**Appendix 1:** Electronic search strategy

1. exp Infant, Newborn/

2. (neonat\* or newborn or baby or babies or perinat\*).mp. [mp=title, abstract, original title, name of substance word, subject heading word, keyword heading word, protocol supplementary concept, rare disease supplementary concept, unique identifier]

3. 1 or 2

4. exp Neonatal Screening/

5. (screen\* or test\* or program\* or procedure).mp. [mp=title, abstract, original title, name of substance word, subject heading word, keyword heading word, protocol supplementary concept, rare disease supplementary concept, unique identifier]

6. 4 or 5

7. guthrie.ab,ti.

8. (blood spot\* or bloodspot\*).mp. [mp=title, abstract, original title, name of substance word, subject heading word, keyword heading word, protocol supplementary concept, rare disease supplementary concept, unique identifier]

9. (heel-prick\* or heelprick\*).mp. [mp=title, abstract, original title, name of substance word, subject heading word, keyword heading word, protocol supplementary concept, rare disease supplementary concept, unique identifier]

10. 7 or 8 or 9

11. Economics/

12. exp "costs and cost analysis"/

13. Economics, Dental/

14. exp economics, hospital/

15. Economics, Medical/

16. Economics, Nursing/

17. Economics, Pharmaceutical/

18. (economic$ or cost or costs or costly or costing or price or prices or pricing or pharmacoeconomic$).ti,ab.

19. (expenditure$ not energy).ti,ab.

20. value for money.ti,ab.

21. budget$.ti,ab.

22. or/1-11

23. ((energy or oxygen) adj cost).ti,ab.

24. (metabolic adj cost).ti,ab.

25. ((energy or oxygen) adj expenditure).ti,ab.

26. 23 or 24 or 25

27. 22 not 26

28. letter.pt.

29. editorial.pt.

30. historical article.pt.

31. 28 or 29 or 30

32. 27 not 31

33. exp animals/ not humans/

34. 32 not 33

35. bmj.jn.

36. "cochrane database of systematic reviews".jn.

37. health technology assessment winchester england.jn.

38. journal of medical economics.jn.

39. 35 or 36 or 37 or 38

40. 34 not 39

41. 3 and 6 and 10 and 22 and 27 and 32 and 34 and 40

|  |  |  |
| --- | --- | --- |
| **Country** | **Region/ State/ Territory** | **Current Conditions Screened for** |
| Australia  | New South Wales [42] | PKU, CH, CF, Galactosaemia and a range of Aminoacidopathies, Organic acidaemias, and Fatty acid oxidation defects |
|  | Western Australia [50] | PKU, CH, CF, Galactosaemia and a range of Aminoacidopathies, Organic acidaemias, and Fatty acid oxidation defects |
| Canada | Nova Scotia [46] | PKU, CH, CF, MCADD, MSUD, SCD, GA1, IVA, Long Chain 3-Hydroxyacyl-CoA Dehydrogenase Deficiency (LCHAD), Very Long Chain Acyl-CoA Dehydrogenase Deficiency (VLCADD), and 4 other conditions. |
|  | Ontario [39] | PKU, CH, CF, Galactosaemia, MCADD, Maple Syrup Urine Disease (MSUD), SCD, Glutaric Acidemia type 1 (GA1), Homocydtinuria, Isovaleric Acidemia (IVA), and 16 other conditions |
| Iran | Whole Country [45] | CH |
| Finland | Whole Country [38] | CH, PKU (generally for non-Finnish newborns) |
| France | Whole Country [52] | PKU, CH, CF, SCD, Congenital Adrenal Hyperplasia (CAH) and MCADD |
| Libya | Whole Country [57] | As of yet, no programme exists |
| The Netherlands | Whole Country [53, 60, 61, 63] | PKU, CH, CF, Galactomsaemia, SCD, CAH, GA1, MCADD, Homocystinuria, IVA, and 6 other conditions |
| The UK | Whole Country [17, 43, 58] | PKU, CH, CF, SCD, MCADD, MSUD, GA1, IVA, Homocystinuria |
| The USA | Alaska [51] | PKU, CH, CF, CAH, SCD, MSUD, MCADD, GAI, IVA, LCHAD, and 36 other conditions |
|  | California [40, 44] | PKU, CH, CF, CAH, SCD, MSUD, MCADD, GAI, IVA, Homocystinuria, and 47 other conditions |
|  | Indiana [48] | PKU, CH, CF, CAH, SCD, MSUD, MCADD, GA1, IVA, LCHAD, and 40 other conditions  |
|  | Kentucky [62] | PKU, CH, CF, CAH, SCD, MSUD, MCADD, GA1, IVA, LCHAD, and 42 other conditions |
|  | Pennsylvania [47] | PKU, CH, CF, CAH, SCD, MSUD, MCADD, GA1, IVA, LCHAD, and 23 other conditions |
|  | Texas [59] | PKU, CH, CF, CAH, SCD, MSUD, MCADD, GA1, IVA, LCHAD, and 20 other conditions |
|  | Wisconsin [41] | PKU, CH, CF, CAH, SCD, MSUD, Homocysinuria, Galactosaemia, Severe Combined Immune Deficiency (SCID), Argininosuccinic Acidemia (ASA), and 34 other conditions. |

