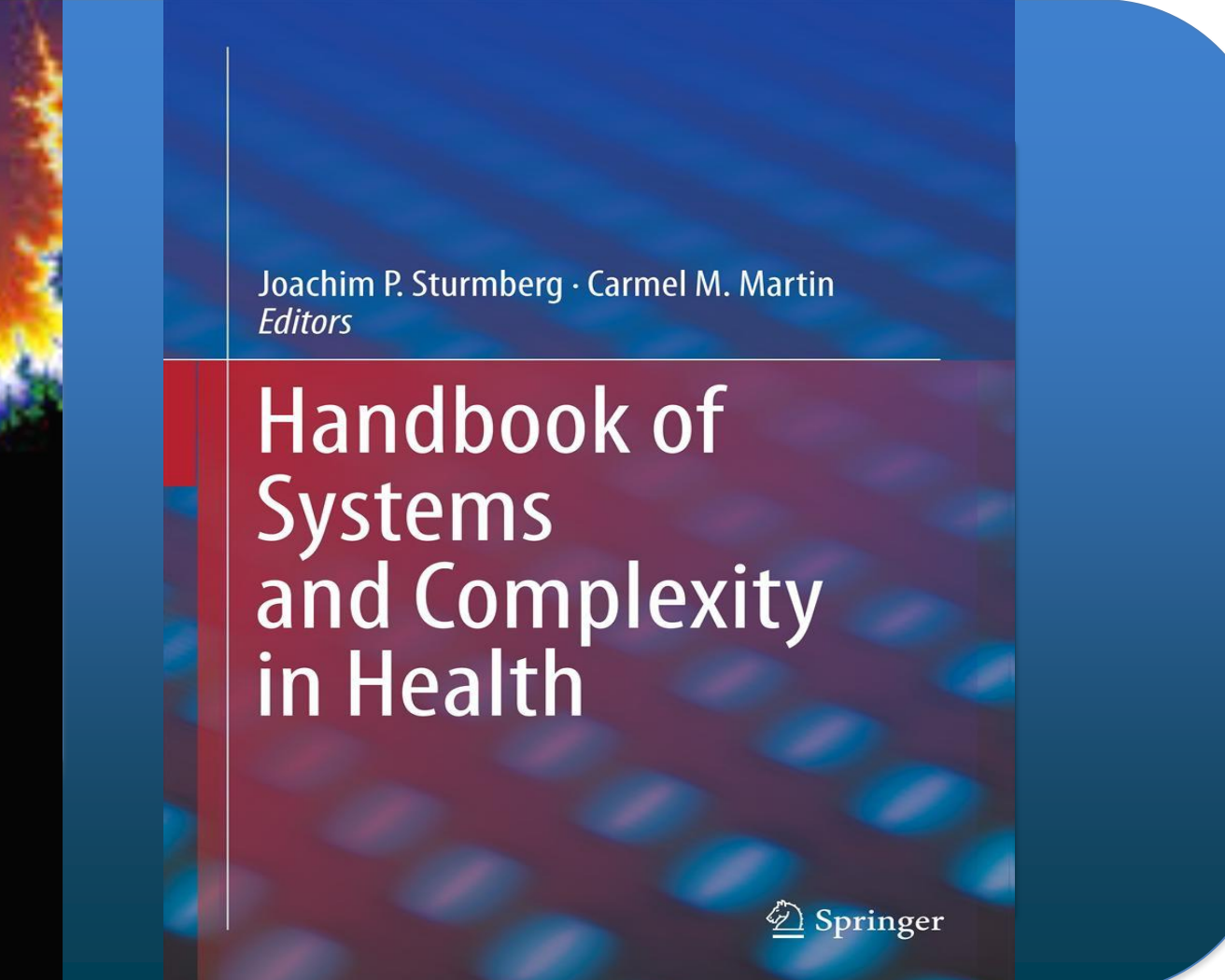
