

Health-seeking behaviour of foreign workers in Singapore: Insights from emergency department visits

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ABSTRACT

Introduction: Foreign workers (FWs) on work permit face unique health challenges and potential barriers to healthcare. We aimed to examine the epidemiology, attendance patterns, disposition, and adherence to follow-up, by FWs on work permit to two emergency departments (EDs) in Singapore.

Methods: In this retrospective observational study, we included consecutive FWs on work permit who registered at the EDs of two public restructured hospitals from 1 May 2016 to 31 October 2016. Data obtained from electronic medical records included patient demographics, triage acuity, disposition, ED diagnoses and bill information.

Results: There were 6,429 individual FWs on work permit who contributed to 7,157 ED visits over the 6-month study period, with male predominance (72.7%, 4672/6429), and median age of 31 (interquartile range 26 to 38) years. A high proportion of these FWs were triaged to low-acuity status compared to the general ED population (66.9% versus 45.9%, $P<0.001$). Trauma-related injuries contributed to 34.4% of their visits, and were more likely to result in admission compared to non-trauma-related conditions (18.7% vs 15.2%, $P<0.001$). FWs engaged in shipyard, construction and process industries were more likely to be discharged “against medical advice” (14.8% vs 3.2%, $P<0.001$), and default their specialist outpatient follow-up (50.1% vs 34.2%, $P<0.001$) for non-trauma-related conditions compared to trauma-related injuries.

Conclusion: In Singapore, the EDs of public restructured hospitals provide healthcare safety nets to FWs on work permit. These workers made more low-acuity visits compared to the general population during the study period and may face potential barriers to admission and follow-up.

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INTRODUCTION

Singapore employs a large foreign worker (FW) population, defined as non-Singapore citizens and non-permanent residents working locally.^{1,2} Holders of “work permit” (WP), the work pass issued to semi-skilled workers, comprise 26.0% of Singapore’s entire labour force.^{3,4} Two other work passes held by FWs, “S pass” and “employment pass”, are issued to mid-skilled workers and professionals. As of June 2020, WP holders comprise one-sixth of Singapore’s

population of 5.69 million.⁵ Just over a quarter (26.9%) are foreign domestic workers (FDWs) domiciled with their employers’ families. The remaining WP holders are non-domestic FWs employed in five blue-collar industries: construction, marine shipyard, manufacturing, process and services sectors.⁶

WP holders are low-waged earners in a foreign land with restricted access to subsidised healthcare.⁷ With starting monthly salaries as low as SGD600–800^{1,8,9} and some arriving in debt incurred from fees paid to

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CLINICAL IMPACT

What is New

- This study examines emergency department attendance patterns of work permit holders in Singapore, a unique population with limited access to subsidised healthcare.
- These workers made more low-acuity visits compared to the general population. They were more likely to discharge against medical advice for non-trauma-related conditions, compared to trauma-related injuries.

Clinical Implications

- The data suggest barriers to health access faced by foreign workers. Such information can aid policy-makers' efforts to improve the workers' access to primary care and emergency treatment.

their agents or training centres,¹⁰ the consultation fee of SGD51.50 for non-residents at government polyclinics is thus not a low-cost alternative to private practitioners (median consultation fee of SGD35)¹¹ for these FWs on WP. Current epidemiological information on how WP holders utilise the emergency departments (EDs) to access public healthcare is lacking. Previous local ED studies examined the appropriateness of FW visits to the ED¹² and compared work injuries sustained by local and foreign workers.² These did not distinguish among different work passes, and were conducted prior to the removal of medical subsidies for foreigners in 2007.

Our present study is the first to use work pass data to identify WP holders. Our aim was to understand the current attendance pattern of FWs on WP presenting to EDs of public hospitals. We sought to document the extent to which FWs who are deemed to require admission may choose to be discharged against medical advice, or fail to adhere to suggested follow-up plans. We hypothesised that a high percentage of visits to the ED by WP holders were low-acuity visits, based on previous local studies, and that there might be a significant proportion of visits for non-trauma-related conditions.

