6

7   **Inappropriate Hospital Stay of Patients Admitted Under Care of**

8   **General Medicine Units**

9   ***A retrospective study***

10

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17

18   **Abstract**

19   ***Objective:*** This study aims to assess the incidence of inappropriate hospital stay and to identify

20   reasons behind inappropriate hospitalisation*. **Methods:*** The study was a retrospective cohort

21   study included patients admitted under the care of General Internal Medicine. First, we

22   calculated the average length of hospital stay for all included patients, and then we used

23   Appropriateness Evaluation Protocol to examine admissions that exceeded the average length of

24   hospital stay and then identify reasons for the inappropriate hospital stay. ***Results:*** There were

25   854 admissions during the study period. In this cohort, 53.1% were men, and the median age was

26   64 (IQR:44-75) years. There was a total of 6785.4 hospitalization days, and the average length of

27   hospital stay was 5 (IQR:3-9) days. 31.9% of admissions (n=272 admissions) included

28   inappropriate hospitalization days. 9.9 % (n=674 days) of hospitalization days were classified as

29   inappropriate. Delay in complementary tests (29.0%), and unavailability of extra-hospital

30   resources (21.7%) were the most common reasons associated with inappropriate hospital stay.

31 Old Age was associated with increased inappropriate hospital stay. ***Conclusion:*** A significant

32 proportion of hospitalisation days were inappropriate due to hospital related factors. Therefore,

33 auditing hospital services, and investing in home-based care are among the top strategies which

34 are likely to improve early discharge and minimize inappropriate hospital bed occupancy.

35 *Keywords*: Hospital Stay; Hospitalization, patient discharge; General Internal Medicine

36

37 **Advances in Knowledge**:

38 • A significant proportion of hospital stay is inappropriate primarily due to hospital-related

39   factors.

40

41 **Application to Patient Care:**

42 • Auditing healthcare services, implementing programs to lean process of tests and

43   procedures execution, and investing in subacute health services and home-based care

44   programs are essential steps to improve early discharges and minimize inappropriate

45   hospital stay.

46

47 **Introduction**

48 Inappropriate hospital stay has been used widely in the medical literature to describe any hospital

49 stay with no clinical indication resulting from the suboptimal use of health care services.[1, 2] The

50 inappropriate days of hospitalization may undermine the effort to improve medical health care

51 quality due to the increased risk of iatrogenic complications such as healthcare-associated

52 infection, deep vein thrombosis, depression, and loss of physical dependence. In addition,

53 inappropriate length of hospital stay is associated with a substantial increase in morbidity and

54 mortality.[2, 3]

55

56 Reducing healthcare costs and optimizing the utilization of the current healthcare facilities,

57 including hospital beds, are among the best ways to increase the efficiency of healthcare

58 resources. Nevertheless, studies showed that more than 20% of hospital beds are used

59 inappropriately, resulting in a waste of resources, and increased iatrogenic risks for patients.[4, 5]

60

61   Previous studies have shown that between 20-and 40% of hospital days were inappropriate

62   stays.[1, 6-8] Delay in performing and reporting diagnostic tests, delay in consultation, delay in

63   performing procedures are among the most common causes of inappropriate hospital stay.[1, 7, 9, 10]

64   old age, prolonged length of hospital stay, and medical admissions were associated with an

65   increased inappropriate hospital stay.[8, 11, 12] In general, implementing quality improvement

66   projects including routine auditing hospital services, multidisciplinary team approach,

67   engagement of discharge planners early on admission, and improving home-based services have

68   been shown to reduce inappropriate hospital stay.[6, 13]

69

70   Studies assessing factors associated with inappropriate hospital stay in the Middle Eastern

71   Region are sparse. The study's findings will assess the extent of inappropriate hospital stay and

72   identify reasons for the inappropriate hospital stay. Also, it will guide hospital managers, and

73   stakeholders to put strategies and implement measures to optimize health care resources

74   utilization without the need for additional financial investment.

