

Good Intentions, Bad Data, Unintended Consequences

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For Review Only

“...it could be worse. Consider the plight of veterinarians. The average tuition and expenses for a veterinary degree at a private school has doubled in the last 10 years...yet their pay remains moribund...”

In “The Economics of Law School,” describing the economic predicament of law school graduates, Steven M. Davidoff held up the veterinary profession as the perverse standard of a profession with a major problem.¹

The Problem

The veterinary profession is currently demonstrating the effects of decades of decisions based on beliefs and subjective surveys rather than statistically valid objective evidence. With respect to the veterinary profession’s workforce needs and career opportunities, we are operating in a data-poor decision-making environment. We must change this if we are to change the economic condition of our profession and its current and future trainees.

In November 2011, Robert R. Marshak, DVM, DACVIM, published a commentary asserting that the American Veterinary Medical Association (AVMA) Council on Education (COE) had let its guard down by accrediting institutions that failed to meet the highest standards.² He stated that this threatened the quality of the profession’s future. He concluded, “The profession and society are poorly served whenever COE standards are relaxed.”

As a profession we have let our guard down and accredited by our collective acceptance the practice of making uncoordinated, data deficient decisions. The lack of objective, comprehensive, timely, accurate data on careers in veterinary medicine lowers the standards to which we are able to manage our profession. These lowered standards handicap responses to practitioner population demographics, the mismatch of educational debt to compensation and the financial dichotomy in outcomes experienced by leadership and membership of veterinary organizations. Paraphrasing Dr. Marshak, the profession and society will be better served once the underlying problem is addressed.

The Unknowns: Reaching Conclusions in the Absence of Sound Data

The signs appear to be recent, but the problem has been decades in the making. The practitioner population in the US has increased relative to the nation’s total population over the past two decades. The gender composition of the practitioner population has swung radically as it enlarged.^{3,4} As long as the veterinary labor pool remains large relative to demand and continues to experience gender disparity in debt, compensation⁵ and ownership at current levels, the profession will struggle economically. The longer we take to address the underlying lack of data that enables the existence of these conditions, the longer and more severe will be the Great Veterinary Depression.

The National Board of Veterinary Medical Examiners (NBVME) administers the North American Veterinary Licensing Examination (NAVLE). Passing the NAVLE is necessary to practice in North America (NA). While some graduates will sit for and pass the NAVLE without entering practice, the test is required for no other purpose. We assume those taking the NAVLE do so with the intent of entering practice in the United States (US) or Canada. To our knowledge,

there is no examination or statistically valid evaluation of this assumption. According to NAVLE Technical Reports,⁶ 40,184 people have passed the NAVLE since 2001. Extrapolating NBVME test administrations from 1993 to 2000^a yields an approximate period total of 60,349 people entering practice between 1993 and 2012.

Figure 1. DVMs passing NBVME exam relative to NA population 1993-2012⁶⁻⁸

The distribution of new graduate entry is skewed, with more entering relative to the total population in each subsequent year. In addition to being large and recent, the US practitioner population is more female every year as the percentage of DVM recipients that are female has continued to grow.

Figure 2. Gender of US DVM recipients 1987-2011^b

The proportion of female DVM recipients documented in the Integrated Postsecondary Education Data System (IPEDS) has been over 50% percent for more than 20 years, and now stands at almost 90%. If the same gender percentage applies to the 60,349 people passing the NBVME exam, then approximately 43,028 women joined practice in the past twenty years.

We have precious little data documenting the behaviour of women in the veterinary workforce.^{10,11} While conventional wisdom holds that women work part time or intermittently to accommodate family needs, an equally likely but equally unproven, possibly concomitant theory is that women contribute elasticity to a labor force by working more or less in response to increased economic incentives. If this is true, the large percentage of recent graduates that are female could dampen upward compensation trends for decades.

Why are so many recent veterinary school applicants, and therefore graduates, female? We don't know; we don't even know how many there have been. The above figures contain numbers that had to be inferred or approximated, as neither the programs conferring the degree nor the Association of American Veterinary Medical Colleges (AAVMC) make comprehensive graduate numbers readily available. We have effectively no system for tracking how many total graduates there are, what schools they attended, what their education cost, where they live and work, how they spend their professional time and how much they get paid.

