General practice patients starting treatment for substance use problems: observations from two data sources across levels of care

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Abstract
Background In Belgium, the incidence of treatment episodes for substance use problems is monitored by the Network of Sentinel General Practices (SGP) and by the Treatment Demand Indicator (TDI) surveillance at higher, specialist care levels. Using both data sources, we examine 1) how patients starting specialist treatment for substance use problems on referral by their GP compare to those that were referred by non-GP caregivers; 2) how patients starting GP treatment for substance use problems without receiving specialist treatment concurrently compare to those who do.

Methods Both surveillances are based on the TDI protocol for reporting data to the European Monitoring Centre for Drugs and Drug Addiction (EMCDDA) on persons starting treatment as a result of their substance use. Data from 2016 and 2017 were examined using 95% confidence intervals and multivariate logistic regression.

Results According to TDI-data (n=16,543), determinants of being referred by a GP (versus by a non-GP caregiver) for specialist treatment were age ≥ median (OR 1.25; 95% CI 1.13-1.38), education ≥ secondary level (OR 1.27; 95% CI 1.15-1.41), recent employment (OR 1.71; 1.56-1.88), stable housing (3.62; 95% CI 3.08-4.26), first treatment episode (OR 1.72; 95% CI 1.57-1.87), recent daily primary substance use (OR 1.46; 95% CI 1.33-1.59) and mono substance use (OR 1.23; 95% CI 1.04-1.48).

Type of substance use was a significant determinant with higher odds of using pharmaceuticals (and alcohol) (OR 1.24; 95% CI 1.04-1.48), and lower odds of using cannabis only/primarily (OR 0.73; 95% CI 0.62-0.86), with reference to street drugs minus cannabis only/primarily. According to SGP data (n=314), determinants of starting GP treatment without concurrent specialist treatment were recent employment (OR 2.58; 95% CI 1.36-4.91), first treatment episode (OR 2.78; 95% CI 1.39-5.55) and living in the Brussels or Walloon region (OR 1.97; 95% CI 1.06-3.66).

Conclusions This study adds knowledge about the general practice population treated for substance use problems. It shows that both surveillances consistently found a relatively favourable profile of general practice patients with substance use problems.

Background
In many European countries the epidemiology of substance use problems is described by data about
the population starting treatment for these problems. The main reason is that traditional population
surveys are less reliable when the use of street drugs and alcohol is concerned. The Treatment
Demand Indicator (TDI) has been implemented on behalf of the European Monitoring Centre for Drugs
and Drug Addiction (EMCDDA) to collect data in a standardized way in the European Union, Turkey
and Norway [1].

Belgium started collecting TDI data from 2011 on, including also data from patients with problems of
alcohol only or primarily [2]. The Belgian TDI covers specialist treatment for substance use problems,
excluding treatment in general practice because of feasibility issues. It is well-established that GPs do
provide care to patients with problems of substance use. The European Study of the Epidemiology of
Mental Disorders (ESEMeD) found in 2001-2 that 17% of the Belgian population with an alcohol
disorder had been receiving professional care [3]. GPs were consulted most often: 66% of people
seeking care for an alcohol disorder consulted a GP and 10% consulted only a GP [3]. GPs play a key
role in Belgian healthcare, even though patients are basically free to consult any care provider.

Overall, 95% of the general population in Belgium has a regular GP [4]

Following a successful pilot study, the surveillance of new treatment episodes for substance use
problems was taken up by the Network of Sentinel General Practices (SGP) in 2016, using an adapted
TDI protocol [5] Having data from both surveillance systems over two years (2016-2017), we decided
to examine to what extent data from general practice patients from both sources are in agreement
and whether differences are plausible or consistent with the body of evidence, e.g. health problems
presented in primary care are less severe/complex than those in higher, specialist care levels [6].
Comparing data sources is one way to explore the quality of data and may result in additional
information for health policy. Our assumption is that the population that starts GP treatment for
substance use disorders shares core characteristics with the population that is referred by a GP for
specialist treatment. Following that reasoning, we assume that general practice patients receiving
mixed treatment share more traits with patients starting specialist treatment compared to patients
that start GP treatment without receiving specialist treatment concurrently. To minimize population
heterogeneity, we limited the TDI study population to persons who were referred by caregivers to
start specialist treatment, in other words, persons who had already sought professional care for their substance use problems.

