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“No T to Lose”: A Multidisciplinary Prevention Model During the Milano–cortina 2026 Olympic and Paralympic Winter Games

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Article

Keywords:

Posted Date: July 31st, 2026

DOI: https://doi.org/10.21203/rs.3.rs-10536721/v1

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Additional Declarations: There is **NO** Competing Interest.

Title

"NO T TO LOSE": A MULTIDISCIPLINARY PREVENTION MODEL DURING THE MILANO–CORTINA 2026 OLYMPIC AND PARALYMPIC WINTER GAMES

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Abstract

Mass gatherings are conventionally framed as challenges for emergency preparedness and infectious disease surveillance, yet their potential as platforms for proactive prevention remains underused. We implemented *No Time to Lose*, a prospective, observational, multidisciplinary screening initiative embedded within the Milan–Cortina 2026 Winter Olympic and Paralympic Games in Cortina d'Ampezzo, Italy. The programme offered voluntary, free assessments across eleven specialist domains, integrating health education, point-of-care testing, ultrasound-based evaluation and specialist referral pathways.

A total of 520 preventive consultations were performed. Clinically relevant findings were detected across several domains, including andrological, thyroid, cardiovascular, bone, dermatological, nutritional and psychological health. The programme identified previously unrecognized conditions requiring further evaluation, including a prostatic nodule, significant carotid stenotic lesions, thyroid abnormalities, impaired bone health, suspicious skin lesions, suspected eating disorders and psychological distress. These findings highlight the diagnostic yield of an opportunistic, multidisciplinary prevention model delivered outside conventional healthcare settings.

This proof-of-concept study suggests that major international sporting events can be transformed from settings focused mainly on risk management into scalable opportunities for early detection, and health literacy.

Introduction

Noncommunicable diseases (NCDs) represent the foremost cause of premature mortality and disability globally, accounting for the majority of all annual deaths (1). Their escalating burden threatens the long-term sustainability of health systems and deepens socioeconomic inequalities, disproportionately affecting populations with limited access to preventive care. Robust epidemiological evidence confirms that timely, cost-effective interventions can substantially reduce NCD incidence and progression; yet critical implementation gaps persist worldwide, driven by structural barriers including low health literacy, poor specialist accessibility, and inadequate individual risk perception. Alongside NCDs, infectious diseases continue to pose substantial public health challenges, frequently remaining undiagnosed in asymptomatic individuals who have never accessed dedicated screening programs.

Large-scale international events represent underexplored yet strategically valuable settings for community-based prevention (2-4). By concentrating nationally and internationally diverse populations within a defined geographic area over a limited timeframe, such events offer a unique opportunity to reach demographic groups systematically underrepresented in conventional prevention programs, including young adults, males, and foreign nationals. Despite their potential, no validated multidisciplinary prevention model has been systematically implemented and evaluated in this context, and evidence on the prevalence of undetected pathological conditions identifiable through opportunistic screening at mass public events remains scarce.

The Milan-Cortina 2026 Winter Olympic and Paralympic Games provided a singular epidemiological opportunity. Leveraging the exceptional national and international attendance in Cortina d'Ampezzo (Veneto Region, Italy), we designed and implemented No Time to Lose (NoTTL, meaning that there is no time to waste for health prevention), a multidisciplinary public health initiative integrating health education, opportunistic clinical screening, and early diagnosis across eleven specialist domains (andrology, endocrinology, dermatology, cardiovascular risk/alcohol misuse assessment, bone health, nutrition, rheumatology, physical function, urology, STI/infectious disease prevention, psychological counselling), targeting both noncommunicable and infectious diseases. The project was coordinated by the Department of Medicine of the University Hospital of Padova — the regional reference center for clinical care and translational research in the Veneto Region — in partnership with local health authorities, national Olympic and Paralympic committees, and civil society organizations.

The primary objectives were to: (i) estimate the prevalence of specific conditions among a sample requesting services in a public outreach prevention model; (ii) compare prevalence across demographic and lifestyle subgroups; (iii) collect real-world epidemiological data on health behaviors and unmet needs; (iv) facilitate access to specialist follow-up pathways; and (v) evaluate the feasibility and replicability of an event-embedded, multidisciplinary prevention model applicable to future large-scale public gatherings.

