**Autoimmune Diseases in Scotland: Prevalence, Incidence, and Regional Trends**

**Multiple Sclerosis (MS) in Scotland**

Multiple sclerosis is notably prevalent in Scotland, which has one of the highest MS rates worldwide. **Prevalence:** Recent studies confirm that the Orkney Islands have the highest recorded prevalence of MS globally – approximately 402 per 100,000 people – far above the mainland Scottish rate . In Orkney, about 1 in 250 people live with MS, whereas Shetland has the next highest prevalence at ~295 per 100,000 . By comparison, mainland Scotland’s MS prevalence is around 145 per 100,000 , though this mainland figure is an older estimate and varied by region (recent local surveys suggest higher mainland rates in some areas, approaching 200–300 per 100,000 in the north). For example, the NHS Highlands region reported an MS prevalence of roughly 300 per 100,000 in 2016 , comparable to earlier figures from Shetland (305 per 100,000 in 2009) and somewhat lower than Orkney (421 per 100,000 in 2009) . The Western Isles (Outer Hebrides) also have a high MS burden, with an estimated prevalence around 1 in 307 residents in recent years (approximately 326 per 100,000). These statistics underline a clear northward increase in MS prevalence within Scotland, with island and far-northern populations most affected.

**Incidence and Trends:** Scotland’s MS incidence is high by international standards and shows regional variation. Nationally, the annual incidence was about **8.6 new cases per 100,000** population (in 2016) . However, the incidence in Orkney was the highest in Scotland at **18.6 per 100,000** per year, while the Scottish Borders region had the lowest at **6.1 per 100,000** . This indicates a nearly threefold difference in risk between these areas. Generally, northern regions experience greater MS incidence; for instance, NHS Highland’s area had an incidence of ~14.4 per 100,000 in 2016, exceeding the national average . Over past decades, MS incidence in Scotland has increased modestly or at least earlier diagnosis has improved, contributing to rising prevalence. A historical comparison shows MS prevalence has multiplied over the last half-century. In the Highlands, the 2016 prevalence was about three times higher than in the 1960s , reflecting both better survival and possibly true incidence increases. Notably, the extreme prevalence in Orkney and Shetland is not fully explained by latitude alone – Orkney (at a lower latitude than Shetland) has higher MS rates than would be expected. Research has explored potential causes such as vitamin D levels and genetic factors. Vitamin D deficiency, often considered a risk factor for MS, does not appear to explain Orkney’s excess (Orcadians actually had slightly higher vitamin D levels on average than mainland Scots in one study) . Likewise, increased genetic homogeneity (inbreeding) was examined and ruled out as a primary cause . A specific genetic variant (HLA-DRB1\*15:01) was found somewhat more frequently in Orkney and Shetland than on the mainland, accounting for a small portion of the excess cases , but the majority of Orkney’s MS burden remains unexplained. In summary, Scotland’s MS rates are highest in the northern isles and certain northern mainland localities, creating a pronounced geographic gradient. The combination of environmental factors (e.g. low winter sunlight at high latitude) and genetic susceptibility is likely at play, and ongoing research continues to investigate why Orkney and Shetland have such exceptional MS levels.

**Type 1 Diabetes in Scotland**

Scotland has a high prevalence and incidence of type 1 diabetes (T1D), placing it among the top countries globally for this autoimmune condition. **Prevalence:** As of 2023, there were over 36,000 people living with type 1 diabetes in Scotland (out of ~5.5 million residents), representing roughly **0.6–0.7% of the population** . This prevalence has increased from about 0.5% in the mid-2000s to over 0.6% by 2019 , reflecting both ongoing new cases and improved survival. The Scottish Diabetes Survey shows a steady rise in the number of people with T1D. Notably, type 1 accounts for around 10% of all diabetes cases in Scotland (with type 2 being the majority); however, because type 2 diabetes is strongly age-related, type 1 is particularly common in youth and younger adults. In pediatric and adolescent groups, type 1 diabetes is by far the dominant form of diabetes.

**Incidence:** The incidence of type 1 diabetes in Scotland is among the highest in the world. Overall incidence in recent years has hovered around **20–24 new cases per 100,000 population per year** nationally . For context, this national rate is comparable to other high-incidence countries like Finland. In fact, when focusing on children under 15 (where T1D incidence is often compared internationally), Scotland ranks extremely high: an analysis of 2008–2013 data showed Scotland had the **second-highest incidence in the world for under-15 T1D**, at about **39.9 per 100,000 per year** (age-standardized), **second only to Finland** (≈60.9 per 100,000) . This confirms that Scottish youth experience type 1 diabetes at rates well above most other countries (for example, higher than other UK nations and behind only a few high-incidence regions such as Finland and historically Sardinia).

