This monthly Current Awareness Bulletin is produced by the Healthcare Library to provide Salisbury NHS Foundation Trust staff with a range of resources to support practice. It includes recently published guidelines and research articles, news and policy items, and details of new library resources.

OpenAthens
To access journal articles that are available in full text you will need to have a username and password for OpenAthens. To register for an OpenAthens account click here.

For further information or support Salisbury staff can contact the Healthcare Library, SDH Central, Salisbury District Hospital, Salisbury, Wiltshire SP2 8BJ. 01722 429054 or 01722 336262 ext 4430, Library.office@salisbury.nhs.uk, or visit the library website at www.library.salisbury.nhs.uk

Cleft Palate-Craniofacial Journal – Latest Issue

Cleft Palate-Craniofacial Journal
ISSN: 1055-6656 Latest issue available from Allen Press in Journals@Ovid (Athens Authorization)

Journal Articles

Please click on the blue links (where available) to access full text. You may need an OpenAthens username and password. To register for an OpenAthens account click here. If you have any difficulty accessing the full text articles, or if you would like us to obtain any of the articles for you, please contact the Healthcare Library.

Titles highlighted in green may be of particular interest to Speech and Language Therapists
Titles highlighted in orange may be of particular interest to Clinical Psychologists

Table of Contents

1. 17p13.3 microduplication, a potential novel genetic locus for nonsyndromic bilateral cleft lip and palate.
2. A long-term clinical and cephalometric study of cleft lip and palate patients following intraoral maxillary quadrangular le fort I osteotomy.
3. A novel semiautomatic technique for volumetric assessment of the alveolar bone defect using cone beam computed tomography.
4. Academic outcomes of children with isolated orofacial clefts compared with children without a major birth defect.
5. Analysis of computer-aided techniques for virtual planning in nasoalveolar moulding.
6. Are cleft palate fistulae a cause of dental decay?
7. Association of JARID2 polymorphisms with non-syndromic orofacial clefts in northern Chinese Han population.
8. Craniofacial abnormalities and developmental delay in two families with overlapping 22q12.1 microdeletions involving the MN1 gene.
9. Dental arch relationship outcomes in one- and two-stage palatoplasty for Japanese patients with complete unilateral cleft lip and palate.
10. Family-based association analysis between nonsyndromic cleft lip with or without cleft palate and IRF6 polymorphism in an Iranian population.
1. Functional and aesthetic rehabilitation of a geriatric patient with cleft palate: a case report.
2. Genetic effect of transforming growth factor alpha gene variants on the risk of nonsyndromic cleft lip with or without palate in Korean populations.
3. Herpes simplex 1 stomatitis after cleft palate repair: a case report and guidelines for management.
4. High-resolution array comparative genomic hybridization utility in Polish newborns with isolated cleft lip and palate.
5. IRF6 polymorphisms in Mexican patients with non-syndromic cleft lip.
7. MEIS2 involvement in cardiac development, cleft palate, and intellectual disability.

1. Title: 17p13.3 microduplication, a potential novel genetic locus for nonsyndromic bilateral cleft lip and palate.
Citation: The Cleft palate-craniofacial journal: official publication of the American Cleft Palate-Craniofacial Association, May 2015, vol. 52, no. 3, p. 359-362 (May 2015)
Author(s): Ibitoye, Rita M, Roberts, Joanna, Goodacre, Tim, Kini, Usha
Abstract: Cleft lip and palate (CLP) is a relatively common congenital malformation. The etiology is complex and postulated to be a combination of genetic and environmental factors. The genetic loci for nonsyndromic CLP remain poorly characterized. Two families have recently been reported with a chromosome 17p13.3 microduplication and CLP. We report a third family with four individuals affected by nonsyndromic bilateral CLP and a 350-kb chromosome 17p13.3 microduplication (17:1,113,102-1,461,838). Our family possesses the smallest overlapping chromosome 17p13.3 microduplication associated with CLP, narrowing down the critical region for this potential new genetic locus for CLP.
Source: Medline

2. Title: A long-term clinical and cephalometric study of cleft lip and palate patients following intraoral maxillary quadrangular le fort I osteotomy.
Citation: The Cleft palate-craniofacial journal: official publication of the American Cleft Palate-Craniofacial Association, May 2015, vol. 52, no. 3, p. 311-326 (May 2015)
Author(s): Karabekmez, Furkan E, Keller, Eugene E, Stork, James T, Regenitter, Fredrick J, Bite, Uldis
Abstract: To evaluate the horizontal and vertical stability of the quadrangular Le Fort I in patients with congenital cleft lip and palate. Prospective longitudinal study. A total of 15 congenital cleft lip and palate patients treated with the maxillary quadrangular Le Fort I were enrolled. Lateral cephalometric radiographic examinations were obtained preoperatively, early postoperatively, and late postoperatively for four dental and skeletal landmarks. A questionnaire regarding patients' satisfaction with treatment and functional/cosmetic outcomes (airway, speech, mastication) was administered. Surgical horizontal and vertical movement, late postsurgical horizontal and vertical
movement, and surgical and postsurgical movement in relation to age and cleft type were evaluated using Spearman correlation coefficients, Wilcoxon signed rank tests, and Mann-Whitney tests. Surgical horizontal movements of all measured points showed significant changes. Significant differences of postsurgical horizontal movement were observed in younger patients versus adult patients. Significant differences of postsurgical horizontal movement were observed in unilateral cleft patients versus bilateral cleft patients. A high percentage of patients showed significant functional improvement in nasal airflow, speech, mastication, temporomandibular joint function, and mouth versus nose breathing. The quadrangular Le Fort I is a functionally stable and a surgically predictable procedure for cleft lip and palate patients who present with midface deficiency. Patients under the age of 18 at the time of the osteotomy had a higher relapse rate than patients over 18 years of age. Younger patients who need surgery should be advised regarding the increased risk of skeletal relapse. Patients' satisfaction was high in all aesthetic- and function-related items on the questionnaire.

**Source:** Medline

3.Title: A novel semiautomatic technique for volumetric assessment of the alveolar bone defect using cone beam computed tomography.

