

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 (4 –18 April 2022) and presented together with the COVID-19 14-day incidence over all work sectors (~ 4.5 million individuals) and the COVID-19 14-day incidence in the general population (~ 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 18 April 2022 significantly above the working population average are Human health and social work activities (sector Q), Electricity, gas, steam and air conditioning supply (sector D) and Public administration, defence and compulsory social security (sector O) (Table 1 and Figure 1). The 14-day incidences is decreasing again in all sectors.

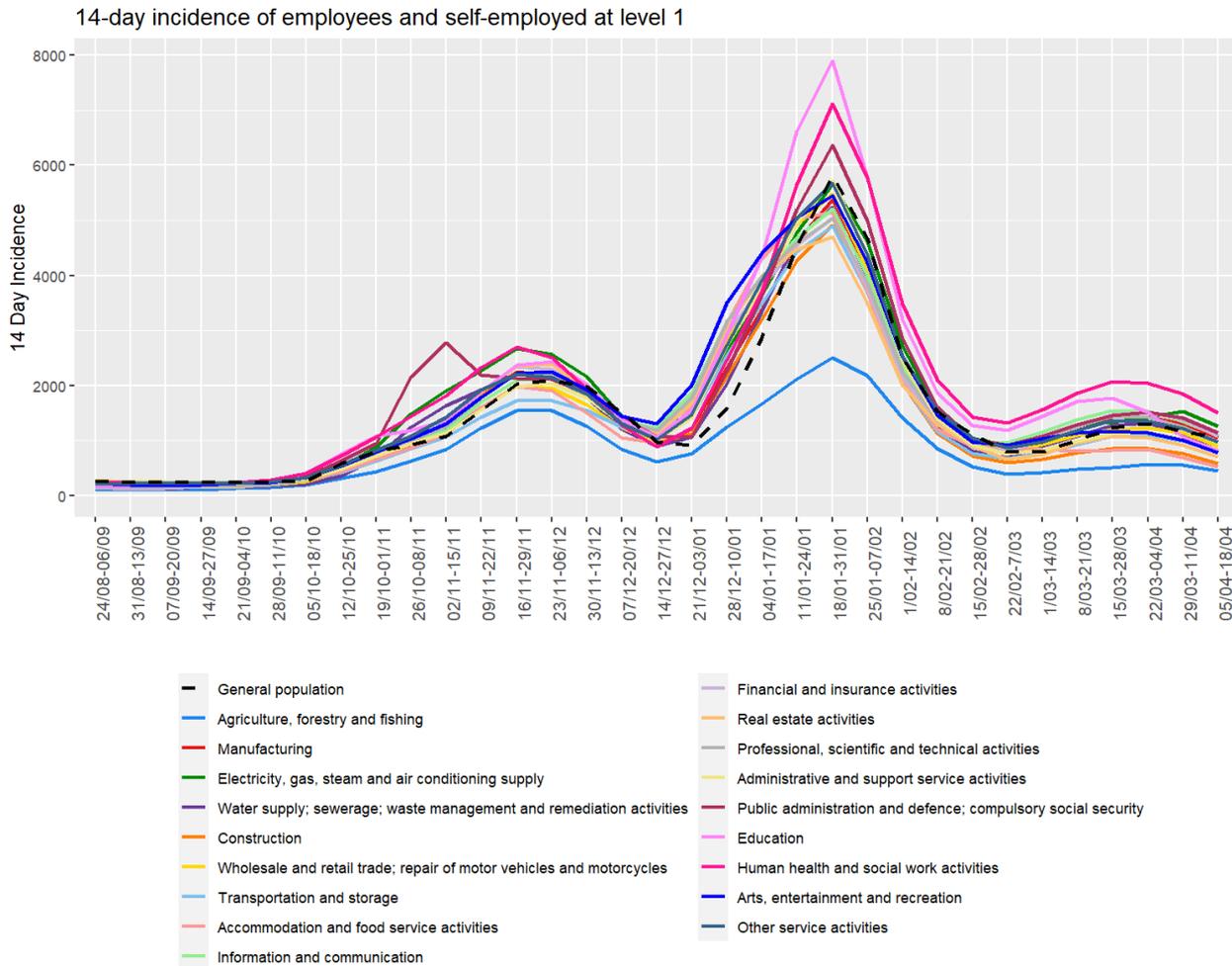


Figure 1: 14-Day incidence of COVID-19 infection of 20 sectors at Level 1 in both employees and self-employed workers

Table 1: 14-Day incidence of COVID-19 infection of 20 sectors at Level 1 on 18 April 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 |
|--|-----------|-------------------------|-------------------------------|-----------------------------|---------------------------------|-------------------------------------|
| Human health and social work activities | Q | 663880 | 1495(1466;1524) | 1536(1505;1567) | 1023(941;1112) | 8.33 |
| Electricity, gas, steam and air conditioning supply | D | 21451 | 1268(1127;1427) | 1321(1172;1488) | | 6.17 |
| Public administration and defence; compulsory social security | O | 600350 | 1142(1115;1169) | 1143(1116;1170) | | 0.18 |
| Working population | | 4671753 | 1101(1092;1111) | 1101(1092;1111) | | |
| Information and communication | J | 187168 | 1091(1045;1139) | 1183(1126;1243) | 867(792;949) | 29.76 |
| Financial and insurance activities | K | 159814 | 1075(1026;1127) | 1205(1146;1267) | 613(537;700) | 22.24 |
| Manufacturing | C | 627550 | 1049(1024;1075) | 1092(1065;1119) | 672(612;738) | 10.40 |
| General population | | | 1048 | 1048 | 1048 | |
| Other service activities | S | 161429 | 980(933;1029) | 1081(1013;1154) | 873(810;941) | 49.51 |
| Professional, scientific and technical activities | M | 397526 | 970(940;1001) | 1187(1142;1234) | 721(683;761) | 47.39 |
| Wholesale and retail trade; repair of motor vehicles and motorcycles | G | 846274 | 899(879;919) | 978(955;1002) | 620(585;657) | 22.76 |
| Administrative and support service activities | N | 443795 | 838(812;865) | 873(843;904) | 677(622;737) | 18.36 |
| Water supply; sewerage; waste management and remediation activities | E | 36529 | 824(736;922) | 867(774;971) | | 6.52 |
| Transportation and storage | H | 311679 | 822(791;854) | 857(824;892) | 474(401;561) | 9.31 |
| Education | P | 759433 | 811(791;831) | 810(790;831) | 849(745;968) | 3.57 |
| Arts, entertainment and recreation | R | 113198 | 788(738;841) | 807(745;874) | 752(672;842) | 36.28 |
| Real estate activities | L | 58916 | 701(637;772) | 846(740;967) | 593(516;681) | 58.23 |
| Construction | F | 385017 | 594(570;619) | 673(640;707) | 475(442;511) | 40.89 |
| Accommodation and food service activities | I | 336923 | 520(496;545) | 542(515;571) | 439(393;491) | 22.11 |
| Agriculture, forestry and fishing | A | 83885 | 453(410;501) | 281(228;346) | 555(495;622) | 63.47 |

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 18 April 2022 higher than the general population average are: Health and care sector (sector 86, 87), Manufacturing (sector 21, 26, 24, 20), Insurance, reinsurance and pension funding (sector 65), Electricity, gas, steam and air conditioning supply (sector 35), Social work activities without accommodation (sector 88) and Public administration and defence (sector 84) (Table 2 and Figure 2).

