

The use of the inverted classroom in blended learning diabetes courses for primary care physicians

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BACKGROUND

It is not news that the incidence and prevalence of diabetes and obesity and their associated complications have reached epidemic levels in the US and worldwide.

Primary care physicians are the front line for diabetes/ obesity prevention, management and prevention of their complications.

It is a challenge for a primary care physician to provide care for such complex medical entities. Everyday these providers have to face patient loads that are both high in volume and complex in nature, a challenging health care system fraught with endless paperwork, RVU targets that need to be met, home-work balance and an ever changing map of guidelines and complex medication regimens every month.

The field of diabetes has shown fast and dramatic changes in guidelines and medication classes. Primary care providers require an extensive knowledge of the natural history of diabetes, the recommended treatment modalities and master the art of patient education.

Picture a primary care physician fresh out of training performing a basic internet search "diabetes guidelines". As of February 2016 google yields an astounding 13,100,000 search results. A daunting task to simply sift through the various organizations and settle on a guideline to follow.

Patient empowerment is a corner stone in diabetes. Patient empowerment is achieved through education of patients with diabetes to live with a disease that virtually affects every aspect of their lives. In non-under- served areas in the US Certified Diabetes Educators acquire the art of diabetes education through long credit hours and a lengthy certification process. Unfortunately, in underserved areas of the US and many areas around the world Primary care physicians have to shoulder the task of diabetes education as there is a shortage in Certified diabetes educators.

Continuous medical education (CME) or courses that simply deliver a live or recorded lecture is what is traditionally available. Dealing with tech savvy generations and an environment of providers burnt out- finding effective and efficient education methods in primary care is of paramount importance.

Burden of Diabetes on Kuwait and MENA region

One in 4 people in Kuwait has diabetes. WHO states in its report "Impact of Chronic Disease in Kuwait Report" that chronic diseases are a major cause of death and disability for people in Kuwait and in 2002 were reported to be responsible for 72% of all deaths in Kuwait.

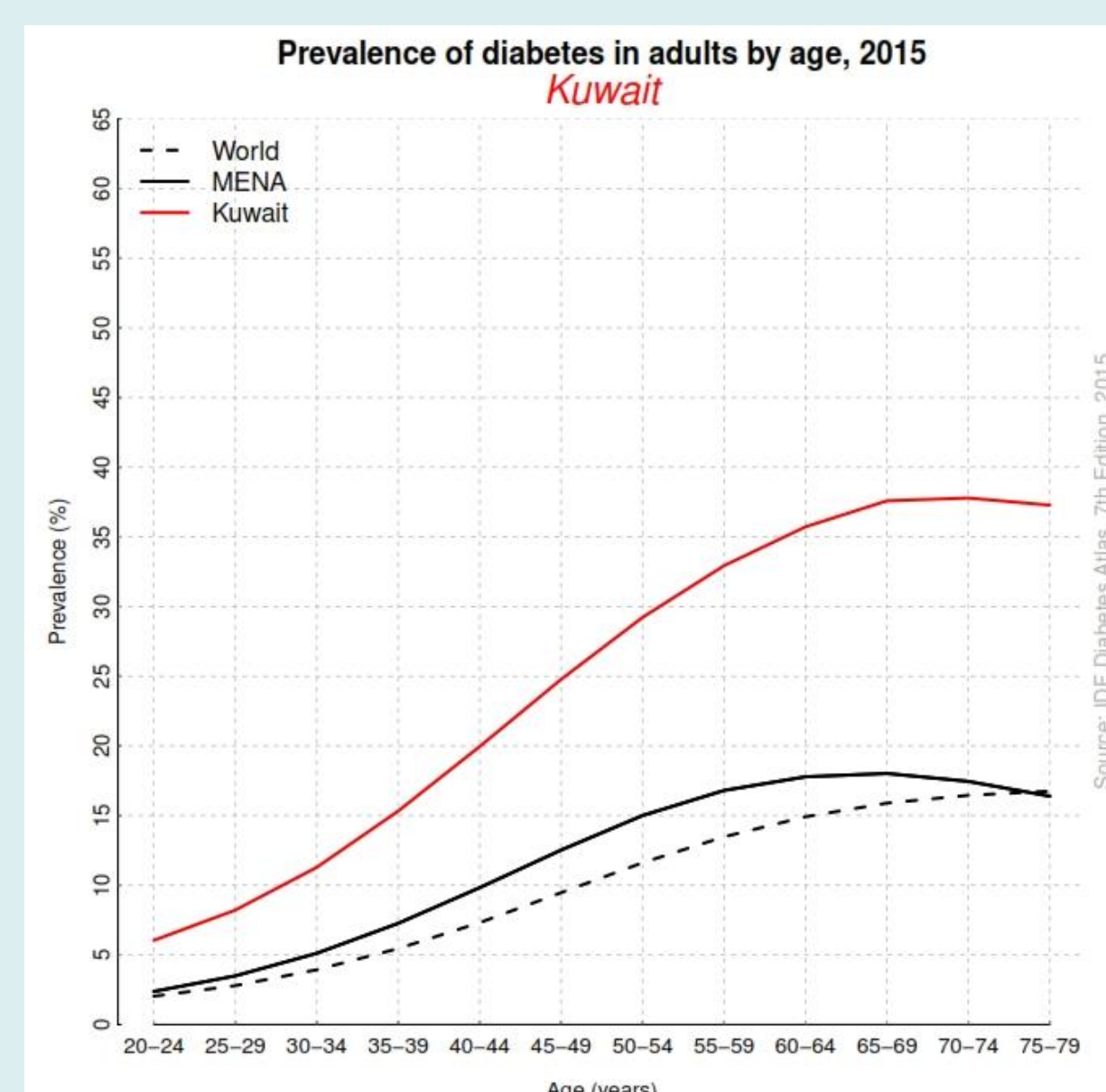
In MENA region, diabetes affects patients in their most productive years.