Global migration health research that focuses on health outcomes of FWs is scarce, accounting for 6% of research output,¹³ despite FWs being at risk for occupational illness and injury and often overlooked in worldwide policy.¹⁴ Our study contributes to the limited body of knowledge in this area at a time when

COVID-19 has exposed healthcare disparities in this population and led to a call for better health equity.¹⁵

METHODS

Study design

This was a multicentre retrospective observational study conducted in two tertiary medical centres, Singapore General Hospital (SGH) and National University Hospital (NUH). Ethics approval for waiver of consent was obtained for this study (SingHealth Centralised Institutional Review Board, CIRB reference no: 2017/2283).

Study setting and population

The two hospitals are both major referral centres with a total inpatient capacity of 3,000 beds and a combined ED attendance of more than 240,000 visits per year, accounting for approximately 25% of overall public hospital ED attendances in the country. The inclusion criteria were all visits by patients who held a foreign identification number starting with “F” or “G” (or initially registered in ED with unknown identities and later confirmed to be WP holders), who attended the ED between 1 May 2016 and 31 October 2016. We excluded patients on other work passes (S pass and employment pass), holders of dependent passes and tourists.

Data collection

Eligible patient visits were retrieved using the Integrated Health Information Systems (IHIS Pte Ltd) and populated on standardised data collection forms on Microsoft Excel (Microsoft Corp, Redmond, US). Chart reviews were conducted using the hospitals' electronic medical records. Data collected included patient demographics, triage details, disposition, ED discharge diagnoses and bill information. Visits were classified as “trauma-related” or “non-trauma-related” based on ED diagnoses. When this classification was ambiguous (for example, intracranial haemorrhage), case records were independently assessed by two investigators in the team and conflicts were resolved through consensus discussion. Business Office bill data were used to determine if patients had attended their scheduled follow-up appointments at the hospital specialist outpatient clinic (SOC). Patients who attended one or more SOC appointments up to 6 months after their ED visit were recorded as having adhered to the follow-up resulting from the index ED visit. Data for the “general ED population” refers to

combined, anonymised aggregated data from all patient visits to both EDs during the study period, regardless of residential or work pass status. These anonymised aggregated figures were obtained from IHiS and operational administrative data from the EDs.

Variables

We relied on Business Office records to determine if a patient was a WP holder. These records of work pass type (e.g. work permit, S pass, employment pass) were entered by administrative staff based on the physical work pass produced by the patient during registration in the ED, with erroneous or missing information rectified by the Business Office during the resulting inpatient stay, if any. We used nationality and gender as surrogates for occupational subgroups, as occupations were not captured in hospital administrative records (Table 1). The decision was made to consider Malaysians as a separate occupational subgroup due to historical, linguistic and cultural factors, which result in a closer association of Malaysians with the service and manufacturing industries compared to FW on WP of other nationalities.¹⁶

Statistical analyses

Descriptive statistics were reported using means with standard deviations and medians with interquartile

ranges, as appropriate. Comparison between groups was performed using the chi-square test, R 3.5.1 (2018).¹⁷ A *P* value of <0.05 was considered statistically significant.

RESULTS

Demographics

There were 6,429 individual FWs on WP with 7,157 visits to the ED in the 6-month study period between 1 May 2016 and 31 October 2016. The median age was 31 (interquartile range 26–38) years. Of these patients, 72.7% were male and 97.4% were from 7 source countries (Bangladesh, Malaysia, China, India, the Philippines, Indonesia and Myanmar). FWs on WP made 39 visits per day compared to 647 visits per day by the general ED population, accounting for 6.0% of all ED visits. FWs on WP were younger in comparison to the general population (10.0% versus 56.3% of visits by patients aged older than 45 years, *P*<0.001) and accounted for 12.5% of all ED visits made by patients aged 18 to 45 years. Visits by FWs on WP were less likely to arrive by ambulance (6.1% vs 13.3%, *P*<0.001), and more likely to be triaged as low-acuity Patient Acuity Category (PAC) 3 or 4 visits (66.9% vs 45.9%, *P*<0.001). This trend held true when only visits by patients aged 18 to 45 were considered (68.1% vs 65.1%, *P*<0.001).