Methods

Study design and setting

NoTTL was a prospective, observational, community-based screening study conducted at the Milan-Cortina 2026 Olympic and Paralympic venues in Cortina d'Ampezzo (Veneto Region, Italy) during February and March 2026. The study was coordinated by the Department of Medicine of the University Hospital of Padova, with organizational planning commencing in January 2024.

Participants and recruitment

Participation was entirely voluntary and open to any individual present at the Olympic venues — including accredited personnel, media representatives, and members of the public — with no age restriction. The sole exclusion criterion was inability to provide voluntary informed consent. Recruitment was opportunistic, conducted through information booths, outreach igloos, and digital appointment booking via the project website. A total of 520 preventive evaluations were performed across the full duration of the Games. Given the opportunistic nature of recruitment, no a priori sample size calculation was performed; the achieved sample size is consistent with analogous community-based screening studies conducted in non-clinical settings and is reported descriptively.

Multidisciplinary consortium and operational structure

A multidisciplinary consortium was established comprising the University Hospital of Padova, Veneto Region, ULSS1 Dolomites (local health authority), the Regional Italian Olympic Committee (CONI Veneto), the Italian Paralympic Committee (CIP), the Italian Red Cross, Cortina Foundation and non-profit Associations. Three complementary operational settings were deployed throughout the competition period: information booths at Olympic and Paralympic venues for health literacy promotion and appointment scheduling; outpatient clinics for multidisciplinary specialist assessments; and outreach igloos positioned in high-footfall public areas to maximize community reach. Specialist rotations were scheduled every three days to ensure continuity of service across all domains (figure 1).

Screening procedures

Free, comprehensive assessments were offered across ten clinical specialties: endocrinology, andrology, urology, dermatology, rheumatology, internal medicine (including cardiology, hepatology, bone metabolism, and nutritional assessment), psychology, virology, geriatrics, and sports medicine. Diagnostic procedures included point-of-care rapid testing for HIV, HCV, HPV, and PSA; multidistrict ultrasound examinations; semen analysis; handgrip strength assessment; and digital rectal examination. All procedures were performed by credentialed specialists affiliated with the University Hospital of Padova. Participants with clinically significant findings were referred to appropriate regional follow-up pathways through the University of Padova and ULSS1 Dolomites network.

Outcomes and statistical analysis

The primary outcome was the prevalence of previously unknown pathological conditions or clinically significant risk factors identified at screening, defined as conditions not previously diagnosed by a physician and requiring specialist follow-up. Prevalence estimates with 95% confidence intervals were calculated for each specialty domain. Between-group comparisons were performed according to sex, age group, nationality, and self-reported lifestyle variables (physical activity level, smoking status, and BMI category).

The statistical analysis was conducted primarily for descriptive purposes, in accordance with the observational and exploratory nature of the prevention project. Data collected during clinical and screening activities were organized into dedicated databases for each specialist area and subsequently underwent data checking, cleaning, and variable recoding procedures.

Qualitative variables were described using absolute frequencies and percentages, whereas quantitative variables were summarized through the main descriptive statistics, including mean, standard deviation, median, minimum, and maximum values.

For the different clinical subprojects, specific descriptive analyses were performed according to the objectives of each screening activity, taking into account demographic characteristics, risk factors, lifestyle habits, known pathological conditions, results of specialist evaluations, and any additional diagnostic investigations carried out.

Statistical analyses and graphical outputs were performed using R software, Version 2026.04.0+526 (2026.04.0+526).

Ethical considerations and data governance

Given the fully anonymous nature of data collection — with no recording of personal identifiers at any stage of the study — formal ethics committee approval was not required under applicable Italian regulations (D.Lgs. 196/2003; Ministerial Circular 31 July 2002) and European data protection legislation (GDPR 2016/679). All participants provided voluntary oral informed consent prior to any screening procedure. Data were collected anonymously, stored on a password-protected institutional server, and managed exclusively by credentialed research personnel in full compliance with current data protection legislation.