Primary care providers in Kuwait come from very varied educational backgrounds.

Flipped/ Inverted Classroom

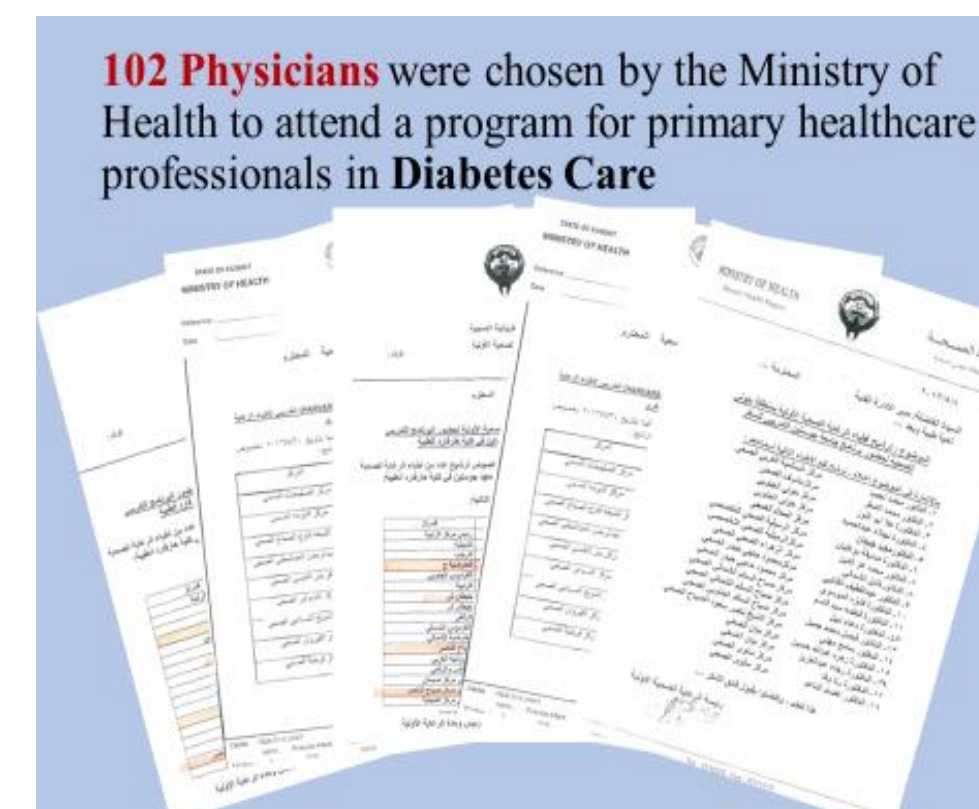
The **flipped classroom** approach has been used for years. Barbara Walvoord and Virginia Johnson Anderson promoted the use of this approach in their book *Effective Grading* (1998). They propose a model in which course participants gain *first-exposure learning* prior to class and focus on the *processing* part of learning (synthesizing, analyzing, problem-solving, etc.) in class.

