Treatment trajectories of patients undergoing methadone substitution treatment in Ireland

Louise Durand[1], Fiona Boland[2], Kathleen Bennett [2], Denis O'Driscoll[3], Tom Fahey[2], Eamon Keenan[3], Joe Barry[4] and Gráinne Cousins[1]

[1]School of Pharmacy, RCSI, Dublin,
[2]HRB Centre for Primary Care Research, RCSI, Dublin
[3]Addiction Services, Health Services Executive, Dublin, Ireland
[4]Trinity College Centre for Health Sciences, Tallaght Hospital, Dublin 24, Ireland

RCSI DEVELOPING HEALTHCARE LEADERS WHO MAKE A DIFFERENCE WORLDWIDE

Background

Opioid substitution treatment (OST) is the principal treatment for dependent opioid use, primarily methadone, on the basis of evidence that methadone improves physical and mental health, and reduces mortality, illicit drug use, criminal activity and risk of HIV and hepatitis C virus (HCV) acquisition. In Ireland, most people receive treatment in Dublin (90%), with the majority (63.4% in 2016) attending specialist addiction services. A recent review of methadone services in Ireland highlighted the need for a better understanding of progression pathways within addiction services. [1]

The aim of this study is to describe treatment trajectories of opioid dependent individuals attending a specialist addiction treatment setting in Ireland.

Methods

A cohort study of individuals registered on the national OST treatment register, the central treatment list (CTL), who received at least one prescription for methadone in specialist addiction services in Dublin Southwest and Kildare between 2010 and 2015, and had at least 6 months follow-up data.
Treatment status, by service provider (Addiction service/ Primary Care/ Prison/ out of treatment), was determined for each person for each day of the study, using addiction services and primary care dispensing records and the CTL. This generated a longitudinal sequence of treatment by provider.
Analysis: Firstly, one year transition rates between treatment provider were estimated as averaged over the 6 years of follow-up. Secondly, after using optimal matching distance to determine pairwise sequence dissimilarity, ascending classification provided clusters of patients based on their last year of follow-up. [2]