**Citation:** The Cleft palate-craniofacial journal : official publication of the American Cleft Palate-Craniofacial Association, May 2015, vol. 52, no. 3, p. e47. (May 2015)

**Author(s):** Linderup, Bo Werner, Küseler, Annelise, Jensen, John, Cattaneo, Paolo M

**Abstract:** The aims of this study were (1) to determine the three-dimensional anatomical boundaries of the alveolar bone defect in cleft lip and palate (CLP) patients, (2) to precisely translate these anatomical boundaries into reliable cephalometric landmarks and planes that can be used for cone beam computed tomography (CBCT) analysis, (3) to standardize image acquisition and reconstruction parameters, and (4) to test the reproducibility of the proposed protocol for measuring the predefined alveolar bone defect, using a third-party software. The alveolar bone defect volume of 10 randomly selected patients with unilateral CLP (UCLP) aged 8 years and 6 months to 11 years and 2 months was evaluated on preoperative and 1-year postoperative CBCT scans using a semiautomatic, standardized protocol. The alveolar bone graft outcome was calculated as a percentage of the bone fill using the formula (VOLpre - VOLpost)/VOLpre) × 100. Intra- and interobserver reliability was assessed. Intra- and interobserver reproducibility was excellent for volumes and bone fill as no statistically significant difference (P > .9849, interobserver: r > .8784). The Bland-Altman plots indicated that the differences between the plots were not patterned. Volume determination using CBCT, third-party medical image processing software, and the presently defined image acquisition and reconstruction parameters, including anatomical boundaries, is a reproducible and practical method for assessing the volumetric outcome of secondary alveolar bone grafting in patients with UCLP.

**Source:** Medline

4.Title: Academic outcomes of children with isolated orofacial clefts compared with children without a major birth defect.

**Citation:** The Cleft palate-craniofacial journal : official publication of the American Cleft Palate-Craniofacial Association, May 2015, vol. 52, no. 3, p. 259-268 (May 2015)

**Author(s):** Knight, Jessica, Cassell, Cynthia H, Meyer, Robert E, Strauss, Ronald P

**Abstract:** To compare academic outcomes between children with orofacial cleft (OFC) and children without major birth defects. In 2007-2008, we mailed questionnaires to a random sample of mothers of school-aged children with OFC and mothers of children without major birth defects (comparison group). The questionnaire included Likert-scale, closed-ended, and open-ended questions from validated instruments. We conducted bivariate and multivariable analyses on parent-reported educational outcomes and bivariate analyses on parent-reported presence of related medical conditions between children with isolated OFC and unaffected children. A random sample of 504 parents of children with OFCs born 1996-2002 (age 5-12 years) were identified by the North Carolina Birth Defects Monitoring Program. A random sample of 504 parents of children without birth defects born 1996-2002 was selected from North Carolina birth certificates. Of the 289 (28.7%) respondents, we analyzed 112 children with isolated OFC and 138 unaffected children. Letter grades, school days missed, and grade retention. Parents of children with isolated OFC reported more developmental disabilities and hearing and speech problems among their children than comparison parents. Children with isolated OFC were more likely to receive lower grades and miss more school days than unaffected children. Because of the low response rate, results should be interpreted cautiously. Children with isolated OFC may have poorer academic outcomes during elementary school than their unaffected peers. Future studies are needed to confirm these results and determine whether these differences persist in later grades.

**Source:** Medline
5. Title: Analysis of computer-aided techniques for virtual planning in nasoalveolar moulding.  
Citation: The British journal of oral & maxillofacial surgery, May 2015, vol. 53, no. 5, p. 455-460 (May 2015)  
Abstract: We compared two methods of planning virtual alveolar moulding as the first step in nasoalveolar moulding to provide the basis for an automated process to fabricate nasoalveolar moulding appliances by using computer-assisted design and computer-aided manufacturing (CAD/CAM). First, the initial intraoral casts taken from seven newborn babies with complete unilateral cleft lip and palate were digitised. This was repeated for the target models after conventional nasoalveolar moulding had been completed. The initial digital model for each patient was then virtually modified by two different modelling techniques to achieve the corresponding target model: parametric and freeform modelling with the software Geomagic®). The digitally-remodelled casts were quantitatively compared with the actual target model for each patient, and the comparison between the two modified models and the target model showed that freeform modelling of the initial cast was successful (mean (SD) deviation n=7, +0.723 (0.148) to -0.694 (0.157)mm) but needed continuous orientation and was difficult to automate. The results from the parametric modelling (mean (SD) deviation, n=7, +1.168 (0.185) to -1.067 (0.221)mm) were not as good as those from freeform modelling. During parametric modelling, we found some irregularities on the surface, and transverse growth of the maxilla was not accounted for. However, this method seems to be the right one as far as automation is concerned. In addition, an external algorithm must be implemented because the function of the commercial software is limited. Copyright © 2015 The British Association of Oral and Maxillofacial Surgeons. Published by Elsevier Ltd. All rights reserved.  
Source: Medline

6. Title: Are cleft palate fistulae a cause of dental decay?  
Citation: The Cleft palate-craniofacial journal : official publication of the American Cleft Palate-Craniofacial Association, May 2015, vol. 52, no. 3, p. 341-345 (May 2015)  
Author(s): Richards, Helen, van Bonmel, Annelotte, Clark, Victoria, Richard, Bruce  
Abstract: To investigate a possible correlation between fistula and dental decay in children at 5 years of age from a single-surgeon series of cleft palate repairs. Retrospective review of data over a 9-year period between 2003 and 2011 of cleft palate repairs performed by the senior author at Birmingham Children's Hospital, U.K. Data collected on age, sex, age at repair, presence of fistula, and number of decayed, missing, or filled primary teeth (i.e., decayed, missing, and filled teeth score) at age 5 years. The overall fistula rate for this patient population was 24.1%. Fistulae were more common in the more severe forms of cleft type, as was frequency of dental decay. Comparison of fistula versus nonfistula groups showed a higher rate of dental decay (40%) in the fistula group, compared with only 20% in the nonfistula group (P = .036). A positive association was established between dental decay and the presence of a fistula. Although not proven as causative, possible reasons for this include nasal mucus retaining sugary food in the mouth and an overall prolonged food-clearance time. The known association between severity of cleft and an increased likelihood of a fistula and severity of cleft and increased dental decay were again demonstrated but were not found to be the exclusive explanation for the new finding of an association between fistulae and higher dental decay rates.  
Source: Medline

