employees and their families. Moreover, it aimed at assessing the possible effects of living in KSA on the heart health of expatriate employees and their families. A cross-sectional study was conducted on 4500 university employees and their families aged ⩾18 years old, using the World Health Organization STEPwise approach to surveillance of CVRFs. CVR was then calculated for participants using the Framingham Coronary Heart Risk Score calculator. The mean age of participants was 39.3 ± 13.4 years. The prevalence of CVRFs was as follows: low fruit/vegetable consumption of <5 portions/day (88%), physical inactivity (77%), overweight/obesity (BMI ⩾25 kg/m^2 and ⩾30 kg/m^2 respectively, 72%), obesity (36%), abdominal obesity measured by WHtR (59%), dyslipidaemia (22–37%), diabetes (22%), hypertension (22%) and current tobacco use (12%). One quarter of the participants were estimated to have >10% risk to develop CVD within the following 10-years. Furthermore, this study showed that expatriates had significant negative effects on behavioural risk factors after residing in KSA, namely: high rate of physical inactivity, high consumption of fast food, low consumption of fruit and vegetable. However, there was no effect on the pattern of tobacco use. The prevalence of CVRFs is substantially high among the study population. To combat the future expected burden of CVDs, a proposed prevention programme for employees' cardiovascular wellness is designed and recommended to be implemented and institutionalized within the university.

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75. King Abdulla Medical City – Makkah (KAMC) echocardiography service experience & challenges during hajj season (pilgrimage)

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2–4 million Muslims attend Hajj each year over last 4–5 years. Umra visitors are seen all along most the year. This creates high demand on all services provided specially the medical. The majority of Hajjes are elderly with co morbidities. They are subject to intense emotional, spiritual & physical endurance during the short period of Hajj season. For the last 4 years King Abdulla Medical City (KAMC) is the centre of care for almost all cardiac services provided in Makkah. Echocardiography is a pivotal & integral part of any cardiology service, providing important information about morphology, function & possible etiology in many cases. There is an increasing demand on echo service in KAMC especially during Hajj season. Our service model is unique to meet this increasing demand during Hajj season. To report: we report the service set up. The volume of cases done our experience & challenges met during last four years. The service is provided between first & 15th of Dhul Haja each year. The service is 24 h divided into 12 h shifts. The two shifts are adequately covered by well trained echocardiographers & experienced non-invasive consultant cardiologists. This staff is distributed within the various cardiology clinical areas, to insure rapid response. The studies are done Philips (i30, Epic7) machines. Data acquired is transmitted by special ports/WiFi to our echo lab (Xcelera system) where the data is stored & available for viewing & reporting. Reports are created by the responsible consultants using a number of dedicated stations. Viewing stations are well distributed over the whole hospital. The results of this abstract are analyzed using simple Microsoft office tools. Between years 2011 and 2015 there is exponential increase of echo studies done in KAMC, with similar increase in the number of studies done among Hajjes. There was an increase in the number of echo machines, echocardiographers & consultants (See Tables and Graphs attached). Between the years 2011–2012 and 2012–2013 there was a significant jump in the number of echo studies done in KAMC & during Hajj season. Between the years 2013–2014 and 2014–2015 the incremental rate slowed down. (See Table 2). Some of challenges noted during Hajj season: locum staff needed to cover the Hajj period High volume of echo studies needed done & reported within short time. Language barrier causing lack of important medical information & causing delay/failure to consent when special studies are needed eg TEE. The infrequent lack of clinical data in the request forms to guide the study & reporting. There is occasional complex cases. Hajj season is unique & challenging experience to most Hajjes & service providers. Our service set up is demanding but quite adequate to meet the expectations. The data gathered over last 4 years showed clear & exponential increase in the number of echo studies. Service providers need to plan & accommodate this expected increase.

