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*According to LungCancer.org

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NEWS
My dear fellow members of El Paso County Medical Society, yet another year has passed. It was a very busy year and a lot of progress was made but there is a lot more to accomplish to keep the practice of medicine viable.

To summarize a few notable this year, the Sustainable growth rate (SGR) was finally put to rest with the endless work of Congressman Michael Burgess.

ICD 10 started on October 1st, 2015, but with the help of TMA and AMA there is a grace period of one year; it is a very uphill battle because of the amount of new codes and their complications.

We were able to hold a very successful Border Health Caucus meeting on August 5-6; it was widely attended and well received in the State of Texas. It was well coordinated by the EPCMS staff.

Boy scouts “Medical Legends of the Border,” honored Patsy Slaughter for her hard work and dedication, it was well deserved. I would like to thank the Boy Scouts of America Yucca Council and Dr. Bushka for sponsoring the event.

We are working very closely with TAPA, TMA and TMLT in the Frazee case, the Supreme Court of New Mexico has not rendered its verdict.

On a sad note, Dr. Angel Rios has resigned from the Board of Councillors, TMA. But Dr. Handal has accepted the role as Councillor TMA.

Marissa Marquez has vacated her position, currently Adolfo Lopez and Lina Lopez, a malpractice trial attorney are running for State Representative District 77. We will need to closely monitor the race.

Would like to remind all physicians to re-enroll in the Medicaid program, it has to be renewed every five years March 2016 deadline.

In collaboration, with the Chamber of Commerce we are trying to recruit and retain physicians. In view of future-focused community demographics the growing Latino population this is an ideal fertile ground for laboratory research opportunity in virtually every area of public health and specialty care.

There could be a collaborative partnership, with the Medical School, School of Nursing, research center, and various ancillary healthcare institutions. Improved practice environment because of Tort reform. Also El Paso, and surrounding communities are classified as underserved and should help recruit physicians.

TMA has appealed to Center of Medicare and Medicaid services (CMS), to “back off” Medicare penalties. An error on part of the CMS penalizes some physicians, forcing those affected by the blunder to appeal a potential payment cut by December 16th. Last month, the agency announced it had “issues” with data submitted by physicians who participated in the CMS Physician Quality Reporting System (PQRS) and value-based payment modifier (VBM) programs. CMS also had issues with how it used its data to calculate payment penalties. TMA President Tom Garcia, MD, told Congress in a hearing on behalf of the TMA that CMS “issues” meant thousands of physicians will now see their Medicare payments cut by 2 to 4 percent next year. And in the midst of the appeal process CMS has provided conflicting and confusing information about its quality and cost reporting, and the appeal process.

Along with the AMA, TMA wants Congress to tell CMS to back off the penalizing physicians who in good faith participated in PQRS 2014. At the very least requesting an extension to the appeals process to next year, to allow physicians sufficient time to review their reports, and understand whether they should file an appeal. On September 9th, CMS announced two reports the 2014 PQRS, and the ORUR under the VBM program. On November 16th, CMS released revised reports due to initial issues with the data submitted to PQRS by electronic medical records. This recalculation process resulted in lower performances scores for many physicians, and now more physicians than ever will receive payment penalties in 2016.

Medicine backs bill to help physician owned hospitals, Congresswoman U.S. Representative Sam Johnson (R) and Ruben Hinojosa (D), filed legislation that partially lift ban on new physician owned hospitals. We are joining AMA and 40 other States Medical associations and national specialty societies in a letter urging Congress to pass HR 2513, the Protecting Access, Competition and Equity Act.

I would like to thank all the Board members and EPCMS staff in extending all the help throughout the year. A special thanks to all the advertiser, underwriters, TMA, and TMLT.

Lastly, I would like to appeal to all the physicians to be members of the EPCMS, TMA and its political arm the TEXPAC. All the work that goes behind these critical issues that are affecting our day to day practice cannot be achieved by a few active physicians. Keep in mind the physician that are actively participating, take time off from their private practices, family time and on their own account travel out of the town, attend meetings to keep our office doors open. I urge every practicing physician to participate and be members, thank you.

Syed A. Yusooof, MD, FACSG, CCD, MBA
President, El Paso County Medical Society
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On November 12th Ms. Patsy Slaughter was recognized for her extraordinary service and dedication to the El Paso County Medical Society and her invaluable contribution to border health for nearly two decades.

The Medical Legends of the Border is a Yucca Council, Boy Scouts of America event which recognized leaders in the medical field who have provided noteworthy service to our community and represent the values found in the Scout Oath and Law.

Since 1997 Ms. Slaughter has administered the Medical Society office and conducted all of its affairs. She maintains open communication with the membership at all times, directs the staff, serves as liaison to the community, represents the Medical Society at public functions where physicians' interests are at issue, establishes and maintains a liaison position with the Texas Medical Association, attends regular State meetings, supports all Society committees, and establishes and maintains positive relations with the news media.

Her past experience includes advocacy with respect to patient rights, and she has received multiple awards for volunteerism.
Pain is a gift. Humanity, without pain, would know neither fear nor pity. Without fear, there could be no humility, and every man would be a monster. The recognition of pain and fear in others gives rise in us to pity, and in our pity is our humanity, our redemption.

DEAN KOONTZ, Velocity

As physicians we deal with pain every day. We are the keepers of pain—those who come to us in pain hope to leave without it. Unfortunately, we can also be the inflectors of pain as we attempt to treat or prevent an illness, or sometimes we can’t determine why the patient has pain in the first place.

In 2011, American Pain Foundation (APF) released survey results showing that 17% of adults with chronic pain who have tried to reach their primary care providers with questions face difficulties in doing so. We work tirelessly to prevent pain with medicines and anesthesia, but we also know that physical pain exists to warn us against making the same mistake again. It keeps us from putting our hands on burning pots or using a knife the wrong way or climbing up a tree in shorts. Those who live without the ability to feel pain may be worse off because they cannot distinguish between danger and safety.

Emotional pain is important too. When people have been hurt emotionally, they respond up so as not to trust (or love or believe) “that much” again. However, in some ways, the inherent reaction to emotional pain is not as protective as is our reaction to physical pain. Whereas physical pain allows us to enjoy life by avoiding dangerous things, emotional pain prevents us from opening our hearts again and closes us off from things that can allow us to feel fulfilled.

Sometimes the two types are intertwined: Emotional distress can lead to physical pain and chronic physical pain may eventually cause depression.

Where, then, does cultural pain fit? I define cultural pain as the pain we feel when our culture is threatened. Cultural pain can be as simple as an emotional reaction to a racist joke or as complicated as the feeling of vulnerability after a terrorist attack in Paris. Sometimes physicians are the recipients of cultural pain when we are viewed as the enemy (“Who are you to tell me what to do with my child, my parent, my life?”).

Is the human reaction to cultural pain protective or preventive? Does it keep us safe or does it prohibit us from future connections? I see the public reactions to many recent events as a direct result of feelings of cultural pain. Why do we need more (or fewer) guns and

more (or fewer) police? Why should we allow (or deny) immigrants from Syria or from Mexico? Why do we believe we should legalize (or prohibit) drugs? The answers, often, to these political and moral questions arise both from our cultural experiences and from our personalized reaction to emotional and physical pain.

Stereotypes begin from a place of pain on an individual level and gradually expand until they come to represent an entire culture (women, immigrants, police officers, politicians, etc.). These are not incorrect reactions when you look at them in a physiologic or evolutionary way—people turn previous painful experiences into future protective responses to keep themselves alive. How can this cultural pain be diffused in order to build peace among different groups?

As a physician, I do not claim to know what a person feels when they are in pain. All pain is subjective and should not be open to comparison.

Several studies have reported the lack of understanding of pain by Primary Care Providers and have highlighted the need for more training in pain management by physicians.1

My wish for you in the New Year is this: Understand pain—the pain of your patients, the pain in yourselves and the pain in our country. Determine whether the pain is helpful or harmful and how it can affect actions and reactions. Use your understanding of pain to help those in need, whether it be a well-placed needle of lidocaine, five extra minutes of holding a hand, or a deep breath and a second look before assuming the worst.

We are not just the keepers of pain; we are the transformers of pain.


Alison L. Days, MD
Editor, El Paso Physician Magazine

Editorial Comment
Alison L. Days, MD
Editor
El Paso Physician, EPCMS
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Diabetic nephropathy (DN) is one of the most common renal disorders seen in the El Paso county area. DN is a grave complication of diabetes mellitus (DM) and it is also the leading cause of end stage renal disease (ESRD) in the United States (US) and other developed countries. Over the past three decades, there has been an epidemic increase in obesity, metabolic syndrome and type 2 DM. Today in the US, around 75% of men and about 67% of women are either overweight or obese; this is also reflected in a significant increase in the number of patients with DN. DN is a progressive disorder caused by damage to the glomerular capillaries and has five stages. The overt clinical phase of DN is preceded by many decades of microalbuminuria. This in turn, is a predictor of future micro- and macrovascular diseases. The final stage of DN is ESRD. When a patient reaches ESRD it becomes a significant socioeconomic burden to the patients, their families, and the health care system. The morbidity and mortality due to diabetic nephropathy are almost twice as high as those of the non-diabetic with ESRD and the overall prognosis for diabetics is the worst of all ESRD patients.

This review will encompass basic information about: 1) epidemiology including local statistics; 2) the natural history and stages of diabetic nephropathy; 3) pathogenesis; 4) risk factors; 5) diagnosis; 6) clinical manifestations; 7) treatment essentials and 8) conclusions.

1. Epidemiology:

The Centers for Disease Control and Prevention (CDC) estimated that in 2012 about 29.1 million Americans or 9.3% of the populations had DM. About 8.1 million of individuals with DM were undiagnosed. Type 1 DM (T1DM), formerly known as insulin-dependent mellitus (IDDM), is due to minimal or absent pancreatic insulin secretion. It accounts for about ten percent of diabetics and it occurs most often in children and young adults. Type 2 DM (T2DM), previously known as non-insulin dependent diabetes mellitus (NIDDM), is characterized by insulin resistance. Usually occurring in overweight adults over 30, T2DM is the most common type of diabetes. More than thirteen million Americans have glucose intolerance, about one third to one half of whom remains undiagnosed. One in two people with diabetes do not know they have the disorder.