Using unpooled data from the SGP and TDI surveillances, this study examines 1) how patients starting specialist treatment for substance use problems on referral by their GP compare to similar patients that were referred by non-GP caregivers; and 2) how patients starting GP treatment for substance use problems without receiving specialist treatment concurrently compare to those who do.

Methods

Figure 1. Key methodological features of the TDI and SGP surveillance studies

Settings and study participants

The TDI and the SGP surveillance systems of provider-reported, care-based data are managed within Sciensano, the Belgian Institute for Health.

The Belgian Network of SGP consists of a sample of GPs who report the occurrence and characteristics of well-defined health-related events in their daily practice [7]. Data are reported weekly on standard forms for a period of at least one year. In the study period, the network counted 125 practices. Annual statistics showed that sentinel GPs are comparable to non-sentinel GPs for age and gender. The network covers about 1.5% of the Belgian population in most Belgian districts [8]. As Belgian GPs do not serve a defined practice population, the size of the SGP patient population - the denominator - is estimated by applying the ratio of patient contacts in the entire Belgian population to the sum of weekly patient contacts in the network.

The Belgian TDI study protocol has been recently extensively described [2]. The TDI register collects socio-demographic, treatment- and substance-related data about patients starting treatment for substance use disorders in a wide range of settings. Patients are interviewed by health professionals using a structured questionnaire. In order to detect multiple treatment episodes of the same patients, national identification numbers are used in accordance with the European General Data Protection Regulation. Data are gathered by Sciensano using a reporting module or a repository tool allowing batch transfer of data.

Participation in the TDI surveillance is only mandatory for some type of treatment centres for
substance use problems. In the study period 221 treatment centres had been reporting cases. TDI
data from 2014 show that the best participation rates were reached by centres that are specialised in
substance use problems (56% to 100% of eligible centres) [2]. Participation rates were lower among
hospitals and centres that also offer treatment for other mental health problems (17% to 52% of
eligible centres).

In contrast to the SGP surveillance, the TDI surveillance does not allow to estimate the incidence of
treatment episodes for substance use problems in the total population due to the unknown size of the
population - the denominator - that is covered by the register.

Patient population samples

To address our first research question, we selected data of the TDI patients that were referred or
couraged to seek specialist treatment by caregivers. To address our second research question, we
included data from all the SGP patients.

Case definitions

The SGP instructions were based on the Belgian TDI protocol [2]. A new treatment episode starts with
the first face-to-face contact with a GP/other caregiver for substance use problems. When the patient
shows up with a similar treatment demand six months after the previous face-to-face contact, a new
treatment episode starts. Treatment was defined as any activity directly targeting patients with
substance use problems in order to ameliorate their mental, medical or social status. We explicitly
mentioned possible GP interventions aimed at reducing substance-related harm in active users,
detoxification or abstinence, medical and non-medical problems, informal advice, counselling and
support, e.g. a brief intervention. Excluded were interventions only targeting the physical
consequences of substance use, e.g. infections or overdoses, or targeting mainly other problems than
substance use.

Variables

The variables in this paper (all described in Table 1) are (derived from) the items 1-6, 9-12, 14-15 and
17 of the TDI protocol 3.0 [1]. In the context of employment, accommodation and use of primary/only
substance, “recent” was understood as the last 30 days before the start of the new treatment
episode. Patients who had recently been living in different places (friends’ home, street, shelters, etc.), moving from one place to another recent, were considered as having an unstable accommodation. Four variables were not recorded by the SGP, respectively treatment centre type, source of referral, highest educational level completed and recent accommodation. The variable “primary drug” was reported in less detail by the SGP, e.g. the groups “cocaine or crack” or “cannabis” are summaries of three subcategories in the TDI. One additional variable was reported by the SGP, i.e. whether the patient was receiving concurrently specialist treatment for substance use problems.

We summarized the type of substance use into mutually exclusive groups to fit the observed use across settings. Group I contains the use of alcohol only. Group II contains the use of pharmaceuticals, that is hypnotics, sedatives or pharmaceutical opioids, that is mainly opioid analgesics. Group III contains the use of street drugs, that is opiates, cocaine, stimulants other than cocaine, cannabis, hallucinogens and volatile inhalants. Group III was split into two groups with group III-a containing the use of cannabis only or primarily. Group III-b contains any other use of street drugs but no primary cannabis use and is further described as “street drugs minus cannabis primarily”. The classification of the three groups is hierarchical in the sense that the use of pharmaceuticals (group II) may be combined with alcohol (group I), and the use of street drugs (group III) may be combined with alcohol (group I) and pharmaceuticals (group II). Methadone, buprenorphine and fentanyl were classified in group III.