Table 1. Foreign worker subgroups by predominant occupational characteristics

Subgroup name and predominant occupation	Source country	Gender	No. of ED visits (Subgroup total)	% of ED visits* (Subgroup total)
Male foreign workers predominantly engaged in the construction, shipyard and process industries ^b	Bangladesh	Male	1759	24.6
	India	Male	1013	14.1
	China	Male	1225	17.1
			(3997)	(55.9)
Foreign domestic workers	Philippines	Female	466	6.5
	Indonesia	Female	215	3.0
	Myanmar	Female	98	1.3
			(779)	(10.9)
Malaysians, predominantly engaged in the manufacturing and service industries	Malaysia	Male	988	13.8
		Female	514	7.2
			(1502)	(21.0)
All other work permit holders not in above subgroups (Others)	Others	Both	(868)	(12.1)

ED: emergency department

*Percentage of total foreign worker visits to ED is calculated using N=7146 as denominator. This excludes 11 visits in which a patient absconded after consultation.

^b Bangladesh and India are approved source countries for work permit holders in the construction, shipyard and process industries. Malaysia and China are approved source countries for work permit holders in all of the above as well as the manufacturing and service industries.

Source: Ministry of Manpower Singapore. Work permit for foreign worker, 2020. Available at: <https://www.mom.gov.sg/passes-and-permits/work-permit-for-foreign-worker>. Accessed on 5 November 2020.

Trauma and non-trauma related visits

Out of the visits by FWs on WP, 34.4% were for trauma-related complaints. Trauma-related injuries were more likely to present by ambulance (9.4% vs 4.4%, $P<0.001$), be high-acuity PAC 1 cases (5.3% vs 3.7%, $P=0.002$), and to result in admission to inpatient wards (18.7% vs 15.2%, $P<0.001$). Trauma-related injuries were most likely to present on Fridays, Saturdays and Mondays, while non-trauma-related conditions were highest on Mondays ($P=0.006$) (Table 2).

Visit outcomes

Although trauma-related injuries were more likely to result in admission than non-trauma-related conditions (18.7% vs 15.2%), a higher volume of inpatient

admissions was for non-trauma-related conditions (60.8%, 713/1172) (Table 2).

Discharged against medical advice from planned admission

When examining against medical advice (AMA) discharges and defaults to follow-up, we divided FWs on WP into subgroups by nationality and gender as surrogates for different occupational characteristics (Table 1). AMA discharge rates were 16.1% (54/335), 9.3% (66/711) and 6.1% (17/280) for Malaysians; FWs from Bangladesh, India and China who are predominantly employed in the construction, shipyard and process industries; and FDWs, respectively. AMA discharge rates were 18.6% (33/177), 5.7%

Table 2. Comparison of visit characteristics and outcomes by foreign workers for trauma and non-trauma-related conditions

Variables	Total (N=7146) ^a		Trauma (n=2460)		Non-trauma (n=4686)		P value
	No.	%	No.	%	No.	%	
Gender							<0.001
Male	5228	73.2	2084	84.7	3144	67.1	
Female	1918	26.8	376	15.3	1542	32.9	
Time of registration							<0.001
0000 to 0559	553	7.7	172	7.0	380	8.2	
0600 to 1159	2261	31.6	684	27.8	1575	33.6	
1200 to 1759	2572	36.0	954	38.8	1616	34.5	
1800 to 2359	1771	24.8	650	26.4	1115	23.8	
Day of registration							0.006
Monday	1142	16.0	391	15.9	751	16.0	
Tuesday	1039	14.5	366	14.9	673	14.4	
Wednesday	1032	14.4	345	14.0	687	14.7	
Thursday	963	13.5	331	13.5	632	13.5	
Friday	1036	14.5	388	15.8	648	13.8	
Saturday	1007	14.1	368	15.0	639	13.6	
Sunday	927	13.0	271	11.0	656	14.0	
Ambulance case							<0.001
Yes	439	6.1	231	9.4	208	4.4	
No	6707	93.9	2229	90.6	4478	95.6	
Triage acuity							0.002
P1	304	4.3	131	5.3	173	3.7	
P2	2058	28.8	726	29.5	1332	28.4	
P3/P4	4782	66.9	1603	65.2	3179	67.8	

Table 2. Comparison of visit characteristics and outcomes by foreign workers for trauma and non-trauma-related conditions (Cont'd)