7. Title: Association of JARID2 polymorphisms with non-syndromic orofacial clefts in northern Chinese Han population.  
Citation: Journal of Oral Pathology & Medicine, 01 May 2015, vol./is. 44/5(386-391), 09042512  
Author(s): Hao, Yanru, Mi, Na, Jiao, Xiaohui, Zheng, Xudong, Song, Tao, Zhuang, Deshu, Tian, Subao, Feng, Dongfei  
Language: English  
Abstract: OBJECTIVES: Non-syndromic orofacial clefts (NSOC) are the most common human craniofacial malformation in all worldwide populations. Recently, the jumooj AT-rich interaction domain 2 (JARID2) had been reported to be a novel candidate gene for non-syndromic cleft lip with or without cleft palate (CL/P). The SNPs rs2076056, rs2237138 and rs2299043 in JARID2 were highly significant in Italian families. MATERIAL AND METHODS: In the current research, a case-control study was conducted to examine the association between these three SNPs and NSOC in a northern Chinese Han population. Genotyping of the three SNPs were performed using SNaPshot minisequencing technique. RESULTS: Distribution of rs2237138 genotypes in CL/P group was different from those in the control group (P = 0.04), but significant results did not persist after Benjamini and Hochberg false discovery rate (FDR) correction for multiple tests. Further logistic regression analysis showed that rs2237138 GG genotypes were associated with decreased CL/P susceptibility (OR = 0.34, 95% CI = 0.13-0.84), compared with the AA wild-type homozygote. For the haplotype CGT, a statistically difference was identified between the CL/P group and controls (P = 0.04). And carriers of GAT haplotype were considered to be less frequent among cleft palate only group as
compared to controls (P = 0.02). However, both of the haplotypes association did not remain statistically significant after Benjamini and Hochberg FDR correction. CONCLUSION: We got a weak association between these polymorphisms and NSOC in both single-marker and haplotype analyses. Our data further strengthen the conclusion that JARID2 polymorphisms are associated with NSOC susceptibility.

**Publication type:** journal article

**Source:** CINAHL

8. **Title:** Craniofacial abnormalities and developmental delay in two families with overlapping 22q12.1 microdeletions involving the MN1 gene.


**Author(s):** Beck, Megan, Peterson, Jess F, McConnell, Juliann, McGuire, Marianne, Asato, Miya, Losee, Joseph E, Surti, Urvashi, Madan-Khetarpal, Suneeta, Rajkovic, Aleksandar, Yatsenko, Svetlana A

**Abstract:** Deletions spanning the MN1 gene (22q12.1) have recently been proposed as playing a role in craniofacial abnormalities that include cleft palate, as mouse studies have demonstrated that Mn1 haploinsufficiency results in skull abnormalities and secondary cleft palate. We report on four patients (two families) with craniofacial abnormalities and intellectual disability with overlapping microdeletions that span the MN1 gene. Comparative genomic hybridization microarray analysis revealed a 2.76 Mb deletion in the 22q12.1 region, in three family members (Family 1), that contains the MN1 gene. In addition, a complex 22q12 rearrangement, including a 1.61 Mb deletion containing the MN1 gene and a 2.28 Mb deletion encompassing the NF2 gene, has been identified in another unrelated patient (Family 2). Based upon genotype-phenotype correlation among our patients and those previously reported with overlapping 22q12 deletions, we identified a 560 kb critical region containing the MN1 gene that is implicated in human cleft palate formation. Importantly, NF2 was also found within the 22q12 deletion region in several patients which enabled specific clinical management for neurofibromatosis 2. © 2015 Wiley Periodicals, Inc. © 2015 Wiley Periodicals, Inc.

**Source:** Medline

9. **Title:** Dental arch relationship outcomes in one- and two-stage palatoplasty for Japanese patients with complete unilateral cleft lip and palate.

**Citation:** The Cleft palate-craniofacial journal : official publication of the American Cleft Palate-Craniofacial Association, May 2015, vol. 52, no. 3, p. 277-286 (May 2015)

**Author(s):** Mikoya, Tadashi, Shibukawa, Toyoko, Susami, Takafulmi, Sato, Yoshiaki, Tengan, Toshimoto, Katashima, Hirotaka, Oyama, Akihiko, Matsuzawa, Yusuke, Ito, Yumi, Funayama, Emi

**Abstract:** To compare dental arch relationship outcomes following one- and two-stage palatal repair. Nonrandomized, clinical trial with concurrent control. Hokkaido University Hospital. Sixty-eight consecutively treated Japanese patients with complete unilateral cleft lip and palate. Thirty-one of the 68 patients underwent two-stage palatoplasty with delayed hard palate closure, and 37 patients underwent one-stage pushback palatoplasty. Dental casts were taken at 4.9 to 6.3 (mean: 5.2) years of age in the two-stage group and at 4.0 to 6.3 (mean: 5.1) years of age in the one-stage group, and dental arch relationships were assessed using the 5-Year-Olds’ Index (5-Y) by four raters and the Huddart/Bodenham Index (HB) by two raters. Intrarater and interrater reliabilities evaluated using weighted kappa statistics were good or better for the 5-Y and HB ratings. The mean 5-Y score was 2.94 in the two-stage group and 3.13 in the one-stage group (P value was not significant). However, there was a significant difference in distributions between the groups (P

**Source:** Medline

10. **Title:** Family-based association analysis between nonsyndromic cleft lip with or without cleft palate and IRF6 polymorphism in an Iranian population.

**Citation:** Clinical oral investigations, May 2015, vol. 19, no. 4, p. 891-894 (May 2015)

**Author(s):** Nouri, Nayereh, Memzarzadeh, Mehrdad, Carinci, Francesco, Cura, Francesca, Scapoli, Luca, Nouri, Narges, Jafary, Fariba, Sedghi, Maryam, Sadri, Leyli, Salehi, Mansoor

**Abstract:** Nonsyndromic cleft lip with or without cleft palate (NSCL/P) is a common birth defect which is strongly associated with genetic factors. Previous studies in several populations showed a significant correlation between IRF6 rs642961 polymorphism and NSCL/P. The aim of this study is to indicate the correlation of IRF6 rs642961 polymorphism and NSCL/P in Iranian NSCL/P families. In this study, we analyzed IRF6 rs642961 genotype in 352 individuals from 102 Iranian nuclear families affected by NSCL/P using iPlex assay on a Sequenom MassARRAY platform. Hardy-Weinberg equilibrium and Mendelian error checking were performed by Haplovie v4.2. Allelic association analysis was conducted with family-based association tests implemented in FBAT program v2.03. The family-based association analysis revealed no significant association between IRF6 rs642961 genotypes and an
increased NSCL/P risk. In contrast to other Asian populations, our study indicates that the IRF6 rs642961 polymorphism cannot be a risk factor for NSCL/P in an Iranian population. Genetic factors have an important role in NSCL/P, among which interferon regulatory factor 6 (IRF6) has been reported as a risk factor for NSCL/P in several populations; however, our data indicated no significant association between IRF6 polymorphism and NSCL/P in an Iranian population.