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76. Profile and spectrum of congenital heart defect in pediatric patient with down syndrome

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Down syndrome is one of the most common chromosomal abnormality worldwide. It occurs in 1 of every 800 live births. Almost one-half of patients with Down Syndrome have congenital heart defect. Our objective is to describe the frequency and spectrum of congenital heart defect (CHD) among children with Down Syndrome in

Saudi Arabia and identify the rate of primary and secondary pulmonary hypertension among pediatric patients with Down syndrome. Cross-sectional, retrospective study of the cardiac anomalies among 331 pediatric patients (0–18 years) with Down Syndrome in King Khalid University Hospital (KKUH) from August 2001 till October 2014. The demographic data, reason for referral, echocardiography data including systolic function parameters, the presence of CHD, type and details of CHD, presence of pulmonary hypertension (PHTN), history of cardiac surgeries or transcatheter interventions. Among the 331 pediatric patients with Down Syndrome; 230 patients (69.5%) have Congenital Heart Defect (CHD). The patients with CHD were significantly younger (median age 3 months) with lower weight (*P*-value <0.05) and height (*P*-value <0.05) compared to patients with no CHD. The median age at first assessment was 3 months. The most common type of CHDs among DS pediatric patients was atrial septal defect secundum (ASD II) which account for 33.5% of all CHD followed by ventricular septal defect (VSD) which account for 26.5%, then atrioventricular septal defect (AVSD) 21.7% and moderate to large patent ductus arteriosus (PDA) 21.7%. There is another (11.7%) who have other CHDs. Pulmonary hypertension was present in 32% of patients with CHD vs 4% among patients with no CHD. There is significant relationship between CHD and pulmonary hypertension with odds ratio 11.3 (CI 3.99–31.83, *P*-value <0.05). 15% of patients underwent either cardiac surgery or transcatheter intervention. Almost two thirds of Down Syndrome patients have CHD with pulmonary hypertension affecting almost one third of patients with CHD. The most common CHD among Down Syndrome patients were ASD, VSD, AVSD and moderate to large PDA. Early detection is required to facilitate early management and prevent complications manage patients and preform early interventions as appropriate.

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77. Ultrasonography assessment of congenital renal anomalies in children with congenital heart diseases

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Ultrasound (US) assessment of renal anomalies in children requiring pediatric cardiac surgery is not a standard practice. This study aimed to study the role of bedside US performed by intensivists to detect occult renal anomalies associated with congenital heart disease (CHD). Prospective descriptive study for 100 consecutive children with CHD admitted to Pediatric Cardiac Intensive Care Unit (PCICU) from Januarry 1st, 2015 through June, July 2015. Ultrasound of kidneys was performed initially by trained pediatric cardiac intensivists to ascertain the presence of both kidneys in renal fossae and to check for gross kidney anomalies. After screening of 100 consecutive children with CHD with renal US, we identified in 94 cases (94%) normal right and left kidney in the standard sonographer shape in the renal fossae. In 6 cases further investigation revealed ectopic kidney in 3 patients (50%), solitary functional kidney in 2 patients (33.4%) and bilateral grade IV hydronephrosis in one patient (16.6%). Urinary tract infection developed peri-operatively in 66% of the cases with kidney anomalies. No significant renal impairment was noted in these patients post-surgery. We observed no specific association between the type of renal anomaly and specific CHD. Renal US in children with CHD demonstrated prevalence of associated congenital renal anomalies in 6% of children undergoing cardiac surgery. The presence of occult kidney anomalies did not impact the kidney function or the short term outcome after cardiac repair except for an increased risk of urosepsis. Performing renal US should be a standard practice in all children with CHD.

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WORKPLACE HEALTH

78. Environmental air pollution: A new emerging factor for coronary artery disease

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Objectives: The Arab world covers a vast geographic area, consisting of 23 countries with a combined population of about 358 million people. Geographically, this part of the globe is variable ranging from dry desert areas to heavily raining green land. It is unique for its wide cultural, social, ethnic variations and in pattern of health and disease. The rapid economical changes in Middle East attract large number of people to the metropolitan cities of Middle East especially the Gulf Cooperation Council (GCC) countries. The urban areas of Middle East are facing challenges of air pollution driven by industrialization and rapidly growing vehicle fleets. The aim of this study was to investigate the effects of air pollution on coronary artery disease.
Material and methods: In this study, we identified 72 published studies through a systematic database searches including ISI-web of science and pub-med. We searched the related literature by using the key words including environmental pollution, coronary artery disease. All studies in which environmental pollution and coronary artery disease was investigated were included in the study. No limitations on publication sta-