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Wellness in work:
The economic arguments for investing in the health and wellbeing of the workforce in Wales

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Foreword by Professor Sally Sheard

This is the third in a series of rapid review reports, and further consolidates CHEME's reputation for producing innovative and persuasive evidence to support policymakers. As with their previous reports, which address issues of transforming young lives and living well for longer, this synthesises robust, and sometimes unconventional studies to demonstrate the economic and societal costs of work-related issues in Wales.

One of the great successes here is in 'joining the dots' to link up studies in three key areas. First, through identifying the benefits of developing a diverse and inclusive workforce, especially through recognising the potential of women, young people and those with disabilities. Second, ensuring the Welsh workforce is a healthy and happy one, and the value of early interventions, some of which may appear to be relatively modest, such as yoga classes, but which can have a significant return on investment. Third, highlighting the importance of strategies to get people back into work – not only for their personal health, but also because of the boost this can give to the Welsh economy, especially if these are tailored to meet the skills shortage, currently estimated to cost Wales around £335 million p.a.

This report demonstrates that Wales can produce research and policy solutions that have the potential for scaling up for use by the other UK nations. I hope that it will achieve the wide dissemination and readership that it deserves, from policymakers to the public.

Professor Sally Sheard

Head of Public Health and Policy, University of Liverpool

Preface by Professor Rhiannon Tudor Edwards

Wales has a workforce of over 1.5 million.[1] Work is a central part of many of our lives defining who we are and to a great extent, determining how we spend our time and try to meet our work and caring responsibilities. Throughout the life course we, as a society, spend the least amount on the health and social care of the population through these working years. These are the years that we are paying our taxes. It makes sense to prevent ill health and promote wellbeing of the workforce. There are many benefits to being employed and these benefits include more spending power, being able to afford a good quality of life, being able to choose where to live geographically and contributing to wider society in terms of taxes and services. Being employed may give adults the freedom to make life choices (when the employment provides sufficient income), and freedom to make choices is one of the main markers of happiness and life satisfaction.[2]

Professor Rhiannon Tudor Edwards, CHEME

Welsh Government and public bodies need on what are the most cost-effective ways of spending budgets to enable people to stay well in work and manage the demands upon health and care services. This report provides evidence on relevant economic evaluations of interventions to support the health and wellbeing of the workforce within Wales.

Executive summary

This wellness in work report presents the economic arguments for investing in the health and wellbeing of the workforce in Wales.

The Wellbeing of Future Generations Act[3] has a goal of Wales having an economy which generates wealth and provides employment opportunities, allowing people to take advantage of the wealth generated through securing decent work.

Through discussion with Public Health Wales, we have focussed our attention on:

1. A diverse and inclusive workforce in Wales;
2. Valuing employees and keeping healthy for a cost-effective workforce;
3. Worklessness and returning to work.

A diverse and inclusive workforce in Wales

Wales has a workforce of over 1.5 million.[1] Keeping people healthy and in work prevents loss of productivity and benefits the Welsh economy.[4] Workplace health is concerned with efforts to maintain, protect and improve the health of people at their place of work.[5] The needs of employees can be complex and different levels of support may be required.

Young people Not in Education, Employment or Training (NEET) very often have diverse needs that require flexible and tailored solutions.[6] Between 2015-16, the work carried out by Careers Wales (based on costs identified by the Audit Commission) to prevent 16 and 17 year olds from becoming NEET saved £209million† per year in public welfare costs and approximately £522million† per year in costs to the economy.[7]

In comparison to the rest of the UK, in Wales, more women work as unpaid carers for adults.[8] Approximately one in twenty women in Wales complete fifty hours or more of unpaid care work each week.[8] Caring responsibilities have a substantial impact on women's employment and earnings. In Wales more than a third of both male and female carers who had left work to undertake caring roles said that they were unable to save for a pension.[9] There is also a strong financial case, both for businesses and the wider economy for supporting parents and carers in employment.[10,11] In Wales the economic value of the contribution made by all unpaid carers is £8.6billion,†[12] of this £3.8billion†* per year is provided by women.[12,13] This value is not currently recognised in the calculation of GDP or recognised in macroeconomic concepts. Since 1985 the employment rate for people aged 50 to 64 has grown from 55% to 70% in the UK. Continued employment means that older people will earn more money and also be able to spend more money and pay more tax to the UK government.[14]

Many working families in Wales are 'Just About Managing'. Weekly average earnings for adults in full-time work are £52 lower in Wales than the UK average. Median gross weekly earnings in Wales are the lowest amongst UK regions[15] and 24% of the working population in Wales are living in poverty.[16] No guaranteed hours contracts **[see glossary]** or zero-hour contracts can lead to 'in-work' poverty.

Conclusion: A diverse and inclusive workforce can boost the Welsh economy. Some women, young people, and people with disabilities may need more support to enter or re-enter the workforce and the Welsh Government and employers in Wales are becoming more aware of the need to ensure the wellbeing of the workforce.

Technical symbol key:

† Great British Pounds (GBP) from the original data year have been inflated to 2017 Bank of England rates.

†† Other currencies which are both inflated to 2017 values in local currency and then converted to GBP.
*The symbol * is used when figures have been prorated to Wales. See 'About This Report' and Technical Appendix for more detailed methodology information.*

Valuing employees and keeping healthy for a cost-effective workforce

Working-age ill health costs the Welsh economy £5billion†* a year, largely due to absenteeism and presenteeism. Across the UK, Wales has the highest rate of sickness absence at 2.7% which is 0.8% higher than the UK average,[17] amounting to an estimated 8.82 million lost working days due to ill-health each year in Wales.[18,19] Estimates of the financial impact of sickness absence vary considerably with the cost to businesses in Wales reported to be between £855million[20] and £1.3billion each year.[21] Dealing with preventable health issues, unhealthy behaviours, and reducing the risk of injuries may decrease premature mortality and keep many working people who want to work in employment for longer.[22]

There is some evidence that effective targeted interventions to reduce sickness absence, delivered to staff at high risk of sickness absence, may be more cost-effective than universal interventions delivered to the whole workforce.[23] With respect to the management of influenza in the workforce, the evidence suggests that it is not cost-effective to vaccinate the whole workforce but is probably cost-effective to vaccinate those working in health and social care sectors.[24]

Larger companies have more resources to implement specialist workplace health promotion interventions than smaller companies, which may influence the type and range of such activities and impact on effectiveness and cost-effectiveness of these programmes.[25]

When employees develop a health condition it does not always lead to absence from work, but can lead to reduced performance in work. Working whilst sick is called 'presenteeism'. Presenteeism can cause loss in productivity however is rarely included as part of economic evaluations of workplace interventions.[26] Presenteeism from mental ill health alone costs an estimated £827.8million†* in Wales each year.[27]

The impact of alcohol misuse is estimated to cost society in Wales in excess of £1billon (with highest estimates reaching £2.55billion,†*)[28] of this around £500million†* is lost from the Welsh economy each year with associated productivity losses. These losses are caused by alcohol related absenteeism, presenteeism, unemployment and premature death.[27,29–31]

Studies have found that the average smoker takes 0.7 days more sick leave per year than their non-smoking colleagues.[32] On average, standard smoking breaks cost around £2,000† each year for a full-time employee.[32] Shift workers are more likely than other workers to engage in riskier behaviour including smoking, misuse of drugs and alcohol, and may not have opportunities to engage as much in regular physical activity.[33]

Staff wellbeing is an important factor in workplace productivity. Common mental health problems such as anxiety, depression and unmanageable stress affect one in six employees in Wales each year.[34] Together mental health problems and musculoskeletal problems, such as back pain, account for nearly 50% of the health-related absenteeism from work in the NHS in Wales.[35] Mental health problems have an adverse effect on people's ability to work costing the Welsh Government over £1.2billion* a year including state benefits costs, lost tax and National Insurance revenue, and NHS costs.[36] The cost of mental health problems at work to the Welsh economy may be much higher with between £3.5billion†[37]and £4.7billion*[36] every year lost in terms of lost output, costs to employers and NHS costs. The full societal costs of poor mental health in Wales could be as high as £9.5billion† when including the costs to health and social care (£1.4billion†) and also considering the high human cost of mental health problems (£4.6billion†).[37]

The UK public health guidance on 'Mental wellbeing at work [NICE PH22]' indicates that "organisation-wide approaches to promoting mental wellbeing can produce important net economic benefit" and that "performing annual audits of employee wellbeing would produce financial gains; of the order of £100million per annum".[38,39] Workplace mental health interventions can offer a positive return on investment with up to £9 generated for every £1 spent.[27,36,40]

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[a] Number of days prorated for the UK 131.2 million days and adjusted to reflect the differences between the UK and Wales in rates of sickness absence (UK 1.9% and Wales 2.7%).

[b] Calculated based on the median cost per employee £570 in Wales and number of working age people in Wales.

Early intervention in the workplace for common mental health disorders and targeted effective treatment for at risk employees, can be cost-saving for businesses and the NHS.[27] Organisation wide primary prevention initiatives may offer a greater return on investment than 'reactive' intervention at a later stage (e.g. secondary or tertiary prevention) with culture change, or awareness raising workplace health promotion interventions offering around £8 return on investment for every £1 spent, compared with targeted psycho-social mental health treatments for depression generating up to £5 for each £1 investment.[41]

There is evidence from the NHS in Wales that interventions such as yoga can be cost-effective in terms of reducing absenteeism due to musculoskeletal disorders.[42,43] For every £1 spent on yoga there is an estimated £10.17 societal benefit generated largely due to increased productivity at work.[271]

Embedding economic evaluations into future research on workplace health outcomes would help enable the identification of cost-effective workplace health programmes.[25]

Conclusion: Keeping employees healthy through working age years is important to maintain a productive workforce. There is growing evidence of the cost-effectiveness of universal and targeted interventions to promote better health and address common health problems such as poor mental health and musculoskeletal problems in the workplace. There is a need for more economic evidence of the effectiveness and cost-effectiveness of programmes to address lifestyle factors and management of employee stress.

Worklessness and returning to work

Through the Wellbeing of Future Generations Act, Wales is seeking a healthier, more equal, prosperous, resilient, and globally responsive Wales.[3] Employment opportunities across the life course are an important part of this. The Wellbeing of Future Generation Act define a prosperous Wales as a society which 'develops a skilled and well-educated population in an economy which generates wealth and provides employment opportunities, allowing people to take advantage of the wealth generated through securing decent work.'[3] Unemployment is linked to a range of negative outcomes including a 20-25% increased risk of death in the decade following job loss (e.g. due to the increased risk of heart disease, stroke and suicide), increased financial hardship, and increased mental health problems.

In Wales, for every person that moves out of unemployment into work, the local economy benefits on average by over £10,000 annually.[45] The total financial benefits to society of a person moving from unemployment into sustainable work would likely exceed £24K†.[46]

Many unemployed people are not making use of personal networks because they either do not have existing social networks or are not aware of the importance of this method for recruitment into a job.[47] This can be the case for young people Not in Education, Employment or Training (NEET). Young people very often have diverse needs that require flexible and tailored solutions.[6] Current initiatives such as the ADTRAC Project in North Wales are trying to discover what the barriers are, including lack of social networks, so that services can assist to overcome them.[48]

Women are still more likely to earn less and work in part-time roles, compared to their male counterparts.[49] The gender pay gap in Wales is smaller than the gender pay gap in most other UK nations.[50] Greater equality for women in the workplace in Wales could boost the economy by £7billion* by 2025.[51]

More flexible, family friendly working arrangements that meet employee needs at different points in their careers can boost national economic performance and individual firm productivity.[52] There is preliminary economic evidence to suggest that if all employers were permitted the right to request flexible working arrangements, the total economic benefits would be around £15†million per year for Wales.[53]

Conclusion: Effective programmes and policies that support getting people into sustainable work have the potential to substantially boost the Welsh economy. Flexible working arrangements can be good for supporting employee wellbeing and could also benefit the economy.

Investing in the health and wellbeing of the workforce in Wales

Good quality employment

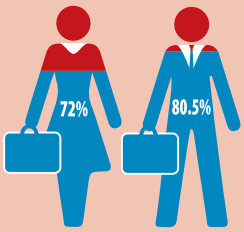
- Skills and training
- Co-production
- Work-life balance
- Productivity
- Economic Inclusion
- Autonomy
- Sustainable contracts
- Fair pay / higher wages

Wellness in Work

Unemployment

- Absenteeism
- Presenteeism
- Adverse environment/treatment
- Low wages
- Skills shortages
- No guaranteed hours contracts
- Deprivation
- Shift work / long hours

Rates of employment and unemployment in Wales

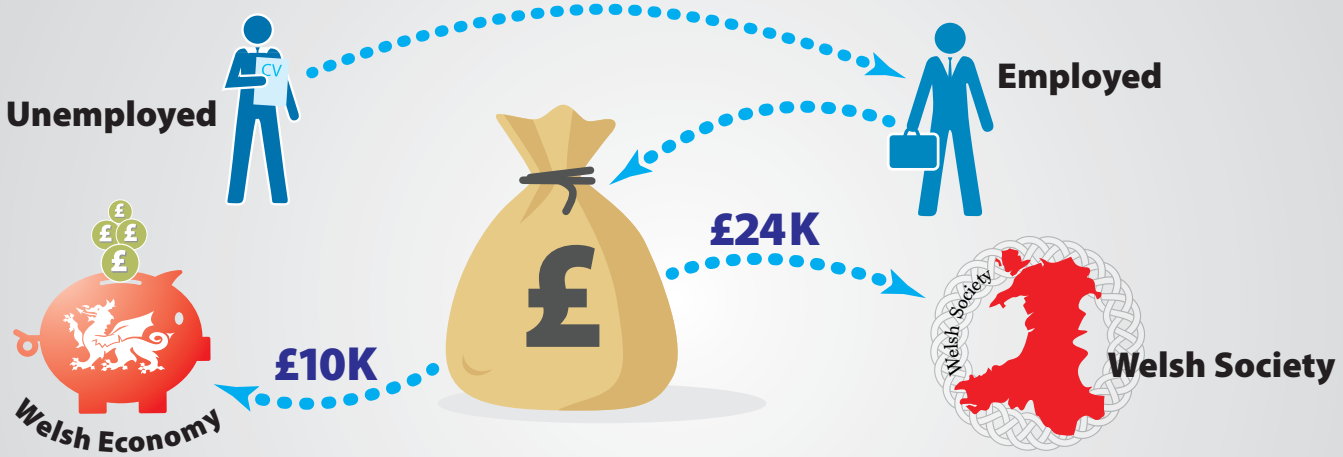


- 1.5 Million people in employment in Wales
- 14.3% of the employed are self employed
- 67.2% of older people aged between 50 and 64 are in employment

Unemployment is linked to:

- A 20-25% increased risk of death in the decade following job loss (e.g. due to the increased risk of heart disease, stroke and suicide),
- Increased financial hardship,
- Increased mental health problems.

Moving a person from unemployment into sustainable employment in Wales benefits the local economy by £10k per year and benefits society by £24k per year.



The information in this infographic executive summary is from the report: Wellness in work: The economic arguments for investing in the health and wellbeing of the workforce in Wales (2019).

All figures are reported for illustrative purposes to indicate the potential costs and benefits to Wales from investment in the health and wellbeing of the workforce. Some figures are calculated based on UK and international estimates and may underrepresent the actual costs and savings to Wales. Please see the full report for more information.

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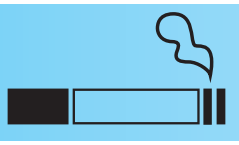
Considering the costs of poor health and unhealthy behaviours

Keeping people healthy and in work prevents loss of productivity and benefits the Welsh economy. Dealing with preventable health issues, unhealthy behaviours and reducing the risk of injuries will decrease premature mortality and keep many working people who want to work in employment for longer.

Sickness absence rates in 2017: 2.7% (Wales) 1.9% (UK)

Unhealthy behaviours such as drug and alcohol abuse can have a wide ranging impact on employment including increasing the risk of unemployment and absences from work.

The impact of alcohol misuse is estimated to costs £500million in terms of productivity losses in Wales.



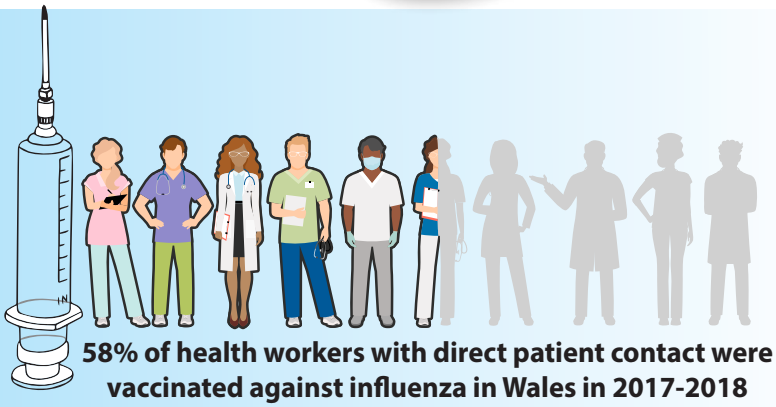
Smoking breaks (in addition to standard rest breaks) cost £2K each year for a full-time employee.

Gambling costs the Welsh Government between £2million and £8million in terms of lost tax revenue due to sickness absence, presenteeism and unemployment.

Physical inactivity results in sickness absence costing the Welsh economy £314m per year. Promoting physical activity in workplaces can increase physical activity participation at a cost of £4.11 per person.

Yoga interventions can be cost-effective in terms of reducing absenteeism due to musculoskeletal disorders which accounts for 25% of sickness absence in the NHS in Wales. For every £1 spent on yoga there is an estimated £10.17 societal benefit generated largely due to increased productivity at work.

It can be cost-effective to target at risk workers in order to reduce sickness absence, for example by offering influenza vaccination to people working in health and social care sectors.