Source: Medline

11. Title: Fat grafting in primary cleft lip repair.
Citation: Plastic and reconstructive surgery, May 2015, vol. 135, no. 5, p. 1449-1453 (May 2015)
Author(s): Zellner, Elizabeth Gordon, Pfaff, Miles J, Steinbacher, Derek M
Abstract: The goal of primary cleft lip repair is to unify the lip elements and achieve a nearly normal appearance. Many techniques can confer satisfactory results; however, scarring and contour irregularities may persist. Lipofilling can modulate scar formation and enable soft-tissue augmentation. The authors hypothesize that fat grafting during immediate cleft lip repair may be of benefit. Patients who underwent primary cleft lip repair with and without immediate fat grafting were compared. Postoperative photographs were analyzed by three blinded reviewers. Cronbach statistics and a two-tailed t-test were used. Scar analysis revealed statistically significant (p
Source: Medline
Full text: Available Ovid at Plastic and Reconstructive Surgery

12. Title: Functional and aesthetic rehabilitation of a geriatric patient with cleft palate: a case report.
Citation: The Cleft palate-craniofacial journal : official publication of the American Cleft Palate-Craniofacial Association, May 2015, vol. 52, no. 3, p. 363-368 (May 2015)
Author(s): Gupta, Lokendra, Aparna, I N, Dhanasekar, B, Khanna, Gagan, Lingeshwar, D, Agarwal, Priyanka
Abstract: Cleft palate defect with complete edentulism in elderly patients presents a prosthodontic challenge for complete denture fabrication. Such large defects are very difficult to restore by surgical intervention and have direct consequence on such functions as mastication and speech, on aesthetics, and on the patient's mental attitude. This article describes a case report in which a 76-year-old female patient underwent restoration with a closed hollow bulb obturator for a large cleft palate defect.
Source: Medline

13. Title: Genetic effect of transforming growth factor alpha gene variants on the risk of nonsyndromic cleft lip with or without palate in korean populations.
Citation: The Cleft palate-craniofacial journal : official publication of the American Cleft Palate-Craniofacial Association, May 2015, vol. 52, no. 3, p. 293-300 (May 2015)
Author(s): Kim, Bo-Mi, Kim, Young Ho, Kim, Dong-Hyun, Park, Ji Wan, Baek, Seung-Hak
Abstract: To identify the contribution of TGFA gene variants to the risk of nonsyndromic cleft lip with or without palate (NS-CL±P). The samples were from 142 Korean NS-CL±P families and 119 control parents having nonaffected children. Minor allele frequency, heterozygosity, and χ² test for Hardy-Weinberg equilibrium were calculated for each of 10 selected single-nucleotide polymorphisms (SNPs). Ten SNPs were used to examine the association of case-parent trios with the transmission disequilibrium test (TDT) and conditional logistic regression models (CLRMs). Both allelic and genotypic TDTs for individual SNPs and sliding windows of haplotypes consisting of two to five SNPs were tested using family- and haplotype-based association test programs. Genotypic odd ratios (GORs) were obtained from CLRMs using STATA software. The parent-of-origin effect was evaluated for 10 SNPs, and a comparison between 218 case parents and 119 control parents was performed to investigate paternal and maternal ORs. Family-based TDT and haplotype analysis exhibited no statistical significance, but a relatively meaningful association was shown with rs3771497 (all P
Source: Medline

14. Title: Herpes simplex 1 stomatitis after cleft palate repair: a case report and guidelines for management.
Author(s): Evangelista, Maristella S, Tracy, Lauren, Wells, James H
Abstract: Herpes simplex virus (HSV) primary infection and reactivation has been associated with the inflammation and transient decrease in immunocompetence after surgery and local trauma. In addition, HSV infection is known to impair wound healing, increase risk of scarring, and impede connective tissue graft transplantation. To our knowledge, this is the first case of HSV infection complicating cleft palate repair presented in literature. In this report, we present a case of primary HSV infection occurring in a healthy 26-month-old patient after repair of the
secondary cleft palate with mucoperichondrial flaps and V-Y pushback. The patient developed high fever on postoperative day 1, which was followed by perioral vesicular lesions and multiple intraoral ulcerations involving the lips, palate, and posterior pharynx. Unknown to the surgeons, the patient was exposed to HSV before surgery by a sibling with orolabial HSV infection. The infective cause was ascertained via polymerase chain reaction for HSV-1 DNA, and the infection was treated with topical and intravenous acyclovir for 1 week. The patient recovered well with adequate flap healing, good aesthetic outcome, and no complications on 1-month follow-up. This report underscores the importance of prompt recognition of herpetic infections in the patient with craniofacial surgery and reviews the association and complications of HSV infection in surgical healing. Early identification with prompt antiviral therapy and meticulous wound care are essential to ameliorate the scarring and delayed wound healing associated with HSV infection.

Source: Medline

Full text: Available Annals of plastic surgery at Annals of Plastic Surgery

15. Title: High-resolution array comparative genomic hybridization utility in polish newborns with isolated cleft lip and palate

Citation: Neonatology, April 2015, vol./is. 107/3(173-178), 1661-7800;1661-7819 (06 Apr 2015)

Author(s): Szczaluba K., Nowakowska B.A., Sobecka K., Smyk M., Castaneda J., Dudkiewicz Z., Kutkowska-Kazmierczak A., Sasiadek M.M., migiel R., Bocian E.

Language: English

Abstract: Cleft lip with or without cleft palate is one of the most common birth defects of unknown etiology. A fraction of its genetic causes is attributable to copy number variations detected by array comparative genomic hybridization. The value of array comparative genomic hybridization screening as a first-tier test in the newborn population with multiple congenital anomalies has now been accepted. Due to unspecific clinical picture at this age, it can also be applied to neonates with isolated anomalies. Our purpose was to assess utility of array comparative genomic hybridization in the population of newborns with isolated cleft lip and palate. We conducted the study in a group of 52 Polish newborns with apparently isolated cleft lip and palate. In the study group, we found 8 rearrangements. Of these, 2 de novo events have been noted that potentially explain the phenotype. In addition, 2 novel candidate genes for cleft lip and palate, CHN2 and CDH19, are suggested. Given the high number of inherited potentially benign changes, we question the clinical utility of array comparative genomic hybridization in the newborn population with isolated cleft lip and palate, at the same time pointing to the need of skilled professional’s clinical assessment at a later age. However, the value of this technology in searching for the cause of isolated anomalies cannot be underestimated.