**Appendix 2 –** Summary of current screening panels in countries where evaluations have been conducted

**Appendix 3:** Summary of identified economic evaluations of specific technologies used in NBSP

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Author (Year)****Country** | **Intervention & comparator** | **Study viewpoint and population**  | **Evaluation vehicle (type) & time horizon (discount rate)** | **Resource Use & Price Year (currency)** | **Costs & harms related to information Provision** | **Valuation of Benefits** | **Key Results** |
| Autti-Rämö *et al.,*[38](2005)Finland | Intervention:Tandem mass spectrometry for 5 conditionsComparator: No screening | Viewpoint: Not stated (appears to be health service)Study Population:Cohort of newborns based on Finnish birth rate (n=56,000) | Model Based(Type not stated)Time Horizon:Not stated (5%) | Resources: Information, blood samples, overheads, wages, equipment, analytes, diagnostic confirmation, quality controlCost source:Author assumptions, similar programmesPrice year: 2002 (€) | Costs: Yes €303,000 for information during pregnancy - €5.41 per child screened€23,100 for information about screening results - €0.41 per child screenedHarms: No | QALYs | ICER: Best Case - €5,500 per QALYWorst Case - €25,500 per QALY |
| Cipriano *et al.,* [39](2007)Canada(Ontario) | Intervention:Tandem mass spectrometry for 21 conditions.Comparator: Guthrie test for phenylketonuria (PKU) and hypothyroidism | Viewpoint: Canadian Health ServiceStudy Population: neonates born in Ontario in 1 year (n=130,000) | Model Based (Decision Tree)Time Horizon:Lifetime (3%) | Resources: Start-up costs, confirmatory testing, treatment, hospitalization, social services and educationCost sources:Primary data (trial)Literature ReviewPrice year: 2004 (Canadian $)  | Costs: NoHarms: YesQuality of life decrement of between 0.01 and 0.03 utility for parents during uncertain diagnosis period. The authors accounted for this decrement by decreasing each life year saved by the QoL loss. | Life Years gained | Incremental analysis: YesICER: $5,492,114 per life year gained (screening for PKU only)ICER: $68,346 per life year gained (PKU + 14 most cost-effective conditions)Where parents experience 0.01 QoL loss, ICER: $73,500 per life year gained (PKU + 14 most cost-effective conditions)Where parents experience 0.03 QoL loss, ICER: $104,000 per life year gained (PKU + 14 most cost-effective conditions) |
| Feuchtbaum *et al*.,[40] (2006)USA(California) | Intervention:Tandem mass spectrometry for screening for PKU Comparator:No screening for PKU | Viewpoint: Californian Payers Study Population:neonates born in California in 1 year (n=540,000) | Model Based (Unspecified)Time Horizon:Lifetime (3%) | Resources:Personnel and administration, equipment, supplies, laboratory contracts, follow-up centresCost Sources:Primary data (pilot study)Literature ReviewPrice year: 2004 (US $) | Costs: NoHarms: No | Life Years SavedCases DetectedMonetary Benefits (for life years saved)QALYs | Incremental analysis: YesICER: $708,000 per life year savedICER: $132,000 per case detectedICER: Between $11,000 and $19,000 per QALYIncremental Net Benefits: $47.1million (best case scenario)Incremental Net Benefits: $14.1million (worst case scenario)Benefit:Cost ratio: $9.32 (best case scenario)Benefit:Cost ratio: $8.65 (worst case scenario) |
| Insinga *et al.,*[41] (2002)USA (Wisconsin) | Intervention:Tandem mass spectrometry screening for 14 fatty acid disorders and organic acidemiasComparator:No screening | Viewpoint: SocietalStudy Population: Infants in the Wisconsin Newborn Screening Programme (n=100,000) | Model Based (Decision Tree)Time Horizon:Lifetime (3%) | Resources:MS/MS screening test, MS/MS test confirmation (positive for MCAD), MS/MS test confirmation (negative for MCAD), lifetime carnitine supplementation, lifetime follow-up testing, routine hospital admission, neurologic impairmentCost sources:Literature reviewPrice year: 2001 (US $) | Costs: NoHarms: No | Life expectancyQALYs | Incremental analysis: YesICER: $41,862 per QALY |