This method allows for more interactivity, peer learning and get rid of the "regurgitate and forget" traditional medical school learning and studying approach.

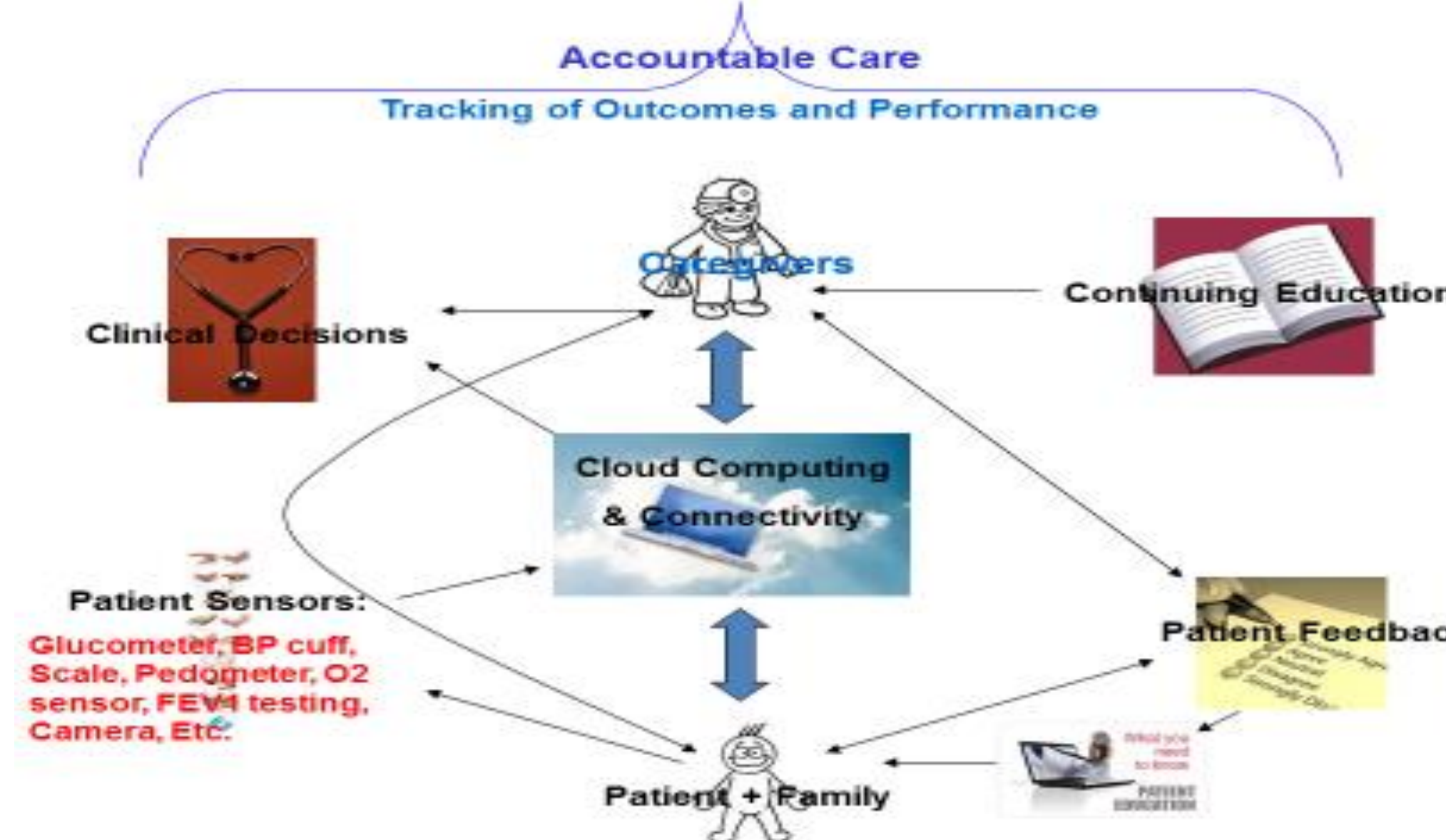


Pilot Program 2013-2015

In 2013, a pilot course program designed by the Joslin Diabetes Center to enroll a cohort of primary care providers from across 93 primary care centers in Kuwait. The course was in the form of traditional didactic recorded lectures, multiple live webcasts and live conference sessions. Of the 102 nominated physicians, 65 enrolled in the program and 62 successfully completed the program.



