Supplementary Material

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**SM 1**-PRISMA Checklist.

**PRISMA 2009 Checklist**

|  |  |  |  |
| --- | --- | --- | --- |
| **Section/topic** | **#** | **Checklist item** | **Reported on page #** |
| **TITLE** | | |  |
| Title | 1 | Identify the report as a systematic review, meta-analysis, or both. | 1 |
| **ABSTRACT** | | |  |
| Structured summary | 2 | Provide a structured summary including, as applicable: background; objectives; data sources; study eligibility criteria, participants, and interventions; study appraisal and synthesis methods; results; limitations; conclusions and implications of key findings; systematic review registration number. | 2 |
| **INTRODUCTION** | | |  |
| Rationale | 3 | Describe the rationale for the review in the context of what is already known. | 4 |
| Objectives | 4 | Provide an explicit statement of questions being addressed with reference to participants, interventions, comparisons, outcomes, and study design (PICOS). | 4 |
| **METHODS** | | |  |
| Protocol and registration | 5 | Indicate if a review protocol exists, if and where it can be accessed (e.g., Web address), and, if available, provide registration information including registration number. | 5 |
| Eligibility criteria | 6 | Specify study characteristics (e.g., PICOS, length of follow-up) and report characteristics (e.g., years considered, language, publication status) used as criteria for eligibility, giving rationale. | 6 |
| Information sources | 7 | Describe all information sources (e.g., databases with dates of coverage, contact with study authors to identify additional studies) in the search and date last searched. | 5-6 |
| Search | 8 | Present full electronic search strategy for at least one database, including any limits used, such that it could be repeated. | SM2-Pg5 |
| Study selection | 9 | State the process for selecting studies (i.e., screening, eligibility, included in systematic review, and, if applicable, included in the meta-analysis). | 5-6 |
| Data collection process | 10 | Describe method of data extraction from reports (e.g., piloted forms, independently, in duplicate) and any processes for obtaining and confirming data from investigators. | 6-7 |
| Data items | 11 | List and define all variables for which data were sought (e.g., PICOS, funding sources) and any assumptions and simplifications made. | 6-7 |
| Risk of bias in individual studies | 12 | Describe methods used for assessing risk of bias of individual studies (including specification of whether this was done at the study or outcome level), and how this information is to be used in any data synthesis. | N/A |
| Summary measures | 13 | State the principal summary measures (e.g., risk ratio, difference in means). | 6-7 |
| Synthesis of results | 14 | Describe the methods of handling data and combining results of studies, if done, including measures of consistency (e.g., I2) for each meta-analysis. | 8-9 |

|  |  |  |  |
| --- | --- | --- | --- |
| **Section/topic** | **#** | **Checklist item** | **Reported on page #** |
| Risk of bias across studies | 15 | Specify any assessment of risk of bias that may affect the cumulative evidence (e.g., publication bias, selective reporting within studies). | N/A |
| Additional analyses | 16 | Describe methods of additional analyses (e.g., sensitivity or subgroup analyses, meta-regression), if done, indicating which were pre-specified. | 9 |
| **RESULTS** | | |  |
| Study selection | 17 | Give numbers of studies screened, assessed for eligibility, and included in the review, with reasons for exclusions at each stage, ideally with a flow diagram. | 9-10 |
| Study characteristics | 18 | For each study, present characteristics for which data were extracted (e.g., study size, PICOS, follow-up period) and provide the citations. | SM-  Pg 6-32 |
| Risk of bias within studies | 19 | Present data on risk of bias of each study and, if available, any outcome level assessment (see item 12). | N/A |
| Results of individual studies | 20 | For all outcomes considered (benefits or harms), present, for each study: (a) simple summary data for each intervention group (b) effect estimates and confidence intervals, ideally with a forest plot. | 16-17,24 |
| Synthesis of results | 21 | Present results of each meta-analysis done, including confidence intervals and measures of consistency. | 16-17,24 |
| Risk of bias across studies | 22 | Present results of any assessment of risk of bias across studies (see Item 15). | N/A |
| Additional analysis | 23 | Give results of additional analyses, if done (e.g., sensitivity or subgroup analyses, meta-regression [see Item 16]). | 12 |
| **DISCUSSION** | | |  |
| Summary of evidence | 24 | Summarize the main findings including the strength of evidence for each main outcome; consider their relevance to key groups (e.g., healthcare providers, users, and policy makers). | 17-20 |
| Limitations | 25 | Discuss limitations at study and outcome level (e.g., risk of bias), and at review-level (e.g., incomplete retrieval of identified research, reporting bias). | 20-21 |

|  |  |  |  |
| --- | --- | --- | --- |
| Conclusions | 26 | Provide a general interpretation of the results in the context of other evidence, and implications for future research. | 21-22 |
| **FUNDING** | | |  |
| Funding | 27 | Describe sources of funding for the systematic review and other support (e.g., supply of data); role of funders for the systematic review. | 23 |

*From:*  Moher D, Liberati A, Tetzlaff J, Altman DG, The PRISMA Group (2009). Preferred Reporting Items for Systematic Reviews and Meta-Analyses: The PRISMA Statement. PLoS Med 6(6): e1000097. doi:10.1371/journal.pmed1000097

**SM 2**-Hepatitis C virus prevalence in the Arabian Gulf region systematic review search criteria.

**PubMed**

("Hepatitis C"[Mesh] OR "Hepatitis C Antibodies"[Mesh] OR "Hepatitis C Antigens"[Mesh] OR “Hepacivirus”[Mesh] OR “Hepatitis C, chronic/epidemiology”[Mesh] OR “Hepatitis C, chronic/etiology”[Mesh] OR “Hepatitis C, chronic/transmission”[Mesh] OR “Hepatitis C, chronic/virology”[Mesh] OR “Hepatitis C”[Text] OR “HCV”[Text]) AND (("Saudi Arabia"[Mesh] or "Kuwait"[Mesh] or "Bahrain"[Mesh] or "Oman"[Mesh] or "United Arab Emirates"[Mesh] or "Qatar"[Mesh] or “Gulf”[Text] or “Saudi\*”[Text] or “United Arab Emirates”[Text] or “U.A.E” [Text] or “UAE” [Text] or “Emirat\*” [Text] or “Oman\*” [Text] or “Kuwait\*”[Text] or “Bahrain\*”[Text] or “Qatar\*”[Text]))

**Embase**

(Qatar\*.mp. or exp Qatar/ or Kuwait\*.mp. or exp Kuwait/ or Saudi\*.mp. or exp Saudi Arabia/ or Bahrain\*.mp. or exp Bahrain/ or Oman\*.mp. or exp Oman/ or United Arab Emirates.mp. or exp United Arab Emirates/ or Emirat\*.mp. or UAE.mp. or exp dubai/ or dubai.mp.) AND (exp hepatitis C/ or exp Hepatitis C virus/ or hepatitis C.mp. or HCV.mp. or hepacivirus.mp.)