Publication type: Journal: Article

Source: EMBASE

16. Title: IRF6 polymorphisms in Mexican patients with non-syndromic cleft lip.

Citation: Meta gene, Jun 2015, vol. 4, p. 8-16 (June 2015)

Author(s): Ibarra-Arce, Aurora, García-Álvarez, Martín, Cortés-González, Daniel, Ortiz de Zarate-Alarcón, Gabriela, Flores-Peña, Laura, Sánchez-Camacho, Sandra, Arenas-Díaz, Silvia, Romero-Valdivinos, Mirza, Olivo-Díaz, Angélica

Abstract: Cleft lip with or without cleft palate (CL/P) is one of the most common birth defects; it is a multifactorial disease affecting > 1/1,000 live births in Europe, and its etiology is largely unknown, although it is very likely genetic and environmental factors contribute to this malformation. Orofacial development is a complex process involving many genes and signaling pathways. Mutations in the gene for the interferon regulatory factor 6 (IRF6) cause a hereditary dominant malformation syndrome including CL/P, and polymorphisms are associated with non-syndromic CL/P (MIM 119530). Five SNPs at the locus with high heterozygosity in Caucasian populations were chosen for the present research due to their very strong association with CL/P. A case-parent trio study was performed using 292 samples from Mexico. Association with the rs1319435-C/C genotype (P = 0.02) was found in patients (73) as compared to pseudocontrols (219), while the genotype rs1319435-T/C was related with protection (P = 0.041) in the triad design. Significant over-transmission of the G allele for marker rs2235375 (P = 0.049) was found. Only the TACGT haplotype was diminished in the affected child, either in single (P = 0.0208) or double (P = 0.0208) dose. The pairwise analysis showed rs2235543 and rs2235371 were in strong linkage disequilibrium. These results point to a substantial contribution of IRF6 in the etiology of non-syndromic CL/P in a sample of the Mexican population.

Source: Medline

17. Title: Maxillary rehabilitation using a removable partial denture with attachments in a cleft lip and palate patient: a clinical report.
Citation: Journal of prosthodontics : official journal of the American College of Prosthodontists, Apr 2015, vol. 24, no. 3, p. 250-253 (April 2015)

Author(s): Palmeiro, Marina Rechden Lobato, Piffer, Caroline Scheeren, Brunetto, Vivian Martins, Maccari, Paulo César, Shinkai, Rosemary Sadami Arai

Abstract: Clefts of the lip and/or palate (CLP) are oral-facial defects that affect health and overall quality of life. CLP patients often need multidisciplinary treatment to restore oral function and esthetics. This paper describes the oral rehabilitation of a CLP adult patient who had maxillary bone and tooth loss, resulting in decreased occlusal vertical dimension. Functional and cosmetic rehabilitation was achieved using a maxillary removable partial denture (RPD) attached to telescopic crowns. Attachment-retained RPDs may be a cost-effective alternative for oral rehabilitation in challenging cases with substantial loss of oral tissues, especially when treatment with fixed dental prostheses and/or dental implants is not possible. © 2014 by the American College of Prosthodontists.

Source: Medline

18. Title: MEIS2 involvement in cardiac development, cleft palate, and intellectual disability

Citation: American Journal of Medical Genetics, Part A, May 2015, vol./is. 167/5(1142-1146), 1552-4825;1552-4833 (01 May 2015)

Author(s): Louw J.J., Corveleyn A., Jia Y., Hens G., Gewillig M., Devriendt K.

Language: English

Abstract: MEIS2 has been associated with cleft palate and cardiac septal defects as well as varying degrees of intellectual disability. We present a female patient with a more severe phenotype compared to previous reported patients. She has multiple congenital malformations; cleft palate and congenital heart defect characterized by septal defects and aortic coarctation. She has severe feeding problems, facial dysmorphism, severely delayed gross motor and verbal development, and autism spectrum disorder. Facial dysmorphism consisting of bitemporal narrowing, arched and laterally extended eyebrows, mild upslanting palpebral fissures, deep-set eyes, a tented upper lip, thin upper vermillion, full lower vermillion, broad first ray of hands and feet, a gap between the first and second toes, and syndactyly of toe II-III. Exome sequencing revealed a non-frameshift deletion (c.998_1000del:p.Arg333del) of three base pairs in the MEIS2 homeodomain. The more severe phenotype is most probably due to dominant-negative mechanisms. This is the first report showing a de novo small intragenic mutation in MEIS2 and further confirms the important role of this gene in normal development.

Publication type: Journal: Article

Source: EMBASE


Author(s): de Ruiter, Ad, Janssen, Nard, van Es, Robert, Frank, Michael, Meijer, Gert, Koole, Ron, Rosenberg, Toine

Abstract: Can a synthetic bone substitute be used to repair the alveolar cleft to bypass donor site morbidity as well as to shorten the operating time? In earlier experimental studies, micro-structured beta-tricalcium phosphate (β-TCP) provided similar bone healing when compared with grafting with iliac crest bone. This justifies the clinical evaluation of this bone substitute in the human alveolar cleft situation. Prospective clinical study. University clinic. Seven patients, all with unilateral alveolar cleft, were randomly included for alveolar cleft repair with β-TCP in 2010 and 2011. In all patients, the alveolar cleft was repaired by micro-structured β-TCP grafting. Our assessments were distilled from cone beam computed tomography scans taken preoperatively, 1 week postoperatively, and 6 months postoperatively. A volumetric outcome could be realized. Six months after the operative grafting of micro-structured β-TCP into the alveolar cleft, the bone volume thus acquired was satisfactory. We found an average bone volume percentage of 73% ± 6% compared with the original cleft volume. Previous experimental and clinical studies and the initial findings of this pilot study now elucidate a path toward the clinical use of micro-structured β-TCP bone substitute for repair of the alveolar cleft.

Source: Medline

20. Title: Nager syndrome and Pierre Robin sequence

Citation: Pediatrics International, April 2015, vol./is. 57/2(e69-e72), 1328-8067;1442-200X (01 Apr 2015)


Language: English

Abstract: Nager syndrome is considered a rare genetic syndrome characterized by craniofacial and radial anomalies. Pierre Robin sequence is a triad that includes micrognathia, cleft palate and glossoptosis. The present patient had
23. Title: Precise implant placement with a computer-assisted surgical guide in cleft lip and palate patients.

