Monitoring Belgian COVID-19 infections in work sectors in 2022

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1 Introduction

The workplace is among the main activities for a large proportion of the population, and consequently a source of potential infection. Hence, it is often (up to 25%) reported in the contact centre database as one of the collectivities visited by the index case. It is important to monitor the incidence of COVID-19 by sector as it can help us to better understand causes of increased infection rates and it can offer us ways to reduce infections without jeopardising the continuity of these sectors/companies for the benefit of all, first and foremost the companies and their workers. In contrary to previous reports only one source of information on infection in work sectors will be used: the RSZ/ONSS data. Due to changed policy concerning testing and contact tracing in March 2022, insufficient incidence data is available from the IDEWE contact tracing.

1.1 RSZ/ONSS data

The RSZ/ONSS data analyses of COVID-19 infections in the working population were set up in the first place to allow for signal detection. The alerts consist of 2 or more cases in the same company as well as the identification of employment of an index case in a risk sector as defined by the regional contact tracing agencies (daily alerts are sent by the RSZ/ONSS to the regions). Aggregated data show the evolution over time of the incidence in the sectors. It helps to better understand the spread of the virus in the active population. The latter is of interest here.

Data description: RSZ-ONSS has been receiving information regarding positive COVID-19 cases from Sciensano since 8 September 2020. RSZ-ONSS links this information to workplace-related databases, at the level of the national number (NISS). The linkage is allowed during a period of 14 days, after which the information on positive cases is destroyed, while the aggregated output tables are stored. Linkage is done of positive cases with the NSSO Dimona database of active workers since 8 September 2020. This covers most of the workers, such as private and public sectors, interim employment and job students. Since 12 January 2021, additional linkage of positive cases with the ARZA-RGTI (Algemeen Repertorium van de Zelfstandige Arbeiders - Répertoire Général des Travailleurs Indépendants) database was allowed, which covers self-employed workers.

Each company is classified by sector of its main activity (as attributed by the RSZ-ONSS), which are identified by the NACE code. This standard code classifies workplaces into 21 main sectors and then in subcategories for which the specificity depends on the chosen granularity (which can have up to 943 subcategories). However, although some companies or self-employed workers may be active in more than one sector, only one NACE number associated with the main activity is used in the analysis. This limitation is particularly important to consider for employees within national education. Because a vast majority of schools provide both primary and secondary education, the employees will be registered as working in "Secondary education" even when in reality they are primary school teachers.

Further, since the link of the cases is only identified at the level of the company, no information is available on the type of the job of the index case (e.g., administrative work in metal industry will be registered under metal industry). Further, information on the exact employment location is not always available and/or accurate (e.g., information on telework or temporary unemployment is not available).

Finally, the actual source of infection (in particular: at the workplace or elsewhere) cannot be traced back from this database. Thus, the size and extent of the database allows us to obtain a clear and precise picture of the level of infection within a given sector, without link to the source and circumstances of infection.

2 Methodology

2.1 COVID-19 14-day incidence

The data provided by RSZ/ONSS will be shown per work sector. Work sectors are divided by NACE codes and grouped into 5 levels of detail, going from 21 sectors at level 1 to 943 sectors at level 5. The evolution of the 14-day incidence of positive COVID-19 cases among all employees registered in the same sector (number of cases per 100,000 employees) is presented for the 5 levels of work sectors. A 95% confidence interval (CI)

for the incidence is calculated on a logit transformation of the incidence, after which it is backtransformed to the original scale.

At each of the 5 levels of detail of the work sectors, the highest incidences in the last 14-day period are selected (31 May – 13 June 2022) and presented together with the COVID-19 14-day incidence over all work sectors ($\sim$ 4.5 million individuals) and the COVID-19 14-day incidence in the general population ($\sim$ 11.5 million individuals) for reference.

Because the number of employees in some occupational sectors is low compared to others, the precision of the 14-day incidence is low in such small sectors. Therefore, we select the highest incidences for level 1 sectors with a minimum of 10,000 employees and self-employed workers. For level 2 and 3 sectors with a minimum of 5,000 employees and self-employed workers are selected, while for level 4 and level 5, sectors with a minimum of 3,000 and 1,500 employees, respectively, are selected.

Note that for 25% of the self-employed a sector is missing in the ARZA-RGTI data. Positive cases of self-employed worker with missing sector information are left out of the analysis. Linkage to occupational data shows that missing sector information is dispersed over many sectors, so that the impact of missing data is not affecting a single sector excessively. There will be a slight underestimation of the true incidence, but the ordering among sectors is likely not affected.

Finally, we cannot exclude varying testing preparedness and custom between sectors.

3 Results

This report is accompanied with an Excel sheet, listing all sectors and all NACE-BEL sectors for further examination.

3.1 Level 1 work sector

Of the 20 sectors at level 1, the sectors with a 14-day incidence on 13 June 2022 significantly above the general population average are: Information and communication (sector J) and Human health and social work activities (sector Q) (Table 1 and Figure 1). The decrease in 14-day incidences stopped in all sectors and is slightly increasing again in some sectors. The working population average is 26.5% higher than the general population average.

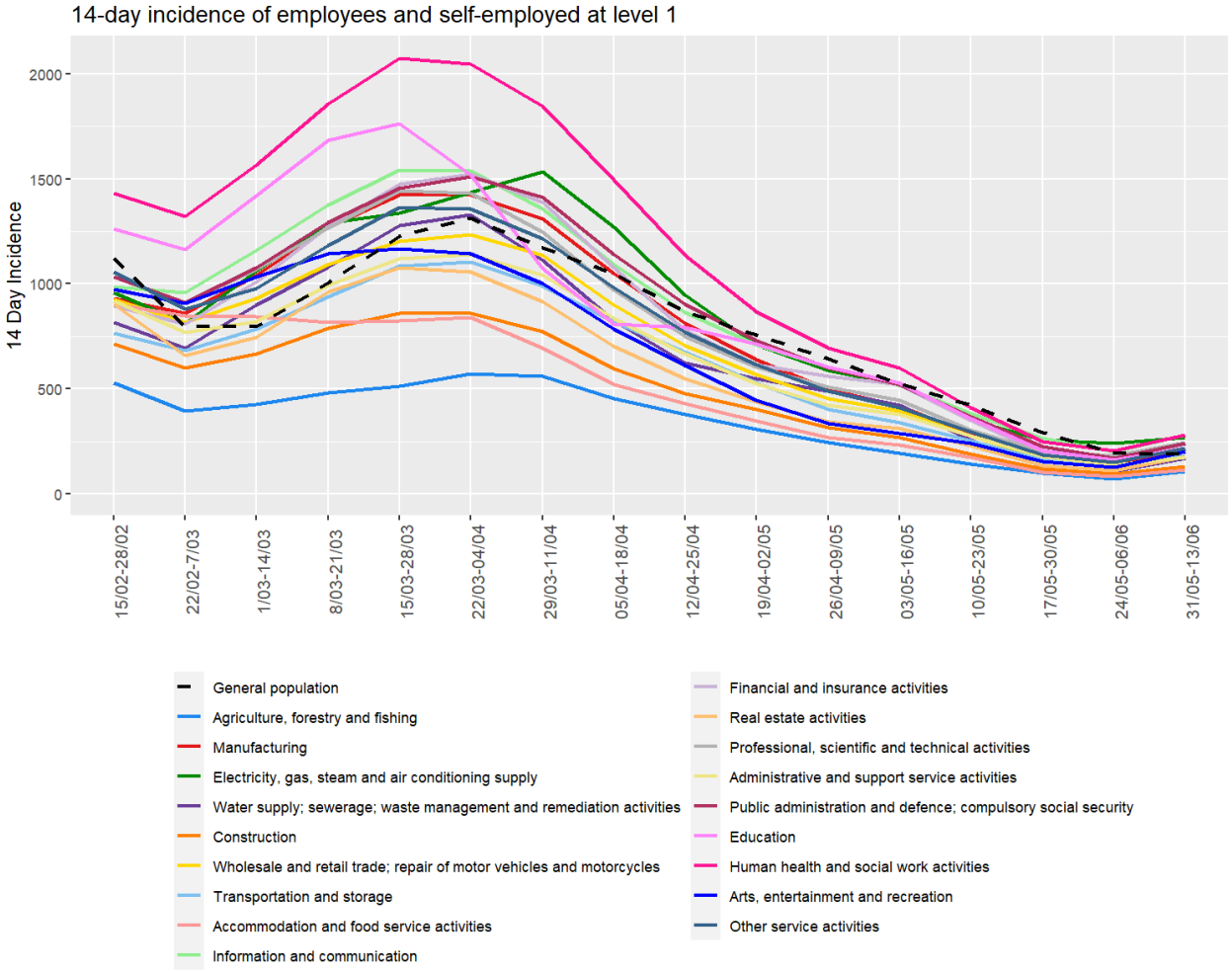

Figure 1: 14-Day incidence of COVID-19 infection of 20 sectors at Level 1 in both employees and self-employed workers

