

The Logistics of Distributed Aged Care in a Local Swedish Community

Tore J Larsson

Centre for Health and Building
Royal Institute of Technology
100 44 Stockholm, Sweden

ABSTRACT

In an attempt to map the pattern of care contacts between +65 year olds with multiple medical diagnoses living at home and their formal and informal care and service providers, 62 persons in the local council of Haninge agreed to keep a diary of all their health related contact events for a period of 6 months. The participants were visited once a fortnight and their diary inputs were recorded. The data was collected during 2011, 2012 and 2013. 20 000 contact events and 28 000 activities were recorded over 10620 participant days. Background variables like marital status, type of dwelling, type of medical problems were related to patterns of contact with health care staff, transport services, type of care services provided, importance of family and informal care providers. The result is a fairly detailed description of the logistics requirements in a system of distributed aged care with high accessibility and retained independence.

Keywords: Aged Care, Health Care Logistics, Ageing in Place

INTRODUCTION

Haninge, a Council south of Stockholm, Sweden, a combination of suburbs, countryside and archipelago, has a population of 80 615 (2013), where 12 519 (15,5%) are older than 65.

The demographic prognosis for Haninge implies that the group over the age of 75 will increase by a net of 20% within the next 8 years.

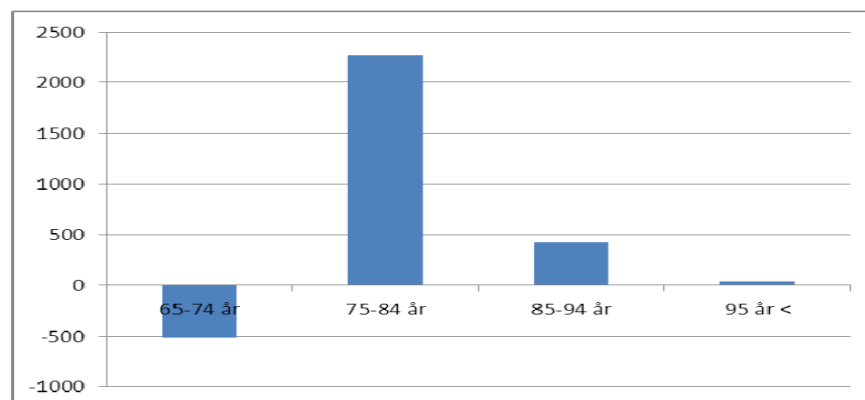


Figure 1 Prognosis for demographic change in Haninge Council 2013-2021 (Höglund 2014)

Four percent in the age group 65-79 have been granted home services by the Council and 1% have moved to special accommodation; in the age group over 80, 20 % have home services and 12% are in special accommodation.

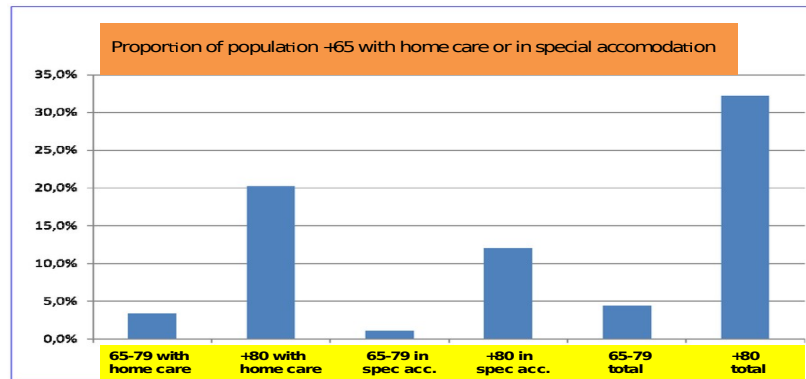


Figure 2 Proportion of population +65 in Haninge Council with home care services or in special accommodation (Höglund 2014)

Around 14% of the total revenue of the Council is spent on aged care (2012). The major cost in the area is special accommodation, which consumes 60% of the aged care annual budget. The cost of special accommodation is more than twice the cost of providing home care services (Figure 3).

