The Paratuberculosis Newsletter

The official publication of the International Association for Paratuberculosis



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Note from the Editor

Welcome to the April Newsletter. Most of the Covid Restrictions have been lifted in Ireland and things are starting to get back to some semblance of normality. We have 182 registrants so far and it is looking to be a very enjoyable conference. If you haven't registered yet it's not too late and it will be a great way to celebrate the ending of Covid.

We were delighted with the number of abstracts submitted and have put together a very good scientific programme. There are six plenary speakers (Marcel Behr, Kumi De Silva, Frank Griffin, Marian Price Carter, Vivek Kapur and Herman Barkema)

There are six different sessions in the Scientific Programme:

- 1. Pathogenomics, Genotyping and Map diversity (10 Oral Presentations)
- 2. Control programmes and Education (8 Oral Presentations)
- 3. Diagnostics and detection (12 Oral Presentations)
- 4. Host response and immunology (10 Oral Presentations)
- 5. Epidemiology and Economics (10 Oral Presentations)
- 6. Public Health and Map in the environment (8 Oral Presentations)

A new feature at this colloquium is that before each poster session, five poster presenters will give a 2 minute pitch to encourage people to view their poster and discuss their research further. There are a total of 84 posters.

The full programme is available on the website at <u>https://www.icpdublin.com/programme</u>

The Early Registration deadline has been extended until 25th April and is €100 cheaper than standard registration and €200 cheaper than Onsite Registration. For more detail on travelling to Ireland please visit the Irish Government website <u>www.gov.ie</u>

As I missed the meeting in Mexico, due to a clash of dates with another commitment, it has been six years since I have met up with my paratuberculosis friends and acquaintances and am looking forward to a great end of Covid celebration next June. We have put together a very good social programme and there will be as usual many impromptu meetings, dinners and outings arranged between old friends. If you haven't been before it is great opportunity to meet up with people working in the same field and we hope to have several social events organised targeted at graduate students.

We have a Facebook page at <u>https://www.facebook.com/paratb2022</u> and a Twitter page at <u>https://twitter.com/paratb2022</u>. Details of places to visit when you come to Ireland will be included on these pages as well as Breaking News about the Colloquium. Hope you can make it to Dublin and looking to making it a very enjoyable time for all the participants.

We were delighted to have our first member from Pakistan, Dr. Aziz ur Rehman, who has very kindly sent an article for inclusion in the newsletter on Paratuberculosis in Pakistan. In future newsletters we hope to have articles on Paratuberculosis in other Asian countries in preparation for the 16th ICP in India in 2024.

Included in this issue of the Newsletter are The New IAP Website, 2021 Year End financial report, more details about 15th International Colloquium for Paratuberculosis, Expanding membership of IAP, Upcoming Events, Database of Paratuberculosis articles published in the last five years, List of Johne's websites and Recent publications to April 2022. The next newsletter will be published in August. If you have any interesting items, please send them to me at <u>petermullowney29@gmail.com</u>

Best wishes,

Peter Mullowney

The New IAP Website

Some of you may have noticed that Rod Chiodini, the IAP Webmaster, has recently revamped the website and obtained a new Domain name for it (<u>www.paratuberculosis.com</u>) The old domain (<u>www.paratuberculosis.org</u>) is still working and redirects to the new website.

The new website is much more user-friendly and several of the functions of the old website that were not being used have been removed.

The website consist of two parts. The first with free access to everybody and the second for members only.

There are pages on the public website for information about the Association, which give details of Laws & By-Laws, Association Policies and Officers, Board of Directors and Current Members of the Association and the disease of Paratuberculosis., which has links connecting to Johne's Information Center at the University of Wisconsin - Madison, School of Veterinary Medicine run by Drs. Mike Collins and Elizabeth Manning.

The Events tab links to information about the 15th International Association for Paratuberculosis Colloquium June 12-16, 2022 in Dublin and the 16th International Colloquium on Paratuberculosis, Amity University Rajasthan, Jaipur, India October 2024. There is also information about a current job vacancy as Program Manager for the Irish Johne's Control Program at Animal Health Ireland.

