Flu News Europe
Joint ECDC–WHO/Europe weekly influenza update

Summary

Week 7/2017 (13–19 February 2017)

- Influenza activity remained elevated, but lower than last week, across the region.
- The proportion of influenza virus detections among sentinel surveillance specimens decreased to 36% from 44% in the previous week.
- The great majority of detected and subtyped influenza viruses were A(H3N2) and while the proportion of type B viruses increased, as commonly seen in the second half of an influenza season, their numbers remained low.
- The number of hospitalized laboratory-confirmed influenza cases reported, primarily in people aged 65 years or older, continued to decrease.

Season overview

- Influenza activity started early this season in week 46/2016, which is the earliest week that the overall influenza-positivity rate in sentinel specimens reached 10% since the emergence of A(H1N1)pdm09 viruses in 2009/10.
- Since week 40/2016, influenza A viruses have predominated, accounting for 96% of all sentinel detections; the great majority (99%) of subtyped influenza A viruses from sentinel sites being A(H3N2).
- Confirmed cases of influenza virus type A infection reported from hospitals have predominantly been in adults aged over 65 years. Excess all-cause mortality has been observed substantially in people aged 15–64 years and markedly in people aged 65 years or older in the majority of the 19 reporting countries. This is commonly seen when the predominant viruses circulating are A(H3N2).
- Two-thirds of the A(H3N2) viruses genetically characterized belong to a recently emerged genetic subclade (3C.2a1). However, those that have been antigenically characterized are largely similar to the clade 3C.2a vaccine virus.
- Recent vaccine effectiveness estimates, for all age groups against A(H3N2) illness, from Canada (42%), from the US (43%) and from Europe (38%) are consistent with estimates from Stockholm county (28%) and Finland (32%) early in the season.
- Given typically suboptimal vaccination coverage and the partial effectiveness of influenza vaccines, rapid use of neuraminidase inhibitors (NAIs) for laboratory-confirmed or probable cases of influenza infection should be considered for vaccinated and non-vaccinated patients at risk of developing complications.
- No reduced susceptibility to oseltamivir or zanamivir has been observed for any of the viruses tested so far this season.
- The progression of the season has confirmed the conclusions of the ECDC risk assessment on seasonal influenza updated on 25 January 2017, namely expected severe outcomes in the elderly related to the prevalence of A(H3N2) viruses, putting some health care systems under pressure.

Primary care data

Influenza activity

Influenza activity in week 7/2017 was at variable levels across the region but slightly lower compared to the previous week: of the 44 countries reporting on influenza activity, 22 countries reported high or medium intensity (Fig. 1). Of the 43 countries reporting geographic spread, 16 reported widespread influenza activity (Fig.2).

The percentage of influenza virus detections among sentinel specimens was 36%, the lowest since week 52/2016 and decreased from 44% in week 6/2017. In total, 43 countries reported on influenza virus dominance: Armenia and Georgia reported B virus, 24 either type A or subtype A(H3) dominance, and 17 no dominant type/subtype.