Citation: The Cleft palate-craniofacial journal : official publication of the American Cleft Palate-Craniofacial Association, May 2015, vol. 52, no. 3, p. e65. (May 2015)

Author(s): Doh, Re-Mee, Dam, Chugeum, Kyung, Kyu-Young, Park, Wonse
Abstract: It is very common for cleft lip and palate patients to have congenitally missing teeth. Insufficient buccopalatal bone volume, a shallow vestibule, and lack of soft tissue resulting from previous surgical scarring render it difficult for clinicians to place implants in the missing area. This report describes guide surgery that represents a treatment option for cases in which implants need to be placed in tight spaces with minimal bone space, to minimize as far as possible manual placement errors.

Source: Medline

**24.Title:** Presurgical cleft lip anthropometrics and dental arch relationships in patients with complete unilateral cleft lip and palate.

**Citation:** The Cleft palate-craniofacial journal : official publication of the American Cleft Palate-Craniofacial Association, May 2015, vol. 52, no. 3, p. 269-276 (May 2015)

**Author(s):** Antonarakis, Gregory S, Adibfar, Alex, Tompson, Bryan D, Paedo, D, Daskalogiannakis, John, Fisher, David M

**Abstract:** To investigate associations between anthropometric lip measurements and dental arch relationships in patients with complete unilateral cleft lip and palate (CUCLP). Retrospective cross-sectional study. Children with CUCLP. Anthropometric lip measurements, made immediately prior to lip repair, were available for each patient. The dental arch relationships were evaluated on dental study casts (8.6 ± 0.9 years) taken prior to any orthodontic treatment and prior to alveolar bone graft, using the modified Huddart and Bodenham (MHB) scoring system. The presence of associations between anthropometric lip measurements and dental arch relationships was determined using linear regression analysis. In the 63 patients included in the study, the cleft lateral lip element was deficient in height in 87% and in transverse width in 86% of patients. Patients with more deficient cleft-side lateral lip height were more likely to present with more negative MHB scores (r = .443; P

**Source:** Medline

**25.Title:** Prevalence of cleft lip and cleft palate in rural north-central guatemala.

**Citation:** The Cleft palate-craniofacial journal : official publication of the American Cleft Palate-Craniofacial Association, May 2015, vol. 52, no. 3, p. 377-380 (May 2015)

**Author(s):** Matute, Jorge, Lydick, Elaine A, Torres, Olga R, Owen, Karen K, Jacobsen, Kathryn H

**Abstract:** To estimate the number of new cases of cleft lip and cleft palate in the department (state) of Alta Verapaz, Guatemala, in 2012. Cross-sectional survey of midwives from communities identified through a two-stage cluster-sampling process. Midwives were asked how many babies they had delivered in the past year and how many of those newborns had various types of birth defects, as illustrated in pictures. Indigenous Mayan communities in rural north-central Guatemala. Midwives (n = 129) who had delivered babies in the previous year. Reports of babies born with cleft lip and cleft palate. A 1-year prevalence rate of 18.9 per 10,000 for cleft lip and 4.7 per 10,000 for cleft palate was estimated for Alta Verapaz. None of the cases of cleft lip also had cleft palate. The indigenous communities in north-central Guatemala might have a relatively high cleft lip prevalence rate compared with the global average.

**Source:** Medline

**26.Title:** Psychotropic drug use in adolescents born with an orofacial cleft: A population-based study

**Citation:** BMJ Open, April 2015, vol./is. 5/4, 2044-6055 (02 Apr 2015)

**Author(s):** Nilsson S., Merlo J., Lyberg Ahlander V., Psouni E.

**Language:** English

**Abstract:** Objectives: Being born with an orofacial cleft (OFC) can, due to an incomplete closure of the lip and/or palate, convey a deviant speech and/or deviant facial aesthetics, which may in turn increase the risk for poor psychological health later in life. Previous investigations have been based on small samples and self-reports, not distinguishing between the three different types of OFC: cleft lip (CL), CL and palate (CLP) and cleft palate only (CPO). We present a large population-based study, considering psychotropic drug use as a proxy for poor psychological health and distinguishing between three different types of OFC. Design and methods: Using the Swedish Medical Birth Register, and linking to it the Swedish Prescribed Drug Register, the National Mortality Register, the Emigration Register and the National Inpatient Register, we identified all singletons born to native mothers in Sweden between 1987 and 1993, alive and residing in Sweden at the end of an 18-year follow-up period (N=626 109). We compared psychotropic drug use among individuals with and without OFC during the individuals' adolescence (2005-2008) by multiple logistic regressions, using ORs with 95% CIs. Results: When adjusted for potential confounders, having a CL (OR=1.63, 95% CI 1.08 to 2.46) or a CPO (OR=1.54, 95% CI 1.18 to 2.01) increased the risk of psychotropic drug use. Results were not significant regarding adolescents who had a CLP (OR=1.21, 95% CI 0.81 to 1.80). Conclusions: Being born with a CL or a CPO increases the risk for psychotropic drug use in adolescence, but not for adolescents born
with a CLP. Our findings suggest that, since the three OFC types are associated with different long-term risks of poor psychological health, the three groups should be studied separately concerning long-term psychosocial consequences.

**Publication type:** Journal: Article  
**Source:** EMBASE  
**Full text:** Available Highwire Press at BMJ Open

27. **Title:** Replication of 13q31.1 association in nonsyndromic cleft lip with cleft palate in Europeans  
**Citation:** American Journal of Medical Genetics, Part A, May 2015, vol./is. 167(5(1054-1060), 1552-4825;1552-4833 (01 May 2015)  
**Language:** English  
**Abstract:** Genome wide association (GWA) studies have successfully identified at least a dozen loci associated with orofacial clefts. However, these signals may be unique to specific populations and require replication to validate and extend findings as a prelude to etiologic SNP discovery. We attempted to replicate the findings of a recent meta-analysis of orofacial cleft GWA studies using four different ancestral populations. We studied 946 pedigrees (3,436 persons) of European (US white and Danish) and Asian (Japanese and Mongolian) origin. We genotyped six SNPs that represented the most significant P-value associations identified in published studies: rs742071 (1p36), rs7590268 (2p21), rs7632427 (3p11.1), rs12543318 (8q21.3), rs8001641 (13q31.1), and rs7179658 (15q22.2). We directly sequenced three non-coding conserved regions 200kb downstream of SPRY2 in 713 cases, 438 controls, and 485 trios from the US, Mongolia, and the Philippines. We found rs8001641 to be significantly associated with nonsyndromic cleft lip with cleft palate (NSCLP) in Europeans (P-value=4x10^-4).<inf>transmission</inf>=1.86 with 95% confidence interval: 1.38-2.52). We also found several novel sequence variants in the conserved regions in Asian and European samples, which may help to localize common variants contributing directly to the risk for NSCLP. This study confirms the prior association between rs8001641 and NSCLP in European populations.  
**Publication type:** Journal: Article  
**Source:** EMBASE