Table 1: 14-Day incidence of COVID-19 infection of 20 sectors at Level 1 on 13 June 2022

DESCRIPTION	NACE-code	Total number of workers	Incidence (95%CI) all workers	Incidence (95%CI) employees	Incidence (95%CI) self-employed	Percentage of self-employed workers
Information and communication	J	186525	282(259;307)	310(281;341)	214(178;257)	29.77
Human health and social work activities	Q	657706	279(267;292)	284(271;298)	227(190;271)	8.41
Electricity, gas, steam and air conditioning supply	D	21348	267(206;346)	275(211;358)		6.22
Professional, scientific and technical activities	M	399593	246(231;262)	297(275;321)	188(169;209)	47.43
Public administration and defence; compulsory social security	O	592531	241(229;254)	241(229;254)		0.18
Working population		**4655649**	**239(235;243)**	**239(235;243)**		
Financial and insurance activities	K	158723	235(212;260)	260(233;290)	145(110;191)	22.37
Education	P	765753	219(209;230)	219(209;230)	214(165;278)	3.54
Other service activities	S	159817	219(197;243)	262(229;299)	173(146;205)	49.76
Manufacturing	C	621127	213(202;225)	219(207;232)	162(134;196)	10.47
Arts, entertainment and recreation	R	112871	202(177;230)	235(202;273)	141(109;183)	36.40
General population			**189**	**189**	**189**	
Transportation and storage	H	310929	183(169;199)	189(174;206)	123(88;171)	9.33
Wholesale and retail trade; repair of motor vehicles and motorcycles	G	840556	180(171;189)	198(187;209)	119(104;136)	23.01
Real estate activities	L	58757	177(146;214)	188(141;250)	169(130;219)	58.45
Administrative and support service activities	N	447399	173(161;186)	178(165;192)	152(127;182)	18.24
Water supply; sewerage; waste management and remediation activities	E	36842	171(134;219)	174(135;224)		6.45
Construction	F	381818	132(121;144)	157(142;174)	96(82;113)	41.12
Accommodation and food service activities	I	353097	113(102;125)	120(108;133)	86(67;111)	21.37
Agriculture, forestry and fishing	A	87963	108(88;132)	85(59;122)	124(97;158)	60.41

3.2 Level 2 work sector

In the sectors at level 2 with a minimum of 5,000 workers, the sectors with a 14-day incidence on 13 June 2022 above the working population average are: Air transport (sector 51), Scientific research and development (sector 72), Publishing activities (sector 58), Human health activities (sector 86), Activities of membership organisations (sector 94), Telecommunication (sector 61), Insruance, reinsurance and pension funding (sector 65), Manufacturing of chemicals and chemical products (sector 20) and Computer programming and consultancey (sector 62) (Table 2 and Figure 2).

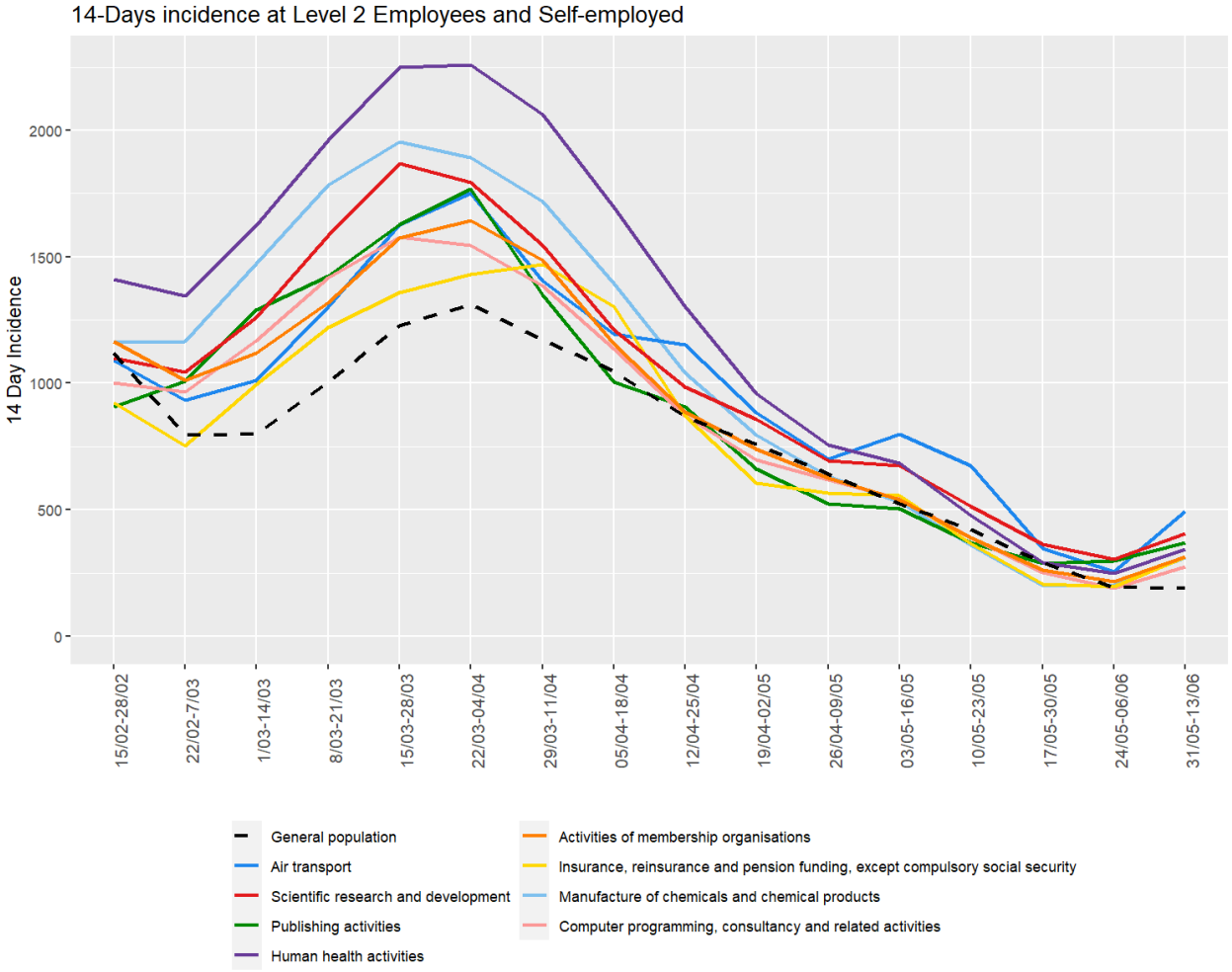

Figure 2: 14-Day incidence of COVID-19 infection in sectors with the highest incidence at Level 2 in both employees and self-employed workers

Table 2: 14-Day incidence of COVID-19 infection in sectors with the highest incidence at Level 2 on 13 June 2022

