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Preface

The <u>National Down Syndrome Policy Group</u> (NDSPG) is a voluntary and not-for-profit organisation formed in 2021. The group comprises people from a wide range of charities and support groups: all with the common aim of ensuring that the voice of people with Down syndrome is heard in society and reflected in government policy. The NDSPG also acts as the Secretariat to the <u>All-Party Parliamentary Group on Down Syndrome</u>.

The NDSPG is delighted to provide this document to aid the research and analysis of the provision of support and services for individuals with Down syndrome (DS).

The document serves three purposes:

- To act as a depository of references of research carried out across a number of fields, principally Healthcare, Education, Social Care and Employment.
- Where clear evidence and best practice is demonstrated through the research material, to summarise and highlight this within the document
- To highlight key areas for consideration and discussion with a view to aiding the Secretary of State's consultation process, following the enactment of the Down Syndrome Bill.

The intention of this document is to capture a broad cross-section of research, including input from educational, health and social care practitioners as well as academics and other interest groups. As such we expect the contents and references contained herein to be updated and expanded upon as the Bill progresses through the various stages of the Parliamentary process. As such we seek to emphasise the dynamic nature of this document.

Where possible the references are from peer reviewed journals, respected opinion pieces from experienced professionals or experts by experience. However we offer no guarantee about the accuracy or efficacy of any references.



GENERAL

What is Down Syndrome?

Down syndrome (Trisomy 21) occurs when there is additional full or partial copy of chromosome 21. Down syndrome can cause varying degrees of intellectual disability (usually mild to moderate) as well as possible physical disabilities and associated medical issues, but this can vary from individual to individual.

What it Means to Have Down Syndrome

People with Down syndrome are achieving more than ever before and leading full, semi-independent lives. With appropriate support and intervention, individuals can be successfully included in everyday activities, they attend mainstream school and pass exams, gain employment and make positive contributions to their communities.

The average life expectancy for people with Down syndrome has significantly increased to 58 years, but this continues to be well below typical life-expectancy. There should be an expectation that with better awareness and inclusion, and improved health and social care, that this figure will continue to rise.

Like everyone, people who have Down syndrome have:

- their own personalities
- things they like and dislike
- things that make them who they are

What are the medical conditions commonly associated with Down syndrome?

There are some medical conditions that are associated with Down syndrome, but they are not restricted only to people with Down syndrome.

The medical conditions and disabilities that commonly affect people with Down syndrome are:

- Learning Disability all children have some level of learning disability
- Heart disease
- Obesity
- Leukaemia
- Stomach and bowel problems
- Alzheimer and dementia a high proportion of people with Down syndrome will have early on-set Alzheimer or dementia.
- Hearing and sight problems



- Problems with the Immune system
- Speech and hearing problems

It should be noted that not all people with Down syndrome will have all these medical conditions & disabilities and many children grow up to lead healthy lives.

UK POPULATION

The estimated number of people with Down syndrome living in the UK in 2015 was 41,511¹. The Down's Syndrome Association put their estimated population at 47,000 people in the UK with the condition, so there is possibly a great variation in actual population numbers today.

Research and data collection around birth can be variable and there is room for improved data reporting. Recent papers on European and UK numbers can be found summarised here²

Region/country	Number
Western Europe	111,304
Austria	4,716
Belgium	5,646
France	35,684
Germany	47,465
Luxembourg	243
Netherlands	13,309
Switzerland	4,241
Northern Europe	69,760
Denmark	2,887
Estonia	679
Finland	4,130
Iceland	234
Ireland	6,557
Latvia	1,226
Lithuania	2,020
Norway	3,725
Sweden	6,792
United Kingdom	41,511

Southern Europe	96,075
Albania	1,729
Bosnia and Herzegovina	2,063
Croatia	2,232
Greece	5,146
Italy	38,330
Malta	423
Montenegro	440
North Macedonia	780
Portugal	6,421
Serbia + Kosovo	5,275
Slovenia	913
Spain	32,323
Eastern Europe	139,997
Belarus	5,161
Bulgaria	2,879
Czech Republic	3,299
Hungary	3,463
Poland	21,328
Republic of Moldova	2,041
Romania	8,736
Russian Federation	69,220
Slovakia	2,396
Ukraine	21,474

Table excerpt: The estimated number of people living with Down syndrome in European countries in 2015³

Estimation of the number of people with Down syndrome in Europe de Graaf, G., Buckley, F. & Skotko, B.G. Eur J Hum Genet 29, 402–410 (2021). https://doi.org/10.1038/s41431-020-00748-v

¹<u>https://docs.downsyndromepopulation.org/factsheets/down-syndrome-population-europe-factsheet.pdf</u>

²Mai, C. T., Isenburg, J. L., Canfield, M. A., et al. <u>National population-based estimates for major birth defects</u>. 2010–2014. Birth Defects Research. 2019: 111: 1420–1435.

Estimation of the number of people with Down syndrome in Europe

SUPPLEMENTARY MATERIALS https://go.downsyndromepopulation.org/europe-supplement

³ <u>People living with Down syndrome in Europe: BIRTHS AND POPULATION</u> de Graaf, G., Buckley, F. & Skotko, B.G.

The lack of precise numbers and geographical distribution of people with Down syndrome impacts support and service provision in a number of vital ways:

- Planning for training for Antenatal and Postnatal care (i.e. midwives) and Health Visitors
- Planning for Early Intervention Services effectively to meet need.
- Planning for education services
- Recruitment of specialists in all areas.
- Social Services: current inability to plan appropriate housing or social care provision.
- Work: Job creation.
- Support groups planning their activities.
- Research viability, is there a big enough cohort where regionally do we find them.
- Variation in regional attitudes towards having a child with DS.



TOPIC: HEALTHCARE

People with Down syndrome are living longer than ever before due in large part to the fact they are being brought up in families and are accessing medical procedures previously denied them. Yet they still receive poorer care than age matched individuals in the general population. Lack of understanding and low expectations of people with Down syndrome rooted within medical education has contributed to under or over-treatment of their health issues. Famously, there is a lack of speech therapy input and specialist guidance around Down syndrome, yet as the Royal College of Speech and Language Therapist tells us, speech, language and communication needs can have a direct impact on children's development and educational outcomes, health and wellbeing and if left unaddressed, they can adversely affect children across their lifespan.

It is also vital that expectant and new parents need to be provided with accurate and balanced information, and be treated with unbiased compassion when a baby may have/has Down syndrome from staff who need to be well-informed and aware of their public health equality duty. There needs to be greater awareness and accurate knowledge about life with Down syndrome in wider society if antenatal screening for DS is to continue.

The Government's vision is that people should live well and live for longer. Investment in research and focussed healthcare for people with Down syndrome will go hand in hand with increased prevention of health issues and avoidable deaths, thus increasing health and wellbeing to help make Government vision a reality for this group.

BACKGROUND

- Currently, the healthcare journey of someone with Down syndrome from antenatal care to the timely end of life can be very variable and there is much room for standardisation and equity.
- Make the right start: the pregnancy screening programme could allow the specific health needs of this group before, during and after birth to be met in a more targeted and timely way.
- Down's Syndrome Medical Interest Group UK :"People with Down syndrome on the whole do not have medical problems that differ from those in the general population. However some medical conditions are overrepresented. Most of these are treatable disorders which, if undiagnosed, impose an additional but preventable burden of secondary handicap"⁴.



<u>⁴ https://www.dsmig.org.uk/information-resources/guidance-for-essential-medical-surveillance/</u>

- Poor access blocks people with Down syndrome getting the healthcare they need. These barriers include⁵:
 - a lack of accessible transport links
 - staff having little understanding about Down syndrome
 - lack of any toolkit to aid meaningful communications, diagnosis and true confidence in the outcome for all involved parties.
 - \circ $\;$ lack of joint working from different care providers
 - inadequate aftercare or follow-up care.
 - Diagnostic Overshadowing is common within the care of those with Down syndrome (once a diagnosis is made of a major condition there is a tendency to attribute all other problems to that diagnosis, thereby leaving other coexisting conditions undiagnosed.)
- Difficulties being a part of the national health screening programmes i.e., breast, colon due to the reasons above, not receiving invitations to attend, support to take part or other factors.
- Lack of consistent health screening programmes for conditions they are at increased risk of e.g., thyroid conditions, leukaemia. This leaves it to chance if a person is under a pro-active 'Down syndrome-aware' clinician or a carer who is advocating for their needs. GPs or physicians specialising in Learning disability would be a valid option.
- Referrals for screening for other neurodevelopmental conditions that people with Down syndrome may have e.g., autism, ADHD or processing disorders are not prompt or timely leading to children's needs not being fully understood, misdiagnoses and distress to the child/adult and families. I.e. labelled as challenging behaviour or 'naughty'..
- Care for adults, with their increased risk for dementia or other difficulties, need improved service provision and specialist care in place. Advances in research are opening valid avenues for early treatment for Alzhimers in Down syndrome⁶.

" Greater focus is needed on the prevention and treatment of ailments that develop in middle and older age, so that increased survival can be matched by an increased quality of life." 7

Produced by the National Down Syndrome Policy Group



⁵ <u>Heslop et al. 2013; Tuffrey-Wijnes et al. 2013; Allerton and Emerson 2012</u>

⁶ Stagni, Fiorenza et al. "Timing of therapies for Down syndrome: the sooner, the better." Frontiers in behavioral neuroscience vol. 9 265. 6 Oct. 2015. doi:10.3389/fnbeh.2015.00265

⁷ Bittles AH, Glasson EJ. Clinical, social, and ethical implications of changing life expectancy in Down syndrome. Developmental Medicine and Child Neurology. 2004;46(4):282-6

IMPACT

- Higher rates of stillbirth for babies who have Down syndrome despite pregnancy screening programmes in place⁸.
- Life expectancy of people with Down syndrome has been consistently climbing as healthcare has been afforded to them.
- Still shorter life spans for people with Down syndrome who die about 28 years earlier than others in the general population.
- Research spending per person with Down syndrome per year into treatments is about £5 pp⁹
- Healthcare professionals lacking support to help this group live their best lives.
- Higher rates of hospitalisation and length of stays for people who have Down syndrome.
- Inappropriate DNR situations for people (children and adults) with Down syndrome, simply because they have Down syndrome^{10 11 12 13}. A sign of the bias in health care towards this group.

"It is unacceptable for clinical decisions – decisions which could dictate whether someone's loved one gets the right care when they need it most – to be applied in a blanket approach to any group of people."

Rosie Benneyworth, Chief Inspector of Primary Medical Services and Integrated Care¹⁴

⁹ Freedom of Information request 'Spend on research into Down's syndrome and titles of studies funded since 2010' ¹⁰ Dyer C. Family of man with Down's syndrome takes legal action over "do not resuscitate" order BMJ 2012; 345 :e6246



[§] Muglu J, etal. Risks of stillbirth and neonatal death with advancing gestation at term: A systematic review and meta-analysis of cohort studies of 15 million pregnancies. PLoS Med. 2019;16(7):e1002838.

doi:10.1136/bmj.e6246

¹¹ Down's Syndrome: Do Not Resuscitate Orders Volume 767: debated on Tuesday 15 December 2015,

¹² COC finds that combination of increasing pressures and rapidly developing guidance may have contributed to inappropriate advance care decisions Dec 2020

¹³Down's syndrome teenager offered do not resuscitate order Times 2021

¹⁴ CQC finds that combination of increasing pressures and rapidly developing guidance may have contributed to inappropriate advance care decisions Dec 2020

EVIDENCE OF PRESENT OUTCOMES

- Better Health for All
 <u>https://publichealthmatters.blog.gov.uk/2018/11/05/better-health-for-all-a-new-visi</u>
 <u>on-for-prevention/</u>
- Speech and language therapy for children with Down syndrome <u>https://library.down-syndrome.org/en-gb/news-update/02/2/speech-language-thera</u> <u>py-down-syndrome/</u>
- Survival and patterns of hospitalisation for children and young people with Down syndrome in Scotland over a 25-year period <u>https://www.sldo.ac.uk/our-research/children-and-young-peoples-health/down-synd</u> <u>rome-survival-and-hospitalisation-rates/</u>
- The Learning Disabilities Mortality Reviews (LeDeR) and Government responses.
- Increased mortality during the Covid-19 pandemic of those with Learning Disabilities (including those with Down syndrome)
- Early death and causes of death of people with Down syndrome¹⁵

With thanks to MENCAP <u>Health Inequalities reports</u>

Legal obligations

- Article 24 (Education) of the UN Convention on the Rights of Persons with Disabilities (UNCRPD 2009) Equality Act 2010
- The Special Educational Needs and Disability Regulations (2014)
- The Children and Families Act (2014)
- Disability Discrimination Act 1995

Existing guidelines

Antenatal:

• PERSONALISED ANTENATAL CARE OF PREGNANCIES SUSPECTED OR DIAGNOSED WITH DOWN SYNDROME PATHWAY, 2021 St George's University Hospital NHS Foundation Trust, London

Children:

• <u>Basic Medical Surveillance Essentials for children with Down syndrome -Down's</u> <u>Syndrome Medical Interest Group BEST PRACTICE GUIDANCE -NEONATAL</u> (January 2018 updated Sept 2018)



¹⁵ https://pubmed.ncbi.nlm.nih.gov/29573301/

- UK <u>Down's Syndrome Medical Interest Group Surveillance Guidelines:</u>
 - Cardiac disease
 - Thyroid
 - Hearing
 - Ophthalmic problems
 - The appropriate monitoring of growth.
- PAEDIATRIC SERVICE SPECIFICATION Services for Children and Young People with Down Syndrome_draft The Royal College of Paediatrics and Child Health 2015
- Nottingham Guidelines for the Management of Children with Down Syndrome Nottingham University NHS Trust & Childrens Hospital 2017
- American Academy of Pediatrics Clinical Report: Health Supervision for Children with Down Syndrome Marilyn J. Bull, MD; the Committee on Genetics Pediatrics (2011) 128 (2): 393–406.

Children & Adult:

- <u>Down's Syndrome Pathway</u> antenatal to end of life guidelines, Hull NHS Clinical Commissioning Group rev 2020
- <u>Care Pathway for Children and Adults with Down's syndrome Birth to adulthood</u>, University Hospitals of Leicester and Leicestershire Partnership NHS Trusts 2020

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Adult:

- <u>The GLOBAL Medical Care Guidelines for Adults with Down Syndrome</u> 2020 Global Down Syndrome Foundation
- USA Down Syndrome Medical Interest Group <u>Co-occurring medical conditions in</u> <u>adults with Down syndrome: A systematic review toward the development of health</u> <u>care guidelines</u>. ¹⁶

POSSIBLE OUTCOMES

- Funding promising research to improve morbidity and mortality across the lifespan of people with Down syndrome.
- Improved access to clinical trials and involvement in protocol design of trials could all lead to less reliance on hospitals services and increased life expectancy for people with Down syndrome. Covid 19 has highlighted these issues for this group.
- Centres of Excellence and better dissemination of expertise in condition specific health screening for said conditions and their treatment in people with Down syndrome e.g. hypothyroidism.
- Improved communication skills for better health and wellbeing.



¹⁶ Capone GT, et al DSMIG-USA Adult Health Care Workgroup. Co-occurring medical conditions in adults with Down syndrome: A systematic review toward the development of health care guidelines. Am J Med Genet A. 2018 Jan;176(1):116-133. doi: 10.1002/ajmg.a.38512. Epub 2017 Nov 12. PMID: 29130597.

- Professionals who have expertise in working with people with additional needs which would inform the testing, assessment and treatment to suit the individual in front of them. E.g., expertise in running sleep studies, or in the nuances of treating thyroid conditions in Down syndrome
- Informed, confident Healthcare professionals supporting patients who have Down syndrome to better health.
- With improved access to healthcare and timely identification and treatment of additional health issues people with Down syndrome can hope to live longer, fuller lives.