Much of the data needed to answer these particular questions for new grads is obtained annually by individual organizations such as the AAVMC, COE, AVMA, state veterinary associations and state licensure boards. However, those organizations keep their data close to their vests, unwittingly holding the profession and public hostage to what we aren't allowed to know. The much anticipated 2012 National Academies of Science workforce study was delayed because of this:

The report has been long in the making, in part because of the inconsistent ways in which organized veterinary medicine compiles data, rendering it difficult to analyze long-term trends in the profession.¹¹

The AAVMC compiles the annual Comparative Data Report and the Veterinary Medical College Application Service (VMCAS) database.¹² The COE holds accreditation self studies and interim reports while the American Association of Veterinary State Boards (AAVSB) has access to the numbers and geographic distribution of licensees in every state. The National Board of Veterinary Medical Examiners (NBVME) publishes an annual comprehensive report on the North American Veterinary Licensing Exam, releasing far more of the objective information that it produces than any other organization listed here. Notwithstanding the availability of various statistically inadequate data, we do not know how many of us there are, how fast our ranks are growing, what we do professionally nor how we are doing financially.

Something else we did not know, but now do, is why there are areas in the US without veterinarians. The American Association of Bovine Practitioners (AABP) examined this question and offered the following opinion:

*... there is not currently a shortage of veterinarians for rural food supply veterinary private practice.... **lack of available veterinarians is no longer an issue...** there remain underserved rural areas across the country that may not be able to sustain a veterinary practice...*

...the perception by veterinary schools and the public that there continues to be a shortage of rural practitioners is leading to increased class sizes at veterinary schools and the creation of new veterinary schools.¹³

AABP's conclusions are supported not only by objective assessment of their membership but also by fundamental economic principles.¹⁴ In a free market economy such as that of the US, service providers move to areas where there are adequate incentives. Thus we infer that a lack of veterinary presence in some geographic areas is due not to a shortage of veterinarians but to a shortage of opportunity- financial, social or otherwise- needed to sustain existing veterinarians in these areas. Those who believe that there are locations in the country with genuine need but still lacking veterinary care often use the term "underserved areas." Despite the lack of a consensus definition, the conclusion reached by academic institutions and delivered to legislatures and the public has been that these areas are underserved due to a shortage of veterinarians. This was the interpretation used even where there were veterinary practices in adjacent counties to serve these areas, or where there were minimal human or animal populations.

We find very little beyond anecdotes and weak inferences to support the interpretation of unmet demand in many areas lacking a veterinary presence. An example:

*The current average veterinarian-to-population ratio is 27 veterinarians per 100,000 population nationally. By contrast, the average ratio of veterinary professionals to population in California is 17:100,000. Twenty counties in California, almost half, are at or below this level...*¹⁵

This is not indicative of a shortage of veterinarians either in California or in any of those twenty California counties; it is an expression of the normal distribution of a data set. In any data set from a normally distributed population, half the data points will be below the average. That's the definition of a normally distributed population: one in which the data points are distributed evenly such that the average and median coincide at the point where half the values are lower and half higher. A similarly unsupported inference is made in this interpretation of a change in revenue production, also entitled productivity,

... the profession is experiencing a general downward shift in productivity because many veterinarians in small animal practice are choosing to work fewer hours.

When productivity falls, it is not necessarily because people work fewer hours. Rather, people may work fewer hours because there is less work to be done, not because they want to work fewer hours.^c No evidence was offered in the quoted study supporting a voluntary nature for the reduction in hours worked.

Similarly, a recent survey found half of pet owners said they hadn't taken their pet to a veterinary practice within the previous year.¹⁶ The conclusion reached from this finding was that there weren't enough veterinarians to provide care. Concluding that there aren't enough practitioners to provide care because half of all pets receive no veterinary care is akin to concluding there aren't enough jewelers to provide diamond rings because half of us don't have diamond rings on our fingers.