**SM 3**- Studies reporting hepatitis C virus prevalence in high risk groups in the Arabian Gulf countries.

| **Citation** | **City** | **Year** | **Study sampling method**\* | **Population characteristic** | **Sample size** | **Prevalence (%)** | **RNA prevalence among anti-HCV positive (%)** |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Bahrain** | | | | | | | |
| **Hemodialysis patients** | | | | | | | |
| Qadi, 2004 [1](#_ENREF_1) |  |  | CS | Patients from both Saudi Arabia and Bahrain | 119 | 9.24 |  |
| Almawi, 2004 [2](#_ENREF_2) |  |  | CS | Patients from both Saudi Arabia and Bahrain | 81 | 7.4 |  |
| **Multi-transfused patients** | | | | | | | |
| Al-Mahroos, 1995 [3](#_ENREF_3) |  | 1992 | CS | Children with hemolytic anemia | 191 | 40 |  |
| **Kuwait** | | | | | | | |
| ***Hemodialysis patients*** | | | | | | |  |
| Al-Nakib, 1992 [4](#_ENREF_4) |  |  | CS |  | 74 | 27 |  |
| Kapoor, 1993 [5](#_ENREF_5) |  | 1992 | CS |  | 94 | 71 |  |
| El-Reshaid, 1995 [6](#_ENREF_6) |  | 1994 | CS |  | 232 | 40 |  |
| **Thalassemia patients** | | | | | | |  |
| Al-Fuzae,1998 [7](#_ENREF_7) | Riyadh | 1965-1995 | CS |  | 129 | 33 |  |
| **Saudi Arabia** | | | | | | | |
| **Hemodialysis patients** | | | | | | |  |
| Ayoola, 1991 [8](#_ENREF_8) | Riyadh |  | CS | Overall | 74 | 41.9 |  |
| Ayoola, 1991 [8](#_ENREF_8) | Riyadh |  | CS | Sex: Males | 33 | 42.5 |  |
| Ayoola,1991[8](#_ENREF_8) | Riyadh |  | CS | Sex: Females | 41 | 41.5 |  |
| Bahakim,1991 [9](#_ENREF_9) | Riyadh | 1990 | CS |  | 65 | 26.1 |  |
| Fakunle, 1991 [10](#_ENREF_10) | Riyadh |  | CS | Overall | 190 | 53.7 |  |
| Fakunle, 1991 [10](#_ENREF_10) | Riyadh |  | CS | Nationality: Saudi | 113 | 48.7 |  |
| Fakunle, 1991 [10](#_ENREF_10) | Riyadh |  | CS | Nationality: Non-Saudi | 77 | 61.0 |  |
| Fakunle, 1991 [10](#_ENREF_10) | Riyadh |  | CS | Sex: Male | 120 | 53.3 |  |
| Fakunle, 1991 [10](#_ENREF_10) | Riyadh |  | CS | Sex: Female | 70 | 54.3 |  |
| Al Nasser, 1992 [11](#_ENREF_11) | Al Baha |  | CS | Multi-transfused chronic renal failure patients (40 males, 26 females) | 66 | 45.5 |  |
| Al Nasser, 1992 [11](#_ENREF_11) | Al Baha |  | CS | Sex: Males | 40 | 42.5 |  |
| Al Nasser, 1992 [11](#_ENREF_11) | Al Baha |  | CS | Sex: Females | 26 | 50.0 |  |
| Al-Mugeiren, 1992 [12](#_ENREF_12) | Riyadh |  | CS | Children 2-14 years old | 20 | 45.0 |  |
| Mitwalli, 1992 [13](#_ENREF_13) | Riyadh |  | CS |  | 36 | 22.2 |  |
| Hussein, 1994 [14](#_ENREF_14) | Taif | 1980-1993 | CS |  | 67 | 40.0 | 70 |
| Huraib, 1995 [15](#_ENREF_15) | All regions |  | CS |  | 1134 | 68.8 |  |
| Souqiyyeh, 1995 [16](#_ENREF_16) |  | 1993-1994 | CS |  | 1392 | 69.3 |  |
| Shaheen, 1995 [17](#_ENREF_17) | Western region |  | CS |  | 408 | 72.3 |  |
| Bernieh, 1995 [18](#_ENREF_18) | Madinah | 1991 | CS |  | 94 | 60.0 |  |
| Al-Muhann, 1995 [19](#_ENREF_19) | Eastern region |  | CS |  | 162 | 43.2 |  |
| Shohaib, 1995 [20](#_ENREF_20) | Jeddah | 1992 | CS |  | 139 | 52.5 |  |
| Ahmad, 1995 [21](#_ENREF_21) | Makkah |  | CS |  | 92 | 81.5 |  |
| Omar, 1995 [22](#_ENREF_22) | Makkah |  | CS |  | 149 | 84.6 |  |
| Soyannwo, 1996 [23](#_ENREF_23) | Gassim | 1992 | CS | Overall | 96 | 50.0 |  |
| Soyannwo, 1996 [23](#_ENREF_23) | Gassim | 1992 | CS | Sex: Males | 49 | 51.0 |  |
| Soyannwo, 1996 [23](#_ENREF_23) | Gassim | 1992 | CS | Sex: Females | 47 | 48.9 |  |
| Al-Mugeiren, 1996 [24](#_ENREF_24) | Riyadh |  | CS | Children 2-14 years old | 18 | 11.1 |  |
| Al-Mugeiren, 1996 [24](#_ENREF_24) | Riyadh |  | CS | Children 3-13 years old on continuous ambulatory peritoneal dialysis | 21 | 4.8 |  |
| Kumar, 1997 [25](#_ENREF_25) | Najran | 1993-1996 | CS |  | 47 | 51.1 |  |
| Mahaba, 1999 [26](#_ENREF_26) | Hail | 1994 | CS |  |  | 6.9 |  |
| Mitwalli, 2000 [27](#_ENREF_27) | Riyadh | 1997 | CS |  | 109 | 54.1 |  |
| Khan, 2001 [28](#_ENREF_28) | Najran | 2000 | CS | Overall | 67 | 46.3 |  |
| Khan, 2001 [28](#_ENREF_28) | Najran |  | CS | Sex: Males | 37 | 54.1 |  |
| Khan, 2001 [28](#_ENREF_28) | Najran |  | CS | Sex: Females | 30 | 36.7 |  |
| Khan, 2001 [28](#_ENREF_28) | Najran |  | CS | Nationality: Saudi | 53 | 43.4 |  |
| Khan, 2001 [28](#_ENREF_28) | Najran |  | CS | Nationality: Non-Saudi | 14 | 57.1 |  |
| Souqiyyeh, 2001 [29](#_ENREF_29) | All regions | 2000 | CS |  | 6694 | 50.5 |  |
| Al-Ghamdi, 2001 [30](#_ENREF_30) | Jeddah | 1997 | CS |  | 56 | 57.0 |  |
| Kashem, 2002 [31](#_ENREF_31) | Najran |  | CS |  | 75 | 46.0 |  |
| Saxena, 2003 [32](#_ENREF_32) | Al-Hasa | 1995-2000 | CS | Sex: Males | 99 | 49.5 |  |
| Saxena, 2003 [32](#_ENREF_32) | Al-Hasa | 1995-2000 | CS | Sex: Females | 97 | 33.0 |  |
| Shobokshi, 2003 [33](#_ENREF_33) | All regions | 1998-2002 | CS |  | 29054 | 55.7 |  |
| Kashem, 2003 [34](#_ENREF_34) | Najran | 2002 | CS |  | 90 | 46.7 |  |
| Al-Jiffri, 2003 [35](#_ENREF_35) | Jeddah | 1990 | PBS | Overall | 248 | 72.6 |  |
| Al-Jiffri ,2003 [35](#_ENREF_35) | Jeddah | 1990 | PBS | Sex: Males |  | 77.2 |  |
| Al-Jiffri, 2003 [35](#_ENREF_35) | Jeddah | 1990 | PBS | Sex: Females |  | 65.7 |  |
| Almawi, 2004 [2](#_ENREF_2) |  |  | CS |  | 34 | 14.7 |  |
| Qadi, 2004 [1](#_ENREF_1) |  |  | CS |  | 34 | 14.7 |  |
| Saxena, 2004 [36](#_ENREF_36) | Al-Hufof | 1995-2000 | CS | Overall | 198 | 43.4 |  |
| Saxena ,2004 [36](#_ENREF_36) | Al-Hufof | 1995-2000 | CS | Sex: Males | 107 | 50.5 |  |
| Saxena, 2004 [36](#_ENREF_36) | Al-Hufof | 1995-2000 | CS | Sex: Females | 90 | 35.6 |  |
| Hussein, 2007 [37](#_ENREF_37) | Taif | 2003-2005 | CS |  | 180 | 18.9 |  |
| Alsaran, 2009 [38](#_ENREF_38) | Riyadh | 2007-2008 | CS |  | 83 | 32.5 |  |
| Azhar, 2011 [39](#_ENREF_39) | Jeddah | 2001-2002 | CS |  | 39 | 43.6 | 56.4 |
| Saran, 2011 [40](#_ENREF_40) | Riyadh | 2009-1990 | CS |  | 146 | 24.7 |  |
| Tashkandy, 2012 [41](#_ENREF_41) | Makkah | 2000-2004 | CS |  | 1357 | 78.2 |  |
| **Multi-transfused patients** | | | | | | |  |
| Bahakim, 1991 [9](#_ENREF_9) | Riyadh | 1990 | CS |  | 28 | 78.6 |  |
| Al-Fawaz, 1993 [42](#_ENREF_42) | Riyadh |  | CS | Children 2-14 years old with Sickle Cell Anemia | 55 | 18.2 |  |
| Al-Fawaz, 1996 [43](#_ENREF_43) | Gizan |  | CS | Children 2-14 years old with Sickle Cell Anemia | 50 | 16.0 |  |
| Al-Hawsawi, 2000 [44](#_ENREF_44) | Madina | 1998 | CS |  | 80 | 40 |  |
| Zaher, 2012 [45](#_ENREF_45) | Jeddah | 2000-2011 | CS | Children with an average age of 12.9 years | 64 | 4.6 |  |
| **Thalassemia patients** | | | | | | |  |
| Bahakim, 1991 [9](#_ENREF_9) | Riyadh | 1990 | CS |  | 78 | 33.3 |  |
| Al-Fawaz, 1993 [42](#_ENREF_42) | Riyadh |  | CS | Children 1-14 years old | 20 | 70 |  |
| Al-Fawaz, 1996 [43](#_ENREF_43) | Riyadh |  | CS | Children 2-12 years old | 28 | 57.1 |  |
| Al Bahrani, 2002 [46](#_ENREF_46) | Al-Hufof | 1999-2000 | CS | Children 1-20 years old | 86 | 12.7 |  |
| Al Bahrani, 2002 [46](#_ENREF_46) | Al-Hufof | 1999-2000 | CS | Children 16-20 years old |  | 6.8 |  |
| Al Bahrani, 2002 [46](#_ENREF_46) | Al-Hufof | 1999-2000 | CS | Children 11-15 years old |  | 4.6 |  |
| **People who inject drugs** | | | | | | |  |
| Njoh, 1997 [47](#_ENREF_47) | Jeddah | 1995-1996 | CS | Nationality: Saudi males | 1909 | 74.6 |  |
| Njoh, 1997 [47](#_ENREF_47) | Jeddah | 1995-1996 | CS | Saudi males less than 19 years old | 29 | 40.8 |  |
| Njoh, 1997 [47](#_ENREF_47) | Jeddah | 1995-1996 | CS | Saudi males 20 - 29 years old | 601 | 52.5 |  |
| Njoh, 1997 [47](#_ENREF_47) | Jeddah | 1995-1996 | CS | Saudi males 30 - 39 years old | 699 | 71.1 |  |
| Njoh, 1997 [47](#_ENREF_47) | Jeddah | 1995-1996 | CS | Saudi males greater than 40 years old | 147 | 72.1 |  |
| Abalkhail, 2001 [48](#_ENREF_48) | Jeddah | 1996 | CS |  | 243 | 42.8 |  |
| **Injecting and non-injecting drug users** | | | | | | | |
| Iqbal, 2000 [49](#_ENREF_49) | Jeddah | 1995-1996 | CS |  | 799 | 54.69 |  |
| Shobokshi, 2003 [33](#_ENREF_33) | All | 1998-2002 | CS |  | 9137 | 14.4 |  |
| Alzahrani, 2005 [50](#_ENREF_50) |  | 2003-2004 | CS |  | 201 | 35.6 | 84 |
| **Oman** | | | | | | | |
| **Hemodialysis patients** | | | | | | |  |
| Al-Dhahry, 1992 [51](#_ENREF_51) | Muscat | 1991 | CS |  | 102 | 26.5 |  |
| **People who inject drugs** | | | | | | |  |
| WHO/EMRO, 2011 [52](#_ENREF_52) |  | 2011 | CS | People who inject drugs | 512 | 48.05 |  |
| **Qatar** | | | | | | | |
| **Hemodialysis patients** | | | | | | |  |
| Abboud, 1995 [53](#_ENREF_53) | Doha |  | CS |  | 130 | 44.62 |  |
| **United Arab Emirates** | | | | | | | |
| **Hemodialysis patients** | | | | | | |  |
| El Shahat, 1995 [54](#_ENREF_54) |  | 1991-1993 | CS |  | 262 | 24.43 |  |
| **Thalassemia patients** | | | | | | |  |
| Trad, 2003 [55](#_ENREF_55) | Abu Dhabi | 1990-2001 | CS | Children with an average age of 9 years | 16 | 18.75 |  |
| \*CS=Convenience sampling; PBS=Probability-based sampling | | | | | | | |