POINTS FOR CONSULTATION

- Guidance for pregnant women whose baby has Down syndrome.
- Learning Disability and autism training expanded to include Down syndrome.
- Mainstream medical guidance around care and consideration of people with Down syndrome.
- Increased commitment to research for Down syndrome in line with vision for prevention of additional conditions where appropriate or early identification.
- Guidance for speech therapy intervention or further research if deemed necessary.
- Guidance and specialist annual health screening programme for Down syndrome.
- Implementation of LeDer and Government recommendations with review.

POSSIBLE TIMELINES

- Guidance for women continuing pregnancy could be delivered in months.
- Expansion of Learning Disability Training could be delivered in months
- Specialist Health screening programmes could be delivered within 3 years.
- Guidance for health issue prevention and speech therapy for Down syndrome within 2 or 3 years.
- By 2030 in line with Millennium Goals for health.



TOPIC: EDUCATION

Over 25 years of Educational research on differences in how children (and adults) with DS learn has now been amassed. We can now confidently describe the way that education needs to be adapted to optimise the outcomes for children and young people.

However, education professionals in all settings do not routinely receive the specialist training they need to give them a thorough understanding of the specific learning profile associated with Down syndrome (DS) and the best educational practice which would enable them to successfully include young people with Down syndrome and meet their global needs.

We estimate the number of children aged 4-18 at school in the UK with DS at any one time is approximately 10,000^{17 18}.

BACKGROUND

- Legacy of historic exclusion of people with DS from the education system/mainstream education.
- No modules about Down syndrome are routinely taught as part of teaching/PGCE courses, with limited modules about Special Educational Needs and Disabilities (SEND) in general, no government led, evidence-based guidelines.
- Lack of knowledge/out-dated views in society about Down syndrome/institutional direct and indirect discrimination.
- Ignorance surrounding the specific learning profile, visual/ kinaesthetic/multi-sensory educational strategies and the speech, language and communication profile. A recent paper by Dr Burgoyne summarises the need for SALT in people with DS¹⁹.
- Limited specialist training about DS, schools unwilling to undertake and implement training.
- The term 'specialist' training is open to interpretation and misrepresentation.
- Schools rely on support from special schools who are often not specialists in DS and who are not specialists in mainstream inclusion.
- School budget restrictions: training overlooked for staff working with pupils with DS.
- Lack of clarity surrounding differentiation of the curriculum and lessons.

¹⁷ Gert de Graaf, Frank Buckley,Brian G. Skotko - European Journal of Human Genetics (2021) 29:402–410 Estimation of the number of people with Down syndrome in Europe (nature.com) Department for Education

¹⁸https://explore-education-statistics.service.gov.uk/find-statistics/school-pupils-and-their-characteristics (June 2020)

¹⁹ Down's syndrome: language development and intervention 2020, Dr Kelly Burgoyne, Royal College of Speech and Language Therapists Bulletin

- Absence of government led, centrally produced, evidence-based guidance for practitioners on Down syndrome.
- Restricted educational and health resources, and provision Eg. Speech and Language Therapy (SALT), Occupational Therapy.
- Bureaucratic and budget driven approach to Education and Health Care Plans (EHCPs).
- Inconsistent support/ ineffective deployment of additional support, including Learning Support Assistants (LSAs).
- Learning Support Assistants lacking in relevant skills and experience.
- Teaching staff are overly dependent on LSAs to differentiate and deliver the curriculum.
- Individuals with DS are not recognised as a 'unique group' so numbers are estimated
- Numbers of pupils with DS are not specified in the school census.
- Issues surrounding attitudes to inclusive practice and ethos particularly at secondary level.
- Social isolation. Unwillingness particularly at senior level to scaffold friendships and set up buddy initiatives.
- Unwillingness to make reasonable adjustments.
- Lack of knowledge behaviour management and the strong relationship between behaviour and communication challenges.
- Unfamiliarity of access arrangements for public exams/suitable exam boards.
- Pupils removed from lessons deemed too difficult or inappropriate eg. Relationship and Sexuality Education.
- Lack of Specialist transition support, including opportunities for work experience.

IMPACT AND EVIDENCE

Inappropriate educational approaches have a negative impact on pupils in all areas of social and educational development and achievement, speech and language development, frustration, confidence, relationships, friendships, isolation, independence, wellbeing/mental health, qualifications and work experience – the negative stereotype is perpetuated.

This could result in possible behavioural issues (communication issues – behaviour used as a form of communication, lack of provision/resources/knowledge) particularly around times of transition. It should be noted that behavioural issues do not automatically arise from having Down syndrome.



Staff feel frustrated and can question the appropriateness of inclusion if there is not adequate provision. Belief that inclusion = negative outcome.

Inclusion rates vary from region to region. The majority of children with DS (estimated 80%) are included in mainstream primary. This falls significantly at secondary level where it is estimated only 25% of pupils with DS transition to mainstream secondary schools^{20 21 22}.

There is a cost advantage to mainstream for local authorities (combined with better outcomes for the student, their peers and inclusion as a whole) but each placement should be based on the specific needs of the individual pupil/parent choice rather than budget driven decisions.

The average annual cost to a council of a SEND placement in 2017/18, was £6,000 per pupil per year in a mainstream school, compared with £23,000 per pupil per year in a maintained special school, and £40,000 per pupil per year in an independent or non-maintained special school²³. Local authorities are unable to effectively budget, plan and allocate provision and resources if they do not know specific numbers Eg. SALT provision

Studies clearly demonstrate that there are distinct academic advantages to inclusive education for pupils with Down syndrome who work at a significantly higher academic level in all areas of the curriculum than their peers in special schools, particularly language (2.5 years) and literacy (3.3 years), with still greater gains in social development, behaviour and speech²⁴.

Furthermore, studies show the more delayed children with Down syndrome still benefit from mainstream inclusion. They outperform the more able pupils in special educational settings^{25 26}.

Research proves that specialist interventions improve outcomes ^{27 28 29 30}.

 ²³ (LGA Special Educational Needs and Disability Funding, House of Commons, Jan 2020)
 <u>https://www.local.gov.uk/sites/default/files/documents/29012020%20LGA%20briefing%20-%20SEN%20support-WEB.pdf</u>
 ²⁴ Buckley, S. Bird, G. Sacks, B. and Archer, T. (2006) A comparison of mainstream and special education for teenagers with Down syndrome: Implications for parents and teachers. Down Syndrome Research and Practice, 9(3), 54-67. doi:10.3104/reports.295



 ²⁰ S. Lorenz: Making Inclusion Work for Children with Down Syndrome (1999) <u>https://assets.cdn.down-syndrome.org/pubs/a/practice-149.pdf</u>
 ²¹ Dr K. Burgoyne, R.Baxter: Educational Experiences of Pupils with Down syndrome in the UK (2020) Publication due 2021

²² Cuckle, P. (1997). The school placement of pupils with Down syndrome in England and Wales. British Journal of Special Education, 24(4), 175-179.

²⁵ G de Graf, E de Graf: Development of Self-Help, Language and Academic Skills in Persons with Down Syndrome (June 2016)

²⁶ G. Graaf, G.Van Hove, M. Haveman: Effects of Regular V Special School on Students with Down Syndrome: A systematic review of studies (2012)

²⁷Burgoyne, K., Duff, F. J., Clarke, P. J., Buckley, S., Snowling, M. J., & Hulme, C. Reading and Language Intervention (2012)

²⁸ Bird, G. & Buckley, S. (2001). Number skills for individuals with Down syndrome – an overview. Portsmouth, UK: Down Syndrome Education International.

²⁹Wing T, Tacon R. Teaching number skills and concepts with Numicon materials. Down Syndrome Research and Practice. 2007;12(1);22-26. ³⁰Buckley, S. & Bird, G. (2000). Education for individuals with Down syndrome - An overview.

LSAs will also need speech and language training as they will be required to regularly deliver the pupil's speech and language programme throughout the pupil's education³¹. There is a disproportionate use of sanctions and exclusions.

Students with DS are consistently denied meaningful Further Education, both for continuing skills development and for work experience.

Opportunities to attend university are severely limited.

Extremely low employment rate for individuals with Down syndrome. No figures available for Down syndrome specifically but 5.6% of adults (18-64) with a learning disability in England were in paid employment in 2019-20³² with only 4.2% in Scotland.

Learning disability training was made mandatory in the health sector in 2019 and had a positive reception³³.

Legal obligations

- Article 24 (Education) of the UN Convention on the Rights of Persons with Disabilities (UNCRPD 2009) Equality Act 2010
- Education Act 2011
- The Special Educational Needs and Disability Regulations (2014)
- The Children and Families Act (2014)
- Disability Discrimination Act 1995

Existing guidelines

- SEND code of practice (guidance): 0 to 25 years Dept of Education (2014)
- APPGDS Education Guidelines 2012
- Educational Guidelines for the Education of Learners with Down Syndrome (Down Syndrome International (2020)



³¹Buckley, S, and Le Prèvost, P. (2002) <u>Speech and language therapy for children with Down syndrome. Down Syndrome News and Update</u>, <u>2(2), 70-76. doi:10.3104/practice.171</u>

³² British Association of Supported Employment and SCLD 2018

³³ https://www.ndti.org.uk/assets/files/HEE report summary 18th May Final v2 2020-08-06-143959.pdf

OUTCOMES

- Update APPGDS Education Guidelines as priority; government led, centrally produced evidence based.
- Children with DS should be recognised as a unique group (like autistic children, deaf children) so specific data is available to inform policy, funding and provision.
- School census to include numbers of pupils with Down syndrome.
- Down syndrome identified as separate classification on EHCP.
- Better outcomes and achievements in all areas for pupils, school and staff. Wider recognition that inclusion can and does work with the right provision, mainstream becoming the norm.
- Where pupils with DS are included, there should be mandatory specialist training for staff in mainstream and special school setting, and for the whole school community delivered by specialists in Down syndrome (mandatory learning disability training in the NHS).
- Definition of what constitutes a 'specialist'
- Training prior to child starting school or at the beginning of term followed by annual training for staff and school community.
- Research surveys to fill gaps in information and provide up to date, relevant data eg. numbers of children with DS included in mainstream at primary and secondary level.
- Training should include a general overview, positive terminology, inclusion and legislation, the specific learning profile and research based educational strategies to meet specific needs including visual and kinaesthetic strategies and whole word approach to reading alongside phonics, the language and communication profile associated with DS, exam pathways, access arrangements and alternative methods of recording and assessing, age-appropriate topics such as RSE, behaviour management and sanctions, effective differentiation, resources, and effective deployment of additional support including Teaching Assistants.
- Training should be relevant to all age settings eg. Early years, primary etc. Down syndrome specific training to be included in relevant teaching/university courses.



POINTS FOR CONSULTATION

- Consultation with families, school staff, DS specialists, Down Syndrome Policy Group, local authorities, APPGDS, Dept of Education.
- Research surveys required to fill gaps in information and provide up to date data including numbers in special school/mainstream, gender, staff attitudes and knowledge, access to support and training.
- Create guidelines for training. Identify resources required for effective delivery.
- DfE approves and publishes guidelines and recommends implementation widely circulated to all educational settings.
- PR and awareness campaign nationally and in groups, schools etc.
- Feedback from implementation and criteria for success, monitoring
- Campaign for guidelines to be made legislation and adopted as best practice throughout the UK.
- Training forms part of larger and more comprehensive Education Guidelines/Policy for Pupils with DS; government led, centrally produced and evidence based.

POSSIBLE TIMELINE

Immediate implementation of training guidelines approved and published by the Dept for Education recommending specialist training in all educational settings where a child with Down syndrome is included, ahead of legislation being passed for this to become mandatory training.



TOPIC: SOCIAL CARE

There are an estimated 40,000+ people living with Down syndrome (DS) in the UK. Better health and social care have greatly improved life expectancy. However, people with DS die earlier than others even within the group of those with Learning Disability and for reasons we do not know. Throughout their lives there are low expectations for this group for whom social care has to become social empowerment. Parents are challenged by low expectations within society.

We must also acknowledge the research gaps that exist, particularly across the later years of the lives of people with DS and their family. How can they best take part in and enrich the society they live in as they also face unique challenges in their employment, health and relationships?

BACKGROUND

- Individuals with DS are not recognised as a 'unique group' so population data isn't available. We don't know which local authority people with DS live in, and how needs are being met within that.
- Educational context of poorer educational outcomes and segregated childhoods.
- Lack of knowledge about what people with Down syndrome can do or be taught to do.
- Expectations that adults will not become independent particularly where there are additional diagnoses/'co-morbidities'.
- Social work resources are scarce and professionals don't undergo training around how people with DS are impacted by the condition and how they can be more empowered.
- Current mediation/redress services place undue pressure on families/carers.
- Parents/carers often consulted around next steps are steered towards what has historically happened for people with DS and therefore adults with DS aren't meaningfully engaged in the process. They require a person-centred approach.
- Social workers require training to:
 - understand how living with DS impact lives
 - $\circ \;\;$ develop a thorough understanding of the specific issues
 - \circ ~ learn how to best communicate with people with DS ~
 - have knowledge of the best practices which would ensure good health and wellbeing for those children and adults with DS.



- No specialist modules about DS are routinely provided to Social Worker professionals.
- Lack of knowledge of the specific benefits of inclusion and the negative effects of social isolation.
- Lack of knowledge of the specific learning profile and the speech and language and communication profile.
- Restricted health resources and provision E.g., Speech and Language Therapy (SALT), Occupational Therapy.
- Often a bureaucratic and budget driven approach to Social Care.
- Lack of professional knowledge about the strong relationship between behaviour and communication challenges.
- Greatly increased risk of developing early onset dementia akin to Alzheimer's disease, we don't yet understand why this occurs, social circumstance could be contributory.
- People with DS and dementia may be defined by these factors rather than their individual needs.
- There is no clear Social Care pathway for people with DS.
- Lack of suitable accommodation for adults.
- Lack of suitable placement and support for those with early onset dementia i.e. Often people who develop dementia are then placed in elderly care facilities in their 40s or 50s.

IMPACT AND EVIDENCE

Local authorities are unable to effectively budget, plan and allocate provision and resources if they do not know specifics. UK Population estimates are now effectively out of date.

Early death and causes of death of people with Down syndrome: A systematic review https://pubmed.ncbi.nlm.nih.gov/29573301/

Existing regional care pathways for Down's syndrome could shape national care pathway <u>https://www.leicspart.nhs.uk/wp-content/uploads/2020/02/LPT-Combined-care-pathway-fo</u> <u>r-DS.pdf</u>

Lack of socialisation, stimulation and employment has a detrimental effect in areas of social and personal development and responsibility, communication, confidence, relationships, friendships, independence, wellbeing/mental health. Person-centred planning is key https://www.unitedresponse.org.uk/resource/person-centred-support/



Lack of opportunity for meaningful Further Education, both for continuing skills and personal development and for work experience.

Extremely low employment rate for individuals with DS. No figures available for DS specifically but 5.6% of adults (18-64) with a learning disability in England were in paid employment in 2019-20 (British Association of Supported Employment) with only 4.2% in Scotland (SCLD 2018)

Possible behavioural issues (communication issues – behaviour used as a form of communication). It should be noted that behavioural issues do not automatically arise from having DS however this may feed the notion that professionals must manage a situation instead of changing the situation.

https://bmcpsychiatry.biomedcentral.com/articles/10.1186/s12888-014-0266-z

As things stand, adults with DS may be more prone to depression. Down syndrome and dementia: is depression a confounder for accurate diagnosis and treatment?³⁴

There is a disproportionate use of detainment in institutions. Assessment of mental health problems in people with Down syndrome: key considerations³⁵.

Supported housing for people with Down syndrome³⁶ "There had been a mean of 2 years delay between application and securing accommodation. The large number of people providing care at home who wished their family-member to move into supported living suggests that there is a large unmet need for this type of accommodation."

There is a cost advantage for local authorities who invest in support to avert future crises e.g., elderly carers becoming unfit.