Such misinterpretations received widespread coverage^{17,18} that reinforced the perceptions of shortages. Schools responded to the perceived shortage by increasing recruiting efforts and class sizes. The increase in applicants created by aggressive recruiting was then used as justification for further expansion of class sizes.¹⁹ In fact, the size of an entering class became a point of pride for some deans.²⁰

The steady increase in class size has resulted in a tsunami of new colleagues. Recently, schools have expanded by 16%, 33%, even 71%. Total enrollment is up 9% over the past four years in the US alone.²¹ Despite the fact that accreditation of additional schools has been a source of bitter discord for the past two years, no data have been released regarding enrollment at

accredited schools outside the US, not even by the AAVMC member institutions whose data are included in the Comparative Data Report.

Graduates of accredited programs outside the US may incur lower costs than those attending US schools. Meanwhile graduates from unaccredited programs, denied access to federal student loans, potentially incur larger debt loads due to higher interest rates on private student loans in their debt portfolio. New graduates of all programs increasingly find themselves trapped between the rock of rising tuition and the hard place of stagnant compensation, if they can even find a permanent job in the field.

Figure 3. US CVM seniors' self reported employment 1993-2012²²⁻⁴¹

Before discussing inferences to be made from this graph, we feel compelled to point out the weaknesses of the dataset from which it is drawn. First and foremost: the sample size of those providing responses is small, and skewed toward schools with smaller class sizes. Next, there are no published data showing that the sampled population (seniors at US accredited programs) represents the entire population of people joining practice in the US. A careful examination of AVMA survey data shows that the percentage of senior students completing the survey has been flat or dropping since 2008.²²⁻²⁶ Lastly, the data are subject to both self-reporting bias and self-reporting error, with no effort made by either the AVMA or any other professional organization to establish a correlation with actual employment or compensation outcomes at the end of the first year after graduation. One of the series' authors, current AVMA Associate Executive Vice President and former Director of Information Management and of Membership and Field Services, Karl Wise, Ph.D., assures us that, "Your idea to survey veterinarians after the first year to gather compensation data is one of the goals."⁴² Without this information, prevet students cannot evaluate the strengths of a career in veterinary medicine and senior students cannot construct accurate budgets.

With those weaknesses in mind, only a few conclusions can be reached from this data. However, while useful for assessing trends, any conclusions that can be made from this or other available data are of severely constrained value for constructing effective interventions to alter those trends for current and future trainees.

Anecdotally, many of our students and freshly minted colleagues are battling anxiety and depression over their high and persistent post-graduate debt and low compensation.^c Faced with elevated costs of a degree and depressing earnings, a reasonable conclusion is that many desirable candidates already have or soon will eschew veterinary school to pursue other careers.

Figure 4. US CVM seniors' self reported starting salary relative to educational debt, DVM tuition and national wage 1993-2012^{22-41,43,e}

As a result of this unscientific survey data, with no better evidence available than narrow and subjective datasets, we must remind ourselves that widely accepted conclusions may be false or incomplete - including this seemingly reasonable one regarding a reduction in quality of applicants.

Another reasonable conclusion is that while new graduates fill the practitioner pool faster than ever, the pool that they are entering is draining more slowly as existing practitioners defer retirement to recover from their losses in the Great Recession. One large practice brokerage affirmed that anecdotally this seems to be the case, adding that roughly half of those seeking to purchase practices in today's market are women, while half of those selling are female.^f

As far fewer females than males have become practice owners in the past, and far more females are graduating, the ratio of prospective practice owners seems to be shrinking relative to the veterinary workforce as a whole. While practice succession is clearly occurring, there is no publicly available source of data yet on the rate of veterinary deaths or withdrawals from practice via retirements or other reasons nor how the shifting gender composition of the profession may be affecting that. We don't know how many veterinarians leave practice per year, nor do we know if or how many veterinarians have put off retirement recently. The existing central documentation of practice sales data, VeterinaryMLS.com, remains poorly populated.