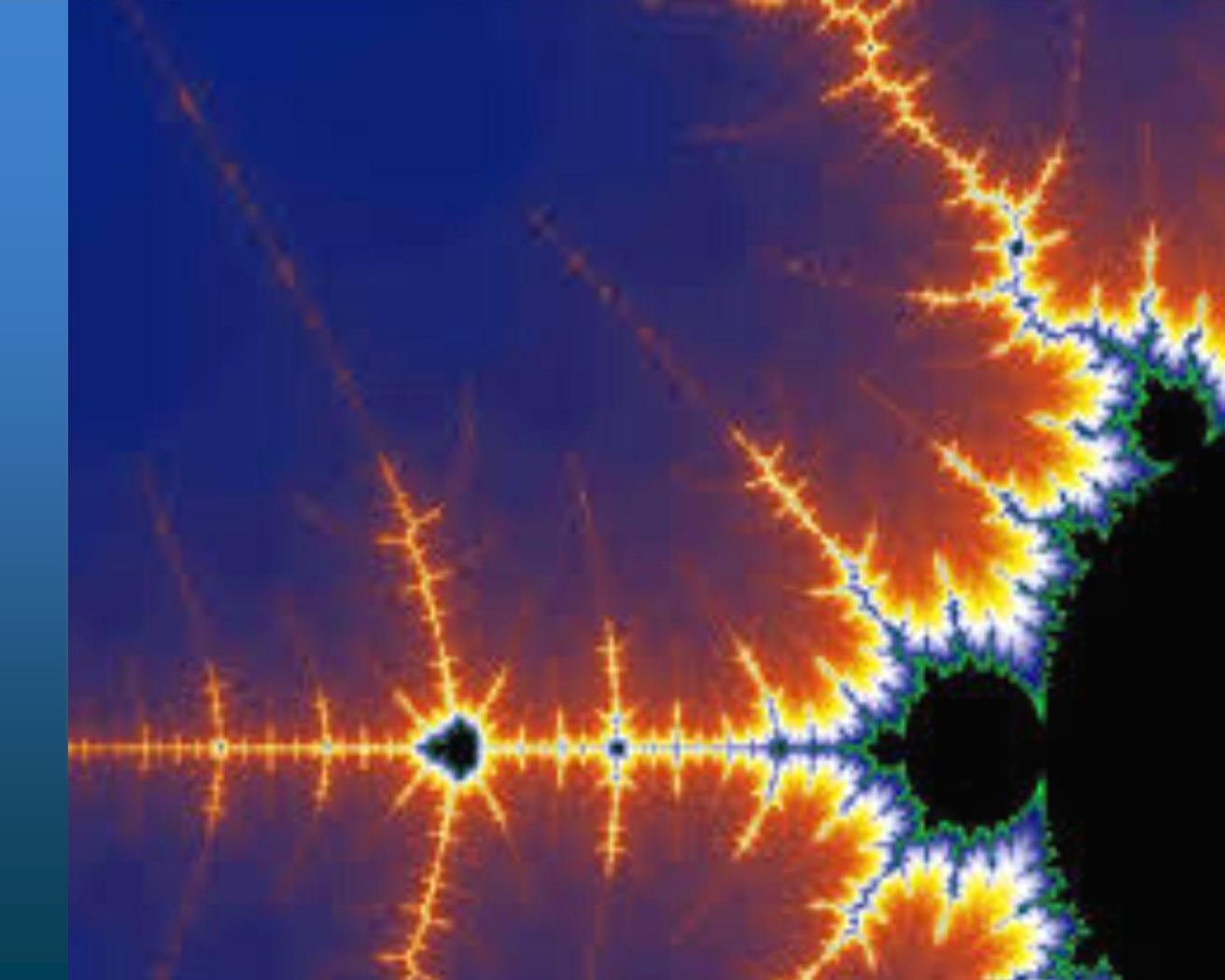