14-Days incidence at Level 2 Employees and Self-employed

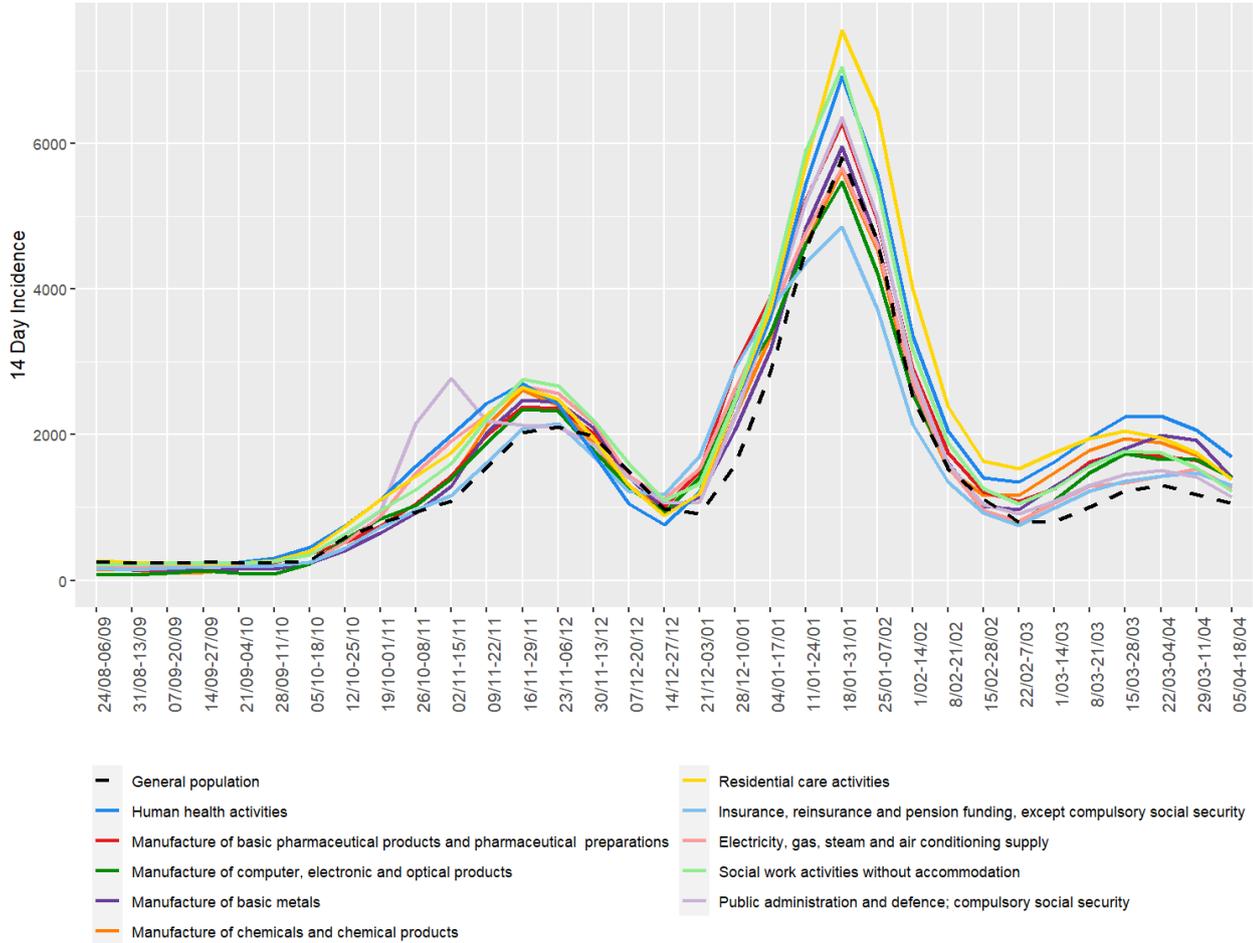


Figure 2: 14-Day incidence of COVID-19 infection in sectors with the highest incidence at Level 2 in both employees and self-employed workers

Table 2: 14-Day incidence of COVID-19 infection in sectors with the highest incidence at Level 2 on 18 April 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 |
|---|-----------|-------------------------|-------------------------------|-----------------------------|---------------------------------|-------------------------------------|
| Human health activities | 86 | 318337 | 1696(1652;1741) | 1804(1755;1855) | 1075(986;1172) | 15.19 |
| Manufacture of basic pharmaceutical products and pharmaceutical preparations | 21 | 35679 | 1421(1303;1549) | 1434(1315;1564) | | 1.31 |
| Manufacture of computer, electronic and optical products | 26 | 13891 | 1411(1228;1621) | 1479(1283;1704) | | 8.51 |
| Manufacture of basic metals | 24 | 25820 | 1402(1266;1553) | 1425(1285;1579) | | 2.95 |
| Manufacture of chemicals and chemical products | 20 | 48244 | 1395(1294;1504) | 1413(1310;1524) | | 2.78 |
| Residential care activities | 87 | 176411 | 1382(1329;1438) | 1394(1340;1450) | 478(265;861) | 1.33 |
| Insurance, reinsurance and pension funding, except compulsory social security | 65 | 24080 | 1304(1168;1455) | 1331(1192;1486) | | 3.27 |
| Electricity, gas, steam and air conditioning supply | 35 | 21451 | 1268(1127;1427) | 1321(1172;1488) | | 6.17 |
| Social work activities without accommodation | 88 | 170742 | 1227(1176;1280) | 1244(1192;1299) | 700(510;961) | 3.20 |
| Public administration and defence; compulsory social security | 84 | 600350 | 1142(1115;1169) | 1143(1116;1170) | | 0.18 |
| Working population | | 4671753 | 1101(1092;1111) | 1101(1092;1111) | | |
| General population | | | 1048 | 1048 | 1048 | |

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 18 April 2022 significantly higher than the working population average are: Hospital activities (sector 861), Social work without accommodation for the elderly and disabled (sector 881), Manufacturing sectors (sector 244, 241, 201, 212, 205, 231), Residential care activities (sector 871, 872, 873), Activities of trade unions (sector 942), Construction of other civil engineering projects (sector 429), Other human health activities (sector 869), Compulsory social security activities (sector 843), Insurance (sector 651), Technical testing and analysis (sector 712), Medical and dental practice activities (sector 862), Activities of head offices (sector 701), Monetary intermediation (sector 641) and Provision of services to the community (sector 842) and (Table 3 and Figure 3).