28. **Title:** rs1801133C>T polymorphism in MTHFR is a risk factor for nonsyndromic cleft lip with or without cleft palate in the Brazilian population.  
**Citation:** Birth defects research. Part A, Clinical and molecular teratology, Apr 2015, vol. 103, no. 4, p. 292-298 (April 2015)  
**Author(s):** de Aguiar, Pamella Kelly Farias, Coletta, Ricardo D, de Oliveira, Allane Maria Lacerda Ferreira, Machado, Renato Assis, Furtado, Paulo Germano Cavalcante, de Oliveira, Lindalva Alves, de Aquino, Sibele Nascimento, Martelli-Junior, Hercilio, de Almeida Reis, Silvia Regina, Moreira, Helenara Salvati Bertolossi, Persu, Darlene Camati  
**Abstract:** The MTHFR rs1801131A>C and rs1801133C>T variants have been analyzed as putative genetic risk factors for oral clefts within various populations worldwide. To test the role of these polymorphisms in nonsyndromic cleft lip with or without cleft palate (NSCL/P) in the Brazilian population, we conducted a study combining a Family-Based Association Test (transmission disequilibrium test) and a structured association analysis (case-control study) based on the individual ancestry proportions. The rs1801131 and rs1801133 were initially analyzed in 197 case-parent trios by transmission disequilibrium test, and polymorphisms showing significant association with NSCL/P were subsequently studied in independent sample composed of 318 isolated samples of NSCL/P and 598 healthy controls in a case-control approach. Genomic ancestry was characterized by a set of 40 biallelic short insertion/deletion markers. A strong overtransmission of the T allele of rs1801133 was observed in case-parent trios of NSCL/P (p = 0.002), but no preferential parent-of-origin transmission was detected. No association of rs1801131 polymorphism with NSCL/P was observed. The structured case-control analysis supported that the T allele was significantly more frequent in the NSCL/P group (odds ratio: 1.37; 95% CI: 1.12-1.69; p = 0.002) than in the control group. Both polymorphisms were in linkage disequilibrium (D' = 0.94 and r(2) = 0.79), and haplotype-transmission disequilibrium test for allelic combination of rs1801131 and rs1801133 showed a significant overtransmission of haplotype A-T to the affected NSCL/P offspring (p = 0.001). Our findings provide evidences for the involvement of rs1801133 in the development of NSCL/P in the Brazilian population. Birth Defects Research (Part A) 103:292-298, 2015. © 2015 Wiley Periodicals, Inc.  
**Source:** Medline
29. Title: Socioeconomic influence on orofacial cleft patient care.

Citation: Scottish medical journal, May 2015, vol. 60, no. 2, p. 70-74, 0036-9330 (May 2015)

Author(s): Smillie, I, Yong, K, Harris, K, Wynne, D M, Russell, Cj

Abstract: Cleft lip and palate is the most common craniofacial birth defect in the UK. Orofacial clefts have functional and aesthetic implications requiring intensive multi-disciplinary follow-up to optimise development. Failure to attend follow-up is likely to have a negative impact on patient outcomes. The aim of this retrospective audit is to establish if socioeconomic status influences attendance, DNA and cancellation rates in cleft patients. A retrospective audit of 74 orofacial cleft patients born and operated on at the Royal Hospital for Sick Children Glasgow between 2006 and 2007. There was higher rate of DNA in more deprived social groups-21% (SIMD 1) against 10% (SIMD 5). A higher rate of DNA in cleft lip and palate patients was noted. This group of patients showed a marked difference in attendance between SIMD 1 (38%) and SIMD 5 (78%). More deprived areas have a higher outpatient DNA rate for cleft patients resulting in suboptimal follow-up. Ultimately, causation of poorer outcomes in this group is likely to be multi-factorial but the financial implication of travelling to multiple clinics should be considered and it may be that resource reallocation is the answer to address the current inequality of health care provision. © The Author(s) 2014

Source: Medline


Citation: Biological research for nursing, May 2015, vol. 17, no. 3, p. 257-262 (May 2015)

Author(s): Hopkins, Emily E, Wallace, Meredith L, Conley, Yvette P, Marazita, Mary L

Abstract: Attention-deficit hyperactivity disorder (ADHD) is a common childhood neurobehavioral disorder characterized by inattention, poor impulse control, and motor restlessness. Risk factors include familial stressors, anxiety disorders, learning disabilities, abnormal brain development, heritability, and dopamine polymorphisms. Children with an orofacial clefting (OFC) history are at increased risk of familial stressors, anxiety disorders, learning disabilities, and abnormal brain development. Given this overlap, we present a conceptual model proposing that children with OFC may be more likely to exhibit ADHD symptoms than children without and explore this relationship using pilot data. This cross-sectional pilot study included 29 children with OFC or a first-degree relative with OFC recruited through a cleft research registry. The Disruptive Behavior Disorder Scale was used to collect data on children's ADHD symptoms. Saliva or whole blood samples were collected from children and parents for DNA analyses. ADHD-associated dopamine polymorphisms within the DRD4, DRD2, and DAT1 genes were genotyped. We tested for associations between presence of OFC and dopamine polymorphisms. Mixed-effects models tested whether children with OFC and dopamine polymorphisms had more ADHD symptoms. The DRD4 4-repeat allele was associated with increased inattentive ADHD symptoms (p = .03). Having the DRD2 Taq1A1 allele and OFC predicted fewer (p = .02) inattentive ADHD symptoms. Children with OFC were significantly less likely to have the DAT1 10-repeat allele (p = .04). Results indicate that further investigation among a larger sample of children with OFC is warranted, particularly for relationships with inattentive ADHD. © The Author(s) 2014

