

The Epidemiology of Respiratory Disorder in the Late Summer and Early Autumn in Damascus University Hospital Case Study: Al-Mujtahid University Hospital, Al-Mouwasat University Hospital

Mohammad Moayad Khaled¹, Yanar Al Dandashi², Ibrahim Al-Tamr³

^{1,2}Student at Al-Rasheed Private University for Science and Technology, Faculty of Pharmacy, Damascus, Syria.

³PhD in Virology and Bacteriology, Al-Rasheed Private University for Science and Technology, Faculty of Pharmacy, Damascus, Syria.

Abstract

Background: respiratory disorders is one of the most important disorder that cause significant mortality effecting wide range of organs and linked to various of pathophysiological insults and health conditions. Aim of the study: shed light on the epidemiology of registered respiratory disorders in the teaching hospitals in Damascus (Al-Mujtahid University Hospital, Al-Mouwasat University Hospital) during the late summer and early autumn as the mean session for respiratory disorders cases

Material and methods: Sample was collected from Al-Mujtahid University Hospital, Al-Mouwasat University Hospital in 8 weeks from 01/08/2025 and till 30/09/2025 from the Chest Diseases Department in the aforementioned hospitals.

Results: 66 cases admitted by the end of summer 2025, and 63 cases admitted by the end of September 2025 to Al-Mujtahid University Hospital, upon them pneumonia prevalence was the highest across all studied periods with 32 (48.48%) cases in August, and with 28 (44.44%) cases admitted by at the end of September 2025. COPD and pulmonary embolism ranked second and third in prevalence rates with 9 (13.63%) and 7 (10.60%) cases in the end of August 2025 respectively. COPD and pulmonary embolism also ranked second and third among the most common respiratory diseases according to prevalence rates in autumn 2025. However, in 2025, the prevalence of pulmonary embolism was reaching 10 (15.87%) while the prevalence of COPD was estimated at 7 (11.11%). 65 cases admitted by the end of summer 2025, and 62 cases admitted by the end of September 2025 to Al-Mouwasat University Hospital, upon them pneumonia prevalence was the highest across all studied periods with 44 (67.69%) cases in August, and with 41 (66.12%) cases admitted by at the end of September 2025. Tuberculosis and Pleural effusion ranked second and third in prevalence rates with 7 (10.76%) and 4 (6.15%) cases in the end of August 2025 respectively. The prevalence rates of both tuberculosis and pleural effusion remained contiguous in September 2025, with pleural effusion slightly more prevalent than tuberculosis. Hence, the prevalence rates for tuberculosis and pleural effusion were 4 (6.45%) and 5 (8.06%), respectively. The highest prevalence rate was for COPD, following pneumonia in the autumn. Hence the COPD

prevalence rate was 12 (19.35%) in September of 2025. Upon other respiratory disorder there was an evidence of Pleural effusion, Pneumothorax, Asthma, Pulmonary fibrosis, Pulmonary Tumor Pulmonary Edema and Hydatid cyst.

Conclusion: pneumonia, COPD, pulmonary embolism and tuberculosis are the most common respiratory disorder in the Chest Diseases Department of university hospitals in Damascus with particular importance to the spread of pneumonia.

Keywords: Respiratory Disorder, Damascus University Hospital, pneumonia, COPD, pulmonary embolism, tuberculosis.

1. Introduction

One of the most important causes of morbidity and mortality is respiratory disorders which are considered a major global health issue that effect all type of population in all age, Respiratory system may in fected in various of pathophysiological insults and react in highly sensitive matter leading to an inflammatory, infectious, immunological, or traumatic in origin[1].

The term "respiratory disorders" is used to describe any illness or disorder affecting the respiratory system, which extends from the nose and nasal cavity to the lungs, encompassing the respiratory tract. This system is therefore susceptible to a wide variety of diseases. The Forum of International Respiratory Societies indicates that chronic obstructive pulmonary disorder (COPD) in addition to asthma and lung cancer are among the most prevalent respiratory diseases affecting human populations[2].

Pneumonia is also one of the most common respiratory tract disorders. Its considered lower respiratory tract disease that may occur in isolation or, more commonly, combined with other respiratory conditions such as asthma and COPD. It poses a serious threat to health and is a significant cause of death, both in global population level and upon Nosocomial deaths[3].

Another respiratory disorder includes pleural effusion, which can develop into a critical and even fatal condition in some cases. It is defined as the accumulation of a large amount of fluid in the pleural space and can be divided into transudative pleural effusion and exudative pleural effusion. This accumulation can result from several disorders from which are combined with respiratory infections (such as pneumonia or tuberculosis) being among the most important causes of exudative pleural effusion. On the other hand, there are many other causes that can lead to pleural effusion, with pulmonary embolism being one of the most important less common causes [4].

Pulmonary embolism ranks third among causes of death with cardiac complications, increasing the likelihood of mortality near to 21% to 42%. It also necessitates immediate therapeutic intervention in patients with high risk factors. On the other hand, in patients with moderate risk factors, pulmonary embolism increases the likelihood of complications and short-term mortality by 2% to 17% [5].

Acute pulmonary embolism (PE) occurs when blood clots form for some reason and migrate, causing a blockage in the pulmonary arteries. This is most often caused by deep vein thrombosis (DVT), but it can also (though less frequently) be caused by tumor cells. Tumors have been established as a risk factor for PE[6].

Upon other respiratory system disorder there is the Bronchiectasis which can be defined as irreversible dilatation in bronchial airways clinically associated with coughing and a high incidence of respiratory infections[7].

