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# My Research Journey

### **Prof Ketan Dhatariya** MBBS MSc MD MS FRCP PhD Consultant in Diabetes and Endocrinology Norfolk and Norwich University Hospitals





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# My Research Journey

#### or

A tale of getting to be the world's number 1 in my area of interest

**Prof Ketan Dhatariya** MBBS MSc MD MS FRCP PhD Consultant in Diabetes and Endocrinology Norfolk and Norwich University Hospitals

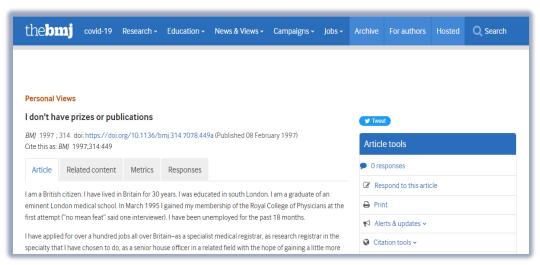






## A Bit of Background

- I trained at the Middlesex and graduated in 1991
- I was unemployed for over a year trying to find a job and was a locum in D&E on the Isle of Wight for much of that time







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## Background

- I trained in D&E in South Thames, and was a part time GP for 2 years in the evenings
  - All the while wanting to be an intensivist
- 1991 1998 I only worked in DGHs
- I took time out to do ITU and anaesthetics
- I did an MSc in diabetes

The prophylactic use of low dose dopamine for the prevention of radio opaque contrast media induced acute renal failure in diabetic patients with pre-existing renal impairment undergoing trans femoral angiography.

A comparison between the currently used dose with a lower dose of dopamine.

An MSc Thesis

Dr Ketan Dhatariya

June 1999





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## My Initial Research Idea.....

• Was thought of by someone else

## The New England Journal of Medicine

Copyright © 2001 by the Massachusetts Medical Society

VOLUME 345

NOVEMBER 8, 2001

NUMBER 19



#### INTENSIVE INSULIN THERAPY IN CRITICALLY ILL PATIENTS

GREET VAN DEN BERGHE, M.D., PH.D., PIETER WOUTERS, M.Sc., FRANK WEEKERS, M.D., CHARLES VERWAEST, M.D., FRANS BRUYNINCKX, M.D., MIET SCHETZ, M.D., PH.D., DIRK VLASSELAERS, M.D., PATRICK FERDINANDE, M.D., PH.D., PETER LAUWERS, M.D., AND ROGER BOUILLON, M.D., PH.D.





#### However

- In my reading, one name kept cropping up
- I emailed him for help and sent him a copy of my CV
- Sree Nair at Mayo Clinic, Rochester, MN, rang me the next day and said he had a job for me





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## Mayo Clinic – 2001 to 2003

 DHEA research – in adrenalectomized women and elderly men and women





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### A Couple of Degrees and a Few Papers







## Norwich

- I arrived in 2004
- Mike Sampson told me 'chose 1 small subject area and stick to it'
- I chose to stick to diabetes and endocrinology
  - Adrenal, pituitary, thyroid, gonads, pancreas, eyes
  - General medicine

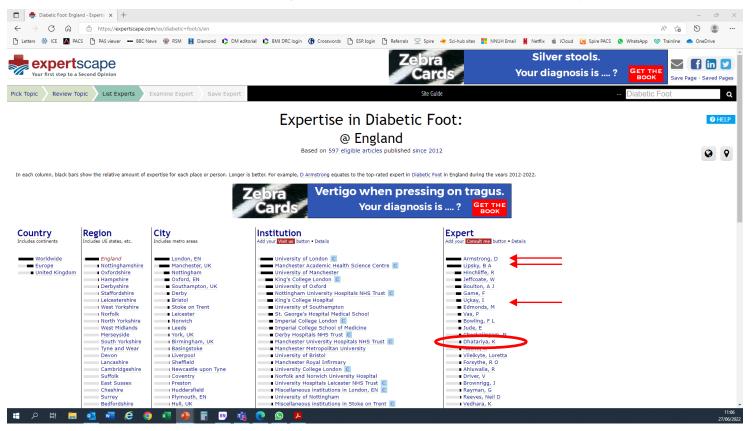


- I took over the foot clinic in 2007
- It is now one of the largest in the UK
- So far we have published (on average) 3-4 papers per year
- We are a 'go to' centre for foot research in the UK
- I'm on the International Working Group for the Diabetic Foot Guideline writing group
- Catherine Gooday, the principal podiatrist, has just been awarded her PhD