75

76   **Methods**

77   *Study setting*

78   Oman's population is rising at more than 9% per year, making it one of the most growing

79   populations globally. According to the latest United Nations figures, Oman's current population

80   is around 5 million people, and more than 1.4 million live in Muscat governorate.[14, 15]

81   Socioeconomic growth coupled with a remarkable improvement in the health care system in

82   Oman has resulted in an increased birth rate and decreased mortality rate, hence causing an

83   accelerated population expansion which continues to put a tremendous strain on the healthcare

84   system resources.[16]

85

86   One of the indicators of the quality of health service delivery is the number of hospital beds.

87   According to the Ministry of Health's annual report in 2020, there were 15.6 hospital beds

88   available for every 10,000 individuals in Oman.[17] Similarly, hospital beds available for every

89   10,000 individuals range from 12.5 to 22 beds in the Gulf Cooperation Countries (GCC). While

90   in the United States, there are 28.7 beds for every 10,000 of the population.[16, 18]

91

92 The study was a retrospective cohort study conducted at Sultan Qaboos University Hospital

93 (SQUH), a 500-bed multispecialty tertiary referral hospital with several unique services and

94 certain specialized medical facilities. In addition, it is a major teaching hospital for medical and

95 nursing students at the College of Medicine and Health Sciences and College of Nursing. Also, it

96 is a major training centre for medical interns, general foundation program trainees and residents

97 of the Oman Medical Speciality Board.

98

99 The General Internal Medicine Unit receives around 70-80% of medical patients admitted

100 through the Emergency Department. The range of patients varies between patients with single

101 organ system disease -e.g. pneumonia-and patients with complex diseases or undifferentiated

102 illnesses. Besides medical admissions, the General Internal Medicine Unit provides admission

103 services to patients with immunological, genetic, and metabolic diseases due to the lack of

104 admission services for these specialities.

105

106 There are two main medical wards with a total bed capacity of 45 beds and ten beds in the high

107 dependency unit. In addition, general medical patients may be admitted to other non-medical

108 wards during busy periods.

109

110 *Data sources*

111 We included patients admitted under the care of the General Internal Medicine Unit from the 1 of

112 January 2020 until the 30 of June 2020. Patients admitted with COVID-19 infection were

113 excluded from the study. Trained medical doctors collected relevant demographic and clinical

114 data from patients' electronic records. Length of hospital stay counted as difference between the

115 time and date of admission and the time and date of discharge   Primary diagnoses were coded

116 and classified according to the 10th revision of the International Statistical Classification of

117 Diseases and Related Health Problems (ICD-10).

118

119 *Hospital Stay Appropriateness measurement tool and procedure*

120 The Appropriateness Evaluation Protocol (AEP) is the most widely used instrument for

121 evaluating the appropriateness of hospitalizations in various countries. Gertman and Restuccia

122 developed AEP in 1981, and the original version contains 27 criteria for use in internal medicine

4

123 and surgical departments to evaluate the appropriateness of hospital admission and

124 hospitalization days.[19] Reasons for inappropriate hospital stay-according to AEP- include

125 inappropriate date of discharge, delay related to awaiting complementary tests, delay related to

126 awaiting the results of complementary tests, awaiting surgical procedures, delay related to

127 awaiting consultations, delays related to poor planning for discharge, delay related to unavailable

128 extra-hospital resources (e.g. palliative care, and rehabilitation services), delay related to

129 unavailable intensive care bed, or delay related to inadequate family support.[20]

130

131 AEP has been used across many countries, and it was modified many times to adapt to various

132 health care settings.[21] In addition, previous studies have proven that AEP is highly reliable and

133 valid modality to provide an objective assessment for inappropriate hospital stay.[21, 22]

134

135 We have used a modified version of AEP that includes 27 objective criteria items related to

136 medical and nursing services, extra-hospital resources, and patient-related factors. If one of the

137 criterion is fulfilled, the hospital days are considered appropriate, and if none are met, then the

138 days are considered inappropriate.[20, 23]

139

140 A team of four trained medical doctors who were not involved directly in patient care reviewed

141 all included patient medical records – patient electronic medical records- in detail. Each

142 admission was assessed independently by at least two medical doctors to assess the

143 appropriateness of hospital stay. The previously reported average length of hospital stay for

144 patients admitted under the care of the General Internal Medicine Unit at SQUH and the

145 calculated average length of hospital stay for our cohort was five days. Hence, any admission

146 that exceeded five days was reviewed to assess the appropriateness of the hospital stay.

147 Uncertainty regarding the appropriateness of hospital stay was discussed among team members

148 until consensus was achieved.