62 physicians successfully completed the Joslin University International Program



A physician force that has a markedly varied educational background, a challenge with clinical settings that they are not comfortable and sometimes not prepared to face and an ever changing diabetes knowledge landscape means a great need for a method that would help ascertain a strong base of knowledge that every primary care provider who takes care of diabetes patients should have.

To boost participant engagement and aid in more active evaluation time of participants as well as more exposure to peer mentoring and education the inverted or flopped class room methods was selected.

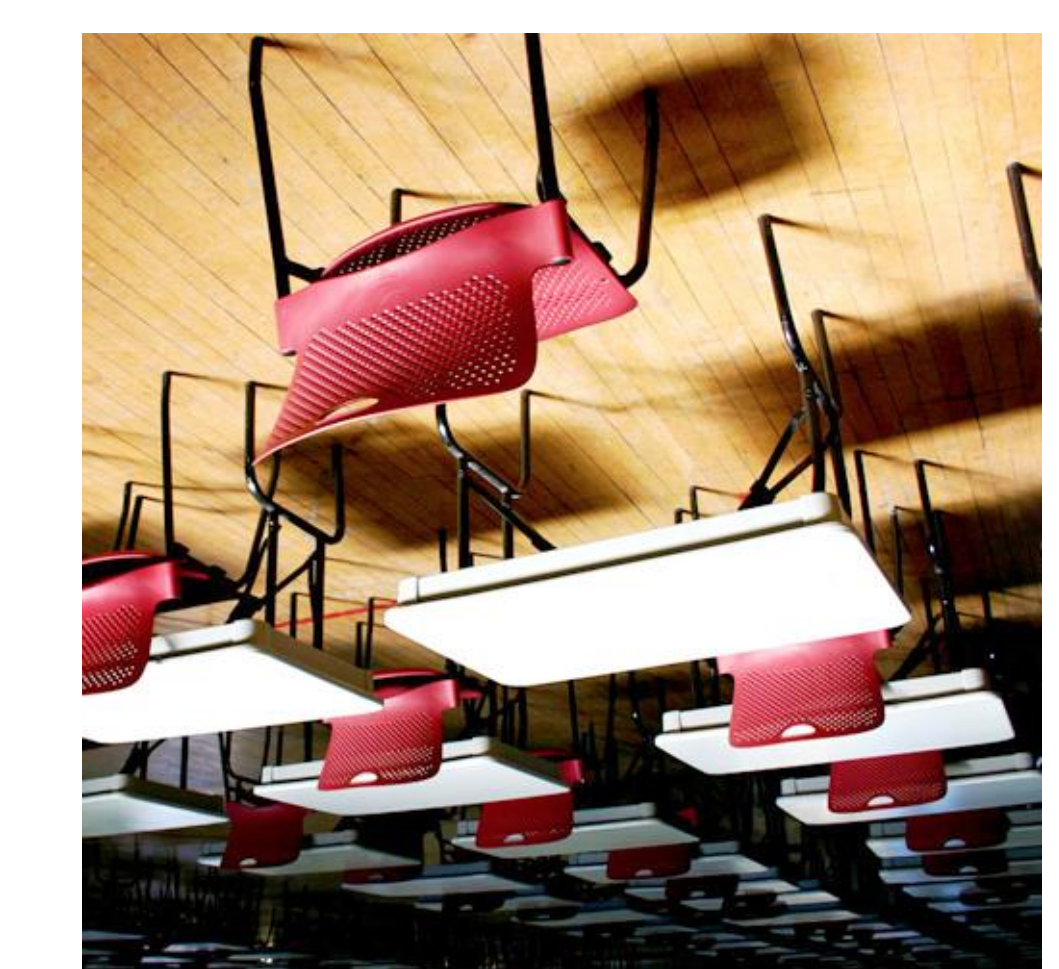
METHODS

This is a one-year certificate program in diabetes for 200-400 primary care physicians in Kuwait.

Using a blended course approach, an online portal, webcasts and live events will be used to deliver a pre-approved diabetes curriculum. Materials will be in the form of 2 subjects per month. Each subject will be divided into 3-5 videos 5-7 mins each with suggested reading materials.

