BCA_SB355_FAV
Uploaded by: Blendy, Nicholas
Position: FAV

BERNARD C. "JACK" YOUNG
MAYOR

Office of Government Relations
88 State Circle
Annapolis, Maryland 21401

SB 355

February 13, 2020

TO: Members of the Senate Education, Health, and Environmental Affairs Committee

FROM: Nicholas Blendy, Deputy Director of Government Relations

RE: Senate Bill 355 – Health Occupations - Pharmacists - Administration of Vaccinations

POSITION: SUPPORT

Chair Pinsky, Vice Chair Kagan, and members of the committee, please be advised that the Baltimore City Administration (BCA) **supports** Senate Bill (SB) 355.

Vaccinations are safe and effective.[1] They protect children from serious communicable diseases and the life-altering complications from those diseases. The CDC estimates that vaccinations will prevent more than 21 million hospitalizations and 732,000 deaths among children born in the last 20 years.[2]

However, over recent years there has been resurgence in vaccine preventable disease across the nation, including Maryland. Through the first five months of 2019, there were more measles cases in the U.S. than during any full year since 1992.[3] That same year Maryland had five cases of measles, more than the two prior years combined.[4]

With recent outbreaks in vaccine-preventable diseases, pharmacists are an under-utilized resource to promote vaccination and protect public health. One study found that in states that moved to allow pharmacists to administer influenza immunizations, the overall immunization

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[1] "Vaccine Safety." 2020. Centers for Disease Control and Prevention. https://www.cdc.gov/vaccinesafety/index.html

[2] Whitney et al. 25 April 2014. "Benefits from Immunization During the Vaccines for Children Program Era — United States, 1994–2013." Morbidity and Mortality Weekly Report; 63(16): 352-355. https://www.cdc.gov/media/releases/2014/p0424-immunization-program.html

[3] Silverman et al. 2019. "Vaccination over Parental Objection - Should Adolescents Be Allowed to Consent to Receiving Vaccines?" New Englamd Journal of Medicine; 381(2):104-106.

[4] "Measles." 12 June 2019. Maryland Department of Health. https://phpa.health.maryland.gov/OIDEOR/IMMUN/Pages/Measles.aspx

rate from 33% in 2003 to 41% in 2013.[5] Pharmacists are already expertly trained and safely providing vaccinations to children and adolescents in 27 other states.[6]

This bill provides more patients with direct access to services by allowing pharmacists to administer vaccinations to a greater portion of the community. Collaboration among physicians, healthcare providers, pharmacists and parents is critical to increasing vaccination rates. This bill protects the health of Maryland residents by allowing greater access to vaccines and protecting children against vaccine-preventable disease.

We respectfully request a **favorable** report on Senate Bill 355.

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[5] Drozd et al. 2017. "Impact of Pharmacist Immunization Authority on Seasonal Influenza Immunization Rates Across States." Clinical Therapeutics 39(8): 1563-1580. https://www.ncbi.nlm.nih.gov/pubmed/28781217

[6] Sederstrom, J. 2020. "An Update on Pharmacists' Vaccination Authority". Drug Topics. https://www.drugtopics.com/vaccination-and-immunization/update-pharmacists-vaccination-authority

BaltimoreCounty_FAV_SB0355
Uploaded by: Byrne, Julia
Position: FAV

JOHN A. OLSZEWSKI, JR.
County Executive

CHARLES R. CONNER III, ESQ.
Chief Legislative Officer

KIMBERLY S. ROUTSON
Deputy Legislative Officer

JOEL N. BELLER
Assistant Legislative Officer

BILL NO.: **SB 355**

TITLE: Health Occupations – Pharmacists – Administration of Vaccinations

SPONSOR: Senator Augustine

COMMITTEE: Education, Health, and Environmental Affairs

POSITION: **SUPPORT**

DATE: February 13, 2020

Baltimore County **SUPPORTS** Senate Bill 355 – Health Occupations – Pharmacists – Administration of Vaccinations. This legislation would authorize a pharmacist to administer vaccinations to a minor between nine and eighteen years old. Additionally, the bill would require that a pharmacist can administer certain vaccinations in accordance with protocol that meets criteria established by the Department of Health, the Board of Physicians, and the Board of Nursing.

Because the majority of the population in America is vaccinated, diseases like polio, diphtheria, and pertussis have become rare. However, until they can be completely eliminated, it is necessary to continue to immunize people against them. Japan saw a major outbreak of pertussis in 1979 after the number of vaccinations for the disease dropped off. There is a concern that a similar phenomenon could emerge in the U.S. with measles.

One of the best ways to increase heard immunity and protect the population from preventable diseases, particularly children and the elderly, is to increase the availability of vaccines. SB 355 helps support these vital efforts.

Accordingly, Baltimore County requests a **FAVORABLE** report on SB 355. For more information, please contact Chuck Conner, Chief Legislative Officer, at 443-900-6582.

JOHN A. OLSZEWSKI, JR.
County Executive

CHARLES R. CONNER III, ESQ.
Chief Legislative Officer

KIMBERLY S. ROUTSON
Deputy Legislative Officer

JOEL N. BELLER
Assistant Legislative Officer

BILL NO.: **SB 355**

TITLE: Health Occupations – Pharmacists – Administration of Vaccinations

SPONSOR: Senator Augustine

COMMITTEE: Education, Health, and Environmental Affairs

POSITION: **SUPPORT**

DATE: February 13, 2020

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Assistant Legislative Officer

BILL NO.: **SB 355**

TITLE: Health Occupations – Pharmacists – Administration of Vaccinations

SPONSOR: Senator Augustine

COMMITTEE: Education, Health, and Environmental Affairs

POSITION: **SUPPORT**

DATE: February 13, 2020

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Accordingly, Baltimore County requests a **FAVORABLE** report on SB 355. For more information, please contact Chuck Conner, Chief Legislative Officer, at 443-900-6582.

ACNM_Robyn Elliott_FAV SB 0355
Uploaded by: Elliott, Robyn
Position: FAV

AFFILIATE OF
AMERICAN COLLEGE of NURSE-MIDWIVES
With women, for a lifetime®

Committee:	**Senate Education, Health, and Environmental Affairs Committee**
Bill Number:	**Senate Bill 355**
Title:	**Health Occupations – Pharmacists – Administration of Vaccinations**
Hearing Date:	**February 13, 2020**
Position:	**Support**

The Maryland Affiliate of the American College of Nurse Midwives (ACNM) supports *Senate Bill 355 – Health Occupations – Pharmacists – Administration of Vaccinations.* This bill would lower the age by which pharmacists may administer vaccines from 11 to 9 years of age. It also removes the requirement for a prescription. The bill does not affect requirements for parental consent.

Pharmacists have administered vaccinations safely under current Maryland law. This bill increases access in two important ways:

- Removes the requirement for a prescription from another health care practitioner. All providers, including health care practitioners, are supposed to follow the Centers for Disease Control's schedule for vaccination. This, in essence, removes the requirement for a prescription;
- Lowers the age at which parents may bring a child directly to a pharmacist for a vaccination from 11 to 9 years of age.

All providers, including pharmacists, are now required to enter information about vaccinations into a statewide system called Immunet. With this system, pharmacists can determine if vaccinations have been given, and primary care providers can check if vaccinations have been administered elsewhere.

ACNM supports this legislation because it will expand access to vaccines; and as we have seen an increase in outbreaks of measles in parts of the United States, we know that there is a need to continue to increase access to vaccinations.

Thank you for your consideration of our testimony, and we urge a favorable vote. If we can provide any further information, please contact Robyn Elliott at relliott@policypartners.net or (443) 926-3443.

MNA_Robyn Elliott_FAV_SB 0355
Uploaded by: Elliott, Robyn
Position: FAV

Committee:	**Senate Education, Health, and Environmental Affairs Committee**
Bill Number:	**SB 355**
Title:	**Health Occupations – Pharmacists – Administration of Vaccinations**
Hearing Date:	**February 13, 2020**
Position:	**Support**

The Maryland Nurses Association (MNA) supports *Senate Bill 355 – Health Occupations – Pharmacists – Administration of Vaccinations.* This bill would lower the age by which pharmacists may administer vaccines to children from 11 to 9 years of age. It also removes the requirement for a prescription. The bill does not affect requirements for parental consent.

MNA supports efforts to increase access to vaccinations, and pharmacists are an important part of that access since they administer vaccinations safely to adults and children 11 years of age and older under current Maryland law. This bill expands that access by lowering the age to 9 years old at which parents may bring a child directly to a pharmacist for a vaccination.

In addition, the bill removes the requirement for a prescription from another health care practitioner. This makes practical sense since all providers are supposed to follow the Center's for Disease Control's schedule for vaccination. In addition, since all providers, including pharmacists, must enter vaccination information into ImmuNet, a statewide immunization registry, both pharmacists and primary care providers can determine if vaccinations have been given elsewhere.

Thank you for your consideration of our testimony, and we urge a favorable vote. If we can provide any further information, please contact Robyn Elliott at relliott@policypartners.net or (443) 926-3443.

MPhA_Horton_FAV_SB355
Uploaded by: Horton, Aliyah
Position: FAV

MPhA
MARYLAND PHARMACISTS ASSOCIATION

DATE: February 13, 2020
TO: The Honorable Paul G. Pinsky, Chair
Members, Education, Health and Environmental Affairs Committee
FROM: Aliyah N. Horton, CAE, Executive Director
RE: **SUPPORT – Senate Bill 355 – Health Occupations – Pharmacists – Administration of Vaccinations**

MPhA founded in 1882 is the only state-wide professional society representing all practicing pharmacists in Maryland. Our mission is to strengthen the profession of pharmacy, advocate for all Maryland Pharmacists and promote excellence in pharmacy practice. In doing so, we prioritize and value the health and well-being of Maryland residents; safe and effective use of medications and health care devices; collaboration among health care professionals and organizations; professional competence and responsible legislation and regulations.

- The bill would allow any CDC-recommended vaccination to be administered to patients age nine (9) and above without a prescription or prior doctor visit and would maintain current requirements that primary care physicians be notified upon each instance.

- Current law allows pharmacists to administer flu vaccinations for patients age 9 and above without a prescription, and to immunize against other illnesses for patients ages 11-17 with a prescription.

- Current law also requires pharmacists to contact a patient's primary care provider when administering vaccinations and record any vaccinations administered to Maryland ImmuNet. As of 2019, other providers who administer vaccinations must also record administration data in ImmuNet.

- The bill provides more convenience for families seeking immunizations, while still maintaining communication with providers' offices who may then contact patients regarding upkeep of wellness visits.

- 42 other states already allow pharmacists to provide vaccinations without prescriptions to adolescents, including 11 states that do not have an age threshold for pharmacist-administered immunizations.

We urge favorable report for SB 355.

Aliyah N. Horton, CAE
Executive Director
Maryland Pharmacists Association
240-688-7808

Sherrie Sims
G.S. Proctor & Associates
410-733-7171

MPhA_FAV_SB355
Uploaded by: HORTON, ALIYAH
Position: FAV

MPhA
MARYLAND PHARMACISTS ASSOCIATION

DATE: February 13, 2020
TO: The Honorable Paul G. Pinsky, Chair
Members, Education, Health and Environmental Affairs Committee
FROM: Aliyah N. Horton, CAE, Executive Director
RE: **SUPPORT – Senate Bill 355 – Health Occupations – Pharmacists – Administration of Vaccinations**

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Aliyah N. Horton, CAE
Executive Director
Maryland Pharmacists Association
240-688-7808

Sherrie Sims
G.S. Proctor & Associates
410-733-7171

EPIC_Brian Hose_FAV_SB0355

Uploaded by: hose, brian

Position: FAV

2/13/2020 **SB 355**

A Network Of Independently Owned Pharmacies

Testimony offered on behalf of:

EPIC PHARMACIES, INC.

IN SUPPORT OF:

SB 355 – Health Occupations - Pharmacists – Administration of Vaccinations

Senate Education, Health and Environmental Affairs Committee
In the Senate - Hearing 2/13 at 1:00 p.m.

EPIC Pharmacies **SUPPORTS SB 355 –** Health Occupations - Pharmacists – Administration of Vaccinations

EPIC Pharmacies are positioned in hundreds of communities across the state and represent the front line of healthcare providers caring for Maryland communities and your constituents. As the most accessible members of the healthcare team, pharmacists are uniquely positioned to influence public health efforts in the area of vaccinations.

Current law has allowed pharmacists to safely and effectively administer flu vaccinations to patients age 9 and above without a prescription for many years. While these patients have easy access to vaccines for influenza, we receive many requests from parents to provide additional CDC recommended vaccinations to this age group. Adult patients have made pharmacies their choice for adult vaccinations because of the convenience that we provide, and they want the same convenience when providing vaccinations for their children. This bill would allow any CDC recommended vaccination to be administered to patients age 9 and above without a prescription or prior doctor visit and would maintain the current requirement that primary care physicians be notified upon each instance.

In 42 other states, pharmacists are able to provide vaccinations without prescriptions to adolescents, including 11 states that do not have an age threshold for pharmacist-administered immunizations. I urge you to follow the lead of these states and make vaccinations easier and more convenient for these young Marylanders.

EPIC Pharmacies respectfully requests a **FAVORABLE REPORT on SB 355**.

Sincerely,

Brian M. Hose, PharmD
EPIC PharmPAC Chairman
Owner / CEO
Sharpsburg Pharmacy
301-432-7223
brian.hose@gmail.com

MDChainDrugStoreAssoc_FAV_SB355
Uploaded by: LOCKLAIR, CAILEY
Position: FAV

NACDS NATIONAL ASSOCIATION OF CHAIN DRUG STORES

MARYLAND ASSOCIATION OF CHAIN DRUG STORES

Testimony on Maryland SB 355

Education, Health, and Environmental Affairs Committee
Maryland General Assembly

February 13, 2020

Submitted by:
Maryland Association of Chain Drug Stores
and
National Association of Chain Drug Stores

Cailey E. Locklair
Maryland Association of Chain Drug Stores
clocklairtolle@mdra.org

Jill McCormack
National Association of Chain Drug Stores
jmccormack@nacds.org

On behalf of the 931 pharmacies and nearly 3,400 pharmacists operating and providing patient care in Maryland, the Maryland Association of Chain Drug Stores (MACDS) and the National Association of Chain Drug Stores (NACDS) appreciate the opportunity to support SB 355 and its companion, HB 530. We applaud the leadership of the bill sponsors and this committee for considering this legislation to expand access to healthcare in the state by permitting pharmacists to administer influenza vaccines to individuals at least nine years of age but under 18 years of age, in accordance with regulations adopted by the Board of Pharmacy, in consultation with the Department and to administer other vaccines listed in the Centers for Disease Control and Prevention's (CDC's) Recommended Immunization Schedule to individuals 9 years of age but under 18 years of age under a written protocol. Accordingly, pharmacists have been safely providing vaccination services to adults in the state beginning with influenza vaccines in 2004. Additionally, in 2011, the law to permit pharmacists to administer the influenza vaccine to individuals nine years of age and older was enacted. Two years later, in 2013, the law was expanded to allow pharmacist to administer other vaccines on CDC's Recommended Immunization Schedule pursuant to a prescription to individuals 11 to 17 years of age. SB 355 and HB 530 will remove burdensome, unnecessary restrictions and increase access to vaccines across the state.

I. <u>Increase access to pharmacist vaccination service to address patient needs.</u>

As the most accessible and most frequently visited[1,2,3] member of the healthcare team, pharmacists are particularly well positioned to continue expanding access to vaccination assessment, education, and delivery in neighborhoods across Maryland. Graduating with a Doctor of Pharmacy degree, pharmacists are highly educated and well-prepared to provide patient care services, including vaccination services, to individuals of all ages. Additionally, pharmacies offer expanded hours, many even 24 hours a day 7 days a week with a pharmacist on site. The reach of community pharmacies across rural and urban, including underserved areas, can greatly support efforts in Maryland to reach immunization goals for catch-up childhood vaccinations and vaccines indicated for preteens and

[1] Manolakis PG, Skelton JB; "Pharmacists' Contributions to Primary Care in the United States Collaborating to Address Unmet Patient Care Needs: The Emerging Role for Pharmacists to Address the Shortage of Primary Care Provider*"; Am J Pharm Educ;.* Dec 2010. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3058447/

[2] Hemberg N, Huggins D, et al.; "Innovative Community Pharmacy Practice Models in North Carolina"; *North Carolina Medical Journal*; June 2017. http://www.ncmedicaljournal.com/content/78/3/198.full

[3] Wright, D, Twigg, M. (2016); "Community pharmacy: an untapped patient data resource"; *Integrated Pharmacy Research and Practice*; 5:19-25

teens. At the same time, pharmacies can help close the gap of disparities in immunization rates across different locales, populations, and cultural groups.

According to an article published in the Journal of the American Academy of Pediatrics, the current healthcare system has not adequately met the vaccination needs of the adolescent population in the United States; however, overall vaccine rates could potentially be increased through complementing the efforts of primary care physicians with efforts to deliver vaccines in other healthcare settings that adolescents tend to frequent, like pharmacies.[4] In fact, patients have benefited from pharmacist-delivered vaccines in the United States for more than two decades, but there is more work to be done to maximize pharmacies as innovative healthcare destinations. On February 8, 2020, Ali S. Khan, MD, MPH, Dean and Professor, College of Public Health, University of Nebraska, and Retired Assistant Surgeon General, USPHS, stated in an opinion editorial in the *Omaha World Herald* the importance of pharmacists as public health partners and states' progress "in expanding pharmacists' vaccination authority and allowing them to screen and even help to treat an array of illnesses".[5] (See Attachment A.)

Studies have shown that increased availability of pharmacist-administered vaccines increases immunization rates overall and may lead to a greater number of physician-administered vaccinations.[6] In 2018, the CDC reported that 32.2% of all influenza vaccinations were administered at a pharmacy.[7] Additionally, studies show that community pharmacies are convenient care settings for receiving immunizations, and that pharmacists are not shifting patient populations from medical clinics into pharmacies, but are instead identifying new, previously unvaccinated populations for immunization.[8] Therefore, pharmacists complement the efforts of other healthcare professionals to fill gaps and support collaborative vaccine access strategies.

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[4] Schaffer, S., Fontanesi, J., Rickert, D., Grabenstein, J., Rothholz, M., Wang, S., et al. (2008); "How Effectively Can Health Care Settings Beyond the Traditional Medical Home Provide Vaccines to Adolescents?"; *Pediatrics (Vol. 121, pp. S35-S45)*.

[5] https://www.omaha.com/opinion/midlands-voices-let-s-bolster-public-health-preparation-against-the/article_19686af8-9e59-5b91-96c0-18ab9971bc65.html?utm_medium=social&utm_source=email&utm_campaign=user-share

[6] Field RI.; "Pharmacists set to become more active clinicians in Pennsylvania"; *P & T;* 2006;31:100,105; Jelesiewicz E.; "Pennsylvania pharmacists could soon be "calling the shots.""

[7] CDC; "Influenza: General Population Early Season Vaccination Coverage"; 2018; https://www.cdc.gov/flu/fluvaxview/nifs-estimates-nov2018.htm

[8] Steyer TE, Ragucci KR, Pearson WS, Mainous AG 3rd; "The role of pharmacists in the delivery of influenza vaccinations"; *Vaccine*; 2004;22(8): 1001-1006.

As members of the healthcare team who are supportive of public health surveillance, pharmacists in Maryland are required by law report all vaccines administered to the ImmuNet Program.[9] Additionally, there are other requirements for pharmacists to document outreach to patients' prescribers, primary care providers, or other usual sources of care for the administration of vaccinations in accordance with a prescription. Additionally, pharmacies maintain records of vaccines administered for a minimum of 5 years.[10]

II. Pharmacy Vaccination Services are convenient and cost-effective.

Community pharmacies play a key role in providing easily accessible, convenient, and cost-effective vaccination services. Approximately 89% of Americans live within five miles of a pharmacy and evidence has shown that patients visit pharmacies ten times more frequently than other healthcare providers,[5] signifying that pharmacists can fill gaps in patient care and support the healthcare team. Expanding pharmacist vaccination services, offers a choice of providers and locations for busy parents to access immunizations and may consequently serve to reduce the number of inadequately vaccinated children.

Pharmacies have also been shown to be a cost-effective healthcare setting for providing immunization services.[11] A 2018 study that modeled the clinical and economic impacts of using pharmacies to administer influenza vaccinations estimated that including pharmacies in addition to other locations for vaccination (e.g. clinics, physician offices, urgent care centers) could prevent up to 16.5 million symptomatic influenza cases and 145,278 deaths at an estimated cost savings of $4.1 to $11.5 billion.[12] For these reasons, the CDC has supported pharmacists as fully recognized vaccine-providers.[13] Furthermore, the CDC's Advisory Committee on Immunization Practices (ACIP) has three specific recommendations for vaccination based on shared clinical decision-making, and the first of those recommendations related to a vaccine for adolescents and young adults – Meningococcal B

[9] Established under §18—109 of the Health – General Article.
[10] COMAR 10.34.32.05
[11] Burson, R., Buttenheim, A., Armstrong, A. et al. (2016); "Community Pharmacies as Sites of Adult Vaccination: A systematic review;" *Human Vaccines & Immunotherapeutics*; 12:12, 3146-3159.
[12] Bartsch SM et al.; Epidemiologic and economic impact of pharmacies as vaccination locations during an influenza epidemic; Vaccine (2018)
[13] https://stacks.cdc.gov/view/cdc/50403/cdc_50403_DS1.pdf

(MenB) vaccination. In recently released FAQs on shared decision making, the CDC names pharmacists among other providers who should implement these practices.[14]

III. Foster healthier communities in Maryland.

Considering that improving adolescent vaccination rates throughout Maryland serves the important public health goal of fostering healthier communities, it is critical that unnecessary obstacles to vaccination be eliminated. Notably, Maryland's existing requirement for individuals younger than 18 years old to have a patient-specific prescription in order to obtain an immunization, other than the influenza vaccine, at a pharmacy is such a barrier. This prescription requirement makes it impractical for pharmacists to provide vitally important vaccine services to most adolescents at a time when increased access to vaccines is crucial. Allowing pharmacists to administer vaccinations to those aged 9 and older without a prescription would ensure that these patients have increased access to vaccines – particularly vaccines that need to be administered between the ages of 11 and 18 to fully protect preteens and teens from serious diseases and cancers, including: Tdap, HPV, MenACWY, Meningitis B, and influenza. To improve the health and wellness of preteen and teen Marylanders, and expand access and choice to vaccination destinations, pharmacist authority to provide this vital preventive care should be broadened.

IV. Conclusion.

NACDS applauds the legislature's current efforts to enhance the delivery of healthcare and expand access to preventive care to adolescent patients across the state. Given the compelling evidence, NACDS strongly urges your support for SB 355 and its companion HB 530, legislation aimed at driving improved population health through expanded access to care by allowing pharmacists to administer influenza vaccines to individuals at least nine years of age but under 18 years of age in accordance with Board of Pharmacy regulations and to administer other vaccines listed in the CDC's Recommended Immunization Schedule to individuals ages 9 years but under 18 years of age under a written protocol.

[14] https://www.cdc.gov/vaccines/acip/acip-scdm-faqs.html#scdm

Attachment A

Op-Ed from Ali S. Khan, MD, MPH, Retired Assistant Surgeon General, USPHS

Lessons, Already, from novel coronavirus 2019

Our nation, once again, finds itself at the worst possible time to prepare for a public health threat: in the midst of a public health emergency of international concern.

Worries about the novel coronavirus have the public, and public servants, asking the predictable questions. They inquire about the nature and prevention of the disease, about the existence of an ample supply of facemasks and protective gear, and about the outlook for the development and deployment of a drug or vaccine.

We have seen this before – and recently. Many will remember the swine flu, or H1N1, that in 2009 sent more than a quarter-million Americans to the hospital, and claimed more than 12,000 lives in the U.S.

Regardless of whether the novel coronavirus will become a U.S. epidemic, the situation shines the light on barriers to preparedness across the country. This includes preparedness for outbreaks of the likes of this coronavirus, as well as for a particularly dangerous new flu strain. It also includes preparedness for a heinous act of bioterrorism.

Make no mistake, much has been done to improve readiness. Over the past two decades, lessons learned from the September 2001 attacks, from Hurricane Katrina, and from H1N1 have spurred remarkable public-health upgrades at the national, state and local levels. International collaboration has improved, too. Our nation is dramatically better prepared to detect and address emergencies.

Still, in key areas, progress is insufficient. The discussion in this area inevitably turns to the funding of state, territorial, local, and tribal health agencies, which all too often is the subject of political arguments, rather than practical needs. Local health agencies are operating with approximately 50,000 fewer personnel, compared with 2008. They also have seen steady declines in preparedness funding. However, healthcare preparedness is the critical gap in national preparedness.

Funding aside, not enough has been done to leverage the array of partners who extend the public face of public health. Retail clinics and community pharmacists come to mind quickly. Progress has been made in expanding pharmacists' vaccination authority and allowing them to screen and even help to treat an array of illnesses. However, many states lag behind, despite strong public desire for increased access to pharmacist-provided services.

A study published in 2018 in the *Journal of the American Pharmacists Association* found that approximately six million Americans per year who did not previously get the flu shot now do, as a result of public policy changes that have expanded pharmacists' authority to vaccinate. Vaccination against flu and pneumonia are also key public health messages for this epidemic. Much upside potential exists if needless state barriers are eliminated. Overcoming these barriers includes expanding consumers' access and coverage to recommended vaccines in community care settings, and establishing emergency standing orders that allow for needed medications to be furnished to a patient.

In any case, the optimum time to commit to public health preparedness is before a crisis is upon us. While time will tell if this coronavirus will be a serious threat in the United States, now is the right time to take action for this potential crisis, and for the next ones. While the nation has come a long way, more strides are needed.

Until then, public health partners like pharmacists will do whatever they can to answer the call. Let us not take them for granted, nor leave them underutilized.

Ali S. Khan, MD, MPH

Retired Assistant Surgeon General, USPHS
Dean and Professor, College of Public Health | Office of the Dean, University of Nebraska

Source: https://www.omaha.com/opinion/midlands-voices-let-s-bolster-public-health-preparation-against-the/article_19686af8-9e59-5b91-96c0-18ab9971bc65.html?utm_medium=social&utm_source=email&utm_campaign=user-share
(Accessed on Feb. 11, 2020)

Sponsor_Sen. Augustine_FAV_SB0355
Uploaded by: Senator Augustine, Senator Augustine
Position: FAV

Immunization Access

Senator Malcolm Augustine

SB 355

Education, Heath, Environmental Affairs Committee

SB 355: Health Occupations - Pharmacists - Administration of Vaccinations

- Allows a Pharmacist to administer vaccines to a child, 9 years and above, with parental consent but without a prescription
- Currently can do Flu and everything else with prescription without incident and reported to immunet
- Provides 1200 additional access points for our families
- Not about children who have a primary care physician its about those that don't
- Provides more depth to an existing line of business for our pharmacies who are vested in our neighborhoods and are hurting

National Pharmacists Immunization Landscape for Minors v. Maryland Law

- 11 States do not have any age requirement for vaccinations
- 31 states authorize vaccinations for children and adolescents other than flu
- In 42 states, pharmacists are authorized to give children and adolescents vaccines other than flu
- MD Pharmacists can provide flu vaccines to 9 y.o. and above, but Maryland law currently requires a prescription for any other vaccines for 11-17 y.o.

Vaccination Rates Can be Improved Through Access

*Data from AMA Interim Meeting Report of the Council on Science and Public Health on the "Role of Pharmacists in Improving immunization Rates"

- Pharmacists can complement the work of practitioners to increase vaccine coverage rates by practicing at the top of their licenses.
- Each year about 42,000 adults and 300 children in the United States die of vaccine preventable diseases.
- Only 20-30% of internists and family physicians stock all 11 CDC recommended vaccinations.
- More expensive vaccinations such as hepatitis B and catch up vaccinations such as HPV, MMR and varicella are less likely to be stocked.