Studies also indicate a link between bronchiectasis and deaths resulting from cardiac events, particularly

in cases of lung cancer or non-tuberculous mycobacterial infection [8], On the other hand, Tuberculosis (TP) considered one of the most lethal respiratory system disorder and even-more the World health organization (WHO) indicate that TP is associated with almost 1.5 million death upon 10 million registered cases in 2023, and the active pulmonary Tuberculosis (APTB) can reach a form of high-level severe life-threatening disease [9].

From what has been mentioned above, the importance of this study, which aims to shed light on the epidemiology of registered respiratory disorders in the teaching hospitals in Damascus (Al-Mujtahid University Hospital, Al-Mouwasat University Hospital).

2. Materials and method

The research was conducted at a group of teaching hospitals in Damascus (Al-Mujtahid University Hospital, Al-Mouwasat University Hospital) during the period from 01/08/2025 (end of summer in Syria) to 30/09/2025 (beginning of autumn). Primary data were collected from the Chest Diseases Department in the aforementioned hospitals after obtaining the required approvals from all concerned parties. Secondary data were collected from English scientific journals published in internationally recognized peer-reviewed journals and from publications of credible international organizations. The researchers pledge to bear full responsibility for all primary and secondary data and to ensure its credibility, validity, and suitability for the research objectives.

The studied sample included all reviewers within the time period allocated for the research. Data were collected using Excel 2017, and SPSS version 26 (SPSS Inc., Chicago, Illinois, USA) was used for data processing and statistical analysis using Descriptive Statistic, Bar graph and Multi line presentation to illustrate the evaluated case. Levene's Test for Equality of variances to compare between the Variances of studied population, and independent sample t test to compare the studied prevalence.

3. Results

3.1. Al-Mujtahid University Hospital

This study was able to reach 66 registered cases at Al-Mujtahid University Hospital at the end of summer 2025, and it was also able to reach 63 registered cases at the early autumn in Al-Mujtahid University Hospital at the level of the Chest Diseases Department, as shown in Table 1.

Table 1: Number of admitted patients (Relative Frequency) in the Chest Diseases Department of Al-Mujtahid University Hospital.

Respiratory Disorder	Weak 1	Weak 2	Weak 3	Weak 4	Total
August 2025					
Pneumonia	10 (15.15%)	6 (9.09%)	7 (10.74%)	9 (13.63%)	32 (48.48%)
Tuberculosis	1 (1.51%)	1 (1.51%)	1 (1.51%)	1 (1.51%)	4 (6.06%)
Pleural effusion	2 (3.03%)	1 (1.51%)	0 (0.00%)	0 (0.00%)	3 (4.51%)
Pneumothorax	0 (0.00%)	0 (0.00%)	0 (0.00%)	1 (1.51%)	1 (1.51%)
Pulmonary embolism	0	2	0	5	7

Respiratory Disorder	Weak 1	Weak 2	Weak 3	Weak 4	Total
	(0.00%)	(3.03%)	(0.00%)	(7.57%)	(10.60%)
COPD	3 (4.54%)	2 (3.03%)	4 (6.06%)	0 (0.00%)	9 (13.63%)
Asthma	1 (1.51%)	0 (0.00%)	1 (1.51%)	0 (0.00%)	2 (3.03%)
Pulmonary fibrosis	0 (0.00%)	1 (1.51%)	0 (0.00%)	0 (0.00%)	1 (1.51%)
Pulmonary Tumor	3 (4.54%)	0 (0.00%)	0 (0.00%)	1 (1.51%)	4 (6.06%)
Pulmonary Edema	0 (0.00%)	0 (0.00%)	0 (0.00%)	1 (1.51%)	1 (1.51%)
Hydatid cyst	1 (1.51%)	1 (1.51%)	0 (0.00%)	0 (0.00%)	2 (3.03%)
September 2025					
Pneumonia	12 (19.04%)	5 (7.93%)	5 (7.93%)	6 (9.52%)	28 (44.44%)
Tuberculosis	0 (0.00%)	0 (0.00%)	0 (0.00%)	0 (0.00%)	1 (1.58%)
Pleural effusion	0 (0.00%)	1 (1.58%)	1 (1.58%)	2 (3.17%)	4 (6.34%)
Pneumothorax	0 (0.00%)	1 (1.58%)	1 (1.58%)	1 (1.58%)	3 (4.76%)
Pulmonary embolism	2 (3.17%)	1 (1.58%)	4 (6.34%)	3 (4.76%)	10 (15.87%)
COPD	3 (4.76%)	1 (1.58%)	2 (3.17%)	1 (1.58%)	7 (11.11%)
Asthma	1 (1.58%)	0 (0.00%)	0 (0.00%)	0 (0.00%)	1 (1.58%)
Pulmonary fibrosis	0 (0.00%)	0 (0.00%)	0 (0.00%)	1 (1.58%)	1 (1.58%)
Bronchiectasis	0 (0.00%)	2 (3.17%)	1 (1.58%)	1 (1.58%)	4 (6.34%)
Pulmonary Tumor	1 (1.58%)	0 (0.00%)	1 (1.58%)	1 (1.58%)	3 (4.76)
Hydatid cyst	0 (0.00%)	0 (0.00%)	0 (0.00%)	1 (1.58%)	1 (1.58%)

Current study shows that the prevalence of pneumonia in the Chest Diseases Department at Al-Mujtahid University Hospital was the highest across all studied periods, estimated at 32 (48.48%) of the 66 cases admitted by the end of summer 2025, and with a pneumonia prevalence of pneumonia was 28 (44.44%) of 63 cases admitted by the beginning of autumn 2025. COPD and pulmonary embolism ranked second

and third in prevalence rates during the summer months, following pneumonia, with prevalence rates estimated at 9 (13.63%) and 7 (10.60%), respectively. COPD and pulmonary embolism also ranked second and third among the most common respiratory diseases according to prevalence rates in autumn 2025. However, in 2025, the prevalence of pulmonary embolism was higher than that of COPD, with the prevalence of pulmonary embolism reaching 10 (15.87%) while the prevalence of COPD was estimated at 7 (11.11%) as also shown in Figure 1.