Results

Overall screening activity

A total of 520 preventive consultations were performed during the study period across eleven specialist domains. Andrological screening represented the largest component of the program, accounting for 146 consultations (28%), followed by endocrinological screening (74 consultations, 14%). Dermatological screening, cardiovascular risk assessment, bone health evaluation, and nutritional counselling accounted for 7–9% of all consultations, whereas rheumatological screening, physical function assessment, and urological evaluations each represented approximately 6% of the overall activity. Screening for sexually transmitted infections and psychological counselling accounted for 4% and 3% of consultations, respectively.

Andrological screening

A total of 146 individuals underwent andrological evaluation. Participants had a mean age of 54.7 ± 16.6 years (median 59 years, range 10–88 years). Mean body weight was 80.9 ± 13.6 kg, mean height was 178.1 ± 7.6 cm, and mean BMI was 25.5 ± 3.7 kg/m².

Cardiometabolic risk factors were highly prevalent. Hypercholesterolemia was reported in 36.3% of participants (53/146), followed by osteopenia/osteoporosis (50/146, 34.2%) and arterial hypertension (38/146, 26.0%), whereas diabetes was reported in only 3.4% (5/146) of subjects. Lifestyle assessment showed a low prevalence of smoking, with 84.2% of participants (123/146) reporting no current tobacco use. Alcohol consumption was more common, with 78.8% (115/146) reporting regular intake and 4.1% (6/146) consuming at least three alcohol units per day.

Andrological disorders were frequently identified. Erectile dysfunction was the most prevalent condition, affecting 22% of participants (32/146), followed by already known benign prostatic enlargement (17.8%, 26/146) and premature or delayed ejaculation (15.8%, 23/146). Phimosis was identified in 15.0% (22/146) of subjects, genital infections/prostatitis in 11% (16/146), and varicocele in 10.9% (15/146). Infertility was reported by 6.8% (10/146) of participants. Previous andrological

evaluation had been performed in 41.8% of subjects (61/146), whereas only 10.3% (15/146) reported prior HPV vaccination.

Physical examination revealed retractile testes in 21.9% (32/146) of participants, varicocele in 23.3% (34/146), and epididymal abnormalities in 36.3% (53/146). Reduced androgenization was observed in 4.1% of cases (6/146). Digital rectal examination identified prostatic enlargement in 28.8% of participants (42/146) and detected one previously unrecognized prostatic nodule requiring specialist referral.

Among 37 individuals presenting with lower urinary tract symptoms, ultrasonographic investigations identified benign prostatic hyperplasia in 56.7% (21/37) and chronic prostatitis in 16.2% (6/37). Penile Doppler ultrasound performed in selected participants with erectile dysfunction or penile curvature demonstrated arterial insufficiency in five cases and Peyronie's disease in one case. Scrotal ultrasonography identified varicocele, unilateral testicular hypotrophy, and post-inflammatory epididymal abnormalities in a substantial proportion of examined subjects.

Overall, the andrological pathway detected a considerable burden of previously unrecognized reproductive, sexual, and urological disorders requiring further specialist evaluation.

Endocrinological screening

Seventy-four individuals underwent endocrinological assessment. The cohort was predominantly male (77.0%, 57/74). Smoking prevalence was 13.5% (10/74), with a higher prevalence reporting never having smoked.

Assessment of iodine-related knowledge and dietary habits revealed generally high awareness regarding the importance of iodine for health. More than 80% of participants (60/74, 81.1%) rated iodine as highly important, whereas no participant assigned a low importance score. Nevertheless, marked heterogeneity was observed in the consumption of iodine-rich foods. Dairy products represented the most frequently consumed iodine sources, while seaweed consumption was nearly absent. The 50.0% of participants (37/74) reported regular use of iodized salt.

Among 73 individuals evaluated for thyroid disease history, 24/73 (32.9%) reported a known thyroid disorder, most commonly autoimmune thyroiditis. Thyroid ultrasonography performed in subjects without previously known thyroid disease revealed clinically relevant findings in a substantial proportion of cases: thyroid nodules with benign ultrasonographic features were identified in 51.0% (25/49) of screened individuals, while ultrasonographic features suggestive of autoimmune thyroiditis were observed in 11/49 (22.4%). Enlarged thyroid volume was also detected in 11/49 (22.4%) of participants without a previous diagnosis.