Source: Medline

31. Title: Teleducation about cleft lip and palate: An interdisciplinary approach in the promotion of health

Citation: International Archives of Otorhinolaryngology, June 2015, vol./is. 19/2(106-111), 1809-9777;1809-4864 (18 Jun 2014)


Language: English

Abstract: Introduction The Young Doctor Project (YDP) uses Telehealth and Interactive Teleducation instruments to promote the integration of different areas of health and to build knowledge. This methodology can also foster public awareness on various issues related to health. In this context, the objective of this study was to emphasize cleft lip and palate (CLP), which is one of the most common birth defects in Brazil. Objective The study aimed to apply a model of education regarding CLP, based on the dynamics of the YDP, and to evaluate the participants’ knowledge acquired after participating in the YDP. Methods The participants were 41 students, 13 to 15 years of age and at the eight- and ninth-grade levels in a private elementary school in Bauru (Brazil). To analyze the performance of the participants, a questionnaire was administered before and after the completion of the training program. The training program was structured in three steps using: (1) interactive teleducation classes, (2) a cybertutor, and (3) practical activities. Results There was a statistically significant difference between the pre- and postparticipation questionnaire results. The improved performance of participants is evidenced by the increase in the rate of correct answers on all issues. Conclusion The YDP on CLP was applied in the school setting following the three steps recommended by the project, and, after the implementation of the training program, there was a significant
increase in participants’ knowledge of CLP. The YDP on CLP proved an effective tool in promoting health education.

**Publication type:** Journal: Article

**Source:** EMBASE

32. **Title:** The Effectiveness of Psychosocial Intervention for Individuals With Cleft Lip and/or Palate.

**Citation:** The Cleft palate-craniofacial journal : official publication of the American Cleft Palate-Craniofacial Association, May 2015, vol. 52, no. 3, p. 301-310 (May 2015)

**Author(s):** Norman, Alyson, Persson, Martin, Stock, Nicola, Rumsey, Nichola, Sandy, Jonathan, Waylen, Andrea, Edwards, Zoe, Hammond, Vanessa, Partridge, Lucy, Ness, Andy

**Abstract:** The aim of this review was to assess the effectiveness of different psychological interventions for children and adults with cleft lip and/or palate and their parents. We searched six databases including MEDLINE and EMBASE to June 2013 and checked bibliographies. We included research that evaluated any psychological intervention in studies in which at least 90% of the participants had cleft lip and/or palate or were parents of those with cleft lip and/or palate. Studies containing less than 90% were excluded unless they reported results separately for those with cleft lip and/or palate, or raw data were available upon request from the authors. Inclusion assessment, data extraction, and risk of bias assessment were carried out independently by two reviewers. Seven studies were identified as inclusions, with only two studies being included in the full data analysis (one of which failed to meet the full inclusion criteria). The five remaining studies were included only in a narrative synthesis because data were available for people or parents of those with cleft lip and/or palate only. This highlights a distinct dearth of research into psychological intervention within the field of cleft lip and/or palate. The review found no evidence to support any specific intervention. Key uncertainties need to be identified and addressed. Adequately powered, methodologically rigorous randomized controlled trials are needed to provide a secure evidence base for psychological intervention techniques in participants with cleft lip and/or palate and their parents.

**Source:** Medline

33. **Title:** Three-dimensional evaluation of pharyngeal airway in complete unilateral cleft individuals and normally growing individuals using cone beam computed tomography.

**Citation:** The Cleft palate-craniofacial journal : official publication of the American Cleft Palate-Craniofacial Association, May 2015, vol. 52, no. 3, p. 346-351 (May 2015)

**Author(s):** Diwakar, Rohan, Sidhu, Maninder Singh, Jain, Saurabh, Grover, Seema, Prabhakar, Mona

**Abstract:** The aim of the present study was to evaluate pharyngeal airway in cleft individuals and normally growing individuals using cone beam computed tomography. Cone beam computed tomography scans of 22 individuals were obtained from the Department of Orthodontics and divided in two groups. Group 1 includes 11 cases with complete unilateral cleft lip and palate (mean age, 12 years) and group 2 includes 11 noncleft cases (mean age, 14 years). The oropharyngeal, nasopharyngeal, and oronasal pharyngeal airway was evaluated between the two groups. In the cleft group, the volume of the nasopharyngeal airway was found to be 3.66 cm(3); of the oropharyngeal airway, 9.28 cm(3); and of the oronasal pharyngeal airway, 12.67 cm(3). The volume of the nasopharyngeal airway was found to be significantly reduced in the cleft palate group when compared with the noncleft group. The nasopharyngeal airway was found to be significantly smaller among the children with cleft palate than among those in the control group.

**Source:** Medline

34. **Title:** Unilateral cleft lip repair during charity missions: a consideration about simultaneously lip and nose repair.

**Citation:** Minerva stomatologica, Aug 2015, vol. 64, no. 4, p. 203-212, 0026-4970 (August 2015)

**Author(s):** Rauso, R, Onesti, M, Scuderi, N

**Abstract:** Cleft nose is an important sequela after primary cheiloplasty in cleft lip patients. Not touching the cleft lip nose in primary cleft lip repair was dogmatic in the past, although it meant severe functional, aesthetic, and psychologic problems for the child. Authors present their experience in one step lip, septum and nasal tip repair for this patients population. From March 2012 to January 2013, during charity missions organized in Africa, 56 patients affected by cleft lip deformity and sequelas of previous cleft lip surgery were operated. Two complications were recorded. A good nostril symmetry was reached in all the cases. Authors present their experience in one step lip, septum and nasal tip repair for unilateral cleft lip patients. The big lack of this study is the absence of a long follow-up due to the surgery performed during charity missions. Thanks to the recent papers published in literature we can state that primary septal repositioning is a safe adjunctive technique to primary lip closure, although this operation reduces the psychosocial consequences of an otherwise uncorrected cleft nose deformity, it does not necessarily eliminate the need for a future operation.
Disclaimer and Feedback

This current awareness bulletin contains a selection of information which is not intended to be exhaustive, and although library staff have made every effort to link only to reputable and reliable websites, the information contained in this bulletin has not been critically appraised by library staff. It is therefore the responsibility of the reader to appraise this information for accuracy and relevance.

This bulletin was produced by Caroline Thomas, Librarian, Salisbury NHS Foundation Trust Healthcare Library. If you have any comments to make about this bulletin please contact Caroline.Thomas@salisbury.nhs.uk.