**SM 4**- Studies reporting hepatitis C virus prevalence in general population groups in the Arabian Gulf countries.

| **Citation** | **City** | **Year** | | **Study sampling method**\* | **Population characteristic** | **Sample size** | **Prevalence (%)** | **RNA prevalence among anti-HCV positive (%)** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Bahrain** | | | | | | | | |
| **Blood donors** | | | | | | | |  |
| Almawi, 2004 [2](#_ENREF_2) |  |  | | CS | Bahrani and Saudi blood donors | 10044 | 0.3 |  |
| Qadi, 2004 [1](#_ENREF_1) |  |  | | CS | Bahrani and Saudi blood donors | 11081 | 0.3 |  |
| **Kuwait** | | | | | | | | |
| **Blood donors** | | | | | | | |  |
| Al-Nakib, 1992 [4](#_ENREF_4) |  |  | | CS |  | 505 | 1.2 |  |
| Kapoor, 1993 [5](#_ENREF_5) |  | 1992 | | CS |  | 14548 | 2.4 |  |
| Ameen, 2005 [56](#_ENREF_56) |  | 2002 | | CS | Kuwaiti first time blood donors | 8561 | 0.78 |  |
| Ameen, 2005 [56](#_ENREF_56) |  | 2002 | | CS | Kuwaitis less than 20 years old | 726 | 0.1 |  |
| Ameen, 2005 [56](#_ENREF_56) |  | 2002 | | CS | Kuwaitis 20-24 years old | 1951 | 0.3 |  |
| Ameen, 2005 [56](#_ENREF_56) |  | 2002 | | CS | Kuwaitis 25-29years old | 2750 | 0.7 |  |
| Ameen, 2005 [56](#_ENREF_56) |  | 2002 | | CS | Kuwaitis 30-34 years old | 2480 | 0.7 |  |
| Ameen, 2005 [56](#_ENREF_56) |  | 2002 | | CS | Kuwaitis 35-39 years old | 1833 | 0.6 |  |
| Ameen, 2005 [56](#_ENREF_56) |  | 2002 | | CS | Kuwaitis 40-44 years old | 1301 | 0.3 |  |
| Ameen, 2005 [56](#_ENREF_56) |  | 2002 | | CS | Kuwaitis 45-49 years old | 804 | 0.6 |  |
| Ameen, 2005 [56](#_ENREF_56) |  | 2002 | | CS | Kuwaitis greater than 50 years old | 700 | 0.4 |  |
| Ameen, 2005 [56](#_ENREF_56) |  | 2002 | | CS | Arab non-Kuwaiti first time blood donors | 4237 | 5.43 |  |
| Ameen, 2005 [56](#_ENREF_56) |  | 2002 | | CS | Arab non-Kuwaiti less than 20 years old | 83 | 3.6 |  |
| Ameen, 2005 [56](#_ENREF_56) |  | 2002 | | CS | Arab non-Kuwaiti 20-24 years old | 1147 | 0.5 |  |
| Ameen, 2005 [56](#_ENREF_56) |  | 2002 | | CS | Arab non-Kuwaiti 25-29 years old | 2627 | 0.3 |  |
| Ameen, 2005 [56](#_ENREF_56) |  | 2002 | | CS | Arab non-Kuwaiti 30-34 years old | 3263 | 0.7 |  |
| Ameen, 2005 [56](#_ENREF_56) |  | 2002 | | CS | Arab non-Kuwaiti 35-39 years old | 3213 | 1.5 |  |
| Ameen, 2005 [56](#_ENREF_56) |  | 2002 | | CS | Arab non-Kuwaiti 40-44years old | 1633 | 3.5 |  |
| Ameen, 2005 [56](#_ENREF_56) |  | 2002 | | CS | Arab non-Kuwaiti 45-49 years old | 856 | 5.1 |  |
| Ameen, 2005 [56](#_ENREF_56) |  | 2002 | | CS | Arab non-Kuwaitis greater than 50 years old | 281 | 14 |  |
| Altawalah, 2013 [57](#_ENREF_57) |  |  | | CS | Overall | 2483 | 11 |  |
| Altawalah, 2013 [57](#_ENREF_57) |  |  | | CS | Nationality: Kuwaiti |  | 1.2 |  |
| Altawalah, 2013 [57](#_ENREF_57) |  |  | | CS | Nationality: Non-Kuwaiti |  | 13.5 |  |
| **Outpatient clinic attendees** | | | | | | | |  |
| Chehadeh, 2011 [58](#_ENREF_58) |  |  | | CS | Outpatient clinic attendees with acute symptoms | 440 | 1 | 70 |
| Chehadeh, 2011 [58](#_ENREF_58) |  |  | | CS | Nationality: Kuwaiti | 308 | 0 | 0 |
| Chehadeh, 2011 [58](#_ENREF_58) |  |  | | CS | Nationality: Egyptian | 132 | 3 | 75 |
| Chehadeh, 2011 [58](#_ENREF_58) |  |  | | CS | Sex: Males | 255 | 4 | 75 |
| Chehadeh, 2011 [58](#_ENREF_58) |  |  | | CS | Sex: Females | 185 | 0 | 0 |
| **Other general population groups** | | | | | | | |  |
| Al-Mutairi, 2013 [59](#_ENREF_59) | Farwaniya | | 2012 | CS | Controls | 1148 | 0.52 |  |
| **Saudi Arabia** | | | | | | | | |
| **Blood donors** | | | | | | | |  |
| Al-Mofarreh, 1991 [60](#_ENREF_60) | Riyadh |  | | CS | Overall | 580 | 2.24 |  |
| Al-Mofarreh, 1991 [60](#_ENREF_60) | Riyadh |  | | CS | Nationality: Saudi | 403 | 1.24 |  |
| Al-Mofarreh, 1991 [60](#_ENREF_60) | Riyadh |  | | CS | Nationality: Non-Saudi | 177 | 4.52 |  |
| Bahakim, 1991 [9](#_ENREF_9) | Riyadh | 1990 | | PBS |  | 500 | 5.6 |  |
| Bernvil, 1991 [61](#_ENREF_61) |  |  | | CS | Overall | 10646 | 1.01 |  |
| Bernvil, 1991 [61](#_ENREF_61) |  |  | | CS | Nationality: Saudi males | 4580 | 1 |  |
| Bernvil, 1991 [61](#_ENREF_61) |  |  | | CS | Nationality: Middle Eastern | 1694 | 2.3 |  |
| Bernvil, 1991 [61](#_ENREF_61) |  |  | | CS | Nationality: Non-middle eastern expatriates | 4372 | 0.53 |  |
| Al Karawi, 1992 [62](#_ENREF_62) | Riyadh | 1989-1990 | | CS |  | 4818 | 1.5 |  |
| Al Nasser, 1992 [63](#_ENREF_63) | Al-Baha | 1991 | | CS | Study population is a combination of: 381 outpatient Saudi children (1-14 years old), 253 Saudi blood donors and 192 pregnant Saudi women | 831 | 3.37 |  |
| Jamjoom, 1992 [64](#_ENREF_64) | Asir |  | | CS |  | 317 | 1.89 |  |
| Saeed, 1992 [65](#_ENREF_65) | Riyadh | 1988-1990 | | CS |  | 1472 | 1.5 |  |
| Mitwalli, 1992 [13](#_ENREF_13) | Riyadh |  | | CS |  | 730 | 0.8 |  |
| Abdelaal, 1994 [66](#_ENREF_66) | Jeddah | 1992 | | CS |  | 744 | 3.2 |  |
| Abdelaal, 1994 [66](#_ENREF_66) | Jeddah | 1992 | | CS | Age: less than 30 years old | 441 | 1.6 |  |
| Abdelaal, 1994 [66](#_ENREF_66) | Jeddah | 1992 | | CS | Age: 30-39 years old | 214 | 5.6 |  |
| Abdelaal, 1994 [66](#_ENREF_66) | Jeddah | 1992 | | CS | Age: greater than equal to 40 years old | 89 | 5.6 |  |
| Abdelaal, 1994 [66](#_ENREF_66) | Jeddah | 1992 | | CS | Nationality: Bedouin Saudi | 363 | 0.5 |  |
| Abdelaal, 1994 [66](#_ENREF_66) | Jeddah | 1992 | | CS | Nationality: Non-Bedouin Saudi | 165 | 4.2 |  |
| Abdelaal, 1994 [66](#_ENREF_66) | Jeddah | 1992 | | CS | Nationality: Non-Saudi | 216 | 6.9 |  |
| Abdelaal, 1994 [66](#_ENREF_66) | Jeddah | 1992 | | CS | Nationality: Western expatriate | 23 | 0 |  |
| Abdelaal, 1994 [66](#_ENREF_66) | Jeddah | 1992 | | CS | Nationality: Egyptian | 49 | 24.5 |  |
| Abdelaal, 1994 [66](#_ENREF_66) | Jeddah | 1992 | | CS | Nationality: Yemeni | 38 | 0 |  |
| Abdelaal, 1994 [66](#_ENREF_66) | Jeddah | 1992 | | CS | Nationality: Sudanese | 22 | 0 |  |
| Abdelaal, 1994 [66](#_ENREF_66) | Jeddah | 1992 | | CS | Nationality: Jordanian/Palestinian | 57 | 1.8 |  |
| Abdelaal, 1994 [66](#_ENREF_66) | Jeddah | 1992 | | CS | Nationality: Indian | 14 | 7.1 |  |
| Abdelaal, 1994 [66](#_ENREF_66) | Jeddah | 1992 | | CS | Nationality: Other | 13 | 7.6 |  |
| Fathalla, 1994 [67](#_ENREF_67) | Eastern region | 1991-1992 | | CS | Overall | 8934 | 1.66 |  |
| Fathalla, 1994 [67](#_ENREF_67) | Eastern region | 1991-1992 | | CS | Nationality: Saudi |  | 1.16 |  |
| Fathalla, 1994 [67](#_ENREF_67) | Eastern region | 1991-1992 | | CS | Nationality: Non-Egyptian Middle Easterner |  | 1.24 |  |
| Fathalla, 1994 [67](#_ENREF_67) | Eastern region | 1991-1992 | | CS | Nationality: Southeast Asian |  | 1.44 |  |
| Fathalla, 1994 [67](#_ENREF_67) | Eastern region | 1991-1992 | | CS | Nationality: Southern Asian |  | 1.36 |  |
| Fathalla, 1994 [67](#_ENREF_67) | Eastern region | 1991-1992 | | CS | Nationality: Egyptian |  | 18.15 |  |
| Al-Knawy, 1995 [68](#_ENREF_68) | Southern region |  | | CS | Voluntary blood donors | 3868 | 2.56 |  |
| Al-Knawy, 1995 [68](#_ENREF_68) | Southern region |  | | CS | Age: 18-24 years old | 1540 | 0.97 |  |
| Al-Knawy, 1995 [68](#_ENREF_68) | Southern region |  | | CS | Age: 25-34 years old | 1427 | 0.26 |  |
| Al-Knawy, 1995 [68](#_ENREF_68) | Southern region |  | | CS | Age: 35-44 years old | 748 | 5.21 |  |
| Al-Knawy, 1995 [68](#_ENREF_68) | Southern region |  | | CS | Age: greater than 45 years old | 153 | 5.23 |  |
| Al-Knawy, 1995 [68](#_ENREF_68) | Southern region |  | | CS | Nationality: Saudi | 3354 | 1.43 |  |
| Al-Knawy, 1995 [68](#_ENREF_68) | Southern region |  | | CS | Nationality: Egyptian | 204 | 21.08 |  |
| Al-Knawy, 1995 [68](#_ENREF_68) | Southern region |  | | CS | Nationality: Others | 310 | 2.58 |  |
| Al-Sohaibani, 1995 [69](#_ENREF_69) | Riyadh | 1992-1994 | | CS |  | 292 | 1.7 |  |
| Al-Sohaibani, 1995 [69](#_ENREF_69) | Riyadh | 1992-1994 | | CS | Sex: Males | 210 | 1.9 |  |
| Al-Sohaibani, 1995 [69](#_ENREF_69) | Riyadh | 1992-1994 | | CS | Sex: Females | 82 | 1.2 |  |
| Ahmad, 1995 [21](#_ENREF_21) | Makkah |  | | CS | Overall | 1439 | 3.6 |  |
| Ahmad, 1995 [21](#_ENREF_21) | Makkah |  | | CS | Nationality: Saudi | 918 | 1.74 |  |
| Ahmad, 1995 [21](#_ENREF_21) | Makkah |  | | CS | Nationality: Egyptian | 114 | 27.2 |  |
| Ahmad, 1995 [21](#_ENREF_21) | Makkah |  | | CS | Nationality: Pakistani | 105 | 1.9 |  |
| Ahmad, 1995 [21](#_ENREF_21) | Makkah |  | | CS | Nationality: Bangladeshi | 53 | 1.9 |  |
| Ahmad, 1995 [21](#_ENREF_21) | Makkah |  | | CS | Nationality: Yemeni | 67 | 1.5 |  |
| Ahmad, 1995 [21](#_ENREF_21) | Makkah |  | | CS | Nationality: Others | 182 | 0.5 |  |
| Ahmad, 1995 [21](#_ENREF_21) | Makkah |  | | CS | Age: less than 20 years old | 138 | 0 |  |
| Ahmad, 1995 [21](#_ENREF_21) | Makkah |  | | CS | Age: 21-30 years old | 711 | 2.2 |  |