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Number 11 in England for Diabetic Foot Expertise





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## **Other Things**

- Norfolk Diabetes Prevention Study ۲
- Flavinols
- Dementia
- Eyes ۲

JAMA Internal Medicine | Original Investigation

Lifestyle Intervention With or Without Lay Volunteers to Prevent Type 2 Diabetes in People With Impaired Fasting Glucose and/or Nondiabetic Hyperglycemia A Randomized Clinical Trial

Michael Sampson, MD: Allan Clark, PhD: Max Bachmann, PhD: Nikki Garner, MPhil: Lisa Irvine, PhD: Amanda Howe, MD: Colin Greaves, PhD: Sara Auckland, PhD; Jane Smith, PhD; Jeremy Turner, DPhil; Dave Rea; Gerry Rayman, MD; Ketan Dhatariya, PhD; W. Garry John, PhD; Garry Barton, PhD; Rebecca Usher, MSc: Clare Ferns: Melanie Pascale, PhD: for the Norfolk Diabetes Prevention Study (NDPS) Group

The effects of hypoglycaemia and dementia on cardiovascular events, falls and fractures and all-cause mortality in older individuals: A retrospective cohort study

Katharina Mattishent MRCP<sup>1</sup> Kathryn Richardson PhD<sup>2</sup> Ketan Dhatariya PhD<sup>3</sup> George M. Savva PhD<sup>4</sup> | Chris Fox MD<sup>1</sup> | Yoon K. Loke MD<sup>1</sup>

**Chronic Ingestion of Flavan-3-ols and Isoflavones Improves Insulin Sensitivity** and Lipoprotein Status and Attenuates **Estimated 10-Year CVD Risk in Medicated Postmenopausal Women** With Type 2 Diabetes

A 1-year, double-blind, randomized, controlled trial

PETER J. CURTIS, PHD<sup>1</sup> KETAN DHATARIYA, MD<sup>2</sup> he global prevalence of diabetes is in-MIKE SAMPSON, MD<sup>2</sup> PAUL A. KROON, PHD creasing, with recent predictions sug-IOHN POTTER, MD<sup>1</sup> AEDÍN CASSIDY, PHD<sup>1</sup> gesting that complications of diabetes accounts for 7% of all-cause mortality and Diabetes Ther https://doi.org/10.1007/s13300-022-01241-z ORIGINAL RESEARCH The Association Between Glycaemic Control, Renal **Function and Post-operative Ophthalmic Complications in People With Diabetes Undergoing** Cataract Surgery—A Single-Centre Retrospective Analysis • Ian Nunney • Ketan K. Dhatariya 🗈 The Association Between Mean Glycated Haemoglobin

or Glycaemic Variability and the Development of Retinopathy in People with Diabetes: A Retrospective Observational Cohort Study

Ketan Dhatariya 🙆 · Alexander Humberstone · Abul Hasnat Rebecca Wright · Morgan Lujan · Ian Nunney

