | -0.188 |

**Observation 5.2**: **The share discharged home falls by 0.498, from 0.956 at ages 40–44 to 0.458 at 90+. The mix-only expectation falls by 0.226, from 0.871 to 0.645, which is 0.454 of the actual fall.** The rest corresponds to age differences among people from the same place, but because the age-specific "share discharged home for each place before admission" is not in the tables, it is not measured directly.

**Observation 5.3**: **The actual share exceeds the expectation in the 15 age groups from 1–4 to 70–74 and falls below it from 75–79.** Because the expectation uses all-ages shares, the actual value comes out above it at younger ages and below it at older ages. At 90+ the difference is −0.188. The share with "other (death, unknown, etc.)" as destination is 0.015 at 40–44, 0.061 at 75–79, and 0.191 at 90+.

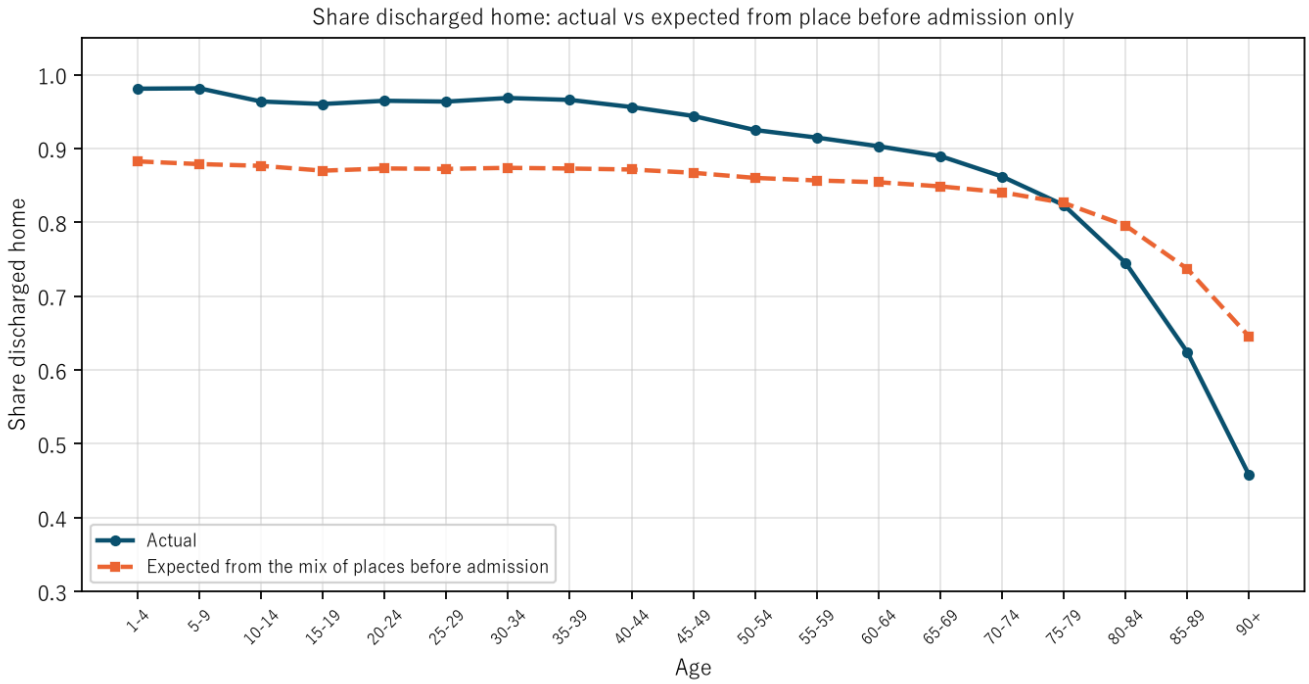



**Figure 2**: Share discharged home: actual (navy) and the expectation from the mix of places before admission alone (orange dashed).

---

## 6. Limitations

1. **The mix-only expectation assumes that the share discharged home for each place before admission does not depend on age.** That share by age is not in the tables, and the remaining part is not measured directly.
2. The destination "other" combines death, unknown, and the like, and this paper does not separate them.
3. The survey covers discharges in one month, September 2023, and seasonal differences are not examined. A person discharged several times is counted each time.
4. Why the share discharged home falls with age cannot be separated with these tables.
5. The paper does not address where patients should be discharged to, whether home or facilities are better, or whether hospitals, facilities, or care are good or bad.

---

## Conclusion

Of the discharged patients, 0.885 of those from home went home, and 0.524–0.646 of those from geriatric health facilities, nursing homes, and social welfare facilities returned to the same kind of facility. The share discharged home fell from 0.956 at ages 40–44 to 0.458 at 90+, but the mix of places before admission explained only 0.454 of that fall, less than half.

**What separates them is one thing — where people came from versus differences among people from the same place.**

When you hear "older people cannot go back home," **check together whether it is about more people being admitted from elsewhere or about people who came from home going somewhere else.**

---

## Data and reproduction

| | |
|---|---|
| Data | Patient Survey 2023, national volume, Tables 93, 96, and 89 (Ministry of Health, Labour and Welfare, e-Stat) (retrieved 26 September 2026) |
| Terms of use | e-Stat follows the Government of Japan Standard Terms of Use (Version 2.0). The shares and expectations in this paper were processed from it and are not numbers produced by the government |
| Coverage | Japan, discharges in September 2023 (estimated number of discharged patients), hospitals and general clinics combined |
| Verification | `検算/M091.py` (`--zu` also draws the figures). Every number in the text is taken from `検算/M091_output.txt` |
| Raw data | `data/` holds the retrieved files and `SOURCES.md` (URLs, retrieval date, SHA-256, terms of use, definitions and how the calculations were set up) |
| Figures | `図/M091_zu1`, `図/M091_zu2` (png, svg, English versions) |

---

## References


- Ministry of Health, Labour and Welfare. Patient Survey 2023, national volume, Tables 93, 96, and 89 (in Japanese). e-Stat (accessed 26 September 2026). https://www.e-stat.go.jp/
- Yamagishi, Y. (2026). "Average Length of Stay" Is the Average of the People Who Are Discharged [M009]. Zenodo. https://doi.org/10.5281/zenodo.22965052