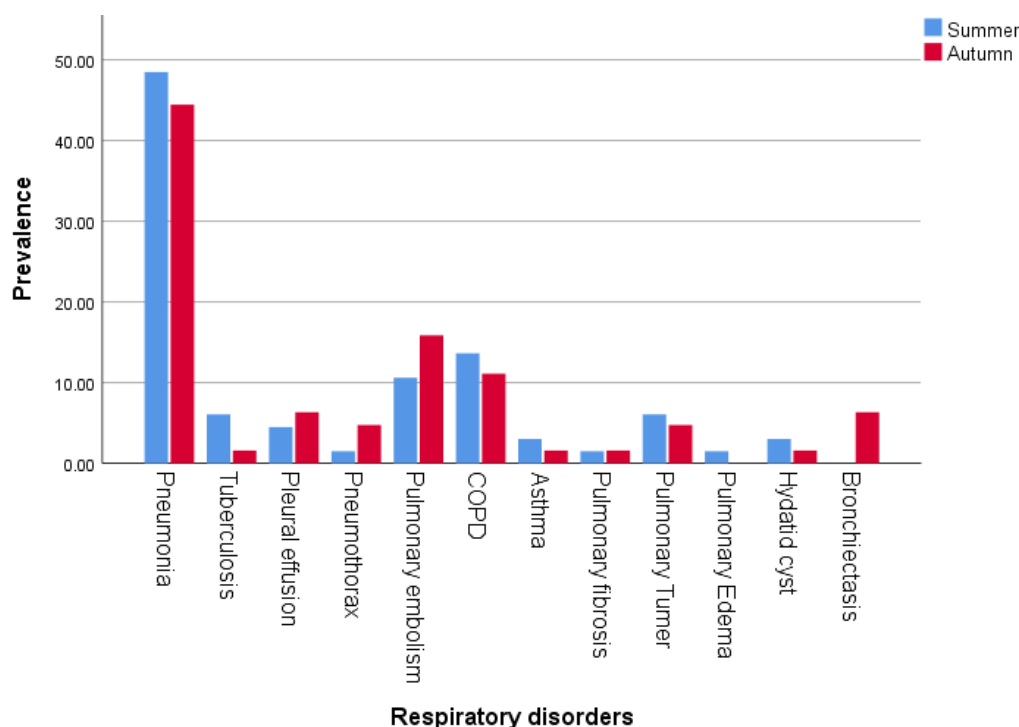


Figure 1: Prevalence of respiratory disorder in Al-Mujtahid University Hospital.

3.2. Al-Mouwasat University Hospital

This study was able to reach 65 registered cases at Al-Mouwasat University Hospital at the end of summer 2025, and it was also able to reach 62 registered cases at the early autumn in Al-Mouwasat University Hospital at the level of the Chest Diseases Department, as shown in Table 2.

Table 2: Number of admitted patients (Relative Frequency) in the Chest Diseases Department of Al-Mouwasat University Hospital.

Respiratory Disorder	Weak 1	Weak 2	Weak 3	Weak 4	Total
August 2025					
Pneumonia	15 (23.07%)	15 (23.07%)	6 (9.23%)	13 (20.00%)	44 (67.69%)
Tuberculosis	2 (3.07%)	1 (1.53%)	3 (4.61%)	1 (1.53%)	7 (10.76%)
Pleural effusion	1 (1.53%)	0 (0.00%)	1 (1.53%)	2 (3.07%)	4 (6.15%)
September 2025					

Respiratory Disorder	Weak 1	Weak 2	Weak 3	Weak 4	Total
Pneumonia	20 (32.25%)	7 (11.29%)	5 (8.06%)	9 (14.51%)	41 (66.12%)
Tuberculosis	2 (3.22%)	0 (0.00%)	1 (1.61%)	1 (1.61%)	4 (6.45%)
Pleural effusion	1 (1.61%)	2 (3.22%)	0 (0.00%)	2 (3.22%)	5 (8.06%)
COPD	5 (8.06%)	2 (3.22%)	4 (6.45%)	1 (1.61%)	12 (19.35%)

Current study shows that the prevalence of pneumonia in the Chest Diseases Department at Al-Mouwasat University Hospital was the highest across all studied periods, estimated at 44 (67.69%) of the 65 cases admitted by the end of summer 2025, and with a pneumonia prevalence of pneumonia was 41 (66.12%) of 62 cases admitted by the beginning of autumn 2025. Tuberculosis and Pleural effusion ranked second and third in prevalence rates during the summer months, following pneumonia, with contiguous prevalence rates estimated at 7 (10.76%) and 4 (6.15%), respectively. The prevalence rates of both tuberculosis and pleural effusion remained contiguous in autumn 2025, with pleural effusion slightly more prevalent than tuberculosis. Hence, the prevalence rates for tuberculosis and pleural effusion were 4 (6.45%) and 5 (8.06%), respectively. However, the highest prevalence rate was for COPD, following pneumonia in the autumn. Hence the COPD prevalence rate was 12 (19.35%) in the autumn of 2025, as also shown in Figure 2.