**Analysis**

All data are episode-based. We used 95% proportion confidence intervals (CI) to describe patient population characteristics and bivariate associations. We used stepwise backward multiple logistic regression analysis to examine the research questions. Patient population characteristics that were significantly (p<0.05) associated with the dependent variables were included in the full models. We accounted for clustering of patients within practices or treatment centres by using robust standard errors. Interaction effects between independent variables were tested only in the multivariable logistic model examining the second research question. Data were analysed with Stata 15.
Results

Sample description

The TDI register included 60,310 episodes and the SGP network reported 314 episodes. A sample of 48,312 TDI episodes with a national identification number (NIN) showed that 28.7% of patients had more than one treatment period. No NIN are used by the SGP but proxy-indicators (age, sex,...) revealed 11 patients (3.6%) with more than one treatment period.

For the first research question, we excluded TDI episodes from patients that were self-referred (n=26,950; 46.0%), motivated by peers (n=8,881; 15.2%) or by court, probation or police (n=6,152; 10.5%). Excluding 33 episodes with invalid substance use data, we thus included 16,543 of 60,310 (27.4%) TDI episodes concerning patients that were referred by caregivers. Four types of referring caregivers were distinguished: GPs (n=4,515, 27.3%), care services for substance use problems (n=2,349, 14.2%), general or psychiatric hospitals (n=5,277, 31.9%) and (other) medical-psycho-social services (n=4,402, 26.6%).

Table 1 describes the characteristics of 16,543 treatment episodes reported to the TDI and the characteristics of 314 treatment episodes reported by the SGP network. The median age of the first use of the primary or only problem substance among TDI patients was 17 (Interquartile range (IQR): 15-21) and 18 (IQR 16-25) among SGP patients. In both populations most patients had problems of alcohol only. Compared to the SGP population, the use of street drugs was higher in the TDI population, especially street drugs minus cannabis primarily (group III-b), while the use of pharmaceuticals (and alcohol) (group II) was lower. More than half (53.5%) of hypnotics and sedatives in the TDI population was used together with street drugs and thus classified in group III. In the SGP population pharmaceuticals were mostly combined with alcohol (70.8%) and thus classified in group II.

How do patients starting specialist treatment for substance use problems on referral by their GP compare to similar patients that were referred by non-GP caregivers?

All socio-demographic and substance use characteristics of GP-referred patients and patients referred by other caregivers were significantly different (Table 2). GP-referral was also associated with type of
treatment: almost half of the GP-referred patients started general hospital-based treatment and GP-referral to inpatient treatment outside the hospital setting was rather rare. In the Walloon region relatively more patients were referred by their GP and relatively less in the Brussels region. 

Socio-demographic determinants of being referred by a GP were higher age, higher education, recent employment and stability of housing. Substance use determinants of a GP-referral were first treatment episode, recent primary substance use and mono-substance use. Using street drugs minus cannabis primarily (III-b) as a reference category, GP-referred patients had (borderline) higher odds for using alcohol only (I) or pharmaceuticals (and alcohol) (II) and lower odds for using cannabis only/primarily (III-a).

**How do patients starting GP treatment for substance use problems without receiving specialist treatment concurrently compare to those who do?**

For 9 of 314 patients it was unknown whether they were receiving specialist treatment at the start of a new GP treatment episode, 27.9% (85 of 305) patients did so. From 13 of 85 patients the type of treatment was not reported, 53 patients received outpatient treatment and 19 inpatient treatment. Table 3 shows significantly different socio-demographic and substance use characteristics between patients starting GP treatment only and patients who were receiving specialist treatment concurrently. Determinants of receiving GP treatment without specialist treatment concurrently were no previous treatment episode, being at work and living in the Walloon or Brussels region.

**Discussion**

Our main findings are twofold. First, the TDI data show that patients starting specialist treatment for substance use problems on referral by their GP have a distinct, more favourable profile compared to patients who were referred by non-GP caregivers. They were relatively older and socially better-off considering their education, employment status and their stable housing status. They were equally better off regarding their substance use problems with relatively more problems of alcohol and/or pharmaceuticals, more mono-substance use and first treatment episodes. There is some evidence that problem use of alcohol alone is less severe than poly substance use or street drug use [9, 10].