DESCRIPTION	NACE-code	Total number of workers	Incidence (95%CI) all workers	Incidence (95%CI) employees	Incidence (95%CI) self-employed	Percentage of self-employed workers
Air transport	51	6680	494(351;694)	494(351;694)		6.77
Scientific research and development	72	29310	406(339;486)	417(347;502)	289(138;605)	8.32
Publishing activities	58	11051	371(273;503)	420(294;600)	282(156;508)	35.45
Human health activities	86	314286	343(323;364)	361(339;384)	241(201;289)	15.35
Activities of membership organisations	94	58917	314(272;363)	341(293;397)	175(109;281)	16.79
Insurance, reinsurance and pension funding, except compulsory social security	65	23885	314(250;394)	316(251;397)		3.30
Manufacture of chemicals and chemical products	20	48077	312(266;366)	312(265;367)		2.78
Computer programming, consultancy and related activities	62	114964	274(245;306)	308(272;349)	202(161;254)	32.40
Working population		**4655649**	**239(235;243)**	**239(235;243)**		
General population			**189**	**189**	**189**	

3.3 Level 3 work sector

In the sectors at level 3 with a minimum of 5,000 workers, the sectors with a 14-day incidence on 13 June 2022 significantly above the working population average are: Passenger air transport (sector 511), Activities of business, employers and professional membership organisations (sector 941), Research and experimental development on natural sciences and engineering (sector 721), Hospital activities (sector 861), Publishing of books and periodicals (sector 581), Compulsory social security activities (sector 843), Wired telecommunication activities (sector 611), Wholesale of information and communication and household goods (sector 465, 464), Activities of head offices (sector 651), Manufacture of basci chemicals (sector 201), Other human health activities (sector 869) and Computer programming, consultancy and related activities (sector 620) (Table 3 and Figure 3).

The incidences in education follow the increase in incidence of the working population average (Figure 4). A comparison between primary and secondary schools is inaccurate based on the available data. Indeed,

the NACE-BEL code for school employees is assigned to the main activity of the school. Hence, for schools offering both primary and secondary education, all employees are counted as secondary education employees. Employees under the NACE-BEL code primary education are employees in schools that offer only primary education.

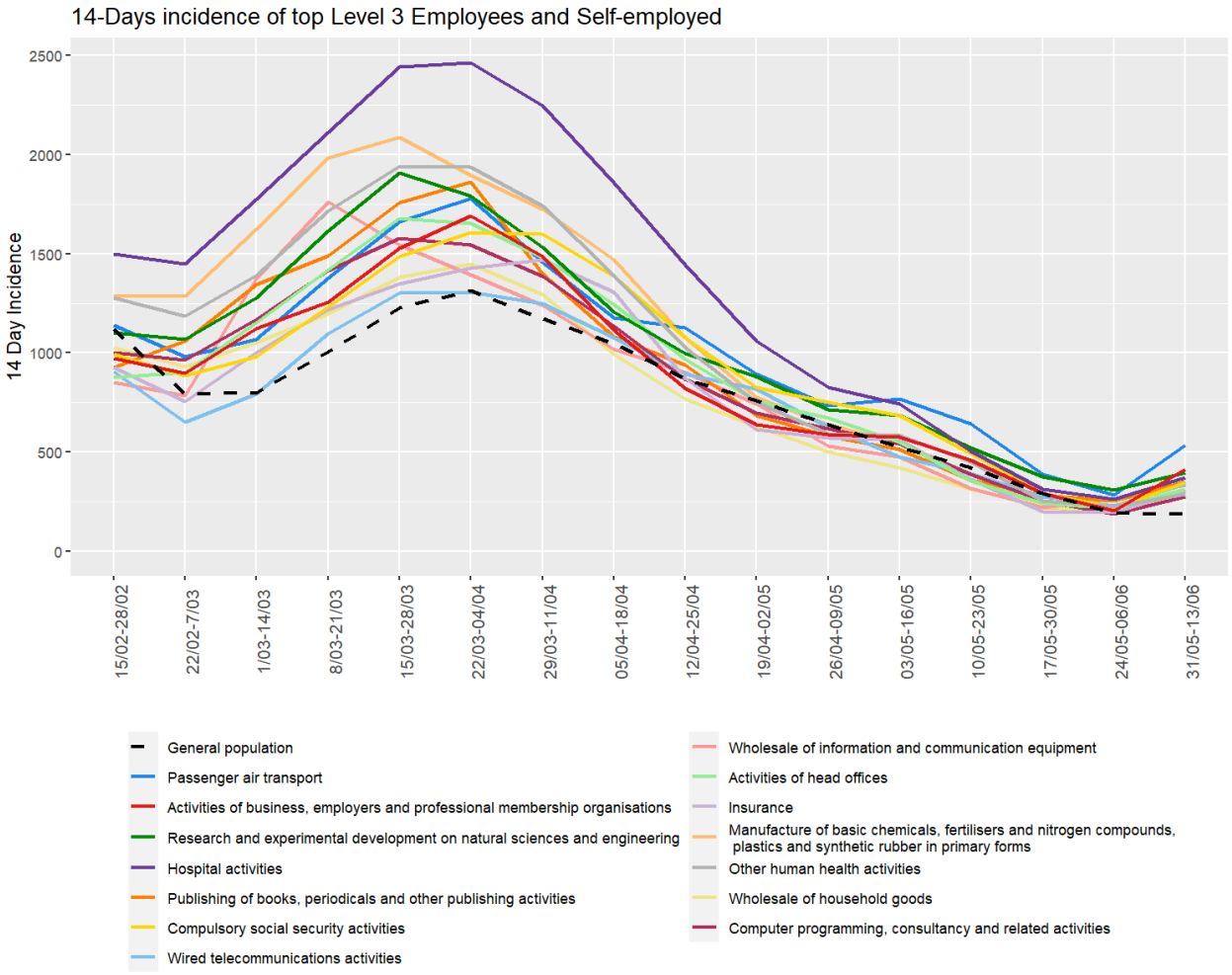

Figure 3: 14-Day incidence of COVID-19 infection in sectors with the highest incidence at Level 3 in both employees and self-employed

