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## Care pathways for autism spectrum disorder (ASD) in south Italy Campania region: From infant diagnosis to 'after us' program

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### Abstract

**Introduction:** Autism Spectrum Disorder (ASD) requires multidimensional and continuous care throughout the life span. The Campania Region has implemented specific pathways for diagnosis, treatment, and social support for people with ASD.

**Methods:** Narrative review based on the analysis of major international scientific sources, national and Regional regulations, company resolutions, and operational ASL documentation, as well as the 2024 Campania Region Autism Service Charter.

**Results:** Campania adopted a highly complex PDTA (DGR 131/2021), introduced intervention flexibility (DGR 42/2024), activated inclusive and residential pathways for adults (DGR 744/2022, DD 395/2023), and adopted the "Dopo di Noi" law (DGR 241/2022). ABA is integrated into some regional protocols (ASL Caserta - Resolution 1360/2024). The list of accredited centres is updated in the 2024 Service Charter.

**Conclusion:** The Campania model represents an integrated and replicable approach, with a continuous pathway from childhood diagnosis to adulthood, emphasizing the effectiveness of structured and proactive intervention.

**Keywords:** Autism spectrum disorder, care pathways, early intervention, adult care, ABA, Campania region

### Introduction

Autism Spectrum Disorder (ASD) is a chronic and highly heterogeneous neurodevelopmental condition, characterized by persistent difficulties in social communication and interaction, along with repetitive behaviours, restricted interests, and resistance to change. The global prevalence of ASD has shown a marked increase in recent decades: according to the most recent estimates from the CDC (Centres for Disease Control and Prevention), one in 36 children is diagnosed with autism in the United States, while in Europe the average incidence is estimated between 1% and 2% of the population, with regional variations linked to diagnostic criteria and access to services. Males are affected more than females, with an estimated ratio of approximately 4:1<sup>[1]</sup>.

Current scientific evidence agrees on a multifactorial aetiology, in which highly penetrant genetic components (rare mutations, CNVs) and polygenic components (common variants) converge, together with prenatal and perinatal environmental factors, such as exposure to infections, neurotoxic drugs, or obstetric complications<sup>[2]</sup>. Twin studies suggest an ASD heritability ranging from 64% to 91%, supporting a strong genetic contribution to its onset<sup>[3]</sup>.

Autism manifests early, with behavioural signs observable within the first two years of life, including poor social reciprocity, absence of pointing gestures, delayed language, and lack of symbolic play. In children, early intervention is crucial: structured models such as Applied Behaviour Analysis (ABA), the Early Start Denver Model (ESDM), and the TEACCH (Treatment and Education of Autistic and related Communication-handicapped Children) approach have proven effective in improving cognitive, language, and adaptive functioning skills, with greater effectiveness when initiated before the age of 3<sup>[4, 5]</sup>.

During adolescence, the clinical presentation of ASD may change. Although some individuals show progress in communication and cognitive skills, comorbid conditions such as anxiety, depression, obsessive-compulsive disorders, or behavioural crises may emerge.

Adolescence is therefore a critical period in which educational and therapeutic support must be adapted to developmental and social changes. Preparing for the transition to adulthood requires early, multidisciplinary planning that integrates school, social services, the family context, and healthcare sectors.

In adulthood, the care of individuals with ASD becomes even more complex, especially in cases with high support needs (severe cognitive or behavioural impairments). Only a small proportion achieve independent work and living, while many require ongoing support. It is well known that adult ASD services are often fragmented or unavailable: there is a significant gap between the transition out of child neuropsychiatric services and access to integrated community-based services. Many adults with severe autism remain without a supportive family network and require protected pathways that include supported housing, day centres, and tailored psychoeducational interventions.

In Italy, the legal framework has recognized autism as a health and social priority. Law 134/2015 established the right to early diagnosis, to individualized, evidence-based interventions, and to continuity of care throughout the lifespan<sup>[6]</sup>. Law 112/2016, known as “After Us,” introduced measures for the care, support, and protection of people with severe disabilities who lack family support, creating funds for housing solutions and integrated services. In accordance with these regulations, Italian Regions have developed diverse organizational models<sup>[7]</sup>.

The Campania Region has established a structured system of interventions that covers all stages of life, from early childhood diagnosis to the management of severely affected adults, through the integration of health, social-assistance, educational, and judicial services. The implementation of personalized therapeutic pathways, dedicated day centres, home interventions, and programs for work inclusion represents an attempt to respond to the complex needs of individuals with autism, particularly those in highly vulnerable social conditions. This narrative review aims to describe in detail the Campania model, with reference to its legislative acts, care pathways, accredited service network, and adult interventions, including those provided under Law 112/2016.