| Norman *et al.,*[42](2009)Australia | Intervention:Tandem mass spectrometry for 5 categories of disorders: aminoacidurias, urea cycle disorders, organic acidurias, medium-chain acyl-CoA dehydrogenase deficiency (MCADD) and other fatty acid oxidation defectsComparator:Individual screening for 5 categories of conditions | Viewpoint: Health ServiceStudy Population:Neonates  | Retrospective-cohort based (before and after cohort study)Time Horizon: 4 years (6%) | Resources: screening (including follow-up testing for true-positive and false-positive cases), treatment of conditions, general health careCost Sources:Primary data (trial)Literature ReviewPrice year:2002 (AUS $)  | Costs: NoHarms: No | Life Years SavedDeath Years Averted | Incremental analysis: YesICER: AUS $472,913 per death averted ICER: AUS $10,779 per life-year saved |
| Pandor *et al.,*[43](2004) UK | Intervention:Tandem mass spectrometry screening for PKU and MCADDComparator: vs Traditional screening for PKU only. | Viewpoint: Health and other public sector providersStudy Population:neonates (n=100,000) | Model Based (not specified)Time Horizon:Lifetime (6%) | Resources:Screening, treatment of condition, treatment of symptomatic presentation, social care and education Cost Sources:Literature ReviewPrice year: 2001 (£)  | Costs: yes (£0.30 per specimen collected)Harms: No | Life years gained | Incremental Analysis: YesICER: £-395 per life year saved (intervention dominates) |
| Pollitt *et al*.,[17](1997)UK | Intervention:Tandem mass spectrometry screening for a large range of conditionsComparator:Standard screening for PKU | Viewpoint: Health ServiceStudy Population:neonates (n=100,000) | Model Based (Decision Tree)Time Horizon:Lifetime (6%) | Resources:Specimen collection costs, laboratory analysis, follow-up, treatment, misclassification Cost Sources:Primary data (Surveys)Literature Review Price year: Not reported  | Costs: NoHarms: No | Life Years saved | Incremental Analysis: YesICER: £31 perlife-year saved  |
| Schoen *et al.,* [44](2003)USA (California) | Intervention:Tandem mass spectrometry screening for PKU, galactosemia, congenital hypothyroidism and haemoglobinopathiesComparator:Usual screening for the above conditions | Viewpoint: Payer (HMO)Study Population: neonates (n=100,000) | Model Based (not reported)Time Horizon:Lifetime (3%) | Resources:diagnosis, false-positive results, lifetime treatment Cost Sources:Literature ReviewPrice year: Not reported (US $) | Costs: NoHarms: No | QALYs  | Incremental analysis: Yes ICER: $5,827 per QALY |
| Shamshiri *et al.,*[45](2012)Iran | Interventions:Various screening thresholds for congenital hypothyroidismComparator:The current cut off point for Guthrie testing for congenital hypothyroidism | Viewpoint: Iranian health service Study Population: neonates (n=10,000) | Model Based (Decision Tree)Time Horizon:Lifetime - to 82 years (3%) | Resources:Guthie test, confirmatory tests, diagnosis, laboratory tests, visits by physicians, drugs, education, careCost Sources:Literature ReviewPrice year: not reported (US $) | Costs: NoHarms: No | DALYs  | Incremental Analysis: YesICER: $-4.58k per DALY (intervention dominates) for best case scenario with cut-off point of 5mU/l |
| Tran *et al.,* [46](2006) Canada(Nova Scotia) | Intervention:Tandem mass spectrometry screening for MCADDComparator:Clinical diagnosis of MCADD | Viewpoint: Canadian Health Care SystemStudy Population: Not reported explicitly | Model Based (Decision Tree)Time Horizon: Lifetime (not reported) | Resources:Screening, acute episode, management, severe neurological impairmentCost sources:Primary Data (Nova Scotia Screening programme)Systematic ReviewPrice year: Not reported (CAN $) | Costs: NoHarms: No | QALYs  | Incremental Analysis: YesICER: $2,676 per QALY |
| Venditti *et al.,*[47](2003)USA (Pennsylvania) | Intervention:Tandem mass spectrometry screening for MCADDComparator:No screening | Viewpoint: Societal Study Population: Infants up to 19 years old | Model Based (Decision Tree & Markov Model)Time Horizon: 20 and 70 years (3%) | Resources:Screening and follow-up, confirmatory evaluation for positive screen, carnitine for screened MCADD, care for severely affected.Cost Sources:Primary Data (Patient- family interviews)Literature ReviewExpert OpinionPrice year: 2001 (US $)  | Costs: NoHarms: Yes (False-positive: disutility between 0.01 to 0.03 for 3 months) | Life Years gainedQALYs  | Incremental analysis: YesICER: $11,000 per Life Year (20 years)ICER: $300 per Life Year (70 years) ICER: $5600 per QALY (20 years)ICER: $100 per QALY (70 years) |