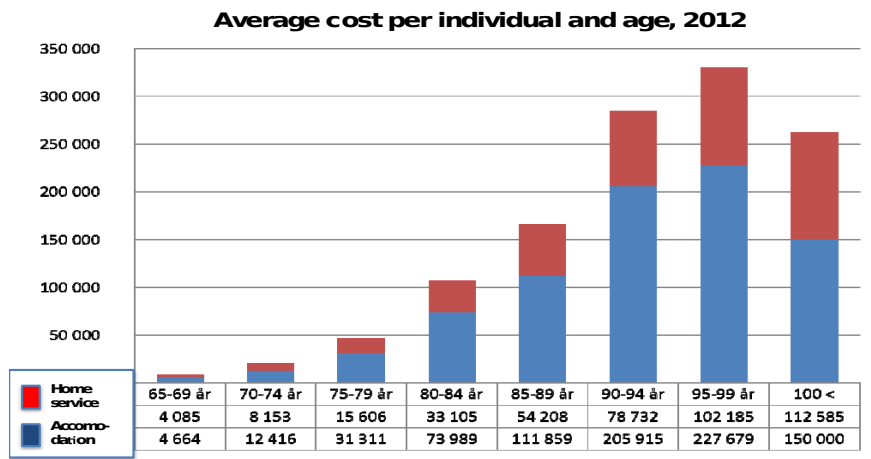


Figure 3 Average cost per individual and age on home care service and special accommodation in Haninge Council 2012 (Höglund 2014)

Demographic changes and the development of communication technology in the local systems of health care will influence the access to, demand for and sustainability of aged care services (Rest et al 2012). The total costs of aged care will increase; a growing proportion of this will probably have to be paid for by the service recipients.

The complex demand scenarios of the ageing population for medical and personal services require careful investigation (Liu et al 2013; Tikkanen and Silvan 2012). This is needed as a basis for sound decisions on future care services logistics and residential and infrastructure developments (Gutierrez et al 2013; VanVactor 2013).

METHOD

Human Aspects of Healthcare (2021)

In an effort to provide information needed for the planning of future aged care and home services in Haninge, the pattern of care contacts between +65 year olds with multiple diagnoses living at home and their formal and informal care and service providers was investigated.

62 residents of Haninge aged 65 or older, who had been granted one or more council services (transport, alert telephone, home care), suffering from at least two chronic medical conditions, were invited to participate in the project. The participants were suggested by staff at the Aged Care Department of the Council, who relayed their contact details to the Researchers. People with severe dementia, living alone, were not selected. Potential participants were approached personally, by telephone and an initial visit, before giving informed consent to participate.

Participants agreed to keep a diary of all their health related contact events for a period of 6 months. They were provided with a personal hour diary, with instructions and examples on what to record. All types of contact related to their personal health were included; hospitals, clinics, laboratories, opticians, dentists, podiatrists, home care, family care, other formal or informal care. Contact events were defined as electronic communications, telephone calls or personal meetings.

After the initial meeting, a Researcher visited the participants once a fortnight to record their diary inputs. Participants were recruited during 2011, 2012 and 2013. Data collection was concluded in August 2013. Three participants dropped out of the study; a total of 59 participants were included in the full data collection.

RESULTS

Background

Thirty-four women and twenty-five men participated in the study. Thirty-one lived alone and twenty-eight were co-habiting. Forty-two lived in flats, fifteen in villas/row houses and two in special accommodations. Forty participants had *home care*, Forty-five had *transport service* and thirty-seven had an *alert telephone*. The average age of the participants (at the start of the project) was 79,6; 79, 2 among the men and 79,9 among the women.

Contact events

Contact	Number of events	% of total
Medical doctor	733	3.7
Nurse	1822	9.1
Physiotherapist	227	1.1
Occupational therapist	72	0.4
Council Officer	368	1.8
Day care staff	303	1.5
Home care staff	7709	38.5
Transport services staff	2201	11.0
Optician	10	-
Dentist	104	0.5
Podiatrist	112	0.6
Hair care	122	0.6
Sales person	371	1.9
Other provider	518	2.6
Husband/Wife	3681	18.4
Other family member	1081	5.4
Other relative	107	0.5
Friend	460	2.3
Total	20001	100

Table 1 All contact events, 59 people, 10 620 days.

Over the 6 months of data collection, 10 620 calendar days generated 20 001 separate contact events, on average 2 events per participant per day.