The Publications tab links to past editions of the Paratuberculosis Newsletter, Association Consensus Statement: Guidelines for certification with respect to the movement of livestock for Mycobacterium avium subsp. paratuberculosis (MAP) infection, Proceedings of International Colloquia and Search current Paratuberculosis literature.

The Join tab links to a form to apply for membership and the Contact tab allows users to send a message to the Association.

On the Members only page there are tabs to Pay your Membership Dues, Update Your Profile & Information and Contact Details for other members to help you stay connected.

I think the new website is very impressive and I would like to thank Rod for all the hard work he has put onto developing it.

2021 Year End Financial Report



International Association for Paratuberculosis

Financial Report- December 31, 2021

	Checking	Money Market	PayPal	Total	
Open (1/1/21)	\$40,216.76.	\$14,350.74	\$ 790.56	\$ 55,358.06	
Close Q2 (6/30/21)	\$14,916.76	\$44,367.05	\$ 593.28	\$ 59,877.09	
Year End (12/31/21)	\$18,360.76	\$43,179.43	\$ 343.66	\$ 61,883.85	

INCOME

	1/1/2	21 to 6/30	/21	7	/1/21 to	12/31/21	A	innual Total
Dues	\$	4,715.00		s	3,370	00	\$	8,085.00
Interest	\$	2.06		S	2	22	\$	4.28
Royalties	\$	14.25					\$	14.25
Total	\$	4,731.31		\$	3,372	22	\$	8,103.53
EXPENSE:	5		1/1	/20 to 6/30/2	<u>0 7/</u>	1/20 to 12/31/20	A	nnual Total
PayPal/Wir	e fees		\$	212.28	\$	210.62	s	422.90
ICP Award	(Emerit	tus registra	ation	1)	\$	1,154.84	ŝ	1,154.84
Total			\$	212.28	\$	1,365.46	\$	1,577.74

Respectfully Submitted,

Raymond W. Sweeney, VMD Secretary-Treasurer

Paratuberculosis in Pakistan

Dr. Aziz ur Rehman

Department of Pathobiology, College of Veterinary and Animal Sciences Jhang, Pakistan.

Paratuberculosis (Johne's disease) is long-lasting, infectious granulomatous disease that mainly disturbs the ruminant and wild animal species all around the globe. The disease is produced by Mycobacterium avium subsp paratuberculosis (MAP). Johne's disease is considered among the top serious threats disturbing the world's dairy industry. Pakistan has vibrant dairy sector and has gained a lot of attention in Pakistan, which is now number 4th in the world in total milk production. So, the disease can represent a severe threat to this industry in Pakistan. Prolong incubation period and the slow disease progression, lack of early identification of MAP infected animals makes it more susceptible (Fecteau, 2018). its probable role in Crohn's disease in humans, and the fact that this organism can be present in milk and milk products and can also resist cheese processing and pasteurization, provide compelling reasons to strengthen control measures. The disease has been reported in different regions of the globe with different rate. In dairy herds of Spain, MAP prevalence has been reported to be 4.03% (Dieguez et al. 2007), while in India its presence was found to be 2.71% (Singh et al. 2004). Herd-level prevalence of up to 75.8% has been reported in the Caribbean and Latin America (Fernández-Silva et al, 2014), more than 50% in Europe and North America (Imada et al, 2020) and of 20.35–41.7% in Asia (Lee and Jung, 2009; Sun et al, 2015). The animal level prevalence ranging from 2.31% to 29.8% was also reported in Asia (Gurung et al, 2018; Singh et al, 2008). In Pakistan, few studies have been conducted that revealed different conditions. The prevalence in breeding bulls at a semen production unit has been reported to be 20%, while in case of teaser bulls it was 33% (Abbas et al., 2011). An abattoir-based study in Faisalabad showed prevalence of disease in buffaloes and cattle at the rate of 3.75% and 4.1%, respectively (Rehman et al, 2017). Another study reported 11.9% disease prevalence in district Jhang, Punjab, Pakistan (Sikandar et al., 2012). The Comparison of tuberculin testing and ELISA at UAF livestock farm revealed that ELISA showed more positive results than that of tuberculin testing, thus ELISA is more reliable test for the diagnosis of Paratuberculosis (Rehman et al, 2022). At different public livestock farms the disease rate varied from 0.5-13.5% with 100% herd prevalence. A research study carried out to check the prevalence of paratuberculosis at 4 livestock farms of public sector in Punjab in water buffalo showed a prevalence of 1.3% (Rehman et al. 2018). However, multivariate logistic regression analysis revealed that specie, milk yield and total number of animals showed significant association with occurrence of Paratuberculosis. Considering ELISA as standard, the relative sensitivity and specificity of Avian PPD were 80.0% and 89.47%, respectively. Similarly, the relative sensitivity and specificity of the ZN fecal test were 70.0% and 97.37%, respectively. The relative sensitivity and specificity of Avian PPD by considering ZN fecal test as standard were 100% and 90%, respectively. The study revealed that there was a significant decrease in total proteins, albumins and globulins in positive animals (Rehman et al, 2018). At cattle colonies private herds, the prevalence varied from 3.44 to 14.66% with 100% herd prevalence. The multivariate logistic regression analysis revealed that herd, age and lactation number showed significant association with the occurrence of Paratuberculosis. The bivariate logistic regression analysis revealed that herd showed significant association with occurrence of Paratuberculosis. After controlling the age as constant factor, the bivariate logistic analysis revealed that herd and total animals at farm showed significant association with occurrence of Paratuberculosis (Rehman et al, 2017). Hematological alterations were also observed i.e., platelets were significantly decreased and MCH increased in paratuberculosis positive animals. Multivariate logistic regression analysis with the backward elimination procedure in cattle and buffaloes

