# Resumption of Work After Acute Coronary Syndrome or Coronary Artery Bypass Graft Surgery



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Received 5 June 2013; received in revised form 4 October 2013; accepted 22 October 2013; online published-ahead-of-print 15 November 2013

Background	Return to work is an important indicator of recovery after acute cardiac events. This study aimed to determine rates of work resumption and identify predictors of non-return to work and delayed resumption of work.
Methods	401 currently employed patients consecutively admitted after acute coronary syndrome or to undergo coronary artery bypass graft surgery were recruited. Patient characteristics, perceptions and occupational outcomes were investigated via interviews and self-report questionnaires.
Results	Twenty-three patients were lost to follow-up. Of the 378 completers, 343 (90.7%) patients resumed work, while 35 (9.3%) did not. By four months, 309 (91.1%) patients had returned to work. At 12 months, 302 (79.9%) of the 378 patients were employed, 32 (8.5%) unemployed and 20 (5.3%) retired. The employment status of 24 (6.3%) patients was unknown. Non-return to work was significantly more likely if patients were not intending to return to work or were uncertain, had a negative perception of health, had a comorbidity other than diabetes and reported financial stress. Significant predictors of delayed return to work were cardiac rehabilitation attendance, longer hospital stay, past angina, having a manual job, physically active work, job dissatisfaction, no confidante and depression.
Conclusions	Patients at risk of poor occupational outcomes can be identified early. Strategies to improve vocational rehabilitation require further investigation.
Keywords	Acute coronary syndrome • Coronary artery bypass graft surgery • Return to work • Psychosocial • Rehabilitation

Coronary heart disease (CHD) is the single largest cause of death in Australia. However, with improved management of patients, including coronary artery bypass graft surgery (CABGS), percutaneous coronary intervention (PCI) and medication, survival rates after acute events are increasing [1].

Return to work is often used as an important indicator of functional rehabilitation and quality of life [2,3]. Compared

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with others, patients who resume work have a better quality of life [4,5] and less anxiety and depression [3]. However, rates of return to work after acute cardiac events vary widely and are much influenced by the pool of patients being studied, as well as location, event type and definition of return to work used. Clinical predictors of non-return to work include reduced left ventricular ejection fraction [6] and the presence of comorbidities [6], peripheral or cerebrovascular disease [6,7] and heart failure [8]. Demographic and work-related factors commonly associated with non-return to work include older age [4,7–9], lesser education [7], female gender [4], prior unemployment [5] and having a manual job [4,5,7].

Attitudes towards work and patient perceptions have been found to be significant predictors of successful resumption of work [4,8–10], as have positive expectations of recovery [10]. Psychosocial factors, especially depression [11–13], are also important influences upon occupational outcomes.

Our study was undertaken to provide contemporary data about patterns of return to work in Australia. Our aims were, first, to investigate the rate of return to work during the first year after ACS or CABGS; second, to document employment status at one year; third, to identify predictors of non-return to work; and, finally, to identify predictors of delayed return to work.

### **Methods**

#### Design

A 12-month prospective longitudinal design was used for this observational study. Patients were assessed in hospital and followed up at four and 12 months. Approval to conduct the study was obtained from the Melbourne Health Human Research Ethics Committee. All patients provided written informed consent.

#### **Participants**

Eligible patients were those who were consecutively admitted with ACS between April 2008 and August 2010 to either the Coronary Care Unit at Western Hospital or to undergo CABGS at the Cardiothoracic Surgical Unit of the Royal Melbourne Hospital or Melbourne Private Hospital. Criteria for inclusion were being employed within two months of admission to hospital and being 75 years of age or less. Patients were excluded if they had an illness or disability precluding participation, if they declined to participate or if an appropriate bilingual interviewer was unavailable.

#### Procedure

Eligible patients were approached in hospital after diagnoses were confirmed by hospital staff. Consenting patients underwent a semi-structured interview and completed selfreport questionnaires. Clinical data were obtained from medical records. Occupational outcomes and attendance at a cardiac rehabilitation program were recorded at follow-up.

#### **Measures**

Admission socio-demographic data included gender, age, marital status, living arrangements, country of birth, main language spoken, level of education, home ownership and health insurance.

Clinical information included the index cardiac event, either an ACS due to ST elevation myocardial infarction (STEMI), non-STEMI or unstable angina, or CABGS; impaired left ventricular function (ejection fraction <45%); number of days in hospital; previous acute myocardial infarction (AMI); previous angina pectoris; Killip class [14]; and the presence of diabetes or other significant comorbidity. For patients who underwent CABGS, type of surgery (CABGS alone/concurrent valve surgery), and the number of grafts applied (1–2/3 or more) were also collected.

Baseline occupational variables included employment status, occupational class, average hours worked per week and physical activity at work. Occupations were categorised according to national guidelines [15] and then dichotomised as either "non-manual" or "manual".

Anxiety and depression were assessed using the 14-item Hospital Anxiety and Depression Scale (HADS) which has good internal consistency, reliability and validity [16] and has been used with other cardiac populations [17]. The range for each subscale of seven items is 0-21, where higher scores indicate increasing severity of anxiety and depression. Patients with a HADS-A score >8 and those with HADS-D score >8 were classified as anxious and depressed respectively [18]. Attitudes and perceptions were also investigated including intention to resume work (yes/no/uncertain) and a belief that work contributed to the illness (yes/no/possibly). Patients used five-point Likert scales to rate their job satisfaction, perceived financial stress and level of confidence in being able to resume work. Patients' perceptions of health were classified as positive ("excellent", "very good" or "good") or negative ("fair" or "poor"). Single questions were asked to determine the availability of a confidante [19] and rehabilitation attendance.

Behavioural data included self-reported smoking status which was assessed by asking: "Do you smoke cigarettes?" Current smokers included former smokers if they had ceased only within the last seven days. Alcohol consumption was categorised according to national guidelines [20] and classified as "heavy" or "light" / "none". The Stanford Brief Activity Survey was used to measure physical activity levels [21], with responses classified as "active" or "inactive".

Employment outcome was defined as resumption of work at any time during the year. Delay in return to work was measured in number of weeks since the admission event. Employment status at 12 months was classified as employed, unemployed or retired.

## **Data Analysis**

Data analysis was conducted using SPSS [22]. Differences in baseline characteristics between dropouts and completers

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