**Appendix 4:** Summary of identified economic evaluations of NBSP

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Author (Year)****Country** | **Intervention & comparator** | **Study viewpoint and population**  | **Evaluation vehicle (type) & time horizon (discount rate)** | **Resource Use & Price Year (currency)** | **Costs & harms related to information Provision** | **Valuation of Benefits** | **Key Results** |
| Carrol & Downs [48](2006)USA (Indiana) | Intervention:The cost-effectiveness of each component part of a tandem mass spectrometry screening panelComparator:No screening | Viewpoint: SocietalStudy Population: Not reported | Model Based (Decision Tree)Time Horizon:Lifetime (3%) | Resources:screening tests, caring for disease, sequelae from diseaseCost Sources:Literature ReviewExpert OpinionPrice year: 2004 (US $) | Costs: NoHarms: No | QALYs  | Incremental Analysis: Yes ICER: $4838.71 per QALY  |
| Chan *et al.,* [49](2011)USA(Not limited to one state) | Intervention:Newborn Screening for Severe Combined Immunodeficiency (SCID)Comparator:Clinical diagnosis of SCID | Viewpoint:SocietalStudy Population:Full cohort of US newborns of 4,112,052 (based on 2003 figures) | Model Based (Decision Tree leading to Markov Model)Time Horizon:70 years (3%) | Resources:Screening and confirmatory testing, late haematopoietic cell transplantation (HCT), early HCT, hospital inpatient and outpatient visist, intravenous immunoglobin therapy (IVIG)Cost sources:Primary Data (hospital records, patient surveys)Price year: 2005 (US $)  | Costs: NoHarms: No | QALYs | Incremental Analysis: YesICER: $27,907 per QALY |
| Geelhoed *et al*., [50](2005)Australia | Intervention: Phenylketonuria (PKU) & congenital hypothyroidism (CH) screeningComparator: Symptomatic diagnosis (late detection) | Viewpoint: public sector Study Population: newborns (n=25,000) | Retrospective-cohort basedTime Horizon:Lifetime (5%) | Resources:Programme (specimen collection, equipment, staff, reagents, paper & printing), treatment, intellectual disability, maternal PKU, productivity lossesCost Sources:Primary Data (Western Australia screening programme)Literature ReviewPrice year: 2001 (AUS $)  | Costs: Yes (= $6.54 per child screened)Harms: No | Monetary benefit of a healthy child developing (avoided costs from gain in life years) | Incremental Analysis: YesICER: Cost per case of PKU or CH detected: Aus $59,340Aus $4,375,442 total averted cost of PKUAus $12,236,160 total averted cost of CHAus $2,879,776 net annual cost savings |
| Gessner *et al*., [51](1996)USA (Alaska) | Intervention:Universal screening for sickle cell diseaseComparator: Targeted screening of African Americans for sickle cell disease | Viewpoint: Payers Study Population: Not reported | Model Based (Decision Tree)Time Horizon: 1.75 years (no discounting) | Resources:screening, physician visits, programme, medical and home careCost Sources:Primary Data (Oregon Public Health Laboratory) Literature ReviewPrice year: 1993 (US $) | Costs: NoHarms: No | Death years avertedCases of mental retardation averted | Incremental Analysis: YesICER: $2,040,000 per death averted ICER: £53,000,000 per case of mental retardation averted |