revealed that the factors herd, age and lactation number showed significant association with the occurrence of Johne's disease (Fig 1, 2). Another study was carried out by Rehman et al (2017) to determine the occurrence of Paratuberculosis infection in cattle and buffaloes slaughtered at Faisalabad abattoir, Pakistan. The study carried out on a total of 400 animals including cattle (200) and buffaloes (200). On the basis of PCR, 0.5% buffaloes and 1.5% cattle were found positive for Paratuberculosis. A total, 45 morbid samples (25 cattle + 20 buffaloes), were collected and subjected to PCR (Fig 6). A total of 18 cases of intestine showed thickened mucosa, corrugation and haemorrhages (Fig 5). The histopathology investigation of intestine tissues revealed diffuse mononuclear cell infiltration, inflammatory reaction along with degenerative and necrotic changes in sub- mucosal glands of the intestine. The immature granuloma formation was observed in both intestine and lymph nodes (Fig 7,8). This study concluded that disease is predominant at slaughterhouse area of Faisalabad, Punjab, Pakistan and histopathology along with PCR are reliable diagnostic tools for the diagnosis of Paratuberculosis. Hussain et al 2018 concluded that the tuberculin test can be used as a screening test, but for the reliable results the suspected animals must be further confirmed by ELISA and other tests in resource poor settings. The study revealed that tuberculin testing, ELISA, ZN staining and PCR are efficient diagnostic tools to diagnose the disease (Rehman et al, 2022). In sheep and goats, a study conducted at Lahore, Punjab, Pakistan abattoir, indicated a prevalence of 14% and 12% in goats and sheep, respectively (Chaudhary et al. 2009). Another study from Pakistan reported a prevalence of 10.63% in ovine (Sikandar et al. 2013). PCR based study in Lahore district confirmed 12.8% intestinal and 12.4% lymph node positive samples in buffaloes, However, in cattle, PCR assay confirmed 14.2% positive lymph node and intestinal tissue sections (Khan et al, 2010). Histopathology based study was carried out by Sikandar et al, (2021) in Jhang Pakistan that concluded that histopathology is an economical and yet the most trusted tool for diagnosing Johne's disease in countries like Pakistan. The review concluded that the disease Paratuberculosis/ Johne's disease is present in Pakistan at public livestock farms, cattle colonies and abattoirs of various areas of Pakistan with different magnitude. Culture isolation, strain typing and further molecular investigation is needed to know the circulating organism (MAP) in local areas of Pakistan. The regular annual testing and culling of the positive animals could be adopted and development of authentic preventive measures is needed.