When considering the entire screened population, thyroid abnormalities were common. Although thyroid size was normal in most subjects, 18/74 (24.3%) presented gland enlargement, and 43/74 (58.1%) showed some degree of echo structural abnormality, including diffuse heterogeneity or multinodular patterns. These findings indicate a substantial burden of previously unrecognized thyroid abnormalities within the screened population.

Cardiovascular risk screening

Forty-four participants underwent cardiovascular and thromboembolic risk assessment, including carotid ultrasound examination. The mean age of the cohort was 57 years.

Carotid abnormalities were detected in 40.9% of participants (18/44). However, 31.8% (14/44) presented at least one clinically relevant cardiovascular risk factor requiring additional evaluation. Three individuals (6.8%, 3/44) exhibited significant carotid stenotic lesions and were referred for vascular surgical consultation, while one participant was suspected of having an underlying genetic disorder requiring specialist assessment.

Additionally, severe alcohol misuse was identified in three individuals (6.8%, 3/44), all of whom were referred to dedicated territorial services. These findings demonstrate the ability of opportunistic screening to identify clinically significant vascular disease and behavioural risk factors in apparently healthy individuals.

Bone health

Bone health assessment was performed in 41 individuals (mean age 61 years; 66% women). Functional evaluation included handgrip strength testing and musculoskeletal ultrasonography.

Reduced bone mineral status was highly prevalent. Osteoporosis was identified in 9.8% of participants (4/41) through DXA, whereas osteopenia was detected in 48.8% (20/41). Overall, 58.5% (24/41) of screened individuals exhibited evidence of impaired bone health, highlighting the potential value of targeted screening strategies during community-based prevention initiatives.

Physical function assessment

Thirty-two participants underwent physical function evaluation. The mean age of the cohort was 46 years, and 59.4% were male (19/32).

Nineteen participants required additional diagnostic investigations, including cardiovascular laboratory testing, echocardiography, carotid ultrasonography, musculoskeletal imaging, exercise stress testing, or home blood pressure monitoring. Notably, 13/32 (40.6%) of individuals reported physical activity levels below the minimum recommendations established by the WHO.

Rheumatological screening

Thirty-three individuals underwent rheumatological assessment. The cohort had a mean age of 60 years and was predominantly female.

Degenerative and mechanical musculoskeletal disorders represented the most frequent reason for consultation, accounting for 39.4% (13/33) of evaluations. Preventive screening in asymptomatic individuals accounted for 33.3% (11/33) of consultations. Raynaud's phenomenon was identified in 21.2% (7/33) of participants, whereas 6.1% (2/33) presented findings suggestive of possible systemic inflammatory disease requiring specialist follow-up.

Point-of-care ultrasonography proved particularly useful in differentiating benign musculoskeletal conditions from those potentially evolving into inflammatory disorders or mechanical and degenerative conditions, facilitating appropriate referral decisions and therapeutic approaches.

Dermatological screening

A total of 45 dermatological consultations were performed for skin cancer prevention.

Clinically relevant dermatological abnormalities requiring further evaluation were detected in 37.8% (17/45) of screened individuals. Actinic keratoses and melanocytic lesions represented the most frequent findings and frequently required histopathological confirmation. Additional diagnoses included cherry angiomas and solar lentigines. These findings highlight the utility of opportunistic dermatological screening in identifying potentially premalignant and suspicious skin lesions.

Nutritional assessment

Forty nutritional consultations were performed, predominantly among women.

Overweight or obesity represented the most common nutritional condition, affecting 35.0% (14/40) of evaluated subjects, followed by hypercholesterolemia (25.0%, 10/40). Two previously unrecognized suspected eating disorders were identified and referred for specialist management. Additional clinically relevant findings included suspected renal dysfunction and unexplained elevated vitamin B12 levels, both requiring further diagnostic assessment.