Results

There were 2849 patients included (68% males, mean age: 33.5 years). Mean time spent in the transient states were as follows: 40.4 months in clinics, 7.2 months in Primary care, 10.8 months out of treatment and 2.7 months in prison. Patients experienced a median of 3 (Interquartile range: 1-7) transitions between states over the 6 years study time. Figure 1 shows one year transition probabilities from each state to another. Patients tended to remain in addiction clinic (83.4%) and primary care (83.1%). Transitions towards prison mainly originated from addiction clinics as opposed to primary care (resp. 2.6 vs 1.1 %), whereas prison was likely to lead to addiction clinic (26.7%) or out of treatment (24%) rather than primary care (1.7%).
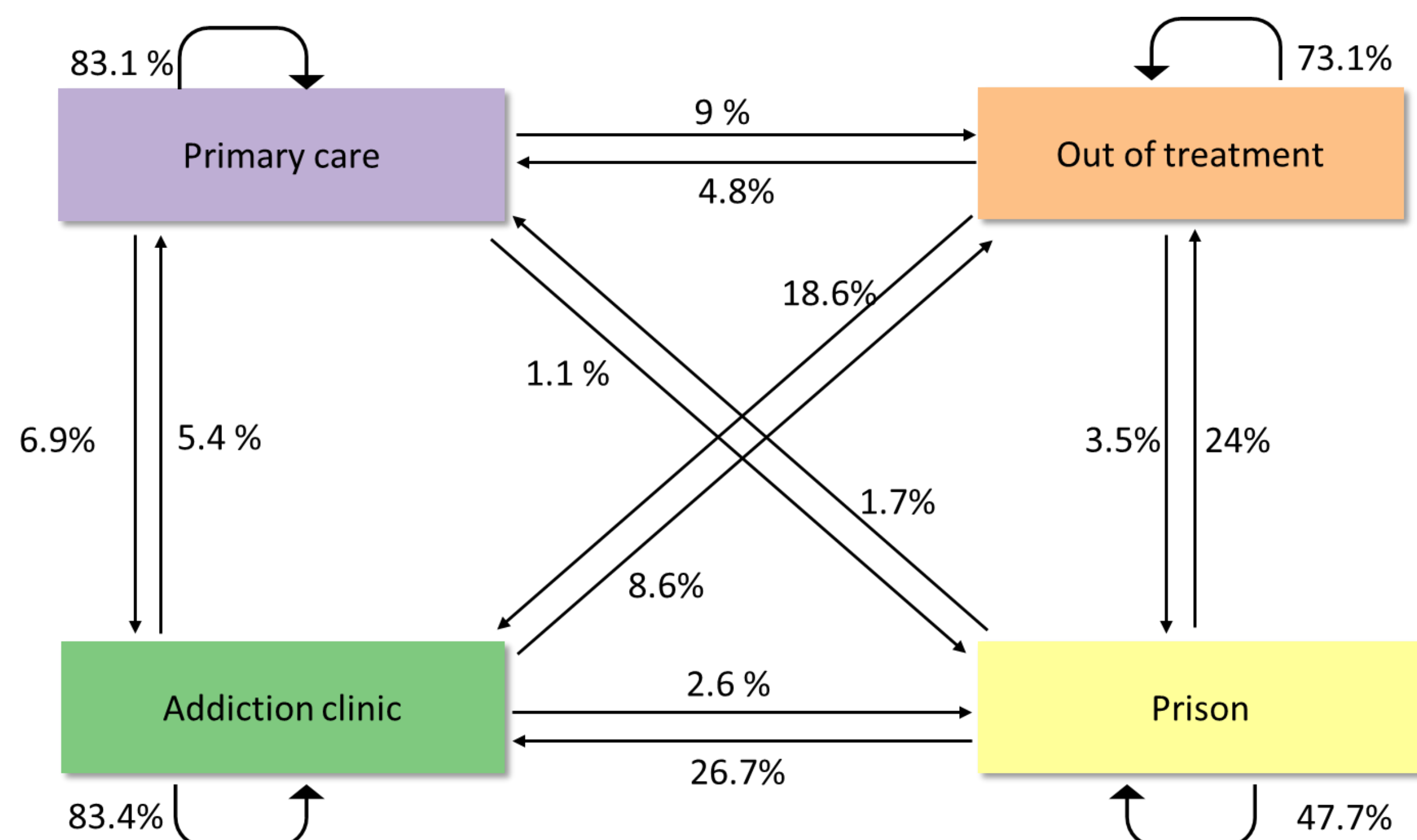