Within Scotland, there are some regional variations in incidence, though all health board areas have significant rates of T1D. Smaller or more rural Health Boards have occasionally recorded especially high annual incidence, possibly due to clustering or demographic factors. For instance, in **Dumfries and Galloway**, the T1D incidence was about **32 per 100,000** in 2023 – one of the highest that year – whereas in the **Borders** region it was around **16 per 100,000** (one of the lower rates) . Most large boards (Greater Glasgow & Clyde, Lothian, etc.) typically report incidence in the 18–23 per 100,000 range . These differences can fluctuate year to year; for example, NHS Forth Valley and NHS Highland saw incidence around 28–31 per 100,000 in some recent years, higher than the national average . It is not definitively clear if these regional differences are persistent trends or random variation given smaller population sizes. There is no well-established north-south gradient for type 1 diabetes within Scotland akin to MS, but some hypothesize that environmental factors (such as viral exposures or vitamin D levels) and genetic background could contribute to micro-geographical variation. Another aspect is socioeconomic: studies in other countries have shown mixed results regarding type 1 diabetes and deprivation, and in Scotland any socioeconomic effect is not strongly pronounced for incidence (though access to care might differ).

**Trends:** Over time, Scotland’s type 1 diabetes incidence appears to have plateaued or risen slightly. Data from 2006–2019 suggest a relatively stable incidence in the 20s per 100,000, with perhaps a modest increase in youth onset and a trend of more diagnoses shifting to older age groups as well . The prevalence of T1D is increasing, from ~0.52% of the population in 2006 to ~0.61% in 2019 (and as noted ~0.65% by 2023), reflecting accumulation of cases. Thanks to advances in management (insulin therapy, glucose monitoring), people with type 1 diabetes are living longer, which also raises prevalence. In summary, Scotland experiences a very high burden of type 1 diabetes, with incidence rates that are at the forefront globally. Regionally, all areas are affected, with some rural southern and central regions documenting the highest recent rates, whereas no Scottish region is truly low-incidence by world standards. Public health efforts continue to monitor these trends, and Scotland maintains a national diabetes register and care framework to support the large population of individuals with type 1 diabetes.

**Rheumatoid Arthritis in Scotland**

Rheumatoid arthritis (RA) is a common autoimmune inflammatory arthritis, and Scotland’s prevalence is similar to other UK populations (though some localized differences have been observed). **Prevalence:** Roughly **0.8% of the UK population** is affected by RA , and Scotland falls in this range as well. This equates to on the order of 40,000 people in Scotland living with RA (exact estimates vary; historically 0.5–0.9% prevalence has been cited for Scotland) . RA predominantly affects adults, especially in middle age and beyond, and is more common in women (about 2–3 times the male prevalence) . With Scotland’s population aging, the number of people with RA is expected to grow in coming years . Indeed, improved treatments have allowed many RA patients to lead longer lives, thereby increasing the prevalence pool over time.

**Incidence:** The incidence of RA is relatively low in young adults and increases with age (peaking in the 60s). UK studies report annual incidence around 30–50 per 100,000 (0.03–0.05%) in middle-aged populations . There is limited recent Scotland-specific incidence data published; however, it is likely on par with these UK figures. One UK primary care–based study applying 2010 classification criteria found an incidence ~40 per 100,000 (54/100k in women, 25/100k in men) . Applying such rates to Scotland suggests a few thousand new RA cases each year across the country. Notably, during 2020 there was a dip in new diagnoses (around a 40% drop in inflammatory arthritis incidence, including RA) likely due to the COVID-19 pandemic’s impact on health services . Apart from such anomalies, RA incidence has been relatively stable, with some suggestion of slight declines in recent decades in high-income countries, possibly due to fewer people smoking (smoking is a known RA risk factor).

**Geographic Patterns:** Unlike MS or type 1 diabetes, rheumatoid arthritis does not show a stark latitude-driven gradient. However, regional differences within Scotland have been documented. A classic epidemiological study in the early 1990s surveyed four areas of the Scottish Highlands and found an **unexplained threefold difference** between the highest and lowest RA prevalence regions . In that study, an east-coast Highland locality had the highest RA prevalence – about **14.5 per 1,000 women** (1.45%) – while a west-coast area had only **5.2 per 1,000 women** (0.52%) . Even after clinical review to confirm diagnoses, a substantial gap remained (confirmed RA ranged from ~3.4 to 5.0 per 1,000 overall in those areas) . This suggests genuine geographic variability in RA occurrence, possibly related to genetic predisposition or environmental differences (though no definitive cause was identified at the time). The east coastal area (with higher RA) might have had different lifestyle factors or genetic stock compared to the west. Additionally, some evidence hints that RA prevalence could be slightly higher in more deprived populations – Scotland’s west Central Belt has higher deprivation on average, which might counteract other factors and contribute to RA cases. However, the relationship between socioeconomic status and RA is complex; higher smoking rates in deprived areas could increase RA risk, while other factors might decrease likelihood of diagnosis or survival.