Variables	Total (N=7146) ^a		Trauma (n=2460)		Non-trauma (n=4686)		P value
	No.	%	No.	%	No.	%	
Disposition from ED							<0.001
Discharged	5624	78.7	1927	78.3	3697	78.9	
Admitted inpatient	1172	16.4	459	18.7	713	15.2	
Admitted to short-stay unit	172	2.4	41	1.7	130	2.8	
AMA discharge	167	2.3	29	1.2	139	3.0	
Absconded	8	0.1	3	0.1	5	0.1	
Dead	3	0.0	1	0.0	2	0.0	
Follow-up for discharged patients (n=5624)							<0.001
GP/other country hospital	291	5.2	125	6.5	166	4.5	
Polyclinic	480	8.5	219	11.4	261	7.1	
Specialist follow-up	2470	43.9	810	42.0	1660	44.9	
None	2386	42.4	773	40.1	1610	43.5	
Admitting discipline for admitted patients (n=1186)							<0.001
Surgical disciplines	764	64.4	456	99.1	308	42.4	
Non-surgical disciplines	423	35.6	5	1.1	418	57.6	

AMA: against medical advice; ED: emergency department; GP: general practitioner

^a N=7146 due to missing diagnosis information for 11 visits in which patient absconded after consultation.

P1 to P4 are the 4 levels of the Patient Acuity Category scale used by EDs in Singapore. P1 – priority 1: require immediate care; P2 – priority 2: require urgent care; P3 – priority 3: minor emergencies; P4 – priority 4: non-emergency conditions.

(16/281) and 6.7% (17/253) for workers from China, Bangladesh and India, respectively.

The AMA discharge rate for all FW on WP visits was more than twice that of the general patient population (11.3% vs 4.3%, $P<0.001$). The majority of AMA discharge incidence (82.7%, 139/168) was for non-trauma-related conditions (Fig. 1A). There were 10 cases of re-attendance (6.0%) following AMA discharges in the study period.

Defaulted on specialist outpatient clinic follow-up

When a patient who was discharged from ED with a referral to SOC did not attend at least 1 appointment, the patient was considered as having defaulted SOC follow-up. FWs on WP had a higher no-show default rate than the general patient population (46.5% vs 35.8%, $P<0.001$), and non-trauma-related conditions resulted in higher default rates (53.1% vs 33.9%, $P<0.001$) (Fig 1B).

DISCUSSION

FWs on WP in Singapore and other countries face health challenges and barriers to healthcare.^{7,18,19} Dense

living conditions in dormitories render them susceptible to infectious outbreaks,²⁰ including large clusters of COVID-19 infection from April to September 2020, during which FWs from dormitories contributed to 94% of all reported cases in Singapore.^{21,22} They are at risk of workplace injuries, particularly motor vehicle accidents, falls from height, eye injuries, burns and chemical injuries.²³⁻²⁶

In our study, we found that a high proportion of ED visits made by FWs on WP was triaged to low-acuity status. Socio-economically disadvantaged populations have been found to make more low-acuity attendances locally¹² and globally.^{27,28} In populations with limited access to primary care, such “safety net” visits to the ED may not be avoidable.²⁹ Visits triaged as low-acuity may be for lacerations, fractures or ocular injuries, conditions appropriately managed in an ED setting.

Our results also showed that non-trauma-related conditions accounted for almost twice as many visits to the EDs as trauma-related injuries. More than half of the admissions (60.8%, 713/1172) were for such conditions, including cardiovascular disease, diabetes and cancer. In 2018, chronic diseases accounted for