| Ahmad, 1995 [21](#_ENREF_21) | Makkah |  | | CS | Age: 31-40 years old | 439 | 5 |  |
| Ahmad, 1995 [21](#_ENREF_21) | Makkah |  | | CS | Age: Greater than 40 years old | 151 | 9.3 |  |
| Omar, 1996 [70](#_ENREF_70) | Al-Baha | 1993-1994 | | CS | Overall | 4683 | 4.6 |  |
| Omar, 1996 [70](#_ENREF_70) | Al-Baha | 1993-1994 | | CS | Nationality: Saudi | 3190 | 1.2 |  |
| Omar, 1996 [70](#_ENREF_70) | Al-Baha | 1993-1994 | | CS | Nationality: Egyptian | 420 | 34 |  |
| Kashgari, 1997 [71](#_ENREF_71) | Yanbu | 1994 | | CS | Saudi male workers registered as blood donors | 332 | 0.6 |  |
| Abdelaal, 1998 [72](#_ENREF_72) | Jeddah | 1995 | | CS | Sex: Males | 593 | 1.69 |  |
| Altamimi, 1998 [73](#_ENREF_73) | Riyadh | 1992-1995 | | CS | Donors with normal alanine transferase levels | 7013 | 1 |  |
| Altamimi, 1998 [73](#_ENREF_73) | Riyadh | 1992 | | CS | Donors with normal alanine transferase levels | 2286 | 0.5 |  |
| Altamimi, 1998 [73](#_ENREF_73) | Riyadh | 1993 | | CS | Donors with normal alanine transferase levels | 2549 | 1 |  |
| Altamimi, 1998 [73](#_ENREF_73) | Riyadh | 1994 | | CS | Donors with normal alanine transferase levels | 2178 | 1.6 |  |
| Arif, 1998 [74](#_ENREF_74) | Riyadh | 1995-1997 | | CS |  | 8747 | 1.6 |  |
| Mahaba, 1999 [26](#_ENREF_26) | Hail | 1994 | | CS |  |  | 4.3 |  |
| Mehdi, 2000 [75](#_ENREF_75) | Buraidah | 1995-1997 | | CS | Overall | 11007 | 3.66 |  |
| Mehdi, 2000 [75](#_ENREF_75) | Buraidah | 1995-1997 | | CS | Nationality: Saudi | 8003 | 1 |  |
| Mehdi, 2000 [75](#_ENREF_75) | Buraidah | 1995-1997 | | CS | Nationality: Egyptian | 1609 | 16 |  |
| Mehdi, 2000 [75](#_ENREF_75) | Buraidah | 1995-1997 | | CS | Nationality: Sudanese | 288 | 2 |  |
| Mehdi, 2000 [75](#_ENREF_75) | Buraidah | 1995-1997 | | CS | Nationality: Syrian | 52 | 2 |  |
| Mehdi, 2000 [75](#_ENREF_75) | Buraidah | 1995-1997 | | CS | Nationality: Turkish | 28 | 0 |  |
| Mehdi, 2000 [75](#_ENREF_75) | Buraidah | 1995-1997 | | CS | Nationality: Filipino | 128 | 1.5 |  |
| Mehdi, 2000 [75](#_ENREF_75) | Buraidah | 1995-1997 | | CS | Nationality: Indian | 391 | 2 |  |
| Mehdi, 2000 [75](#_ENREF_75) | Buraidah | 1995-1997 | | CS | Nationality: Pakistani | 406 | 2 |  |
| Mehdi, 2000 [75](#_ENREF_75) | Buraidah | 1995-1997 | | CS | Nationality: Bangladeshi | 102 | 3 |  |
| Mehdi, 2000 [75](#_ENREF_75) | Buraidah | 1995-1997 | | CS | Age: less than 20 years old | 1403 | 0.5 |  |
| Mehdi, 2000 [75](#_ENREF_75) | Buraidah | 1995-1997 | | CS | Age: 21-30 years old | 5746 | 2.5 |  |
| Mehdi, 2000 [75](#_ENREF_75) | Buraidah | 1995-1997 | | CS | Age: 31-40 years old | 3115 | 6 |  |
| Mehdi, 2000 [75](#_ENREF_75) | Buraidah | 1995-1997 | | CS | Age: 41-50 years old | 724 | 8 |  |
| Mehdi, 2000 [75](#_ENREF_75) | Buraidah | 1995-1997 | | CS | Age: greater than 50 years old | 19 | 5 |  |
| Mitwalli, 2000 [27](#_ENREF_27) | Riyadh | 1997 | | PBS |  | 100 | 1.8 |  |
| Al-Bahrani, 2001 [76](#_ENREF_76) | Al-Hufof | 1992-1999 | | CS | Predominantly Saudi males | 56684 | 1.0 |  |
| Al-Bahrani, 2001 [76](#_ENREF_76) | Al-Hufof | 1992 | | CS | Predominantly Saudi males | 6065 | 0.8 |  |
| Al-Bahrani, 2001 [76](#_ENREF_76) | Al-Hufof | 1993 | | CS | Predominantly Saudi males | 6095 | 0.8 |  |
| Al-Bahrani, 2001 [76](#_ENREF_76) | Al-Hufof | 1994 | | CS | Predominantly Saudi males | 7442 | 1.0 |  |
| Al-Bahrani, 2001 [76](#_ENREF_76) | Al-Hufof | 1995 | | CS | Predominantly Saudi males | 7729 | 0.9 |  |
| Al-Bahrani, 2001 [76](#_ENREF_76) | Al-Hufof | 1996 | | CS | Predominantly Saudi males | 7623 | 0.9 |  |
| Al-Bahrani, 2001 [76](#_ENREF_76) | Al-Hufof | 1997 | | CS | Predominantly Saudi males | 7090 | 1.2 |  |
| Al-Bahrani, 2001 [76](#_ENREF_76) | Al-Hufof | 1998 | | CS | Predominantly Saudi males | 7770 | 1.3 |  |
| Al-Bahrani, 2001 [76](#_ENREF_76) | Al-Hufof | 1999 | | CS | Predominantly Saudi males | 6870 | 1.0 |  |
| Al-Bahrani, 2001 [76](#_ENREF_76) | Al-Hufof | 1999 | | CS | Nationality: Saudi | 5937 | 0.7 |  |
| Al-Bahrani, 2001 [76](#_ENREF_76) | Al-Hufof | 1999 | | CS | Nationality: Non-Saudi | 933 | 3.4 |  |
| Ankra-Badu, 2001 [77](#_ENREF_77) |  | 1994-1998 | |  | All years all nationalities | 23043 | 2 |  |
| Ankra-Badu, 2001 [77](#_ENREF_77) |  | 1994 | |  | Both Saudi and non-Saudi | 3461 | 2.2 |  |
| Ankra-Badu, 2001 [77](#_ENREF_77) |  | 1995 | |  | Both Saudi and non-Saudi | 3001 | 2.5 |  |
| Ankra-Badu, 2001 [77](#_ENREF_77) |  | 1996 | |  | Both Saudi and non-Saudi | 3724 | 2 |  |
| Ankra-Badu, 2001 [77](#_ENREF_77) |  | 1997 | |  | Both Saudi and non-Saudi | 3307 | 1.6 |  |
| Ankra-Badu, 2001 [77](#_ENREF_77) |  | 1998 | |  | Both Saudi and non-Saudi | 3379 | 1.5 |  |
| Ankra-Badu, 2001 [77](#_ENREF_77) |  | 1994-1998 | |  | Nationality: Saudi |  | 1.2 |  |
| Ankra-Badu, 2001 [77](#_ENREF_77) |  | 1994-1998 | |  | Nationality: Egyptian |  | 19.1 |  |
| Ankra-Badu, 2001 [77](#_ENREF_77) |  | 1994-1998 | |  | Nationality: Indian |  | 0.7 |  |
| Ankra-Badu, 2001 [77](#_ENREF_77) |  | 1994-1998 | |  | Nationality: Pakistani |  | 3.7 |  |
| Ankra-Badu, 2001 [77](#_ENREF_77) |  | 1994-1998 | |  | Nationality: Yemeni |  | 1.6 |  |
| Ankra-Badu, 2001[77](#_ENREF_77) |  | 1994-1998 | |  | Nationality: Filipino |  | 0.7 |  |
| Ankra-Badu, 2001 [77](#_ENREF_77) |  | 1994-1998 | |  | Nationality: Jordanian |  | 1.7 |  |
| Ankra-Badu, 2001 [77](#_ENREF_77) |  | 1994-1998 | |  | Nationality: Sudanese |  | 0.6 |  |
| Ankra-Badu, 2001 [77](#_ENREF_77) |  | 1994-1998 | |  | Nationality: Western |  | 0 |  |
| Bashawri, 2002 [78](#_ENREF_78) | Al-Khobar | 1996-2000 | | CS |  |  | 1.5 |  |
| Shobokshi, 2003 [33](#_ENREF_33) | All | 1998-2002 | | CS |  | 557813 | 1.1 |  |
| Shobokshi, 2003 [33](#_ENREF_33) | All | 1998 | | CS |  | 104003 | 1.2 |  |
| Shobokshi, 2003 [33](#_ENREF_33) | All | 1999 | | CS |  | 110608 | 0.9 |  |
| Shobokshi, 2003 [33](#_ENREF_33) | All | 2000 | | CS |  | 114122 | 1.3 |  |
| Shobokshi, 2003 [33](#_ENREF_33) | All | 2001 | | CS |  | 115090 | 1.2 |  |
| Shobokshi, 2003 [33](#_ENREF_33) | All | 2002 | | CS |  | 113993 | 0.7 |  |
| Bashawri, 2004 [79](#_ENREF_79) | Eastern region | 1998-2001 | | CS | Nationality: Saudi | 10778 | 0.98 |  |
| Bashawri, 2004 [79](#_ENREF_79) | Eastern region | 1998-2001 | | CS | Nationality: Non-Saudi | 2665 | 3.3 |  |
| Bashawri, 2004 [79](#_ENREF_79) | Eastern region | 2001 | | CS | Nationality: Saudi | 2393 | 0.59 |  |
| Bashawri, 2004 [79](#_ENREF_79) | Eastern region | 2001 | | CS | Nationality: Non-Saudi | 639 | 1.88 |  |
| Bashawri, 2004 [79](#_ENREF_79) | Eastern region | 2000 | | CS | Nationality: Saudi | 2774 | 1.05 |  |
| Bashawri, 2004 [79](#_ENREF_79) | Eastern region | 2000 | | CS | Nationality: Non-Saudi | 844 | 3.55 |  |
| Bashawri, 2004 [79](#_ENREF_79) | Eastern region | 1999 | | CS | Nationality: Saudi | 2823 | 1.2 |  |
| Bashawri, 2004 [79](#_ENREF_79) | Eastern region | 1999 | | CS | Nationality: Non-Saudi | 591 | 4.4 |  |
| Bashawri, 2004 [79](#_ENREF_79) | Eastern region | 1998 | | CS | Nationality: Saudi | 2788 | 1.04 |  |
| Bashawri, 2004 [79](#_ENREF_79) | Eastern region | 1998 | | CS | Nationality: Non-Saudi | 591 | 3.38 |  |
| Bashawri, 2004 [79](#_ENREF_79) | Eastern region | 1998-2001 | | CS | Nationality: Bangladeshi |  | 0.84 |  |
| Bashawri, 2004 [79](#_ENREF_79) | Eastern region | 1998-2001 | | CS | Nationality: Egyptian |  | 14.61 |  |
| Bashawri, 2004 [79](#_ENREF_79) | Eastern region | 1998-2001 | | CS | Nationality: Filipino |  | 1.27 |  |
| Bashawri, 2004 [79](#_ENREF_79) | Eastern region | 1998-2001 | | CS | Nationality: Indian |  | 1.23 |  |
| Bashawri, 2004 [79](#_ENREF_79) | Eastern region | 1998-2001 | | CS | Nationality: Jordanian |  | 0.44 |  |
| Bashawri, 2004 [79](#_ENREF_79) | Eastern region | 1998-2001 | | CS | Nationality: Pakistani |  | 3.85 |  |
| Bashawri, 2004 [79](#_ENREF_79) | Eastern region | 1998-2001 | | CS | Nationality: Palestinian |  | 0 |  |
| Bashawri, 2004 [79](#_ENREF_79) | Eastern region | 1998-2001 | | CS | Nationality: Sudanese |  | 1.57 |  |
| Bashawri, 2004 [79](#_ENREF_79) | Eastern region | 1998-2001 | | CS | Nationality: Syrian |  | 0 |  |
| Bashawri, 2004 [79](#_ENREF_79) | Eastern region | 1998-2001 | | CS | Nationality: Yemeni |  | 1.02 |  |
| Bashawri, 2004 [79](#_ENREF_79) | Eastern region | 1998-2001 | | CS | Nationality: Others |  | 1.63 |  |
| Bashawri, 2004 [79](#_ENREF_79) | Eastern region | 1998-2001 | | CS | Nationality: Saudi |  | 0.98 |  |
| El-Hazmi, 2004 [80](#_ENREF_80) | Riyadh | 2000-2002 | | CS | Overall | 24173 | 0.4 |  |
| El-Hazmi, 2004 [80](#_ENREF_80) | Riyadh | 2000 | | CS |  | 7744 | 0.5 |  |
| El-Hazmi, 2004 [80](#_ENREF_80) | Riyadh | 2001 | | CS |  | 7974 | 0.4 |  |
| El-Hazmi, 2004 [80](#_ENREF_80) | Riyadh | 2002 | | CS | Overall | 8455 | 0.3 |  |
| El-Hazmi, 2004 [80](#_ENREF_80) | Riyadh | 2000-2002 | | CS | Sex: Male | 23900 | 0.4 |  |