Fig 2: Specie wise prevalence of in eight at two cattle colonies





Fig 3: Specie wise Prevalence of Paratuberculosis Fig 4: Sex wise Prevalence of at Faisalabad abattoir

Paratuberculosis at Faisalabad abattoir



Fig 5: Thickened corrugated small intestine



Fig 7: Immature granulomatous reaction intestine Fig 8: Hyper cellularity of Lymph node with mixture of chronic inflammatory cells

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NEW ASSOCIATION LAWS & BYLAWS

Within the next couple of weeks, you will be receiving an email from the Association about proposed changes in the Laws & ByLaws of the Association. These new Laws & ByLaws represent a major change in the functions of the Association, particularly in the Governing Board, whereby all members, not just those having 5 or more country members, can now serve on the Board. Other major changes are made as well.

This email will contain links to a copy of the proposed Laws & ByLaws as well as an explanation of all the changes and why. A link to vote at the meeting by proxy is also provided well as an indication that you will be voting in person at the meeting.

For passage, greater than 50% of the membership must approve these Laws & ByLaws for enactment at the upcoming membership meeting in Dublin. ALL active members of the Association are encouraged to vote.



15th International Colloquium for Paratuberculosis $12^{th} - 16^{th}$ June 2022

Céad Míle Fáilte

(one hundred thousand welcomes)



The ICP 2022 Organising Committee invites you to the 15th IAP Colloquium in Dublin, Ireland in June 2022. Delegates attending the conference can be assured of a productive and memorable colloquium, discover Irish heritage, culture and music and of course, experience the world renowned hospitality of Ireland.

Ireland is Open for Visitors!!!!

Unprecedented efforts are under way to safeguard public health and limit the spread of COVID-19 on the island of Ireland. The ICP 2022 Organising Committee continues to monitor the situation closely and our **planning towards an in-person Colloquium in June 2022.**

From the 19th of July 2021, the Republic of Ireland is operating the EU Digital COVID Certificate (DCC) for travel originating within the EU/EEA. Ireland will also be welcoming visitors from Great Britain or North America who have valid proof of vaccination (with an EMA-approved vaccine) or have valid proof of recovery from COVID-19 in the last 180 days.

Before arriving in Ireland, you must complete a <u>Passenger Locator Form</u>. The form will be checked before your departure to Ireland – by your airline or ferry company – and you may be asked to show your vaccination certificate. Upon arrival in Ireland, spot checks will be carried out on proof of vaccinations and/or negative RT-PCR tests.

For more detail on travelling to Ireland please visit the Irish Government website www.gov.ie

Registration Details

Registration is open: To register <u>click here</u> **Early Registration deadline**: 2nd March 2022 **Online Registration closes**: 3rd June 2022

Registration fees

	Early Bird	Standard	On-site
Member	€495	€595	€695
Non Member	€595	€695	€795
Student	€395	€450	€495
Low to Middle Income countries	€395	€450	€495

The registration fee includes:

- Admission to all sessions and the exhibition
- Conference materials
- Tea, coffee and lunches throughout the conference
- Admission to the Welcome Reception in EPIC Emigration Museum on Sunday the 12th June 2022

Accommodation

Please visit the conference website <u>here</u> for information on how to book the conference hotel, <u>Jury's</u> <u>Inn Christchurch</u> including rates per night, per room. Availability is limited and the conference rates only apply until the 26th April 2022 so we advise booking early.

Social Programme

Welcome Reception

Sunday, 12th June 2022 at 19.30 EPIC Irish Emigration Museum, CHQ Building



We have an immersive and unforgettable evening planned in EPIC, The Irish Emigration Museum. The influence the Irish have had around the globe is impressive. EPIC tells the dramatic story of the people who have left the island of Ireland, how these people spread around the globe and how they influenced and shaped the world. Attendance to welcome reception is included in your registration fee and includes a 45 minute guided tours of the museum along with canapes and a drinks reception.