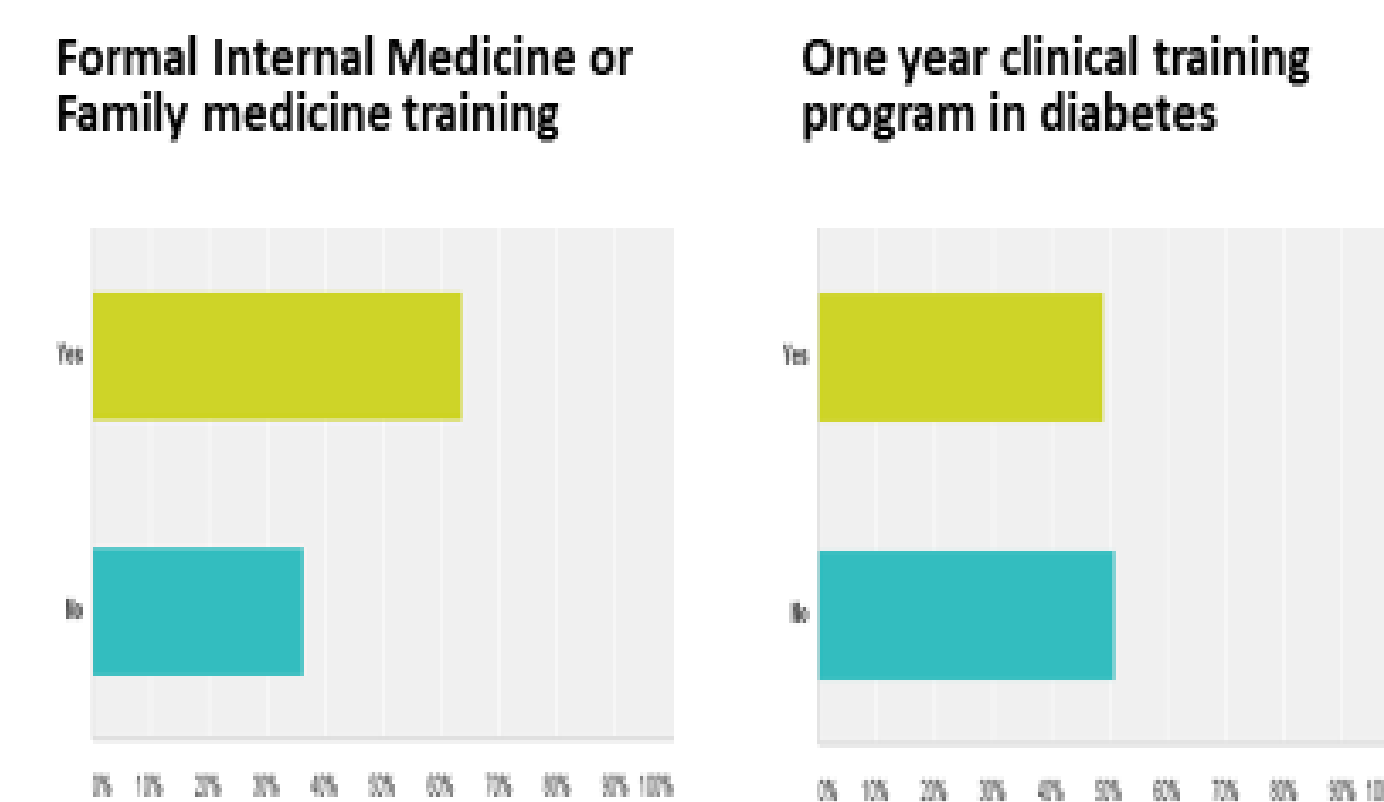
The alternative to the classroom will be live webcasts or live face to face sessions (in groups of 25 participants) using a case based approach to reflect on the materials provided and implement the suggested recommendations

Each participant will identify 10 patients who are not currently meeting glycemic goal. These patients will be followed during the one year course, at 3 months, 6 months and 1 year after the participant's successful completion of the program.

