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ATTITUDES OF PEDIATRIC GASTROENTEROLOGISTS, RHEUMATOLOGISTS, AND PARENTS TOWARD VACCINATION BASED ON AN ANONYMOUS ONLINE SURVEY

Differences in vaccination coverage among patients with IBD, JIA, and healthy children, as well as to identify differences in vaccination attitudes between parents and physicians, including barriers and facilitators of immunization were assessed. Vaccination coverage, reasons for refusal, trust in vaccines, and physician involvement in immunization were assessed. Statistical analysis was performed using Pearson's χ^2 test and the Mann-Whitney test. Insufficient vaccination coverage among patients with IBD and JIA is influenced by both parental concerns and the cautious approach of specialists. The main barriers include medical exemptions, concerns about disease exacerbation, and inadequate coordination between primary care physicians and specialists. Improving vaccination coverage requires the development of personalized immunization strategies, interdisciplinary collaboration, and educational programs for both physicians and parents. To increase vaccination coverage, personalized immunization strategies, interdisciplinary collaboration, and educational programs for doctors and parents are needed.

Keywords: vaccination, juvenile idiopathic arthritis, inflammatory bowel disease, vaccination coverage, immune-mediated diseases

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Introduction. Vaccination remains the cornerstone of preventing vaccine-preventable infections in paediatric populations, yet it is critically important and often more complex for children who receive long-term immunosuppressive therapy for juvenile idiopathic arthritis (JIA) or inflammatory bowel disease (IBD) [4, 7, 14]. Immunosuppression amplifies susceptibility to common pathogens and increases the likelihood of severe disease courses and complications. Consequently, both ECCO [7] and EULAR [5] recommend that these patients follow an accelerated and, where possible, complete schedule of inactivated and live vaccines prior to or, when necessary, during treatment.

Adherence to immunization schedules can vary markedly across patient groups and is influenced by awareness, health literacy, and personal attitudes. Individuals with IBD and JIA belong to a high-risk cohort for infectious complications, making vaccination a cornerstone preventive strategy [1]. Their increased susceptibili-

ty stems not only from the autoinflammatory disease itself but also from the use of immunosuppressive agents [3, 6, 13]. In this population, immunization serves both a preventive and therapeutic purpose, lowering the incidence of severe infections and improving the overall prognosis of the underlying disease [2, 15].

Ensuring robust vaccination coverage in children with immune-mediated inflammatory diseases, including JIA and IBD, therefore remains a pressing challenge in pediatrics [10]. These patients are more prone to severe infections and often undergo prolonged immunosuppressive therapy, which can compromise their ability to mount a full vaccine-induced immune response [5, 6, 14, 16].

Although vaccination records are routinely documented, they do not always guarantee effective protection some patients exhibit so-called immunological gaps, meaning sub-protective antibody levels despite completed immunization [4, 14]. This hidden vulnerability mandates the systematic incorporation of post-vaccination immunity monitoring into the routine management of children with IBD and JIA.

Immunization is a shared responsibility of the treating specialist (gastroenterologist or rheumatologist), the primary-care pediatrician, and the child's parents [9]. Clear communication pathways must ensure that each stakeholder understands their role, thereby providing the child with timely protection [12]. Such coordination not only improves vaccine adherence but also prevents the transfer of responsibility between healthcare professionals and the family.

Objectives To analyze the attitudes and practices of parents and physicians (gastroenterologists and rheumatologists) toward vaccinating children with inflammatory bowel disease and juvenile idiopathic arthritis.

Materials and Methods. Study design. This was a single-centre, cross-sectional comparative study based on an anonymous online survey conducted from January to April 2022.

Participants. Two main respondent groups were enrolled:

1. **Parents** of children with juvenile idiopathic arthritis (JIA), inflammatory bowel disease (IBD), and of healthy children.
2. **Physicians** paediatric gastroenterologists, paediatricians, and rheumatologists who voluntarily completed the questionnaire.

Data collection. Information was gathered with a purpose-designed questionnaire that covered:

- Demographic characteristics of respondents;
- Vaccination coverage and reasons for refusal or delay;
- Sources of information on vaccination;
- Trust in vaccines;
- Parent–physician interaction regarding immunisation.
- The survey was administered online via professional medical networks and parent community groups.

Statistical analysis. Continuous variables are presented as mean ± standard deviation (mean ± SD) or, when non-normally distributed, as median with interquartile range (median [IQR]). Categorical variables are expressed as absolute numbers and percentages.

Between-group comparisons were performed with one-way analysis of variance (ANOVA) for continuous data and the Pearson χ^2 test for categorical data. The Mann–Whitney U test was applied for non-parametric comparisons. All tests were two-tailed, and a p-value < 0.05 was considered statistically significant.

Cases with missing values were excluded from the analyses. Statistical calculations were carried out with Statistica, version 10.0 (StatSoft Inc., USA).