149

150 *Statistical analysis*

151 Categorical variables (e.g. sex) were reported as numbers and percentages, and differences

152 between groups were assessed using the Chi-square test or Fisher's exact as appropriate. We

153 report continuous variables (e.g. age) as mean $\pm$ SD for normally distributed values or median

154 (IQR) for non-normally distributed values. In addition, differences between groups (3 or more)

155 were assessed using one-way ANOVA for normally distributed continuous variables or Kruskal–

156 Wallis rank test for non-normally distributed continuous variables. Finally, we conducted a

157 regression analysis to identify patient-related factors associated with an increased risk of the

158 inappropriate hospital. Stata v. 17.0 software package (StataCorp LLC, USA) was utilized to

159 perform statistical calculations, and P-values <0.05 were considered statistically significant.

160

161 *Ethical approval*

162 The study was approved by the Medical Research Ethics Committee (MREC) of the College of

163 Medicine and Health Sciences at our institution.

164

165 **Results**

166 There were 855 admissions under the care General Internal Medicine Unit during the study

167 period. In this cohort, 53.1% were men, and the median age was 64 (IQR:44-75) years. There

168 were 6785.4 hospitalization days, and the average length of hospital stay was 5 (IQR:3-9) days.

169 31.8% of admissions (n=272 admissions) included inappropriate hospitalization days. 9.9 %

170 (n=674 days) of hospitalization days were classified as inappropriate. There were 29 mortalities

171 during the study period **(Table 1).**

172

173 Diseases of the circulatory system (22.4%) and respiratory systems (22.0%) were the most

174 common class of primary diagnoses for patients admitted under the care of the General Internal

175 Medicine Unit. In addition, neoplasms and diseases of the skin and subcutaneous tissue had a

176 longer hospital stay than other classes of primary diagnoses-i.e. 8 and 7, respectively **(Table 2).**

177

178 Pneumonia (14.0%), heart failure (3.8%), transient ischemic attack (TIA) and stroke (8.0%),

179 exacerbations of chronic lung diseases (6.3%), sepsis (4.6%), admissions related to drug and

180 alcohol (4.2%), and urinary tract infection (4.1%) were the most common primary diagnoses.

181 Drug and alcohol-related admissions occurred mainly in young and male patients. Admission

182 due to TIA and stroke (42.7%), exacerbations of chronic lung disease (42.6%) and urinary tract

183 infections (42.9%) were likely to result in an inappropriate hospital stay. Also, TIA and stroke

184 diagnoses (3 {1-3} days) were associated with prolonged length of inappropriate hospital stay.

6

185 Sepsis was associated with an increased inpatient mortality rate (12.8%) **(Table 3).**

186

187 Delay in complementary tests (29.0%), unavailability of extra-hospital resources (21.7%), and

188 delay in the results of the complementary tests (18.8%) were the most common reasons

189 associated with inappropriate hospital stay **(Table 4).**

190

191 In terms of patient's related factors, a regression analysis showed that old age was associated

192 with an increased risk of inappropriate stay (p= 0.007; odds ratio [OR]: 0.020 per 10-year

193 increase in age, 95% confidence interval CI: 0.006-0.036).

194

195 **Discussion**

196 This study assessed inappropriate hospital stay in a region with a rapidly expanding population

197 that overstrained health care system resources. It showed that around 10% of hospital bed-day

198 were wasted. Waiting for complementary tests, awaiting results of complementary tests and lack

199 of extra-hospital resources were the most common causes of inappropriate hospital stay. In

200 addition, old age and specific diagnoses such as stroke and chronic respiratory diseases are more

201 likely to result in an inappropriate hospital stay.

202

203 In this study, the overall average length of hospital stay for patients admitted to the General

204 Internal medicine unit was five days which is higher than the average length of stay (3.9 days) in

205 a similar health care setting in Oman,[17] but is below the average length of stay reported in

206 different Asian & European countries (6.4-7.8 days).[24] A study from Thailand reported a length

207 of hospital stay of 25.9 days for patients admitted under the care of the general medicine

208 department.[25] This probably is due to the inclusion of subacute admissions (e.g. palliative care,

209 rehabilitation services) under the internal medicine department. In contrast, a study from

210 Australia has shown the length of hospital stay of patients admitted under the care of general

211 medicine was 3.7 days.[26] The variations in the reported length of hospital stay could be explained

212 by multiple factors, including accessibility to diagnostic and therapeutic services, availability of

213 subacute medical services and home-based services.