| Hamers & Rumeau-Pichon[52](2012) France | Intervention:Screening for five conditions + MCADD and switching PKU screening to tandem mass spectometryComparator:Screening for current five conditions only | Viewpoint: Societal Study Population: birth cohort (n=821,000) | Model Based (Decision Tree)Time Horizon: Lifetime (4%) | Resources:screening test, confirmatory test, treatment of MCADD sequelae Cost Sources:Literature ReviewPrice year: not reported | Costs: NoHarms: No | QALYs Life Years Gained | Incremental Analysis: YesICER: €19,478 per Life Year Gained (MCADD)ICER: €18,033 per QALY (MCADD)ICER: €8189 per Life Year Gained (MCADD with PKU)ICER: €7,851 per QALY (MCADD with PKU) |
| Lanting *et al*.,[53](2004) The Netherlands | Intervention:Cost-effectiveness of various laboratory methods for identification of children with congenital hypothyroidism | Viewpoint: health serviceStudy Population: newborns (n=1,181,079) | Retrospective-cohort study based (cohort Study)Time Horizon: 5 years (not reported) | Resources:Laboratory, initial diagnostic testsCost sources:Primary Data (Dutch Neonatal Screening Programme)Literature ReviewPrice year: Not reported  | Costs: NoHarms: no | Number of cases of congenital hypothyroidism detected | Incremental Analysis: NoAverage cost per case detected by strategy: (T4)+TSH = $6353T4 + TSH = $6209T4+THS+TBG = $6851 |
| McGhee *et al.,* [54](2005)USA(Not limited to one state) | Intervention:Threshold willingness to pay at which universal newborn screening for SCID would be cost-effectiveComparator:Clinical diagnosis of SCID and screening based on family history | Viewpoint: health serviceStudy Population:National cohort of newborns (n=4,000,000) | Model Based(Decision Tree)Time Horizon: Lifetime (3%) | Resources:Test cost, treatment cost, infection treatment cost, follow-up cost, IVIG costCost sources: Author assumptions based on current costs, adjusted hospital chargesPrice year: 2000 (US $) | Costs: NoHarms: No | QALYs | ICER: $53,560 per QALY |
| Panepinto *et al*.,[55](2000)USA(Not limited to one State) | Intervention:Universal screening and targeted screening of African Americans for Sickle Cell DiseaseComparator: No screening | Viewpoint: Health ServiceStudy Population: newborns (n=1,000,000) | Model Based (Markov Model)Time Horizon: Birth to three years of age (3%) | Resources:Screening test, confirmatory tests, follow-up, treatment of condition, treatment of serious sequelaeCost Sources:Literature ReviewPrice year: 1994 (US $)  | Costs: NoHarms: No | Life Years Saved  | Incremental Analysis: YesICER: $6709 per additional year of life saved (targeted versus no screening)ICER: $30,760 per additional year of life saved (universal versus targeted) |
| Prosser *et al.,* [56](2010) USA(Not limited to one State) | Intervention:Tandem mass spectrometry screening for MCADD Comparator: Clinical diagnosis of MCADD | Viewpoint: PayersStudy Population: newborns (n=100,000) | Model Based (Patient Level Simulation)Time Horizon:Lifetime (3%) | Resources:Treatment, hospitalisation, caring for a child with developmental delay, screening test, clinical workup, treating a presumed diagnosisCost Sources:Primary Data (New England Newborn Screening Programme)Literature ReviewPrice year: 2006 (US $)  | Costs: NoHarms: Yes (TTO values: loss due to false-positive results = 0.0005) | QALYs | Incremental Analysis: YesICER: $21,273 per QALY |