On a broad level, there is no single Scottish region that stands out as having *extreme* RA prevalence the way Orkney does for MS. Rather, RA is found fairly ubiquitously across Scotland. Small-area modeling by Versus Arthritis (applying UK prevalence models to local demographics) suggests that areas with older age structures will have higher RA prevalence. For instance, rural regions or islands with many elderly residents could see >1% of adults with RA, whereas cities with younger populations might be a bit lower. Healthcare utilization data in 2019 indicated around 3,800 people actively receiving RA treatment in Scotland’s rheumatology clinics at that time (which underestimates true prevalence since many are managed in primary care). In summary, rheumatoid arthritis affects roughly 1 in 100 adults in Scotland, with some intra-country variation. Historically, parts of the north/east Highlands showed higher rates than the west. The overall prevalence is trending upward as the population ages, underscoring the need for rheumatology services across all Scottish health boards.

**Systemic Lupus Erythematosus (SLE) in Scotland**

Systemic lupus erythematosus is relatively rare but is an important autoimmune disease to consider. Scotland does not have uniquely high lupus rates compared to other places; rather, its burden of SLE is in line with general UK patterns, though possibly on the lower side due to demographic factors. **Prevalence:** UK-wide, SLE is estimated to affect nearly **1 in 1,000 people** (0.1%) . A 2012 analysis found lupus prevalence in the UK around that level, and more recent data show it has risen further. By 2020, the UK point prevalence of SLE reached approximately **107 per 100,000** (0.107%) . This was a fivefold increase from 1990 (when it was around 21 per 100,000) , reflecting greater survival and possibly improved detection of milder cases over 30 years. In Scotland, applying the UK prevalence suggests on the order of 5,000 people may have lupus (with the number gradually increasing). There is a pronounced sex bias: about 90% of SLE patients are female. The disease often strikes women in their 20s–40s, though it can occur at any age.

**Incidence and Trends:** The annual incidence of lupus in the UK is low – on the order of **5 new cases per 100,000 per year** . Interestingly, incidence nation-wide has **slightly declined** over recent decades (especially in women) . This could be due to changes in diagnostic criteria or possibly a real decrease in new severe SLE cases. In parallel, **prevalence has increased** substantially (as noted, now five times higher than 30 years ago) . The combination of stable-or-lower incidence and rising prevalence implies that people with lupus are living longer and accumulating in the population, thanks to better management (e.g. immunosuppressants, steroid-sparing treatments, cardiovascular risk management).

**Geographic and Demographic Factors:** A key factor in lupus epidemiology is ethnicity. SLE is observed at higher rates in people of African-Caribbean, Asian, or Hispanic ancestry compared to those of European (white) ancestry . Given that Scotland’s population is predominantly white of European descent, one might expect **slightly lower lupus prevalence in Scotland** relative to more ethnically diverse regions like England’s major cities. For example, London and other urban centers with larger Black and South Asian communities tend to see more lupus cases (and indeed, UK studies have found higher SLE prevalence in such populations). Scotland, being less ethnically diverse, likely has fewer lupus cases proportionally. That said, within Scotland, the *distribution* of lupus will reflect where the population is largest and where minority communities reside. Thus, the NHS board areas of **Greater Glasgow & Clyde** and **Lothian** (Edinburgh) – which have the highest population and more diverse demographics – likely contain the majority of SLE patients in absolute terms. Smaller health boards, especially rural ones, may see very few new lupus cases per year. No specific Scottish region is known to have an abnormal lupus cluster; instead, lupus cases are scattered and primarily managed at tertiary rheumatology/lupus centers in the cities.

Overall, **Scotland’s SLE trend** mirrors global observations: prevalence is rising (as patients live longer and diagnosis improves) while incidence is not increasing. Healthcare planning must account for the growing cohort of lupus patients needing long-term follow-up, even though the disease remains rare. In summary, about 0.1% or slightly less of Scots are living with lupus, and any regional differences largely come down to population makeup – areas with more women and more people of high-risk ethnic backgrounds will have higher SLE rates, but detailed regional lupus statistics within Scotland are limited.

**Inflammatory Bowel Disease (IBD) in Scotland**

Scotland is recognized as a high-prevalence region for inflammatory bowel disease, which includes **Crohn’s disease (CD)** and **ulcerative colitis (UC)**. Indeed, recent research has highlighted Scotland (and particularly the Lothian/Edinburgh area) as a global hotspot for IBD. **Prevalence:** As of the late 2010s, approximately **0.8% – 1.0% of Scotland’s population** lives with IBD. A 2018 study in NHS Lothian found a point prevalence of roughly **1 in 125 people (0.8%)** with IBD , and by 2023 estimates suggest the prevalence has climbed to nearly **1 in 100 in Scotland** . In absolute terms, over **50,000 people in Scotland** are now thought to have Crohn’s or ulcerative colitis . This prevalence is among the highest in the world. For example, Edinburgh has about 784 per 100,000 with IBD as of 2018 , and was reported as “one of the highest known rates in the world” . Breaking it down, Edinburgh’s prevalence for Crohn’s disease was 284 per 100,000 and for ulcerative colitis 432 per 100,000 in 2019 . These rates rank near the top globally (Edinburgh’s UC prevalence is second only to southeast Norway, and its Crohn’s prevalence is close to the world maximum observed in Hesse, Germany) . Researchers project that by 2028, IBD prevalence in Edinburgh and similarly high regions will reach ~1 in 98 people (≈1.0%) . Importantly, what’s observed in Lothian appears to **reflect a national trend** – “these findings broadly apply to the rest of Scotland” – meaning all of Scotland has a high IBD burden, not just the capital.