Pharmacists Have a Proven Track Record of Safely Providing Vaccines to Patients in Maryland

MD Pharmacists have been safely providing vaccines:

- 18+ y.o. with CDC vaccines since 2006
- Other vaccines to minors with an rx since 2011
- In 2017, pharmacies provided more than 266,000 vaccines to patients in MD -- and that's only counting flu shots – without any major reportable incidents

Built-in Safety, Consent and Recordkeeping Measures

Registration

BOP, BOM, BON Approved Protocols

1. Identity and license number of pharmacist

2. Vaccine specific guidelines to administer (checklist for precautions, side effects and contraindications)

Patient Information on vaccine provided and consent must be given by patient or patients' guardian if a minor

Assessment form for patient info

3 types of recordkeeping required by law

1. One documented attempt to directly notify patient PCP physician (if patient has one)
2. Pharmacy must maintain record for 5 years
3. Immunet – MD's state vaccine database; all providers required to report all vaccines

Vaccine Information Statements (VIS)-Educating Caregivers PRIOR to immunization

All vaccine providers, public or private, are required by the National Vaccine Childhood Injury Act (NCVIA – 42 U.S.C. § 300aa-26 pdf icon[2 pages]external icon) to give the appropriate VIS to the patient (or parent or legal representative) prior to every dose of specific vaccines.

The appropriate VIS must be given **prior** to the vaccination, and must be given prior to **each dose** of a multi-dose series. It must be given **regardless of the age** of the recipient.

ACCESS
ACCESS
ACCESS

This bill does not touch parental consent and is strictly about increasing access.

Each year thousands of Maryland students are threatened with banning from school due to lack of immunizations. School systems spend money and families forego money going to “Free Clinics.” Mass immunization clinics that may not fit into their schedules.

This bill will provide these families with over 1200 additional locations they can visit ANYTIME to fulfill immunization requirements for school.

Additionally, most travel immunizations are not carried by physicians and for immigrant families needing these immunizations to travel, they would have to go to a doctor or an ultra expensive travel immunization clinic to receive necessary vaccinations. Ex. Yellow Fever, Hepatitis A and B, Malaria, etc.

Pharmacy Board_LoS_SB 355
Uploaded by: Speights-Napata, Deena
Position: FAV

Maryland
DEPARTMENT OF HEALTH
Larry Hogan, Governor · Boyd K. Rutherford, Lt. Governor · Robert R. Neall, Secretary

February 13, 2020

The Honorable Senator Paul G. Pinsky
Chair, Senate Education, Health, and Environmental Affairs Committee
2 West, Miller Office Building
Annapolis, MD 21401-1991

RE: Senate Bill 355 – Health Occupations - Pharmacists - Administration of Vaccinations – Letter of Support

Dear Chair Pinsky:

The Maryland Board of Pharmacy (the "Board") is submitting this letter of support for Senate Bill 355 – Health Occupations - Pharmacists - Administration of Vaccinations.

By homogenizing the requirements for pharmacists to administer vaccines, this bill will create a less burdensome framework for pharmacists to navigate when administering va ccinations. By lowering the minimum patient age from 11 years to 9 years, the Board believes that this measure will expand access to necessary care. This promotes the Board's mission of promoting quality health care in the field of p harmacy. For these reasons, the Board of Pharmacy supports this measure.

I hope this information is useful. If you would like to discuss this further, please contact me at 410-764-4753 or deena.speights-napata@maryland.gov.

Sincerely,

Deena Speights-Napata, M.A.

Executive Director
Maryland Board of Pharmacy

Andrade_OPP_SB0355.pdf
Uploaded by: Andrade, Meagan
Position: UNF

SB355: Health Occupations - Pharmacists - Administration of Vaccinations
Megan Andrade
Oppose

I oppose HB530/SB355 because it puts our children at great risk. Pharmacists are not trained to assess children (or any patient) for vaccination or afterwards for vaccine injury. Pharmacies incentivize vaccines to pharmacy customers -- urging them to receive any and all vaccines without due assessment or education. This is simply an opportunity for chain pharmacies to make a profit with no regard for health outcomes. It undermines relationships patients have with their family physicians, preventing parents from working with physicians to make the most appropriate decisions for their child. If parents want their children vaccinated by their pharmacist, they have the option to call the doctor for a script.

Meagan Andrade
Baltimore, MD
losandrade@gmail.com

Sb355MeaganAndrade
Uploaded by: Andrade, Meagan
Position: UNF

I **oppose** **HB530/SB355** because it puts our children at great risk. Pharmacists are not trained to assess children (or any patient) for vaccination or afterwards for vaccine injury. Pharmacies incentivize vaccines to pharmacy customers -- urging them to receive any and all vaccines without due assessment or education. This is simply an opportunity for chain pharmacies to make a profit with no regard for health outcomes. It undermines relationships patients have with their family physicians, preventing parents from working with physicians to make the most appropriate decisions for their child. If parents want their children vaccinated by their pharmacist, they have the option to call the doctor for a script.

Meagan Andrade
32 Dunkirk Rd.
Baltimore, MD 21212
losandrade@gmail.com

SB355JennAusiello-Rosenthal
Uploaded by: Ausiello-Rosenthal, Jenn
Position: UNF

Dear honorable members of the Senate Health Committee,

Thank you for serving our community. I am writing **to oppose SB355**, Health Occupations-Pharmacists-Administration of Vaccines Act. While pharmacists' role in vaccination has been expanding for some time now, as a parent, I find this to be a troubling trend. Children are best served when parents and physicians collaborate. Pharmacists are not trained to properly assess a child for risks and/or contraindications. If a child needs a vaccination and cannot make it to the doctor's office, the doctor can simply call in that script; this bill is not necessary. Additionally, while I'm sure expanding the role of pharmacists to administer vaccines was initially well-intentioned, it seems this trend is now being pushed for financial reasons rather than justified public health concerns.

The following article, titled, "How to Make Immunizations a Pharmacy Profit Center" blatantly states (and almost boasts) about how implementing an immunization program can generate an extra $40-90K/year in pure profit: https://www.pbahealth.com/how-to-make-immunizations-a-pharmacy-profit-center/?fbclid=IwAR2h1fCobBWU8jpQpnjvgx-lF689FxiGmApv9hWrEpgYjd3dOv0t5eA9gdY

It is clear this is about profits, not people. Pharmacies are looking for additional revenue streams and immunizations are a guaranteed way to achieve that outcome. Because of the high profit margin pharmacies enjoy from offering this service, they can and do offer incentives for getting vaccinations.

Some snippets to demonstrate the motive is profits and not public health:

"If you want to add profit to your bottom line, increase the number of immunizations that you're doing," Schaefer said. "Every single immunization that you do adds to your bottom line. There are no exceptions."

"It's another added component to bring in another revenue stream," Feltner said. "When you look at pharmacies today, they're pretty much breakeven pharmacies. So in order to be positive, as far as revenue stream, you've got to think outside the box."

They both believe immunizations have become essential to compete in today's world, especially as a way to differentiate from online and mail-order pharmacies that are capturing more and more of the market share.

Around 100 million Americans get the flu shot every year, which produces around $4 billion to $5 billion in revenue. That's just influenza. Each year, the national chain pharmacies and big-box stores battle to snatch up patients to their immunization programs with aggressive marketing and significant discounts.

Yet the immunization market is still largely untapped....And pharmacies can be the prime beneficiaries of this growing demand.

And the flu shot is only the tip of the immunization iceberg. There's a glacial immunization opportunity beyond influenza waiting to be uncovered. For example, flu shots bring in roughly $20 of profit a pop. Compare that to meningococcal group B vaccine at $48, human

papillomavirus at $50, and hepatitis B at $80, according to one estimate. An independent pharmacy in Louisiana earned nearly $6,000 in profit from only 70 shots of hep B in the first year of offering the vaccine.

Schaefer said the least amount of profit you'll ever make on a vaccine is $15 to $20. You essentially get paid twice, once for the product and once for the service itself. "How many prescriptions do you make fifteen to twenty dollars on?"

After the entire article discusses profit, it then discusses approaching a provider for scripts, this time encouraging the reader to disingenuously imply that it is (all-of-a-sudden) all about the patient:

If you need an agreement or protocol, Schaefer recommends coming up with a plan to approach a provider. Choose your provider carefully, maybe starting with the health department. And when you go to make your case, make it all about the patient. "Always, always take the high road," she said. "It's about giving patients easy access to preventive care."

This bill comes at a time where it is also clear that pharmacies are already under pressure to do more with less. This very recent and relevant article describes the chaotic nature of working in a pharmacy and how pharmacists are reporting themselves as a "danger" to the public: https://www.nytimes.com/2020/01/31/health/pharmacists-medication-errors.html?fbclid=IwAR2d7CQCVP0Bur3JVdvkxE50LbRAI3Gn2vkJQo_kb-8t4msU1ZXtBD4LE1Y

As the article describes, *"They struggle to fill prescriptions, give flu shots, tend the drive-through, answer phones, work the register, counsel patients and call doctors and insurance companies, they said — all the while racing to meet corporate performance metrics that they characterized as unreasonable and unsafe in an industry squeezed to do more with less.*

Again, while well-intentioned, we are now bordering on irresponsible vaccination practices with the lowered age limits and ever-expanding role of pharmacists. Vaccines are a product and medical intervention with risk; they need to be treated as such. Please vote against this bill. Thank you for your time.

Kindly,

Jenn Ausiello-Rosenthal
District 39

Borsella_OPP_SB0355.pdf
Uploaded by: borsella, claudia
Position: UNF

SB355: Health Occupations - Pharmacists - Administration of Vaccinations
Claudia Borsella
Oppose

Dear Delegate,

I am writing to oppose SB355/HB530. The minimum age keeps getting lower and lower. Pharma is just looking to increase revenue. They are not concerned about the children. Pharmacists are not trained in the assessment of a child before vaccination. They also are not trained to recognize or assess adverse effects from the vaccination.

Chain pharmacies are already overworked, messing up orders and making mistakes. We should not add to the chaos at pharmacies. This is not safe for children!

Please vote no.

See articles attached describing the chaos and medical errors that are common in today's pharmacies.

Thank you,

Claudia Borsella

Baltimore, MD
Dist 43

The New York Times

How Chaos at Chain Pharmacies Is Putting Patients at Risk

By Ellen Gabler

Jan. 31, 2020

For Alyssa Watrous, the medication mix-up meant a pounding headache, nausea and dizziness. In September, Ms. Watrous, a 17-year-old from Connecticut, was about to take another asthma pill when she realized CVS had mistakenly given her blood pressure medication intended for someone else.

Edward Walker, 38, landed in an emergency room, his eyes swollen and burning after he put drops in them for five days in November 2018 to treat a mild irritation. A Walgreens in Illinois had accidentally supplied him with ear drops — not eye drops.

For Mary Scheuerman, 85, the error was discovered only when she was dying in a Florida hospital in December 2018. A Publix pharmacy had dispensed a powerful chemotherapy drug instead of the antidepressant her doctor had prescribed. She died about two weeks later.

The people least surprised by such mistakes are pharmacists working in some of the nation's biggest retail chains.

In letters to state regulatory boards and in interviews with The New York Times, many pharmacists at companies like CVS, Rite Aid and Walgreens described understaffed and chaotic workplaces where they said it had become difficult to perform their jobs safely, putting the public at risk of medication errors.

They struggle to fill prescriptions, give flu shots, tend the drive-through, answer phones, work the register, counsel patients and call doctors and insurance companies, they said — all the while racing to meet corporate performance metrics that they characterized as unreasonable and unsafe in an industry squeezed to do more with less.

"I am a danger to the public working for CVS," one pharmacist wrote in an anonymous letter to the Texas State Board of Pharmacy in April.

"The amount of busywork we must do while verifying prescriptions is absolutely dangerous," another wrote to the Pennsylvania board in February. "Mistakes are going to be made and the patients are going to be the ones suffering."

State boards and associations in at least two dozen states have heard from distraught pharmacists, interviews and records show, while some doctors complain that pharmacies bombard them with requests for refills that patients have not asked for and should not receive. Such refills are closely tracked by pharmacy chains and can factor into employee bonuses.

Michael Jackson, chief executive of the Florida Pharmacy Association, said the number of complaints from members related to staffing cuts and worries about patient safety had become "overwhelming" in the past year.

The American Psychiatric Association is particularly concerned about CVS, America's eighth-largest company, which it says routinely ignores doctors' explicit instructions to dispense limited amounts of

medication to mental health patients. The pharmacy's practice of providing three-month supplies may inadvertently lead more patients to attempt suicide by overdosing, the association said.

"Clearly it is financially in their best interest to dispense as many pills as they can get paid for," said Dr. Bruce Schwartz, a psychiatrist in New York and the group's president.

A spokesman for CVS said it had created a system to address the issue, but Dr. Schwartz said complaints persisted.

Regulating the chains — five rank among the nation's 100 largest companies — has proved difficult for state pharmacy boards, which oversee the industry but sometimes allow company representatives to hold seats. Florida's nine-member board, for instance, includes a lawyer for CVS and a director of pharmacy affairs at Walgreens.

Aside from creating potential conflicts of interest, the industry presence can stifle complaints. "We are afraid to speak up and lose our jobs," one pharmacist wrote anonymously last year in response to a survey by the Missouri Board of Pharmacy. "PLEASE HELP."

Officials from several state boards told The Times they had limited authority to dictate how companies ran their businesses. Efforts by legislatures in California and elsewhere have been unsuccessful in substantially changing how pharmacies operate.

A majority of state boards do not require pharmacies to report errors, let alone conduct thorough investigations when they occur. Most investigations focus on pharmacists, not the conditions in their workplaces.

In public meetings, boards in at least two states have instructed pharmacists to quit or speak up if they believe conditions are unsafe. But pharmacists said they feared retaliation, knowing they could easily be replaced.

The industry has been squeezed amid declining drug reimbursement rates and cost pressures from administrators of prescription drug plans. Consolidation, meanwhile, has left only a few major players. About 70 percent of prescriptions nationwide are dispensed by chain drugstores, supermarkets or retailers like Walmart, according to a 2019 Drug Channels Institute report.

CVS garners a quarter of the country's total prescription revenue and dispenses more than a billion prescriptions a year. Walgreens captures almost 20 percent. Walmart, Kroger and Rite Aid fall next in line among brick-and-mortar stores.

In statements, the pharmacy chains said patient safety was of utmost concern, with staffing carefully set to ensure accurate dispensing. Investment in technology such as e-prescribing has increased safety and efficiency, the companies said. They denied that pharmacists were under extreme pressure or faced reprisals.

"When a pharmacist has a legitimate concern about working conditions, we make every effort to address that concern in good faith," CVS said in a statement. Walgreens cited its confidential employee hotline and said it made "clear to all pharmacists that they should never work beyond what they believe is advisable."

Errors, the companies said, were regrettable but rare; they declined to provide data about mistakes.

The National Association of Chain Drug Stores, a trade group, said that "pharmacies consider even one prescription error to be one too many" and "seek continuous improvement." The organization said it was wrong to "assume cause-effect relationships" between errors and pharmacists' workload.

The specifics and severity of errors are nearly impossible to tally. Aside from lax reporting requirements, many mistakes never become public because companies settle with victims or their families, often requiring a confidentiality agreement. A CVS form for staff members to report errors asks whether the patient is a "media threat," according to a photo provided to The Times. CVS said in a statement it would not provide details on what it called its "escalation process."

The last comprehensive study of medication errors was over a decade ago: The Institute of Medicine estimated in 2006 that such mistakes harmed at least 1.5 million Americans each year.

Jonathan Lewis said he waited on hold with CVS for 40 minutes last summer, after discovering his antidepressant prescription had been refilled with another drug.

Mr. Lewis, 47, suspected something was wrong when he felt short of breath and extremely dizzy. Looking closely at the medication — and turning to Google — he figured out it was estrogen, not an antidepressant, which patients should not abruptly quit.

"It was very apparent they were very understaffed," Mr. Lewis said, recalling long lines inside the Las Vegas store and at the drive-through when he picked up the prescription.

Too Much, Too Fast

The day before Wesley Hickman quit his job as a pharmacist at CVS, he worked a 13-hour shift with no breaks for lunch or dinner, he said.

As the only pharmacist on duty that day at the Leland, N.C., store, Dr. Hickman filled 552 prescriptions — about one every minute and 25 seconds — while counseling patients, giving shots, making calls and staffing the drive-through, he said. Partway through his shift the next day, in December 2018, he called his manager.

"I said, 'I am not going to work in a situation that is unsafe.' I shut the door and left," said Dr. Hickman, who now runs an independent pharmacy.

Dr. Hickman felt that the multitude of required tasks distracted from his most important jobs: filling prescriptions accurately and counseling patients. He had begged his district manager to schedule more pharmacists, but the request was denied, he said.

CVS said it could not comment on the "individual concerns" of a former employee.

With nearly 10,000 pharmacies across the country, CVS is the largest chain and among the most aggressive in imposing performance metrics, pharmacists said. Both CVS and Walgreens tie bonuses to achieving them, according to company documents.

Nearly everything is tracked and scrutinized: phone calls to patients, the time it takes to fill a prescription, the number of immunizations given, the number of customers signing up for 90-day supplies of medication, to name a few.

The fact that tasks are being tracked is not the problem, pharmacists say, as customers can benefit from services like reminders for flu shots and refills. The issue is that employees are heavily evaluated on hitting targets, they say, including in areas they cannot control.

In Missouri, dozens of pharmacists said in a recent survey by the state board that the focus on metrics was a threat to patient safety and their own job security.

“Metrics put unnecessary pressure on pharmacy staff to fill prescriptions as fast as possible, resulting in errors,” one pharmacist wrote.

Of the nearly 1,000 pharmacists who took the survey, 60 percent said they “agree” or “strongly agree” that they “feel pressured or intimidated to meet standards or metrics that may interfere with safe patient care.” About 60 percent of respondents worked for retail chains, as opposed to hospitals or independent pharmacies.

Surveys in Maryland and Tennessee revealed similar concerns.

The specific goals are not made public, and can vary by store, but internal CVS documents reviewed by The Times show what was expected in some locations last year.

Staff members were supposed to persuade 65 percent of patients picking up prescriptions to sign up for automatic refills, 55 percent to switch to 90-day supplies from 30-day, and 75 percent to have the pharmacy contact their doctor with a “proactive refill request” if a prescription was expiring or had no refills, the documents show.

Pharmacy staff members are also expected to call dozens of patients each day, based on a computer-generated list. They are assessed on the number of patients they reach, and the number who agree to their requests.

Representatives from CVS and Walgreens said metrics were meant to provide better patient care, not penalize pharmacists. Some are related to reimbursements to pharmacies by insurance companies and the government. CVS said it had halved its number of metrics over the past 18 months.

But dozens of pharmacists described the emphasis on metrics as burdensome, and said they faced backlash for failing to meet the goals or suggesting they were unrealistic or unsafe.

“Any dissent perceived by corporate is met with a target placed on one’s back,” an unnamed pharmacist wrote to the South Carolina board last year.

In comments to state boards and interviews with The Times, pharmacists explained how staffing cuts had led to longer shifts, often with no break to use the restroom or eat.

“I certainly make more mistakes,” another South Carolina pharmacist wrote to the board. “I had two misfills in three years with the previous staffing and now I make 10-12 per year (that are caught).”

Much of the blame for understaffing has been directed at pressure from companies that manage drug plans for health insurers and Medicare.

Acting as middlemen between drug manufacturers, insurers and pharmacies, the companies — known as pharmacy benefit managers, or P.B.M.s — negotiate prices and channel to pharmacies the more than $300 billion spent on outpatient prescription drugs in the United States annually.

The benefit managers charge fees to pharmacies, and have been widely criticized for a lack of transparency and applying fees inconsistently. In a letter to the Department of Health and Human Services in September, a bipartisan group of senators noted an "extraordinary 45,000 percent increase" in fees paid by pharmacies from 2010 to 2017.

While benefit managers have caused economic upheaval in the industry, some pharmacy chains are players in that market too: CVS Health owns CVS Caremark, the largest benefit manager; Walgreens Boots Alliance has a partnership with Prime Therapeutics; Rite Aid owns a P.B.M., too.

The Pharmaceutical Care Management Association, the trade group representing benefit managers, contends that they make prescriptions more affordable, and pushes back against the notion that P.B.M.s are responsible for pressures on pharmacies, instead of a competitive market.

Falling Through the Cracks

Dr. Mark Lopatin, a rheumatologist in Pennsylvania, says he is inundated with refill requests for almost every prescription he writes. At times Dr. Lopatin prescribes drugs intended only for a brief treatment — a steroid to treat a flare-up of arthritis, for instance.

But within days or weeks, he said, the pharmacy sends a refill request even though the prescription did not call for one. Each time, his office looks at the patient's chart to confirm the request is warranted. About half are not, he said.

Aside from creating unnecessary work, Dr. Lopatin believes, the flood of requests poses a safety issue. "When you are bombarded with refill after refill, it's easy for things to fall through the cracks, despite your best efforts," he said.

Pharmacists told The Times that many unwanted refill requests were generated by automated systems designed in part to increase sales. Others were the result of phone calls from pharmacists, who said they faced pressure to reach quotas.

In February, a CVS pharmacist wrote to the South Carolina board that cold calls to doctors should stop, explaining that a call was considered "successful" only if the doctor agreed to the refill.

"What this means is that we are overwhelming doctor's office staff with constant calls, and patients are often kept on medication that is unneeded for extended periods of time," the pharmacist wrote.

CVS says outreach to patients and doctors can help patients stay up-to-date on their medications, and lead to lower costs and better health.

Dr. Rachel Poliquin, a psychiatrist in North Carolina who says she constantly gets refill requests, estimates that about 90 percent of her patients say they never asked their pharmacy to contact her.

While Dr. Poliquin has a policy that patients must contact her directly for more medication, she worries about clinics where prescriptions may get rubber-stamped in a flurry of requests. Then patients — especially those who are elderly or mentally ill — may continue taking medication unnecessarily, she said.

The American Psychiatric Association has been trying to tackle a related problem after hearing from members that CVS was giving patients larger supplies of medication than doctors had directed.

While it is common for pharmacies to dispense 90 days' worth of maintenance medications — to treat chronic conditions like high blood pressure or diabetes — doctors say it is inappropriate for other drugs.

For example, patients with bipolar disorder are often prescribed lithium, a potentially lethal drug if taken in excess. It is common for psychiatrists to start a patient on a low dose or to limit the number of pills dispensed at once, especially if the person is considered a suicide risk.

But increasingly, the psychiatric association has heard from members that smaller quantities specified on prescriptions are being ignored, particularly by CVS, according to Dr. Schwartz, the group's president.

CVS has created a system where doctors can register and request that 90-day supplies not be dispensed to their patients. But doctors report that the registry has not solved the problem, Dr. Schwartz said. In a statement, CVS said it continued to "refine and enhance" the program.

Dr. Charles Denby, a psychiatrist in Rhode Island, became so concerned by the practice that he started stamping prescriptions, "AT MONTHLY INTERVALS ONLY." Despite those explicit instructions, Dr. Denby said, he received faxes from CVS saying his patients had asked for — and been given — 90-day supplies.

Dr. Denby, who retired in December, said it was a "baldfaced lie" that the patients had asked for the medication, providing statements from patients saying as much.

"I am disgusted with this," said Dr. Denby, who worries that patients may attempt suicide with excess medication. "There are going to be people dead only because they have enough medication to do the deed with."

'We Already Have Systems in Place'

Alton James never learned how the mistake came about that he says killed his 85-year-old mother, Mary Scheuerman, in 2018.

He knows he picked up her prescription at the pharmacy in a Publix supermarket in Lakeland, Fla. He knows he gave her a pill each morning. He knows that after six days, she turned pale, her blood pressure dropped and she was rushed to the hospital.

Mary Scheuerman died in December 2018 after taking a powerful chemotherapy drug mistakenly dispensed by a Publix pharmacy. Her son said she was supposed to have received an antidepressant.

Mr. James remembers a doctor telling him his mother's blood had a toxic level of methotrexate, a drug often used to treat cancer. But Mrs. Scheuerman didn't have cancer. She was supposed to be taking an antidepressant. Mr. James said a pharmacy employee later confirmed that someone had mistakenly dispensed methotrexate.

Five days after entering the hospital, Mrs. Scheuerman died, with organ failure listed as the lead cause, according to medical records cited by Mr. James.

The Institute for Safe Medication Practices has warned about methotrexate, listing it as a "high-alert medication" that can be deadly when taken incorrectly. Mr. James reported the pharmacy's error to the group, writing that he wanted to raise awareness about the drug and push Publix, one of the country's largest supermarket chains, to "clean up" its pharmacy division, according to a copy of his report provided to The Times.

The company acknowledged the mistake and offered a settlement, Mr. James wrote, but would not discuss how to avoid future errors, saying, “We already have systems in place.”

Last September, Mr. James told The Times that Publix wanted him to sign a settlement agreement that would prevent him from speaking further about his mother’s death. Mr. James has since declined to comment, saying that the matter was “amicably resolved.”

A spokeswoman for Publix said privacy laws prevented the company from commenting on specific patients.

It can be difficult for patients and their families to decide whether to accept a settlement.

Last summer, CVS offered to compensate Kelsey and Donavan Sullivan after a pediatrician discovered the reflux medication they had been giving their 4-month-old for two months was actually a steroid. To be safely weaned, the baby had to keep taking it for two weeks after the error was discovered.

“It was like he was coming out of a fog,” Mrs. Sullivan recalled.

The couple, from Minnesota, are still considering a settlement but haven’t agreed to anything because they don’t know what long-term consequences their son might face.

The kinds of errors and how they occur vary considerably.

The paper stapled to a CVS bag containing medication for Ms. Watrous, the Connecticut teenager with asthma, listed her correct name and medication, but the bottle inside had someone else’s name.

Directions on the prescription for Mr. Walker, the Illinois man who got ear drops instead of eye drops from Walgreens, were clear: “Instill 1 drop in both eyes every 6 hours.” He later saw the box: “For use in ears only.”

In September, Stefanie Davis, 31, got the right medicine, Adderall, but the wrong dose. She pulled over on the interstate after feeling short of breath and dizzy with blurred vision. The pills, dispensed by a Walgreens in Sun City Center, Fla., were each 30 milligrams instead of her usual 20. She is fighting with Walgreens to cover a $900 bill for her visit to an emergency room.

Fixes That Fall Short

State boards and legislatures have wrestled with how to regulate the industry. Some states have adopted laws, for instance introducing mandatory lunch breaks or limiting the number of technicians a pharmacist can supervise.

But the laws aren’t always followed, can be difficult to enforce or can fail to address broader problems.

The National Association of Chain Drug Stores says some state boards are blocking meaningful change. The group, for instance, wants to free up pharmacists from some tasks by allowing technicians, who have less training, to do more.

It also supports efforts to change the insurance reimbursement model for pharmacies. Health care services provided by pharmacists to patients, such as prescribing birth control, are not consistently covered by insurers or allowed in all states. But it has been difficult to find consensus to change federal and state regulations.

While those debates continue, some state boards are trying to hold companies more accountable.

Often when an error is reported to a board, action is taken against the pharmacist, an obvious target. It is less common for a company to be scrutinized.

The South Carolina board discussed in November how to more thoroughly investigate conditions after a mistake. It also published a statement discouraging quotas and encouraging "employers to value patient safety over operational efficiency and financial targets."

California passed a law saying no pharmacist could be required to work alone, but it has been largely ignored since taking effect last year, according to leaders of a pharmacists' union. The state board is trying to clarify the law's requirements.

In Illinois, a new law requires breaks for pharmacists and potential penalties for companies that do not provide a safe working environment. The law was in response to a 2016 Chicago Tribune investigation revealing that pharmacies failed to warn patients about dangerous drug combinations.

Some states are trying to make changes behind closed doors. After seeing results of its survey last year, the Missouri board invited companies to private meetings early this year to answer questions about errors, staffing and patient safety.

CVS and Walgreens said they would attend.

Research was contributed by Susan C. Beachy, Jack Begg, Alain Delaquérière and Sheelagh McNeill.

Ellen Gabler is an investigative reporter for The New York Times. @egabler

A version of this article appears in print on Feb. 1, 2020, Section A, Page 1 of the New York edition with the headline: Overloaded Pharmacists Warn They're Making Fatal Mistakes.

The Safety Implications of Pharmacists Giving Vaccines

by Rishma Parpia

April 22, 2017

Story Highlights

A recent survey reports that 62 percent of Americans prefer the convenience of going to their local pharmacy to get vaccinated.

In 1995, pharmacists were officially recognized as vaccine providers.

There are serious safety implications of vaccines administered in pharmacies.