The Knowns: Some Conclusions Reached in the Presence of Sound Data

We feel a major reason our profession remains so ignorant of itself is the belief of educational and professional organizations that whatever benefits their particular organization benefits the overall profession. The belief that these financial or political benefits extend beyond the given organization - or even beyond the leadership of the organization to the organization's constituency- is contradicted by the organizations' own data.

The AAVMC actively encourages multiple applications to multiple schools to maximize the odds of admission. This approach also maximizes the money AAVMC has to fund its operations -- operations that appear to directly benefit the AAVMC rather than students. According to the past three years' AAVMC annual reports,⁴⁴⁻⁴⁶ the association's total expenses have exceeded total revenues all three years. The majority of the AAVMC's revenue comes from Veterinary Medical College Application Service (VMCAS) application fees. Since 2009 the average application fee has gone up⁴⁷ 10% and total revenue generated from VMCAS has gone up 11%. Clearly the AAVMC is doing an admirable job of raising revenue by stimulating pre-vet students to apply to as many schools as possible, and, thus, collecting as much money as possible in application fees. This revenue raising has not been enough to get the AAVMC back in black.⁴⁸ While we applaud the association for reducing some costs in 2012, it continues to operate at a loss.

Those in the trenches of individual private practice endure without the ivory tower benefit of a bankroll fat enough to deficit spend three years running. For practice owners and associates the recession has provided a brutal demonstration that care for companion animals is purchased with disposable income. As disposable income has shriveled, preventive care has taken hold and the low-cost, non-profit sector has commoditized companion animal care. On the large animal side, agriculture has consolidated, persistent widespread drought has tanked livestock profit margins and the recession has cut the legs out from under the equine industry. Even before their disposable income in each of these market sectors drooped, clients reported altered spending on veterinary care.⁴⁹ The rate of private practice growth, both in terms of revenue and real client visits, has stalled in many areas of the country⁵⁰ and did so before the recession.

Unable to raise more revenue, private practitioners have had to cut costs, including their own compensation. Our clients, facing unemployment and underemployment at levels not seen in decades, have been forced cut costs to survive- and veterinary care is a cost that can be cut. When the care is for companion animals, that cost is a luxury - and many in the US cannot now afford luxuries. As society functions with us or without us, companion animal veterinarians are economically optional.

Slashed state appropriations to the US land grant colleges reflect the nonessential nature of training more companion animal vets.⁵¹ The veterinary academic community now pleads its continued relevance by emphasizing how the veterinary schools fulfill the research mission of land grant universities.⁵² The colleges' inability to adapt to increasingly rapid changes in their operating environment, as practices have been forced to do, seems catastrophic. Slashed state funding comes at the same time that charitable gift income is down. With fees for professional services maxed out, university veterinary teaching hospitals may have as little room as private practices do for revenue growth. In some cases it appears that they are already self-supporting.⁵³⁻⁵⁵ This temptation to use the VMTH as a profit center is so strong the COE has a standard holding programs accountable for using their VMTH to fulfill their instructional mission.⁵⁶ To expand teaching caseloads and revenue, some schools now have, or are adding private clinics.⁵⁷⁻⁵⁹ With research money and other revenue sources maximized, the deans turned to tuition to fill the gap.

A recent trend of thinking outside of the educational box has emerged, with consultants advising aspiring investors, academic boards and politicians to build facilities to house extensions of universities, establish accelerated programs, or expand the pool of private, nonprofit veterinary education providers based on largely unknown data.⁶⁰ The long term ability of these types of programs to provide a quality veterinary education in an economically sustainable way is undetermined.

In the 80's and 90's colleges and private practices operated on similar revenue models: as costs increased, more revenue was generated by raising fees and tuitions at the schools and pharmacy

and service fees in private practice. This revenue generation model is no longer economically feasible for the practice sector of the profession. Considering the debt burden of graduates and the critical evaluations being made of federal student aid programs in general,⁶¹ and professional fields specifically,⁶² it won't be feasible much longer for the educational sector either.