Diabetes Ther (2021) 12:2755-2766

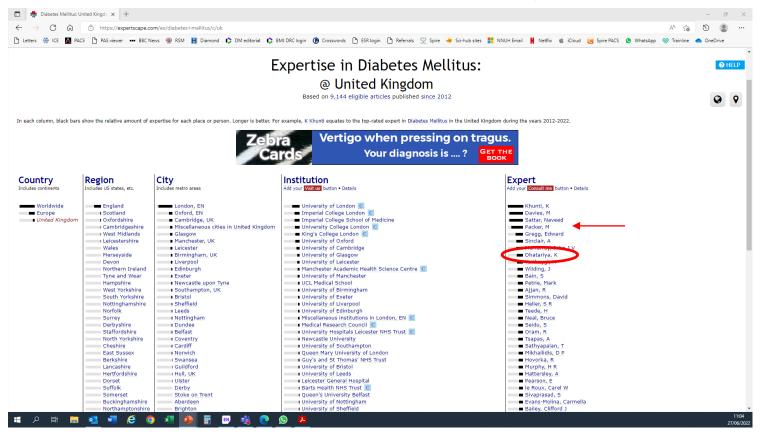
ORIGINAL RESEARCH

https://doi.org/10.1007/s13300-021-01146-3



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#### Number 7 in the UK for Diabetes Expertise



Diabetes Mellitus: United Kingdom - Expertscape.com – Accessed 27th June 2022



## A Few Other Achievements

- Since 2016 I've been the Chair of the 'Exit' exam in D&E (and was the chair of the European exam as well)
- I'm an associate editor on Diabetic Medicine and BMJ Diabetes
- I am on the research advisory boards for ABCD and DRWF
- I am currently guest editing editions of the Journal of Diabetes Science and Technology and also Metabolism and Target Organ Damage





## Research Achievements

- Chair of the Data Safety Monitoring Board of 6 studies
- Adjudicator in large multinational studies (got to go to FDA)
- Local PI for dozens of commercial studies, and National lead for a current study (also a member of the global panel)





## **Inpatient Diabetes**

- I chair the Joint British Diabetes Societies for Inpatient Care
- Guidelines downloaded over 1 million times
- Used globally



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### What Guidelines are Those Then?

•	The hospital management of hypoglycaemia in adults with diabetes mellitus	JBDS 01
•		
•	The management of diabetic ketoacidosis in adults	JBDS 02
•	Management of adults with diabetes undergoing surgery and elective procedures: improving standards	JBDS 03
•	Self-management of diabetes in hospital	JBDS 04
•	Glycaemic management during the inpatient enteral feeding of stroke patients with diabetes $^{st}$	JBDS 05
•	The management of the hyperosmolar hyperglycaemic state (HHS) in adults with diabetes	JBDS 06
•	Admissions av	JBDS 07
•	Management The use of yar Type "JBDS Guidelines" into Google	JBDS 08
•	The use of var	JBDS 09
•	Discharge planning for adult inpatients with diabetes	JBDS 10
•	Management of adults with diabetes on the haemodialysis unit*	JBDS 11
•	Management of glycaemic control in pregnant women with diabetes on obstetric wards and delivery units	JBDS 12
•	The management of diabetes in adults and children with psychiatric disorders in inpatient settings $st$	JBDS 13
•	A good inpatient diabetes service	JBDS 14
•	Inpatient care of the frail older adult with diabetes	JBDS 15
•	Diabetes at the front door	JBDS 16
•	Diabetes in people living with cancer	JBDS 17
•	Diabetes related devices in the hospital*	



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PhD

The Management of Hospital In-patients with **Diabetes Mellitus** Dr Ketan Dhatariya A thesis submitted for the degree of PhD by Publication Candidate Number 10088546 School of Medicine University of East Anglia Norwich, England October 2017 ©This copy of the thesis has been supplied on condition that anyone who consults it is understood to recognise that its copyright rests with the author and that use of any information derived there from must be in accordance with current UK Copyright Law. In addition, any quotation or extract must include full attribution



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#### **Diabetic Ketoacidosis**

#### **Diabetic ketoacidosis**

Ketan K Dhatariya consultant in diabetes and endocrinology Norfolk and Norwich University Hospital NHS Trust, Elsie Bertram Diabetes Centre, Norwich NR47U ketan.dhatariya@nnuh.nhs.uk

Competing interests: None declared.

Provenance and peer review: Non-commissioned; externally peer reviewed.