Ethics approval. The study was approved by the Ethics Committee of Saint Petersburg State Pediatric Medical University (Protocol No. 09/02, 11 February 2022) and was conducted in accordance with the principles of the Declaration of Helsinki.

Results. Demographic characteristics of respondents. A total of 287 respondents were enrolled in the study and were stratified into two overarching categories.

- **Parents** of children with inflammatory bowel disease (PIBD, n = 51), juvenile idiopathic arthritis (PJIA, n = 81) and healthy children (HC,n = 58).
- **Physicians**, comprising paediatric gastroenterologists (n = 51) and rheumatologists (n = 46), whose median years of professional experience were 13.6 years (2.7–17.0) and 7.8 years (2.0–18.0), respectively (Table 1).

Across all study cohorts, respondents were predominantly female; their proportion was slightly lower among parents of children with juvenile idiopathic arthritis (JIA) 87.7 % (71/81). All physicians surveyed (gastroenterologists, n = 51; rheumatologists, n = 46) had higher professional education (100 %). By contrast,

Table 1

Demographic characteristics of respondents

Parameter	Gastroenterologists. (n=51)	Rheumatologists. (n=46)	Parents of children with IBD. (n=51)	Parents of children with PJIA. (n=81)	Healthy Controls. (n=58)	p-value
Gender. female. n (%)	48 (94.1)	43 (93.5)	49 (96.1)	71 (88.7)	57 (98.3)	0.123
Education. higher. n (%)	51 (100.0)	46 (100.0)	33 (64.7)	66 (81.5)	45 (77.6)	<0.001
Employment rate. employed. n (%)	51 (100.0)	46 (100.0)	32 (62.7)	48 (59.3)	37 (63.8)	<0.001

Table 2

Analysis of antibody levels to vaccine-preventable infections

Parametr	Parents of children with IBD, (n=51)	Gastroenterologists, (n=51)	Parents of children with JIA, (n=81)	Rheumatologists, (n=46)	p-value
Antibody monitoring prior to immunosup-pressive therapy, n (%)	22 (43.1)	18 (35.3)	24 (29.6)	26 (56.5)	0.043

the prevalence of higher education was markedly lower among parents, reaching its minimum in the group of parents of children with inflammatory bowel disease (IBD) 64.7% (33/51). The highest proportion of unemployed respondents was observed in the JIA parent group 40.7% (33/81).

Among gastroenterologists, 23.5% (n=12) had more than 10 years of practice, and 56.8% (n=29) also practised general paediatrics. In the rheumatology cohort, 54.0% (n=25) had > 10 years of experience, and 78.3% (n=36) likewise worked in paediatrics, underscoring the interdisciplinary nature of their clinical activity.

Practice setting also differed between the specialties: 61% of gastroenterologists and 52% of rheumatologists were employed in outpatient care, highlighting the substantial share of specialists operating at the primary-care level and emphasising their pivotal role in vaccination strategies.

Vaccination coverage and reasons for refusal. According to parental reports, age-appropriate immunisation in line with the National Immunisation Schedule had been completed in 79.9% of children with juvenile idiopathic arthritis (JIA) and 82.3% of those with inflammatory bowel disease (IBD). Following diagnosis, routine immunisation was continued in merely 14.3% of children with IBD, underscoring substantial shortcomings in catch-up vaccination and the need for early review of vaccination status and personalised schedules in both immune-mediated disease groups.

The most frequently cited reason for deferring vaccination in both IBD and JIA was the child's unsatisfactory health status; refusal was less common among parents of IBD patients than among parents of JIA patients or healthy controls.

Physician responses revealed divergent perceptions of immunisation. While most clinicians 88% of paediatric gastroenterologists and 69.6% of rheumatologists did not associate vaccination with the development of immune-mediated inflammatory diseases, 18% of gastroenterologists and 47.8% of rheumatologists explicitly advised against vaccinating patients during ongoing treatment (p=0.009). This indicates a more conservative stance among rheumatologists, which may contribute to lower vaccine uptake in the JIA population.

Post-vaccination reactions. Parents reported the following reactions after immunisation:

- No adverse events: 38 children with inflammatory bowel disease (IBD) – 74.5%; 41 children with juvenile idiopathic arthritis (JIA) – 50.6%; and 31 healthy controls – 53.5% (p = 0.02).
- Fever: 11 children with IBD – 21.6%; 27 with JIA – 33.3%; and 14 controls – 24.1%.
- Local reaction (erythema or oedema at the injection site): 2 children with IBD – 3.9%; 13 with JIA – 16.1%; and 13 controls – 22.4%.