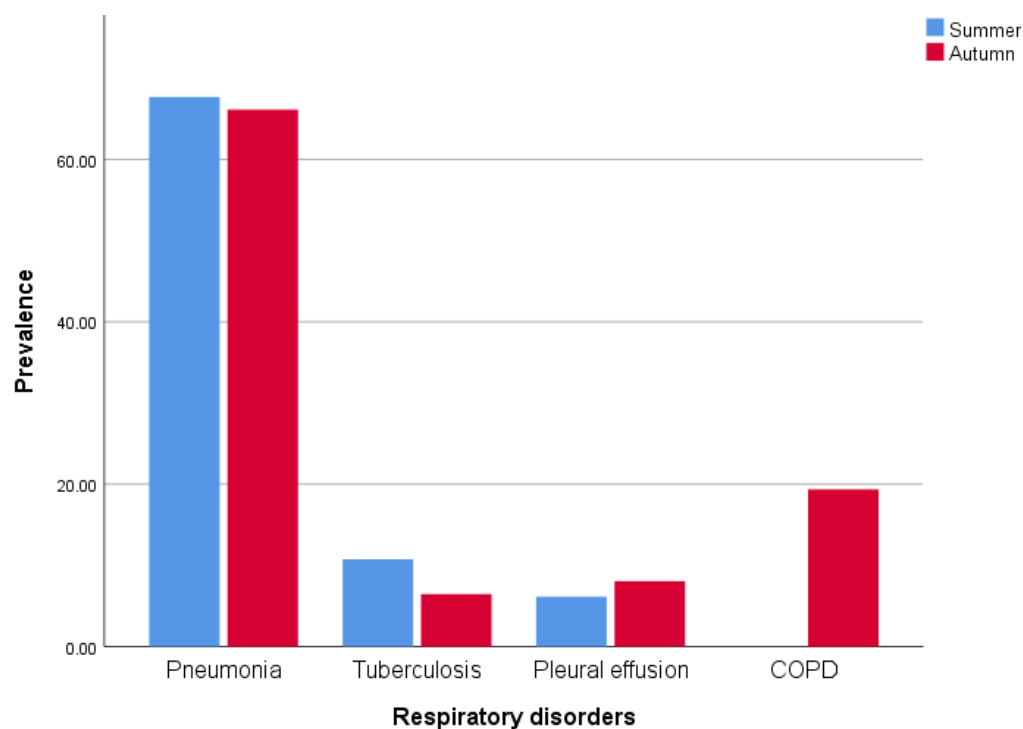


Figure 2: Prevalence of respiratory disorder in Al-Mouwasat University Hospital.

3.3. Major respiratory disorder in the studied hospitals

Pneumonia, COPD and pulmonary embolism were the most important respiratory disorder in Al-Mujtahid University Hospital as previously shown in Table 1. Meanwhile, Pneumonia, COPD were also on the major respiratory disorder that have been admitted in Al-Mouwasat University Hospital. Yet in Al-Mouwasat University Hospital, the Tuberculosis and Pleural effusion have been also with a significant important as shown in Table 2, From the above mentioned data, here-in this research test the difference in the epidemiology of pneumonia between the two hospital during the full study period as shown in Table 3, and test the difference in the epidemiology of COPD between the two hospital in the autumn of 2025 (hence there was no admitted cases in the summer of 2025 at Al-Mouwasat University Hospital) as shown in Table 4

Furthermore, this study test the difference between the epidemiology of pneumonia, COPD and pulmonary embolism during the summer and autumn in Al-Mujtahid University Hospital as shown in Table 5, and finally this research also exam the difference between the epidemiology of pneumonia, Tuberculosis and Pleural effusion at summer and autumn in Al-Mouwasat University Hospital as shown in Table 6

Table 3: The difference in the epidemiology of pneumonia between Al-Mouwasat University Hospital and Al-Mujtahid University Hospital during in the late summer and early autumn of 2025.

Case studied	F	p-value	t	p-value	CI
Pneumonia	5.612	0.033	1.849	0.094	-1.24316 to 13.355663

As shown above in Table 3, despite of the existence of significant difference in the variances of population between the two sample ($F = 5.612$, $p = 0.033 < 0.05$), yet there is no significant difference in the prevalence of pneumonia between the two hospital ($t = 1.849$, $p = 0.094 > 0.05$) during the full studied period as shown in Figure 3.