poster adapted from
Creating a Pandemic of Health
Global Health/Innovation Summit
Dalla Lana School of Public Health, U of Toronto
and
4th Ann Sunnybrook Health Science Centre
Education Conf, Toronto 2015

CHAOS COMPLEXITY COMPLEX SYSTEMS COVID-19
30 YEARS TEACHING HEALTH PROFESSIONALS CHAOS AND COMPLEXITY

**10 th
International
Conference on
Complex
Systems 2020
NECSI
Nashua NH USA**



Abstract

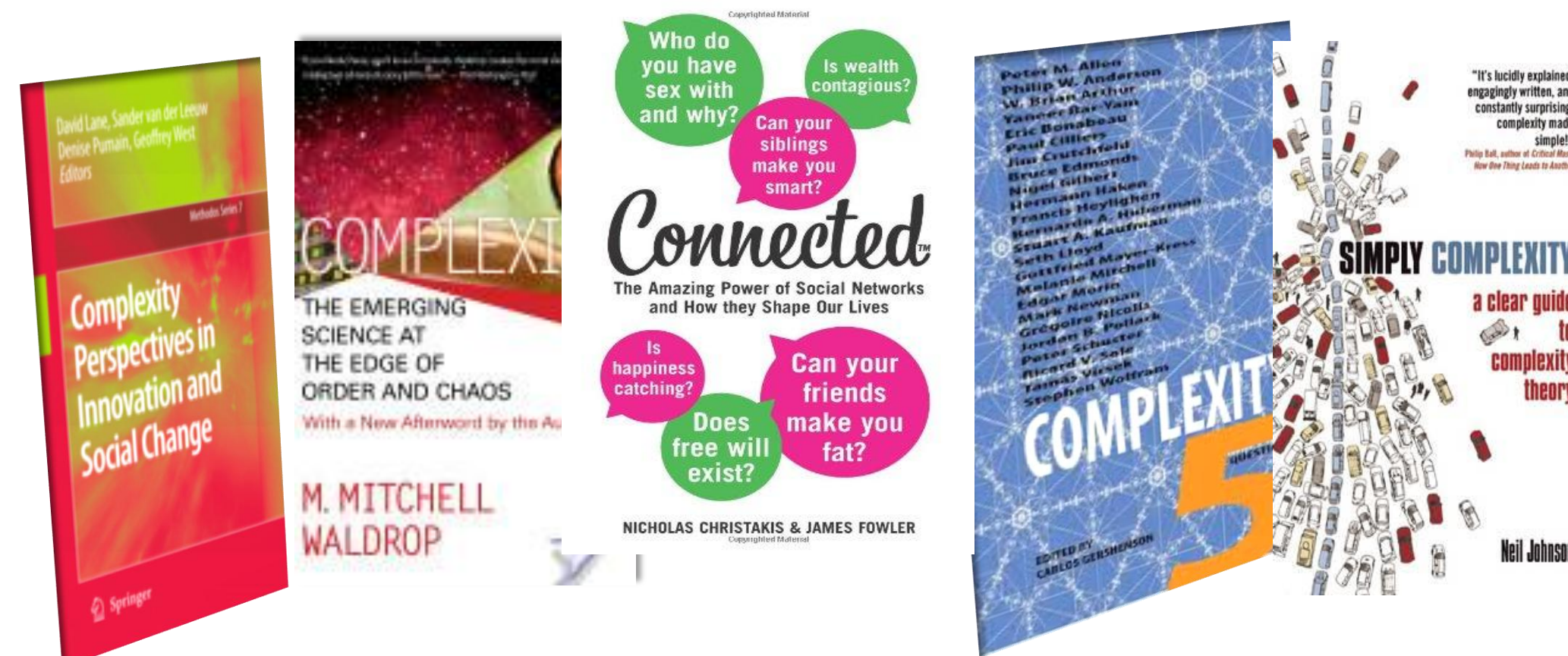
- Complexity, considered the science for the 21st century, is a paradigm shift over 400 yrs
- Now used in medicine, health and education as better able to address complex dynamic social/biologic/other interactions.
- Features include nonlinearity, emergence, uncertainty, network effects, etc. (see table).
- A 30 year experience learning, using and teaching health professionals complexity is described from 1990 to 2020.



Introduction



- **2010 Lancet Report on Educating Health Professionals for the 21st Century** lists **1) science 2) PBL (McMaster) 3) systems** approach (complexity), as the three major 20th century reforms in medical education.
- Chaos and complexity, the science for the 21st century, and of systems and complex systems should be taught and used for the complex in medicine, health and society.
- This extends now to the complex dynamics of COVID-19, health, medical, social, etc



I think that complexity will be the science for the 21st century - Stephen Hawking, 2000
Proposal: “Thinking complexity” for educating health professionals for the 21st century.