A new survey conducted by healthcare communications solutions firm PrescribeWellness LLC of Irvine, CA found that 62 percent of respondents preferred visiting their local pharmacy to get vaccinated rather than going to their doctor's office. In its 2017 Vaccination and Preventive Care Survey, PrescribeWellness interviewed 1,000 Americans over the age of 35 on their views of vaccination and neighborhood pharmacies.1 The reasons given for this preference was predominantly based upon convenience.

Twenty-six percent of respondents said that their local pharmacy is a "one-stop shop" for all their health and wellness needs. Twenty-four percent stated that their local pharmacy was easier to get to than their doctor's office and twenty-one percent reported that going to the pharmacy was more convenient when they had their children with them.1 However, although local pharmacies may be convenient locations for receiving vaccines from the perspective of families, the expanding role of pharmacists in administering vaccines has serious implications.

In 1993, U.S. Secretary of Health and Human Services Donna Shalala asked the American Pharmacists Association (APhA) to help define the role of pharmacists in the national vaccine program for children.2 Given that pharmacies offer convenience, accessibility, and extended hours of operation, in 1995, the Health Care Financing Administration (HCFA), now known as the Centers for Medicare and Medicaid Services (CMS), recognized pharmacists as vaccine providers.2

In 1996, the APhA initiated its nationally recognized 20-hour training program for pharmacists on pharmacy-based vaccine delivery.2 According to a review published in the Journal of the American Pharmacists Association:

By 2004, an estimated 15,000 pharmacists and student pharmacists had been formally trained through recognized programs as vaccine experts, and the practice of pharmacist-administered immunizations, particularly for adult patients, has become routinely accepted as an important role of the pharmacist. Arguably, few initiatives have done more to move the pharmacy profession forward in direct patient care than the pharmacist-administered immunization movement.3

When Pharmacies are Allowed to Deliver Vaccines

While there are numerous issues regarding the role of pharmacists in vaccine delivery, one of the most serious concerns relates to safety resulting from the growing corporate pressure for pharmacists to work faster in order to meet quotas.4

The pressure to work faster has led to increases in prescription drug errors. In an investigation led by The Chicago Tribune in 2016, half of the 255 pharmacies tested in the Chicago area failed to warn prescription users for potential drug interactions that could be harmful or fatal.4 5 The investigation found that pharmacists frequently hurry through legally required drug safety reviews, omit them altogether and/or and fail to ask patients whether they are taking other medications.4 In fact, pharmacists are required to work at such a high speed that many have complained they are hesitant to drink liquids during their shift because they do not have the time for a bathroom break.4

Initially states in the U.S. only authorized pharmacists to administer the influenza vaccine. However, today nearly every state allows pharmacists to administer almost all vaccines.6 Given what is already known about corporate quotas and their effect on medication dispensing speed and prescription drug errors, there is legitimate reason to be concerned about the safety of vaccine delivery by pharmacists. Although pharmacists are required to assess and screen patients for contraindications and take precautions before administering a vaccine,7 this is unlikely to occur given the time constraints and quota requirements, all of which creates a potentially dangerous situation for children and adults getting their vaccines in pharmacies.

This leads to another question: Are most pharmacists monitoring and reporting serious reactions, hospitalizations, injuries and deaths that follow vaccinations they administer to people to the federal Vaccine Adverse Events Reporting System (VAERS)? Are they keeping patients in the drug store long enough to monitor for anaphylaxis or syncope (fainting)? Since pharmacists are now administering a substantial portion of vaccines, they do have the responsibility of reporting vaccine adverse events to VAERS, but is this actually occurring given that they are working at high speeds to meet their quotas?

Rep. Mary Flowers (D-Chicago) is sponsor of a bill in the Illinois House of Representatives supported by pharmacy workers that would restrict the hours pharmacists can work each day, limit the number of prescriptions they can fill each hour, require break time during their shifts and provide whistleblower protection if they expose safety problems. Rep. Flowers states that

Additionally, states are now beginning to authorize pharmacists to play a role in recommending and prescribing vaccines. According to the APhA:

Through the years, many states' laws have evolved from requiring a prescription from a physician for the pharmacist to administer vaccines, to allowing for protocol-based administration, to some states finally allowing pharmacists to serve as the vaccine prescriber. By allowing for an additional health care provider—in this case a pharmacist—to serve as the screener, recommender, prescriber, and administrator of the vaccine, access is increased, and patients are more likely to actually receive the vaccine that is recommended for them. As of July 2015, eight states allow pharmacists to prescribe or administer, without a prescription, all recommended vaccines (many states don't allow this for young children); and another nine states allow this for the influenza vaccine.6

Assigning pharmacists the role of vaccine prescriber ultimately removes the physician as the middleman. The entire process of prescribing, selling and administering vaccines in one location i.e., the pharmacy, is

a value added product and service that ultimately saves costs on extra labor charges, storage facilities, etc.—an efficient business strategy. So what appears to be a move in the best interest of public health is merely a disguise for expanding the profits of owners of pharmacies and the pharmaceutical industry.

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Source: thevaccinereaction.org/2017/04/the-safety-implications-of-pharmacists-giving-vaccines/

Carr_OPP_SB0355.pdf
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Position: UNF

SB355: Health Occupations - Pharmacists - Administration of Vaccinations
Christie Carr
Oppose

Dear Senator ,

I am writing to request that you vote no on SB 355, which would allow for children 9 years and older to be vaccinated by a pharmacist. The parent, child, pediatrician relationship is important for proper care as children grow.

I am a parent of two children, who are currently 9 and 11 years old. My eleven-year-old daughter has a rare condition called Cyclical Vomiting Syndrome (CVS), which has caused her to be in the hospital for approximately 15-20 days a year for the past four years. She has a complicated medical history and has been through so much. As her parents, my husband and I continue to turn over every stone, trying to help her. The relationship that we have established with her pediatrician has been paramount.

I do not think a bill supporting drive-by medical care for busy parents is necessary or safe. It is critical that parents continue to make time to take their children to the pediatrician. The pediatrician is the one who knows the child's history and is trained to assess a child's health before receiving a vaccination or any medical procedure. Busy pharmacies are not places to administer medical procedures to children.

Please vote no on this bill and preserve the important relationship between children, parents, and pediatricians.

Sincerely,

Christie Carr

Monkton, MD

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Position: UNF

SB355: Health Occupations - Pharmacists - Administration of Vaccinations
Sean Carr
Oppose

Dear Delegates:

I am writing to request that you please vote no on SB355, which would allow for pharmacists to vaccinate children, as young as 9 years old.

As a parent of two children, I know the value of the relationship that we have with our pediatrician. My daughter has a complicated medical history, and her pediatrician has been there for us every step of the way.

Childhood wellness visits are important and should not be skipped. Making vaccines available like a drive-thru hamburger does not add to the overall health of a child. I understand that parents are busy and some families have limited financial means; however, that is why we have medical assistance to support child wellness visits. The time spent taking children to the doctor must remain an important process of raising healthy children.

I strongly oppose this bill and ask you vote no and preserve the important parent, child, and pediatrician relationship.

Sincerely,

Sean Carr
Monkton, MD

Faust_OPP_SB0355.pdf
Uploaded by: faust, heather
Position: UNF

SB355: Health Occupations - Pharmacists - Administration of Vaccinations
Heather Faust
Oppose

Honorable Chair and Members of the Education, Health, and Environmental Affairs Committee:

I strongly oppose SB 355: Health Occupations-Pharmacists-Administration of Vaccines, and I respectfully request that you vote NO on this bill.

Vaccination rates in Maryland are already quite high, so Marylanders are clearly not under-vaccinated. And doctors can already send their prescriptions to pharmacies if a family would prefer to receive a vaccine there instead of at the doctor's office. Therefore, I am not sure what issue this bill is intended to address, but I find it problematic and unnecessary.

SB 355 interferes with the doctor/patient relationship. It's well documented that the best health outcomes result from a collaborative relationship between families and doctors. Vaccines are not one-size-fits-all and should never be treated as such. The CDC's recommended schedule may require individual adaptation based on the needs and health situation of each individual. Whatever the supposed issue is, drive-by vaccinations without a physician prescription are not the answer and will not lead to improved health of our children but rather the opposite.

This bill creates a situation where pharmacists are placed in an inappropriate position of what amounts to practicing outside the scope of their license. They are not trained to assess patients for risks or contraindications, they may not have access to enough of a patient's medical history to make an appropriate determination about whether a particular vaccine should be given, and they are not in a position to monitor patients post-vaccination for any potential injuries or complications. They have plenty to do already and don't need more distractions. There's far too much pharmacy error already. Let's not add to it!

Pharmacies are also not equipped in practical terms for proper monitoring and patient care with regard to vaccines. For example, a patient is supposed to sit or lie down to receive the HPV vaccine and then must be monitored for at least 15 minutes afterward. Is there actually an appropriate location for this to safely take place in a pharmacy? Who will do the monitoring? Does the pharmacist actually have the time to follow the proper protocols?

What about when pharmacy student interns are involved in vaccinating patients, including children? We already know that SIRVA (Shoulder Injuries Related to Vaccine Administration) have increased significantly since pharmacists started vaccinating. (SIRVA is an injury directly caused by the improper administration of a vaccine, as opposed to an injury from the vaccine itself – ingredients such as allergens, heavy metals, preservatives, etc.) How does this bill address the fact that if pharmacies are to give more vaccines, these interns who are not yet licensed pharmacists will likely be administering a good number of them? Are the interns equipped to assess a child and review their medical history the way their family physician can? And why in the world would we want to ask them to do that in the first place? That's not their job! Do the interns even understand what vaccine injury looks like? Do they know what SIRVA is and how to avoid it? Does a licensed pharmacist actually have the time to supervise the increased number of

vaccinations that would likely be given by pharmacy students? And is that an appropriate use of their time and energies?

According to SB 355, the pharmacist administering a vaccine must "document at least one effort to inform the individual's primary care provider or other usual source of care that the vaccination has been administered." What if that one effort was not successful? Who will make sure that the information is appropriately noted in the patient's medical record? What if there were complications? Who will follow up and care for the patient? There's way too much room for error here and that greatly concerns me.

SB 355 also appears to be a blatant money-maker for pharmacies. We're all familiar with the overwhelming and in-your-face marketing of vaccines at every pharmacy and every street corner anywhere near a pharmacy, with all kinds of appealing incentives being offered. The US and New Zealand are the only countries that allow direct-to-consumer marketing of pharmaceuticals, and it is totally out of control. The fact is that vaccines are a huge revenue source for pharmaceutical companies. Not only that, all those who administer vaccines are making big money from it as well, and that includes pharmacies.

Let people make an informed decision to get a vaccine because they've reviewed the information including the package insert and ingredients, discussed the benefits and risks with their regular health care practitioner, and decided that it's an appropriate thing to do for themselves and their families. Not because someone at a chain pharmacy – who's never met them and doesn't know or care what their individual health needs might be – has bribed them with a $10 gift card or a free turkey if they come in a get a "free" shot, to the financial benefit of the pharmacy! This incentivizing of vaccinations for monetary reasons is extremely objectionable. Money should never be the motivating factor in health care.

Thank you for your time and attention. I urge you to please vote NO on SB 355 and encourage your colleagues to do likewise.

See attached article about SIRVA.

Sincerely,

Heather Faust
Catonsville, MD

Can Pharm J (Ott). 2018 Sep-Oct; 151(5): 295–299.
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Getting it in the right spot: Shoulder injury related to vaccine administration (SIRVA) and other injection site events

Ashley Bancsi ; Sherilyn K. D. Houle, BSP, PhD ; Kelly A. Grindrod, BScPharm, PharmD, MSc

Introduction

Shoulder injury related to vaccine administration, or "SIRVA," is an uncommon but emerging phenomenon caused by an improper technique or landmarking for intramuscular deltoid injections.[1-9] Patients with SIRVA present with shoulder pain and a limited range of motion. Symptoms occur when the patient had no prior shoulder injury or pain, and symptoms do not typically resolve on their own.[1-6,9] SIRVA is more painful and debilitating than the typical soreness that many patients feel after an intramuscular deltoid injection.[1-6,9] A review of the literature suggests a lack of data about SIRVA, and many cases are likely underreported, leading to an unknown incidence.[1] While this injury is rare in Canada, the National Vaccine Injury Compensation Program in the United States added SIRVA to its list of recognized vaccine injuries earlier in 2017.[10] Now that most pharmacists in Canada can be authorized to administer vaccines,[11] it is important they know how to landmark appropriately to prevent SIRVA, to recognize it in a patient and to know when to refer patients if they suspect this injury.

Pharmacists are highly accessible health professionals when it comes to immunization in Canada. For example, 30% of Canadian adults who received an influenza vaccine last year did so in a pharmacy.[12] We developed an infographic to guide all health professionals in the proper administration of intramuscular deltoid injections and to help in the prevention and identification of SIRVA (Figure 1). To develop the infographic, we performed a literature search using terms related to SIRVA ("Shoulder injury related to vaccine administration," "shoulder dysfunction after injection," "incorrect vaccine

administration," "bursitis," "frozen shoulder" and "rotator cuff tear"), causes of SIRVA ("improper landmarking," "improper injection technique" and "incorrect deltoid injection"), diagnosis of SIRVA ("ultrasound," "imaging" and "differential diagnosis") and other injection site events ("radial nerve injury," "axillary nerve injury," "neuropathy in shoulder," "lipoatrophy," "nodules" and "cellulitis") in the PubMed, Embase and Google Scholar databases. We also searched for relevant grey literature such as government reports using the Google search engine. What follows is an explanation of what pharmacists need to know to prevent and identify SIRVA.

What is SIRVA?

SIRVA is a rare sequela of the body's immune response to direct injection of a vaccine into the shoulder capsule instead of the deltoid muscle.[1-6] It causes inflammation in the musculoskeletal structures of the shoulder such as the bursae, tendons and ligaments, resulting in shoulder pain and a limited range of motion that can persist for months without treatment.[1-6,9] Patients will often present to a physician months after the injection because of their inability to manage

Figure 1 An infographic to help health professionals prevent shoulder injury related to vaccine administration

increasing amounts of pain and being unable to perform daily tasks.[1-3] These patients are often diagnosed with various complications such as bursitis, rotator cuff tears or frozen shoulder syndrome.[1-6,9,13] SIRVA is an emerging topic, as the first case report was published in 2006 by Bodor and Montalvo.[4] Recent publications have reported more cases of SIRVA, in which vaccines were injected too high into the shoulder or at an incorrect angle, emphasizing the growing need for awareness.[1-6,9,13,14] Of note, SIRVA is not caused by the ingredients in the vaccine itself but by the incorrect placement of the vaccine into the shoulder joint.[1-6] Therefore, a review of proper landmarking and injection technique is essential to preventing SIRVA.[1-9]

How to recognize SIRVA

It is common to experience a dull muscle ache after a vaccine injection that disappears within a few days.[1,2,4,6] Treatment can include an ice pack or over-the-counter analgesics such as acetaminophen or ibuprofen.[2-4] The key to recognizing SIRVA is that the pain will often begin within 48 hours of vaccine administration and will not improve with over-the-counter analgesics.

[1,2,4] In fact, months may pass by, and patients will still complain of increasing pain, weakness and impaired mobility/function.[1,2,4] Community pharmacists can play a key role in recognizing these patients, as they may request pharmacist assistance in selecting an over-the-counter analgesic. Furthermore, when patients present to the pharmacist complaining of shoulder pain or that they cannot lift their arm to brush their teeth, pharmacists should ask if they had a vaccine in that arm recently and refer them to a physician for diagnosis if SIRVA is suspected.[2] Physician assessment and management will typically include diagnostic imaging such as an ultrasound, corticosteroid injections and physiotherapy.[2,6,9]

Other injection site events

SIRVA results from an injection that is administered too high. There are other structures near the deltoid muscle that are at risk when a vaccine is improperly injected. In particular, injections that are below the deltoid can hit the radial nerve, and injections that are too far to the side of the deltoid can hit the axillary nerve.[5,7,15,16] When a nerve is hit, the patient will feel a strong shooting and burning pain immediately and may eventually develop paralysis or neuropathy that does not always resolve.[5,7,15,16] Therefore, in addition to preventing SIRVA, proper landmarking of the deltoid can also prevent nerve injuries from occurring.[5,7,15,16] In addition, health care professionals should choose a needle length based on the weight of the patient.[15,17-19] A needle that is too long may pass through the deltoid muscle and hit the bone instead.[15,17-19] While the patient will not feel if you hit the bone, the vaccine may not be fully absorbed into the muscle, leading to reduced immunity.[15,17-19] In addition, if the needle is too short, the vaccine can be administered subcutaneously instead of intramuscularly, which can sometimes result in decreased immunity as well as nodules, cellulitis or localized lipoatrophy.[7,17,19,20] A 2005 survey of Irish general practitioners and nurses discovered that the deltoid region was a popular site for injections, but most health care professionals were unaware of the structures that were at risk from injections in that area such as the axillary nerve or subdeltoid bursa.[21] Therefore, all health care professionals who provide injections, including pharmacists, should make landmarking and careful needle length selection a routine part of the injection workflow.

The pharmacist's role

Pharmacists can play a significant role in preventing

SIRVA and other injection site events by reviewing proper landmarking technique. This includes using 2 to 3 finger widths (depending on the size of your fingers) from the acromion process to ensure you inject below the shoulder capsule and identifying the level of the armpit to ensure you inject into the deltoid.[7,8,15,18-20] After determining the upper and lower limits, you can use your thumb and forefinger to make a "V" to outline the deltoid and keep the "sweet spot" visible before picking up the needle.[20] The injection should always be given at a 90° angle using a darting motion.[7,8,15,18-20] In addition, choose a 5/8-inch needle for smaller patients weighing less than 60 kg (130 lb) and a 1-inch needle for patients who weigh 60 to 70 kg (130-152 lb).[18] Women weighing 70 to 90 kg (152-200 lb) or men weighing 70 to 118 kg (152-260 lb) should receive either a 1-inch or 1.5-inch needle.[18] A 1.5-inch needle should be used for women weighing more than 90 kg (200 lb) and men weighing more than 118 kg (260 lb).[18]

If you accidentally insert the needle outside the properly landmarked area, you should pull the needle out, apply a new needle tip and try landmarking again. Do not inject. However, if you suspect that you administered the injection into the shoulder capsule, you should inform the patient about SIRVA and its symptoms, so the patient can access care in a timely manner.[2] If you suspect that a patient might be suffering from SIRVA, refer them to their physician for diagnosis, as an ultrasound is needed to determine the level and type of damage.[1,2,5,9,13] In addition, over-the-counter analgesics will not be effective for patients with SIRVA, as the preferred treatments include corticosteroid injections into the shoulder and physiotherapy.[2,6,9]

Practice tips

Prevention of SIRVA and other injection site events is key. Here are some points to remember:

- Landmark every patient, never "eyeball it."[1-9]
- Always sit or kneel to inject a seated patient. Standing above a patient may increase the likelihood that you will inject too high.[2,8,20]
- To help decrease the amount of pain the patient experiences, have them sit with their hand placed on their hip with their elbow out and away from the body, as this will relax their deltoid muscle.[2,8,20]
- Expose the shoulder completely. When a shirt cannot be removed, roll the sleeve up rather than pull the shirt's neck over the

shoulder.[2]

•• If you hit bone, don't worry. The patient will not feel it, but you should pull the needle back slightly into their muscle before injecting.

•• If you suspect you hit a nerve, pull the needle out completely, landmark properly and try again.

•• If you suspect you inserted the needle too high, pull the needle out before injecting, landmark properly and try again.

•• If you are unsure about a patient's weight, ask them so that you can use the proper needle length.[16,18-20]

•• If you think you injected too high, or you suspect a patient has SIRVA, educate the patient about what SIRVA is and tell them to see a doctor if pain in their shoulder increases or if they lose range of motion after 2 days that does not improve.[2]

•• Report SIRVA and other injection site events like any other injection reaction. Follow the protocol for your province.[18]

In conclusion, education and awareness are key to preventing SIRVA and other vaccine injuries related to improper landmarking of the deltoid muscle. The next time you inject a patient, pay attention to your technique. Even the most experienced health care professionals need to polish their skills once in a while. ■

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Gilden_OPP_SB0355.pdf
Uploaded by: gilden, juliet
Position: UNF

SB355: Health Occupations - Pharmacists - Administration of Vaccinations
Juliet Gilden
Oppose

Dear Senators,
I am writing to oppose SB355. The minimum age keeps getting lower and lower. Pharma is just looking to increase revenue. They are not concerned for the child. Pharmacists are not trained in the assessment of a child before vaccination. They also are not trained to recognize or assess adverse affects from the vaccination.

Pharmacists in chain pharmacies are already overworked, messing up orders and making mistakes. We should not add to the chaos at pharmacies. This is not safe for children.
Please vote no.

I have attached some articles below.

Thank you,
Juliet Gilden
Reisterstown MD

How to Make Immunizations a Pharmacy Profit Center

When Beverly Schaefer became one of the first pharmacists to administer flu shots in 1996, she could never have guessed that twenty years later she'd be administering nearly thirteen thousand immunizations per year.

Schaefer says her pharmacy was the first in the U.S. to offer mass immunizations administered by a pharmacist, and the reason she pioneered the idea came down to a business problem. She had turned down a contract from a major payer and all at once she lost 300 patients. Searching for a way to retain their business even while they were getting their prescriptions somewhere else, she ordered the flu vaccine and posted a sign on her door.

"We were hoping to do 300 flu shots the first year," she said. "We did 1,200. The biggest problem is that we had to go to the bank twice a day because we had so many tens and twenties in the till."

At that time they gave the shots out of a backroom with a table and a couple of chairs. When people came in to get the shots, they kept asking what else the pharmacy was going to offer back there. "It was like a light bulb went off," Schaefer said. "What people want is access to healthcare." Now her pharmacy, Katterman's Sand Point Pharmacy, has become a true immunization destination, offering 28 vaccines year-round. They account for nearly 20 percent of her business and 30 percent of her profit.

"If you want to add profit to your bottom line, increase the number of immunizations that you're doing," Schaefer said. "Every single immunization that you do adds to your bottom line. There are no exceptions."

Marty Feltner, director of immunization services for Kohll's Pharmacy, also pioneered immunization in his home state of Nebraska. As the first pharmacy in the state to offer immunizations, Kohll's has become the immunization leader in the region. "It's another added component to bring in another revenue stream," Feltner said. "When you look at pharmacies today, they're pretty much breakeven pharmacies. So in order to be positive, as far as revenue stream, you've got to think outside the box." Among its eight locations, Kohll's administers 50,000 to 80,000 flu immunizations per year.

Both Katterman's and Kohll's specialize in travel immunizations, which in itself has been a boon for business. People travel from hours away to get travel shots from their pharmacies. Around half of Schaefer's total immunization revenue comes from travel vaccines.

They both believe immunizations have become essential to compete in today's world, especially as a way to differentiate from online and mail-order pharmacies that are capturing more and more of the market share. "You know that [Bezos] family that sends boxes to every house every day across the country?" Schaefer said, whose pharmacy is in Seattle, the location of Amazon's headquarters. "They have to come to my store to get travel immunizations. Because you can't do that by mail. So why not offer a service that mail order will never be able to compete with?"

A Golden Opportunity

Around 100 million Americans get the flu shot every year, which produces around $4 billion to $5 billion in revenue. That's just influenza. Each year, the national chain pharmacies and big-box stores battle to snatch up patients to their immunization programs with aggressive marketing and significant discounts.

Yet the immunization market is still largely untapped. A 2017 report from the Centers for Disease Control and Prevention stated that vaccination rates have a long way to go to meet the Healthy People 2020 goals. And pharmacies can be the prime beneficiaries of this growing demand. Surveys show that patients find pharmacies to be more accessible and convenient than physicians' offices and health clinics. And the majority of people in the U.S. now prefer getting vaccinated at the pharmacy, according to

a survey by PrescribeWellness.

Many independent pharmacies have already caught on to this trend. The 2018 NCPA Digest shows 70 percent of pharmacies offering immunizations. However, that number includes pharmacies that only offer the flu shot. Another estimate says less than a quarter of independents offer immunizations beyond influenza. And the flu shot is only the tip of the immunization iceberg. There's a glacial immunization opportunity beyond influenza waiting to be uncovered. For example, flu shots bring in roughly $20 of profit a pop. Compare that to meningococcal group B vaccine at $48, human papillomavirus at $50, and hepatitis B at $80, according to one estimate. An independent pharmacy in Louisiana earned nearly $6,000 in profit from only 70 shots of hep B in the first year of offering the vaccine.

"If you want to add profit to your bottom line, increase the number of immunizations that you're doing. Every single immunization that you do adds to your bottom line. There are no exceptions."

Multiple pharmacy experts say pharmacies that offer expanded immunizations can expect a minimum $40K per year in additional revenue, but more likely closer to $90K. One independent pharmacy in Oklahoma gave 1,800 vaccines in one year, earning $40K in pure profit. Another independent pharmacy in Pennsylvania averaged more than 700 immunizations in its second year, resulting in more than $16K in profit.

"You do two or three new consultations a day, your profit on just those consultations could potentially pay for that pharmacist just to be there that day," Feltner said. "There are times where we'll get five or seven consultations in one day and have profitability of three or four hundred dollars on just that one-hour appointment depending on the patient's travel designation."

Schaefer said the least amount of profit you'll ever make on a vaccine is $15 to $20. You essentially get paid twice, once for the product and once for the service itself. "How many prescriptions do you make fifteen to twenty dollars on?"

Immunizations also provide additional business benefits to indirectly increase revenue and profitability. "What we're finding is that pharmacies and pharmacists who are engaging in immunizations are being approached for other patient care activities," said Mitch Rothholz, chief strategy officer for the American Pharmacists Association (APhA). "Coming in for immunizations is an opportunity to talk about other healthcare services they might need that the pharmacy can provide."

That has been true in Feltner's experience, especially for the shingles vaccine, which is suffering shortages because demand is so high. "You're going to have lots of patients come into the pharmacy who may not be a regular customer and by offering the service you get them in the door," he said. "If we say we offer the shingles vaccine, we may be able to transfer their prescription business over to our pharmacy just by having an immunization program. It just opens more doors."

A broad and lasting benefit, immunizations move your pharmacy in the direction the profession is headed: from medication-focused to patient-focused care. "It's a demonstration of pharmacists as a healthcare provider," Rothholz said. "Because pharmacists are trying to move and expand their services into a more quality patient care delivery activity versus just providing a product. Pharmacists' value to patients and the healthcare team is recognized when patients receive the appropriate medication or healthcare service and achieve the optimal benefit from those services."

The addition of patient-centered services not only sets you up to survive the future of pharmacy, it also helps nurture patient loyalty. It's one of the few opportunities pharmacists have to meet face-to-face with patients. "You'll have a patient for life once you start immunizing," Feltner said. "It's been a very rewarding experience."

Easy as 1, 2, 3

Many pharmacies don't offer immunizations because the thought of an immunization program is overwhelming. After all, it's a whole new addition that requires you to spend time and money ordering and storing new inventory, marketing new services, and most importantly, fitting it into your already busy workflow.

But Feltner and Schaefer said the difficulty of offering immunizations is a major misconception that keeps too many pharmacies away. In fact, adding an immunization program is really easy, they said.

You simply treat immunizations like prescriptions. When someone asks for an immunization, your process follows just as if they handed you a prescription. You give them a consent form, enter their insurance info, ring them up, and when they get to the front of the queue, the pharmacist brings them to the consultation room and administers the vaccine. "Doing an immunization takes about as much time as filling a new prescription," Schaefer said. "It's like entering a new patient."

Vaccines are ordered from your primary wholesaler (or possibly direct from the manufacturer) and stored in your refrigerator with your insulins and other refrigerated medicine, or they're stored in your freezer. In other words, they fit right in alongside all your other prescription medicines.

But the only way to make the integration seamless is to utilize your employees well. Every part of the process should be conducted by technicians except for reviewing the documentation and administering the vaccine, which doesn't take more than a couple of minutes of the pharmacist's time. If you have a pharmacist who's a recent graduate, consider letting them take the reins. "They've been trained in

college to do this," Schaefer said. "Give it to the youngest one and let them be in charge of it if you trust them."

Feltner suggests starting out slow, with the flu, shingles, and pneumonia vaccines, and working your way up from there. "You can get a vaccine program up and running very, very quickly," he said. He and Schaefer both grew their immunization programs gradually, adding vaccines to their repertoire as patients requested them. She suggests trying to expand your program by 10 percent each year, which she promises is achievable. Eventually you may grow your pharmacy into a complete immunization destination. "It just has a way of continuing to grow if you're doing a good job at it," she said.