Second, the SGP showed that patients starting GP treatment without receiving specialist treatment
were equally better off compared to similar patients receiving specialist treatment concurrently. Among the latter, less patients were recently employed and more had been in treatment before. We thus found evidence confirming our assumption that patients starting GP treatment and concurrently receive specialist treatment are more similar to GP-referred patients starting specialist treatment. This study found considerable agreement between two data sources about general practice patients with substance use problems. We acquired new knowledge about the (referred) general practice population, such as education and housing. Yet, nearly 13% of educational data were missing in the TDI.

Our study has more weaknesses. One limitation is that data were compared on an aggregated level. Up till now, it is not possible to measure overlap between the two surveillance systems at the patient level by unique patient identifiers. Due to the cross-sectional design of both the studies we only have a snapshot of the populations at one point in time. As a result, we do not know whether patients started GP treatment before and/or after starting specialist treatment. Neither do we know whether patients starting specialist treatment also receive(d) GP treatment. Yet, the meaning of a treatment episode clearly differs across levels of care. As described above (see “Sample description”), the percentage of patients with more than one treatment episode was much higher in the TDI (28.7%) than in the SGP (3.5%), despite uniform definitions. Several reasons may explain this large difference. In the TDI, a treatment trajectory may include subsequent treatment episodes in different settings, e.g. first hospital-based detoxification followed by drug-free therapy in another setting. In general practice the difference between a health problem episode and a treatment episode is relatively small, especially when unhealthy life style is concerned. Moreover, the difference between new and ongoing problems and treatment is equally blurry, especially when chronic problems are concerned. In contrast to specialist treatment, it is conceivable that substance use is not an issue in every GP-patient contact during a treatment episode, even when the problem is active. Oppositely, the end/start of a treatment episode is much more clear in specialist treatment, that is when the patient does not show up/shows up again. Given these limitations, an estimation of the size of the gap in the TDI register due to the non-coverage of general practice is unfeasible.
A PubMed search (September 2019) using the medical subheadings of “substance-related disorders/epidemiology” and “general practice” did not reveal recent papers with comparable research questions. Papers with (comparable) findings from the EMCDDA TDI were not found in PubMed. The focus of the SGP pilot study was different but some core results are comparable, e.g. type of substance use, previous treatment episodes and regional differences [5]. The pilot showed that seven months after the baseline recording of new and ongoing episodes of GP-treatment, 21% of the patients who continued GP treatment also received specialist treatment. This proportion is similar to the proportion of 28% episodes of concurrent specialist treatment we found in this study.

Monitoring treatment demand in general practice is one way of dealing with the problem of underdiagnosis of substance use problems, mostly alcohol, in general practice [11]. Yet, “detected” patients in general practice may have more severe problems and hence the referral rate and concurrent specialist treatment is relatively high. Unfortunately, we did not find evidence to verify this assumption.

Our findings fit the knowledge about general practice and GP care of patients with chronic, recurrent substance use problems. According to a good health services model, GPs provide as much care as possible to patients and refer patients to specialist health facilities only when more complex care is needed [12]. Continuity is a major attribute of general practice care, comprising continuing care over a lifetime, across health conditions and levels of care. In the context of substance use problems, this means preventive care, e.g. active screening and short interventions, and, aftercare or chronic patient care, e.g. patient support in case of relapse [13]. The finding that relatively more GP-referred and GP-treated patients were using the primary substance daily in the last 30 days may be exemplary of the chronic care role of GPs towards patients with, most likely, problems of alcohol and/or pharmaceuticals. Maybe these patients seek help from their GP in times of crisis: when they are drinking too much or relapsed into drinking again. Possibly GPs are less strict than specialist caregivers about abstinence as a condition to start treatment but the widespread availability of alcohol and, to a lesser degree, pharmaceuticals, may also play a role.

This study resulted in useful information for health policy and research. We found that GPs are
meeting the demand of a specific population with substance use problems. This population is better off in more than one way. They may prefer to seek discreet help from their GPs above having to interrupt their social and work activities and seek specialist treatment, often outside the community. In this study, a relatively small part of the TDI population was examined. We believe that further research of motivators and referring caregivers of patients starting specialist treatment for substance problems would be useful to profile the population and treatment demand.