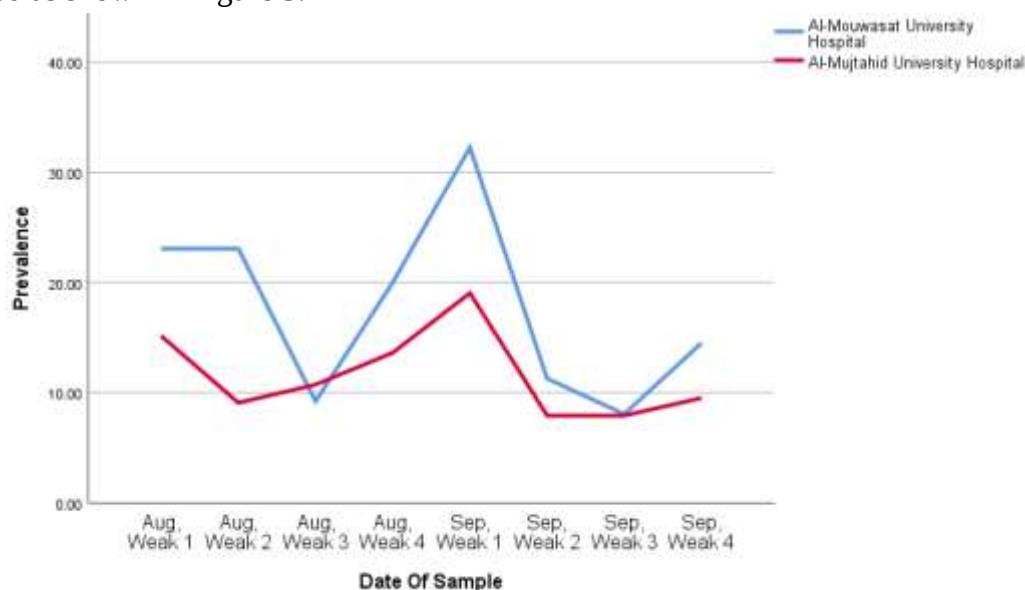


Figure 3: Epidemiology of pneumonia at Al-Mouwasat University Hospital and Al-Mujtahid University Hospital from the first of August 2025 and till the end of September 2025.

Table 4: The difference in the epidemiology of COPD between Al-Mouwasat University Hospital and Al-Mujtahid University Hospital during in the early autumn of 2025

Case studied	F	p-value	t	p-value	CI
COPD	4.689	0.074	1.244	0.260	-1.99340 to 6.118398

As shown above in Table 4, despite of the difference in hospital yet there was no significant difference in the variances of population between the two sample ($F = 4.689$, $p = 0.074 > 0.05$), even more there is no significant difference in the prevalence of COPD between the two hospital ($t = 1.244$, $p = 0.260 > 0.05$) during the autumn of 2025 as shown in Figure 4.

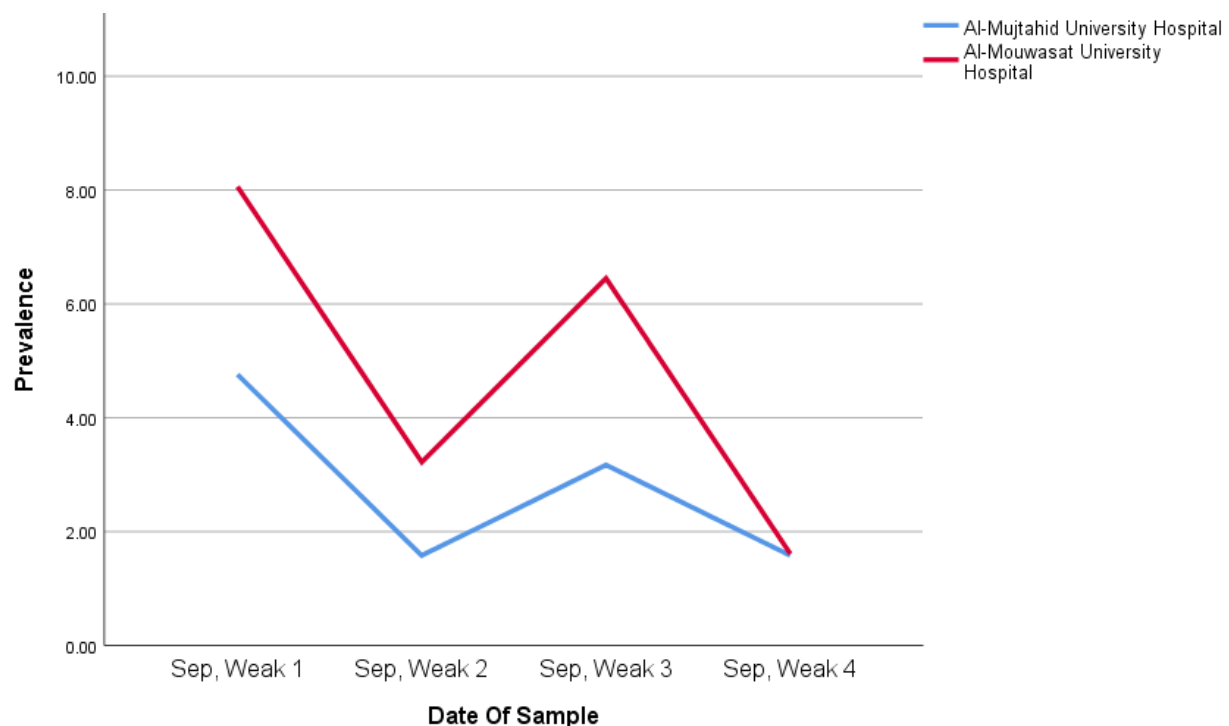


Figure 4: Epidemiology of COPD at Al-Mouwasat University Hospital and Al-Mujtahid University Hospital from the first of September 2025 and till the end of September 2025.

Table 5: The difference in the epidemiology of the main respiratory disorder (Pneumonia, COPD and Pulmonary embolism) in Al-Mujtahid University Hospital during the late summer and early autumn of 2025.