Urological, psychological, and infectious disease screening

Thirty-two individuals underwent urological evaluation. All participants received lower urinary tract ultrasonography and underwent PSA testing. Benign prostatic hyperplasia was identified in three participants (9.4%, 3/32), while lower urinary tract symptoms were reported by five individuals (15.6%, 5/32).

Fourteen psychological counselling sessions were performed. The most common reasons for consultation were anxiety and depressive symptoms (35.7%, 5/14), followed by eating-related concerns (28.6%, 4/14) and sexual health issues (21.4%, 3/14). Age-related psychological concerns accounted for 14.3% of consultations (2/14).

Nineteen participants attended sexually transmitted infection consultations. As part of the integrated prevention pathway, rapid screening tests for HIV, HCV, and HPV were performed, and no positive results were detected.

Discussion

The present study demonstrates that a multidisciplinary prevention model embedded within a major international sporting event is both feasible and capable of identifying a substantial burden of previously unrecognized health conditions requiring further evaluation. While mass gatherings have traditionally been investigated from the perspectives of emergency preparedness, infectious disease surveillance, and public safety, considerably less attention has been devoted to their potential role as platforms for opportunistic screening and early diagnosis.

In fact, recent evidence confirms that the literature on mass gatherings remains predominantly focused on surveillance systems and communicable disease threats, such as breast, cervical and colorectal cancer, cardiovascular risk factors, osteoporosis or diabetes (2–4). In a recent global scoping review of event-based surveillance during mass gatherings, most studies addressed infectious disease detection, outbreak monitoring, and public health preparedness, whereas preventive screening initiatives and multidisciplinary diagnostic pathways were rarely explored (2).

These findings are particularly relevant in the context of the Milan–Cortina 2026 Winter Olympic and Paralympic Games. The present experience demonstrates that major sporting events may also serve as effective settings for health promotion, early diagnosis, and referral to specialist care. This concept is consistent with the broader WHO framework for mass gatherings, which recognizes these events as opportunities to promote healthy behaviours and improve population health beyond the immediate event itself (5).

Erectile dysfunction emerged as the most prevalent andrological condition, while penile Doppler ultrasound identified arterial insufficiency in several participants. These findings are particularly important given the increasingly recognized relationship between erectile dysfunction and cardiovascular disease (6). Many epidemiological studies have further demonstrated that erectile dysfunction independently predicts future cardiovascular events and may precede the diagnosis of overt cardiovascular disease by several years (7-8). This finding reinforces the concept that

opportunistic andrological screening may represent an effective point for identifying men at increased cardiometabolic risk who would otherwise rarely access preventive healthcare services.

The high prevalence of benign prostatic enlargement and lower urinary tract symptoms further supports the relevance of integrating urological-andrological assessment into opportunistic prevention pathways, particularly in middle-aged and older men. Another noteworthy observation was the extremely low HPV vaccination coverage among men. Although awareness of HPV-related diseases has improved substantially over recent years, male vaccination uptake remains suboptimal in many countries (9-10).

Thyroid ultrasonography revealed a high prevalence of previously unrecognized abnormalities, including thyroid nodules, diffuse parenchymal heterogeneity, gland enlargement, and sonographic features suggestive of autoimmune thyroiditis. These observations are consistent with population-based ultrasound studies showing that thyroid nodules are highly prevalent in apparently healthy adults and may be detected in up to 50–60% of screened populations (11-12). Current European Thyroid Association guidelines emphasize the importance of risk stratification and appropriate follow-up of incidentally detected thyroid nodules (13). The large proportion of incidental thyroid abnormalities illustrates how opportunistic ultrasonography can found clinically relevant conditions in individuals without previous endocrine evaluation.

Nearly 60% of participants undergoing bone health assessment demonstrated osteopenia or osteoporosis-compatible findings. These results are consistent with epidemiological evidence indicating that osteoporosis frequently remains undiagnosed until the occurrence of fragility fractures and continues to represent a major public health challenge worldwide (14). In this regard, community-based screening may facilitate earlier identification of individuals eligible for fracture prevention strategies.

Dermatological screening similarly demonstrated a high diagnostic yield, with more than one-third of evaluated individuals presenting lesions requiring additional assessment. The identification of actinic keratoses and suspicious melanocytic lesions supports previous evidence indicating that opportunistic skin examinations may facilitate the early detection of premalignant and malignant lesions (15-16).