Excursion to the Orchard Centre, Wicklow

Tuesday, 14th June 2022 at 13:00 €40 per person



The half day excursion to the Orchard Centre gives delegates the opportunity to learn more about the history and heritage of the Hayden Family farm, the production of Baileys and more! Places to be booked in advance of the conference through the registration link.

Gala Dinner

Wednesday, 15th June 2022 at 19:30 Law Society of Ireland, Blackhall Place €50 per person



Delegates attending the Gala Dinner can be assured of an unforgettable evening of excellent food, fine wine, and an evening of cultural entertainment that only Dublin can offer! Tickets to be booked in advance of the conference through the registration link.

For more information visit www.ICPDublin.com

Please contact <u>icp2022@abbey.ie</u> if you have any questions

Expanding membership of IAP.

As of April 2022, there are 142 members of the International Association of Paratuberculosis from 30 different countries. There are 39 countries with a population greater than 25 million that do not have a member. You will note later in the newsletter a list of recent publications on Paratuberculosis. There are a total of 41 publications, 6 United States of America; 3 Canada, Germany, Spain; 2 Argentina, Chile, Czech Republic, Italy, Mexico, Netherlands, South Africa, United Kingdom and one each from Australia, China, Egypt, Iran, Ireland, Pakistan, Poland, Sudan, Switzerland and Taiwan. The authors of these articles will be written to inviting them to join if they are not already members and if they are from a country that does not have members asked to write a short paragraph for the next newsletter on the incidence of Johne's Disease and research carried out in their country. It would also be very helpful if each member could convince one of their co-workers to become a member of IAP.



Upcoming Events

15th International Colloquium for Paratuberculosis

13th - 16th June 2022 Dublin, Ireland

Seventh International Conference on Mycobacterium bovis

7th - 10th June, 2022 Galway, Ireland

World Buiatrics Congress 2022

September 4th - 8th, 2022, Madrid, Spain.

16th International Symposium of Veterinary Epidemiology and Economics

August 7-12, 2022 in Halifax, Nova Scotia, Canada.

16th International Colloquium for Paratuberculosis

2024 Jaipur, India

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Database of Paratuberculosis articles published in the last five years

A searchable database of all the articles included in the Paratuberculosis Newsletter for the last five years is now available at <u>http://www.paratuberculosis.net/references.php</u>.

List of Johne's websites

Below is a list of websites that give information about paratuberculosis in different countries. If your organisation has a website that you would like to see included please send details to petermullowney29@gmail.com

Argentina

Universidad Nacional de Mar Del Plata: Veterinary bacteriology research and diagnosis
laboratory

Australia

- Animal Health Australia
- Australia and New Zealand Standard Diagnostic Procedures, April 2002

Austria

• Lymphatic fluid used for the first time to diagnose bovine paratuberculosis

Belgium

• Paratuberculosis control for milking herds

Brazil

• Animal Health Australia

Canada

- Johne's Education, Management and Assistance Program (Ontario)
- Beef Cattle Research Council
- <u>Alberta Johne's Initiatives</u>
- British Columbia Testing
- <u>Canadian Johne's Disease Initiative</u>

Chile

• <u>Publications of Miguel Salgado</u>

Colombia

<u>Universidad De Antioquia</u>

Czech Republic

• Veterinary Research Institute

Denmark

• <u>Statens Serum Institut</u>

France

- World Organization for Animal Health (O.I.E)
- Bovine Paratuberculosis Control
- Biology, Epidemiology and Risk Analysis in animal health

Germany

• Frederic Loeffler Institute

Greece

Department of Veterinary Medicine, University of Thessaly

India

• ICAR-Central Institute for Research on Goats

Ireland

- Animal Health Ireland
- <u>Report of the Scientific Committee of the Food Safety Authority of Ireland (2009)</u>

Italy

Istituto Zooprofilattico Sperimentale della Lombardia

Japan

• National Institute of Animal Health (NARO)

Mexico

<u>Universidad Nacional Autonoma de Mexico</u>

Netherlands

- VeeproHolland
- <u>GD Animal Health</u>

New Zealand

- Johne's Disease Research Consortium (New Zealand)
- New Zealand Deer Industry.