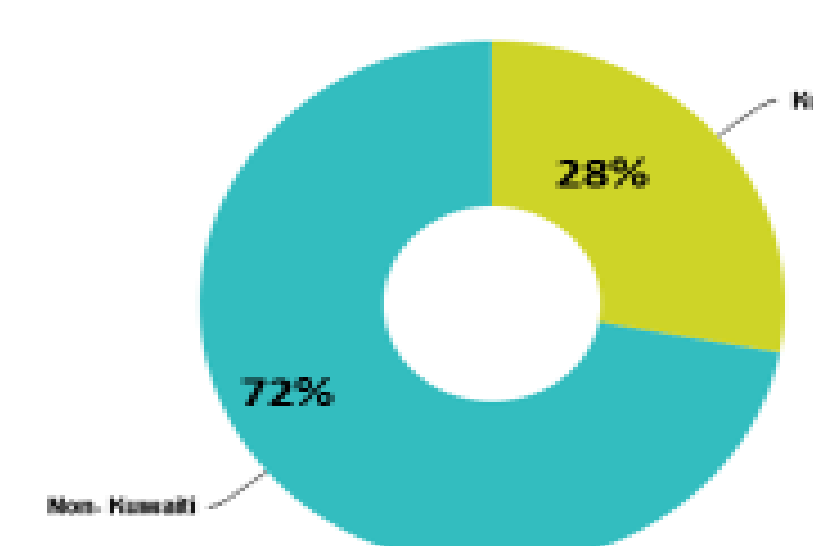


PHYSICIANS CHARACTERISTIC AND CHALLENGES

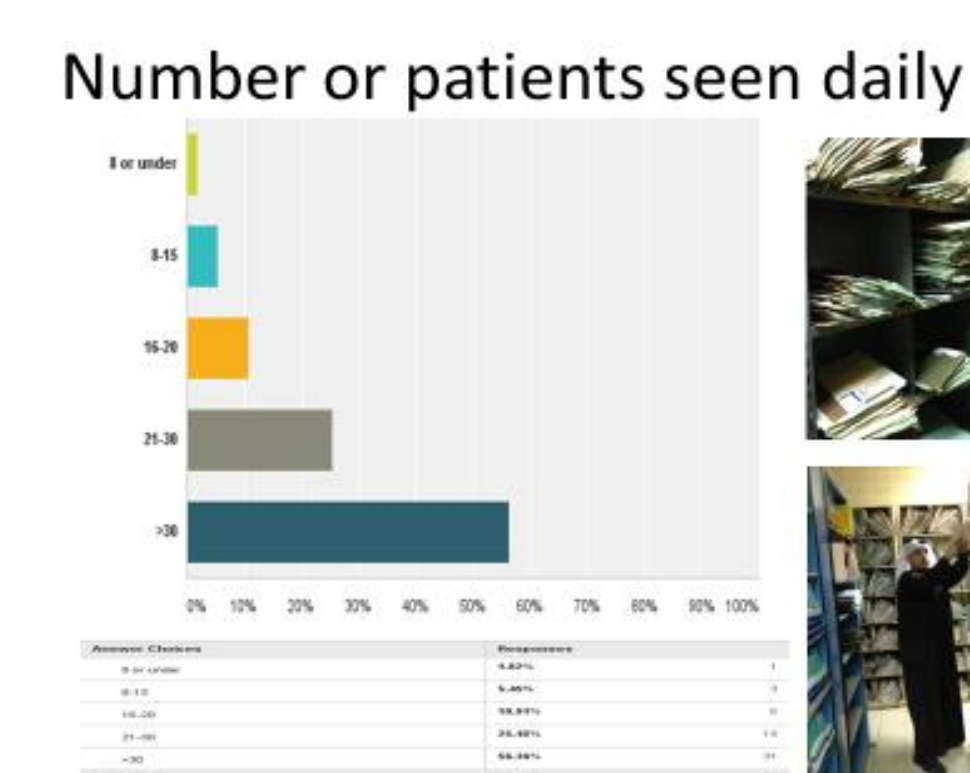
Training Background



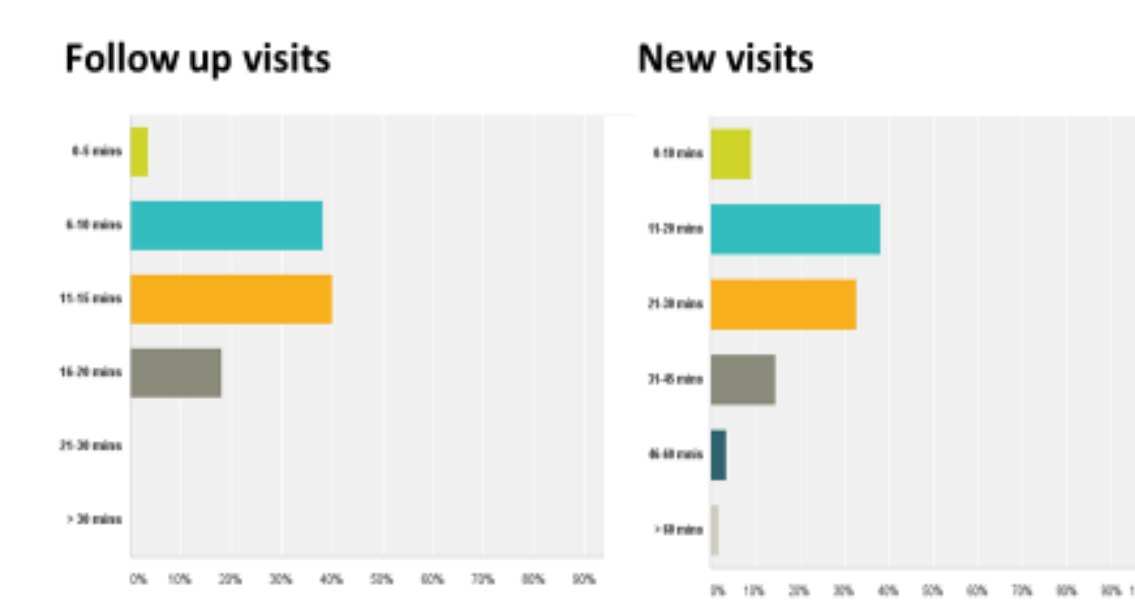
Nationality



Patient Visits

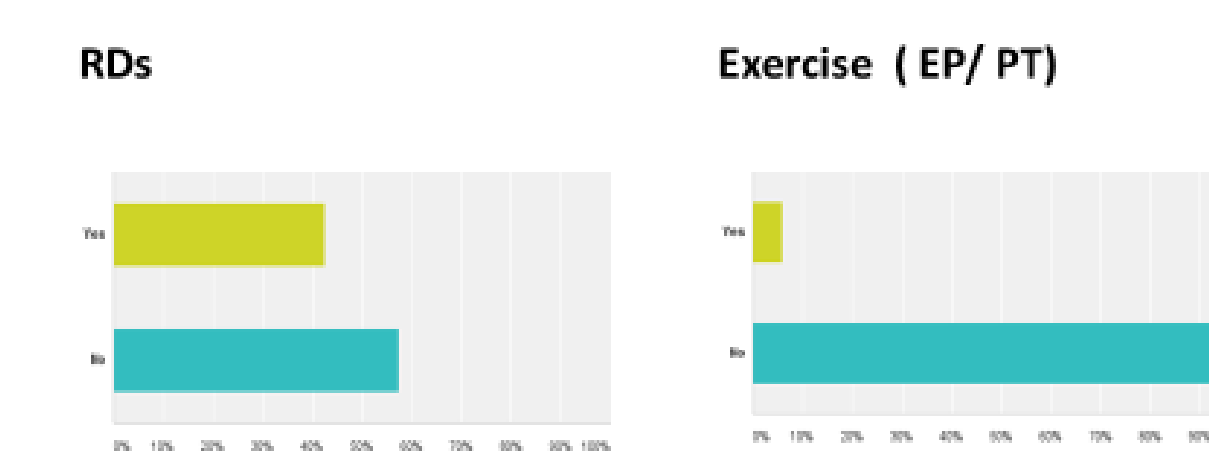


Length of Visits

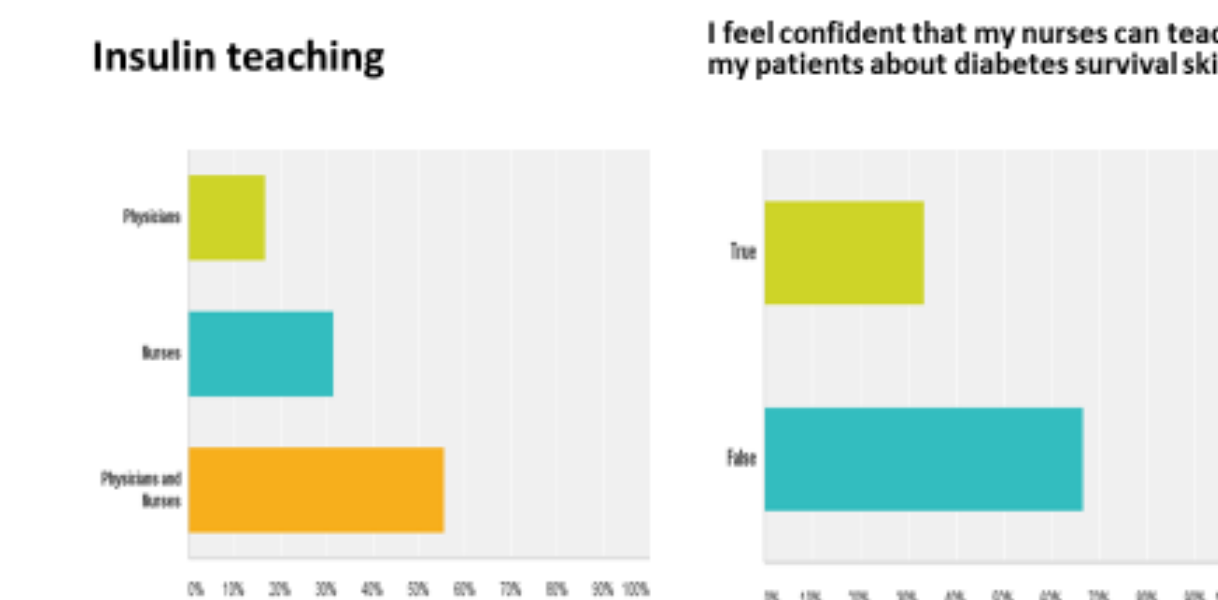


Diabetes Support Staff Access

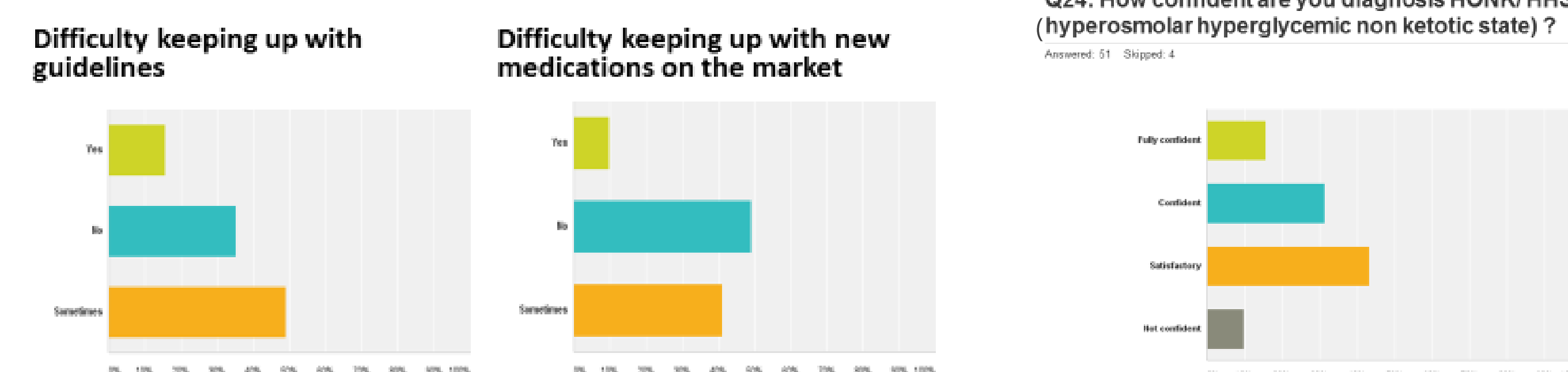
Access to nutrition and exercise support



RN Role



Educational Challenges



FUTURE RESEARCH PLAN

A cross sectional survey of participants' knowledge of diabetes and lifestyle medicine in a case based exam will be administrated prior to the intervention and a similar one will be administered at the end of the intervention.

Educational Outcomes

Primary outcome will be the percentage of correct answers. Linear regression maybe utilized to help in the analysis as the effect of individual primary care characteristics will act as predictors for outcomes. (Predictors to consider may include years of experience as a continuous outcome, diabetes training history as a binary outcome as well as gender and age) .

Secondary outcomes may include perceived competence in relation to actual performance, participant engagement (via portal activity analytics monitoring) and surveys of subjective levels of comfort with different concepts

Clinical Outcomes

Primary Outcome – Percentage of patients meeting HbA1C goal or and HbA1C change
 Secondary Outcome – Changes in weight



Question and comments
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