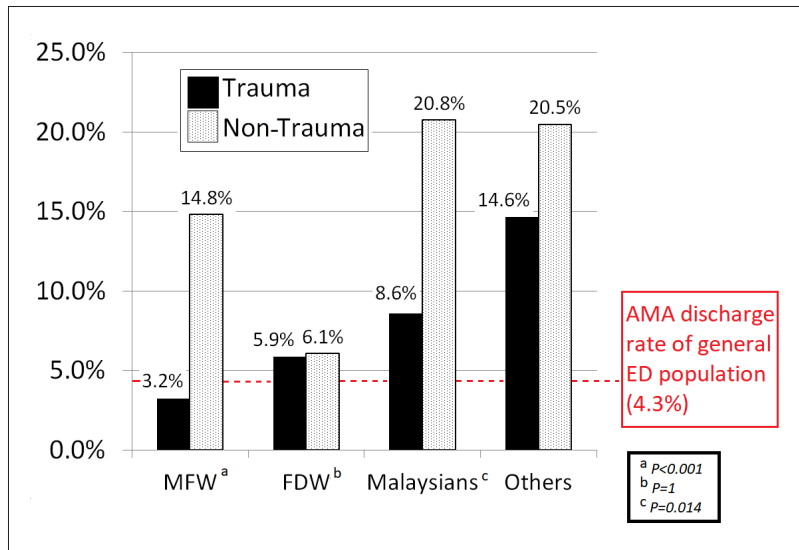


Fig. 1A. Against medical advice discharge rates from planned admission: foreign worker subgroups, trauma-related vs non-trauma-related visits.

AMA: against medical advice; ED: emergency department; MFW: male foreign workers from Bangladesh, India and China predominantly engaged in the shipyard, construction and process industries; FDW: foreign domestic workers; Malaysians: Malaysian workers; Others: all other work permit holders not in above subgroups

The AMA discharge rate was calculated as AMA discharge cases divided by planned admissions. For foreign workers, this was 11.3% (168/1489). For general ED population, this was 4.3% (2251/52492).

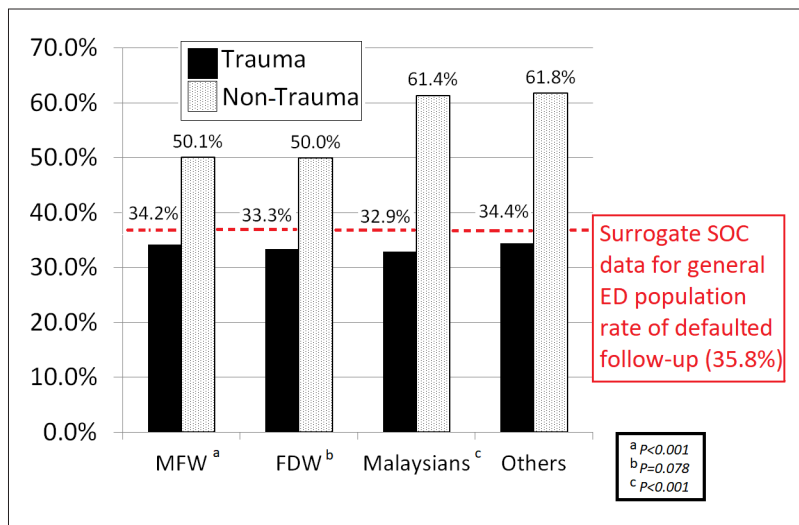


Fig. 1B. Defaulted specialist outpatient clinic (SOC) follow-up: foreign worker subgroups, trauma-related vs non-trauma-related visits.

ED: emergency department; MFW: male foreign workers from Bangladesh, India and China predominantly engaged in the shipyard, construction and process industries; FDW: foreign domestic workers; Malaysians: Malaysian workers; Others: all other work permit holders not in above subgroups

Defaulted follow-up rate for foreign workers (FWs) was calculated as FW visits resulting in specialist outpatient clinic (SOC) no-shows divided by visits discharged from ED with SOC follow-up, 46.5% (1095/2353). The denominator excludes FW visits given follow-up at institutions not covered by the study's ethics approval.

Surrogate SOC data for general ED patient population is calculated from the number of SOC no-shows divided by all scheduled SOC visits for patients referred from ED during the study period. This figure of 35.8% (4788/13374) is aggregated data available from only Singapore General Hospital.

60–80% of deaths in the FWs' source countries.²⁹ FWs in Singapore may develop chronic diseases at similar rates as their countrymen due to shared ethnicities and cultural practices, and these cannot be ignored as a cause of hospital visits among these FWs.

In our cohort, FWs on WP assessed by doctors to require admission were more likely to be discharged AMA compared to the general patient population, and non-trauma-related conditions accounted for 82.7% of such AMA discharge incidences. We postulate that AMA discharge may be chosen for reasons of cost, familiarity and family support. For instance, Malaysians can access care in their home country via a short journey of 1 to 3 hours by road, thus it is not surprising that the highest proportion of AMA discharge occurred among Malaysians. However, among FWs on WP from Bangladesh, India and China, AMA discharge rates were still 14.8% vs 3.2% respectively for non-trauma-related conditions vs trauma-related injuries, respectively ($P < 0.001$). Time delay and a lack of support while awaiting repatriation put these patients at risk of deterioration. Chinese workers were more likely to be discharged AMA compared to Bangladeshi and Indian workers, despite sharing the Mandarin language with healthcare workers, which facilitates verbal communication of risk. As they are paid more¹ and have better host country language ability, it is possible that they may perceive themselves as having a better chance at managing their own health outside hospitals, like the Malaysians.