Learning disability training was made mandatory in the health sector in 2019³⁷

Legal obligations

- Mental Health Act (1983)
- Health and Social Care Act 2008
- Article 24 (Education) of the UN Convention on the Rights of Persons with Disabilities (UNCRPD 2009) Equality Act 2010
- Mental Health Act 1983

³⁴ https://www.scie-socialcareonline.org.uk/down-syndrome-and-dementia-is-depression-a-confounder-for-accurate-diagnosis-and-treatme nt/r/a1CG0000003ZML5MAO

³⁵ https://www.scie-socialcareonline.org.uk/assessment-of-mental-health-problems-in-people-with-down-syndrome-key-considerations/r/a
1CG0000000G035MAG

³⁶ <u>https://www.scie-socialcareonline.org.uk/supported-housing-for-people-with-downs-syndrome/r/a1CG0000003YkfDMAS</u>
³⁷ <u>https://www.ndti.org.uk/assets/files/HEE_report_summary_18th_May_Final_v2_2020-08-06-143959.pdf</u>

- The Special Educational Needs and Disability Regulations (2014)
- The Children and Families Act (2014)
- Disability Discrimination Act 1995
- Equality Act 2010
- Care Act 2014

Existing guidelines

Health and Social Care Act 2012: fact sheets <u>https://www.gov.uk/government/publications/health-and-social-care-act-2012-fact-sheets</u> Build Back Better: Our Plan for Health and Social Care <u>https://www.gov.uk/government/publications/build-back-better-our-plan-for-health-and-social-care</u> <u>ial-care/build-back-better-our-plan-for-health-and-social-care</u>

OUTCOMES/POSSIBLE OUTCOMES

- Better understanding of the needs and of the benefits of societal inclusion, resulting in targeted services and improved health and wellbeing outcomes.
- Emphasis on the concept of lifelong learning where learning may be delayed.
- Improved access to Needs Assessment and follow-up.
- Improved mediation services.
- National census.
- National Social Care Pathway.
- Early support for those with DS and Alzheimer's and their carers. Better outcomes and achievements in all areas.
- Mandatory specialist training for professionals.
- Research surveys to fill gaps in information and provide up to date, relevant data around life outcomes.
- Professionals reverting to DS charities for support.

POINTS FOR CONSULTATION

- Data collated to include local authority and employment status.
- Research surveys required to fill gaps in information and provide up to date data including outcomes for adults with DS and service provision.
- Expanded Oliver McGowan Mandatory Training in Learning Disability and Autism to include understanding of how living with DS can impact lives, providing a thorough understanding of specific issues.
- Develop a National Social Care Pathway.



- Training forms part of larger and more comprehensive Guidance for social care workers.
- Improved redress.
- Impose duties on local authorities to better respond to needs.

POSSIBLE TIMELINE

- Data collated to include local authority and employment status.
- Research surveys required to fill gaps in information and provide up to date data including outcomes for adults with DS and service provision.
- Expanded <u>Oliver McGowan Mandatory Training in Learning Disability and Autism</u> to include understanding of how living with DS can impact lives, providing a thorough understanding of specific issues.
- Develop a National Social Care Pathway.
- Training forms part of larger and more comprehensive Guidance for social care workers.
- Improved redress.
- Impose duties on local authorities to better respond to needs.

"The increasingly long life span in Down syndrome is among the most important of all advances in the field of developmental disabilities. And yet, while such a change is worthy of celebration, increasing life spans bring about a need to understand many aspects and components....

Beyond the individuals themselves, we need to understand co-occurring changes in their parents, the group that—in many cases—continues to provide day-to-day care within the family home. So too do we need to pay attention to the adult siblings who often take on care once parents can no longer do so.

Yet just as increasing longevity fosters research interest and leads to policy implications, so too do we need to connect longer lives to the adult's surrounding environments. From transition and early adulthood, to later aging while living with aging parents, adulthood in Down syndrome features certain aspects that are similar to—and others that differ from—adulthood among others with intellectual disability.

It is time to fill in the many gaps in our knowledge, thereby helping these individuals and their families to experience more connected, fulfilled lives."

From Transition Through Old Age: Caring for Adults With Down Syndrome Robert M. Hodapp, Kelli A. Sanderson, and Maria Mello



TOPIC: EMPLOYMENT

There is a limited expectation for people with Down syndrome (DS) to be in employment and as a result individual are being denied the opportunity to earn a regular salary, have a sense of identity, be challenged, learn new skills, meet new people, understand the world better, enhance their sense of meaning and purpose, make a positive contribution to their communities; in short be a full participant in adult life.

Young adults with Down syndrome who work in open employment have higher levels of overall functioning, particularly in the areas of self-care, community, and communication skills³⁸ and fewer behaviour problems³⁹.

BACKGROUND

- Poor educational outcomes.
- Segregated childhoods.
- Lack of knowledge about what people with Down syndrome can do or be taught to do.
- Very limited work experience opportunities to allow someone with Down syndrome to find a role they are suited to and enjoy.
- No structured work experience opportunities offered by schools or specialist apprenticeship positions.
- Major barriers to further education.
- Historic failure by authorities to break down the barriers to employment for people with DS, and a denial of their human right to work.
- Government employment schemes are not sensitive to the needs of people with learning disabilities compared to physical disabilities.
- Lack of specialist training and support to ensure that a job placement is accessible to people with Down syndrome.
- The legacy of historically low life expectancy has created an environment where there was no consideration to make the job market accessible for people with Down syndrome.
- Fear by employers of being accused of discriminatory behaviour if they have to fire someone if the employment doesn't work out.
- Too many employers think they are 'doing a favour' by hiring someone with Down syndrome, rather than wanting to embrace diversity and bring in a new customer



³⁸ Foley, K.-R., Jacoby, P., Girdler, S., Bourke, J., Pikora, T., Lennox, N., ... Leonard, H. (2012). Functioning and post-school transition outcomes for young people with Down syndrome. Child: Care. Health. and Development. 39, 789–800.

³⁹ Foley, K.-R., et al. (2014). <u>Day occupation is associated with psychopathology for adolescents and young adults with Down syndrome.</u> <u>BMC Psychiatry. 14, no. 266.</u>

base and an additional mix to their staff base, so they don't spend enough time looking to make the employment a success.

- Recruiters have an unconscious bias towards people with a learning disability.
- No job fluidity for employees, so little chance to practise interview skills, deal with rejection.
- Lack of meaningful work opportunities.
- Limited opportunities for career development if in employment.
- Fear of losing benefits or falling out of the benefit system and then not having enough money to access the necessary support this fear is held by the individuals, their families, social workers, and advisors.
- Time spent reapplying for benefits and waiting times for processing benefits.
- Assumption individuals with DS are looking for work, but a person with DS is likely to need support to apply for and find work.
- Abuse of system some organisations employ/train people with LD for short-fixed terms to tick boxes, with no long term offer of permanent work, some people with DS pay their employer for the privilege of working, some feel that the only option is unpaid volunteer work.
- No specific employment data exists for people with Down syndrome.
- Employers are not getting themselves 'skilled up' on what people with Down syndrome can do, and so no job are being created.
- When promoting disability diversity, there is a bias towards learning disabilities in favour of physical disabilities.
- Limited flexibility eg. part-time, flexi-hours, job-share
- Some employers may fear the extra time and costs associated with hiring someone with a learning disability eg. sick leave, hospital appointments, specialist resources, making spaces accessible, review of safety procedures

IMPACT AND EVIDENCE

- 5.6% of adults (18-64) with a learning disability in England were in paid employment in 2019-2020 (source British Association of Supported Employment)⁴⁰.
- Only 417 employment opportunities for people with Down syndrome created by the DSA since 2011.
- 6% of adults with a learning disability known to their LA in England are in paid employment⁴¹. 4.2% in Scotland⁴².
- 52% of people aged 16-64 with any disability in UK are in paid work⁴³.

⁴⁰ Source Mencap – Employment – research and statistics

https://www.mencap.org.uk/learning-disability-explained/research-and-statistics/employment-research-and-statistics

⁴¹ source NHS Digital 2018

⁴² SCLD 2018

⁴³ Source ONS 2019a, source ONS 2019b

Produced by the National Down Syndrome Policy Group

- 76% of 16-64 of general population in England are in paid work⁴⁴.
- No employment trainers/coaches who have Down syndrome
- The United Nations Convention on the Rights of Persons with Disabilities said that people with a learning disability have a fundamental right to full and active participation and inclusion in society⁴⁵.

Legal obligations

- Article 24 (Education) of the UN Convention on the Rights of Persons with Disabilities (UNCRPD 2009) Equality Act 2010
- Education Act 2011
- The Special Educational Needs and Disability Regulations (2014)
- The Children and Families Act (2014)
- Disability Discrimination Act 1995

OUTCOMES

- A detailed specialist support package put into place to create work experience opportunities for schools to access this has to include mainstream employers the government could take the lead on this.
- FE colleges to develop strong partnerships with employers
- Specialist training of employers to fully support their employee and ensure their work-place and job is accessible understanding the learning profile and providing resources
- A register of companies promoting diversity who offer work experience, internships and permanent jobs for people with Down syndrome.
- An obligation on large employers to review their workforce and see what jobs could be offered to people with Down syndrome.
- A simplification of the benefits system for people with Down syndrome for example, no benefits change for those earning less than £20,000 pa
- A better understanding of the value of the 'disability pound' by government and employers
- Better universal outcomes for individuals and community: increased financial and social independence, improved confidence and skills, social opportunities, positive contribution to their community, wellbeing and mental health, breakdown in inclusion barriers



⁴⁴ Source ONS 2019a, source ONS 2019b

⁴⁵ Source - United Nations, 2006

https://www.mencap.org.uk/learning-disability-explained/research-and-statistics/stigma-and-discrimination-research-and

• Source Gov.uk - Get support in work if you have a disability or health condition (Access to Work) <u>https://www.gov.uk/access-to-work</u>

POINTS FOR CONSULTATION

- Consultation with specialist organisations, employers, DWP, DfE, to create a register of employers and a network of support and training organisation.
- Consultation with DWP and HMRC to provide simplification of benefits to avoid over dependency on social workers and third parties by people with Down syndrome. All benefits could be processed through payroll.
- Centralise support for employers through the National Down Syndrome Policy Group to support placements and individuals and identify persistent issues.
- Create a register of people with Down syndrome and find out more about the types of jobs they would like to do.
- Run a PR and awareness campaign to promote the opportunities and to promote people with Down syndrome.

TIMELINE

Immediately set up the consultation processes and identify willing employers and job roles for dissemination within the DS community.

Coordinate a census of people with Down syndrome across the lifespan to understand need and plan services and implementation in governmental and third sector groups.



APPENDIX 1 HEALTHCARE REFERENCES

Summary Publications

Books

Down Syndrome Current Perspectives 2015 Richard Newton, Shiela Puri, Liz Marder (Editors) Mac Keith Press <u>ISBN: 9781909962477</u> 2015

Mental Wellness in Adults with Down Syndrome: A Guide to Emotional and Behavioral Strengths and Challenges Dennis McGuire, Ph.D. & Brian Chicoine, M.D.isbn 978-1-60613-285-2 / 2021

<u>The Oxford Handbook of Down Syndrome and Development</u> 2020 (in progress) Edited by: Jacob A. Burack, Jamie O. Edgin, and Leonard Abbeduto ISBN: 9780190645441 DOI: 10.1093/oxfordhb/9780190645441.001.0001

From Transition Through Old Age: Caring for Adults With Down Syndrome Robert M. Hodapp, et al. in The Oxford Handbook of Down Syndrome and Development Dec 2020 (above)

Papers

Graves RJ, Graff JC, Esbensen AJ, Hathaway DK, Wan JY, Wicks MN. <u>Measuring</u> <u>Health-Related Quality of Life of Adults With Down Syndrome. Am J Intellect Dev Disabil.</u> <u>2016 Jul;121(4):312-26. doi: 10.1352/1944-7558-121.4.312. PMID: 27351699.</u>

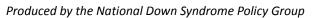
Down syndrome Antonarakis, S., et al. 6 Feb 2020, In: Nature Reviews Disease Primers.

The importance of understanding individual differences in Down syndrome Karmiloff-Smith, A., et al. 23 Mar 2016, (E-pub ahead of print) In: <u>F1000Research.</u> 5

Existing Guidelines

Antenatal:

• PERSONALISED ANTENATAL CARE OF PREGNANCIES SUSPECTED OR DIAGNOSED WITH DOWN SYNDROME PATHWAY, 2021 St George's University Hospital NHS Foundation Trust, London





Children:

- Basic Medical Surveillance Essentials for children with Down syndrome -Down's Syndrome Medical Interest Group BEST PRACTICE GUIDANCE -NEONATAL (January 2018 updated Sept 2018)
- UK Down's Syndrome Medical Interest Group Surveillance Guidelines:
 - $\circ \quad \text{Cardiac disease} \\$
 - Thyroid
 - Hearing
 - Ophthalmic problems
 - The appropriate monitoring of growth.
- PAEDIATRIC SERVICE SPECIFICATION Services for Children and Young People with Down Syndrome_draft The Royal College of Paediatrics and Child Health 2015
- Nottingham Guidelines for the Management of Children with Down Syndrome Nottingham University NHS Trust & Childrens Hospital 2017
- American Academy of Pediatrics Clinical Report: Health Supervision for Children with Down Syndrome Marilyn J. Bull, MD; the Committee on Genetics Pediatrics (2011) 128 (2): 393–406.

Children & Adult:

- <u>Down's Syndrome Pathway</u> antenatal to end of life guidelines, Hull NHS Clinical Commissioning Group rev 2020
- <u>Care Pathway for Children and Adults with Down's syndrome Birth to adulthood</u>, University Hospitals of Leicester and Leicestershire Partnership NHS Trusts 2020

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Adult:

- <u>The GLOBAL Medical Care Guidelines for Adults with Down Syndrome</u> 2020 Global Down Syndrome Foundation
- USA Down Syndrome Medical Interest Group <u>Co-occurring medical conditions in</u> <u>adults with Down syndrome: A systematic review toward the development of health</u> <u>care guidelines</u>.

Self Advocacy and Voices of the Community

What a patient with a learning disability would like you to know

BMJ 2016; 355 doi: <u>https://doi.org/10.1136/bmj.i5296</u> (Published 05 October 2016)Cite this as: BMJ 2016;355:i5296v

Healthcare Delivery

Resource use and cost of annual health checks in primary care for people with intellectual disabilities: Cost of annual health checks in intellectual disabilities Panca, M.,et al. 21 Nov 2018, (E-pub ahead of print) In: Journal of Intellectual Disability Research.



Virji-Babul N,et al <u>Use of health care guidelines in patients with Down syndrome by family</u> physicians across Canada. Paediatr Child Health. 2007 Mar;12(3):179-83. PMID: 19030356; PMCID: PMC2528699.

Määttä T, et al. <u>Healthcare and guidelines: a population-based survey of recorded medical</u> problems and health surveillance for people with Down syndrome. J Intellect Dev Disabil. 2011 Jun;36(2):118-26. doi: 10.1080/13668250.2011.570253. Epub 2011 Apr 19. PMID: 21501111.

Glasson EJ, et al. <u>The triple challenges associated with age-related comorbidities in Down</u> syndrome. J Intellect Disabil Res. 2014 Apr;58(4):393-8. doi: 10.1111/jir.12026. Epub 2013 Mar 19. PMID: 23510031.

Jensen KM,et al. Primary care for adults with Down syndrome: adherence to preventive healthcare recommendations. J Intellect Disabil Res. 2013 May;57(5):409-21. doi: 10.1111/j.1365-2788.2012.01545.x. Epub 2012 Mar 28. PMID: 22463763.

Health family adaptation intervention for families of young children with Down syndrome: A feasibility study. Choi, H., & Van Riper, M. (2019). Journal of Pediatric Nursing, pii: S0882-5963(18)30577-3. <u>https://doi:10.1016/j.pedn.2019.03.010</u> [Epub ahead of print] PMID: 30928311.

Family management of childhood chronic conditions: does it make a difference if the child has an intellectual disability. Van Riper, M.,et al. (2018). American Journal of Medical Genetics: Part A. American Journal of Medical Genetics: Part A., 176, (1), 82-91. doi: <u>10.1002/ajmg.a.38508</u>. Epub 2017 Nov 15. PMID 29140588.