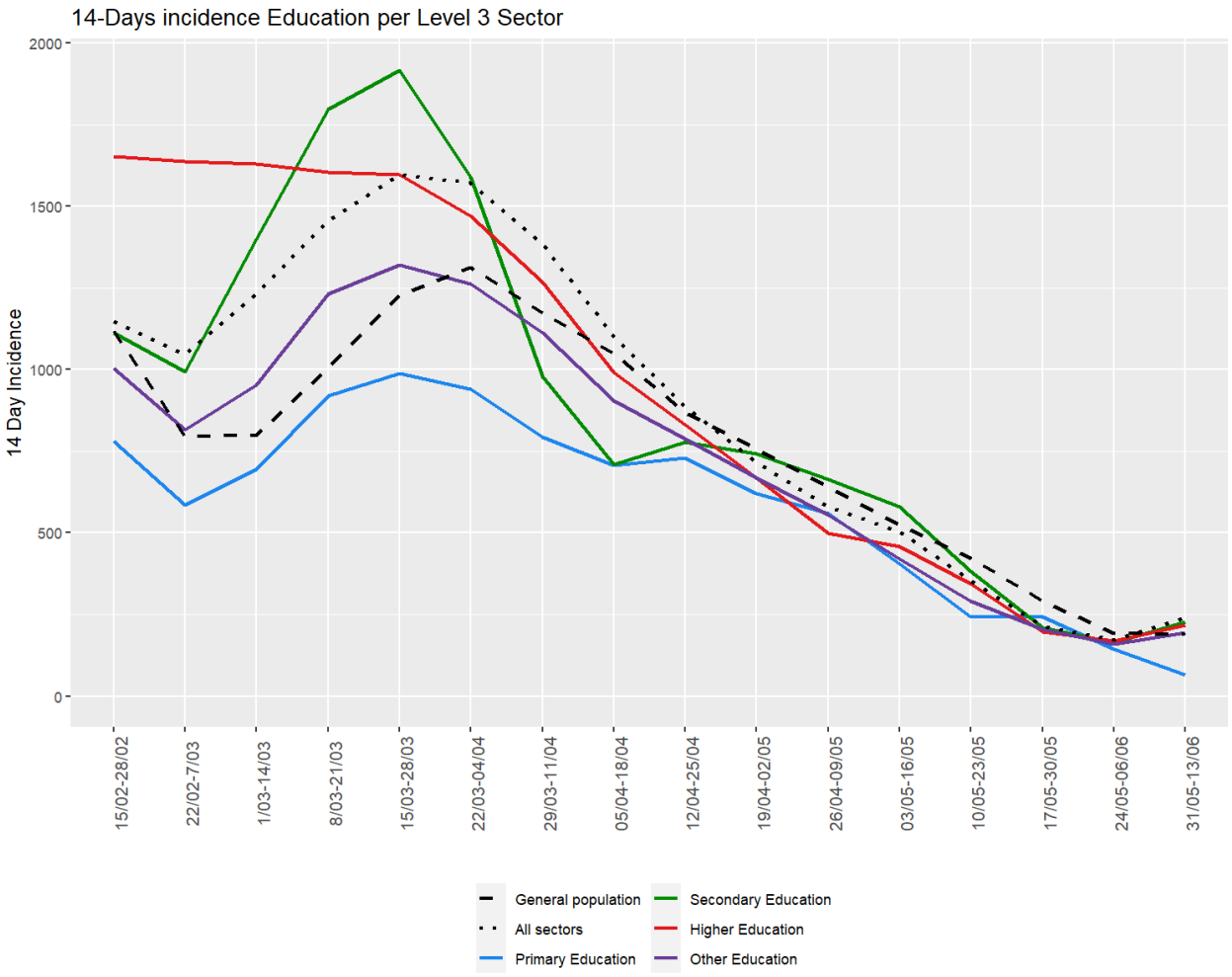

Figure 4: 14-Day incidence of COVID-19 infection in Education sectors at Level 3 in both employees and self-employed

Table 3: 14-Day incidence of COVID-19 infection in sectors with the highest incidence at Level 3 on 13 June 2022

DESCRIPTION	NACE-code	Total number of workers	Incidence (95%CI) all workers	Incidence (95%CI) employees	Incidence (95%CI) self-employed	Percentage of self-employed workers
Passenger air transport	511	5970	536(379;757)	536(379;757)		6.96
Activities of business, employers and professional membership organisations	941	18160	413(329;518)	519(408;660)	166(86;319)	30.05
Research and experimental development on natural sciences and engineering	721	28070	399(332;480)	218(152;314)	239(100;573)	7.49
Hospital activities	861	215591	372(347;399)	373(348;400)		0.33
Publishing of books, periodicals and other publishing activities	581	9091	352(249;497)	395(269;580)	240(108;533)	27.66
Compulsory social security activities	843	33043	345(287;414)	345(287;414)		0.95
Wired telecommunications activities	611	11276	337(245;463)	337(244;465)		2.75
Wholesale of information and communication equipment	465	13213	333(248;447)	348(255;474)	232(87;616)	13.08
Activities of head offices	701	32063	315(259;383)	342(280;418)	125(52;300)	13.53
Insurance	651	23529	306(243;385)	311(247;392)		2.99
Manufacture of basic chemicals, fertilisers and nitrogen compounds, plastics and synthetic rubber in primary forms	201	29568	301(245;370)	299(242;369)		1.56
Other human health activities	869	54138	290(248;339)	347(285;422)	227(176;294)	47.78
Wholesale of household goods	464	68531	286(249;329)	326(282;377)	116(70;192)	18.98
Computer programming, consultancy and related activities	620	114964	274(245;306)	308(272;349)	202(161;254)	32.40
Working population		**4655649**	**239(235;243)**	**239(235;243)**		
General population			**189**	**189**	**189**	

3.4 Level 4 work sector

In the sectors at level 4 with a minimum of 3,000 workers, the sectors with a 14-day incidence on 13 June 2022 significantly higher than the working population average are: Passenger air transport (sector 5110), Construction of water projects (sector 4291), Activities of business and employers membership organisations (sector 9411), Other research and experimental development on natural sciences and engineering and research on biotechnology (sector 7211, 7219), Manufacture of other fabricated metal products and other organic basic chemicals (sector 2599, 2014), Performing arts (sector 9001), Hospital activities (sector 8610), General medical practice activities (sector 8621), Compulsory social security activities (sector 8430), Wholesale of computers, equipment and software and pharmaceutical goods (sector 4651, 4646), Wired telecommunications activities

(sector 6110), Computer programming activities (sector 6201), Activities of head offices (sector 7010), Engineering activities and consultancy (sector 7112), Other human health activities (sector 8690) and Public order and safety activities (sector 8424) (Table 4 Figure 5).

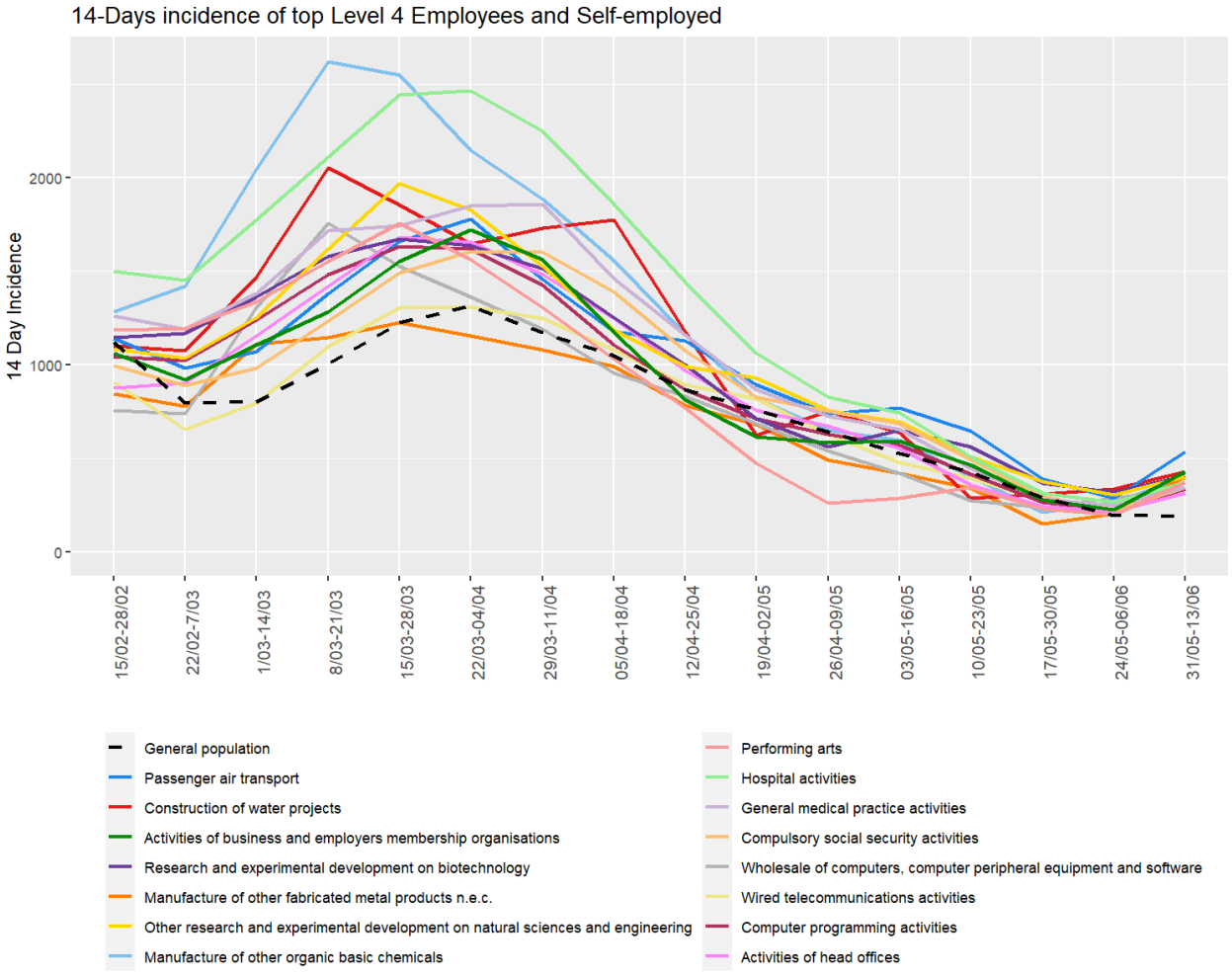

Figure 5: 14-Day incidence of COVID-19 infection in sectors with the highest incidence at Level 4 in both employees and self-employed

