Aspects of safety and appropriateness of healthcare delivered by volunteers for undocumented migrants in Belgium

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Background

In Belgium universal health coverage depends on registration in the national registry wherefore an address and a residence permit are mandatory. Therefore, undocumented migrants and the homeless often have no effective access to health services. **Médecins du Monde Belgium (MdM-BE)** is striving for access to health care for all. Amongst others, by organizing medical consultations in different projects across Belgium with volunteer physicians, nurses, and midwives. This study seeks to evaluate aspects of safety and appropriateness of care delivered during medical consultations and the potential impact of the inauguration of a health department within the NGO in November 2019.

Methods

This study uses a quantitative retrospective analysis of data from electronic health records and protocols obtained from MdM-BE. Patient encounters with diagnosis of **acute otitis media** and **cystitis** were used to assess appropriateness of antibiotic treatment, those with **scabies, tuberculosis,** and **haemoptysis** to assess safety. An algorithm for correct treatment was defined and variables such as age, gender, region of provenance, housing, and project were extracted. Statistical process control (p-charts and run charts) was used to describe patterns over time and logistic regression with the binary outcome of correct treatment was performed to assess influence of different predictors.

Results

908 of 37,229 consultations in projects between 01/2019 and 12/2021 matched the inclusion criteria and elimination of duplicates 897 consultations were left for analysis. **Descriptive statistics** can be found in Table 1, **results** in Table 2.

Table 1: Descriptive statistics

	All consultations conducted from 01/01/2019 to. 31/12/2021	Consultations with inclusion criteria (between 01/01/2019 and 31/12/2021)	Statistics
Patients seen *(counts)*	17497	779	
Number of consultations	37229	908	
Consultations per patient *(counts and percentage)*			
1	11225 (64.2)	676 (86.8)	X^2(2, N=17497) =
2	2839 (16.2)	86 (11.0)	204.92, p
>=3	3433 (19.6)	17 (0.2)	< .00001
Age *(years) (Median and IQR)*	32 (24 – 44)	25 (20 – 32.25)	t (972.94) = -16.32, p<.00001
Missing	3		
Gender *(counts and percentage)*			
Male	27283 (73.3)	730 (80.4)	X^2(2, N=38060)
Female	9852 (26.5)	177 (19.5)	= 23.21, p
Other	17 (0.0)	0	< .00001

Appropriateness of antibiotic treatment

Cystitis: In logistic regression with age, gender, project and region as predictors, the odds ratio (OR) for receiving correct treatment for women compared to men was 4.4 (95%CI: 1.8-11.1, p=.002)

Otitis media: 25 (67.5%) received correct treatment, whereas 8 did not, and 4 had no information on treatment given. Only seven (18.9%) out of 37 received ideal treatment. Treatment did not differ by age (t(37)=1.35,p=.187) or by gender (X2(1,n=37)=1.87e-31,p=1).

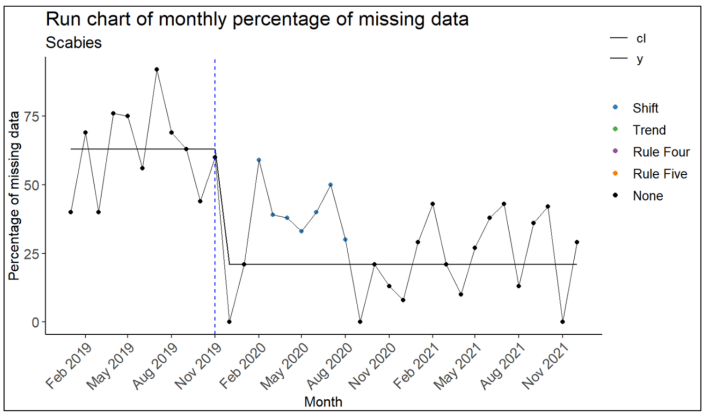

Fig 1: Monthly percentage of missing data in patients diagnosed with scabies. Blue dotted vertical line: inauguration of health department