Care coordination needs of families of children with Down syndrome: A scoping review to inform development of mhealth applications for these families. Skelton, B., et al. (2021). Children, 8(7), 558 <u>https://doi.org/10.3390/children8070558</u> (†)

Bosch, J. J. (2003). <u>Health maintenance through the lifespan for individuals with Down</u> <u>syndrome. Journal of the American Academy of Nurse Practitioners, 15, 5–16.</u>

Pregnancy

PERSONALISED ANTENATAL CARE OF PREGNANCIES SUSPECTED OR DIAGNOSED WITH DOWN SYNDROME PATHWAY, 2021 St George's University Hospital NHS Foundation Trust, London



Risks of stillbirth and neonatal death with advancing gestation at term: A systematic review and meta-analysis of cohort studies of 15 million pregnancies. Muglu J, et al. PLoS Med. 2019;16(7):e1002838. Published 2019 Jul 2. <u>doi:10.1371/journal.pmed.1002838</u>

Survival in infants with Down syndrome, Metropolitan Atlanta, 1979-1998. Rasmussen SA, et al. J Pediatr. 2006 Jun;148(6):806-812. doi: 10.1016/j.jpeds.2006.01.010. PMID: 16769392.

Prenatal diagnosis of Down syndrome: How best to deliver the news. Skotko, B.G., Kishnani, P.S., Capone, G.T. and (2009), Am. J. Med. Genet., 149A: 2361-2367. https://doi.org/10.1002/ajmg.a.33082

Down syndrome: perinatal mortality risks with each additional week of expectant management. Sparks TN, et al. Prenat Diagn. 2016 Apr;36(4):368-74. doi: 10.1002/pd.4792. Epub 2016 Mar 14. <u>PMID: 26891366.</u>

Family-provider interactions surrounding the diagnosis of Down syndrome. Van Riper, M., Choi, H. Genet Med 13, 714–716 (2011). <u>https://doi.org/10.1097/GIM.0b013e3182209f21</u>

Sharing the News Report and UK Survey, Enoch N 2019

Early Years/Neonatal

<u>A change of plans: The birth of a child with Down syndrome.</u> Van Riper, M. (2003). <u>American Journal of Nursing</u>, 103, 71-74. PMID 12802161.

Breastfeeding experiences of mothers of children with Down syndrome. Barros da Silva, R., et al. (2018). *Comprehensive Child and Adolescent Nursing, 10*, 1-15. <u>doi:</u> <u>10.1080/24694193.2018.1496493.</u>

<u>Breastfeeding a baby with Down syndrome Nicola Enoch</u> British Journal of Midwifery, September 2021, Vol 29, No 9

The Ups of Down Syndrome Nicola Enoch British Journal of Midwifery, April 2019, Vol 27: 4

Caring for children with Down syndrome and their families. Van Riper, M. & Cohen, W. (2001). *Journal Pediatric Health Care, 15*, 123-131. <u>PMID 11353361.</u>

<u>Clinical practice guidelines for management of children with Down syndrome: Part 1. Ivan,</u> DL & Cromwell P. Journal of Pediatric Health Care 2014; 28(1): 105 – 110.



Clinical practice guidelines for management of children with Down syndrome: part II. Ivan DL, Cromwell P. J Pediatr Health Care. 2014 May-Jun;28(3):280-4. doi: 10.1016/j.pedhc.2013.05.003. Epub 2013 Jul 26. <u>PMID: 23891281.</u>

Rogers J, Enoch N. <u>Early intervention toilet training for children with Down syndrome</u>. Br J Nurs. 2020 Dec 10;29(22):1325-1326. doi: 10.12968/bjon.2020.29.22.1325. PMID: 33325288.

COVID-19

Strydom, A., et al. (2021). <u>The COVID-19 pandemic should be last orders for poor care of</u> <u>people with neurodevelopmental disorders</u>. *The British Journal of Psychiatry, 218*(6), 302-304. doi:10.1192/bjp.2021.22

Huels, A, et al. An international survey on the impact of COVID-19 in individuals with Down syndrome. medRxiv [Preprint] 2020. Available from: https://doi.org/10.1101/2020.11.03.20225359.Google Scholar

NHS England. <u>COVID-19 Deaths of Patients with a Learning Disability Notified to LeDeR.</u> NHS England, 2020

De Cauwer H, Spaepen A. <u>Are patients with Down syndrome vulnerable to life-threatening</u> <u>COVID-19?</u> Acta Neurol Belg 2020; : 3–5.

Clift AK, Coupland CAC, Keogh RH, Hemingway H, Hippisley-Cox J. <u>COVID-19 Mortality Risk</u> <u>in Down Syndrome: Results From a Cohort Study Of 8 Million Adults.</u> Ann Intern Med 2020; <u>published online Oct 21. DOI:10.7326/M20-4986</u>.

<u>Covid-19 in children with down syndrome: Data from the trisomy 21 research society</u> <u>survey</u> MBBS FRCPCH DM on behalf of The Trisomy 21 Research Society COVID-19 Initiative Study Group, 1 Nov 2021, In: <u>Journal of Clinical Medicine</u>. 10, 21, 5125.

Understanding inequalities in COVID-19 outcomes following hospital admission for people with intellectual disability compared to the general population: A matched cohort study in the UK Baksh, R. A., Pape, S. E., Smith, J. & Strydom, A., 4 Oct 2021, In: <u>BMJ Open.</u> 11, 10,

<u>Comparison of covid-19 and non-covid-19 pneumonia in down syndrome</u> on behalf of the Spanish Trisomy21 Research Society COVID-19 Taskforce, 2 Aug 2021, In: <u>Journal of Clinical Medicine.</u> 10, 16, 3748.



<u>Medical vulnerability of individuals with down syndrome to severe COVID-19–data from</u> <u>the trisomy 21 research society and the UK ISARIC4C survey</u> <u>Baksh, A.</u> & <u>Strydom, A.</u>, Mar 2021, In: <u>EClinicalMedicine.</u> 33, 100769.

Health Comorbidities

Startin CM, et al. <u>Health comorbidities and cognitive abilities across the lifespan in down</u> syndrome. J Neurodev Disord 2020; **12**: 1–13.

Henderson A, et al <u>Adults with Down's syndrome: the prevalence of complications and</u> <u>health care in the community.</u> Br J Gen Pract. 2007 Jan;57(534):50-5. PMID: 17244425; PMCID: PMC2032701.

Bertapelli F, et al. <u>Overweight and obesity in children and adolescents with Down</u> <u>syndrome—prevalence, determinants, consequences, and interventions: A literature</u> <u>review. Res Dev Disabil 2016; **57**: 181–92.</u>

Bergholdt R, et al. Increased prevalence of Down's syndrome in individuals with type 1 diabetes in Denmark: A nationwide population-based study. Diabetologia 2006; 49: 1179–82. <u>PubMedGoogle Scholar</u>

Santoro JD, et al. **Diminished Blood Pressure Profiles in Children With Down Syndrome.** Hypertension 2020; **75**: 819–25. <u>Google Scholar</u>

Health comorbidities and cognitive abilities across the lifespan in Down syndrome Strydom, A., The LonDownS Consortium, Hithersay, R. J et al., 30 Dec 2019, (Accepted/In press) In: Journal Of Neurodevelopmental Disorders.

Hodapp, R. M.et al. (2019). <u>Health issues across adulthood in Down syndrome: Juxtaposing</u> <u>multiple databases. International Review of Research in Developmental Disabilities, 57,</u> 229–265.

Dementia and Older Adults

<u>Best practice in caring for adults with dementia and learning disabilities</u> <u>Strydom, A.</u>, Al-Janabi, T., Houston, M. & Ridley, J., 5 Oct 2016, In: <u>Nursing Standard.</u> 31, p. 42-51



<u>Alzheimer's disease in Down syndrome: An overlooked population for prevention trials</u> <u>Strydom, A.</u>, et al., 13 Dec 2018, (E-pub ahead of print) In: <u>Alzheimers & Dementia.</u> 4, p. 703-713

Hithersay R, et al. <u>Association of Dementia With Mortality Among Adults With Down</u> <u>Syndrome Older Than 35 Years. JAMA Neurol 2019</u>; **76**: 152–60.

The clinical and neuropathological features of sporadic (Late-onset) and genetic forms of alzheimer's disease Rujeedawa, T., et al. 1 Oct 2021, In: Journal of Clinical Medicine. 10, 19, 4582.

Markers of early changes in cognition across cohorts of adults with Down syndrome at risk of Alzheimer's disease Baksh, A. & Strydom, A., 2 May 2021, In: <u>Alzheimer's and Dementia</u>: <u>Diagnosis</u>, Assessment and Disease Monitoring. 13, 1, e12184.

The Association between Physical Activity and CAMDEX-DS Changes Prior to the Onset of Alzheimer's Disease in Down Syndrome Pape, S., et al. 27 Apr 2021, In: Journal of Clinical Medicine.

Devenny, D. A., & Matthews, A. (2011). <u>Regression: Atypical loss of attained functioning</u> in children and adolescents with Down syndrome. International Review of Research in <u>Developmental Disabilities</u>, 41, 233–264.

Blood biomarkers for alzheimer's disease in down syndrome Montoliu-Gaya, L., <u>Strydom,</u> <u>A.</u>, Blennow, K., Zetterberg, H. & Ashton, N. J., 2 Aug 2021, In: <u>Journal of Clinical Medicine</u>. 10, 16, 3639.

Optimal age and outcome measures for Alzheimer's disease prevention trials in people with Down syndrome The LonDownS Consortium, Hithersay, R et al., Apr 2021, In: <u>Alzheimer's and Dementia.</u> 17, 4, p. 595-604

Differential Associations of Apolipoprotein E ε4 Genotype With Attentional Abilities Across the Life Span of Individuals With Down Syndrome Strydom, A., et al., 1 Sep 2020, In: JAMA Network open. 3, 9, p. e2018221

Further understanding the connection between Alzheimer's disease and Down syndrome Snyder, H. M et al , 1 Jul 2020, In: <u>Alzheimer's and Dementia.</u> 16, 7, p. 1065-1077

The AT(N) framework for Alzheimer's disease in adults with Down syndrome Rafii, M. S et al. 2020, In: <u>Alzheimer's and Dementia: Diagnosis, Assessment and Disease</u> <u>Monitoring.</u> 12, 1, e12062.



Association of Dementia with Mortality among Adults with Down Syndrome Older Than 35 Years Hithersay, R., et al. Feb 2019, In: JAMA Neurology. 76, 2, p. 152-160

<u>Plasma amyloid and tau as dementia biomarkers in Down syndrome: systematic review</u> <u>and meta-analyses</u> Alhajraf, F et al, 10 Aug 2019, (Accepted/In press) In: <u>Developmental</u> <u>Neurobiology</u>.

<u>Cognitive markers of preclinical and prodromal Alzheimer's disease in Down syndrome</u> <u>Startin, C. M.</u>et al., The LonDownS Consortium & <u>Strydom, A.</u>, 28 Nov 2018, (E-pub ahead of print) In: <u>Alzheimers & Dementia.</u> 15, 2, p. 245-257

Association of Dementia Owing to Alzheimer Disease With Mortality Rates Among Adults With Down Syndrome Older Than 35 Years Hithersay, R. J., et al, 19 Nov 2018, In: JAMA Neurology.

<u>Trisomy of human chromosome 21 enhances amyloid-β deposition independently of an</u> <u>extra copy of APP</u> Wiseman, F. Ket al, , 1 Aug 2018, In: <u>Brain.</u> 141, 8, p. 2457-2474

Aging related cognitive changes associated with Alzheimer's disease in Down syndrome Firth, N. C et al The LonDownS Consortium & <u>Strydom, A.</u>, Jun 2018, In: <u>Annals of Clinical</u> and <u>Translational Neurology.</u> 5, 6, p. 741-751

Patterns and severity of vascular amyloid in Alzheimer's disease associated with duplications and missense mutations in APP gene, Down syndrome and sporadic Alzheimer's disease Mann, D. M. A., et al , 16 May 2018, (E-pub ahead of print) In: Acta Neuropathologica. p. 1-19

Behavioural and psychological symptoms of dementia in Down syndrome: Early indicators of clinical Alzheimer's disease? Dekker, AD et al, PP., 1 Dec 2015, In: <u>Cortex.</u> 73, p. 36-61

Dementia diagnostic criteria in Down syndrome Sheehan, R., et al, 1 Jan 2015, In: International Journal of Geriatric Psychiatry. 30, 8, p. 857-863

The Behavioral and Psychological Symptoms of Dementia in Down Syndrome (BPSD-DS) Scale: Comprehensive Assessment of Psychopathology in Down Syndrome Dekker, A. D., et al , 24 Apr 2018, In: Journal of Alzheimer's Disease. 63, 2, p. 797-819

Impact of cholinesterase inhibitors or memantine on survival in adults with Down syndrome and dementia: clinical cohort study Eady, N., et al , 1 Mar 2018, In: British Journal of Psychiatry. 212, 3, p. 155-160 Predictors of Age of Diagnosis and Survival of Alzheimer's Disease in Down Syndrome Sinai, A., et al. 19 Dec 2017, In: <u>JOURNAL OF ALZHEIMERS DISEASE.</u> 61, 2, p. 717-728

<u>Clinical aspects and biomarkers of Alzheimer's disease in Down syndrome</u> Zis, P. & <u>Strydom, A.</u>, 1 Sep 2017, (E-pub ahead of print) In: <u>Free Radical Biology and</u> <u>Medicine.</u>

Cognitive decline and dementia in Down syndrome Hithersay, R., et al. 1 Mar 2017, In: Current Opinion in Psychiatry. 30, p. 102-107

<u>Cognitive ability in Down Syndrome and its relationship to urinary neopterin, a marker of</u> <u>activated cellular immunity</u> Zis, P., et al., 1 Jan 2017, In: <u>Neuroscience Letters.</u> p. 254-257

<u>The LonDownS adult cognitive assessment to study cognitive abilities and decline in Down</u> <u>syndrome Startin, CM.</u>, et al. 1 Nov 2016, In: <u>Wellcome Open Research.</u> 1, p. 11-11

<u>Alzheimer's disease in older individuals with Down syndrome</u> <u>Strydom, A.</u>, 1 Oct 2016, ELSEVIER SCIENCE BV.

Other contribution From DSM to DM-ID

Fletcher, RJ., Barnhill, J., McCarthy, J. & <u>Strydom, A.</u>, 16 Jun 2016, (E-pub ahead of print) In: <u>Journal of Mental Health Research in Intellectual Disabilities.</u> 9, 3, p. 189-204

Assessing Specific Cognitive Deficits Associated with Dementia in Older Adults with Down Syndrome: Use and Validity of the Arizona Cognitive Test Battery (ACTB) Sinai, A et al, 12 May 2016, (E-pub ahead of print) In: <u>PL o S One</u>. 11, ARTN e0153917,

Therapies

Building the Future Therapies for down Syndrome: The Third International Conference of the T21 Research Society

Dierssen, M et al, 1 Jul 2021, In: Molecular syndromology. 12, 4, p. 202-218

Acute Illness

Immune Dysregulation and the Increased Risk of Complications and Mortality Following Respiratory Tract Infections in Adults With Down Syndrome T21RS COVID-19 Initiative, 25 Jun 2021, In: Frontiers in Immunology. 12, 621440.



Hospitalization is More Frequent and Severe in Down Syndrome. medRxiv 2020; : 2020.05.26.20112748. Malle L, Gao C, Bouvier N, Percha B, Bogunovic D. COVID-19

Psychiatric Illness

Mental Wellness in Adults with Down Syndrome: A Guide to Emotional and Behavioral Strengths and Challenges Dennis McGuire, Ph.D. & Brian Chicoine, M.D.isbn 978-1-60613-285-2 / 2021 Book

Mallardo, M., et al. (2014). <u>Mental health problems in adults with Down syndrome and their</u> <u>association with life circumstances</u>. Journal of Mental Health Research in Intellectual <u>Disabilities</u>, 7, 229–245

Psychiatric Issues in Ageing and Dementia Pape, S., et al. 31 Jan 2021, (Accepted/In press) *The Neurobiology of Aging and Alzheimer Disease in Down Syndrome*. Head, E. & Lott, I. (eds.). 1 ed

Experiences of psychotropic medication use and decision-making for adults with intellectual disability: A multistakeholder qualitative study in the UK Sheehan, R., Hassiotis, A., Strydom, A. & Morant, N., 1 Nov 2019, In: BMJ Open. 9, 11, e032861.