Map of qualitative indicators in the European Region

Fig. 1. Intensity in the European Region, week 7/2017

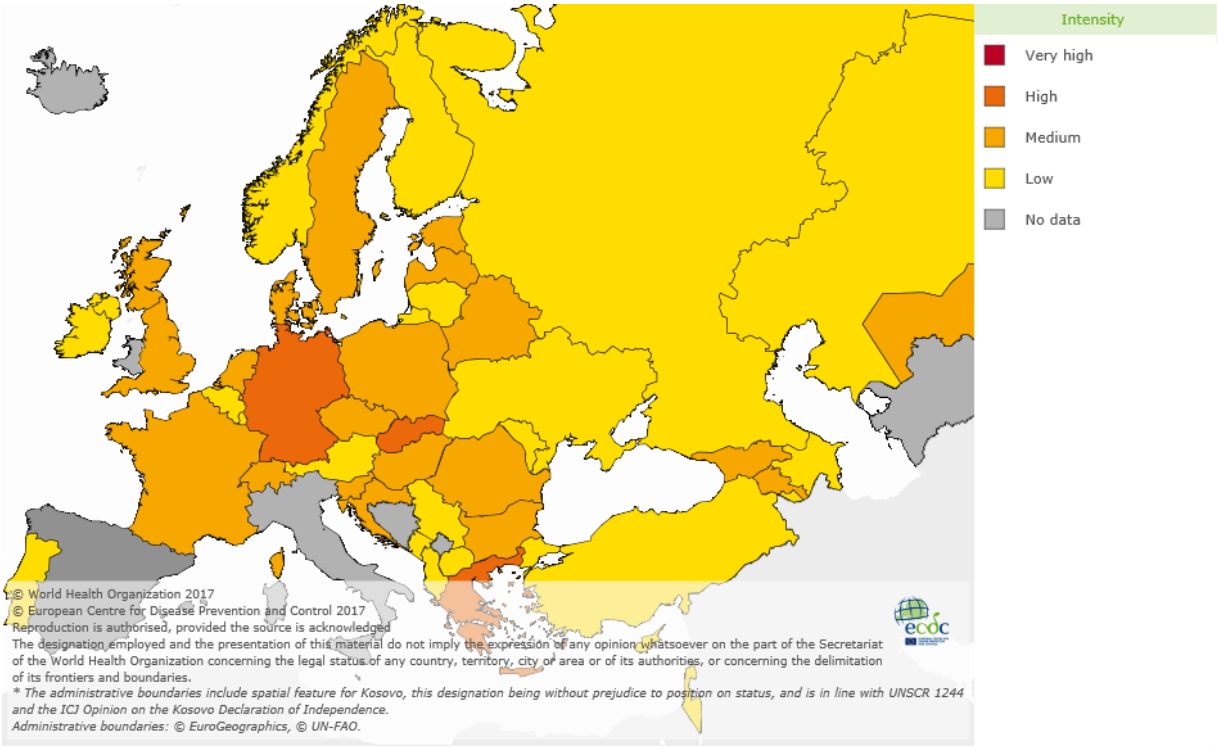
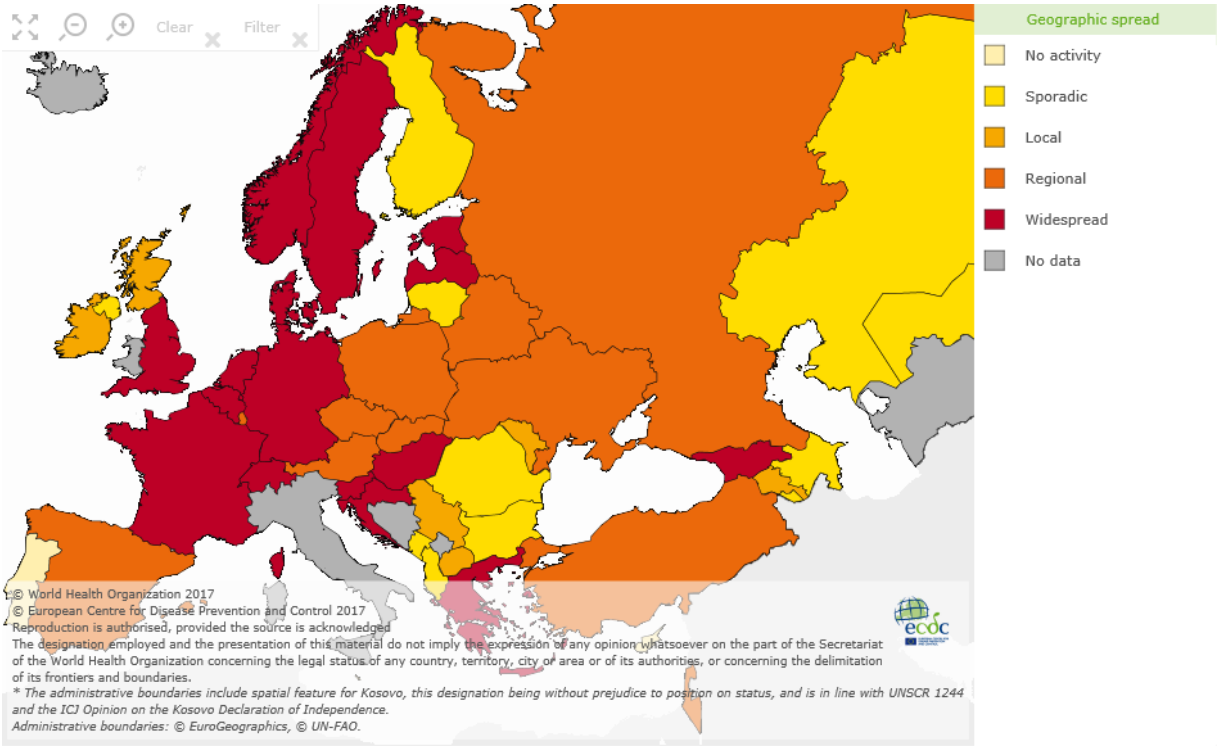