According to the physician survey, 13.7% of paediatric gastroenterologists and 21.7% of rheumatologists believed that vaccination could trigger a disease flare; an additional 21.6% and 34.8%, respectively, answered "rather yes than no" (p = 0.083). Such concerns may contribute to the lower rate of immunisation recommendations issued by rheumatologists and, consequently, to reduced vaccine adherence among parents of children with JIA.

Role of healthcare personnel in vaccination decisions. Parental engagement in vaccine decision-making was strongly influenced by the treating physician's opinion and the quality of communication. Nevertheless, discussions of immunisation with medical specialists were far from universal: only 32% of parents of children with IBD and 28.4% of parents of children with JIA reported having such conversations. Preparation for immunosuppressive therapy also differed: antibody titres were checked more often in the IBD group (43.2%) than in the JIA group (29.6%).

Overall, 84% of parents of children with IBD stated that their physicians encouraged vaccination, whereas the corresponding figure among parents of children with JIA was 69.1%.

Among clinicians, 32 % of gastroenterologists and 21.7% of rheumatologists did not involve themselves in the vaccination process, considering it the responsibility of primary-care physicians (p=0.009). This division of duties and fragmented approach indicate insufficient coordination among subspecialists, paediatricians and families, which can lead to inconsistent recommendations and hinder parental decision-making on immunisation (Table 2).

Principal reasons for parental refusal of vaccination. Temporary medical contraindications: reported for 9 of 51 children with inflammatory bowel disease (IBD, 17.6%), 14 of 81 with juvenile idiopathic arthritis (JIA, 17.3%), and 2 of 58 healthy controls (3.4%; p < 0.0001). Complete rejection of immunisation: 0 of 51 children with IBD (0%), 2 of 81 with JIA (2.5%), and 3 of 58 controls (5.2%; p = 0.00001).

Barriers identified by clinicians. Among physicians, the leading impediment to vaccination was parental fear of disease flare-ups, cited by 82.4% of paediatric gastroenterologists and 100% of rheumatologists (p=0.003). Additional obstacles included dissemination of inaccurate media reports on vaccine adverse effects (51.0% vs. 80.4%; p = 0.003), concerns expressed by primary-care physicians (37.2% vs. 56.5%; p = 0.058), and insufficient awareness among parents and physicians of the need for immunisation (58.8% vs. 76.1%; p = 0.071) (table 3).

These findings underscore the necessity of an integrated strategy enhanced

Table 3

Adherence to vaccination: parents' and specialists' opinions

Parametr	Parents of children with IBD, (n=51)	Gastroenterologists, (n=51)	Parents of children with JIA, (n=81)	Rheumatologists, (n=46)	p-value
Vaccination was discussed with a doctor, n(%)	16 (31.4)	35 (68.0)	23 (28.4)	36 (78.3)	<0.001
Physician's advice as an incentive for vaccination, n (%)	42 (82.4)	-	56 (69.1)	-	0.137
Do not participate in vaccination, n (%)	-	16 (31.4)	-	10 (21.7)	0.360
Discouraged from vaccination during treatment, n (%)	-	9 (17.6)	-	22 (47.8)	0.002

educational initiatives for both clinicians and parents, clear clinical guidelines on immunisation, and improved coordination between paediatricians and subspecialists to increase vaccine coverage in children with IBD and JIA.

Discussion. The study revealed substantial differences in vaccination coverage among patients with IBD, JIA, and healthy children, as well as divergent views on immunisation held by parents and physicians. These findings highlight barriers related to awareness, clinical guidance, and perceived vaccine safety patterns previously described by Lester R. (2015) [9].

One key determinant of coverage is the cautious approach to immunisation adopted by rheumatologists, which shapes the advice given to parents of children with JIA. In the present survey, 47.8% of rheumatologists actively discouraged vaccination during treatment, compared with 18% of paediatric gastroenterologists (p=0.009). This discrepancy may reflect stronger concerns among rheumatologists about provoking disease flares and is consistent with their greater scepticism regarding the safety of live vaccines [11].

Comparison of parental and physician responses suggests that poor coordination among healthcare providers and limited interaction between primary-care and specialty clinicians contributes to suboptimal coverage. A substantial proportion of specialists refrain from actively managing vaccination: 32% of paediatric gastroenterologists and 21.7% of rheumatologists consider immunisation to be the sole responsibility of primary-care paediatricians, which may leave parents without clear guidance.

For parents, the principal barriers continue to be temporary medical contraindications (17.6% in IBD, 17.3% in JIA, 3.4% in controls; p<0.0001) and fear of post-vaccination disease exacerbation. Such apprehension is reinforced by some clinicians: 13.7% of gastroenterologists and 21.7% of rheumatologists consider vaccination a potential trigger, while a further 21.6% and 34.8%, respectively, answered “rather yes than no” (p=0.083), findings echoed in other studies [8]. Insufficient parental knowledge and the impact of misinformation also play a role, as evidenced by the high proportion citing misleading media reports on adverse events (51.0% of gastroenterologists, 80.4% of rheumatologists; p=0.003) [2, 16].