Table 4: 14-Day incidence of COVID-19 infection in sectors with the highest incidence at Level 4 on 13 June 2022

DESCRIPTION	NACE-code	Total number of workers	Incidence (95%CI) all workers	Incidence (95%CI) employees	Incidence (95%CI) self-employed	Percentage of self-employed workers
Passenger air transport	5110	5970	536(379;757)	536(379;757)		6.96
Construction of water projects	4291	4196	429(270;680)	429(270;680)		7.47
Activities of business and employers membership organisations	9411	12881	427(328;556)	547(415;721)	134(56;322)	29.29
Research and experimental development on biotechnology	7211	6634	407(279;593)	442(301;648)		11.51
Manufacture of other fabricated metal products n.e.c.	2599	5486	401(264;608)	450(294;689)		14.87
Other research and experimental development on natural sciences and engineering	7219	21500	400(324;494)	404(325;502)		6.83
Manufacture of other organic basic chemicals	2014	12846	397(302;522)	393(298;518)		1.07
Performing arts	9001	12601	373(280;496)	534(378;754)	227(137;376)	54.30
Hospital activities	8610	215591	372(347;399)	373(348;400)		0.33
General medical practice activities	8621	17052	346(268;446)	339(252;457)	368(226;600)	26.16
Compulsory social security activities	8430	33043	345(287;414)	345(287;414)		0.95
Wholesale of computers, computer peripheral equipment and software	4651	10264	341(245;475)	370(263;520)		13.04
Wired telecommunications activities	6110	11276	337(245;463)	337(244;465)		2.75
Computer programming activities	6201	51796	334(288;388)	367(311;433)	243(173;342)	26.44
Activities of head offices	7010	32063	315(259;383)	342(280;418)	125(52;300)	13.53
Wholesale of pharmaceutical goods	4646	22258	310(245;392)	326(257;413)		6.27
Engineering activities and related technical consultancy	7112	44481	308(261;364)	341(283;410)	216(146;319)	26.26
Other human health activities	8690	54138	290(248;339)	347(285;422)	227(176;294)	47.78
Public order and safety activities	8424	54093	281(240;329)	281(240;329)		0.18
Working population		**4655649**	**239(235;243)**	**239(235;243)**		
General population			**189**	**189**	**189**	

3.5 Level 5 work sector

In the sectors at level 5 with a minimum of 3,000 workers, the sectors with a 14-day incidence on 13 June 2022 significantly higher than the working population average are: Passenger air transport (sector 51100),

Manufacture of other fabricated metal products and other organic basic chemicals (sector 25999, 20140), Performing arts by artistic ensembles (sector 90012), Activities of medical laboratories (sector 86901), Activities of business and employers membership organisations (sector 94110), Other research and experimental development on natural sciences and engineering and research on biotechnology (sector 72110, 72190), General hospitals (sector 86101), Compulsory social security activities (sector 84302, 84301), General medical practice activities (sector 86210), Wholesale of computers, equipment and software and pharmaceutical goods (sector 46510, 46460), Wired telecommunications activities (sector 61100), Computer programming activities (sector 62010), Psychiatric hospitals (sector 86104), Engineers and related technical consultants (sector 71121), General secondary education (sector 85319) and Activities of head offices (sector 70100) (Table 5 and Figure 6).

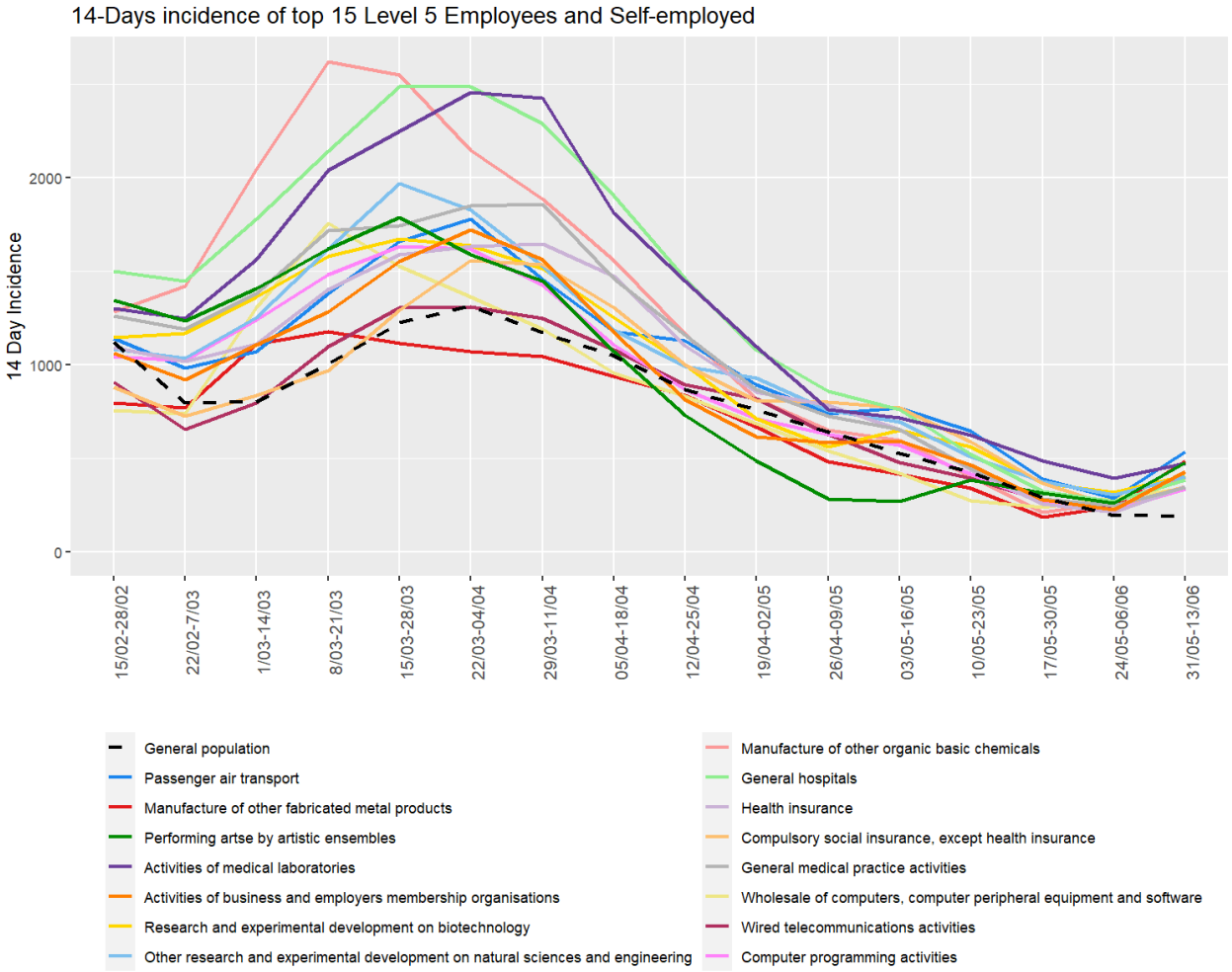

Figure 6: 14-Day incidence of COVID-19 infection in sectors with the highest incidence at Level 5 in both employees and self-employed

Table 5: 14-Day incidence of COVID-19 infection of sectors with the highest incidence at Level 5 on 13 June 2022