Table 2: Percentage of correct treatment by indicator

	Scabies	*Otitis*	*Cystitis*	*Tuberculosis/ Haemoptysis*
Diagnosis (n)	*541*	*37*	*158*	*161*
Men (n, %)	*500 (92,4%)*	*23 (62,2%)*	*58 (36,7%)*	*121 (75,1%)*
Women (n, %)	*41 (7,6%)*	*14 (37,8%)*	*100 (63,3%)*	*40 (24,9%)*
Correct treatment (n, %)	*508 (93,9%)*	*25 (67,5%)*	*83 (52,5%)*	*144 (89,4%)*
Incorrect treatment (n, %)	*NA*	*8 (21,6%)*	*50 (31,6%)*	*17 (10,6%)*
Missing data initial (%)	*38%*	*10,80%*	*15,80%*	*NA*
Missing data final (%)	*5%*	*10,80%*	*15,80%*	*NA*
Feedback received 2019 (median %)	*NA*	*NA*	*NA*	*31%*
Feedback received 2020/2021 (median %)	*NA*	*NA*	*NA*	*65%*

Safety

An initial analysis of the 542 diagnosis of **scabies** revealed an overall median of only 44% (IQR=33.5-60) correct treatment, however after manually adding missing data retrieved through individual chart views this increased to an overall median of 94% (IQR=80.75-100). After adjusting to the shift rule break end 2019 in the p-chart with proportion of missing data (Fig 1) the median percentage of missing data was 63% (IQR=44-75) until 11/2019 and 21% thereafter (IQR=9.5-36.5).

Tuberculosis/Haemoptysis: Correct referral was provided to 144, but feedback on diagnoses was only available for 75 patients. However, proportions of correct feedback have increased significantly since the inauguration of the DS in 2019. 31% (median, IQR=17.75-42.5) of cases had been followed up in 2019 as opposed to 65% (median, IQR=50-73.75) since the beginning of 2020 (Mann-Whitney U=0.5, n1=6, n2=12, P < .035, two-tailed). The bi-monthly diagnoses of tuberculosis have shown an important decline since the begin of the COVID-19 pandemic (Fig 2). A median of 14 cases of tuberculosis (IQR=13-17) were registered in a two-monthly period before the start of the pandemic, which dropped significantly to 6 (IQR=2-8) since 03/2020 (Mann-Whitney U=0.50, n1=7, n2=11, p <.0001, two-tailed).

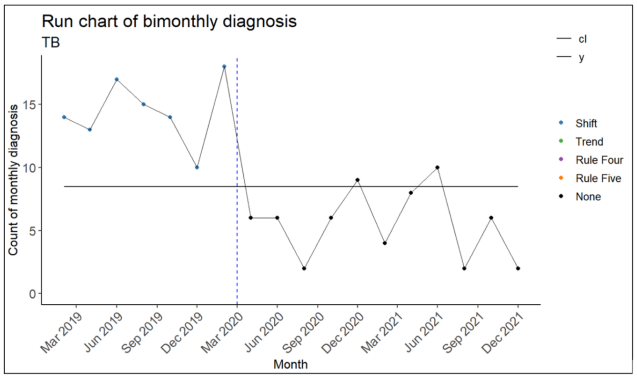

Fig 2: Bimonthly diagnosis of scabies before and after start of Covid 19-pandemic

Conclusion

Care delivered by volunteers in projects of MdM-BE is comparable to Belgian national standards but huge differences between clinics and potential for improvement exist. Overall, treatment was best when clear protocols existed. Therefore the following **three main recommendations** were issued:

1) develop clear protocols that are applicable to all projects/clinics;
2) ensure that every volunteer knows about those protocols and is trained on them
3) provide mandatory training in correct data input for every volunteer.

Following these recommendations both quality of patient treatment and data quality for monitoring and evaluation is expected to further improve.

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