On the other hand, non-trauma-related conditions and trauma-related injuries did not differ in AMA discharge rates among FDWs. The law does not distinguish between work-related or non-work-related conditions for FDWs, owing to their lack of separation of work and home life. In contrast, non-domestic FWs on WP are covered by higher insurance limits for work-related illness or injury, potentially leading to a perceived difference in the employer's willingness to pay depending on whether the medical condition is work-related or not. Hence, it is likely that the high AMA discharge rate among non-domestic FWs on WP for non-trauma-related conditions may be mainly due to: lack of confidence in employer's willingness to pay for treatment of non-work-related conditions; and language and cultural barriers.

Under Singapore law, the employer bears full responsibility for healthcare costs of WP holders (Table 4).^{30–32} Yet, the majority of the FWs on WP in a 2014 survey believed that they would have to co-pay or self-pay for seeing a doctor.⁹ Confusion about the

WP holders' healthcare financing extends to medical professionals.³³ Lack of clarity surrounding insurance coverage of outpatient costs^{1,33} may contribute to uncertainty as to whether employers will bear these expenses.^{7,9,35}

The Ministry of Health, Singapore recommends that employers should be engaged before treatment for stable chronic conditions.³⁴ However, FWs on WP who face limited mobility between jobs may avoid reporting illnesses out of fear of jeopardising their livelihood.^{7,10} The cost of uninsured primary care may discourage FWs on WP from undergoing screening or receiving treatment for non-communicable diseases,^{1,9} with non-profit organisations encountering workers with complications from poorly controlled diabetes and hypertension.⁷

Apart from perceptions that lead FWs on WP to self-pay or forgo treatment, they face another challenge even if they access healthcare institutions. Nearly all (92.3%) doctors surveyed cited language and cultural barriers as important factors affecting care of FWs on WP.³³ This hinders 2-way information flow between doctor and patient, leading to a risk of serious errors, misunderstanding of procedures, and inability to diagnose mental health conditions.³⁶ While doctors often accept informal interpretation by colleagues and online aids, professional interpretation is important but currently often unavailable when time-sensitive healthcare is provided to FWs.³⁷

Furthermore, FWs on WP discharged from ED were more likely than the general patient population to default appointments, thus raising the concern of inadequate follow-up and rehabilitation. Non-attendance in primary and outpatient specialist care is associated with socio-economic deprivation³⁸ and non-resident status.³⁹ Defaults were more likely for non-trauma-related conditions for all FW subgroups. We hypothesise that trauma-related injuries often present with pain, bleeding, deformity, or limited function at work, which may encourage greater compliance to follow-up.

Our findings of high incidence of low-acuity attendances, AMA discharge and defaults to clinic appointments may reflect the "3C" challenges to care of FWs in a first world setting—"communication, continuity of care and confidence".⁴⁰ Creative methods of making information about FWs' healthcare entitlements readily available in their native language can be explored, for example by expanding FWMOMCare, a health tracking app released in May 2020 during the COVID-19 outbreak. Doctors too should be equipped with knowledge to advocate effectively for patients.³³

Table 3. Summary of employers' legal obligations to work permit holders in Singapore