A major strength of the NoTTL project is its multidisciplinary structure. Most community-based screening programs focus on a single disease or organ system (2-4). The present model integrated expertise from endocrinology, andrology, urology, dermatology, rheumatology, nutrition, psychology, geriatrics, sports medicine, infectious diseases, and internal medicine. Of note, despite the multidisciplinary NoTTL model, uptake of rapid HIV/HCV testing was very low (only 17 participants) compared with other screening activities. This likely reflects persistent stigma

surrounding blood-borne infections and underscores the need for intensified public education, awareness campaigns, and targeted training to normalise testing and reduce social barriers to uptake. This approach enabled a more comprehensive evaluation of health status and facilitated referral pathways that reflected the complexity of real-world patients, who often present multiple concurrent risk factors and health needs.

The study has several limitations. Participation was voluntary and based on opportunistic recruitment, introducing the possibility of selection bias. Consequently, prevalence estimates should not be interpreted as representative of the general population attending the Games or of the broader Italian population. Furthermore, the primary objective of the initiative was not to estimate disease prevalence but rather to evaluate the feasibility and diagnostic yield of a multidisciplinary prevention model implemented within a mass-gathering setting.

The study was also conducted in a single geographical area and over a limited period, potentially affecting generalizability. Finally, long-term follow-up data regarding adherence to referrals and subsequent clinical outcomes were not available.

A further consideration is the heterogeneous nature of the findings generated by the screening program. Findings identified during the project could be broadly classified into three categories: (i) previously known medical conditions reported by participants; (ii) clinical abnormalities detected during screening, whose prior diagnostic status could not be systematically verified; and (iii) previously unrecognized findings requiring specialist referral and further diagnostic evaluation. The latter category of findings, which prompted additional investigations or specialist referral, arguably represents the most clinically relevant outcome of the initiative.

Despite these limitations, the findings provide important proof-of-concept evidence supporting the integration of preventive medicine into major public events. To our knowledge, this is among the first multidisciplinary screening initiatives implemented during an Olympic and Paralympic Games setting and one of the few examples in which multiple specialist domains were simultaneously integrated within a structured prevention pathway. Future studies should evaluate the long-term clinical impact, cost-effectiveness, and scalability of similar programs, as well as their ability to improve healthcare access among traditionally underserved populations. If replicated across future sporting, cultural, and community events, multidisciplinary prevention initiatives such as NoTTL may contribute to transforming mass gatherings from settings focused primarily on risk management into opportunities for proactive population health intervention.

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Author contributions

A.G., M.O., G.O., A.B.F., L.B, A.C., F.D.M., G.D.C., L.D.T., A.E., A.F., J. K., C.M., R.R., G.S., P.S., G.G.; R.M.; G.D.

Competing interests

The authors declare no competing interests.

Funding

The financial support for the realization of the whole project came exclusively from private companies outside the healthcare sector.

***NoTTL**

A special thanks to all the volunteers and the entire Staff of No T to Lose composed by:
Andrea Garolla, Alessio Baschiera, Anna Belloni Fortina, Loris Bertazza, Nicola Borasio, Ilaria Bragadin, Luca Busetto, Lucrezia Calandrino, Annamaria Cattelan, Dario Catellan, Simona Censi, Chiara Ceolin, Giacomo Cozzi, Giorgia Crisarà, Anna Cuberli, Fabrizio Dal Moro, Giorgio De Conti, Giuseppe Defeudis, Raffaele De Santis, Marina De Rui, Ilaria De Santis, Giorgia De Stefani, Luca De Toni, Anna Di Lieto, Federica Duregon, Matteo Ercolin, Andrea Ermolao, Alberto Ferlin, Giordana Ferraioli, Giovanni Frattin, Carlo Foresta, Enrico Furlan, Andrea Gavin, Gino Gerosa, Nicolò Gnone, Giuseppe Grande, Massimo Iafrate, Jeff Kiesner, Matilda Manetti, Alberta Marcomini, Rossella Mazzilli, Caterina Mian, Lia Minerva, Alessandro Morlacco, Alex Moscardi, Matilde Obici, Pierfrancesco Palego, Nicola Passerin, Raffele Pesavento, Gabriel Petre, Roberta Ramonda, Marcello Repele, Raffaele Scafa, Alberto Scala, Giuseppe Sergi, Paolo Simionato, Paolo Simioni, Donatella Sorio, Fabio Perricone, Eleonora Vania, Marco Vecchiato, Marco Zacchia, Nicola Zampieri, Erika Zola, Daniele Zotti, Cristina Degan & Alessandro Turetta.