<u>Special issue on challenging behaviour</u> Sheehan, R., <u>Strydom, A.</u> & Hassiotis, A., 12 Jun 2019, In: <u>Advances in Mental Health and Intellectual Disabilities.</u> 13, 3-4, p. 89-90

Assessing general cognitive and adaptive abilities in adults with Down syndrome: A systematic review Strydom, A., et al 22 Jul 2019, (Accepted/In press) In: Journal Of Neurodevelopmental Disorders.

Dykens, E. M. (2007). <u>Psychiatric and behavioral disorders in persons with Down syndrome.</u> <u>Mental Retardation and Developmental Disabilities Research Reviews, 13, 272–</u> <u>278.</u>

Dykens, E. M., & Kasari, C. (1997). <u>Maladaptive behavior in children with Prader-Willi</u> syndrome, Down syndrome, and non-specific mental retardation. American Journal on <u>Mental Retardation</u>, 102, 228–237.

Dykens, E. M., Shah, B., Davis, B., Baker, C., Fife, T., & Fitzpatrick, J. (2015). <u>Psychiatric</u> <u>disorders in adolescents and young adults with Down syndrome and other intellectual</u> <u>disabilities. Journal of Neurodevelopmental Disorders, 7, 1–8.</u>



Esbensen, A., Bishop, S., Seltzer, M. M., Greenberg, J. S., & Taylor, J. L. (2010). <u>Comparisons</u> <u>between individuals with Autism Spectrum Disorder and individuals with Down syndrome in</u> <u>adulthood. American Journal of Intellectual and Developmental Disabilities, 115,</u> <u>277–290.</u>

Neurodevelopmental (ADHD Autism) inc Challenging Behaviour

see Education appendix

van Gameren-Oosterom, H. B. M., et al (2013). <u>Problem behavior of individuals with Down</u> <u>syndrome in a nationwide cohort assessed in late adolescence. The Journal of Pediatrics,</u> <u>163, 1396–1401.</u>

Sleep

Choi, E.K., et al (2019) Sleep problems in Korean children with Down syndrome and parental quality of life. *Journal of Intellectual Disability Research, 63,* (11), 1346-1358. https://doi:10.1111/jir.12675 Epub 2019 Jul 28. PMID: 31353681

Kose, C., et al(2021). Sleep-related rhythmic movement disorder in young children with down syndrome: prevalence and clinical features. Brain Sciences, 11(10), [1326]. https://doi.org/10.3390/brainsci11101326

Grantham-Hill, S., et al (Accepted/In press). **Psychometric properties and predictive value** of a screening questionnaire for obstructive sleep apnoea in young children with Down syndrome. Frontiers in Psychiatry.

Joyce, A.et al (2019). **Obstructive sleep apnoea contributes to executive function impairment in young children with Down syndrome.** Behavioral Sleep Medicine. <u>https://doi.org/10.1080/15402002.2019.1641501</u>

Yau, S.,et al (2019). Sleep in infants and toddlers with Down syndrome compared to typically developing peers: looking beyond snoring. Sleep Medicine, 63, 88-97. https://doi.org/10.1016/j.sleep.2019.05.005

Hill, C., et al (2018). **Home oximetry to screen for obstructive sleep apnoea in Down syndrome.** Archives of Disease in Childhood, 1-6. <u>https://doi.org/10.1136/archdischild-2017-314409</u>



Hill, C., et al. (2016). Prevalence and predictors of obstructive sleep apnoea in young children with Down syndrome. Sleep Medicine, 27-28, 99-106. https://doi.org/10.1016/j.sleep.2016.10.001

Sanders, E., et al (2015). The development of a screening questionnaire for obstructive sleep apnea in children with Down Syndrome. Frontiers in Psychiatry, 6, 1-9. https://doi.org/10.3389/fpsyt.2015.00147

Ashworth, A., et al (2015). The importance of sleep: attentional problems in school-aged children with Down Syndrome and Williams Syndrome. Behavioral Sleep Medicine, 13(6), 455-471. https://doi.org/10.1080/15402002.2014.940107

Ashworth, A., et al (2013). **Cross syndrome comparison of sleep problems in children with Down syndrome and Williams syndrome.** Research in Developmental Disabilities, 34(5), 1572-1580. <u>https://doi.org/10.1016/j.ridd.2013.01.031</u>

Carter, M., et al (2008). **Prevalence of sleep problems in a community population of children with Down syndrome**. Journal of Sleep Research, 17, 131. https://doi.org/10.1111/j.1365-2869.2008.00690.x

Carter, M., et al (2008). **Sleep problems in a Down Syndrome population.** Archives of Disease in Childhood, 94(4), 308-310. <u>https://doi.org/10.1136/adc.2008.146845</u>

Horne, RSC, et al . (2019) <u>Sleep and sleep disordered breathing in children with Down</u> <u>syndrome: Effects on behavior, neurocognition and the cardiovascular system.</u> <u>Sleep</u> <u>Medicine Reviews. 44, 1-11.</u>

Stores G. & Stores R. (2013) <u>Sleep disorders and their clinical significance in children with</u> <u>Down syndrome.</u> Developmental Medicine and Child Neurology, 55, 126-130.

Breslin, J.H., et al (2011) <u>Parental report of sleep problems in Down syndrome</u>. Journal of <u>Intellectual Disability Research</u>, 55, 1086-1091.

Hoffmire, C.A., et al (2014) <u>High prevalence of sleep discorders and associated</u> <u>comorbidities in a community sample of children with Down syndrome</u>. Journal of Clinical <u>Sleep Medicine, 10, 411-419</u>.

Goffinski, A., et al. <u>Obstructive sleep apnoea in young infants with Down syndrome</u> <u>evaluated in a Down syndrome speciality clinic</u>. American Journal of Medical Genetics; Part <u>A 167A, 324-330</u>.



Breslin, J., et al (2014) <u>Obstructive sleep apnoea syndrome and cognition in Down</u> syndrome. Developmental Medicine and Child Neurology, 56, 657-664.

Chen, C., et al (2013) <u>The impact of sleep disruption on executive function in Down</u> syndrome. Research in Developmental Disabilities. 34, 2033-2039.

Speech and Languagesee education appendix

Comparison of Receptive Verbal Abilities Assessed Using the KBIT-2 and BPVS3 in Adults with Down Syndrome The LonDownS Consortium, 17 Jan 2019, In: Frontiers in Psychology. 9, JAN, 2730.

Dental

Parents'perceptions of oral health, general health and dental health for children with Down syndrome in Sweden. Stensson, M., Norderyd, J., Van Riper, M., Marks, L., Björk, M. (2020). Acta Odontologic Scandinavia. 5, 1-8. https://doi:10.1080/00016357.2020.1824015

Hearing

Austeng, M.E., et al. (2013) <u>Hearing levels in children with Down syndrome at the age of eight. Research in Developmental Disabilities, 34, 2251-2256.</u>

Austeng, M.E., et al. (2013) <u>Otitis media with effusion in children with Down syndrome.</u> <u>International Journal of Pediatric Otorhinolaryngology. 77, 1329-1332.</u>

Barr, E., et al. . (2011) <u>The prevalence of ear, nose and throat disorders in preschool children</u> with Down syndrome in Glasgow. Scottish Medical Journal, 56, 98-103.

Park, A.H., et al. (2012) Identification of hearing loss in pediatric patients with Down syndrome. Otolaryngology 146, 135-140.

Tedeschi, A.E., et al. (2015) The prevalence of congenital hearing loss in neonates with Down syndrome. Journal of Pediatrics, 166, 168-171.



Laws, G & Hall, A. (2014) Early hearing loss and language abilities in children with Down syndrome. International Journal of Language and Communication Disorders, 49, 333-342.

Bennetts, L.C. & Flynn, M. C. (2002) <u>Improving the classroom listening skills of children with</u> <u>Down syndrome using sound field amplification</u>. Down Syndrome Research and Practice 8, <u>19-24</u>.

Nightengale, E., et al. (2017) <u>Understanding Hearing and Hearing Loss in Children with Down</u> <u>Syndrome. American Journal of Audiology. 26, 301-308.</u>

Vision

Watt, T., Robertson, K. & Jacobs, R.J.(2015) <u>Refractive error, binocular vision and</u> <u>accommodation of children with Down syndrome: Review. Clinical and Experimental</u> <u>Optometery, 98, 3-11.</u>

Cregg, M., et al. (2003) <u>Development of refractive error and strabismus in children with</u> <u>Down syndrome. Investigative Opthalmology & Visual Science, 44, 1023-1030.</u>

Stewart, R.E., et al. (2005) In focus: the use of bifocal spectacles with children with Down's syndrome. Opthalmic and Physiological Optics, 25, 514-522.

Al-Bagdady, M., et al. (2009) <u>Bifocals and Down syndrome: correction or treatment?</u> Opthalmic and Physiological Optics 29, 416-421.

Nandakumar, K. & Leat, S.J. (2010) <u>Bifocals in children with Down syndrome (BiDS) - visual</u> <u>acuity, accommodation and early literacy skills. Acta Opthalomology, 88, e196-e204.</u>

John, F.M., et al. (2004) <u>Spatial vision deficits in infants and children with Down syndrome.</u> <u>Investigative Opthalmology & Visual Science, 45, 1566-1572.</u>

Courage, M.L., et al. . (1997) <u>Contrast sensitivity in infants and children with Down</u> syndrome. Vision Research, 37, 1545-1555.

Stephen, E., et al. . (2007) <u>Surveillance of vision and ocular disorders in children with Down</u> <u>syndrome. Developmental Medicine & Child Neurology, 49: 513-515</u>

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Neurology

Intracerebral haemorrhage in Down syndrome: Protected or predisposed? [version 1; referees: 2 approved] Buss, L., et al. 12 May 2016, (E-pub ahead of print) In: F1000Research.

The Relationship Between Sound–Shape Matching and Cognitive Ability in Adults With Down Syndrome Hamburg, S., Startin, CM. & Strydom, A., 2 Jun 2017, (Accepted/In press) In: <u>Multisensory research.</u> 30, 6, p. 537-547



APPENDIX 2 EDUCATION REFERENCES

Guidelines

APPGDS UK 2012. DOWN SYNDROME: GOOD PRACTICE GUIDELINES FOR EDUCATION. https://go.dselink.net/appgeducation-report

Down Syndrome Toolkit for Paediatric Speech and Language Therapists (Release FEB 2022) Lancashire and South Cumbria Foundation Trust, Chryssovergis S. et al.

Recent publications

<u>Down's syndrome: language development and intervention</u> 2020, Dr Kelly Burgoyne, Royal College of Speech and Language Therapists Bulletin

Hargreaves S, Holton S, Baxter R, Burgoyne K. <u>Educational experiences of pupils with Down</u> <u>syndrome in the UK. Res Dev Disabil. 2021</u> Dec;119:104115. Doi: 10.1016/j.ridd.2021.104115. Epub 2021 Oct 29. PMID: 34736106.

Burgoyne K, Buckley S, Baxter R. <u>Speech production accuracy in children with Down</u> <u>syndrome: relationships with hearing, language, and reading ability and change in speech</u> <u>production accuracy over time</u>. J Intellect Disabil Res. 2021 Dec;65(12):1021-1032. doi: 10.1111/jir.12890. Epub 2021 Oct 6. PMID: 34612573.

The developmental profile and implications

Fidler, D. (2005) <u>The Emerging Down Syndrome Behavioural Phenotype in Early Childhood.</u> <u>Infants and Young Children</u> 18, 86-103.

Fidler DJ, Hepburn S, Rogers S. (2006) <u>Early learning and adaptive behaviour in toddlers with</u> <u>Down syndrome: Evidence for an emerging behavioural phenotype? Down Syndrome</u> <u>Research and Practice.9, 37-44.</u>

Dykens EM, Hodapp RM, Evans DW. (2006) <u>Profiles and development of adaptive behavior in</u> <u>children with Down syndrome. Down Syndrome Research and Practice.9,45-50.</u>

Fidler, D. Nadel, L. (2007) <u>Education and children with Down syndrome: neuroscience</u>, <u>development and education. Mental Retardation and Developmental Disabilities Research</u> <u>Reviews. 13, 262-271.</u>

Produced by the National Down Syndrome Policy Group



Silverman, W. (2007) <u>Down syndrome: Cognitive phenotype. Mental Retardation and</u> <u>Developmental Disabilities Research Reviews. 13, 228-236.</u>

Daunhauer, L., Fidler, D. (2011) <u>The Down syndrome behavioural phenotype: implications or</u> practice and research in occupational therapy. Occupational Therapy in Health Care . 25, <u>7-25</u>

Fidler, DJ., Most, DE & Philofsky, AD. (2008) <u>The Down syndrome behavioural phenotype:</u> <u>Taking a developmental perspective. Down Syndrome Research and Practice. Online</u>

Adapting interventions and teaching to the profile

<u>Fidler, D.J., Philofsky, A., Hepburn, S. (2007) Language Phenotypes and Intervention</u> <u>Planning: Bridging Research and Practice. Mental Retardation Developmental Disabilities</u> <u>Research Reviews. 13, 47–57.</u>

Fidler DJ, Hepburn SL, Osaki D. (2011) <u>Goal-directedness as a target for early intervention in</u> <u>Down syndrome.</u> In: Rondal J, Perera J, eds. Neurocognitive Rehabilitation in Down Syndrome: The Early Years. Cambridge, England: Cambridge University Press; pp. 191–200.

Lemons, C.J., King, S.A., Davidson, K.A., Puranik, C.S., Fulmer, D.J., Mrachko, A.A., Partanen, J., Al Otaiba, S., & Fidler, D.J. (2015). <u>Adapting phonological awareness interventions for</u> <u>children with Down syndrome based on the behavioral phenotype: A promising approach?</u> Intellectual and Developmental Disabilities, 53, 271-288.

Lemons, C.J., King, S.A., Davidson, K.A., Puranik, C.S. Al Otaiba, S., Fulmer, D., Mrachko, A.A., Partenen J. & Fidler, D. (2017) <u>Developing an early reading intervention aligned with the</u> <u>Down syndrome behavioural phenotype. Focus on Autism and other Developmental</u> <u>Disabilities. 32, 176-187.</u>

Lemons, C.J., Powell, S.R., King, S.A., & Davidson, K.A. (2015). <u>Mathematics interventions for</u> <u>children and adolescents with Down syndrome: A research synthesis. Journal of Intellectual</u> <u>Disability Research, 59, 767-783.</u>

Lemons, C.J., King, S.A., Davidson, K.A., Puranik, C.S., Al Otaiba, S., & Fidler, D.J. (2018). Personalized reading intervention for children with Down syndrome. Journal of School Psychology, 66, 67-84.



Lemons, C.J., King, S.A., Davidson, K.A., Puranik, C.S., Fulmer, D.J., Mrachko, A.A., Partanen, J., Al Otaiba, S., & Fidler, D.J. (2015). <u>Adapting phonological awareness interventions for</u> <u>children with Down syndrome based on the behavioral phenotype: A promising approach?</u> Intellectual and Developmental Disabilities, 53, 271-288.

Steele, A., Scerif, G., Cornish, K., & Karmiloff-Smith, A. (2013). <u>Learning to read in William</u> <u>syndrome and Down syndrome: Syndrome-specific precursors and developmental</u> <u>trajectories. Journal of Child Psychology and Psychiatry,</u> 54, 754–762.

Burgoyne, K., Duff, F., Clarke, P., Buckley, S., Snowling, M. & Hulme, C. (2012). Efficacy of a reading and language intervention for children with Down syndrome: a randomized controlled trial. Journal of Child Psychology and Psychiatry 53, 1044–1053.