Case studied	F	p-value	t	p-value	CI
Pneumonia	1.426	0.276	0.349	0.739	-6.29934 to 8.39434
COPD	0.839	0.395	0.423	0.687	-3.03701 to 4.30701
Pulmonary embolism	1.057	0.344	-0.637	0.548	-6.35638 to 3.73138

As shown above in Table 5, despite of the difference in studied seasons yet there was no significant difference in the variances of patient studied at the level of all three respiratory disorder, namely the Pneumonia, COPD and Pulmonary embolism ($F = 1.426$, $p = 0.276 > 0.05$; $F = 0.839$, $p = 0.395 > 0.05$ and $F = 1.057$, $p = 0.344 > 0.05$ respectively), even more there is no significant difference in the prevalence

nce of all three respiratory disorder ($t = 0.349$, $p = 0.739 > 0.05$; $t = 0.423$, $p = 0.687 > 0.05$ and $t = -0.637$, $p = 0.548 > 0.05$) during the two studied seasons as shown in Figure 5.

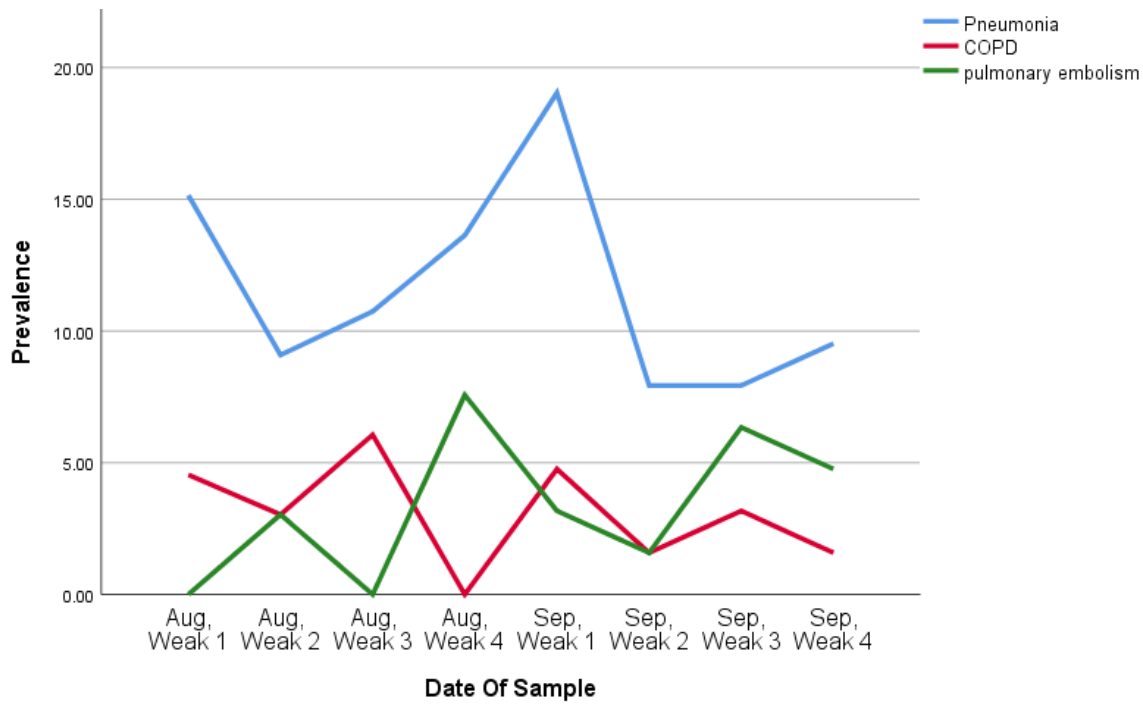


Figure 5: Epidemiology of Pneumonia, COPD and Pulmonary embolism at Al-Mujtahid University Hospital from the first of August 2025 and till the end of September 2025.

Table 6: The difference in the epidemiology of the main respiratory disorder (Pneumonia, Tuberculosis and Pleu-ral effusion) in Al-Mouwasat University Hospital during the late summer and early autumn of 2025

Case studied	F	p-value	t	p-value	CI
Pneumonia	0.798	0.406	0.366	0.727	-13.15871 to 17.78871
Tuberculosis	0.389	0.556	1.088	0.318	-1.34176 to 3.49176
Pleural effusion	0.634	0.456	-0.483	0.646	-2.91062 to 1.95062

As shown above in Table 6, despite of the difference in the studied seasons yet there was no significant difference in the variances of patient studied at the level of all three respiratory disorder, namely the Pneumonia, Tuberculosis and Pleural effusion ($F = 0.798$, $p = 0.406 > 0.05$; $F = 0.389$, $p = 0.556 > 0.05$ and $F = 0.634$, $p = 0.456 > 0.05$ respectively), even more there is no significant difference in the prevalence of all three respiratory disorder ($t = 0.366$, $p = 0.727 > 0.05$; $t = 1.088$, $p = 0.318 > 0.05$ and $t = -0.483$, $p = 0.646 > 0.05$) during the two studied seasons as shown in Figure 6.