Before you get started, reach out to other health providers and public health staff in your community, Rothholz said. "Identify what are their and their patients' needs and challenges related to immunizations that your pharmacy could help address."

Six Steps to Get Your Program Off the Ground

1. Check laws and regulations

2. Get trained and certified

3. Talk to other providers to get buy-in, discover needs, and establish a CPA if necessary

4. Prepare the pharmacy: create a private space, train staff, order supplies, and put a sign on the door

5. Establish workflow

6. Market the service

Potential Challenges

The biggest obstacle to getting an immunization program off the ground will likely be the legal aspect. Although every state allows pharmacists to administer vaccines, scope of authority varies widely. "The variability in what pharmacists can administer is typically dependent upon the age of the patient, the type of antigens or vaccine, and some other procedural modifications," Rothholz said.

In many states, you have to establish standing protocols or collaborative practice agreements to be able to vaccinate. Most states require pharmacists to complete training on pharmacy-based immunizations. Pharmacies and pharmacists can check with their state pharmacy association or state board of

pharmacy to identify the requirements and restrictions related to immunizations before getting started, Rothholz said.

If you need an agreement or protocol, Schaefer recommends coming up with a plan to approach a provider. Choose your provider carefully, maybe starting with the health department. And when you go to make your case, make it all about the patient. "Always, always take the high road," she said. "It's about giving patients easy access to preventive care."

Another potential hurdle you'll want to be ready for is billing. Coverage for vaccines in pharmacies varies from plan to plan, including some under Medicare Part B and others through Part D. Some plans cover the total cost of the vaccine, others require a copay, and others don't cover it at all. If a vaccine is not covered under the patient's pharmacy benefit, Feltner and Schaefer have the patient pay out-of-pocket and self-submit the claim to their medical insurance. However, pharmacies can enroll as a mass-immunization provider and be compensated at the same level as physicians and other providers under Medicare Part B, Rothholz said.

For pharmacies feeling overwhelmed by the thought of starting a program, there are all kinds of resources to help. Start with the APhA's certification program, which has trained more than 340,000 pharmacists. "The program is now considered the gold standard for pharmacy-based immunizations. It's updated, it's in line with CDC recommendations, it's reviewed by immunization experts, and it's recognized by individuals outside of the profession for its quality and content," Rothholz said. In addition, APhA provides access to products and resources to keep up with current recommendations and vaccine information.

For clinical and logistical resources, visit the Immunization Action Coalition (IAC) website (www.immunize.org), which provides protocols, vaccine information statements, consent forms, and a host of other free documents as well as complete guidelines for offering immunizations at the pharmacy. Further resources for everything you need can be found from the APhA, CDC, and the Advisory Committee on Immunization Practices (ACIP).

More Than Profit

One of Feltner's favorite parts of immunizations is the opportunity they provide to interact with patients. It's one of the few things that frees him from behind the counter to get that personal touch.

Same goes for Schaefer. "Doing an immunization, it's a very intimate and private moment," she said. "You actually get to know these patients in a different way than you do transacting over the counter."

Immunizations live in that sweet spot of pharmacy practice where healthier patients and a healthier business meet. Research overwhelmingly shows that when pharmacies vaccinate, uptake increases, outcomes improve, and healthcare costs decrease.

"The more often we vaccinate, the more chances we have to decrease disease," Feltner said. "And that's the whole goal is to vaccinate as many people as we can. And it's a great feeling as a pharmacist to immunize someone against a potentially deadly disease."

20 Tips to Make Your Immunization Program a Profit Center

Maximize your profit by increasing immunization sales with smart strategies from pharmacy owners who have been doing it for decades. Independent pharmacy owner Beverly Schaefer and director of immunization services Marty Feltner provide tens of thousands of immunizations every year, and their independent pharmacies have become immunization destinations. Use these tips compiled from their expertise and current research to get most money from your immunization program.

1. Start the Conversation

Starting the conversation is the most important part of increasing immunizations, Schaefer said. "There's lots of topics that you can choose to start a conversation about immunization—travel, staying healthy, new vaccines. Even if people don't do it right then, it plants a seed in their brain. And it gets word-of-mouth going."

2. Put a Sign on the Door

For Schaefer, a simple sign is the first and most important step in marketing your services. This has been her single most successful strategy for increasing immunizations. On the sign, list all the immunizations you offer. "When we did this, people were totally amazed that we were doing all these shots," she said.

3. Educate Patients

According to the CDC, education remains the largest barrier to immunization coverage. Simply informing patients about the preventable diseases and the vaccines that prevent them is an easy way to increase immunization rates. Use in-store signage, brochures from manufacturers, bag inserts, or a conversation.

4. Make Specific Recommendations

Asking the right patients about the right vaccines will give you a higher conversion rate. That involves identifying eligible patients and recommending the specific vaccine to them directly. For example, if the patient is over 50, simply let them know: Nearly 40 percent of people who have had chickenpox will get shingles. Offer to give them the vaccine right then and there.

5. Target Flu Shot Patients

Patients who get the flu shot have already shown an openness to immunizations, which means they'll be much more inclined to accept further vaccines, according to a 2018 study published in Psychological Science in the Public Interest (PSPI). When patients come in for flu shots, have them fill out an intake form and ask about the last time they received other recommended vaccines.

6. Make Strong Recommendations

The PSPI study also discovered that a strong recommendation from the provider is the single most powerful way to motivate someone to get vaccinated. Instead of asking if they would like the vaccine, tell them they're eligible and that they can get it before they leave the pharmacy.

7. Identify Eligible Patients

Most pharmacy systems allow you to create an alert for patients when their profile matches a vaccine need, which most often is based on age. Feltner relies on his employees to know which patients to look for and when to recommend vaccines. “The big key is to delegate and to train your staff on how to recognize someone who is eligible,” he said. “Train your staff. Train your staff. Train your staff.”

8. Utilize Entire Staff

After a visit to a national chain, Feltner realized how effective it is to have every single staff member, no matter their role, ask patients if they’ve gotten a vaccine. The store’s cashier asked every patient at checkout if they had gotten the flu shot. If they said no, she directed them to the pharmacy. “I thought that was eye opening,” he said. “That’s part of the whole idea of delegating to your entire staff.”

9. Zero Copay Tactic

This trick has been wildly successful for Feltner: He keeps track of which insurance and government plans offer patients a zero copay for a vaccine. Any time his staff sees a patient with one of those plans, they make the recommendation and let the patient know the vaccine is completely free. At that point, it’s an easy sell.

10. Co-administration

Co-administering vaccines can also cause an uptick in vaccinations. Patients will be much more likely to receive multiple immunizations if they get them all in one stop rather than returning at another time. As long as the vaccines don’t have contraindications, you can safely administer multiple vaccines in one visit. Also consider ordering combination vaccines that contain multiple vaccines in one shot, which are even more convenient for patients and reduce your storage costs.

11. Offsite Events

“Pharmacists who are successful in immunizations are not limiting provision of vaccines to the walls of their practice,” said Mitch Rothholz, chief strategy offer at APhA.“They’re going out to businesses and doing immunizations in the community, whether it be an event or in private businesses.” Offsite events not only generate money from vaccines given at the event, they’re also a perfect opportunity to recruit new patients to your pharmacy for good. Good offsite opportunities include school systems, health fairs, local businesses, assisted-living communities, apartment-complex communities, police departments, churches, and colleges.

12. Employer Partnerships

A huge source of immunization revenue for Feltner’s practice site is corporate partnerships. He’s developed relationships with several corporations who send their employees overseas. All of those employees go to Kohll’s Pharmacy for travel immunizations, which usually involve multiple vaccines.

13. On-Air Advertising

Go live on the radio or TV and give flu shots. “Just make it fun,” Feltner said. “The big thing I tell pharmacists is make it fun. Then you’re having fun immunizing and preventing disease.”

14. Helping with Costs

The second biggest barrier to immunizations, according to the CDC, is cost. The agency recommends pharmacies consult with local and state public health vaccination programs to learn about publicly funded programs that could help patients with the cost of vaccines. You can also enroll in the Vaccines for Children Program, which provides pharmacies federally purchased vaccines to fully vaccinate eligible children.

15. Offer Coupons

Take a page from the national chain pharmacies and big-box stores. Give patients a small voucher or coupon to your front end when they get an immunization from you. The profit you earn from them will outweigh the gift.

16. Fax Physicians

After immunizing a patient, Schaefer sends a fax to the provider. The fax includes the entire list of vaccines she offers, with an X next to the vaccine she administered. That way, the physician will know every vaccine she offers and can refer patients to her in the future.

17. Word-of-Mouth

If you offer a top-notch immunization program, your patients and physicians will do the advertising for you. Both Schaefer and Feltner attributed their most successful marketing to word-of-mouth. In fact, Schaefer spends zero dollars on advertising.

18. Answering Machine

Use your answering machine to highlight your immunization services. “When you call my store, it’s ‘Hello, you’ve reached Katterman’s pharmacy, your immunization destination,’” Schaefer said. “That way they’re thinking about immunizations whether they want to or not.”

19. Incentivize Your Pharmacists

Schaefer said the high margins on immunizations allow you to pay a bonus to your pharmacists for each immunization they administer. For an immunization that earns $20, let your pharmacists take two to five bucks of that to give them extra motivation.

20. Travel Tricks

Travel vaccinations come with their own bag of tricks—all of which genuinely help the health of patients.

Hold a consultation with patients to ask where they’re going, review their immunization history, and offer them everything they’ll need.

Use Travax, an online resource, to identify every vaccine a patient will need for the area they’re visiting.

Create a “travel checklist” with OTC items patients may need for the trip, which they can purchase in your front end.

Compile a section in the front end dedicated solely to travel products and walk your patient through it after each consultation. Schaefer said it's not uncommon for patients to spend an extra one to two hundred dollars on her OTC travel products.

Put a sign on your front door: "Are you traveling out of the country? Have you had your hep A, yellow fever, and typhoid shots?"

If a patient comes in asking for a specific travel vaccination, ask where they're traveling. You may be able to offer additional immunizations or travel products.

Get a standing order or collaborative practice agreement to administer prescription travel medicine, like antimalarial drugs.

Source: https://www.pbahealth.com/how-to-make-immunizations-a-pharmacy-profit-center/?fbclid=IwAR2h1fCobBWU8jpQpnjvgx-lF689FxiGmApv9hWrEpgYjd3dOv0t5eA9gdY

From the Magazine

This article was published in our quarterly print magazine, which covers relevant topics in greater depth featuring leading experts in the industry. Subscribe to receive the quarterly print issue in your mailbox. All registered independent pharmacies in the U.S. are eligible to receive a free subscription.

An Independently Owned Organization Serving Independent Pharmacies

PBA Health is dedicated to helping independent pharmacies reach their full potential on the buy side of their business. The company is a member-owned organization that serves independent pharmacies with group purchasing services, expert contract negotiations, proprietary purchasing tools, distribution services, and more.

PBA Health, an HDA member, operates its own VAWD-certified warehouse with more than 6,000 SKUs, including brands, generics, narcotics CII-CV, cold-storage products, and over-the-counter (OTC) products.

The New York Times

How Chaos at Chain Pharmacies Is Putting Patients at Risk

By Ellen Gabler

Jan. 31, 2020

For Alyssa Watrous, the medication mix-up meant a pounding headache, nausea and dizziness. In September, Ms. Watrous, a 17-year-old from Connecticut, was about to take another asthma pill when she realized CVS had mistakenly given her blood pressure medication intended for someone else.

Edward Walker, 38, landed in an emergency room, his eyes swollen and burning after he put drops in them for five days in November 2018 to treat a mild irritation. A Walgreens in Illinois had accidentally supplied him with ear drops — not eye drops.

For Mary Scheuerman, 85, the error was discovered only when she was dying in a Florida hospital in December 2018. A Publix pharmacy had dispensed a powerful chemotherapy drug instead of the antidepressant her doctor had prescribed. She died about two weeks later.

The people least surprised by such mistakes are pharmacists working in some of the nation's biggest retail chains.

In letters to state regulatory boards and in interviews with The New York Times, many pharmacists at companies like CVS, Rite Aid and Walgreens described understaffed and chaotic workplaces where they said it had become difficult to perform their jobs safely, putting the public at risk of medication errors.

They struggle to fill prescriptions, give flu shots, tend the drive-through, answer phones, work the register, counsel patients and call doctors and insurance companies, they said — all the while racing to meet corporate performance metrics that they characterized as unreasonable and unsafe in an industry squeezed to do more with less.

"I am a danger to the public working for CVS," one pharmacist wrote in an anonymous letter to the Texas State Board of Pharmacy in April.

"The amount of busywork we must do while verifying prescriptions is absolutely dangerous," another wrote to the Pennsylvania board in February. "Mistakes are going to be made and the patients are going to be the ones suffering."

State boards and associations in at least two dozen states have heard from distraught pharmacists, interviews and records show, while some doctors complain that pharmacies bombard them with requests for refills that patients have not asked for and should not receive. Such refills are closely tracked by pharmacy chains and can factor into employee bonuses.

Michael Jackson, chief executive of the Florida Pharmacy Association, said the number of complaints from members related to staffing cuts and worries about patient safety had become "overwhelming" in the past year.

The American Psychiatric Association is particularly concerned about CVS, America's eighth-largest company, which it says routinely ignores doctors' explicit instructions to dispense limited amounts of

medication to mental health patients. The pharmacy's practice of providing three-month supplies may inadvertently lead more patients to attempt suicide by overdosing, the association said.

"Clearly it is financially in their best interest to dispense as many pills as they can get paid for," said Dr. Bruce Schwartz, a psychiatrist in New York and the group's president.

A spokesman for CVS said it had created a system to address the issue, but Dr. Schwartz said complaints persisted.

Regulating the chains — five rank among the nation's 100 largest companies — has proved difficult for state pharmacy boards, which oversee the industry but sometimes allow company representatives to hold seats. Florida's nine-member board, for instance, includes a lawyer for CVS and a director of pharmacy affairs at Walgreens.

Aside from creating potential conflicts of interest, the industry presence can stifle complaints. "We are afraid to speak up and lose our jobs," one pharmacist wrote anonymously last year in response to a survey by the Missouri Board of Pharmacy. "PLEASE HELP."

Officials from several state boards told The Times they had limited authority to dictate how companies ran their businesses. Efforts by legislatures in California and elsewhere have been unsuccessful in substantially changing how pharmacies operate.

A majority of state boards do not require pharmacies to report errors, let alone conduct thorough investigations when they occur. Most investigations focus on pharmacists, not the conditions in their workplaces.

In public meetings, boards in at least two states have instructed pharmacists to quit or speak up if they believe conditions are unsafe. But pharmacists said they feared retaliation, knowing they could easily be replaced.

The industry has been squeezed amid declining drug reimbursement rates and cost pressures from administrators of prescription drug plans. Consolidation, meanwhile, has left only a few major players. About 70 percent of prescriptions nationwide are dispensed by chain drugstores, supermarkets or retailers like Walmart, according to a 2019 Drug Channels Institute report.

CVS garners a quarter of the country's total prescription revenue and dispenses more than a billion prescriptions a year. Walgreens captures almost 20 percent. Walmart, Kroger and Rite Aid fall next in line among brick-and-mortar stores.

In statements, the pharmacy chains said patient safety was of utmost concern, with staffing carefully set to ensure accurate dispensing. Investment in technology such as e-prescribing has increased safety and efficiency, the companies said. They denied that pharmacists were under extreme pressure or faced reprisals.

"When a pharmacist has a legitimate concern about working conditions, we make every effort to address that concern in good faith," CVS said in a statement. Walgreens cited its confidential employee hotline and said it made "clear to all pharmacists that they should never work beyond what they believe is advisable."

Errors, the companies said, were regrettable but rare; they declined to provide data about mistakes.

The National Association of Chain Drug Stores, a trade group, said that "pharmacies consider even one prescription error to be one too many" and "seek continuous improvement." The organization said it was wrong to "assume cause-effect relationships" between errors and pharmacists' workload.

The specifics and severity of errors are nearly impossible to tally. Aside from lax reporting requirements, many mistakes never become public because companies settle with victims or their families, often requiring a confidentiality agreement. A CVS form for staff members to report errors asks whether the patient is a "media threat," according to a photo provided to The Times. CVS said in a statement it would not provide details on what it called its "escalation process."

The last comprehensive study of medication errors was over a decade ago: The Institute of Medicine estimated in 2006 that such mistakes harmed at least 1.5 million Americans each year.

Jonathan Lewis said he waited on hold with CVS for 40 minutes last summer, after discovering his antidepressant prescription had been refilled with another drug.

Mr. Lewis, 47, suspected something was wrong when he felt short of breath and extremely dizzy. Looking closely at the medication — and turning to Google — he figured out it was estrogen, not an antidepressant, which patients should not abruptly quit.

"It was very apparent they were very understaffed," Mr. Lewis said, recalling long lines inside the Las Vegas store and at the drive-through when he picked up the prescription.

Too Much, Too Fast

The day before Wesley Hickman quit his job as a pharmacist at CVS, he worked a 13-hour shift with no breaks for lunch or dinner, he said.

As the only pharmacist on duty that day at the Leland, N.C., store, Dr. Hickman filled 552 prescriptions — about one every minute and 25 seconds — while counseling patients, giving shots, making calls and staffing the drive-through, he said. Partway through his shift the next day, in December 2018, he called his manager.

"I said, 'I am not going to work in a situation that is unsafe.' I shut the door and left," said Dr. Hickman, who now runs an independent pharmacy.

Dr. Hickman felt that the multitude of required tasks distracted from his most important jobs: filling prescriptions accurately and counseling patients. He had begged his district manager to schedule more pharmacists, but the request was denied, he said.

CVS said it could not comment on the "individual concerns" of a former employee.

With nearly 10,000 pharmacies across the country, CVS is the largest chain and among the most aggressive in imposing performance metrics, pharmacists said. Both CVS and Walgreens tie bonuses to achieving them, according to company documents.

Nearly everything is tracked and scrutinized: phone calls to patients, the time it takes to fill a prescription, the number of immunizations given, the number of customers signing up for 90-day supplies of medication, to name a few.

The fact that tasks are being tracked is not the problem, pharmacists say, as customers can benefit from services like reminders for flu shots and refills. The issue is that employees are heavily evaluated on hitting targets, they say, including in areas they cannot control.

In Missouri, dozens of pharmacists said in a recent survey by the state board that the focus on metrics was a threat to patient safety and their own job security.

“Metrics put unnecessary pressure on pharmacy staff to fill prescriptions as fast as possible, resulting in errors,” one pharmacist wrote.

Of the nearly 1,000 pharmacists who took the survey, 60 percent said they “agree” or “strongly agree” that they “feel pressured or intimidated to meet standards or metrics that may interfere with safe patient care.” About 60 percent of respondents worked for retail chains, as opposed to hospitals or independent pharmacies.

Surveys in Maryland and Tennessee revealed similar concerns.

The specific goals are not made public, and can vary by store, but internal CVS documents reviewed by The Times show what was expected in some locations last year.

Staff members were supposed to persuade 65 percent of patients picking up prescriptions to sign up for automatic refills, 55 percent to switch to 90-day supplies from 30-day, and 75 percent to have the pharmacy contact their doctor with a “proactive refill request” if a prescription was expiring or had no refills, the documents show.

Pharmacy staff members are also expected to call dozens of patients each day, based on a computer-generated list. They are assessed on the number of patients they reach, and the number who agree to their requests.

Representatives from CVS and Walgreens said metrics were meant to provide better patient care, not penalize pharmacists. Some are related to reimbursements to pharmacies by insurance companies and the government. CVS said it had halved its number of metrics over the past 18 months.

But dozens of pharmacists described the emphasis on metrics as burdensome, and said they faced backlash for failing to meet the goals or suggesting they were unrealistic or unsafe.

“Any dissent perceived by corporate is met with a target placed on one’s back,” an unnamed pharmacist wrote to the South Carolina board last year.

In comments to state boards and interviews with The Times, pharmacists explained how staffing cuts had led to longer shifts, often with no break to use the restroom or eat.

“I certainly make more mistakes,” another South Carolina pharmacist wrote to the board. “I had two misfills in three years with the previous staffing and now I make 10-12 per year (that are caught).”

Much of the blame for understaffing has been directed at pressure from companies that manage drug plans for health insurers and Medicare.

Acting as middlemen between drug manufacturers, insurers and pharmacies, the companies — known as pharmacy benefit managers, or P.B.M.s — negotiate prices and channel to pharmacies the more than $300 billion spent on outpatient prescription drugs in the United States annually.

The benefit managers charge fees to pharmacies, and have been widely criticized for a lack of transparency and applying fees inconsistently. In a letter to the Department of Health and Human Services in September, a bipartisan group of senators noted an "extraordinary 45,000 percent increase" in fees paid by pharmacies from 2010 to 2017.

While benefit managers have caused economic upheaval in the industry, some pharmacy chains are players in that market too: CVS Health owns CVS Caremark, the largest benefit manager; Walgreens Boots Alliance has a partnership with Prime Therapeutics; Rite Aid owns a P.B.M., too.

The Pharmaceutical Care Management Association, the trade group representing benefit managers, contends that they make prescriptions more affordable, and pushes back against the notion that P.B.M.s are responsible for pressures on pharmacies, instead of a competitive market.

Falling Through the Cracks

Dr. Mark Lopatin, a rheumatologist in Pennsylvania, says he is inundated with refill requests for almost every prescription he writes. At times Dr. Lopatin prescribes drugs intended only for a brief treatment — a steroid to treat a flare-up of arthritis, for instance.

But within days or weeks, he said, the pharmacy sends a refill request even though the prescription did not call for one. Each time, his office looks at the patient's chart to confirm the request is warranted. About half are not, he said.

Aside from creating unnecessary work, Dr. Lopatin believes, the flood of requests poses a safety issue. "When you are bombarded with refill after refill, it's easy for things to fall through the cracks, despite your best efforts," he said.

Pharmacists told The Times that many unwanted refill requests were generated by automated systems designed in part to increase sales. Others were the result of phone calls from pharmacists, who said they faced pressure to reach quotas.

In February, a CVS pharmacist wrote to the South Carolina board that cold calls to doctors should stop, explaining that a call was considered "successful" only if the doctor agreed to the refill.

"What this means is that we are overwhelming doctor's office staff with constant calls, and patients are often kept on medication that is unneeded for extended periods of time," the pharmacist wrote.

CVS says outreach to patients and doctors can help patients stay up-to-date on their medications, and lead to lower costs and better health.

Dr. Rachel Poliquin, a psychiatrist in North Carolina who says she constantly gets refill requests, estimates that about 90 percent of her patients say they never asked their pharmacy to contact her.

While Dr. Poliquin has a policy that patients must contact her directly for more medication, she worries about clinics where prescriptions may get rubber-stamped in a flurry of requests. Then patients — especially those who are elderly or mentally ill — may continue taking medication unnecessarily, she said.

The American Psychiatric Association has been trying to tackle a related problem after hearing from members that CVS was giving patients larger supplies of medication than doctors had directed.

While it is common for pharmacies to dispense 90 days' worth of maintenance medications — to treat chronic conditions like high blood pressure or diabetes — doctors say it is inappropriate for other drugs.

For example, patients with bipolar disorder are often prescribed lithium, a potentially lethal drug if taken in excess. It is common for psychiatrists to start a patient on a low dose or to limit the number of pills dispensed at once, especially if the person is considered a suicide risk.

But increasingly, the psychiatric association has heard from members that smaller quantities specified on prescriptions are being ignored, particularly by CVS, according to Dr. Schwartz, the group's president.

CVS has created a system where doctors can register and request that 90-day supplies not be dispensed to their patients. But doctors report that the registry has not solved the problem, Dr. Schwartz said. In a statement, CVS said it continued to "refine and enhance" the program.

Dr. Charles Denby, a psychiatrist in Rhode Island, became so concerned by the practice that he started stamping prescriptions, "AT MONTHLY INTERVALS ONLY." Despite those explicit instructions, Dr. Denby said, he received faxes from CVS saying his patients had asked for — and been given — 90-day supplies.

Dr. Denby, who retired in December, said it was a "baldfaced lie" that the patients had asked for the medication, providing statements from patients saying as much.

"I am disgusted with this," said Dr. Denby, who worries that patients may attempt suicide with excess medication. "There are going to be people dead only because they have enough medication to do the deed with."

'We Already Have Systems in Place'

Alton James never learned how the mistake came about that he says killed his 85-year-old mother, Mary Scheuerman, in 2018.

He knows he picked up her prescription at the pharmacy in a Publix supermarket in Lakeland, Fla. He knows he gave her a pill each morning. He knows that after six days, she turned pale, her blood pressure dropped and she was rushed to the hospital.

Mary Scheuerman died in December 2018 after taking a powerful chemotherapy drug mistakenly dispensed by a Publix pharmacy. Her son said she was supposed to have received an antidepressant.

Mr. James remembers a doctor telling him his mother's blood had a toxic level of methotrexate, a drug often used to treat cancer. But Mrs. Scheuerman didn't have cancer. She was supposed to be taking an antidepressant. Mr. James said a pharmacy employee later confirmed that someone had mistakenly dispensed methotrexate.

Five days after entering the hospital, Mrs. Scheuerman died, with organ failure listed as the lead cause, according to medical records cited by Mr. James.

The Institute for Safe Medication Practices has warned about methotrexate, listing it as a "high-alert medication" that can be deadly when taken incorrectly. Mr. James reported the pharmacy's error to the group, writing that he wanted to raise awareness about the drug and push Publix, one of the country's largest supermarket chains, to "clean up" its pharmacy division, according to a copy of his report provided to The Times.

The company acknowledged the mistake and offered a settlement, Mr. James wrote, but would not discuss how to avoid future errors, saying, “We already have systems in place.”

Last September, Mr. James told The Times that Publix wanted him to sign a settlement agreement that would prevent him from speaking further about his mother’s death. Mr. James has since declined to comment, saying that the matter was “amicably resolved.”

A spokeswoman for Publix said privacy laws prevented the company from commenting on specific patients.

It can be difficult for patients and their families to decide whether to accept a settlement.

Last summer, CVS offered to compensate Kelsey and Donavan Sullivan after a pediatrician discovered the reflux medication they had been giving their 4-month-old for two months was actually a steroid. To be safely weaned, the baby had to keep taking it for two weeks after the error was discovered.

“It was like he was coming out of a fog,” Mrs. Sullivan recalled.

The couple, from Minnesota, are still considering a settlement but haven’t agreed to anything because they don’t know what long-term consequences their son might face.

The kinds of errors and how they occur vary considerably.

The paper stapled to a CVS bag containing medication for Ms. Watrous, the Connecticut teenager with asthma, listed her correct name and medication, but the bottle inside had someone else’s name.

Directions on the prescription for Mr. Walker, the Illinois man who got ear drops instead of eye drops from Walgreens, were clear: “Instill 1 drop in both eyes every 6 hours.” He later saw the box: “For use in ears only.”

In September, Stefanie Davis, 31, got the right medicine, Adderall, but the wrong dose. She pulled over on the interstate after feeling short of breath and dizzy with blurred vision. The pills, dispensed by a Walgreens in Sun City Center, Fla., were each 30 milligrams instead of her usual 20. She is fighting with Walgreens to cover a $900 bill for her visit to an emergency room.

Fixes That Fall Short

State boards and legislatures have wrestled with how to regulate the industry. Some states have adopted laws, for instance introducing mandatory lunch breaks or limiting the number of technicians a pharmacist can supervise.

But the laws aren’t always followed, can be difficult to enforce or can fail to address broader problems.

The National Association of Chain Drug Stores says some state boards are blocking meaningful change. The group, for instance, wants to free up pharmacists from some tasks by allowing technicians, who have less training, to do more.

It also supports efforts to change the insurance reimbursement model for pharmacies. Health care services provided by pharmacists to patients, such as prescribing birth control, are not consistently covered by insurers or allowed in all states. But it has been difficult to find consensus to change federal and state regulations.

While those debates continue, some state boards are trying to hold companies more accountable.

Often when an error is reported to a board, action is taken against the pharmacist, an obvious target. It is less common for a company to be scrutinized.

The South Carolina board discussed in November how to more thoroughly investigate conditions after a mistake. It also published a statement discouraging quotas and encouraging "employers to value patient safety over operational efficiency and financial targets."