Burgoyne, K., Duff, F., Snowling, M., Buckley, S. & Hulme, C. (2013). <u>Training phoneme</u> <u>blending skills in children with Down syndrome. Child Language Teaching and Therapy. 29,</u> <u>273-290.</u>

Jones, E., Neil, N., Feeley, K. (2013) <u>Enhancing learning for children with Down syndrome in</u> <u>R. Faragher & B. Clarke (Eds) Educating Learners with Down syndrome. Routledge. Pp</u> <u>83-116.</u>

Changing the expected profile

Buckley, S., Bird, G., Sacks, B., & Archer, T. (2006). <u>A comparison of mainstream and special</u> <u>education for teenagers with Down syndrome: Implications for parents and teachers. Down</u> <u>Syndrome Research and Practice. 9 (3) pp 54-67.</u>

Buckley, S., Bird, G. & Sacks. B. (2006) Evidence that we can change the profile from a study of inclusive education. Down Syndrome Research and Practice. 9, 51-53.

The Specific Learning profile in detail Strengths in social understanding

Næss, K. B., Nygaard, E., Ostad, J., Dolva, A., & Halaas Lyster, S. (2016). The profile of social functioning in children with Down syndrome. Disability and Rehabilitation, 39, 1320–1331. Also discussed in the profile papers 5-11.



Differences in motor development

Latash, M., Wood, L. & Ulrich, D. (2008) <u>What is currently known about hypotonia, motor</u> <u>skill development and physical activity in Down syndrome. Down Syndrome Research and</u> <u>Practice. 12, 3. online.</u>

Will E, Caravella K, Hahn LJ, Fidler DJ, Roberts J. <u>Adaptive behavior in infants and toddlers</u> with fragile X syndrome and Down syndrome. Am J Med Genet B Neuropsychiatry Genet. 2018 Feb 5. PMID: 29399949. doi:10.1002/ajmg.b.32619.

Fidler DJ, Schworer E, Prince MA, Will EA, Needham AW, Daunhauer LA. (2019) <u>Early</u> <u>exploratory profiles and developmental skill acquisition in infants with Down syndrome.</u> <u>Infant Behavior and Development. 54, 140-150.</u>

Pereira, K., Basso, R.P., Lindquist, A.R., Da Silva, L.G. & Tudella, E. (2013) <u>Infants with Down</u> <u>syndrome: percentage and age for acquisition of gross motor skills. Research in</u> <u>Developmental Disabilities, 34, 894-901.</u>

Frank, K. & Esbensen, A.J. (2014) <u>Fine motor and self-care milestones for individuals with</u> <u>Down syndrome using a Retrospective Chart Review. Journal of Intellectual Disability</u> <u>Research Advance online.</u>

Winders, P., Wolter-Warmerdam, K. & Hickey, F. (2019) <u>A schedule of gross motor</u> <u>development for children with Down syndrome. Journal of Intellectual Disability Research</u> <u>63, 346–356.</u>

Speech and language delays

Review chapters

Abbeduto, L, Warren, S.F. & Conners, F.A. (2007) Language development in Down syndrome: from the prelinguistic period to the acquisition of literacy. Mental Retard. and Developmental Disabilities Research Reviews 13, 247-261

Martin, G.E., Klusek, J., Estigarribia, B. & Roberts, J.E. (2009) <u>Language characteristics of</u> individuals with Down syndrome. Topics in Language Disorders 29, 112-132.

Chapman, R.S., Kay-Raining Bird E. (2011) Language Development in Childhood, <u>Adolescence</u> and <u>Young adulthood in persons with Down syndrome. In J.A. Burack, R.M. Hodapp, G.</u>



<u>Iarocci & E. Zigler. The Oxford Handbook of Intellectual Disability and Development. Pp</u> <u>167-183. NY:OUP.</u>

Research papers

<u>Down's syndrome: language development and intervention</u> 2020, Dr Kelly Burgoyne, Royal College of Speech and Language Therapists Bulletin

Naess, KB., Lyster, SH., Hulme, C., Melby-Lervag, M. (2011) <u>Language and verbal short-term</u> <u>memory skills in children with Down syndrome: A meta-analytic review. Research in</u> <u>Developmental Disabilities, 32, 2225-2234</u>

Smith, E., Naess, KB., Jarrold, C., (2017) <u>Assessing pragmatic communication in children with</u> <u>Down syndrome. Journal of Communication Disorders. 68, 10–23.</u>

Laws, G. & Hall, A. (2014) <u>Early hearing loss and language abilities in children with Down</u> syndrome. International Journal Language Communication Disorders, 49, 333-342.

Fey R. S.Chapman, H. Sindberg, C. Bridge, K. Gigstead & L. Hesketh (2006) <u>Effect of Memory</u> <u>Support and Elicited Production on Fast Mapping of New Words by Adolescents. Journal of</u> <u>Speech, Language, and Hearing Research, 49, 3-15.</u>

Mosse E.K. & Jarrold, C. (2011) <u>Evidence for Preserved Novel Word Learning in Down</u> <u>Syndrome Suggests Multiple Routes to Vocabulary Acquisition. Journal of Speech, Language,</u> <u>and Hearing Research, 54, 1137-1152.</u>

Yoder, P., Woynaroski, T., Fey, M. & Warren, S. (2014) <u>Effects of Dose Frequency of Early</u> <u>Communication Intervention in Young Children With and Without Down Syndrome.</u> <u>American Journal on Intellectual and Developmental Disabilities. 119, 17-32.</u>

Hahn, L. J., Loveall, S. J., Savoy, M. T., Neumann, A. M., & Ikuta, T. (2018). Joint attention in Down syndrome: A metaanalysis. Research in Developmental Disabilities, 78, 89-102.

Drager, K., Light, J., & McNaughton, D. (2011). <u>Effects of AAC interventions on</u> <u>communication and language for young children with complex communication needs</u>. <u>Journal of Pediatric Rehabilitation Medicine</u>, 3, 303-310.



Challenges in developing clear speech production

Books and book chapters

Bray, M. (2016) Exploring fluency in Down syndrome: a discussion of speech dysfluencies for professionals and parents. Guilford, UK; J & R Press Ltd

Roberts, J.E., Stoel-Gammon, C., & Barnes, E., <u>(2008)</u> Phonological characteristics of children with Down Syndrome or Fragile X Syndrome. In J.E.Roberts, R.S. Chapman, & S.F. Warren (Eds.)(pp. 143-172) Speech & Language Development & Intervention in Down Syndrome & Fragile X Syndrome. Baltimore: Paul H. Brookes Publishing Co.

Price, J., & Kent, R. (2008) Increasing Speech Intelligibility in Down Syndrome and Fragile X Syndrome. In J.E.Roberts, R.S. Chapman, & S.F. Warren (Eds.) (pp. 219-232) <u>Speech &</u> <u>Language Development & Intervention in Down Syndrome & Fragile X Syndrome. Baltimore:</u> <u>Paul H. Brookes Publishing Co.</u>

Reviews and papers

Kent, R., & Vorperian, H. (2013). <u>Speech Impairment in Down Syndrome: A Review. Journal</u> of Speech, Language, and Hearing Research, 56(1), 178-210.

Yoder, PJ., Camarata, S. & Woynaroskia, T. (2016) <u>Treating Speech Comprehensibility in</u> <u>Students with Down Syndrome. Journal of Speech, Language, and Hearing Research 59,</u> <u>446–459.</u>

Wild,A., Vorperian,HK., Kent, RD., Bolt, DM.,& Austina, D. (2018) <u>Single-Word Speech</u> <u>Intelligibility in Children and Adults with Down Syndrome. American Journal of</u> <u>Speech-Language Pathology 27, 222–236.</u>

Bray, M. (2008) Speech production in people with Down syndrome. Down Syndrome Research and Practice, 12(3). Online

Dodd, B.J. & Thompson, L. (2001). <u>Speech disorder in children with Down's syndrome</u>. Journal of Intellectual Disabilities Research, 45, 308-316.

Van Bysterveldt, A., Gillon, G & Foster-Cohen, S. (2010) <u>Integrated speech and phonological</u> <u>awareness intervention for preschool children with Down syndrome. International Journal of</u> <u>Language and Communication Disorders, 45 (3) 320-335</u>

Strengths and weaknesses in short term and working memory

Produced by the National Down Syndrome Policy Group



Jarrold C, Baddeley AD. (2001) <u>Short-term memory in Down syndrome: Applying the working</u> <u>memory model. Down Syndrome Research and Practice.7, 17-23.</u>

Jarrold, C., Nadel, L. Vicari, S. (2008) Memory and neuropsychology in Down syndrome. Down Syndrome Research and Practice online <u>https://www.down-syndrome.org/reviews/2068/</u>

Bennett S, Holmes J and Buckley S (2013). <u>Computerized memory training leads to sustained</u> <u>improvement in visuospatial short-term memory skills in children with Down syndrome.</u> <u>American Journal on Intellectual and Developmental Disabilities, 118, 179-192.</u>

Smith, E. & Jarrold, C. (2014) <u>Demonstrating the effects of phonological similarity and</u> <u>frequency on item and order memory in Down syndrome using process dissociation. Journal</u> <u>of Experimental Child Psychology. 128, 69-87.</u>

Smith, E. & Jarrold, C. (2014) <u>Grouping, semantic relation and imagery effects in individuals</u> with Down syndrome. Research in Developmental Disabilities. 35, 3162-3174.

Executive function

Will E, Fidler DJ, Daunhauer LA, Gerlach-McDonald B. (2016) <u>Executive function and</u> <u>academic achievement in primary-grade students with Down syndrome. Journal of</u> <u>Intellectual Disability Research, 61,181–195.</u>

Schworer E, Fidler DJ, Lunkenheimer E, Daunhauer LA. (2019) <u>Parenting behavior and</u> <u>executive function in children with Down syndrome. Journal of Intellectual Disability</u> <u>Research, 63(4):298-312.</u>

Daunhauer LA, Fidler DJ, Will E, Hahn L, Lee NR, Hepburn S. (2014) <u>Profiles of everyday</u> <u>executive functioning in children with Down syndrome. American Journal on Intellectual</u> <u>Developmental Disabilities. 119, 303–318.</u>

Loveall, S. J., Conners, F. A., Tungate, A., Hahn, L., & Osso, T. (2017). <u>A cross-sectional analysis</u> of executive function in Down syndrome from 2-35 years. Journal of Intellectual Disability <u>Research, 61, 877-887.</u>

Lisa A. Daunhauer, Elizabeth Will, Emily Schworer & Deborah J. Fidler (2020): <u>Young students</u> with Down syndrome: Early longitudinal academic achievement and neuropsychological predictors, Journal of Intellectual & Developmental Disability, 45 (3) 211-221.



Attention

Fidler, DJ, Schworer E, Will EA, Patel L, Daunhauer LA. (2019) <u>Correlates of early cognition in</u> <u>infants with Down syndrome. J Intellect Dis Res. 63, 205-214.</u>

Faught, G. G., & Conners, F. A. (2019). <u>Modeling the relationships among sustained</u> <u>attention, short-term memory, and language in Down syndrome. American Journal on</u> <u>Intellectual and Developmental Disabilities, 124, 293-308.</u>

Faught, G. G., Conners, F. A., & Himmelberger, Z. (2016). <u>Auditory and visual sustained</u> <u>attention in Down syndrome. Research in Developmental Disabilities. 53-54, 135-146.</u> <u>Challenges in consolidating learning Also discussed profile papers 5-11.</u>

Wishart, J.G. Duffy, L. (1990). Instability of performance on cognitive tests in infants and young children with Down's syndrome. British Journal of Educational Psychology, 59, 10-22

Duffy, L, and Wishart, J. (1994) The stability and transferability of errorless learning in children with Down syndrome. Down Syndrome Research and Practice, 2(2), 51-58.

Strengths in reading

Review chapters

Buckley, S. J. & Johnson-Glenberg, M.C. (2008) Increasing literacy learning in Down syndrome and Fragile X syndrome. <u>In J. E. Roberts, R.S. Chapman & S.F. Warren (Eds.) Speech</u> and Language Development and Intervention in Down Syndrome and Fragile X Syndrome. <u>(pp 233-254). Baltimore: Paul H. Brookes</u>.

Kay-Raining Bird E. Chapman, R.S., (2011) Literacy Development in Childhood, Adolescence and Young adulthood in persons with Down syndrome. In J.A. Burack, R.M. Hodapp, G. Iarocci & E. Zigler. The Oxford Handbook of Intellectual Disability and Development. Pp 184-199. New York: Oxford University Press.

Burgoyne, K., Baxter, R. & Buckley, S. (2014). <u>Developing the reading skills of children with</u> <u>Down syndrome. In R. Faragher & B. Clarke (Eds.), Educating Learners with Down syndrome.</u> <u>Routledge Education. Pp. 195-220.</u>



Naess, KB., Melby-Lervag, M., Hulme, C. Lyster, SH. (2012) <u>Reading skills in children with</u> <u>Down syndrome: A meta-analytic review. Research in Developmental Disabilities 33,</u> <u>737–747 Research papers – reading development and intervention studies</u>

Colozzo, P., McKeil, L., Petersen, J.M. & Szabo, A. (2016) <u>An early literacy program for</u> <u>children with Down syndrome: changes observed over a year. Journal of Policy and Practice</u> <u>in Intellectual Disability 13, 102-110.</u>

Hulme, C., Goetz, K., Brigstocke, S., Nash, H. M., Lervag, A. & Snowling, M.J. (2012) <u>The</u> growth of reading skills in children with Down syndrome. Developmental Science. 15, <u>320-329.</u>

Lemons, C.J. & Fuchs, D. (2010) <u>Modeling response to reading intervention in children with</u> <u>Down syndrome: an examination of predictors of differential growth. Reading Research</u> <u>Quarterly. 45, 134-168.</u>

Roch, M., Florit, E. & Levorato, C. (2011) <u>Follow-up study on reading comprehension in</u> <u>Down's syndrome: The role of reading skills and listening comprehension. International</u> <u>Journal of Language and Communication Disorders 46, 231-242</u>

Mengoni, S.E., Nash, H. & Hulme, C. (2013) <u>The benefit of orthographic support for oral</u> vocabulary learning in children with Down syndrome. Journal of Child Language 40, 221-243

Burgoyne, K., Duff, F.J., Clarke, P.J., Snowling, M.J., Buckley, S.J., Hulme, C. (2012) <u>Efficacy of a</u> <u>reading and language intervention for children with Down syndrome: a randomized</u> <u>controlled trial. Journal of Child Psychology and Psychiatry 53, 1044-1053.</u>

Burgoyne, K., Duff, F.J., Snowling, M., Buckley, S.J & Hulme, C. (2013). <u>Training phoneme</u> <u>blending skills in children with Down syndrome. Child Language Teaching and Therapy. 29 (3)</u> <u>273-290</u>

Kari-Anne B. Næss (2016) <u>Development of Phonological Awareness in Down Syndrome: A</u> <u>Meta-Analysis and Empirical Study. Developmental Psychology, 52, 177–190.</u>

Number challenges

Lemons, C.J., Powell, S.R., King, S.A., & Davidson, K.A. (2015) <u>Mathematics interventions for</u> <u>children and adolescents with Down syndrome: a research synthesis. Journal of Intellectual</u> <u>Disability Research. 59, 767-783.</u>



Cuskelly M, Faragher R, 'Developmental dyscalculia and down syndrome: indicative evidence', International Journal of Disability, Development and Education, 66, 151-161.

