

# Complimentary and Alternative Medicine (CAM)

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Dr. Lynda Williams, MB,BS, MSc.

# OVERVIEW

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- Definition of Complimentary, Alternative and Integrative Medicine
- Classification of CAM
- Patterns of CAM use
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- Evidence Based Medicine
- Existing Evidence for Efficacy of CAM practices
- Regulation and Safety of CAM
- The Interface between CWM and CAM

# History of Conventional Western Medicine (CWM)

*The Pre Modern Era:*

- **Ancient ( before 500 AD)**

- Mesopotamia
- Egypt
- Hebrews
- Greeks
- Romans

- **Middle Ages 500-1500 AD:** Concepts of disease origin-  
humours and miasmas; no linking of hygiene with  
disease; construction of hospitals ( Hotel-Dieu 652, St.  
Bartholemew's 1123); increased surgical techniques



# History of Conventional Western Medicine (CWM)

## *The Modern Era*

- **Renaissance and Reformation 14<sup>th</sup>- 17<sup>th</sup> C:** Inductive and scientific reasoning; human anatomical dissection- Da Vinci, Vesalius; Arabic and New World treatments; vast increase in hospitals and universities; Harvey, Pare, Paracelsus, Van Leuwenhooek
- **Mid Modern 18<sup>th</sup>- mid19<sup>th</sup> C:** Search for empirical evidence: Blood transfusion-Blundell 1818; Hand washing- Semmelweis 1847; Epidemiology (cholera)- Snow 1854; Heredity and genetics- Mendel 1854; Specialized training of nurses- Nightengale 1860; Vaccination (smallpox)- Jenner 1864; Sterilization and antisepsis- Lister 1865; Germ Theory- Pasteur and Koch 1870 ;

# History of Conventional Western Medicine (CWM)

## *The Modern Era*

- **Late Modern Mid 19<sup>th</sup>- Mid 20<sup>th</sup> C:** Rapid advance in medical discoveries: Blood groups-Landsteiner 1901; Vitamins- Hopkins 1906; Insulin- Banting 1921; Antibiotics (penicillin)- Fleming 1928; Renal Dialysis-Kolff 1943; Cancer chemotherapy- Gillman 1946; Polio vaccine- Salk and Sabin 1952.

## *The Post- Modern Era*

- **Mid 20<sup>th</sup> century +** –questioning of objective reality; relativism; ‘post-truth era’, increase in information and misinformation; Medicine leaps forwards Human Genome Project; Laser and robotic surgery; Targeted gene therapy

# Definition of Complimentary and Alternative Medicine (CAM)

- A diverse collection of health care systems, practices, and products that are not presently considered to be part of conventional medicine [1]
- Complimentary Medicine - If a non-mainstream practice is used together with conventional medicine [2]
- Alternative Medicine -If a non-mainstream practice is used in place of conventional medicine [2]
- Integrative- Medicine- bringing CAM and conventional (western) medicine approaches together in a coordinated way [2]

# Classification of CAM <sup>[3]</sup>

Class	Description
Biologics	Special Diets, Vitamins, Minerals And Supplements, Aromatherapy, Ozone Therapy,
Manipulative	Chiropractic Medicine, Cranio-sacral Therapy, Osteopathy, Massage, Hydrotherapy
Mind/Body-Based	Meditation, Prayer, Yoga, Hypnotherapy, Guided Imagery, Biofeedback, Music Therapy, Dance Therapy,
Energy-Based	Acupuncture, Reiki, Reflexology, Shiatsu/ Acupressure; Therapeutic Touch; T'ai Chi, Magnets
Alternative Systems	Traditional Chinese Medicine; Ayurvedic; Homeopathy; Naturopathy



# Patterns of CAM use : Prevalence

Bahall M (*BioMed C. 2015*) [4].