California passed a law saying no pharmacist could be required to work alone, but it has been largely ignored since taking effect last year, according to leaders of a pharmacists' union. The state board is trying to clarify the law's requirements.

In Illinois, a new law requires breaks for pharmacists and potential penalties for companies that do not provide a safe working environment. The law was in response to a 2016 Chicago Tribune investigation revealing that pharmacies failed to warn patients about dangerous drug combinations.

Some states are trying to make changes behind closed doors. After seeing results of its survey last year, the Missouri board invited companies to private meetings early this year to answer questions about errors, staffing and patient safety.

CVS and Walgreens said they would attend.

Research was contributed by Susan C. Beachy, Jack Begg, Alain Delaquérière and Sheelagh McNeill.

Ellen Gabler is an investigative reporter for The New York Times. @egabler

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Maryland Chapter
American Academy of Pediatrics
Speaking for Maryland Kids!

TO: The Honorable Paul G. Pinsky, Chair
Members, Senate Education, Health, and Environmental Affairs Committee
The Honorable Malcolm Augustine

FROM: Pamela Metz Kasemeyer
J. Steven Wise
Danna L. Kauffman
Richard A. Tabuteau

DATE: February 13, 2020

RE: **OPPOSE** – Senate Bill 355 – *Health Occupations – Pharmacists – Administration of Vaccinations*

On behalf of the Maryland State Medical Society (MedChi) and the Maryland Chapter of the American Academy of Pediatrics (MDAAP), we submit this letter of **opposition** for Senate Bill 355.

Senate Bill 355 authorizes a pharmacist to administer a vaccination listed in the U.S. Centers for Disease Control and Prevention's (CDC) recommended immunization schedule to minors age 9 and older without a prescription. Current law permits a pharmacist to administer a vaccination to a minor age 11 and older only with a prescription from an authorized prescriber. CDC's 2019 recommended immunization schedule for persons 7 through 18 years old includes vaccinations for diphtheria, tetanus, and acellular pertussis (DTap); diphtheria and tetanus (DT); haemophilus influenza type B; hepatitis A; hepatitis B; human papillomavirus (HPV); influenza; measles, mumps, and rubella (MMR); meningococcal; pneumococcal; poliovirus; tetanus, diphtheria, and acellular pertussis (Tdap); tetanus and diphtheria (Td); and varicella.

Immunizations are an integral component of the delivery of pediatric services. Vaccines are essential to the health and well-being of our children and to the public health of the community. Maryland has an outstanding record of immunization rates, one of the highest in the country, and while there is always room for improvement, there is no evidence that children now face access challenges for vaccines. Senate Bill 355 is not necessary to meet an unmet need and may have unintended negative consequences for the health of adolescents.

Fragmentation of comprehensive medical care will be the outcome of the implementation of this legislation. There is a continuing and appropriate push to create "medical homes" and enhance the coordinated provision of comprehensive services with a focus on prevention, Senate Bill 355 moves in the opposite direction. A pharmacist will have no access to information about the child, no awareness of health conditions that may place the child at risk for the immunization, such as allergy or asthma and no means to know if there are other services that a child needs that will not be provided because a parent believes immunizations were the only service a child required.

Pediatricians regularly use visits scheduled for immunizations to provide other critical preventative services. Parents often do not schedule visits for routine well-child care but may bring their child to the office

for vaccines. At those visits a pediatrician will often provide additional services such as developmental screenings, hearing and vision assessments, or counseling and updates on management of chronic health concerns like asthma and obesity. With the added focus on behavioral health challenges faced by adolescents, as well as the recognition that sexual activity may also commence during adolescence, those visits also provide an opportunity for pediatric providers to screen for and discuss those issues with the adolescent. If a parent can simply take a child to a pharmacy for a vaccine, the opportunity for more comprehensive care will be lost. The fragmentation of care that will result from Senate Bill 355 will ultimately produce poorer outcomes and increased health care expenditures.

Furthermore, Immunet, the database that provides information on what immunizations have been administered is continually improving as a reliable tool, but it is still not without technical complications and lacks complete information. While all pharmacists and providers are to enter all immunizations administered into Immunet, the database does not always reflect data entered and/or compliance with the mandate to report is not consistently adhered to. Aside from the arguments already raised, it is strongly recommended that before any consideration be given to authorize pharmacists to administer immunizations to minors without a prescription that functionality and completeness of Immunet be addressed collectively by all affected stakeholders. Absent a reliable and comprehensive database, a provider would not know if a minor received a vaccination from a pharmacist and parents' knowledge and recollection of what has been administered is not always complete, again leading to a fragmentation of the delivery of preventative care.

Senate Bill 355 is a solution in search of a problem. Its enactment will only create problems, not address deficiencies in the current provision of immunizations for children. The focus should be shifted to enhance and improve Immunet. An unfavorable report is requested.

For more information call:
Pamela Metz Kasemeyer
J. Steven Wise
Danna L. Kauffman
Richard A. Tabuteau
410-244-7000

LoSchiavo_OPP_SB0355.pdf
Uploaded by: loschiavo, heather
Position: UNF

SB355: Health Occupations - Pharmacists - Administration of Vaccinations
Heather LoSchiavo
Oppose

Please reject the bill SB 355 to have pharmacists administer vaccines.

There are repeated data reports showing that due to working conditions, pharmacists make countless errors providing the wrong pills to customers which has resulted in death. If they do not have the time in their day to double-check the pill number and do their due diligence to keep people safe in their primary role, then how then are they supposed to fit in even more extra time to make sure customers are safe and have no contraindications to receive certain vaccines? Are they then also supposed to take time in their day to provide follow up and make sure there are no adverse effects like a doctor's office traditionally does?

And I call them "customers" rather than patients because that is what they are. They are customers of the store where the pharmacist works to dispense medication, they are not patients who have a trusted relationship with their healthcare provider.

Additionally, they are granted only a small glimpse into the medical condition of their customers. A pharmacist won't know if a patient has infectious diseases. When a patient is injected with a needle to provide a vaccine there are minuscule droplets of blood that are introduced to that environment. Even if they are wiped away and thrown into the trash can, let's be honest.

The traditional Pharmacy these days are ones like a CVS or are set up inside a grocery store. They are not a sterile, contained environment that is cleaned between patients. Usually there is a case of food or products for sale or right beside the place they are already giving flu shots. That is both disgusting and unsanitary. Please vote against allowing pharmacists to administer vaccines, including flu shots. Let doctors remain in control of administering vaccines.

Thank you.
Heather LoSchiavo
Hagerstown, MD

Parenteau_OPP_SB0355.pdf
Uploaded by: parenteau, tom
Position: UNF

SB355: Health Occupations - Pharmacists - Administration of Vaccinations
Tom Parenteau
Oppose

I am writing to you in opposition of HB530/SB355. These bills would put our children at risk needlessly. My own child is fully vaccinated. Her mother and I made those decisions with the support of our family doctor.

I don't believe pharmacists (who are not trained in assessing for vaccinations, and who do not possess the child's medical history) are best equipped to vaccinate without a prescription from the child's doctor (who does know the child's medical health history).

I am also concerned that a push for allowing teenage children to consent to vaccines is a push for Gardasil clinics. This is a senseless attempt to endanger our children and remove parental rights.

Thank you,
Tom Parenteau
Denton, MD

Rauhofer_OPP_SB0355.pdf
Uploaded by: rauhofer, jennifer
Position: UNF

SB355: Health Occupations - Pharmacists - Administration of Vaccinations
Jennifer Rauhofer
Oppose

I am writing to you as a concerned parent about removing the need for a child to have a prescription from a doctor to get certain vaccinations. I firmly believe that the best outcomes for the health of children are achieved when parent and doctors work together on behalf of the child. Pharmacists are not trained in the assessment of a child before vaccination. This is why current law includes the need for a prescription from a physician. If a child has a history of adverse reactions to vaccinations or other medical conditions that a physician would not recommend administering a vaccine at that time, this would not be known by the pharmacist.

Adverse reactions happen frequently enough that the National Vaccine Injury Compensation Act (NCVIA) was created in 1986. To date, approximately $4 billion dollars have been paid out through the NCVIA.

I plead with you to consider the consequences of eliminating the need for a prescription from a physician to get a vaccine. As a concerned parent, I firmly believe in the importance of the doctor/patient relationship.

Jennifer Rauhofer

District 42B

Stoklosa_OPP_SB0355.pdf
Uploaded by: stoklosa, margaret
Position: UNF

SB355: Health Occupations - Pharmacists - Administration of Vaccinations
Margaret Stoklosa
Opposed

As a parent who wants the best health outcomes for my children, I am opposed to bills HB530/SB355.

Pharmacists are individuals trained to dispense drugs, not make determinations whether a drug is necessary or not. Vaccines are drugs - they are controlled substances and not candy. Administration of these drugs should be done under a strict parent/physician relationship and not a haphazard approach. These substances require a full medical evaluation and pharmacists are not trained to provide this service.

More and more pharmacies are also marketing vaccines as lead magnets - providing incentives to consumers to come in and have one. They are treating vaccines as cash cows for their “business”. The health of myself and my children is not a business and the way we have been treating the dispersal of vaccines is appalling.

As a society we are trending towards a slippery slope. We are undermining the physician relationship and providing incentives where they should not exist. Instead of education, we are pushing the will of money-making organizations down unknowing consumers’ throats.

As lawmakers, you should be the first line of defense for consumers. I urge you to take the ethical high road and oppose these bills.

Thank you,
Margaret Stoklosa
Gaithersburg, MD

Emily Tarsell_UNF_SB0355
Uploaded by: Tarsell, Emily
Position: UNF

Emily Tarsell, LCPC, LCPAT

2314 Benson Mill Road
Sparks, Maryland 21152

February 2020

Oppose HB 530 / SB 355

I am Emily Tarsell, mother and therapist and I oppose this bill which would lower the age from 11 to 9 years for a child to receive Gardasil, an HPV vaccine, from a pharmacist. Gardasil is for antibodies against sexually transmitted viruses, something that a 9 year old will likely not be exposed to for another 8 to 12 years. The effectiveness of the vaccine has not been demonstrated to be long lasting, especially for this age group. According to the package insert, "The duration of immunity following …. vaccination with GARDASIL 9 has not been established" and the "Effectiveness of GARDASIL 9 against persistent infection… in 9- through 14-year-old girls and boys ...was *inferred*." Also, the number of boys and girls in clinical trials between 9 and 14 was very small, only 300 of each. The benefit of the vaccine to a 9 year old is thus highly speculative and unsupported by data.

HPVs are transmitted sexually, not in school settings or public places and not among pre-teens. Those marketing the vaccine like to say that pre-teens have a more "robust" response to Gardasil 9 as though that were a good thing. Robust can be a euphemism for strongly reactive to the injection of a neurotoxic, inflammatory, aluminum adjuvant which is associated with neurological disorders and brain inflammation. The sample size of preteens in clinical trials is too small to assess safety and the so-called "control" group in clinical trials did not get a true placebo.

The CDC itself has said that the adverse event reports for Gardasil are 3x greater than that for all other vaccines combined. These include seizures, debilitating headaches, paralysis, joint and muscle pain, autoimmune disorders, extreme fatigue, arrhythmia, hair loss, ovarian failure, gut and sleep disorders, and even cervical cancer and death. I know of an 11 year old, Jenny, who died after Gardasil inoculation. My own daughter, Christina, died 12 years ago from Gardasil. And yes, our experts proved it and the government conceded in the vaccine court that Gardasil caused her death.

Why on Earth would one offer a 9 yo a vaccine which poses significant risk of harm with no proven benefit? Please veto this bill. While it might be good for industry and provider profits, it is bad for children's health.

Christina and I thank you.
EmilyTarsell
www.gardasil-and-unexplained-deaths.com
tarsell@comcast.net

Table 19: Summary of Month 7 Anti-HPV cLIA Geometric Mean Titers in the PPI* Population of Boys and Men

Population	N†	n‡	% Seropositive (95% CI)	GMT (95% CI) mMU§/mL
Anti-HPV 6				
9- through 15-year-old boys	1072	884	99.9 (99.4, 100.0)	1037.5 (963.5, 1117.3)
16- through 26-year-old boys and men	2026	1093	98.9 (98.1, 99.4)	447.8 (418.9, 478.6)
Anti-HPV 11				
9- through 15-year-old boys	1072	885	99.9 (99.4, 100.0)	1386.8 (1298.5, 1481.0)
16- through 26-year-old boys and men	2026	1093	99.2 (98.4, 99.6)	624.3 (588.4, 662.3)
Anti-HPV 16				
9- through 15-year-old boys	1072	882	99.8 (99.2, 100.0)	6056.5 (5601.3, 6548.7)
16- through 26-year-old boys and men	2026	1136	98.8 (97.9, 99.3)	2403.3 (2243.4, 2574.6)
Anti-HPV 18				
9- through 15-year-old boys	1072	887	99.8 (99.2, 100)	1357.4 (1249.4, 1474.7)
16- through 26-year-old boys and men	2026	1175	97.4 (96.3, 98.2)	402.6 (374.6, 432.7)

*The PPI population consisted of individuals who received all 3 vaccinations within pre-defined day ranges, did not have major deviations from the study protocol, met predefined criteria for the interval between the Month 6 and Month 7 visit, and were naïve (PCR negative and seronegative) to the relevant HPV type(s) (types 6, 11, 16, and 18) prior to dose 1 and through 1 month Postdose 3 (Month 7).
†Number of individuals randomized to the respective vaccination group who received at least 1 injection.
‡Number of individuals contributing to the analysis.
cLIA = Competitive Luminex Immunoassay
CI = Confidence Interval
GMT = Geometric Mean Titers
§mMU = milli-Merck Units

Table 20: Persistence of Anti-HPV cLIA Geometric Mean Titers in 9- Through 45-Year-Old Girls and Women

Assay (cLIA)/ Time Point	9- to 15-Year-Old Girls (N* = 1122)		16- to 26-Year-Old Girls and Women (N* = 9859)		27- to 34-Year-Old Women (N* = 667)		35- to 45-Year-Old Women (N* = 957)	
	n[†]	GMT (95% CI) mMU[‡]/mL	n[†]	GMT (95% CI) mMU[‡]/mL	n[†]	GMT (95% CI) mMU[‡]/mL	n[†]	GMT (95% CI) mMU[‡]/mL
Anti-HPV 6								
Month 07	917	929.2 (874.6, 987.3)	3329	545.0 (530.1, 560.4)	439	435.6 (393.4, 482.4)	644	397.3 (365.2, 432.2)
Month 24	214	156.1 (135.6, 179.6)	2788	109.1 (105.2, 113.1)	421	70.7 (63.8, 78.5)	628	69.3 (63.7, 75.4)
Month 36[§]	356	129.4 (115.6, 144.8)	-	-	399	79.5 (72.0, 87.7)	618	81.1 (75.0, 87.8)
Month 48[¶]	-	-	2514	73.8 (70.9, 76.8)	391	58.8 (52.9, 65.3)	616	62.0 (57.0, 67.5)
Anti-HPV 11								
Month 07	917	1304.6 (1224.7, 1389.7)	3353	748.9 (726.0, 772.6)	439	577.9 (523.8, 637.5)	644	512.8 (472.9, 556.1)
Month 24	214	218.0 (188.3, 252.4)	2817	137.1 (132.1, 142.3)	421	79.3 (71.5, 87.8)	628	73.4 (67.4, 79.8)
Month 36[§]	356	148.0 (131.1, 167.1)	-	-	399	81.8 (74.3, 90.1)	618	77.4 (71.6, 83.6)
Month 48[¶]	-	-	2538	89.4 (85.9, 93.1)	391	67.4 (60.9, 74.7)	616	62.7 (57.8, 68.0)
Anti-HPV 16								
Month 07	915	4918.5 (4556.6, 5309.1)	3249	2409.2 (2309.0, 2513.8)	435	2342.5 (2119.1, 2589.6)	657	2129.5 (1962.7, 2310.5)
Month 24	211	944.2 (804.4, 1108.3)	2721	442.6 (425.0, 460.9)	416	285.9 (254.4, 321.2)	642	271.4 (247.1, 298.1)
Month 36[§]	353	642.2 (562.8, 732.8)	-	-	399	291.5 (262.5, 323.8)	631	276.7 (254.5, 300.8)
Month 48[¶]	-	-	2474	326.2 (311.8, 341.3)	394	211.8 (189.5, 236.8)	628	192.8 (176.5, 210.6)
Anti-HPV 18								
Month 07	922	1042.6 (967.6, 1123.3)	3566	475.2 (458.8, 492.1)	501	385.8 (347.6, 428.1)	722	324.6 (297.6, 354.0)
Month 24	214	137.7 (114.8, 165.1)	3002	50.8 (48.2, 53.5)	478	31.8 (28.1, 36.0)	705	26.0 (23.5, 28.8)
Month 36[§]	357	87.0 (74.8, 101.2)	-	-	453	32.1 (28.5, 36.3)	689	27.0 (24.5, 29.8)
Month 48[¶]	-	-	2710	33.2 (31.5, 35.0)	444	25.2 (22.3, 28.5)	688	21.2 (19.2, 23.4)

*N = Number of individuals randomized in the respective group who received at least 1 injection.
[†]n = Number of individuals in the indicated immunogenicity population.
[‡]mMU = milli-Merck Units
[§]Month 37 for 9- to 15-year-old girls. No serology samples were collected at this time point for 16- to 26-year-old girls and women.
[¶]Month 48/End-of-study visits for 16- to 26-year-old girls and women were generally scheduled earlier than Month 48. Mean visit timing was Month 44. The studies in 9- to 15-year-old girls were planned to end prior to 48 months and therefore no serology samples were collected.
cLIA = Competitive Luminex Immunoassay
CI = Confidence Interval
GMT = Geometric Mean Titers

Table 21: Persistence of Anti-HPV cLIA Geometric Mean Titers in 9- Through 26-Year-Old Boys and Men

Assay (cLIA)/ Time Point	9- to 15-Year-Old Boys (N* = 1072)		16- to 26-Year-Old Boys and Men (N* = 2026)	
	n[†]	GMT (95% CI) mMU[‡]/mL	n[†]	GMT (95% CI) mMU[‡]/mL
Anti-HPV 6				
Month 07	884	1037.5 (963.5, 1117.3)	1094	447.2 (418.4, 477.9)
Month 24	323	134.1 (119.5, 150.5)	907	80.3 (74.9, 86.0)
Month 36[§]	342	126.6 (111.9, 143.2)	654	72.4 (68.0, 77.2)
Month 48[¶]	-	-	-	-
Anti-HPV 11				
Month 07	885	1386.8 (1298.5, 1481.0)	1094	624.5 (588.6, 662.5)
Month 24	324	188.5 (168.4, 211.1)	907	94.6 (88.4, 101.2)
Month 36[§]	342	148.8 (131.1, 169.0)	654	80.3 (75.7, 85.2)
Month 48[¶]	-	-	-	-
Anti-HPV 16				
Month 07	882	6056.5 (5601.4, 6548.6)	1137	2401.5 (2241.8, 2572.6)
Month 24	322	938.2 (825.0, 1067.0)	938	347.7 (322.5, 374.9)
Month 36[§]	341	708.8 (613.9, 818.3)	672	306.7 (287.5, 327.1)
Month 48[¶]	-	-	-	-
Anti-HPV 18				
Month 07	887	1357.4 (1249.4, 1474.7)	1176	402.6 (374.6, 432.6)
Month 24	324	131.9 (112.1, 155.3)	967	38.7 (35.2, 42.5)
Month 36[§]	343	113.0 (94.7, 135.0)	690	33.4 (30.9, 36.1)
Month 48[¶]	-	-	-	-

*N = Number of individuals randomized in the respective group who received at least 1 injection.
[†]n = Number of individuals in the indicated immunogenicity population.
[‡]mMU = milli-Merck Units
[§]Month 36 time point for 16- to 26-year-old boys and men; Month 37 for 9- to 15-year-old boys.
[¶]The studies in 9- to 15-year-old boys and girls and 16- to 26-year-old boys and men were planned to end prior to 48 months and therefore no serology samples were collected.
cLIA = Competitive Luminex Immunoassay
CI = Confidence Interval
GMT = Geometric Mean Titers

Tables 18 and 19 display the Month 7 immunogenicity data for girls and women and boys and men. Anti-HPV responses 1 month postdose 3 among 9- through 15-year-old adolescent girls were non-inferior to anti-HPV responses in 16- through 26-year-old girls and women in the combined database of immunogenicity studies for GARDASIL. Anti-HPV responses 1 month postdose 3 among 9- through 15-year-old adolescent boys were non-inferior to anti-HPV responses in 16- through 26-year-old boys and men in Study 5.

On the basis of this immunogenicity bridging, the efficacy of GARDASIL in 9- through 15-year-old adolescent girls and boys is inferred.

GMT Response to Variation in Dosing Regimen in 18- Through 26-Year-Old Women

Girls and women evaluated in the PPE population of clinical studies received all 3 vaccinations within 1 year of enrollment. An analysis of immune response data suggests that flexibility of ±1 month for Dose 2 (i.e., Month 1 to Month 3 in the vaccination regimen) and flexibility of ±2 months for Dose 3 (i.e., Month 4 to Month 8 in the vaccination regimen) do not impact the immune responses to GARDASIL.

Duration of the Immune Response to GARDASIL

The duration of immunity following a complete schedule of immunization with GARDASIL has not been established. The peak anti-HPV GMTs for HPV types 6, 11, 16, and 18 occurred at Month 7. Anti-HPV GMTs for HPV types 6, 11, 16, and 18 were similar between measurements at Month 24 and Month 60 in Study 2.

14.9 Long-Term Follow-Up Studies

The protection of GARDASIL against HPV-related disease continues to be studied over time in populations including adolescents (boys and girls) and women who were enrolled in the Phase 3 studies.

Persistence of Effectiveness

An extension of Study 4 used national healthcare registries in Denmark, Iceland, Norway, and Sweden to monitor endpoint cases of HPV 6-, 11-, 16-, or 18-related CIN (any grade), AIS, cervical cancer, vulvar cancer, or vaginal cancer among 2,650 girls and women 16 through 23 years of age at enrollment who were randomized to vaccination with GARDASIL and consented to be followed in the extension study. An interim analysis of the per-protocol effectiveness population included 1,902 subjects who completed the GARDASIL vaccination series within one year, were naïve to the relevant HPV type through 1 month postdose 3, had no protocol violations, and had follow-up data available. The median follow-up from initial vaccination was 6.7 years with a range of 2.8 to 8.4 years. No cases of HPV 6-, 11-, 16-, or 18-related CIN (any grade), AIS, cervical cancer, vulvar cancer, or vaginal cancer were observed over a total of 5,765 person-years at risk.

An extension of a Phase 3 study (Study 7) in which 614 girls and 565 boys 9 through 15 years of age at enrollment were randomized to vaccination with GARDASIL actively followed subjects for endpoint cases of HPV 6-, 11-, 16-, or 18-related persistent infection, CIN (any grade), AIS, VIN, VaIN, cervical cancer, vulvar cancer, vaginal cancer, and genital lesions from the initiation of sexual activity or age 16 onwards. An interim analysis of the per-protocol effectiveness population included 246 girls and 168 boys who completed the GARDASIL vaccination series within one year, were seronegative to the relevant HPV type at initiation of the vaccination series, and had not initiated sexual activity prior to receiving the third dose of GARDASIL. The median follow-up, from the first dose of vaccine, was 7.2 years with a range of 0.5 to 8.5 years. No cases of persistent infection of at least 12 months' duration and no cases of HPV 6-, 11-, 16-, or 18-related CIN (any grade), AIS, VIN, VaIN, cervical cancer, vulvar cancer, vaginal cancer, or genital lesions were observed over a total 1,105 person-years at risk. There were 4 cases of HPV 6-, 11-, 16-, or 18-related persistent infection of at least 6 months' duration, including 3 cases related to HPV 16 and 1 case related to HPV 6, none of which persisted to 12 months' duration.

Persistence of the Immune Response

The interim reports of the two extension studies described above included analyses of type-specific anti-HPV antibody titers at 9 years postdose 1 for girls and women 16 through 23 years of age at enrollment (range of 1,178 to 1,331 subjects with evaluable data across HPV types) and at 8 years postdose 1 for boys and girls 9 through 15 years of age at enrollment (range of 436 to 440 subjects with evaluable data across HPV types). Anti-HPV 6, 11, 16, and 18 GMTs as measured by cLIA were decreased compared with corresponding values at earlier time points, but the proportions of seropositive subjects ranged from 88.4% to 94.4% for anti-HPV 6, from 89.1% to 95.5% for anti-HPV 11, from 96.8% to 99.1% for anti-HPV 16, and from 60.0% to 64.1% for anti-HPV 18.

14.10 Studies with RECOMBIVAX HB [hepatitis B vaccine (recombinant)]

The safety and immunogenicity of co-administration of GARDASIL with RECOMBIVAX HB [hepatitis B vaccine (recombinant)] (same visit, injections at separate sites) were evaluated in a randomized, double-blind, study of 1871 women aged 16 through 24 years at enrollment. The race distribution of the girls and women in the clinical trial was as follows: 61.6% White; 1.6% Hispanic (Black and White); 23.8% Other; 11.9% Black; 0.8% Asian; and 0.3% American Indian.

Subjects either received GARDASIL and RECOMBIVAX HB (n = 466), GARDASIL and RECOMBIVAX HB-matched placebo (n = 468), RECOMBIVAX HB and GARDASIL-matched placebo (n = 467) or RECOMBIVAX-matched placebo and GARDASIL-matched placebo (n = 470) at Day 1, Month 2 and Month 6. Immunogenicity was assessed for all vaccines 1 month post completion of the vaccination series.

Persistence of Immune Response to GARDASIL 9

The duration of immunity following a 3-dose schedule of vaccination with GARDASIL 9 has not been established. The peak anti-HPV GMTs for each vaccine HPV type occurred at Month 7. Proportions of individuals who remained seropositive to each vaccine HPV type at Month 24 were similar to the corresponding seropositive proportions at Month 7.

Administration of GARDASIL 9 to Individuals Previously Vaccinated with GARDASIL

Study 4 evaluated the immunogenicity of GARDASIL 9 in 921 girls and women (12 through 26 years of age) who had previously been vaccinated with GARDASIL. Prior to enrollment in the study, over 99% of subjects had received three injections of GARDASIL within a one year period. The time interval between the last injection of GARDASIL and the first injection of GARDASIL 9 ranged from approximately 12 to 36 months.

Seropositivity to HPV Types 6, 11, 16, 18, 31, 33, 45, 52, and 58 in the per protocol population ranged from 98.3 to 100% by Month 7 in individuals who received GARDASIL 9. The anti-HPV 31, 33, 45, 52 and 58 GMTs for the population previously vaccinated with GARDASIL were 25-63% of the GMTs in the combined populations from Studies 1, 2, 3, and 5, who had not previously received GARDASIL, although the clinical relevance of these differences is unknown. Efficacy of GARDASIL 9 in preventing infection and disease related to HPV Types 31, 33, 45, 52, and 58 in individuals previously vaccinated with GARDASIL has not been assessed.

Concomitant Use of Hormonal Contraceptives

Among 7,269 female recipients of GARDASIL 9 (16 through 26 years of age), 60.2% used hormonal contraceptives during the vaccination period of clinical studies 1 and 2. Use of hormonal contraceptives did not appear to affect the type specific immune responses to GARDASIL 9.

14.5 Immune Responses to GARDASIL 9 Using a 2-Dose Regimen in Individuals 9 through 14 Years of Age

Effectiveness of GARDASIL 9 against persistent infection and disease related to vaccine HPV types in 9- through 14-year-old girls and boys who received a 2-dose regimen was inferred from non-inferiority comparison conducted in the PPI population in Study 8 of GMTs following vaccination with GARDASIL 9 among 9- through 14-year-old girls and boys who received a 2-dose regimen (at 0, 6 months or 0, 12 months) with those among 16- through 26-year-old girls and women who received a 3-dose regimen (at 0, 2, 6 months). Anti-HPV GMTs at one month after the last dose among 9- through 14-year-old girls and boys who received 2 doses of GARDASIL 9 were non-inferior to anti-HPV GMTs among 16- through 26-year-old girls and women who received 3 doses of GARDASIL 9 (Table 11).