Main category	Employment of foreign manpower (work passes) regulations	Work Injury Compensation Act (WICA)
Legislative intent	Regulates in-principle approvals and work permits, and stipulates employer responsibilities	<ul style="list-style-type: none"> • Simplifies and expedites work injury compensation • Provides fast, low-cost alternative to court system
Who it covers	All work pass holders, including WP holders	<ul style="list-style-type: none"> • All local or foreign employees under contract of service who incur illness or injury in the course of work • Excludes FDWs, independent contractors and uniformed personnel
Employers' obligations and insurance coverage	Employer buys medical insurance of at least SGD15,000/year for all WP holders	<ul style="list-style-type: none"> • Under WICA, employer pays up to SGD45,000^a or 1 year for medical expenses incurred by work-related injuries • Lump sum compensation payouts are calculated based on death or degree of permanent incapacity
	Employer buys accident insurance of at least SGD60,000/year for FDWs (not covered by WICA)	<ul style="list-style-type: none"> • Employer is obliged to pay medical leave wages (full average monthly earnings for outpatient MC or light duties up to 14 days, or hospitalisation leave up to 60 days, and 2/3 of earnings thereafter up to 1 year), even if employment is terminated after injury
	Employer is responsible for bills in excess of insurance, including outpatient bills	<ul style="list-style-type: none"> • Employer is responsible for bills in excess of WICA sum, including outpatient bills

WICA: Work Injury Compensation Act; WP: work permit; FDW: foreign domestic worker; MC: medical certificate.

^a The WICA compensation sum per accident was increased to SGD45,000 from SGD36,000 with effect from 1 January 2020.

It might be useful for medical centres to deploy trained interpreters who could assist these FWs to navigate the healthcare system from entry to follow-up. In the interim, existing crisis hotlines by non-governmental organisations (NGOs) can be a valuable source of third-party interpretation services to distressed FWs during time-sensitive medical encounters.³³ FWs on WP who choose to be discharged AMA despite adequate counselling should be redirected to NGOs for assistance. Ultimately, the high rate of low-acuity attendances and AMA discharge incidence also highlights the need to provide a system of affordable primary healthcare for FWs on WP that is presently lacking. The need to minimise administrative hurdles and language barriers should be built into the design of such a system.

A more detailed description of non-communicable diseases in our dataset lies beyond the scope of this study. Further research using pooled data from 3 local hospitals will examine the population of FWs on WP admitted inpatient from ED to shed light on diagnoses associated with large inpatient bills and length of stay.

Limitations

We faced limitations inherent to retrospective studies. First, study recruitment was dependent on accurate coding of work pass status during registration and may be

subjected to information bias. Patients with incongruent work pass status during repeated hospital visits were excluded, which may underestimate the number of WP holders. Second, our study likely underestimates the number of trauma-related cases due to misclassification bias if clinicians entered non-specific terms (e.g. “back pain” instead of “contusion of back”). Third, the results may not be generalisable to other countries with different healthcare financing models.

Fourth, due to existing limitations in electronic healthcare records, 171 patients in one study institution who were seen in ED and discharged by a non-ED specialist (e.g. hand surgery, ophthalmology) had missing data. These patients were classified as discharged without SOC follow-up, as we could not determine their follow-up plans. We were unable to ascertain whether their ED diagnosis was related to trauma, further underestimating trauma incidence. Fifth, our study was limited to 6 months of data due to resource constraints. As Singapore is a tropical country without marked seasonal variation in severity or type of cases that present to the ED, the study duration of less than a year is unlikely to bias the results greatly.

The use of nationality and gender as a surrogate for occupational subgroups meant that some of the Chinese workers in our dataset may have held jobs in the manufacturing and service sectors, while conversely,

some Malaysians may have held jobs in the construction, shipyard and process industries. Nevertheless, this sheds light on the different propensity for AMA discharges or defaults in appointments as a result of cultural, as well as occupational, differences. Lastly, we used billing data as an imperfect surrogate for SOC attendance in the 6 months following the ED visit. SOC visits could not be tagged to a specific ED visit due to the inability to distinguish between bills that were incurred by visits to different department SOCs, and by recurring visits to a single department SOC. Patients with multiple ED visits who kept at least one SOC appointment would have the other ED visits tagged as “defaulted” to SOC; this occurred in 38 instances. SOC attendance figures for the general patient population were obtained from aggregated operations data as compared to individualised billing data for FWs, hence this comparison with regards to SOC attendances is an estimate.

CONCLUSION

In Singapore, the EDs of public restructured hospitals provide healthcare safety nets to FWs on WP. These workers made more low acuity visits compared to the general population during the study period. They may face potential barriers to planned admission and follow-up, with a higher rate of discharge against medical advice and defaults to clinic follow-up compared to the general population. This data can inform policy-makers in efforts to improve their access to primary care and emergency treatment.

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