| El-Hazmi, 2004 [80](#_ENREF_80) | Riyadh | 2000-2002 | | CS | Sex: Female | 221 | 0 |  |
| El-Hazmi, 2004 [80](#_ENREF_80) | Riyadh | 2000-2002 | | CS | Age: less than 20 years old | 1463 | 0 |  |
| El-Hazmi, 2004 [80](#_ENREF_80) | Riyadh | 2000-2002 | | CS | Age: 20-29 years old | 12255 | 0.16 |  |
| El-Hazmi, 2004 [80](#_ENREF_80) | Riyadh | 2000-2002 | | CS | Age: 30-39 years old | 6945 | 0.60 |  |
| El-Hazmi, 2004 [80](#_ENREF_80) | Riyadh | 2000-2002 | | CS | Age: 40-49 years old | 2835 | 1.09 |  |
| El-Hazmi, 2004 [80](#_ENREF_80) | Riyadh | 2000-2002 | | CS | Age: greater than equal to 50 years old | 623 | 1.61 |  |
| El-Hazmi, 2004 [80](#_ENREF_80) | Riyadh | 2000-2002 | | CS | Nationality: Saudi | 20390 | 0.22 |  |
| El-Hazmi, 2004 [80](#_ENREF_80) | Riyadh | 2000-2002 | | CS | Nationality: Non-Saudi | 3731 | 1.58 |  |
| El-Hazmi, 2004 [80](#_ENREF_80) | Riyadh | 2000-2002 | | CS | Nationality: Egyptian | 482 | 8.09 |  |
| El-Hazmi, 2004 [80](#_ENREF_80) | Riyadh | 2000-2002 | | CS | Nationality: Sudanese | 594 | 0.67 |  |
| El-Hazmi, 2004 [80](#_ENREF_80) | Riyadh | 2000-2002 | | CS | Nationality: Syrians | 588 | 0.34 |  |
| El-Hazmi, 2004 [80](#_ENREF_80) | Riyadh | 2000-2002 | | CS | Nationality: Yemeni | 402 | 0.00 |  |
| El-Hazmi, 2004 [80](#_ENREF_80) | Riyadh | 2000-2002 | | CS | Nationality: Indian | 345 | 0.00 |  |
| El-Hazmi, 2004 [80](#_ENREF_80) | Riyadh | 2000-2002 | | CS | Nationality: Pakistani | 276 | 3.62 |  |
| El-Hazmi, 2004 [80](#_ENREF_80) | Riyadh | 2000-2002 | | CS | Nationality: Palestinian | 270 | 0.37 |  |
| El-Hazmi, 2004 [80](#_ENREF_80) | Riyadh | 2000-2002 | | CS | Nationality: Other | 774 | 0.39 |  |
| Tamimi, 2004 [81](#_ENREF_81) | Riyadh | 1992-1995 | | CS | Prior to new blood bank screening guidelines | 7013 | 1.02 |  |
| Tamimi, 2004 [81](#_ENREF_81) | Riyadh | 1995-2002 | | CS | Post new blood bank screening guidelines | 63368 | 0.58 |  |
| Bamaga, 2006 [82](#_ENREF_82) | Taif | 2004-2005 | | CS |  | 3288 | 1.06 | 20 |
| Mehdi, 2006 [83](#_ENREF_83) | Central region | 1996-2004 | | CS | Overall |  | 2.9 |  |
| Mehdi, 2006[83](#_ENREF_83) | Central region | 1996-2004 | | CS | Age: 21 -30 years old |  | 2.5 |  |
| Mehdi, 2006 [83](#_ENREF_83) | Central region | 1996-2004 | | CS | Age: 31- 40 years old |  | 5 |  |
| Mehdi, 2006 [83](#_ENREF_83) | Central region | 1996-2004 | | CS | Age: 41 -50 years old |  | 4.5 |  |
| Mehdi, 2006 [83](#_ENREF_83) | Central region | 1996-2004 | | CS | Age: 51 -60 years old |  | 5 |  |
| Anwar, 2009 [84](#_ENREF_84) | Jeddah |  | | CS |  | 15280 | 0.9 | 20 |
| Abdullah, 2011 [85](#_ENREF_85) | Jazan | 2004-2009 | | CS | Saudi voluntary and replacement blood donors | 29949 | 0.4 |  |
| Halawani, 2012 [86](#_ENREF_86) | Riyadh | 2007-2009 | | CS |  | 70 | 0.00 |  |
| Halawani, 2012 [87](#_ENREF_87) | Riyadh | 2007-2009 | | CS |  | 50 | 2.00 |  |
| **Pregnant women** | | | | | | | |  |
| Bahakim, 1991 [9](#_ENREF_9) | Riyadh | 1990 | | CS |  | 260 | 4.6 |  |
| Fakunle, 1991 [88](#_ENREF_88) | Riyadh |  | | CS | Nationality: Saudi | 511 | 1.17 |  |
| Al Karawi, 1992 [62](#_ENREF_62) | Riyadh | 1989-1990 | | CS |  | 385 | 1 |  |
| Shobokshi, 2003 [33](#_ENREF_33) | All regions | 1998-2002 | | CS |  | 3854 | 0.1 |  |
| **College students** | | | | | | | |  |
| Al-Ajlan, 2011 [89](#_ENREF_89) | All regions | 2000-2007 | | CS | Males, 18-21 years old | 6268 | 0.03 |  |
| Al-Ajlan, 2011 [89](#_ENREF_89) | All regions | 2000-2007 | | CS | Females, 18-21 years old | 4486 | 0.07 |  |
| Al-Ajlan, 2011 [89](#_ENREF_89) | All regions | 2000-2007 | | CS | Males, 22-30 years old | 3584 | 0.31 |  |
| Al-Ajlan, 2011 [89](#_ENREF_89) | All regions | 2000-2007 | | CS | Females, 22-30 years old | 2232 | 0.40 |  |
| Al-Ajlan, 2011 [89](#_ENREF_89) | All regions | 2000-2007 | | CS | Males, from urban areas | 13 | 38.5 |  |
| Al-Ajlan, 2011 [89](#_ENREF_89) | All regions | 2000-2007 | | CS | Females, from urban areas | 12 | 33.3 |  |
| Al-Ajlan, 2011 [89](#_ENREF_89) | All regions | 2000-2007 | | CS | Males, from rural areas | 13 | 53.8 |  |
| Al-Ajlan, 2011 [89](#_ENREF_89) | All regions | 2000-2007 | | CS | Females, from rural areas | 12 | 58.3 |  |
| Alqahtani, 2014 [90](#_ENREF_90) | Najran |  | | CS |  | 300 | 0 |  |
| **Pre-marital screening** | | | | | | | |  |
| Alswaidi, 2010 [91](#_ENREF_91) | All regions | 2008 | | CS |  | 74662 | 0.33 |  |
| Aljarbou, 2012 [92](#_ENREF_92) | Qassim | 2008-2010 | | CS | Overall for all years | 8082 | 0.4 |  |
| Aljarbou, 2012 [92](#_ENREF_92) | Qassim | 2008-2010 | | CS | Sex: Males | 4041 | 0.7 |  |
| Aljarbou, 2012 [92](#_ENREF_92) | Qassim | 2008-2010 | | CS | Sex: Females | 4041 | 0.2 |  |
| Aljarbou, 2012 [92](#_ENREF_92) | Qassim | 2008 | | CS | Overall 2008 | 2918 | 0.1 |  |
| Aljarbou, 2012 [92](#_ENREF_92) | Qassim | 2008 | | CS | Sex: Males | 1459 | 0.2 |  |
| Aljarbou, 2012 [92](#_ENREF_92) | Qassim | 2008 | | CS | Sex: Females | 1459 | 0.1 |  |
| Aljarbou, 2012 [92](#_ENREF_92) | Qassim | 2009 | | CS | Overall 2009 | 2528 | 0.3 |  |
| Aljarbou, 2012 [92](#_ENREF_92) | Qassim | 2009 | | CS | Sex: Males | 1264 | 0.4 |  |
| Aljarbou, 2012 [92](#_ENREF_92) | Qassim | 2009 | | CS | Sex: Females | 1264 | 0.2 |  |
| Aljarbou, 2012 [92](#_ENREF_92) | Qassim | 2010 | | CS | Overall 2010 | 2636 | 0.8 |  |
| Aljarbou, 2012 [92](#_ENREF_92) | Qassim | 2010 | | CS | Sex: Males | 1318 | 1.4 |  |
| Eifan, 2014 [93](#_ENREF_93) | Qassim | 2010 | | CS | Sex: Females | 1318 | 0.2 |  |
| Eifan, 2014 [93](#_ENREF_93) |  | 2008 | | CS |  |  | 0.33 |  |
| Eifan, 2014 [93](#_ENREF_93) |  | 2009 | | CS |  |  | 0.57 |  |
| Eifan, 2014 [93](#_ENREF_93) |  | 2010 | | CS |  |  | 0.52 |  |
| Eifan, 2014 [93](#_ENREF_93) |  | 2011 | | CS |  |  | 0.39 |  |
| **Children** | | | | | | | |  |
| Al-Faleh, 1991 [94](#_ENREF_94) | All regions | 1989-1990 | | PBS | Saudi children 1-10 years old | 4496 | 0.9 |  |
| Al-Faleh, 1991 [94](#_ENREF_94) | All regions | 1989-1990 | | PBS | Age: 1-3 years old | 1259 | 1.3 |  |
| Al-Faleh, 1991 [94](#_ENREF_94) | All regions | 1989-1990 | | PBS | Age: 4-6 years old | 1655 | 0.8 |  |
| Al-Faleh, 1991 [94](#_ENREF_94) | All regions | 1989-1990 | | PBS | Age: 7-10 years old | 1582 | 0.6 |  |
| Al-Faleh, 1991 [94](#_ENREF_94) | All regions | 1989-1990 | | PBS | Sex: Males 1-10 years old | 2412 | 0.9 |  |
| Al-Faleh, 1991 [94](#_ENREF_94) | All regions | 1989-1990 | | PBS | Sex: Females 1-10 years old | 2084 | 0.8 |  |
| Al-Faleh, 1991 [94](#_ENREF_94) | Riyadh | 1989-1990 | | PBS | Saudi children 1-10 years old | 804 | 0.9 |  |
| Al-Faleh, 1991 [94](#_ENREF_94) | Qassim | 1989-1990 | | PBS | Saudi children 1-10 years old | 201 | 0.0 |  |
| Al-Faleh, 1991 [94](#_ENREF_94) | Hall | 1989-1990 | | PBS | Saudi children 1-10 years old | 209 | 0.0 |  |
| Al-Faleh, 1991 [94](#_ENREF_94) | Hafr Al-Batin | 1989-1990 | | PBS | Saudi children 1-10 years old | 490 | 0.0 |  |
| Al-Faleh, 1991 [94](#_ENREF_94) | Qarayat | 1989-1990 | | PBS | Saudi children 1-10 years old | 177 | 1.1 |  |
| Al-Faleh, 1991 [94](#_ENREF_94) | Tabouk | 1989-1990 | | PBS | Saudi children 1-10 years old | 150 | 0.0 |  |
| Al-Faleh, 1991 [94](#_ENREF_94) | Madina | 1989-1990 | | PBS | Saudi children 1-10 years old | 350 | 0.3 |  |
| Al-Faleh, 1991 [94](#_ENREF_94) | Makkah | 1989-1990 | | PBS | Saudi children 1-10 years old | 240 | 0.0 |  |
| Al-Faleh, 1991 [94](#_ENREF_94) | Jeddah | 1989-1990 | | PBS | Saudi children 1-10 years old | 456 | 0.9 |  |
| Al-Faleh, 1991 [94](#_ENREF_94) | Taif | 1989-1990 | | PBS | Saudi children 1-10 years old | 400 | 1.5 |  |
| Al-Faleh, 1991 [94](#_ENREF_94) | Aseer | 1989-1990 | | PBS | Saudi children 1-10 years old | 476 | 0.4 |  |
| Al-Faleh, 1991 [94](#_ENREF_94) | Al Baha | 1989-1990 | | PBS | Saudi children 1-10 years old | 145 | 0.7 |  |
| Al-Faleh, 1991 [94](#_ENREF_94) | Gizan | 1989-1990 | | PBS | Saudi children 1-10 years old | 283 | 5.7 |  |
| Al-Faleh, 1991 [94](#_ENREF_94) | Najran | 1989-1990 | | PBS | Saudi children 1-10 years old | 115 | 0.0 |  |
| Al-Mugeiren, 1992 [12](#_ENREF_12) | Riyadh |  | | PBS | Children 1-12 years old | 280 | 1 |  |
| Al-Fawaz, 1993 [42](#_ENREF_42) | Riyadh |  | | PBS | Children 1-12 years old | 120 | 0.8 |  |
| Bakir, 1995 [95](#_ENREF_95) | Riyadh |  | |  | Saudi children 1-12 years old | 168 | 1.2 |  |
| Al-Fawaz, 1996 [43](#_ENREF_43) | Gizan |  | | PBS | Children 1-12 years old | 50 | 1.8 |  |
| Al-Fawaz, 1996 [43](#_ENREF_43) | Riyadh |  | | PBS | Children 1-14 years old | 143 | 1.4 |  |
| Shobokshi, 2003 [33](#_ENREF_33) | All regions | 1998-2002 | |  |  | 3127 | 0.7 |  |
| **Population-based survey** | | | | | | | |  |
| Al-Faleh, 1995 [96](#_ENREF_96) | Gizan |  | | PBS | Gizan residents, 10-60 years old | 1482 | 1.8 |  |
| Al-Faleh, 1995 [96](#_ENREF_96) | Gizan |  | | PBS | Age: 10-19 years old | 504 | 1.2 |  |
| Al-Faleh, 1995 [96](#_ENREF_96) | Gizan |  | | PBS | Age: 20-29 years old | 361 | 1.1 |  |