Currently, tuition revenue can still be manipulated at will. Thus, generating revenue by raising tuition and adding enrollment has become the path of least resistance for deans. Educational programs, like private practices, are under intense financial pressure to avoid cutting staff while maintaining quality in the face of falling revenue. With no caps on easily accessible federal graduate loans, schools can and do write their own ticket with respect to the cost of an education. Students borrow whatever the school tells the government to lend.⁶³ Given the rate of tuition increases at a time when no similar rate of professional fee increases are feasible in the private sector, it is as if the students borrow Monopoly® money but have to pay everything back in real dollars.

While AAVMC uses hopeful students who subject themselves to the added expense of applying at multiple schools to sustain its revenue, and the colleges use higher costs charged to more students in larger classes to sustain their revenue, the AVMA uses higher costs charged to its membership to sustain its revenue. However, when it comes to the rationale for these increases, none of these organizations has clearly demonstrated the value to those picking up the tab. Just as an increase in applications translates to an increase in revenue for the AAVMC, more graduating veterinarians translates to more potential AVMA dues payers. More important than this, though, is the philosophical disconnect between AVMA leadership and their members. We could find no better example of this disconnect between a professional organization's belief and its members' reality than the creation of an AVMA associate director for international and diversity initiatives.⁶⁴ Responding to AVMA members' questions about the value of such a decision, AVMA CEO and Executive Vice President Dr. Ron DeHaven said,

*From a purely economic point-of-view, these efforts represent less than 2.5% of the association's overall budget. At the same time, internationally focused activities contribute positively to AVMA's budget; international income in 2011 and 2012 represents nearly 2.0% of annual income anticipated each year.*⁶⁵

With an overall 2013 budget of more than \$31 million,⁶⁶ Dr. DeHaven is telling the AVMA membership that AVMA's seat at the global table costs \$775,000 of the members' dues. DeHaven went on to assert that increasing the AVMA's global stature is worth the cost.

*As they say, you either need to have a seat at the table or you may find yourself on the menu... Even at such a modest cost, we (AVMA) have a prominent seat at the table...*⁶⁷

The ‘modest (net) cost’ members pay for AVMA’s seat at the global table is \$157,587. Out of the same budget, only \$65,500 is allotted for the entire Economics Division. Interestingly, those figures are very close to the debt load and starting salary of the average new grad going into private practice in 2012. We know who is being asked to pick up the tab, but who, exactly, is ordering from the menu at this table?

In each of these examples -- the AAVMC with wannabe veterinarians, the colleges with veterinarians-in-training, and the AVMA with graduated veterinarians, the organizations’ own data belie the belief that whatever benefits the organizations, inherently benefits veterinarians. The current state of the profession is also damning evidence that what benefits the large veterinary organizations has proven inadequate to the needs of the profession as a whole which we have outlined above.⁶⁸

The AVMA declares that service “as a science-based information resource for the veterinary medical profession and the public”⁶⁹ is a core competency for the organization. The area within the veterinary medical profession in most desperate need of science-based information resources is the economic condition of the profession itself. There are resources we can look at as models, such as the Physician Masterfile for those receiving the MD degree or the National Center for Science and Engineering Statistics for the science and engineering workforce. We must have data on the rate at which veterinary trainees are being produced, the total cost of the training provided, the rate at which graduates are entering and leaving the profession, the activities in which they are engaged between those points and the objective financial outcomes of those activities.

Summary - Solving The Problem

So what is the answer?

In practice, money is well spent establishing a diagnosis before starting treatment. As practitioners we examine the patient, define a problem list, acquire a minimum database, design a treatment plan and then match that plan to the available resources. We can no longer afford to manage our critically ill profession to a standard lower than this.

We sincerely hope the IHS Global Insights workforce study designed and commissioned by AVMA staff will define how to implement the data collection and dissemination system we must have to move forward. Had we twenty years ago instituted an integrated, mandatory, transparent system for coordinating workforce and economic data gathered by the many entities in this profession, would we be here now? No. While we didn’t implement those practices in the past, we can do so now. We must now commit to turning the data we have into the information we need to make objective decisions. We must now demonstrate the will to make decisions informed by the best evidence available rather than anecdote and belief.