Figure 1: Rates of transition between states at 1 year
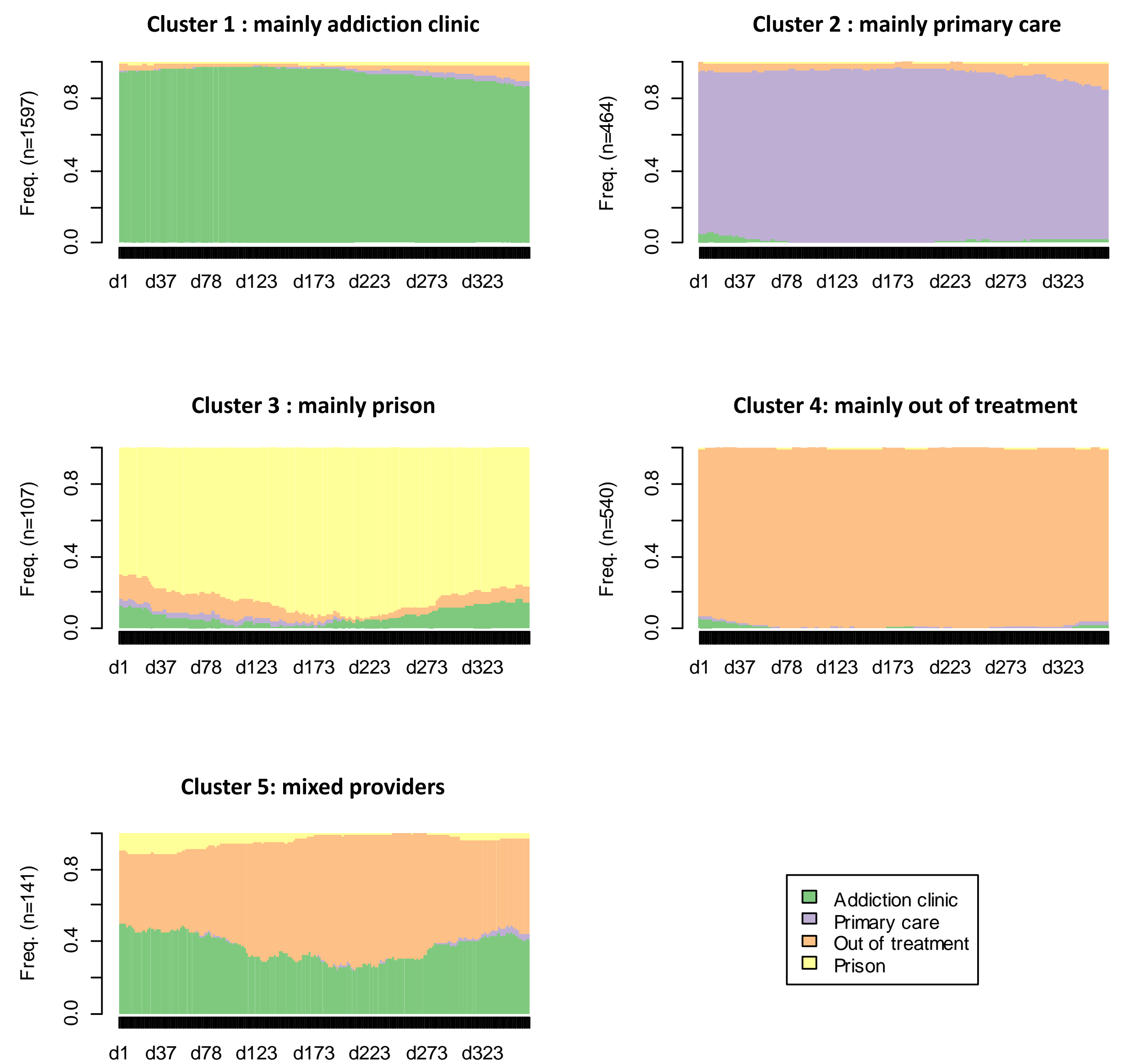

Figure 2: Sequence of cross-sectional state frequencies by day in the 5 clusters

Classification on last year sequence data resulted in five clusters: "mainly addiction clinic" (Cluster 1, n=1597), mainly primary care" (Cluster 2, n=464), "mainly prison" (Cluster 3, n=107 "), "mainly out of treatment" (Cluster 4, n=540) and "mixed" (Cluster 5, n=141). The "mixed" cluster had experienced a median of 2 transitions vs. 1 transition in the "prison" cluster and 0 in the remaining clusters".

Table 1 : patients characteristics by cluster

	cluster 1	cluster 2	cluster 3	cluster 4	cluster 5
mean age (years)	33.9	34.1	31.4	33	31.8
male sex (%)	66.7	65.1	93.5	68.7	74.5
antidepressants (%)	51.6	47.0	31.8	36.3	39.7
opioids (%)	22.3	21.8	12.2	17.6	19.2
antipsychotics (%)	23.9	19.2	19.6	14.6	22.0
benzodiazepines (%)	68.4	63.6	53.3	55.2	57.5

Table1 shows some characteristics of patients by cluster. Sex ratio was similar between clusters except the "mainly prison" cluster which was male dominated (93.5%) and to a lower extent the "mixed" cluster (74.5%). Cluster 1 and 2 received more psychoactive medication (over 6 years).

Conclusion

We were able to describe transitions between providers within a large cohort of patients treated in addiction clinics over 6 years. Additionally, this study identified a small number of clusters based on sequence dissimilarity, reflecting the diversity of trajectories over a one-year term. The sequence analysis methods could be useful in future research to help identify treatment pathways.

References

[1] Farrell M, Barry J. (2010) The introduction of the opioid treatment protocol. Dublin: Department of Health, Health Service Executive.
[2] Ritschard G, Studer M, editors. Sequence Analysis and Related Approaches: Innovative Methods and Applications [Internet]. Cham: Springer International Publishing; 2018 [cited 2019 Sep 30]. p. 203–22. (Life Course Research and Social Policies). Available from: https://doi.org/10.1007/978-3-319-95420-2_12

SCHOOL OF PHARMACY AND BIOMOLECULAR SCIENCES

HRB Centre for Primary Care Research

HRB Health Research Board