DESCRIPTION	NACE-code	Total number of workers	Incidence (95%CI) all workers	Incidence (95%CI) employees	Incidence (95%CI) self-employed	Percentage of self-employed workers
Passenger air transport	51100	5970	536(379;757)	536(379;757)		6.96
Manufacture of other fabricated metal products n.e.c.	25999	4545	484(319;734)	555(362;850)		16.81
Performing artse by artistic ensembles	90012	6889	479(341;673)	567(401;801)		18.92
Activities of medical laboratories	86901	6369	471(330;673)	478(328;696)		11.37
Activities of business and employers membership organisations	94110	12881	427(328;556)	547(415;721)	134(56;322)	29.29
Research and experimental development on biotechnology	72110	6634	407(279;593)	442(301;648)		11.51
Other research and experimental development on natural sciences and engineering	72190	21500	400(324;494)	404(325;502)		6.83
Manufacture of other organic basic chemicals	20140	12846	397(302;522)	393(298;518)		1.07
General hospitals	86101	176178	382(354;412)	382(354;412)		0.26
Health insurance	84302	18000	350(274;448)	350(274;448)		0.76
Compulsory social insurance, except health insurance	84301	11461	349(256;475)	349(256;475)		0.56
General medical practice activities	86210	17052	346(268;446)	339(252;457)	368(226;600)	26.16
Wholesale of computers, computer peripheral equipment and software	46510	10264	341(245;475)	370(263;520)		13.04
Wired telecommunications activities	61100	11276	337(245;463)	337(244;465)		2.75
Computer programming activities	62010	51796	334(288;388)	367(311;433)	243(173;342)	26.44
Psychiatric hospitals	86104	33030	330(274;398)	330(274;398)		0.36
Engineers and related technical consultants	71121	41615	322(272;381)	353(293;425)	223(147;338)	23.84
General secondary education.	85319	212539	319(296;344)	319(296;344)		0.02
Activities of head offices	70100	32063	315(259;383)	342(280;418)	125(52;300)	13.53
Wholesale of pharmaceutical goods	46460	22258	310(245;392)	326(257;413)		6.27
Working population		**4655649**	**239(235;243)**	**239(235;243)**		
General population			**189**	**189**	**189**	

Finally, when considering specifically the non-medical contact professions, we see that the incidence in the employees and self-employed are below the working population average and that the incidence in the beauty saloons is higher compared to the incidence in the hairdressers. (Figure 7).

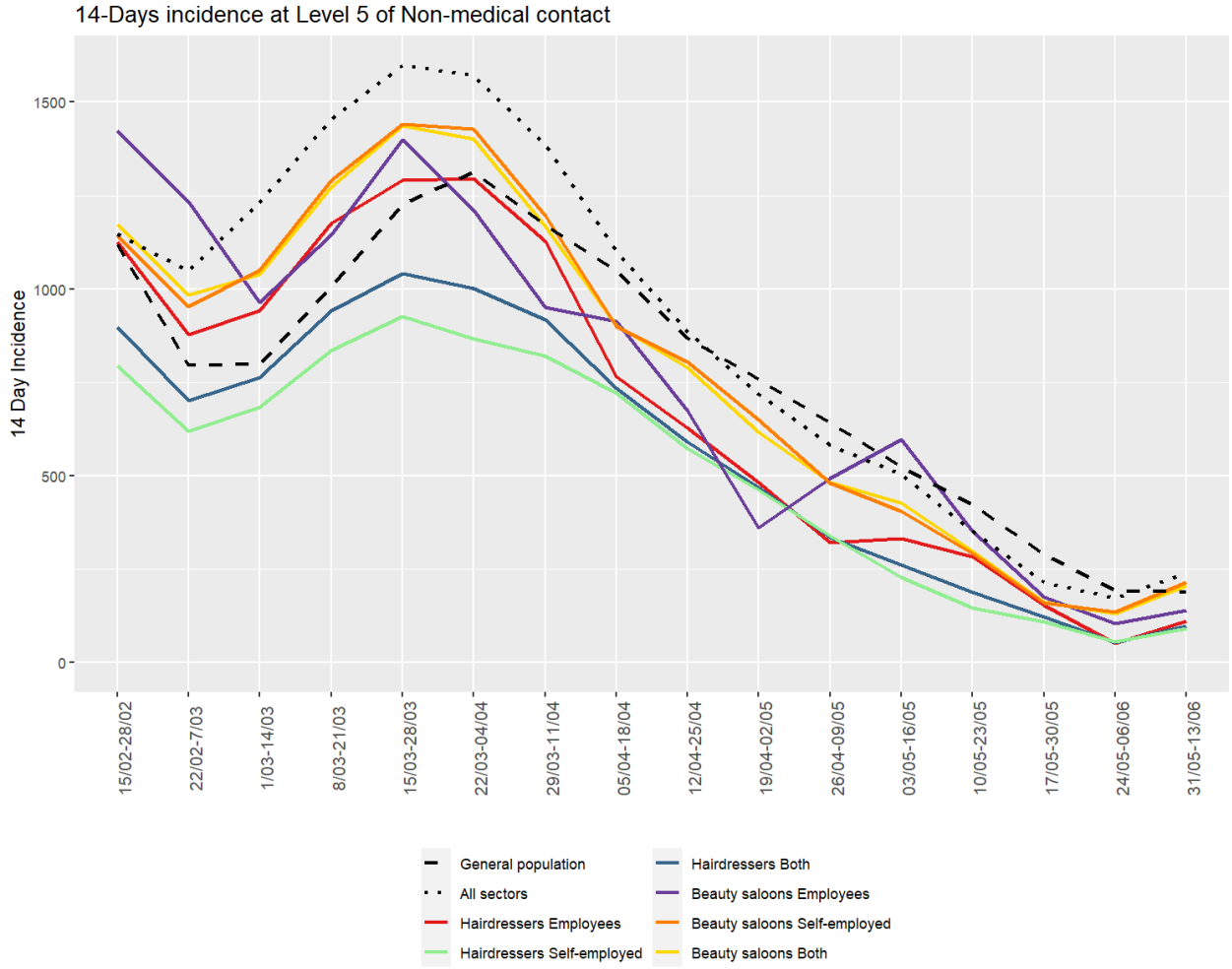

Figure 7: 14-Day incidence of COVID-19 infection at Level 5 of non-medical contact professions.

3.6 Additional analyses

3.6.1 Cross-level overview

When contemplating the 14-day incidences across NACE-BEL sectors, it is possible to gauge the contribution of each sub-level sector to the higher level incidence (Figure 8).

The 14-day incidence in the Infomation and communication (sector J) and Human health and social work sector (sector Q) is elevated compared to the working and general population (Figure 8). The increased incidence is present in several subsectors of these sectors.

Although the 14-day incidence in Education (sector P), Transportation and storage (sector H), Public administration and defence (sector O), Professional scientific and technical activities (sector M), Other service activities (sector S) and Arts, entertainment and recreation (sector R) is around or below the working population average, individual subsectors show an increased incidence compared to the working population, such as General secondary education (sector 85319), Passenger Air transport (sector 5110), Compulsary insurance and health insurance (sector 94301, 94302), Public order and safety (sector 8424), Book publishers (sector 5811), Wired telecommunication (sector 6110), Computer programming activities (sector 6201), Activities of head offices (sector 7010), Engineering activities and consultancy (sector 7112), Other research and developmental work in the natural sciences and research in biotechnoloy (sector 7219, 7211), Activities of business and employers membership organisations (sector 9411) and Performing arts (sector 9001).

It is encouraging that the incidence in Accommodation and food service activities (sector I) is similar to or below the general population average.

The sectors Manufacturing (sector C) and Wholesale and retail trade (sector G) are sectors with the highest number of sublevels. This results in large differences in 14-day incidences within the sector. Only a few manufacturing and wholesale sectors show an elevated incidence above the working population average (Figure 8).