| Al-Faleh, 1995 [96](#_ENREF_96) | Gizan |  | | PBS | Age: 30-39 years old | 290 | 2.1 |  |
| Al-Faleh, 1995 [96](#_ENREF_96) | Gizan |  | | PBS | Age: 40-49 years old | 183 | 3.3 |  |
| Al-Faleh, 1995 [96](#_ENREF_96) | Gizan |  | | PBS | Age: greater than 49 years old | 144 | 3.5 |  |
| Al-Faleh, 1995 [96](#_ENREF_96) | Gizan |  | | PBS | Sex: Male | 705 | 2.3 |  |
| Al-Faleh, 1995 [96](#_ENREF_96) | Gizan |  | | PBS | Sex: Female | 777 | 1.4 |  |
| **Outpatient clinic attendees** | | | | | | | |  |
| Abdel-Moneim, 2012 [97](#_ENREF_97) | Taif | 2008-2011 | | CS | Military outpatients and their families, Saudi nationals | 15323 | 7.3 |  |
| Abdel-Moneim, 2012 [97](#_ENREF_97) | Taif | 2008 | | CS | Military outpatients and their families, Overall | 5096 | 8.5 |  |
| Abdel-Moneim, 2012 [97](#_ENREF_97) | Taif | 2008 | | CS | Military outpatients and their families, Sex: Males | 2636 | 8.6 |  |
| Abdel-Moneim, 2012 [97](#_ENREF_97) | Taif | 2008 | | CS | Military outpatients and their families, Sex: Females | 2460 | 8.5 |  |
| Abdel-Moneim, 2012 [97](#_ENREF_97) | Taif | 2009 | | CS | Military outpatients and their families, Overall | 5324 | 6.1 |  |
| Abdel-Moneim, 2012 [97](#_ENREF_97) | Taif | 2009 | | CS | Military outpatients and their families, Sex: Males | 2760 | 6.9 |  |
| Abdel-Moneim, 2012 [97](#_ENREF_97) | Taif | 2009 | | CS | Military outpatients and their families, Sex: Females | 2564 | 5.3 |  |
| Abdel-Moneim, 2012 [97](#_ENREF_97) | Taif | 2010 | | CS | Military outpatients and their families, Overall | 3451 | 7.7 |  |
| Abdel-Moneim, 2012 [97](#_ENREF_97) | Taif | 2010 | | CS | Military outpatients and their families, Sex: Males | 1749 | 9 |  |
| Abdel-Moneim, 2012 | Taif | 2010 | | CS | Military outpatients and their families, Sex: Females | 1702 | 6.4 |  |
| Abdel-Moneim, 2012 [97](#_ENREF_97) | Taif | 2011 | | CS | Military outpatients and their families, Overall | 1472 | 6.7 |  |
| Abdel-Moneim, 2012 [97](#_ENREF_97) | Taif | 2011 | | CS | Military outpatients and their families, Sex: Males | 789 | 7.1 |  |
| Abdel-Moneim, 2012 [97](#_ENREF_97) | Taif | 2011 | | CS | Military outpatients and their families, Sex: Females | 683 | 6.2 |  |
| **Expatriate workers mandatory pre-employment screening** | | | | | | | |  |
| Alzahrani, 2009 [98](#_ENREF_98) |  |  | |  |  | 875 | 0.46 | 100 |
| **Other general population groups** | | | | | | | |  |
| AlNasser, 1992 [63](#_ENREF_63) | Al Baha | 1991 | | CS | Sex: Male | 441 | 3.6 |  |
| AlNasser, 1992 [63](#_ENREF_63) | Al Baha | 1991 | | CS | Sex: Female | 390 | 3.1 |  |
| AlNasser, 1992 [63](#_ENREF_63) | Al Baha | 1991 | | CS | Age: 1-2 years old | 78 | 1.28 |  |
| AlNasser, 1992 [63](#_ENREF_63) | Al Baha | 1991 | | CS | Age: 3-5 years old | 85 | 1.18 |  |
| AlNasser, 1992 [63](#_ENREF_63) | Al Baha | 1991 | | CS | Age: 6-9 years old | 102 | 1.96 |  |
| AlNasser, 1992 [63](#_ENREF_63) | Al Baha | 1991 | | CS | Age: 10-14 years old | 116 | 1.72 |  |
| AlNasser, 1992 [63](#_ENREF_63) | Al Baha | 1991 | | CS | Age: 15-19 years old | 100 | 4.00 |  |
| AlNasser, 1992 [63](#_ENREF_63) | Al Baha | 1991 | | CS | Age: 20-29 years old | 145 | 4.83 |  |
| AlNasser, 1992 [63](#_ENREF_63) | Al Baha | 1991 | | CS | Age: 30-39 years old | 150 | 5.33 |  |
| AlNasser, 1992 [63](#_ENREF_63) | Al Baha | 1991 | | CS | Age: ≥ 40 years old | 55 | 5.45 |  |
| Ayoola, 1992 [99](#_ENREF_99) | Riyadh |  | | CS |  | 488 | 3.9 |  |
| El-Rifaei, 1998 [100](#_ENREF_100) | Eastern | 1995-1997 | | CS | Healthy volunteers | 32 | 3.12 |  |
| Mahaba, 1999 [26](#_ENREF_26) | Hail | 1994 | | CS | All nationalities |  | 5.09 |  |
| Mahaba, 1999 [26](#_ENREF_26) | Hail | 1994 | | CS | Nationality: Egyptian |  | 26 |  |
| Harakati, 2000 [101](#_ENREF_101) | Riyadh |  | | CS | Study population are a combination of blood donors and medical patients | 104 | 3.00 |  |
| Ayoola, 2004 [102](#_ENREF_102) | Gizan | 1995-1998 | | PBS | Apparently healthy individuals | 118 | 3.4 |  |
| Khalaf, 2004 [103](#_ENREF_103) | Riyadh | 2002-2003 | | CS | Living donors for liver transplant | 39 | 5.10 |  |
| Tonsi, 2005 [104](#_ENREF_104) | Makkah | 1999-2001 | | CS | Relatives of Lichen Planus patients | 65 | 4.6 |  |
| **Couples undergoing fertility treatment** | | | | | | | |  |
| Mansoor, 2011 [105](#_ENREF_105) | Riyadh | 2006-2008 | | CS | Overall | 1000 | 0.5 |  |
| Mansoor, 2011 [105](#_ENREF_105) | Riyadh | 2006-2008 | | CS | Sex: Males | 500 | 1.1 |  |
| Mansoor, 2011 [105](#_ENREF_105) | Riyadh | 2006-2008 | | CS | Sex: Females | 0 | 0 |  |
| **Oman** | | | | | | | | |
| **Blood donors** | | | | | | | |  |
| Al-Dhahry, 1993 [106](#_ENREF_106) | Muscat |  | | CS |  | 564 | 0.9 |  |
| Schuster, 2009 [107](#_ENREF_107) |  | 2006-2008 | | CS |  | 6726 | 0.45 |  |
| Ashraf, 2010 [108](#_ENREF_108) |  | 2008 | | CS |  | 3578 | 0.66 |  |
| WHO/EMRO, 2011 [109](#_ENREF_109) |  | 2011 | | CS |  | 47,413 | 0.50 |  |
| Pathare, 2012 [110](#_ENREF_110) | Muscat | 2011 | | CS |  | 6146 | 0.39 |  |
| **Outpatient clinic attendees** | | | | | | | |  |
| Al-Dhahry, 1992 [51](#_ENREF_51) | Muscat | 1991 | | CS | Outpatients at nephrology clinic | 103 | 1.0 |  |
| **Qatar** | | | | | | | | |
| **Blood donors** | | | | | | | |  |
| Lema, 1992 [111](#_ENREF_111) | Doha | 1990-1991 | | CS | Overall | 3352 | 2.8 |  |
| Lema, 1992 [111](#_ENREF_111) | Doha | 1990-1991 | | CS | Nationality: Qatari | 1142 | 0.4 |  |
| Fawzi, 2007 [112](#_ENREF_112) | Doha | 1994-2001 | | CS | Overall | 78428 | 1.39 |  |
| Fawzi, 2007 [112](#_ENREF_112) | Doha | 1994-2001 | | CS | Nationality: Qatari | 28622 | 0.53 |  |
| Fawzi, 2007 [112](#_ENREF_112) | Doha | 1994-2001 | | CS | Nationality: Non-Qatari | 49868 | 1.90 |  |
| Fawzi, 2007 [112](#_ENREF_112) | Doha | 1994-2001 | | CS | Nationality: Egyptian | 6235 | 11.22 |  |
| Fawzi, 2007 [112](#_ENREF_112) | Doha | 1994-2001 | | CS | Nationality: Pakistani | 6227 | 1.65 |  |
| Fawzi, 2007 [112](#_ENREF_112) | Doha | 1994-2001 | | CS | Nationality: Sudanese | 3307 | 0.60 |  |
| Fawzi, 2007 [112](#_ENREF_112) | Doha | 1994-2001 | | CS | Nationality: Palestinian | 5141 | 0.29 |  |
| Fawzi, 2007 [112](#_ENREF_112) | Doha | 1994-2001 | | CS | Nationality: Bangladeshi | 1831 | 0.27 |  |
| Fawzi, 2007 [112](#_ENREF_112) | Doha | 1994-2001 | | CS | Nationality: Indian | 9083 | 0.32 |  |
| Fawzi, 2007 [112](#_ENREF_112) | Doha | 1994-2001 | | CS | Nationality: Iranian | 2246 | 0.44 |  |
| Fawzi, 2007 [112](#_ENREF_112) | Doha | 1994-2001 | | CS | Nationality: Jordanian | 4532 | 0.29 |  |
| Fawzi, 2007 [112](#_ENREF_112) | Doha | 1994-2001 | | CS | Nationality: Yemeni | 2283 | 0.39 |  |
| Fawzi, 2007 [112](#_ENREF_112) | Doha | 1994-2001 | | CS | Nationality: Others | 8919 | 0.46 |  |
| **Population-based survey** | | | | | | | |  |
| Sharma, 2010 [113](#_ENREF_113) | Doha |  | |  |  | 7212 | 0.89 |  |
| Sharma, 2014 [114](#_ENREF_114) | Doha |  | |  | Includes both high-risk and general population | 13704 | 2 |  |
| **United Arab Emirates** | | | | | | | | |
| **Blood donors** | | | | | | | |  |
| Raouf, 2010 [115](#_ENREF_115) |  | 2005-2009 | | CS |  | 98594 | 0.5 |  |
| Al Shaer, 2012 [116](#_ENREF_116) |  | 2004-2009 | | CS | All donations | 169781 | 1.10 |  |
| Al Shaer, 2012 [116](#_ENREF_116) |  | 2004-2009 | | CS | Donations from new or returned donors | 57773 | 0.32 |  |
| Al Shaer, 2012 [116](#_ENREF_116) |  | 2004-2009 | | CS | Donations from regular donors | 112008 | 0.001 |  |
| **Pregnant women** | | | | | | | |  |
| Kumar, 1997 [117](#_ENREF_117) | Abu Dhabi | 1994-1996 | | CS | Egyptian pregnant women residing in the United Arab Emirates | 499 | 13 |  |
| Kumar, 1998 [118](#_ENREF_118) | Abu Dhabi | 1994-1996 | | CS | Egyptian pregnant women residing in the United Arab Emirates | 699 | 13.45 |  |
| **College students** | | | | | | | |  |
| Fakhry, 2011 [119](#_ENREF_119) | Abu Dhabi | 2008-2010 | | CS | Nationality: Emirati, Sex: Males | 1264 | 0.40 |  |
| Sheek-Hussein, 2012 [120](#_ENREF_120) | Abu Dhabi | 2011-2012 | | CS | Nationality: Emirati | 168 | 0 |  |
| **Pre-marital screening** | | | | | | | |  |
| WHO/EMRO, 2011 [121](#_ENREF_121) |  | 2011 | | CS |  | 18,379 | 0.51 |  |
| **Expatriate workers mandatory pre-employment screening** | | | | | | | |  |
| Newson-Smith, 2010 [122](#_ENREF_122) |  | 2005 | | CS | Offshore gas and oil workers | 1037 | 0.8 |  |
| Newson-Smith, 2010 [122](#_ENREF_122) |  | 2005 | | CS | Nationality: Egyptian, offshore workers | 157 | 4.5 |  |
| **Other general population groups** | | | | | | | |  |
| Kumar, 1998 [118](#_ENREF_118) | Abu Dhabi | 1994-1996 | | CS | Household contacts HCV negative Egyptian women | 218 | 3.67 |  |
| Al-Moslih, 2010 [123](#_ENREF_123) |  |  | | CS | Healthy populations | 139 | 3.6 |  |
| \*CS=Convenience sampling; PBS=Probability-based sampling | | | | | | | | |