First Steps - Action Plan - suggestions

Learn and think complexity – search web

See the world differently, and act differently

Apply this new thinking to new/usual actions

Create change using complexity thinking/methods

Translate evidence to reality using complexity

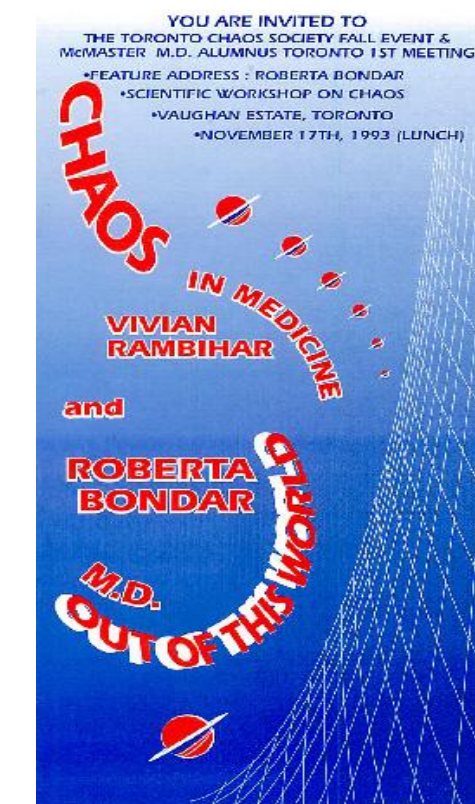
Use social and other networks for change

Your views.....

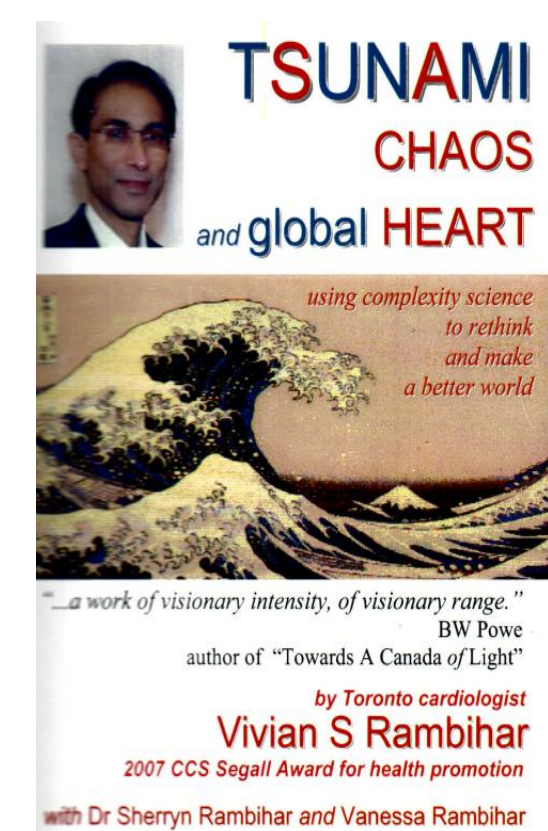


Methods

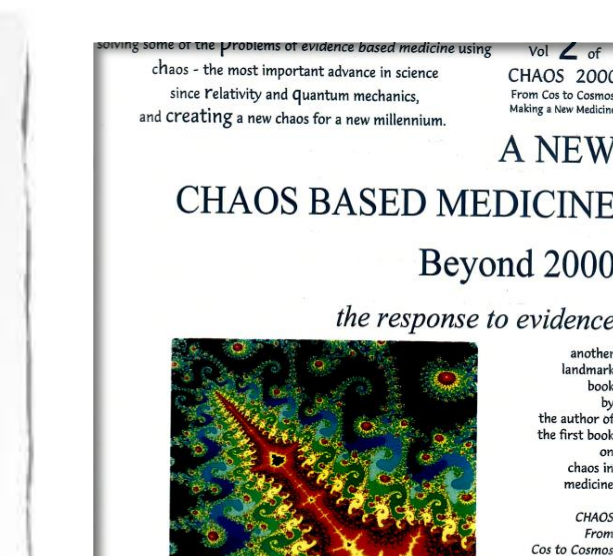
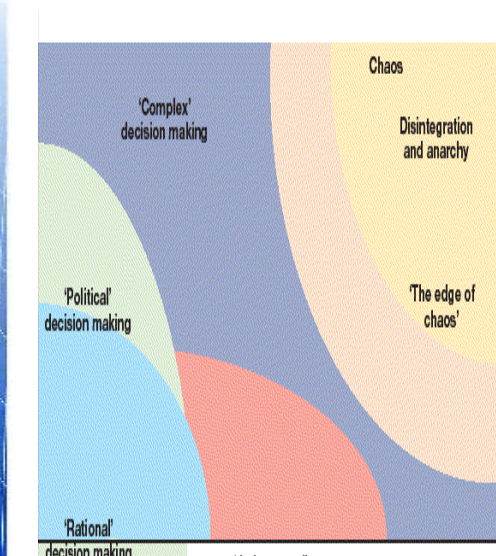
- Review of literature and the authors' 30 year experience teaching complexity.