Diabetes and its associated microvascular and macrovascular complications, represent a major public health problem. DM is the seventh leading cause of death in the US. Every 7 seconds 1 person dies from DM. Direct and indirect costs exceed 245 billion dollars each year due to this disease. The prevalence of diabetic nephropathy (DN) and associated ESRD in El Paso County area is one of the highest in the nation and of the American southwest.

In 1982, DN accounted for 27% of patients with ESRD in the US and rose to 36% by 1992 and to about 44% in 2011. On December 12, 1995 there were 257,266 Medicare patients in the US with ESRD and 31.4% of them were diabetics, with a point prevalence rate of 303 per million. The incidence count during 1995 was 68,870 and 40.4% were diabetics, with an incidence rate of 104 per million. In the same year, 40.4% of Texans with ESRD, had diabetes as the primary diagnosis. In 1998 there were 19,474 Texans with ESRD and 46.9% were diabetic or a total of 9136 ESRD diabetics. In 2012 the number of prevalent cases of ESRD was 363,905 (hemodialysis 408,711, peritoneal dialysis 40,631 and transplant 186,303). The incidence of ESRD in the US in 2012 was 359 per million population and the prevalence (number of ESRD patients per million population on December 31, 2012) was 197.6. The number of ESRD patients in El Paso county has also shown a dramatic increase from 585 (12/31/1995), to 769 (12/31/1997). The point prevalence in El Paso on 12/31/99 was 919. Out of the 919 cases of ESRD in El Paso 59% were diabetics or 542 (498 type 2 and 44 type 1). In 2014 the point prevalence was 2145 patients with ESRD, 63% or 1337 due to DN (1302 type 2 and 55 type 1).

2. Natural History and Stages of Diabetic Nephropathy

Mogensen and associates described five stages of the progression of DN in T1DM (see Table 1). The evolution of DN in Type 2 is less well defined, but in general may follow a similar course. The stages may be blurred since microalbuminuria or proteinuria is often present in many Type 2 diabetic patients at the time of the initial diagnosis, including 3% of newly diagnosed type 2 DM that have macroalbuminuria.

Stage I: Hyperfiltration and Nephronegaly. The kidneys in...
Diabetic Nephropathy 2015
(Continued)

Table 1

<table>
<thead>
<tr>
<th>Stages and Features</th>
<th>Time Course</th>
<th>Structural Renal Changes</th>
<th>Glomerular Filtration Rate (GFR)</th>
<th>Urinary Albumin (mg/24hr)</th>
<th>Progression to the Next Stage</th>
<th>Blood Pressure</th>
<th>Reversible with Treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td>I Early Hypertrophy and Hyperfiltration</td>
<td>Present at time of diagnosis</td>
<td>Usually None</td>
<td>1-20-40% Hyperfiltration</td>
<td>&lt;30</td>
<td>100%</td>
<td>Normal</td>
<td>Yes</td>
</tr>
<tr>
<td>II Silent Stage. Early Glomerular Lesions</td>
<td>2-10 years post diagnosis</td>
<td>Increased GBM and mesangial sclerosis</td>
<td>1-20-30% Hyperfiltration</td>
<td>&lt;30</td>
<td>30-40%</td>
<td>Normal</td>
<td>Yes</td>
</tr>
<tr>
<td>III Insipid Diabetic Nephropathy Microalbuminuria</td>
<td>Typically found after &gt;7 years</td>
<td>Increased GBM and mesangial matrix, minimal sclerosis</td>
<td>10-50% Hyperfiltration</td>
<td>30-300</td>
<td>80-100%</td>
<td>Increased during exercise</td>
<td>Probably</td>
</tr>
<tr>
<td>IV Overt Diabetic Nephropathy Macroalbuminuria</td>
<td>Detected after &gt;20 years in 50% of patients</td>
<td>Often nodular glomerulosclerosis &gt;50% K-W lesion</td>
<td>GFR &lt; 15 ml/min/1.73m²</td>
<td>&gt;300, later Nephrotic Range</td>
<td>75-100%</td>
<td>Abnormal</td>
<td>No</td>
</tr>
<tr>
<td>V End Stage Renal Disease (ESRD) or ESKD</td>
<td>Present after 8-10 years</td>
<td>Glomerular sclerosis, interstitial fibrosis</td>
<td>GFR &lt; 15 ml/min/1.73m²</td>
<td>&gt;5 g of protein but variable</td>
<td>Death occurs &lt;10 years</td>
<td>High</td>
<td>No</td>
</tr>
</tbody>
</table>

crease in size, and hyperfiltration develops. The glomerular filtration rate (GFR) is above normal by at least 140%. Intensive insulin therapy normalizes hyperglycemia and corrects the glomerular hyperfiltration.

Stage II: Early Glomerular Lesions. About 30% of T1DM progress to stage 2. Two to five years after the onset of T1DM the renal histology becomes abnormal and a gradual expansion of the mesangium and matrix is detected plus subtle thickening of the glomerular basement membrane (GBM). Transient microalbuminuria may be noted. Clinically, stages 1 & 2 are usually silent.

Stage III: Microalbuminuria Stage. It is characterized by presence of fixed microalbuminuria, defined as increased urine albumin excretion (UAEx) of 30 to 300 mg/day or >20-200 mg/min, noted by Roche’s Microl Test or by Miles’ Micro-Bumintest but not detectable by the usual dipstick, commonly used to detect proteinuria. Over 10 years about 30-45% of microalbuminuric patients progress to overt proteinuria. Blood pressure tends to be higher in patients with microalbuminuria. The combination of these 2 factors, if not treated properly, gradually leads to progressive GFR deterioration and clinical nephropathy.

Stage IV: Clinical Nephropathy. It is manifested by overt proteinuria of more than 300 mg/day. Over several years there is a progressive decrease in the GFR of about 10 ml/min/year in patients with T1DM and insidious progression to nephrotic range proteinuria (more than 3.5 gm/day) associated with hypoalbuminemia, hyperlipidemia and gradual anasarca. Systemic hypertension is frequently noted and manifestation of renal insufficiency may appear. About 95% of T1DM patients have coincident nephropathy, but it is present only in about 65% of T2DM patients. Renal biopsy may reveal diffuse or nodular (Kimmelstiel Wilson) glomerulosclerosis, plus afferent and efferent arteriolar hyalinosis and progressive tubulointerstitial fibrosis.

Stage V: End Stage Renal Disease (ESRD or ESKD). The lapse between diagnosis of T2DM and ESRD may range from 5 to 25 years. Typically, decades after the onset of proteinuria ESRD occurs. The frequency of ESRD and diabetic nephropathy depends strongly on the duration of diabetes. Worsening hypertension and renal insufficiency develops and are associated with glomerular sclerosis and fibrosis. The prevalence of ESRD is about 40% with T1DM versus 20-30% in T2DM. Approximately half of T2DM develop proteinuria twenty to forty years after diagnosis of diabetes but not everyone ends up in ESRD, some succumb to other microvascular and macrovascular disorders, so far, the reasons are unknown.

3. Pathogenesis:
Four main theories have been proposed to explain the pathogenesis of diabetic nephropathy.1,3-5

1. Hyperglycemia is the most important causative factor of DN. It acts directly by inducing hyperfiltration, intraglomerular hypertension and hyperfiltration. Hyperglycemia also leads to alterations in tubuloglomerular feedback and abnormalities in polyol (e.g. sorbitol) metabolism. A high HbAlc and poor metabolic control are associated with hyperfiltering kidneys and glucose toxicity. Hyperglycemia also affects the hexosamine pathway and facilitates the formation of advanced glycosylation end-products (AGE) and might induce reactive oxygen species, monokines, chemokines, increased protein kinase C activity, changes in metalloproteinases and growth factors, which mediate tissue injury.

2. A hormonal Imbalance occurs due to lack of insulin and in some cases hyperinsulinemia plus an increase of intracellular signaling pathways, growth hormone, and glucagon. In addition, altered concentrations or responsiveness to angiotensin II, endothelin, growth factors, catecholamines, increased pro-renin, prostaglandins and nitric oxide have been found in DN. These may promote cellular and glomerular hypertrophy as well as mesangial expansion.

3. Renal Hemodynamic Changes induced by disturbances in glomerular hypertension and glomerular hyperfiltration. Hyperfiltration is mediated by greater relaxation of the afferent arterioles in the glomeruli and leads to increased glomerular blood flow and elevated glomerular capillary pressure. Hyperfiltration is the result of renal hypertrophy. Hypertension increases transglomerular protein filtration, inducing proteinuria and mesangial deposition of circulating proteins. As a consequence, mesangial expansion and glomerulosclerosis result in gradual destruction of surviving nephrons. A positive feedback stimulus for compensatory hyperfiltration is then initiated, which leads to a further increase in GFR and progressive renal injury.1

4. Genetics. Both Type 1 and Type 2 tend to cluster in families. At present, we cannot predict which patients will develop DN. Type 1 diabetic patients with siblings who have DN carry more than a 70% risk of developing DN. Type 2 diabetic patients have a hereditary predisposition for or against development of DN.

Continued on page 9
Diabetic Nephropathy 2015
(Continued)

However, DN is likely polygenic disease and its progression is probably related to multiple polymorphisms with variable effect sizes.