## Methods and Materials

The care of people with Autism Spectrum Disorder (ASD) represents a public health challenge on a global level. According to the World Health Organization, ASD is a priority for intervention due to its increasing prevalence and the social, economic, and health impact it entails for families and communities. At the European level, the European Commission has promoted strategies for school and work inclusion and the creation of integrated socio-health networks to ensure equitable access to services. In Italy, the legislative path was outlined starting with Law 134/2015, which established the obligation to implement evidence-based interventions and personalized, continuous, and inter professional care, from early childhood through adulthood. Despite legislative progress, territorial inequalities persist in the availability of services and the practical implementation of care models.

In this context, a narrative review was conducted to describe the current state of care, support, and inclusion pathways for people with ASD in the Campania Region. The analysis was based on a consultation of international scientific literature

selected through academic databases such as PubMed, Scopus, and the Cochrane Library [1-5], with specific reference to aetiology, care models, and ASD treatments. National reference legislation was also examined, including Law 134/2015, Law 112/2016, the DPCM of 2017, and the 2018 State-Regions Agreement, which define the criteria for care, continuity of assistance, and support measures for individuals without family networks<sup>[8-12]</sup>. The research also included the analysis of official acts of the Campania Region, including Regional Government Decrees (DGR) and Executive Decrees (DD), as well as operational documents and protocols from Local Health Authorities, such as those of ASL Caserta<sup>[13, 14]</sup>. Finally, the 2024 Campania Region Autism Service Charter and the updated mapping of public and private accredited centres for the diagnosis, treatment, and management of ASD throughout the lifespan were examined<sup>[14]</sup>.

## Results

Regional Government Resolution (DGR) No. 131/2021 represented a pivotal moment for the regional organization of care for Autism Spectrum Disorder in Campania, through the establishment of a Diagnostic-Therapeutic-Assistance Pathway (PDTA) specifically for the 0-18 age group<sup>[8]</sup>. The document provided for the establishment of multidisciplinary territorial teams comprising child neuropsychiatrists, psychologists, neuropsychomotor therapists, speech therapists, and educators, responsible for drafting and periodically updating an Individualized Care Plan (PAI). This plan aims to ensure continuity of care and the appropriateness of therapeutic interventions, favouring scientifically validated methodologies, in particular Applied Behaviour Analysis (ABA). The DGR also established systematic collaboration between health, school, and social sectors to build integrated and inclusive pathways tailored to the functional needs and developmental profile of the child or adolescent.

With the issuance of DGR No. 42/2024, the Region introduced significant structural changes to the organizational model, increasing flexibility in the definition of intervention times and workloads<sup>[9]</sup>. This new framework assigned a central operational role to the Territorial Operational Units (NOT), responsible for dynamically remodelling care pathways according to the evolving clinical picture and socio-environmental conditions. The goal is to make intervention timely, proportionate to the level of complexity, and closer to the service user's home, overcoming the rigidity of traditional protocols and promoting true personalization.

Regarding the transition to adulthood and the management of the needs of adults with ASD, the Region adopted additional innovative measures. DGR No. 744/2022 approved pilot projects for social, occupational, and residential inclusion of adults with autism, with the active participation of the third sector<sup>[10]</sup>. This was followed by the issuance of Executive Decree (DD) No. 395/2023, which defined implementation guidelines for dedicated social-health services for autism in adulthood, favouring both high- and low-intensity support solutions and promoting personal autonomy and social participation<sup>[11]</sup>. At the same time, DGR No. 241/2022 formally adopted the contents of Law 112/2016 (“After Us”), outlining pathways for housing and social protection for people with severe disabilities, including adults with autism who lack adequate

family support <sup>[12]</sup>. These pathways include co-housing models, assisted residential centres, home-based educational support, and independent living projects supported by dedicated funding.

An example of implementation at the company level is represented by Resolution No. 1360/2024 of ASL Caserta, which formalized the inclusion of the ABA approach into child neuropsychiatry therapeutic protocols, gradually extending its adoption to adult services as well <sup>[13]</sup>. The regional network was also strengthened through the publication of the 2024 Autism Service Charter, which provides an updated list of accredited public and private centres, broken down by age group, type of treatment, and geographical area <sup>[14]</sup>. This mapping offers a fundamental operational tool for healthcare planning, for guiding families, and for evaluating the overall service offer in the care of Autism Spectrum Disorder.

## Discussion

Globally and across Europe, the management of autism in childhood and adulthood still presents significant challenges, despite growing recognition of the clinical and social complexity of the disorder. The World Health Organization and the European Commission have highlighted the need to develop integrated service networks that guarantee early diagnosis, evidence-based interventions, and continuity of care. However, many European countries, including Italy, struggle to provide equitable and structured access to such pathways, especially concerning adulthood. A central issue remains the care of adults with severe Autism Spectrum Disorder (ASD) who lack family support: dedicated residential facilities, personalized care pathways, and adequately trained professionals to manage complex needs are lacking. In this context, the implementation of approaches like Applied Behaviour Analysis (ABA) and the creation of protected housing services are strategic goals reiterated by many international guidelines but still only partially implemented at the national and regional levels.