214

215 According to Appropriateness Evaluation Protocol criteria, 31.9% of hospitalization (n=272)

7

216　included inappropriate hospital days, causing a waste of around 9.9% of total hospital bed-days

217　(n=674). The rate of inappropriateness has been reported in various international studies with

218　significant variation across countries, hospitals, and clinical departments. However, studies

219　conducted to assess the utilization of beds in internal medicine departments over the past 20

220　years concluded the rate of inappropriateness ranges between 20 to 41%. [27-30] A study from

221　Netherland showed that more than 20% of hospital stay was inappropriate and old age, lack of

222　home-based care and specialized medical services were associated with an increased risk of

223　inappropriate hospital stay.[28]

224

225　The disparity in the rate of inappropriate hospitalization between these studies is significant,

226　which could be due to differences in admission and discharge protocols, geographic areas, or bed

227　occupancy rates of different hospitals. In addition, differences in methodology, including

228　sampling methods, AEP modifications, options used to justify hospitalization days, and the

229　quality of medical records are important factors that might have contributed to the differences in

230　the previously reported rate of inappropriate hospital stay.[28, 31] Our rate is lower than the reported

231　rate in a similar setting, probably because we have only included admissions that exceeded the

232　calculated average length of hospital stay (i.e. five days).

233

234　The most common reasons for the inappropriate hospital stay in the current study mainly were

235　related to the hospital system factors, including delay of complementary tests or awaiting its

236　results. In our institution, a routine imaging request is usually carried out in 1-3 days, and the

237　official report may require up to 2 days following the procedure. As a tertiary and university

238　hospital receiving many undiagnosed cases from different regional hospitals for expert opinion,

239　diagnostic workup represents a significant part of patient's hospitalization period. Hence,

240　institutional arrangements should be initiated, including the execution of a program for request

241　justification, scheduling and reporting procedures.[9]

242

243　In addition, extra-hospital care, including the availability of long-term or palliative care beds and

244　rehabilitation services, accounted for around 21% of inappropriate hospital stay. This result

245　highlights the lack of adequate rehabilitation services, home-based care and nursing homes,

246　resulting in inappropriate hospitalization and utilization of acute health resources in Oman.

247

248 Around 17% of inappropriate hospital stays were due to waiting for specialist consultation.

249 General Internal Medicine routinely admits patients with multiple complex issues; hence other

250 specialities consultation is vital. Creating an efficient consultation process and improving

251 communication between teams might decrease inappropriate hospital stays. [32, 33]

252

253 In term of patients' related factors, previous studies have shown that old age, patient with

254 multiple comorbidities including chronic heart failure, stroke, and soft tissue infection at

255 increased risk of prolonged length of hospital stay.[34, 35]

256

257 Our study has shown that the majority of patients were hospitalized with circulatory and

258 respiratory systems diseases. Pneumonia and exacerbations of chronic lung disease were among

259 the most common diagnoses, with a median length of hospital stay of 6 days, which is higher

260 than the reported length of hospital stay in similar health settings (i.e. five days).[36] This could be

261 explained by the fact that our cohort of patients had advanced chronic pulmonary diseases, and

262 many were on long-term oxygen therapy and mechanical ventilatory support.

263

264 Acute decompensated heart failure was the second most common diagnosis in our study, with a

265 median length of hospital stay of 5.5 days (IQR: 4-9), consistent with international studies,

266 which reported a median of 6 days (IQR 4-9).[34, 37] This is due to the nature and complexity of

267 managing heart failure leading to an increased rate of admission and readmission, the need for

268 intravenous diuretics and the possible development of complications like renal injury.[38] Heart

269 failure was also associated with increased length of inappropriate hospital stay, which might be

270 due to the delay in performance of cardiac-specific imaging, the interpretation of these

271 investigations, and lack of multidisciplinary heart failure service.

272

273 Neoplasm's class of diagnoses had the most extended length of hospital stay and the highest total

274 number of inappropriate hospitalization days, which is likely due to the time needed to perform

275 diagnostic investigations to confirm the diagnosis and arrange the appropriate transfer of care to

276 oncological specialities. Diseases of the skin and subcutaneous tissue had an increased length of

277 inappropriate hospital stay, possibly due to delay diagnosis and delayed specialist consultation.

278

279 Around 43% of admission due to stroke and TIA contains inappropriate hospital days. This was

280 mainly due to delays in performing relevant investigations such as Magnetic Resonance Imaging

281 (MRI), Holter monitoring, and echocardiography. In addition, the absence of a dedicated stroke

282 unit and inpatient rehabilitation service contributed to inappropriate hospitalization of patients

283 with acute stroke.