4. Risk Factors:
Multiple factors have been identified or proposed that place individuals at increased risk for developing DN and its progression. The most important factors are poor glycemic control, uncontrolled hypertension, family history of DM, race & ethnicity, and smoking. Other putative factors are shown in Table 2. However, they are not consistently present in all cases.1,10-15

<table>
<thead>
<tr>
<th>Table 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eating Blood Pressure (diabetes)</td>
</tr>
</tbody>
</table>
| Poor Glycemic Control (High Level Of insulin resistance, Obesity & Older Age) | Racial Factors: African American, Mexican American, Native American, Asian | Increased Glomerular Hemoglobin, Proximal, Nephropathy, Red Cell Sedimentation, Coronary Artery Disease, Metastasis, Hypertension, Metastasis, Diabetes, Obesity, Hypertension, Ethnicity, Ethnicity, Ethnicity, Ethnicity, Ethnicity, Ethnicity, Ethnicity, Ethnicity, Ethnicity, Ethnicity, Ethnicity, Ethnicity, Ethnicity, Ethnicity, Ethnicity, Ethnicity, Ethnicity, Ethnicity, Ethnicity, Ethnicity, Ethnicity, Ethnicity, Ethnicity, Ethnicity, Ethnicity, Ethnicity, Ethnicity, Ethnicity, Ethnicity, Ethnicity, Ethnicity, Ethnicity, Ethnicity, Ethnicity, Ethnicity, Ethnicity, Ethnicity, Ethnicity, Ethnicity, Ethnicity, Ethnicity, Ethnicity, Ethnicity, Ethnicity, Ethnicity, Ethnicity, Ethnicity, Ethnicity, Ethnicity, Ethnicity, Ethnicity, Ethnicity, Ethnicity, Ethnicity, Ethnicity, Ethnicity, Ethnicity, Ethnicity, Ethnicity, Ethnicity, 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function than the creatinine clearance. In early DN the reported normal range may not show an increase until approximately half of the renal function is lost and overt nephropathy is established. There are other nuclear medicine studies, such as 123I-labeled albumin, 99mTc-EDTA, 99mTc-DTPA that can be used to estimate the GFR, but these are not widely available and are expensive. In a patient with a non-fluctuating renal function a rough assessment of the creatinine clearance can be obtained, from plasma without urine measurements, with the Cockcroft-Gault formula.19

\[
\text{Cr Clearance or } C_{cr}(\text{mL/min}) = \frac{140 \times \text{age} \times \text{body weight (kg)}}{72 \times \text{S.Cr}(\text{mg/dL})}
\]

If the patient is a woman, the same formula is used and the result is multiplied by 0.85 to adjust for smaller muscle mass. The formulas overestimate \( C_{cr} \) in obese patients and those on a low protein diet. For the past 10-15 years the MDRD formula that uses serum creatinine or its modifications has been used to estimate the GFR and CKD staging. Other formulas proposed use cystatin c or combination with creatinine and for many investigators the CKD EPI (Chronic Kidney Disease Epidemiology Collaboration) equation is preferred. This was just reviewed by Levey et al.6 Other experts argue that CKD should be adjusted according to age and that there is an artificial increase in patients being reported as having CKD.20 Adding to this confusion, the KDQI group experts has reviewed the staging of CKD and the prior concepts of microalbuminuria and macroalbuminuria have been replaced with moderately increased albuminuria and severely increased albuminuria respectively.17,18 I prefer the prior conceptual staging outlined in Table 1.

When the patient has advanced renal insufficiency, approaching ESRD, a closer estimate of the GFR may be done with a simultaneous 24-hour urine collection to check for creatinine and urea clearances. Usually in ESRD the creatinine clearance overestimates whereas the urea clearance underestimates the actual GFR. Thus, the arithmetic mean of the two clearance values gives an approximate estimate of the actual GFR. When this value is approaching 15 ml/min patient education, extensive counseling and preparation for renal replacement therapy should be done without delay.1,15-18,21

6. Clinical Manifestations:
As renal function deteriorates a pattern of signs and symptoms may become evident. Symptoms can take 5 to 10 years to appear after the kidney damage begins. Usually the symptoms are apparent when the GFR is thirty-five percent or less and when patients become nephrotic. As the kidney conditions worsen, the uremic syndrome gradually becomes apparent due to the progressive accumulation of metabolic waste products. Late symptoms at this stage include tiredness, malaise, nausea, vomiting, anorexia, pruritis and peripheral edema.21

Gastrointestinal signs and symptoms may include anorexia, hiccups, nausea, vomiting, gastrointestinal bleeding, gastroenteritis, and even uremic breath. Fluid and electrolyte abnormalities include weight gain, edema, metabolic acidosis, calcium, phosphorus and electrolyte imbalances. Neuromuscular abnormalities range in severity from retinopathy, muscular irritability, polyneuropathy, and fatigue to subtle changes in concentration and level of consciousness including stupor, seizures, coma. Cardiovascular and pulmonary manifestations may include hypertension, pericarditis, arrhythmias, congestive heart failure and pulmonary edema. Hematologic and immunologic abnormalities encompass fatigue, anemia, leukopenia, and increased risk of bleeding and infection. Endocrine and metabolic abnormalities may include renal osteodystrophy, carbohydrate intolerance, infertility and malnutrition. When the GFR falls below 20 ml/min the patient with DN gradually becomes catabolic and is at a greater risk of developing concomitant illnesses. Finally, when creatinine clearance falls to 10 ml/min, the patient with DN is often too ill to perform any work or maintain any livelihood without renal replacement therapy.1,11,16,21

7. Treatment Essentials:
There are approaches directed to each stage of the diabetic nephropathy including non pharmacologic and pharmacologic therapy.1,16,21-26

The nonpharmacologic therapy includes patient education, risk reduction, identification and management of comorbid conditions, lifestyle modifications including diet and exercise. When a patient reaches stage V diabetic nephropathy, ESRD or ESKD, the options for renal replacement therapy include hemodialysis, peritoneal dialysis and/or transplantation. In the elderly, conservative non-dialytic care may be advisable, since studies have shown no real survival or medical advantages of dialytic therapies. In the 1970’s in the US and United Kingdom patients over 65 were not started on dialysis.

In the US several types of oral agents and insulins have been approved for the pharmacological treatment of diabetes mellitus. The oral agents include sulphonylureas (chlorpropamide, glibzipride, glyburide/glibenclamide and glimepride), biguanides (metformin), alpha-glucosidase inhibitors (acarbose, miglitol), meglitinides (repaglinide and nateglinide), the bile acid sequestrants (Coleselvan) the thiazolidinediones (pioglitazone, rosiglitazone), dipeptidyl peptidase DPP4 inhibitors (sitagliptin, saxagliptin, linagliptin, alogliptin), the Amylin mimetic (Pramlintides) the sodium glucose linked transporter-2 (SGLT2) inhibitors (canagliflozin, empagliflozin, dapagliflozin) and glucagon-like peptide-1 (GLP-1) inhibitors (exenatide, liraglutide, abigerlizide, dulaglutide) and the Insulins: rapid acting analogs (Lispro, Aspart, Glulisine) short acting (Human Regular), Intermediate acting (Human NPH) Basal insulin analogs (Glargine, Detemir), Premixed Insulin (several types) and Inhaled Insulin (Afrezza) that have been reviewed recently.21-26 Many of these agents are not indicated in patients with CKD 3-5 due to adverse side effects.

As for preventative measures, there are three that can be taken to slow the development of DN. The primary prevention aims to forestall or delay the progression from normoalbuminuria to microalbuminuria. The arrest or postponement of the progression from microalbuminuria to macroalbuminuria is the aim of secondary prevention. Tertiary prevention hinders or defers the
progression of overt DN or macroalbuminuria to ESRD and cuts morbidity and mortality by delaying the time lag from macroalbuminuria to dialysis or transplant.

The main strategies used to prevent the progression of DN include: a) intensive glycemic control; b) effective albuminuria management; c) aggressive blood pressure control; d) smoking cessation; e) protein restriction; f) cholesterol reduction and g) reversal of endothelial dysfunction.13,15-19,22-26

a) Intensive glycemic control: There is now compelling evidence from the medical literature that long-term glucose control is essential. We should strive to maintain the glycosylated hemoglobin level below 7 percent. T2DM is a progressive disorder and all treatment should be secondary to control glucose. Insulin therapy is recommended when oral agents or combinations are no longer successful or not indicated. In most patients, the failure of two or three oral agents used together calls for the use of insulin alone or in addition to oral agents and these will not be reviewed here.14-26

Of major importance are the results of the Diabetes Control and Complications Trial (DCCT) and the Epidemiology of Diabetes Interventions and Complications Research Group (EDIC study), which have shown the benefits of intensive therapy in delaying the onset of diabetic complications.22,23 Moreover, the United Kingdom Prospective Diabetes Study, or UKPDS,29 shows a variety of results including a twenty-one percent reduction of microvascular complications, a twenty-one percent lowering of retinopathy progression, a thirty-five percent decrease in microalbuminuria, a sixteen percent decline of myocardial infarction, and a ten percent diminution of diabetes related death, as compared with conventional therapy. Thus, intensive pharmacotherapy is effective in reducing microvascular complications. For every percentage point decrease in hemoglobin A1C, there is a thirty-five percent reduction in the risk of complications, and more importantly, any reduction in hemoglobin A1C is beneficial.11,15,18,22-29

<table>
<thead>
<tr>
<th>Table 4</th>
<th>Parameter</th>
<th>ADA Goal</th>
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<tbody>
<tr>
<td>Average prandial glucose (mg/dl)</td>
<td>80-120</td>
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<tr>
<td>Average bedtime glucose (mg/dl)</td>
<td>100-140</td>
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<tr>
<td>HbA1c (%)</td>
<td>&lt;7</td>
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<tr>
<td>LDL cholesterol (mg/dl)</td>
<td>&lt;100</td>
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<tr>
<td>Blood pressure (mm Hg)</td>
<td>130/85</td>
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Glucose control is probably a key determinant for ESRD risk. The ADVANCE trial which is the largest clinical trial which includes follow up of 8944 patients showed that intense glucose control leads to long-term reductions in the risk of developing ESRD.30

The latest guidelines of the American Diabetes Association has endorsed optimization of glucose and blood pressure control to reduce the risks or slow the progression of DN.31 The following parameters and goals (Table 4) for patients with diabetes mellitus, previously suggested.1,21

A simplified alternative is the Pazmiño’s Rule of 100’s that include the above parameters and is based on evidence gathered from recent trials, ADA recommendations National Kidney Foundation, clinical experience and current guidelines. This rule is applied to the mean glycemic control, mean arterial blood pressure, mean LDL cholesterol and mean microalbuminuria and can be extended to other parameters (triglycerides, ideal body weight, salt intake, exercise, etc.).32

b) Effective albuminuria management, The microalbuminuria control is of paramount importance. Again, microalbuminuria is now called: “moderately increased albuminuria, for simplicity I abbreviated it to "mial" using the initials of the new nomenclature. At this stage, intensive diabetic control is critical. Type 1 diabetic patients with microalbuminuria or mial have a 15-20 fold predisposition to develop macroalbuminuria (now called severely increased albuminuria or I abbreviated to “sial”) after 10 years, whereas in type 2 the risk is only a 5-10 fold increase. Microalbuminuria (or mial) is a marker of endothelial dysfunction and is also a strong predictor of myocardial infarction and stroke. Thus a routine urinalysis is recommended in type 2 diabetic patients at the time of diagnosis. If the urinalysis is positive for protein, a 24 hour collection for protein and creatinine clearance is advisable for follow up and treatment. If the urinalysis is negative for protein a test for microalbuminuria or mial is needed and depending of the results an algorithm can be followed (Figure 1) as previously suggested by the American Diabetes Association.33