Fig. 2. Geographic spread in the European Region, week 7/2017



For interactive maps of influenza intensity and geographic spread, please see the Flu News Europe website.

Viruses detected in sentinel-source specimens (ILI and ARI)

For week 7/2017, 717 of 1 986 (36%) sentinel specimens tested positive for influenza viruses (Table 1). Of these, 85% were type A and 15% were type B. An increase of type B viruses is commonly seen in the second half of an influenza season. The great majority (99%) of subtyped influenza A viruses were A(H3N2). The lineage of 38 influenza B viruses was determined, of which 27 (71%) fell in B/Yamagata and 11 (29%) in B/Victoria lineages. Of 32 countries across the region that each tested at least 10 sentinel specimens, 20 reported proportions of influenza virus detections of 30% or above (median 38%, range 30% to 75%).

Since week 40/2016, similar cumulative distributions of influenza types and type A subtypes have been observed: of all typed viruses, 95% were type A, with 99% of those subtyped being A(H3N2) (Figure 3, Table 1). Of the 384 influenza B viruses, which have been ascribed a lineage since week 40/2017, 193 (50%) were of the B/Victoria lineage and 191 (50%) were of the B/Yamagata lineage.

Fig. 3. Influenza virus detections in sentinel-source specimens by type and subtype, by week

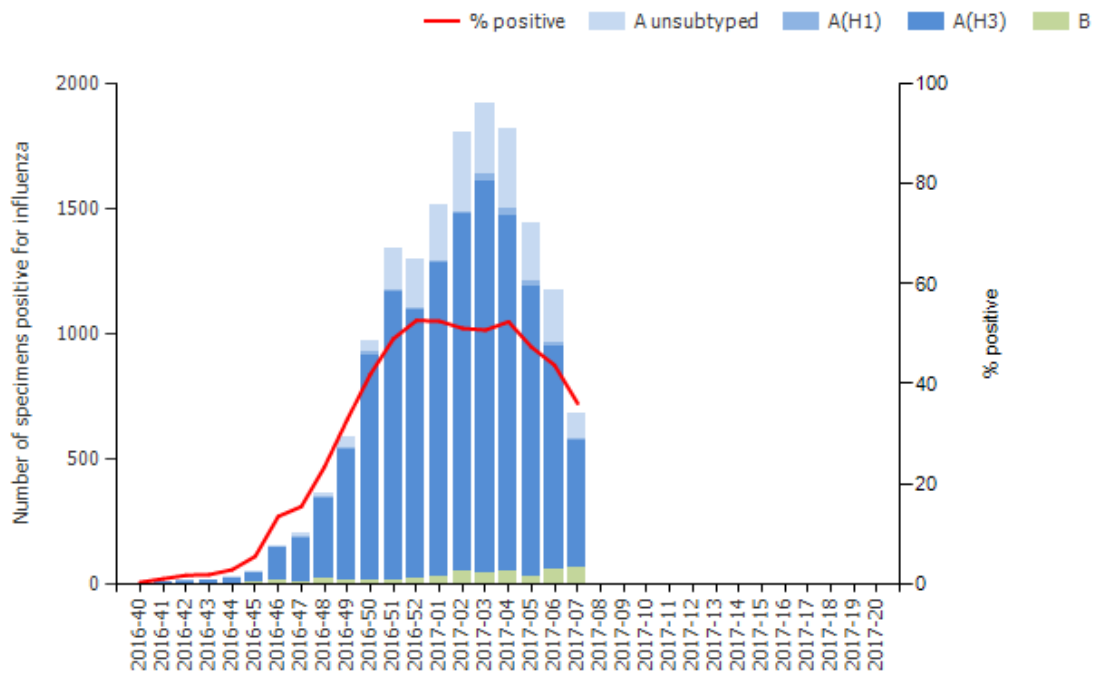


Table 1. Influenza virus detections in sentinel-source specimens by type and subtype, week 7/2017 and cumulatively