BMJ 2007;334:1284-5 doi: 10.1136/bmj.39237.661111.80 Saline should be used for fluid replacement rather than Hartmann's solution

Diabetic ketoacidosis is a life threatening condition caused by insulin deprivation or inadequate use of insulin in people with type 1 (or occasionally type 2) diabetes mellitus. Precipitants include deliberate insulin omission, intercurrent illness, surgery, trauma, alcohol, late presentation of previously undetected type 1 diabetes, and the use of drugs that alter carbohydrate metabolism.<sup>1</sup> People with diabetic ketoacidosis need swift intervention by specialists because of the substantial morbidity and mortality arising from the acid-base imbalance, profound fluid loss, and electrolyte disturbances.

Current guidelines written by diabetes specialists from the United States and the United Kingdom recommend initial replacement of fluids and electrolytes and intravenous insulin.<sup>1</sup><sup>2</sup> The fluid advocated in these guidelines is 0.9% saline. However, people may be treated by emergency and intensive care doctors as well as diabetes specialists, and the type of fluid used can vary.

During the first few hours of hospital admission many people with diabetic ketoacidosis are treated by emergency or intensive care doctors who commonly prefer to use Hartmann's solution (sodium lactate intravenous infusion).<sup>3</sup> Subsequent care is usually delivered by the diabetes team, who prefer to use 0.9% saline. The conflict arises because guidelines for fluid replacement in the acute setting are written by diabetes specialists,<sup>1 2</sup> whereas no widely accepted guidelines have been written by emergency or intensive care doctors for fluid replacement in diabetic ketoacidosis.

For decades, 0.9% saline has been the fluid of choice for diabetic ketoacidosis, and its use continues to be advocated in modern textbooks on diabetes.<sup>4</sup> Early studies on diabetic ketoacidosis in the 1970s used 0.9% saline,<sup>5</sup> and this approach was reinforced a decade later.<sup>6</sup> However, giving patients large amounts of chloride can cause a hyperchloraemic metabolic acidosis,<sup>3</sup> <sup>7</sup> so administration of 0.9% saline for diabetic ketoacidosis could potentially worsen the metabolic acidosis. Thus, 0.9% saline may be the fluid of choice simply because evidence for the efficacy of other fluids is lacking. The question of which fluid replacement is optimal in patients with acute diabetic ketoacidosis is, therefore, still unanswered.

1284

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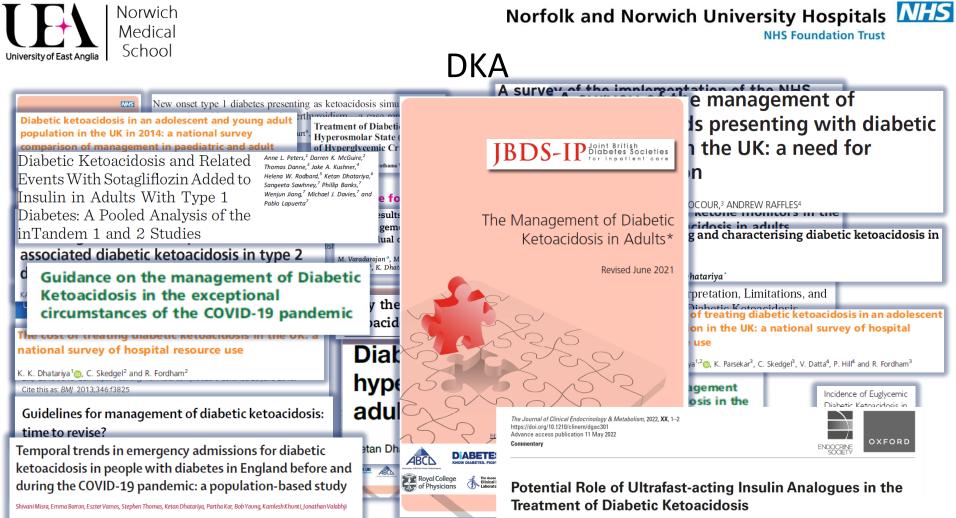
OFFICIAL PROGRAMME | £4.00