Figure 1, reprinted with permission from the ADA.34

If the test for microalbuminuria or mial is positive, it needs to be validated one more time and thereafter treatment with any...
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giotensin-converting enzyme (ACE) inhibitors is initiated. The microalbuminuria or mial test should be repeated in 4-6 weeks. If on one hand, no microalbuminuria or mial is detectable the ACE inhibitor is continued. If on the other hand, microalbuminuria or mial is still present, the dose of the ACE inhibitors should be increased. This is followed up by another determination of microalbuminuria or mial in 4-6 weeks and the dose of the ACE inhibitor should be increased unless contraindicated until the microalbuminuria or mial disappears or is stable in three consecutive urines.1,3,3

c) Aggressive blood pressure control for a patient with DN is crucial. Hypertension is the most important factor that accelerates the progression of DN. The blood pressure should be lowered gradually, after significant carotid stenotic lesions have been excluded, especially in the elderly to avoid potential complications.1 The antihypertensive and dyslipidemia therapy are very important in patients with T2DM but are beyond the scope of this discussion and have been reviewed recently. Of major importance are the findings of a 50% reduction of major cardiovascular events in type 2 diabetic patients whose target diastolic pressure was 80 mm Hg than among patients whose diastolic blood pressure was 90 mm Hg.3,3 Thus, it is recommended that the blood pressure in patients with DN and proteinuria of less than one gram should be 130/85 mm Hg. However, if the patient with DN has more than one gram of protein per 24 hours, the recommended blood pressure should be 125/75 mm Hg and these goals have been recently modified.1,4,6,21,29,35

Microalbuminuria or mial should signal the need for antihypertensive therapy. ACE inhibitors (ACEI) should be the first line of therapy for DN. If side effects appear or if the blood pressure control is not adequate, angiotensin receptor blockers (ARBs) may be used instead of, or in some cases, in addition to ACE inhibitors.1,6,21,22,25,29,35 Independent of the systemic blood pressure changes ACE inhibitors have a beneficial effect on proteinuria, GFR, vasculature, heart and kidneys. However, because of the small risk of hyperkalemia and unrecognized renal artery stenosis (<5%), serum creatinine and potassium should be monitored at the start of the treatment and one week thereafter.1 The long acting calcium channel blockers are commonly prescribed and are generally well tolerated. They are generally used in combination with other agents, but they are less effective than ACE inhibitors in reducing albuminuria and with respect to cardiac endpoints. Thereby, they should not be used as monotherapy but in combination with ACE inhibitors. Diuretics and beta blockers are also commonly prescribed, and they may have undesirable side effects and are inferior in reducing proteinuria.1,6,21,22,35

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The choice of agents in hypertensive diabetic patients is mostly based on two factors: a) the prevention of adverse cardiovascular events and b) effects of slowing or reversing the progression from one stage DN to the next. For example in the ALLHAT trial there was a lower onset of heart failure with chlorthalidone compared to amlodipine and lisinopril. In the ACCOMPLISH trial, an ACEI combined with amlodipine provided better protection against cardiovascular outcomes than the combination of an ACEI and low dose hydrochlorothiazide.17,24

As noted above, ACEI or ARB are the preferred initial therapy in patients with micro- or macroalbuminuria, or even in hypertensive patients without albuminuria or proteinuria. At present there are more than a dozen ACEI and more than half a dozen ARB. The reader is suggested to get thoroughly familiar with one or two agents in each group.

In general, as DN progresses, combination therapy is usually required in most patients. Carvedilol (Coreg) is a preferred beta blocker compared with metoprolol because of potential benefits on glycemic control and lower rate of progression of DN. If the patient has renal disease or heart failure a loop diuretic should be added. The goal blood pressure should be less than 140/90 mm Hg in most diabetics and ideally 130/80 mm Hg in DN patients with proteinuria more than 500 mg/day. Occasionally a systolic pressure of less than 120 mm Hg may be considered to decrease stroke risks, but the absolute benefits attained is 1 in 89 patients at five years and is counterbalanced by more adverse side effects, extra visits and increased cost, as noted in the ACCORD BP trial.39

To sum up, ACEIs/ARBs should be used as a first-line therapy in T1DM and T2DM if hypertension and albuminuria or mild or proteinuria or dial are present. Currently, there is no more evidence to support ACEIs/ARBs for the primary prevention of microalbuminuria and the target BP should be less than 130/80 especially in those with proteinuria. A simple guideline for the primary care practitioner is the Rule of 100’s but for the interested reader the yearly updated guidelines from the American Diabetes Association are suggested.1,15,18

In regards to the possible use of ACEI/ARB combination to maximally block the RAS, it can be done but needs to be monitored closely for adverse side effects. The CALM study looked at candesartan and lisinopril endpoints in terms of BP control and proteinuria and showed a benefit, but there was no improvement in mortality and disease outcomes.40 The NEPHRON D study found the combination of ACEIs and ARBs was associated with increased risk of adverse side effects in patients with DN41 and the On Target study showed that the combination group had worse renal function and adverse outcomes compared with the group that receive a single agent.42

As far as the use of ACEIs/ARBs for renoprotection in the context of major surgery, the decision-making should be done individually. If the indication is hypertension or myopathic heart disease it is preferable to continue them, but for renal benefit, short term discontinuation seems reasonable.

Another issue that frequently arises is hyperkalemia in patients taking ACEIs, ARB’s or combination of agents. In this situation a reduction of the doses should be tried, potassium (K) restriction should be started and loop diuretics can be used, as well as avoidance of K sparing diuretics. Kayexalate can be used temporarily. However, if the K level does not return to baseline in 2-4 weeks a discontinuation of ACEIs/ARBs should be made. In the future Patiromer, a non absorbable polymer that binds K in exchange for Ca may be a helpful adjunctive therapy.43

d) Smoking cessation should be strongly encouraged as diabetics are at increased risk of premature death from cardiovascular disorders and there is also evidence to suggest that smoking can hasten the progression of DN.44,45

e) Protein restriction remains subject to controversy as shown by the Modification of Diet in Renal Disease study group, or MDRD.46 However, there does appear to be a benefit of a modest reduction in dietary protein. Based on current data, it is advisable to recommend a protein restriction of about 1g/kg/day in patients with clinical nephropathy, approximately 10% of daily calories, with a further restriction to 0.8 g/kg/day once GFR begins to fall.39-41,46

f) Cholesterol reduction. Patients with DN are at high risk of cardiovascular disease and premature death. They should be screened for cardiovascular risk factors and treated accordingly. The American College of Cardiology and the American Heart Association Task force recently updated guidelines. For patients with DM and LDL cholesterol 70-189 mg/dl, the 10-year risk of athero/atherosclerotic cardiovascular disease should be calculated. If the risk is <7.5%, moderate intensity statin therapy is suggested. If the risk is >7.5%, high intensity statin therapy is required. The latter include those with an acute coronary syndrome, prior myocardial infarction, stable or unstable angina, coronary or other arterial revascularization, stroke, transient ischemic attacks or peripheral arterial disease. A risk calculator is available at http://my.americanheart.org/cvriskcalculator.47

g) Reversal of endothelial dysfunction. Under normal conditions the glomerular endothelium actively regulates vascular tone, permeability to molecules and macromolecules, the composition of the endothelial matrix and the proliferation of smooth muscle cells. The renin angiotensin system (RAS) plays also an important role in the regulation of vascular fibrinolysis, growth factors and matrix accumulation. The RAS interacts with the fibrinolytic system at the level of the endothelium. The endothelium is a critically important regulator of blood flow. Angiotensin Converting Enzyme (ACE) is a crucial mediator of this interaction. About 90% of ACE is tissue bound (blood vessels, heart, kidneys, CNS) and 10% is in the circulation. ACE is present on the surface of endothelial cells. Therefore ACE regulates the expression of the fibrinolytic proteins t-PA (tissue plasminogen activator) and PAI-1 (plasminogen activator inhibitor type 1). Angiotensin II (A II) regulates endothelial PAI-1 production and secretion while bradykinin promotes vasodilation by enhancing the production of t-PA. PAI-1 is particularly increased in the vasculature of patients with diabetes. Endothelial dysfunction is undoubtedly a factor in the development of the micro- and macrovascular complications seen in T1DM and T2DM.1,23,35,46

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ACE Inhibitors protect the vessel wall and produce a decrease in A II level and accumulation of bradykinin. This in turn promotes the release of nitric oxide (NO) which results in vasodilation and relaxation of vascular smooth muscle. ACEI blunt the production of superoxide anion, decreases vascular smooth muscle cell growth and migration and platelet aggregation. They also help to maintain the fibrinolytic balance by decreasing PAI-1 and increasing t-PA levels. Thus, they may contribute to the effect of these agents in preventing ischemic cardiovascular events in patients type 2 diabetes. It is also known now that Angiotensin II is involved in matrix accumulation and induction of glomerular cell growth. Therefore, the reversal of endothelial dysfunction with ACEI, statins, and the thiazolidinediones helps to slow down the progression of DN and is an area of active investigation.1,10,31-35

8. Conclusions:
When a patient reaches ESRD, the appropriate steps must be taken for dialysis and/or transplantation for the patient’s survival. The patient should be referred to a nephrologist on a timely basis. In general, the nephrologist will provide patient education about choices available and initiate and supervise renal replacement therapy. The choices of renal replacement therapy are tailored to the patient’s desires and abilities.

It is imperative to avoid a late referral of the patient with DN and renal failure. Some of these patients may present as uremic emergencies, which are often associated with high morbidity and mortality. Late referrals should be avoided since they provoke a major setback to the patient with DN, who frequently has difficulty accepting the options available for ESRD. These late referrals also have a worse prognosis and they may have to rely on a temporary or inadequate vascular access and associated complications. Many of these DN patients are affected since they may lose their jobs due to the prolonged absence from work.1,25-35

In the US Medicare provides major support to the ESRD patient’s care since the enactment of a special law in 1972. Nonetheless, the purpose of the management of the patient with DN should be to provide patient’s education, intensive and appropriate medical therapy. We should aim to maintain near euglycemia and normoalbuminuria, achieve risk reduction and ideally stop or reverse the progression of diabetic nephropathy. Our ultimate goal should be to decrease the prevalence of diabetic complications in the twenty-first century.1

Acknowledgment: Mr. Nathan Muzos, Information Management Director of the ESRD center of Texas assisted in providing recent El Paso ESRD information Grant Support: Nephrology, Internal Medicine & Hypertension Center (NIH Center).