One month following the last dose of the assigned regimen, between 97.9% and 100% of subjects across all groups became seropositive for antibodies against the 9 vaccine HPV types (Table 11).

In the same study, in girls and boys 9 through 14 years old, GMTs at one month after the last vaccine dose were numerically lower for some vaccine types after a 2-dose schedule than in girls 9 through 14 years old after a 3-dose schedule (HPV types 18, 31, 45, and 52 after 0, 6 months and HPV type 45 after 0, 12 months; Table 11). The clinical relevance of these findings is unknown.

Duration of immunity of a 2-dose schedule of GARDASIL 9 has not been established.

Table 11: Summary of Anti-HPV cLIA Geometric Mean Titers in the PPI* Population at One Month After the Last Vaccine Dose Among Subjects Who Received 2 Doses† or 3 Doses† of GARDASIL 9 (Study 8)

Population (Regimen)	N	n	GMT mMU‡/mL	GMT Ratio relative to 3-dose regimen in 16- through 26-year-old girls and women (95% CI)
Anti-HPV 6				
9- to 14-year-old girls (0, 6)†	301	258	1657.9	2.15 (1.83, 2.53)§
9- to 14-year-old boys (0, 6)†	301	263	1557.4	2.02 (1.73, 2.36)§
9- to 14-year-old girls and boys (0, 12)†	300	257	2678.8	3.47 (2.93, 4.11)§
9- to 14-year-old girls (0, 2, 6)†	300	254	1496.1	1.94 (1.65, 2.29)¶
16- to 26-year-old women (0, 2, 6)†	314	238	770.9	1
Anti-HPV 11				
9- to 14-year-old girls (0, 6)†	301	258	1388.9	2.39 (2.03, 2.82)§
9- to 14-year-old boys (0, 6)†	301	264	1423.9	2.45 (2.09, 2.88)§
9- to 14-year-old girls and boys (0, 12)†	300	257	2941.8	5.07 (4.32, 5.94)§
9- to 14-year-old girls (0, 2, 6)†	300	254	1306.3	2.25 (1.90, 2.66)¶
16- to 26-year-old women (0, 2, 6)†	314	238	580.5	1
Anti-HPV 16				
9- to 14-year-old girls (0, 6)†	301	272	8004.9	2.54 (2.14, 3.00)§
9- to 14-year-old boys (0, 6)†	301	273	8474.8	2.69 (2.29, 3.15)§
9- to 14-year-old girls and boys (0, 12)†	300	264	14329.3	4.54 (3.84, 5.37)§
9- to 14-year-old girls (0, 2, 6)†	300	269	6996.0	2.22 (1.89, 2.61)¶
16- to 26-year-old women (0, 2, 6)†	314	249	3154.0	1
Anti-HPV 18				
9- to 14-year-old girls (0, 6)†	301	272	1872.8	2.46 (2.05, 2.96)§
9- to 14-year-old boys (0, 6)†	301	272	1860.9	2.44 (2.04, 2.92)§
9- to 14-year-old girls and boys (0, 12)†	300	266	2810.4	3.69 (3.06, 4.45)§
9- to 14-year-old girls (0, 2, 6)†	300	270	2049.3	2.69 (2.24, 3.24)¶
16- to 26-year-old women (0, 2, 6)†	314	267	761.5	1
Anti-HPV 31				
9- to 14-year-old girls (0, 6)†	301	272	1436.3	2.51 (2.10, 3.00)§
9- to 14-year-old boys (0, 6)†	301	271	1498.2	2.62 (2.20, 3.12)§
9- to 14-year-old girls and boys (0, 12)†	300	268	2117.5	3.70 (3.08, 4.45)§
9- to 14-year-old girls (0, 2, 6)†	300	271	1748.3	3.06 (2.54, 3.67)¶
16- to 26-year-old women (0, 2, 6)†	314	264	572.1	1
Anti-HPV 33				
9- to 14-year-old girls (0, 6)†	301	273	1030.0	2.96 (2.50, 3.50)§
9- to 14-year-old boys (0, 6)†	301	271	1040.0	2.99 (2.55, 3.50)§
9- to 14-year-old girls and boys (0, 12)†	300	269	2197.5	6.31 (5.36, 7.43)§
9- to 14-year-old girls (0, 2, 6)†	300	275	796.4	2.29 (1.95, 2.68)¶
16- to 26-year-old women (0, 2, 6)†	314	279	348.1	1
Anti-HPV 45				
9- to 14-year-old girls (0, 6)†	301	274	357.6	1.67 (1.38, 2.03)§
9- to 14-year-old boys (0, 6)†	301	273	352.3	1.65 (1.37, 1.99)§
9- to 14-year-old girls and boys (0, 12)†	300	268	417.7	1.96 (1.61, 2.37)§
9- to 14-year-old girls (0, 2, 6)†	300	275	661.7	3.10 (2.54, 3.77)¶
16- to 26-year-old women (0, 2, 6)†	314	280	213.6	1
Anti-HPV 52				
9- to 14-year-old girls (0, 6)†	301	272	581.1	1.60 (1.36, 1.87)§
9- to 14-year-old boys (0, 6)†	301	273	640.4	1.76 (1.51, 2.05)§
9- to 14-year-old girls and boys (0, 12)†	300	268	1123.4	3.08 (2.64, 3.61)§
9- to 14-year-old girls (0, 2, 6)†	300	275	909.9	2.50 (2.12, 2.95)¶
16- to 26-year-old women (0, 2, 6)†	314	271	364.2	1
Anti-HPV 58				
9- to 14-year-old girls (0, 6)†	301	270	1251.2	2.55 (2.15, 3.01)§
9- to 14-year-old boys (0, 6)†	301	270	1325.7	2.70 (2.30, 3.16)§
9- to 14-year-old girls and boys (0, 12)†	300	265	2444.6	4.98 (4.23, 5.86)§
9- to 14-year-old girls (0, 2, 6)†	300	273	1229.3	2.50 (2.11, 2.97)¶

16- to 26-year-old women (0, 2, 6)[†]	314	261	491.1	1

*The PPI population consisted of individuals who received all assigned vaccinations within pre-defined day ranges, did not have major deviations from the study protocol, met predefined criteria for the interval between the last vaccination dose and blood collection for immunogenicity assessment, and were seronegative to the relevant HPV type(s) (types 6, 11, 16, 18, 31, 33, 45, 52, and 58) prior to dose 1.

[†]2-dose regimen (0, 6): vaccination at Day 1 and Month 6; 2-dose regimen (0, 12): vaccination at Day 1 and Month 12; 3-dose regimen (0, 2, 6): vaccination at Day 1, Month 2, and Month 6. The data are from Study 8 (NCT01984697).

[‡]mMU=milli-Merck Units

[§]Demonstration of non-inferiority required that the lower bound of the 95% CI of the GMT ratio be greater than 0.67

[¶]Exploratory analysis; criterion for non-inferiority was not pre-specified

N = Number of individuals randomized to the respective vaccination group who received at least 1 injection

n = Number of individuals contributing to the analysis.

CI=Confidence Interval

cLIA=competitive Luminex Immunoassay

GMT=Geometric Mean Titer

14.6 Studies with Menactra and Adacel

In Study 5, the safety and immunogenicity of co-administration of GARDASIL 9 with Menactra [Meningococcal (Groups A, C, Y and W-135) Polysaccharide Diphtheria Toxoid Conjugate Vaccine] and Adacel [Tetanus Toxoid, Reduced Diphtheria Toxoid and Acellular Pertussis Vaccine Adsorbed (Tdap)] (same visit, injections at separate sites) were evaluated in 1,237 boys and girls 11 through 15 years of age at enrollment.

One group received GARDASIL 9 in one limb and both Menactra and Adacel, as separate injections, in the opposite limb concomitantly on Day 1 (n = 619). The second group received the first dose of GARDASIL 9 on Day 1 in one limb then Menactra and Adacel, as separate injections, at Month 1 in the opposite limb (n = 618). Subjects in both vaccination groups received the second dose of GARDASIL 9 at Month 2 and the third dose at Month 6. Immunogenicity was assessed for all vaccines one month post vaccination (one dose for Menactra and Adacel and three doses for GARDASIL 9).

Assessments of post-vaccination immune responses included type-specific antibody GMTs for each of the vaccine HPV types at four weeks following the last dose of GARDASIL 9; GMTs for anti-filamentous hemagglutinin, anti-pertactin, and anti-fimbrial antibodies at four weeks following Adacel; percentage of subjects with anti-tetanus toxin and anti-diphtheria toxin antibody concentrations ≥0.1 IU/mL at four weeks following Adacel; and percentage of subjects with ≥4-fold rise from pre-vaccination baseline in antibody titers against *N. meningitidis* serogroups A, C, Y, and W-135 at four weeks following Menactra. Based on these measures, concomitant administration of GARDASIL 9 with Menactra and Adacel did not interfere with the antibody responses to any of the vaccines when compared with non-concomitant administration of GARDASIL 9 with Menactra and Adacel.

15 REFERENCES

1. Study 1 NCT00543543
2. Study 2 NCT00943722
3. Study 3 NCT01304498
4. Study 4 NCT01047345
5. Study 5 NCT00988884
6. Study 6 NCT01073293
7. Study 7 NCT01651949
8. Study 8 NCT01984697

16 HOW SUPPLIED/STORAGE AND HANDLING

GARDASIL 9 is supplied in vials and syringes.

Carton of ten 0.5-mL single-dose vials. NDC 0006-4119-03

Carton of ten 0.5-mL single-dose prefilled Luer Lock syringes with tip caps. NDC 0006-4121-02

Store refrigerated at 2 to 8°C (36 to 46°F). Do not freeze. Protect from light.

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ENVIRONMENT AND AUTOIMMUNITY

Behavioral abnormalities in female mice following administration of aluminum adjuvants and the human papillomavirus (HPV) vaccine Gardasil

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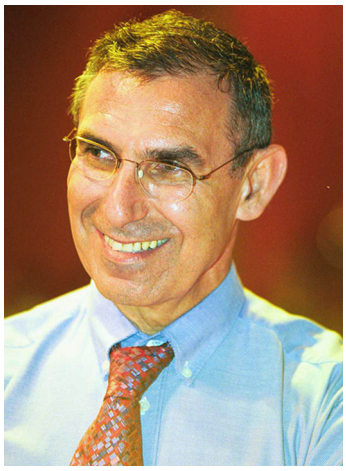

Yehuda Shoenfeld

Abstract Vaccine adjuvants and vaccines may induce autoimmune and inflammatory manifestations in susceptible individuals. To date most human vaccine trials utilize aluminum (Al) adjuvants as placebos despite much evidence showing that Al in vaccine-relevant exposures can be toxic to humans and animals. We sought to evaluate the effects of Al adjuvant and the HPV vaccine Gardasil versus the true placebo on behavioral and inflammatory parameters in female mice. Six-week-old C57BL/6 female mice were injected with either, Gardasil, Gardasil + pertussis toxin (Pt), Al hydroxide, or, vehicle control in amounts equivalent to human exposure. At 7.5 months of age, Gardasil and Al-injected mice spent significantly more time floating in the forced swimming test (FST) in comparison with vehicle-injected mice (Al, $p = 0.009$; Gardasil, $p = 0.025$; Gardasil + Pt, $p = 0.005$). The increase in floating time was already highly significant at 4.5 months of age for the Gardasil and Gardasil + Pt group ($p \leq 0.0001$). No significant differences were observed in the number of stairs climbed in the staircase test which measures locomotor activity. These results indicate that differences observed in the FST were unlikely due to locomotor dysfunction, but rather due to depression. Moreover, anti-HPV antibodies from the sera of Gardasil and Gardasil + Pt-injected mice showed cross-reactivity with the mouse brain protein extract. Immunohistochemistry analysis revealed microglial activation in the CA1 area of the hippocampus of Gardasil-injected mice. It appears that Gardasil via its Al adjuvant and HPV antigens has the ability to trigger neuroinflammation and autoimmune reactions, further leading to behavioral changes.

Keywords Gardasil · Aluminum · ASIA syndrome · Autoantibodies · Autoimmunity · Neuroinflammation

Abbreviations

Al	Aluminum
ASIA	Autoimmune/autoinflammatory syndrome induced by adjuvants
β2-GPI	β2-Glycoprotein I
FST	Forced swimming test
HPV	Human papilloma virus
Pt	Pertussis toxin
U. S FDA	United States Food and Drug Administration

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Caution on Mass HPV Vaccination

One reason for the relatively low uptake of the HPV vaccine, as Dr. Krishna Upadhya suggests, may be that parents and pediatricians want to avoid the subject of sex (Second Opinion, Fall 2016). There are, however, cogent reasons why HPV vaccination is not in the best interests of children.

Fourteen million people may be infected with HPV in the United States annually, as Dr. Upadhya says, but vaccination is being promoted not to prevent HPV infection itself but to prevent cervical cancer, with which some strains of HPV are associated. From 2008 to 2012, the average annual number of cervical cancers diagnosed in the United States was 11,771 (or 7.4 of every 100,000 females). That may seem high—actually, it's about the same as the number of infants with phenylketonuria detected by newborn screening in the U.S. annually—but in 1975, 30 years before HPV vaccination began, the incidence was twice as high, at 14.8 of every 100,000 females.

This drop is attributable primarily to Pap screening of women, beginning in their 20s. Unfortunately, HPV vaccination cannot replace Pap screening because the vaccines do not protect against all cervical cancer-related strains of HPV. Since vaccinated women should continue to have Pap smears, those cases prevented by vaccination would have been detected anyway. There is, unfortunately, evidence that HPV vaccination has lowered the rate of Pap screening.

Nor is HPV vaccination without harm. Associations with primary ovarian failure and other autoimmune disorders have been reported. Until more data are collected, caution is needed in promoting mass vaccination.

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http://www.hopkinsmedicine.org/news/publications/hopkins_medicine_magazine/letters/winter-2017

Too Fast or Not Too Fast: The FDA's Approval of Merck's HPV Vaccine Gardasil

Lucija Tomljenovic and Christopher A. Shaw

Introduction

There are not many public health issues where views are as extremely polarized as those concerning vaccination policies. Ever since its *Fast Track* approval by the U.S. Food and Drug Administration (FDA) in 2006, Merck's human papilloma virus (HPV) vaccine Gardasil has been sparking controversy. Initially, the criticism has been focused at Merck, due to their overly aggressive marketing strategies and lobbying campaigns. According to a 2007 editorial in *Nature Biotechnology*,[1] "Surrounded by a chorus of disapproval, Merck cracked. As *Nature Biotechnology* went to press, the company announced a cessation of all efforts to lobby for US state laws requiring compulsory vaccination." Subsequently, questions have been raised whether it was appropriate for vaccine manufacturers to partake in public health policies when their conflicts of interests were so obvious. Some of their advertising campaign slogans, such as "cervical cancer kills x women per year" and "your daughter could become one less life affected by cervical cancer,"[2] seemed more designed to promote fear rather than evidence-based decision making about the potential benefits of the vaccine versus any risks. Although, conflicts of interests do not necessarily mean that the product itself is faulty, marketing claims should be carefully examined against factual science data. Currently, Gardasil vaccination is strongly recommended by the U.S. and other health authorities while public concerns about safety and efficacy of the vaccine appear to be increasing. This discrepancy leads to some important questions that need to be resolved. The current review examines key issues of this debate in light of currently available research evidence.

The HPV Vaccine Debate

In June 2006 the U.S. Food and Drug Administration (FDA) approved Gardasil, the first vaccine against the human papilloma virus (HPV).[3] The quadrivalent vaccine targeting four common HPV strains (6, 11, 16 and 18) was the first pharmaceutical product specifically developed to protect against cervical cancer.[4] Five years later, Gardasil became a key topic in the U.S. 2011 Republican presidential debate when Congresswoman Michelle Bachmann criticized Texas Governor Rick Perry over his prior executive order to make the vaccine mandatory.[5] Bachmann later expressed serious concerns about the safety of the vaccine which added even more heat to the already controversial subject.

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The American Academy of Pediatrics (AAP) responded promptly to Bachmann stating that there was "absolutely no scientific validity" behind her allegations. According to the AAP, "Since the vaccine has been introduced, more than 35 million doses have been administered, and it has an excellent safety record." The AAP further stated that "this is a life-saving vaccine that can protect girls from cervical cancer."[6] Yet, not every organization fully agreed. The Association of American Physicians and Surgeons (AAPS) opined, "…this HPV vaccine costs hundreds of dollars for something that most of the recipients do not even need protection against." "There was no public health justification for requiring this [vaccine] to attend school," stated the AAPS, elaborating that, "without adequate testing but with well-placed political funding and lobbyists, Merck pushed for requiring that the HPV vaccine, Gardasil, be given to young schoolgirls as a condition for entering sixth grade. But the disease it supposedly protects against is not even contagious in the school environment."[7] What are the reasons behind such polarized views, and why does the AAP statement fail to settle the debate on Gardasil? In view of future vaccination policies, these issues need to be carefully examined.

Promoting Gardasil: Too Much Too Soon?

According to the latest report by the U.S. Centers for Disease Control and Prevention (CDC), only 32% of girls aged 13 to 17 completed the full three-dose series for Gardasil in 2010. The CDC concluded that "stronger provider recommendations for HPV vaccination, implementing reminder-recall systems, eliminating missed opportunities, and educating parents of adolescents regarding the risk for HPV infection and the benefits of vaccination, are needed to effectively protect adolescent girls against cervical cancer."[8] In reference to the CDC report and the low HPV vaccine uptake rate, a recent article in *JAMA* stated that "if voluntary vaccination proves unsuccessful, states should seriously consider compulsory vaccination laws without generous exemptions."[9]

Certainly, the medical profession has a responsibility to promote vaccinations with those vaccines whose safety and efficacy have been thoroughly demonstrated. Nonetheless, the fact that Merck waged an aggressive lobbying campaign with state governments to make Gardasil mandatory and funded educational programs for the U.S. professional medical associations (PMAs) as a marketing strategy to promote vaccine use, raised the question whether Gardasil vaccination was promoted by the medical community from an evidence-based medicine perspective.[10] Indeed, according to a 2007 editorial in *Nature Biotechnology*, "In its rush to market its human papillomavirus vaccine, Merck forgot to make a strong and compelling case for compulsory immunization."[11] Furthermore, a 2009 *Special Communication* in *JAMA*[12] revealed that much of the educational material delivered by the PMAs failed to address the full complexity of the issues surrounding the vaccine and did not provide balanced recommendations on potential risks and hoped-for benefits. Notably, Merck-sponsored educational programs delivered by the PMAs strongly promoting HPV vaccination began in 2006, more than a year before the clinical trials containing important safety and efficacy data were published.[13] What followed were Merck's aggressive advertising campaigns telling young women worldwide that they would be "one less" life affected by cervical cancer.[14] Merck's "one less" campaign was so successful that in 2006, Gardasil was named the pharmaceutical "brand of the year" for building "a market out of thin air."[15] The wider scientific community, however, was not so impressed by Merck's "one less" business success. In a telling 2007 editorial in the *American Journal of Bioethics,* Glenn McGee and Summer Johnson noted, "Just as pizza bearing cheerleader drug reps are a poor substitute for medical education, pharmaceutical company lobbying is a poor substitute for well-reasoned public health policymaking."[16]

Indeed, how could Merck and the FDA which approved Gardasil be so certain about the effects of the vaccine a year before final safety and efficacy data became available? The current public skepticism surrounding the HPV vaccine appears to indicate that this question has not yet been adequately answered. In order to do so, we examined the basis on which the FDA approved Gardasil.

Gardasil and the FDA: The Basis for Fast Track Approval

Gardasil received a *Fast Track* approval by the FDA following a six-month priority review process.[17] According to the FDA, to be fast-tracked the drug must target a serious disease and fill an *unmet medical need.*[18] The latter is defined as providing a therapy where none exists or, providing a therapy which may be potentially superior to an existing therapy. In order to gain approval, a *Fast Track* drug must demonstrate the following:[19]

1. Show superior effectiveness to existing treatments (if such are available)

2. Avoid serious side effects of an available treatment
3. Improving the diagnosis of a serious disease where early diagnosis results in an improved outcome
4. Decrease a clinically significant toxicity of an accepted treatment

Cervical cancer is a serious disease, affecting almost half a million women world-wide on an annual basis.[20] Nonetheless, almost 90% of cervical cancer deaths occur in developing countries where regular Papanicolaou (Pap) screening procedures are either non-existent or of very limited availability.[21] In contrast, in developed countries cervical cancer mortality rates are very low (1.4-1.7/100,000 women).[22] That Pap testing alone has decreased mortality from cervical cancer in the developed world by 70% in the last few decades is well established.[23] On the contrary, to date, clinical trial evidence has not demonstrated that Gardasil can actually prevent cervical cancer (let alone cervical cancer deaths because the follow-up period was too short (5 years,[24] while cervical cancer takes 20-40 years to develop from the time of acquisition of HPV infection).[25] What Gardasil has been demonstrated to prevent are infections with two out of 15 oncogenic HPV strains (HPV-16 and HPV-18) and pre-cancerous cervical intraepithelial neoplasia (CIN) 1-3 lesions,[26] both of which were used as surrogate endpoints to cervical cancer.

According to the FDA, a drug that receives *Fast Track* designation is eligible for *Accelerated Approval*, which is, "approval on an effect on a surrogate, or substitute endpoint reasonably likely to predict clinical benefit."[27] The *Accelerated Approval*, which is temporary, is expressly designed to get drugs on the market *before* they demonstrate any real benefit. Indeed the very reason why the FDA instituted the *Accelerated Approval* process is to expedite access to potentially important therapies while being mindful of the fact that obtaining data on clinical outcomes can take a long time.[28] Nonetheless, the *Accelerated Approval* based on a surrogate endpoint (i.e., CIN 1-3), is given on the condition that post-marketing clinical trials (otherwise known as phase 4 trials) verify the anticipated clinical benefit. If, however, the confirmatory phase 4 trials do not show that the drug provides real clinical benefit, then the "FDA has regulatory procedures in place that could lead to removing the drug from the market."[29]

During the longest reported follow-up of Gardasil trial participants (5 years), the vaccine was found to be highly efficacious against persistent HPV infections and CIN 1-3 lesions.[30] However, the reported combined efficacy pertaining to the reduction of HPV-16/18 related CIN 1-3 is of little value in determining the true long-term prophylactic potential of the vaccine. The reason for this is that in the natural course of cervical cancer, only a small fraction of CIN 1 lesions will progress to CIN 2 lesions and likewise, only a small fraction of CIN 3 lesions will eventually progress to cervical cancer. Specifically, long-term research data show that as much as 60% of CIN 1 lesions spontaneously regress, 30% persist, 10% progress to CIN 3, and only 1% eventually progress to invasive cancer.[31] Therefore, in any female population, there will be many more CIN 1 lesions than all CIN 2s, CIN 3s and cervical cancers put together. CIN 1, however, is neither an adequate marker of cervical cancer progression nor an adequate surrogate endpoint for assessing long-term clinical benefits in HPV vaccine trials (due to their benign nature and high frequency of regression).[32] Thus, the reported pooled efficacy against CIN 1-3 in Gardasil post-licensure trial[33] gave a highly misleading impression about the true clinical value of the vaccine, given that the vast majority of the lesions within the trial population would have comprised of CIN 1 lesions.

Although the results from the 3-year follow-up pre-licensure trials inspired much confidence in Gardasil's prophylactic potential as they showed >97% vaccine effectiveness against HPV-16/18 related CIN 2/3+ lesions, the corresponding figures against CIN 2/3+ caused by all HPV types were well below 40%.[34] This information is frequently overlooked even though it is crucial for assessing the long-term protective efficacy of the vaccine. Indeed, because of the possibility of infections with HPV types not covered by the vaccine and/or multiple infections including these types, any meaningful assessment of a true prophylactic value from Gardasil vaccination, which would likely result in a real clinical benefit (i.e., a global reduction of the cervical cancer burden), must take into consideration analysis of vaccine efficacy against CIN 2/3+ caused by *all* relevant (high risk) HPV types.[35] When taken together, the results from pre-clinical trials that the true HPV vaccine efficacy lies anywhere between 16.9% and 70%.[36] Given the demonstrable success of Pap screening programs in achieving a 70% reduction in cervical cancer mortality in developed countries, it is unlikely that vaccination with Gardasil would have a notable impact in reducing further the global cervical cancer burden beyond that accomplished by Pap screening.

Thus, with regard to efficacy, although Gardasil partially satisfies the FDA's criteria for *Accelerated Approval* (as prevention of high-risk HPV infection and precancerous lesions perfectly fits the FDA's defi-

nition of a surrogate endpoint),[37] ultimately it does not satisfy the criteria for *Fast Track* approval as the vaccine fails to show superior efficacy to Pap screening. In spite of this, the vaccine manufacturer as well as the U.S. medical authorities continue to promote Gardasil as if indeed it already had post-phase 4 confirmatory trial approval (i.e., demonstrated efficacy against cervical cancer). For example, Merck states that "Gardasil does more than help prevent cervical cancer"[38] while the AAP describes Gardasil as a "life-saving vaccine."[39] Similarly, the FDA and the CDC maintain that Gardasil is "an important cervical cancer prevention tool that will potentially benefit the health of millions of women"[40] and that thus, stronger provider recommendations for HPV vaccination "are needed to effectively protect adolescent girls against cervical cancer."[41] However, in light of Merck's limited 5-year follow-up data, these claims are demonstrably inaccurate. In other words, in the absence of adequate phase 4 confirmatory trials, the notion that Gardasil prevents cervical cancer remains speculative. In this context, it is worth noting that the existing clinical trials show that antibodies against HPV-18 from Gardasil fall rapidly, with 35% of women having no measurable antibody titers at 5 years.[42] This outcome suggests that rather than preventing future cases of cervical cancer cases, Gardasil may only be effective in postponing them.

Also of note is that Gardasil is a prophylactic vaccine and will not treat pre-existing HPV infections and pre-existing pre-cancerous lesions, nor cervical cancer.[43] Notably, the opposite is true, at least according to Merck's pre-licensure trial data, which show that in such cases the vaccine may exacerbate the very disease it is designed to prevent.[44]

Adverse Reactions from Gardasil

As of September 2012, a total of 21,265 adverse reactions (ADRs) have been reported from Gardasil in the U.S. alone, including 78 deaths, 363 life-threatening ADRs, and 609 events which resulted in permanent disability (Table 1). Compared with all other vaccines, Gardasil alone was associated with >60% of all serious ADRs (including 61.9% of all deaths, 64.9% of all life-threatening reactions and 81.8% cases of permanent disability) in females younger than 30 years (Table 2).

Table 1

Summary of Adverse Reactions (ADRs) Following Vaccination with Gardasil in the U.S. Reported to VAERS in the Post-Licensure Period (June 2006-September 2012).

VAERS Internet Database[66] was searched using the following criteria: 1) Vaccine Products: HPV4 (Human Papilloma Virus Types 6, 11, 16, 18); 2) Gender (all genders); 3) Age (all ages); 4) Territory (the United States); 5) Date Vaccinated (2006-2012; Gardasil post-licensure period).

Total	21,265
Deaths	78
Life-threatening	363
Permanently disabled Serious	609 1669
Prolonged hospitalization	212
Emergency room visit	9565

Table 2

Age-Adjusted Rate of Adverse Reactions (ADRs) Related to Gardasil Compared with All Other Vaccines in the U.S. Reported to the Vaccine Adverse Event Reporting System (VAERS) as of September 11, 2012.

VAERS Internet Database[67] was searched using the following criteria: 1) Vaccine Products: HPV4 (Human Papilloma Virus Types 6, 11, 16, 18) and All Vaccine Products; 2) Gender (female); 3) Age (6 to 29 years; target age group for HPV vaccines); 4) Territory (the United States); 5) Date Vaccinated (2006-2012; Gardasil post-licensure period).

Events	Gardasil	All vaccines	% ADRs from Gardasil
All Serious	14,991 1313	79,657 2157	18.8 60.9
Deaths	39	63	61.9
Life-threatening	296	456	64.9
Permanently disabled	482	589	81.8
Prolonged hospitalization	175	236	74.2
Emergency room visit	7015	13,295	52.8

A report to a passive vaccine surveillance system such as U.S. VAERS does not by itself prove that the vaccine caused an ADR. However, the unusually high frequency of ADRs related to HPV vaccines reported worldwide, as well as their consistent pattern (i.e. nervous system-related disorders rank the highest in frequency),[45] point to a potentially causal relationship. Furthermore, matching the data vaccine surveillance databases, is an increasing number of case reports documenting similar serious ADRs associated with Gardasil administration, with nervous system disorders being the most frequently reported ADRs.[46] Cumulatively, these data suggest that the risks of HPV vaccination may not have been fully evaluated in pre-licensure clinical trials. A careful review of pre-licensure safety data on Gardasil confirms this concern.