**Incidence:** Historically, Scotland (and the UK) had high but stable IBD incidence. In recent decades, adult IBD incidence has been roughly **20–25 per 100,000 per year** for Crohn’s and a bit higher for ulcerative colitis , though exact numbers vary by study. Notably, pediatric IBD incidence in Scotland rose sharply around the 2000s, with Scotland reported as having one of the fastest increases in childhood IBD. Current incidence in Scottish children is among the world’s highest for pediatric-onset Crohn’s disease (some local data suggest pediatric IBD incidence ~10 per 100,000). Overall combined IBD incidence in the UK has been cited around 70 per 100,000 when both conditions and all ages are included, but focusing on Scotland, a “static or only slowly rising” incidence has been reported in the last decade . For example, the Lothian study found that IBD incidence had not dramatically increased in the 2010s compared to earlier – suggesting the big story is more about *accumulating prevalence* rather than surging incidence . This aligns with global trends: Western countries had rising IBD incidence through the late 20th century which has plateaued at a high level, while prevalence keeps rising as patients live longer with chronic disease.

**Geographic Patterns within Scotland:** Interestingly, recent UK research revealed that **Scotland has the highest IBD prevalence among UK nations** . One study noted prevalence of Crohn’s and colitis was *lowest in London* and *highest in Scotland*, speculating that London’s younger, more ethnically diverse population and possibly under-diagnosis in deprived groups contributed to lower detected prevalence there . In contrast, Scotland’s population is older on average and predominantly white, which correlates with higher IBD prevalence (IBD is known to be more common in Caucasian populations and in higher-income regions). Within Scotland, granular regional differences are not as clearly delineated as for MS, but there are some patterns:

* **Urban vs Rural:** IBD is found everywhere in Scotland, but urban centers have the largest absolute number of cases (simply due to population). Rural areas, however, often have older populations which could yield higher prevalence proportions. No strong urban-rural incidence divide is noted in literature, but healthcare access might influence diagnosis rates.
* **Deprivation:** Counterintuitively, IBD prevalence appears *lower in more socioeconomically deprived areas* . Researchers suspect this may reflect barriers to diagnosis (people in deprived areas may be underdiagnosed) rather than true lower occurrence, although diet and lifestyle differences could also play a role. In Scotland, this might mean affluent areas or those with engaged healthcare access show more recorded IBD. For instance, parts of **Aberdeenshire or East Lothian** (more affluent, with high healthcare uptake) might register many IBD patients, whereas some deprived parts of Glasgow might have patients who are undiagnosed or present late. Nonetheless, severe IBD eventually comes to medical attention due to its symptoms.
* **Regional Highlights:** NHS Lothian (which includes Edinburgh) has been heavily studied and clearly has very high rates. There’s some evidence that **Edinburgh/Scottish Borders and northeast Scotland** have historically high Crohn’s disease rates (studies from past decades noted these areas among high-incidence regions). The 2019 Edinburgh findings imply that **Scotland’s east coast** might slightly edge the west in IBD prevalence, in part because the east has more UC (mirroring patterns seen in Scandinavia, where coastal and more northern areas had high IBD). Meanwhile, the west of Scotland (e.g. Glasgow area) also has a substantial IBD population – Crohn’s & Colitis UK estimated roughly 10,000+ people in Greater Glasgow & Clyde have IBD given its population size, comparable in prevalence to the east once adjusted for age and ethnicity.
* **Notable Statistics:** As of 2022, about **1 in 123 people UK-wide have IBD**, but in Scotland it’s nearly **1 in 100** . This makes Scotland arguably a hotspot at a national level. Government health campaigns in Scotland (such as the one launched in 2023) specifically aim to raise awareness of IBD symptoms, acknowledging that “Scotland has the highest rates of gut inflammatory conditions in the UK” .

**Implications and Trends:** The fact that prevalence may approach 1% has serious implications for NHS Scotland. IBD often requires lifelong specialist care – including gastroenterologists, IBD nurse specialists, dieticians, and colorectal surgeons. It’s noted that up to 80% of Crohn’s patients and 15% of UC patients will need intestinal surgery at some point . The growing patient population is straining services, with calls for increased investment in IBD care . In terms of trends, Scotland is likely at the forefront of the so-called “global IBD pandemic” – Western nations have high burdens, and emerging countries are catching up. Scottish researchers like those at the University of Edinburgh and Glasgow are actively studying IBD’s rise. Overall, every health board in Scotland must contend with significant IBD caseloads, but areas like Lothian, Grampian, and Greater Glasgow (which have large tertiary hospitals) will see the largest share of patients. The geographic differences are present but not extreme: virtually all Scottish communities have some residents with Crohn’s or colitis, yet subtle patterns (east coast high prevalence, possibly pockets of lower diagnosis in poorer areas) exist.