The last 4 weeks the incidences in education is decreasing, especially in secondary education (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.

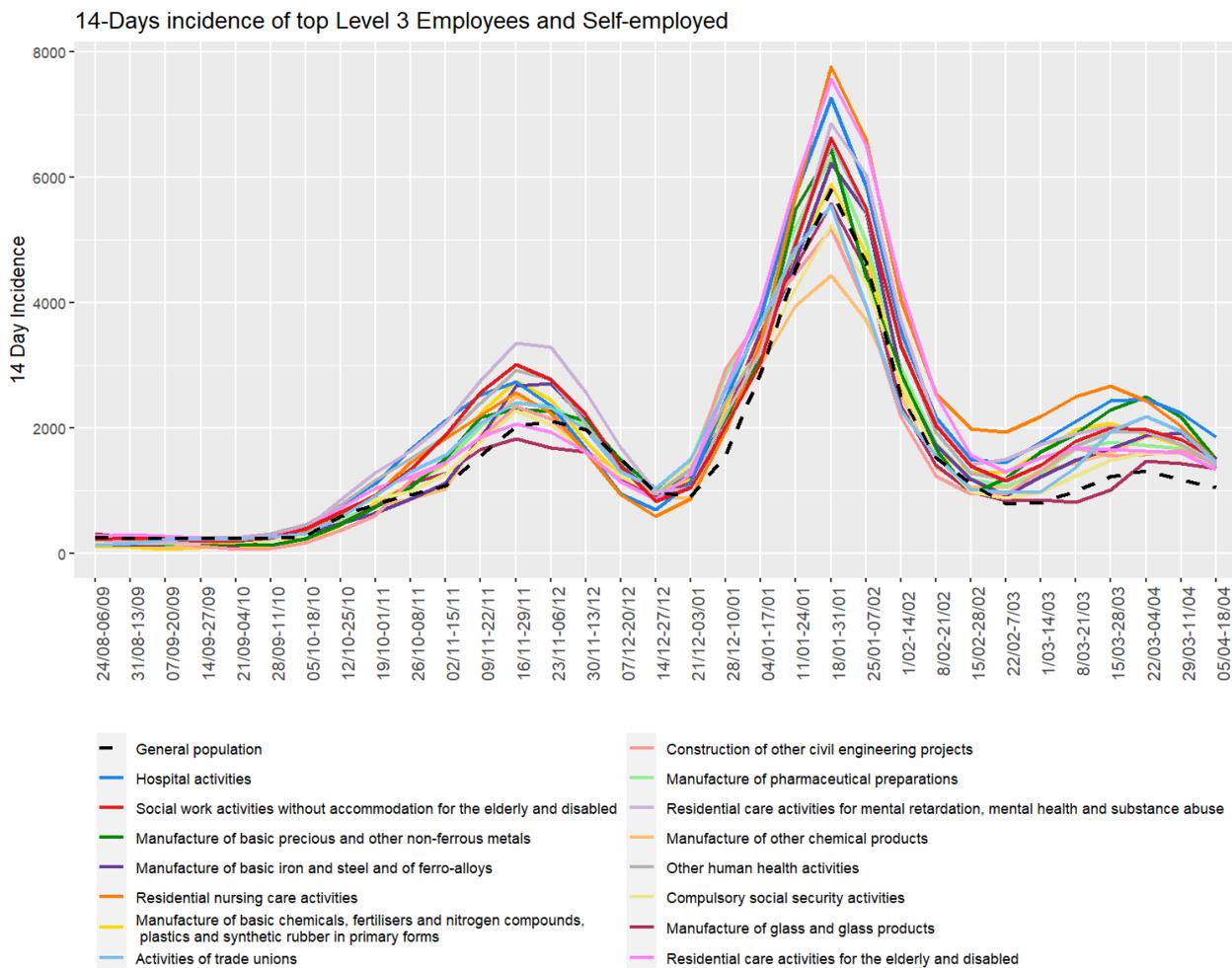


Figure 3: 14-Day incidence of COVID-19 infection in sectors with the highest incidence at Level 3 in both employees and self-employed