For example, like many other vaccine trials, Gardasil trials used an aluminum-containing placebo.[47] Although historically aluminum adjuvants have been portrayed as inherently safe, studies in animal models and humans have demonstrated their ability to inflict immuno-inflammatory conditions by themselves.[48] Cumulatively this research has led to the identification of an "autoimmune/inflammatory syndrome induced by adjuvants" (coined "ASIA"), that encompasses several adjuvant-triggered medical conditions which are characterized by a misregulated immune response.[49] For this reason, Exley notes, "it is necessary to make a very strong scientific case for using a placebo which is itself known to result in side effects and I have not found any scientific vindication for such in the recent human vaccination literature."[50]

According to Merck, the number of girls aged 9-26 years who reported a serious ADR from Gardasil indicative of an autoimmune disorder during pre-licensure clinical trials was 245, compared to the 218 in the aluminum "placebo" group.[51] Thus at best, Gardasil was shown to be as safe as its potentially neuro-immunotoxic constituent aluminum.

In contrast to Gardasil vaccination, a procedure which uses a speculum to take cells from the cervix does not carry a risk of death, or neurological or autoimmune complications. Neither is the loop electrosurgical excision procedure (LEEP), which is used to remove high-grade CIN 2/3 lesions in women who test positive on a Pap screen, a risk for such serious ADRs.

The poor design of existing vaccine safety and efficacy trials may be reflective of the fact that in the past two decades the pharmaceutical industry has gained unprecedented control over the evaluation of its own products. As noted by the former Editor-in-Chief of the *New England Journal of Medicine* Dr. Marcia Angell, "Drug companies now finance most clinical research on prescription drugs, and there is mounting evidence that they often skew the research they sponsor to make their drugs look better and safer."[52] With regard to Gardasil, we noted that often in trials sponsored by the vaccine manufacturer, the assessment of the frequency of ADRs was limited to those trial cohorts which comprised of participants who did not receive the full three doses of the HPV vaccine.[53] The result of such population sample bias is a lesser sensitivity for detecting serious ADRs, as such events may be expected to occur less frequently if fewer doses of the vaccine are administered.

In a lengthy report of potential conflicts of interests of the Gardasil pre-licensure FUTURE II trial study, the majority of authors declared "receiving lecture fees from Merck, Sanofi Pasteur, and Merck Sharp & Dohme." In addition, it was declared that "Indiana University and Merck have a confidential agreement that pays the university on the basis of certain landmarks regarding the HPV vaccine."[54] Commenting on conflicts of interests in HPV vaccine trials in the 2009 *JAMA* editorial, Haug noted that, "When weighing evidence about risks and benefits, it is also appropriate to ask who takes the risk, and who gets the benefit. Patients and the public logically expect that only medical and scientific evidence is put on the balance. If other matters weigh in, such as profit for a company or financial

Merck's HPV vaccine Gardasil failed (and continues to fail) to meet a single one of the four criteria required by the FDA for *Fast Track* approval. Gardasil is demonstrably neither safer nor more effective than Pap screening combined with LEEP, nor can it improve the diagnosis of serious cervical cancer outcomes. In spite of this, Gardasil continues to be promoted as if it already had post-phase 4 confirmatory trial approval and proven efficacy against cervical cancer.

or professional gains for physicians or groups of physicians, the balance is easily skewed. The balance will also tilt if the adverse events are not calculated correctly."[55]

Clear evaluation of risks is important for vaccines, which, contrary to other drugs, are administered predominantly to healthy individuals and often to prevent a disease to which an individual may never be exposed. Because of this, according to the FDA, "there is low tolerance for significant adverse events associated with vaccines-that is, caused by vaccines."[56] Thus, it may be worth re-considering whether it is prudent to put preadolescent girls at risk of death or a life-long neurodegenerative/autoimmune condition for a vaccine that has not thus far prevented a single case of cervical cancer, when the same can be prevented with regular Pap screening and LEEP, neither of which carry such risks.

FDA and Merck: What Have We Learned from Vioxx?

The U.S. FDA is not infallible. The Agency's approval of rofecoxib (Vioxx) in 1999 resulted in the "single greatest drug safety catastrophe in the history of this country or the history of the world."[57] This charge was laid by Dr. David Graham, the FDA associate director in the Office of Drug Safety, at the U.S. senate hearings on the FDA, Vioxx and its manufacturer, Merck. Senator Grassley added that the FDA "has lost its way when it comes to making sure drugs are safe" and that its relationship with drug companies was "too cosy." Dr. Graham concurred, stating that the FDA "as currently configured is incapable of protecting America against another Vioxx."[58] It took an estimated 88,000 to 139,000 Americans to suffer heart attacks and strokes as a result of taking Vioxx[59] before the drug was withdrawn from the market in 2004.[60]

In 2006 when Gardasil gained FDA approval, the acting FDA Commissioner Andrew von Eschenbach requested that the Science Board, which is the Advisory Board to the Commissioner, form a Subcommittee to assess whether science and technology at the FDA can support current and future regulatory needs. The findings of the Subcommittee as outlined in the Science and Mission at Risk Report were as follows.[61]

- The Agency suffers from serious scientific deficiencies and is not positioned to meet current or emerging regulatory responsibilities
- The FDA's inability to keep up with scientific advances means that American lives are at risk
- The world looks to the FDA as a leader in medicine and science. Not only can the agency not lead, it can't even keep up with the advances in science

The Subcommittee concluded that "in contrast to previous reports that have issued many of the same warnings, there are now sufficient data proving that failure to act in the past has jeopardized the public's health." In light of these and other admissions by the Subcommittee (Table 3), as well as what appear to be legitimate concerns regarding both vaccine safety and effectiveness,[62] perhaps it is warranted for the FDA to re-evaluate its *Fast Track* approval of Gardasil.

Currently, however, "Based on the review of available information by FDA and CDC, Gardasil continues to be safe and effective, and its benefits continue to outweigh its risks."[63] In regard to what constitutes

Table 3

Major Findings from the FDA Science and Mission at Risk Report[68]

Mission Statement and Overview
• The FDA is responsible for protecting the public health by assuring the safety, efficacy, and security of human and veterinary drugs
• The benefits of a robust, progressive Agency are enormous; the risks of a debilitated, under-performing organization are incalculable
Major Findings
• The FDA cannot fulfill its mission because its scientific base has eroded and its scientific organizational structure is weak
• The development of medical products based on "new science" cannot be adequately regulated by the FDA
• There is insufficient capacity in modeling, risk assessment and analysis
• The FDA science agenda lacks a coherent structure and vision, as well as effective coordination and prioritization
• Due to constrained resources and lack of adequate staff, the FDA cannot adequately monitor development of food and medical products because it is unable to keep up with scientific advances
• The FDA cannot fulfill its mission because its IT infrastructure is obsolete, unstable, and lacks sufficient controls to ensure continuity of operations or to provide effective disaster recovery services
• Reports of product dangers are not rapidly compared and analyzed, as inspectors' reports are still handwritten and slow to work their way through the system.
• There are inadequate emergency backup systems in place, which has resulted in the loss of FDA data in the past
• Recommendations of excellent FDA reviews are seldom followed*

*The Subcommittee's final conclusions and recommendations: "There is a long history of excellent reviews of the FDA that have been followed by little to no action taken to achieve the recommendations. Our final recommendation is based in our belief that effective resolution of the issues outlined in this report is urgent. In contrast to previous reports that have issued many of the same warnings, there are now sufficient data proving that failure to act in the past has jeopardized the public's health."

as "available information" according to the U.S. FDA, "FDA routinely reviews manufacturing information and has not identified any issues affecting the safety, purity, and potency of Gardasil."[64]

Any federal agency responsible for assuring drug safety should not exclusively rely on data provided by the drug manufacturer, as unreliable research (i.e., use of an reactive and potentially toxic placebo) cannot be used to reliably evaluate the safety of any drug.

Conclusion

Merck's HPV vaccine Gardasil failed (and continues to fail) to meet a single one of the four criteria required by the FDA for *Fast Track* approval. Gardasil is demonstrably neither safer nor more effective than Pap screening combined with LEEP, nor can it improve the diagnosis of serious cervical cancer outcomes. In spite of this, Gardasil continues to be promoted as if it already had post-phase 4 confirmatory trial approval and proven efficacy against cervical cancer. Given the demonstrable success of regular Pap smear screens in reducing the incidence of mortality from cervical cancer in the developed world, which is currently very low (i.e., 1.4-2.3/100,000 women), it is further unlikely that HPV vaccination (even if proven effective against cervical cancer) would reduce mortality rates beyond those already accomplished with routine Pap screening.[65] Thus, further reduction of cervical cancer burden may be best achieved by targeting other risk factors of the disease (i.e., smoking, use of oral contraceptives, multiple sexual partners, or suboptimal hygiene and nutritional status, etc.) in conjunction with regular Pap screens.

Coercive measures such as vaccine mandates supported solely by vaccine manufacturer's data do little to instill public confidence in vaccination programs. Physicians and other medical authorities need to adopt a more rigorous evidence-based medicine approach in order to give a balanced and objective evaluation of vaccine risks and benefits to their patients. The public equally needs life-saving drugs as it needs protection from potentially hazardous ones.

Note

LT and CAS conducted a histological analyses of autopsy brain samples from two Gardasil-suspected death cases. CAS is a founder and shareholder of Neurodyn Corporation, Inc. The company investigates early state neurological disease mechanisms and biomarkers. This work and any views expressed within this manuscript are solely those of the authors and not of any affiliated bodies or organizations.

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Does neurotransmission impairment accompany aluminium neurotoxicity?

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Abstract

Neurobehavioral disorders, except their most overt form, tend to lie beyond the reach of clinicians. Presently, the use of molecular data in the decision-making processes is limited. However, as details of the mechanisms of neurotoxic action of aluminium become clearer, a more complete picture of possible molecular targets of aluminium can be anticipated, which promises better prediction of the neurotoxicological potential of aluminium exposure. In practical terms, a critical analysis of current data on the effects of aluminium on neurotransmission can be of great benefit due to the rapidly expanding knowledge of the neurotoxicological potential of aluminium. This review concludes that impairment of neurotransmission is a strong predictor of outcome in neurobehavioral disorders. Key questions and challenges for future research into aluminium neurotoxicity are also identified.

Keywords: Aluminium; Neurotoxicity; Neurotransmission

1. Backward-looking to neurotoxicity

Alum has been used as an astringent and as a mordant in dyeing since the ancient Egyptian, Greek and Roman times. The isolation of pure aluminium, the 13th element of the periodic table, in 1827 is generally attributed to Wohler. The potential neurotoxic action of parenterally administered aluminium salts was, however, noted earlier by Orfila (1814) and Siem (1885) [1,2]. The blood clotting properties of alum led to the discovery of its neurotoxic effects on man in 1886 [3]. Soon after, in 1897, Döllken [1] found that the injection of aluminium tartrate into the brain of a rabbit produced degeneration. Since the beginning of the XX century, the neurotoxicity of aluminium has been questioned. The first clinical report on human poisoning by aluminium appeared in the *Lancet* in 1921, which mentioned overt neurological symptoms [4]. The works of Seibert and Wells, Kopeloff and Klatzo are among the pioneering studies of the deleterious effects of aluminium compounds on the Central Nervous System, namely structural changes in response to systemic administration [5], epileptogenic action of alumina cream [6] and neurofibrillary degeneration in rabbit brain [7].

Nowadays, aluminium is extensively used and its alloys and compounds are crucial in many industrial fields. Among them, aluminium oxide and sulfate are the compounds of greatest importance in technological terms. Curiously, aluminium phosphide (used as a rodenticide, insecticide and cereal grain fumigant [8]), aluminium fumes and dust, fibrous forms of aluminium oxide and aluminium sulfate are substances that appear on lists of toxic chemicals published by agencies devoted to define the relative toxicity risk of materials. There are only a few existing regulations and international guidelines for aluminium, including the "Drinking water quality guidelines for aluminium, WHO 2004" and the "Carcinogenicity classification for aluminium production, IARC 1987". The Environmental Health Criteria 194, produced within the framework of the Inter-Organization Programme for the

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In the United States Court of Federal Claims

OFFICE OF SPECIAL MASTERS

EMILY TARSELL, as the Executrix of the Estate of CHRISTINA TARSELL, Petitioner,	*	No. 10-251V
	*	Special Master Christian J. Moran
	*	Filed: September 25, 2017
v.	*	
SECRETARY OF HEALTH AND HUMAN SERVICES, Respondent.	*	Entitlement; human papillomavirus ("HPV") vaccine; sudden death; plausible medical theory; onset of arrhythmia; challenge-rechallenge

Mark T. Sadaka, Mark T. Sadaka, LLC, Englewood, NJ, for petitioner;
Ann D. Martin, United States Dep't of Justice, Washington, D.C., for respondent.

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Cardiac arrest following HPV Vaccination

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Case report

A 20-years-old healthy female developed new-onset cardiac abnormalities discovered on a routine primary care visit, when she received her 2nd dose of the HPV vaccine. The patient had no significant past medical history apart from hypothyroidism, a single episode of febrile seizure at the age of 2 and receiving the first dose of HPV vaccine 3 weeks prior. In previous routine medical visits by various healthcare providers there was no indication of an irregular heartbeat or an arrhythmia. There was no family history of heart disorders or sudden cardiac death. During this visit to her new adult primary care doctor, a baseline physical examination revealed irregular heart rhythm. An ECG was performed showing frequent premature ventricular complexes and ST abnormalities (Figure 1). The patient had another abnormal ECG a week later during a follow up visit, which similarly demonstrated premature aberrantly conducted complexes and a marked ST abnormality. An echocardiogram was negative for any structural heart anomalies. Finally, a week following her third vaccination with the HPV vaccine, the patient started to experience dizziness, joint pain and unusual fatigue. Less than 3 weeks later, she was found dead from a cardiac arrest during her night sleep. A full autopsy analysis revealed no anatomical, histological, toxicological, genetic or microbiological findings that might be linked to a potential cause of death.

Introduction

The first vaccine was created back in 1798, when Edwards Jenner inoculated individuals with fluid from the blisters of smallpox disease [1]. Thereafter, the use of vaccination spread globally, leading to eradication of lethal infectious. However, over the years, worries have been raised regarding the safety of certain vaccines.

Vaccine-associated adverse events are mainly acute and transient; other reactions, such as autoimmune phenomena, are uncommon [2]. Post-vaccination autoimmunity, although uncommon, is well described and include conditions such as Guillain–Barre syndrome, immune thrombocytopenic purpura, Postural Orthostatic Tachycardia Syndrome (POTS) and other autoimmune manifestations [3].

The human papilloma virus (HPV) vaccine

HPV is a group of viruses belonging to a family of double-stranded circular DNA viruses, capable of infecting epithelial cells of the skin, oral and genital mucosa. HPV-16 & HPV-18 are responsible for about 70% of cervical cancers worldwide, HPV-6 and HPV-11 are the most common causes of genital warts [4].

There are three types of HPV vaccines available as of date: the bivalent Cervarix (aimed against serotypes 16 and 18), the quadrivalent Gardasil (aimed against serotypes 6, 11, 16 and 18) and the 9-valent vaccine (aimed against serotypes 6, 11, 16, 18, 31, 33, 45, 52 and 58) [5]. Vaccination with HPV vaccines was found to be effective, providing a long-lasting protection against HPV infection and premalignant lesions [6].

Herein, we intend to review current data regarding the relationship between HPV vaccination and susceptibility to sudden cardiac death.

Evidence of increased risk of sudden death and cardiac related deaths in association with the HPV vaccine

The first larger post-licensure analysis of side effets using the Vaccine Adverse Event Reporting System (VAERS) database [7] identified 32 deaths among 12,424 HPV Vaccine-related reports received during the period from June 1, 2006 to December 31, 2008. Out of these 32 deaths, at least 6 were cardiac-related deaths, confirmed by autopsy reports and medical records. The rate of these cardiac deaths did not produce a significant safety signal.

The median time from the last HPV vaccination to death was 14.5 days, a time-frame consistent with our case, in which the death occurred less than three weeks after HPV vaccine administration. We have conducted a search in the VAERS database in order to evaluate the current number of death cases related to HPV vaccination. We were surprised to find out a total number of 292 cases (Table 1), out of them there were 2 cases of cardiac death and 11 more cases of sudden death.

However, it is obvious that VAERS has limitations, since the postmarket reporting of side effects is discretionary and the reports are collected from a population of unknown size. Consequently, it is not possible to estimate the frequency of adverse events or to establish a

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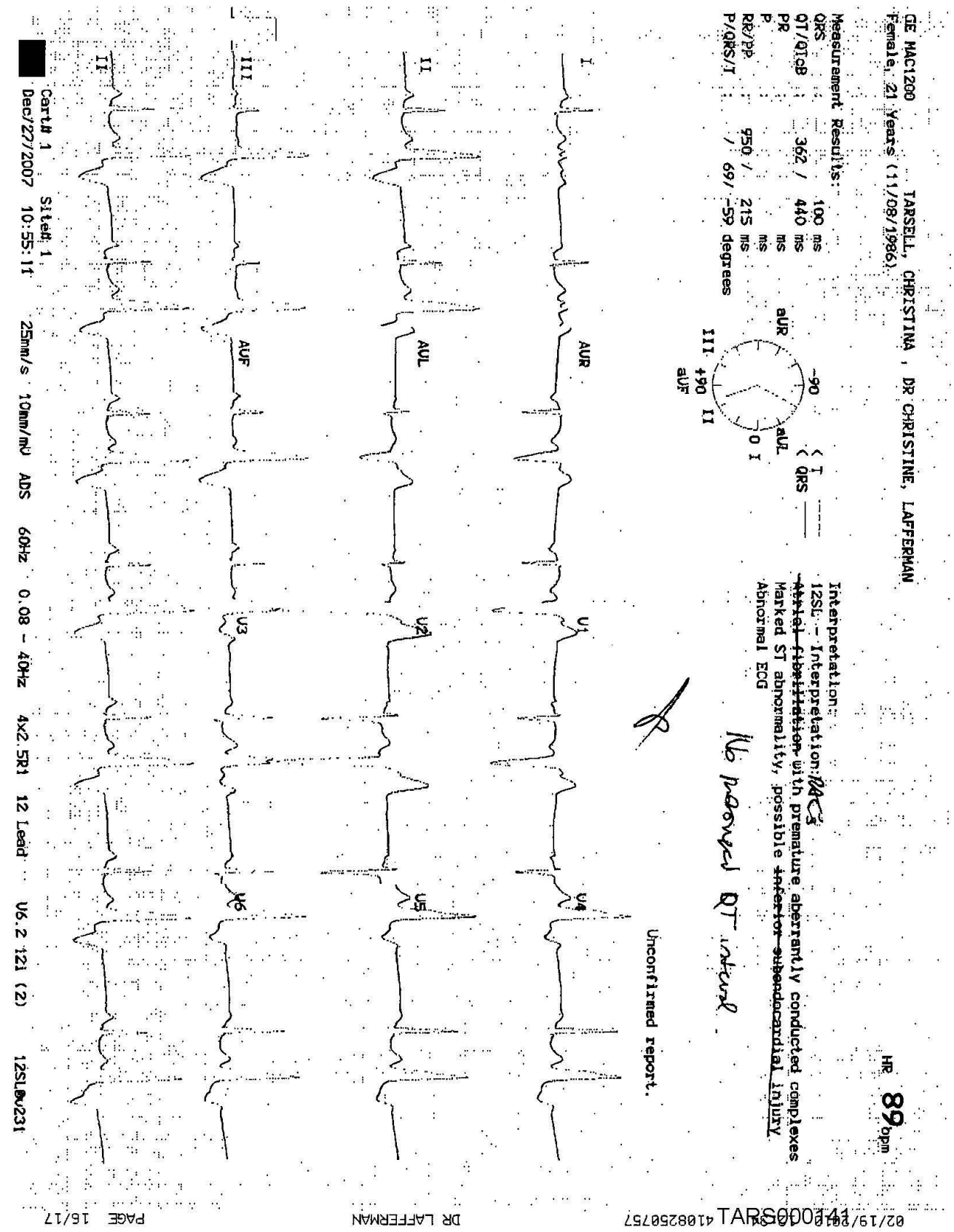
GE MAC1200
TARSELL, CHRISTINA , DR CHRISTINE, LAFFERMAN
Female, 21 Years (11/08/1986)
HR 89 bpm
Measurement Results:
QRS 100 ms
QT/QTcB 362 / 440 ms
PR ms
P ms
RR/PP 950 / 215 ms
P/QRS/T / 69 / -59 degrees
Interpretation:
12SL - Interpretation: MAC3
Marked ST abnormality, possible inferior subendocardial injury
Abnormal ECG
No prolonged QT interval.
Unconfirmed report.
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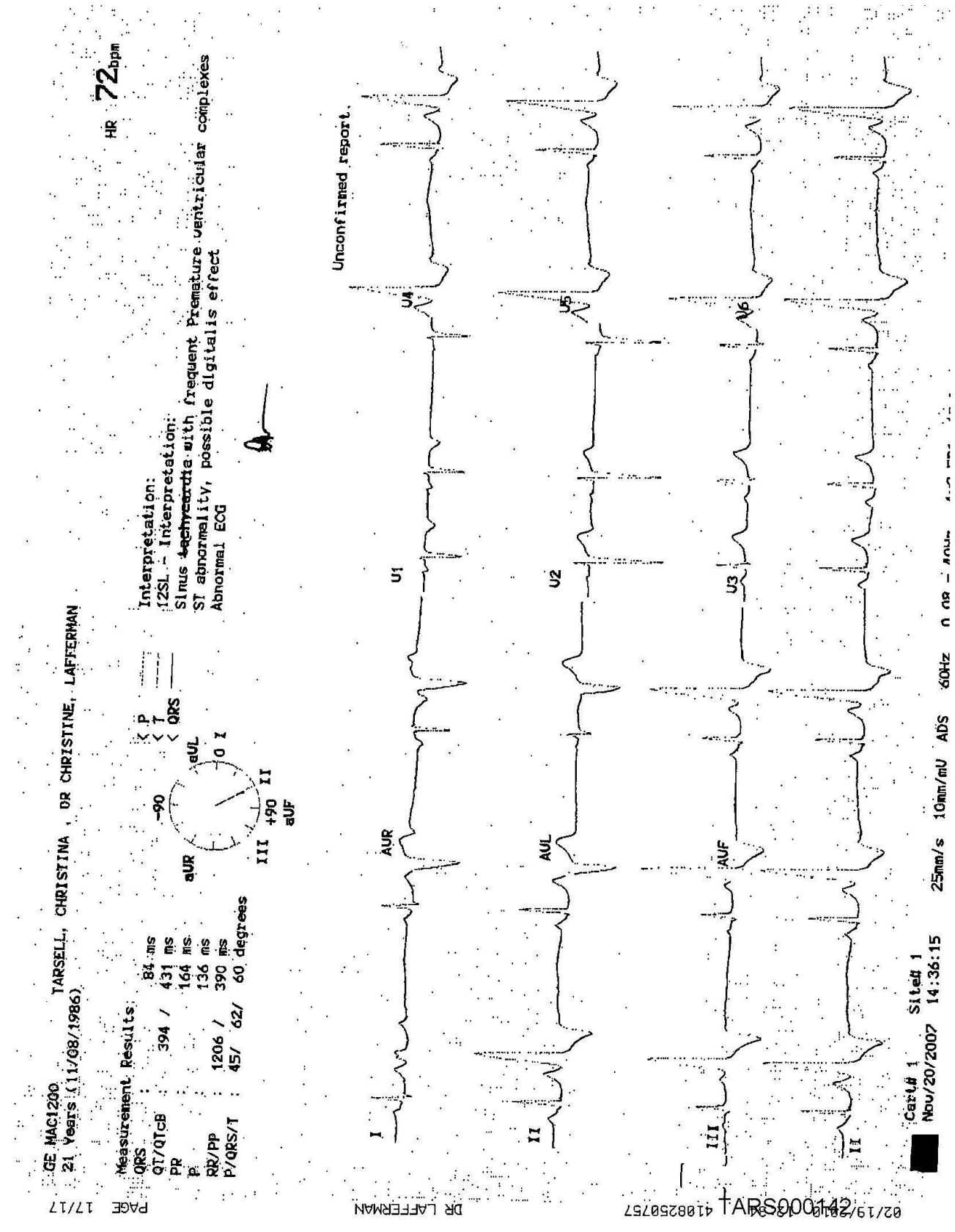

Figure 1. ECG showing frequent premature ventricular complexes and ST abnormalities

Table 1. A search in the VAERS database in order to evaluate the current number of death cases related to HPV vaccination, updated on 2.5.2017

Symptoms	Vaccine	Events reported	Percent
Brain death	HPV (Gardasil)	2	0.68%
Brain death	HPV (Gardasil 9)	1	0.34%
Death	HPV (Gardasil)	228	78.08%
Death	HPV (Gardasil 9)	4	1.37%
Death	HPV (No brand name)	36	12.33%
Death	HPV (Cervarix)	12	4.11%
Sudden cardiac death	HPV (Gardasil)	2	0.68%
Sudden death	HPV (Gardasil)	11	3.77%

cause and effect relationship *via* VAERS and similar passive-reporting systems. Moreover, cardiac arrhythmias are not currently listed ore fully recognized as a possible adverse reaction to vaccines [8]. In many cases cardiac-related manifestations are vague and non-specific and hence readily misdiagnosed or underappreciated [9].

Another major limitation of the VAERS analysis by Slade, *et al.* [7] should be mentioned. Namely, the authors used the distributed and not the administered doses as the denominator when calculating the rate of adverse events. Based on adverse event data from countries that track the administered doses, the rate of adverse events are likely underestimated by five to tenfold [10]. Thus, the actual number of adverse events including cardiac-related fatalities in association with HPV vaccine could be much higher than currently reported.

Possible mechanism for HPV-vaccine induced cardiac arrhythmias

HPV-16 DNA - stimulated secretion of tumor necrosis factor

In addition to VAERS data, there is at least one relevant case reported in the medical literature [11] which relates to a previously healthy 18 year old girl who suffered a sudden death during her night sleep, six months after her 3rd HPV vaccine injection [11]. Although her death occurred many months after the last dose of HPV vaccine, her symptoms began shortly after the 1st dose and included a range of non-specific complaints, including headaches, dizziness spells, memory lapses and difficulty thinking. After receiving her 2nd injection, she also developed intermittent arm weakness, fatigue, signs of peripheral neuropathy, and palpitations. These symptoms persisted until her untimely death. Full autopsy analysis revealed no findings that might be linked to a potential cause of death. However, HPV-16 L1 gene DNA fragments were detected in the post-mortem blood and spleen tissue analysis. These were identical in sequence the fragments previously found in16 separate HPV vaccine vials. These 16 vials were from different vaccine lots and originated from different countries, including the U.S., Russia, Bulgaria and India, which indicates a widespread contamination process during HPV vaccine manufacture [12]. Moreover, these fragments detected in the HPV vaccine were bound to the aluminum adjuvant used in the vaccine formulation, which likely provided protection against endogenous nucleases [13]. This may be the explanation for their persistence in the blood over 6 months following injection. Interestingly, although the World Health Organization webpage specifically state that HPV vaccine is a highly purified vaccine and contain no DNA fragments [14-16], the findings of such DNA residuals in HPV vaccine vials [12], and in the tissues of the deceased vaccinated girl, show that the methods of purifications are not very efficient.

The HPV-16 L1 gene DNA fragments detected in the postmortem blood and splenic tissue in this case are presumably present in the nucleated cells, probably macrophages. It has been shown that the injection of free HPV-16 L1 plasmid DNA Intramuscularly in mice can activate the immune system by inducing a strong CD8 T cell response [17]. Furthermore, the presence of DNA fragments in macrophages may cause release of various cytokines, including tumor necrosis factor (TNF)- α [18], a recognized myocardial depressant [19] and marker for sudden cardiac death [20-22]. Interestingly, in a study of 8 cases of sudden infant deaths, all of occurred during sleep, Emura, *et al.* [22] found elevated levels of TNF- α and other pro-inflammatory cytokines in peripheral blood smear preparations that were significantly above normal thresholds. Because of this, Emura, *et al.* concluded that cytokine abnormality may be one of the underlying mechanisms in sudden infant death syndrome [22].