284

285 Logistic regression analysis demonstrated that old age was associated with an increased

286 inappropriate hospital stay. This could be explained by the increased burden of comorbidity and

287 high prevalence of geriatric syndromes in elderly patients.[39] Dementia, poor pre-morbid

288 functional status were found to be associated with prolonged length of hospital stay in elderly

289 patients in previous studies.[40]

290

291 Many previous studies identified strategies and interventions to promote early discharge and

292 reduce inappropriate hospital stay. Auditing clinical and procedural services, physicians'

293 accountability, coordinating patient care early on admission, establishing a discharge planning

294 unit, investing in home-based care, nursing home and rehabilitation services were effective

295 strategies to minimize inappropriate hospital stay.[5, 9, 41, 42]

296

297 Also, geriatric assessment for old patients, implementing of clinical pathways for management of

298 common diagnoses such as heart failure, medications for patients with polypharmacy, and case

299 management may reduce length of hospital stay.[34, 43]

300

301 This study has many strengths. It is one of the few studies from the Middle East Region where

302 the expanding population puts extreme pressure on health care systems. The study identified

303 several hospital-related factors causing the prolongation of inappropriate hospital stay. Also, it

304 provides stakeholders and hospital managers with insights about the waste in acute hospital beds

305 and potential services to target to reduce inappropriate hospital stays.

306

307 The limitation of the study includes the retrospective nature of the study that reports data from a

308 single centre. Also, only we reviewed admissions that exceeded the average length of hospital

309   stay, which might underestimate the wasted hospital beds. Due to the study's retrospective nature

310   and lack of billing information -free of cost health care system for citizens- we could not

311   estimate the financial implication of inappropriate hospital stay.

312

313   **Conclusion**

314   A significant proportion of hospital stays are deemed inappropriate primarily due to hospital-

315   related factors, including in-hospital delay procedures and the inability to discharge patients to

316   subacute hospital care settings. Therefore, auditing hospital services to minimize the time

317   between test request and completion of the test (performance and reporting), monitoring the

318   quality of consultation services, establishing rehabilitation services and investing in home-based

319   care are among the top strategies which are likely to improve early discharge and minimize

320   inappropriate hospital bed occupancy.

321

322   **Conflicts of Interest**

323   The authors declare no conflict of interests.

324

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326   No funding was received for this study.

327

328   **Author Contributions**

329   Ahmed Al-Yarabi was involved in study conception and design, data collection, and draft

330   manuscript preparation. Huriya Al Balushi, Khaloud Al Hatmi and Reem Al Yahyaie were

331   involved in data collection, and draft manuscript preparation. Abdullah M. Al Alawi was

332   involved in study conception and design, analysis and interpretation of results, revision, and final

333   editing of the manuscript. Khalfan Al Zeedy and Hatem Al Farhan were involved in study

334   conception and design.

335

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462

463   **Table 1:** Patients' characteristics and admission data

Characteristic	Total (n= 855)
Age (years)-Median (IQR)	64 (44-75)
Female-no (%)	401(46.9%)
Male -no (%)	454 (53.1%)
The average length of hospital stays (days)-median (IQR)	5 (3-9)
Total hospitalisation days (n)	6785.4
Admissions with appropriate date of discharge no (%)	583 (68.2%)
Admissions included inappropriate hospitalization days -no (%)	272 (31.9%)
Total number of inappropriate hospitalization days (days)	674
Mortality- no (%)	29 (3.4%)

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465   **Table 2:** The length of hospital stay according to the primary diagnosis classified according to

466   ICD-10

Classification of primary diagnosis according to ICD-10	Total (n= 855)	The average length of hospital stay; Median (IQR)
Infectious disease (A00-B99)	46 (5.4%)	6 (3-10)
Neoplasms (C00-D48)	18 (2.1%)	8 (5-14)
Haematological diseases (D50-D89)	29 (3.4%)	4 (3-7)
Endocrine, nutritional, and metabolic diseases (E00-E90)	70 (8.2%)	4.5 (3-6)
Mental and behavioural disorders (F00-F99)	25 (2.9%)	4 (2-6)
Diseases of the nervous system (G00-G99)	44 (5.2%)	5 (3.5-8)
Diseases of the ear and mastoid process (H60-95)	7 (0.8%)	3 (2-5)
Diseases of the circulatory system (I00-I99)	191 (22.4%)	6 (4-10)
Diseases of the respiratory system (J00-J99)	188 (22.0%)	6 (3-10)
Diseases of the digestive system (K00-K93)	60 (7.0%)	4 (3.5-7)
Diseases of the skin and subcutaneous tissue (L00-L99)	20 (2.3%)	7 (3.5-11)