**Autoimmune Thyroid Diseases in Scotland**

Autoimmune thyroid disease – primarily Hashimoto’s thyroiditis (leading to hypothyroidism) and Graves’ disease (causing hyperthyroidism) – is one of the most prevalent autoimmune conditions in Scotland, as it is worldwide. **Prevalence:** Autoimmune thyroid disorders are common, especially in women and older adults. Estimates suggest between **2% and 5% of the general population** may have some form of autoimmune thyroid disease . In iodine-sufficient regions like Scotland, Hashimoto’s thyroiditis is the leading cause of an underactive thyroid, and Graves’ disease is a major cause of overactive thyroid. If we consider hypothyroidism overall: roughly 3-4% of people in the UK have hypothyroidism (most of those are due to autoimmune thyroiditis) . For Scotland, this would translate to tens of thousands of individuals (likely over 150,000) with autoimmune-related thyroid dysfunction. However, many cases are mild or subclinical. One global review found Hashimoto’s thyroiditis prevalence around 5–10%, but with wide variation – some high-risk areas had >20%, whereas others had <0.5%. Scotland would fall somewhere in between, probably closer to the lower single-digit percentages in terms of significant disease, given no known environmental thyroid disruptors and a historically adequate iodine status through diet.

Looking at treated thyroid disease as a proxy: NHS data indicate a substantial portion of the population is on levothyroxine (thyroid hormone replacement) for hypothyroidism, much of which is due to Hashimoto’s. For example, early post-mortem studies in the UK found **chronic autoimmune thyroiditis in 27% of adult women** – highlighting that subclinical disease is very frequent with age. In practice, not all of these become clinical, but by age 60+, a notable percentage of women in Scotland have positive thyroid antibodies or require thyroid hormone. Graves’ hyperthyroidism is less common than Hashimoto’s hypothyroidism, but still has a lifetime prevalence around 1-2% in women (and about 0.2% in men).

**Incidence:** Autoimmune hypothyroidism (Hashimoto’s) incidence has been reported in ranges from ~**30 to 100 per 100,000 per year** in various studies (rates vary widely due to different diagnostic criteria – some sources say ~0.3 to 1.5 per 1,000 yearly for autoimmune thyroiditis ). Graves’ disease incidence is a bit lower, perhaps around 20–30 per 100,000 per year. Combining them, autoimmune thyroid disease might newly affect on the order of 0.05–0.1% of Scots each year. These conditions are strongly sex-skewed (female to male ratio ~5:1). The peak onset for Hashimoto’s is middle-age and for Graves’ is slightly younger adulthood. There is also a genetic predisposition (family clustering) and an association with other autoimmune diseases (for instance, type 1 diabetics and people with coeliac disease have higher risk of autoimmune thyroid issues).

**Geographical Distribution:** There are no dramatic geographic disparities in autoimmune thyroid disease across Scotland reported in literature – these conditions are widespread and tend to track with population density and age distribution. Some possible influences: areas with historically low iodine intake can have more goiter and possibly more autoimmune thyroiditis once iodine is introduced (the “iodine supplementation triggering Hashimoto’s” phenomenon). In Scotland, the iodine status historically was borderline in some inland areas but generally not severe deficiency. Coastal populations consuming seafood may get more iodine. If anything, slight geographic differences might have existed historically in goiter prevalence (Highland areas had goiter (“Derbyshire neck”) in the past), but nowadays iodine deficiency is rare and thyroid autoimmunity is a more dominant cause of thyroid disease. We do not see a “north-south” gradient as with MS, nor an urban-rural split; autoimmune thyroid disease appears fairly evenly distributed. That said, since it correlates with age and sex, regions with many older women will have the highest burden. For example, a retirement-heavy region (say, Dumfries & Galloway or Argyll) could have more hypothyroidism patients per capita than a young city like Glasgow.

Another factor is healthcare access and screening: some areas might diagnose subclinical thyroid disease more frequently if primary care is proactive with blood tests. Scotland’s universal healthcare means most people, even in remote areas, get thyroid function tests when symptomatic, so regional differences in diagnosis should be minimal. There is no known cluster of Graves’ disease or Hashimoto’s in Scotland – the prevalence is high everywhere. In summary, autoimmune thyroid diseases likely affect a few percent of Scots, particularly women over 40, with no strong geographic pattern except reflecting where older populations reside. They remain the most prevalent organ-specific autoimmune disorders in Scotland, but often less visibly clustered compared to diseases like MS or type 1 diabetes.

**Coeliac Disease in Scotland**

Coeliac disease (gluten-sensitive enteropathy) is an autoimmune condition triggered by dietary gluten, leading to intestinal damage. It is **common in the Scottish population**, though historically underdiagnosed. **Prevalence:** Coeliac disease affects about **1 in 100 people** in the UK , and Scotland aligns with this figure. That means roughly 1% of Scots (over 50,000 individuals) have coeliac disease, but only a fraction are aware of it. In Scotland, as in the rest of the UK, diagnosis rates have improved over time but still only an estimated **30–36% of those with coeliac disease are formally diagnosed** . NHS Inform Scotland notes that only about one-third of affected individuals have been diagnosed, meaning the true prevalence is three times the known case count . If 1% is accurate, many thousands of Scots remain undiagnosed.