Human Aspects of Healthcare (2021)

The number of contact events varied drastically between participants; one had fourteen contacts over six months, another had 1 518.

Single participants had more contacts than co-habiting; 2.02 contacts/day compared to 1.73 contacts/day.

Men, on average, had more contacts than women; 2.04 contacts/day compared to 1.76 contacts/day. Single men had 2.21 contacts/day, single women 1.91 contacts/day.

The home care and transportation services represent 50% of total contacts in the group. Informal care - by partners, children, other relatives and friends - represent 27% of all contacts.

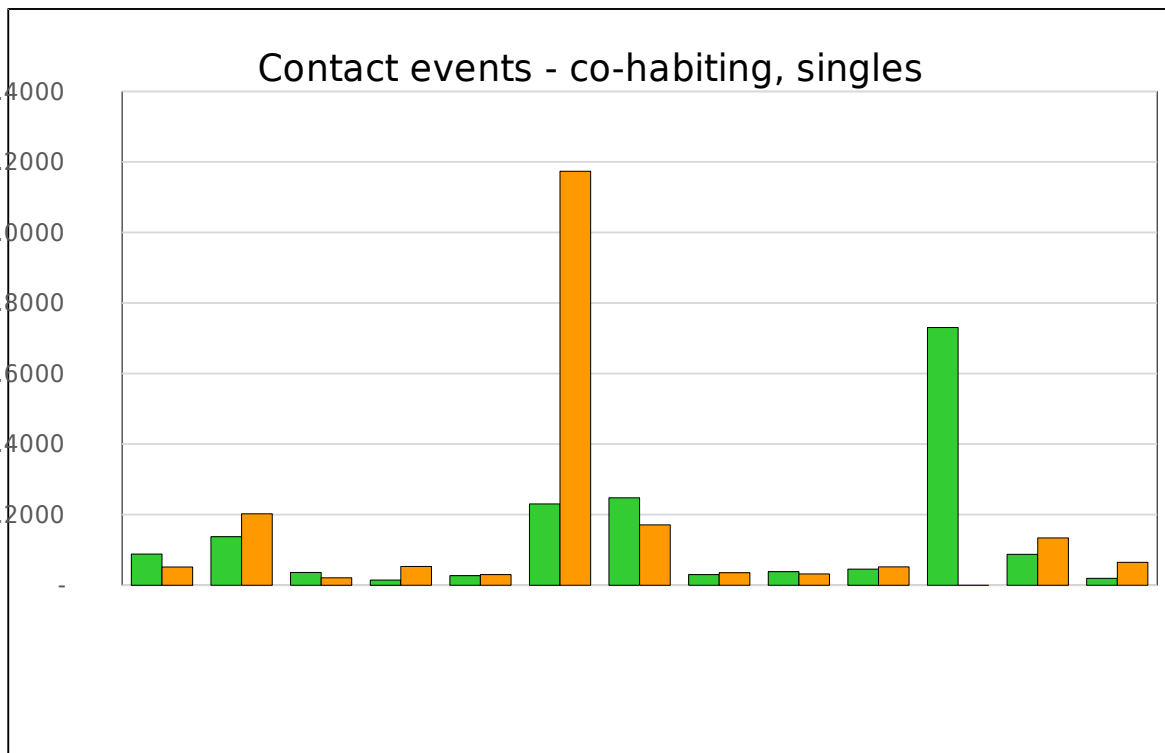


Figure 4 Relative frequency of contact events over type of contact, distributed over co-habiting and single participants.

Obviously, a large part of “ageing in place” will rely on the informal care of a spouse or partner; single old people require 5 times more home care services than those who live with a partner (Figure 4).

Contacts and diagnoses

Up to three self-reported medical diagnoses were recorded; heart problems and diabetes was the most common.