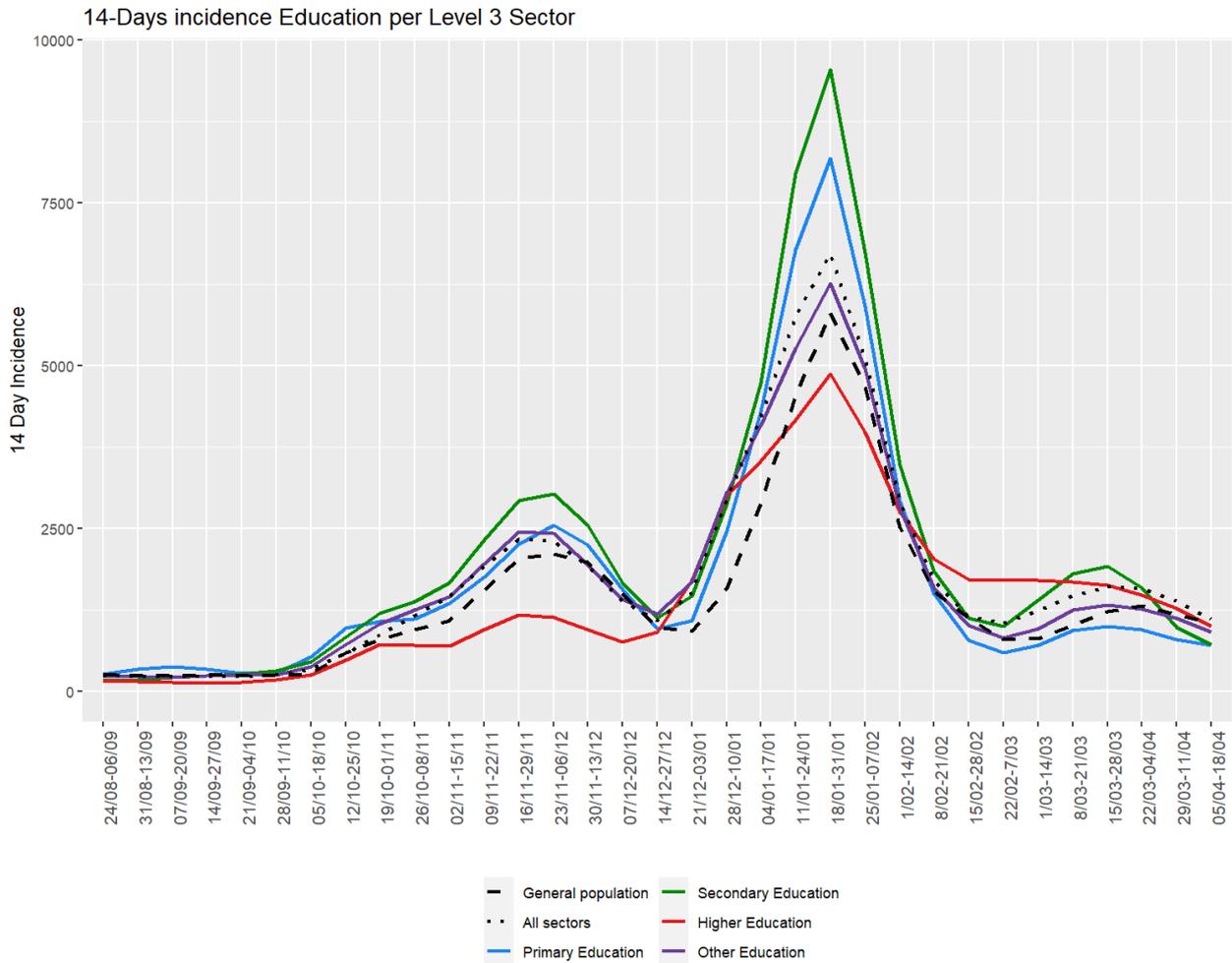


Figure 4: 14-Day incidence of COVID-19 infection in Education sectors at Level 3 in both employees and self-employed

Table 3: 14-Day incidence of COVID-19 infection in sectors with the highest incidence at Level 3 on 18 April 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 |
|--|-----------|-------------------------|-------------------------------|-----------------------------|---------------------------------|-------------------------------------|
| Hospital activities | 861 | 218525 | 1857(1801;1914) | 1860(1804;1918) | | 0.33 |
| Social work activities without accommodation for the elderly and disabled | 881 | 48503 | 1503(1398;1615) | 1503(1398;1615) | | 1.09 |
| Manufacture of basic precious and other non-ferrous metals | 244 | 8617 | 1497(1261;1776) | 1497(1261;1776) | | 2.07 |
| Manufacture of basic iron and steel and of ferro-alloys | 241 | 12289 | 1481(1282;1710) | 1504(1301;1738) | | 2.05 |
| Residential nursing care activities | 871 | 46680 | 1476(1371;1589) | 1482(1376;1596) | | 0.87 |
| Manufacture of basic chemicals, fertilisers and nitrogen compounds, plastics and synthetic rubber in primary forms | 201 | 29700 | 1468(1337;1611) | 1474(1342;1619) | | 1.56 |
| Activities of trade unions | 942 | 5858 | 1468(1190;1810) | 1490(1206;1839) | | 2.61 |
| Construction of other civil engineering projects | 429 | 6598 | 1455(1193;1774) | 1574(1288;1923) | | 9.50 |
| Manufacture of pharmaceutical preparations | 212 | 33310 | 1453(1330;1587) | 1453(1330;1587) | | 0.94 |
| Residential care activities for mental retardation, mental health and substance abuse | 872 | 43156 | 1432(1324;1549) | 1446(1337;1564) | | 1.76 |
| Manufacture of other chemical products | 205 | 7163 | 1424(1174;1726) | 1446(1190;1756) | | 3.44 |
| Other human health activities | 869 | 54670 | 1392(1297;1494) | 1715(1572;1871) | 1026(910;1157) | 47.40 |
| Compulsory social security activities | 843 | 33911 | 1386(1267;1516) | 1393(1273;1524) | | 0.94 |
| Manufacture of glass and glass products | 231 | 9017 | 1353(1134;1613) | 1373(1148;1641) | | 3.87 |
| Residential care activities for the elderly and disabled | 873 | 70202 | 1339(1257;1427) | 1351(1268;1440) | | 1.27 |
| Insurance | 651 | 23737 | 1306(1169;1459) | 1329(1189;1485) | | 2.97 |
| Technical testing and analysis | 712 | 18760 | 1274(1123;1445) | 1329(1167;1513) | 765(454;1287) | 9.79 |
| Medical and dental practice activities | 862 | 45876 | 1273(1174;1380) | 1405(1265;1561) | 1124(992;1274) | 47.77 |
| Activities of head offices | 701 | 29454 | 1246(1125;1379) | 1319(1186;1467) | 780(549;1107) | 13.52 |
| Monetary intermediation | 641 | 49179 | 1218(1125;1319) | 1221(1127;1323) | | 1.25 |
| Provision of services to the community as a whole | 842 | 138173 | 1171(1116;1229) | 1171(1116;1229) | | 0.11 |
| Working population | | 4671753 | 1101(1092;1111) | 1101(1092;1111) | | |
| General population | | | 1048 | 1048 | 1048 | |

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 18 April 2022 significantly higher than the working population average are: Hospital activities (sector 8610), Construction of water projects (sector 4291), Manufacturing activities (sector 2312, 2014, 2030, 2410, 2443, 2120, 2016, 2059, 2229, 2910), general public administration activities (sector 8413, 8411), Social work activities without accommodation (sector 8810), Residential care (sector 8710, 8720, 8730), Wholesale of electrical household

appliances (sector 4643), Activities of trade unions (sector 9420), General medical practice activities (sector 8621), Other human health activities (sector 8690), Compulsory social security activities (sector 8430), Non-life insurance (sector 6512), Specialist medical practice activities (sector 8622), Public order and safety activities (sector 8424), Technical testing and analysis (sector 7120), Activities of head offices (sector 7010) and Other monetary intermediation (sector 6419) (Table 4 Figure 5).