Faragher, R. & Clarke, B. (2014) <u>Developing early number concepts for children with Down</u> syndrome. In R. Faragher & B, Clarke (Eds.) Educating Learners with Down syndrome. pp <u>146-162. Oxford:Routledge.</u>

Faragher, R. & Clarke, B. (2014) <u>Mathematics profiles of the learner with Down syndrome. In</u> <u>R. Faragher & B, Clarke (Eds.) Educating Learners with Down syndrome. pp 119-145. Oxford:</u> <u>Routledge.</u>

Brigstocke, S., Hulme, C. & Nye, J. (2008) Number and arithmetic skills in children with Down syndrome. Online <u>http://www.down-syndrome.org/reviews/2070/</u>

Nye, J. Fluck, M. & Buckley, S. (2001) <u>Counting and cardinal understanding in children with</u> <u>Down syndrome and typically developing children. Down Syndrome Research and Practice,</u> <u>7, 68-78.</u>

King, S.A., Powell, S.R., Lemons, C.J., & Davidson, K.A. (2017). <u>Comparison of mathematics</u> performance of children and adolescents with and without Down syndrome. Education and <u>Training in Autism and Developmental Disabilities</u>, 52, 208-222.

Faragher, R. (2019) <u>The new 'functional mathematics' for learners with Down syndrome:</u> <u>numeracy for a digital world. International Journal of Disability, Development and Education,</u> <u>66 (2) 206-217.</u>

Personality/motivational style

Wishart JG. <u>Learning the hard way: Avoidance strategies in young children with Down</u> syndrome. Down Syndrome Research and Practice. 1993;1(2);47-55.

Fidler, D. (2006) The emergence of a syndrome-specific personality profile in young children with Down syndrome. Down Syndrome Research and Practice, 10(2), 53-60.

Gilmore L, Cuskelly M. (2017) <u>Associations of child and adolescent mastery motivation and</u> <u>self-regulation with adult outcomes: a longitudinal study of individuals with Down</u> <u>syndrome, American Journal on Intellectual and Developmental Disabilities, 122, (3) pp.</u> <u>235-246.</u>



Cuskelly M, Gilmore L, Glenn S, Jobling. (2016) <u>Delay of gratification: a comparison study of</u> <u>children with Down syndrome, moderate intellectual disability and typical development</u>, <u>Journal of Intellectual Disability Research</u>, 60, (9) pp. 865-873.

Gilmore L, Cuskelly M. (2009) <u>A longitudinal study of motivation and competence in children</u> with Down syndrome: early childhood to early adolescence, Journal of Intellectual Disability <u>Research, 53, 484-492.</u>

At risk for challenging behaviours

Books and chapters

Stein, D. (2016) Supporting positive behavior in children and teens with Down syndrome; the respond don't react method. Woodbine House.

Towers, S. (2013) Addressing behaviour problems in individuals with DS-ASD. Pp 141-164 in M. Froehlke & R. Zaborek When Down syndrome and autism intersect. Bethesda, MD, USA: Woodbine House pp

Jones, E., Neil, N., Feeley, K. (2013) Enhancing learning for children with Down syndrome in R. Faragher & B. Clarke (Eds) <u>Educating Learners with Down syndrome. Routledge</u>. Excellent on behavioral approaches.

Evanovich, L., Freeman, J., George, H., Simonsen, B., Sugai, G. (2019) <u>PBIS Practitioner's</u> <u>Guide: Preventing Restraint and Seclusion in Schools. OSEPTA Center on PBIS, University of</u> <u>Oregon.</u>

Practical papers

Feeley KM, Jones EA. (2008) <u>Preventing challenging behaviours in children with Down</u> syndrome: Attention to early developing repertoires. Down Syndrome Research and <u>Practice.;12,11-14.</u>

Feeley KM, Jones EA. (2008) <u>Strategies to address challenging behaviour in young children</u> with Down syndrome. Down Syndrome Research and Practice.;12, 153-163.

Feeley KM, Jones EA. (2006) <u>Addressing challenging behaviour in children with Down</u> <u>syndrome: The use of applied behaviour analysis for assessment and intervention. Down</u> <u>Syndrome Research and Practice. 11, 64-77.</u>



Will E, Fidler DJ, Daunhauer LA, Gerlach-McDonald B. (2016) Maladaptive behavior and school function in children with Down syndrome. Research in Developmental Disabilities. 59, 328–337.

Patel, L., Wolter-Warmerdam, K., Leifer, N. & Hickey, F. (2018) <u>Behavioral Characteristics of</u> <u>Individuals with Down Syndrome, Journal of Mental Health Research in Intellectual</u> <u>Disabilities, 11:3, 221-246</u>,

Sensory issues

Will EA, Daunhauer L, Fidler DJ, Lee NR, Rosenberg CR, & Hepburn SL. (2019) <u>Sensory</u> processing and maladaptive behavior: Profiles within the Down syndrome phenotype. <u>Physical & Occupational Therapy In Pediatrics. 39, 461-476.</u>

Presume competence

Jorgensen, C.M. (2018) It's More than "Just Being In": Creating Authentic Inclusion for Students with Complex Support Needs. Brooks.

Bilingual children

Kay-Raining Bird, E., Cleave, P., Trudeau, N., Thordardottir, E., Sutton, A., & Thorpe, A. (2005). <u>The language abilities of bilingual children with Down syndrome. American Journal of</u> <u>Speech-Language Pathology, 14, 187–199.</u>

Burgoyne, K., Duff, F. J., Nielsen, D., Ulicheva, A. & Snowling, M. J. (2016) <u>Bilingualism and</u> <u>Biliteracy in Down Syndrome: Insights From a Case Study Language Learning. 66, 4, p.</u> <u>945-971</u>

Kay-Raining Bird, E. (2006). The case for bilingualism in children with Down syndrome. In R. Paul (Ed.), Language disorders from a developmental perspective: Essays in honor of Robin S. Chapman. Mahwah, NJ: Lawrence Erlbaum Associates.

Cleave, PL., Kay-Raining Bird, E., Trudeau N. & Sutton, A. (2014) <u>Syntactic bootstrapping in</u> <u>children with Down syndrome: The impact of bilingualism. Journal of Communication</u> <u>Disorders 49,42–54.</u>



No plateau

Buckley, S., Bird, G., Sacks, B., & Archer, T. (2006). <u>A comparison of mainstream and special</u> <u>education for teenagers with Down syndrome: Implications for parents and teachers. Down</u> <u>Syndrome Research and Practice. 9, 54-67.</u>

Robin S. Chapman, RS, Hesketh LJ, Kistler, DJ (2002) <u>Predicting Longitudinal Change in</u> <u>Language Production and Comprehension in Individuals with Down Syndrome: Hierarchical</u> <u>Linear Modeling. Journal of Speech Language and Hearing Research 45, 902-915.</u>

Cuskelly, M., Povey, J. & Jobling, A. (2016) <u>Trajectories of Development of Receptive</u> <u>Vocabulary in Individuals with Down Syndrome Journal of Policy and Practice in Intellectual</u> <u>Disabilities 13 111–119.</u>

Regression

Santoro, S.L., Cannon, S., Capone, G. et al. (2019) <u>Unexplained regression in Down</u> syndrome: 35 cases from an international Down syndrome database. Genet Med . online

Mircher et al (2017) <u>Acute regression in young people with Down syndrome Brain Sciences</u> 7, 57. Health issues Hearts 113.

Visootsak J, Mahle WT, Kirshbom P, Huddleston L, Caron-Besch M, Ransom A, Sherman SL. 2011. <u>Neurodevelopmental outcomes in children with Down syndrome and congenital heart</u> <u>defects. Am J Med Genet Part A 155:2688–2691.</u>

Visootsak J, Hess B, Bakeman R, Adamson LB. (2013) <u>Effect of congenital heart defects on</u> <u>language development in toddlers with Down syndrome. J Intellect Disabil Res. 57(9):</u> <u>887–892.</u>

Sleep- see Healthcare appendix

Autism

Books

Froehlke, M. & Zaborek, R. (2013) <u>When Down syndrome and autism intersect.</u>; a guide for <u>parents and professionals. Woodbine House.</u> – excellent book, many useful chapters. Papers



Richards, C., Jones, C., Groves, L., Moss, J. & Oliver, C. (2015) <u>Prevalence of autism spectrum</u> <u>disorder phenomenology in genetic disorders: a systematic review and meta-analysis. Lancet</u> <u>Psychiatry, 2: 909–16.</u>

Hepburn, S. & Fidler, D. (2013) What autism looks like in a child with Down syndrome: the behavioral phenotype. Chapter in M. Froehlke, M. & R. Zaoborek. <u>When Down syndrome</u> and autism intersect: a guide to DS-ASD for parents and professionals. Woodbine House.

DiGuiseppi, C., Hepburn, S., Davis, J., Fidler, D et. al (2010) <u>Screening for autism spectrum</u> <u>disorders in children with Down syndrome . Population prevalence and screening test</u> <u>characteristics. Journal of Developmental Paediatrics 31, 181-191.</u>

Hepburn, S., Philofsky, A., Fidler, D.J. Rogers, S. (2008) <u>Autism symptoms in toddlers with</u> <u>Down syndrome. Journal of Applied Research in Developmental Disabilities, 21 48-57.</u>

Channell, M., Phillips, B.A., Loveall, S.J., Conners, F.A., Bussanich, P.m. & Klinger, L.G. (2015) Patterns of autism spectrum symptomatology in individuals with Down syndrome without comorbid autism spectrum disorder. Journal of Neurodevelopmental Disorders 7;5 <u>http://www.jneurodevdisorders.com/content/7/1/5</u>

Warner, G., Moss, J., Smith, P. & Howlin. P. (2014) <u>Autism characteristics and behavioural</u> <u>disturbances in ~500 children with Down's syndrome in England and Wales. Autism Research</u> <u>7, 433-441.</u>

Moss, J., Richards, C., Nelson, L. & Oliver, C. (2014) <u>Prevalence of autism spectrum disorder</u> <u>symptomatology and related behavioural characteristics in individuals with Down syndrome.</u> <u>Autism 17, 390-404.</u>

Godfrey M, Hepburn S, Fidler DJ, Tapera T, Zhang F, Rosenberg CR, & Lee NR. (2019) <u>Autism</u> <u>spectrum disorder (ASD) symptom profiles of children with comorbid Down syndrome (DS)</u> <u>and ASD: A comparison with children with DS-only and ASD-only. Research in Developmental</u> <u>Disabilities. 89, 83-93.</u>

Channell, M. M., Hahn, L. J., Rosser, T., Strang, J., Capone, G., ... & the Down Syndrome Cognition Project. (2019). <u>Characteristics associated with autism spectrum disorder risk in</u> <u>individuals with Down syndrome. Journal of Autism and Developmental Disorders, 49(9),</u> <u>3543-3556. D</u>

Oxelgren, UW., Aberg, M., Myrelid, A, et al (2019) <u>Autism needs to be considered in children</u> with Down Syndrome. Acta Pædiatrica 108, 2019-2026



Oxelgren, UW., Myrelid, A, Anner, en G, et al. (2016) <u>Prevalence of autism and</u> <u>attention-deficit–hyperactivity disorder in Down syndrome: a population-based study.</u> <u>Developmental Medicine and Child Neurolology, 59: 276–83.</u>

ADHD

ADHD & Down Syndrome. National Down Syndrome Society. https://www.ndss.org/resources/adhd-down-syndrome/

Ekstein, S., Glick, B., Weill, M., Kay, B., & Berger, I. (2011) <u>Down syndrome and</u> <u>Attention-Deficit/Hyperactivity Disorder. Journal of Child Neurology 26, 1290-1295.</u>

Edvardson, S., Msallam, N., Hertz, P., Malkiel, S., Wexler, KI. D., & Tenenbaum, A. (2014). <u>Attention deficit hyperactivity disorders symptomatology among individuals with Down</u> <u>syndrome. Journal of Policy and Practice in Intellectual Disabilities</u>, 11, 58–61.

Inclusion – evidence for benefits

De Graaf, G., van Hove, G. & Haveman, M. (2011) <u>More academics in regular schools? The</u> <u>effect of regular versus special school placement on academic skills in Dutch Primary school</u> <u>students with Down syndrome. Journal of Intellectual Disability Research 57 (1) 21- 38.</u>

de Graaf, G., van Hove, G. & Haveman, M. (2012) Effects of regular versus special school placement on students with Down syndrome: a systematic review of studies. In A. van den Bosch & E Dubois (Eds.) New Developments in Down Syndrome Research. Nova Science Publishers. <u>http://www.downsyndroom.nl/reviewinclusive</u>

de Graaf G. and de Graaf E. (2016) <u>Development of self-help, language and academics in</u> <u>Down syndrome. Journal of Policy and Practice in Intellectual Disabilities. 13, 120-131.</u>

Buckley, S., Bird, G., Sacks, B., & Archer, T. (2006). A comparison of mainstream and special education for teenagers with Down syndrome: Implications for parents and teachers. Down Syndrome Research and Practice. 9, 54-67. <u>https://www.down-syndrome.org/reports/295/</u>

Cosier, M., Causton-Theoharis, J. & Theoharis, G. (2013) <u>Does access time matter? Time in</u> <u>general education and achievement for students with disabilities. Remedial and Special</u> <u>Education, 34 (6) 1-10.</u>



Effective inclusive practice for students with Down syndrome

Wolpert, G. (2001) What general educators say about successfully including students with Down syndrome in their classes. Journal of Research in Childhood Education 16 (1) 28-38.

Campbell, J., Gilmore, L. & Cuskelly, M. (2003) <u>Changing student teachers' attitudes towards</u> <u>disability and inclusion. Journal of Intellectual & Developmental Disability. 28 (4) 369-379.</u>

Vaughan, M. & Henderson, A. (2016) <u>Exceptional educators: a collaborative training</u> partnership for the inclusion of students with Down's syndrome. Support for Learning 31 (1) <u>46-58.</u>

Bills, K. L & Mills, B. (2020) <u>Teachers' perceptions towards inclusive education programs for</u> <u>children with Down syndrome. Journal of Research in Special Educational Needs 20 (4)</u> <u>343-347.</u>

Faragher, R. & Clarke, B. (2016) <u>Teacher identified professional learning needs to effectively</u> include a child with Down syndrome in primary mathematics. Journal of Policy and Practice. 13, 132-141.

Fox, S., Farrell P. & Davis, P. (2004) <u>Factors associated with the effective inclusion of</u> primary-aged pupils with Down syndrome. British Journal of Special Education, 31 (4) <u>184-190.</u>

Dolva A-S., Gustavsson, A., Borell, L., & Hemmingsson, H. (2011) <u>Facilitating peer interaction</u> <u>– support to children with Down syndrome in mainstream schools. European Journal of</u> <u>Special Needs Education. 26 (2) 201-213.</u>

Engevik, L.I., Naess, K-A.B. & L. Berntsen. (2018) <u>Quality of inclusion and related predictors:</u> <u>Teachers' reports of educational provisions offered to students with Down syndrome.</u> <u>Scandinavian Journal of Educational Research, 62, (1) 34-51</u>

Gilmore, L.A., Campbell, J. & Cuskelly, M. (2003) <u>Developmental expectations, personality</u> <u>stereotypes, and attitudes towards inclusive education: Community and teacher views of</u> <u>Down syndrome. International Journal of Disability, Development and Education 50 (1):</u> <u>65-76.</u>

De Graaf, G. (2002) <u>Supporting the social inclusion of students with Down syndrome in</u> <u>mainstream education. Down Syndrome News and Update 2 (2) 55-62.</u>



Social inclusion in school

Anne-Stine Dolva , Anders Gustavsson, Lena Borell & Helena Hemmingsson (2011) <u>Facilitating peer interaction – support to children with Down syndrome in mainstream</u> <u>schools, European Journal of Special Needs Education, 26:2, 201-213.</u>

L.I. Engevik, K-A.B. Næss & L. Berntsen (2016): <u>Quality of Inclusion and Related Predictors:</u> <u>Teachers' Reports of Educational Provisions Offered to Students with Down Syndrome,</u> <u>Scandinavian Journal of Educational Research</u>, DOI:10.1080/00313831 .2016.1212252

Importance of the language environment

Thieman-Bourque, K.S., Warren, S.F., Brady, N., Gilkerson, J.& Richards, J.A. (2014) <u>Vocal</u> <u>Interaction Between Children with Down Syndrome and Their Parents. American Journal of</u> <u>Speech-Language Pathology 23, 474–485.</u>

Parikh, C.& Mastergeorge, A.M. (2017) <u>Vocalization patterns in young children with Down</u> <u>syndrome: Utilizing the language environment analysis (LENA) to inform behavioral</u> <u>phenotypes. Journal of Intellectual Disabilities, 22, 4, 1–18</u>. Augmentative communication

Romski, M., Sevcik, R. A., Adamson, L. B., Cheslock, M., Smith, A., Barker, R. M., & Bakeman, R. (2010). Randomized Comparison of Augmented and Nonaugmented Language Interventions for Toddlers With Developmental Delays and Their Parents. Journal of Speech, Language, and Hearing Research, 53(April), 350–364. <u>https://doi.org/10.1044/1092-</u> <u>4388(2009/08-0156)</u>

te Kaat- van den Os, D. J., Jongmans, M. J., Volman, M. (Chiel) J., & Lauteslager, P. E. (2015). Do gestures pave the way?: A systematic review of the transitional role of gesture during the acquisition of early lexical and syntactic milestones in young children with Down syndrome. Child Language Teaching and Therapy, 31(1), 71–84. <u>https://doi.org/10.1177/0265659014537842</u>

Kasari, C., Kaiser, A., et al. (2014) Communication Interventions for Minimally Verbal Children With Autism: Sequential Multiple Assignment Randomized Trial. Journal of the American Academy of Child and Adolescent Psychiatry. 53, 635–646. <u>doi:10.1016/j.jaac.2014.01.019</u>



Supporting memory

Bennett, S. J., Holmes, J., & Buckley, S. (2013). Computerized memory training leads to sustained improvement in visuospatial short-term memory skills in children with down syndrome. American Journal on Intellectual and Developmental Disabilities, 118(3), 179–192. <u>https://doi.org/10.1352/1944-7558-118.3.179</u>

Broadley, I., MacDonald, J., & Buckley, S. (1994). Are children with Down syndrome able to maintain skills learned from a short-term memory training program? Down Syndrome Research and Practice, 2(3), 116–122. <u>https://doi.org/10.3104/ reports.41</u>

Comblain, A. (1999). Working memory in Down's syndrome : Training the rehearsal strategy, Down Syndrome Research and Practice 2(3), 123–126.