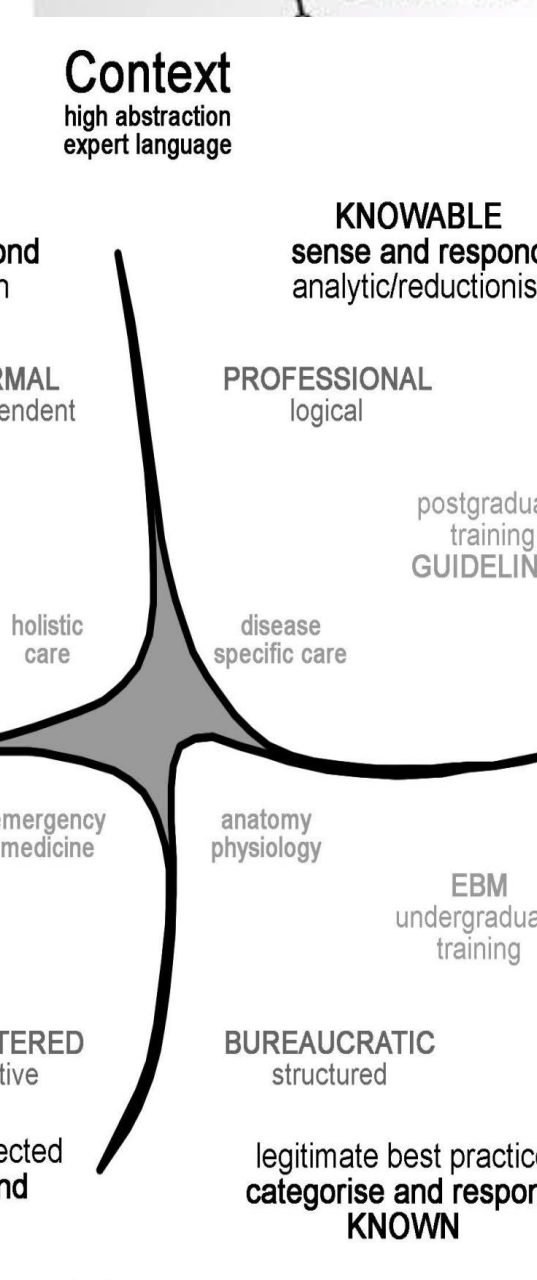
1993



2004



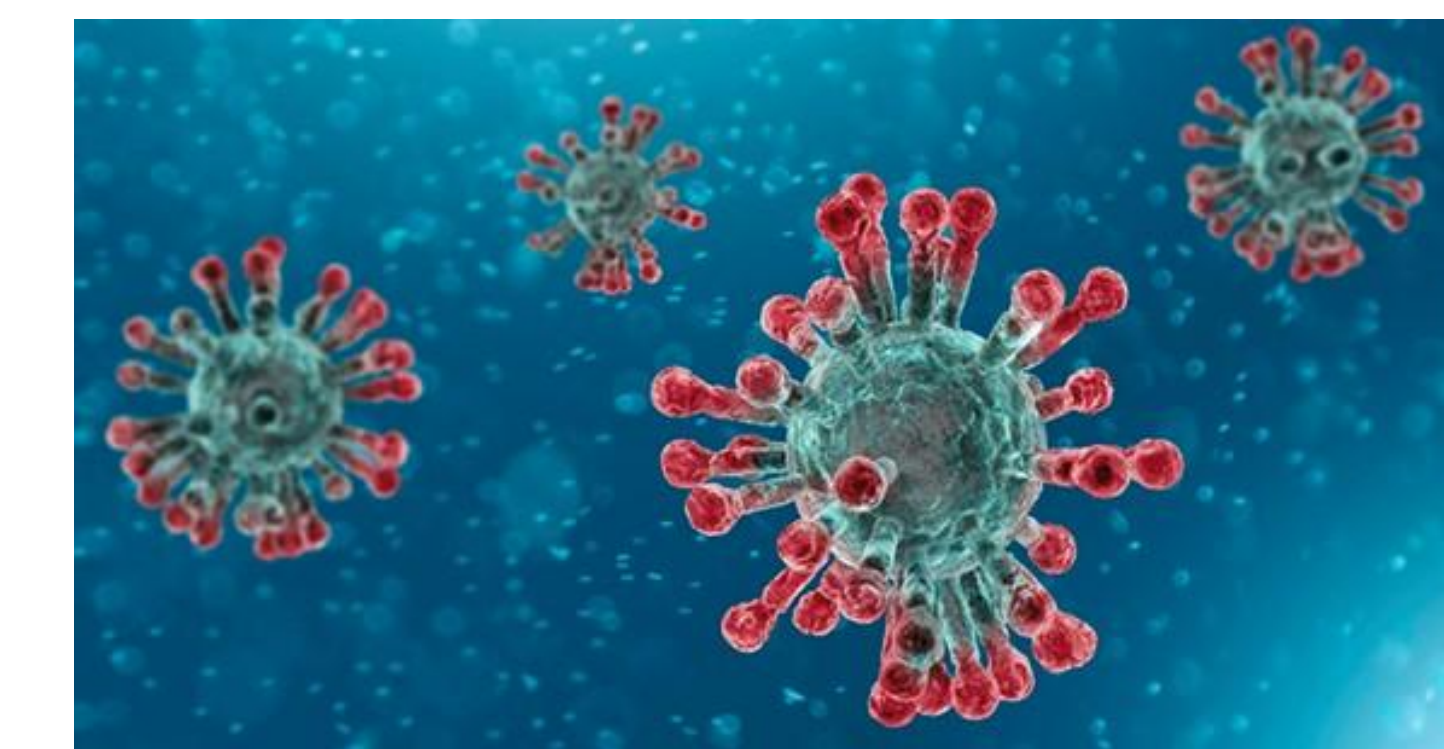
1999



2008



Results



- **Lectures:** From 1990: Conf - UWI Med Alumni, 2000 Cambridge U UK, 2014/15 ASME Brighton UK, OMA Toronto,
- **Books:** on chaos/complexity in medicine/health/society
- **Commentaries,** Can J Cardiol, **Letters to the Ed and Blogs** eg. Lancet, BMJ, Royal College ICENET, femmefractal.com
- **Nursing** UT symposia, **Chaos as Science of Nursing**, etc.
- **McMaster as complexity** method of education, beyond PBL
- **Proposing Complexity Based Medicine** to update EBM with 21st century science, and book *Chaos Based Medicine*.
- **Using** chaos and complexity in health and medical practice
- **Using/teaching** chaos and complexity for community health promotion and to reduce disparities, etc.
- **Proposing** complexity as the Science for Health/Creating a Pandemic of Health, Dalla Lana SPH Global Summit 2014
- **Brief Report 2010 – “Thinking Complexity” for Educating Health Professionals for the 21st Century.**
- **Letters to Ed BMJ, CMAJ 2020 and advocacy for/on Chaos Complexity and COVID-19 complex dynamics**

Summary

30 Years of Teaching Complexity

Advocacy: complexity as a science of medicine and health, complexity based medicine/practice

Lectures, books, conferences, networking, health promotion, community and global change

Use as art/science/practice of medicine/health

Use for diversity and health/disparities in health

Thinking complexity for 21st century global issues

Conclusions

- The Lancet Report on Educating Health Professionals for the 21st Century proposes systems (includes complexity) as an innovation for medical and health education for the 21st century.
- A 30 year experience using and teaching health professionals complexity is described, and “Thinking Complexity” is proposed for educating health professionals for the 21st century.
- This extends to the social, biological and other complex dynamics of COVID-19 and to help prevent/contain/manage .