	Number of detections	
Virus type and subtype	**Current Week**	**Season 2016-2017**
Influenza A	**611**	**14 919**
A(H1N1)pdm09	7	151
A(H3N2)	503	12 601
A not subtyped	101	2 167
Influenza B	**106**	**820**
B/Victoria lineage	11	193
B/Yamagata lineage	27	191
Unknown lineage	68	436
Total detections (Total tested)	**717 (1 986)**	**15 739 (40 244)**

Severity

For week 7/2017, of the 15 countries that conduct sentinel surveillance on severe acute respiratory infection (SARI), 12 reported data and of the 9 countries that conduct surveillance on hospitalized laboratory-confirmed influenza cases, 8 reported data.

Of 1 457 SARI cases reported, 317 were tested for influenza viruses with 67 (21%) testing positive: 1 influenza A unsubtyped, 34 A(H3N2) and 32 type B viruses. Since week 40/2016, 25 361 SARI cases have been reported from 15 countries with 6 810 tested for influenza viruses, of which 2 504 (37%) were positive: 2 067 (83%) were type A and 437 (17%) type B viruses. Of the influenza A viruses, 1 946 (94%) were A(H3N2), 4 (<1%) were A(H1N1)pdm09 and 117 (6%) were not subtyped.

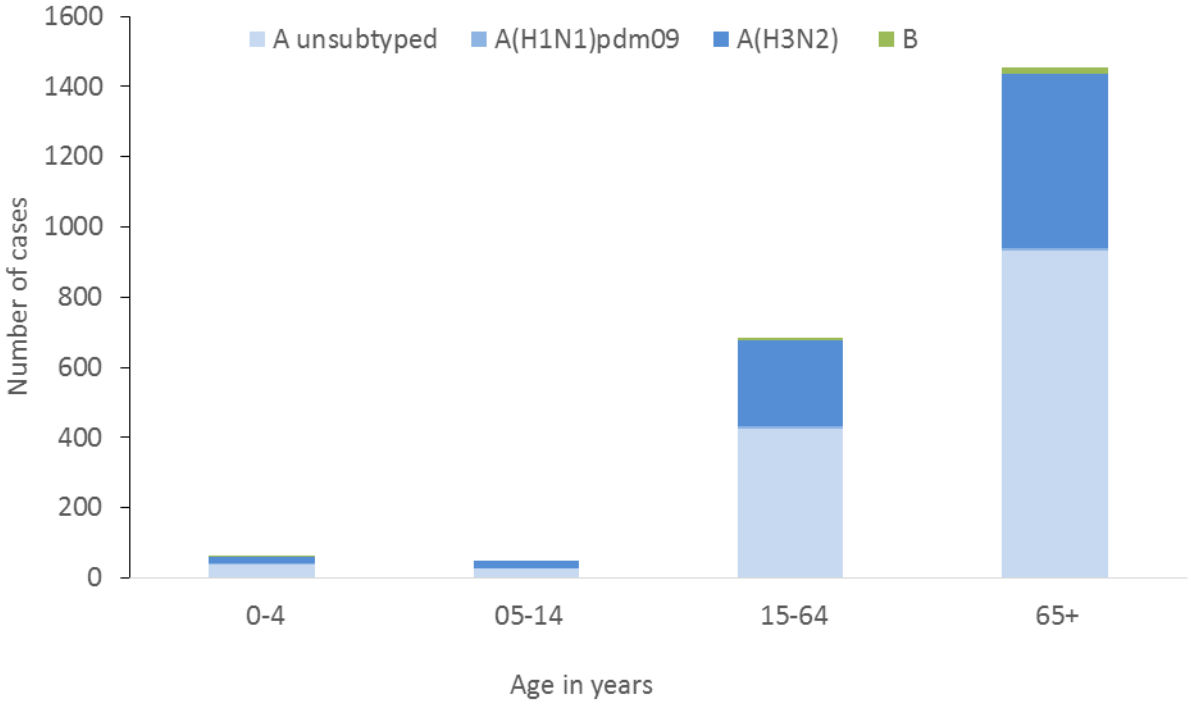
For week 7/2017, of 9 countries that conduct surveillance on hospitalized laboratory-confirmed influenza cases in intensive care units (ICU) or other wards, 8 countries reported a total of 160 cases, 121 in ICU and 39 in other wards. Of the cases in other wards, 36 were infected with influenza A viruses: 27 type A unsubtyped, 9 A(H3N2) and 3 type B virus.