Norway

Norwegian Veterinary Institute

Panama

Indicisat

Saudi Arabia

• King Faisal University College of Veterinary Medicine

Slovenia

• Veterinary Faculty, National Veterinary Institute, Ljubljana

Spain

- produccionanimal.com Interview with Valentin Perez
- interview with Joseba Garrido, Director of the Animal Health Department of Neiker-Tecnalia

Switzerland

<u>Federal Food Safety and Veterinary Office</u>

Thailand

• National Institute of Animal Health (NIAH)

United Kingdom

- National Johne's Management Plan (NJMP) (U.K.)
- <u>National Animal Disease Information Service</u>
- PBD Biotech
- <u>Vetstream</u>
- <u>Kaz Strycharczyk, of Black Sheep Farm Health gives advice on Johne's in Farmer's Weekly</u>
- Action Johnes
- <u>Scottish Agricultural College</u>
- My Healthy Herd

United States

- Johne's Information Center (University of Wisconsin-Madison)
- Human Paratuberculosis Foundation, Inc
- USDA Animal and Plant Inspection Service
- U.S. Voluntary Bovine Johne's Disease Control Program.
- <u>The Mycobacterial Diseases of Animals (MDA) multi-state initiative</u> (U.S.A.)
- Johne's on the Cattle Site
- Overview of Paratuberculosis By Michael T. Collins from Merck Manual
- <u>Center for Food safety and Public Health (Iowa State)</u>
- Hato Sano (Colorado State)
- The Cattle Site (Some interesting videos on Johne's)

Recent publications to April 2022

Most of these articles were published between January 2022 and April 2022. Click on the hyperlink at the bottom of the article to see abstract or full article if it is Open Access.

Bahmanjeh, A; Ataei,Kachooei, Faezi Ghasemi, M; Mosavari, N; Hassanzadeh, S. M. 2021 Comparison of Cattle Serum Antibody Responses to Five Different Mycobacterial Antigens in an ELISA System Archives of Razi Institute, Vol. 76, No. 5 (2021) 1269-1278 https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8934066/pdf/ARI-76-1269.pdf

Bannantine, J.P.; Stabel, J.R.; Kapur, V.

2022

Immunological Evaluation of Goats Immunized with a Commercial Vaccine against Johne's Disease. Vaccines 2022, 10, 518. https://doi.org/10.3390/vaccines10040518 https://www.mdpi.com/2076-393X/10/4/518

Blanco-Vázquez C, Alonso-Hearn M, Iglesias N, Vázquez P, Juste RA, Garrido JM, Balseiro A, Canive M, Amado J, Queipo MA, Iglesias T and Casais R 2022

Use of ATP-Binding Cassette Subfamily A Member 13 (ABCA13) for Sensitive Detection of Focal Pathological Forms of Subclinical Bovine Paratuberculosis.

Front. Vet. Sci. 9:816135. doi: 10.3389/fvets.2022.816135

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8960928/pdf/fvets-09-816135.pdf

Cechova M, Beinhauerova M, Babak V, Kralik P. 2022

A viability assay combining palladium compound treatment with quantitative PCR to detect viable Mycobacterium avium subsp. paratuberculosis cells.Sci Rep. 2022;12(1):4769. Published 2022 Mar 19. doi:10.1038/s41598-022-08634-x

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8934341/pdf/41598_2022_Article_8634.pdf

Criado, M.; Espinosa, J.; Zapico, D.; Fernandez, M.; Ferreras, M.C.; Benavides, J.; Perez, V. 2022

Immunohistochemical Study of the Inflammatory Cells Present at the Injection-site Granulomas induced by Two Different Paratuberculosis VaccinesJournal of Comparative Pathology Volume 191, February 2022, Page 47

https://www.sciencedirect.com/science/article/abs/pii/S0021997521002528

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