58% of health workers with direct patient contact were vaccinated against influenza in Wales in 2017-2018

Promoting staff wellbeing and mental health in the workplace

Staff wellbeing is important to workplace productivity

Mental health problems account for a quarter of NHS absenteeism in Wales.

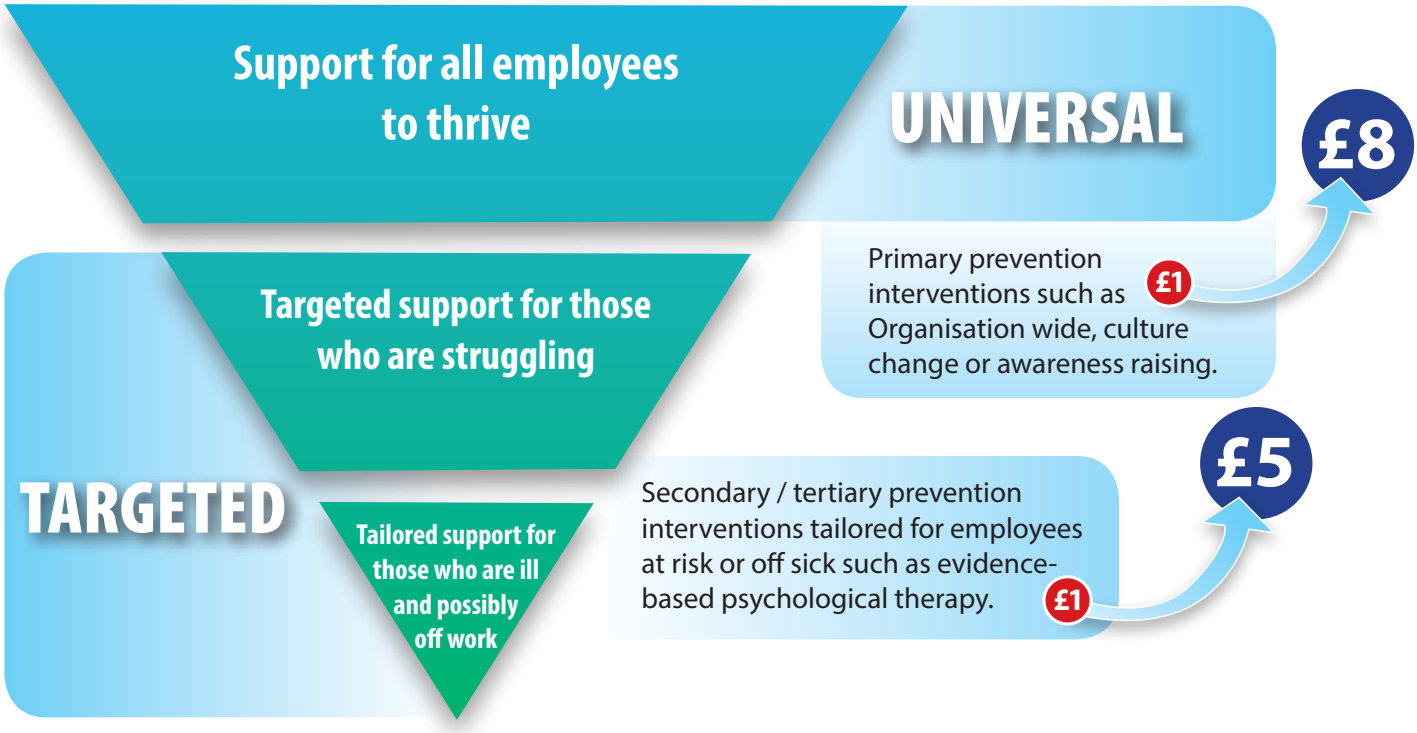
GIG CYMRU NHS WALES

1 in 6

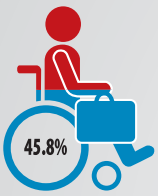
employees in Wales suffer from a mental health problem, at an estimated annual economic cost of £4.68billion due to mental health problems at work.

Workplace mental health interventions can offer a positive return on investment: up to £9 generated for every £1 spent.

Supporting all employees in Wales to thrive in work



A diverse and inclusive workforce can boost the Welsh economy

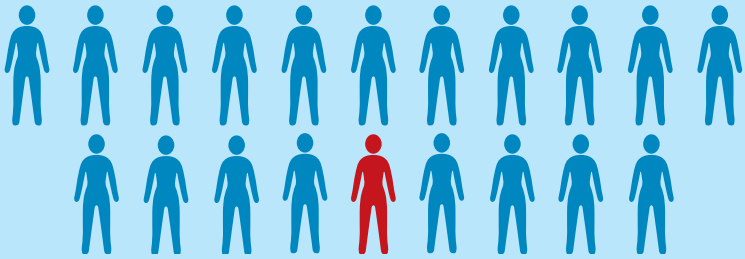


In Wales 45.8% of people with disabilities are in employment.
The welsh government national strategy supports people with disabilities to remain in work, return to work or enter work as soon as possible.

Young people have diverse needs. Interventions to prevent young people becoming NEET (Not in education employment or training) can save £522million to the economy.

Older people in employment can keep well, earn more money, and pay more tax to the Government as well as feel valued.

1 in 20



Women complete more than fifty hours or more of unpaid care work each week. The economic value of unpaid care by women in Wales is £3.8billion of the £8.6billion per year for all unpaid carers.

Flexible working arrangements can be good for supporting employee wellbeing and could also benefit the economy.

'By equalising the economic participation rates of men and women we could add more than 10% to the size of the economy by 2030.'

About this report

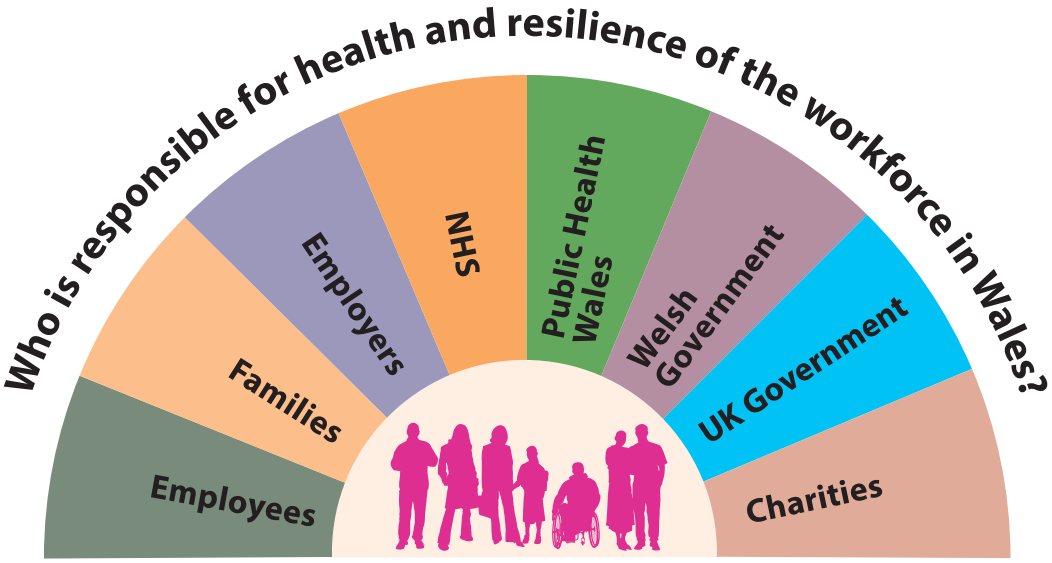
Building on our work from the last two reports on "Transforming young lives across Wales: The economic argument for investing in Early Years"[56] and "Living well for longer: The economic argument for investing in older people in Wales",[57] this is a third report as part of this series, exploring the economic arguments for investing in the health and wellbeing of the workforce in Wales. This report focusses on the economic issues relating to:

1. A diverse and inclusive workforce in Wales;
2. Valuing employees and keeping healthy for a cost-effective workforce;
3. Worklessness and returning to work.

This report provides evidence on relevant economic evaluations of interventions to support the health and wellbeing of the workforce within Wales. Our aim is to inform all relevant organisations (local authorities, Public Health Wales, social care and third sector) and help to inform evidence-based employment and prosperity policy in Wales.[58] In addition to consultation with Public Health Wales and an advisory panel we have consulted with other experts (health and social care service delivery and voluntary sector) to peer review this report. Where opportunities have arisen we have engaged with other relevant stakeholders such as members of the public, employers and higher education institutions (HEIs).

The stakeholders who could action changes include the Welsh Government, National Health Service (NHS), local government, employers, charities and employees.

It is our intention in this report to build on the work of Public Health Wales,[59] Public Health England,[60] Public Health Scotland[61] and the National Institute for Health and Care Excellence (NICE)[35,38,62–64] and pro-rate to a Welsh context where necessary, with a focus on the economics of health and employment and social return on investment.



A rapid review of the literature was conducted to investigate the cost-effectiveness and social return on investment of initiatives to move people into employment and initiatives to ensure wellbeing in the workplace, thus keeping people well in work. The review broadly followed the design, methods and processes of the Cochrane Effective Practice and Organisation of Care Group (EPOC)[65] for the synthesis of effectiveness and reporting guidance as set out by the Preferred Reporting Items for Systematic Review and meta-analysis (PRISMA).[66] Where necessary, this process was condensed to account for the rapid nature of the evidence review. See Technical Appendix on the CHEME website (https://cheme.bangor.ac.uk) for full details including search strategy, data extraction and quality appraisal.

Inflation and conversion of figures in this report

In order to illustrate the current value of potential investment we have inflated figures throughout the report to reflect the market rates in 2017/18. Great British Pounds (GBP) from the original data year have been inflated to 2017 Bank of England rates (https://www.bankofengland.co.uk/monetary-policy/inflation/inflation-calculator) and are marked with a †. Other currencies which are both inflated to 2017 values in local currency and then converted to GBP are marked with ††. The following local currency inflation calculators were used:

Australian Dollars - http://www.rba.gov.au/calculator/

Canadian Dollars - http://www.bankofcanada.ca/rates/related/inflation-calculator/

US Dollars - http://www.usinflationcalculator.com/

Euros - http://www.in2013dollars.com/Euro-inflation

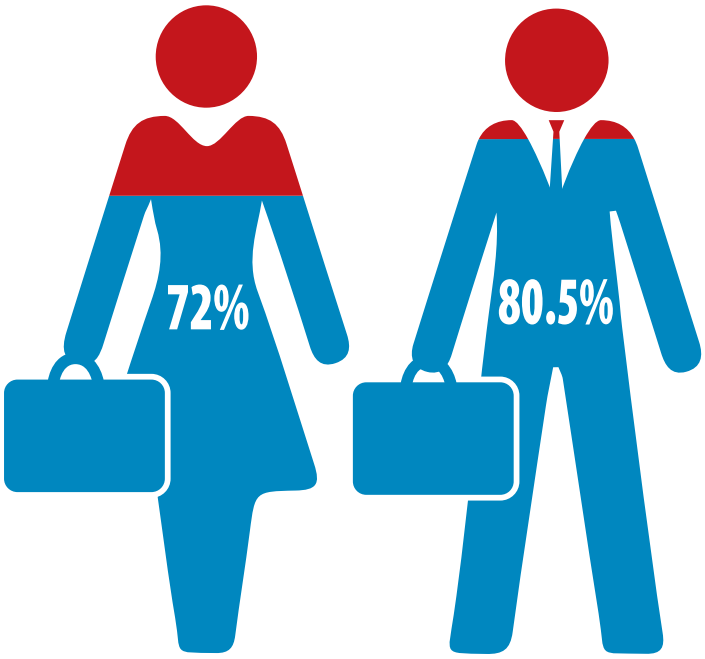
The exchange rate on 31/03/2017 was used for converting Australian dollars, Canadian dollars, US dollars, and Euros into GBP (http://www.bankofengland.co.uk/boeapps/iadb/Rates.asp?TD=31&TM=Mar&TY=2016&into=GBP&rateview=D).

UK figures were scaled (pro-rated) **[see glossary]** based on the population for Wales being a 4.73% share of the UK population according to the Office for National Statistics (ONS) population statistics (https://www.ons.gov.uk/peoplepopulationandcommunity/populationandmigration/populationestimates). Pro-rated figures are marked with *. Older people, and potentially the older workforce (e.g. with greater earning potential), make up a slightly higher proportion of the population in Wales compared with the UK as a whole. Pro-rated estimates may therefore under-represent the actual savings and benefits to Wales and are included for illustrative purposes only.

1. Introduction

Employment policy initiatives in Wales

As part of the United Kingdom, the economy of Wales is linked closely with England, Scotland, Northern Ireland, and the European Union economic area. Employment in Wales has moved away from traditional agricultural occupations (now only 3% of the workforce) to more public administration, defence, education and health sector jobs (30% of the workforce).[67] Compared to the rest of the UK, employment in Wales is proportionally lower in the wholesale, retail, transport, hotels and food sector and the finance and business sector.[67] Between 2001 and 2015, the largest absolute fall in employment in Wales was in the manufacturing sector (down 24%) and the largest absolute increase was in the human health and social work activities sector (up 23%).[67]



There were 1.4 million people in employment in Wales between April to June 2017, unchanged from the same period a year earlier.[68] In 2018 employment rates in Wales rose to over 1.5 million with 76.2% of people aged 16 – 64 in employment.[1] In terms of gender, 80.5% of males were in employment and 72% of females were in employment in Wales.[1] Part-time work is mainly conducted by women.[69] The gender pay gap in Wales is smaller than the gender pay gap in most other UK nations, however average wages are also lower in Wales (average weekly earnings for full-time adults working in Wales were £498.40 in April 2017, and this is 9% lower than the average for the UK (£550.40).[15]

There are intrinsic links between deprivation, employment status and health.[70] Employment in Wales is fully described in the Welsh Index of Multiple Deprivation, 2014.[71] The map shown in figure 1 shows the areas in Wales with the most unemployment. The percentage of people considered 'employment deprived' has decreased in Wales as a whole, from 15% in 2011 to 13% in 2014.[71] Updated statistics are due in autumn 2019.

'Within Wales, employment increased in 18 of the 22 Welsh local authorities between 2001 and 2017. Cardiff had the largest absolute increase in jobs (up by 30%) followed by Carmarthenshire (up by 28%) and Swansea (up by 15%). Blaenau Gwent was the local authority which had the largest absolute decrease (down by 10%).[272]

In rural areas, as might be expected, there are higher proportions of jobs in the agriculture, forestry and fishing sectors. For example, 13% of the Ceredigion workforce have this type of employment. In more urban areas there are higher proportions of jobs in the production, construction and service sectors, for example 32% of the workforce in Cardiff work in the Finance and Business sector.[272]

In 2015, a Welsh Government Social Research report[72] noted that 56% of public sector organisations made some use of no guaranteed hours contracts (NGHCs) [see glossary] (including people employed on a zero hours, hourly-paid, on-call, casual or bank basis), whilst only 5% of the private or third sector companies said that they used NGHCs.[72]

For those aged between 16 and 64 years, the employment rate for Welsh speakers (72.0%) was higher than the employment rate for people who cannot speak Welsh (67.3%).[73] In Wales, Welsh language ability is essential or desirable for many public and private sector jobs.[74]

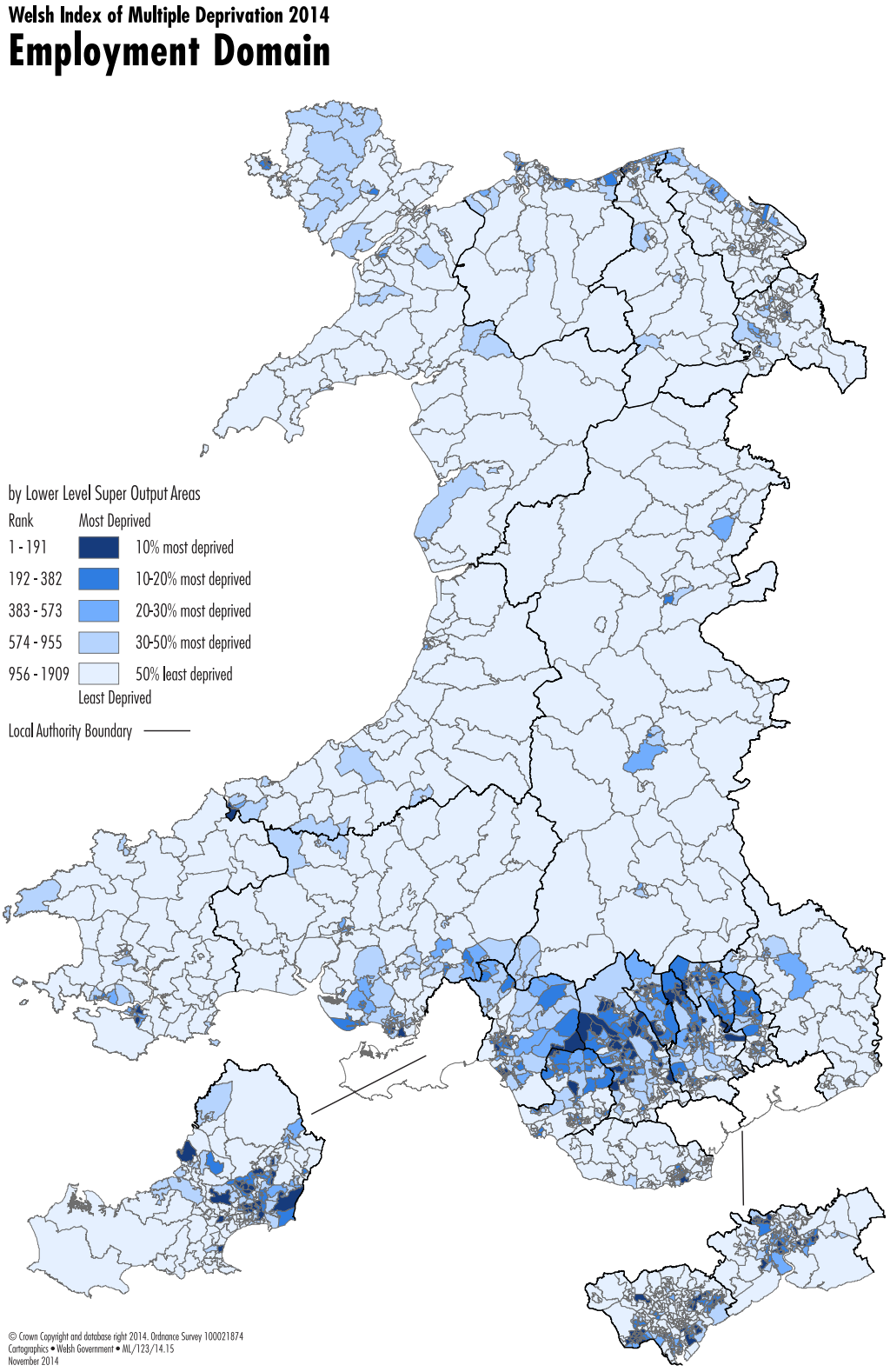


Figure 1: The areas most deprived in terms of employment in Wales. Source: Welsh Index of Multiple Deprivation (WIMD) 2014[71]