Coeliac disease can be diagnosed at any age, but many patients present in childhood or mid-adulthood. There has been a rise in diagnoses in recent years due to better awareness and screening, including case-finding in people with anemia, irritable bowel-like symptoms, or associated autoimmune conditions. The Scottish government even provides gluten-free food prescribing for diagnosed coeliacs; a review of that service noted prevalence “up to 1 in 100” and historically only 10–15% diagnosed in earlier years . Now, with ~36% diagnosed, Scotland has made progress but still has a gap.

**Geographic patterns:** Coeliac disease appears to have a fairly uniform prevalence across Scotland’s regions, as it is strongly tied to genetic susceptibility (HLA-DQ2/DQ8) which is broadly distributed in populations of European descent. There might be minor variations: for instance, areas with more people of Irish or Scandinavian ancestry (both have high coeliac rates) could have slightly higher prevalence. Scotland’s population is relatively homogeneous in this regard, so major regional differences are not well documented. However, diagnosis rates could vary by health board depending on medical practice. For example, some NHS boards might be more proactive in testing for coeliac disease (using serology like anti-TTG tests) in primary care. If one health board had a concerted awareness campaign, it might temporarily have higher diagnosed prevalence.

Anecdotally, certain remote areas could have a high genetic load of coeliac predisposition (e.g., some clusters of coeliac disease have been observed in the Highland region historically). But solid data by region in Scotland are scarce. The Coeliac UK charity does not list specific Scottish hotspots; instead, it emphasizes that across the UK many people remain undiagnosed. It’s reasonable to assume the central belt (with the largest population) has the highest absolute number of coeliac patients. But per capita, it could be that a region like **Highland or Grampian**, with a largely Caucasian population and good awareness, might show as many or more diagnosed per 100,000 as the national average. No evidence suggests any region of Scotland has *lower* genetic risk; the differences in diagnosis rates likely stem from healthcare engagement.

**Trends:** The incidence of diagnosed coeliac disease has been rising as more testing is done. People are now often tested for coeliac disease if they have even mild symptoms or associated conditions. This is a positive trend, as undiagnosed coeliac disease carries long-term risks (nutrient deficiencies, osteoporosis, etc.). Scotland’s healthcare provides support for gluten-free diets once diagnosed, which also incentivizes case-finding. It is conceivable that in another decade, diagnosed prevalence could approach the true 1% prevalence if current trends continue (i.e., perhaps 0.8–1.0% diagnosed, up from ~0.3% now).

In summary, coeliac disease in Scotland is common (around 1% of people) but underdiagnosis remains an issue. Every region has coeliacs – there is no dramatic geographic clustering reported, aside from the general observation that it’s a disease primarily of those with European heritage (hence uniformly relevant across Scotland). Public Health initiatives continue to encourage recognition of coeliac symptoms (chronic GI issues, anemia, etc.) so that Scotland’s many undiagnosed individuals can receive treatment (gluten-free diet) and avoid complications.

**Psoriasis in Scotland**

Psoriasis is a chronic immune-mediated skin disease (often considered autoimmune-related) that is **highly prevalent in Scotland**, with a notable north-south gradient observed in the UK. **Prevalence:** Approximately **2–3% of Scotland’s population** has psoriasis. A comprehensive UK study from 1999–2013 found that psoriasis prevalence increased from 2.3% to 2.8% of the population over that period . Scotland in particular was shown to have a higher prevalence than England: the **mean psoriasis prevalence in Scotland was about 3060 per 100,000 (≈3.06%)**, compared to 2323 per 100,000 (2.3%) in England . In other words, nearly 1 in 33 Scots have psoriasis, versus roughly 1 in 43 in England. The higher prevalence in Scotland is partly attributable to a **latitude effect** – research demonstrated that psoriasis prevalence and incidence both rise with increasing latitude within the UK . Specifically, investigators quantified about a **6.5 additional new cases per 100,000 per year for each degree further north** in latitude . This translates to significantly more psoriasis in northern Scotland than in the south of England, likely due to environmental factors such as reduced sunlight (UV exposure and vitamin D levels are thought to influence psoriasis) . Indeed, globally, psoriasis is more common in temperate and northern climates than in equatorial regions , and Scotland exemplifies this pattern.

For context, an epidemiological analysis put **Scotland’s mean annual psoriasis incidence at 174 per 100,000** and point prevalence at 3060 per 100,000 , as noted. By contrast, the UK as a whole in 2013 had a prevalence of ~2.8% , so Scotland was above average. This suggests that well over **150,000 people in Scotland** may have psoriasis. Health records confirm this large burden; for instance, many are managed in primary care with topical treatments, and secondary care clinics see moderate-to-severe cases for phototherapy or systemic medications.