- The global prevalence of CAM use is 9.8-76.0%.
- Prevalence estimated in adults 18 years and older: USA 38.0%; U.K. 51.8% Australia 68.9%, Canada 12.4%
- Prevalence of CAM use in Trinidad and Tobago among cardiac patients is 56.2% compared to 31.7% in the UK and 54% in the USA

# Patterns of CAM use: Demography

Systematic Review ,64 studies, Australia (2000-2014) <sup>[5]</sup> :  
CAM users were

- Higher users of conventional medicine, more GP visits than non-users
- Females >men
- Female CAM users more likely to be middle aged (35-59y); with higher education and higher annual income than female non-users
- Rural residents and men used more manual (manipulative) therapies: chiropractic, massage therapy
- Chiropractic (55.3%), Massage, Acupuncture, Naturopathy most commonly used modalities

# Patterns of use of CAM: Demography

Systematic Review Australia <sup>5</sup> cont'd:

- CAM most commonly used by persons with chronic disease in poorer health than non-users, pregnant women (50%); women with menopause symptoms (53.8-82.5%)
- Patients with: cancer, musculo-skeletal (RA, OA, osteoporosis, AS), digestive disorders (IBD); asthma, CVD, MS, diabetes mellitus, mental health, HIV most frequent users of CAM
- Massage therapy used by 81.5% of persons with musculoskeletal complaints

# Patterns of use of CAM: Drivers of Use

Push factors [4] [5] :

- Perceived inadequacies of CWM
- Negative patient interaction
- Poor/ lack of communication with patients in CWM
- Unsatisfactory results from CWM
- Fear of adverse effects and toxicities of CWM
- High costs of some conventional therapies e.g. chemotherapy
- Disappointment with the mechanistic nature of CWM

# Patterns of use of CAM: Drivers of Use

Pull factors [4] [5] :

- Perception of CAM as holistic, natural and gentler
- Perception of CAM as an adjunct to CWM
- Belief that CAM specifically assists with fighting illness
- Health information and motivation from family members and friends
- Integration with individual philosophy and spiritual belief systems
- Feelings of greater hope and control over treatment
- Perception of CAM practitioners as more supportive
- Mass media and advertising



# Patterns of use of CAM

## Drivers of Use

Pull factors [4]

- Social and ethnic tradition

*Paglan et al (Health Aff 2005): “Use of CAM remains prevalent in Trinidad, despite greater accessibility to free healthcare services, a better understanding of disease conditions, and widespread communication ....usage is not necessarily the result of decreased effectiveness of CM (Conventional Medicine)” [6]*

# Evidence Based Medicine

- Evidence Based Medicine (EBM) (David Sackett)'the conscientious, explicit and judicious use of the best evidence in decision making about the care of the individual patient... integrating individual clinical expertise with the best available evidence from systematic research' [7]
- Many published papers on therapeutic interventions are poorly designed, small studies that are subject to many types of bias
- Publication bias also ensures that many studies with negative results are never published



# Evidence Based Medicine

- EBM emphasizes reproducibility. It attempts to define a universal “best practice,” based on large randomized controlled trials (RCTs) and meta analyses [8]
- RCTs test for causality, determine size of an effect, assess risks and benefits of treatments, and minimize selection and measurement bias [8]
- Physicians need to know precisely which orthodox or complementary treatment will help particular patients [8]
- CAM practices with well defined indications can be evaluated using an EBM approach

# Evidence for the Efficacy of CAM: Cochrane Reviews [9]

- Acupuncture is at least as effective as conventional therapy in treatment of episodic migraine
- Acupuncture and dry-needling may be useful adjuncts to other therapies for chronic low-back pain
- Yoga: some evidence of favourable effects on diastolic blood pressure, HDL cholesterol and triglycerides, and uncertain effects on LDL cholesterol. The limited evidence comes from small, short-term, low-quality studies
- Ozone therapy for diabetic foot ulcers: no conclusion can be drawn due to the poor quality of included studies

# Evidence for the Efficacy of CAM: Cochrane Reviews

- Spinal Manipulation Therapy (SMT): no more effective in participants with acute low-back pain than inert interventions, sham SMT, or when added to another intervention. No better than other recommended therapies
- Ginkgo Biloba: the evidence of predictable and clinically significant benefit for people with dementia or cognitive impairment is inconsistent and unreliable.
- Milk Thistle : questionable beneficial effects of milk thistle for patients with alcoholic and/or hepatitis B or C virus liver diseases. Lack of high-quality evidence to support this intervention.