The number of patients admitted to ICU decreased slightly compared to the previous week. Of these 121, 115 were infected with influenza A viruses: 82 unsubtyped, 26 A(H3N2) and 7 A(H1N1)pdm09, while 6 were reported to be infected with type B viruses.

Since week 40/2016, 5 countries have reported 3 280 laboratory-confirmed influenza cases admitted to non-ICU wards; 3 260 (99%) were due to influenza A virus infection: 1 899 type A unsubtyped, 1 356 A(H3N2), 5 A(H1N1)pdm09, and 20 with type B influenza viruses.
In total, 3 156 cases have been admitted to ICU; 3 112 (97%) due to influenza A infection. Of those, 1 924 were influenza A unsubtyped, 1 071 with A(H3N2), 117 with A(H1N1)pdm09, and additionally 53 type B virus infections. The proportion of cases due to A(H1N1)pdm09 is slightly higher than seen in the outpatient setting in sentinel detections (6% vs. 1%).

Since the start of the season, most of the hospitalized laboratory-confirmed influenza cases reported have occurred in people aged 65 years or older (Fig.4). Information on patient age and influenza virus (sub)type was available for 2 247 cases admitted to ICU; the majority (65%) of cases (n=1 453) were aged ≥65 years, 683 (30%) were aged 15–64 years and 111 (5%) were aged under 15 years. Influenza A(H3N2) viruses predominated and accounted for 782 cases (35%) admitted to ICUs. Since the start of the season, 725 deaths have been reported, 408 from ICUs and 317 from other wards, with 515 (82%) of the patients being 65 years or older; 719 (99%) of all fatal cases were due to influenza A with 325 (45%) subtyped as A(H3N2).

Fig. 4. Distribution of virus (sub)type in influenza-confirmed cases admitted to ICU by age-group, cumulatively



Mortality monitoring

Data from 19 countries or regions reporting to the EuroMOMO project were received for week 7/2017 and included in the pooled analyses of excess all-cause mortality.

The majority of participating European countries continue to see a marked excess in all-cause mortality, in particular among the elderly aged 65 years or older; however, mortality seems to have peaked in some countries. The excess mortality appears to coincide with a high level of influenza activity, dominated by circulation of influenza A(H3N2), which usually leads to increased mortality in the elderly. It is however still premature to make projections of the overall impact of this year's influenza season; some countries have also experienced extremely cold weather in past weeks, which has likely contributed to the excess mortality.

Virus characteristics

Viruses detected in non-sentinel-source specimens

For week 7/2017, 5 602 specimens from non-sentinel sources (such as hospitals, schools, non-sentinel primary care facilities, nursing homes and other institutions) tested positive for influenza viruses (Table 2). Of these, 84% were type A (with 99% of the subtyped viruses being A(H3N2)), and 16% type B.

Similar cumulative distributions of types/subtypes as seen in sentinel detections have been observed since week 40/2016 with A(H3N2) viruses being dominant throughout Europe (Table 2). For the majority of viruses no subtype or lineage was determined. However, for those that were, 99% of the subtyped influenza A viruses were A(H3N2), while of 559 type B viruses ascribed to a lineage, 65% were B/Yamagata lineage and 35% were B/Victoria lineage.

Table 2. Influenza viruses detected in non-sentinel-source specimens, by virus (sub)type, week 7/2017 and cumulatively

	Number of detections	
Virus type and subtype	**Current Week**	**Season 2016-2017**
Influenza A	**4 706**	**88 081**
A(H1N1)pdm09	19	280
A(H3N2)	1 455	34 215
A not subtyped	3 232	53 586
Influenza B	**896**	**4 894**
B/Victoria lineage	12	198
B/Yamagata lineage	28	361
Unknown lineage	856	4 335
Total detections (Total tested)	**5 602 (23 790)**	**92 975 (410 721)**

Genetic characterization

For specimens collected since week 40/2016, genetic characterizations of 1 883 viruses have been reported (Table 3). Among 1 728 A(H3N2) viruses, 521 fell in the vaccine component clade (3C.2a), and 1 187 in 3C.2a1 subclade defined by N171K, often with N121K, amino acid substitutions in the haemagglutinin. Viruses in these two clades are antigenically similar, but both clades are evolving rapidly with emergence of several virus clusters defined by additional amino acid substitutions in the haemagglutinin, the impact of which on antigenic characteristics is not yet clear.