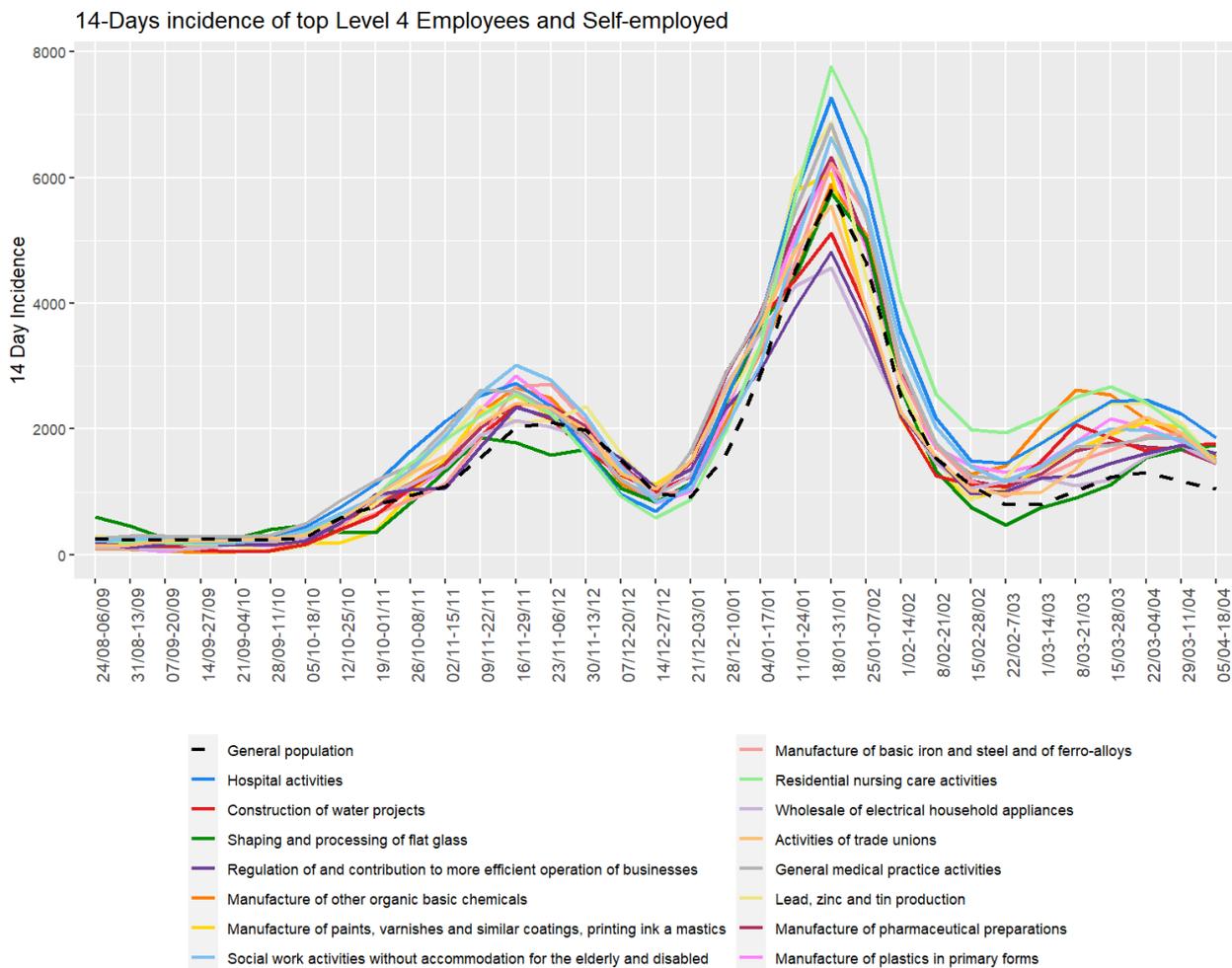


Figure 5: 14-Day incidence of COVID-19 infection in sectors with the highest incidence at Level 4 in both employees and self-employed

Table 4: 14-Day incidence of COVID-19 infection in sectors with the highest incidence at Level 4 on 18 April 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 |
|---|-----------|-------------------------|-------------------------------|-----------------------------|---------------------------------|-------------------------------------|
| Hospital activities | 8610 | 218525 | 1857(1801;1914) | 1860(1804;1918) | | 0.33 |
| Construction of water projects | 4291 | 4171 | 1774(1415;2222) | 1774(1415;2222) | | 7.51 |
| Shaping and processing of flat glass | 2312 | 3375 | 1748(1357;2250) | 1777(1376;2292) | | 3.30 |
| Regulation of and contribution to more efficient operation of businesses | 8413 | 7807 | 1614(1357;1919) | 1614(1357;1919) | | 1.42 |
| Manufacture of other organic basic chemicals | 2014 | 12870 | 1554(1354;1783) | 1563(1362;1794) | | 1.07 |
| Manufacture of paints, varnishes and similar coatings, printing ink a mastics | 2030 | 3042 | 1512(1134;2013) | 1512(1134;2013) | | 4.76 |
| Social work activities without accommodation for the elderly and disabled | 8810 | 48503 | 1503(1398;1615) | 1503(1398;1615) | | 1.09 |
| Manufacture of basic iron and steel and of ferro-alloys | 2410 | 12289 | 1481(1282;1710) | 1504(1301;1738) | | 2.05 |
| Residential nursing care activities | 8710 | 46680 | 1476(1371;1589) | 1482(1376;1596) | | 0.87 |
| Wholesale of electrical household appliances | 4643 | 9103 | 1472(1244;1741) | 1581(1323;1889) | 696(386;1252) | 17.41 |
| Activities of trade unions | 9420 | 5858 | 1468(1190;1810) | 1490(1206;1839) | | 2.61 |
| General medical practice activities | 8621 | 17248 | 1461(1292;1651) | 1519(1322;1745) | 2070(1687;2538) | 25.82 |
| Lead, zinc and tin production | 2443 | 4324 | 1457(1140;1861) | 1457(1140;1861) | | 0.69 |
| Manufacture of pharmaceutical preparations | 2120 | 33310 | 1453(1330;1587) | 1453(1330;1587) | | 0.94 |
| Manufacture of plastics in primary forms | 2016 | 9405 | 1446(1224;1708) | 1456(1231;1721) | | 1.43 |
| Manufacture of other chemical products n.e.c. | 2059 | 6033 | 1442(1170;1776) | 1453(1176;1794) | | 3.04 |
| Manufacture of other plastic products | 2229 | 9395 | 1437(1215;1699) | 1498(1264;1774) | | 6.24 |
| Residential care activities for mental retardation, mental health and substance abuse | 8720 | 43156 | 1432(1324;1549) | 1446(1337;1564) | | 1.76 |
| Other human health activities | 8690 | 54670 | 1392(1297;1494) | 1715(1572;1871) | 1358(1223;1507) | 47.40 |
| Compulsory social security activities | 8430 | 33911 | 1386(1267;1516) | 1393(1273;1524) | | 0.94 |
| Non-life insurance | 6512 | 20717 | 1366(1217;1533) | 1382(1230;1552) | | 2.21 |
| Residential care activities for the elderly and disabled | 8730 | 70202 | 1339(1257;1427) | 1351(1268;1440) | | 1.27 |
| Specialist medical practice activities | 8622 | 19085 | 1289(1138;1459) | 1518(1226;1879) | 1425(1239;1638) | 71.69 |
| Public order and safety activities | 8424 | 54248 | 1283(1192;1381) | 1283(1192;1381) | | 0.18 |
| Technical testing and analysis | 7120 | 18760 | 1274(1123;1445) | 1329(1167;1513) | 710(413;1219) | 9.79 |
| Activities of head offices | 7010 | 29454 | 1246(1125;1379) | 1319(1186;1467) | 1182(889;1570) | 13.52 |
| Other monetary intermediation | 6419 | 46997 | 1232(1136;1336) | 1234(1138;1339) | | 1.21 |
| General public administration activities | 8411 | 377138 | 1146(1113;1180) | 1146(1113;1180) | | 0.11 |
| Working population | | 4671753 | 1101(1092;1111) | 1101(1092;1111) | | |
| General population | | | 1048 | 1048 | 1048 | |