As practitioners, we provide leadership and prove our value by making difficult medical and financial decisions based on the best evidence available. We do this with and for our patients, clients, staff and families. We call upon the leaders of the profession's organizations to prove their value by producing the critical workforce and financial information that will enable the professions' leaders and members alike to adopt an evidence based approach to making the equally difficult decisions facing us as students, practitioners and public. This commitment to producing accurate diagnostic evidence will give current colleagues confidence in their future and will afford future colleagues their best chance at becoming full fledged professionals, instead of underemployed wage slaves.

Footnotes

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Figure 1. Additions to NA DVM population compared to growth of NA population, 1993-2012

Figure 2. Gender of US DVM recipients 1987-2011

Figure 3. US CVM seniors' self reported employment 1993-2012

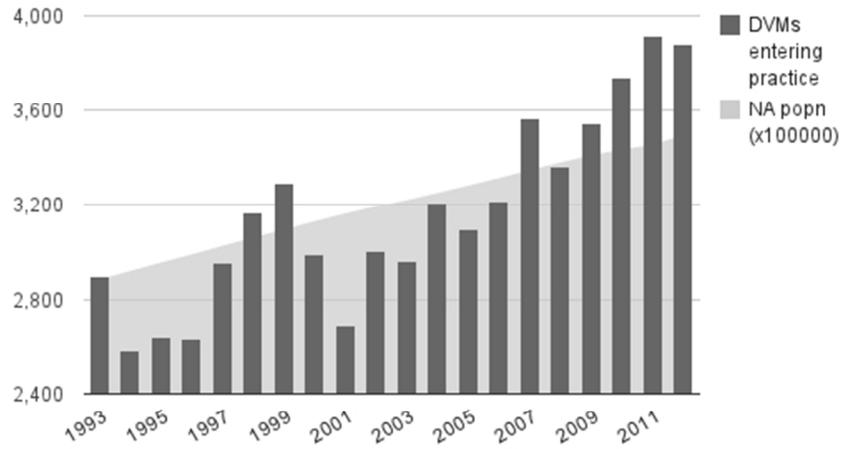
Figure 4. US CVM seniors' self reported starting salary and educational debt relative to DVM tuition and national wage, 1993-2012

Table 1. **Selected AAVMC budget items, 2010-2012**

	2010	2011	2012
Capacity	\$109,874	\$108,118	\$67,195
Recruitment	\$59,832	\$79,787	\$86,054
General operations	\$381,840	\$491,508	\$419,786
JVME cost	\$287,697	\$288,532	\$274,349
Publications revenue	\$60,658	\$51,420	\$64,555
Publications loss	(\$227,039)	(\$237,112)	(\$209,794)
Meeting cost	\$374,670	\$401,002	\$431,666
Meeting revenue	\$147,608	\$124,948	\$135,219
Meeting loss	(\$227,062)	(\$276,054)	(\$296,447)
VMCAS cost	\$734,630	\$777,974	\$862,085

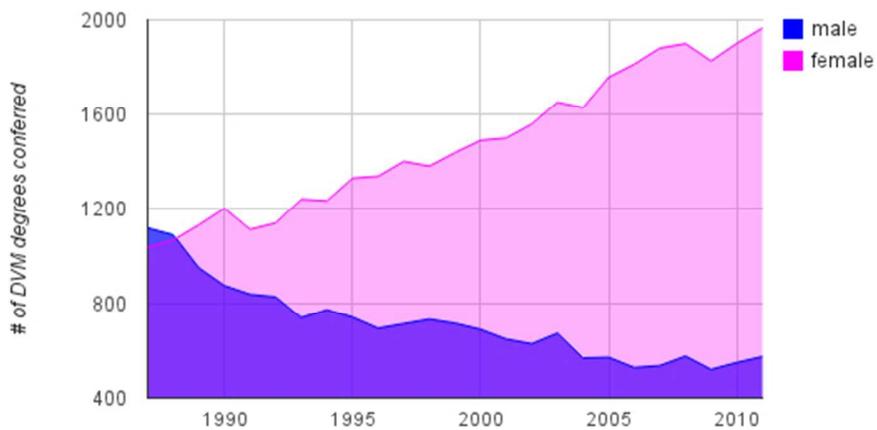
VMCAS revenue	\$2,203,088	\$2,334,351	\$2,442,902
VMCAS margin	\$1,468,458	\$1,556,377	\$1,580,817
Total expenses	\$3,441,967	\$3,571,848	\$3,636,549
Total revenue	\$3,411,819	\$3,398,823	\$3,494,017
(Operating loss)	(\$30,148)	(\$173,025)	(\$142,532)