Conclusions
We found considerable agreement between the SGP surveillance and the TDI-surveillance about the general practice population starting a new treatment episode for substance use problems in Belgium during a 2-year period. Examining the two data sources led to new knowledge about the general practice population that is treated for substance use problems, more specifically, its relatively favourable profile.

Abbreviations
CI: Confidence interval; GP: General practitioner; OR: Odds ratio; SGP: Sentinel General Practices; TDI: Treatment Demand Indicator.

Declarations

Ethics approval and consent to participate
The Belgian Network of SGP was approved as a whole by the Ethical Committees of the Scientific Society of Flemish GPs and the Catholic University of Louvain (UCL). The Belgian TDI protocol adheres to the European protocol and the Belgian privacy legislation.

Consent for publication
Not applicable.

Availability of data and materials
The dataset of this study is not available due to the absence of resources to establish a publicly available dataset.

Competing Interests
The authors declare that they do not have any conflicts of interest to disclose.

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**Authors’ Contributions**

NB and SM were responsible for the SGP data collection, JA was responsible for the TDI data collection. NB was responsible for the study conception, analyses and report of the study. JA, LVB and KD were involved in the critical revision of the manuscript. All authors read and approved the final manuscript.

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Tables
Table 1  Characteristics of new treatment episodes of substance use problems by data source: the TDI subpopulation referred/motivated by caregivers and the SGP population, Belgium 2016-7

|                         | TDI subpopulation of patients referred by caregivers (N=16,543) | SGP                  |
|-------------------------|---------------------------------------------------------------|----------------------|
|                         | n/valid N           | %       | n/valid N |
| Sex                     |                   |          |          |
| Man                     | 11,476/16,543      | 69.5    | 220/31‡  |
| Age                     |                   |          |          |
| <20                     | 674/16,543         | 4.1     | 14/31‡   |
| 20-29                   | 2,982/16,543       | 18.1    | 35/31‡   |
| 30-39                   | 4,518/16,543       | 27.4    | 67/31‡   |
| 40+                     | 8,327/16,543       | 50.5    | 196/31‡  |
| Highest educational level completed |                   |          |          |

|                         |                         |          |          |

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| Source of Treatment | New Episodes | Use in Last 30 Days | Use ≤ 1 Day/Week | Use 2-3 Days/Week | Use 4-6 Days/Week | Daily Use |
|---------------------|--------------|---------------------|------------------|-------------------|------------------|-----------|
| None or primary     | 3,865/13,877 | 77                  |                  |                   |                  |           |
| Secondary           | 7,519/13,877 | 54.2                |                  |                   |                  |           |
| Tertiary            | 2,493/13,877 | 18.0                |                  |                   |                  |           |
| Recent stable       | 13,075/16,219| 80.6                |                  |                   |                  |           |
| Recently employed   | 3,394/14,989 | 22.6                |                  |                   |                  |           |
| Region              |              |                     |                  |                   |                  |           |
| Flanders            | 9,936/16,543 | 60.0                |                  |                   |                  |           |
| Wallonia            | 4,495/16,543 | 27.1                |                  |                   |                  |           |
| Brussels            | 2,112/16,543 | 12.8                |                  |                   |                  |           |
| Previous treatment  | 10,952/16,039| 68.3                |                  |                   |                  |           |
| Type of Substance   |              |                     |                  |                   |                  |           |
| Alcohol only (I)    | 7,354/16,543 | 44.5                |                  |                   |                  |           |
| Pharmaceuticals (and alcohol) (II) | 1,047/16,543 | 6.3                 |                  |                   |                  |           |
| Cannabis only/primarily (III-a) | 2,077/16,543 | 12.6                |                  |                   |                  |           |
| Street drugs minus cannabis primarily (III-b) | 6,065/16,543 | 36.7                |                  |                   |                  |           |
| Mono-substance use  | 10,427/16,543| 63.0                |                  |                   |                  |           |
| Recent use of primary/only substance | |                     |                  |                   |                  |           |
| No use in last 30 days | 2,193/15,576 | 14.1                |                  |                   |                  |           |
| ≤ 1 day/week        | 923/15,576   | 5.9                 |                  |                   |                  |           |
| 2-3 days/week       | 1,386/15,576 | 8.9                 |                  |                   |                  |           |
| 4-6 days/week       | 1,775/15,576 | 11.4                |                  |                   |                  |           |
| Daily               | 9,299/15,576 | 59.7                |                  |                   |                  |           |
| Type of Treatment   |              |                     |                  |                   |                  |           |
| Outpatient treatment | 5,254/16,543 | 31.8                |                  |                   |                  |           |
| Inpatient treatment:|              |                     |                  |                   |                  |           |
| Inpatient, non-hospital | 2,064/16,543 | 12.5                |                  |                   |                  |           |
| Psychiatric hospital | 3,897/16,543 | 23.6                |                  |                   |                  |           |
| General hospital (psychiatric service) | 5,220/16,543 | 31.6                |                  |                   |                  |           |
| Treatment for criminal law offenders | 108/16,543 | 0.7                 |                  |                   |                  |           |
| Source of referral  |              |                     |                  |                   |                  |           |
| GP                  | 4,515/16,543 | 27.3                |                  |                   |                  |           |
| Care services for substance use problems | 2,349/16,543 | 14.2                |                  |                   |                  |           |
| Hospital            | 5,277/16,543 | 31.9                |                  |                   |                  |           |
| Medical-psycho-social services | 4,402/16,543 | 26.6                |                  |                   |                  |           |