# Evidence for the Efficacy of CAM: Cochrane Reviews

- L- arginine: No studies to support use in treatment or prevention of Type 2 diabetes, hypertension, or glaucoma.
- Homeopathy: Preliminary data support homeopathy in mitigating some side effects of cancer treatment : calendula for acute dermatitis prophylaxis during radiotherapy and Traumeel S mouthwash in chemotherapy-induced stomatitis.
- Naturopathy: Very few studies with specific indications available
- Hypnotherapy: Effects on smoking cessation claimed by uncontrolled studies were not confirmed by analysis of randomized controlled trials.

# Safety and Regulation of CAM

## General Risks of CAM

- Significant cost financially
- May utilize time and resources that would otherwise have been available for evidence based practices, delaying treatment or causing death
- Creating false hope and cause psychological harm
- Compounding adverse effects through interaction with a conventional therapy
- Potential direct toxicities
- Safety of many CAM practices have not been evaluated
- Lack of regulation in some cases



# Safety and Regulation of CAM

- Vitamins and Minerals: Role in primary or secondary prevention of chronic disease
- Annals of Internal Medicine 2013 : “...beta carotene, vitamin E and possibly high doses of vitamin A supplements increase mortality...other antioxidants, folic acid and B vitamins show no clear benefit. Vitamin D supplementation is an open area of investigation... current widespread use is not based on knowledge that benefit outweighs harm”
- No FDA regulation of this \$36 billion dollar per year industry
- 1 in 3 do not contain the quantity of vitamin or supplements listed on the bottle
- Contamination has occurred and direct toxicities

# Safety and Regulation of CAM

- Herbal Medicines: May interact with conventional pharmaceuticals (herb- drug) and with other herbs (herb-herb)
- Drugs with narrow therapeutic index such as digoxin, warfarin, carbamazepine, valproic acid and chemotherapeutic agents are most likely to be affected by herbal supplements e.g. ginkgo biloba increases bleeding risk with warfarin, St. John's Wort c P450 inducer
- Unregulated industry worth \$ 110 B US with powerful lobbyists
- 44% were found to not even contain traces of the advertised product

# Legal and Regulatory Framework

- Paramedical Council of Barbados under the Paramedical Professions Act 1976 recognizes: acupuncture, reflexology, osteopathy and chiropractic medicine

The Act is used for:

- Prescribing the nature of the services which may be rendered
- Determining professional conduct and fitness to practise
- Instituting disciplinary proceedings
- Approving the establishment, maintenance and policy of schools or training centres for the education and training of persons desiring to be trained in any paramedical profession
- Respecting the formation of special boards or committees for any paramedical profession
- Determining the functions of members of such boards or committees in order that the highest standards of qualification may be achieved.

# Legal and Regulatory Issues with CAM

- Informed consent with appropriate disclosure of therapeutic intent e.g. cancer patient who leaves CWM for CAM, integrative medicine
- Malpractice liability
- Scope of practice
- Liability for referrals to a CAM practitioner if the patient experiences harm
- Professional ethics, code of conduct and discipline
- Prevention of fraud and abuse
- False or misleading advertising
- Third party reimbursement



# The Interface Between Conventional Western Medicine and CAM

- Communication: Liu et al (2000) found only 17% of patients disclosed CAM practices to their physician, 48% were unprepared to discuss the topic at all. 90% of physicians did not discuss CAM treatments with their patients <sup>[10]</sup>
- Informed consent re: risks of refusal of CWM
- Responsibility: how is responsibility shared with CAM practitioners and should a framework exist. Who is primarily responsible when the patient becomes very ill?
- Integration: CWM practitioners need to be aware of CAM practices and their scope if they are going to integrate CAM into their practice they must weigh risk: benefit and evidence for doing so.

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