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 18 April 2022 significantly higher than the working population average are: Hospitals (sector 86101, 86103, 86104), Activities of medical laboratories (sector 86901), Manufacturing activities (sector 23120, 20140, 20300, 24100, 24430, 21201, 20160, 20590, 22290), Nursing activities (sector 86906), Non-life insurance activities (sector 65121, 65122), Regulation of and contribution to more efficient operation of businesses (sector 84130), Mental health activities (sector 86904), Residential care (sector 87202, 87101, 87302, 87201, 87301), Compulsory social insurances (sector 84302, 84301), Activities of trade unions (sector 94200), Retail sale of photographic and optical instruments (sector 47782), Activities of family and elderly care at home (sector 88101), General and specialist medical practice activities (sector 86210, 86220), Federal, community and regional governments (sector 84111, 84112), Wholesale of electrical household appliances and other machinery (sector 46431, 46669), Public Centers for Social Welfare (sector 84115), Local police (sector 84242), Activities of head offices (sector 70100) and Other monetary intermediation (sector 64190) (Table 5 and Figure 6).

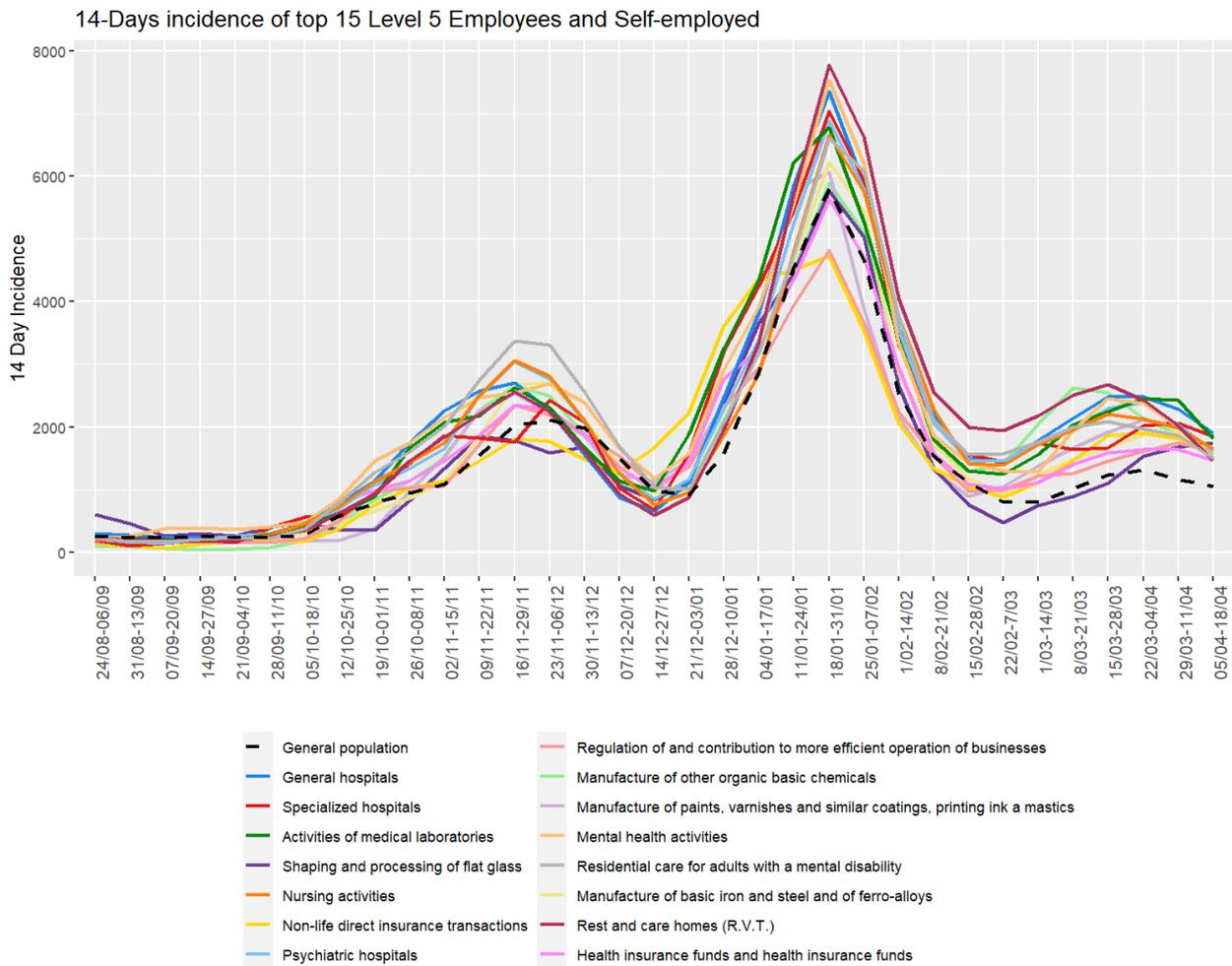


Figure 6: 14-Day incidence of COVID-19 infection in sectors with the highest incidence at Level 5 in both employees and self-employed