Table 2 New episodes of specialist treatment for substance use problems by source of referral, TDI surveillance, Belgium 2016-7 (N=16,543)
| Non-GP caregiver | GP | Adjusted OR (95% CI) for referral by GP (versus non-GP caregiver) |
|------------------|----|---------------------------------------------------------------|
| n=12,028         | n=4,515 |                                                                 |
| n/N            | n/N  | (95% CI)   |                                                                 |
| Sex: man        | 8,489/12.0 | 70.7 (69.8-71.5) | 2,987/4,510 | 66.2 (64.8-67.6) | Removed \* \* |
| Age ≥ median    | 5,659/11.9 | 47.2 (46.3-48.1) | 2,668/4,507 | 59.2 (57.7-60.6) | 1.25 (1.13-1.38) |
| Secondary educational level or higher | 6,840/9.89 | 69.1 (68.2-70.0) | 3,172/3,981 | 79.7 (78.4-80.9) | 1.27 (1.15-1.38) |
| Recently employed | 2,000/10.7 | 18.5 (17.8-19.3) | 1,394/4,201 | 33.2 (31.8-34.6) | 1.71 (1.56-1.88) |
| Recent stable accommodation | 8,846/11.7 | 75.4 (74.6-76.2) | 4,229/4,483 | 94.3 (93.6-95.0) | 3.62 (3.08-4.26) |
| First treatment | 3,183/11.6 | 27.3 (26.5-28.1) | 1,904/4,385 | 43.4 (41.9-44.9) | 1.72 (1.57-1.87) |
| Type of substance use | - | - | - | - | - |
| Street drugs minus cannabis primarily (III-b) | 4,748/12.0 | 39.5 (38.5-40.3) | 1,174/4,515 | 26.0 (24.7-27.3) | reference |
| Alcohol only (I) | 4,827/12.0 | 40.1 (39.3-41.0) | 2,527/4,515 | 56.0 (54.5-57.4) | 1.10 (0.94-1.29) |
| Pharmaceuticals (and alcohol) (II) | 799/12.0 | 6.6 (6.2-7.1) | 391/4,515 | 8.7 (7.9-9.5) | 1.24 (1.04-1.48) |
| Cannabis only/primarily (III-a) | 1,654/12.0 | 13.8 (13.1-14.4) | 423/4,515 | 9.4 (8.5-10.3) | 0.73 (0.62-0.86) |
| Mono substance use | 7,155/12.0 | 59.5 (58.6-60.4) | 3,272/4,515 | 72.5 (71.1-73.8) | 1.23 (1.04-1.48) |
| First use of primary/only substance at ≥17 years | 4,668/8.47 | 55.1 (54.0-56.1) | 1,896/3,067 | 61.8 (60.1-63.5) | * |
| Recent daily use of primary/only substance | 6,372/11.3 | 56.3 (55.4-57.3) | 2,927/4,268 | 68.6 (67.2-69.9) | 1.46 (1.33-1.60) |
| Type of treatment | - | - | - | - | - |
| Outpatient treatment | 4,022/11.9 | 33.7 (32.9-34.6) | 1,232/4,515 | 27.3 (26.0-28.6) | * |
| Inpatient, non-hospital | 1,928/11.9 | 16.2 (15.5-16.8) | 136/4,515 | 3.0 (2.5-3.6) | 1.59 |
| Psychiatric hospital | 2,914/11.9 | 24.4 (23.7-25.1) | 983/4,515 | 21.8 (20.6-23.0) | 1.48 |
| Region of SGP | General hospital/psychiatry | Non-overlapping confidence intervals are in **bold**. |
|--------------|----------------------------|-----------------------------------------------|
|              | 20 | 25.2) | 2,164/4,515 | 47.9 (46.5- |
|              | 20 | 26.4) | 49.4) | 26.4) |
| Flemish      | 7,180/12,0 | 59.7 (58.8- | 2,756/4,515 | 61.0 (59.6- |
|              | 28 | 60.6) | 62.5) | 28 |
| Walloon      | 3,133/12,0 | 26.0 (25.3- | 1,362/4,515 | 30.2 (28.8- |
|              | 28 | 26.8) | 31.5) | 28 |
| Brussels     | 1,715/12,0 | 14.3 (13.6- | 397/4,515 | 8.8 (8.0-9.7) |
|              | 28 | 14.9) |