Figure 1. Organization of multidisciplinary preventive screening visits within the "No T to Lose" project.

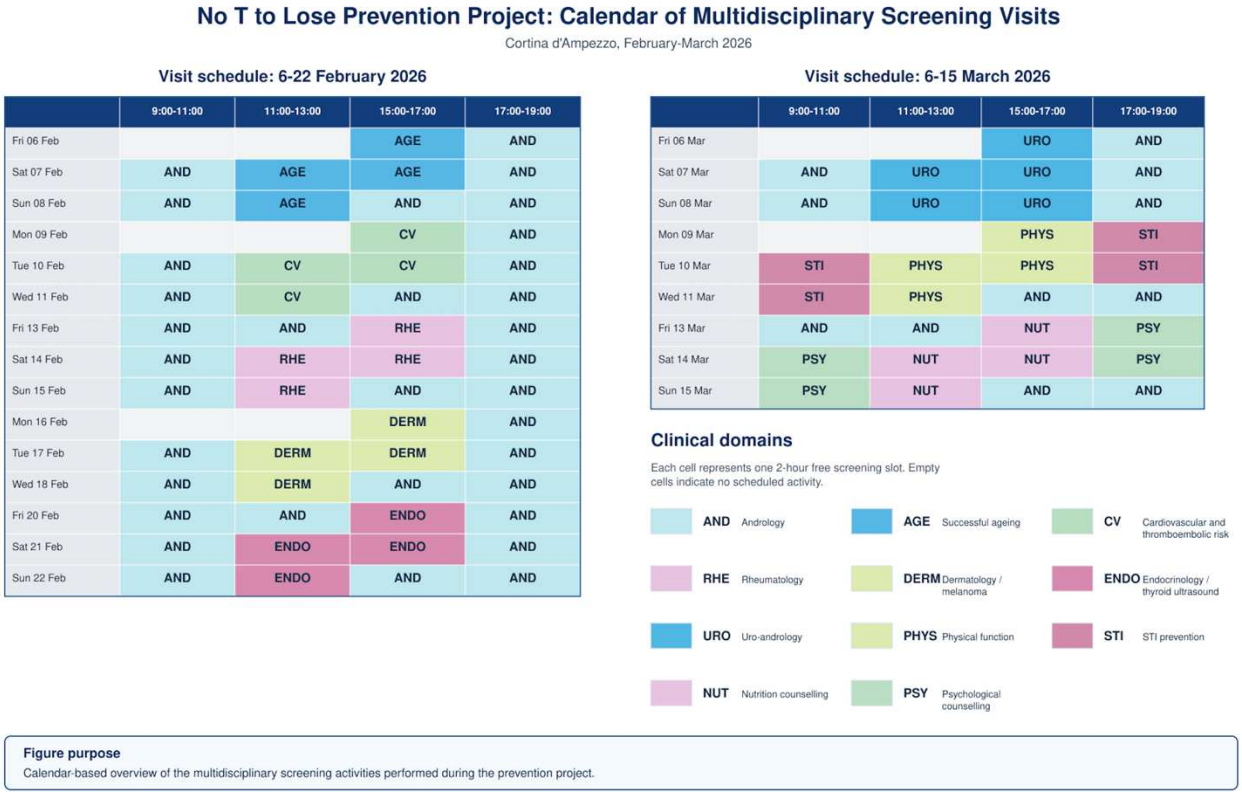


Figure 2. Overview of the No Time to Lose (NoTTL) multidisciplinary prevention model implemented during the Milano–Cortina 2026 Winter Olympic and Paralympic Games.