Reprint Requests: Patricio Pazmiño PhD MD FACP, NIH Ctr, 1701 N. Mesa, El Paso, TX 79902-3503

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Patricio Pazmiño PhD MD FACP FASN is a Nephrologist in private practice and is the Medical Director of the Nephrology, Internal Medicine & Hypertension (NIH) Center, 1701 N. Mesa, El Paso, Texas 79902-3503.
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Anthony Salvatore, PhD

ABSTRACT

Objective: The objective was to compare baseline ImPACT composite and subscale scores among English only and English/Spanish bilingual high school football players. The intent was to identify variations in scores linked to the differences in language proficiency and age.

Methods: Data of baseline ImPACT tests performed on 105 El Paso high school football players on August 16th and 22nd, 2013 were analyzed retrospectively using Multivariate Analysis of Variance (MANOVA). Results were analyzed depending on language status (English only vs. English/Spanish bilingual), as well as age (12-15 y vs. 16-19 y).

Results: No statistically significant differences of ImPACT scores were noted between the language groups. The older age group achieved statistically significant higher scores in two categories.

Conclusions: Clinicians referring to ImPACT test scores to evaluate concussions in high school football players in El Paso should not use language status as a distinguishing clinical factor. It may be important to consider the age of the patient.

INTRODUCTION

Concussions are the most common type of brain injury and a topic of special interest given its ramifications and prevalence among athletes of all ages. With increased awareness of the short term and long term consequences of concussions in athletes, the city of El Paso has been proactive in finding ways to monitor, diagnose, and treat concussions.

One common method of evaluating concussions includes the use of Immediate Post-Concussion Assessment and Cognitive Testing (ImPACT), which is a series of neurocognitive assessment tests aimed to evaluate an athlete's memory (both verbal and visual), visual motor skills, reaction times, impulse controls, and symptom profiles. The test is now taken through a computerized system, which Elbinet al showed to be a reliable and stable manner of measuring neurocognitive performance in high school athletes.

Many communities have implemented baseline ImPACT test scores for high school athletes before each season to assist in the evaluation of their baseline neuropsychological assessment. As cited by McCrory, neuropsychological assessment is integral to concussion management. If, during the course of the season, the athlete sustains a sports-related concussion, they will rest from activity, and as part of their treatment under the care and supervision of trained medical professionals, they will repeat the ImPACT test numerous times to assist in evaluating the patient's neuropsychological status.

Many potential factors such as culture and language proficiency may play a role in determining how to best interpret baseline data among high school athletes. Ott looked at the baseline ImPACT scores among 23,815 high school athletes. The study divided the high school athletes into three separate groups: Hispanic Spanish speaking athletes who completed the test in Spanish, Hispanic Spanish speaking athletes who completed the test in English, and English speaking athletes who completed the test in English. These groups were further subdivided by age. Ott's findings concluded that younger athletes scored statistically lower than the older athletes, and that both the Hispanic Spanish speaking athletes taking the test in Spanish as well as the Hispanic Spanish speaking athletes taking the test in English had significantly lower scores than the English speaking athletes taking the test in English.

In recent years, El Paso has begun performing baseline ImPACT tests to groups of high school athletes in order to provide improved concussion evaluation and management. With its unique demographics as a border town, and noting the recent findings of Ott's study as mentioned above, the objective of this study was to compare baseline ImPACT composite and subscale scores among English only and English/Spanish bilingual high school football players. The intent was to identify variations in scores that may have been linked to the differences in language proficiency, culture, and age of the different groups.

Based on the results of Ott's study, we hypothesized that the English only group and the older age group would score statistically higher on the baseline ImPACT test scores in comparison to the English/Spanish bilingual and younger age groups respectively.

Continued on page 23
How Do ImPACT Baseline Test Scores Compare Between English Only Speakers and English/Spanish Bilingual High School Football Players?

(Continued)

In collaboration with UTEP Concussion Management Clinic, we received the data of the most recent baseline ImPACT scores of athletes taken on August 16, 2013, and August 22, 2013. After selecting for male high school football players, a cohort of 105 subjects was collected. The ages of the subjects ranged from 12-19 years old, and all subjects’ tests results were confirmed for validity using the pre-determined cut-offs that are reported as part of the ImPACT test results. All ImPACT tests were administered in English.

Other factors that were taken into consideration among this population were age, BMI, years of football experience, education, language, speech language therapy, special education, diagnosis of attention deficit disorder hyperactive, football position, and history of prior concussion.

In order to evaluate the significance of language on ImPACT test results, the portion of the ImPACT test where the subject enters his native language was noted. We divided this population into 2 groups (English only vs. Spanish/English bilingual). The different Composite and Subscale scores were subsequently compared between the two language groups.

Additionally, a separate analysis was performed comparing the ImPACT composite and subscale scores between two different age groups (12-15 yo vs. 16-19 yo). The different composite and subscale scores between age groups were subsequently compared.

Statistical Analysis
Continuous data were described using mean and standard deviation (SD)/median and interquartile range (IQR), while categorical data were described using frequency and proportion. ImPACT scores were compared between language and age groups using Multivariate Analysis of Variance (MANOVA). Results with P-values less than or equal to 0.05 were considered statistically significant. Statistical analyses were conducted using SAS version 9.3.

Both the score results for the language groups and the age groups were analyzed separately using the same statistical methods each time, with results for composite scores displayed in Table 2, and results for subscale scores in Table 3.

Table 2. Comparison of ImPACT composite scores between English only (n=49) and Spanish/English bilingual (n=56) groups

Results
As noted in the methods section, the demographic factors that were taken into consideration among this population were age, BMI, years of football experience, education, language, speech language therapy, special education, diagnosis of attention deficit disorder hyperactive, football position, and history of prior concussion. Results of these factors can be appreciated in Table 1.

Of the 105 subjects, 49 reported their native language to be English only, and 56 reported their native language to be Spanish/English bilingual. Between the two different language groups, no statistically significant differences were noted in the composite scores, or the subscale scores. Results can be appreciated in tables 2 and 3.

Among this population, 56 subjects fell in the 12-15 yo group, with the other 49 under the 16-19 yo group. Results showed that between the age groups, younger subjects (12-15 yo) performed statistically lower in “Visual Motor Speed” (p-value=0.0376). They also scored statistically lower on the Subscale score “Three letters Average Counted Correctly” (p-value=0.0466). Although not statistically significant, younger subjects scored higher than the other subjects on the composite score “Impulse Control” (p-value=0.0549), as well as lower in the Subscale score of “Three Letter Total Letters Correct” (p-value=0.0585). Results can be appreciated in tables 2 and 3.

Discussion/Conclusion
The data suggest that differences in language among high school football players in El Paso plays no significant role in their baseline ImPACT test scores. These findings conflict with the results of Ott’s study. Reasons for different results among the language groups may include our smaller sample size (N=105), demographic differences between the populations sampled, the fact that our study did not include any groups taking the test in Spanish, and differences in the definition of language groups. Despite those differences, the results of this study provide impetus for further investigation of how language and culture play a role in ImPACT baseline scores of high school football players, and how the results may differ between various regions of the country.

In agreement with the results of Ott’s study, age positively correlated with higher scores. Our findings suggest that clinicians referring to ImPACT baseline test scores may benefit by using age status as a distinguishing clinical factor when evaluating high school football players. This may also suggest that scores change as one ages, meaning that updated baseline testing should be done throughout a high school player’s career. That finding contradicts what Elbin’s study reported.

REFERENCES


Continued on page 24
How Do ImPACT Baseline Test Scores Compare Between English Only Speakers and English/Spanish Bilingual High School Football Players? (Continued)

Table 1. Summary of entire cohort (N=105)

<table>
<thead>
<tr>
<th>Variables</th>
<th>Entire cohort</th>
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</thead>
<tbody>
<tr>
<td>Age (mean, SD)</td>
<td>15.46, 1.19</td>
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<tr>
<td>BMI (mean, SD)</td>
<td>25.71, 4.44</td>
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<tr>
<td>Years of experience (median, IQR)</td>
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<tr>
<td>Years of education (median, IQR)</td>
<td>9 (8, 10)</td>
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<tr>
<td>Total Symptom Score (median, IQR)</td>
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<td>Age categorized</td>
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<tr>
<td>12-15</td>
<td>56, 53.33</td>
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<tr>
<td>16-19</td>
<td>49, 46.67</td>
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<td>Native language</td>
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<tr>
<td>Spanish/English Bilingual</td>
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<td>Repeat school</td>
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<td>No</td>
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<td>Yes</td>
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<td>Received speech language therapy</td>
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<td>No</td>
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<td>Yes</td>
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<td>Special education</td>
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<td>Attention Deficit Disorder Hyperactive</td>
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<td>center</td>
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<td>corner</td>
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<td>defensive end</td>
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<td>defensive lineman</td>
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<td>defensive tackle</td>
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<td>guard</td>
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<td>left tackle</td>
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<td>linebacker</td>
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<td>nose tackle</td>
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<td>right tackle</td>
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<td>running back</td>
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<td>tight end</td>
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<td>wide receiver</td>
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<td>Internal</td>
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<td>Yes</td>
<td>24, 22.86</td>
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Table 2. Comparison of ImPACT composite scores between English only (n=49) and Spanish/English bilingual (n=56) groups