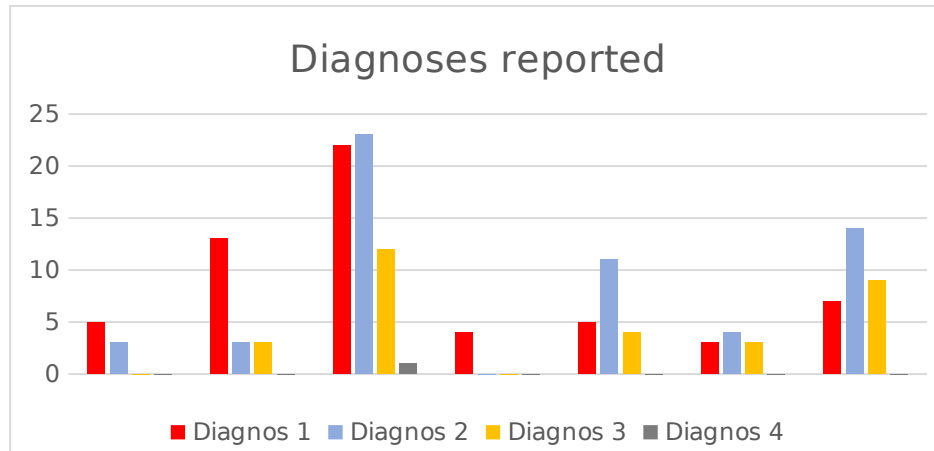


Figure 5 Self-reported diagnoses

Single men with heart problems consumed 33% more home care and transport services compared to single women with heart problems.

Contacts, gender, type of dwelling and household

Single old men in private houses have the highest relative contact frequency, 73% higher than the average for the group. People in private houses have more home services and less transportation services than people in units, which might reflect different sizes of living surface area, economic resources and car ownership.

Contact frequency: dwelling, gender, household		
Gender/household	Unit	Villa/ row house
All	1,8664	1,7815
All women	1,7942	1,4567
All men	1,9458	2,4311
All single	1,7826	2,6019
All co-habiting	1,9678	1,2346
Single women	1,7600	1,9407
Co-habiting women	1,8675	1,2492
Single men	1,8250	3,2630
Co-habiting men	2,0264	1,1833

CONCLUSIONS

A descriptive report into the logistics of distributed aged care in the local Swedish community shows that, in the population +65 with at least two chronic medical conditions and granted some form of distributed care,

- the average number of contacts related to personal health was 2 per day,
- the demand for health related contacts varied enormously; between once/fortnight to 8.5 times a day,

Human Aspects of Healthcare (2021)

- half of all contacts were with home care services or transportation services,
- informal aged care - by partners, children, other relatives and friends - represent 27% of all contacts,
- singles had 15% more health-related contacts than co-habiting,
- single old people require 5 times more home care services than those who live with a partner,
- single men with heart problems consumed 33% more home care and transport services than single women with heart problems,
- single men in private houses have considerably more health related contacts than average.

Further analysis of contact patterns, type of services provided, services cost structure and actual spending on distributed aged care services will provide a useful map for local planning of health and aged care services in the local community.

Table 2 Relative contact frequency, gender, single, co-habiting, form of dwelling

(The study was financed by the Stockholm County Council through a grant to the Centre for Technology in Medicine and Health, Royal Institute of Technology, Sweden)

REFERENCES

- Gutierrez, EV, Gutierrez, V, Vidal, CJ (2013) Home Health Care Logistics Management: Framework and Research Perspectives. *International Journal of Industrial Engineering and Management*, Vol 4 (3), pp 173-182.
- Höglund, A (2014) Prognoses and calculations of costs for future accommodation for the aged in order to invest prudently based on Council resources and goals. Presentation to the Conference Future Living for the Elderly, 4-5 February 2014, Ability Partners, Scandic Hasselbacken, Stockholm.
- Liu, R, Xie, X, Garaix, Th (2013) Weekly home health care logistics. 10th IEEE International Conference on Networking, Sensing and Control, ICNSC 2013, pp 282-287.
- Rest, K-D, Trautsamwieser, A, Hirsch, P (2012) Trends and risks in home health care. *Journal of Humanitarian Logistics and Supply Chain Management*, Vol 2 (1), pp 34-53.
- Tikkanen, I, Silvan, A (2012) Developing the service process of municipal home care catering. *Nutrition & Food Science*, Vol 42(5), pp 315-323.
- VanVactor, JD (2013) Leveraging the Patient-Centered Medical Home (PCMH) model as a health care logistics support strategy. *Leadership in Health Services*, Vol 26 (2), pp 95-106.

Human Aspects of Healthcare (2021)

<https://openaccess.cms-conferences.org/#/publications/book/978-1-4951-2093-0>