Table 3. Viruses attributed to genetic groups, cumulative for weeks 40/2016–7/2017

Phylogenetic group	Number of viruses
A(H1N1)pdm09 A/Michigan/45/2015 (subgroup 6B.1)[b]	10
A(H1N1)pdm09 A/South Africa/3626/2013 (subgroup 6B)	5
A(H3N2) A/Bolzano/7/2016 (subgroup 3C.2a1)	1187
A(H3N2) A/Hong Kong/4801/2014 (subgroup 3C.2a)[a, b]	521
A(H3N2) A/Switzerland/9715293/2013 subgroup (3C.3a)	20
A(H3N2), subgroup not listed	5
B/Brisbane/60/2008 (Victoria lineage clade 1A)[a, b]	30
B/Phuket/3073/2013 (Yamagata lineage clade 3)[c]	105

[a] Vaccine component for Northern Hemisphere 2016–2017 season
[b] Vaccine component for Southern Hemisphere 2017 season
[c] Vaccine component of quadrivalent vaccines for use in both Northern and Southern Hemisphere

The recommended composition of trivalent influenza vaccines for the 2016–2017 season in the northern hemisphere is for inclusion of an A/California/7/2009 (H1N1)pdm09-like virus; an A/Hong Kong/4801/2014 (H3N2)-like virus; and a B/Brisbane/60/2008-like virus (B/Victoria lineage). For quadrivalent vaccines a B/Phuket/3073/2013-like virus (B/Yamagata lineage) virus is recommended. The recommended influenza A(H1N1)pdm09 component of the 2017 southern hemisphere influenza vaccine is an A/Michigan/48/2015 (H1N1)pdm09-like virus, the first update since A(H1N1)pdm09 viruses emerged in 2009.

Early monitoring of vaccine effectiveness (VE) in Finland and Stockholm county suggested levels of effectiveness in persons aged 65 years or older (32% and 28% vaccine effectiveness, respectively) similar to estimates from annual multi-country studies covering the 2011–2012 and 2014–2015 seasons. More recent VE estimates, for all age groups against A(H3N2) illness, from Canada (42%), from the US (43%) and from Europe (38%) are consistent with the early estimates from Finland and Stockholm county.

Given typically suboptimal vaccination coverage and the partial effectiveness of influenza vaccines, rapid use of neuraminidase inhibitors (NAIs) for laboratory-confirmed or probable cases of influenza infection should be considered for vaccinated and non-vaccinated patients at risk of developing complications.

Antiviral susceptibility testing

Neuraminidase inhibitor susceptibility has been assessed for 984 viruses (926 A(H3N2), 13 A(H1N1)pdm09 and 45 type B) with collection dates since week 40/2016. None showed evidence of reduced inhibition to oseltamivir or zanamivir.

This weekly update was prepared by an editorial team at the European Centre for Disease Prevention and Control (Cornelia Adlhoch, Eeva Broberg, René Snacken, Pasi Penttinen) and the WHO Regional Office for Europe (Caroline Brown, Piers Mook, Dmitriy Pereyaslov and Tamara Meerhoff, Temporary Advisor to WHO). It was reviewed by country experts (AnnaSara Carnahan, Public Health Agency, Sweden; Veronica Eder, National Public Health Center, Republic of Moldova), and by experts from the network (Adam Meijer, National Institute for Public Health and the Environment (RIVM), the Netherlands; Rod Daniels and John McCauley, WHO Collaborating Centre for Reference and Research on Influenza, Francis Crick Institute, United Kingdom; Tyra Grove Krause, Statens Serum Institut and EuroMOMO network, Denmark).

All data are up to date on the day of publication. Past this date, however, published data should not be used for longitudinal comparisons, as countries retrospectively update their databases.

The WHO Regional Office for Europe is responsible for the accuracy of the Russian translation.

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Tables and figures should be referenced:

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