THE LEHMAN BROTHERS

**OXFORD UNIVERSITY RFC** 

CAMBRIDGE UNIVERSITY RUFC

TWICKENHAM STADIUM | TUESDAY, 12<sup>11</sup> DECEMBER 2006 | KICK-OFF 2:00P.M

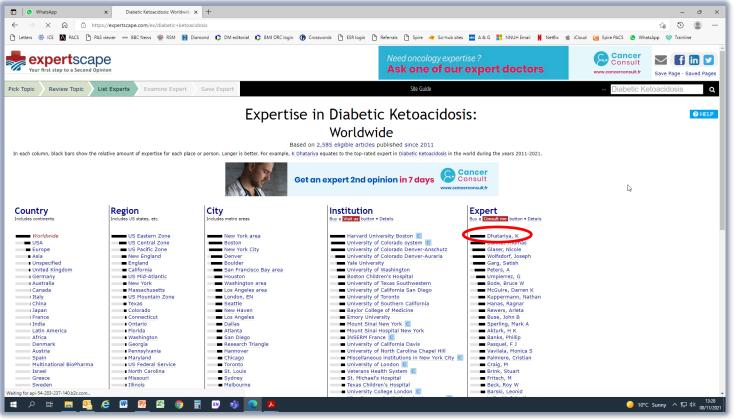


Theocharis Koufakis,<sup>1,0</sup> Ketan K. Dhatariya,<sup>2,3,4</sup> and Kalliopi Kotsa<sup>1,0</sup>



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Number 1 in the World for DKA Expertise

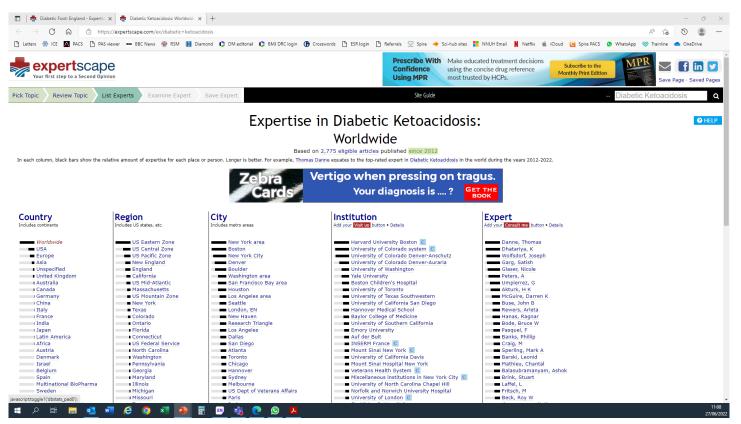


Diabetic Ketoacidosis: Worldwide - Expertscape.com – Accessed 8<sup>th</sup> November 2021



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#### **Recently Down to Number 2**







## Hot off the Press

 I've been invited to be part of the writing group of the update for the American Diabetes Association consensus document on the management of hyperglycaemic crises

#### Reviews/Commentaries/ADA Statements

#### CONSENSUS STATEMENT

#### Hyperglycemic Crises in Adult Patients With Diabetes

Abbas E. Kitabchi, phd, md<sup>1</sup> Guillermo E. Umpierrez, md<sup>2</sup> John M. Miles, md<sup>3</sup> Joseph N. Fisher, md<sup>1</sup> glucose utilization by peripheral tissues (12–17). This is magnified by transient



Guidelines for management of diabetic ketoacidosis: time to revise?



## **Barriers and Opportunities**

- I have (almost) never had any dedicated research time or funding
- Everything has been done in my own time
- Despite having a full time NHS job, I have added something to PubMed every 5 weeks since 2004, with an H-index of 40, i-10 of 105
- I was named in the top 2% of scientists worldwide for citations and publications in 2019

PLOS BIOLOGY		
	FORMAL COMMENT Updated science-wide author databases of standardized citation indicators John P. A. Joannidis <sup>(1234*</sup> , Kevin W. Boyacke <sup>0</sup> , Jeroen Baas <sup>0</sup>	

Ioannidis JPA, et al PLoS Biol 2020;18(10): e3000918.





## **Barriers and Opportunities**

- I remain enthusiastic and committed
- I now have an afternoon off per week (I dropped a clinic session)
- I am forever hopeful that I can convince funders that inpatient diabetes and feet are something worth investing in



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# My Research Journey

www.norfolkdiabetes.com

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