* First use of primary substance was not included in the multivariable logistic model because of the low number of valid data and its high association with the type of substance use. Type of treatment was not included in the multivariable logistic model as it is not a socio-demographic patient characteristic or a substance use characteristic.

Removed ‡

† Variable was removed because it did not significantly improved the fit of the model.

Table 3 New episodes of GP treatment for substance use problems by concurrent specialist treatment, SGP surveillance, Belgium 2016-7 (N=305)*.
|                                | GP treatment only (no concurrent treatment) n=220 | Concurrent specialist treatment n=85 | Adjusted OR (95% CI) for GP treatment only (n=259) |
|--------------------------------|-----------------------------------------------|-------------------------------------|--------------------------------------------------|
| Recently employed              | 113/207 54.6 (47.5-61.5)                       | 18/76 23.7 (14.7-34.8)              | 2.58 (1.36-4.91)                                 |
| First treatment                | 91/198 46.0 (38.9-53.2)                        | 13/79 16.5 (9.1-26.5)               | 2.78 (1.39-5.55)                                 |
| Type of substance use          |                                               |                                     |                                                  |
| Street drugs minus cannabis    | 37/220 16.8 (12.1-22.4)                        | 23/85 27.1 (18.0-37.8)              | Removed †                                       |
| (Ill-b)                        |                                               |                                     |                                                  |
| Mono substance use             | 188/220 85.5 (80.1-89.8)                       | 60/85 70.6 (59.7-80.0)              | Removed †                                       |
| Recent use of primary substance| 187/191 97.9 (94.7-99.4)                       | 54/61 88.5 (77.8-95.3)              | Not included ¥                                   |
| Region                         |                                               |                                     |                                                  |
| Flemish                        | 126/220 57.3 (50.4-63.9)                       | 64/85 75.3 (64.7-84.0)              | Reference                                       |
| Walloon                        | 65/220 29.5 (23.6-36.0)                        | 16/85 18.8 (11.2-28.8)              | 1.97 (1.06-3.66)                                |
| Brussels                       | 29/220 13.2 (9.0-18.4)                         | 5/85 5.9 (1.9-1.3)                  |                                                  |

Sex, age and age of first use of primary substance were not significantly associated at the univariate level with receiving concurrent specialist treatment or not.
Non-overlapping confidence intervals are in **bold**.

* For 9 of 314 patients it was unknown whether they were receiving concurrent specialist treatment
¥ Recent use of primary substance was not included in the initial multivariate logistic model due to the small number of positive cases.
† Variable was removed because it did not significantly improved the fit of the model.

Figures
|                | SGP                                                                 | TDI                                                                 |
|----------------|----------------------------------------------------------------------|----------------------------------------------------------------------|
| **Setting**    | General practice (primary care)                                       | Specialist care for substance use problems (secondary and tertiary care) |
| **Study design** | Sentinel surveillance by a sample of general practices                | Register completed by caregivers from participating centres          |
| **Data collection tools** | Standard patient data form/questionnaire to complete by caregivers for every patient starting a new treatment episode |                                                                      |
| **Data transfer** | Postal mail, data entry by Sciencesano                                | Online standard forms to transfer data record by record, or, repository tool to transfer patient data files for a given year |

**Figure 1**

Key methodological features of the TDI and SGP surveillance studies