Molecular mimicry

In addition, there are other factors that might contribute to determine adverse cardiovascular events including sudden death following HPV vaccination. Kanduc [23] found a shared pattern between 34 pentamers from the HPV viral capsid protein and human protein. These proteins, when altered, have been shown to play a major role in arrhythmias, cardiovascular diseases and sudden death. For example, 9 out of the 34 viral pentamers belong to the human protein, Titin, a key component in the assembly and functioning of striated muscles. Defects in Titin may cause ventricular cardiomyopathy characterized by a high risk of cardiac failure and sudden cardiac death. Other significant matches include components of intercellular desmosome junctions such as plakophilin-2, desmoplakins, and desmocollin-2. Defects in these desmosomal proteins have been reported in arrhythmogenic right ventricular cardiomyopathy [24,25] which as mentioned above, has previously been linked to sudden cardiac death during sleep [26-28]. The voltage-dependent L-type calcium channel subunit alpha-1C has also been shown to match with the HPV-16 L1 sequence. This protein in known to be a altered in the Brugada syndrome, an important arrhythmogenic disorder associated with high-risk nocturnal arrhythmias [29,30].

Extending the peptide matching analyses to L1 proteins from the four strains (HPV 6, 11, 16, and 18) (Table 2), it emerges an even more impressive immunocrossreactive potential that specifically threatens the cardiac functions. Space precludes a detailed peptide-by-peptide discussion. Suffice to say that the peptide overlap between HPV L1 antigens and human Titin escalates to 41 pentapeptides (excluding multiple occurrences).

The cited investigation by Kanduc [23] and data from Table 2 confirm and extend previous reports describing a high level of homology between microbial antigens and the human proteome [31-34]. Furthermore, they suggest that possible immune cross-reactions deriving from utilization of HPV L1 proteins in current HPV vaccines might be a risk for cardiovascular events. A better understanding of potential antigen cross-reactivity, which at present is abysmally lacking, is necessary to minimise post-vaccination events [23].

Summary

The development of vaccines has proven to be a successful and cost-effective for global human health, and they present an essential part of preventive modern medicine.

It is obvious that vaccines are administered to millions of people worldwide, and that not everyone develops serious adverse manifestations. Hence, clearly there are some prior susceptibilities that make some people more at risk of experiencing an adverse reaction

Table 2. Peptide sharing between HPV L1 and human proteins that, when altered, are associated to sudden death

Peptide sequence	HPV strain	Human protein associated to sudden death
AGAVG	16	ACADM. Medium-chain specific acyl-CoA dehydrogenase, mitochondrial. ACADM defects associate with fasting hypoglycemia, hepatic dysfunction and encephalopathy, often resulting in death [39]
LGVGI GSSRL	16 18	ACADV. Very long-chain specific acyl-CoA dehydrogenase, mitochondrial. One major phenotype is a childhood form, with high mortality and high incidence of cardiomyopathy [40]
PGSCV	18	AKAP9. A-kinase anchor protein 9. AKAP9 defects may cause long QT syndrome, a heart disorder characterized by a prolonged QT interval and ventricular arrhythmias. They cause syncope and sudden death in response to exercise or emotional stress, and can present with a sentinel event of sudden cardiac death in infancy [41]
LCSIT	6,11	ANK2. Ankyrin-2. Involved in long QT syndrome, A heart disorder characterized by a prolonged QT interval on the ECG and polymorphic ventricular arrhythmias. They cause syncope and sudden death in response to exercise or emotional stress, and can present with a sentinel event of sudden cardiac death [42]
GTVCK LQAGL QAGLR	11 16 18	CAC1C. Voltage-dependent L-type calcium channel subunit alpha-1C. Defects in CAC1C are the cause of 1) Timothy syndrome, a disorder characterized by multiorgan dysfunction including lethal arrhythmia; 2) Brugada syndrome 3, characterized by the association of Brugada syndrome with shortened QT intervals. Ventricles beat so fast that the blood is prevented from circulating efficiently in the body. When this situation occurs, the individual will faint and may die in a few minutes if the heart is not reset [43, 44]
RPSDS	6, 11	CACB2. Voltage-dependent L-type calcium channel subunit beta-2. Involved in a heart disease characterized by the association of Brugada syndrome with shortened QT intervals. Ventricles beat so fast that the blood is prevented from circulating efficiently in the body and the individual will faint and may die in a few minutes [44, 45]
AGAVG NKFGL	16 18	CMC2. Calcium-binding mitochondrial carrier protein Aralar2. A form of citrullinemia characterized primarily by elevated serum and urine citrulline levels; characterized by neuropsychiatric symptoms including abnormal behaviors, loss of memory, seizures and coma. Death can result from brain edema [46]
SVTTS	6	CSRP3. Cysteine and glycine-rich protein 3. Associated with dilated and hypertrophic phenotypes of cardiomyopathy ventricular dilation and impaired systolic function, resulting in congestive heart failure and arrhythmia. Patients are at risk of premature death. The symptoms include dyspnea, syncope, collapse, palpitations, and chest pain. They can be readily provoked by exercise [47, 48]
SDVPI TKTKK STSET	6 11 16	ECHB. Trifunctional enzyme subunit beta, mitochondrial. Altered ECHB can lead to hypoglycemia, cardiomyopathy, sensorimotor axonopathy. Sudden infant death may occur. Most patients die from heart failure [49]
LQPPP; QPPPG	16	FEV. Protein FEV. Functions in the maintenance of the central serotonergic neurons. FEV defects associate with susceptibility to sudden infant death. Pathogenic mechanisms precipitating an infant sudden death remain elusive [50]
RVNVG; VNVGM VHTPS; HTPSG GVEVG LILHY	6,11 11 16 18	FLNC. Filamin-C. Hypertrophic ventricular cardiomyopathy. Symptoms include dyspnea, syncope, collapse, palpitations, and chest pain, that can be readily provoked by exercise. High risk of cardiac failure and sudden cardiac death [51]
PSTAP	11	GATA5. Transcription factor GATA-5. Involved in atrial fibrillation, characterized by disorganized atrial electrical activity and ineffective atrial contraction promoting blood stasis in the atria and reduces ventricular filling. It can result in palpitations, syncope, thromboembolic stroke, and congestive heart failure, arrhythmia. Patients are at risk of premature death [52]
RTSVG; TSVGS	6	JPH2. Junctophilin-2. JPH2 is necessary for proper intracellular Ca2+ signaling in cardiac myocytes via its involvement in ryanodine receptor-mediated calcium ion release. Involved in hypertrophic ventricular cardiomyopathy. Symptoms include dyspnea, syncope, collapse, palpitations, and chest pain, that can be readily provoked by exercise. High risk of cardiac failure and sudden cardiac death [53]
RVFRI RVFRV; PASPG	16 18	KCND3. Potassium voltage-gated channel subfamily D member 3.Involved in Brugada syndrome, a tachyarrhythmia that can cause the ventricles to beat so fast that the blood is prevented from circulating efficiently in the body. The individual will faint and may die in a few minutes if the heart is not reset [54]
GTLED KKRKL	6, 11, 16 16	MYH6. Myosin-6. Involved in hypertrophic ventricular cardiomyopathy; symptoms include dyspnea, syncope, collapse, palpitations, and chest pain. They can be readily provoked by exercise. High risk of cardiac failure and sudden cardiac death [55]
GTLED KKRKL	6, 11,16 16	MYH7. Myosin-7. Associated with hypertrophic ventricular cardiomyopath. The symptoms include dyspnea, syncope, collapse, palpitations, and chest pain; high risk of cardiac failure and sudden cardiac death [56]
GTLED EKEKQ	6, 11,16 11	MYH7B. Myosin-7B. Associated with left ventricular noncompaction.
VGEPV	6, 11	MYPC3. Myosin-binding protein C, cardiac-type. Involved in ventricular cardiomyopathy.Symptoms are: dyspnea, syncope, collapse, palpitations, and chest pain. They can be provoked by exercise. Risk of cardiac failure and sudden cardiac death [57]
VTTSS KVSGL PPTTS; RSAPS; TTSSK	6 16 18	MYPN. Myopalladin. Component of the sarcomere that tethers together nebulin (skeletal muscle) and nebulette (cardiac muscle) to alpha-actinin, at the Z lines [58]
LPPPS	18	NU155. Nuclear pore complex protein Nup155. Involved in atrial fibrillation, a common sustained cardiac rhythm disturbance. Atrial fibrillation is characterized by disorganized atrial electrical activity and ineffective atrial contraction promoting blood stasis in the atria and reduces ventricular filling. It can result in palpitations, syncope, thromboembolic stroke, and congestive heart failure [59]
MFARH	6, 11	RN207. RING finger protein 207. Plays a role in cardiac repolarization possibly by stabilizing membrane expression of the potassium channel KCNH2/HERG [60]
KVVLP	6 11	RYR2. Ryanodine receptor 2. Calcium channel that mediates the release of Ca2+ and thereby plays a key role in triggering cardiac muscle contraction. Involved in arrhythmogenic right ventricular dysplasia; and in ventricular tachycardia, that may degenerate into cardiac arrest and cause sudden death [61, 62]
GLQPP	16	RYR1. Ryanodine receptor 1. Plays a key role in triggering muscle contraction following depolarization of T-tubules. Associated with malignant hyperthermia, accelerated muscle metabolism, contractures, metabolic acidosis, tachycardia and death [63]
PEKEK; EKEKQ KLDDT	6, 11 11 16, 18	SCN8A. Sodium channel protein type 8 subunit alpha. SCN8A alterations may associate with early-onset seizures, features of autism, intellectual disability, ataxia, and sudden unexplained death in epilepsy [64].

GRSSI; KRANK; RANKT; RSSIR;SDVPI; VGSSI; VSKAS GEPVP; KSDVP; KTVVP; PSDST; SITLS; TVVPK; VENSG; VGEPV;VVDTT; VVPKV; YQYRV KVNKT; NRSSV; SKSAT; SVSKS; VSKPS DTTRS HVEEY AGLKA; KKYTF; KVSGL PPAPK SEVPL; STANL STILE; TSRLL; VGENV VVDTT GLPDT; LELKN; NKFGL; PPPTT;YQYRV; VPPPP	6 6,11 11 6,11,16 6,18 16 16,18 18	TITIN. Titin. Key component in the assembly and functioning of vertebrate striated muscles. Defects in Titin may cause ventricular cardiomyopathy characterized by a high risk of cardiac failure and sudden cardiac death [65]
EKEKP	6	TRDN. Triadin. Involved in excitation-contraction coupling in the heart and in regulating the rate of heart beats. Involved in ventricular tachycardia that may degenerate into cardiac arrest and cause sudden death. Patients present with recurrent syncope, or sudden death after physical activity or emotional stress [66]
TLEDT PGGTL	6,11,16 16	TRPM4. Transient receptor potential cation channel subfamily M member 4. Involved in atrio-ventricular block causing syncope and sudden death [67]
NPYFR	18	TSYL1. Testis-specific Y-encoded-like protein 1. Involved in sudden infant death with dysgenesis of the testes syndrome. Features included bradycardia, hypothermia, severe gastroesophageal reflux, laryngospasm, bronchospasm, and abnormal cardiorespiratory patterns during sleep [68]

to vaccination than others. Among these are genetic factors, personal and familial history of relevant symptoms, hypersensitivity and a prior adverse response to vaccination [35,36]. These factors should be routinely addressed, in order to identify the patients who might be prone to vaccine associated adverse events and give them the best possible care.

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Review

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Will HPV vaccination prevent cervical cancer?

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Summary

We conducted a critical appraisal of published Phase 2 and 3 efficacy trials in relation to the prevention of cervical cancer in women. Our analysis shows the trials themselves generated significant uncertainties undermining claims of efficacy in these data. There were 12 randomised control trials (RCTs) of Cervarix and Gardasil. The trial populations did not reflect vaccination target groups due to differences in age and restrictive trial inclusion criteria. The use of composite and distant surrogate outcomes makes it impossible to determine effects on clinically significant outcomes. It is still uncertain whether human papillomavirus (HPV) vaccination prevents cervical cancer as trials were not designed to detect this outcome, which takes decades to develop. Although there is evidence that vaccination prevents cervical intraepithelial neoplasia grade 1 (CIN1) this is not a clinically important outcome (no treatment is given). Trials used composite surrogate outcomes which included CIN1. High efficacy against CIN1+ (CIN1, 2, 3 and adenocarcinoma in situ (AIS)) does not necessarily mean high efficacy against CIN3+ (CIN3 and AIS), which occurs much less frequently. There are too few data to clearly conclude that HPV vaccine prevents CIN3+. CIN in general is likely to have been overdiagnosed in the trials because cervical cytology was conducted at intervals of 6–12 months rather than at the normal screening interval of 36 months. This means that the trials may have overestimated the efficacy of the vaccine as some of the lesions would have regressed spontaneously. Many trials diagnosed persistent infection on the basis of frequent testing at short intervals, i.e. less than six months. There is uncertainty as to whether detected infections would clear or persist and lead to cervical changes.

Keywords

Vaccination programmes, cervical cancer

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The human papillomavirus (HPV) vaccination programme aims to prevent cervical cancer. Globally around 13.1/100,000 women are diagnosed with cervical cancer each year.[2] Typically, vaccination is offered to girls aged 9–13 years before sexual debut and naïve to HPV infection. Box 1 gives an overview of licensing and indications in Europe and the US.

Public health agencies promote the position that the vaccine has been shown to prevent cervical cancer (see Supplement 1). Not all routinely emphasise the limitations of the evidence or the uncertainties which we will discuss.

Background

A key issue for the design of trials and studies of efficacy is the complexity of the epidemiology of the HPV subtypes and the lesions used as surrogate endpoints for cervical cancer, each with their own different natural histories, prevalence and incidence and strength of association with cancer. These measures, especially if combined as composite surrogate endpoints in trials, generate new uncertainties.

i) HPV infection

There are 100+ types of the HPV: 12 of which are carcinogenic to humans, according to the International Association of Cancer Research (IARC).[4] Types vary in prevalence, as does their association with cervical cancer. HPV vaccines are licensed for use against oncogenic HPV types 16 and 18 and now 31, 33, 45, 52, 58 in Gardasil-9. Gardasil and Gardasil-9 are also licensed against non-oncogenic types 6 and 11 linked to genital warts.

The lifetime risk of an incident of HPV infection is 79%;[5] the majority of HPV infections are transient and 67% clear within one year.[6] Around 10% of women without CIN have HPV infection at any one time.[7] The mechanism of progression from HPV infection to cervical cancer and its precursors is not well understood.[4,8–11]

ii) Cervical cancer and pre-cancerous lesions as surrogate endpoints

New Concerns about the Human Papillomavirus Vaccine

American College of Pediatricians – January 2016

The American College of Pediatricians (The College) is committed to the health and well-being of children, including prevention of disease by vaccines. It has recently come to the attention of the College that one of the recommended vaccines could possibly be associated with the very rare but serious condition of premature ovarian failure (POF), also known as premature menopause. There have been two case report series (3 cases each) published since 2013 in which post-menarcheal adolescent girls developed laboratory documented POF within weeks to several years of receiving Gardasil, a four-strain human papillomavirus vaccine (HPV4).[1,2] Adverse events that occur after vaccines are frequently not caused by the vaccine and there has not been a noticeable rise in POF cases in the last 9 years since HPV4 vaccine has been widely used.

Nevertheless there are legitimate concerns that should be addressed: (1) long-term ovarian function was not assessed in either the original rat safety studies[3,4] or in the human vaccine trials, (2) most primary care physicians are probably unaware of a possible association between HPV4 and POF and may not consider reporting POF cases or prolonged amenorrhea (missing menstrual periods) to the Vaccine Adverse Event Reporting System (VAERS), (3) potential mechanisms of action have been postulated based on autoimmune associations with the aluminum adjuvant used[1] and previously documented ovarian toxicity in rats from another component, polysorbate 80,[2] and (4) since licensure of Gardasil® in 2006, there have been about 213 VAERS reports (per the publicly available CDC WONDER VAERS database) involving amenorrhea, POF or premature menopause, 88% of which have been associated with Gardasil.[5] The two-strain HPV2, Cervarix™, was licensed late in 2009 and accounts for 4.7 % of VAERS amenorrhea reports since 2006, and 8.5% of those reports from February 2010 through May 2015. This compares to the pre-HPV vaccine period from 1990 to 2006 during which no cases of POF or premature menopause and 32 cases of amenorrhea were reported to VAERS.

Many adolescent females are vaccinated with influenza, meningococcal, and tetanus vaccines without getting Gardasil®, and yet only 5.6% of reports related to ovarian dysfunction since 2006 are associated with such vaccines in the absence of simultaneous Gardasil administration. The overwhelming majority (76%) of VAERS reports since 2006 with ovarian failure, premature menopause, and/or amenorrhea are associated *solely* with Gardasil®. When VAERS reports since 2006 are restricted to cases in which amenorrhea occurred for at least 4 months and is not associated with other known causes like polycystic ovary syndrome or pregnancy, 86/89 cases are associated with Gardasil, 3/89 with Cervarix™, and 0/89 with other vaccines administered independently of an HPV vaccine.[5] Using the same criteria, there are only 7 reports of amenorrhea from 1990 through 2005 and no more than 2 of those associated with any one vaccine type.

Few other vaccines besides Gardasil® that are administered in adolescence contain polysorbate 80.[6] Pre-licensure safety trials for Gardasil used placebo that contained polysorbate 80 as well as aluminum adjuvant.[2,7] Therefore, if such ingredients could cause ovarian dysfunction, an increase in amenorrhea probably would not have been detected in the placebo controlled trials. Furthermore, a large number of girls in the original trials were taking hormonal contraceptives which can mask ovarian dysfunction

including amenorrhea and ovarian failure.[2] Thus a causal relationship between human papillomavirus vaccines (if not Gardasil® specifically) and ovarian dysfunction cannot be ruled out at this time.

Numerous Gardasil safety studies, including one released recently,[8] have looked at demyelinating and autoimmune diseases and have not found any significant problems. Unfortunately, none of them except clinical safety pre-licensure studies totaling 11,778 vaccinees[9] specifically addressed post-vaccination ovarian dysfunction. While data from those studies do not indicate an increased rate of amenorrhea after vaccination, the essential lack of saline placebos and the majority of participants taking hormonal contraceptives in those studies preclude meaningful data to rule out an effect on ovarian function.

A Vaccine Safety Datalink POF study is planned to address an association between these vaccines and POF, but it may be years before results will be determined. Plus, POF within a few years of vaccination could be the tip of the iceberg since ovarian dysfunction manifested by months of amenorrhea may later progress to POF. Meanwhile, the author of this statement has contacted the maker of Gardasil®, the Advisory Committee on Immunization Practices (ACIP), and the Food and Drug Administration (FDA) to make known the above concerns and request that (1) more rat studies be done to look at long-term ovarian function after HPV4 injections, (2) the 89 VAERS reports identified with at least 4 months amenorrhea be reviewed by the CDC for further clarification since the publicly available WONDER VAERS database only contains initial reports, and (3) primary care providers be notified of a possible association between HPV and amenorrhea. A U.S. Government Representative responded that they "will continue to conduct studies and monitor the safety of HPV vaccines. Should the weight of the evidence from VAERS or VSD and other sources indicate a likely causal association between POF and HPV vaccines, appropriate action will be taken in terms of communication and public health response."

The College is posting this statement so that individuals considering the use of human papillomavirus vaccines could be made aware of these concerns pending further action by the regulatory agencies and manufacturers. While there is no strong evidence of a causal relationship between HPV4 and ovarian dysfunction, this information should be public knowledge for physicians and patients considering these vaccines.

Primary author: Scott S. Field, MD
January 2016

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Sin Hang Lee, MD
Milford Hospital

The Truth About HPV

The vaccine that so many people now are talking about may not be necessary to prevent cervical cancer.

Each year in the US, 55 million women receive a Pap test to check for abnormal cells that might be an early sign of cervical cancer. Of these, 3.5 million tests show abnormalities that require medical follow-up, and about 12,000 women are diagnosed as having cervical cancer.

Recent development: Since 2006, when the pharmaceutical company Merck began TV and print advertisements for Gardasil, a vaccine against the mainly sexually transmitted *human papillomavirus* (HPV), which is present in up to 99% of cervical cancer cases, many women have been increasingly confused about their real risks for the disease and what role a vaccine may play in preventing it.

Gardasil is also FDA-approved for preventing certain vulvar and vaginal cancers in females and for preventing genital warts in males and females. It was recently approved to prevent anal cancer in males and females. Cervarix, another HPV vaccine, was approved by the FDA in 2009.

For the facts that every woman should know about HPV and cervical cancer, *Bottom Line/Health* spoke with renowned HPV expert Sin Hang Lee, MD, a pathologist who has studied cervical cancer for more than 50 years and trained in the laboratory of Dr. Georgios Papanicolaou, the scientist who developed the "Pap" test (formerly called the "Pap smear") to detect cervical cancer. *His most important insights…*

FACT 1: There is no cervical cancer crisis. Thanks to regular use of the Pap test, the incidence of cervical cancer has been dramatically reduced. Of the Pap tests performed annually in the US, only about 0.02% result in a diagnosis of cervical cancer when a biopsy is performed.

If all women got annual Pap tests—and the tests were analyzed properly (not all HPV tests distinguish between benign HPV strains, or genotypes, and those that may cause cancer)—death from cervical cancer would be extremely rare. The disease is highly preventable if lesions are detected in a precancerous stage. *Note:* The American College of Obstetricians and Gynecologists (ACOG) revised its recommendations for Pap tests in 2009. For women ages 21 to 30 without symptoms or risk factors, the ACOG recommends the test every two years…and every three years for women age 30 and older and who had three consecutive normal tests. Discuss the frequency of your Pap tests with your doctor.

FACT 2: The concern over HPV infection is overblown. While HPV can cause cervical cancer, the story

Bottom Line/Health interviewed Sin Hang Lee, MD, a pathologist at Milford Hospital and director of Milford Medical Laboratory (a subsidiary of the hospital that provides comprehensive testing), both in Milford, Connecticut. Dr. Lee is an internationally recognized expert in the area of human papilloma virus and has developed a DNA sequencing test to identify specific HPV genotypes.

is more nuanced than people are led to believe from public service announcements and vaccine ads.

There are about 200 known genotypes of HPV, but only 13 are considered "high risk" for causing cervical cancer—HPV-16, 18, 31, 33, 35, 39, 45, 51, 52, 56, 58, 59 and 68. Of these, HPV-16 and HPV-18 are believed to cause 70% of all cervical cancers. That means that you can have any of the 187 other genotypes without having an increased risk of developing cervical cancer. The prevalence of high-risk genotypes varies world-wide and depends in part on a woman's level of sexual activity. *Important:* Nearly all cases of genital warts are caused by two low-risk genotypes, HPV-6 and HPV-11. This means that warts you can see and feel are annoying but usually not dangerous.

Even better news: Even though there is no treatment for HPV infection, women's immune systems are typically effective at fighting HPV. More than 90% of HPV infections disappear on their own and do not progress to precancerous stages or cancer. In fact, the average HPV infection lasts only about six months. This means that a woman who receives testing when the infection is active may be HPV-negative within a matter of months.

The women who should be most concerned about cervical cancer are those infected with a high-risk genotype and in which the infection is *persistent* (lasting more than six months). Women typically undergo repeat testing every six months until the infection clears, and a biopsy may be recommended if an infection of the same genotype persists while the Pap test is still abnormal or questionable.

FACT 3: HPV vaccines don't guarantee cancer prevention. Gardasil prevents infection with four genotypes—the high-risk HPV-16 and HPV-18 and the low-risk-for-cancer, genital wart–causing HPV-6 and HPV-11. (Cervarix prevents only HPV-16 and HPV-18.)

Some women consider it useful to be protected against two of the 13

cancer-causing genotypes. However, most women are unaware that there is no evidence showing how long the vaccine will remain effective.

Important: I recommend that women who want to get the HPV vaccine ask their gynecologists to make sure that they are not already infected with HPV 16 or HPV 18. There is some evidence that women who get the vaccine when they are infected with HPV—especially HPV-16 and HPV-18—have an *increased* risk of developing cervical cancer.

Reported side effects of the Gardasil and Cervarix vaccines include temporary pain and swelling at the injection site and headache. As of September 2010, the CDC reported 30 confirmed deaths of females who received Gardasil, though it is not proven that the vaccine caused these deaths. The agency did not publish data on reported deaths from Cervarix.

FACT 4: Not all HPV testing is adequate. Historically, HPV tests have not distinguished between benign and specific cancer-causing genotypes. Newer HPV tests, including Cervista HPV HR, are designed to detect when any of the 13 cancer-causing genotypes or the intermediate-risk genotype HPV-66 is present, but it does not identify the specific genotype. To identify the specific HPV genotype—with virtually no risk for false-positive results or misidentification—physicians can request a *DNA sequencing test*. This test is available from the nonprofit organization SaneVax, Inc., *www.SaneVax.org*. The cost is $50.

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Position: UNF

SB355: Health Occupations - Pharmacists - Administration of Vaccinations
Azara Turaki
Oppose

I am writing to strongly oppose HB530/SB355.

I believe that children and even young adults at the age of 16 are not able to navigate their health issues. The best path for health is when parents and doctors are working for the benefit of a child. In addition, both doctors and parents have better knowledge of a child's history including the exact vaccines that have been taken.

In addition, families must be allowed to raise their children within their own tradition which may include not promoting sexually transmitted vaccines like HPV.

One additional concern that I see is the pharmacy incentives that are in place in many stores for the flu vaccine already. I do believe that there will be inappropriate incentives for young people to take vaccines like free gift cards for a vaccine. What if a child goes from pharmacy to pharmacy getting the vaccine just for a free gift but not understanding the health effects?

I am opposed to this bill and I urge the entire committee to withdraw it.

Sincerely,

Azara Turaki

Silver Spring MD

Peggy Williams_UNF_SB0355
Uploaded by: Williams, Peggy
Position: UNF

Peggy Williams (ppfftt@hotmail.com) February 13, 2020

Testimony – OPPOSE SB355

SB355 (Health Occupations-Pharmacists-Administration of Vaccines)

Bill allows all CDC-recommended vaccines to 9-yr olds, to be administrated by a pharmacist.

Pharmacist will not know child's medical history.

Should we assume parental consent is required in this bill? This is unclear.

The bill removes the need to have a physician's prescription, removes physician input.

This bill is really about the HPV vaccine (Gardasil 9).

HPV vaccine puts children at risk. Other countries have removed HPV vaccines due to safety concerns. https://www.judicialwatch.org/corruption-chronicles/japan-halts-hpv-shot-for-girls-over-safety-issues/ https://sanevax.org/gardasil-international-scandal/

Vaccines are liability-free products. https://journalofethics.ama-assn.org/article/national-childhood-vaccine-injury-act-and-supreme-courts-interpretation/2012-01

Gardasil 9 was not tested against a true saline placebo, trials were flawed https://childrenshealthdefense.org/news/25-reasons-to-avoid-the-gardasil-vaccine/ https://www.merck.com/product/usa/pi_circulars/g/gardasil_9/gardasil_9_pi.pdf

It has never been proven to prevent a single case of any kind of cancer https://journals.sagepub.com/doi/10.1177/0141076819899308?fbclid=IwAR26ClsL2lLH3AH_izogy4SNDUP1hvoOVoGa5n9p-x2BQbQUpzFVUzKKAcA

HPV vaccination can lead to cervical cancer (44.6% negative efficacy, or increased risk) https://www.esculape.com/gynecologie/imagegyneco/gardasil-table%2017.gif

The age of occurrence for HPV-related cancers is age 50 and older https://www.cdc.gov/cancer/hpv/statistics/age.htm

Peggy Williams (ppfftt@hotmail.com) February 13, 2020

Testimony – OPPOSE SB355

CDC: More than 90% of new HPV infections, including those caused by high-risk HPV types, clear or become undetectable within 2 years.
https://www.cdc.gov/vaccines/pubs/surv-manual/chpt05-hpv.html

Once a minor turns 18, they can make their own decision to get this vaccine. Please oppose SB355.