Table 5: 14-Day incidence of COVID-19 infection of sectors with the highest incidence at Level 5 on 18 April 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 |
|---|-----------|-------------------------|-------------------------------|-----------------------------|---------------------------------|-------------------------------------|
| General hospitals | 86101 | 179590 | 1901(1839;1965) | 1904(1842;1968) | | 0.26 |
| Specialized hospitals | 86103 | 4698 | 1852(1503;2280) | 1858(1506;2290) | | 1.49 |
| Activities of medical laboratories | 86901 | 6641 | 1807(1513;2157) | 1978(1653;2366) | | 10.95 |
| Shaping and processing of flat glass | 23120 | 3375 | 1748(1357;2250) | 1777(1376;2292) | | 3.30 |
| Nursing activities | 86906 | 16636 | 1647(1464;1852) | 1760(1558;1987) | 886(566;1385) | 12.97 |
| Non-life direct insurance transactions | 65121 | 5138 | 1635(1322;2020) | 1673(1349;2073) | | 4.59 |
| Psychiatric hospitals | 86104 | 33313 | 1621(1491;1762) | 1621(1491;1763) | | 0.36 |
| Regulation of and contribution to more efficient operation of businesses | 84130 | 7807 | 1614(1357;1919) | 1614(1357;1919) | | 1.42 |
| Manufacture of other organic basic chemicals | 20140 | 12870 | 1554(1354;1783) | 1563(1362;1794) | | 1.07 |
| Manufacture of paints, varnishes and similar coatings, printing ink a mastics | 20300 | 3042 | 1512(1134;2013) | 1512(1134;2013) | | 4.76 |
| Mental health activities | 86904 | 6971 | 1492(1233;1805) | 1679(1294;2176) | 1321(997;1749) | 53.21 |
| Residential care for adults with a mental disability | 87202 | 29349 | 1489(1357;1634) | 1496(1362;1643) | | 1.61 |
| Manufacture of basic iron and steel and of ferro-alloys | 24100 | 12289 | 1481(1282;1710) | 1504(1301;1738) | | 2.05 |
| Rest and care homes (R.V.T.) | 87101 | 46676 | 1474(1369;1587) | 1482(1376;1596) | | 0.83 |
| Health insurance funds and health insurance funds | 84302 | 18231 | 1470(1305;1655) | 1470(1305;1655) | | 0.75 |
| Service flats for the elderly | 87302 | 6540 | 1468(1203;1790) | 1500(1228;1831) | | 3.16 |
| Activities of trade unions | 94200 | 5858 | 1468(1190;1810) | 1490(1206;1839) | | 2.61 |
| Retail sale of photographic and optical instruments | 47782 | 5453 | 1467(1180;1823) | 1866(1460;2382) | 819(510;1313) | 38.92 |
| Activities of family and elderly care at home | 88101 | 44695 | 1461(1354;1577) | 1461(1354;1577) | | 0.85 |
| General medical practice activities | 86210 | 17248 | 1461(1292;1651) | 1519(1322;1745) | 1288(992;1670) | 25.82 |
| Federal government | 84111 | 30405 | 1457(1328;1598) | 1454(1325;1595) | | 0.03 |
| Wholesale of electrical household appliances | 46431 | 7138 | 1457(1204;1763) | 1585(1295;1938) | | 17.88 |
| Lead, zinc and tin production | 24430 | 4324 | 1457(1140;1861) | 1457(1140;1861) | | 0.69 |
| Manufacture of pharmaceutical preparations | 21201 | 31561 | 1448(1322;1586) | 1448(1322;1586) | | 0.68 |
| Manufacture of plastics in primary forms | 20160 | 9405 | 1446(1224;1708) | 1456(1231;1721) | | 1.43 |
| Manufacture of other chemical products n.e.c. | 20590 | 6033 | 1442(1170;1776) | 1453(1176;1794) | | 3.04 |
| Manufacture of other plastic products | 22290 | 9395 | 1437(1215;1699) | 1498(1264;1774) | | 6.24 |
| Residential care for minors with a mental disability | 87201 | 8304 | 1433(1199;1712) | 1433(1199;1712) | | 1.37 |
| Public Centers for Social Welfare (O.C.M.W.) | 84115 | 91541 | 1395(1321;1473) | 1395(1321;1473) | | 0.14 |
| Local Police | 84242 | 36754 | 1374(1260;1498) | 1374(1260;1498) | | 0.11 |
| Compulsory social insurances, with the exception of health insurance funds | 84301 | 11819 | 1303(1114;1524) | 1302(1112;1524) | | 0.55 |
| Rest homes for the elderly (R.O.B.) | 87301 | 59319 | 1293(1205;1387) | 1293(1205;1387) | | 1.06 |
| Specialist medical practice activities | 86220 | 19085 | 1289(1138;1459) | 1518(1226;1879) | 1197(1027;1394) | 71.69 |
| Wholesale of other machinery | 46699 | 19813 | 1282(1134;1448) | 1334(1173;1517) | 935(627;1391) | 13.01 |
| Activities of mixed insurance companies, mainly non-life | 65122 | 15608 | 1275(1110;1464) | 1288(1121;1479) | | 1.50 |
| Activities of head offices | 70100 | 29454 | 1246(1125;1379) | 1319(1186;1467) | 780(549;1107) | 13.52 |
| Other monetary intermediation | 64190 | 46997 | 1232(1136;1336) | 1234(1138;1339) | | 1.21 |
| Governments of communities and regions | 84112 | 47030 | 1229(1133;1333) | 1229(1133;1333) | | 0.12 |
| Working population | | 4671753 | 1101(1092;1111) | 1101(1092;1111) | | |
| General population | | | 1048 | 1048 | 1048 | |

Finally, when considering specifically the non-medical contact professions, we see that the incidence in the employees is close to the incidence in the self-employed. Additionally, the average incidence for both the beauty saloons and hairdressers is below the general population average. (Figure 7).