<table>
<thead>
<tr>
<th>ImPACT Composite scores</th>
<th>English only</th>
<th>Spanish/English</th>
<th>p-value*</th>
<th>p-value*</th>
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<tr>
<td>Verbal Memory mean</td>
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<td>82.22</td>
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<td>12-15</td>
<td>80.00</td>
<td>83.15</td>
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<td>Visual memory</td>
<td>75.24</td>
<td>74.74</td>
<td>0.684</td>
<td>0.0376</td>
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<tr>
<td>12-15</td>
<td>75.19</td>
<td>75.58</td>
<td>0.457</td>
<td>0.7231</td>
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<tr>
<td>Visual Motor Speed</td>
<td>32.08</td>
<td>33.12</td>
<td>0.137</td>
<td>0.0599</td>
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<tr>
<td>12-15</td>
<td>35.33</td>
<td>35.33</td>
<td>0.506</td>
<td>0.1177</td>
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<tr>
<td>Reaction Time</td>
<td>0.64</td>
<td>0.64</td>
<td>0.137</td>
<td>0.0599</td>
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<tr>
<td>12-15</td>
<td>0.65</td>
<td>0.63</td>
<td>0.137</td>
<td>0.0599</td>
</tr>
<tr>
<td>Impairment Control</td>
<td>0.64</td>
<td>0.64</td>
<td>0.137</td>
<td>0.0599</td>
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<tr>
<td>12-15</td>
<td>0.64</td>
<td>0.64</td>
<td>0.137</td>
<td>0.0599</td>
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<tr>
<td>Total Symptom Score</td>
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<td>6.78</td>
<td>0.137</td>
<td>0.0599</td>
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<td>12-15</td>
<td>7.12</td>
<td>9.12</td>
<td>0.137</td>
<td>0.0599</td>
</tr>
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</table>

*p-values for language group comparison  **p-values for age group comparisons

Table 3. Comparison of ImPACT subscale scores between English only (n=49) and Spanish/English bilingual (n=56) groups

<table>
<thead>
<tr>
<th>ImPACT Subscale scores</th>
<th>English only</th>
<th>Spanish/English</th>
<th>p-value*</th>
<th>p-value*</th>
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</thead>
<tbody>
<tr>
<td>Word Memory</td>
<td>92.59</td>
<td>92.41</td>
<td>0.179</td>
<td>0.5057</td>
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<tr>
<td>12-15</td>
<td>95.50</td>
<td>91.55</td>
<td>0.137</td>
<td>0.0599</td>
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<tr>
<td>Design memory</td>
<td>80.03</td>
<td>80.70</td>
<td>0.137</td>
<td>0.0599</td>
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<tr>
<td>12-15</td>
<td>81.00</td>
<td>78.29</td>
<td>0.5243</td>
<td>0.0352</td>
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<tr>
<td>X's and O's Total Correct Memory</td>
<td>8.61</td>
<td>8.24</td>
<td>0.247</td>
<td>0.3962</td>
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<tr>
<td>X's and O's Total Correct Interference</td>
<td>9.19</td>
<td>8.24</td>
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<td>0.0599</td>
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<td>12-15</td>
<td>107.48</td>
<td>133.91</td>
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<td>110.00</td>
<td>111.18</td>
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<tr>
<td>X's and O's Average Correct RT</td>
<td>0.54</td>
<td>0.54</td>
<td>0.293</td>
<td>0.1580</td>
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<td>0.53</td>
<td>0.137</td>
<td>0.0599</td>
</tr>
<tr>
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<td>6.04</td>
<td>0.592</td>
<td>0.0414</td>
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<td>6.83</td>
<td>6.21</td>
<td>0.262</td>
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<tr>
<td>Symbol Match: average correct RT (visible)</td>
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<td>1.69</td>
<td>0.634</td>
<td>0.4419</td>
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<td>1.89</td>
<td>1.86</td>
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<tr>
<td>Three Letter Total Letters Correct</td>
<td>0.79</td>
<td>0.83</td>
<td>0.528</td>
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<td>13.73</td>
<td>13.04</td>
<td>0.774</td>
<td>0.0466</td>
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<td>Three letters Average Corrected Poetry</td>
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<td>14.80</td>
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<tr>
<td>12-15</td>
<td>14.39</td>
<td>14.30</td>
<td>0.137</td>
<td>0.0599</td>
</tr>
</tbody>
</table>

*p-values for language group comparison  **p-values for age group comparisons

Alexander Hutchinson, MS3, Texas Tech University HSC - PLFSOM

Paul Henson, MS3, Texas Tech Univeristy HSC - PLFSOM

Justin Wright, MD, Assistant Professor and Assistant Director of Sports Medicine, Department of Family Medicine, Texas Tech University HSC - PLFSOM

Anthony Salvatore, PhD, UTEP Concussion Management Clinic
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COLLEGE FOR THE REAL WORLD
A Step-Wise Metric Validated Curriculum for Robotic Surgery Competency

Andrade A, Folstein M, Oivias V, Davis B
Department of Surgery, Paul L. Foster School of Medicine, TTUHSC El Paso

Background
Training in robotic procedures traditionally has been reserved for the final year of surgical education following determination of competency in laparoscopy. Introduction of new technologies can have a high learning curve necessitating the discussion of measured progression and metrics. The robotic surgical curriculum at Texas Tech is competency driven over five years of training using validated metrics to provide step wise progression through orientation and simulation to achieve competency.

Materials & Methods
The curriculum develops an algorithm for graduated proficiency-based competency as a progression over five years. Metrics were developed by Intuitive Surgical Co. for the Da Vinci robotic surgical console. These metrics normally apply to licensed surgeons in practice (standard time for completion of 6 months) compared with the Tech curriculum that distributes training over a five year curriculum. Metrics include speed and efficiency in docking the robotic arms and timed simulation drills, followed by subjective expert evaluation of proctored cases in human subjects. Quality based outcome metrics include length of the procedure, length of hospital stay, and postoperative complications.

Results
The curriculum was implemented in July 2014 to include 18 residents over a year progression of training (July 2014-May 2015). Post-graduate year (PGY) five residents progressed through the entire curriculum to complete a total of 34 robotic cholecystectomies and achieve certification status by Intuitive Surgical Co. Six residents (PGY 3-4) completed the arm docking and simulation models. Two of those six progressed to completion of portions of proctored cases with the senior study surgeons while three of six were able to complete portions of robotic procedures with proctors in private practice settings. The remaining PGY 1-2 residents (9/18) completed orientation and robotic arm docking curriculum segments.

Conclusions
The Texas Tech robotic surgery curriculum demonstrates that advanced technology can be safely and effectively taught to residents through a progressive metrics and competency based curriculum. Initial outcomes evaluation of robotic cholecystectomies completed by PGY-5 residents demonstrated no significant difference in operative times, patient length of stay, or complications when compared to resident-performed laparoscopic cholecystectomies documented in the literature.

Trauma Evaluation and Management Program for Third Year Medical Students

Milan S, Tyroch A, McLean, S
Department of Surgery, Paul L. Foster School of Medicine, TTUHSC El Paso

Background
Trauma evaluation and management (TEAM): Early Care of the Injured Patient is an approach to teaching the principles of care of the acutely injured patient to medical students and multidisciplinary team members. It provides a framework to demonstrate the purpose and concepts of immediate management of the injured patient and basic understanding of the fundamental principles of trauma care. Due to the acuity of trauma situations, these concepts are difficult to teach in a lecture format or in “real-time” as patients are being cared for. The TEAM program is based on the American College of Surgeons Advanced Trauma Life Support (ATLS) program.

Materials & Methods
The TEAM program is led by a trauma surgeon faculty from TTUHSC and senior residents. It is approximately 90 minutes – 2 hours in length and incorporates didactics, small group discussion and simulation of clinical skills and occurs once during the surgery clerkship. The TEAM program supplements the one week long Trauma and Acute Care Nights rotation on which all third year medical students rotate.

Results
This activity will be implemented in the upcoming academic year with pre and post test data to evaluate effectiveness.

Continued on page 27
Conclusions
The TEAM program is a valuable component of the general surgery clerkship educational experience. The combination of didactics, small group discussion and simulation is an effective way to augment the clinical teaching of trauma evaluation and management principles to third year medical students.

Right to the Core

Sullivan V, Gest J
Operating Room, University Medical Center of El Paso

Background
Patient safety is the goal in the operating room. The steps taken towards proper communication between the team members in the surgery starts from the assessment of the patient to the transfer of the patient to the recovery room. It is vital to have appropriate communication to eliminate any errors that will jeopardize the safety of the patient. The goal is to improve communication techniques in order to advocate for patient safety.

Materials & Methods
Problem - Improve communication to improve patient safety in the operating room. Intervention – data collection, start surgical team huddles prior to case initiation. Comparison – Current practices makes it challenging to communicate with other members of the surgical team. Outcomes - Improved communication; Short-term goal: within 2 weeks; Long-term goal: within 3-6 months.

Results
The survey was given to 25 nurses and surgical technologists at two weeks and 23 of the nurses and surgical technologists answered that the intervention improved communication among the team members and had a positive impact on the outcome. Only two survey participants felt that no improvement was made following the intervention. The data collection is currently at three months of debriefing questions asked at the end of the surgery. The data collected for three months show that out of 465 surgeries, 69 surgeries needed to improve for better outcomes. Out of 488 surgeries, 69 surgeries had something wrong happen during the surgery. Out of 499 surgeries, 79 surgeries had good outcomes.

Conclusion
After doing the research, the surgical team needs effective communication to influence the goal of patient safety. The surgical team each plays a role in each surgery. The obtainable outcome after the surgery is for the patient to be able have a positive recovery. The communication starts in the beginning of the shift to communicate any changes or obstacles in the operating room daily. The importance of the operating room communication will let the team members know how long the surgery will last, and introduce the team members involved in the surgery.
3rd Annual Clinical Simulation Conference of West Texas:
Bridging Education and Practice Gaps to Improve Patient Outcomes
(Continued)

age decisions especially in mass casualty incidents. EMS first responders receive training in rapid triage of patients into four classifications: immediate (red), observation (yellow), wait (green), and expectant (black), but less frequently is this training combined with ED physicians in an inter-professional scenario outside of large-scale system-wide disaster training exercises. We created a rapid (6-minute) six patient disaster scenario that required ER physicians to interact with volunteer EMS crews to provide stabilization and categorization of patients. 36 residents were assessed individually over a three week period and combined debriefing helped to provide key training and management points for all healthcare providers.

Materials & Methods
As part of a 10 month simulation curriculum for Emergency Department residents a six patient mini-disaster simulation was designed allowing emergency physicians in training to interact with EMS personnel to demonstrate critical thinking, rapid triage and brief therapeutic intervention. 6 simulated patients were moulaged to demonstrate expected injury patterns and transported into a room for evaluation one-at-a-time at set intervals. Each of the following clinical presentations required triage and stabilization by the ED resident: elderly head trauma, lower extremity amputation, muscular back pain, pneumothorax, pulseless arrest and lower extremity fracture. Each EMS crew was expected to provide clinically relevant information and vital signs to the provider and the ED resident was then able to provide triage using the standard START (Simple Triage and Rapid Treatment) system and simple clinical interventions including: needle decompression, tourniquet application, intubation, neurologic examinations and pulse checks.