Effects of people moving in and out of Wales on the workforce in Wales

In 2016, 7% of the working age population in Wales were not born in the UK.[75] A large proportion of non-UK born residents in Wales work in public administration, education and the health sectors (30% of non-UK born in 2016) as well as being employed in hotels and restaurants, and the distribution industry (23% of non-UK born).[75]

Many employers in Wales and the UK are unable to recruit and grow their business due to skill shortages in the labour market. A study conducted in 2015 commissioned by Welsh government

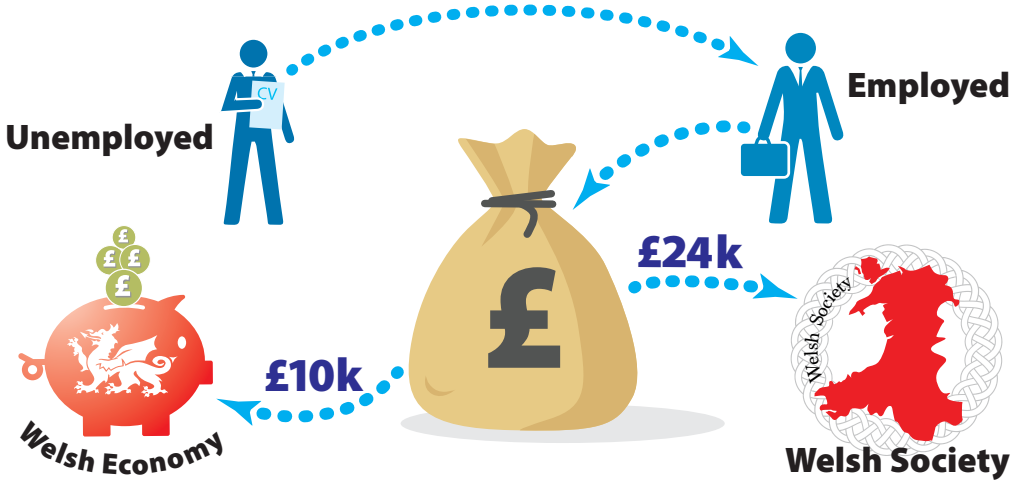
revealed that 6% of employers in Wales had at least one skill-shortage vacancy, defined as vacancies that are difficult to fill due to a lack of skills, qualifications, experience or practical skills among applicants.[76,77] Skill shortages are costing businesses in Wales approximately £355million per year due to inflated salaries, temporary staff and training for workers hired at a lower level than intended.[78] Skill shortages are set to be the greatest challenge to business in 2018 according to the British Chamber of Commerce.[79] They recommend that businesses do more in the way of training and investing in employees wherever possible, and that government should give businesses the confidence to facilitate growth.[79] The Welsh Government, other public sector bodies and other employers in Wales need evidence of cost-effective programmes to improve and protect the health and wellbeing of employees.

The benefits of economic inclusion

The Welsh Government are seeking a more equal, prosperous, resilient, healthier and globally responsive Wales as laid out in their Wellbeing of Future Generations Act.[3] Employment opportunities are part of the prosperous Wales goal of the Welsh Government and the Wellbeing of Future Generations Act which highlights a society which 'develops a skilled and well-educated population in an economy which generates wealth and provides employment opportunities, allowing people to take advantage of the wealth generated through securing decent work. Unemployment is linked to a range of negative outcomes including a 20-25% increased risk of death in the decade following job loss (e.g. due to the increased risk of heart disease, stroke and suicide), increased financial hardship, and increased mental health problems.[44,270]

One of the main benefits of economic inclusion is the benefit to the local economy. For every person that moves out of unemployment into work, the local economy benefits on average by £10,243 annually in Wales in terms of Gross Value Added (GVA) **[see glossary].**[19,80] A conservative estimate of the total financial benefits to society of a person moving from unemployment into sustainable work would be around £24,000† including financial benefits from increases in income tax, increase in wages, reduction of benefit payments as well as savings to health and social services.[46] Moving approximately 10% of people from unemployment to sustainable work in Wales could generate an additional £2billion in society over a 5 year period (see Table 1).

Moving a person from unemployment into sustainable employment in Wales benefits the local economy by £10k per year and benefits society by £24k per year.



Source: £10K calculations based on GVA for Wales from Office for National Statistics (2018) and informed by Public Health England (2016) calculations[19,80] £24K calculations using the Public Health England (2017) 'Movement into employment: return on investment tool' inflated from 2016 to 2017 using the North East of England as a best fit regional comparator to Wales[46]

Getting people into work is a challenge for all governments and the situation regarding employment in Wales is similar to other countries in the United Kingdom. Initiatives for getting people into work in Scotland through the New Futures Fund have been reported through the use of case studies.[81] The Working Wales programme in Wales is yet to be launched in 2019.[82]

Table 1: A best fit representative example of the modelled financial benefits from people moving from unemployment into sustainable work

Percentage of unemployed moving into employment	*Number of people moving into employment*	*Total financial benefits which accrue to the:*			
		Individual	**Health and social care services**	**Exchequer**	**Society**
	1	£3,900	£109	£11,800	£23,200
Scenario: 1% (1 year)	1,562	£6.13million	£171,000	£18.40million	£37.69million
(5 years)		£30.80million	£830,000	£92.93million	£189.57million
Scenario: 5% (1 year)	7,808	£30.66million	£854,999	£92million	£188.44million
(5 years)		£154million	£4.15million	£464.64million	£948.85million
Scenario: 10% (1 year)	15,616	£61.33million	£1.71million	£184million	£376.9million
(5 years)		£308.02million	£8.30million	£929.29million	£1.90billion

Note: Costs are provided in 2016/2017 and modelled based on inputs of the population of the North East of England as a best fit representative population to Wales. Costs are discounted at a rate of 3.5% while health benefits have been discounted at a rate of 1.5%. Public Health England (2017) Estimation of benefits from moving an individual from unemployment into sustainable employment[46]

In recent years, family friendly working policies have gained attention in Wales, in response to the challenges for employees of balancing work and family demands. Family friendly working may include; parental leave (for either parent), childcare provision, flexible hours and job sharing. Provisions such as these are not only attractive to employees; they are also associated with a number of employer benefits. For example, there is evidence of lower rates of voluntary resignations and absenteeism when employees had access to a workplace nursery.[83] Work life balance employment policies can produce substantial cost savings due to lower wages, less absenteeism, lower staff turnover and reduced energy and building costs.[84] More flexible, family friendly working arrangements that meet employee needs at different points in their careers can boost national economic performance and individual firm productivity.[52] There is preliminary economic evidence to suggest that if all employers were permitted the right to request flexible working arrangements, the total economic benefits would be around £15[+]million per year for Wales.[53]

Larger companies have more resources to implement specialist workplace health interventions than smaller companies, which may influence the type and range of workplace health activities, with a subsequent impact on effectiveness and cost-effectiveness of these programmes.[25] The majority of active enterprises in Wales are micro or Small to Medium sized Enterprises (SMEs) **[see glossary]**.[1,85] In 2018 there were 774 SMEs per 10,000 resident adults,[86] therefore tailored support, more usual within very large companies, might be less common in Wales than signposting to local health services or local specialist services. However, SMEs may provide a valuable context for the provision of workplace health promotion interventions due to their unique social, organisational and environmental attributes such as approachable management and easier communication between employers and employees.[87]

Self-employment in Wales

In the UK, the rate of self-employment increased by 0.73 million between 2007 and 2016, which represented 44% of total jobs growth. In Wales during the same period, self-employment rates increased by 15,000, and accounted for 38% of total jobs growth.[88] In Wales, 14.3% of the employed

population are self-employed.[89] The types of occupations vary from farming, forestry and furniture making to craft, manufacturing and service jobs such as plumbing, plastering, painting and decorating.

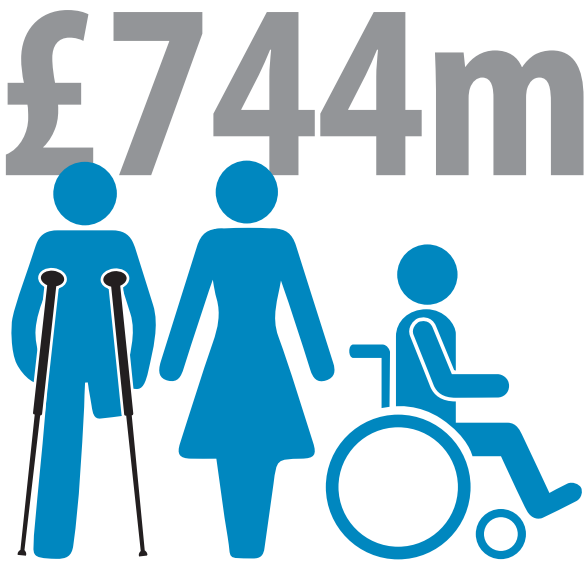
Despite the steady rise of self-employment in Wales, people in self-employment or those who are trying to become self-employed can face barriers to growing their businesses due to issues such as poor broadband connections.[90]

In-work poverty in Wales

In-work poverty **[see glossary]** may occur because the working adult does not earn enough money either because of not getting enough hours at work, or because of low pay. However, even adults working full time may not be able to provide adequately for their family due to the increased cost of living and the real terms reduction in wages. The latest data for Wales shows us that 710,000 people in Wales live in poverty.[16] This figure consists of 185,000 children, 405,000 working-age adults and 120,000 pensioners (23% of the population of Wales).[16] Wales had the highest rates of working-age poverty compared to England and Scotland, at 24%. This fell to 21% by 2003/06 but has since risen again to 23% by 2017, and remains higher than in England, Scotland or Northern Ireland.[16]

Unemployment in Wales

In 2018, the unemployment rate in Wales was 3.9% of the economically active population, down from 0.9% from 2017.[91] In 2016 in Wales, 10,595 had claimed Job Seekers Allowance for over 12 months and 5,955 people had been claiming Job Seekers Allowance for over 24 months.[92] People aged 25 years and above in Wales receive £73.10 per week in Job Seekers Allowance; therefore, if 5,955 people claimed £73.10 per week, this would cost the government £435,310 per week, which equates to over £22.5million per year. The annual Welsh Government spend on health-related benefits in Wales is £744million.[93] The annual cost to the Welsh Government of the average claimant receiving Employment and Support Allowance (ESA) is £6,031.[19]



The annual Welsh Government spend on health-related benefits in Wales is £744 million.

The annual cost to the Welsh government of the average claimant receiving employment and support allowance (ESA) is around £6K.

Unseen barriers to employment

Stigmatized minority populations can become discouraged workers.[94] Discouraged workers are those who want to work, but have ceased looking for work because of employment-related reasons such as minority socialization and identity, the lack of role models, learned helplessness and low job search self-efficacy.[94] For example, it has been found that networking is an under-utilised method of searching for work, especially for young people who may be socially isolated.[47] Many unemployed people are not making use of personal networks because they either do not have existing social networks or are not aware of the importance of this method for recruitment into a job. As many job seekers are not aware that networking with informal contacts is an important recruitment method, there should be simple interventions aimed at raising awareness about the importance of social networking.[47]

Mass unemployment events (for example loss of employment in Wales in industry such as Tata Steel, Port Talbot in 2016 and Anglesey Aluminium, Holyhead in 2009-2013) have a wide ranging impact on individual workers, their families and communities and the wider economy.[95] For workers, mass unemployment events increase financial hardship and unhealthy behaviours, and result in higher rates of mental health problems and increase the risk of death within 20 years (e.g. due to the increased risk of alcoholism, heart attack, stroke and suicide).[95] At a time of particular economic uncertainty there is a strong economic argument for taking a 'public health informed response' to identify communities at risk of mass unemployment events and provide early intervention to help minimise the impact of large scale job losses.[95]

The Welsh Government's Prosperity for All strategy[58] and employability plan[96] strives to keep unemployment levels low by providing tailored community outreach to individuals facing multiple barriers to employment through programmes such as the Working Wales programme.[82]

2. A diverse and inclusive workforce in Wales

Young people and employment

The lives of young people can be improved by working or volunteering to gain employment skills. Working also gives young people a sense of belonging to a community, and businesses are keen to support young people as they are viewed as future employees as well as future customers.[97]

The 'Prosperity for all' national strategy[58] emphasises that education and skills should be developed for a changing world. The Welsh government launched the Employability Plan[96] in March 2018, setting out how they will work to individualise employment support, up-skill and support workers, meet regional and local skills needs and prepare for a radical shift in the world of work in the future. As part of this employability plan, the new Working Wales programme will be launched in 2019 as well as the Employment Advice Gateway (delivered by Careers Wales), which aims to simplify access to employability support.[82] Although the Welsh Government will invest £24million to the Working Wales programme, potential savings are not yet known.[82]

According to the Annual Population Survey (APS) in Wales in 2018, 15.7% of 19-24 year olds were estimated to be NEET, compared with 14% in 2017.[98]

In March 2016, the Minister for Communities and Tackling Poverty and the Deputy Minister for Skills and Technology agreed to the proposal to begin work on a Welsh Government Employability Strategy to be developed jointly between Skills, Higher Education and Lifelong Learning Division and Tackling Poverty Division of the Welsh Government.[99] The Welsh Government apprenticeships scheme is developing higher skill level opportunities across a variety of employment sectors.[96] In 2016/2017 24,000 apprenticeship programme starts were achieved, and the apprenticeship scheme is continuing to aim to reach its target of 100,000 quality apprenticeships in Wales by 2021.

A report from England noted that young people who are NEET very often have diverse needs that require flexible and tailored solutions.[6] Findings from activity agreement programme evaluations highlight that personal advisers need a caseload that is low enough to enable them to provide client-centred intensive support to do personal development activities, skill development activities and employability and work-related activities.[6]

Cost-effectiveness of skills development programmes

Improving the skills base of the population is fundamental to increasing prosperity in Wales and is associated with economic growth and an inclusive society.[100] Entry-level low skill opportunities are a necessity not just for existing employees, but also for unemployed individuals who have been economically inactive for a great length of time who lack basic employability skills such as timekeeping, safety, following instructions, dealing with authority and co-operation with others in the workplace. A large proportion of young people, particularly those from disadvantaged backgrounds find it difficult to enter employment due to a shortfall in basic skills and capabilities.[101] The Ready for Work programme in England and Scotland helps to support disadvantaged groups, including people who have experienced homelessness, to equip themselves with the skills they need to enter and sustain employment.[101] Over a five-year period, one year's investment in the Ready for Work programme has been found to generate £3.2million in benefit to society; it was found that for every £1 invested in the programme, £3.12 was generated to society.[102]

ADTRAC

Current initiatives such as the ADTRAC Project in North Wales are trying to discover what the barriers are to NEET young people so that services can assist to overcome them.[48] ADTRAC is an initiative across North Wales to inspire the progression of young people aged 14-24 experiencing unemployment in North Wales. The ADTRAC regional project is led by Grŵp Llandrillo Menai working in partnership with Wrexham County Borough Council, Flintshire County Council and Betsi Cadwaladr University Health Board, with the support of the Department for Work and Pensions and Careers Wales. The purpose of the ADTRAC team is to listen, support and help young people develop and progress onto their chosen pathway to bring them closer to being in a position to engage with education, training or employment.[48]

Communities for work

In some of the most disadvantaged areas of Wales, 'Communities for Work' provide information about employment and training to those that are NEET, and help people to understand what they are entitled to in terms of benefits. There are also communities for work mentors who support individuals through personal action planning.[103] There are mentors working with young people who are furthest away from the labour market and specialist employment advisors working with adults to identify and overcome barriers to work or training.

Between 2015-16, the work carried out by Careers Wales (based on costs identified by the Audit Commission) to prevent 16 and 17 year olds from becoming NEET saved approximately £209million† per year in public welfare costs and approximately £522million† per year in costs to the economy.[7]

Despite programmes such as ADRAC,[48] Communities for work[103] and Working Links[104] being currently available to help people into work, there are not yet many cost-effectiveness intervention studies published, despite evidence to show that they are successful in getting people into work.

Case study of an innovative example of an arts and culture intervention to support disadvantaged young people gain skills and enter education, employment or training:

"Unitas uses creative activities to help disadvantaged young people get back into education, employment or training." Their Summer Arts Colleges is an intensive education projects for young people at high risk of offending. Using arts-based activities, they aim to reduce offending, improve literacy and numeracy skills and get more young people back into mainstream education, employment and training.

"For every £1 invested, Summer Arts Colleges create £5.89 of value to society over young people's working lives. This is mostly due to the longer-term benefit of improved literacy and numeracy skills for the young people involved, rather than shorter-term savings to the criminal justice system through reduced offending."