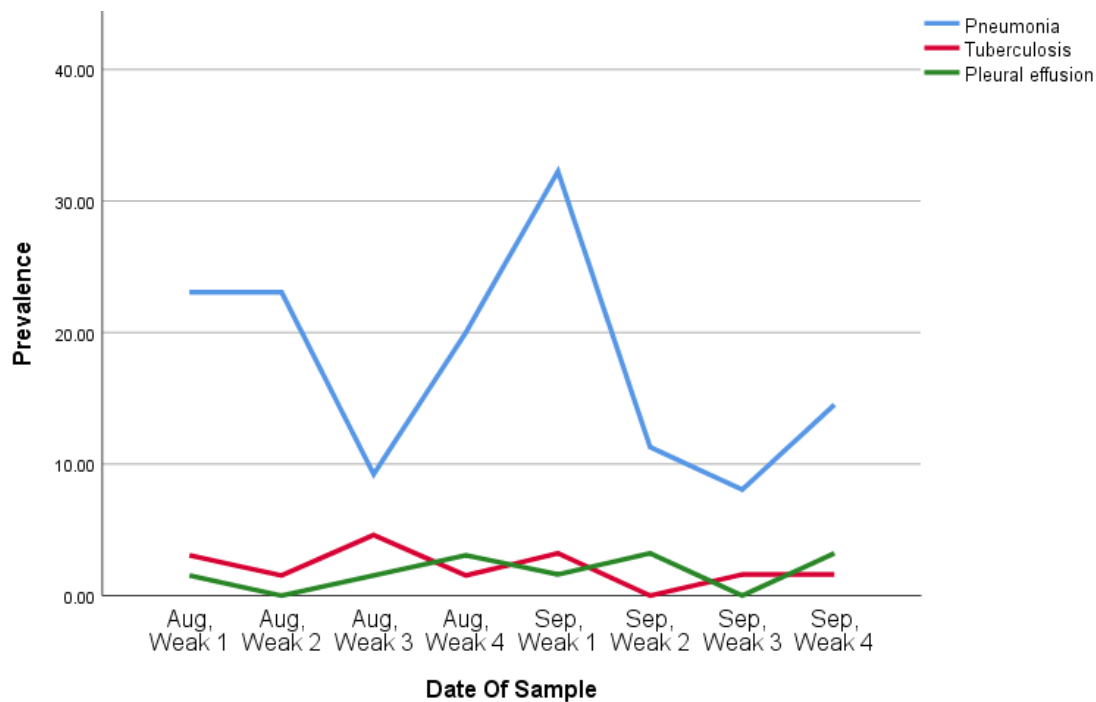


Figure 6: Epidemiology of Pneumonia, Tuberculosis and Pleural effusion at Al-Mouwasat University Hospital from the first of August 2025 and till the end of September 2025.

4. Discussion

For the study of respiratory disease epidemiology, according to Tang et al the calendar year can be divided into four seasons (spring, summer, autumn, and winter). Summer ends in August, and autumn begins in September in Asia [10]. From the above mentioned this study exams the respiratory disorder at the end of summer (Aug 2025) and the beginning of autumn (Sep 2025). This study demonstrates the prevalence of pneumonia over other respiratory disorders observed in the studied university hospitals, with prevalence rates ranging from 44.44% noted at Al-Mujtahid University Hospital to 67.69% at Al-Mouwasat University Hospital. Despite the difference in prevalence rates, our study indicates that the observed differences are not statistically significant, even considering the varying nature of the patients and the studied populations. Which consisting source of concern because of the prevalence rates observed in our study exceed those reported in previous literature. Hence a study by Solomon et al. in 2022 indicated a pneumonia prevalence rate of approximately 30% [11], while an older study by Nantanda et al reported a prevalence rate of approximately 50% [12]. Pneumonia is one of the most common respiratory illnesses among children under 5 and those over 65 [13]. Most studies and scientific publications [12, 13], focus on assessing pneumonia prevalence within these age groups. Yet this research does not take age as criteria which make this epidemiological finding even more dangerous. Furthermore, Studies also indicate that approximately 400 million people are affected by COPD, with the prevalence varying depending on several factors (Levine and Marciniuk., 2022). Even more, the prevalence of COPD is expected to increase to 600 million people by 2050, noting that global prevalence rates ranged between 2.7% in 2019 and 4.77% in 2010 [14]. Our study was unable to access and monitor COPD case records in the summer of all the mentioned hospitals, which is acceptable and consistent with what previous literature indicates, which confirms that COPD epidemiology is affected by many factors. However, our study was able to access COPD case records in the autumn of 2025, and

the statistical analysis indicates that there is no variation in the studied communities and no statistically significant differences in the studied prevalence rates, which increases and confirms the credibility of the data and results obtained emphasizes that the reported prevalence rates are, in fact, often representative of the prevailing prevalence rates.

This study demonstrates prevalence of COPD ranging from 11.11% noted at Al-Mujtahid University Hospital to 19.35% at Al-Mouwasat University Hospital which exceeds all expectations set out in the study of Boers et al. However, as previously mentioned, COPD prevalence may be effected by variant of factors.

Tuberculosis is also one the common respiratory disorder that have been witnessed in the both hospital without any significant different with prevalence ranging from 1.58 in the autumn at Al-Mujtahid University Hospital to 10.76% in the summer at Al-Mouwasat University Hospital which is consistent with global prevalence rates, which, according to [15] it ranged between 0.7% and 13.1% [15], Pleural effusion rises as one of the main respiratory disorder in Al-Mouwasat University Hospital with a prevalence reached 8.06%. Pleural effusion can occur due to more than 50 causes and is considered a significant condition with substantial economic implications. The estimated cost of treating over 126,800 cases of pleural effusion in 2012 exceeded 5 billion USD In USA alone. Furthermore, 24,711 cases of pleural effusion were reported in 2018 [16], Therefore, the causes of the observed cases of pleural effusion should not be overlooked, especially given that they were observed in both hospitals studied.

5. Conclusions

Pneumonia is one of the most common respiratory diseases in Damascus hospitals, with a high prevalence rate exceeding that observed in previous scientific literature. This study indicates that it requires special attention. Furthermore, this study reveals a steady increase in COPD cases, exceeding scientific literature expectations. This strongly urges further investigation into the causes of this steady rise and the need for extensive research, particularly given the significant number of pleural effusion cases in both studied hospitals. Pleural effusion is a condition with a vast number of potential causes. This study also indicates a significant number of tuberculosis cases admitted to university hospitals. Although within acceptable ranges, tuberculosis remains one of the most dangerous diseases. This study emphasizes the need to pay greater attention to respiratory diseases in general, and tuberculosis in particular.