| Sladkevicius *et al.,*[57](2010)Libya | Intervention:Establishing a newborn screening programme for PKUComparator:No screening for PKU | Viewpoint:SocietalStudy Population:Hypothetical cohort of newborns screened over a 15 year time horizon (n=2.6 million) | Model Based(Decision Tree)Time Horizon:The programme runs for 15 years and costs and outcomes accrue for the lifetime of these cohorts (3%) | Resources:Diagnostic tests, hospital admissions, nutrition as treatment, medications, outpatient visits, mental institution accommodationCost sources:Structured interviews with paediatric specialists, directors of mental institutions, buyers and suppliers of medical equipment and two families of patients with PKUPrice year: 2007 (US $)  | Costs: NoHarms: No | Life years gained | ICER: $12,183 per life year gained |
| Simpson *et al.,* [58](2005)UK | Intervention:Cost-effectivenes of adding cystic fibrosis to a newborn bloodspot screening programmeComparator:Newborn bloodspot screening for PKU and CH only | Viewpoint:Hypothetical UK health authority with existing screening programmeStudy Population:Hypothetical cohort of 500,000 newborns | Model Based(Decision tree leading to Markov model)Time Horizon:Lifetime (Costs inflated to current price year at 5% inflation. Future costs discounted at 6%. QALYs discounted at 2%) | Resources:Counselling time to receive consent, immunoreactive trypsin test, DNA analysis, sweat chloride test, pre-diagnosis costs, disease state specific costsCost Sources:Audit of notes of 25 children with CF, medical recordsPrice year: 1998 (UK £) | Costs: Yes (Incremental costs of £0.40 per screened child for CF information. This is 2.1 minutes of midwife. A range of 0-7.6 minutes was used in the sensitivity analysis)Harms: No | QALYs | Incremental Analysis: YesICER: £6,864 per QALY |
| Tiwana *et al*., [59](2012) USA (Texas) | Intervention:Expanded screening programme (27 disorders)Comparator: current screening programme (7 disorders) | Viewpoint: Payers Study Population: Texas birth cohort | Model Based (Markov Model)Time Horizon:Lifetime (3%) | Resources:screening, confirmatory testing, false-positive result, disease management, disease sequelae.Cost Sources:Literature ReviewPrice year: 2007 (US $)  | Costs: NoHarms: Yes (Venditti et al. published disutility for false-positive result = 0.03) | QALYs  | Incremental Analysis: YesICER: $11,560 per QALY |
| Van der Akker-Van Marle *et al.,* [60](2006) The Netherlands | Intervention:Different laboratory tests to identify children with cystic fibrosis:IRT-IRT (Immunoreactive trypsin);IRT-DNA; IRT-DNA-IRT; IRT-DNA-DGGE (Denaturing gradient gel electrophoresis)Comparators:Comparison depends on strategy but comparators include;No screening, IRT-DNA-DGCE, IRT-IRT | Viewpoint: health serviceStudy Population: neonates (n=200,000) | Model Based (not reported)Time Horizon: Lifetime (3%) | Resources:Organisation, screening and diagnosis, genetic counselling for carriers, clinical diagnosis for CF carriers, diagnosis of non-CF patients, treatment of patients identified by screening, treatment for clinically diagnosed patientsCost sources:Literature ReviewExpert OpinionsPrice year: not reported (€) | Costs: NoHarms: No | Life years gained  | Incremental Analysis: YesICER: €24,800 per life-year gained (IRT-IRT) vs no screening ICER: €2,154,300 per life year gained (IRT-DNA) vs IRT-DNA-DGCEICER: €133,700 per life year gained (IRT-DNA-DGGE) vs IRT-IRT |