Source: Johnson, Keen and Pritchard (2011)[269]

Work and caring for families – the role of women in Wales

In all areas of the world, women assume unequal responsibility for unpaid care work. Women dedicate 1-3 hours or more per day to complete housework than men and 2-10 times the amount of time per day for caring responsibilities compared to men.[105,106] These gender role differences have been found to reduce women's leisure, welfare and wellbeing, and their capacity to take up economic opportunities.[107]

In a study exploring women's roles in the workforce, approximately half of mothers in Wales said that they are solely or primarily in charge of child care, this is compared to just 4% of fathers.[108] The Welsh Government has made a commitment to 30 hours free childcare for working parents of three and four year olds for 48 weeks of the year, through the Foundation Phase and Childcare Offer.[109] There are early signs that the Childcare Offer in Wales (2018) is promising in relation to supporting working parents in terms of more hours worked.[110] Findings from a parental survey indicate that some women and to a lesser extent, men, are working more hours and this is especially true for those who earn up to £41,599.[110] Extending the Welsh Government scheme to provide free childcare for children under the age of three years has been proposed[111] and warrants consideration of the potential returns on investment. With the average cost of 25 hours of childcare for a 2 year old in Wales in 2017 around £102.30 per week this equates to an annual cost of about £4,910 to facilitate just part-time working.[112]

PaCE is a Welsh Government project which aims to improve the employment prospects for parents where childcare is the main barrier to accessing training or employment. PaCE covers childcare costs while parents undertake training, work experience or volunteering to gain the skills they need to get a job.[113] An early evaluation of the PaCE project showed that over a third of all participants progressed into work, which was higher than the set target of 20%.[114]

In comparison to the rest of the UK, in Wales, more women work as unpaid carers for adults.[8] Approximately one in twenty women in Wales complete fifty hours or more of unpaid care work each week.[8] Caring responsibilities have a substantial impact on women's employment and earnings. Working carers often have to attend many hospital appointments with the person they

are caring for, and this has an opportunity cost **[see glossary]** to them (e.g. of working time) which can impact on how much they can contribute economically.[11] Women do not just lose out on potential earnings from employment when taking up caring roles for children and dependent adults, there are also long-term consequences such as a reduction in experience and promotion prospects, and pensions contributions contributing to the substantial vertical segregation **[see glossary]** and gender pay gap experienced by women. This has implications for old age. In Wales more than a third of both male and female carers who had left work to undertake caring roles said that they were unable to save for a pension.[9] There is also a strong financial case, both for businesses and the wider economy for supporting parents and carers in employment.[10,11] In Wales the economic value of the contribution made by all unpaid carers is £8.6billion,†[12] of this £3.8 billion†* per year is provided by women.[12,13] This value is not currently recognised in the calculation of GDP or recognised in macroeconomic concepts.

Around half of all unpaid carers are also in paid employment.[115] Balancing these roles often results in carers reducing working hours with carers more likely to work in part-time roles than those without care responsibilities.[115] Difficulty switching to part-time working is also highlighted as a reason for carers leaving employment altogether.[115] The number of carers reducing their participation in the labour market (both completely or partially) is expected to rise alongside the rising demand for carers in an aging population.[116] In Wales, an estimated 15,000* working age carers (both men and women) are unable work due to their caring responsibilities, costing the Welsh Government up to £172million†* per year in benefits including Carer's Allowance payments and lost tax revenues.[11,117] Typically employees leave employment due to caring responsibilities (for children, parents or friends) between the ages of 45 and 64 years representing a substantial loss of highly skilled workers (in whom employers have likely invested time and money).[116] Replacing staff or reorganising work responsibilities amongst existing employees can incur further costs to employers through recruitment and staff training.[116]

There are international examples of government subsidised formal care training programmes for unemployed workers which may provide an opportunity for meeting the demands of an aging population and reducing employment gaps in the care sector.[118]

Providing effective advice and support to carers and employers can help carers remain in work.[11] There are many examples of organisational and government policy and practice recommendations for supporting parents and carers in employment including:

- Increasing flexible and part-time working opportunities including at the higher earning end of careers, considering options such as job sharing;
- Protecting the rights of mothers to return to work after maternity leave and exploring opportunities to extend this to carers;
- Access to paid or unpaid temporary leave for parents and carers;
- Increasing provision of paternity leave to support more equity in caring responsibilities.

Older people and employment

As the default retirement age no longer exists in the UK an increasing percentage of people are working later in life.[119] The proportion of the population aged 65-74 who were economically active in 2011 (16%) was almost double the proportion in 2001 (9%) in England and Wales.[120] In 2015, 64% of women aged between 50 and 64 were in work, compared with 42% in 1985.[119] Since 1985 the employment rate for people aged 50 to 64 has grown from 55% to 70% in the UK.

Paid employment can help maintain wellbeing into later life for older people.[121] Continued employment means that older people will earn more money and also be able to spend more money and pay more tax to the UK government.[14] However, it is also true that 1 in 2 people who move from work onto Employment Support Allowance (ESA) are over 50 years old. In Wales an increasing number of older people are unable to afford retirement at state pension age.[122,123] Worklessness may have detrimental effects on the wellbeing of an older person because of missing social connections, mental stimulation, confidence, being valued and making a positive contribution to society.[124]

Recognising the skills and experience of older workers and valuing the contribution that older people make to work and society is important in preventing worklessness for older people who are able and want to keep working. After taking account of all the costs associated with an ageing population (especially health and social care, and pensions) and considering the positive financial contributions that older people make (particularly through spending, tax, volunteering and caring responsibilities) older people make an annual net positive contribution of £2.19billion*† to the Welsh economy (almost £6million a day*†) – a contribution which is growing.[57]

Older workers should have the same access to training, progression, mentoring or leadership as workers of other ages. This includes wellbeing support and appropriate physical adjustments, equipment and flexible working arrangements, and all forms of adaptation that are usual in the workplace.[125] Flexible working arrangements, reduced hours or ability to adjust the time and place of work, are fundamental to making paid work more age-friendly for those over 50 who may also

have caring responsibilities for family or friends. Working self-employed may have benefits for older people as they may be able to work flexibly. In 2017, over 1.9 million people aged over 50 work for themselves in the UK.[126]

Unhealthy behaviours in midlife are associated with transitions out of employment into old age, promoting healthy behaviours at midlife may help to support current policy initiatives aimed at extending working life.[127]

A spotlight on overcoming barriers: disability and employment

An important aspect of the Welsh Government national strategy is for a more healthy and inclusive society.[58] The Welsh Government want to 'help everyone live longer, healthier lives'. Baroness Campbell, a crossbench peer, has presented a green paper to government indicating that investing in working-age adults will pay for itself.[136]

Some people enter employment with pre-existing conditions or challenging social conditions. In the UK in March 2013, 20.8% of the working age population in the UK (8.3 million people) had a disability.[137] In the year ending 30th June 2018, the employment rate of people with a disability in Wales was 45.8%, compared to 80.1% of those without disability.[137] For people who are of working age, having a long-term condition can have a negative impact on the chances of maintaining a job.[138]

"When their health condition permits, sick and disabled people (particularly those with 'common health problems') should be encouraged and supported to remain in or to (re)-enter work as soon as possible".[139]

Cost-effectiveness of disability management programmes

Worldwide, disability management programmes can include case management with input from occupational health nurses. A study conducted in the USA in 2006 investigated the cost-effectiveness of an internet based case management tool, Medgate.[140] The direct expenditure was £486,077††, including cost of the internet based case management tool, information technology support, office space rent and time from senior management, occupational health nurses, corporate physician, epidemiologist and administrative assistant, and the savings were approximately £2.2million††. A more than four to one return on investment (ROI) [see glossary] was gained based on direct expenditures and cost savings in terms of reduced absence days. This provided strong evidence that an in-house disability management program was successful by absence duration, employee satisfaction, and return on investment criteria.[140]

Cost-effectiveness of workers' physical disability interventions

In 2013 a feasibility study was conducted in the Netherlands to evaluate a new intervention to improve work participation of young adults with physical disabilities. The median cost per participant for 1 year was about £3000†† which was equivalent to the cost of 72 contact hours per participant.[141] There was a cost-saving to society from having more young adults with a physical disability in work. At 3 years post intervention, seven of the 12 young adults were in paid employment and 1 was in unpaid employment compared with a ratio of 4:4 in paid and unpaid work respectively post-intervention. This study provided strong evidence that an intervention to improve work participation of young adults with physical disabilities was effective and held promise as employed participants seemed to have achieved suitable and continuous employment.

Autism Spectrum Disorders and employment

Around 700,000 people in the UK are living with autism or an autism spectrum disorder.[128] which is a lifelong developmental disorder affecting how people perceive the world and interact with others. Autism spectrum disorders affects individuals in many different ways.[128] Some people living with an autism spectrum disorder have other conditions alongside autism and these include mental health issues, learning difficulties, and other conditions, meaning that those living with an autism spectrum disorder need different levels of support.[128] Many people living with an autism spectrum disorder, and mainly the group formerly known as those with 'Asperger's Syndrome' are able to join the workforce as adults. Employees with 'Asperger's Syndrome' may find it difficult to read the body signals and face signals of colleagues, leading to difficult communication. They may also take statements literally, and because of that could be a target for workplace bullying or teasing.[129]

During the last decade, more research has been conducted to investigate how well people living with an autism spectrum disorder manage within the work setting.[129] Research has found that people with autism spectrum disorders are often excluded from the labour market.[130] Underemployment of adults with an autism spectrum disorder may also be considered as an expensive overlooked opportunity, since it results in lost productivity.[130] Considering the yearly cost to society of supporting adults with an autism spectrum disorder, providing employment opportunities for adults with an autism spectrum disorder would enable social care costs to be reduced.[131] It has also been found that supported employment is a cost-effective intervention for adults living with autism spectrum disorder in the UK, and that common elements of the support should include prior and on-the-job training, advocacy and long-term support to ensure job retention.[132] Being employed has the advantages of social integration, increased satisfaction, higher self-esteem, more independent living and reduced family burden, which leads to lower service costs.[133] People living with an autism spectrum disorders make excellent employees as they have a good work ethic, many think more logically, pay significantly better attention to detail in work tasks,[134] are good at sticking to routines and timetables, can understand connections easily, and are likely to be punctual and reliable.[128]

However, there is also evidence which suggests employees with autism spectrum disorders in Wales face daily discrimination and are denied opportunities at work because of ignorance among employers, which is widespread. This means that talent and therefore productivity is being wasted. Wales TUC Cymru have noted that there are an estimated 31,000 people with autism spectrum conditions in Wales. This is equal to 1 in 100 people, but only 16% of adults with autism are in full time paid work, 16% are in part-time work, and 77% of those who are not in employment, want to work.

The Welsh Government is currently investing £13million in the delivery of an Autism Spectrum Disorder strategy.[135] Wales TUC Cymru have noted that employers should be autism friendly and this could be achieved by working with autistic workers to develop a clear autism policy in the workforce; provide autism awareness training for all staff; review the sensory environment; and review workplace communications.

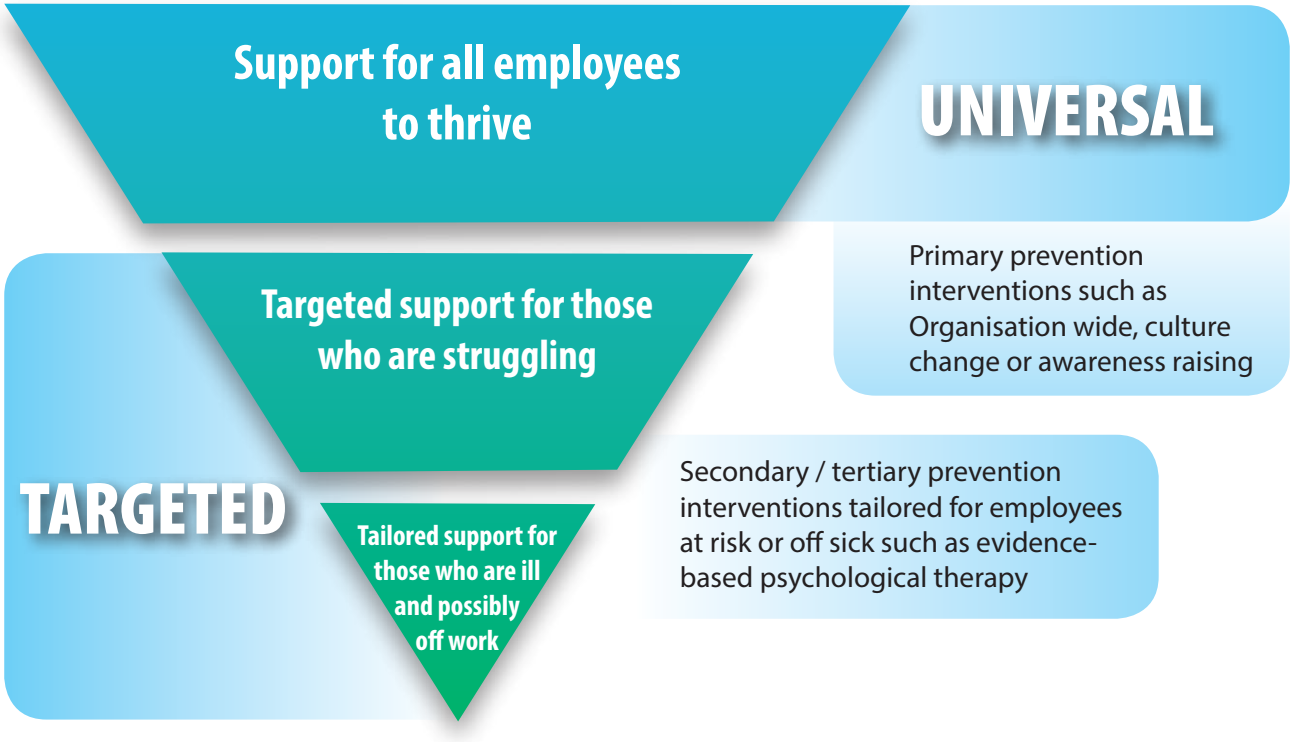
3. Valuing employees and keeping healthy for a cost-effective workforce

The economics of prevention: tackling key risk factors to wellness in work in Wales

Health promotion initiatives by the government and employers can help to reduce health issues and decrease absenteeism and presenteeism in the workplace. Managers in particular have a huge role to play in creating a work environment where people can thrive. Creating shared purpose, open communication, a culture of dignity and respect, and feeling valued should be placed beside health interventions.

Publicly financed health promotion and illness prevention programmes may be positively associated with health, partly through their effects on life choices made by employees.[142] Some chronic diseases are preventable and these include respiratory disorders, mental health issues, drug or alcohol addiction, and musculoskeletal problems. Dealing with preventable health issues, unhealthy behaviours, and reducing the risk of injuries may decrease premature mortality and keep many working people at work for longer.[143]

Interventions to help employees thrive (in other words be successful and achieve) at work may need to be targeted and tailored.[36] For example the thriving at work framework proposed by Farmer and Stevenson (2017) suggests that all employees may need some support to thrive, but those who are struggling need targeted support, and those who are ill and possibly off work, need tailored support to return to work and thrive in the work environment.



Source: Thriving at work framework (adapted from Farmer and Stevenson, 2017).[36]

In the UK, most adults pay taxes throughout their working years. Figure 2 shows taxation and spending through the life course and highlights the fact that taxes paid peaks at around 46 years of age and then drops to a lower level from then on. It is at this point also that government spending starts to increase with age.[144]

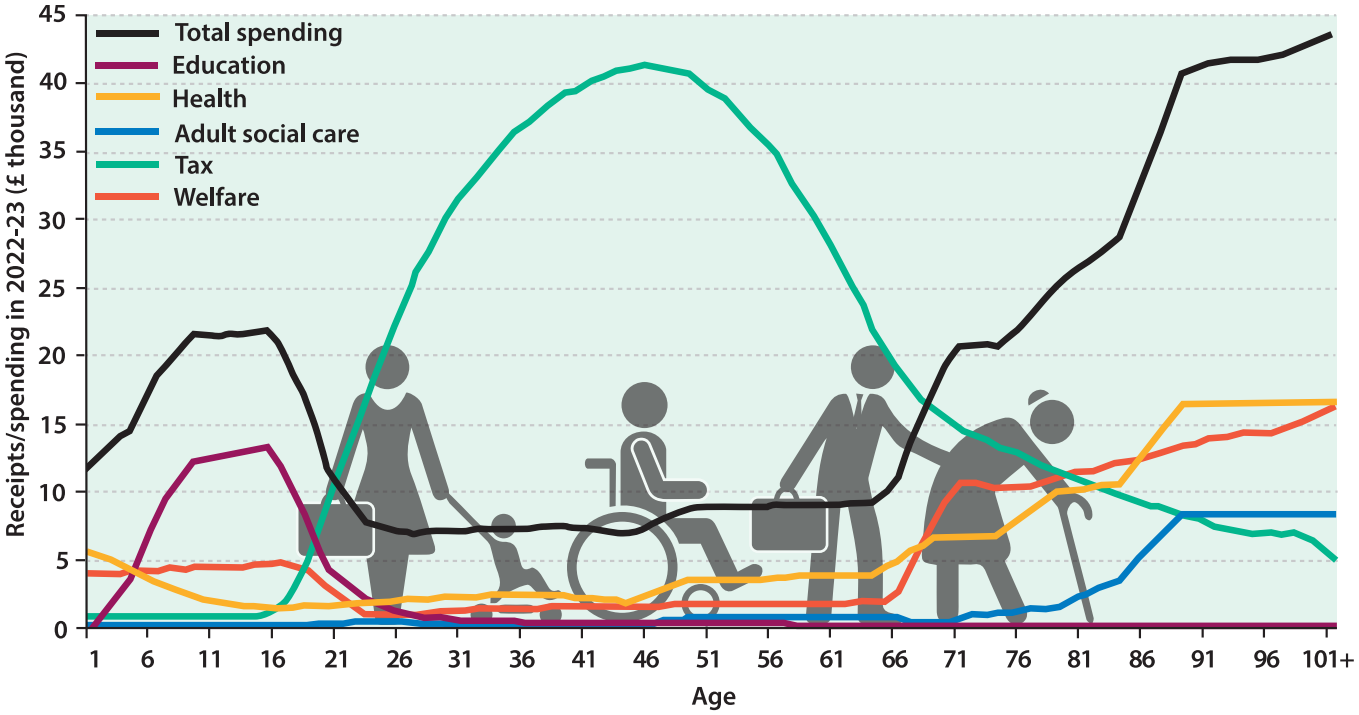


Figure 2: Per capita United Kingdom taxation and spending through the life course – the working years.
Source: Office for Budget Responsibility (2018)[144]