Influence of medical specialists on vaccination decisions. The influence of medical professionals on vaccination decisions remains significant. Parents of children with IBD more often reported that their attending physicians encouraged vaccination (84%) compared with parents of children with JIA (69.1%). In addition, 43.2% of parents of IBD patients checked antibody titres before starting immunosuppressive therapy, which is also an important element in building trust in vaccination. These data highlight the need for active physician involvement in educating parents and patients.

The results indicate the need to introduce personalised vaccination strategies for patients with immune-inflammatory diseases. Key measures to improve vaccination coverage may include: developing unified tactical recommendations for vaccinating patients with IBD and JIA that contain clear immunisation algorithms depending on disease stage and current therapy; enhancing interdisciplinary cooperation among paediatricians, gastroenterologists and rheumatologists to produce harmonised recommendations; increasing parental awareness of vaccine safety and necessity through educational programmes and physician-led outreach; and creating an individualised vaccination approach that takes into account disease status, antibody levels and risk factors, thereby increasing the confidence of patients and their families in immunisation.

Thus, better coordination among medical specialists, greater awareness among physicians and parents, and the introduction of personalized vaccination strategies may help increase vaccination coverage among patients with IBD and JIA, reduce the risk of infectious complications and improve their quality of life.

Study limitations. This study has several limitations. First, the survey relied on self-reports from parents and physicians, which may lead to subjective data perception and possible information bias. Second, the study included a limited number of respondents, which may restrict the generalisability of the findings to a broader population of patients and medical professionals. Third, the inability to verify vaccination data against medical records prevents assessment of the accuracy of the responses provided. Further research using objective vaccination data will clarify the identified trends and confirm their clinical significance.

Conclusion. Our study demonstrates that, despite the existence of guidelines and a generally high level of physician awareness, both vaccination coverage and post-vaccination immunity remain suboptimal in children with inflammatory bowel disease (IBD) and juvenile idiopathic arthritis (JIA). We identified significant differences in vaccination management between paediatric gastroenterologists and rheumatologists: some specialists do not perceive immunoprophylaxis as part of their remit, leading to blurred responsibility and less effective communication with parents.

The presence of “immune gaps” in children who have already been vaccinated underscores the need not only for documentary verification of immunisation status but also for laboratory assessment of antibody titres before and during immunosuppressive therapy. Effective vaccination in this population requires coordinated involvement of all stakeholders treating specialists, primary-care paediatricians and parents. Implementing a unified immunisation pathway, centred on antibody monitoring and an individualised approach, could enhance protection and reduce the risk of infectious complications.

The authors declare no conflict of interest in the submitted article.

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ORGANIZATION OF HEALTHCARE, MEDICAL SCIENCE PAND EDUCATION

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CURRENT ISSUES OF TRAINING OF DOCTORS-ORGANIZERS OF HEALTH CARE IN MODERN SOCIO-ECONOMIC CONDITIONS

The aim of the study was to identify ways and opportunities to improve the system of special training of health care managers in the specialty "Public Health and Health Care". Currently, graduates of medical universities, in addition to professional competencies, should demonstrate universal or supraprofessional competencies, including those related to the issues of competent management of medical organizations of various forms of ownership. The article presents an opinion on the ways to improve the training of specialists in the field of public health and health care, substantiates the necessity of teaching the discipline (the module) "Management" for students of medical specialties. The goals, objectives and range of issues to be studied within the discipline "Public health and public health care" at the stages of pre- and postgraduate education in medical universities of Russia are outlined. The conclusion is made that management training, including project-based learning, will allow future doctors to form competencies necessary in modern professional activity.

Keywords: medical education, health care organization, management in health care, training of managers of medical organization.

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Introduction. In modern Russia, which is purposefully developing a market economy, the issues of management personnel training are of paramount importance for all spheres of professional activity and industries. This also applies to the training of modern managerial personnel, the category of which includes doctors-organizers of health care. In the training of this category of managers of medical organizations of the industry, a particularly important place is occupied by training in the specialty "Public Health and Health Care".

The purpose of this study was to identify ways and opportunities to improve the system of special training of health care managers in the specialty of "Public Health and Health Care".

Materials and methods of the study. The method of content analysis and monographic method were used in the study. Materials of special publications, orders and legislation in the field of health care were studied, personal experience of the authors of the article was generalized.

Results of the work. Physician-organizer of health care occupies a special position among representatives of other medical specialties, and in this aspect, training at the site of postgraduate and additional professional training is a particularly important direction of his professional development and staff growth.

Speaking about the very first stage of medical education of a future doctor, i.e. his/her training at the student bench of a medical university, it is necessary to understand that this is the very first stage in the special education that the medical profession requires. A medical graduate

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