| Van der Hilst *et al.,* [61](2007)The Netherlands | Intervention:Tandem mass spectrometry screening for MCADD Comparator: No screening for MCADD  | Viewpoint: Societal Study Population: newborns (n=66,216) | Model Based (Decision Tree)Time Horizon: Lifetime (4%) | Resources:Inpatient and outpatient visits, travel expenses, ambulance services, laboratory tests, consultations, diagnostic imaging, medication and food supplements, special education, institutionalisation, parents productivity lossesCost sources: Primary Data (5 Dutch Screening Centres)Literature ReviewPrice year: 2004 (US $)  | Costs: NoHarms: No | Life Years Gained  | Incremental Analysis: YesICER: $1653 per Life Year gained  |
| Wells *et al.,*[62](2012)USA(Kentucky) | Cost and consequences comparison of two strategies of laboratory testing for cystic fibrosisIRT/DNAIRT/IRT | Viewpoint: Societal Study Population: newborns (n=100,000) | Model Based (Decision Tree)Time Horizon:From birth to confirmed diagnosis (not reported) | Resources:Screening, laboratory equipment and personnel, insurance for parents and parents productivity (missed work, travel etc)Cost Sources:Literature ReviewPrice year: 2010 (US $)  | Costs: NoHarms: No | Number of newborns diagnosed with cystic fibrosis | Incremental Analysis: No$45,400 per diagnosis (IRT/IRT) $39,700 per diagnosis (IRT/DNA) |
| Wildhagen *et al.,*[63](1998) Netherlands | 4 strategies: prenatal screening (single entry two step couple screening (SETS) & double entry two step couple screening (DETS)); preconceptional screening (SETS & DETS); school screening; neonatal carrier screening Comparator: No CF gene carrier screening | Viewpoint: societalStudy Population: depends on the intervention – couples; school children in last year of compulsory education; neonates  | Model Based (simulation model)Time Horizon:two-years (5%) | Resources:Information provision before screening, testing, further diagnosis and treatmentCost Sources:Primary Data (Dutch Screening Programme)Literature ReviewPrice year: 1996 (UK £) | Costs: Yes (£5.36 per child)Harms: No  | Number of detected carrier couplesNumber of avoided patients | Incremental Analysis: No£58,000 per detected carrier couple (prenatal SETS)£70,000 per detected carrier couple (prenatal DETS)£69,000 per detected carrier couple (preconception SETS) £80,000 per detected carrier couple (preconception DETS) £85,000 per detected carrier couple (school)£21,000 per detected carrier couple (neonatal)£177,000 per avoided patient (prenatal SETS)£213,000 per avoided patient (prenatal DETS)£223,000 per avoided patient (preconception SETS) £258,000 per avoided patient (preconception DETS) £367,000 per avoided patient (school)£178,000 per avoided patient (neonatal) |