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J Epidemiol Biostat. 2001;6(3):243-65; discussion 279-85.

Projecting severe sequelae of injection-related hepatitis C virus epidemic in the UK. Part 1: Critical hepatitis C and injector data.

Bird SM, Goldberg DJ, Hutchinson SJ.

MRC Biostatistics Unit, Institute of Public Health, Cambridge, UK.

Abstract

BACKGROUND: Hepatitis C is transmitted by transfusion of unscreened blood, through injecting drugs, from mother-to-child and, on occasion, sexually. Transmission generally requires that the infector is hepatitis C virus (HCV) RNA positive, a 'carrier'. About three-quarters of injectors who are hepatitis C antibody positive are HCV-RNA positive and so infectious to others. Incubation periods from HCV infection to cirrhosis and hepatocellular carcinoma are even longer than from HIV infection to AIDS, being counted in decades; they depend on age, gender, alcohol consumption and co-infection with other viruses. We identify 25 data sources that are available, or required, for projecting the severe sequelae of the injection-related hepatitis C epidemic.

DATA SOURCES: Three data sources relate to hepatitis C diagnosis: register of confirmed HCV infections (with initial of first name + soundex of surname + date of birth + gender = master index, exposure category, year of starting to inject, and region); surveys of HCV test-uptake by injectors and others; documentation of pregnancy and its outcome in HCV-infected women (injectors and others). Four data sources relate to HCV prevalence and incidence among injectors and others: anonymous testing for HCV antibodies in blood or saliva (for sentinel groups ranging from new blood donors, pregnant women, patients awaiting kidney transplantation, non-injector prisoners, health-care workers, non-injector heterosexuals attending genitourinary medicine clinics; to injectors in the community, at drug treatment centres or in prison); historical data on HCV prevalence in injectors; HCV incidence studies in injectors; and uptake of harm reduction measures--frequency of sharing and methadone substitution--by injectors. Key reporting problems in HCV incidence studies, which inhibit checks on the convenient exponential assumption for time from start of injecting to hepatitis C infection, are discussed. Nine critical data sources are identified for monitoring the late sequelae of hepatitis C carriage, its investigation and treatment: linkage surveillance, for example by master index, to identify deaths, hospitalisations or cancer registrations among confirmed HCV infections; surveys of HCV status among patients who undergo liver biopsy, are newly diagnosed with cirrhosis or are newly diagnosed with liver cancer; surveys of liver-biopsy rate in HCV-infected injectors and others; uptake and outcome of interferon + ribavirin in the treatment of hepatitis C carriers; cohort studies of HCV progression; sample surveys of genotype in HCV-infected injectors, and others; acute hepatitis B infections and uptake of hepatitis B immunisation by injectors; liver transplantation in HCV-infected patients; and hepatitis C-status and other risk factors in deaths from cirrhosis or liver cancer, to determine whether they are HCV and injector-related. Finally, nine critical data sources are identified for

quantitative understanding of the underlying injector epidemic: drug misuse databases plus capture-recapture methods to assess number of injectors, drug-related deaths by region to assess injector numbers; number of HIV-infected injectors; HIV progression in injectors; overdose and other causes of death in injectors; expert opinion on injector incidence historically, plus survey information on age-distribution at initiation and duration of injector careers; injector incidence historically inferred from hepatitis C infected blood donors; age-distribution of current injectors and at initiation, as a check on the assumptions made in stochastic simulation about injector incidence and 'outcidence' from injecting historically; mortality of former injectors; and general population or other survey ratios of surviving ever-injectors to injectors in the last 5 years, last year and currently, as a check on simulations.

RECOMMENDATIONS: We recommend a common HCV diagnosis report form to improve ascertainment of risk-factor information, especially year of starting to inject--which is a key date epidemiologically. We also recommend updated surveys of current and former injectors' HCV-test uptake, or a denominator study that registers master index and risk factor information for all HCV testees. We recommend that injector surveys ask about typical frequency of needle sharing per 4 weeks in three distinct periods this year, last year and in the first year of injecting. We also recommend the location of stored historical samples from injectors to be tested retrospectively and anonymously for HCV antibodies. We recommend immediate attention to the uptake of, and response to, combination treatment by hepatitis C carriers who are former or recovering injectors. We rec

PMID: 11437088 [PubMed - indexed for MEDLINE]

MeSH Terms

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