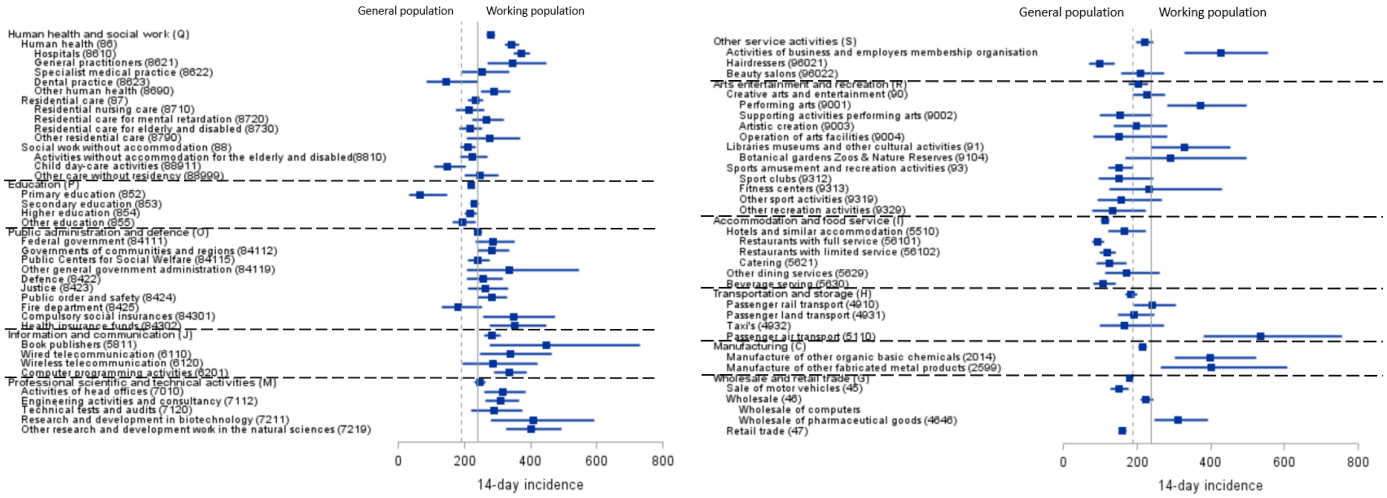

Figure 8: Forest plot of 14-Day incidence and 95% CI of selected sectors on 13 June 2022 in both employees and self-employed.

3.6.2 Absenteeism

Absenteeism at work is a cause of concern for the continuity of activities in companies, sectors and for the chain of economic activities. Information on days worked and on the reason of days not worked since the beginning of year 2021 is provided through a collaboration of RSZ/ONSS with three social secretariats: Acerta, SD Worx and Securex. Covering $\sim$ 1.33 million of the $\sim$ 4.5 million employees.

The **medium-term absenteeism**, employees who are absent for up to 30 days due to illness, remains high in 2022 compared to 2021 (Figure 9). The medium-term absenteeism follows the trend of the COVID-19 waves. In December 2021, when the delta variant-of-concern emerges, the amount of sick people increases, resulting in 3.6% absentees at the beginning of December. This is followed by a decrease in absenteeism (1.26%) in the last week of the year and an increase to 4.66% in January 2022, under the surge of to the omikron variant-of-concern. Many employees are homebound, although the omikron variant generally makes people less sick.

When the incidences decrease after January 2022, we see that absenteeism follows and decreases to 2.86% in week 8 of 2022 (end of February), which is higher than the 2.25% in week 8 of 2021. In March and April

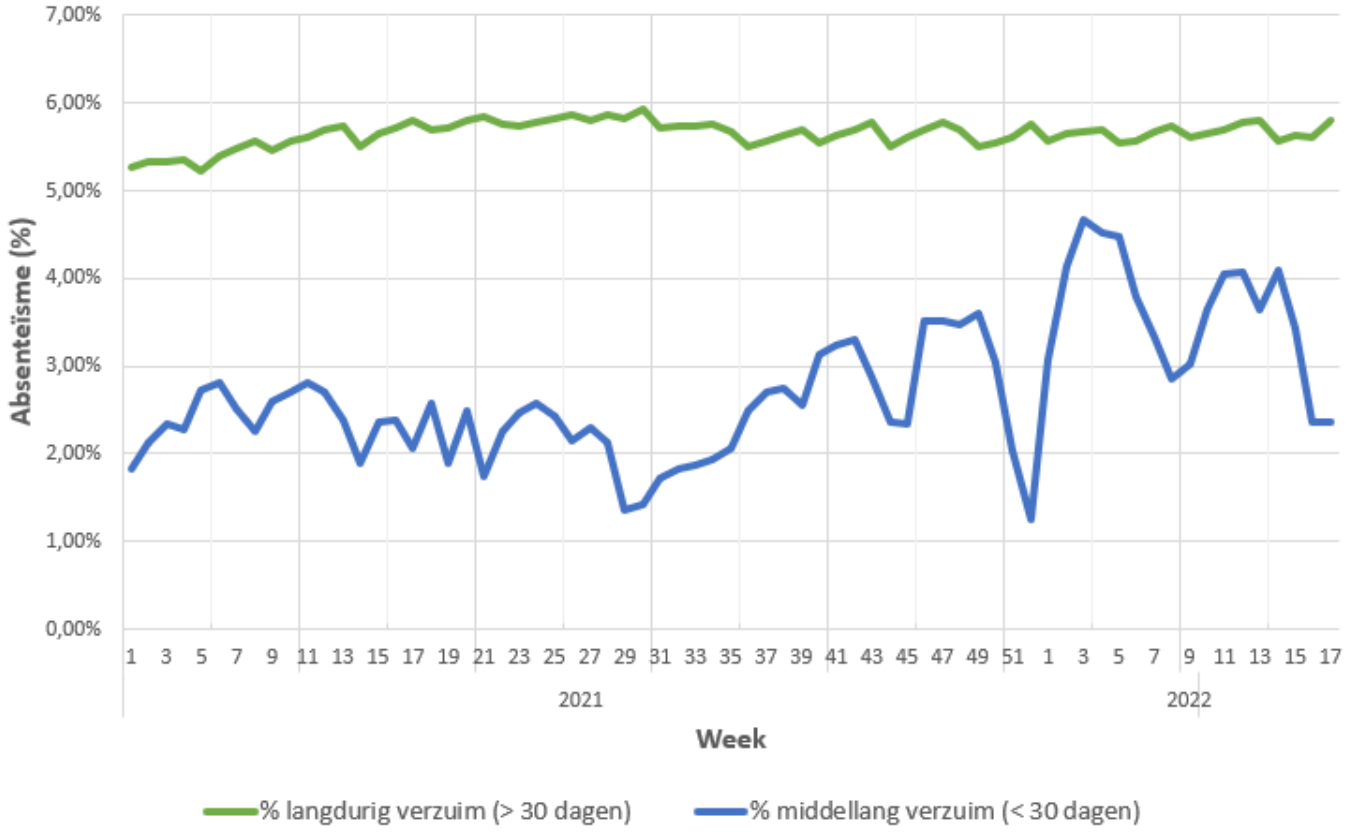

Figure 9: Medium and long-term absenteeism in the working population.

of 2022, the medium-term absenteeism rises again to just above 4%, due to two factors: the common flu and COVID-19. Since COVID-19 is no longer systematically tested, the incidence of COVID-19 is likely underestimated.

Long-term absenteeism is less subject to seasonal changes, which means fewer fluctuations are seen in 2021–2022, where it remains around 4%. Long-term absenteeism is thus likely not related to COVID-19, but more likely to musculoskeletal disorders (MSA) or psychosocial complaints.

Long-term absenteeism among **blue-collar workers** is considerably higher than among white-collar workers, respectively 8% versus 4.5% (Figure 10). Blue-collar workers often perform heavy physically work, at times in less favorable working conditions, which results in longer absences.