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Diseases of the musculoskeletal system and connective tissue (M00-M99)	12 (1.4%)	6 (3-16)
Diseases of the genitourinary system (N00-N99)	55(6.4%)	6(5-8)
Symptoms, signs and abnormal clinical and laboratory findings not elsewhere classified (R00-R99)	69 (8.1%)	6(4-8)
Injury, poisoning and certain other consequences of external causes (S00-T98)	7 (0.8%)	5 (2-13)
Factors influencing health status and contact with health services (Z00-Z99)	13 (1.5%)	3 (2-5)
ICD-10: the 10th revision of the International Statistical Classification of Diseases and Related Health Problems		

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Table 3: Patients' characteristics and admission data of the most common diagnoses

Characteristic	Pneumonia	Heart Failure	Stroke & TIA	Exacerbation of chronic lung diseases*	Sepsis	Drugs & alcohol	Urinary Tract Infection	Others	P-value
Admissions (Total n=855)	120 (14.0%)	118 (13.8)	68 (8.0%)	54 (6.3%)	39 (4.6%)	36 (4.2%)	35(4.1%)	385 (45.0%)	
Age (years)	68 (43.5-75)	70 (61-77)	67 (56-76)	67.5 (53-76)	75 (64-84)	38 (29.5-47.0)	71 (48-79)	57 (35-72)	0.0043*
Female (n)	49 (40.9%)	61 (51.7%)	28 (41.2%)	31 (57.4%)	17 (43.6%)	7(19.4%)	22(62.9%)	186 (48.3%)	0.0034**
Male (n)	71(59.2%)	57 (48.3%)	40 (58.8%)	23 (42.6%)	22 (56.4%)	29 (80.6%)	13(37.1%)	199(51.7%)	0.0034**
Average Length of Hospital stay (days)	6 (3-10)	5.5 (4-9)	5.5 (4-8)	6(3-8)	6 (4-10)	4 (3.0-6.5)	6 (5-8)	5 (3-8)	0.0751*
Admissions with appropriate date of discharge (n)	77 (64.2%)	72 (61.0%)	39 (57.4%)	31(57.4%)	31 (79.5%)	28(77.8%)	20 (57.1%)	285(74.0%)	0.0023**
Admissions with inappropriate hospital stay (n)	43 (35.8%)	46 (39.0%)	29 (42.7%)	23(42.6%)	8 (20.5%)	8 (22.2%)	15(42.9%)	11(26.0%)	0.0023**
Total number unnecessary hospital stay days (n=674 days)	120 (17.8%)	103 (15.3%)	72 (10.7%)	49 (7.3%)	12 (1.8%)	21 (3.1%)	40 (5.9%)	257 (38.1%)	0.0411**

Average length of inappropriate hospitalization (days)	2 (1-3)	2 (1-3)	3 (1-3)	2 (1-3)	1(1-2)	2 (1.5-4)	2 (2-3)	2 (1-3.5)	0.0043*
Mortality (n)	2 (1.7%)	1 (0.9%)	1(1.5%)	0	5 (12.8%)	0	0	20 (5.2%)	0.0016**

TIA: transient ischemic attack. *Chronic obstructive lung disease, interstitial lung disease, bronchiectasis, bronchial asthma.
*p-value for differences between continuous variables groups using Kruskal–Wallis rank test.
** p-value for differences between categorical variables groups using chi-square test.

Table 4: Reasons for the inappropriate hospital stay[20]

Reasons for the inappropriate hospital stay	Total admissions n=272
Awaiting complementary tests	79 (29.0%)
Awaiting the results of complementary tests	51(18.8%)
Awaiting surgical procedures	3 (1.1%)
Awaiting specialist consultations	48 (17.6%)
Awaiting extra-hospital care to be arranged & unavailable extra-hospital resources, including the availability of long-term or palliative care beds or rehabilitation	59 (21.7%)
Patients awaiting transfer to intensive care or admission to another program or in-home care or awaiting transfer to other departments within the same hospital	3 (1.1%)
Inadequate family support	29 (10.7%)