Keeping people healthy and in work prevents loss of productivity **[see glossary]** and profit.[4] Workplace health programmes **[see glossary]** are concerned with efforts to maintain, protect and improve the health of people at their place of work.[5] The needs of employees can be complex and different levels of support may be required. Good quality work contributes to worker's wellbeing by meeting the basic psychological needs of self-efficacy, self-esteem, sense of belonging and meaningfulness.[145] Recently there has been an emphasis on promoting good quality jobs for good health[60] with some of the key characteristics of good work being autonomy, fair pay, a good work life balance and the absence of bullying or harassment.[36]

More highly paid work is associated with better health outcomes.[146] The nature of work can adversely affect health through adverse physical conditions at work such as exposure to chemicals or other hazards, long hours and shift work. Adverse psychosocial conditions may include conflict and lack of autonomy or control, poor pay or insufficient hours (e.g. zero hours contracts).[60] Temporary work and risk of redundancy can affect stress levels, job satisfaction levels and wellbeing of employees.[60]

Public Health Wales delivers the 'Healthy Working Wales' programme[147] on behalf of Welsh Government to support people in Wales return to work after periods of ill health, and remain in work for longer by promoting health and wellbeing, a good work life balance and healthy lifestyles to help reduce sickness and absence. They provide a range of support services to public, private and third sector organisations in Wales. The information and support given aims to equip employers with the tools and knowledge to enable them to improve the health, safety and wellbeing of their staff. The services that they provide focus on a range of areas that may have a direct or indirect influence on the health and wellbeing of employees and businesses in Wales such as communication, engagement with staff, developing policies, wellbeing programmes, and improving safety at work.[147]

Wellness in work and building social capital in the workplace

Social capital **[see glossary]** is the social glue that helps people, organisations and communities to work together towards shared goals. Social capital comes from everyday contact between people, as a result of their forming social connections and networks based on trust, shared values, and reciprocity.[148] In a study exploring the interaction between social capital, creativity and efficiency in workplace organisations, enhancing social capital through trust, norms and networking was found to increase organisational efficiency in the working environment likely to result in increased productivity.[149]

The New NHS Alliance in England is encouraging an emphasis on keeping the workforce well and developing what has been termed as a 'wellness workforce'.[150] Workplace wellness initiatives need to appreciate the interconnected nature of health dimensions and promote them equally.[151] Health creation can benefit both health and economic productivity.[150] However, a systematic review of workplace health programmes noted over 50 barriers and facilitators to delivering effective health promotion interventions **[see glossary]**, including characteristics of the organisation, the implementers, the managers and the participants.[152]

Staff wellbeing is an important factor in workplace productivity.[38] Common mental health problems such as anxiety, depression and unmanageable stress affect one in six employees in Wales each year.[34] Mental Health First Aid Wales[153] is an organisation who provide training courses designed to teach people how to spot the symptoms of mental ill health and provide help on a first aid basis, before the mental health problem turns into a mental health crisis. National anti-stigma programmes operate in Wales as in England and Scotland and the Time to Change Wales campaign to end mental health discrimination has a website which offers support and guidance to help individuals to avoid discrimination in the workplace.[154]

Five ways to wellbeing

The five ways to wellbeing framework is used in parts of the NHS in Wales to give wellbeing a boost.[155] The five ways to wellbeing framework[156] suggests that there are five simple things that people could do daily, including taking notice of their surroundings and savouring the moment; connect with friends and family to enrich the day; be active to make people feel good; learn something new to feel good or build confidence; and give, as acts of kindness, helping others or volunteering can make people feel happy.

In Wales, many employers who aim to promote a good balance between work and home life, have promoted family friendly policies. Many workplaces, such as NHS Wales now have a Flexible Working Policy and Procedure.[157] Increasing job satisfaction can improve mental health, increase wellbeing and reduce absenteeism. There is evidence that links employee morale and satisfaction with health outcomes as well as business performance measures.[158]

Source: Betsi Cadwaladr University Health Board. Five ways to wellbeing. (2018). [155]

Matrics Cymru is the result of collaborative working between service user and carer representatives of the National Mental Health Forum, Psychological Therapies Management Committees (PTMCs) of the seven health boards in Wales, Welsh Government, the National Psychological Therapies Management Committee (NPTMC) and Public Health Wales to help build effective, equitable and accessible psychological therapy services across Wales. Matrics Cymru is based significantly upon the work of the Scottish Matrix.[159] It incorporates learning from the Improving Access to Psychological Therapies (IAPT) programme in England[160] and standards from the Royal College of Psychiatrists/British Psychological Society collaboration in relation to service delivery.[161] Employers in the UK are encouraged to be aware of how to get access to timely help to reduce sickness absence caused by mental ill health[36] and the promotion of the 'Time to Talk Wales' campaigns are to encourage open conversations about mental health in the workplace.[154]

The importance of art, music and drama in improving mental health and wellbeing in the workplace is becoming increasingly acknowledged among employers in Wales.[138] For example, the 'Creative Health' programme delivered in Betsi Cadwaladr University Health Board in north Wales aims to transform the healthcare working environment through the incorporation of arts and creative therapies within staff training.[138] Moreover, the promotion of arts and culture can boost the economy by creating job opportunities, developing skills among employers, and attracting and retaining businesses.[162]

Cost-effectiveness of promoting good mental health in the workplace

The UK public health guidance on 'Mental wellbeing at work [NICE PH22]' indicates that "organisation-wide approaches to promoting mental wellbeing can produce important net economic benefit" and that "performing annual audits of employee wellbeing would produce financial gains; of the order of £100million per annum."[38,39]

Poor mental health is disproportionately prevalent in long-term unemployment. The impact of poverty, low attainment, breakdown of social constructs, poor decision making and life choices result in poor mental health and low confidence and self-esteem. [163] In Wales around 14,190* people with a long-term mental health problem lose their jobs each year.[36] Costs to the Welsh government of poor mental health at work is over £1.2billion* a year.[36] Some estimates indicate that the costs due to mental health problems adverse effect on people's ability to work can equate to losses in the Welsh economy of between £3.5billion†[37] and £4.68billion*[36] every year lost in terms of lost output, costs to employers and NHS costs. The full societal costs of poor mental health in Wales is estimated to be around £9.5billion† pounds when including the costs to health and social care (£1.4billion†).[37]

Losses to the Welsh economy due to mental health problems at work of up to £4.68billion* every year

1 in 6

employees in Wales suffer from a mental health problem, at an estimated annual economic cost of £4.68billion due to mental health problems at work.

Ideally, support from clinical services should be accessible, high quality and fit around work.[36] If employees with mental health issues are not supported by their employers, there can be an impact on the wider workforce. If problems are left unmanaged, other members of the team or organisation may find their workload increasing and their wellbeing compromised.[36]

Where employees experience mental health problems there is evidence of cost-effectiveness of Cognitive Behaviour Therapy (CBT) **[see glossary]** through the IAPT programme in England.[160] The National Institute for Health and Care Excellence (NICE) recommends CBT and other psychological therapies such as Mindfulness Based Cognitive Therapy (MBCT) as interventions in the treatment and management of mental health conditions such as depression.[35,164] Many randomised controlled trials have shown that people's anxiety and depression can be substantially reduced if they receive a competently delivered NICE recommended treatment at the right dose.[165] An Australian study published in 2017 found that in the Australian fire service, mental health training of managers could lead to a significant reduction in work-related sickness absence with an associated return on investment of £9.98 for every £1 spent on training.[166]

Mindfulness Based Cognitive Therapy is recommended by NICE for the prevention of recurrent depression, the economic evidence supporting this indicates that employment outcomes contribute to this being a cost-effective intervention. Economic evaluation of targeted Mindfulness Based Interventions delivered within a workplace setting have demonstrated that they may be cost-effective for employers if employees have lower back pain,[167] or if offset healthcare costs are also taken into consideration.[168] However, the evidence is mixed with some research reporting that a Mindfulness Based Intervention offered to the whole workforce was neither cost-saving nor cost-effective for the employer.[169]

An Australian study published in 2015 using data from 2010 reported that group therapy to treat depression in the Australian workforce could prevent around 5,200 cases of depression.[170] The authors found that those employees able to remain in the workforce because of a clinically

effective prevention of depression programme would earn between £19,754†† and £48,719†† more per year and net government revenues would increase by around £3.5million†† per year. This study presented strong evidence that a group-based psychological intervention in the workplace programme could result in considerable economic benefit.[170]

In an evaluation of a screening intervention for anxiety and depression funded by the employer there was a cost saving of £25,119† in year one and which increased to £81,067† in the second year. Benefits were gained through both a reduction in the level of absenteeism and improved levels of workplace productivity through a reduction in presenteeism.[27]

There is strong evidence of large returns from investment in workplace mental health promotion initiatives in the UK.[27,36,40] Early intervention for common mental health disorders and targeted effective treatment for at risk employees can be cost-saving for businesses and the NHS.[27] The cost in Year 1 was £41,004†, but by Year 2 the cost saving was £494,380†. This represents a substantial annual return on investment of more than £9 for every £1 spent.

Workplace wellbeing interventions can be significantly cost-saving in the short-term, but some smaller companies may need public support to implement such schemes. Organisation wide primary prevention initiatives may offer a greater return on investment than 'reactive' intervention at a later stage (e.g. secondary or tertiary prevention) with culture change or awareness raising workplace health promotion interventions offering around £8 return on investment for every £1 spent, compared with targeted psychosocial mental health treatments for depression such as Cognitive Behaviour Therapy generating up to £5 for each £1 investment.[41]

In the UK a quasi-natural experiment conducted in 2017[171] investigated whether the introduction of a national minimum wage in the UK in April 1999 reduced depressive symptoms in low-wage workers. The intervention group whose wages rose above the minimum wage of which was £3.60 (in 1999), experienced lower probability of mental ill health compared with both the control groups in the study.[171] This provided strong evidence indicating that increasing wages significantly improves mental health by reducing the financial strain in low-wage earners.[171] There are many economic arguments for tackling in-work poverty. People on the government Living Wage often work part time, on short-term contracts and find it very difficult to make ends meet and rely on in-work benefits to top up earnings. There is a negative impact on mental health from the stress of this type of work. Government policy to reduce the financial strain in low-wage earners, such as increasing the rate of Living Wage (which rose to £8.21 in April 2019) may also help improve employee mental health.

In their 'Thriving at Work' review of mental health and employers, Farmer and Stevenson (2017) recommend that mental health standards, such as those used in Canada can be applied across very different workforces and especially the public sector as it is known that public sector workers are often at higher risk of mental health problems.[36] For example, the prison officer association found that nearly 50% of prison officers felt stressed from work.[36]

Cost-effectiveness of interventions to reduce work-related musculoskeletal disorders

Musculoskeletal disorders such as back pain are a frequent cause of work related disability with considerable economic impact.[18] Musculoskeletal disorders are injuries or disorders of the muscles, nerves, tendons, joints, cartilage, and spinal discs that work environments can make worse. In the UK, musculoskeletal problems are the third and fourth most common causes of short-term and long-term work absences, respectively.[172]

Studies investigating the economic costs of musculoskeletal disorders in workplaces worldwide have shown that some interventions were clinically effective and cost-effective, some were only clinically effective and others are not clinically or cost-effective. For example, there is evidence from the NHS in Wales that interventions such as yoga can be cost-effective.[42,43] Programmes such as these not only have beneficial clinical outcomes from promoting healthy lifestyle choices, but also result in beneficial workplace outcomes, such as reduced absenteeism and increased productivity. In one of the first UK cost-effectiveness studies a yoga intervention delivered to 76 NHS Wales staff

resulted in a 95% reduction in absenteeism due to work-related musculoskeletal disorders[43] **[see glossary]**. This is important evidence as musculoskeletal problems account for a quarter of the health-related absenteeism from work in the NHS in Wales[54]. These programmes may also reduce future disease burden and associated costs. For every £1 spent on yoga there is an estimated £10.17 societal benefit generated largely due to increased productivity at work.[271]

Recurrent back pain is a common ailment in health care workers. In 2010 a study was conducted in the Netherlands to investigate the cost-effectiveness of lumbar supports for home care workers with recurrent low back pain.[173] Direct health care costs, direct non-health care costs, and indirect costs because of lower back pain were used as economic indicators. Direct costs were £253[††] lower in the lumbar support group than the control group. Indirect costs were £274[††] lower, but this was not statistically significant. There was strong evidence in the study to show that lumbar support seems to be a cost-effective addition to usual care for home care workers with recurrent lower back pain.

Neck, arm and shoulder problems are common ailments for computer workers. A study conducted in the Netherlands in 2010 investigated the cost-effectiveness of the RSI QuickScan intervention programme for computer workers.[174] The mean intervention costs paid by the employer were £55[††] in the intervention group and £26[††] in the usual care group. Non-significant sick leave effects were found between the intervention group and the control group. Although the RSI QuickScan programme improved work posture and movement of computer workers, the strong evidence showed that it was not cost-effective from a societal or companies' perspective and therefore the study did not provide a financial reason for implementing the intervention.

Workplace yoga practice at the Kelloggs factory.
Photo printed with permission from Dr Ned Hartfiel and participants.

In 2009 in the Netherlands, another study investigated the cost-effectiveness of postural exercise therapy versus physiotherapy in computer screen-workers with early non-specific work-related upper limb disorders **[see glossary]**.[175] Total health care costs were £659†† per patient group in 2009 for the postural exercise group, and £650†† per patient group in 2009 for the regular physiotherapy group at one year. At one year after the initial measurement, the mean costs due to productivity loss were £206†† in the postural exercise group and £875†† in the regular physiotherapy group. This strong evidence suggested that postural exercise therapy had a higher probability of being cost-effective than regular physiotherapy, but the authors stated that more research is needed.

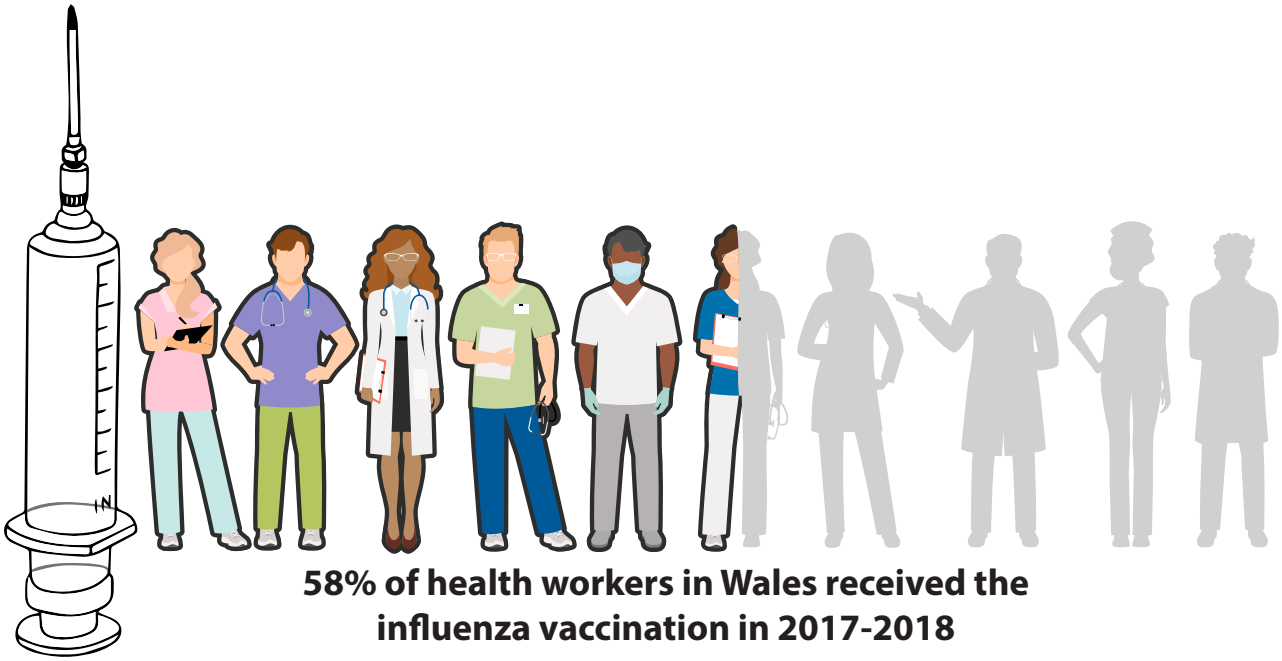
Strong evidence in support of cognitive behavioural therapy (CBT) interventions has been found in Sweden[176] and Spain.[177] In Sweden a study was conducted to investigate a CBT intervention to reduce the number of sickness days compared to usual treatment of spells of musculoskeletal pain in the primary care setting.[176] The cost of the CBT intervention was just over £253,000††. The cost saving due to reduced sickness days could be as much as £463,000†† per primary care team per year. The intervention costs were balanced out during the first year. The authors identified further cost reductions with increased implementation of workplace-based return-to-work interventions.

In Spain, authors evaluated the effectiveness of early cognitive behavioural treatment in patients with work disability due to musculoskeletal disorders.[177] Direct and indirect costs were significantly lower in the intervention group saving £1,641†† per patient, and the highest savings were related to productivity loss £1,412†† per patient. In terms of cost-benefit, every £1 invested produced a saving of £3.73†† at the end of the second year. These studies suggest that early cognitive-behavioural treatments may be cost-effective for workers with musculoskeletal pain.