Conners, F. a, Rosenquist, C. J., & Taylor, L. a. (2001). Memory training for children with Down syndrome. Down Syndrome Research and Practice, 7(1), 25–33. <u>https://doi.org/10.3104/reports.111</u>

Teaching number

Sarnecka, B.W. & Wright (2013) <u>The idea of exact number: children's understanding of</u> cardinality and equinumerosity. Cognitive Science, <u>38 1-14</u>.

Nunes, T., Bryant, P. & Watson A. (2009) Key Understandings in Mathematics Learning. London: Nuffield Foundation. <u>http://</u><u>www.nuffieldfoundation.org/key-understandings-mathematics-learning</u>

Frye, D., Baroody, A. J., Burchinal, M., Carver, S. M., Jordan, N. C., & McDowell, J. (2013). Teaching math to young children: A practice guide (NCEE 2014-4005). Washington, DC: National Center for Education Evaluation and Regional Assistance (NCEE), Institute of Education Sciences, U.S. Department of Education. http://ies.ed.gov/ncee/wwc/PracticeGuide.aspx?sid=18

APPENDIX 3 SOCIAL CARE

Books

Produced by the National Down Syndrome Policy Group



From Transition Through Old Age: Caring for Adults With Down Syndrome Robert M. Hodapp, et al. in The Oxford Handbook of Down Syndrome and Development Dec 2020

The Oxford Handbook of Down Syndrome and Development 2020 (in progress) Edited by: Jacob A. Burack, Jamie O. Edgin, and Leonard Abbeduto ISBN: 9780190645441 DOI: 10.1093/oxfordhb/9780190645441.001.0001

Family Systems

Families of children with Down syndrome: What we know and what we need to know. Cuskelly, M., Hauser-Cram, P., & Van Riper, M. (2009). *Down Syndrome Research and Practice, 12.*105-113. <u>http://www.down-syndrome.org/reviews/2079/?page=1</u>

Down syndrome and the family. In M. Croft (Ed.), **Van Riper, M.** (2011). *Encyclopedia of family health* (pp. 335-337). Los Angeles, CA: Sage.

Parental and family well-being in families of children with Down syndrome: A comparative study. Van Riper, M., Ryff, C., & Pridham, K. (1992). *Research in Nursing & Health, 15,* 227-235. <u>PMID 1387235</u>.

Living with Down syndrome: The family experience. Van Riper, M. (1999). Down Syndrome Quarterly, 4, 1-11.

Families of children with Down syndrome: Responding to a "change of plans" with resilience. Van Riper, M. (2007). *Journal of Pediatric Nursing*, *22*, 116-128. <u>PMID 17382849</u>.

Measurement of Family Management in Families of Individuals With Down Syndrome: A Cross-Cultural Investigation. Van Riper M, Knafl GJ, Barbieri-Figueiredo MDC, et al. Journal of Family Nursing. 2021 Feb;27(1):8-22. DOI: 10.1177/1074840720975167. PMID: 33272069; PMCID: PMC7897787. <u>https://europepmc.org/article/PMC/PMC7897787</u>

Family variables and quality of life in children with Down syndrome: A scoping review. Lee, A., Knafl, K., & Van Riper, M. (2021). International Journal of Environmental Research and Public Health, 18(2), 419. <u>https://doi.org/10.3390/ijerph18020419</u>

Measurement of family management in families of individuals with Down syndrome: A cross-cultural investigation. Van Riper, M. et al (2020). Journal of Family Nursing, Dec 4: 074840720975167. <u>https://doi:10.1177/1074840720975167</u>



Parent-reported contribution of family variables to the quality of life of children with Down syndrome: report from an international study. Lee, A., Knafl, G., Knafl, K., & Van Riper, M. (2020). Journal of Pediatric Nursing, 18, (55), 192-200. https://doi:10.1016/j.pedn.2020.07.009

Adaptation and resilience in families of individuals with Down syndrome living in Ireland. Caples, M., Martin, A.M., Dalton, C, Marsh, L., Savage, E., Knafl, G., & Van Riper, M. (2018) British Journal of Learning Disabilities, 1-9. <u>https://doi.org/10.1111/bld.12231</u>

Quality of Life

Quality of life in individuals with Down syndrome aged 4 to 21 years. Lee, A., Knafl, G., Knafl, K., & Van Riper, M. (2020). Child: Care, Health and Development, Sept 30. <u>https://doi:10.1111/cch.12815</u> Online ahead of print. Epub 2020 Oct 9

Carr, J. (2008). <u>The everyday life of adults with Down syndrome. Journal of Applied Research</u> in Intellectual Disability, 21, 389–397.

Lin, J. D., et al (2015). Are early onset aging conditions correlated to daily activity functions in youth and adults with Down syndrome? Research in Developmental Disabilities, 36, 532–536.

Mallardo, M., et al. (2014). <u>Mental health problems in adults with Down syndrome and their</u> <u>association with life circumstances</u>. Journal of Mental Health Research in Intellectual <u>Disabilities</u>, 7, 229–245

Stancliffe, R. J., Lakin, C. K., Larsen, S. A., Engler, J., Taub, S., Fortune, J., & Bershadsky, J. (2012). <u>Demographic characteristics, health conditions, and residential service use in adults</u> with Down syndrome in 25 U.S. states. Intellectual and Developmental Disabilities, 50, 92–108.

Taylor, J. L., & Hodapp, R. M. (2012). <u>Doing nothing: Adults with disabilities with no daily</u> activities and their siblings. American Journal of Intellectual and Developmental Disabilities, <u>117, 67–79.</u>

Leisure and Community

Dolva, A.-S., Kleiven, J., & Kollstad, M. (2014). Actual leisure participation of Norwegian



adolescents with Down syndrome. Journal of Intellectual Disabilities, 18, 159–175.

Freeman, S. F. N., & Kasari, C. (2002). <u>Characteristics and qualities of the play dates of</u> <u>children with Down syndrome: Emerging or true friendships? American Journal on Mental</u> <u>Retardation, 107, 16–31.</u>

Hewitt, A. (2014). Embracing complexity: Community inclusion, participation, and citizenship. Intellectual and Developmental Disabilities, 52, 475–495.

Watt, K. J., et al (2010). <u>The perception of friendship in adults with Down syndrome. Journal of Intellectual Disability Research</u>, 54, 1015–1023.

Sexuality

Wood, A. (2004) <u>Sexuality and relationships education for people with Down syndrome.</u> <u>Down Syndrome News and Update, 4(2), 42–51. doi:10.3104/practice.330.</u>

Bononi, B. M., et al. (2009). <u>Sexuality and persons with Down syndrome: A study</u> from Brazil. International Journal of Adolescent Medicine and Health, 21(3), 319–326.

Transition to Adult Life

Gil, L. A. (2007). Bridging the transition gap from high school to college: Preparing students with disabilities for a successful postsecondary experience. Teaching Exceptional Children, 40, 12–15. Gothberg, J. E., et al. (2015). Successful transition of students with disabilities to 21st century college and careers: Using triangulation and gap analysis to address nonacademic skills. TEACHING Exceptional Children, 47, 344–351.

Hanley-Maxwell, C., et al.. (1995). **The second shock: A gualitative study of parents' perspectives and needs during their child's transition from school to adult life.** Journal of the Association for Persons with Severe Handicaps, 20, 3– 15.

Leonard, H., et al. (2016). <u>Transition to adulthood for young people with intellectual</u> <u>disability: The experiences of families. European Child & Adolescent Psychiatry, 25,</u> <u>1369–1381.</u>

Housing



Jobling, A. & Cuskelly, M. (2002). Life styles of adults with Down syndrome living at home. In M. Cuskelly, A. Jobling, & S. Buckley (Eds.), Down syndrome across the life span (pp. 109–120). London, UK: Whurr Publishers.

Lee, C. E., et al. (2020). <u>Who lives where and why? Residential changes across adulthood in</u> persons with Down syndrome. Journal of Policy and Practice in Intellectual Disabilities. doi:10.1111/jppi.12364.

Caregiving/Aging

Caserta, M. S., et al. (1987). Older adult caregivers of developmentally disabled household members: Service needs and fulfillment. Journal of Gerontological Social Work, 10, 35–50.

Hodapp, R. M., et al. (2016). Family caregiving of aging adults with Down syndrome. Journal of Policy and Practice in Intellectual Disabilities, 13, 181–189.

Hodapp, R. M., Burke, M. M., & Urbano, R. C. (2012). What's age got to do with it? Implications of maternal age on families of offspring with Down syndrome. International Review of Research in Developmental Disabilities, 42, 109–145.

Hodapp, R. M., Burke, M. M., & Urbano, R. C. (2016). Aging adults with and without Down syndrome: Parental changes when offspring are in their 40s and 50s. Presentation to the 49th Gatlinburg Conference on Research and Theory in Intellectual and Developmental Disabilities, San Diego, CA.

Hodapp, R. M., et al.. (2015). <u>Growing old together</u>: <u>Similarities/differences in families of</u> adults with and without Down syndrome. International Review of Research in <u>Developmental Disabilities</u>, 49, 151–189.

Krinsky-McHale, S. J., Devenny, D. A., Gu, H., Jenkins, E. C., Kittler, P., Murty, V. V., ... Silverman, W. (2008). <u>Successful aging in a 70-year-old man with Down syndrome: A case</u> <u>study</u>. Intellectual and Developmental Disabilities, 46, 215–228.

Zigman, W. B. (2013). <u>Atypical aging in Down syndrome. Developmental Disabilities Research</u> <u>Reviews, 18, 51–67.</u>

Siblings



Hodapp, R. M., Sanderson, K. A., Meskis, S. A., & Casale, E. G. (2017). Adult siblings of persons with intellectual disabilities: Past, present, and future. International Review of Research in Developmental Disabilities, 53, 163–202.

Hodapp, R. M., & Urbano, R. C., &. (2007). <u>Adult siblings of individuals with Down syndrome</u> versus with autism: Findings from a large-scale American survey. Journal of Intellectual <u>Disability Research</u>, 51, 1018–1029.

Miscellaneous/Overview

Developmental Traditions in the Study of Persons with Down Syndrome

Jacob A. Burack et al. in The Oxford Handbook of Down Syndrome and Development Edited by Jacob A. Burack, Jamie O. Edgin, and Leonard Abbeduto Subject: Psychology, Developmental Psychology Online Publication Date: Jan 2022 DOI: 10.1093/oxfordhb/9780190645441.013.2



APPENDIX 4 EMPLOYMENT

Mencap – Employment – research and statistics <u>https://www.mencap.org.uk/learning-disability-explained/research-and-statistics/employme</u> <u>nt-research-and-statistics</u>

Down's Syndrome Association WorkFit Programme

British Association of Supported Employment

SCLD 2018

How to Support People with Down Syndrome in the Workplace, 2021 Careers with Disabilities

Down Syndrome Australia has a suite of resources <u>https://www.downsyndrome.org.au/resources/employment/</u> Down syndrome in the workplace,

United Nations, 2006 <u>https://www.mencap.org.uk/learning-disability-explained/research-and-statistics/stigma-an</u> <u>d-discrimination-research-and</u>

Foley, K.-R., et al. (2014). <u>Day occupation is associated with psychopathology for adolescents</u> and young adults with Down syndrome. BMC Psychiatry, 14, no. 266.

Foley, K.-R., et al. (2014).<u>Relationship between family quality of life and day occupations of</u> young people with Down syndrome. Social Psychiatry, 49, 1455–1465.

Foley, K.-R., et al. (2012). <u>Functioning and post-school transition outcomes for young people</u> with Down syndrome. Child: Care, Health, and Development, 39, 789–800.

Freeman, S. F. N., & Kasari, C. (2002). <u>Characteristics and qualities of the play dates of</u> <u>children with Down syndrome: Emerging or true friendships? American Journal on Mental</u> <u>Retardation, 107, 16–31.</u>

Gil, L. A. (2007). <u>Bridging the transition gap from high school to college: Preparing students</u> with disabilities for a successful postsecondary experience. <u>Teaching Exceptional</u> <u>Children, 40, 12–15.</u>



Kregel, J. & Dean, D. H (2002). <u>Sheltered vs. supported employment: A direct comparison</u> of long-term earnings outcomes for individuals with cognitive disabilities. In J. Kregel, D.

H. Dean, & P. Wehman (Eds.), <u>Achievements and challenges in employment services for</u> people with disabilities: The longitudinal impact of workplace supports monograph. <u>https://vcurrtc.org/resources/viewcontent.cfm/151</u>

Kumin, L., & Schoenbrodt, L. (2016). <u>Employment in adults with Down syndrome in the</u> <u>United States: Results from a national survey. Journal of Applied Research in Intellectual</u> <u>Disabilities, 29, 330–345.</u>

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APPENDIX BACKGROUND FACTS AND FIGURES

POPULATION DATA

https://www.nature.com/articles/s41431-020-00748-y https://go.downsyndromepopulation.org/europe-supplement

See last table on this summary doc. for population <u>https://docs.downsyndromepopulation.org/factsheets/down-syndrome-population-euro</u> <u>pe-factsheet.pdf</u>

de Graaf G., Buckley F., Skotko B. G. (2015). Estimates of the live births, natural losses, and elective terminations with Down syndrome in the United States. American Journal of Medical Genetics Part A, 167A, 756-76.

Mai, C. T., Isenburg, J. L., Canfield, M. A., et al. National population-based estimates for major birth defects, 2010–2014. Birth Defects Research. 2019; 111: 1420– 1435.

de Graaf G., Buckley F., Skotko B. G. (2020). People living with Down syndrome in the USA: births and population. 5. de Graaf G., Buckley F., Skotko B. G. (2017). Estimation of the number of people with Down syndrome in the United States. Genetics in Medicine, 19, 439-447.

Down syndrome

Antonarakis, S., et al. 6 Feb 2020, In: Nature Reviews Disease Primers.

The importance of understanding individual differences in Down syndrome

Karmiloff-Smith, A., et al. 23 Mar 2016, (E-pub ahead of print) In: F1000Research. 5