Results
Resident physicians and EMS crews gained increased experience in a controlled setting exchanging clinically relevant information. EMS crews could understand how ER physicians prioritize patient management and ED physicians were instructed on judicious use of the triage tag system to allow for appropriate utilization of healthcare resources. This type of training could be incorporated into other care scenarios including the integration of nursing care and multi-tasking and patient re-assessment.

Conclusions
This was a successful training exercise teaching key components of the START triage system in an inter-professional teamwork environment with otherwise low resource utilization. EMS crews were noted to provide relevant clinical information in an effective manner overall and residents were found to effectively triage most patients with the exception of tendency for over-triage in potentially ill patients, not currently demonstrating signs of severe disease and an relative inability to give up on care even in a disaster scenario.

Most HIV positive persons had previous visits to a medical facility where they were not tested for HIV.

Routine HIV testing is an opportunity for earlier diagnosis and treatment.

Learn more at www.testtexasHIV.org

Volume 38 Number 4  •  December 2015
The RotaCare Clinic has been open just slightly over 1 year, and since its inception we have been able to provide services to over 450 patients. During this time, we came to realize many of our patient’s need for specialized care. Therefore, over the past few months, we have been organizing specialty clinics in order to offer services not normally available at our clinic on a regular basis.

On October 3rd, a community Ophthalmologist brought a portable slit lamp and screened more than 15 patients for eye diseases free of charge. The cost of vision problems in the United States is predicted to reach $17 billion by 2050, so preventing eye disease now will help reduce these costs in the future.

On October 17th, the RotaCare Clinic had a wonderful time hosting the Rawlings Pediatric Dental Van, the HPV vaccination program of El Paso, and the Bee Wise Immunize campaign. The Pediatric Dental Van is a fully functional dental van capable of x-rays, dental procedures, and teeth cleaning for children under the age of 21. We were able to provide over 20 children with a full pediatric exam and dental x-rays free of charge. The HPV vaccination program was a great success as well. This program is unique in that patient’s will be followed up for the 2nd and 3rd shots in the series. Hopefully, by following up with these patients, the compliance for completing the series and being protected against high-risk HPV will be significantly greater.

Finally, the Bee Wise Immunize campaign was an immense success with over 77 vaccines given helping to protect the entire El Paso community.

On October 31st, we held a Women’s Clinic that helped more than 10 women receive a full well-woman’s exam, including a Pap smear and pelvic exam. Because the morbidity and mortality of cervical cancer has been drastically reduced with routine pap smears, we hope to continue offering this service.

Looking to the future, we plan to continue to rotate these specialty clinics throughout the year to offer our patient’s specialized healthcare, in addition to being a safety-net clinic in the community.

Lastly, we are always looking for new physicians to help with the clinic if you are interested, please contact Jerry Fan, jerry.fan@mphse.edu

Jerry Fan, MS3, SGA Vice President Class of 2017, AMA/TMA Vice President, RotaCare Free Clinic Leadership Team, AMSA President
Increasing Threat of Hepatitis C Virus (HCV)

Jorge Gallegos

Mortality rates from most chronic diseases in El Paso are better than expected. Unlike other parts of the country with economic challenges, El Paso’s high uninsured rates, poverty, primary care physician shortages and problems with access to care do not result in the same deaths from chronic disease. The phenomenon is called the Hispanic Paradox.

But the Hispanic Paradox does not apply across the board. Deaths from diabetes (31.4 per 100,000 people) and liver disease (22.5 per 100,000) are noted exceptions. Approximately 12% of the adult population is diabetic, about 65,000 El Pasoans. Estimates for chronic Hepatitis C infection, a leading cause of liver disease, range from 2-4% of the general population in El Paso to 6% of adults under the age of 65, i.e., as many as 32,000 Hepatitis C-infected residents.

Hepatitis C infection is the most common chronic blood-borne infection in the United States; the estimated prevalence is between 0.87 and 1.3 cases per 100,000 population (2.7 million – 3.9 million) persons living with chronic infection.

In Texas, the greatest concentration of Hepatitis C cases is in the Houston and Dallas areas. However, estimated Hepatitis C prevalence in US-Mexico border counties is 2.6%. A survey of safety net hospital users suggests prevalence as high as 4.2%.

There is a big difference between 2% of the population being infected and 4%. That difference can affect practice patterns and health policy. Accurate data are critical to developing the appropriate community response to Hepatitis C. However, infection rates are difficult to obtain due to reporting and testing issues.

Acute and chronic Hepatitis C infection (HCV) are notifiable conditions in El Paso and must be reported to the Department of Public Health (DPH). From 2010-2015, DPH received 3,900 chronic HCV case reports. The last acute HCV case report was received several years ago. The highest prevalence of chronic HCV is in the 25-49 years age group with 42.3%, followed by the 50-64 years age group with 40.3% (baby boomers).

With estimates as high as 32,000 HCV-infected, a reported case volume of 3,900 over six years suggests significant under-reporting. The issue is not failure of healthcare providers, i.e., doctors, hospitals, clinics, to report known HCV infections. Rather, the problem is individuals are not being routinely tested. Liver disease symptoms to prompt testing can take up 20-30 years to appear. Given the 20-30 year lag for development of liver disease, the only way to capture accurate infection data is to test for HCV as a standard of care for risk populations, long before the onset of liver complaints.

Hepatitis C is a contagious liver disease caused by the Hepatitis C virus. HCV is spread through exposure to Hepatitis C-infected blood. Acute HCV infection occurs within the first six months following exposure to the hepatitis C virus. 15-25% will clear the virus. The remaining 75-85% will develop chronic Hepatitis C infection. Of the chronic Hep C 10-20% will progress to cirrhosis or end-stage liver disease.

In most instances, HCV is transmitted through large or repeated percutaneous exposures to infectious blood, through injection drug use, needle stick injuries in healthcare settings, or being born to a mother who has hepatitis C. There is currently no vaccine for hepatitis C.

Most persons infected with HCV are asymptomatic; however, some people can have mild to severe symptoms that include fever, fatigue, loss of appetite, dark urine, clay-colored stool, abdominal pain, nausea, vomiting, joint pain, and jaundice.

Until recently, the standard of care for HCV has been pegylated interferon and ribavirin, with possible addition of boceprevir and telaprevir for HCV genotype 1 infection. After given for 24-48 weeks, this treatment resulted in a sustained virologic response (SVR) in 50%-80% of patients.

In late 2013, the treatment of HCV infection dramatically improved. New direct acting antiviral drugs, Sofosbuvir and Simcprevir, were approved to treat chronic HCV infection. Clinical trials have shown a SVR in 80%-95% of patients after 12-24 weeks of treatment.

El Paso’s HCV infection rates are extrapolated from various research studies. To accurately describe the HCV problem and prepare an appropriate response, healthcare providers need to know how many people are infected, i.e., individuals need to be tested for HCV. Testing for HCV infection should include the following risk groups:

- persons born between 1945 and 1965
- ever injected illegal drugs (even once, many years ago)

Continued on page 35
Report from the AMA Alternate Delegate

Roxane Tyroch, MD, FACP

The Interim meeting of the American Medical Association held in Atlanta Georgia mid-November, 2015. The range of topics addressed was immense and beyond the scope of this article. I strongly encourage you to learn as much as you can by joining the AMA. Once you have your login credentials, you can see the business of the House of Delegates well organized online. I assure you that no national multispecialty organization advocates for preserving your practice environment more than the AMA. Imperfections of the past are sometimes unjustly highlighted. Let’s get past that and acknowledge that membership dues empower your AMA leadership to work for you. With rare exception, you most likely do not have the time to go to Washington and advocate for yourself. It is very easy to take this for granted. Let us face our responsibility to address forces adverse to our interests instead of passively accepting defeat. The reference committee I participated in by providing testimony to halt the Meaningful use Stage III deadline and penalties (breathetherape.org). Reference Committee B also addressed GME and the medical loss ratio, surrogate consent state and payment parity in Medicare Shared Savings plans among other topics.

Resolution 214-l-14, “Pain Medicine,” asked that our American Medical Association (AMA) work to remove the pain survey questions from Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS) and work to prevent the Centers for Medicare & Medicaid Services (CMS) from using pain scores as part of CAHPS Clinician and Group Surveys (CG-CAHPS) scores in future surveys. In 2014 the AMA Board formed the AMA Task Force to End Opioid Abuse (ama-assn.org/go/endopioidabuse). Health Care Mergers were addressed. This cannot be done by specialty societies alone effectively (ama-assn.org/go/competition).

Resolution 208-l-14 supports repeal of the Stark Law and regulations or their revision such that they cannot be used by employers to unfairly and arbitrarily cap or control physician compensation. I will provide a brief explanation of this on the EPCMS website (www.epcms.com) due to its importance to all of us.

Protect Safe VA Care asks that you help maintain physician-led anesthesia care for Veterans / this effort is lead by the American Society for Anesthesiologists. Take action at www.SafeVACare.org.

The AMPAC Capitol Club Luncheon guest speaker was Mara Liasson, whom you have heard on National Public Radio. Her thoughts on the upcoming presidential election was candid and evidence based. Now that the SGR has been repealed, the AMA efforts are directed at implementation of the Medicare Access and CHIP Reauthorization Act (MACRA) by 1) creating a task force that has drafted key principles for the law’s alternative payment models (APMs) and Merit-based Incentive Payment System (MIPS) 2) Pressing the government to improve and align current requirements for quality electronic health records and resource use 3) Convening state medical and national specialty societies to provide detailed recommendations on MACRA implementation moving forward. Learn more at ama-assn.org/go/medicarepayment and ama-assn.org/go/apm.

Thank you for support and involvement in organized medicine. Send your resolutions to the county medical society leadership.

Roxanne Tyroch, MD, FACP, AMA Alternate Delegate, El Paso County Medical Society Delegate.

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renew.texmed.org
Imagine that one of your patients asks you if El Paso Water Utilities’ water reuse project—Advanced Water Purification—which has been called by some “toilet-to-tap,” will produce water that might pose any health concerns that should be of concern to their family. The short answer to that is “No”—but we want to help you understand this new local drinking water supply source so you can answer questions and be a health resource for your patients.