References

1. K. Gulati, P. Verma, N. Rai, and A. Ray. "Role of nutraceuticals in respiratory and allied diseases". *Nutraceuticals*, 101–115. 2021. <https://doi.org/10.1016/b978-0-12-821038-3.00007-0>
2. D. H. J. Cheong, D. W. S. Tan, F. W. S. ?"Wong , and T. Tran . "Anti-malarial drug, artemisinin and its derivatives for the treatment of respiratory diseases". *Pharmacological Research*, 158, 104901. 2020. <https://doi.org/10.1016/j.phrs.2020.104901>
3. P. Pahal, V. Rajasurya, A. D. Nguyen. "Typical Bacterial Pneumonia. [Updated 2025 Apr 6]. In: StatPearls [Internet]. Treasure Island (FL)": StatPearls Publishing; 2025 Jan-. Available from: <https://www.ncbi.nlm.nih.gov/books/NBK534295/>
4. R. Krishna; M, H. Antoine; M, H. Alahmadi ;and M, Rudrappa. "Pleural Effusion. [Updated 2024 Aug 31]. In: StatPearls [Internet]. Treasure Island (FL)": StatPearls Publishing; 2025 Jan-. Available from: <https://www.ncbi.nlm.nih.gov/books/NBK448189/>

5. E. Yuriditsky, R. S. Zhang, T. Ahuja, S. Bangalore ,and J. M. Horowitz. "The latest in the management of pulmonary embolism. Breathe (Sheffield, England)", 21(2), 240100.2025. <https://doi.org/10.1183/20734735.0100-2024>
6. V. Vyas; A. Sankari, and A. Goyal. "Acute Pulmonary Embolism. [Updated 2024 Dec 11]. In: StatPearls [Internet]. Treasure Island (FL)": StatPearls Publishing; 2025 Jan-. Available from: <https://www.ncbi.nlm.nih.gov/books/NBK560551/>
7. Y. Im , J. D. Chalmers , and H. Choi." Disease Severity and Activity in Bronchiectasis: A Paradigm Shift in Bronchiectasis Management". Tuberculosis and respiratory diseases, 88(1), 109–119.2025. <https://doi.org/10.4046/trd.2024.0120>
8. D. J. Maselli ,and A. A. Diaz . "Mortality Risk in Bronchiectasis. Archivos de bronconeumologia", 60(6), 333–335.2024. <https://doi.org/10.1016/j.arbres.2024.04.006>
9. J. C. Ocampo , J. F. Alzate , L. F. Barrera , and A. Baena . "Tuberculosis Severity Predictive Model Using Mtb Variants and Serum Biomarkers in a Colombian Cohort of APTB Patients". Biomedicines, 11(12), 3110.2023. <https://doi.org/10.3390/biomedicines11123110>
10. Z. Tang , H. Fan , Y. Tian ,and Q. Lv . "Epidemiological characteristics of six common respiratory pathogen infections in children". Microbiology spectrum, 13(7), e0007925.2025. <https://doi.org/10.1128/spectrum.00079-25>
11. Y. Solomon , Z. Kofole, T. Fantaye , and S. Ejigu, " Prevalence of pneumonia and its determinant factors among under-five children in Gamo Zone", southern Ethiopia, 2021. Frontiers in Pediatrics, 10.2022. <https://doi.org/10.3389/fped.2022.1017386>
12. R. Nantanda , J. K. Tumwine, G. Ndeezi, and M. S. Ostergaard ." Asthma and Pneumonia among Children Less Than Five Years with Acute Respiratory Symptoms in Mulago Hospital, Uganda": Evidence of Under-Diagnosis of Asthma. PLoS ONE, 8(11), e81562.2013. <https://doi.org/10.1371/journal.pone.0081562>
13. S. M. Levine, and D. D. Marciniuk ." Global Impact of Respiratory Disease – What Can We Do, Together, to Make a Difference? Chest", 161(5).2022. <https://doi.org/10.1016/j.chest.2022.01.014>
14. E. Boers , M. Barrett , J. G. Su , A. V., Benjafield , S. Sinha , L. Kaye , H. J. Zar , V. Vuong , D. Tellez , R. Gondalia , M. B. Rice , C. M. Nunez , J. A. Wedzicha , and A. Malhotra . "Global Burden of Chronic Obstructive Pulmonary Disease Through 2050". JAMA network open, 6(12), e2346598.2023 <https://doi.org/10.1001/jamanetworkopen.2023.46598>
15. Y. Yu ; X. J. Hu ; X.M. Fang ;and J. Wu . "Epidemiology and Treatment Outcomes of Pulmonary Tuberculosis in Dazu District, Chongqing, China, 2005-2024: Surveillance Study". JMIR Public Health and Surveillance, 11, e78564–e78564. 2025 <https://doi.org/10.2196/78564>
16. P. Tian , R. Qiu , M. Wang , Sh. Xu , L .Cao , P. Yang ,and W. Li . "Prevalence, Causes, and Health Care Burden of Pleural Effusions Among Hospitalized Adults in China". JAMA Network Open, 4(8), e2120306–e2120306. 2021 <https://doi.org/10.1001/jamanetworkopen.2021.20306>

Licensed under [Creative Commons Attribution-ShareAlike 4.0 International License](https://creativecommons.org/licenses/by-sa/4.0/)