Studies conducted in The Netherlands in 2009[178] and 2011[179] investigated work style and rehabilitation to reduce musculoskeletal conditions. It was found that coordinated tailored work rehabilitation employed by an interdisciplinary team is effective compared to conventional case management in workers absent from work due to musculoskeletal disorders.[178] Workers had fewer sickness absence hours than controls, particularly in the second half of the year. This economic evaluation presented strong evidence that the intervention was cost saving for society.[178] Another study conducted in the Netherlands was a work style plus physical intervention.[179] A study investigating improving recovery from upper limb symptoms of computer workers[179] found that the cost of a work style plus physical intervention was £2,630†† during the twelve month intervention compared to the cost of usual care £2,161††. However, this was not a statistically significant difference. This study showed strong evidence that the work style plus physical intervention was not cost-effective compared to usual care. As there were no clinically significant benefits or cost-savings, the authors suggested that more research is needed to understand which specific risk groups may benefit most from a work style intervention.[179]

Cost-effectiveness of vaccinating the workforce against influenza

Vaccinating against influenza is an effective way to prevent people from becoming infected and has become the prevalent prevention strategy for influenza. This can have benefits to employment as it effectively decreases the number of days of absenteeism by healthy working adults. The Influenza vaccination is of medical and economic interest worldwide.[180] While there is favourable evidence on the cost-effectiveness of influenza vaccination programmes targeted at children, older adults and high risk groups, the cost-effectiveness evidence has been less consistent for influenza vaccination programmes targeting healthy adults, many of whom will be participating in the workforce.[24,181,182] Across a number of countries there appears to be strong evidence on the cost-effectiveness of vaccinating employees against influenza, particularly employees working within the health and social sector (e.g. from The Netherlands,[180] Belgium,[183] Canada.[184] In Canada, for example, those health care workers who were vaccinated had 23,473 (10,035–46,314) less illness absenteeism hours saving over £797,000†† in staff costs.[184]



Influenza vaccination take-up in 2017-2018. Source: Public Health Wales (2018)[55]

One cost-benefit study of influenza vaccination in healthy, working adults in the USA indicated that at an average cost of £28[††] for vaccine and administration, there would be a net savings to society 95% of the time; at a mean cost of £46[††] the vaccination would generate net savings 50% of the time.[185] The authors state that the influenza vaccination may provide both health and economic benefits for healthy working adults.

The case for vaccinating health and care workers is fairly convincing on grounds of cost-effectiveness whilst there is far less evidence on the cost-effectiveness of extending influenza vaccination of the workforce in general.[186]

Between 2017/18, 58% of health care staff with direct patient contact were vaccinated against influenza in Wales.[55] Vaccinating health care workers reduces transmission of influenza to patients and other staff, and strong evidence suggests that the benefit of the influenza vaccination is enhanced by having regular staff undertaking patient care.[184]

The economic benefits of vaccinating healthy working adults in the manufacturing industry for influenza like illness have also been investigated in the USA.[187] Influenza vaccination of healthy working adults can reduce the rates of influenza like illness, lost workdays and physician visits. The authors looked at the data from between 1997 and 1999. In 1997-1998 when the vaccines and viruses circulating were not a good match, the net societal cost was nearly £79[††] per person compared with no vaccination. In 1998-1999 when there was a better match between vaccines and viruses circulating, the net societal cost was £13.43[††] per person. As there were higher costs than benefits even when there was a good match between vaccines and viruses, the authors concluded that vaccination of healthy adults younger than 65 years is unlikely to provide societal economic benefits in most years.

Cost-effectiveness of programmes that reduce staff sickness absence

Around 8.82 million* working days due to staff sickness absence are lost in Wales each year.[18,19] Estimates of the financial impact of sickness absence vary considerable with the cost to businesses in Wales reported to be between £855million[20] and £1.3billion[ix] each year.[21]

Some of the main causes for sickness absences include minor illnesses such as coughs and colds, musculoskeletal problems such as back pain and mental health issues such as stress, depression and anxiety.[18] Sickness absences are most prevalent among women, older workers, individuals with chronic conditions, smokers and employees who work at large establishments (500 plus employees).[18]

In 2017, Wales had the highest rate of sickness absence across the UK at 2.7% which was 0.8% higher than the UK average of 1.9%.[19] In the UK, 'fit notes' can be provided to employers if employees have been on sick leave for seven calendar days or more and in some cases on return to work these can outline recommendations for reasonable adjustments to usual working.[188] Some researchers have suggested that the 'fit note' is linked to fewer people taking long-term sick leave,[189] but there is a concern that a 'fit note' may not be effective as General Practitioners may not know what support is available from an employer when an employee returns to work.

With respect to sickness absence across different occupations, individuals working in managerial and senior roles reported the lowest rate of sickness absence in 2017 at 0.9%. Individuals working in caring, leisure and other service occupations and individuals in elementary occupations (such as bar staff and shelf stackers) reported the highest rate of sickness absence in 2017 at 2.8% and 2.6%, respectively.[190] This disparity may be explained by differences in pay scales and different levels of responsibility within the workplace.

The true costs of absenteeism is complex and is likely to vary from sector to sector and even person to person.[191] In some cases (e.g. senior managers), staff may simply make up for lost time on their return to work following a short absence. In other cases (e.g. front-line healthcare workers) the costs can be more than monetary.

The wider impact of sickness absence in the NHS in Wales is a particular concern. In Wales 78,000 people are directly employed by the NHS.[192] This is 5.5% of the workforce in Wales.[193] The reasons for sickness absence in the NHS in Wales in 2015 are shown in Figure 3.

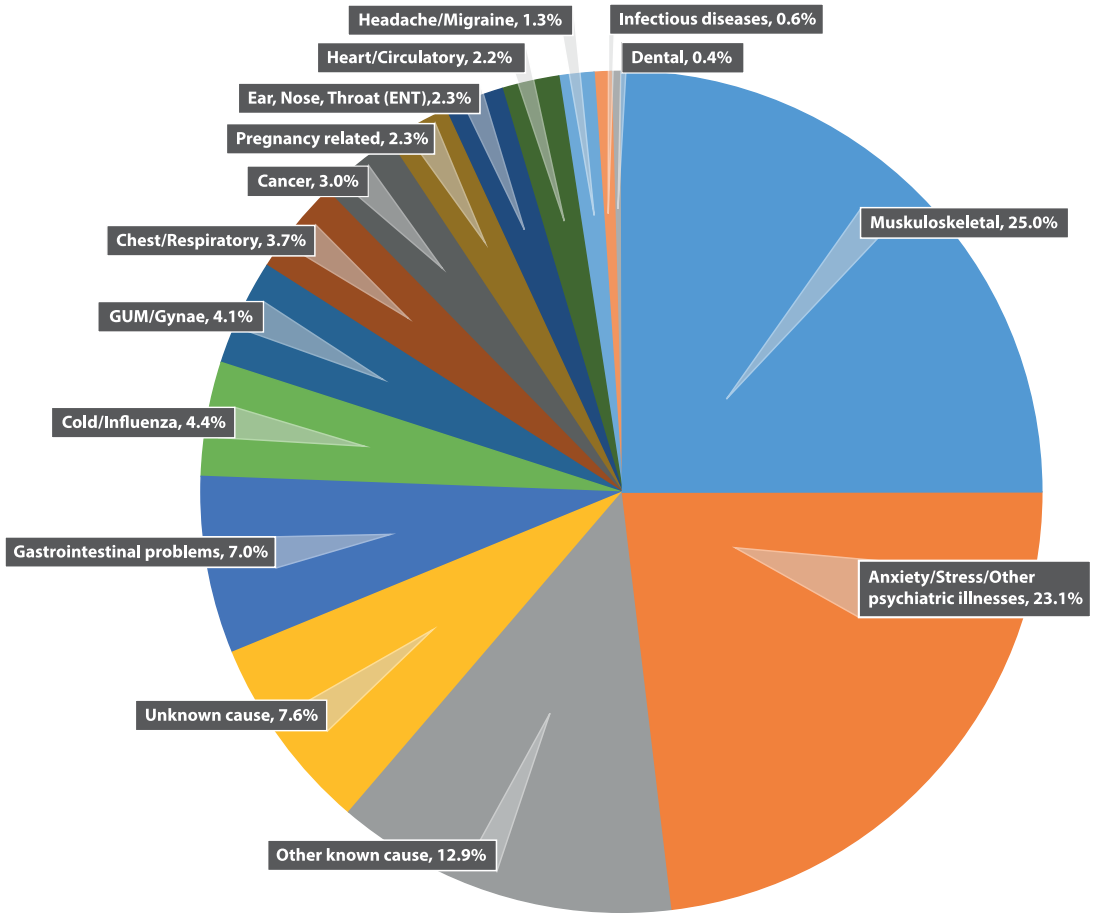


Figure 3: Reasons for sickness absence in NHS Wales 2013/2014[54]

[ix] *Number of days pro-rated for the UK 131.2 million days and adjusted to reflect the differences between the UK and Wales in rates of sickness absence (UK 1.9% and Wales 2.7%).[17]*

Calculated based on the conservative estimate median cost to employers of £570 per employee in Wales.[20]

Evidence from the Netherlands investigated the cost-effectiveness of the SHARP-at work intervention for common mental disorders (a problem solving intervention delivered by occupational physicians to prevent recurrent sickness absence).[194] While the SHARP-at work intervention was more effective this was at a significantly higher cost than care as usual.[194]

There is international evidence to show that sickness absence costs can be minimised through the application of a nurse based model to deliver short and long-term disability programmes. A nurse based model of disability prevention and management in the USA in a large corporation with approximately 10,000 employees resulted in savings of over £33million†† during a 3 year period.[195] A smaller study from Finland[23] regarding occupational health intervention for workers with high risk of sickness absence found that after one year, the mean sickness absence was 19 days in the intervention group as compared with 30 days in the usual care group. The authors noted that targeting selected employees at a high risk of sickness absence and work disability may be a better use of occupational health resources than a universal approach involving all employees.

Cost-effectiveness of programmes that reduce presenteeism

When employees develop a health condition it does not always lead to absence from work, but can lead to reduced performance in work. Working whilst sick is also called 'presenteeism' **[see glossary]**. Presenteeism can cause loss in productivity, exhaustion and also lead to workplace outbreaks e.g. flu. There is less known about the causes of presenteeism and effective and cost-effective ways of reducing it, than about absenteeism.

A study published in 2010 found that 89% of workers who attended work when they were unwell admitted that they were less productive.[196] It is estimated that for every £1 incurred due to absenteeism there is an additional £2 cost due to presenteeism.[21] The Centre for Mental Health in the UK[197] calculated that presenteeism from mental ill health alone costs the UK economy £17.5 billion† per year,[27] representing an estimated £827.8million†* in Wales. A systematic review of cost evaluation studies and economic evaluation studies found that the cost of presenteeism is rarely included as part of economic analyses of workplace interventions.[26]

An integral part of fostering co-production for health at work relies on individuals taking responsibility for their own health and wellbeing. This is alongside employers carrying out workplace health promotion activities including improving working environments and encouraging personal development; promoting the active participation of all stakeholders in the process.[87] Factors that are likely to hinder co-production at work include heavy alcohol consumption on work nights, not getting enough sleep and poor diets.[198]

Sleep deprivation and employment

In general, adults need between 6 to 9 hours of sleep to function well in day to day life.[199] On an annual basis, the UK loses 200,000 working days due to insufficient sleep, which corresponds to approximately 1.65 million working hours.[200] According to research conducted by the Sleep Council in 2013, people living in London have the best quality sleep in the UK with 29% of people reporting that they sleep very well most nights whereas people in Wales were found to have the lowest levels of good quality sleep, with only 19% of respondents saying that they sleep very well most nights.[201] Insufficient sleep can be caused by a variety of different individual-level and workplace factors such as smoking, body mass index (BMI) **[see glossary],** a lack of physical activity, stress and anxiety, unrealistic time pressures at work, working irregular hours and long commuting times. Findings from the RAND Europe research group suggest that people who experience unrealistic time pressures and stress in the workplace sleep on average 8 minutes less per day compared to colleagues reporting low levels of time pressure.[202] Although 8 minutes per day does not sound like much of a problem, this amounts to nearly an hour less sleep per week.

According to a 2016 cross-country comparative analysis exploring the economic costs of insufficient sleep,[202] the UK sustains an economic productivity loss of £40.2billion per year (1.86% of its Gross Domestic Product (GDP) **[see glossary]** due to insufficient sleep (£1.9billion* pro-rated to Wales). This is expected to rise to £47billion (£2.2billion* pro-rated to Wales) by 2030.

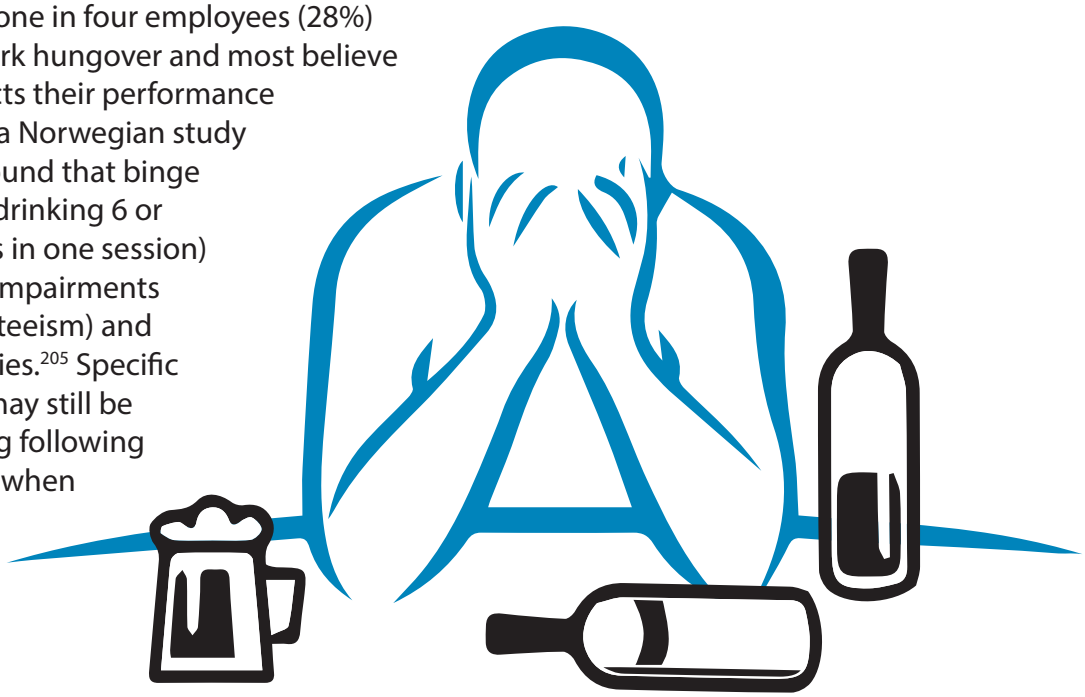
RAND Europe highlight a number of recommendations for individuals, employers and local authorities to improve sleep outcomes among the population. Firstly, recommendations for individuals include setting a consistent waking time, limiting the use of electronic devices before bedtime, abstaining from caffeine, alcohol and nicotine, and increasing physical activity. Secondly, it is recommended that employers recognise the importance of sleep and the employer's role in sleep promotion, discourage the extended use of electronic devices and provide facilities and services that improve sleep hygiene among employees such as arrangements to support the daily routines of their employees. Finally, RAND proposes that public authorities should support the provision of sleep-related help by health professionals.[202]

Alcohol misuse and employment

Behaviours that contribute to increased risk of adverse health and employment outcomes include smoking, drinking too much alcohol and misusing drugs. Alcohol can have a damaging effect on workplace productivity, safety, health and morale.[203] Alcohol misuse **[see glossary]** costs the employee, employer and workforce in terms of lost productivity time **[see glossary]**, cessation of employment, increased accidents in the workplace, greater absenteeism and presenteeism, and premature death.

The impact of alcohol misuse is conservatively estimated to cost society in Wales in excess of £1billon (with highest estimates reaching £2.55billion†*)[28], of this around £500million†* is lost from the Welsh economy each year due to productivity losses due to alcohol related absenteeism, presenteeism, unemployment and premature death.[27,29–31]

In the UK more than one in four employees (28%) admit to going to work hungover and most believe this negatively impacts their performance at work.[204] Results of a Norwegian study conducted in 2017 found that binge drinking (defined as drinking 6 or more alcoholic drinks in one session) was associated with impairments both at work (presenteeism) and impaired daily activities.[205] Specific cognitive functions may still be impaired the morning following binge drinking, even when there is little or no alcohol content present in the bloodstream.[206]

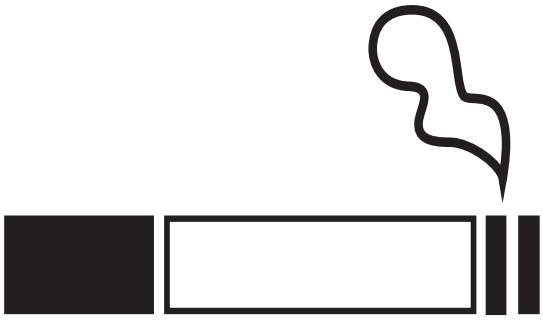


The use of alcohol increases the number of accidents and mistakes because of the reduction in concentration ability. In the USA in 2010 a screening and referral alcohol abuse programme with the workforce was modelled.[207] The Screening, Brief Intervention, and Referral to Treatment Programme (SBIRT) cost £693†† to adopt, but the benefit-cost ratio was found to be 4.4:1 (£896††/£204††), providing strong evidence that the SBIRT programme could be beneficial for employers in companies where there are workers with problem drinking profiles.

Public Health Wales has a unified substance misuse strategy called Working Together to Reduce Harm: The Substance Misuse Strategy for Wales 2008-2018.[208] The Health Improvement team in Public Health Wales are working to minimize the misuse of substances (alcohol, illegal drugs, prescription medication and new psychoactive substances) at a population level.[209] Despite many workplaces having clear policies in place regarding alcohol intoxication at work; few policies consider the next day effects of alcohol.