Is El Paso Water Utilities’ Advanced Water Purification Project “toilet to tap”?  
No. Since 1963, EPWU has accelerated the natural water cycle by cleaning used water at its four wastewater plants. The cleaned or “reclaimed” water is currently used for irrigation and industrial processes. For the past 30 years used water has been cleaned to drinking water standards at the Fred Hervey Reclamation Facility, and is used to replenish one of our aquifers. The Advanced Water Purification process takes water reuse one step further by utilizing tried-and-true technological processes to further clean and purify the water before it is sent to drinking water taps. Any water produced must meet federal drinking water standards and be continuously tested and monitored to ensure standards are met.

Outside the Advanced Water Purification Pilot Facility after guests took a tour we asked them to pick the beer that contained Advanced Purified Water. The people included are as follows: (left to right) incoming National WaterReuse President Gay Carpenter and current President Bob Johnson and Water Conservation TeamH20 Manager Anal Padilla.

What is the source water for EPWU’s Advanced Water Purification Project?  
The source water comes from the Roberto Bustamante Wastewater Plant. When wastewater leaves homes and businesses, it is sent to this facility where it is cleaned to a level safe for irrigation (turf and agricultural) and industrial uses. This is the water that will then be purified and made drinkable. EPWU has been pilot testing the process next door to the Bustamante Wastewater Plant since the summer of 2015.

What are the steps in the Advanced Water Purification Process?  
The first two steps in the advanced water purification system are membrane filtration and reverse osmosis. This is the same process used by some bottled water companies, baby food manufacturers and for kidney dialysis. Yet, with advanced water purification, EPWU will then add two more steps: ultraviolet light
So Your Patient Asks You About Toilet to Tap... (Continued)

with advanced oxidation and granular activated carbon. The water emerges as so pure that minerals must be added back into the water to match El Paso's current water quality. And as with all drinking water, chlorine will be added as a disinfectant.

**Has advanced water purification been proven to be safe?**
Yes. Since June 2015, over 400,000 gallons of purified water has been produced and tested daily at EPWU’s pilot facility. More than 18,000 laboratory tests have been conducted on approximately 200 chemicals and microbial constituents and water quality parameters. The testing shows that the purification processes are capable of removing contaminants and meeting all federal and state drinking water standards.

**Will the Advanced Water Purification Project remove pharmaceuticals and personal care products?**
Yes. The presence of pharmaceuticals and personal care products are monitored at each step of the water purification process. Research has shown that the reverse osmosis and advanced oxidation processes are effective at removing pharmaceuticals and personal care products.

**When will this water be coming to my home?**
As soon as 2020 the full-scale Advanced Water Purification Facility is expected to begin treating up to 10 million gallons per day of purified water. The purified water will be distributed in existing pipes that carry different amounts of river water and groundwater, so no one will receive a glass of 100% purified water. Most of the community will receive a mixture of purified water and other sources of water.

**How much of El Paso’s water will be produced by water purification?**
Purified water will only account for a small percentage of our total water supply on a hot summer day. The rest is supplied by ground water and river water, when it is available. In drought conditions, we can only count on a limited amount of water from the Rio Grande, so purified water becomes a new water supply that we can count on – especially when the river runs dry.

To learn more about where El Paso’s drinking water comes from and what EPWU is doing to ensure a safe, reliable and drought-proof local water supply visit [www.epwu.org](http://www.epwu.org).

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**Christina Montoya, Communications & Marketing Manager, El Paso Water Utilities.**

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**UT System Regents Approve UTEP Pharmacy School**

The University of Texas System Board of Regents approved the creation of The University of Texas at El Paso School of Pharmacy and the establishment of a new doctoral program in pharmacy during the regents’ meeting on Nov. 5 in Austin.

“It was obvious to me that the Board of Regents recognized that this was a necessary school to be approved in our region,” said José O. Rivera, Pharm.D., founding dean of the school. “This is one more step to the realization of the UTEP School of Pharmacy.”

The proposed Doctor of Pharmacy (Pharm.D.) program must still be approved by the Texas Higher Education Coordinating Board.

UTEP’s proposed Pharm.D. program is designed to address the shortage of pharmacists in the Paso del Norte region and increase the number of Hispanics in the pharmacy profession.

While the Hispanic population of Texas is around 39 percent, less than 10 percent of the state’s pharmacists are Hispanic.

The program will prepare bilingual and culturally competent pharmacists with the skills to serve the pharmacy needs of communities in the bilingual, bicultural U.S.-Mexican border and South Texas regions.

In Texas, there are approximately 87 pharmacists per 100,000 people, which is below the national average. In El Paso, there are approximately 56 pharmacists per 100,000 people.

UTEP has been part of the six-year UTEP Cooperative Pharmacy Program (CPP) with the UT Austin College of Pharmacy since 1999. Students in the program began their first two years at UTEP, followed by two years at UT Austin and they finished the last two years at UTEP. Students who successfully completed the program received a doctorate in pharmacy.

The proposed four-year Pharm.D. program at UTEP will require graduates to complete 166 semester credit hours and 1,800 clock hours of practical experience. The new UTEP School of Pharmacy will also allow UTEP to increase the size of its pharmacy co- to 50 from 12. The first class is expected to start in fall 2017.

UTEP received $7 million during the 84th Texas legislative session to fund the new School of Pharmacy.
The following is a list of new/re-instated members of the El Paso County Medical Society. Congratulations to all new members!!

EGBUNA, IKENNA I., MD
IM GE
University of Nigeria College of Medicine, 2000
3270 Joe Battle Blvd, El Paso, TX 79938

LOPEZ, EDRICK, MD
PM PMM
Univ of Puerto Rico School of Medicine, 2010
3215 Gateway Blvd W, El Paso, TX 79903
(915) 598-7246

TRIER, TODD T., MD
NS
University of Arizona College of Medicine, 1994
2nd Floor Annex Bldg Dept Of N
4824 Alberta Rd, El Paso, TX 79905
(915) 521-7731

VASALLO, JAVIER A., MD
IM
Facultad de Medicina de La Habana, 1992
4815 Alameda Ave, El Paso, TX 79905
(915) 544-1200

PAUL L. FOSTER SCHOOL OF MEDICINE-2015 ENTERING CLASS
On July 1, 2015, Texas Tech University Health Sciences Center El Paso Paul L. Foster School of Medicine welcomed 104 new first year medical students. During the 2014-2015 admissions season, more than 3600 applied, and over 530 were interviewed for the seventh entering first-year class. Manuel Schrydloever, MD, associate dean for admissions, highlighted that these students accepted for admission have very competitive credentials, and great personal attributes, capabilities and potential to become excellent doctors. Most students in the 2015 entering class are Texas residents, including 24 from El Paso. Nine are from out of state. Some of the universities represented by the new students include the University of Texas (El Paso, Austin, San Antonio, Dallas, Arlington, Pan American, Brownsville), Texas A&M (College Station, Galveston, Commerce), Brigham Young University, University of Houston, Baylor, Austin College, Duke, Rice, Emory, University of Southern California, Notre Dame, Marquette University, University of Virginia, Boston University, Yale and others. The Class of 2019 matriculated on July 1, began their medical studies on July 6, and had their White Coat ceremony at the Plaza Theatre on July 18, 2015.

Welcome and congratulations to all!

In Memoriam.

Pedro Vargas, M.D., loving husband, father, grandfather, brother, and uncle passed away peacefully in his home on October 24th, 2015. He was 79. Dr. Vargas was born in El Paso, Texas on May 27, 1936. He is survived by his wife, Mary Curran Vargas, his daughters, Emily Vargas, Eileen Vargas, Stephanie Vargas Soucie, her husband, Dr. Christian Soucie, and his granddaughter Fina Jane Soucie. He is survived by his sisters, Ana Maria Minuth and Lucia T. Vargas, brother, Dr. Luis Vargas, and sister-in-law, Dr. Janet Hodde-Vargas. He is also survived by his nephews, John Minuth and Father Joseph Michael Minuth, O.P., and nieces, Katherine Vargas and Elizabeth Vargas. Dr. Vargas was a lifelong resident of El Paso. He graduated from Texas Western College (UTEP) and received his M.D. from University of Texas Southwestern Medical School in Dallas, Texas. He completed his internship at UT Southwestern Medical School (Parkland Hospital) and his residency in internal medicine and fellowship in cardiology at Louisiana State University School of Medicine (Charity Hospital) in New Orleans, LA, where he met his wife of 45 years. He served two years as a captain in Korea in the US Army. We celebrate the long and fruitful life of this remarkable man who joyously put the needs of others before his own. He set a wonderful example for his children and granddaughter with his integrity, strong Catholic faith, selfless dedication, and unwavering commitment to his family, friends, patients, and community. Through the years, we saw his constant devotion to two of God's highest callings - reaching out to the poor and healing the sick. His gentle nature and good humor will be greatly missed.
had clotting factor concentrates before 1987
received a blood transfusion or solid organ transplant before July 1992
received long-term hemodialysis treatment
had an occupational needle stick
all persons with HIV infection
children born to HCV-positive mothers
patients with signs and symptoms of liver disease

HCV infection is detected by performing several blood tests, including: screening tests for antibody to HCV (anti-HCV), enzyme immunoassay (EIA), enhanced chemiluminescence immunoassay (CIA); Qualitative tests to detect presence or absence of virus (HCV RNA polymerase chain reaction [PCR]), and Quantitative tests to detect amount (titer) of virus (HCV RNA PCR).

HCV infection in El Paso is a public health concern requiring a comprehensive approach and collaboration between DPH and healthcare providers to identify cases, follow up, expand diagnosis and treatment, and provide health education to the community. DPH encourages physicians to register and report notifiable conditions electronically at https://elpaso.phims.org/cmr/login.aspx or by calling (915) 212-6520 or fax (915) 212-0170.

REFERENCES


4. Sahid Publica Mex. Prevalence of hepatitis C virus and HIV infection among injection drug users in two Mexican cities bordering the U.S.

Jorge Gallegos, El Paso City-County Health Authority.
**OPHTHALMOLOGY**

**CONTINUED**

- **DAVID R. SCHECTER, MD**
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  - 1220 N. Oregon
  - 545-1484
  - 1200 Golden Key, Ste 163
  - 593-1226

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