**Incidence and Trends:** The incidence of psoriasis in Scotland is high but may have slightly declined in recent years. UK data from CPRD (Clinical Practice Research Datalink) showed **incidence decreasing from 159 per 100,000 in 1999 to ~129 per 100,000 in 2013**. The reasons for this decline are not entirely clear – it could be changes in coding or less frequent new diagnoses after a certain age – but it did not translate into lower prevalence. On the contrary, because psoriasis patients live a long time with the disease (psoriasis itself is not usually fatal, though it’s associated with some comorbidities), the prevalence has grown. People are “living longer with psoriasis” due to declining mortality and accumulation of cases . It was also noted that all-cause mortality is slightly higher in psoriasis patients than in the general population, but that gap hasn’t widened or narrowed significantly .

**Geographic Variation within Scotland:** While the UK-wide analysis clearly showed Scotland vs England differences, it did not detail within-Scotland regional differences. It is plausible that even within Scotland, more northern areas (Highlands, Islands) could have somewhat higher psoriasis rates than southern areas (Borders). The latitude difference across Scotland itself is not huge (from ~55°N in the Borders to ~60°N in Shetland), but it could be enough to matter (potentially ~5×6.5 = ~32.5 additional cases per 100k incidence from south to north by the earlier calculation). Also, genetics might play a role – the Scottish population may have a higher prevalence of certain HLA types associated with psoriasis compared to Southern English. As for concrete data, if we had health board–level prevalence: one might expect NHS Highland or NHS Grampian to have slightly higher per-capita psoriasis than NHS Lothian or Borders. However, all areas of Scotland see substantial psoriasis cases. Urban areas like Glasgow and Edinburgh will have the most patients in absolute terms. Historically, hospital surveys in Scotland have found that psoriasis accounts for around 2–3% of dermatology consultations consistently across regions.

Lifestyle and comorbid factors also can vary by region and influence psoriasis. For instance, higher rates of obesity and smoking (both risk factors for more severe psoriasis) in some west of Scotland populations could exacerbate psoriasis burdens there. Conversely, sun exposure is somewhat better on the east coast (drier, sunnier climate) than the west – could that slightly ameliorate psoriasis in the east? Possibly, but likely a minor effect given Scotland’s overall limited UV. On balance, the known scientific finding is that **northern Scotland likely has at least as high, if not higher, psoriasis prevalence than the south**.

In summary, psoriasis affects roughly 1 in 30 Scots, with incidence and prevalence that increase with latitude. Scotland’s rates are among the highest in Europe. Every Scottish health board must manage many psoriasis patients, and treatment ranges from creams and phototherapy in local dermatology units to advanced biologic drugs for severe cases. The disease often has an early adult onset (20s-30s for type I psoriasis, or later onset in 50s for type II), meaning it contributes to chronic illness burden across a wide age range. The regional pattern is one where climate and genetic predisposition confer a slight northward increase, making Scotland in general a high-prevalence region for this autoimmune skin condition.

**Conclusion: Geographic Differences Across Scotland**

Scotland exhibits notable geographic variation in the prevalence and incidence of autoimmune diseases, reflecting a mix of genetic, environmental, and demographic influences. Below is a summary of key regional trends for the conditions covered:

* **Multiple Sclerosis:** A pronounced north-to-south gradient exists. The far north – especially Orkney and Shetland – has *exceptionally high MS prevalence* (400+ per 100k) , among the highest in the world. The Western Isles and northern mainland (Highlands, Grampian) also have very high rates (300+ per 100k) . In contrast, southern Scotland (e.g. Borders) has significantly lower incidence (~6 per 100k vs 18+ in Orkney) . This suggests environmental factors like latitude (UV exposure) and/or unique local genetics elevate MS risk in the north. The “MS Belt” of Scotland includes the Northern Isles and parts of the northeast mainland, whereas the Central Belt and southern counties see lower (though still considerable) MS prevalence.
* **Type 1 Diabetes:** Scotland uniformly has high T1D incidence, but some *regional differences* are observed. Certain smaller Health Boards such as **Dumfries & Galloway** and **Forth Valley** have recently reported higher-than-average incidence (30+ per 100k in some years) , whereas **Borders** and parts of **Lanarkshire** were at the lower end (~15–17 per 100k) . Overall, no clear north-south gradient is evident; for example, Highland had a spike one year, but generally many regions cluster around the 20 per 100k mark. One possible pattern is that the southwest (Dumfries & Galloway) and certain central areas had elevated incidence in the early 2020s data. Also notable: Scotland’s T1D incidence in children is extremely high uniformly – every region contributes to Scotland being #2 globally for pediatric T1D . So, while minor regional variances exist year to year, *type 1 diabetes is a widespread phenomenon across all of Scotland*, and all health boards face the challenge of managing it.
* **Rheumatoid Arthritis:** RA is found throughout Scotland without extreme clusters. However, historical data pointed to *east-west differences in the Highlands*, with higher RA prevalence in an eastern coastal region (possibly around Moray or Easter Ross) compared to a western region (perhaps Wester Ross or Skye) . That threefold difference remains unexplained but suggests localized environmental or genetic factors can influence RA rates. Otherwise, RA prevalence tends to be slightly higher in communities with older populations. Therefore, councils like **Argyll & Bute, Dumfries & Galloway, or Perth & Kinross** (which have higher median ages) might have more RA per capita than very urban young areas like Glasgow. Socioeconomic factors could also play a role: the west Central Belt has high smoking rates (a risk factor for RA), so one might expect somewhat higher RA incidence there – yet it also has slightly lower life expectancy, which could reduce prevalence of long-term conditions like RA. In summary, RA shows *some* regional variability but not a stark pattern; it underscores the need for rheumatology services in both rural Highland areas and urban centers alike.
* **Systemic Lupus Erythematosus:** SLE cases in Scotland are relatively few and concentrated in larger population centers. One regional aspect is ethnicity: cities such as **Glasgow** and **Edinburgh** have more residents of Afro-Caribbean or South Asian origin (who are at higher risk of lupus) , so these areas likely see more lupus patients (and have specialized lupus clinics). In rural or island regions, lupus is rarer simply due to population and demographic makeup. There is no north-south gradient known for lupus; if anything, the distribution might mirror healthcare access – patients in remote areas will travel to tertiary hospitals for lupus care, making it appear as if the cases are “located” in the central hospitals. Overall, *Scotland’s lupus prevalence is highest in the densely populated central belt and lower in sparsely populated Highlands/Islands*, but after adjusting for population, the disease frequency per capita does not vary dramatically except by ethnic composition.
* **Inflammatory Bowel Disease:** IBD appears to be high across all of Scotland, but some data hint at an east > west pattern. Edinburgh (East) emerged as a global hotspot for IBD , which likely means the Lothian region has among the highest rates. Other east coast areas (Aberdeen/Grampian, Tayside) could similarly have very high prevalence. The west (Glasgow/Clyde) also has a large IBD burden, though UK-wide data indicated lower prevalence in more ethnically diverse, urban poor areas – which might include parts of Glasgow . Thus, *within Scotland, the highest IBD prevalence might be in well-resourced, predominantly white regions (Edinburgh, Northeast)*, while urban west Scotland might have slightly lower detected prevalence (possibly due to underdiagnosis or younger demographics). Still, the differences are relative – even the “lower” prevalence areas in Scotland have IBD rates that would be considered high elsewhere. No Scottish region is spared: from the Borders to the Highlands, clinics report growing IBD caseloads. One interesting note: a study in the 1990s found Crohn’s disease incidence was notably high in Northeast Scotland, including Grampian, which aligns with the pattern that the **northeast coast** might be an IBD hot zone.
* **Autoimmune Thyroid Disease:** Hashimoto’s and Graves’ diseases are ubiquitous, and no distinct geographic pattern has been recorded in Scotland. One might see marginally higher hypothyroid prevalence in pockets of the Highlands due to historical mild iodine deficiency and subsequent autoimmunity, but this is speculative. Generally, every council area will have many individuals with thyroid autoimmunity. For instance, Greater Glasgow (with ~1.2 million people) could have on the order of 20–30,000 people with autoimmune thyroiditis, and smaller areas like Orkney (pop ~22k) might have a few hundred. Proportionally, differences would be driven by age/sex: regions with more middle-aged and older women (e.g. **Angus or South Ayrshire**) will show more hypothyroidism cases per capita. Meanwhile, places with younger populations (e.g. university towns like **St Andrews in Fife**) might have fewer at a given time. But these variations are subtle. In short, *autoimmune thyroid diseases are evenly distributed*, requiring primary care and endocrine services everywhere in Scotland.
* **Coeliac Disease:** Like thyroid disease, coeliac prevalence is relatively even, tied largely to genetic prevalence of HLA-DQ2/DQ8. Since the Scottish population doesn’t vary drastically in genetic ancestry region-to-region, coeliac rates are likely similar in say, the Highlands versus the Lowlands. Perhaps some variation in diagnosis exists: anecdotal evidence might show more diagnosed coeliacs in the *east and north*, where awareness and healthcare access might be strong, whereas parts of the *west Central Belt* could have underdiagnosis due to socioeconomic factors. But with national campaigns and primary care testing, even those gaps are closing. We can say *no region in Scotland is known to have unusually high or low coeliac disease* – it’s a uniformly relevant condition. Every health board from NHS Shetland to NHS Dumfries & Galloway will have to provide support (e.g. gluten-free food prescriptions) to coeliac patients.
* **Psoriasis:** There is evidence of a north-south gradient across Britain, meaning *northern Scotland likely has the highest psoriasis rates in the UK*. Within Scotland, that suggests the **Highlands and Islands** could have a slightly greater prevalence than the southern counties. All major Scottish regions, however, report psoriasis prevalence in the few percent range. We might extrapolate that Shetland and Orkney, being far north, have very high incidence – but those areas are small population, so absolute case numbers are low (which might make it hard to discern the pattern without large studies). The Central Belt, with most of Scotland’s people, naturally sees the largest number of psoriasis patients and thus houses specialist dermatology centers that manage severe cases statewide. Summarily, *psoriasis is common everywhere in Scotland, but the influence of latitude means the disease is, if anything, even more common in the north* – a trend consistent with the need for robust dermatology services from Inverness up to Kirkwall.