Absenteeism is higher in the healthcare sector than in other sectors. In the **paritair comté for rest and care homes**, long-term absenteeism is 12%, much higher than on average (Figure 11). Medium-term absenteeism is also higher than on average (4%). A similar image emerges in other care sectors, f.e. in **home**

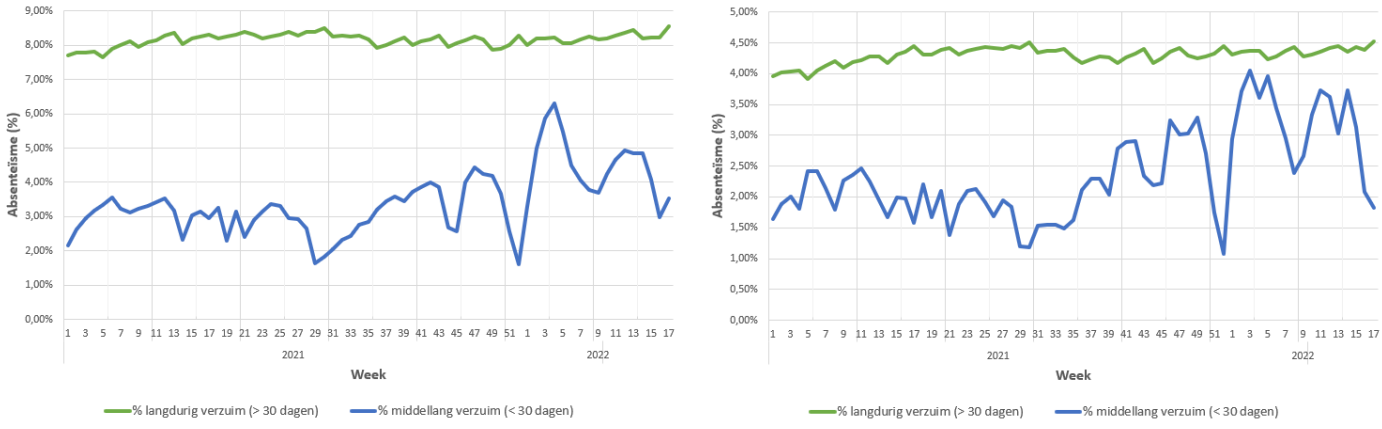

Figure 10: Medium and long-term absenteeism in the bluecollar (left) and whitecollar (right) employees.

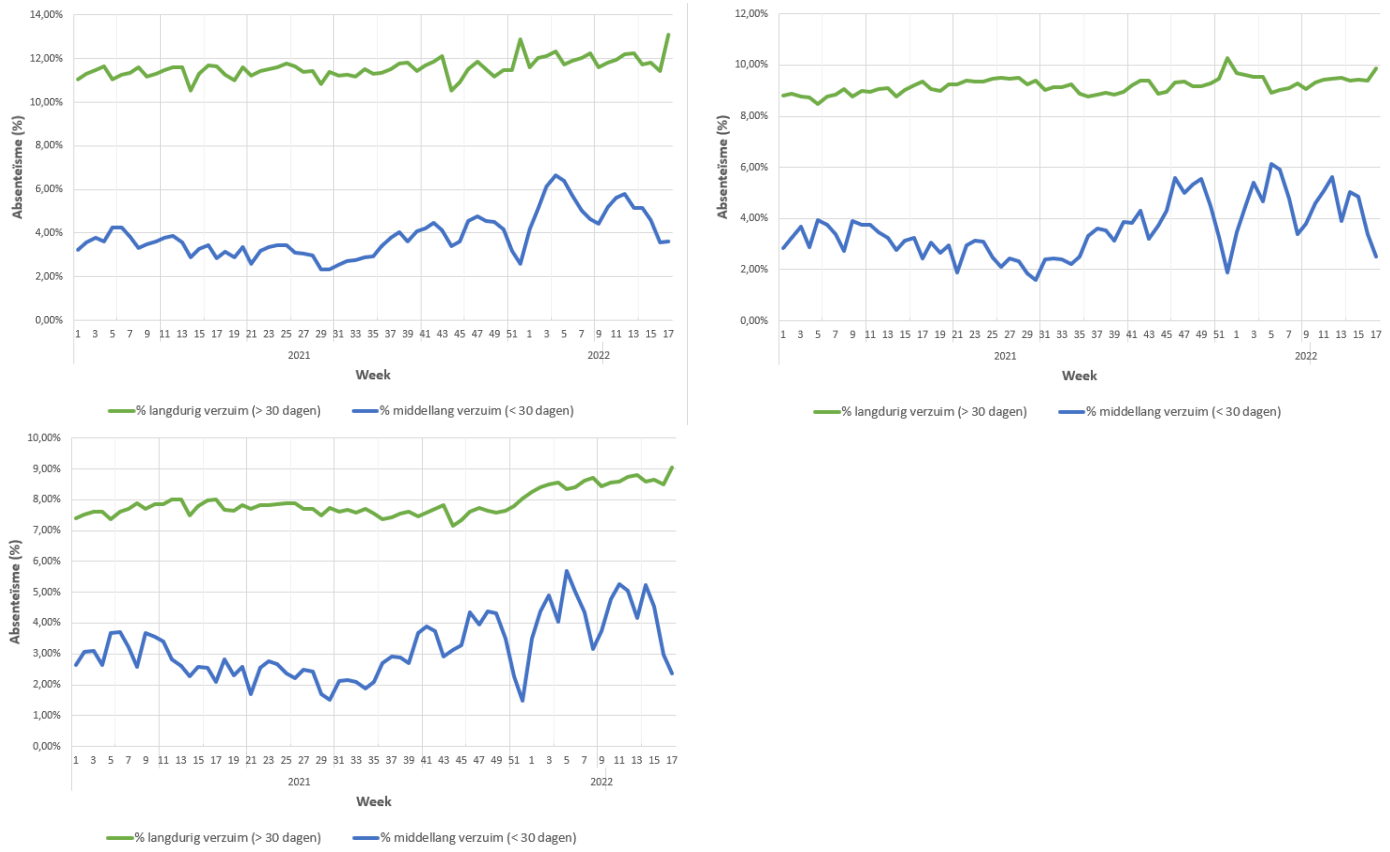

Figure 11: Medium and long-term absenteeism in employees in the rest and care homes (top left), home care (top right) and hospitals (bottom).

nursing, the long-term absenteeism is around 9%. In **hospitals**, long-term absences are steadily rising from 7.39% in January 2021 to 9.05% in May 2022.

4 Conclusion

Despite the limitations of the data, the RSZ/ONSS data demonstrates a slight increase in the 14-day COVID-19 incidences in all sectors. The highest incidences are present in passenger air transport, professional, scientific and technical activities, information and communication and human health. The average incidence in the working population is 26.5% higher than the average incidence in the general population, suggesting that infections are increasing mostly in working adults than in children and the elderly. Although the changed testing procedure in schools and the general population may influence this comparison.
Vigilence is required in especially human health, social work, education, passenger air transport and public administration sectors since they're not able to telework.

Although no conclusions can be drawn regarding the location of infection (workplace or elsewhere) nor the location of employment (at work, telework, or temporarily unemployed) of the employees in the RSZ/ONSS data, the contact tracing in the segments under surveillance by IDEWE showed that in the index cases, where this information was available, 7% indicated that the workplace was certainly the source of infection. Due to changed testing policy in March 2022, insufficient data is available from the contact tracing to provide accurate results.

It is important to carefully monitor the incidence of COVID-19 in all sectors, especially sectors with frequent high risk contacts with an increased incidence compared to the working population average. Passenger air transport, Performing arts, Human health activities, general secondary education, actvities of business and employers membership organisations and some manufacturing sectors all show an increased incidence compared to the general population average and require continuous careful attention.

For some sectors the reason for the higher incidences is not immediately obvious, such as Activities of medical laboratories, Research and experimental development, Compulsory and health insurance, Wired telecom-

munication, Computer programming activities, engineers an related consultancy ad activities of head offices. It would be worthwhile to evaluate the hygiene protocols and its practice in these sectors.

The incidence in non-medical contact professionals is below the working population average, with no obvious difference between employees and self-employed professionals. The incidence in employees of beauty saloons is higher compared to hairdressers.

It is encouraging to note that employees in accommodation and food services, and most manufacturing, wholesale and retail sectors are well protected, as they are often not able to telework.

Despite the high degree of vaccination, COVID-19 infection remains possible. Continuous monitoring of breakthrough infections, despite primo and booster vaccination, is warranted. Not only to monitor protection against hospitalisation, but also to monitor absenteeism at work. Medium-term absenteeism follows the COVID-19 waves, while long-term absenteeism remainst stable in time. Subgroups of employees show however important difference in absenteeism. For example long-term absenteeism is higher among bluecollar workers and n the healthcare sector. The high absenteeism rates in combination with the tight labor market makes it more difficult for companies to fill vacancies.

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