**SM 5**- Studies reporting hepatitis C virus prevalence in intermediate risk groups in the Arabian Gulf countries.

| **Citation** | **City** | **Year** | **Study sampling method**\* | **Population characteristic** | **Sample size** | **Prevalence (%)** | **RNA prevalence among anti-HCV positive (%)** |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Kuwait** | | | | | | | |
| **Diabetic patients** | | | | | | |  |
| Chehadeh, 2011 [58](#_ENREF_58) |  |  | CS | Overall: Type 2 Diabetic patients | 438 | 7 | 77.4 |
| Chehadeh, 2011 [58](#_ENREF_58) |  |  | CS | Nationality: Kuwaiti | 325 | 3 | 72.7 |
| Chehadeh, 2011 [58](#_ENREF_58) |  |  | CS | Nationality: Egyptian | 113 | 18 | 80 |
| Chehadeh, 2011 [58](#_ENREF_58) |  |  | CS | Sex: Males | 278 | 7.5 | 76.2 |
| Chehadeh, 2011 [58](#_ENREF_58) |  |  | CS | Sex: Females | 160 | 6 | 80 |
| **Healthcare workers** | | | | | | | |
| Al-Nakib, 1992 [4](#_ENREF_4) |  |  | CS |  | 117 | 0.9 |  |
| **Sexually transmitted disease patients** | | | | | | |  |
| Al-Mutairi, 2013 [59](#_ENREF_59) | Farwaniya | 2012 | CS |  | 1988 | 0.92 |  |
| **Saudi Arabia** | | | | | | | |
| **Household contacts of index patients** | | | | | | |  |
| Arif, 1996 [124](#_ENREF_124) |  |  | CS | contacts of index patients with chronic liver disease | 127 | 1.57 |  |
| Arif, 1996 [124](#_ENREF_124) |  |  | CS | contacts of index patients without chronic liver disease | 91 | 0 |  |
| **Hospital attendees** | | | | | | |  |
| Fakeeh, 1999 [125](#_ENREF_125) | Jeddah | 1998 | PBS | Overall | 3350 | 6.75 |  |
| Fakeeh, 1999 [125](#_ENREF_125) | Jeddah | 1998 | PBS | Nationality: Saudi | 2333 | 5.87 |  |
| Fakeeh, 1999 [125](#_ENREF_125) | Jeddah | 1998 | PBS | Nationality: Egyptian | 284 | 22.54 |  |
| Fakeeh, 1999 [125](#_ENREF_125) | Jeddah | 1998 | PBS | Nationality:Yemeni | 236 | 2.12 |  |
| Fakeeh, 1999 [125](#_ENREF_125) | Jeddah | 1998 | PBS | Nationality: Asian | 201 | 4.98 |  |
| Fakeeh, 1999 [125](#_ENREF_125) | Jeddah | 1998 | PBS | Nationality: Other Middle East | 296 | 3.38 |  |
| Fakeeh, 1999 [125](#_ENREF_125) | Jeddah | 1998 | PBS | Age: less than15 years old | 267 | 4.49 |  |
| Fakeeh, 1999 [125](#_ENREF_125) | Jeddah | 1998 | PBS | Age: 15 -24 years old | 537 | 2.05 |  |
| Fakeeh, 1999 [125](#_ENREF_125) | Jeddah | 1998 | PBS | Age: 25-34 years old | 1256 | 5.10 |  |
| Fakeeh, 1999 [125](#_ENREF_125) | Jeddah | 1998 | PBS | Age: 35-44 years old | 706 | 8.64 |  |
| Fakeeh, 1999 [125](#_ENREF_125) | Jeddah | 1998 | PBS | Age: 45-54 years old | 273 | 15 |  |
| Fakeeh, 1999 [125](#_ENREF_125) | Jeddah | 1998 | PBS | Age: greater than 55 years old | 311 | 11.9 |  |
| Fakeeh, 1999 [125](#_ENREF_125) | Jeddah | 1998 | PBS | Sex: Male | 1309 | 10.31 |  |
| Fakeeh, 1999 [125](#_ENREF_125) | Jeddah | 1998 | PBS | Sex: Female | 2041 | 4.46 |  |
| El-Hazmi, 2008 [126](#_ENREF_126) | Riyadh | 2001-2005 | CS | 97 | 0.20 |  |  |
| **Healthcare workers** | | | | | | |  |
| Fakunle, 1991 [88](#_ENREF_88) | Riyadh |  | CS | Expatriate nurses | 171 | 0.58 |  |
| Al-Sohaibani, 1995 [69](#_ENREF_69) | Riyadh | 1992-1994 | CS | Overall: Saudi medical staff | 105 | 1.9 |  |
| Al-Sohaibani, 1995 [69](#_ENREF_69) | Riyadh | 1992-1994 | CS | Sex: Male | 63 | 3.2 |  |
| Al-Sohaibani, 1995 [69](#_ENREF_69) | Riyadh | 1992-1994 | CS | Overall: Saudi medical students | 225 | 2.7 |  |
| Al-Sohaibani, 1995 [69](#_ENREF_69) | Riyadh | 1992-1994 | CS | Sex: Female Saudi medical staff | 42 | 0 |  |
| Al-Sohaibani, 1995 [69](#_ENREF_69) | Riyadh | 1992-1994 | CS | Sex: Male Saudi medical students | 142 | 2.8 |  |
| Al-Sohaibani, 1995 [69](#_ENREF_69) | Riyadh | 1992-1994 | CS | Sex: Female Saudi medical students | 83 | 2.4 |  |
| Souqiyyeh, 1995 [16](#_ENREF_16) |  | 1993-1994 | CS | Dialysis staff | 694 | 1 |  |
| Mahaba, 1999 [26](#_ENREF_26) | Hail | 1994 | CS | Medical staff |  | 2.2 |  |
| El-Hazmi, 2008 [126](#_ENREF_126) | Riyadh | 2001-2005 | CS | Healthcare workers with needle stick injuries | 133 | 0 |  |
| Alqahtani, 2014 [90](#_ENREF_90) | Najran |  | CS |  | 300 | 0.30 |  |
| **Sexually transmitted disease patients** | | | | | | |  |
| Bahakim, 1991 [9](#_ENREF_9) | Riyadh | 1990 | CS |  | 220 | 15.9 |  |
| Alhuraiji, 2014 [127](#_ENREF_127) | Riyadh | 1985-2010 | CS | HIV infected patients | 341 | 12 |  |
| **Non-injecting drug users** | | | | | | |  |
| Njoh, 1997 [47](#_ENREF_47) | Jeddah | 1995-1996 | CS | Non-injecting Saudi males | 494 | 10.5 |  |
| Abalkhail, 2001 [48](#_ENREF_48) | Jeddah | 1996 | CS | Non heroin addicts | 66 | 6.1 |  |
| **Oman** | | | | | | | |
| **Healthcare workers** | | | | | | |  |
| Al-Dhahry, 1993 [106](#_ENREF_106) | Muscat |  | CS | Medical school students | 134 | 0 |  |
| **United Arab Emirates** | | | | | | | |
| **Children of Index patients** | | | | | | |  |
| Kumar, 1997 [117](#_ENREF_117) | Abu Dhabi | 1994-1996 | CS | Children of index patients at 3 months | 65 |  | 30.77^ |
| Kumar, 1997 [117](#_ENREF_117) | Abu Dhabi | 1994-1996 | CS | Children of index patients at 6-9 months | 61 |  | 26.23^ |
| Kumar, 1997 [117](#_ENREF_117) | Abu Dhabi | 1994-1996 | CS | Children of index patients at 15-18 months | 61 |  | 26.23^ |
| Kumar, 1998 [118](#_ENREF_118) | Abu Dhabi | 1994-1996 | CS | Overall: Household contacts of Egyptian HCV positive women | 224 | 27.0 |  |
| Kumar, 1998 [118](#_ENREF_118) | Abu Dhabi | 1994-1996 | CS | Children of Egyptian HCV positive women | 155 | 7.74 |  |
| Kumar, 1998 [118](#_ENREF_118) | Abu Dhabi | 1994-1996 | CS | Spouses of Egyptian HCV positive women | 65 | 74.0 |  |
| Kumar, 1998 [118](#_ENREF_118) | Abu Dhabi | 1994-1996 | CS | Parents of Egyptian HCV positive women | 4 | 0 |  |
| \*CS=Convenience sampling; PBS=Probability-based sampling  ^RNA prevalence based on entire sample | | | | | | | |

**SM 6**- Studies reporting hepatitis C virus prevalence in special clinical population groups in the Arabian Gulf countries.

| **Citation** | **City** | **Year** | **Study sampling method**\* | **Population characteristic** | **Sample size** | **Prevalence (%)** | **RNA prevalence among anti-HCV positive (%)** |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Bahrain** | | | | | | | |
| **Hemolytic anemia patients with no transfusion** | | | | | | |  |
| Al-Mahroos, 1995 [3](#_ENREF_3) |  | 1992 | CS | Children with hemolytic anemias with no transfusion | 51 | 2 |  |
| **Kuwait** | | | | | | | |
| **Chronic liver disease patients** | | | | | | |  |
| Al-Nakib, 1992 [4](#_ENREF_4) |  |  | CS |  | 111 | 37.8 |  |
| **Lichen planus patients** | | | | | | |  |
| Al-Mutairi, 2010 [128](#_ENREF_128) |  | 2002-2008 | CS |  | 33 | 60.6 |  |
| **Renal transplant patients** | | | | | | |  |
| Al-Nakib, 1992 [4](#_ENREF_4) |  |  | CS |  | 72 | 5.6 |  |
| **Saudi Arabia** | | | | | | | |
| **Acute viral hepatitis patients** | | | | | | |  |
| Jamjoom, 1992 [64](#_ENREF_64) | Asir |  | CS | Lassan fever hospital | 131 | 0.76 |  |
| Jamjoom, 1992 [64](#_ENREF_64) | Asir |  | CS | Asir & Abha fever hospitals | 71 | 11.27 |  |
| Ghabrah, 1995 [129](#_ENREF_129) | Jeddah & Mecca | 1992 | CS |  | 203 | 20.20 |  |
| Arif, 1995 [130](#_ENREF_130) | Riyadh | 1993-1994 | CS |  | 133 | 20.3 |  |
| Al-Knawy, 1997 [131](#_ENREF_131) | Southern region |  | CS |  | 132 | 0 |  |
| Fathalla, 2000 [132](#_ENREF_132) | Dammam | 1987-1999 | CS | Children mean age 12 years old | 683 | 7.00 |  |
| Ayoola, 2001 [133](#_ENREF_133) | Gizan | 1997-1998 | CS | Mostly children less than 10 years | 246 | 3.7 |  |
| Mansoor, 2002 [134](#_ENREF_134) | Jeddah | 1997-2000 | CS |  | 82 | 74.39 |  |
| Qasim, 2003 [135](#_ENREF_135) | central region | 1999 | CS |  | 14994 | 4.1 |  |
| Qasim, 2003 [135](#_ENREF_135) | central region | 2000 | CS |  | 10539 | 5.4 |  |
| Qasim, 2003 [135](#_ENREF_135) | central region | 2001 | CS |  | 17573 | 3.4 |  |
| Al-Tawfiq, 2008 [136](#_ENREF_136) | Dhahran | 2000-2005 | CS |  | 1214 | 40.7 |  |
| **Cancer patients on chemotherapy** | | | | | | |  |
| Bakir, 1995 [95](#_ENREF_95) | Riyadh |  | CS | Saudi children (1-12 years old) | 53 | 11.3 |  |
| Meir, 2001 [137](#_ENREF_137) | Jeddah |  | CS | Children with Leukemia | 51 | 0 |  |
| **Chronic liver disease patients** | | | | | | |  |
| Al Karawi, 1992 [62](#_ENREF_62) | Riyadh | 1989-1990 | CS | Nationality: nearly all are Saudis | 139 | 30.22 |  |
| Ayoola, 1992 [99](#_ENREF_99) | Riyadh |  | CS |  | 55 | 63.6 |  |
| Jamjoom, 1992 [64](#_ENREF_64) | Asir |  | CS |  | 20 | 65 |  |
| Al-Ahdal, 1997 [138](#_ENREF_138) |  |  | CS |  | 164 | 55.5 |  |
| Ayoola, 2004 [102](#_ENREF_102) | Gizan | 1995-1998 | CS |  | 118 | 11.9 |  |
| Abdullah, 2005 [139](#_ENREF_139) | Riyadh | 2000-2004 | CS |  | 20 | 35 |  |
| Abdo, 2006 [140](#_ENREF_140) | Riyadh | 1997-2003 | CS |  | 574 | 49 |  |
| **Cirrhosis patients** | | | | | | | |
| Jamjoom, 1992 [64](#_ENREF_64) | Asir |  | CS |  | 34 | 44.11 |  |
| Mansoor, 2002 [134](#_ENREF_134) | Jeddah | 1997-2000 | CS |  | 20 | 80 |  |
| Singal, 2008 [141](#_ENREF_141) | Gizan | 1993-2002 | CS |  | 140 | 9.29 |  |
| **Hepatocellular carcinoma patients** | | | | | | |  |
| Al Karawi, 1992 [62](#_ENREF_62) | Riyadh | 1989-1990 | CS | Nationality: nearly all are Saudis | 42 | 31 |  |
| Saeed, 1992 [65](#_ENREF_65) | Riyadh | 1988-1990 | CS |  | 42 | 26.2 |  |
| Fashir, 1996 [142](#_ENREF_142) | Riyadh | 1987-1993 | CS | Nationality: Saudi | 87 | 62 |  |
| Altaf, 2001 [143](#_ENREF_143) |  | 1985-1997 | CS |  | 60 | 23 |  |
| Mansoor, 2002 [134](#_ENREF_134) | Jeddah | 1997-2000 | CS |  | 10 | 60 |  |
| Abbas, 2005 [144](#_ENREF_144) | Qassim |  | CS |  | 24 | 33.33 |  |
| Singal, 2008 [141](#_ENREF_141) | Gizan | 1993-2002 | CS |  | 137 | 4.38 |  |
| Sanai, 2010 [145](#_ENREF_145) | Riyadh | 2006-2008 | CS |  | 206 | 48.5 |  |
| Alsohaibani, 2011 [146](#_ENREF_146) | Riyadh | 1997-2002 | CS |  | 96 | 47 |  |
| **Lichen planus patients** | | | | | | |  |
| El-Rifaei, 1998 [100](#_ENREF_100) | Eastern | 1995-1997 | CS |  | 34 | 14.7 |  |
| Tonsi, 2005 [104](#_ENREF_104) | Makkah | 1999-2001 | CS |  | 114 | 26.3 |  |
| Halawani, 2010 [147](#_ENREF_147) | Riyadh |  | CS |  | 51 | 9.80 | 40 |
| **Non-Hodgkin's lymphoma patients** | | | | | | |  |
| Harakati, 2000 [101](#_ENREF_101) | Riyadh |  | CS |  | 56 | 21.00 |  |
| Mehdi, 2006 [83](#_ENREF_83) | central region | 1996-2004 | CS | Overall | 565 | 16.1 |  |
| Mehdi, 2006 [83](#_ENREF_83) | central region | 1996-2004 | CS | Age: 21-30 years old | 21 | 0 |  |
| Mehdi, 2006 [83](#_ENREF_83) | central region | 1996-2004 | CS | Age: 31-40 years old | 98 | 9.4 |  |
| Mehdi, 2006 [83](#_ENREF_83) | central region | 1996-2004 | CS | Age: 41-50 years old | 141 | 18.6 |  |
| Mehdi, 2006 [83](#_ENREF_83) | central region | 1996-2004 | CS | Age: 51-60 years old | 170 | 20.1 |  |
| Mehdi, 2006 [83](#_ENREF_83) | central region | 1996-2004 | CS | Age: 61-70 years old | 135 | 16.5 |  |
| **Patients with hemolytic malignancies other than non-Hodgkin’s lymphoma** | | | | | | |  |
| Harakati, 2000 [101](#_ENREF_101) | Riyadh |  | CS |  | 41 | 5 |  |
| **Patients with esophageal bleeding** | | | | | | |  |
| Khalid, 2001 [148](#_ENREF_148) | Riyadh | 1998-2000 | CS | Overall | 748 | 33.97 |  |
| Khalid, 2001 [148](#_ENREF_148) | Riyadh | 1998-2000 | CS | Sex: Males | 594 | 32.95 |  |
| Khalid, 2001 [148](#_ENREF_148) | Riyadh | 1998-2000 | CS | Sex: Females | 154 | 38.46 |  |
| Al Salamah, 2002 [149](#_ENREF_149) | Riyadh | 1998-2001 | CS |  | 304 | 36.7 |  |
| **Patients with palpable purpura** | | | | | | |  |
| Halawani, 2010 [147](#_ENREF_147) | Riyadh |  | CS |  | 3 | 66.70 | 50 |
| **Patients with skin diseases** | | | | | | |  |
| Halawani, 2010 [147](#_ENREF_147) | Riyadh |  | CS |  | 200 | 12.0 | 62.5 |
| **Patients undergoing endoscopy** | | | | | | |  |
| Ayoola, 1992 [99](#_ENREF_99) | Riyadh |  | CS |  | 100 | 2 |  |
| Rabbani, 2005 [150](#_ENREF_150) | Hafoof | 1999-2001 | CS |  | 230 | 9.1 |  |
| **Prurigo patients** | | | | | | |  |
| Halawani, 2010 [147](#_ENREF_147) | Riyadh |  | CS |  | 20 | 10 | 100 |
| **Pruritus patients** | | | | | | |  |
| Halawani, 2012 [87](#_ENREF_87) | Riyadh | 2007-2009 | CS |  | 56 | 21.40 | 75 |
| **Renal transplant patients** | | | | | | |  |
| Mitwalli, 1992 [13](#_ENREF_13) | Riyadh |  | CS | Patients did not undergo dialysis | 35 | 8.5 |  |
| Bernieh, 1999 [151](#_ENREF_151) | Madinah | 1979-1997 | CS |  | 76 | 42.11 |  |
| Mitwalli, 2006 [152](#_ENREF_152) |  | 1980-2001 | CS | Overall | 448 | 63.8 |  |
| Mitwalli, 2006 [152](#_ENREF_152) |  | 1980-2001 | CS | Sex: Males | 328 | 62.2 |  |
| Mitwalli, 2006 [152](#_ENREF_152) |  | 1980-2001 | CS | Sex: Females | 120 | 68.3 |  |