The Campania model appears robust and well-structured, covering the entire life span: from early diagnosis in childhood to transition and support for adults. The flexible adjustment of the PDSA and the integration of ABA into protocols ensure personalized and clinically appropriate care. The creation of “After Us” pathways responds effectively to the need for continuity in cases without family support. However, some critical points remain: these include territorial disparities between local health authorities, the shortage of specialized professionals, and the lack of a shared information system for monitoring outcomes and adherence to pathways. Furthermore, the network of day centres and specialized outpatient clinics—such as the C.M.R. Spa [www.cmrsipa.it](http://www.cmrsipa.it) Day Centre in Sant’Agata de’ Goti—plays a crucial role in care continuity and the quality of life of adults with ASD, representing good practices to replicate.

In other Italian regions, such as Veneto, structured projects for autism have been implemented that integrate day, residential, and low- and high-intensity services, with a particular focus on growth and inclusion during adolescence and adulthood. DGR 1721/2022 of Veneto formally defined regional pathways for social inclusion through dedicated day and residential centres <sup>[15]</sup>. By 2024, pilot projects like “Percorsi di Vita e Autismo” (ULSS 8 Vicenza) and the Blu Time project <sup>[17]</sup> have been launched, offering home support, socialization groups, and protected housing to young adults

(≥ 16 years) <sup>[16]</sup>. These solutions adopt models of small, shared housing units to promote autonomy and improve quality of life. Also in ULSS 2 (Asolo district) <sup>[18]</sup>, day educational-rehabilitation centres are operating with social and workshop activities and “protected discharge” pathways toward employment. DGR 1557/2023 funded clinical, social, and inclusive interventions, including professional training for USC figures, personalized pathways, and active family involvement <sup>[19]</sup>. These experiences represent a useful roadmap for Campania: they confirm that an integrated strategy between day services (low intensity) and residential settings (high intensity) is applicable and yields positive impacts on the lives of adults with autism, especially those without family support. The Veneto example suggests complementing specialized services (e.g., neuropsychiatry, toxin, neuromodulation) with housing and socio-rehabilitation support services—tools not yet systematically implemented in Campania. This integrated, multidisciplinary perspective is also supported by findings from other Italian experiences on intensive rehabilitation pathways in hospital management, which highlight the positive impact of structured care on long-term functional and social outcomes <sup>[20]</sup>.

International studies <sup>[21]</sup> confirm that personalized ABA for adults with severe ASD significantly reduces challenging behaviours and improves social, communication, and functional independence skills. Other non-pharmacological treatments, such as pet-assisted therapy, have shown a reduction in stress and improvements in social interaction and verbal communication in adults with ASD, yielding emotional and psychophysiological benefits. In particular, Gómez Calcerrada *et al.* (2021) <sup>[23]</sup> described a controlled trial of dog-assisted therapy in 24 adults with ASD, demonstrating improvements in balance, gait, and communication skills after 10 weeks of treatment.

The equation between low-intensity interventions (structured weekly sessions) and high-intensity protected residential care represents a possible path toward continuous and flexible support. These approaches are particularly suited for individuals with severe ASD and a lack of family support, aligning with models foreseen by Italian regional experiences (Veneto, Campania) and deepened by DGR 241/2022 (Campania) and DGR 1721/2022 (Veneto). Integrating ABA- and AAT-based protocols could be promoted as a regional best practice, associating specific measures for adults with severe ASD with the relevant DGRs <sup>[22-24]</sup>.

## Conclusion

The Campania Region has developed an integrated care pathway for Autism Spectrum Disorder (ASD), spanning the entire lifespan of the individual. This system includes early diagnosis in the first years of life, access to evidence-based specialized interventions, management of the transition to adulthood, and the activation of residential and protected pathways for individuals with complex needs, especially for those without family support. The regional model, supported by a solid regulatory framework (Regional Government Resolutions, Executive Decrees) and by company-level protocols implemented at the local level (as in the case of ASL Caserta) <sup>[8-14]</sup>, stands as a good practice that can be replicated in other regions, in line with international recommendations on continuity of care, personalized interventions, and social inclusion.

Despite the results achieved, some systemic critical issues persist that require urgent action. Among these is the need to strengthen the skills and resources of Local Health Authorities (ASLs), to overcome territorial disparities in the distribution of services, and to establish a structured system for monitoring clinical, organizational, and social outcomes. The adoption of shared regional performance indicators could facilitate continuous quality improvement of services, ensuring equity in access and care.

This work aims to serve as an operational summary tool for institutional decision-makers, healthcare professionals, service managers, and third-sector organizations in defining, implementing, and consolidating care pathways for people with ASD. By providing a comprehensive overview of the Campania experience, it aims to encourage dialogue across governance levels and to promote an integrated, proactive, and sustainable approach to autism management.

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