For Review Only



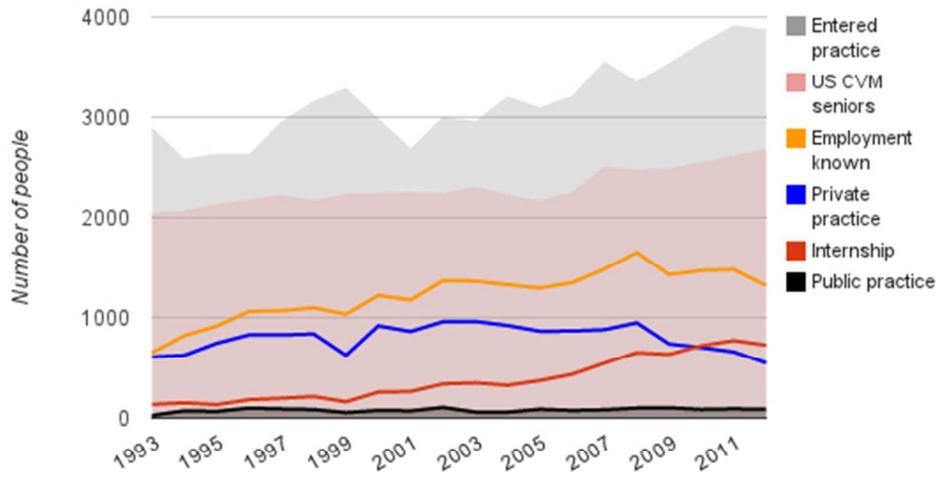
Additions to NA DVM population compared to growth of NA population, 1993-2012
 211x130mm (72 x 72 DPI)

View Only



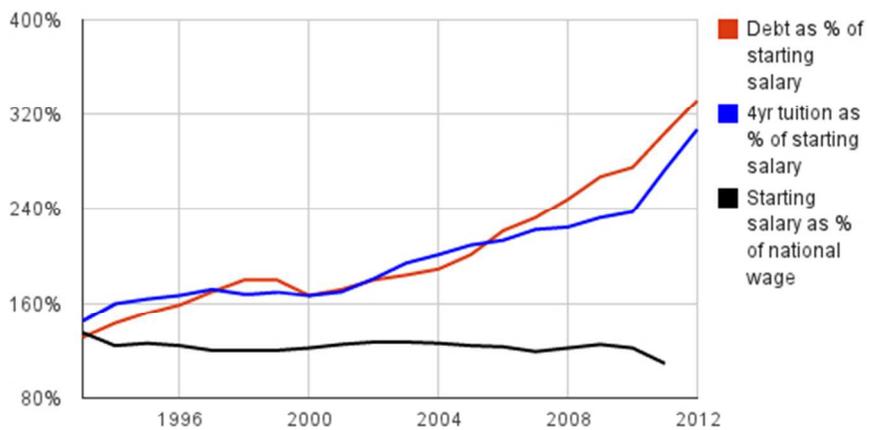
Gender of US DVM recipients 1987-2011
211x130mm (72 x 72 DPI)

View Only



US CVM seniors' self reported employment 1993-2012
199x130mm (72 x 72 DPI)

Preview Only



US CVM seniors' self reported starting salary and educational debt relative to DVM tuition and national wage, 1993-2012
211x130mm (72 x 72 DPI)

Preview Only