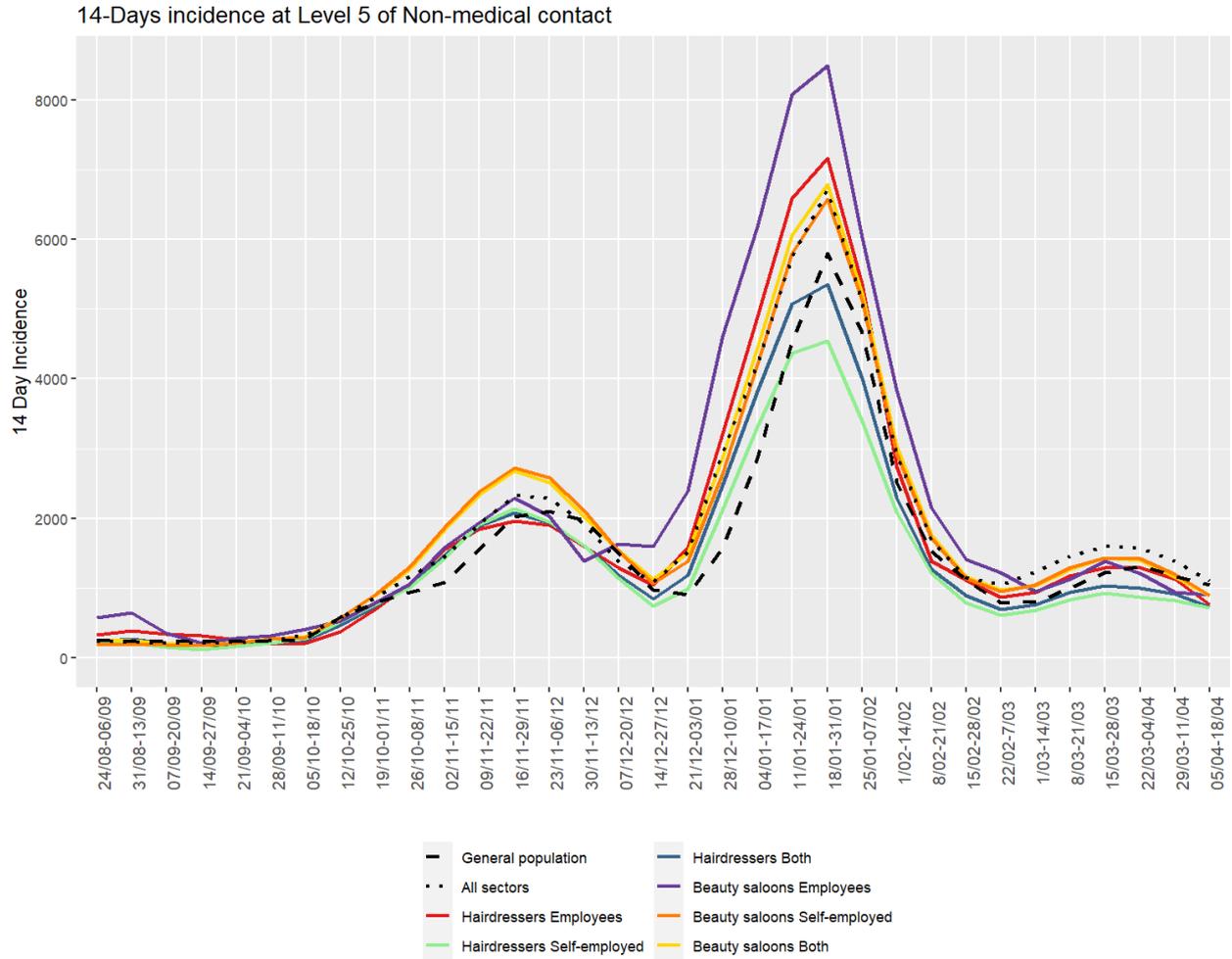


Figure 7: 14-Day incidence of COVID-19 infection at Level 5 of non-medical contact professions.

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 Human health and social work sector (sector Q), Electricity, gas, steam and air conditioning supply (sector D) and Public administration and defence (sector O) is elevated compared to the working and general population (Figure 8). While the increased incidence is broadly present in both the human health sector and the public administration sector and is the highest in hospitals, the increased incidence in the electricity, gas, steam and air conditioning mainly comes from the construction of water projects (sector 4291).

Although the 14-day incidence in Financial and insurance activities (sector K), Professional scientific and technical activities (sector M) and Other service activities (sector S) is around or below the working population average, individual subsectors show an increased incidence compared to the working population, such as Other monetary intermediation (sector 6419), non-life insurance (sector 6512), Activities of head offices (sector 7010), Technical tests and assessments (sector 7120) and Activities of trade unions (sector 9420).

It is encouraging that the incidence in Education (sector P), Arts, entertainment and recreation (sector R), Accommodation and food service activities (sector I) and Transportation and storage (sector H) 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. A number of manufacturing sectors show an elevated incidence well above the working population average. The incidences in the whole and retail sectors is in general below or close to the working and population average, except for

the wholesale electrical household appliances (sector 4643) and of other machinery (sector 4669), which show an increased incidence compared to the working population average (Figure 8).

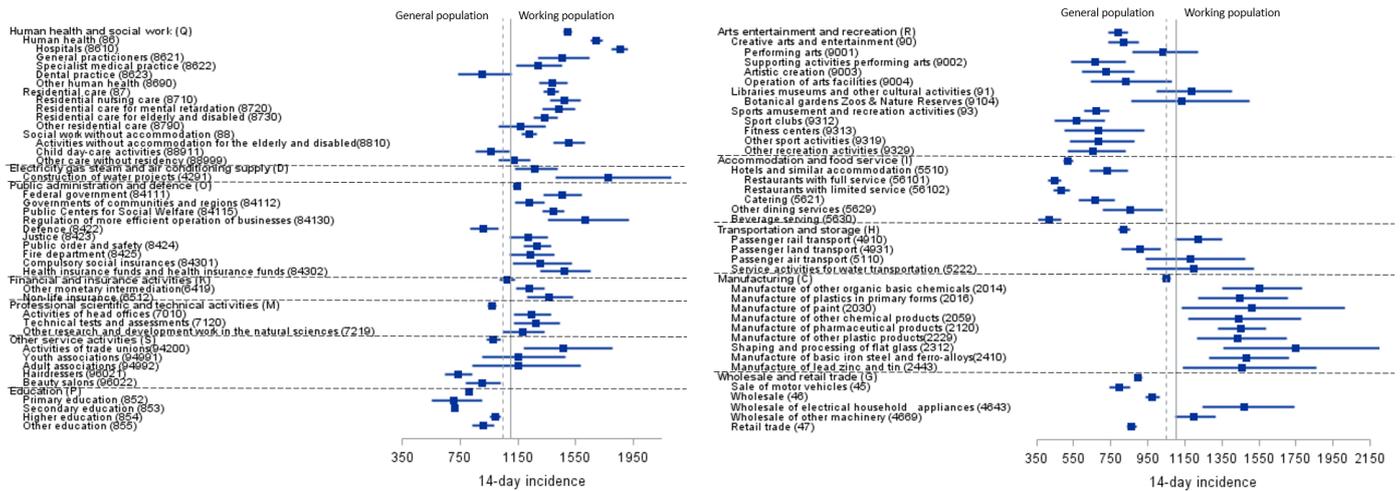


Figure 8: Forest plot of 14-Day incidence and 95% CI of selected sectors on 18 April 2022 in both employees and self-employed.

4 Conclusion

Despite the limitations of the data, the RSZ/ONSS data demonstrates a decrease in the 14-day COVID-19 incidences in all sectors. The highest incidences are present in hospitals, residential care and manufacturing. The average incidence in the working population is close to the average incidence in the general population, suggesting that infections are equally passed among adults and children and the elderly. Although the changed testing procedure in schools and the general population may influence this comparison. Vigilance is required in especially human health, social work and manufacturing 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. Several manufacturing sectors, Human health activities, Residential care, several public administration activities and activities of trade unions, all show a sharp increase in incidences compared to the general population average and continue to require careful attention.

For some sectors the reason for the higher incidences is not immediately obvious, such as Construction of water projects, Non-life insurance activities, Other monetary intermediation, Activities of head offices, Technical tests and assessments and Wholesale of electrical household appliances and other machinery. 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 general population average, with no obvious difference between employees and self-employed professionals, nor between beauty saloons and hairdressers.

It is encouraging to note that employees in education, accommodation and food services, transportation, arts entertainment and recreation and most wholesale and retail sectors are well protected, as they are often not able to telework. It is worrisome that several manufacturing sectors show an increase in incidence among

employees.

Finally, despite the high degree of vaccination, COVID-19 infection remains possible. Continuous monitoring of breakthrough infections, despite primo and booster vaccination, and especially protection against hospitalization, is warranted.

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