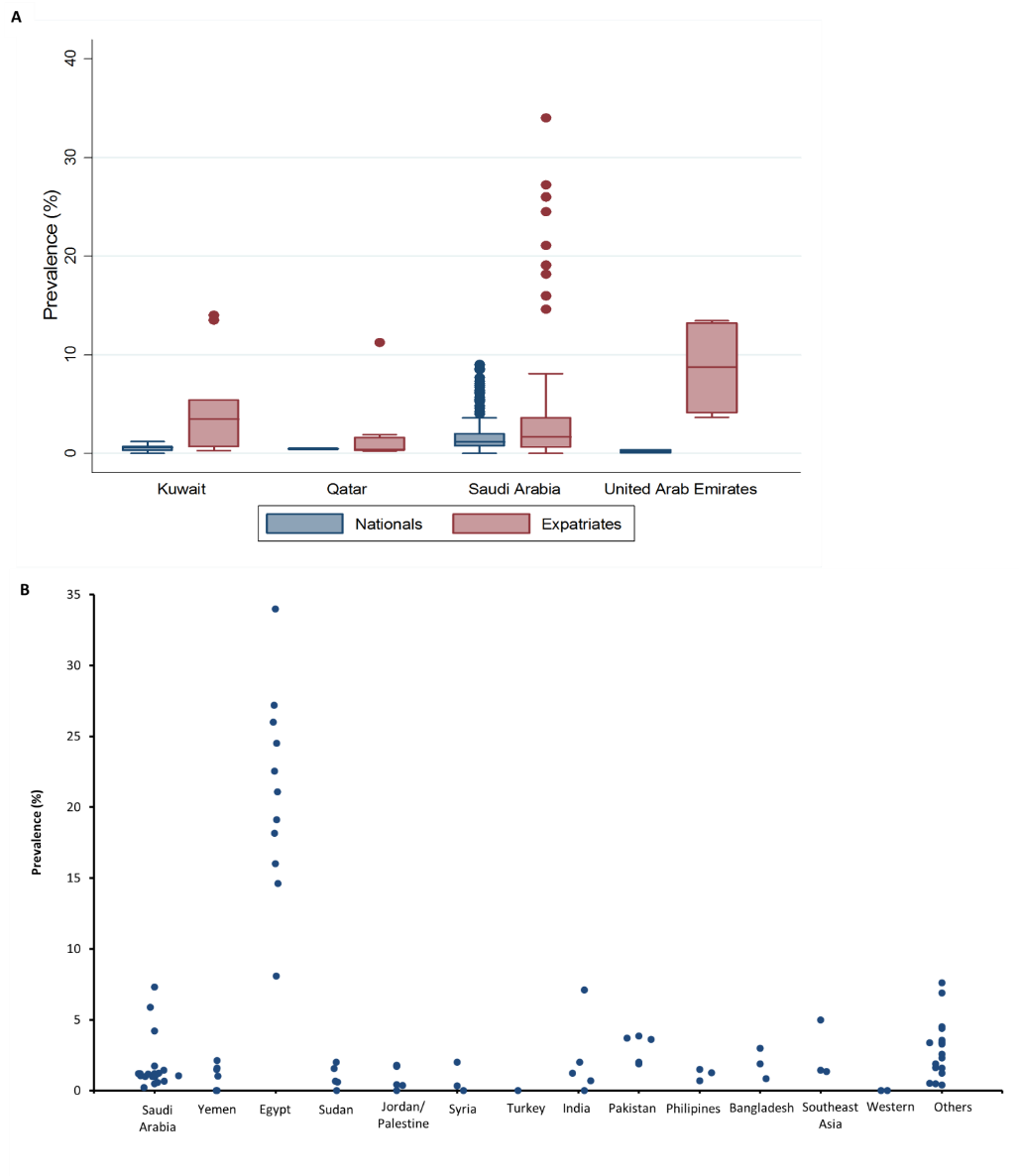
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| --- | --- | --- | --- | --- | --- | --- | --- |
| **Schistosomiasis patients** | | | | | | |  |
| Khan, 2004 [153](#_ENREF_153) | Dammam | 1999-2000 | CS | Overall | 39 | 17.95 |  |
| Khan, 2004 [153](#_ENREF_153) | Dammam | 1999-2000 | CS | Nationality: Saudi | 17 | 11.76 |  |
| Khan, 2004 [153](#_ENREF_153) | Dammam | 1999-2000 | CS | Nationality: Egyptian | 15 | 26.67 |  |
| Khan, 2004 [153](#_ENREF_153) | Dammam | 1999-2000 | CS | Nationality: Other Middle Eastern | 7 | 14.29 |  |

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Urticaria patients** | | | | | | |  |
| Halawani, 2012 [86](#_ENREF_86) | Riyadh | 2007-2009 | CS |  | 70 | 7.14 | 60 |
| **Oman** | | | | | | | |
| **Patients with immune thrombocytopenia** | | | | | | |  |
| Al-Habsi, 2011 [154](#_ENREF_154) |  | 2006-2011 | CS | Age: 4 -58 years old | 32 | 37.5 |  |
| **Psychiatric patients** | | | | | | |  |
| WHO/EMRO, 2011 [155](#_ENREF_155) |  |  | CS |  | 126 | 16.7 |  |
| **Renal transplant patients** | | | | | | |  |
| Al-Dhahry, 1992 [51](#_ENREF_51) | Muscat | 1991 | CS | Kidney transplant conducted in different countries | 82 | 53.7 |  |
| **Qatar** | | | | | | | |
| **Chronic liver disease patients** | | | | | | |  |
| Rikabi 2009 [156](#_ENREF_156) | Doha | 2000-2005 | CS |  | 915 | 29.4 |  |
| **Cirrhosis patients** | | | | | | |  |
| Kahn 2008 [157](#_ENREF_157) | Doha | 2004-2005 | CS |  | 62 | 25.8 |  |
| Kahn 2008 [157](#_ENREF_157) | Doha | 2004-2005 | CS | Ethnicity: Qatari | 26 | 19.2 |  |
| Kahn 2008 [157](#_ENREF_157) | Doha | 2004-2005 | CS | Ethnicity: Non-Qatari | 36 | 30.6 |  |
| **Lichen planus patients** | | | |  |  |  |  |
| Al Mannai 2010 [158](#_ENREF_158) | Doha | 2003-2004 | CS |  | 100 | 9 |  |
| **United Arab Emirates** | | | | | | | |
| **Acute viral hepatitis patients** | | | | | | |  |
| Abro, 2009 [159](#_ENREF_159) | Dubai | 2006-2007 | CS | Overall | 165 | 1.2 |  |
| Abro, 2009 [159](#_ENREF_159) | Dubai | 2006-2007 | CS | Ethnicity: Indian |  | 0 |  |
| Abro, 2009 [159](#_ENREF_159) | Dubai | 2006-2007 | CS | Ethnicity: Bangladesh |  | 0 |  |
| Abro, 2009 [159](#_ENREF_159) | Dubai | 2006-2007 | CS | Ethnicity: Nepal |  | 0 |  |
| Abro, 2009 [159](#_ENREF_159) | Dubai | 2006-2007 | CS | Ethnicity: Pakistan |  | 50 |  |
| Abro, 2009 [159](#_ENREF_159) | Dubai | 2006-2007 | CS | Ethnicity: UAE |  | 0 |  |
| Abro, 2009 [159](#_ENREF_159) | Dubai | 2006-2007 | CS | Ethnicity: Others |  | 50 |  |
| **Chronic liver disease patients** | | | | | | |  |
| Al-Moslih, 2010 [123](#_ENREF_123) |  |  | CS |  | 142 | 43.7 |  |
| \*CS=Convenience sampling; PBS=Probability-based sampling | | | | | | | |

**SM 7-** Distribution of hepatitis C virus (HCV) prevalence in the different intermediate risk groups and special clinical population groups for the Arabian Gulf countries. **A.** HCV prevalence among intermediate risk groups for countries where this information is available. **B.** HCV prevalence among special clinical populations.

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**SM 8**- **A.** Boxplot comparing mean hepatitis C virus (HCV) prevalence in national general population groups versus expatriate general population groups for the Arabian Gulf countries where this information was available. **B.** Distribution of HCV prevalence among the different expatriate groups in Saudi Arabia.



**SM 9**- Pooled summary estimates of hepatitis C virus prevalence in the general population among nationals in the Arabian Gulf region.



**SM 10**- Pooled summary estimates of hepatitis C virus prevalence in the general population among nationals in Saudi Arabia.

**SM 11**- Pooled summary estimates of hepatitis C virus prevalence in the general population among nationals in: **A.** Kuwait, **B.** Qatar, **C.** United Arab Emirates.

**A.**

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**B.**

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**C.**

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**SM 12**- Pooled summary estimates of hepatitis C virus prevalence in the general population among resident populations (nationals and expatriates) in the Arabian Gulf region.



**SM 13**- Pooled summary estimates of hepatitis C virus prevalence in the general population among the resident populations of both nationals and expatriates in Saudi Arabia.



**SM 14**- Pooled summary estimates of hepatitis C virus prevalence in the general population among the resident populations of both nationals and expatriates in: **A.** Bahrain, **B.** Kuwait, **C.** Oman.

**A**



**B**

**C**

**SM 15**- Pooled summary estimates of hepatitis C virus prevalence in the general population among the resident populations of both nationals and expatriates in: **A.** Qatar, **B.** United Arab Emirates.

**A**



**B**



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