Smoking and employment

Studies have found that the average smoker takes 0.7 days more sick leave per year than their non-smoking colleagues.[32] This equates to an additional cost of £53† per year per employee to the employer. In addition to this, over a working week smoking breaks (in addition to standard rest breaks) cost businesses around £28† per smoker in lost time that otherwise could have been used productively. On average, smoking breaks cost £1,932† each year for a full-time employee and £476† for a typical part-time employee.[32] Shift workers are more likely than other workers to engage in riskier behaviour including smoking, misuse of drugs and alcohol, and do not engage as much in physical activity.[33]



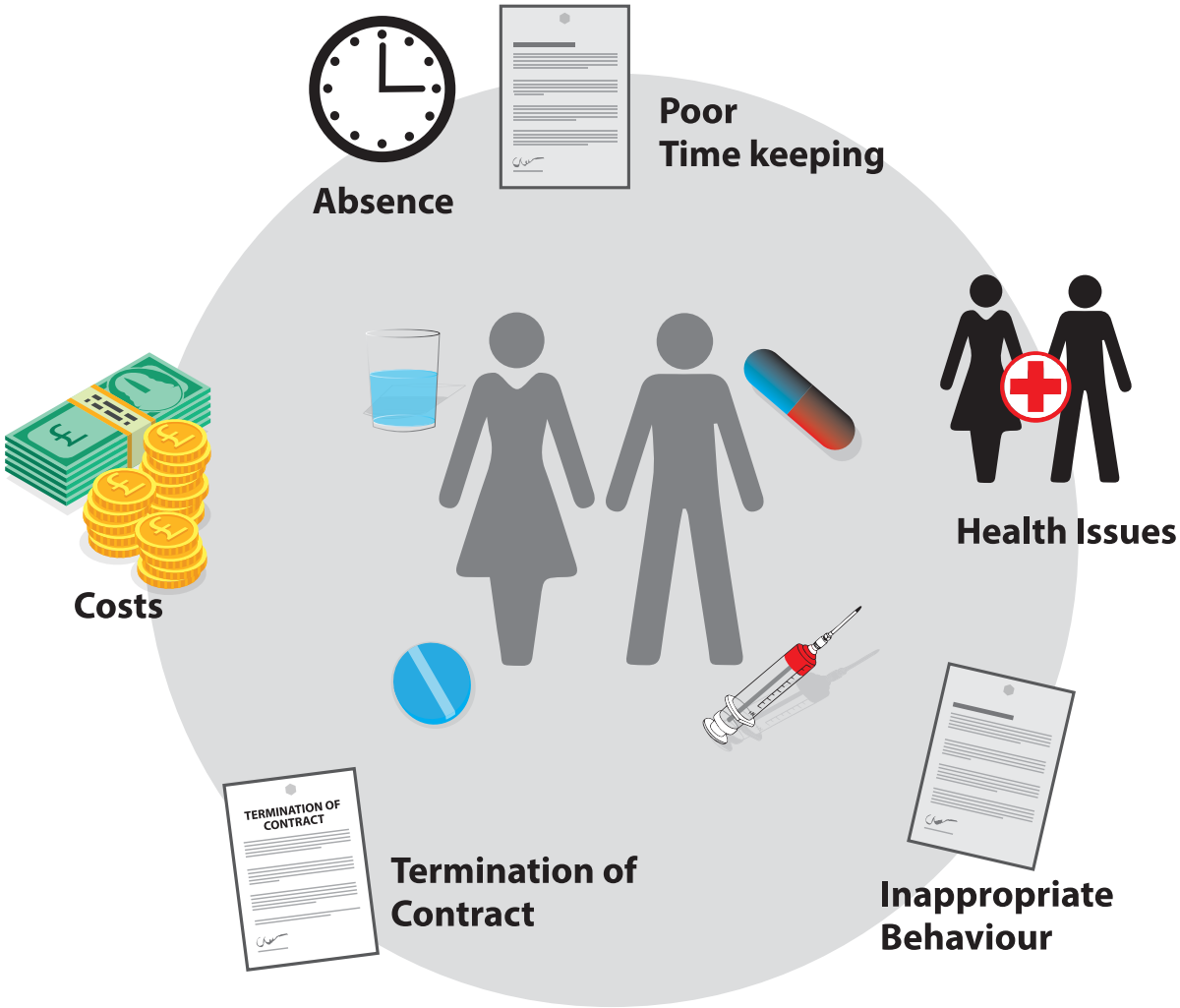
Smoking cessation **[see glossary]** programmes include individual counselling and nicotine replacement therapy or prescription only medications and these programmes are the most effective route to reducing the number of employees who smoke in comparison to no treatment or minimal intervention controls. There is some evidence that self-help materials alone are not as effective for smoking cessation as some prescription medication e.g. Varenicline.[210] According to NICE guidance[62] the most effective approach to smoking cessation is one that takes individuals into account (see https://www.nice.org.uk/guidance/ng92/chapter/Recommendations#employers) and includes multiple components such as group counselling, individual therapy, pharmaceutical intervention and incentives tailored to the workplace setting. NICE guidance PH92 notes that Employers should "Direct people who wish to stop smoking to local stop smoking support". A study conducted in the USA in 2007[211] found moderate evidence that workplace smoking cessation programmes can result in decreased absenteeism, increased productivity and net cost savings within 4 years. Total savings per smoker ranged from £331†† to £550†† at 10 years.[211] Workplace interventions regarding smoking were published by NICE in 2007 (see https://www.nice.org.uk/guidance/ph5/resources/smoking-workplace-interventions-pdf-55455836101).[212]

Illicit drug use and prescription drug abuse and employment

Both illicit drug use and prescription drug abuse are issues which effect productivity in the UK. In recent years, prescription drug abuse has become increasingly prevalent.[213] A study using survey data from 2008-2012 found that workers who reported misuse of prescription drugs (e.g. pain killers) were around 7% points more likely to report past-month absenteeism compared to workers who did not report prescription drug misuse.[213] There are many serious health risks to misuse of prescription drugs because they are not controlled or supervised by medical professionals, and continued usage can result in dependency with possible long-term damage to the body.[214] Prescription drug misuse can be caused by stress at work due to long working hours, frantic work pace, and poor management. A London based study found that NHS consultants who drink alcohol and take non-prescription drugs in response to job stress are at a greatly increased risk of psychiatric morbidity. [215] Employees should be made aware that the strategies they adopt to try to reduce the stress they experience through their work can influence their mental health both

positively and negatively. [215] Different ways of tackling workload stress should be addressed as employers have a duty of care to their employees. [216]

There are many issues surrounding illicit drug use and working, for example if an employee has been smoking cannabis or any other toxic substance during their non-working time, the drug may still be in his or her bloodstream and driving to work could be hazardous as well as being illegal (Road Traffic Act, 1988).[217] Time keeping may also be affected, and the use of illicit drugs can impair a person's performance at work through poor decision making and impaired reaction times causing lost productivity, inferior goods/services, errors and accidents.[218] Illicit drug use may also lead to other health issues, which could in turn lead to absenteeism. Inappropriate behaviour under the influence of illicit drugs may also lead to difficult relationships at work and have an effect on the overall morale of co-workers.[217]



Illicit drug use may be difficult to spot and employers may find it difficult to deal with even when it is identified. Drugs testing is not common-place in UK workforces, it is mainly used in the construction, transport and energy generation industries.[219] Drug testing can be costly and time-consuming and unions such as the TUC have noted that there is no real evidence that regular drug testing has any effect on production or safety.

The TUC (trade union in the UK) noted that the most effective way of ensuring that drugs are not a problem in the workplace is to have a comprehensive drugs and alcohol policy that seeks to support those that need help in a non-judgemental way.[219] However when the illicit drug use does interfere with safety at work, the use and possession of illicit drugs falls under several criminal laws[218]. Employers have a general duty under the Health and Safety at Work Act 1974 to ensure, as far as is reasonably practicable, the health, safety and welfare at work of their employees and others affected by their work activities.[218] Employers are breaking the law (Misuse of Drugs Act, 1971) if they knowingly allow drug- related activities in the workplace and fail to act.[217]

In the USA in 2007,[220] a peer-based workplace substance abuse prevention programme coupled with random testing was conducted. Programme staff and meeting expenses constituted the largest proportion of the estimated £1million†† cost of the PeerCare programme, but the programme avoided an estimated £2,176†† in employer injury costs per employee, with a benefit-cost ratio of 26:1. This provided strong evidence that peer-based workplace substance abuse prevention programmes coupled with random testing can be cost-effective in the workplace.[220]

Gambling and employment

Gambling is becoming more of a public health concern in Wales, since the Gambling Act of 2005[221] and technological advances making online gambling easier to do from home or work through the use of computers, laptops, tablets and mobile phones.[222] In 2016, around 55% of working age people spent money on some form of gambling in Wales. Gambling is associated with deprivation, unemployment and unstable employment with 'problem gambling' more than twice as prevalent amongst employees receiving low incomes.[223] Problem gambling can result in a range of serious work-related problems, with people missing work to gamble; difficulty concentrating at work due to a preoccupation with gambling and gambling debts; increased threatened and actual job losses as a result of gambling. The economic cost of gambling in Wales is difficult to accurately estimate however conservative calculations indicate that it could fall between £40million and £70million per year.[222] Of this the cost to Welsh Government of out of work benefit claims (Job seekers allowance) and lost tax revenue as a result of problem gambling can be conservatively estimated to be between £1.99million*† and £7.98million*†.[223] Additional work related output losses as a result of sickness absence, presenteeism and premature death (including suicide) linked to gambling would likely increase these costs substantially.[222] A need for public health response to gambling in Wales has been highlighted in recent reports, with a combination of universal primary prevention initiatives and more targeted approaches for more at risk communities in Wales.[224]

Cost-effectiveness of employer initiatives to reduce staff burnout

Burnout **[see glossary]** effects many employees in the UK and especially in the health care sector.[225] In primary care settings, stress is reported in over half of working-age adults, especially among women, and symptoms of burnout and exhaustion are common[226]. Burnout has been classified as a "state of vital exhaustion."[227] Burnout is a prolonged response to long-term emotional and interpersonal stressors on the job.[228] There is moderate evidence from the USA that reducing burnout is cost-effective with a potential saving to the long-term care industry equivalent to £1.55billion†† each year.[229]

A review of the evidence on burnout in the UK from Public Health England in 2016 reported that there was only moderate evidence that individually oriented interventions produce positive results

in relation to burnout and stress prevention in workplaces.[228] The return to work interventions that included a full economic evaluation aimed at depressed employees did not seem to be cost-beneficial.[228]

Employers that invest in workplace health and protecting against staff burnout, can expect to see improvements in employee performance and productivity.[230] There is also increased staff retention, improved engagement from employees and a reduction in absenteeism as a result of better working conditions.[21] A safe return to work after a sick leave programme can minimise personal costs to the employee and corporate costs to the employer.[195] Workplace health initiatives can include exercise or physical activity initiatives, healthy eating initiatives and weight loss initiatives.

Cost-effectiveness of employer initiatives to promote healthy eating and exercise in the workplace

Physical inactivity results in sickness absence costing the Welsh economy £314million per year.[270] NHS guidelines recommend that traditional working age (19 to 64 years) adults in the UK should be active daily and do at least 150 minutes of moderate aerobic activity such as brisk walking or cycling every week, and also do strength exercises on at least two days a week to work all the major muscles (hips, legs, back, abdomen, chest, arms and shoulders).[231]

A high BMI (Body Mass Index), sub-optimal muscle fitness and poor aerobic stamina are associated with increased sickness absence from work.[232] Poor muscle fitness and low stamina as well as high BMI may cause additional costs for the employer due to productivity loss.[232] Many studies on a variety of worker groups including computer and office workers, industrial technicians, cleaning personnel, health care workers, dentists, construction workers, and fighter/helicopter pilots have shown that those workers who partake in physical activity are generally more productive in the workplace than those who do not partake in physical exercise.[233] Productivity has been shown to increase with lower body mass index and improved muscle strength.[233] Estimate of costs for employers have been shown to be acceptable relative to savings on lost productivity and health expenses.[233]

Some employers provide time within the working week for employees to exercise,[232] and some authors argue that there is a recognised need to develop workplace interventions that are designed to support behaviour change maintenance and encourage physical activity.[234] Promoting physical activity in workplaces can increase physical activity participation at a cost of £4.11 per person.[270] Gaps in the current evidence-base are to be filled by researchers in the UK[234] with a cluster randomised controlled trial (RCT) of a complex intervention incorporating financial incentives[235] to encourage physical activity (including walking as well as use of a gym) and maintained behaviour change.[236]

Physical activity interventions include organising gym discounts for staff, organising walking and step challenges, and providing physical fitness assessment, sponsoring workplace sports/leisure teams, providing shower and changing areas alongside space for parking bicycles, providing flexible working hours to enable exercise.[21] In 2012 in the USA, a study was conducted to investigate a workplace wellness study for older nurses which included a Tai Chi experimental group as an innovative approach to improve health and reduce stress in older nurses.[237] They found moderate evidence that those in the control group had more paid time off than those in the Tai Chi experimental group, resulting in a group cost saving of nearly £650[††] for those in the Tai Chi group. This provided moderate evidence that a Tai Chi type of exercise may be beneficial for older nurses as it may reduce compromised emotional health and subsequent job dissatisfaction, absenteeism and burnout.[237]

There are a range of health promotion activities which can be utilised to encourage healthy eating.[238] These include regular information about healthy eating, providing nutritional information

on food options, providing healthy options in vending machines and during company events, providing health coaching and providing advice on preparing healthy meals and eating whilst travelling on work-related business. In a review of worksite health promotion interventions on employee diets, it was found that worksite health promotion programmes are associated with moderate improvement in dietary intake.[239]

Weight loss and employee health

Weight loss incentives include conducting periodic weigh-ins and body mass index (BMI) calculations for willing staff and subsidising membership to approved weight loss programmes.[238] A research team investigating a worksite obesity prevention and intervention trial in Hawaii found strong evidence for modest savings in the second year to a Work, Weight and Wellness (3W) weight loss programme delivered through Hawaii hotel worksites.[240] The cost of the 3W intervention over 24 months was £97,000††, however despite clinical benefits, especially among the overweight and obese workers in terms of reduced BMI and waist/height ratio, absenteeism levels did not reduce. The authors suggested that future research should focus on identifying approaches to deal directly with higher-risk sub-groups, for which the economic return to employers may be more compelling.[240]

Cost-effectiveness of interventions to improve productivity in workers with rheumatoid arthritis

Arthritis is a common cause of disability and the most frequently reported chronic condition affecting all age groups across Wales.[241] Although no Welsh economic intervention studies exist, there are a couple of recent studies from the Netherlands that found mixed results concerning rheumatoid arthritis interventions in the workplace.

In 2017, a study conducted in the Netherlands explored the economic benefit of a programme aimed at improving work productivity for workers with rheumatoid arthritis with no severe comorbidities.[242] The authors found that the average costs after twelve months follow up was £6,520†† for the intervention group and £5,048†† for the care as usual group.[242] This provided strong evidence that there was no cost saving to using an integrated workplace intervention programme for workers with rheumatoid arthritis, as the programme did not show any gains in productivity in the workplace or in quality of life. In conclusion, the intervention was not promising and additional costs of continuing the programme were not justified.[242]

4. Worklessness and returning to work

Cost-effectiveness of supporting people with musculoskeletal disorders to return to the workplace

An economic evaluation of a participatory return to work intervention for temporary agency and unemployed workers sick-listed due to musculoskeletal disorders in the Netherlands, indicated that although the programme was more effective and had potential to achieve a sustainable contribution of vulnerable workers to the labour force, it was also more costly than usual care.[243] The total health care cost in the return to work programme per group was nearly £9,000[††] and significantly higher compared to the care as usual group, which was nearly £7,000[††]. However, the net return of the participatory return to work programme compared to care as usual was just over £1,817[††] per worker.

Cost-effectiveness of supporting people with severe mental health disorders in the workplace

Severe mental health disorders such as schizophrenia and mood disorders are disabling mental health conditions, which makes it hard for those who have these conditions to attain and retain employment. The employment rate for people with severe mental health illness is significantly lower than both the general population and people living with a disability, including those with common mental health conditions.[244] In 2014, a study investigated the integration of employment support within mental health services in four locations around the UK.[244] This study found that local commissioners could save £1,490[†] for every person they helped into a job. There is a positive return on investment to the Treasury as for every £1.04[†] spent there is a return to the Treasury of £1.11[†]. The authors presented some evidence that employment initiatives should ensure that more people with severe mental illness can secure and maintain suitable employment.[244]

Various studies from the USA[245–247] have suggested that low level treatment of depression may be a cost-effective way to improve depression-related outcomes in the US workforce. Also, in Canada, in 2009 a study was conducted to investigate the cost-effectiveness of collaborative mental health programmes of disability management based on Canadian data.[248] The Independent Medical Examination (IME) held a cost for the employers, however results suggest that with Collaborative Mental Health Care Programmes, for every 100 people on short-term disability leave for psychiatric disorders, there could be £34,312[††] in savings related to disability benefits. There could also be more people returning to work, less people transitioning to long-term disability leave, and a gain of 11,600 more productive workdays. This provided moderate evidence that Collaborative Mental Health Care Programmes within the workplace could have an important impact on mental health-related disability leave.[248]

In the USA an economic evaluation was conducted to investigate the potential cost savings of job accommodations (such as performance expectations) among individuals with psychiatric disability.[249] In the USA, employers must provide job accommodations as long as the modifications do not produce "undue hardship". They found that a monthly Supplementary Security Income saving equivalent to £9.70[††] could be made due to job accommodations. This study provided strong evidence that job accommodations for those with a psychiatric disability could save money to the Social Security Administration in the USA.[249]

Recently, a Dutch study conducted in 2017[250] investigating a participatory supportive return to work (RTW) **[see glossary]** programme for workers without an employment contract, sick-listed due to a common mental disorder. They found that a QALY **[see glossary]** lost was associated with a societal cost of £107,198[††]. Cost utility analysis found that the intervention was less effective and more costly than no intervention. As there was a loss of 278% per pound invested, there was strong evidence to suggest that the return to work programme was not cost-effective and could not be supported for economic reasons.[250]

A spotlight on working after prison: Economic benefits of getting ex-offenders into work in Wales

In the UK, approximately half of ex-prisoners reoffend within 12 months of release from prison and reoffending costs the taxpayer approximately £20.6 billion[†] per year.[251] Employment has been found to reduce the risk of reoffending by between 33% and 50%;[252] however, only 26.5% of prisoners enter employment on release.[251] In an analysis assessing the impact of employment on reoffending in England and Wales, ex-offenders in P45 employment within one year following their release from prison were significantly less likely to re-offend than those offenders who were not in P45 employment.[253] Ex-offenders in P45 employment who had received prison sentences of less than one year had a proven reoffending rate of 9.4 percentage points lower than the matched comparison group who were not in P45 employment.[253]

England and Wales have the highest imprisonment rate in the UK per head of population,[254] and the average annual cost of holding one prisoner for the year in Wales is £36,639[†].[254,255] The Wellbeing of Future Generations Act[3] has a goal of Wales having an economy which generates wealth and provides employment opportunities, allowing people to take advantage of the wealth generated through securing decent work.

Between 2005 and 2006, training programmes provided by the Prince's Trust in the UK helped approximately 2300 ex-offenders move into employment, education or training.[256] The Prince's Trust's 12-week personal development programme costs £4,292[†] per individual. Following completion of this programme, 71% of unemployed participants were found to have entered work or full time education or training.

The Building Opportunities, Skills and Success (BOSS) project funded by the Big Lottery Fund[257] provides employment training to ex-offenders and prisoners in Wales. Results from a single case study in Wales demonstrated that a BOSS project intervention at a cost of £367.32 yielded a savings of £66,806 per ex-offender (£61,137 avoided cost to the judicial system and £6,032 avoided housing and social care costs) and a benefit-cost ratio of 182.87[258]

Case study of an innovative example of an arts and culture intervention to support women who have offended enter employment:

"Clean Break Clean Break is a theatre company for women who have offended or are at risk of offending. Its activities include commissioning new writing, putting on theatre productions, running an education programme and campaigning on behalf of women prisoners and ex-offenders. Our analysis focuses on its education programme, which aims to provide women with the skills, qualifications and confidence to lead crime-free lives. We estimate that for every £1 invested in the programme, £4.57 of value is created for society over one year. A large proportion of this comes from savings to the criminal justice system through reduced reoffending rather than from the benefit of employment and qualifications to the women involved."

Source: Johnson, Keen and Pritchard (2011)[269]

A spotlight on working after military service: Economic benefits of getting ex-armed forces veterans back into civilian work in Wales

In order to promote the health and wellbeing of veterans and their families, good quality work is needed. In 2014, there were 320,000 ex-armed forces veterans living in England, Scotland and Wales (the veterans question was not asked in Northern Ireland due to political reasons)[259] and 50% of these were aged 75 or older. In Wales, 153,000 ex-armed forces make up 6% of the population of the country.[259]

Charitable programmes are in place to assist ex-veterans to gain other employment following retirement from the forces, for example, 'Ex-forces programme'.[260] The Future Horizon's Programme has been trialled as a service for British army early service leavers as a service which offers a range of training and job opportunities.[261] It was found that after 6 months 64% of early service leavers were in employment or training after joining the Future Horizon's programme.[261] In addition, the Individual Placement and Support (IPS) initiative provides employment support to ex-service personnel experiencing mental illness, substance misuse or spinal cord injury. In 2009, a cost-benefit analysis was conducted to assess the projected costs and benefits for the IPS initiative, the results found that the cost of getting an ex-armed forces veteran into work was £4,846†.[262] Ex-armed forces veterans can also access the central government employment service, Jobcentre Plus.[263]

5. Discussion

Work can improve the wellbeing of individuals, their families and their communities from economic and quality of life standpoints.[70] Work provides an important source of income and routine for people, and it is known that low pay and irregular hours can have a detrimental impact on health.[264,265] The type or quality of job and job working conditions matter for health.[266] Insecure or monotonous and repetitive work, and lack of work autonomy, can contribute to poorer health, lower job satisfaction and poor performance at work.[267]

This wellness in work report has focussed on the economic arguments relevant to 1) keeping healthy through working age years, 2) valuing employees, opportunities for good quality employment and reducing absenteeism and presenteeism due to ill health, and 3) worklessness and returning to work.

Due to an aging population in Wales, people are working later in life and combining work and caring responsibilities. Although the unemployment rate is currently quite low, there are other reasons for reduced productivity such as absenteeism and presenteeism affecting GDP in Wales.

A rapid review of worldwide literature has shown that there are employer initiatives that can be cost-effective in terms of reducing the amount of productivity days lost due to sickness or disability, mainly relating to management of musculoskeletal conditions and common mental health problems.

Our rapid review of the existing evidence suggests that initiatives to promote wellness in work and mitigate risk factors such as mental health problems, health-harming lifestyle choices, addiction, and stress can improve health and result in substantial savings over short-term and long-term horizons to the NHS, Welsh Government and employers in Wales. It is important to evaluate interventions in terms of health outcomes and economic outcomes in order to improve the productivity of the workforce.

Staff wellbeing is an important factor in workplace productivity. Common mental health problems such as anxiety, depression and unmanageable stress affect one in six employees in Wales each year. Unemployment is linked to a range of negative outcomes including a 20-25% increased risk of death in the decade following job loss (e.g. due to the increased risk of heart disease, stroke and suicide), increased financial hardship, and increased mental health problems.[44,270"]

Across the UK, Wales has the highest rate of sickness absence at 2.7% which is 0.8% higher than the UK average of 1.9%. Dealing with preventable health issues, unhealthy behaviours, and reducing the risk of injuries may decrease premature mortality and keep many working people at work for longer.

With respect to common ailments such as flu, vaccinating the workforce against flu has been shown to be cost-effective for health and social care workers, but evidence of cost-effectiveness across the general workforce is less convincing. This is because the ripple effects are less than in a health care setting and immunising an employee is mainly only beneficial to immediate family and not others within the community.

Universal and inclusive primary prevention initiatives such as health promotion activities and organisation wide culture change can have a high positive return on investment and empower staff to thrive at work. Flexible working policies available to all staff can help people with caring responsibilities to re-join or maintain employment. Organisational and national policies that support women to enter employment could have a substantial impact on the Welsh economy. Initiatives that help improve work life balance can also be cost saving to employers.

Targeted secondary and tertiary prevention is needed within workplaces to support staff that are at risk of struggling, or who are struggling with poor health, in order to reduce sickness absence and facilitate returning to and maintaining employment. Managers in particular have a huge role to play in creating a work environment where people can thrive. Creating shared purpose, open communication a culture of dignity and respect and feeling valued should be placed aside health interventions.

For every person that moves out of unemployment into sustainable work, the local economy benefits on average by over £10,000 annually in Wales and £24,000 could be generated in benefits for society each year. Young people who are NEET are a particularly vulnerable group and government funded projects to support over 16's have been launched in Wales to try to support young people into work.

Maintaining employees with the right skill sets is good for business and for the economy; government policy and local practices that support women, carers and older people to stay (and progress) in work or return to work after time away for caring responsibilities can generate substantial financial benefits. Employing more women in the right roles and tackling discrimination and sexism in the workforce is critical for individual wellbeing and the Welsh economy.

Building skill levels, getting people into work, and retaining skills by keeping people well in work saves the Welsh government and the Welsh NHS millions of pounds per year, and work active people tend to be happier and healthier people.

This report has focussed on the economic case for promoting wellness in work, specifically across Wales based on research from other countries and data from Wales. The wellness in work rapid review we conducted highlighted work from the US, Canada, Netherlands and UK. However, due to the composition of Welsh businesses and enterprises, the transferability of findings is a concern particularly from very large employers to medium to small employers and there is a need to consider the situation of self-employed people living and working across Wales. Big business can rely on economies of scale to implement wellness interventions in the workplace to achieve broad savings and this may not be reproducible in many small to medium sized businesses in Wales. Whatever the size of employer or organisation, the principles of early intervention and close monitoring of absent staff are worth consideration despite initial costs, as a return on investment has been demonstrated.

This report aligns with the Welsh Government's Wellbeing of Future Generations Act, and their Prosperity for All national strategy as well as the UK Wellness Workforce plan. Through the Wellbeing of Future Generations Act, Wales is seeking a more equal, prosperous, resilient, healthier and globally responsive Wales. Employment opportunities across the life course are an important part of this; therefore, employers in Wales should provide opportunities for people living with short-term disability and long-term disability to join and stay in the workforce and there should be more opportunities for under-represented sectors, such as women and people living with autism spectrum disorders to increase GDP in Wales.

Keeping unemployment down, retaining and building skills, and reducing absenteeism and presenteeism should be high on the Welsh government agenda to keep Wales a prosperous nation. In Wales, there should be more synergy between the NHS, Welsh Government and employers in Wales to maximise the effectiveness of health interventions and more recognition of the complex issues underlying absenteeism and presenteeism, and ultimately productivity.

PowerPoint slides to support the dissemination of the report findings can be found on the CHEME website http://cheme.bangor.ac.uk/

Glossary

Absenteeism – The time and employee spends away from the workplace. Absences can be scheduled (e.g. annual leave) or unscheduled (e.g. due to injury or illness).

Alcohol misuse – Alcohol consumption that puts individuals at increased risk for adverse health and social consequences.

Body Mass Index (BMI) – A number calculated from a person's weight and height, a high BMI score can lead to health problems.

Burnout – Defined by the International Statistical Classification of Diseases and Related Health Problems as a "state of vital exhaustion".[227]

Cognitive Behavioural Therapy (CBT) – A type of psychotherapy in which negative patterns of thought about self and the world are challenged in order to alter unwanted behavioural patterns or treat disorders such as depression.

Gender pay gap – The average difference between pay levels for men and women who are working.

Gross Domestic Product (GDP) – The Gross Domestic Product measures the value of economic activity within a country. GDP is the sum of the market values, or prices, of all final goods and services produced in an economy during a period of time.

Gross Value Added (GVA) – GVA measures the contribution to the economy of each individual producer, industry or sector in the UK. It is used in the estimation of gross domestic product (GDP).

Horizontal segregation – The fact that there are more men than women doing one type of job and more women than men doing another type of job.

Intervention – A generic term used in public health to describe a policy or programme designed to have an impact on a health problem.

In-work poverty – Low pay is a trigger for in-work poverty, which it is more likely to occur when only one adult in the household is working in paid employment.

Lost Productivity Time (LPT) – Absence and reduced performance of the workforce resulting in reduced profits or benefits for the employers.

No Guaranteed Hours Contracts (NGHCs) – A type of work contract where there is no guarantee of any hours of work per week (also known as zero hours contracts in the UK).

Opportunity cost – The value of benefits foregone by not using resources in their next best alternative use

Presenteeism – The measureable extent to which health symptoms, conditions and diseases adversely affect the work productivity of individuals who choose to remain at work.

Primary prevention – aims to prevent disease or injury before it ever occurs.

Pro-rate – To divide, distribute, or assess proportionately.

Productivity – A measure of worker output impacted by the worker's health status.

Quality Adjusted Life Year (QALY) – This is defined as a year of life adjusted for its quality of life. Patients may gain added years of life from a treatment or intervention. This time is adjusted by the quality of life during that period.

Return on Investment (ROI) – This is the net economic return for each pound invested in a public health intervention. It is expressed as either a percentage, or it can be stated that each £1 invested will generate e.g. £7.10 in economic returns. The £7.10 does not include the original £1 invested.

Return to work (RTW) – Returning to employment after a period of absence from work.

Secondary prevention – trying to detect a disease early and prevent it from getting worse

Small and medium-sized enterprises (SME) – enterprises with fewer than 250 employees.

Smoking cessation – Stopping or quitting using tobacco. Methods include counselling or medications to stop tobacco use.

Social capital – The social glue that helps people, organisations and communities to work together towards shared goals.

Social Return on Investment (SROI) – This approach considers the triple bottom line of social, economic and environmental returns. It is calculated as the present value of benefits in financial terms divided by the total inputs into the project. It is expressed as either a ratio e.g. 1:7.10 or it can be stated that each £1 invested will generate e.g. £7.10 in social value.

Tertiary Prevention – trying to improve your quality of life and reduce the symptoms of a disease you already have.

Unexplained portion of the pay gap – Some of the pay gap between men and women can be attributed to known factors such as age, education and the type of jobs men and women tend to do, but there is a large portion of the pay gap which remains unexplained.

Upper limb disorders – Upper limb disorders (ULDs) affect the arms, from fingers to shoulder, and neck. They are often called repetitive strain injuries (RSI), cumulative trauma disorder or occupational overuse syndrome.

Vertical segregation – The situation where people do not get jobs above a particular rank in organizations because of their race, age, or sex: Career progression of women and men in the higher education sector confirms a pattern of vertical segregation. Women often reach a 'glass ceiling' in careers due to vertical segregation.

Workplace health programmes – A set of strategies which include programmes, policies, benefits, environmental supports and links to the surrounding community designed to meet the health and safety needs of all employees.

Work-related musculoskeletal disorders – Injuries or disorders of the muscles, nerves, tendons, joints, cartilage, and spinal discs that work environments can make worse.

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About the Centre for Health Economics and Medicines Evaluation (CHEME)

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Founded in 2001, CHEME are now one of the leading health economics centres in the UK. CHEME contributed to Bangor University's highest ranked unit of assessment in the 2014 Research Excellence Framework, with 95% of outputs being world leading and internationally excellent. Research outputs were rated 3rd out of 94 institutions across the UK. At CHEME, we aim to promote and sustain high-quality research, maximise opportunities for research grant capture and publications in high impact journals.

The Centre is active across a range of health economic and medicines evaluation research activities spanning public health economics and the health economics of psychosocial interventions and other non-pharmacological health technologies, led by Professor Rhiannon Tudor Edwards, and Pharmacoeconomics, pharmaceutical policy and medicines use, led by Professor Dyfrig Hughes.

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Living well for longer: The economic argument for investing in the health and wellbeing of older people in Wales

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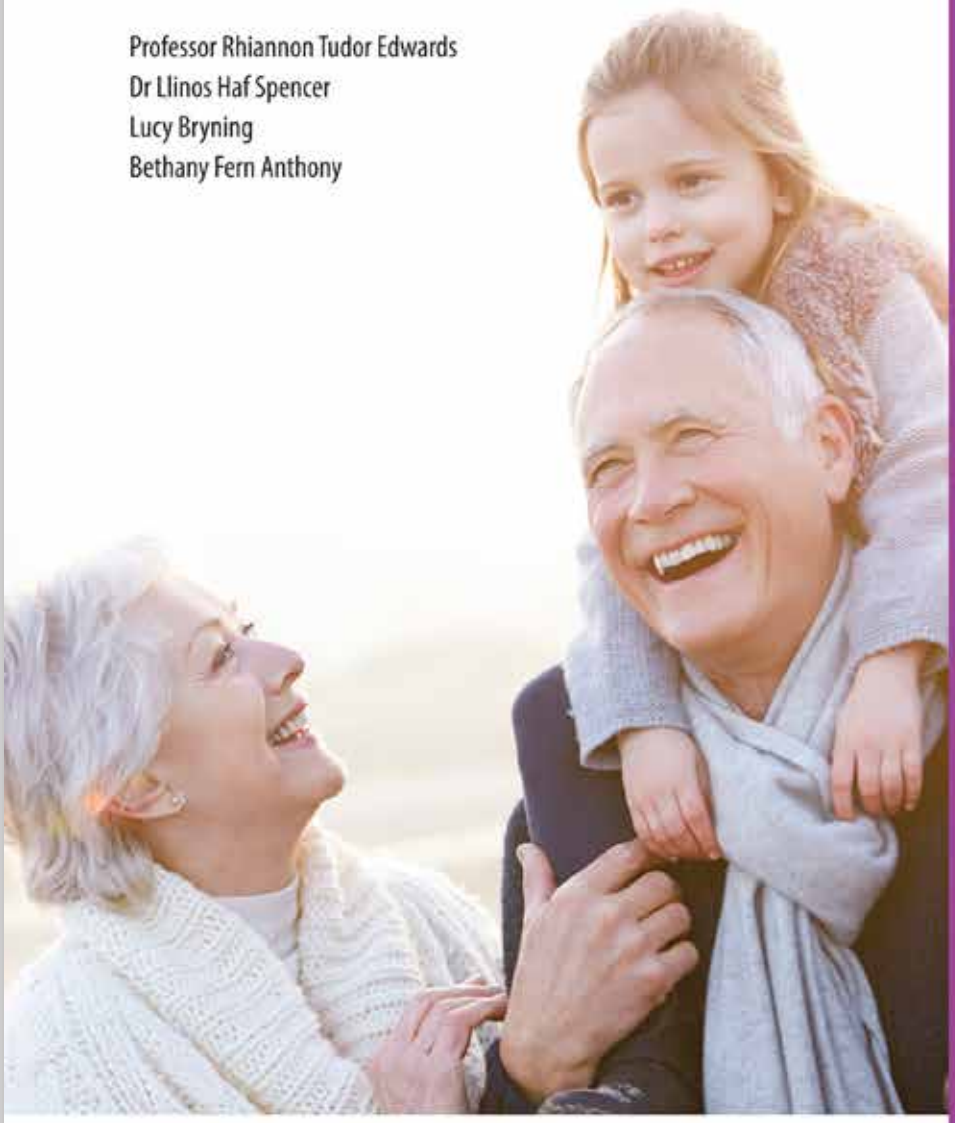

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